

FRONT VIEW WITH DOORS REMOVED

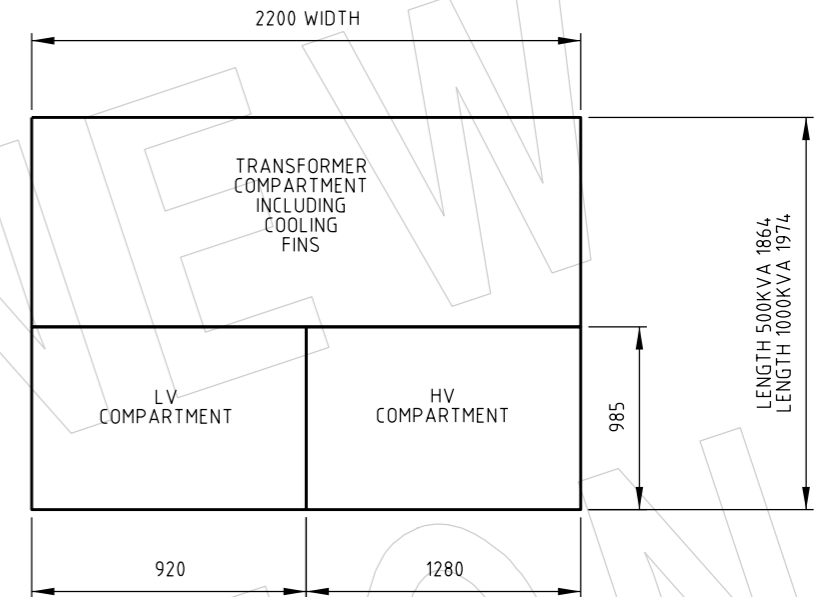
11kV SUBSTATIONS			
SUBSTATION kVA	500	500	1000
RMU TYPE	KKTK	KKTT	KKTK
OVERALL HEIGHT	1677		1807
ITEM NUMBER	415342	415348	415344

22kV SUBSTATIONS		
SUBSTATION kVA	500	1000
RMU TYPE	KKTK	KKTK
OVERALL HEIGHT	1677	1807
ITEM NUMBER	415345	415347

HV CABLE TERMINATION ITEM NUMBER		
CABLE TYPE	11KV	22KV
95SQMM AL	414778	-
240SQMM AL	414779	414783
300SQMM CU	414780	-
120SQMM CU	-	414781
240SQMM CU	-	414782
400SQMM AL	501664	-
35SQMM CU	-	501665

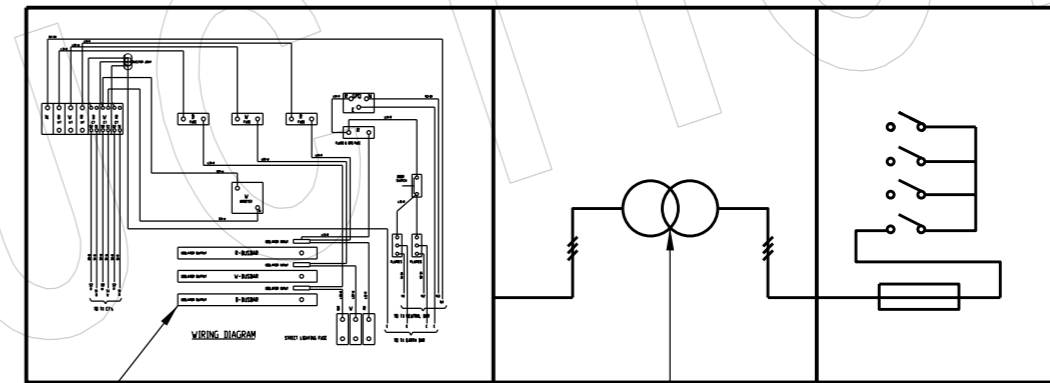
REFURBISHED MK2 SUBSTATION ITEM NUMBERS			
kVA	RMU	11KV	22KV
500	KKT	415336	415339
750	KKT	415337	415340
1000	KKT	415338	415341
750	KKTK	415343	415346

GENERATOR SWITCH-FUSE DISCONNECTOR ITEM NUMBER		
SUBSTATION	DISCONNECTOR	ITEM NUMBER
500KVA	1000A	4.06808
1000KVA	2000A	4.06811



NOTES:

1. COMPRESSION LUGS ARE TO BE USED ON ALL LV CABLE CONNECTIONS FOR XLPE AND OTHER ALUMINIUM CONDUCTORS. CABLE LUGS WITH FINAL COMPRESSION OVER INSULATION TO EXCLUDE MOISTURE ARE ESSENTIAL. REFER TO S02-02-02-10.
2. LIFTING LUGS ARE NOT DETACHABLE.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH STSP 02-006.
4. EACH CABLE ENTERING/LEAVING SUBSTATION IS TO HAVE A DESTINATION, TAG REFER TO S02-01-08-25.
5. CABLES IN THE HV AND LV COMPARTMENTS SHALL HAVE HEAT SHRINK COLOURED SLEEVES TO MATCH PHASE AND CONNECTED TO SWITCHGEAR WITH R.W.B. FROM REAR OF CABINET TO FRONT. ALL COLOUR CODING SHALL BE ON UN-STRIPPED CABLE.
6. UNLESS SPECIFIED OTHERWISE, PACKAGE SUBSTATIONS SHALL BE SUPPLIED WITH LV PANEL INCLUDING STRIPPLE SWITCH FUSE UNITS.
8. THE CABLE TERMINATION FRAME CAN BE USED TO ASSIST IN TERMINATION OF HV CABLES TO THE DRIESCHER MINEX-C SWITCHGEAR. REFER TO DRAWING S02-01-02-20.
9. ALL HV CABLE TERMINATIONS SHALL BE VIA 630A TYPE C SCREENED DEADBREAK CONNECTIONS.
10. LARGEST CABLE TO BE TERMINATED TO HV SWITCHGEAR IS 400SQMM ALUMINIUM.
11. ALL HV CABLE EARTH SCREENS SHALL BE CONNECTED TO THE HV EARTH BAR.
12. ALL HV CABLES SHALL BE SECURELY CLAMPED BELOW THEIR RESPECTIVE HV BUSHINGS USING THE UNISTRUT CHANNELS IN THE FOUNDATION SLAB.
13. REFER TO S02-02-06-31 FOR FOUNDATION DETAILS, S02-02-06-17 FOR EASEMENT DETAILS AND S02-02-05-09 FOR EARTHING ARRANGEMENTS.
14. HV CABLES CONNECTING THE TRANSFORMER BUSHINGS TO THE SWITCHGEAR FUSED TEE-OFF SHALL BE TERMINATED USING DEAD BREAK ELBOWS AND INSTALLED BY THE SUBSTATION MANUFACTURER.
15. SWITCH NUMBERS SHALL BE RIVETED TO A 40 x 40 ALUMINIUM ANGLE CHANNEL. ANGLE CHANNEL SHALL BE BOLTED TO THE SWITCHGEAR MOUNTING FRAME (SHEET 3, ITEM 25) WITH M10 BOLTS.



