
COMMON LOGIC PTY LTD

ACN. 011 029 262

Electrical Contractors

Contract No: BW.60095-05/06
PS147 Sugarmill St

Electrical Manual

ISSUE NO 1
AS BUILT
15/11/2006

Unit 9/58 Wecker Road, Mansfield, Queensland 4122
Telephone (07) 3849 7449 Fax (07) 3343 5210
JH86

JH86Mj05

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors
Electrical Manual

Subject: Sugarmill St SP147

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Of: 10Section
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Specialist Electrical Contractors

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1.0 GENERAL

The following document describes the operation of the switchgear and relays installed into the change over switchgear cubicle.

The document does NOT describe the detailed operation of the generator PLC or the operation of the pump starters on the site.

The generator is a plug in device and can be removed from site by BW at their discretion.

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2.0**OPERATIONAL DESCRIPTION**

There are four components to the system. These are the Generator, RTU, Pump MCC, and the Generator change over switchgear. The last component will be described within this document in detail. The remaining devices will be described in the BW manual.

2.1**GENERATOR**

The generator and associated PLC controls all automatic aspects of the change over switchgear, in affect making the basic transfer switch into an Automatic Transfer switch (ATS). The ATS will only operate if the generator PLC is fully operational.

The operation of the ATS is NOT fail safe and will NOT return to a predetermined condition on failure of the generator PLC or associated wiring.

The transfer switch is a solenoid operated load break switch. The switch has Two positions only being "A" Mains and "B" Generator. There is NO "OFF" position.

Mains fail timing and return to mains timing is all controlled within the generator PLC.

2.2**RTU**

The RTU monitors several generator alarm conditions and will report these conditions to the system as required.

The RTU can remotely start and stop the generator. The remote start will initiate a change over of the station to the generator. Stopping the generator will initiate a return to mains if available.

2.3**PUMP STARTER MCC**

The pump starter MCC automatically starts and stops the pumps on demand determined by the wet well levels.

The starter has not been modified in any way to accommodate the generator ATS with the exception of the re-routing of the sub-mains cabling.

2.3.1.**MCC MAIN SWITCH**

The Main Switch in all cases refers to the Energex supply point of isolation.

The existing main switch in the pump starter MCC, when labelled as the "Main Switch", will isolate the incoming Energex Mains Supply.

For complete isolation of the switchboards where an automatic generator system is supplied the generator must also be isolated.

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This must be carried out at the generator CB in the generator canopy as well as switching the control to the "OFF" position.

2.3.2. MAINS AVAILABLE INDICATOR

The mains available indicator mounted on the common control escutcheon is supplied by 24VDC originating from the RTU control supply.
The signal will be "ON" when the mains are healthy.

The mains available relay does indicate availability and correct rotation after 10 seconds.

2.3.3. MAINS FAIL IN MCC

The mains fail relay in the MCC is the device that assures the system has the correct rotation and supply available for the pumps to operate.
When re-connecting the generator to a site it is necessary to check the generator voltage rotation is also correct.

2.3.4. GENERATOR RUNNING.

The generator running indicator is supplied by 24VDC originating from the RTU control supply.
The indicator will be "ON" when the generator is running as determined by the generator PLC. IE GRR relay is on.

2.4 ATS CUBICLE

The ATS cubicle comprises sections as described below.

2.4.1. GENERATOR INTERFACE

The generator interface is via a Clipsal 27 Pin plug and socket.
The multicore cable is connected core 1 to pin 1 and 2-2 etc.
The Multicore cable is labelled wire No. G01 for core 1 to pin 1 and No.G02 –Core2- Pin2 etc.
This enables simple and quick reference to all wiring between the plug and the hardware within the ATS cubicle.
All signals received from the generator are arranged to switch a relay powered from the generator 24VDC system.
The exceptio to this is the "Generator Not On Site" signal, which wires directly to the RTU via the interface terminals.

All control signals to the Generator are via clean contacts. Both sides of the contact are issued to the generator. These contacts switch relays in the generator panel and are powered via the generator 24VDC system.

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2.4.2. RTU INTERFACE

The RTU interface is via a hard wired loom or multicore cable and terminals. The Loom cable is numbered with the terminal RTU IO numbers. The RTU connections are different for each site and may also have different polarities for each site according to the site hardware.

All signals received from the RTU are arranged to switch a relay powered from the RTU 24VDC system. IE Remote Exercise Generator only. All signals to the RTU are via clean contacts. Both sides of the contact are issued to the RTU system. These contacts switch directly into the RTU Input cards. The voltage on these signal cables is 24VDC supplied from the RTU power supply.

2.4.3. ATS AND CONTROL

The transfer switch is a MAC-DT Solenoid operated Transfer switch. The control of this switch is only achieved from the generator PLC. The PLC controls the relays CTSN and CTSG within the ATS panel.

Energising CTSN if the Mains Volts are available will open the Generator CB and Close the Mains CB.

Energising CTSG if the Generator Volts are available will open the Mains CB and Close the Generator CB.

If volts are not available the motors in the BTS will not operate. (IE stay in the last condition.

If the BTS does not operate the PLC will remove the transfer signal and assume a fault condition. This condition required manual operator intervention.

Manual Operation:

If manual operation is desired then the following steps must be carried out. Please note that it is not necessary to remove any covers when manually operating the CB's.

If the PLC is issuing an undesirable status then the operation of the CB solenoids must first be isolated. This is best achieved by switching the CB's QM1 and QG1 to the off position. This removes the motor charge and open close commands to the operators. If the PLC is not affecting the transfer switch these CB's may be left in the ON state.

Manual Open Mains and Close Generator:

Turn off the CB's QM1 & QG1. To change state a suitably qualified operator must open the escutcheon door and using the Yellow handled operator, place the operator on the left side square shaft and pull the handle towards the bottom of the switch. This will change the state of the switch as indicated by the windows marked "A" and "B".

Manual Open Generator and Close Mains:

Turn off the CB's QM1 & QG1. To change state a suitably qualified operator must open the escutcheon door and using the Yellow handled operator, place the operator

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on the left side square shaft and pull the handle towards the bottom of the switch. This will change the state of the switch as indicated by the windows marked "A" and "B".

Mains Fail detection:

The mains fail relay detects the condition of the mains and issues a mains fail start signal to the PLC.

The mains fail relay also operates the mains available indicator on the MCC common control panel.

The mains fail signal also issues a condition to the RTU to indicate mains failed when the relay is de-energised.

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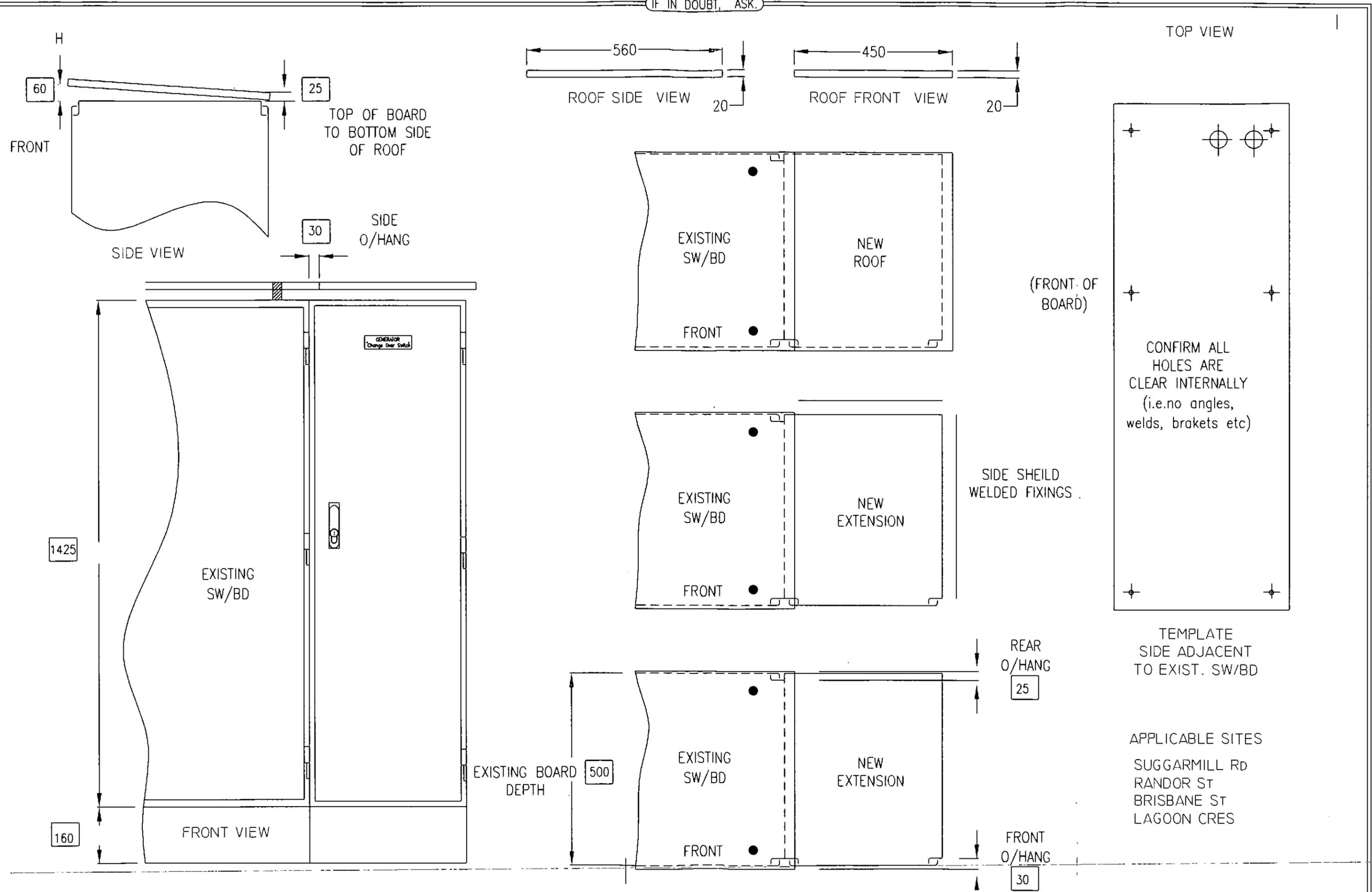
Manual Issue No: 1 Date: 17/11/06

3.0 DRAWINGS

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IF IN DOUBT, ASK.

This drawing and all information thereon is the property of Common Logic Pty. Ltd. and is confidential and must not be made public or copied.



CONFIRM ALL HOLES ARE CLEAR INTERNALLY (i.e. no angles, welds, brackets etc)

TEMPLATE SIDE ADJACENT TO EXIST. SW/BD

APPLICABLE SITES
SUGGARMILL RD
RANDOR ST
BRISBANE ST
LAGOON CRES

PAINT COLOUR MATERIAL
MIST GREEN ALLUMINIUM

			FIN	
			LIN	
			STN	
1/9/06	C	AS INSTALLED	PTN	
26/04/06	B	ISSUED FOR CONSTRUCTION	LTN	
11/04/06	A	ISSUED FOR APPROVAL	STN	

COMMON LOGIC PTY. LTD.
PO. BOX 2008
Mansfield QLD. 4122
Tele: 07 3849 7449

DATE	10/04/06
DRAWN	GCK
SCALE	NTS
APPROVED	

BRISBANE WATER STANDARD DRAWING TYPICAL 200 AMP SOLENOID OPERATED ATS		
JH86DA01	A3 sheet 1/3	ISSUE C

AS BUILT

IF IN DOUBT, ASK.

APPLICABLE SITES

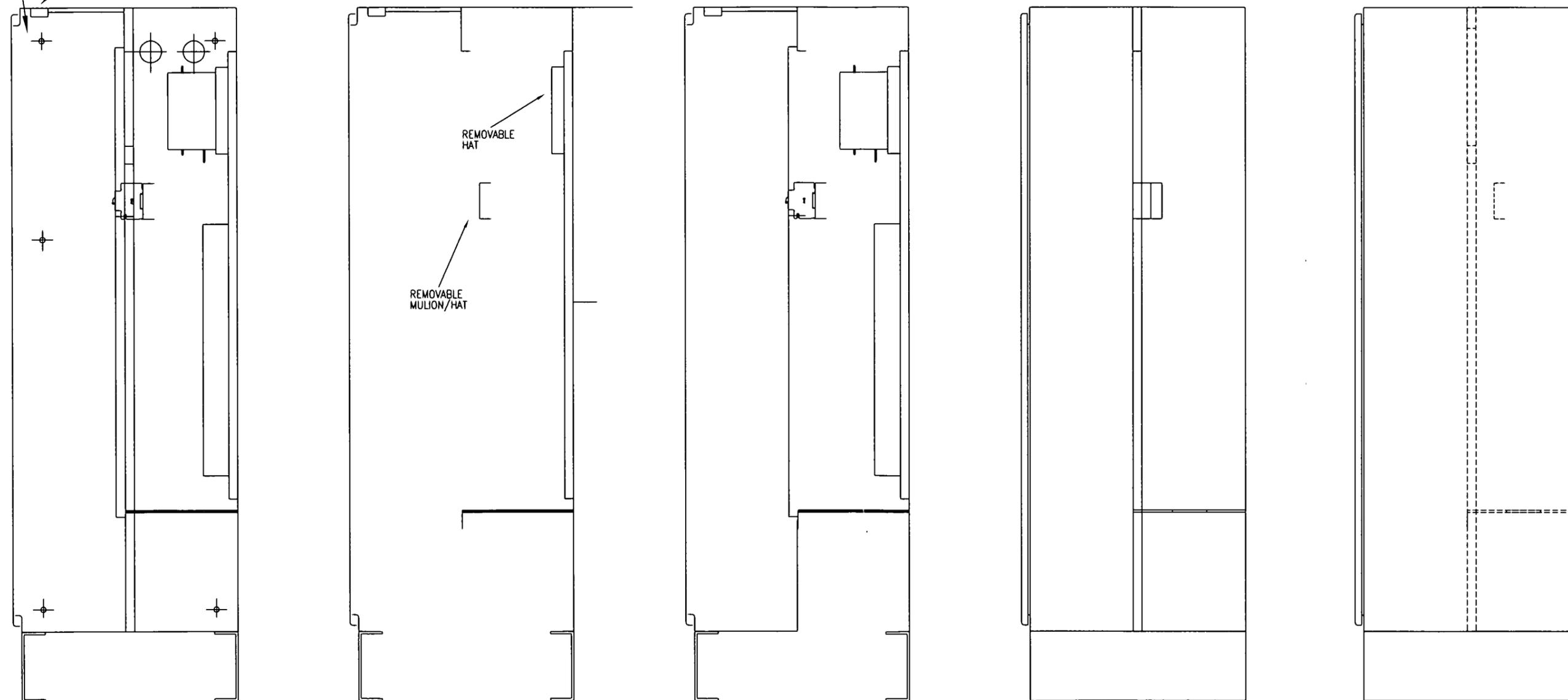
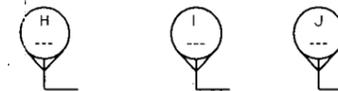
- SUGGARMILL RD
- RANDOR ST
- BRISBANE ST
- LAGOON CRES

LIGHT SWITCH BRACKET TBA

LIGHT BRACKET

REMOVABLE HAT

REMOVABLE MULLION/HAT



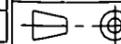
SECTION A-A

1/9/06	C	AS INSTALLED	FWN
26/04/06	B	ISSUED FOR CONSTRUCTION	LWN
11/04/06	A	ISSUED FOR APPROVAL	SWN
			FTN
			LTN
			STN

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DATE	10/04/06
DRAWN	GCK
SCALE	NTS
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BRISBANE WATER STANDARD DRAWING
 TYPICAL 200 AMP SOLENOID OPERATED ATS



JH86DA02

A3 sheet 2/3

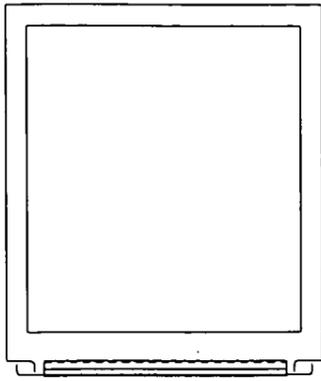
ISSUE C

AS BUILT IN

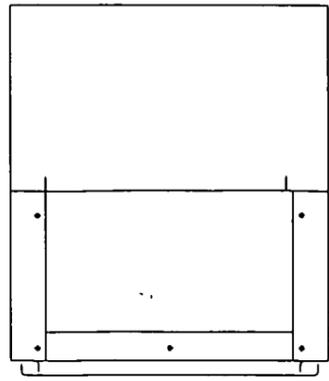
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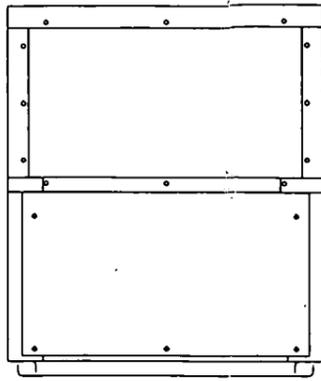
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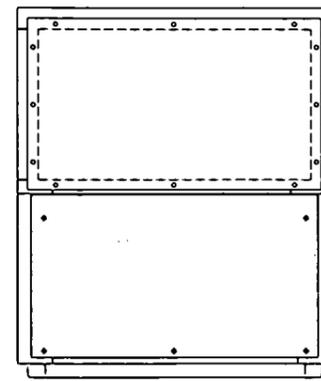
SECTION G



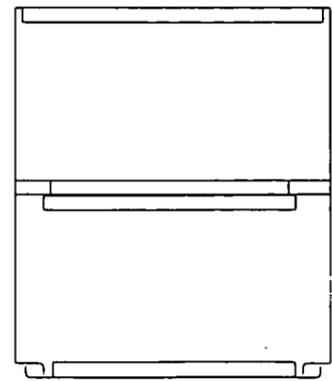
SECTION F NO COVER PLATE



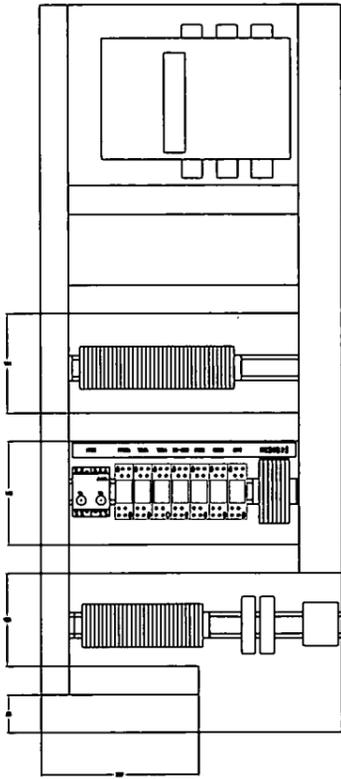
SECTION E NO GLAND PLATE



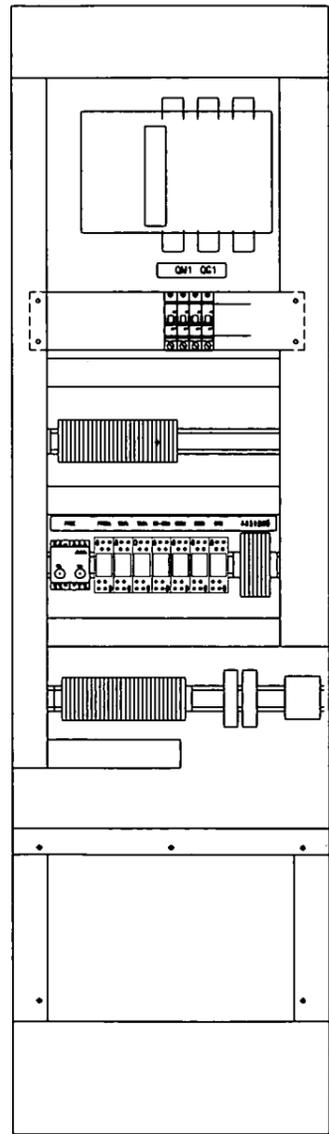
SECTION E



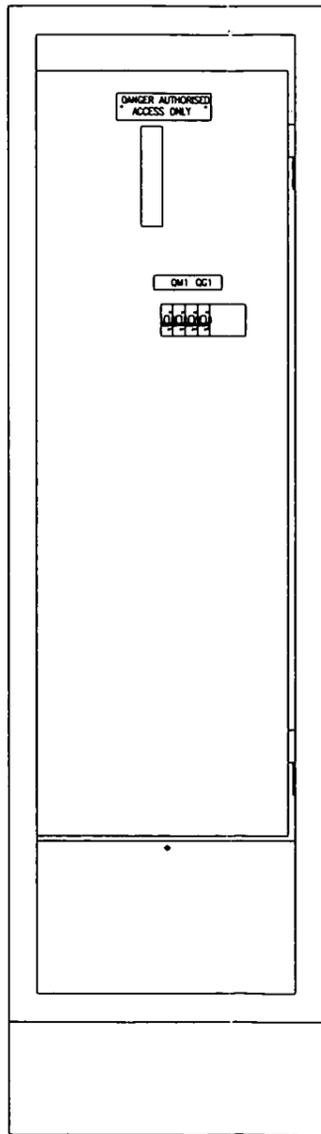
SECTION D-D



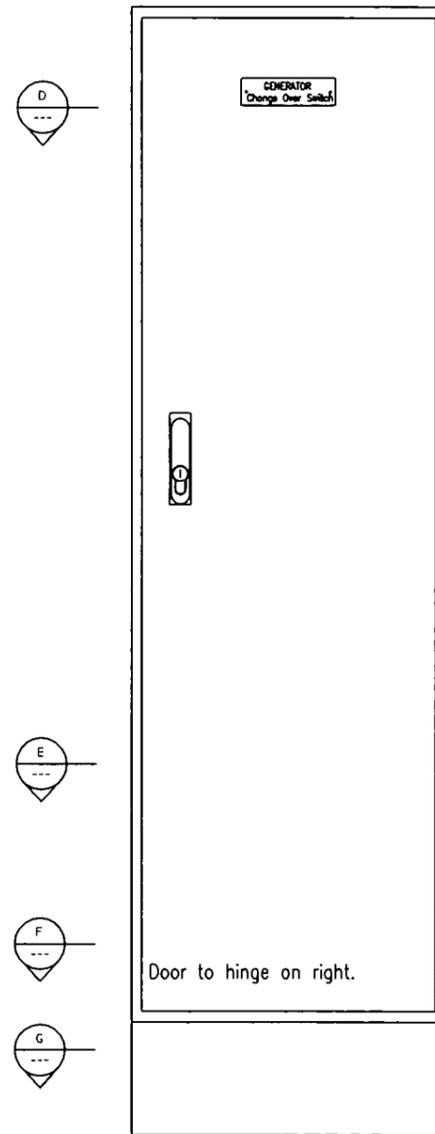
EQUIPMENT PANEL



SECTION J
(ESCUTCHEON STYLES REMOVED)



