

Non-Registered Embedded Generation Register



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Dec 2016



1. Introduction

In accordance with clause 5A.D.1A of the NER, a register of completed non-registered embedded generator projects between 30kW and 5MW in capacity is required to be published by the DNSP. Chapter 5A of the NER came into effect in Victoria on the 1st July 2016. The register update is aligned with the DAPR review period in accordance with NER clause 5A.D.1A (d).

2. NER Information Requirements

As per the NER requirement in clause 5A.D.1A (c), the following information must be published:

- Technology of generating unit (e.g. synchronous generating unit, induction generator, photovoltaic array, etc) and its make and model;
- Maximum power generation capacity of all embedded generating units comprised in the relevant generating system;
- Contribution to fault levels;
- The size and rating of the relevant transformer;
- Protection systems and communication systems;
- A single line diagram of the connection arrangement;
- Voltage control, power factor control and/or reactive power capability (where relevant);
- Details specific to the location of a facility connected to the network that are relevant to any of the details above.

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3. Register

Project Number	Suburb	Voltage at Connection Point	Technology of Generating Unit (eg solar photovoltaic array)	Generating Unit (make and model)	Maximum power generation capacity of all embedded generating units comprised in the relevant generating system (kW)	Contribution to fault level (kA) (Note 1)	Rating of relevant transformer (kVA)	Protection Systems and Communication Systems (Section 4)	SLD of connection arrangement (Section 5)	Voltage control, power factor control and/or reactive power capability (where relevant)	Details specific to the location of a facility connected to the network that are relevant to any of the details in the register
1	Moorabbin	LV	Solar Photovoltaic Array	Fronius Symo 17.5-3-M Fronius Symo 15.0-3-M	32.5	0.07	500	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
2	Clayton	LV	Solar Photovoltaic Array	Fronius Symo 20.0-3-M Fronius Eco-25.0-3-S x 2	70	0.15	750	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
3	Scoresby	LV	Solar Photovoltaic Array	ABB Trio 27.6 ABB Trio 20.0	47.6	0.10	750	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
4	Keysborough	LV	Solar Photovoltaic Array	Fronius Symo 10.0-3-M x 1 Fronius Symo 20.0-3-M x 2 Fronius Agilo 100.0-3 x 1	150	0.32	2000	Level 4	Type 2	Must be within Distribution Code limits	Export to grid
5	Doncaster	LV	Solar Photovoltaic Array	SMA Sunny Tripower 25000TL x 3 SMA SunnyBoy 1700TL x 3 SMA SunnyBoy 1200TL x 1	81.3	0.18	500	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
6	Dandenong South	LV	Solar Photovoltaic Array	ABB Trio 27.6-TL-OUTD-400 ABB Trio 20.0-TL-OUTD-400	47.6	0.10	500	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
7	Carnegie	LV	Solar Photovoltaic Array	SMA Tripower 25000TL-30 x 3	75	0.16	1000	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
8	Dandenong South	LV	Solar Photovoltaic Array	Fronius Symo 20.0-3-M x 3	60	0.13	500	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
9	Dandenong	LV	Solar Photovoltaic Array	Enphase M250 x 200	50	0.11	1000	Level 3	Type 2	Must be within Distribution Code limits	Export to grid
10	Braeside	LV	Solar Photovoltaic Array	SMA Sunny Tripower 25000TL x 3	75	0.16	500	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
11	Bentleigh East	LV	Solar Photovoltaic Array	Shanghai Surpass SSE SPS 250 KTL-B x 4	100	0.22	1000	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
12	Caulfield South	LV	Solar Photovoltaic Array	Shanghai Surpass SSE SPS 30 KTL-B Shanghai Surpass SSE SPS 20 KTL-B	50	0.11	1000	Level 1	Type 1	Must be within Distribution Code limits	Export to grid