WEBER OR JEAN MULLER STRIPPLE FUSE UNIT FOR: 1000 or 630A.

LV CUBICLE REFER TO SHEET 5

500kVA OR 1000kVA

TRANSFORMER COMPARTMENT

4 WAY (KKTK OR KKT) DRIESCHER WEGBERG MINEX/MINEX-C RMU AS REQUIRED REFER TO S02-01-04-22

HV CUBICLE

DRG NO	DESCRIPTION	NO	DESCRIPTION	DRN	DATE	CKD	APPD
S02-01-07-17_5	SHEET 5	7	CONSOLIDATED SUBSTATION ITEM NUMBERS. REMOVED REFERENCE TO 300 & 750KVA SUBSTATIONS. ADDED ITEM 415348. CHANGED SUPERSEDED TO NOT FOR NEW CONSTRUCTION. ADDED DISCONNECTOR & LEGACY ITEM NUMBERS.	A.N.	NOV'20	C.C.C.	B.C.
S02-01-07-17_4	SHEET 4	6	SUPERSEDED	C.C.	JUN'20	B.V.	B.V.
S02-01-07-17_3	SHEET 3	5	TITLEBLOCK & DRAWING NUMBER FORMATTED	K.T.	FEB'19	C.C.	C.C.
S02-01-07-17_2	SHEET 2	4	SHEET 2 AMENDED	C.C.	NOV'18	B.C.	B.C.
		3	NOTE 7 REMOVED	A.T.	JUN'14	B.C.	B.C.
		2	NOTE 16 ADDED, NOTE 13 AMENDED. 1000KVA DETAILS ADDED	A.T.	FEB'14	B.C.	B.C.
		1	NOTE 15, 400 AND 35sqmm TERMINATION AND MINEX TYPE RMU ADDED	A.T.	SEP'13	B.C.	B.S.
AMENDMENTS							



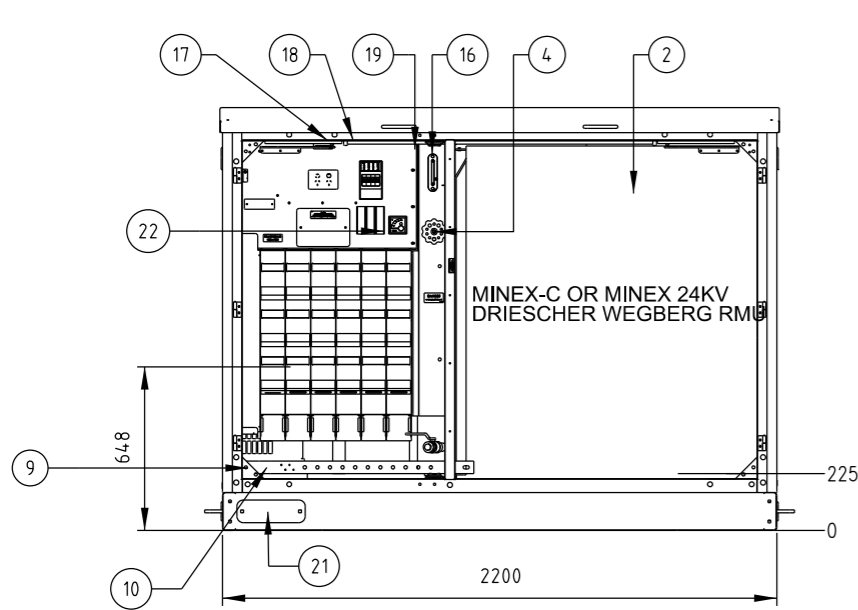
DES	B. CHEUNG
DRN	C. COPPINS
CKD	A. TAYLOR
APPD	B. CHEUNG
SCALE	N.T.S.
ISSUED	NOV 2011
ALL DIM. IN mm	
DRAFTING STANDARD TO A.S.1100	

POWER STANDARD DRAWING  
**SUBSTATIONS PACKAGE MK2**  
**GENERAL ARRANGEMENT**  
 (SHEET 1 OF 5)

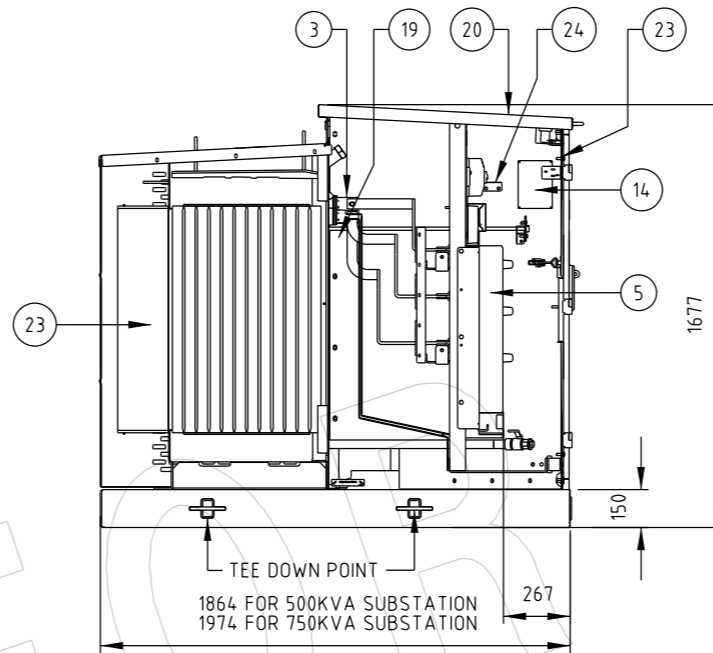
**A3** DRAWING NUMBER **S02-01-07-17\_1**

