



- LEGEND**
- FIXED CIRCUIT BREAKER
 - RACKABLE CIRCUIT BREAKER
 - ISOLATOR / EARTHING SWITCH
 - THREE POSITION ISOLATOR / EARTHING SWITCH
 - MOTORIZATION OF A CIRCUIT BREAKER OR DISCONNECTER
 - CAPACITIVE VOLTAGE INDICATION
 - CABLE TERMINATION
 - HT FUSE
 - PROTECTION RELAY
 - METER
 - VOLT METER
 - DRUPS ENGINE AND KINETIC MODULE
 - DRUPS ALTERNATOR, 3 WINDING CONNECTED IN STAR, 400 VAC
 - STAR-DELTA TRANSFORMER
 - TERMINAL BLOCK
 - SURGE ARRESTER

- NOTES:**
- PROTECTION DESIGN PROVIDED BY CONTRACTOR'S PROTECTION ENGINEER - PROTECTIVE RELAYING ELEMENTS (RELAYS, PROTECTION CTS, ETC.) ARE INDICATED HERE FOR INFORMATION ONLY.
 - FURTHERMORE, NOTE THAT THE DRUPS DESIGN IS TO THE DRUPS SUPPLIER'S SPEC AND ITS PROTECTIVE RELAYING ELEMENTS ARE SHOWN FOR INFORMATION ONLY.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH:
 - DIESEL ELECTRIC'S ASSEMBLY DRAWINGS AND SCHEMATICS (INCORPORATING SWITCHGEAR AND DRUPS MANUFACTURERS' DRAWINGS)
 - PROTECTION SPECIALIST'S FUNCTIONAL DESIGN REPORTS
 - OPERATION OF NEC/R CIRCUIT BREAKER IS TO BE "NORMALLY CLOSED", I.E. THE BREAKER WILL NOT SWITCH DURING MODE (CONDITIONING / BYPASS / ISLAND) TRANSITIONS. SOME CIRCULATING CURRENTS WILL BE DETECTABLE.
 - MECHANICAL INTERLOCKS BETWEEN CIRCUIT BREAKERS AND DISCONNECTORS NOT SHOWN - REFER TO THE SWITCHGEAR MANUFACTURER'S DETAILED SCHEMATICS.
 - QD1.4, QD1.5, QD2.4 AND QD2.5 (CIRCUIT BREAKERS TO FUTURE SKA PHASE 1 DRUPS ADDITIONS) MUST BE LEFT UNRACKED WITH EARTHING SWITCHES CLOSED.
 - FAULT LEVELS SHOWN ARE PROSPECTIVE MAXIMUM VALUES - ACTUAL VALUE WILL VARY GREATLY DEPENDENT ON SYSTEM CONFIGURATION AT INSTANT OF FAULT (I.E. NUMBER OF DRUPS UNITS IN SERVICE AS WELL AS MODE OF OPERATION E.G. ISLAND OR CONDITIONING).
 - INTERLOCKS BETWEEN THE UPS AND DOMESTIC PANEL IN ORDER TO AVOID MANUAL OUT-OF-PHASE CLOSURE IS NOT SHOWN. NOTE THAT INTERLOCKS ARE IMPLEMENTED BETWEEN QD3, CB D22.4 AND D22.10 VIA THE MIMIC PLC, ACCORDING TO THE FOLLOWING LOGIC:

STATUS	QD3	QD3	QD3	QD3	QD3	QD3	QD3	QD3	QD3	ACTION	QD2.4	ALLOWED
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSE	D22.4	ALLOWED
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSE	D22.10	BLOCKED
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSE	QD3	ALLOWED
CLOSE	D22.10	OPEN	D22.4	CLOSE	D22.10	ALLOWED (MANUAL BYPASS ALARM - QDN)						
CLOSE	D22.10	CLOSE	D22.4	CLOSE	OPEN	D22.4	ALLOWED					
CLOSE	D22.10	CLOSE	D22.4	OPEN	OPEN	QD3	ALLOWED					
OPEN	D22.10	CLOSE	D22.4	OPEN	CLOSE	D22.4	BLOCKED					
CLOSE	D22.10	CLOSE	D22.4	OPEN	CLOSE	QD3	ALLOWED					
CLOSE	D22.10	CLOSE	D22.4	OPEN	CLOSE	D22.4	ALLOWED (MANUAL BYPASS ALARM - QDN)					
CLOSE	D22.10	CLOSE	D22.4	CLOSE	OPEN	D22.4	ALLOWED					

NOTES

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL PROJECT SPECIFICATIONS AND SCHEDULES.
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KEY PLAN

AS THERE WAS NO FULL-TIME CONSTRUCTION MONITORING ON THIS PROJECT, THIS DRAWING HAS BEEN PREPARED IN RELIANCE UPON INFORMATION PROVIDED BY THE CONTRACTOR AND THE OBSERVATIONS AND RECORDS OF THE ENGINEER'S REPRESENTATIVE ON SITE. THE SIGNING BY AURECON OF THIS RECORD DRAWING DOES NOT GUARANTEE OR CERTIFY THE ACCURACY AND CORRECTNESS OF THE INFORMATION AND DETAILS ON THIS DRAWING.

REVISIONS

No	DATE	BY	DESCRIPTION
1	15/09/2011	G.J. HUGO	ISSUE FOR CONSTRUCTION
2		G.J. HUGO	AS-BUILT DRAWING
3		G.J. HUGO	AS-BUILT DRAWING - REFERENCE FINES
4		G.J. HUGO	AS-BUILT - AS PER SKA REVISION



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PROJECT TITLE
Supply, delivery and installation of Rotary UPS, MV Indoor Switchgear and Power Transformers at the MeerKAT site near Carnarvon, Northern Cape: SKA SLE 009/2011

DRAWING TITLE
POWER FACILITY SCHEMATIC SINGLE LINE OVERVIEW

SCALE	PAPER	DESIGNED	G.J. HUGO
NTS	A0	DRAWN	G.J. HUGO

DATE: NOV 2011 CHECKED: A. VILHARMS

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DATE	APPROVED
15/07/2015	

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AS BUILT DRAWINGS
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