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13	Braeside	LV	Solar Photovoltaic Array	SMA STP 20000TL Zeversolar Pro Zevelution Pro 33K	50	0.11	315	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
14	Braeside	LV	Solar Photovoltaic Array	Fronius Eco-25.0-3-S x 3	75	0.16	500	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
15	Brighton East	LV	Solar Photovoltaic Array	Fronius Eco 25.0-3-S x 4	100	0.22	1500	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
16	Bangholme	LV	Solar Photovoltaic Array	Fronius Eco-25.0-3-S x 4	100	0.22	315	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
17	Seaford	LV	Solar Photovoltaic Array	Fronius Symo-20.0-3-M x 1 Fronius Eco-25.0-3-S x 2	70	0.15	1000	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
18	Cheltenham	LV	Solar Photovoltaic Array	Fronius Symo 15.0-3-M x 1 Fronius Eco 27.0-3-S x 8	231	0.50	1000	Level 4 + Reverse Power (32)	Type 2	Must be within Distribution Code limits	Export limited - 100kW
19	Dandenong	LV	Solar Photovoltaic Array	Fronius Eco 27.0-3-S x 1 Fronius Symo 20.0-3-M x 1 Fronius Symo 10.0-3-M x 1 Fronius Eco 25.0-3-S x 1	82	0.18	1000	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
20	Dandenong South	LV	Solar Photovoltaic Array	Fronius Eco 27.0-3-S x 4 Fronius Eco 15.0-3-M x 1	123	0.27	500	Level 4	Type 2	Must be within Distribution Code limits	Export to grid
21	Glen Waverley	LV	Solar Photovoltaic Array	Fronius Symo 10.0-3-M x 1 Fronius Eco 27.0-3-S x 3	91	0.20	300	Level 2	Type 1	Must be within Distribution Code limits	Export to grid
22	Bangholme	LV	Solar Photovoltaic Array	Fronius Symo 20.0-3-M x 2	40	0.09	200	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
23	Carrum Downs	LV	Solar Photovoltaic Array	Goodwe GW20K-DT x 2	40	0.09	500	Level 1	Type 1	Must be within Distribution Code limits	Export to grid
24	Nunawading	LV	Solar Photovoltaic Array	SMA STP 25000TL x 2	50	0.11	2000	Level 5	Type 2	Must be within Distribution Code limits	Export to grid
25	St Kilda	LV	Solar Photovoltaic Array	Solar Edge SE25k-AUS x 6	150	0.32	1500	Level 4	Type 2	Must be within Distribution Code limits	Export to grid

Note 1 – Fault level contribution factor of 1.5 used for Inverters

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4. Protection Schemes and Requirements

	Inverter Protection	Secondary Protection Relay
Level 1	Overvoltage	No Relay
	Undervoltage	
	Overfrequency	
	Underfrequency	
Level 2	Fast Overvoltage	No Relay
	Overvoltage	
	Fast Undervoltage	
	Undervoltage	
	Average Overvoltage	
	Overfrequency	
	Underfrequency	
Level 3	Overvoltage	Overvoltage
	Undervoltage	Undervoltage
	Overfrequency	Overfrequency
	Underfrequency	Underfrequency
		ROCOF
		Vector Shift
		Current Unbalance
		Negative Sequence Voltage

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	Inverter Protection	Secondary Protection Relay
Level 4	Fast Overvoltage	Overvoltage
	Overvoltage	Undervoltage
	Fast Undervoltage	Overfrequency
	Undervoltage	Underfrequency
	Average Overvoltage	ROCOF
	Overfrequency	Vector Shift
	Underfrequency	Current Unbalance
		Negative Sequence Voltage
Level 5	Overvoltage	Overvoltage
	Undervoltage	Undervoltage
	Overfrequency	Overfrequency
	Underfrequency	Underfrequency
		ROCOF
		Vector Shift