CAD PRODUCT - DO NOT AMEND MANUALLY

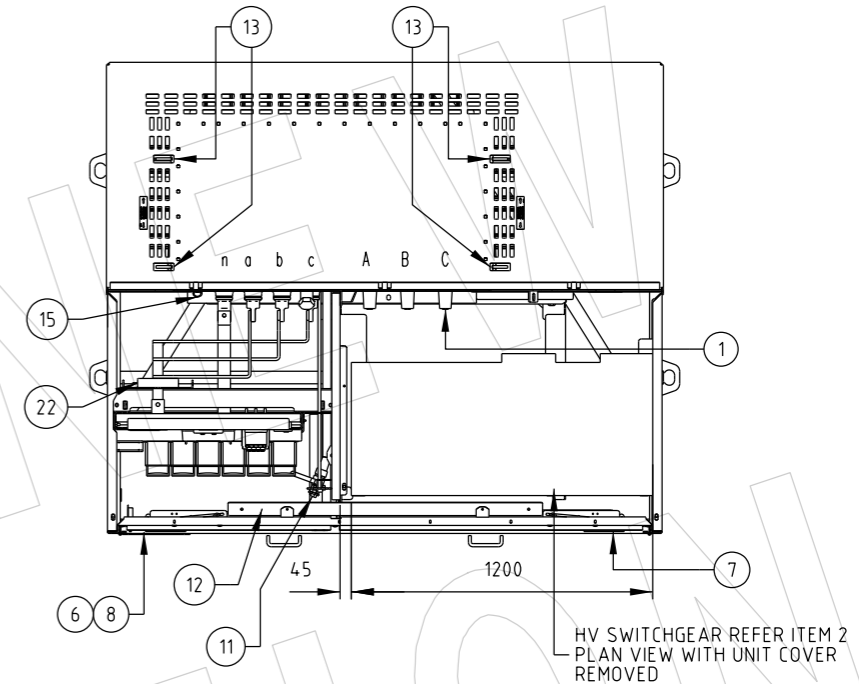




**FRONT VIEW WITH DOORS REMOVED**



**SIDE VIEW WITH DOORS REMOVED**



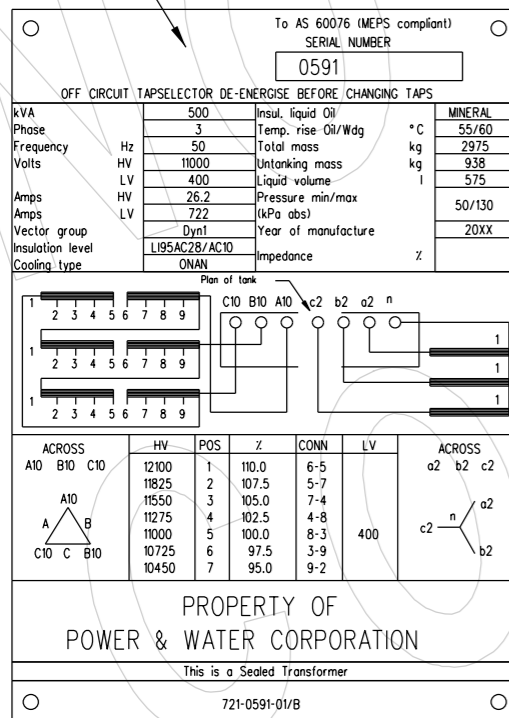
**PLAN VIEW WITH UNIT COVER REMOVED**

**DESCRIPTION LIST**

1. HV BUSHING 630A SCREW TYPE (M16)
2. HV COMPARTMENT SUITABLE FOR FITTING DRIESCHER MINEX-C 24KV 4 WAY RMU'S
3. LV BUSHING 'ZEP 2/3/4M' HOLE IN PALM Ø14
4. OFF CIRCUIT TAPSELECTOR 7 POSITION -5 % TO +10% WITH LOCKING FACILITIES
5. LV SWITCHGEAR, GENERATOR STRIP, 5 x 630A FUSE STRIPS, MDI FITTED TO 'b' PHASE, EXTRA INSULATION ON 'b' PHASE BUSBAR (TX TO SWITCHGEAR), TEST BLOCK, DOUBLE GPO, 4 x DIN TERASAKI CIRCUIT BREAKERS 10A 10KA, 160A SWITCH-FUSE DISCONNECTOR (407050) WITH 63A SIZE 00 FUSES FOR STREET LIGHTING, (REFER SHEET 5 FOR FLUORESCENT LIGHTING AND SWITCHGEAR CIRCUIT & WIRING DETAILS) CONNECTING SWITCHGEAR BUS WORK TO HAVE BOTH ENDS FITTED WITH COLOURED HEATSHRINK TO ID. PHASE
6. PROVISION FOR MOUNTING PWC NUMBER PLATE, STREET LIGHTING PANEL ON INSIDE OF LV DOOR OR ON LV SWITCHGEAR
7. HV DOOR INTER-LOCKED WITH LV DOOR WITH OVERCENTRE LATCH, OWNERSHIP PLATE, RMU OPERATION LABEL & OPERATING HANDLE SUPPORT (INSIDE DOOR) 3 x HINGES AND DOOR STAY
8. LV DOOR WITH SWING HANDLE (3 POINT LOCKING) WITH PROVISION FOR PAD LOCKING, DANGER PLATE (STICK-ON), 3 x HINGES AND DOOR STAY
9. NEUTRAL BAR 50 x 6.3 TINNED COPPER
10. LV EARTH BAR 50 x 6.3 TINNED COPPER
11. DRAIN / SAMPLE BALL VALVE Ø25 NOM.
12. HV/LV COMPARTMENT BATTEN FLUORESCENT LIGHT 36W OR LED EQUIVALENT
13. LIFTING LUGS SLOT 40x60
14. RATING AND DIAGRAM PLATE
15. THERMOMETER POCKET
16. FLUSH TYPE OIL GAUGE MARKED AT 15 C (BACKGROUND ON WALL OF TANK PAINTED WHITE BEHIND PERSPEX)
17. PRESSURE RELIEF VALVE

18. SEALING PLUG
19. FILLER CAP Ø40 NOM
20. CUBICLE COVER WITH INSULATION ON UNDERSIDE OF COVER AND FITTED WITH HANDLES TO AID REMOVAL OF COVER
21. BASE FRAME 150 x 50 CHANNEL GALVANISED WITH GENERATOR CABLE ACCESSPOINT (COVER PLATE BOLT ON) 26.
22. CT 800/5A FOR MDI (MOUNTED ON BUSBAR TO PHASE LV BUSHINGS, ONLY 'a' PHASE SHOWN).
23. LIGHT SWITCH BRACKET
24. EMAIL ANTENNA MOUNTING LUG (CENTRE PANEL)
25. ALUMINIUM RIGHT ANGLE 40 x 40 (RIGHT HAND PLATE ITEM No.504124)
26. SWITCH NUMBER IDENTIFICATIONPLATE REFER S02-01-08-14

