



**NOTES:**

- EARTHING FOR A SINGLE PHASE PACKAGE SUBSTATION CONSISTS OF TWO EARTH ELECTRODES IN OPPOSITE CORNERS OF THE EASEMENT AND A BARE COPPER CONDUCTOR EQUIPOTENTIAL RING.
- IN THE EASEMENT: TWO BORE HOLES TO BE DRILLED AT OPPOSITE CORNERS. FOR EACH HOLE:
  - AUGER DIAMETER TO BE USED SHOULD NOT BE GREATER THAN 150mm.
  - BORE DEPTH IS 3m.
  - EARTH ELECTRODE SHALL BE MADE FROM EITHER BARE 70 sq.mm COPPER CONDUCTOR OR 70 sq.mm BARE COPPER CONDUCTOR WITH AN EARTH STAKE ATTACHED VIA TWO PROFILE "6" COMPRESSION CONNECTOR BEFORE LOWERING THE STAKE INTO THE BORE HOLE. ATTACH THE 70 sq.mm COPPER CONDUCTOR TO THE EARTH GRID AS SHOWN IN DETAIL 1.
  - BACKFILL BORE HOLE FIRST WITH WATERED SLURRY MIXTURE OF ONE BAG OF EARTHING COMPOUND AND SOIL AT 1:1 RATIO, THEN TOP UP WITH EXISTING SOIL.
- EQUIPOTENTIAL EARTH RING OF 70 sq.mm BARE COPPER CONDUCTOR MUST BE LAID UP TO 400mm FROM THE FOUNDATION SLAB TO A DEPTH OF 300mm AND CONNECTED TO TWO EARTH ELECTRODES IN OPPOSITE CORNERS OF THE EASEMENT AS SHOWN. IF THERE IS ANY STRUCTURE WITHIN 400mm OF THE FOUNDATION, THEN PROVIDE A MINIMUM 100mm CLEARANCE BETWEEN THE STRUCTURE AND THE EQUIPOTENTIAL RING.
- FOR THE SUBSTATION FOUNDATION DETAILS, REFER TO DRG NO S02-01-05-11.
- M.E.N. EARTH (FROM DISTRIBUTION SYSTEM) MUST NOT BE BROUGHT INTO ELECTRICAL CONTACT WITH FOUNDATION AND EQUIPOTENTIAL RING SO THAT TESTING CAN BE CARRIED OUT. M.E.N. SHALL BE IN CONDUIT WHERE PASSING THROUGH SUBSTATION FOUNDATIONS.
- TRAFFIC BOLLARDS WITHIN 1m OF EASEMENT FOR THE PURPOSE OF PROTECTING THE SUBSTATION SHALL BE CONNECTED TO PERIMETER EARTHING CONDUCTOR BY 70 sq.mm COPPER CONDUCTOR WHICH WILL BE SET INSIDE THE POST AND LUGGED OFF ONTO A BARRIER BOLT. BOLLARDS ONLY TO BE EARTHED IF LOCATED IN EASEMENT.
- BOND THE SUBSTATION FOUNDATION TO THE SUBSTATION EARTH RING VIA 70 sq.mm BARE COPPER CABLE USING THE M12 FERRULES EMBEDDED IN THE FOUNDATION. STAINLESS STEEL FASTENERS TO BE USED.
- FOR ANY EARTH CONNECTIONS TO EXISTING COPPER FLAT BAR USE EXOTHERMIC EARTH WELD CONNECTION. CADWELD IS ALSO PERMITTED AS AN ALTERNATIVE TO CRIMPING. REFER TO DRG NO S01-01-05-03 FOR DETAILS.
- APPLY GREEN & YELLOW HEAT SHRINK TO LOCAL SUBSTATION EARTH TAIL CONNECTIONS FOR IDENTIFICATION PURPOSES, AS TO BE CONSISTANT WITH PREVIOUS INSTALLATION BEING INSULATED CABLE.

**EARTHING REQUIREMENT**

- FOR SUBSTATION EARTH RING, WITH LINK 1 OPEN, THE RECORDED EARTH RESISTANCE VALUE SHOULD NOT BE GREATER THAN 30 OHMS.
- FOR CMEN EARTH, WITH LINK 1 CLOSED, THE RECORDED EARTH RESISTANCE VALUE SHOULD NOT BE GREATER THAN 1 OHM.
- IF ANY OF THE ABOVE VALUES CANNOT BE ACHIEVED, REFER TO THE PROJECT MANAGER.
- 1 SPARE 10mm THREAD BOLT AND NUT FOR OPERATOR EARTHS ON THE HV AND LV EARTH BARS.
- TWO INDEPENDENT EARTHING CONNECTORS MUST BE USED FOR ALL EARTHING INTERCONNECTIONS. ALTERNATIVELY, CADWELD MAY BE USED. MEN TEE OFF MUST BE CONNECTED BY 2 X 'C' COMPRESSION CONNECTORS 300mm APART OR CADWELD.

**EARTHING TERMINATION ARRANGEMENT**

ITEM	QTY	DESCRIPTION	ITEM NUMBER	DRG REF
6	4	EARTHING COMPOUND.(BAG)	10876	-
5	AR	COMPRESSION CONNECTOR, "6" PROFILE, 70 sq.mm	257394	S01-01-05-08
4	AR	COMPRESSION CONNECTOR, "C" PROFILE, 70-70 sq.mm	255786	S01-01-05-08
3	AR	EARTH ROD, SS316, 14mm DIA	414060	S01-01-05-01
1	AR	70sq.mm BARE COPPER CONDUCTOR.	9803	S01-01-05-05

MATERIAL SCHEDULE

NO	DESCRIPTION	DRN	DATE	CKD	APPD
3	UPDATED NOTES 3, 6 & 7. TWO CRIMPS REQUIRED PER CONNECTION OR CADWELD. UPDATE EARTHING DESIGN. REMOVE ITEM 2. ADD NOTES 8 & 9.	CWM	OCT'21	B.V.	A.N.
2	CORRECTED NOTE 4 DRAWING NUMBER REFERENCE	R.A.	MAY'21	C.C.C.	B.C.
1	AMEND M.E.N. DETAILS	H.E.	SEP'20	B.C.	B.V.
0	ISSUED FOR CONSTRUCTION	C.C.	OCT'19	B.C.	B.V.



DES	POWER STANDARD DRAWING	
A.TAYLOR	EARTHING PACKAGE SUBSTATION SINGLE PHASE 75KVA CONSTRUCTION DETAILS	
C.COPPINS		
B.CHEUNG		
B.CHEUNG		
N.T.S.		
OCTOBER 2019	A3	DRAWING NUMBER S02-02-05-15
ALL DIM. IN mm		
DRAFTING STANDARD TO A.S.1100	CAD PRODUCT - DO NOT AMEND MANUALLY	