SECTION I
(DOOR REMOVED)



SECTION H

APPLICABLE SITES
SUGGARMILL RD
RANDOR ST
BRISBANE ST
LAGOON CRES

1/9/06	D	AS INSTALLED	
26/04/06	C	ISSUED FOR CONSTRUCTION 2	
26/04/06	B	ISSUED FOR CONSTRUCTION	
11/04/06	A	ISSUED FOR APPROVAL	

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DATE	10/04/06
DRAWN	GCK
SCALE	NTS
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BRISBANE WATER STANDARD DRAWING
TYPICAL 200 AMP SOLENOID OPERATED ATS
JH86DA03 A3 sheet 2/2 ISSUE D

AS BUILT



SEWAGE SYSTEM IMPROVEMENT 2005 SOLENOID TRANSFER SWITCH INSTALLATION SP147 - SUGARMILL ROAD, MEEANDAH ELECTRICAL DRAWING INDEX

ELECTRICAL DRAWINGS INDEX						
DWG N°.	TITLE	ISSUE	REVISIONS			
	SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - SITE SPECIFIC INSTALLATION					
486/57-TQ035	SUGARMILL ROAD, MEEANDAH - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	06.2006	A	B	C	D
486/57-TQ036	EQUIPMENT LEGEND	03.2006	A	B	C	D
486/57-TQ037	PUMP No.1, PUMP No.2 & INCOMER POWER SCHEMATIC WIRING DIAGRAM	03.2006	A	B	C	D
486/57-TQ038	MISCELLANEOUS LIGHT & POWER SCHEMATIC WIRING DIAGRAM	03.2006	A	B	C	D
486/57-TQ039	PUMP No.1 & PUMP No.2 CONTROL SCHEMATIC WIRING DIAGRAM	01.1997	A			
486/57-TQ040	COMMON CONTROL, WELL LEVEL, DELIVERY PRESSURE & SURCHARGE IMMINENT ALARM SCHEMATIC	06.2006	A	B	C	D
486/57-TQ041	PLC/RTU SCHEMATIC WIRING DIAGRAM	06.2006	A	B	C	D
486/57-TQ042	RTU TERMINATION DIAGRAM	06.2006	A	B	C	D
486/57-TQ043	CABLE SCHEDULE	03.2006	A	B	C	
486/57-TQ044	SWITCHBOARD GENERAL ARRANGEMENT	03.2006	A	B	C	
486/57-TQ045	SWITCHBOARD CONSTRUCTION NOTES	03.2006	A	B	C	
486/57-TQ046	SWITCHBOARD SECTIONAL DETAILS	05.1998	A			
486/57-TQ047	SWITCHBOARD SPECIFIC DETAILS	05.1998	A			
486/57-TQ048	SWITCHBOARD LABEL LIST	05.1998	A			
486/57-TQ049	SITE LAYOUT	03.2006	A	B	C	D
486/57-PS000	DRAWING INDEX - ELECTRICAL INSTALLATION	05.2006	B	1	2	
486/57-PS001	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - WIRING SCHEMATIC DIAGRAM	05.2006	B	1	2	
486/57-PS002	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - CUBICLE ARRANGEMENT	05.2006	B	1	2	
486/57-PS005	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - INTERCONNECTION DIAGRAM	05.2006	B	1		
486/57-PS007	AUTOMATIC TRANSFER SWITCH - ATS EXTENSION CUBICLE - TYPICAL CONCRETE BASE ARRANGEMENT	05.2006	B	1		

= ISSUED FOR: EMERGENCY GENERATOR TRANSFER SWITCH INSTALLATION

E

AS BUILT

C 06.06	NEW BORDER. RE-DRAWN & RE-ISSUED FOR CONSTR		DRAFTED	A.M.H.	25/11/96	A.H.	26/11/96
B 03.06	APPROVED FOR CONSTRUCTION	M.B.	DRAFTING CHECK	A.H.	26/11/96	DESIGN	R.P.E.Q. No. DATE
A 11.05	SWBD GENSET UPGRADE 2005 - TENDER ISSUE		CAD FILE	57TQ035_E		PRINCIPAL DESIGN MANAGER	DATE
No DATE	AMENDMENT	DRN. APD.	B.C.C. FILE No.			CLIENT DELEGATE	DATE

PROJECT
SUBMERSIBLE SEWAGE PUMP STATION
SP147 - SUGARMILL ROAD, MEEANDAH
SEWAGE SYSTEM IMPROVEMENT 2005

TITLE
SOLENOID TRANSFER SWITCH
ELECTRICAL INSTALLATION
ELECTRICAL DRAWING INDEX

SHEET No. 18
BRISBANE WATER DRAWING No.
486/57-TQ035
AMEND.
E

FOR CONSTRUCTION



NOTES

ITEM No	QTY	DESCRIPTION	SUPPLIER	MANUFACTURER	CATALOGUE No	SENT TO HUNTER WATERTECH DATE	SENT TO POWER ELECTRIC DATE	CORRECTLY INSTALLED MET. DATE	ITEM No	QTY	DESCRIPTION	SUPPLIER	MANUFACTURER	CATALOGUE No	SENT TO HUNTER WATERTECH DATE	SENT TO POWER ELECTRIC DATE	CORRECTLY INSTALLED MET. DATE
00	3	SURGE DIVERTER	POWER ELECTRIC	CRITEC	SA70KA				52	1	SURCHARGE ALARM RELAY	HUNTER WATERTECH	MULTIRODE	MTR-2			
01	1	MAIN CIRCUIT BREAKER - SHROUD	POWER ELECTRIC	TERASAKI	XS25CU/50 - 10XP0				53								
02	2	PUMP CIRCUIT BREAKER - SHROUD	POWER ELECTRIC	TERASAKI	XH25MJ/20 - 10XP0				54								
03	1	SOLENOID OPERATED TRANSFER SW	HP	TERASAKI	62W0FD24VAC (10A)				55	1	STATION CONTROL SELECTOR SW	POWER ELECTRIC	KRAUS & NAIMER	CAD11-A200-101056/001			
04	1	SUB-DISTRIBUTION BOARD CFS	POWER ELECTRIC	STROMBERG	05SA6361				56	1	SITE ATTENTION RESET	POWER ELECTRIC	SPEICHER & SOHN	DSP-F63LXW			
04.1	1	CFS FUSE COVER	POWER ELECTRIC	STROMBERG	05SAZK172				57								
04.2	3	FUSE CARTRIDGE	POWER ELECTRIC	GEC	T1A 32				58								
05	1	SUB-DISTRIBUTION BOARD CHASSIS	POWER ELECTRIC	TERASAKI	ND250A18U				59	1	SITE ATTENTION ALARM	POWER ELECTRIC	SPEICHER & SOHN	DSP-PS30L0			
06	2	AUTO-TRANSFORMER	POWER ELECTRIC	GEC GAYRAD	3AT75				60								
06.1	4	MICROTHERMS	POWER ELECTRIC	GEC GAYRAD	(INCLUDED IN TRANSFORMER)				61	1	3 PHASE OUTLET	POWER ELECTRIC	CLIPSAL	5650420LE			
07		AUTO-TRANSFORMER CONTACTORS							62	1	1 PHASE OUTLET	POWER ELECTRIC	CLIPSAL	15V90			
07.1	2	LINE CONTACTOR - AUX.	POWER ELECTRIC	SPEICHER & SOHN	CA3-37N-11 - CA3-P-5W				63	1	NEUTRAL LINK	POWER ELECTRIC	CLIPSAL	BP165018			
07.2	2	TRANSFORMER CONTACTOR	POWER ELECTRIC	SPEICHER & SOHN	CA3-37N-11				64	1	EARTH LINK	POWER ELECTRIC	CLIPSAL	BP165018			
07.3	2	STAR CONTACTOR - AUX.	POWER ELECTRIC	SPEICHER & SOHN	CA3-12-10 - CA3-P-01				65		SWITCHBOARD TERMINALS	POWER ELECTRIC	KLIPPON				
08	2	THERMAL OVERLOADS	POWER ELECTRIC	SPEICHER & SOHN	CTA3-17				65.1	16	ANALOGUE DISCONNECT	POWER ELECTRIC	KLIPPON	DRT4/35 (168744)			
09									65.2	16	END PLATE	POWER ELECTRIC	KLIPPON	AP (1004750)			
10									65.3	26	FUSE TERMINAL	POWER ELECTRIC	KLIPPON	ASKV/35 (1047450)			
11									65.4	26	END PLATE	POWER ELECTRIC	KLIPPON	AP (103030)			
12									65.5	26	FUSE CARTRIDGE	POWER ELECTRIC	KLIPPON	FUSE 20x50mm			
13	2	PUMP INSTRUMENT CT	POWER ELECTRIC	CROMPTON INSTRUMENTS	701-943T 50/5 2 PRIMARY TURNS				65.6	103	DISCONNECT TERMINAL	POWER ELECTRIC	KLIPPON	SANR/35 (117216)			
14	4	INSTRUMENT FUSES	POWER ELECTRIC	GEC	RS20H				65.7	5	END PLATE	POWER ELECTRIC	KLIPPON	AP (102110)			
14.1	4	FUSE CARTRIDGES	POWER ELECTRIC	GEC	NT2				65.8	9	END STOP	POWER ELECTRIC	KLIPPON	EV35 (103050)			
15	4	CT TEST LINKS	POWER ELECTRIC	KLIPPON	SAKT2/35 (10592)				66	1	MAIN NEUTRAL LINK	POWER ELECTRIC	CLIPSAL	Z0LAE6			
15.1	1	END PLATE	POWER ELECTRIC	KLIPPON	AP (10292)				67	1	MAIN EARTH LINK	POWER ELECTRIC	CLIPSAL	Z0LAE6			
15.2	2	SLIDE LINK 2 WAY	POWER ELECTRIC	KLIPPON	QV52 (103730)				68	1	INSTRUMENTATION EARTH LINK	POWER ELECTRIC	CLIPSAL	BP165018			
15.3	4	SLEEVE	POWER ELECTRIC	KLIPPON	VH19 (103800)				69								
15.4	4	SCREW	POWER ELECTRIC	KLIPPON	BS (1033470)				70								
16	2	PUMP AMPMETER	POWER ELECTRIC	CROMPTON INSTRUMENTS	243-0206 0-25/150A				71								
17	2	KILOWATT TRANSDUKER	HUNTER WATERTECH	MULTITEK	H100-WA2				72								
18	2	CURRENT TRANSDUKER	HUNTER WATERTECH	MULTITEK	H100-AL1				73	1	24VDC 3A LINEAR POWER SUPPLY	POWER ELECTRIC	POWER BOX	IE 24/3 GP			
19	1	PHASE FAILURE RELAY	POWER ELECTRIC	CROMPTON INSTRUMENTS	252-PS5W				74	1	24VDC CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT4-106			
20	1	PHASE FAILURE CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-306				75	1	RTU SURGE REDUCTION FILTER	HUNTER WATERTECH	CRITEC	SDF100C-SF			
21	1	3 PHASE OUTLET CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-320				76	1	CATHODIC PROTECTION UNIT	FREE ISSUE		FUTURE			
22	1	1 PHASE OUTLET CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-110				77	1	BATTERY ENCLOSURE	POWER ELECTRIC	NETWORK	DWG 101-23 DETAIL J			
23	1	1 PHASE OUTLET RCD C/B	POWER ELECTRIC	TERASAKI	DSRCB1030A				78	1	BATTERY VENT	POWER ELECTRIC	FBI0X	H01564			
24	1	RTU LAP-TOP GPO CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-102				79	1	RTU LAPTOP G.P.D.	POWER ELECTRIC	CLIPSAL	15 / 449 / 449A			
25	1	SW/BD FLURO CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-106				80	2	DECONTACTOR	POWER ELECTRIC	MARECHAL	31-3403-172			
26	1	CATHODIC PROTECTION CIRCUIT BKR	POWER ELECTRIC	TERASAKI	DRT6-104				81	2	ANGLE ADAPTOR	POWER ELECTRIC	MARECHAL	31-3000-027			
27	1	24VDC POWER SUPPLY CIRCUIT BKR	POWER ELECTRIC	TERASAKI	DRT6-104				82	2	PLUG TOP	POWER ELECTRIC	MARECHAL	31-3103-172			
28	1	TRANSDUKERS CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-106				83	1	RTU POWER FAIL RELAY	POWER ELECTRIC	IZUMI	RH2B-U-240VAC			
29	1	RTU CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-110				84	1	RTU BATTERY DISCHARGE RELAY	POWER ELECTRIC	IZUMI	RH2B-U-12VDC			
30									85	1	RTU POWER SUPPLY 13.8VDC	HUNTER WATERTECH	POWERBOX	PS6-15			
31	4	SPARE CIRCUIT BREAKERS	POWER ELECTRIC	TERASAKI	DRT6-106				86	1	RTU 12V/24VDC CONVERTER	HUNTER WATERTECH	POWERBOX	VTAS24SCD			
32	2	SW/BD DOOR MICRO SWITCHES	POWER ELECTRIC	CAPSCO	SP202				87	2	BATTERY	HUNTER WATERTECH	APOLLO	H002			
33	2	SW/BD 1W INTERNAL FLURO LIGHTS	POWER ELECTRIC	THORN	000100				88	1	RADIO	HUNTER WATERTECH	TRO	TR-9000/L			
34	1	WELL LEVEL INDICATOR	POWER ELECTRIC	CROMPTON INSTRUMENTS	244-0106 4-20mA 0-100% - RED POINTER				89	4	EXPANSION BASE	HUNTER WATERTECH	SYMAX	005501			
35	1	PRESSURE TRANSMITTER RELAY	HUNTER WATERTECH	PLATYPUS	AP-WT227				90	1	TELEENTRY UNIT	HUNTER WATERTECH	HUNTER WATERTECH	PO550			
35.1	1	PRESSURE TRANSDUCER	HUNTER WATERTECH	PLATYPUS	PL-2505W				91	2	DIGITAL INPUT MODULE	HUNTER WATERTECH	SYMAX	00550116			
36	1	WELL LEVEL TRANSDUCER	HUNTER WATERTECH	VEGA	E25-B				92	1	DUPPLY MODULE	HUNTER WATERTECH	SYMAX	00550111			
36.1	1	WELL LEVEL PRESSURE SENSOR	HUNTER WATERTECH	VEGA	D77				93	2	DIGITAL OUTPUT MODULES	HUNTER WATERTECH	SYMAX	00550110			
36.2	1	RAIG REDUCTION TUBE	HUNTER WATERTECH	HUNTER WATERTECH					94	2	ANALOGUE INPUT MODULE	HUNTER WATERTECH	HUNTER WATERTECH	POS8A			
37	2	PUMP CONTROL CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DRT6-106				95								
38	2	PUMP HOURS RUN METER	POWER ELECTRIC	NATIONAL	T1639				96								
39	2	THERMISTOR RELAYS	POWER ELECTRIC	SPEICHER & SOHN	RT3-A-240VAC				97	1	ANTENNA	HUNTER WATERTECH	R.F. INDUSTRIES	YB06-02			
40									97.1	1	ANTENNA MAST	POWER ELECTRIC	POWER ELECTRIC				
41	2	CONTROL CIRCUIT ON RELAY	POWER ELECTRIC	IZUMI	RH2B-U-240VAC				97.2	1	COAX CABLE (INTERNAL)	HUNTER WATERTECH	R.F. INDUSTRIES	RIG5H			
42	2	T _a CONTACTOR CONTROL RELAY	POWER ELECTRIC	KLIPPON	RS30 (110% Z)				97.3	1	COAX CABLE (EXTERNAL)	HUNTER WATERTECH	R.F. INDUSTRIES	RIG210			
43	2	STAR CONTACTOR CONTROL RELAY	POWER ELECTRIC	KLIPPON	RS30 (110% Z)				97.4	1	COAX PLUG	HUNTER WATERTECH	R.F. INDUSTRIES	SMA			
44	2	LINE CONTACTOR CONTROL RELAY	POWER ELECTRIC	KLIPPON	RS30 (110% Z)				97.5	1	COAX PLUG	HUNTER WATERTECH	R.F. INDUSTRIES	HH (MALE)			
45	1	RADIO COAX SURGE PROTECTION	HUNTER WATERTECH	POLYPHASE CORPORATION	IS-500X-C2				97.6	2	COAX PLUG	HUNTER WATERTECH	R.F. INDUSTRIES	H07 (MALE)			
46	2	PUMP STATUS INDICATOR	POWER ELECTRIC	SPEICHER & SOHN	DSP-F430L0				97.7	1	U CLAMPS	HUNTER WATERTECH	R.F. INDUSTRIES	UNV			
47	2	PUMP START PUSH BUTTON	POWER ELECTRIC	SPEICHER & SOHN	DSP-F33LXW												
48	2	PUMP STOP PUSH BUTTON	POWER ELECTRIC	SPEICHER & SOHN	DSP-MTS34.3LX01/01												
49	2	PUMP RESET PUSH BUTTON	POWER ELECTRIC	SPEICHER & SOHN	DSP-F43LXW												
50																	
51																	

NEW WORK

NEW WORK

NEW WORK

APPROVED FOR CONSTRUCTION

D	03/2006	Approved for Construction	
C	11/2005	SWBD GenSet Upgrade 2005	
B	12/10/98	AS BUILT	
A	17/04/98	REVISED DRAWING	A.H
No	DATE	AMENDMENT	INITIALS

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES		
DATE:	DATE:		
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	
DESIGN	A.H.	25/11/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	26/11/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	26/11/96	A2 REDUCED
REFERENCES	COPYRIGHT © 1996 No reproduction is permitted in whole or in part without the express consent of BRISBANE CITY COUNCIL BRISBANE WATER		
CADD FILE No.	THIS DRAWING WAS PRODUCED USING AUTOCAD		



Brisbane Water
ASSET MANAGEMENT PROFESSIONAL SERVICES

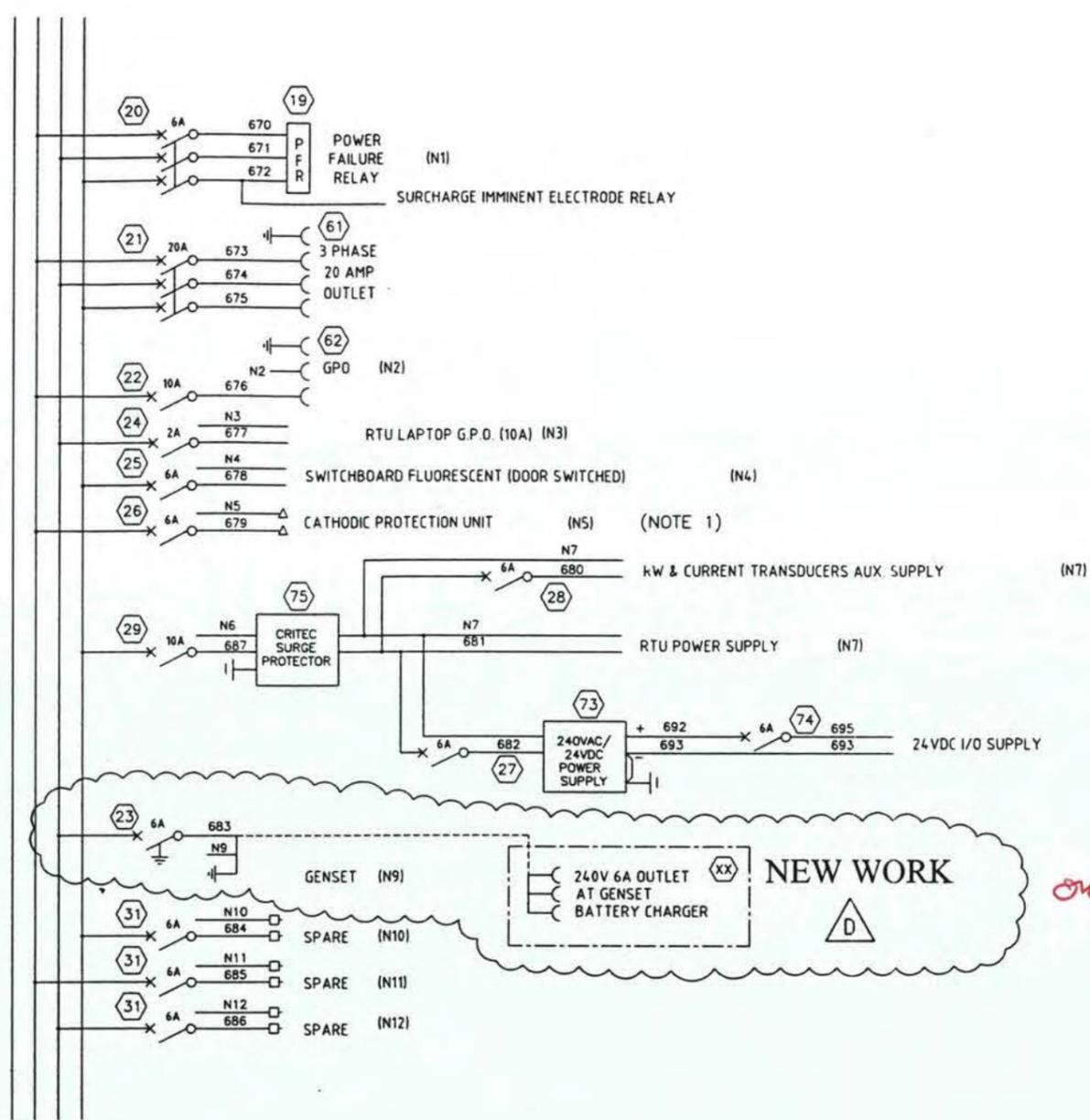
PROJECT
IDTS
SUGARMILL ROAD (SP147)
SEWAGE SUBMERSIBLE PUMP STATION

TITLE
EQUIPMENT LEGEND

SCALE:	No. OF SHEETS
DRAWING No. 486/5/7-TQ036	AMEND. D

As Built

CONTINUED FROM SHEET 03



NOTES

- CATHODIC PROTECTION - FUTURE. THIS UNIT TO BE SUPPLIED BY OTHERS. A 240VAC CABLE IS INSTALLED TO PROPOSED CATHODIC PROTECTION AREA TERMINAL STRIP FOR CONNECTION BY OTHERS
- TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.