MANUFACTURER LOGO



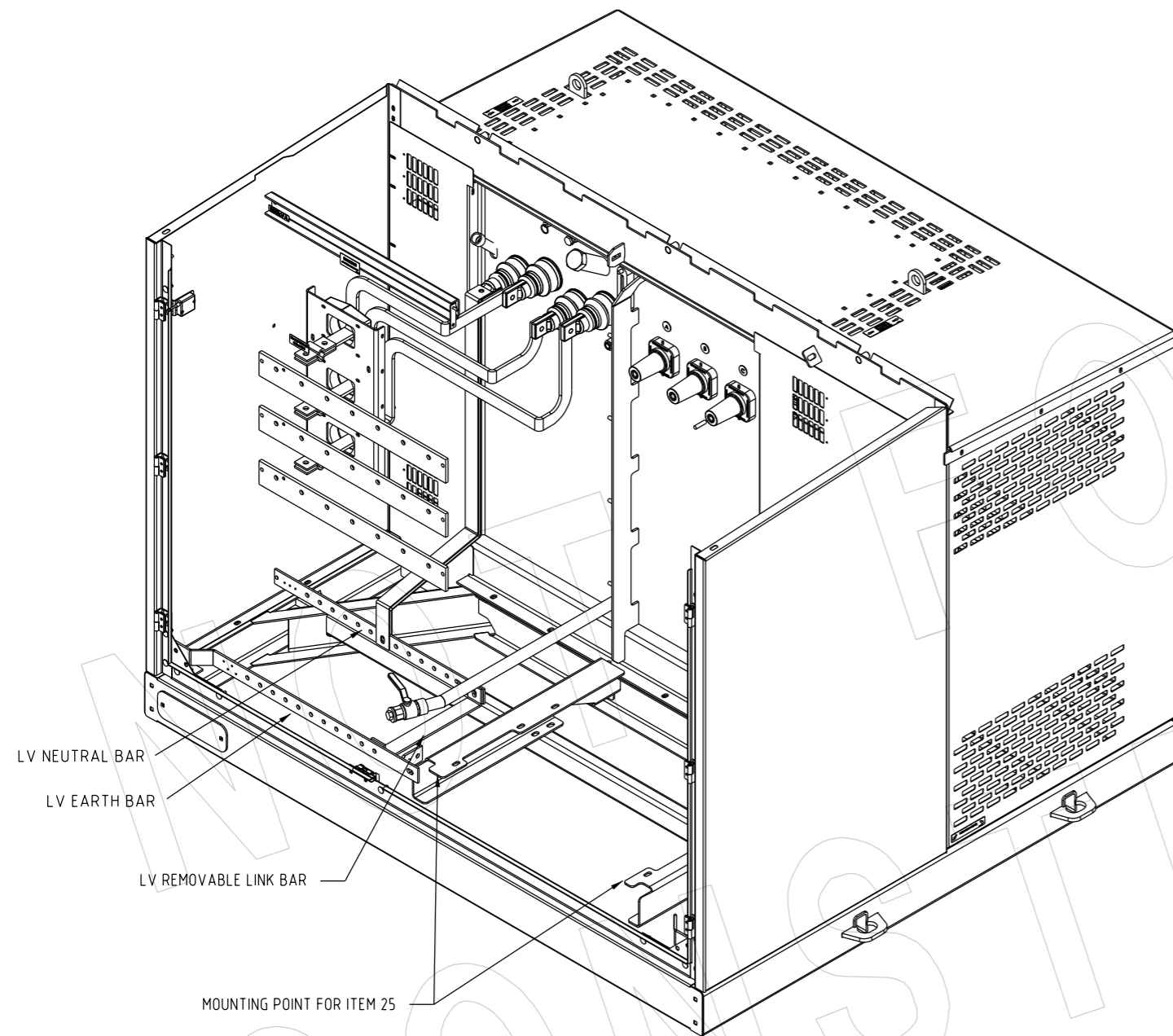
×SERIAL NUMBER, YEAR OF MANUFACTURE AND IMPENANCE (4.00% NOM.) STAMPED AFTER TEST

DRG NO	DESCRIPTION	NO	DESCRIPTION	DRN	DATE	CKD	APPD
S02-01-07-17_5	SHEET 5	6	SUPERSEDED CHANGED TO NOT FOR NEW CONSTRUCTION. UPDATED RATED VOLTAGES AND CURRENTS. REMOVED EMPTY NOTES. UPDATED ITEMS 3, 5, 9, 10, 12 & 19 & TITLE	A.N.	NOV'20	C.C.C.	B.C.
S02-01-07-17_4	SHEET 4	5	SUPERSEDED	C.C.	JUN'20	B.V.	B.V.
S02-01-07-17_3	SHEET 3	4	TITLEBLOCK & DRAWING NUMBER FORMATTED	K.T.	FEB'19	C.C.	C.C.
S02-01-07-17_1	SHEET 1	3	ADDED ITEM No. TO DESCRIPTION 32	C.C.	NOV'18	B.V.	B.C.
		2	ITEMS 32, 33 ADDED	C.C.	FEB'14	B.C.	B.C.
		1	MINEX RMU ADDED	C.C.	JUL'13	B.C.	B.C.
		0	ISSUED FOR CONSTRUCTION	C.C.	NOV'11	B.C.	S.C

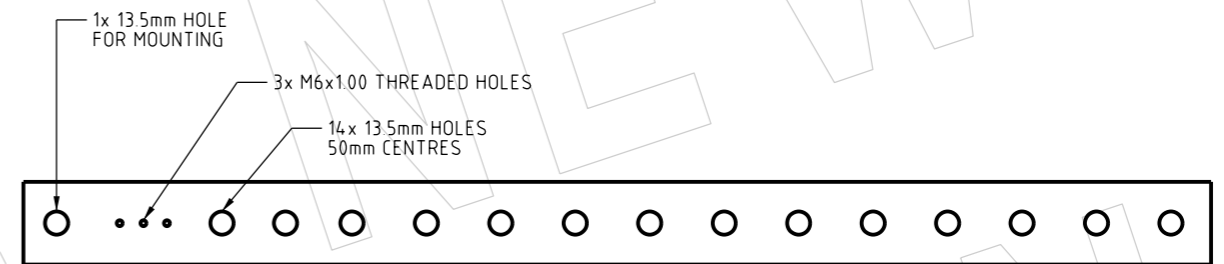


DES	B.CHEUNG	POWER STANDARD DRAWING	
DRN	C.COPPINS	SUBSTATIONS	
CKD	A.TAYLOR	PACKAGE MK2	
APPD	S.C.	GENERAL ARRANGEMENT	
SCALE	N.T.S.	(SHEET 2 OF 5)	
ISSUED	NOV 2011	A3	DRAWING NUMBER
ALL DIM. IN mm			S02-01-07-17_2
DRAFTING STANDARD TO A.S.1100			CAD PRODUCT - DO NOT AMEND MANUALLY