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5. Single Line Diagrams

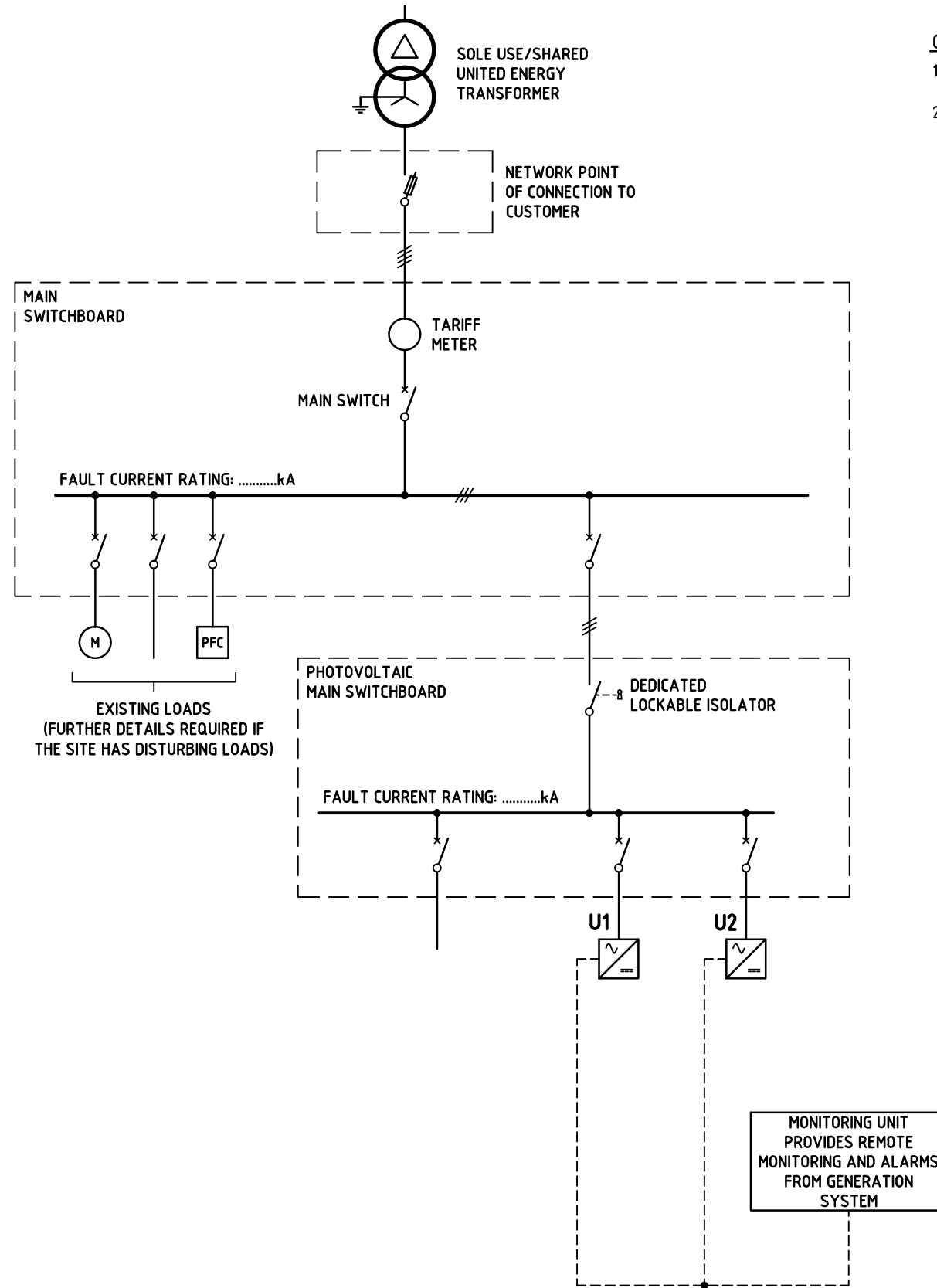
NOTES

1. INSTALLATION IS TO BE COMPLIANT WITH AS3000, AS5033, THE VICTORIAN SERVICE AND INSTALLATION RULES (SIR) AND ALL OTHER APPLICABLE STANDARDS.

EQUIPMENT SCHEDULE	
U1	GENERATION TYPE:
	INVERTER MODEL:
	INVERTER CAPACITY: kW
U2	GENERATION TYPE:
	INVERTER MODEL:
	INVERTER CAPACITY: kW

GENERAL DESIGN CONSIDERATIONS

1. THE GENERATOR SYSTEM AND PROTECTION SHALL BE DESIGNED TO BE FAILSAFE.
2. EARTHING MUST COMPLY WITH AS3000, AS5033, AS4777 AND THE VICTORIAN SERVICE AND INSTALLATION RULES (SIR).