APPROVED FOR CONSTRUCTION

D	03/2006	Approved for Construction	<i>mf</i>
C	11/2005	SWBD GenSet Upgrade 2005	
B	12/10/98	AS BUILT	
A	17/04/98	REVISED DRAWING	A.H.
No	DATE	AMENDMENT	INITIALS

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES		
DATE:	DATE:		
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	

DESIGN	A.H.	15/10/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	16/10/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	17/10/96	A2 REDUCED

REFERENCES
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PROJECT
 IDTS
 SUGARMILL ROAD (SP147)
 SEWAGE SUBMERSIBLE PUMP STATION

TITLE
 MISCELLANEOUS LIGHT & POWER
 SCHEMATIC WIRING DIAGRAM

SCALE:	No. OF SHEETS
DRAWING No	WAS 1127-05
486/5/7-TQ038	AMEND
	D

CROSS REFERENCE TABLE

ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE
C11 - COIL	6	7	C23 - 1N/D	6	23	MP10 - COIL	6	32	TOL1 - COIL	3	10			
- 3 N/D	3	11	SCONT1 - 1N/D	6	19	- 1C/D	6	9	- 1N/D	6	4			
- 1N/D	6	10	- 1N/D	6	16	- 1C/D	6	14	- 1N/D	6	6			
C12 - COIL	6	8	LCM1 - COIL	8	4	MP21 - COIL	6	35	TOL2 - COIL	3	21			
- 3 N/D	3	9	- 1C/D	8	4	- 1C/D	6	18	- 1N/D	6	15			
- 1N/D	6	11	- 1N/D	6	9	- 1C/D	6	17	- 1N/D	6	16			
C13 - COIL	6	9	PPR - COIL	5	5	MP22 - COIL	6	36	PUMP No.1	8	8			
- 3 N/D	3	10	- 1C/D	8	3	- 1C/D	6	19	A/TRANSFORMER	8	8			
- 1N/D	6	12	- 1C/D	6	3	- 1C/D	6	20	THERMAL SWITCH	8	8			
C14 - COIL	6	10	PR1 - COIL	6	10	MP23 - COIL	6	37	PUMP No.2	6	10			
- 3 N/D	3	11	- 1C/D	6	3	- 1C/D	6	20	A/TRANSFORMER	6	10			
- 1N/D	6	13	- 1C/D	6	3	- 1C/D	6	21	THERMAL SWITCH	6	10			
C15 - COIL	6	18	PR2 - COIL	6	21	SMC - 1C/D	8	5	BC - COIL	10	9			
- 3 N/D	3	25	- 1C/D	6	14	-	8	5	- 1N/D	10	9			
- 1N/D	6	21	-	-	-	-	-	-	-	-	-			
C16 - COIL	6	19	MP11 - COIL	6	20	TWR1 - COIL	6	4	PI - COIL	10	10			
- 3 N/D	3	23	- 1C/D	6	7	- 1N/D	6	6	- 1N/D	10	10			
- 1N/D	6	22	-	-	-	-	-	-	-	-	-			
C17 - COIL	6	20	MP12 - COIL	6	21	TWR2 - COIL	6	15						
- 3 N/D	3	27	- 1C/D	6	7	- 1N/D	6	15						
- 1N/D	6	24	-	-	-	-	-	-						

LEGEND:

- RELAY OR CONTACTOR COIL
- FIELD DEVICE
- R.T.U. FUSE TERMINAL
- R.T.U. LINK TERMINAL
- SWITCHBOARD TERMINAL
- CATHODIC PROTECTION TERMINAL
- RTU DIGITAL INPUT
- RTU DIGITAL OUTPUT
- RTU ANALOG INPUT
- EQUIPMENT ITEM No.

NOTES

- ALL WIRES & CABLE CORES ARE FURRED WITH GRAFOPLAST COMPATIBLE LABELLING. THE FOLLOWING PREFIXES ARE USED:
MAIN PUMP No. 1 = 1
MAIN PUMP No. 2 = 2
COMMON WIRING = 6 (i.e. FLOW, LEVEL, PRESSURE)
- CATHODIC PROTECTION - FUTURE
THIS UNIT IS SUPPLIED BY OTHERS.
RTU I/O CABLING IS INSTALLED TO PROPOSED CATHODIC PROTECTION TERMINAL STRIP FOR CONNECTION BY OTHERS.
- ITEMS SHOWN AS DOTTED ARE FOR FUTURE ONLY.
- TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.
- FUSE TERMINALS ARE TO BE FITTED WITH 100mA FUSE TERMINALS UNLESS OTHERWISE SHOWN

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
D	06.2006	Re-issued for Construction	<i>[Signature]</i>
C	03.2006	Approved for Construction	<i>[Signature]</i>
B	11.2005	SWBD GenSet Upgrade 2005	
A	17/04/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES	
DATE:	DATE:	DATE:
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

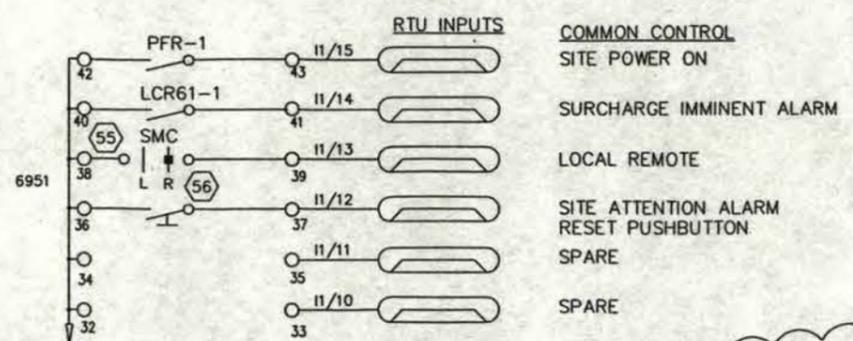
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DRAWN	A.M.H.	16/10/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	17/10/96	A2 REDUCED

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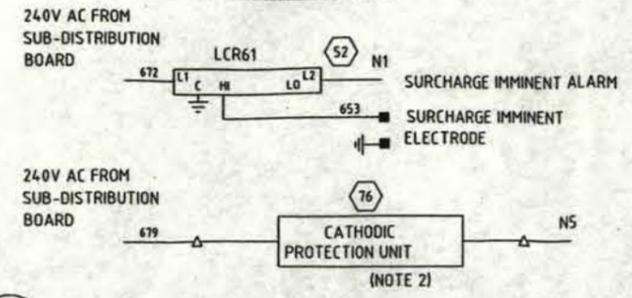


PROJECT IDTS
SUGARMILL ROAD (SP147)
SEWAGE SUBMERSIBLE PUMP STATION
 TITLE
COMMON CONTROL, WELL LEVEL, DELIVERY PRESSURE & SURCHARGE IMMINENT ALARM SCHEMATIC WIRING DIAGRAM
 SCALE: No. OF SHEETS
 DRAWING No. **486/5/7-TQ040** AMEND. **D**

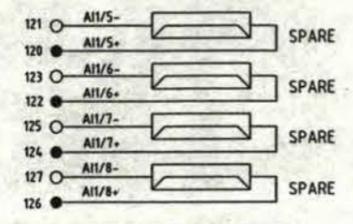
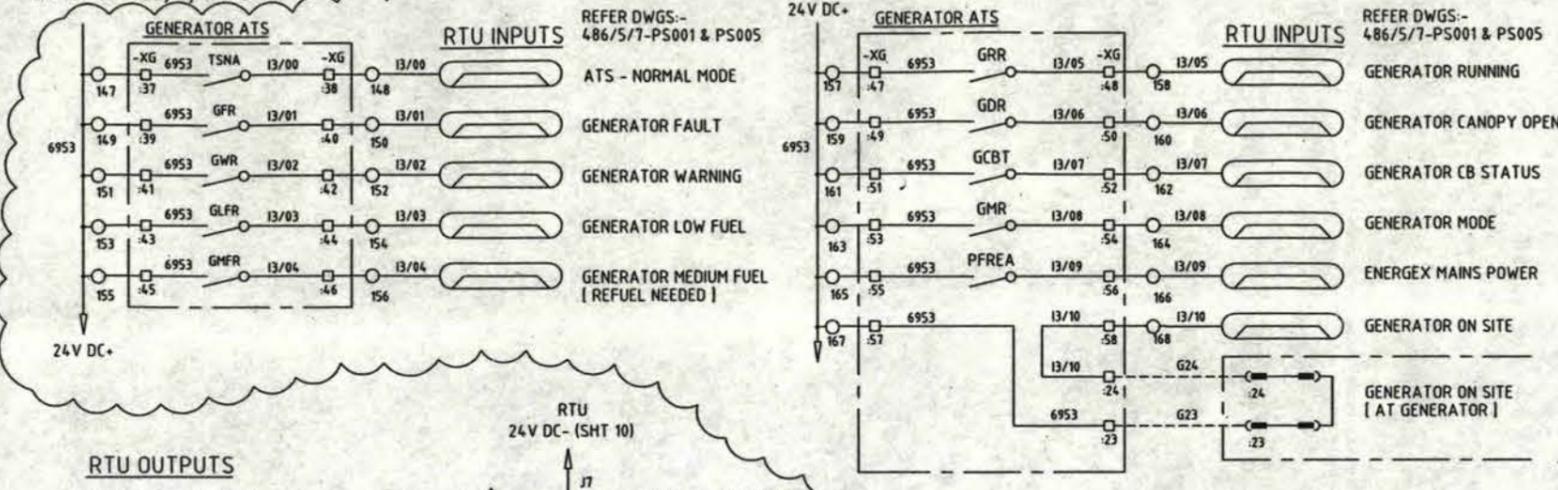
ELV CONTROL



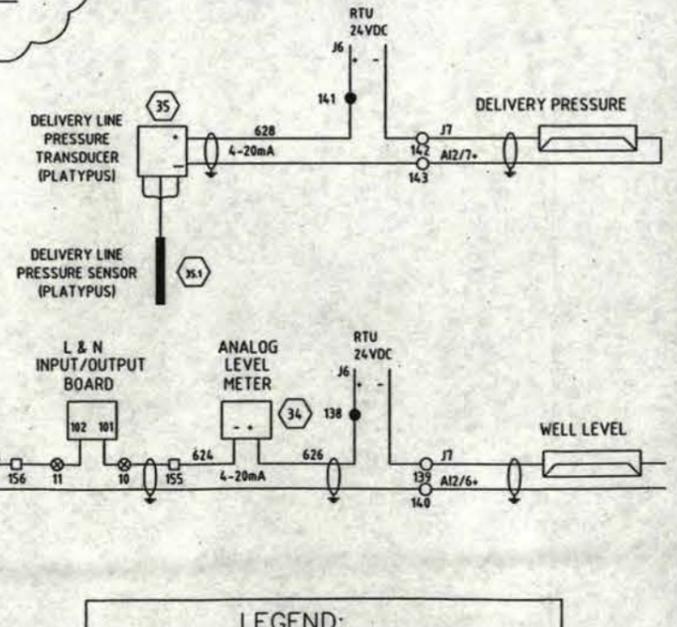
240V AC CONTROL



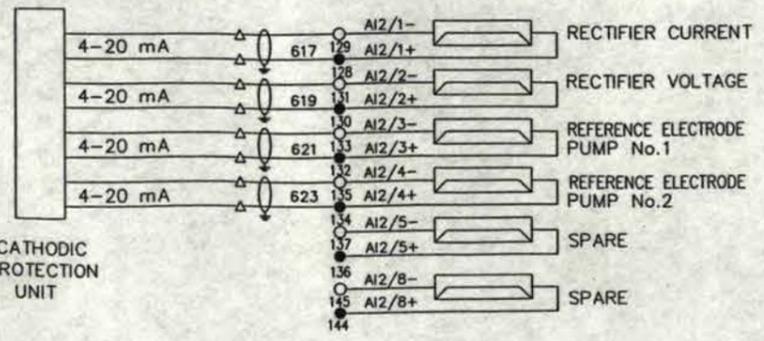
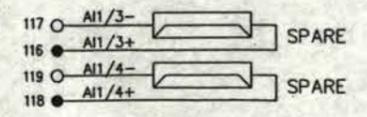
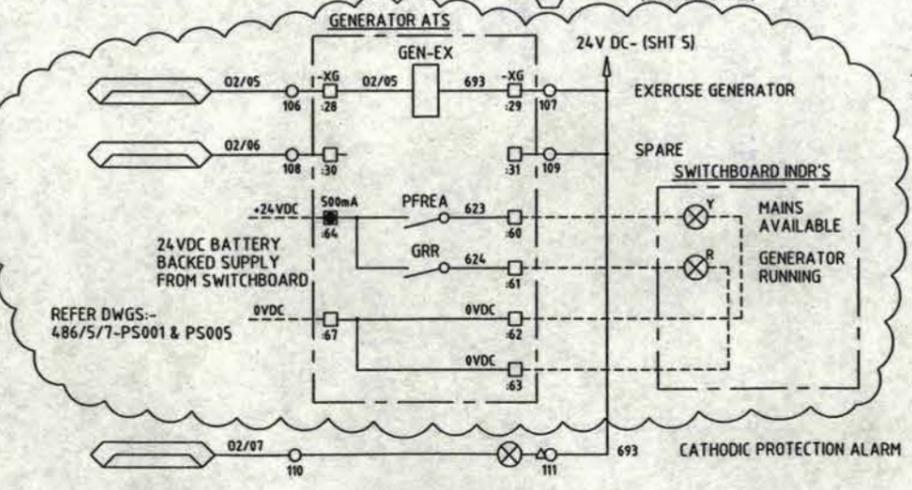
NEW WORK



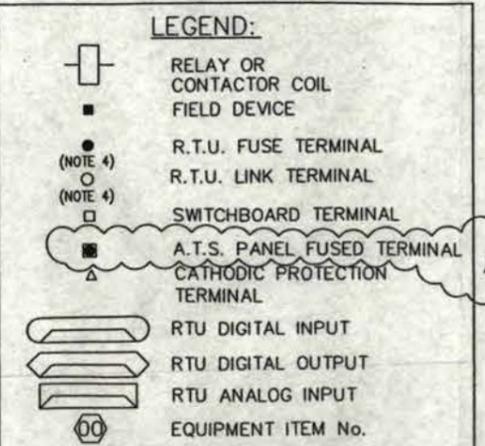
RTU ANALOG INPUTS FOR INSTRUMENTS



NEW WORK



ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE
C11	-	6 7	C23	-	6 23	RP13	-	6 32	TOL1	-	6 34
-	-	3 13	(CONT)	-	6 19	-	-	6 5	-	-	6 4
-	-	6 30	-	-	6 14	-	-	-	-	-	6 6
C12	-	6 8	LCM1	-	8 4	RP21	-	6 35	TOL2	-	6 23
-	-	3 12	-	-	8 4	-	-	6 18	-	-	6 16
-	-	6 11	-	-	8 4	-	-	-	-	-	6 16
-	-	6 9	-	-	8 3	-	-	-	-	-	6 16
C13	-	6 9	PFR	-	6 3	RP22	-	6 36	PUMP No.1	-	6 8
-	-	3 14	-	-	6 3	-	-	6 19	A/TRANSFORMER	-	6 8
-	-	6 12	-	-	6 3	-	-	-	THERMAL SWITCH	-	6 8
-	-	6 11	PR1	-	6 18	RP23	-	6 37	PUMP No.2	-	6 19
-	-	6 3	-	-	6 3	-	-	6 28	A/TRANSFORMER	-	6 19
-	-	6 3	-	-	6 14	-	-	-	THERMAL SWITCH	-	6 19
C21	-	6 18	PR2	-	6 21	SMC	-	6 5	PUMP No.3	-	7 8
-	-	3 22	-	-	6 14	-	-	-	A/TRANSFORMER	-	7 8
-	-	6 21	-	-	-	-	-	-	THERMAL SWITCH	-	7 8
C22	-	6 21	RP11	-	6 38	TRH1	-	6 4	BD	-	10 9
-	-	3 21	-	-	6 7	-	-	6 4	-	-	10 9
-	-	6 22	-	-	6 7	-	-	6 4	-	-	10 9
-	-	6 29	RP12	-	6 31	TRH2	-	6 15	PF	-	10 10
C23	-	6 29	-	-	6 8	-	-	6 16	-	-	10 10
-	-	3 23	-	-	6 8	-	-	6 16	-	-	10 10





NOTES

1. TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.
2. BASE - MT OMMANEY

APPROVED FOR CONSTRUCTION

E	06.2006	RE-ISSUED FOR CONSTRUCTION	<i>ref</i>
D	03.2006	APPROVED FOR CONSTRUCTION	M.J.L.
C	11.2005	SWBD GenSet Upgrade 2005	
B	12/10/98	AS BUILT	
A	17/04/98	REVISED DRAWING	A.H
No	DATE	AMENDMENT	INITIALS

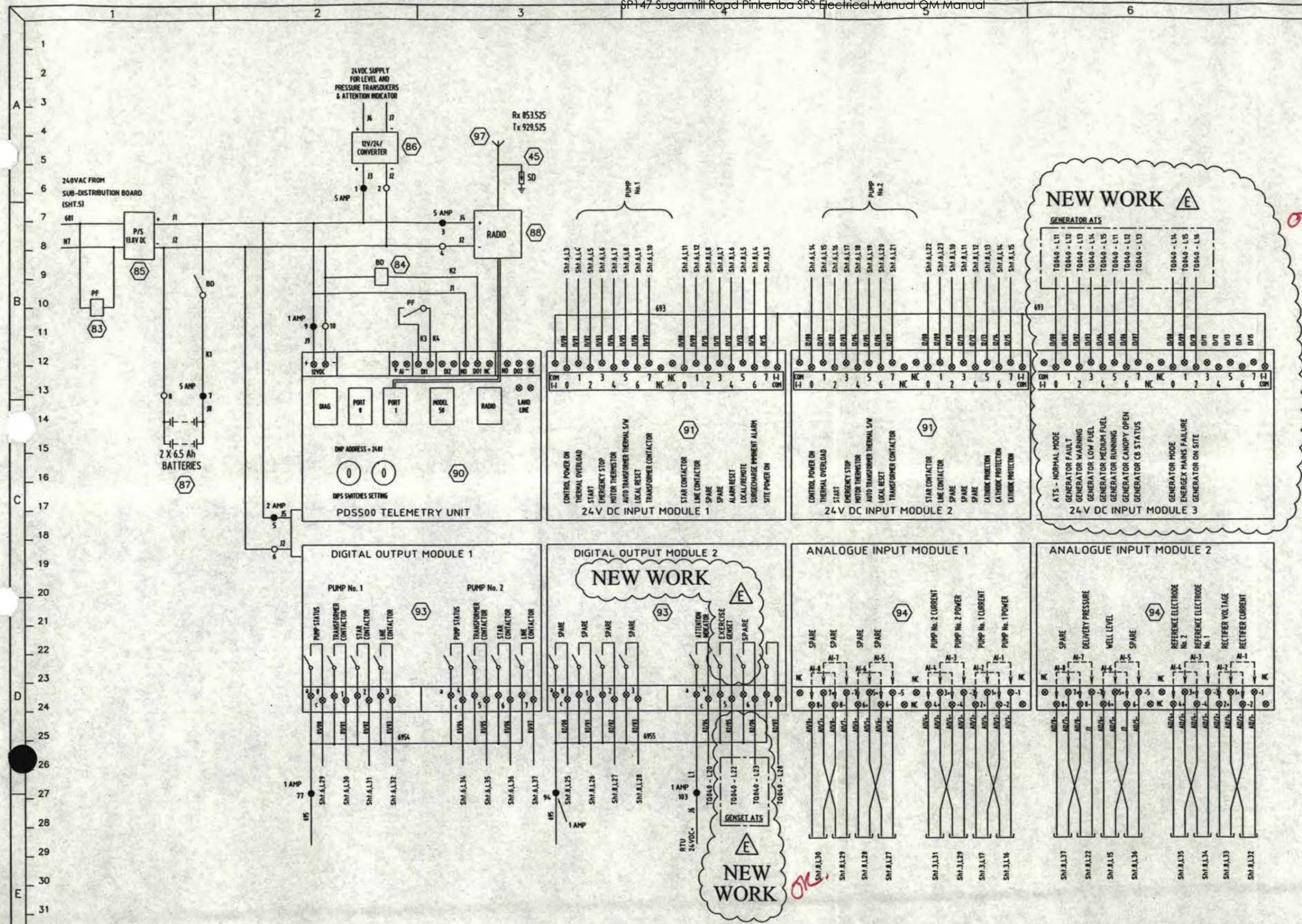
AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES		
DATE:	DATE:		
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	
DESIGN	A.H.	15/10/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	16/10/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	17/10/96	A2 REDUCED
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Brisbane City ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT	IDTS
SUGARMILL ROAD (SP147)	
SEWAGE SUBMERSIBLE PUMP STATION	
TITLE	PLC/RTU SCHEMATIC WIRING DIAGRAM
SCALE:	No. OF SHEETS
DRAWING No.	486/5/7-TQ041
WAS 1127-10	AMEND. E



CROSS REFERENCE TABLE

ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE
CR	- COL	6 7	C23	- 1N/D	6 23	RP13	- COL	6 32	TOL1	- COL	3 13
	- 3N/D	3 11		- 1N/C	6 19		- 1C/D	6 9		- 1N/D	6 4
	- 1N/D	6 8		- 1N/D	6 16		- 1C/D	6 6		- 1N/C	6 6
CR	- COL	6 8	LCR61	- COL	8 4	RP21	- COL	6 35	TOL2	- COL	3 27
	- 3N/D	3 9		- 1C/D	8 4		- 1C/D	6 8		- 1N/D	6 15
	- 1N/D	6 11		- 1N/D	8 11		- 1C/D	6 16		- 1N/C	6 16
	- 1N/C	6 9	PPR	- COL	6 5	RP22	- COL	6 34	PUMP No.1	A/TRANSFORMER	6 8
CR	- COL	6 9		- 1C/D	8 3		- 1C/D	6 19		TRANSFORMER	6 8
	- 3N/D	3 13		- 1C/D	8 3		- 1C/D	6 19		THERMAL SWITCH	6 8
	- 1N/D	6 12	PR1	- COL	6 18	RP23	- COL	6 37	PUMP No.2	A/TRANSFORMER	6 19
	- 1N/C	6 8		- 1C/D	6 18		- 1C/D	6 20		TRANSFORMER	6 19
	- 1N/D	6 3		- 1C/D	6 18		- 1C/D	6 20		THERMAL SWITCH	6 19
CR1	- COL	6 8	PR2	- COL	6 21	SHC	- 1C/D	6 5	BD	- COL	16 9
	- 3N/D	3 25		- 1C/D	6 21		- 1C/D	6 5		- 1N/D	16 9
	- 1N/D	6 21		- 1C/D	6 21		- 1C/D	6 5		- 1N/D	16 9
CR2	- COL	6 19	RP11	- COL	6 38	TRH1	- COL	6 4	PF	- COL	16 16
	- 3N/D	3 23		- 1C/D	6 7		- 1N/D	6 6		- 1N/D	16 16
	- 1N/D	6 22		- 1C/D	6 7		- 1C/D	6 7		- 1N/D	16 16
	- 1N/C	6 28		- 1N/C	6 8		- 1N/C	6 7		- 1N/D	16 16
CR3	- COL	6 29	RP12	- COL	6 31	TRH2	- COL	6 15			
	- 3N/D	3 27		- 1C/D	6 8		- 1N/D	6 16			
	- 1N/D	6 27		- 1C/D	6 8		- 1N/C	6 16			

LEGEND:

- RELAY OR CONTACTOR COIL
- FIELD DEVICE
- R.T.U. FUSE TERMINAL
- R.T.U. LINK TERMINAL
- SWITCHBOARD TERMINAL
- △ CATHODIC PROTECTION TERMINAL
- ▭ RTU DIGITAL INPUT
- ▭ RTU DIGITAL OUTPUT
- ▭ RTU ANALOG INPUT
- EQUIPMENT ITEM No.