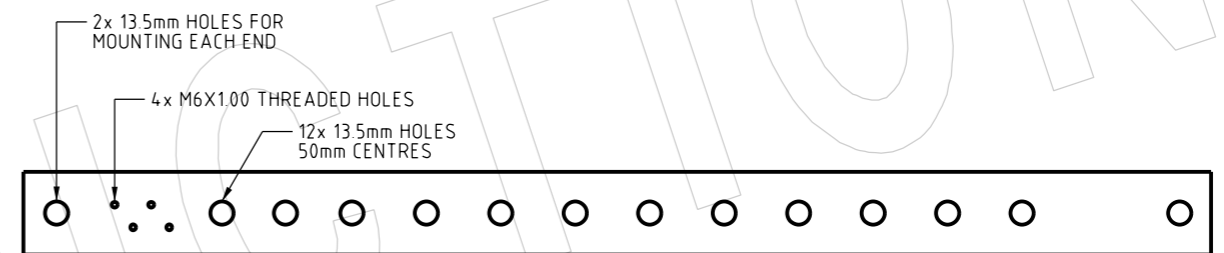






**BUSBAR AND EARTHING LAYOUT**

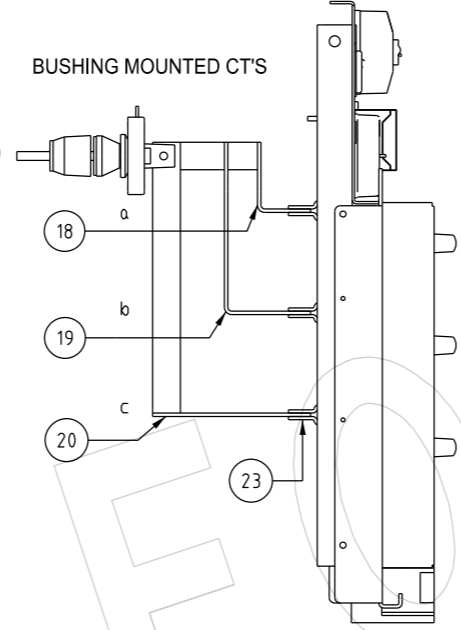
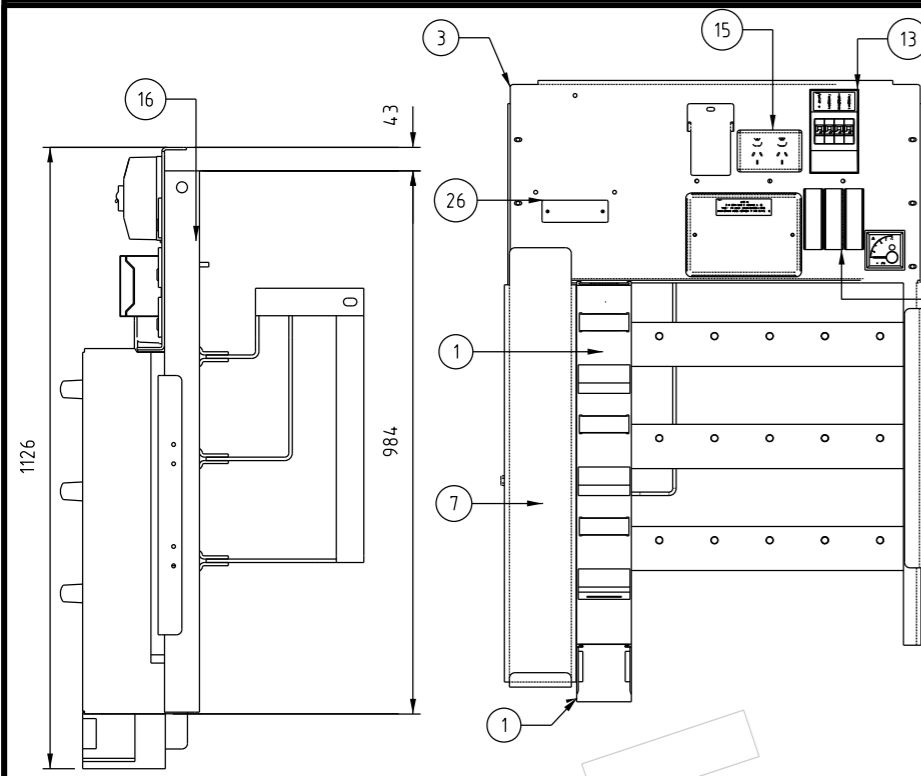


