400 - kV										
C.B. RATING A	kA	BAY	DESCRIPTION	STAGE 5	STAGE 9 1995	STAGE 10 1996	STAGE 11 1997	STAGE 12 1998	STAGE 2001	STAGE 2008	STAGE 2014
3150	40	FEEDER 1	POSEIDON 2			✓					
1600	26,6	FEEDER 4	DROERIVIER 3				✓				
2500	36	FEEDER 5	BETA 1					✓			
3150	50	FEEDER 6	POSEIDON 1				✓			NO CHANGE	
2000	30,9	FEEDER 7	DROERIVIER 1				✓				
2500	40	FEEDER 8	PERSEUS 2					✓			
2500	36	FEEDER 9	PERSEUS 3			✓					
3150	50	FEEDER 10	DROERIVIER 2				✓				
—	—	FEEDER 12	BETA 2 (FUTURE)								
—	—	FEEDER 14	KRONOS 2 (FUTURE)								
3150	40	FEEDER 15 / CAP BANK 1	BETA 2		✓				✓		
3150	40	FEEDER 16	KRONOS 1		✓						
2500	40	STATIC COMP. 1		✓							
2500	40	STATIC COMP. 2		✓							
2500	36	BUS COUPLER 'A'				✓					
3150	40	BUS COUPLER 'B'			✓						
2500	36	No 1 - BUS SECT 1						✓			
3150	40	No 1 - BUS SECT 2			✓						
3150	40	No 2 - BUS SECT 1						✓			
3150	40	No 2 - BUS SECT 2			✓						
4000	50	B/B 1 - BUS SECTION 3									✓
—	—	B/B 2 - BUS SECTION 3	FUTURE								✓

220 - kV							
C.B. RATING A	kA	BAY	DESCRIPTION	STAGE 3 1974	STAGE 13 1998	STAGE 2010	STAGE
—	—	FEEDER 1	FUTURE				
—	—	FEEDER 2	FUTURE				
—	—	FEEDER 3	FUTURE				
1600	30,3	FEEDER 4	ROODEKUIL 2	✓	✓		
1600	30,3	FEEDER 5	RUIGTEVALLEI 1-DECOM			✓	
1600	30,3	FEEDER 6	RUIGTEVALLEI 2	✓			
—	—	FEEDER 7	FUTURE				
—	—	FEEDER 8	FUTURE				
1600	30,3	BUS COUPLER 'A'		✓			

132 - kV											
C.B. RATING A	kA	BAY	DESCRIPTION	STAGE 1 1969	STAGE 4	STAGE 5	STAGE 6 1994	STAGE 11 1997	STAGE 1999	STAGE 2010	STAGE 2014
2500	31,5	FEEDER 1	BRITSVILLE 1		✓			✓			
—	—	FEEDER 2	FUTURE								
2500	31,5	FEEDER 3	CUPRUM 1		✓			✓			
—	—	FEEDER 4	FUTURE								
2500	31,5	FEEDER 5	CHAMELEON 1 (WAS DE HAAR 1)				✓	✓			
2500	31,5	FEEDER 7	ROODEKUIL 1				✓	✓			
2500	31,5	FEEDER 8	BUSHBUCK 1 (WAS BEARS HOEK 1)						✓		
3150	40	FEEDER 9	BLETTERMAN 1			✓		✓			✓
—	—	FEEDER 10	FUTURE								
2500	31,5	BUS COUPLER 'A'			✓			✓			
3150	40	FEEDER 11	RUIGTEVALLEI							✓	
3150	40	FEEDER 12	MOLOVHU 1								✓
3150	40	FEEDER 13	MAANHAAR BERG 1								✓
3150	40	FEEDER 14	FUTURE								
3150	40	FEEDER 15	FUTURE								
3150	40	BUS COUPLER 'B'									✓
3150	40	BUSBAR 1 BUS SECTION 1									✓

400/220 kV TRANSFORMERS							
C.B. RATING kV	A	kA	BAY	DESCRIPTION	STAGE 4 1992	STAGE 2009	STAGE	STAGE
400	4000	50	TRANSFORMER 21	315 MVA	✓	NO CHANGE		
220	1600	30,3						
400	2000	36	TRANSFORMER 22	315 MVA	✓			
220	1600	30,3						

400/132 kV TRANSFORMERS								
C.B. RATING kV	A	kA	BAY	DESCRIPTION	STAGE 1 1969	STAGE 11 1997	STAGE 2009	STAGE 2014
400	4000	50	TRANSFORMER 2	240 MVA	✓	✓	NO CHANGE	
132	2500	31,5						
400	4000	50	TRANSFORMER 3	240 MVA	✓	✓	NO CHANGE	
132	2500	31,5						
400	4000	50	TRANSFORMER 4	500 MVA				✓
132	3150	40						

400 kV REACTORS								
C.B. RATING kV	A	kA	BAY	DESCRIPTION	STAGE 3	STAGE 6	STAGE 10 1996	STAGE 11 1997
400	2500	40	BUS REACTOR 1	100 MVAr		✓		
400	2500	31,5	BUS REACTOR 2	100 MVAr	✓			
400	2500	40	BUS REACTOR 3	100 MVAr		✓		
—	—	—	BUS REACTOR 4	100 MVAr				
—	—	—	400kV FDR 1	100 MVAr			✓	
—	—	—	400kV FDR 6	100 MVAr				✓

765/400 kV TRANSFORMERS								
C.B. RATING kV	A	kA	BAY	DESCRIPTION	STAGE 15	STAGE	STAGE	STAGE
765	5000	50	TRANSFORMER 31	2000 MVA (2000/3 MVA) CONNECTED YNa0d1	✓			
400	3150	50						