NOTES

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
D	06.2006	Re-issued for Construction	<i>[Signature]</i>
C	03.2006	Approved for Construction	M.J.L.
B	11.2005	SWBD GenSet Upgrade 2005	
A	17/04/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES		
DATE:	DATE:	DATE:	DATE:
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	DATE:

DESIGN	A.H.	15/10/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	16/10/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	17/10/96	A2 REDUCED

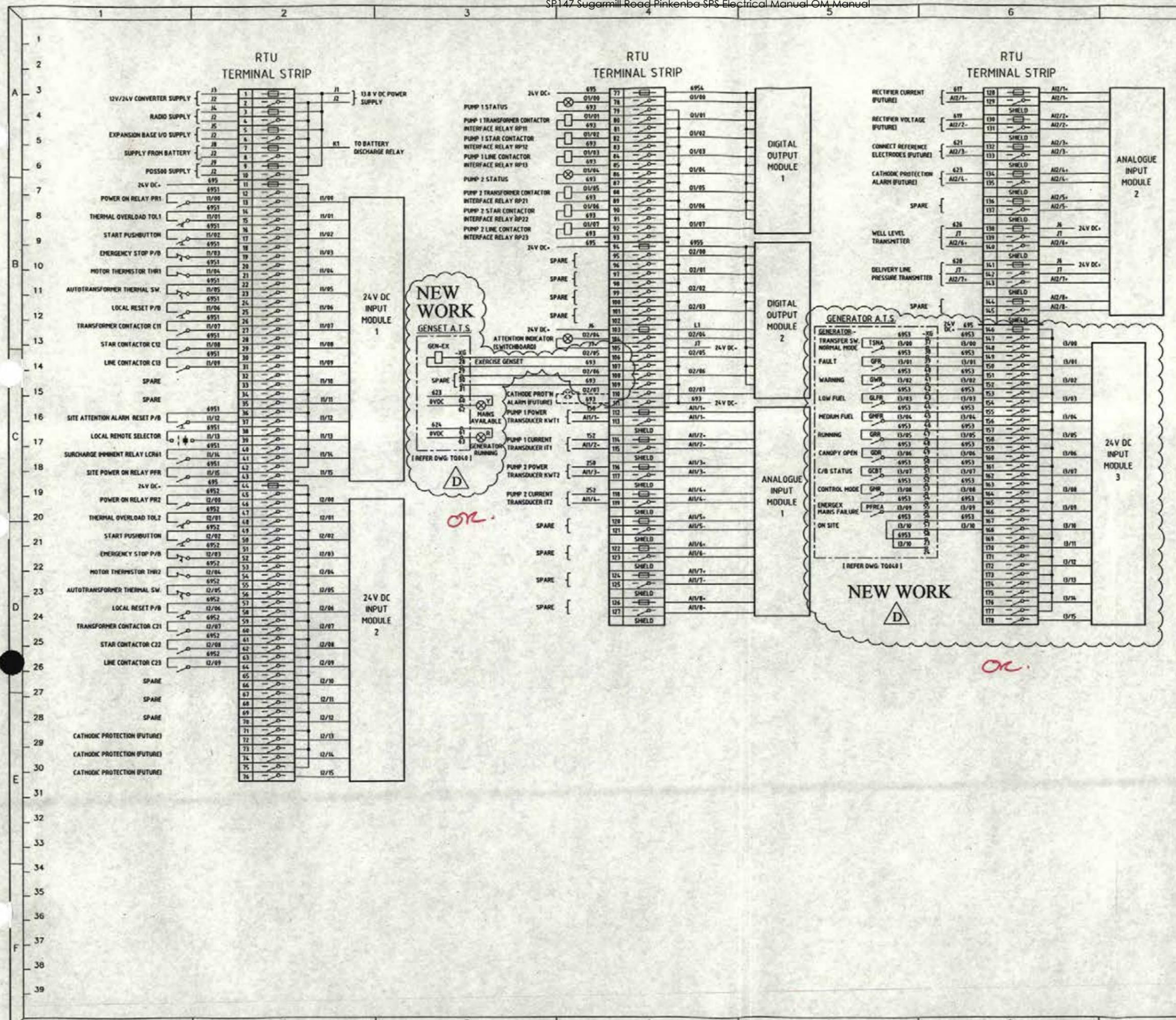
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PROJECT
 IDTS
 SUGARMILL ROAD (SP147)
 SEWAGE SUBMERSIBLE PUMP STATION

TITLE
 RTU TERMINATION DIAGRAM

SCALE:	No. OF SHEETS
DRAWING No.	WAS 1127-15
486/5/7-TQ042	AMEND. D



CABLE No.	SIZE mm ²	CORES	TYPE	LENGTH (m)	FROM - TO - VIA ROUTE	CABLE FUNCTION	CORRECTLY INSTALLED	
							INITIAL	DATE
P01	10	4	Existing		SEQEB Pole to new switchboard (Extend existing mains)	Incoming Mains		
P02	10		Building wire		New switchboard to earth stake	Main Earth		
P03	6	6+earth	Flexible		Rerun in new 150mm conduit to new switchboard	Pump 1 Motor		
P04	6	6+earth	Flexible		Rerun in new 150mm conduit to new switchboard	Pump 2 Motor		
X01			Coax		New switchboard radio to aerial	Radio Communications		
C01			Special		Reflux valve pressure probe to new switchboard	Delivery Pressure Signal		
C02			Special		Wet well level probe to new switchboard	Wet Well Level Signal		
C03			Special		Wet well level probe to new switchboard	Surcharge Level Signal		
P04	16	4C+E	Circular	PVC/PVC	GENSET TO SWITCHBOARD - ATS	GENSET POWER - FREE ISSUE		
P05	25	2C+E	Circular	PVC/PVC	GENSET TO SWITCHBOARD - DISTRIBUTION BD.	GENSET ANCILLARIES SUPPLY		
C04	10	24 25C+E	Circular	PVC/PVC	GENSET TO SWITCHBOARD - ATS CONTROL TERMINALS	24VDC CONTROL		

NEW WORK

 GENSET CABLES TO BE INSTALLED

NOTES

APPROVED FOR CONSTRUCTION

C	03.2006	Approved for Construction	<i>[Signature]</i>
B	11.2005	SWBD GenSet Upgrade 2005	
A	17/04/98	AS BUILT	
No	DATE	AMENDMENT	INITIALS

AMENDMENT & ISSUE REGISTER

MANAGER		DIRECTOR OF TECHNOLOGY SERVICES	
DATE:		DATE:	
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	
DESIGN	A.H.	25/11/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	26/11/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	26/11/96	A2 REDUCED

REFERENCES
 CADD FILE No.
 THIS DRAWING WAS PRODUCED USING AUTOCAD

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 BRISBANE CITY COUNCIL
 BRISBANE WATER



PROJECT
 IDTS
 SUGARMILL ROAD (SP147)
 SEWAGE SUBMERSIBLE PUMP STATION

TITLE
 CABLE SCHEDULE

SCALE:	No. OF SHEETS
DRAWING No. 486/5/7-TQ043	WAS 1127-16 AMEND. C

As Built

NOTES

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
C	03.2006	APPROVED FOR CONSTRUCTION	<i>[Signature]</i>
B	11.2005	GENSET PROJECT REVISIONS	
A	17/04/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES
DATE:	DATE:

DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	25/11/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	26/11/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	26/11/96	A2 REDUCED

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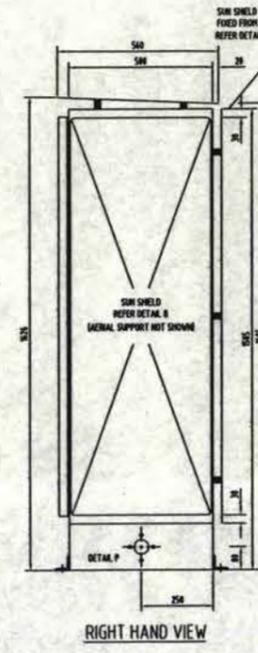
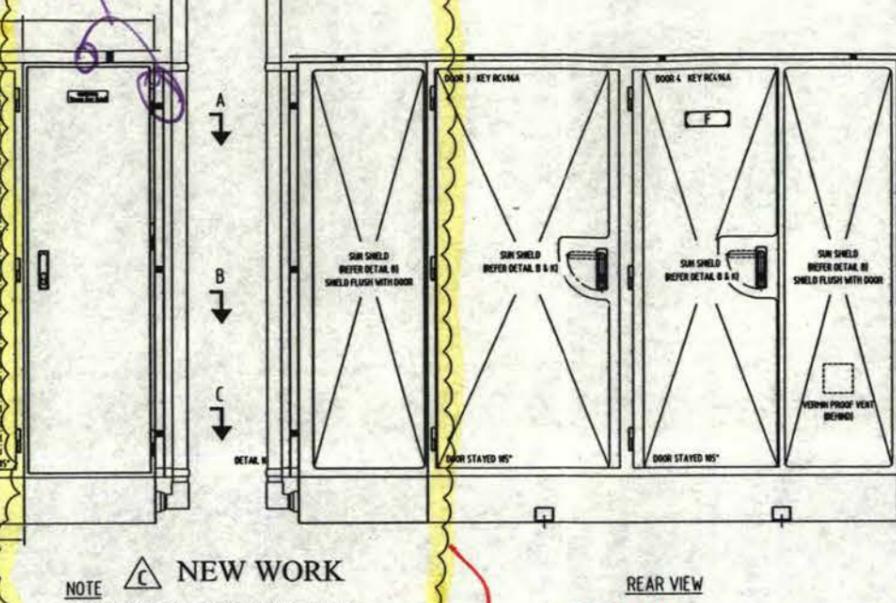
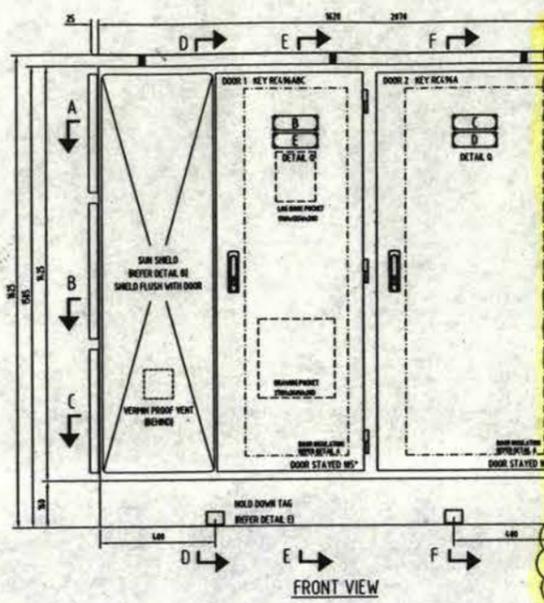
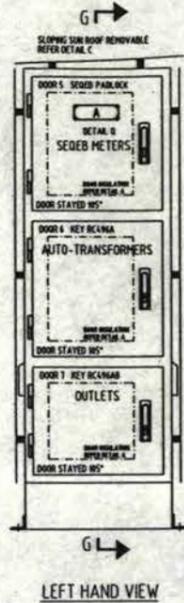
Brisbane City ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
SUGARMILL ROAD (SP147)
SEWAGE SUBMERSIBLE PUMP STATION

TITLE
SWITCHBOARD GENERAL ARRANGEMENT

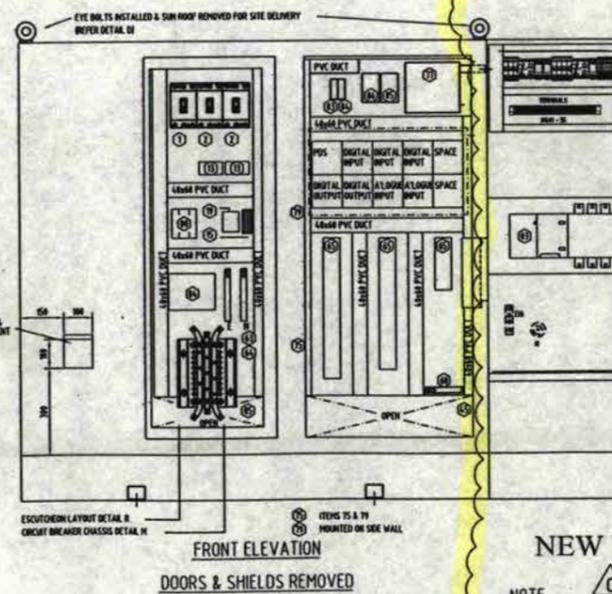
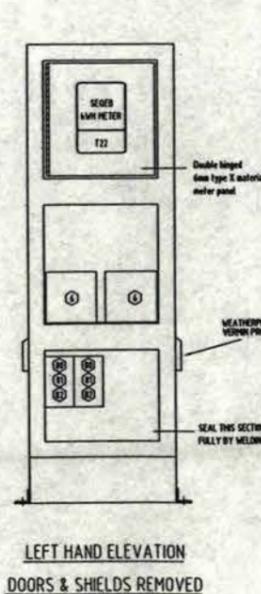
SCALE: No. OF SHEETS

DRAWING No. 486/5/7-TQ044 AMEND. C

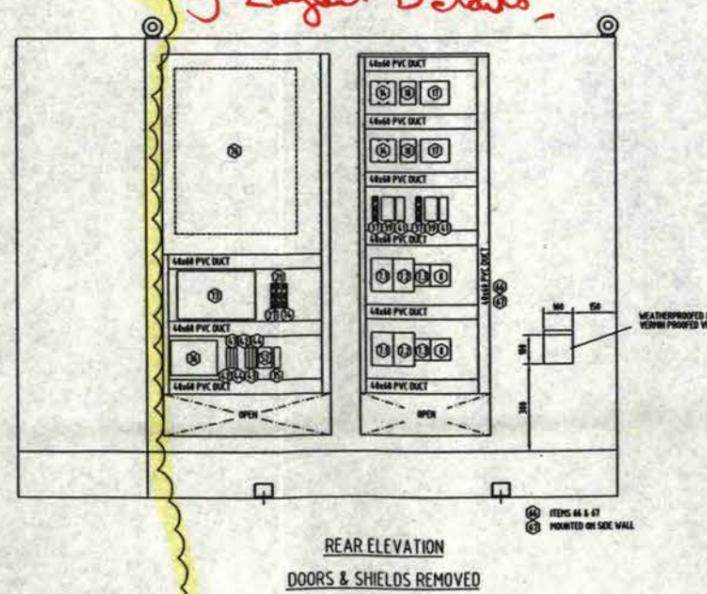


NEW WORK
NOTE
ATS CUBICLE FABRICATED & INSTALLED AS PER DRG. 486/5/7-PS002
EXISTING GND SHIELD RELOCATED AND SUN ROOF EXTENDED TO SUIT
EXISTING RTU ANTENNA REPOSITIONED AS SHOWN

*As B & H
Refer CL DWG'S JH86DA01, 02, 03, for
Layout details.*



NEW WORK
NOTE
THE SOLENOID OPERATED AUTOMATIC TRANSFER SWITCH INSTALLATION
MUST BE READ IN CONJUNCTION WITH THE TYPICAL DRAWINGS FOR
A SOLENOID OPERATED ATS UNIT CUBICLE: 486/5/7-PS001 & PS002



NOTES

APPROVED FOR CONSTRUCTION

D	03/2006	APPROVED FOR CONSTRUCTION	<i>[Signature]</i>
C	05/2005	SWBD Genset Upgrade 2005	
B	08/2/99	AS BUILT	
A	9/1/97	REVISED DWG	A.H.
No	DATE	AMENDMENT	INITIALS

AMENDMENT & ISSUE REGISTER

MANAGER		DIRECTOR OF TECHNOLOGY SERVICES	
DATE:		DATE:	
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	
DESIGN	A.H.	18/11/96	ENGINEER IN CHARGE
DRAWN	A.M.H.	18/11/96	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	19/11/96	A2 REDUCED

REFERENCES
 CADD FILE No.
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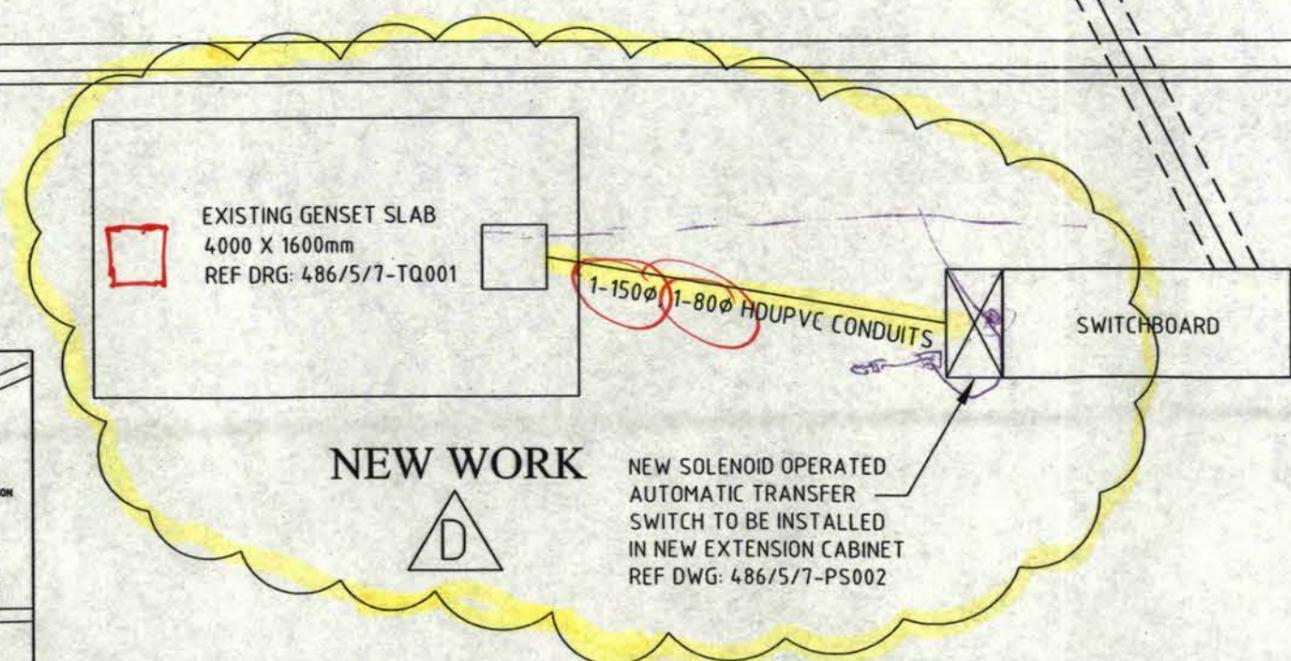
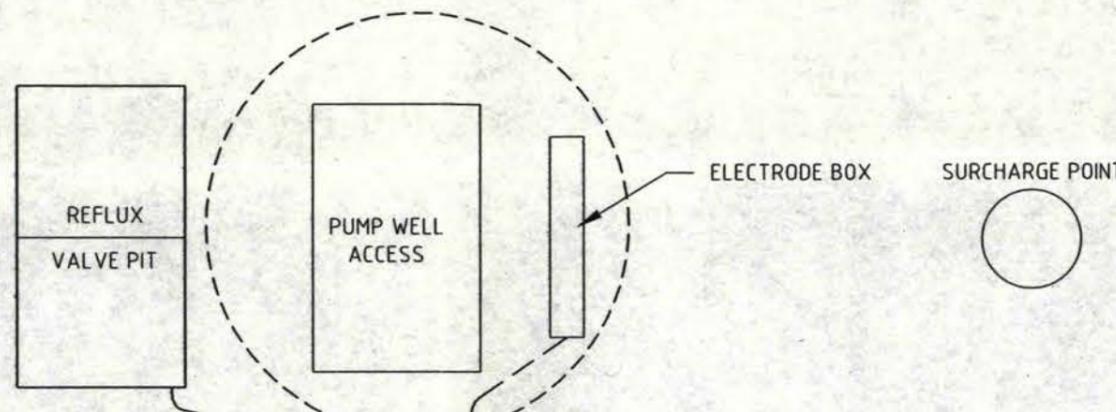