**ITEM 9:  
LV NEUTRAL BAR DETAIL  
50 x 6.3 COPPER TINNED BAR**



**ITEM 10:  
LV EARTH BAR DETAIL  
50 x 6.3 COPPER TINNED BAR**

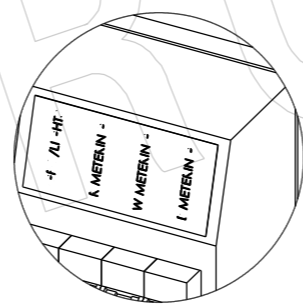
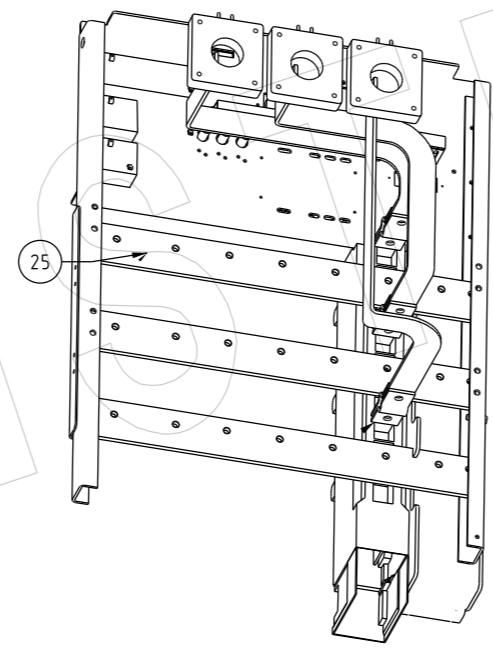
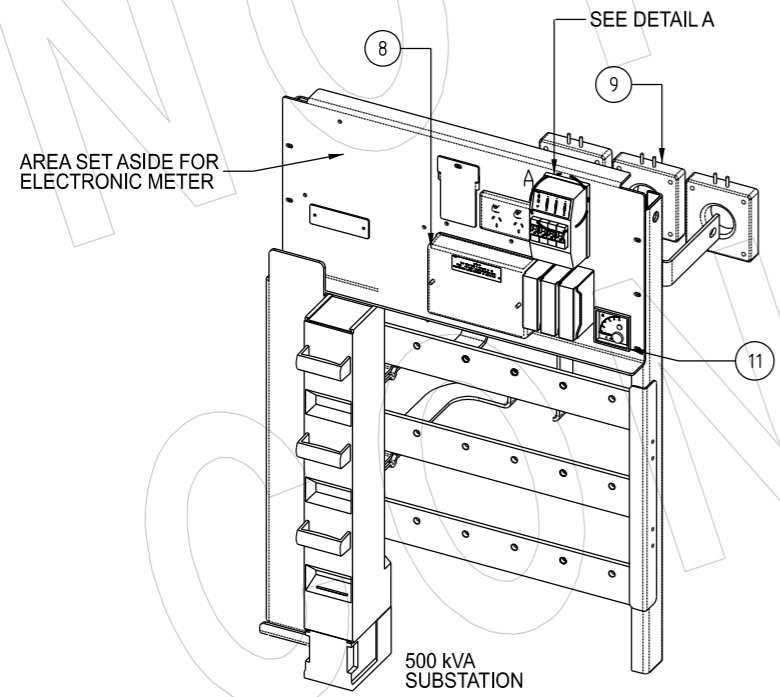
S02-01-07-17_5 SHEET 5 S02-01-07-17_4 SHEET 4 S02-01-07-17_2 SHEET 2 S02-01-07-17_1 SHEET 1		5 CHANGED FROM SUPERSEDED TO NOT FOR NEW CONSTRUCTION. UPDATED LV EARTH AND NEUTRAL BARS. CHANGED TITLE. 4 SUPERSEDED 3 TITLEBLOCK & DRAWING NUMBER FORMATTED 2 SHEET 2 AMENDED 1 SWITCH NUMBER MOUNTING ADDED 0 ISSUED FOR CONSTRUCTION	A.N. NOV'20 C.C.C. B.C. C.C. JUN'20 B.V. B.V. K.T. FEB'19 C.C. C.C. C.C. NOV'18 B.V. B.C. C.C. FEB'14 B.C. B.C. A.T. NOV'11 B.C. S.C.	 NORTHERN TERRITORY	DES R.C. DRN K.I. CKD C.C. APPD ... SCALE N.T.S. ISSUED DEC 2004 ALL DIM. IN mm	POWER STANDARD DRAWING SUBSTATIONS PACKAGE MK2 GENERAL ARRANGEMENT (SHEET 3 OF 5)		A3 DRAWING NUMBER S02-01-07-17_3	
DRG NO	DESCRIPTION	NO	DESCRIPTION		DRN	DATE	CKD		



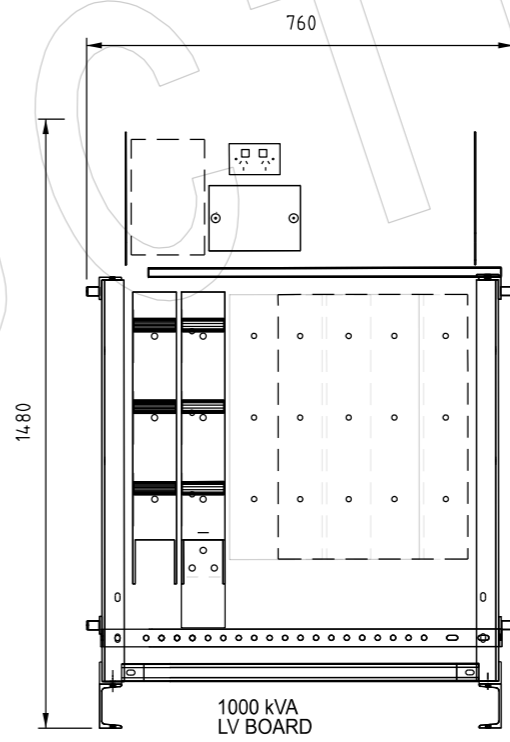
NOTES

- ALL CONNECTING BUS WORK TO BE MARKED BOTH ENDS WITH COLOURED HEAT SHRINK TO IDENTIFY PHASES
- THE GENERATOR LUGS TO BE MARKED WITH COLOURED DOTS TO IDENTIFY PHASES
- FOR SUBSTATIONS 750kVA AND ABOVE, STREETLIGHT CONTROL PANEL SHALL BE MOUNTED ON THE LV COMPARTMENT DOOR.  
25 sq mm FLEXIBLE CABLE SHALL BE USED TO CONNECT THE STREET LIGHT CONTROL PANEL TO THE STREET LIGHT FUSES (ITEM 14) FLEXIBLE CABLE SHALL BE PROTECTED BY FLEXIBLE CONDUIT WHEN IT IS NEAR THE DOOR JOINT.
- ALL CURRENT CARRYING BOLTED CONNECTIONS SHALL BE VIA CLASS 8.8 STAINLESS STEEL BOLTS TO THE FOLLOWING TORQUE SPECIFICATIONS:  
M8: 10-15NM  
M10: 30-35NM  
M12: 35-40NM  
ALL CONNECTIONS SHALL USE A SPRING WASHER BETWEEN A FLAT WASHER AND THE NUT. WHERE CAPTIVE NUTS ARE USED THE SPRING WASHER SHALL BE ON THE BOLT SIDE OF THE CONNECTION.  
ALL STAINLESS STEEL BOLTS REQUIRE A COATING OF ANTI-SIEZE BEFORE INSTALLATION. WHERE MULTIPLE BOLTS ARE USED TO MAKE A CONNECTION, DO NOT APPLY FULL TORQUE TO THE BOLTS ON THE FIRST PASS.
- TO AVOID POSSIBLE CONTACT BY EXTERNAL SOURCES ALL LV BUSHING TO SWITCHBOARD BUSBARS SHALL BE COVERED BY COLOURED HEATSHRINK.
- LV METERING CT'S MUST CONFORM TO PWC TECHNICAL SPECIFICATION STSP 02-012.