400 kV SHUNT CAPACITOR BANKS									
C.B. RATING kV	A	kA	BAY	DESCRIPTION	STAGE 14 2006	STAGE 15	STAGE 16	STAGE 17
400	3150	50	CAPACITOR BANK 11	100 MVAr	✓			
400	3150	50	CAPACITOR BANK 12	100 MVAr	✓			

765kV FEEDER DESTINATION							
BAY	DESCRIPTION	STAGE 1 2010	STAGE	STAGE	STAGE	STAGE	STAGE
FEEDER 1	PERSEUS 1	✓					
FEEDER 2	CAMMA 1						

765kV CIRCUIT BREAKER							
RATING A	kA		LOCATION DIAMETER	BAY	DESCRIPTION	REMARKS	STAGE 2009
4000	50	CR	MA	BAY 1, TIE BAY BAY 2	TRANSFORMER 31 FEEDER 1 PERSEUS 1		✓
4000	50	SS			FEEDER 1 PERSEUS 1 REACTOR		✓
4000	50	CR	MB	BAY 1, BAY 2	BUSBAR REACTOR 1		✓
5000	50	SS		REACTOR BAY	BUSBAR REACTOR 1	EXISTING REACTOR BKR	✓
4000	50	CR	MC	BAY, TIE BAY	FEEDER 1 KORUSTER 1	BAY 2 BKR EXISTING TRFR BKR	✓

CR = CIRCUIT BREAKER WITH CLOSING RESISTOR
SS = CIRCUIT BREAKER WITH SYNCHRONOUS SWITCHING RELAY

NOTES:

C.T. BUS ZONE TURNS RATIO	
400 kV	1/1600
220 kV	1/1200
132 kV	1/1200
132 kV	1/1600

2. STATION BATTERY VOLTAGE 220V D.C.
3. ISOLATOR BLADES OPENING DIRECTION SHOWN GEOGRAPHICALLY CORRECT
■ LOCK OUT EARTH BLADE

400kV CAP 1	
REF	DESCRIPTION
F11	CAPACITOR SWITCH
F12	SPARK GAP
F13	DAMPING REACTOR
F14	DAMPING RESISTOR
F17	CURRENT TRANSFORMER
F18	CT FOR PLATFORM PROTECTION.
F19	CURRENT TRANSFORMER
F20	CURRENT TRANSFORMER FOR CAPACITOR UNBALANCED PROTECTION

400 kV BUSBAR CONDUCTORS	
EAST OF AND INCLUDING No 2 B/S 2 & No 1 B/S 1	2 x 800 mm² AL/PH
WEST OF No 2 B/S 2 & No 1 B/S 1	3 x 800 mm² AL/PH

LEGEND

CIRCUIT BREAKER (MOTORISED / MANUAL)
ISOLATORS
ROTATING CENTRE POST
CENTRE BREAK
SINGLE BREAK
PANTOGRAPH
EARTH SWITCH
SURGE ARRESTER
LINE TRAP
CAPACITIVE VOLTAGE TRANSFORMER
CURRENT TRANSFORMER
ELECTROMAGNETIC VOLTAGE TRANSFORMER
COUPLING CAPACITOR
CAPACITIVE VOLTAGE DIVIDER

AUTO (WITH TAP CHANGER)
DOUBLE WOUND (WITH TAP CHANGER)
NOTE: 'N' REPRESENTS NUMBER OF TAPS
NEUTRAL EARTHING COMPENSATOR
WITHOUT AUXILIARY TRANSFORMER
WITH AUXILIARY TRANSFORMER
WITH AUXILIARY TRANSFORMER AND RESISTOR

CAPACITOR BANKS
UNEARTHED STAR POINT
UNEARTHED DELTA
EARTHED STAR POINT
STATIC VAR COMPENSATOR ELEMENTS
FILTER
THYRISTOR SWITCHED CAPACITOR
THYRISTOR CONTROLLED REACTOR
REACTORS
EARTHED STAR POINT
EARTHED VIA NEUTRAL EARTHING REACTOR

REV.	REVISION DESCRIPTION	DRAWN BY	CHKD	CHKD (SECT)	AUTH (SUBS)	DATE	0.37/ REFERENCE DRAWINGS
46	400kV BUS SECTION 3, TRFR 4 & BUSBAR 1 EAST CVT INSTALLED. 132kV TUBULAR BUSBAR YARD ADDED. 132kV FDR 10 EQUIPPED AS BUS SECTION. 132kV BUSBARS RE-NAMED. SCHEDULE's UPDATED.	C.B.				20/9/14	
45	132kV FEEDER 5 & 8 RE-NAMED.	M.L.	F.N.		E.N.	01/11/13	
44	220kV FDR 5 DECOMMISSIONED & 132kV FDR 11 INSTALLED WITH BYPASS.	C.N.	R.R.		A.A.	31/7/12	
43	220kV FDR 5 DECOMMISSIONED & 132kV FDR 11 INSTALLED WITH BYPASS.	C.N.			A.AMOO	29/11/10	
42	765kV LINE TRAPS RE-POSITIONED ON FDR 1 & 2.	D.F.					

3832 BAY LAYOUT
3105 KEY PLAN

SUBSTATION DESIGN DESIGN CHECKED	SUBSTATION DESIGN DESIGN APPROVED	Eskom Transmission	ESKOM HOLDINGS LIMITED REG NO. 2002/015521/06
G.A.C.	L.E. RYAN		
DATE 13/10/94	DATE 13/10/94		
SECONDARY PLANT DESIGN CHECKED	DRAWN BY	HYDRA	
	R.J.C.	STATION ELECTRIC DIAGRAM	
DATE / /	DATE 10/94	0.37/334	SHEET NUMBER — REVISION 46
APPROVED BY	SCALE		

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