PROJECT
 IDTS
 SUGARMILL ROAD (SP147)
 SUBMERSIBLE SEWAGE PUMP STATION

TITLE
 SITE LAYOUT

SCALE:	No. OF SHEETS
DRAWING No.	WAS 1142-30
486/5/7-TQ049	AMEND. D

SUGARMILL ROAD



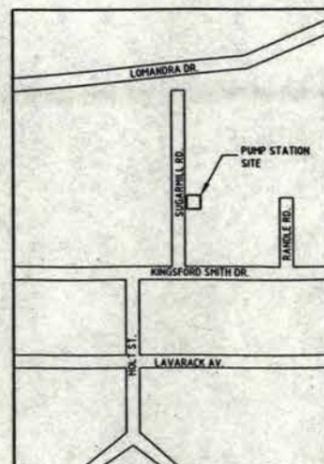
FOOTPATH



As Built

LEGEND

---	32mm CONDUIT
---	150mm CONDUIT



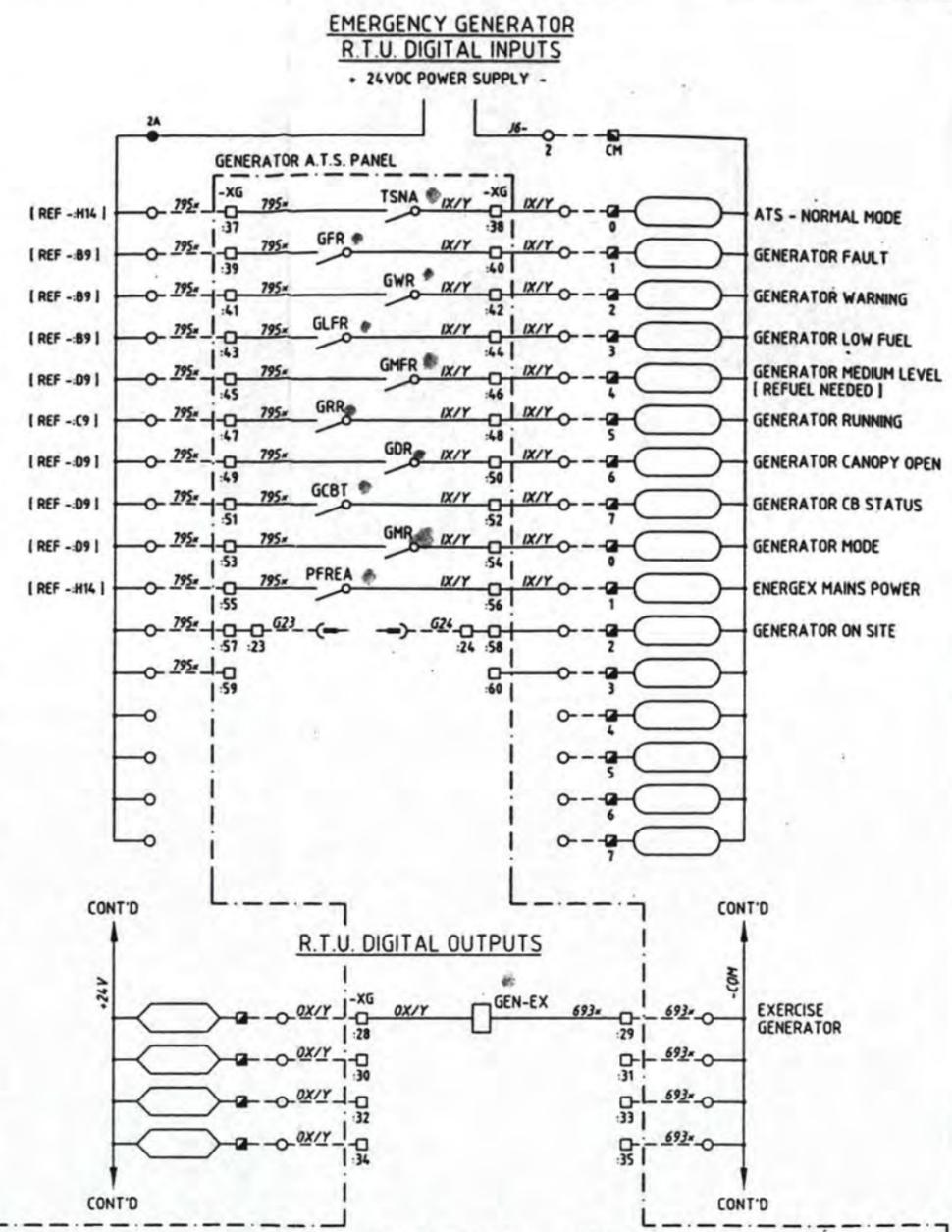
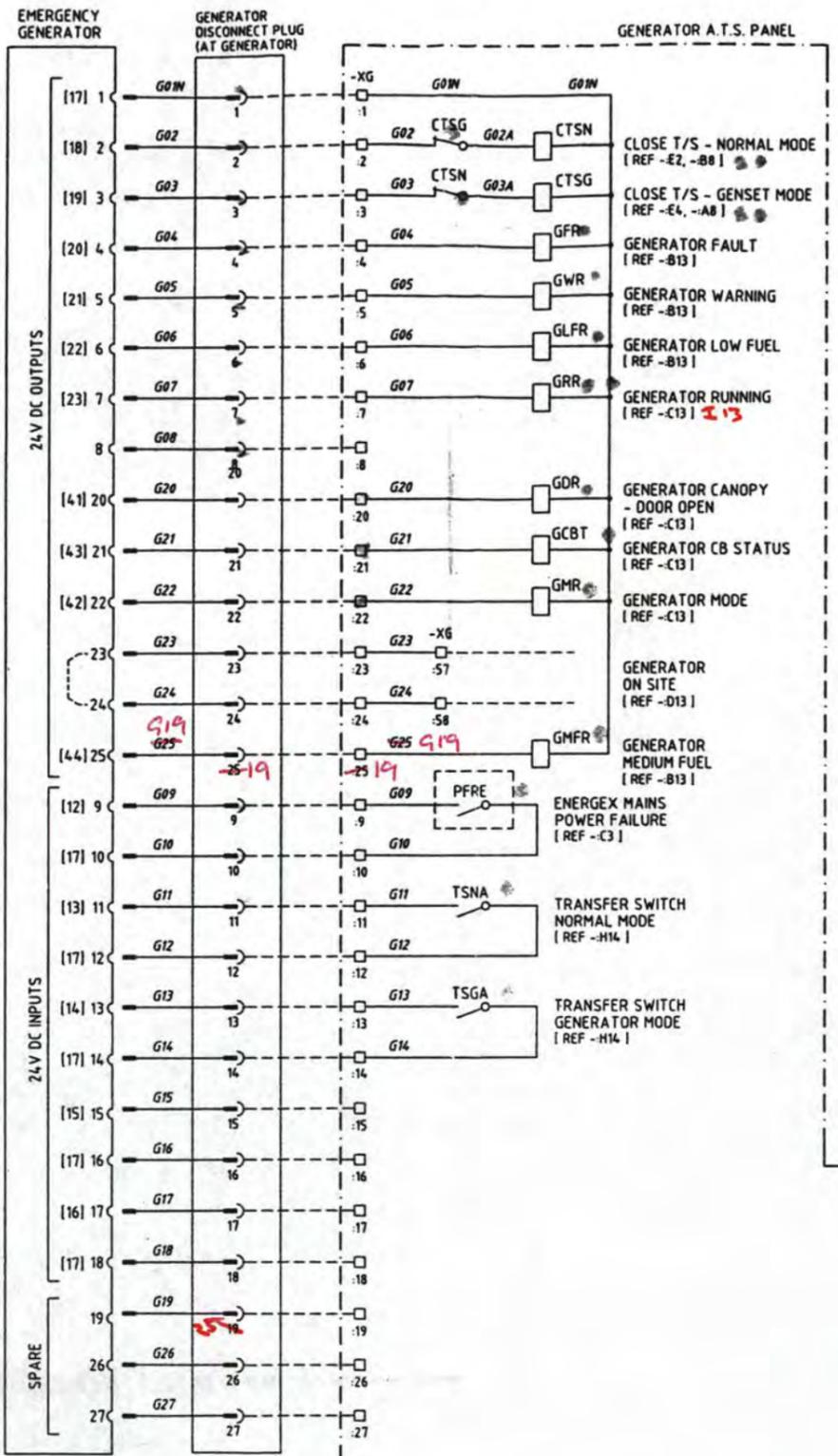
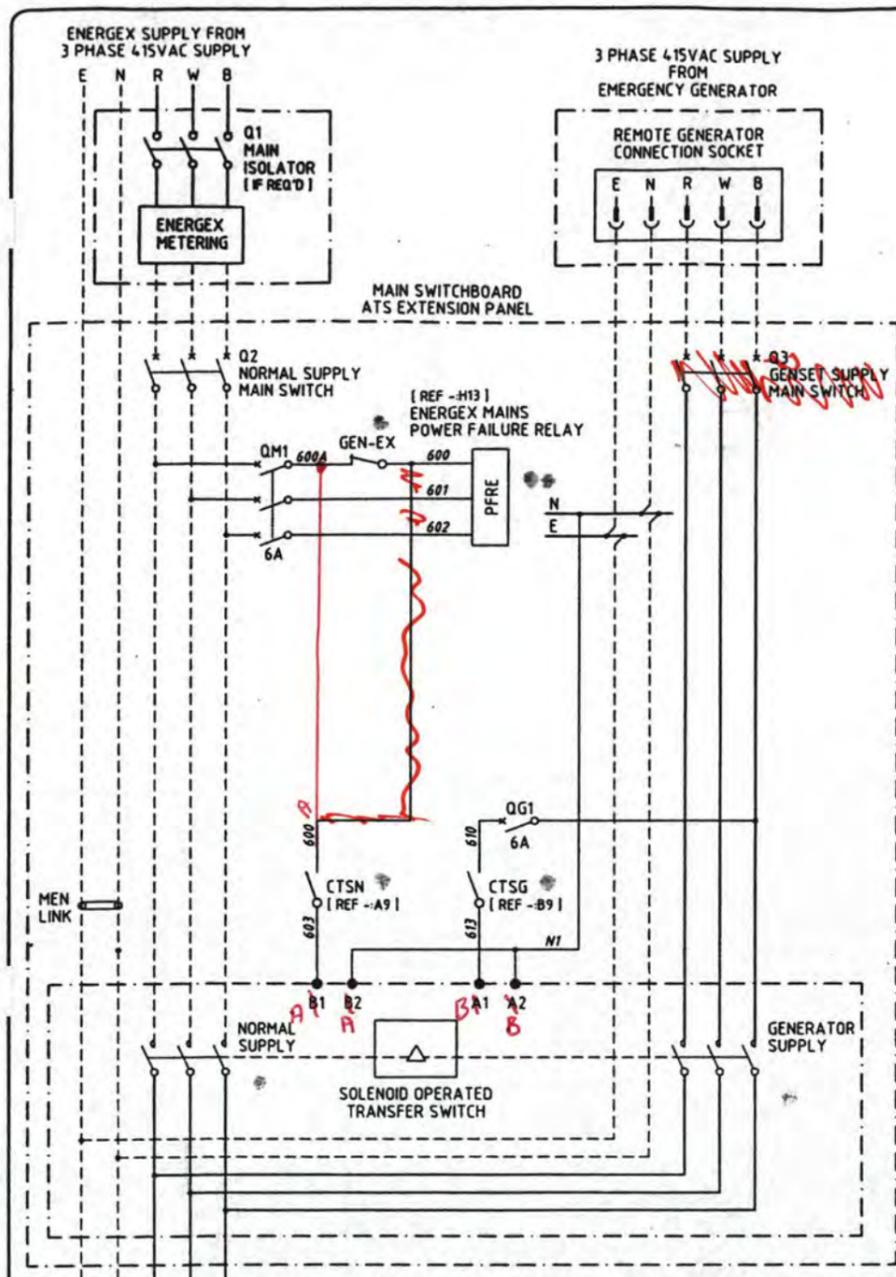


SEWAGE SYSTEM IMPROVEMENT 2005 GENERATOR EMERGENCY POWER AUTOMATIC TRANSFER SWITCHES ELECTRICAL DRAWING INDEX

ELECTRICAL DRAWINGS INDEX						
DWG N°.	TITLE	ISSUE	REVISIONS			
			1	2	3	4
486/5/7-PS000	DRAWING INDEX - ELECTRICAL INSTALLATION	05.2006	/	/	/	/
486/5/7-PS001	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - WIRING SCHEMATIC DIAGRAM	05.2006	/	/	/	/
486/5/7-PS002	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - CUBICLE ARRANGEMENT	05.2006	/	/	/	/
486/5/7-PS003	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - WIRING SCHEMATIC DIAGRAM	05.2006	/	/	/	/
486/5/7-PS004	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - CUBICLE ARRANGEMENT	05.2006	/	/	/	/
486/5/7-PS005	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - INTERCONNECTION DIAGRAM	05.2006	/	/	/	/
486/5/7-PS006	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - INTERCONNECTION DIAGRAM	05.2006	/	/	/	/
486/5/7-PS007	AUTOMATIC TRANSFER SWITCH - ATS EXTENSION CUBICLE - TYPICAL CONCRETE BASE ARRANGEMENT	05.2006	/	/	/	/
SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - SITE SPECIFIC INSTALLATIONS						
486/5/7-KI440	RADNOR STREET INDOOROOPILLY - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
486/7/85-KJT070	BRISBANE STREET TOOWONG - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
486/5/7-QT200	RAUBERS ROAD NORTHGATE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
486/5/7-TQ035	SUGARMILL ROAD MEEANDAH - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
486/5/7-FD015	LAGOON CRESCENT BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - SITE SPECIFIC INSTALLATIONS						
486/5/7-FD410	BIRKIN ROAD BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
486/5/7-FD135	PIONEER CRESCENT BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/
486/5/7-FK700	WIRRIBOOT COURT KARANA DOWNS - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	/	/	/	/

Asht
FOR CONSTRUCTION

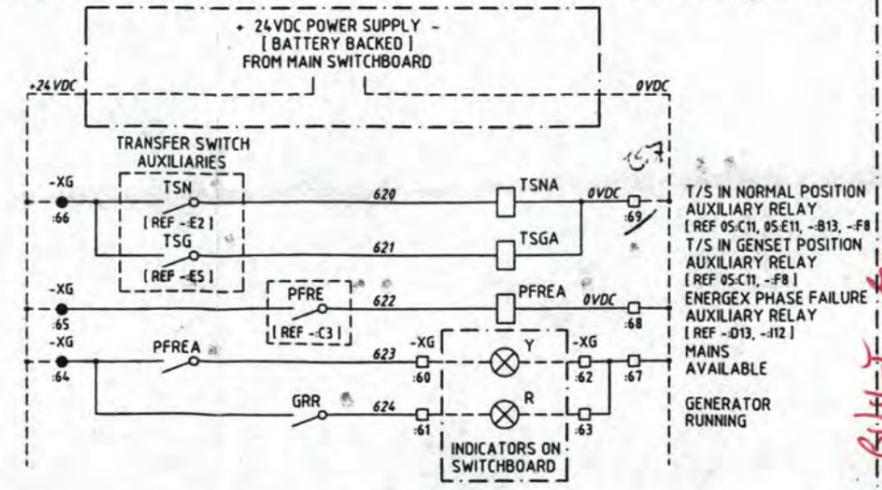
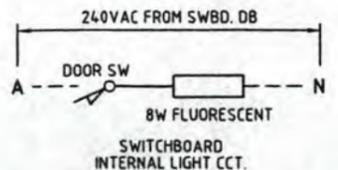
3	06.06	RE-ISSUED FOR CONSTRUCTION. REVISION UPDATES	M.J.L.	DRAFTED	M.J. LIGHTBODY	DESIGN	R.P.E.Q. No. DATE	PRINCIPAL DESIGN MANAGER - DATE	 PROJECT SEWAGE SYSTEM IMPROVEMENT 2005 STANDBY GENERATORS	TITLE AUTOMATIC TRANSFER SWITCH ELECTRICAL INSTALLATION ELECTRICAL DRAWING INDEX	SHEET No. 18	AMEND.	
2	05.06	NEW BORDER. RE-ISSUED FOR CONSTRUCTION	M.J.L.	DRAFTING CHECK							BRISBANE WATER	486/5/7-PS000	3
1	04.06	DRAWINGS PS005, 6 AND 7 ADDED	M.J.L.	CAD FILE	57PS000_3	DESIGN CHECK	R.P.E.Q. No. DATE	CLIENT DELEGATE DATE					
No.	DATE	AMENDMENT	DRN. APD.	Reference Drawings		B.C.C. FILE No.							



- NOTES**
- ALL FUSES ARE 500mA UNLESS NOTED OTHERWISE.
 - REFER DWG: 486/5/7-PS005 FOR INTERCONNECTION DIAGRAM.
 - R.T.U. DIGITAL I/O ADDRESSES TO BE DERIVED FROM SITE SPECIFIC DRAWING REFERENCE TABLE.
 - GENERATOR STARTED & STOPPED (a) AUTOMATICALLY UNDER POWER FAILURE CONDITIONS VIA PFRE PHASE FAILURE RELAY. (b) SIMULATED PHASE FAILURE VIA R.T.U. AND GEN-EX RELAY.
 - R.T.U. PRESENTATION IS GENERIC. WIRE NUMBERS AND I/O ADDRESSES SHALL BE DERIVED FROM THE SITE SPECIFIC DRAWINGS LISTED IN THE REFERENCE TABLE AS SHOWN BELOW.
 - CONTACT/COIL LOCATION REFS: REF -C3 = REFER THIS DWG., GRID REF C3. REF 05:H11 = REFER DWG. PS005, GRID REF H11.

SITE SPECIFIC DRAWING REFERENCES:

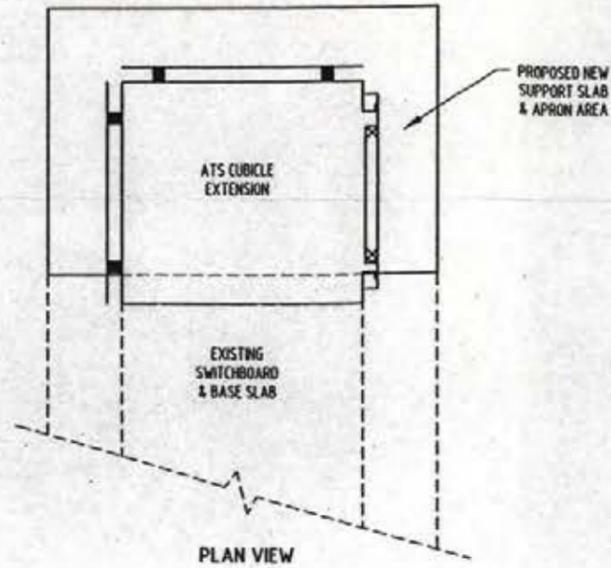
SEWAGE PUMP STATION SITE:	SITE DWG INDEX:	RTU I/O REF DWG:
RADNOR STREET - INDOOROPILLY	486/5/7-KI440	486/5/7-KI445
BRISBANE STREET - TOOWONG	486/7/85-KJT070	486/7/85-KJT075
RAUBERS ROAD - NORTHGATE	486/5/7-QT200	486/5/7-QT209
SUGARMILL ROAD - MEEANDAH	486/5/7-TQ035	486/5/7-TQ040
LAGOON CRESCENT - BELLBOWRIE	486/5/7-FD610	486/5/7-FD614



2	05.06	REDRAWN. SCHEMATIC UPGRADED.	MJL	DRAFTED	M.J. LIGHTBODY															
1	03.06	APPROVED FOR CONSTRUCTION	MJL	DRAFTING CHECK		DESIGN	R.P.E.Q. No.	DATE	PRINCIPAL DESIGN MANAGER	DATE										
0	11.05	REDRAWN FROM GHD DRAWING		CAD FILE	57PS001_2	DESIGN CHECK	R.P.E.Q. No.	DATE	CLIENT DELEGATE	DATE										
No	DATE	AMENDMENT	DRN.	APD.	Reference Drawings	B.C.C. FILE No.	R.P.E.Q. No.	DATE	CLIENT DELEGATE	DATE										

FOR CONSTRUCTION

SHEET No. 18	AMEND.
BRISBANE WATER DRAWING No.	486/5/7-PS001
	2



PLAN VIEW

APPLICABLE SITES

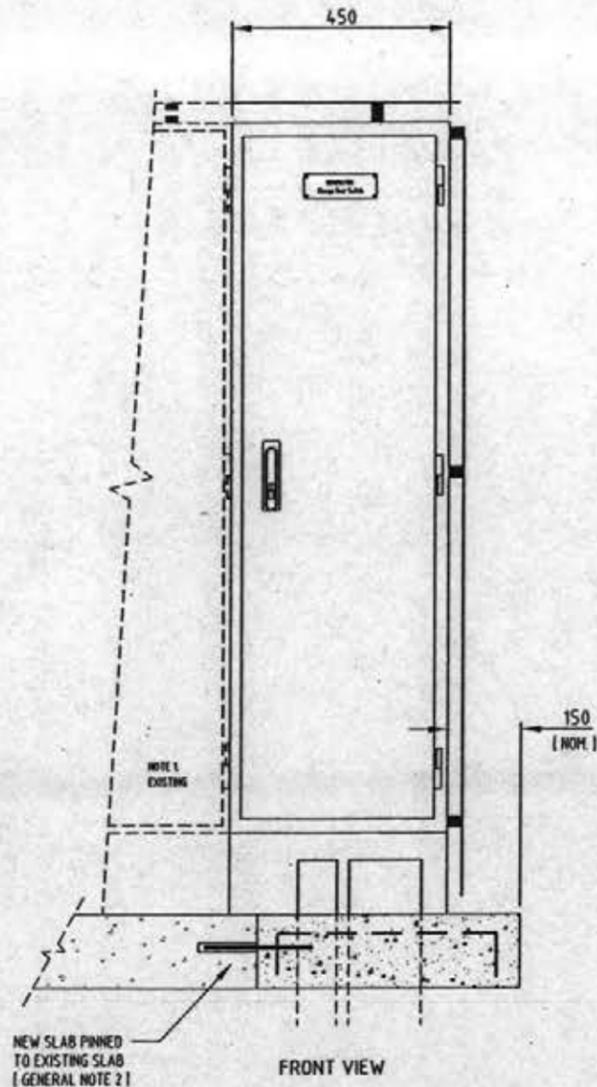
- SUGARMILL ROAD MEEANDAH
- BRISBANE STREET TOOWONG
- RADNOR STREET INDOOROOPILLY
- PIONEER CRESCENT BELLBOWRIE

CONCRETE NOTES

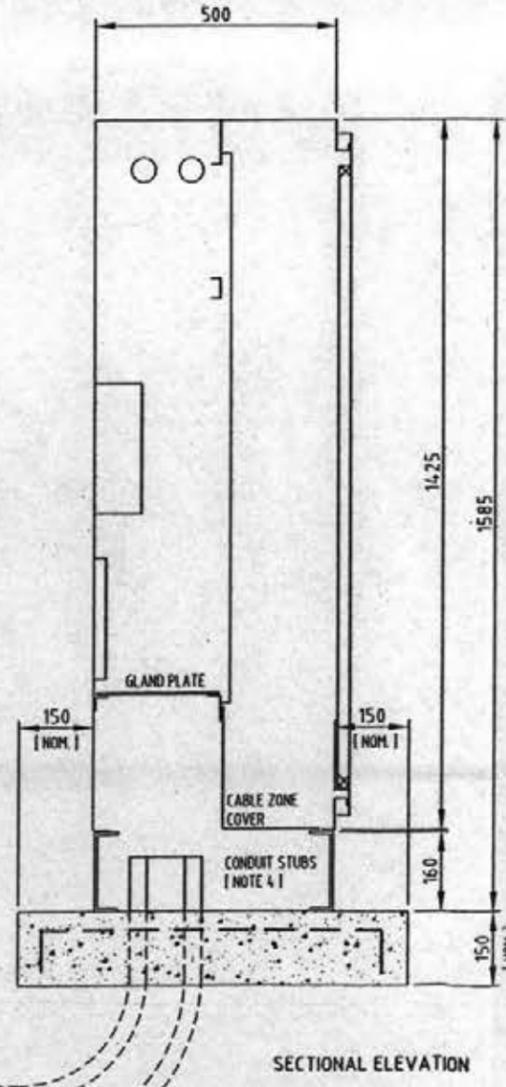
1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS AND CODES AND ANY RELEVANT BUILDING AUTHORITY BY-LAWS.
2. ALL CONCRETE SHALL COMPLY WITH THE AUSTRALIAN STANDARDS CONCRETE STRUCTURES CODE AS3600-2001 AND THE BRISBANE WATER REFERENCE SPECIFICATION FOR CONCRETE WORK PSE-SSS002.
3. ALL CONCRETE SHALL BE GRADE N32 UNLESS NOTED OTHERWISE. THE MAXIMUM SIZE OF AGGREGATE IN THE CONCRETE SHALL BE 20mm.
4. FORMWORK SHALL BE IN ACCORDANCE WITH AS 3610-1995, UNLESS NOTED OTHERWISE.
5. EXPOSED EXTERNAL CORNERS SHALL BE FINISHED WITH A 25mm ARRIS.