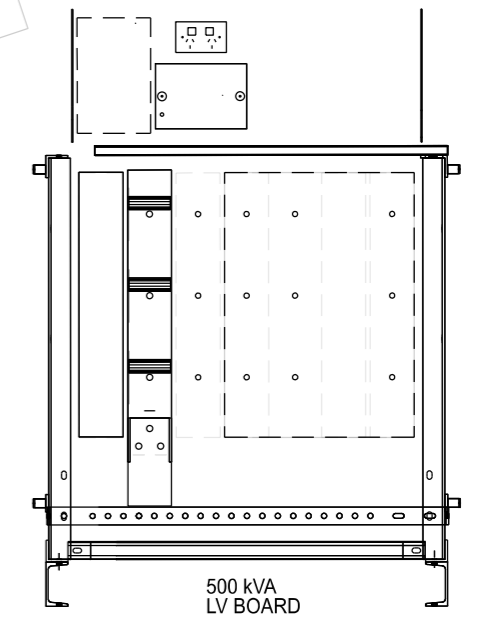
ITEM NO.	DESCRIPTION	DEFAULT /QTY.
1	JEAN MULLER REAR CONNECT GENERATOR	1
2	BARRIER JEAN MULLER 630A FUSE STRIP	1
3	SUPPORT BUSBARS	1
4	SUPPORT BUSBARS	1
5	BUSBAR	3
6	BARRIER CLEAR	1
7	BARRIER - STREET LIGHTING SUPPORT	1
8	BOX TEST CLIPSAL CLI 1008	1
9	CT 800/5A EPOXY	3
11	METER MAX DEMAND 0-800/5A WHITE	1
13	CIRCUIT BREAKER 10A 4.5kA 1 PHASE MCB	4
14	FUSE HOLDER 63 Amp	3
15	SOCKET GPO 10A CLIPSAL 25	1
16	TRUNK SLOTTED DUCT DSD 25x50x430LG	1
18	BUSBAR 'a' phase	1
19	BUSBAR 'b' phase	1
20	BUSBAR 'c' phase	1
21	SETSCREW M10 x 30 NYLON 6/6	3
22	NUT M10 NYLON	3
23	50 x 0.3 COPPER STRIP (3#/ PER PHASE)	15M
24	BARRIER COVER PLATE	1
25	NUT DODGE M12	21



DETAIL A



1000 kVA LV BOARD



500 kVA LV BOARD

FRONT VIEW

BACK VIEW

DRG NO	DESCRIPTION	NO	DESCRIPTION	DRN	DATE	CKD	APPD
S02-01-07-17_5	SHEET 5	4	CHANGED SUPERSEDED TO NOT FOR NEW CONSTRUCTION. ADDED NOTE 6. FIXED GRAMMAR, FORMATTING AND CHANGED TITLE.	A.N.	NOV'20	C.C.C.	B.C.
S02-01-07-17_3	SHEET 3	3	SUPERSEDED	C.C.	JUN'20	B.V.	B.V.
S02-01-07-17_2	SHEET 2	2	TITLEBLOCK & DRAWING NUMBER FORMATTED	K.T.	FEB'19	C.C.	C.C.
S02-01-07-17_1	SHEET 1	1	SHEET 2 AMENDED	C.C.	NOV'18	B.C.	S.C.
		0	ISSUED FOR CONSTRUCTION	C.C.	NOV'11	B.C.	S.C.
AMENDMENTS							