LEGEND

- MOTOR
- POWER FACTOR CORRECTION
- INVERTER

REFERENCE DRAWINGS	DRAWING NUMBER
-	-
-	-
-	-
-	-
-	-
-	-
DESCRIPTION	DRAWING NUMBER

REVISIONS	NO.	DESCRIPTION	DATE	BY	CHECKED

DRAWN	-
DESIGN CHECKED	-
APPROVED	-

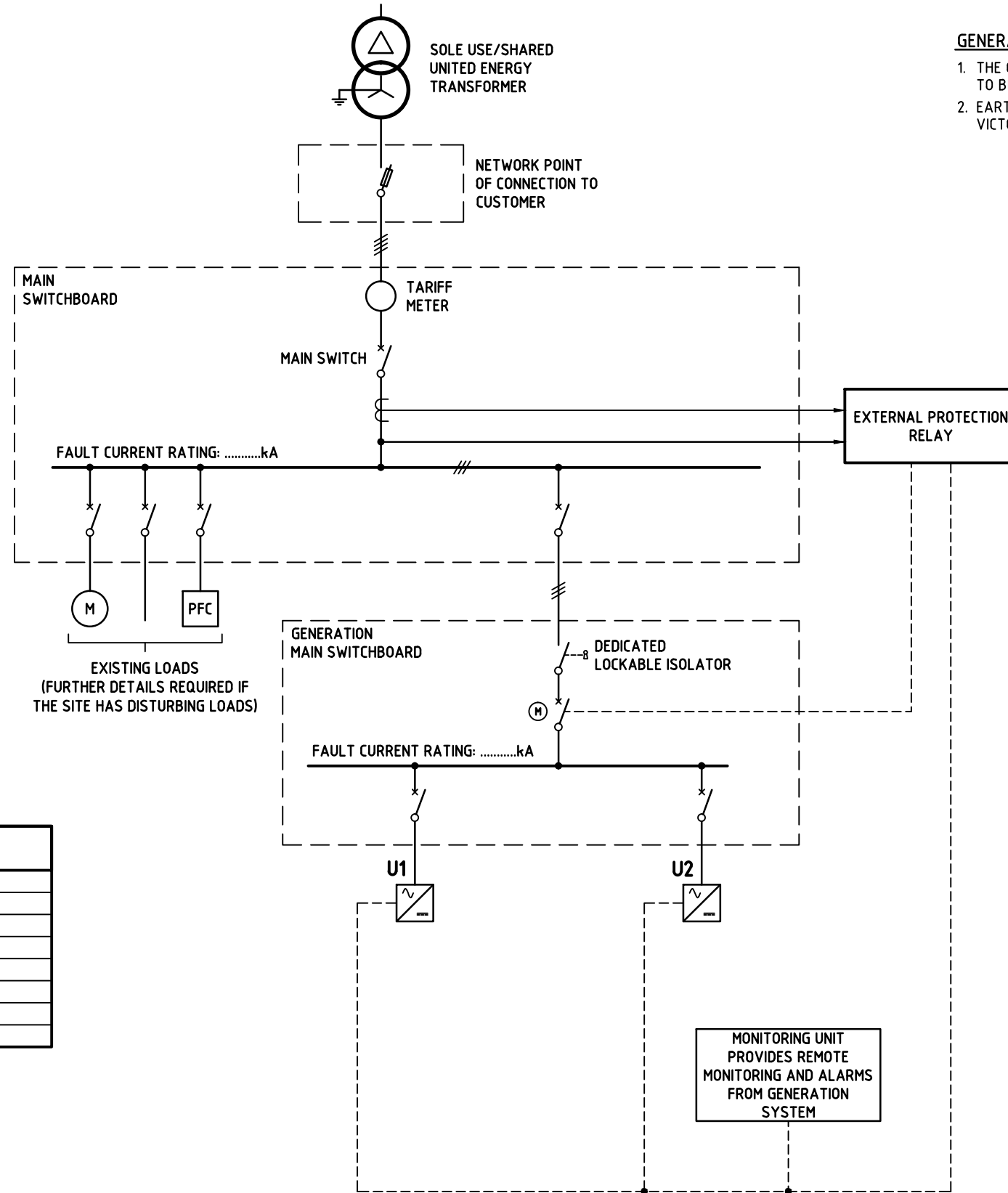
DRG No.	TYPE 1 SLD	-
NEW GENERATION		
		A2

NOTES

1. INSTALLATION IS TO BE COMPLIANT WITH AS3000, AS5033, THE VICTORIAN SERVICE AND INSTALLATION RULES (SIR) AND ALL OTHER APPLICABLE STANDARDS.

GENERAL DESIGN CONSIDERATIONS

1. THE GENERATOR SYSTEM AND PROTECTION SHALL BE DESIGNED TO BE FAILSAFE.
2. EARTHING MUST COMPLY WITH AS3000, AS5033, AS4777 AND THE VICTORIAN SERVICE AND INSTALLATION RULES (SIR).



LEGEND

- MOTOR
- POWER FACTOR CORRECTION
- INVERTER

EQUIPMENT SCHEDULE	
U1	GENERATION TYPE:
	INVERTER MODEL:
	INVERTER CAPACITY: kW
U2	GENERATION TYPE:
	INVERTER MODEL:
	INVERTER CAPACITY: kW

REFERENCE DRAWINGS	-	-	REVISIONS	-	DRAWN	-	DRG No. TYPE 2 SLD	-		
	-	-		-		-		DESIGN CHECKED	-	NEW GENERATION
	-	-		-		-		APPROVED	-	
	DESCRIPTION	DRAWING NUMBER								