GENERAL NOTES

1. NOTE THIS DRAWING IS A PROPOSED GENERIC PRESENTATION ONLY. THE DIMENSIONS AND GENERAL ARRGT. OF EXISTING SWITCHBOARD BASE SLABS WILL VARY CONSIDERABLY FROM SITE TO SITE.
2. A NEW CONCRETE SLAB SHALL BE POURED TO PROVIDE A STABLE, LEVEL PLATFORM FOR THE NEW A.T.S. EXTENSION CUBICLES. THE NEW SLAB SHALL BE PINNED TO THE EXISTING SLAB.
3. THE CONTRACTOR SHALL DETERMINE THE BASE SLAB ARRANGEMENT AND DIMENSIONS REQUIRED IN ORDER FOR THE NEW SLAB TO MATCH THE EXISTING SLAB ARRANGEMENT FOR EACH SITE SPECIFIC SWITCHBOARD.
4. PENETRATIONS FOR CONDUIT STUBS, SHALL BE ALLOWED FOR, IN ACCORDANCE WITH THE PROPOSED SITE LAYOUTS FOR THE RESPECTIVE SITES:
[NOMINALLY 1 X Ø150 AND 1 X Ø80 CONDUITS]
5. THE CONTRACTOR SHALL IDENTIFY ALL THE SERVICES WITHIN THE IMMEDIATE AREA THAT MAY BE ADVERSELY AFFECTED BY THE SLAB CONSTRUCTION AND THE INSTALLATION OF CONDUITS.
6. WHERE ANY SIGNIFICANT REMEDIAL ACTION IS DEEMED NECESSARY, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER, BEFORE PROCEEDING.



FRONT VIEW



SECTIONAL ELEVATION

*As Built
Refer to CL DWG NO'S
SW86DA01, 02, 03 for Details*

FOR CONSTRUCTION

CONSTRUCTION ISSUE		DATE	INITIALS
NO.	DATE	AMENDMENT	
PRINCIPAL ENGINEER		R.P.E.Q. NO.	DATE
MANAGER ENGINEERING		DATE	
PRODUCTION / NETWORK DELEGATE		DATE	
DESIGN			
DESIGN CHECKED			
DRAWN	H.L. LIGHTBODY	84.2004	
DRAFTING CHECK			
JOB FILE			
ACAD FILE	SP147.dwg		
SURVEY No.		FIELD BOOK	
SURVEYED		A.M. DATUM	
PROJECT SEWAGE SYSTEM IMPROVEMENT 2005 STANDBY GENERATORS			
TITLE AUTOMATIC TRANSFER SWITCH ATS EXTENSION CUBICLE TYPICAL CONCRETE BASE ARRGT.			
SCALE	No. 2 OF 2 SHEETS		
DRAWING No.	486/5/7-PS007		AMEND. 0

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Electrical Manual

Subject: Sugarmill St SP147

Sheet: 8
Of: 10

Section
3

Page Revision No: Date: 17/11/06

Manual Issue No: 1 Date: 17/11/06

4.0 PART LIST

Authorised By: Grant Kerr

Electrical Manual

17/11/2006

Supplier Name	Part No	Item Description	Quant
ABK Electrical Wholesale	CLIWIPM27	27 CONTROL PIN W/P INSUL PLUG HI-IMPACT	1
Crompton Instruments	252-PSGW	415V NOMINAL VOLTAGE SENSING RELAY	1
NHP Electrical Engineering	96.72	2P 12AMP RELAY BASE FOR 56.32 RLY	2
NHP Electrical Engineering	38.51 24VDC	24V DC RELAY 1CO 6A	8
NHP Electrical Engineering	56.32 0074 24VDC	RELAY FPIN 2CO 12A 24VDC	2
NHP Electrical Engineering	62W3FD240VAC	SOLENOID OPERATED TRANSFER SWITCH NC	1
NHP Electrical Engineering	D5PP43NL3R	KIT D5 INT LED RED IND 24VAC/DC	1
NHP Electrical Engineering	D5PP53DLO	YELLOW PILOT LIGHT ROUND MAX 130V	1
NHP Electrical Engineering	D5PP53NL3A	KIT D5 INT LED YELLOW IND 24VAC/DC	1
NHP Electrical Engineering	DSRCBH1030A	DINT MCB/RCD 1P 10A 30MA 10KA	1
NHP Electrical Engineering	DTCB6106C	DINT 6KA 1P 6A CB	1
NHP Electrical Engineering	DTCB6306C	DINT 6KA 3P 6A CB	1
Phoenix Contact Pty Ltd	PH0441504	USLKG5 EARTH TERMINAL 4MM	2
Phoenix Contact Pty Ltd	PH3004100	UK5-HESI FUSE TERMINAL M205	4
Phoenix Contact Pty Ltd	PH3004362	UK5N 4MM FEEDTHRU TERMINAL GREY	40
Ramelec Pty Ltd	017216-0000	SAKR/35 LINK TERMINAL	32
Ramelec Pty Ltd	047456-0000	ASK1 FUSE TERMINAL	2

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Electrical Manual

Subject: Sugarmill St SP147

Sheet: 9
Of: 10

Section
4

Page Revision No:

Date: 17/11/06

Manual Issue No: 1 Date: 17/11/06

5.0 TEST SHEETS

Authorised By: Grant Kerr

COMMON LOGIC Pty Ltd

A.C.N. 011 029 262

Job Card Number: **0443**

ELECTRICAL CONTRACTORS LICENCE No: 9564

Variation To Fixed Price Proj

Cost Plus Labour Proj.

Call Out

Service

CUSTOMER: Brisbane Water	Project No: SP147
Representative Name: RALPH BERRY	
Position: SUPERINTENDENT	Date: 25/08/06
Signature on Completion:	

Power Authority Forms	
Pre-Start Safety Mtg.	
Risk Assessment	

C/L Representative: Jeff Allan	
Position: Electrician	Date: 25/08/06
Mobile Phone No: 0419 585 660.	

START	FINISH	DETAILS	Hrs.	No MEN	TOTAL	RATE	CHARGED
		TRAVEL TO SITE					
		Sugarmill Road					
		Mounted Extra AT's					
		Panel. Cut in Submains					
		to AT's. Connected					
		Generator & Control					
		Cabling. Installed RTV					
		Fuses & wiring					

PLEASE SEE ATTACHED FORM FOR ADDITIONAL TOTAL LABOUR CHARGED:

ITEM No:	PART No:	ITEM DESCRIPTION.	No. ITEM	COST ITEM	TOTAL COST	%	CHARGED
1.		Switchboard, Kit					
2.		as supplied					
3.							
4.							
5.							
6.							
7.							
8.							
9.							

PLEASE SEE ATTACHED FORM FOR ADDITIONAL TOTAL MATERIALS:

PROGRESS CLAIM WORKS NOT COMPLETED AND NOT TESTED
 FURTHER WORK REQUIRED TO COMPLETE PROJECT.
 PROJECT COMPLETED NO FURTHER ACTION REQUIRED

WHITE COPY - CUSTOMER YELLOW COPY - OFFICE

* Certify that the Electrical work listed above has been tested in accordance with the prescribed procedure and that such work complies with the requirements of the State Electricity Act.

Signature:

ELECTRICAL LICENCE No. 40134

<input type="checkbox"/>	POLARITY TEST.
<input type="checkbox"/>	INSULATION RES. TEST.
<input type="checkbox"/>	ETH CONTINUITY TEST
<input type="checkbox"/>	FUNCTIONAL TEST

ЛИСЕНСІЯ
ЕЛЕКТРИКУ

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels

Sheet: 1
 Of: 7

Section

Page Revision No: 0 Date: 28/08/06

Manual Issue No: 0 Date: 28/08/06

1.0	SITE ACCEPTANCE TEST.....	2
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1.2	PRODUCTION UNIT INFORMATION.....	2
1.3	SAFETY PRECAUTIONS	2
2.0	ELECTRICAL EARTHING SYSTEM.....	3
2.1	ELECTRICAL CONTINUITY AND RESISTANCE OF EARTHING SYSTEM.....	3
2.2	CONTINUITY TEST SHEET	3
3.0	INSULATION RESISTANCE/ HIGH POT TEST.....	3
3.1	INSULATION RESISTANCE TEST.....	3
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6.2	AC CONTROL SYSTEMS	7

Test Carried out by..... *Graw & Kerr*

Signed... *[Signature]* Date... *25/8/06*

Test witnessed by.....

Signed... Date...

Authorised By:

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels	Sheet: 2 Of: 7	Section
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Page Revision No: 0 Date: 28/08/06 Manual Issue No: 0 Date: 28/08/06

1.0 SITE ACCEPTANCE TEST

1.1 Introduction

Complete EVERY box below; if items are not applicable indicate by a N/A in the check box, any comments can be completed at the end of the checklist.
Aim: This Commissioning list is to be completed by the person/s who are undertaking the commissioning and testing of the switchboard in question. The commissioning list is designed to check the fundamental wiring of the switchboard.
Scope: This Commissioning list is designed to test the operation of the MSB and Controls only. Building wiring is subject to test by building services qualified personnel.

Legend of Symbols

Check Box, Setting to be recorded, → and Action to take

1.2 Production Unit Information

Job Number	JH86	Site Name	SP147 SUGARMILL ST
	Name	Signature	Date
Testing Officer	Grant Kerr		25/8/06
Witness			

1.3 Safety precautions

Outlined below are some common safety procedures and First Aid Instruction.

SAFETY FIRST

- 1) Never test live boards alone. Always inform others of your actions and intentions.
- 2) Isolate mains or REMOVE TEST PLUG and locate close to testing area under your control.
- 3) Isolate the switchboard main switch and all circuitbreakers and fuses to completely remove all possibility of switching a live conductor when not deliberately required.
- 4) Tag all Distribution as DO NOT OPERATE removing only after tested and safe.
- 5) Insure NO LIVE WIRES are exposed at any time and a CLEAR TESTING AREA and escape route at all times.
- 6) PROTECTIVE CLOTHING and eyewear should be worn at all times when working within Live board or when appropriate.

Test Carried out by... Grant Kerr Signed... [Signature] Date... 25/08/06
 Test witnessed by..... Signed... Date...
 Authorised By:

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels

Sheet: 3
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Section

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Manual Issue No: 0 Date: 28/08/06

2.0 ELECTRICAL EARTHING SYSTEM

2.1 Electrical continuity and resistance of earthing system

Maximum resistance of the Earthing system within the switchboard is 0.5 ohms (AS/NZS 3000:2000)

Test resistance of the Earthing system 0.52 ohms

2.2 Continuity Test Sheet

ITEM	DETAIL	COMPARTMENT DESIGNATION AND TEST RESULT		
		Extension	Main Eth Bar	Generator
	Test resistance of Earthing system to compartment Answer in Ohms			
1	All Earth's wired and continuous	✓		✓
2	All metal work earthed where required	✓		
3	Isolate Individual Earth Systems and check continuity.	✓		

3.0 INSULATION RESISTANCE/ HIGH POT TEST

3.1 Insulation Resistance Test

Insulation resistance of whole or part of an installation must be a minimum of 1 Meg/ohm (AS/NZS 3000:2000)

Insulation test conducted on all internal circuits

→ All Selector Switches, Isolators and CB's are in the off position

→ All electronic equipment susceptible to high voltage damage to be isolated.

3.2 Low Voltage Switchboards Insulation Test

MEGGAR VOLTAGE 1000 VOLTS

INSTRUMENT DETAILS _____

ACROSS	RESULT (MOHM)	High Pot
Join Red, White & Blue Phases and Neutral, Test to Earth	> 200mΩ	
Red Phase to White, Blue & N	..	
White Phase to Red, Blue and N	..	
Blue Phase to Red, White & N	..	
N to Red, White & Blue	..	

Generator Leads

Test Carried out by... *Grant Kerr*

Signed... *[Signature]*

Date... *25/08/06*

Test witnessed by.....

Signed...

Date...

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COMMON LOGIC Pty Ltd
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Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels

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Section

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Manual Issue No: 0 Date: 28/08/06

4.0 GENERAL WIRING AND VISUAL INSPECTION

4.1 General Wiring and Visual Inspection

Electrical Construction Coversheet Completed and correct.

4.2 Switchgear Visual Checklist

→ Carry out visual and mechanical checks to Switchgear

ITEM NO:	DETAIL	Switchboard compartments		
		Transfer switch compartment	Main switch area	Generator in general
1	Main Switch totally isolates SWBD	✓	—	✓
	Mains transfer switch device isolates mains from load. (IE switchboard)	✓	—	—
2	Generator transfer switch operates and isolates generator from the load. And mechanical interlock works	✓	—	✓
3	Cables tight and correct phase rotation. Colour match.	✓	✓	✓
4	Main Switch Correct Rating/Label	✓	—	✓
5	Neutral cable connected and continuous and tight.	✓	—	—

ITEM	DETAIL	COMPARTMENT DESIGNATION AND TEST RESULT	
		Switchboard extension	Existing Switchboard. Where modified.
1	All CBs operate correctly	✓	—
2	All incoming terminal numbers as per drawings	✓	✓
3	Check wire numbers to core numbers. Random selection.	✓	✓
4	All wires numbered as per drawings (random inspection)	✓	✓
5	Cables loomed and bushed correctly to all compartments.	✓	✓
6			
7			

Test Carried out by..... *Grant Kerr*

Signed... *[Signature]*

Date... *25/08/06*

Test witnessed by.....

Signed...

Date...

Authorised By:

JH86QT01

28 August, 2006

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels

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4.3 Terminal Visual Checklist

→ Carry out visual and mechanical checks on Site terminals

ITEM	DETAIL	COMPARTMENT AND TEST RESULT	
		Switchboard extension	Existing Board
1	All Terminals tight (Randomly check)	✓	—
2	Secure by End Clamps (Check All)	✓	—
3	Labelled correctly	✓	—
4			

4.4 Relay Visual Checklist

→ Carry out visual and mechanical checks on Relays

ITEM	DETAIL	COMPARTMENT AND TEST RESULT
1	Relays labelled correctly as per Drns	✓
2	All relay coils correct voltage	✓
3	Does relay require Diode fitted?	No
4	Common Bus Link on relays fitted	✓
5	All numbering correct	✓

Test Carried out by..... *Grant Kerr*

Signed...

Date... *25/08/06*

Test witnessed by.....

Signed...

Date...

Authorised By:

JH86QT01

28 August, 2006

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels

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5.0 CONTINUITY & PRE-COMMISSIONING TEST

5.1 Continuity Test

- Wiring of circuits and connections are correct to constructed wiring schematics.
- Random Continuity Test using Buzzer.
- Visual Check of all wiring.

- Open all Circuit breakers and remove all fuse links
- Bridge each interface and test each output.
- Install RTU terminal Plugs into terminals
- By bridging the relevant pins and observing the relevant RTU IO feedback all circuits will be checked.
- Test each circuit in turn with corresponding drawings

ITEM NO	Test description			Result of test
		Action	Observation	
1	Transfer to Mains	Bridge	Observe Relay GTSM	✓
2	Transfer to Gen		Observe Relay GTSG	✓
3	Generator Failed		Observe Relay GF	✓
4	Generator Fault		Observe Relay GFR	✓
5	Gen Running		Observe Relay GRUN	✓
			Check Door Indicator is on when relay is ON	✓
6	Generator Connected		Observe Relay GCONN	✓
7	Doors Opened		Observe Relay GOPEN	✓
8	CB Tripped		Observe Relay GCBT	✓
9	Not in Auto		Observe Relay GNAUTO	✓
10	Generator Not On Site		Observe Indicator	✓
11	Spare			
15	Remote Start		Observe Relay GSTART	Exercise GEN ✓
16	Remote Stop		Observe Relay GSTOP	
1	Mains Failed	Close QM1	Indicator ON when PFR is ON	✓
			Check Door Indicator is ON when PFR is ON	✓
2	ATS to Mains	Manual Change to Mains	Indicator ON when TXS in Mains	✓
3	ATS To Gen	Manual change to Gen	Indicator ON when TSX in GEN	✓
4	Remote Start		Indicator is on when PB is ON	NA
5	Remote Stop		Indicator is on When PB is ON	NA
6	Generator is missing		Indicator is on when PB is ON	✓

Test Carried out by.... *Grant Kerr*

Signed... *[Signature]* Date... *25/08/06*

Test witnessed by.....

Signed... Date...

Authorised By:

JH86QT01

28 August, 2006

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels

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6.0 COMPONENT OPERATIONAL TEST

6.1 Component Operation Test

- Correct Operation and Voltages
- All set points and parameters set to test values if required.

6.2 AC Control Systems

- Open all circuit breakers and remove all fuse links
- Test each circuit individually, replacing fuses and closing circuit breakers in turn.

AFTER VOLTAGE APPLIED

- Apply mains supply
- Carry out voltage and operational checks (ie switch operation etc)
- Bridge control points to check operation as per BW generator commissioning Sheet
- Apply generator voltage and check operation
- Return to normal and fail the mains
- Return the mains
- Carry out a manual transfer

ITEM NO:	DETAIL	New Extension	
		Test Result	
1	Mains Incoming Voltage Measured OK	OK	
2	Unplug set and check alarm	OK	
3	Open doors	OK	
4	Trip CB	OK	
5	Engine temperature/Alarm	NA	
6	Turn set to Auto and Manual	OK	
7	Low fuel alarm	OK	
8	Fuel empty alarm	OK	
9			
10	Manually initiate generator start	OK	
11	Manually restore to mains	OK	
12	Remote start	OK	
13	Remote stop	NA	
14	Mains fail Start	OK	
15	Return to mains	OK	
16	Mains fail and then fail generator	OK	(RETURNS TO MAINS)
17	Check return to to mains if gen fails	OK	
18			
19			
20			

Test Carried out by... *Graeme Kerr*

Signed... *[Signature]* Date... 25/08/06

Test witnessed by.....

Signed... Date...