NORTHERN TERRITORY

DES B. CHEUNG  
DRN C. COPPINS  
CKD A. TAYLOR  
APPD S.C.  
SCALE N.T.S.  
ISSUED NOV 2011  
ALL DIM. IN mm

POWER STANDARD DRAWING

**SUBSTATIONS PACKAGE MK2**

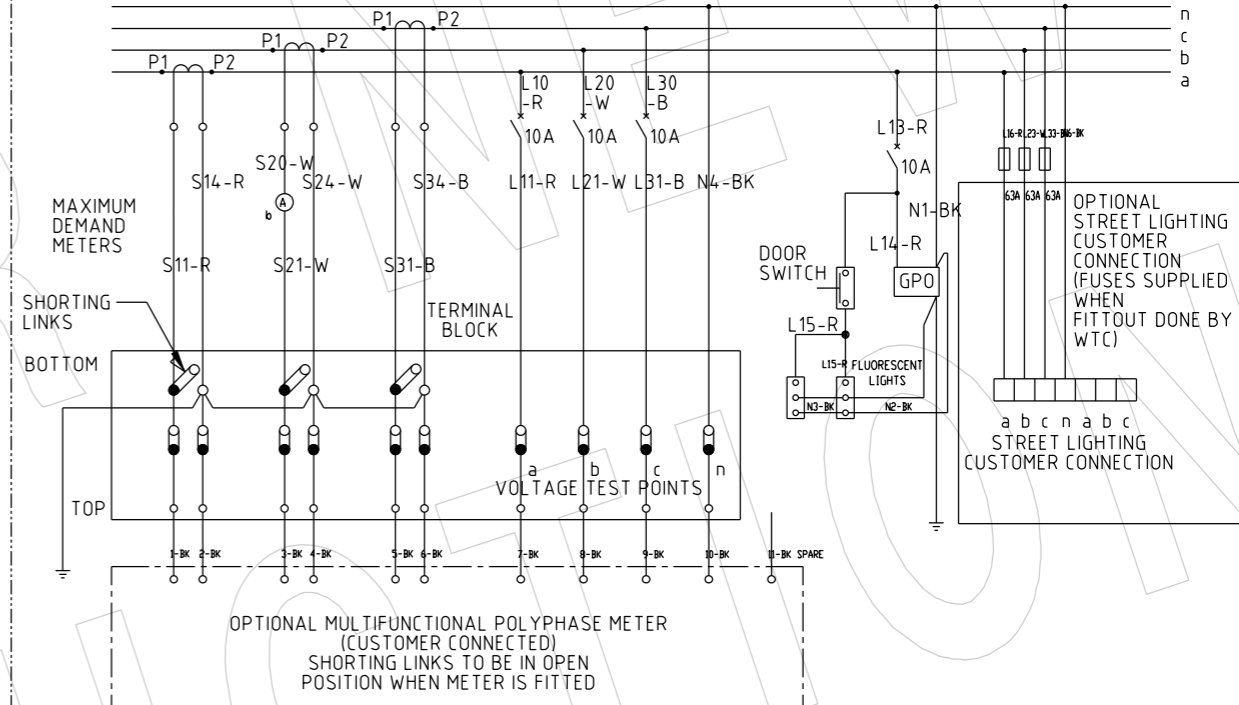
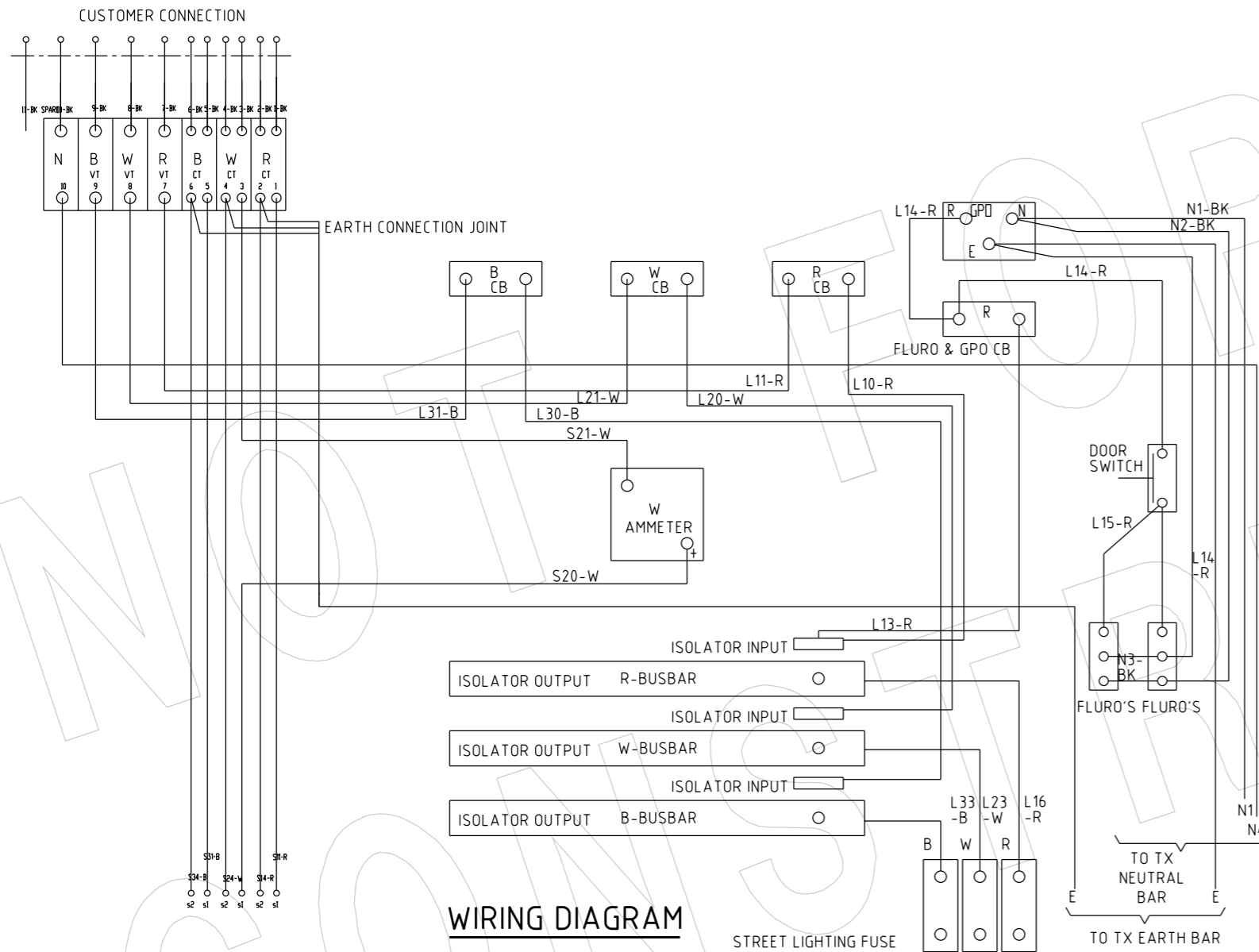
**GENERAL ARRANGEMENT**

(SHEET 4 OF 5)

A3 DRAWING NUMBER S02-01-07-17\_4

DRAFTING STANDARD TO A.S.1100 CAD PRODUCT - DO NOT AMEND MANUALLY





**LEGEND:**

- CT1-CT3 TRANSFORMERS CURRENT METERING
- WIRE NUMBER:
  - R - RED
  - W - WHITE
  - B - BLUE
  - BK - BLACK
  - BN - BROWN
  - GY - GREY
- TEST BOX SLIDE LINKS:
  - TOP
  - BOTTOM

**NOTES:**

- ALL FUSES CONNECTED FROM LV SWITCHBOARD AND WIRED USING 7/1.04mm 0.6/1kV
- ALL OTHER WIRING 7/0.67mm 0.6/1kV
- NEUTRAL & EARTH CONNECTIONS MADE TO FRONT NEUTRAL BAR

DRG NO	DESCRIPTION	NO	DESCRIPTION	DRN	DATE	CKD	APPD
S02-01-07-17_4	SHEET 4	3	CHANGED FROM SUPERSEDED TO NOT FOR NEW CONSTRUCTION. CHANGED TITLE. LEGEND TITLED. NUMBERED NOTES.	A.N.	NOV'20	C.C.C.	B.C.
S02-01-07-17_3	SHEET 3	2	SUPERSEDED	C.C.	JUN'20	B.V.	B.V.
S02-01-07-17_2	SHEET 2	1	SHEET 2 AMENDED	A.T.	OCT'12	B.N.	B.C.
S02-01-07-17_1	SHEET 1	0	ISSUED FOR CONSTRUCTION	A.T.	OCT'12	B.N.	B.C.

**PowerWater**  
NORTHERN TERRITORY

DES		POWER STANDARD DRAWING	
DES	B.CHEUNG	SUBSTATIONS PACKAGE MK2 GENERAL ARRANGEMENT (SHEET 5 OF 5)	
DRN	C.COPPINS	A3	DRAWING NUMBER S02-01-07-17_5
CKD	A.TAYLOR		
APPD	B.CHEUNG	DRAFTING STANDARD TO A.S.1100	
SCALE	N.T.S.	CAD PRODUCT - DO NOT AMEND MANUALLY	
ISSUED	NOVEMBER 2011	AMDT	