Authorised By:

JH86QT01

28 August, 2006



BRISBANE WATER

Network Control Systems

IDTS POINT COMMISSIONING SHEET AND GENERATOR SUPPLY OPERATIONAL CHECKS

Pump Station Generator Connection

SITE TYPE & NO. SPSA2G34

Site Name: Sugarmill Rd

NOTE: Some (or all) of the Generator associated IDTS points may be Scan Inhibited in the IDTS system. Remove the Scan Inhibit from these points before proceeding with these tests

IDTS Point : Generator Offsite

Action	Observation	Result
Connect the Control interface lead to the station	Confirm that GENERATOR OFFSITE alarm is returned to normal by IDTS	✓ Yes
Disconnect the Control interface lead to the station	Confirm that GENERATOR OFFSITE alarm is received by IDTS	✓ Yes
Reconnect the Control interface lead to the station		✓ OK

IDTS Point : Generator Unsecured

Action	Observation	Result
Open a canopy door on the Generator	Confirm that GENERATOR UNSECURED alarm is received by IDTS	✓ Yes
Close the canopy door	Confirm that GENERATOR UNSECURED alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Low fuel

Action	Observation	Result
Make the Generator low fuel warning alarm active	Confirm that GENERATOR LOW_FUEL alarm is received by IDTS	✓ Yes
Deactivate the Generator low fuel warning alarm	Confirm that GENERATOR LOW_FUEL alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Med fuel

Action	Observation	Result
Make the Generator medium fuel warning alarm active	Confirm that GENERATOR MED_FUEL alarm is received by IDTS	✓ Yes
Deactivate the Generator medium fuel warning alarm	Confirm that GENERATOR MED_FUEL alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Warning

Action	Observation	Result
Make the Generator warning alarm active (except by low fuel)	Confirm that GENERATOR WARNING alarm is received by IDTS	✓ Yes
Deactivate the Generator warning alarm	Confirm that GENERATOR WARNING alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Common fault

Action	Observation	Result
Make the Generator common fault alarm active	Confirm that GENERATOR COMMON_FAULT alarm is received by IDTS	✓ Yes
Deactivate the Generator common fault alarm	Confirm that GENERATOR COMMON_FAULT alarm return to normal is received by IDTS	✓ Yes

Brisbane Water – Network Control Systems Section

IDTS Point : Generator Automatic

Action	Observation	Result
Turn the generator to local mode	Confirm that GENERATOR AUTOMATIC alarm is RETURNED TO NORMAL by IDTS	✓ Yes
Return the generator to automatic mode	Confirm that GENERATOR AUTOMATIC alarm is received by IDTS	✓ Yes

IDTS Point : Generator CB_tripped

Action	Observation	Result
Trip the Generator circuit breaker	Confirm that GENERATOR CB_TRIPPED alarm is received by IDTS	✓ Yes
Reset the Generator circuit breaker	Confirm that GENERATOR CB_TRIPPED alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Running

Action	Observation	Result
Start the Generator (off line only)	Confirm that GENERATOR RUNNING alarm is received by IDTS	✓ Yes
Stop the Generator	Confirm that GENERATOR RUNNING alarm return to normal is received by IDTS	✓ Yes

IDTS Control Points : Generator Exercise

Action	Observation	Result
Confirm the Generator is available to run, but not running		<input type="checkbox"/> OK
Set the IDTS control point GENERATOR START EXERCISE and send to the site	Confirm that the Generator starts and runs off-line	✓ Yes
	Confirm that GENERATOR RUNNING alarm is received by IDTS	✓ Yes
Set the IDTS control point GENERATOR STOP EXERCISE and send to the site	Confirm that the Generator stops	✓ Yes
	Confirm that GENERATOR RUNNING alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Power_supply EnergeX power

Action	Observation	Result
Turn the generator to local mode		<input type="checkbox"/> OK
Fail the EnergeX power	Confirm that POWER_SUPPLY ENERGEX POWER alarm is received by IDTS	✓ Yes
Restore the EnergeX power	Confirm that POWER_SUPPLY ENERGEX POWER alarm return to normal is received by IDTS	✓ Yes

IDTS Point : ATS Closed , and Generator supply operational checks

NOTE: The purpose of these operational checks is;

- *To confirm the pumps are interlocked under Generator supply (where required)*
- *To confirm the code changes have not interfered with the operation of the Surchage Imminent probe.*

Action	Observation	Result
Ensure the Generator is in Automatic mode		<input type="checkbox"/> OK
Ensure the pumps are selected for local mode		<input type="checkbox"/> OK
Ensure there is enough sewage in the well for the pumps to run continuously for one minute		<input type="checkbox"/> OK
Fail the Energex power to the Generator	Confirm that the Generator starts and supplies power to the station	✓ Yes
	Confirm that ATS CLOSED alarm is deactivated and received by IDTS	✓ Yes
Generator Interlocking	Confirm the RTU will run a maximum of one pump under generator supply.	✓ Yes
Site: BirkinRd.	Confirm the RTU will run a maximum of two pumps under generator supply.	NA
Restore Energex power and record the time taken for the Generator controller to return the station power to Energex supply	Time for station power to return to Energex supply	...300..... Secs
	Confirm that ATS CLOSED alarm is received by IDTS	✓ Yes
Record time taken for the Generator to stop after station power to returns to Energex supply	Time for Generator to stop after station power to returns to Energex supply	...300..... Secs

***Pump Automatic operation, and
Surcharge Imminent operation under Generator supply***

Action	Observation	Result
Fail the Energex power to the Generator	Confirm that the Generator starts and supplies power to the station	✓ Yes
Ensure the pumps are selected for remote mode	<u>Fixed speed pump sites:</u> Confirm that the duty pump lowers the well to the Duty A stop level and stops	✓ Yes
	<u>Variable speed pump sites:</u> Confirm that the duty pump operates on variable speed control satisfactorily	<input type="checkbox"/> Yes
Ensure the well level is below the Duty A start level using pump local control as required		<input type="checkbox"/> OK
Ensure the pumps are selected for remote mode and are stopped		<input type="checkbox"/> OK
Activate the surcharge imminent probe for at least 10 sec	Confirm that WET_WELL SURCHARGE_IMMINENT alarm is received by IDTS	✓ Yes
	Confirm that all pumps (available under Generator supply) start	✓ Yes
Ensure the well does not fall below the Duty A stop level by selecting local mode for the pumps as required		✓ OK
Return the surcharge imminent probe to normal	Confirm that WET_WELL SURCHARGE_IMMINENT alarm return to normal is received by IDTS	✓ Yes
Restore Energex power indication to the Generator and allow the Generator controller to return the station power to Energex supply		✓ OK

IDTS Points and Generator Supply

Operational Checks commissioned by ...Dan Vowles..... Date:

30/08/2006.....

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Electrical Manual

Subject: Sugarmill St SP147

Sheet: 10
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Section
5

Page Revision No:

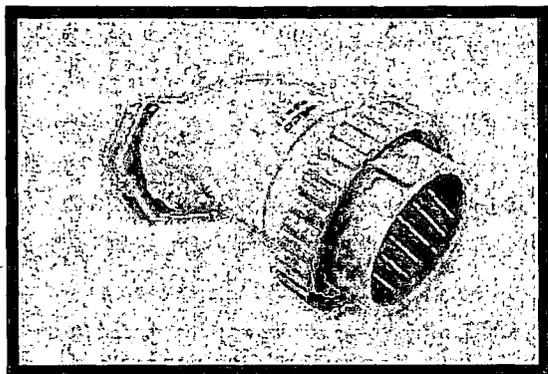
Date: 17/11/06

Manual Issue No: 1 Date: 17/11/06

6.0 TECHNICAL INFORMATION

Authorised By: Grant Kerr

Catalogue No. WIPM27



Colour Options



No colour options



Transparent

More colour options may be available. Please check with your nearest Clipsal office.

Description:

Low Voltage Multipin - 27 Pin Maximum. Wilco Industrial Hi-Impact Insulated Angle Plug. Wilco Industrial Hi-Impact Insulated Plugs One Piece Angle With Screw Ring - IP56

Item Type

02 Industrial Products

Business Area

40 Industrial Switchgear

Product Group

403 Wilco Hi-Impact Industrial Switchgear

Item Group

40303 Plugs & Extension Sockets

Brochures Available:

A Specifiers guide to Clipsal Industrial

A Specifiers guide to Clipsal Industrial

A Specifiers guide to Clipsal Industrial

tyco

Electronics Energy Division

INSTALLATION INSTRUCTIONS

Page 1 of 2

Ref: IW250PMSH – Rev 6 – Sept 02

Models Covered

252-PMM	252-PMT	252-PSF	252-PSG
253-PH3	252-PMM	252-PMT	

Introduction**Thermistor Trip Relay (252-PMM & 252-PMT)**

The trip inputs are monitored within settable limits. In the event of the input moving outside these limits, the unit will initiate a trip signal via a double pole changeover relay. An illuminated green LED indicates when the thermistor temperature is within normal working limits. The unit is designed such that the alarm relay is energised when normal temperatures are reached.

Model 252-PMM has the facility for manual resetting, so that the trip condition remains after normal operating temperature is reached, until manual intervention occurs.

Phase Balance Relay (252-PSF & 252-PSG)

Trip inputs are monitored within settable limits. In the event of the input moving outside these limits, the unit will initiate a trip signal via a double pole changeover relay. An illuminated red LED indicates that the supply is within limits.

Speed Sensing Relay (253-PH3)

Trip inputs are monitored within settable limits. In the event of the input moving outside these limits, the unit will initiate a trip signal. The illuminated red LED's indicates that the single pole output relays are in an energised state and at normal running speed all three relays should be energised. Units are factory adjusted for normal running speed = 0.75mA output. The meter adjust pot on the product front is used for this requirement, which also ensures the trip levels are set to the calibrated values. Terminal 8 is connected to terminal 5 internally. Terminals 15 and 16 give a 0/1mA signal proportional to speed.

No.1 Relay energises on rising speed

No.2 Relay energises on rising speed

No.3 Relay de-energises on rising speed

This product is designed for use only with magnetic coil inductive sensors.

Warning

- During normal operation, voltages hazardous to life may be present at some of the terminals of this unit. Installation and servicing should be performed only by qualified, properly trained personnel abiding by local regulations. Ensure all supplies are de-energised before attempting connection or other procedures.
- It is recommended adjustments be made with the supplies de-energised, but if this is not possible, then extreme caution should be exercised.
- Terminals should not be user accessible after installation and external installation provisions must be sufficient to prevent hazards under fault conditions.
- This unit is not intended to function as part of a system providing the sole means of fault protection - good engineering practice dictates that any critical function be protected by at least two independent and diverse means.

Never open circuit the secondary winding of an energised current transformer.

**Protector Trip Relays****DIN Rail & Wall Mounted 250 Series****Thermistor Trip, Speed Sensing &****Phase Angle****Installation**

The Protector should be installed in a dry position, not in direct sunlight and where the ambient temperature is reasonably stable and will not be outside the range 0 to 60 degrees Celsius. Mounting will normally be on a vertical surface but other positions will not affect the operation.

Vibration should be kept to a minimum. The Protectors are designed for mounting on a 35mm rail to DIN 46277.

Alternatively, they may be screw fixed; a special adaptor is supplied to mount 252 types.

To mount a protector on a DIN rail, the top edge of the cutout on the back is hooked over one edge of the rail and the bottom edge carrying the release clip clicked into place. Check that the unit is firmly fixed. Removal or repositioning may be achieved by levering down the release clip and lifting the unit up and off the rail.

Connection diagrams should be carefully followed to ensure correct polarity and phase rotation where applicable. External voltage transformers may be used on 252-PSF and 252-PSG to extend the range:

252-PMM, 252-PMT & 253-PH3

Pick up, input and output leads should be kept separate from any other wiring.

Setting Controls (252-PSF, 252-PSG)

These products have two calibration facilities that can be set to suit operating requirements and they are factory calibrated as follows:-

1. % unbalance set points
Voltages of and below 380 volts L-L are calibrated to 1.0% class index of rated voltage. Voltages above 380 volts L-L are calibrated to 1.5% class index of rated voltage.
2. Time Delay
For all voltage ranges 10% maximum delay.
3. Voltage Withstand
Continuous overload = 1.35 x rated voltage

Setting Up (all other models)

The calibration marks around the controls are provided as a guide if the installer does not have access to accurate equipment. The maximum error of the calibration marks is typically 10% of the span of the control concerned.

Maintenance

The unit should be inspected to normal standards for this class of equipment. For example remove accumulations of dust and check all connections for tightness and corrosion. In the unlikely event of a repair being necessary it is recommended that the unit be returned to the factory or to the nearest Crompton Instruments Service Centre

Electromagnetic Compatibility

This unit has been designed to provide protection against EM (electro-magnetic) interference in line with requirements of EU and other regulations. Precautions necessary to provide proper operation of this and adjacent equipment will be installation dependent and so the following can only be general guidance:-

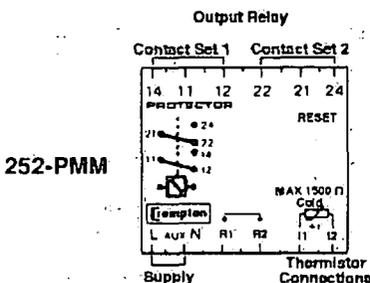
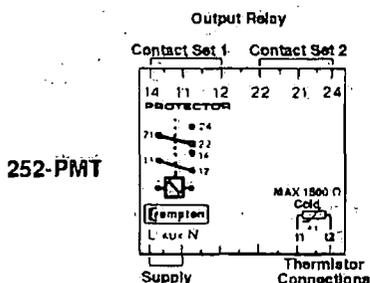
- Avoid routing wiring to this unit alongside cables and products that are, or could be, a source of interference.

INSTALLATION INSTRUCTIONS

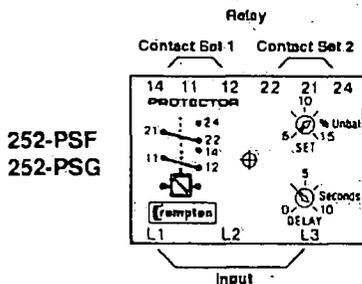
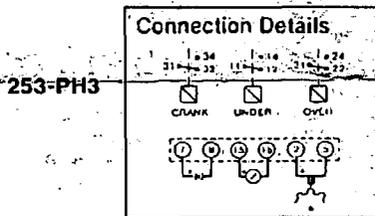
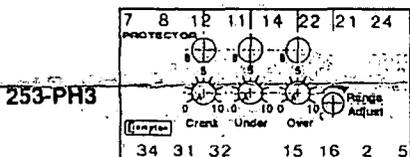
Ref: IW250PMSH – Rev 6 – Sept 02

Protector Trip-Relays DIN Rail & Wall Mounted 250 Series Thermistor Trip, Speed Sensing & Phase Angle

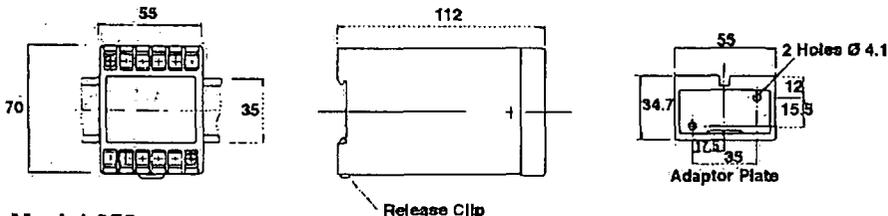
- The auxiliary supply to the unit should not be subject to excessive interference. In some cases, a supply line filter may be required.
 - To protect the product against incorrect operation or permanent damage, surge transients must be controlled. It is good EMC practice to suppress differential surges to 2kV or less at the source. The unit has been designed to automatically recover from typical transients, however in extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation.
 - Screened communication and small signal leads are recommended and may be required. These and other connecting leads may require the fitting of RF suppression components, such as ferrite absorbers, line filters etc., if RF fields cause problems.
- It is good practice to install sensitive electronic instruments that are performing critical functions in EMC enclosures that protect against electrical interference causing a disturbance in function.



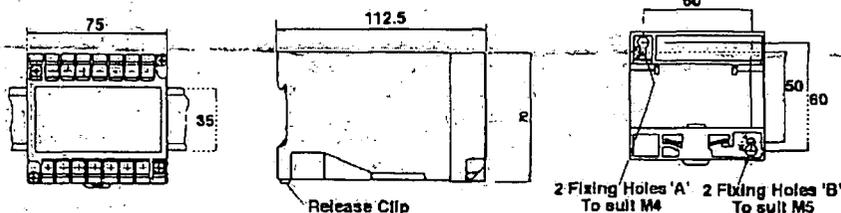
252-PMM can operate in either an automatic or a manual reset mode. For automatic the reset link R1-R2 is to be disconnected. For manual the reset link R1-R2 must be inserted.



Model 252



Model 253

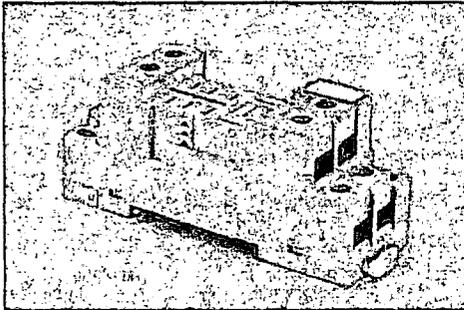


The information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, Tyco Electronics has no control over the field conditions, which influence product installation. It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Tyco Electronics' only obligations are those in Tyco Electronics' standard Conditions of Sale for this product and in no case will Tyco Electronics be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products. Crompton is a trade mark.



Tyco Electronics UK Limited
Crompton Instruments
 Freebournes Road, Witham, Essex, CM8 3AH, UK
 Phone: +44 1376 509 509 Fax: +44 1376 509 511

<http://energy.tycoelectronics.com>



Representative Image Only

Catalogue Number: 96.72

Description: SKT FOR 56.32 RLY + LED MOD

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: B2

All prices are exclusive of GST

Relays / Accessories

Brand: Finder

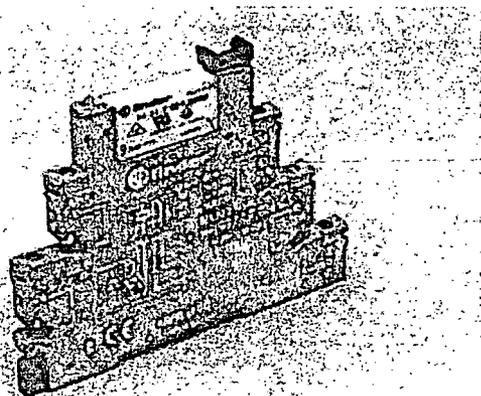
Accessory type: Plug-in base

Features

- DIN rail mounting socket with open terminals, to suit miniature power relays, flat pin 2 C/O (8 pin), eg 56.32.
- This socket also accepts the 99 series LED modules.

Benefits

- The 96.72 series sockets are designed for DIN rail mounting, with the added benefit of incorporating an LED indicator in the same socket as the relay.
- Provides a space saving relay / indicator combination.
- Relay retaining clips also available.



Catalogue Number:

38.51 24VDC

Description:

PLEASE ORDER 385124VACDC

List Price \$ (Not including GST):

46.55

Unit of Measure:

EA

Price Schedule:

B2

Relays Interface Module

Relays Interface Module

Contact arrangement

1 C/O 6A AC1 250VAC

Voltage

24V DC

Number of pins

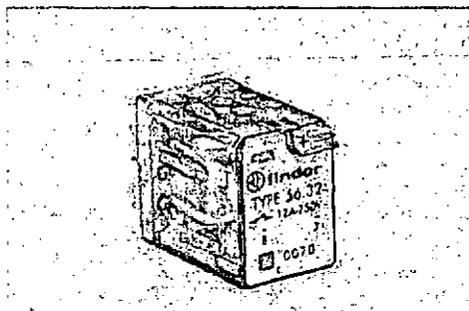
3

Features

- Miniature Din rail mounting type Relay interface module
- Supply voltage: 24V DC
- 1 C/O contact, 6A. 250V AC 1

Benefits

- Compact Din mount presentation
- Low coil consumption



Representative Image Only

Catalogue Number: 56.32.0074 24VDC

Description: RLY W/PB+LED+FLG FPIN 2CO 12A

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: B2

All prices are exclusive of GST

Relays-plug-in type / Flat pin

Brand: Finder

Contact arrangement: 2 C/O

Voltage: 24V DC

Number of pins: 8

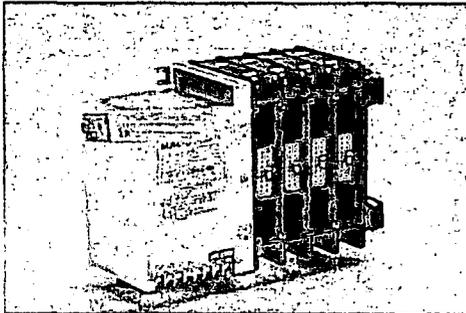
Features

- 24VDC, 12A.
- 2 C/O contacts.
- Flat pins.

Benefits

- Lockable test button.
- Mechanical flag indicator and LED.

Aichi



Representative Image Only

Catalogue Number: 62W-3FD 240VAC

Description: TRANS.SW.NO OFF 200A3POLE240VA

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: A4

All prices are exclusive of GST

Transfer switches / Basic (BTS)

Brand: Aichi

Amp rating: 200

kA rating: 25

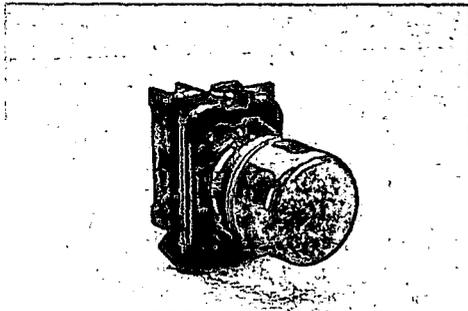
Features

- Single coil operation "W" series.
- Simple mechanical operation.
- 100A to 5000A switch range.
- Pulsed DC coil system.
- Load terminals common.
- Manual operating handle supplied for use in the event of control voltage failure.
- 125V DC 1 ratings to 2000A (each pole).
- All terminal covers provided.
- Control circuit "MOVs" provided, protects control circuit from 'spikes'.
- Can be used with Terasaki logic panel.
- 2 C / O Auxiliaries fitted as standard (extra on request).

Benefits

- External mechanical interlock unnecessary.
- Maintained coil supply not required.
- Additional load connections not required.
- DC switching capability.

**sprecher +
schuh**



Representative Image Only

Catalogue Number: D5P-P43NL3R

Description: KIT D5 INT LED RED IND 24VAC

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: A2

All prices are exclusive of GST

Pushbutton Products / Pilot Light and Buzzer

Brand: Sprecher + Schuh

Mounting Size: 22.5mm

Specification: Complete

Shape: Round

Style / Frame: Standard

Colour: Red

Lamp Block: Full Voltage

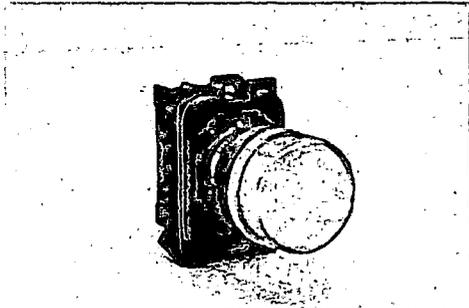
Features

- Part of the vast D5 range of matching 22.5 mm. control and signalling units providing IP 66 front protection.
- Assembled round plastic pilot light fitted with coupling plate and clip-on LED.
- Easy to mount.
- Wide range of legends available to complete the assembly.
- Individually packaged component.

Benefits

- The D5 range combines aesthetic appeal with robust flexibility to suit heavy-duty industrial control applications.
- Readily visible.
- Pre-assembly saves time.
- When fixing pilot light it will hold in place without a notched panel hole.
- Saves time and allows fitting by one person only.
- Simplified ordering and spares holding.

**sprecher +
schuh**



Representative Image Only

Catalogue Number: D5P-P53NL3A

Description: KIT D5 INT LED YLW IND 24VAC

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: A2

All prices are exclusive of GST

Pushbutton Products / Pilot Light and Buzzer

Brand: Sprecher + Schuh

Mounting Size: 22.5mm

Specification: Complete

Shape: Round

Style / Frame: Standard

Colour: Yellow

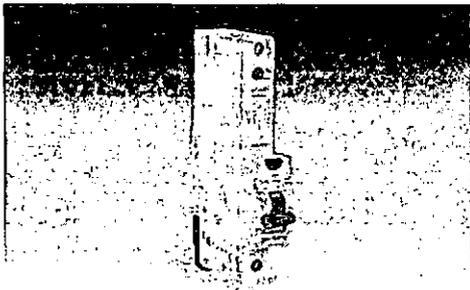
Lamp Block: Full Voltage

Features

- Part of the vast D5 range of matching 22.5 mm. control and signalling units providing IP 66 front protection.
- Assembled round plastic pilot light fitted with coupling plate and clip-on LED.
- Easy to mount.
- Wide range of legends available to complete the assembly.
- Individually packaged component.

Benefits

- The D5 range combines aesthetic appeal with robust flexibility to suit heavy-duty industrial control applications.
- Readily visible.
- Pre-assembly saves time.
- When fixing pilot light it will hold in place without a notched panel hole.
- Saves time and allows fitting by one person only.
- Simplified ordering and spares holding.



Representative Image Only

Catalogue Number: DSRCBH1030A

Description: MCB/RCD 1P 10A 30MA 10KA DIN-T

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: T3

All prices are exclusive of GST

Circuit breakers - Earth Leakage / ELCB Din

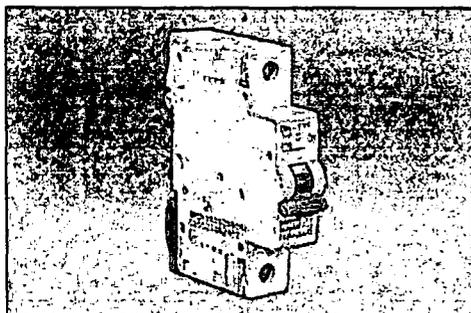
Brand: Terasaki
Current rating: 10A
Number of poles: 1P + N
Modules: 1 (18)
Trip sensitivity: 30mA
Voltage: 240V AC

Features

- Short circuit protection 10kA.
- 50kA and 65kA fuse back up.
- Sensitivities 10mA and 30mA.
- 6A, 10A, 16A, 20A, 25A, 32A & 40A Current ratings.
- Type A RCD.
- On and Off indication with colour coding.
- Handle can be sealed and locked in "on" or "off" position.
- IP20 finger protection.
- Wide range of accessories.
- Information clearly labeled on front of RCD.
- Flexible 1.2m long neutral pigtail.

Benefits

- Space saving, same width Din-T MCB.
- Can be directly retrofitted replacing a Din-T MCB.
- High level of short circuit protection.
- Wide range of current settings.
- Approved for use in Australia and New Zealand.
- Conforms to international standards.
- Terminals clearly labeled for easy connection.



Representative Image Only

Catalogue Number: DTCE6106C

Description: MCB 6KA 1P 6A C CURVE DIN

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: T1

All prices are exclusive of GST

Circuit breakers-miniature / MCB DIN 6 kA

Brand: Terasaki

Current rating: 6A

Number of poles: 1 Pole

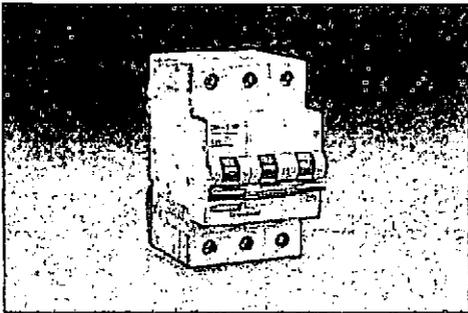
Curve type: C Curve

Features

- 6kA, 10kA & 15kA short circuit breaking capacities available.
- 50kA and 65kA fuse backup.
- On and Off indication with colour coding.
- Handle can be sealed and locked in "on" or "off" position.
- High speed operation and rapid arc quenching.
- Consistent line and load terminal height for Din-T 6, 10 & 15 MCB's.
- IP20 finger protection.
- 35mm² capacity terminals.
- Wide range of accessories.
- Conformity to Australian and International standards.
- Versatility in mounting, distribution boards, switchgear panels and consumer units.
- High selectivity figures.
- Information clearly labeled on front of breaker.

Benefits

- Eliminates confusion regarding the operating state of the MCB.
- Increased protection as contacts open through overload or short circuit even when handle is sealed in the "on" position.
- Saves cost, allows for a fuseless system and confines power outages to the effected circuit preventing wide spread loss of power.
- Can fit larger cables.
- Provides greater flexibility of use.
- Security on conformity.
- Special data very accessible.



Representative Image Only

Catalogue Number: DTCB6306C

Description: MCB 6KA 3P 6A C CURVE DIN

List Price:  Refer to our eCatalogue

Unit Of Measure: EA

Price Schedule: T1

All prices are exclusive of GST

Circuit breakers-miniature / MCB DIN 6 kA

Brand: Terasaki
Current rating: 6A
Number of poles: 3 Pole
Curve type: C Curve

Features

- 6kA, 10kA & 15kA short circuit breaking capacities available
- 50kA and 65kA fuse backup
- On and Off indication with colour coding
- Handle can be sealed and locked in "on" or "off" position
- High speed operation and rapid arc quenching
- Consistent line and load terminal height for Din-T 6, 10 & 15 MCB's
- IP20 finger protection
- 35mm² capacity terminals
- Wide range of accessories
- Conformity to Australian and International standards
- Versatility in mounting, distribution boards, switchgear panels and consumer units
- High selectivity figures
- Information clearly labeled on front of breaker

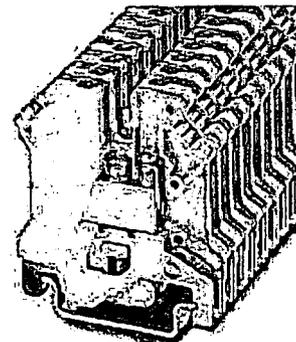
Benefits

- Eliminates confusion regarding the operating state of the MCB
- Increased protection as contacts open through overload or short circuit even when handle is sealed in the "on" position
- Saves cost, allows for a fuseless system and confines power outages to the effected circuit preventing wide spread loss of power
- Can fit larger cables
- Provides greater flexibility of use
- Security on conformity
- Special data very accessible

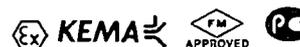


Universal Ground Terminal Block USLKG

Article description	USLKG 5
Order No.	0441504 USLKG 5 0441517 USLKG 5-1
EC Prototype certificate no.	KEMA 99ATEX4487U



Assembly on mounting rails	NS 32 acc. to EN 60715-G 32 NS 35 acc. to EN 60715-TH 35
Assembly instructions	See page 2
Temperature range of use	-40 °C to +90 °C



Technical data according to EN 50019 (Increased Safety "e")

Connection capacity

Rated cross section	4 mm ²	AWG 12
Max. conductor cross section	4 mm ²	AWG 12
Connectable conductor cross sections	0.2 - 4 mm ² rigid and flexible	AWG 24 - 12

Explosion protection data

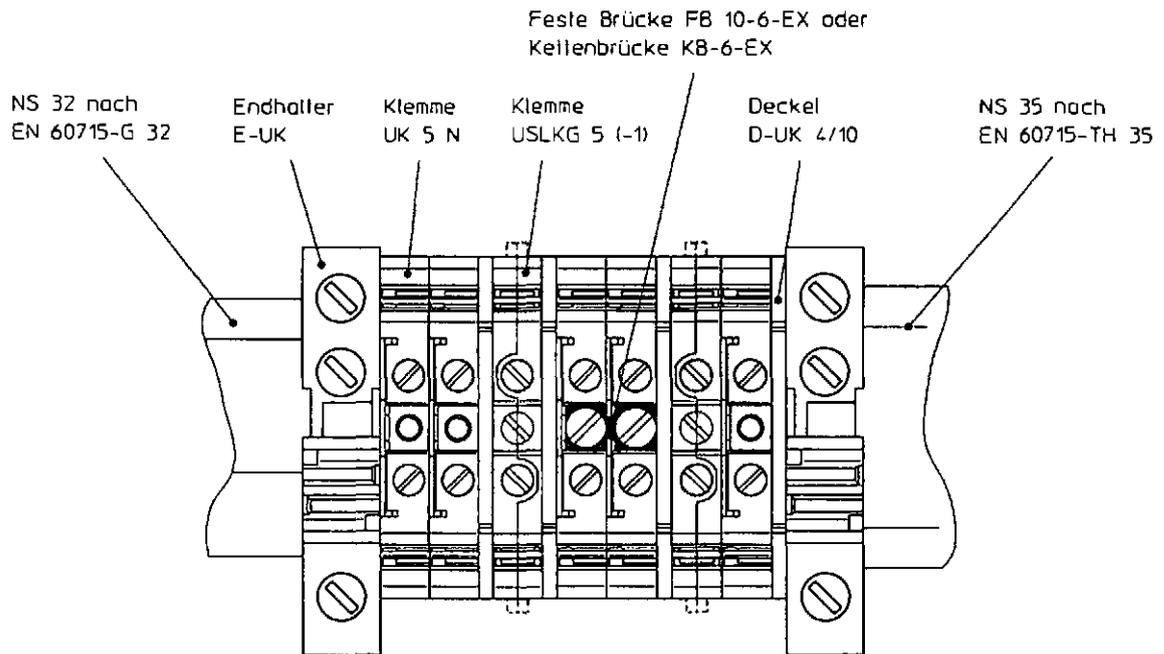
Max. operating voltage	550 V on NS 32 750 V on NS 35	Mounted in rows with UK 5 N
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Data of insulation material

Description	PA 6.6	
Creep resistance acc. to IEC 60112 / material group	CTI 600 / I	

Important assembly instructions – increased safety "e"

When adding other series and sizes of terminal blocks and using additional accessories, the required air and creepage distances have to be observed.



Phoenix Contact GmbH & Co. KG
 Flachmarktstrasse 8
 D-32825 Blomberg, Germany
 Germany

+49 – (0) 52 35 – 3-00
 +49 – (0) 52 35 – 3-4 12 00
www.phoenixcontact.com

15.07.02
 Rev. 00
 Technical modifications reserved

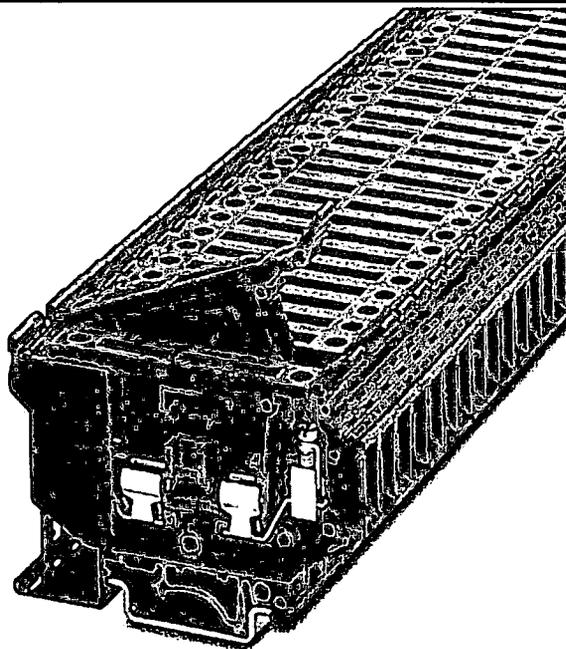


UK 5-HESI



Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation at <http://www.download.phoenixcontact.com>. The General Terms and Conditions of Use apply to Internet downloads.

► Extract from the online catalog



Fuse terminal block for cartridge fuse insert, cross section: 0.2 - 4 mm², AWG: 26 - 10, width: 8.2 mm, color: black

Order No.	3004100
Ord designation	UK 5-HESI
EAN	4017918090623
Pack	50 Pcs.
Customs tariff	85363010
Weight/Piece	0,018509 KG
Catalog page information	Page 266 (CL-2005)

► Product notes

WEEE/RoHS-compliant since: 01/01/2003

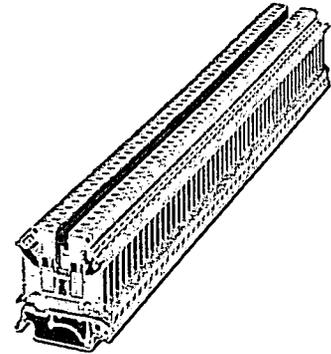


IMPORTANT : This date is valid for Customers in Germany only. Date Format is MM/DD/YYYY. Please contact your local in-country Phoenix Contact location or designated business partner for a Logistics Compliant date in your area. In order to guarantee delivery of RoHS-Compliant product, please purchase Phoenix Contact parts from authorized Phoenix Contact representatives and distributors.



Feed-Through Modular Terminal Block

Article description	UK 5 N
Order No.	3004362
EC Prototype certificate no.	KEMA 98ATEX1651U
Identification	0344 Ⓢ II 2 GD EEx e II KEMA 98ATEX1651U
Assembly on mounting rails	NS 32 acc. to EN 60715-G 32 NS 35 acc. to EN 60715-TH 35
Assembly instructions	See page 2
Temperature range of use	-40 °C to +80 °C



Technical data according to EN 50019 / EN 50020

Max. operating voltage		
Increased safety "e"	750 V	550 V on NS 32
Intrinsic safety "i"	60 V	

Nominal current 30 A

Max. load current 38 A

Connection capacity

Rated cross section	4 mm ²	AWG 12
Max. conductor cross section	6 mm ²	AWG 10
Connectable conductor cross sections	0,2 – 6 mm ² V	AWG 24 – 10

Multi-conductor connection (two conductors with same cross section)

Rigid / flexible	0,2 – 1,5 mm ² V	AWG 24 – 16
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Data of insulation material

Description	PA 6.6
Creep resistance acc. to IEC 60112 / material group	CTI 600 / I

Accessories

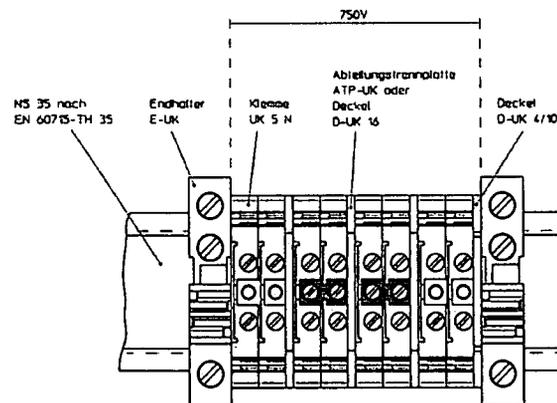
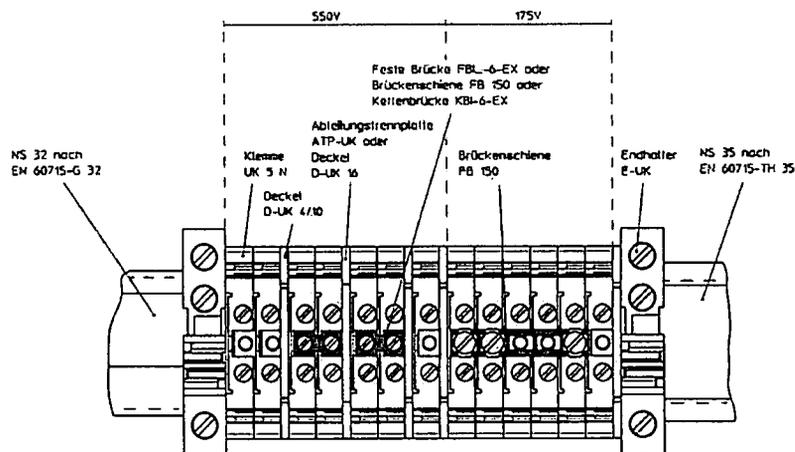
Accessories	Description	Order No.	
Cover	D-UK 4/10	3003020	
Cover	D-UK 16	3006027	
Partition plate	ATP-UK	3003224	
Fixed bridge	FBI 10-6-EX	0203519	Max. 37 A acc. to EN 50019
Chain bridge	KBI-6-EX	0711849	Max. 37 A acc. to EN 50019
Bridge rail	FB 150	0201595	Max. 27 A acc. to EN 50019

Important assembly instructions – increased safety "e"

When adding other series and sizes of terminal blocks and using additional accessories, the required air and creepage distances have to be observed.

If fixed bridges and chain bridges are used, a cover is necessary between bridges which make direct contact, as well as at the beginning and end of each bridge, in order to maintain the insulation distances.

If the fixed bridges are used for creating bridging between non-adjacent terminals, the max. working voltage is reduced to 175 V.

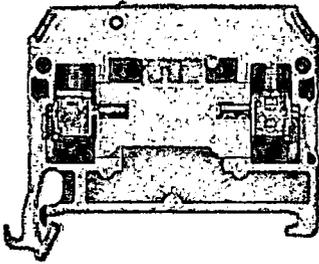


Phoenix Contact GmbH & Co. KG
 Flachmarktstrasse 8
 D-32825 Blomberg, Germany
 Germany

+49 – (0) 52 35 – 3-00

+49 – (0) 52 35 – 3-4 12 00

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**General ordering data**

Order No.	0172160000
Short text for material	SAKR/35
EAN	4008190030445
Qty	100

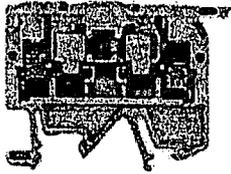
Product notes

Note, ordering data	SAKR/35 2 StB order No. 0183360000
Note, technical data	Tightening torque for the test sockets 0.5 -0.7 Nm

Additional technical data

Type of connection	screwed
No. of identical terminals	1
Version	Disconnect terminal
Type of mouting	clipped
L 94 flammability rating of insulation material	V2
Installation advice	TS 35
Colour of insulating material	beige
Insulating material	PA 66
Open sides	right
Operating temperature range	- 50 °C, + 100 °C
Connection direction	on side
Product range	SAK Series
No. of levels	1
Levels cross-connected internally	No
No. of terminal strips per level	2
End plate required	Yes
CSA rating data	
Max. cross-section (CSA)	AWG 12
Min. cross-section (CSA)	AWG 22
Voltage CSA	300 V
CSA current	10 A
Conductors for clamping (rated connection)	
Stripping length	8 mm
Type of connection	Screw connection

No. of connections	2
Torque level with DMS electric screwdriver	2
Tightening torque range	0.5...1.0 Nm
Solid, max.	4 mm ²
Flexible, max.	4 mm ²
flexible w. ferrule AEH, max. DIN 46228-1	2.5 mm ²
flexible w. ferrule AEH, min. DIN 46228-1	0.5 mm ²
Clamping range, max.	4 mm ²
Clamping range, min.	0.13 mm ²
Clamping screw	M 3
Blade size	0.6 x 3.5 mm
Gauge to IEC 60947-1	A3
AWG conductor size, max.	3.31 mm ²
AWG conductor size, max.	AWG 12
Stranded, max.	4 mm ²
Stranded, min.	1.5 mm ²
AWG conductor size, min.	0.13 mm ²
AWG conductor size, min.	AWG 26
Connection direction	on side
Flexible, min.	0.5 mm ²
2nd type of connection	screwed
Solid, min.	0.5 mm ²
Twin wire-end ferrule, min.	0.50 mm ²
Zwillings-AEH, max.	1.50 mm ²
Dimensions	
Width	6.5 mm
Height of lowest version	40.5 mm
Length	42 mm
TS 32 offset	4 mm
Disconnect terminals	
Torque level with DMS electric screwdriver	2
Slitting	pivoting
Integral test socket	No
EN 60079-7 rating data	
Current Ex e	10 A
Rating data	
Rated cross-section	4 mm ²
Rated voltage	400 V
Rated impulse withstand voltage	6 kV
Rated current	10 A

**General ordering data**

Order No.	0474560000
Short text for material	ASK 1/EN
EAN	4008190020880
Qty	100

Product notes**Note, technical data**

The rated cross-section is reduced to max. 2.5 mm² when using cross-connection bridges.

Additional technical data

Type of connection	screwed
No. of identical terminals	1
Version	Fuse terminal
Type of mouting	clipped
UL 94 flammability rating of insulation material	V2
Installation advice	TS 35 + TS 32
Colour of insulating material	beige
Insulating material	PA 66
Open sides	right
Operating temperature range	- 50 °C, + 100 °C
Connection direction	on side
Product range	SAK Series
No. of levels	1
Levels cross-connected internally	No
No. of terminal strips per level	2
End plate required	Yes

CSA rating data

Max. cross-section (CSA)	AWG 12
Min. cross-section (CSA)	AWG 26
Voltage CSA	300 V
CSA current	6.3 A

Conductors for clamping (rated connection)

Stripping length	9 mm
Type of connection	Screw connection
No. of connections	2
Torque level with DMS electric screwdriver	2

Weidmüller Interface

Tightening torque range	0.6...0.8 Nm
Solid, max.	4 mm ²
Flexible, max.	4 mm ²
flexible w. ferrule AEH, max. DIN 46228-1	4 mm ²
Flexible, max., ferrule with plastic collar (DIN 46228 pt 4)	2.5 mm ²
flexible w. ferrule AEH, min. DIN 46228-1	0.5 mm ²
Flexible, min., ferrule with plastic collar (DIN 46228 pt 4)	0.5 mm ²
Clamping range, max.	4 mm ²
Clamping range, min.	0.13 mm ²
Clamping screw	M 3
Blade size	0.6 x 3.5 mm
Gauge to IEC 60947-1	A3
AWG conductor size, max.	3.31 mm ²
AWG conductor size, max.	AWG 12
Stranded, max.	4 mm ²
Stranded, min.	0.5 mm ²
AWG conductor size, min.	0.13 mm ²
AWG conductor size, min.	AWG 26
Connection direction	on side
Flexible, min.	0.5 mm ²
2nd type of connection	screwed
Solid, min.	0.5 mm ²
Twin wire-end ferrule, min.	0.50 mm ²
Zwillings-AEH, max.	1.50 mm ²
Dimensions	
Width	8 mm
Height of lowest version	34 mm
Length	58 mm
TS 32 offset	11 mm
TS 35 offset	9 mm
Disconnect terminals	
Torque level with DMS electric screwdriver	2
Display element	
Type of voltage for indicator	AC/DC
Operating voltage for indicator, max.	500 V
Fuse terminals	
Display	without LED
Operating voltage, max.	500
Fuse holder (cartridge holder)	detachable