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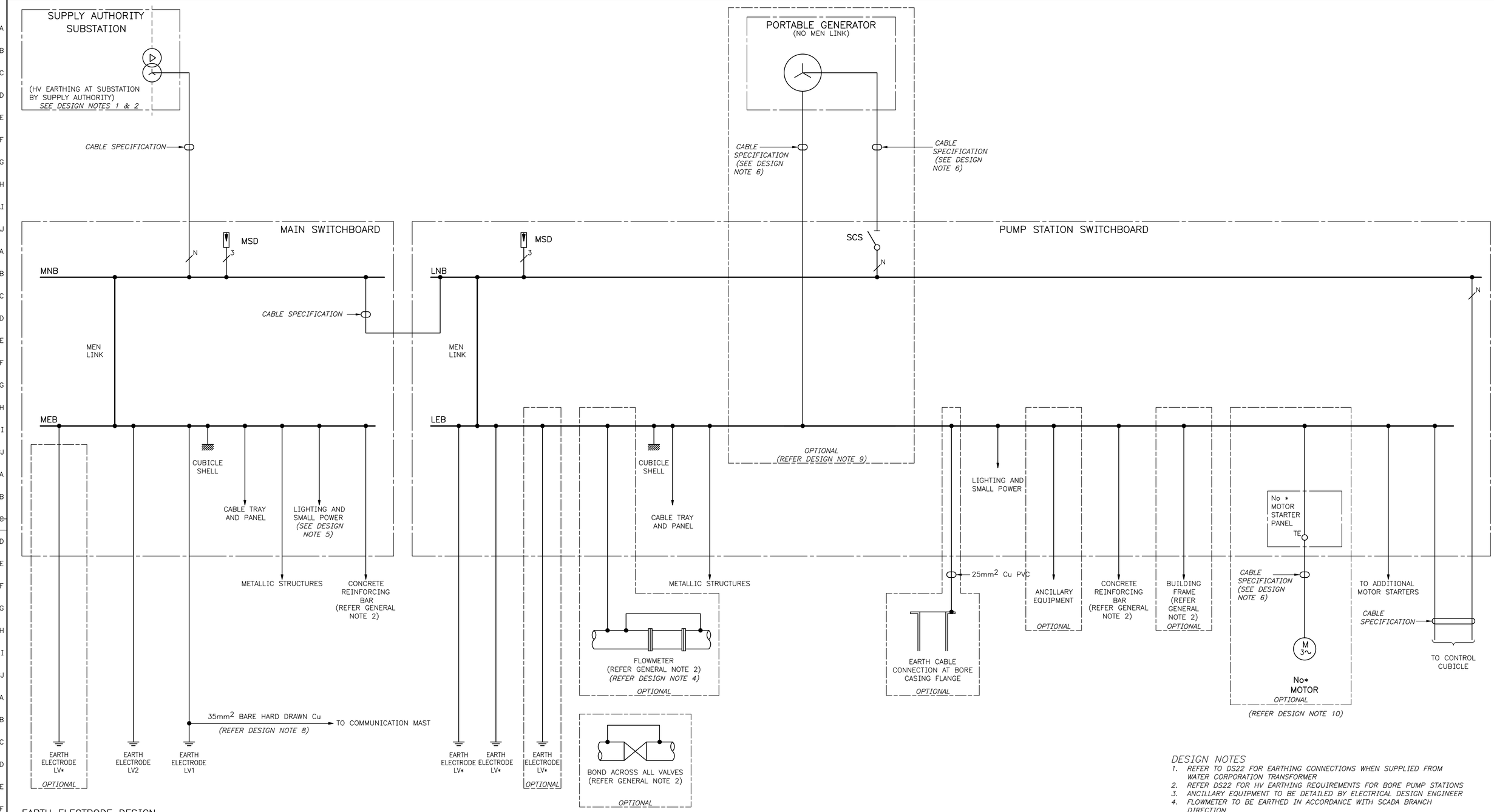

EARTH ELECTRODE DESIGN

1. ** EARTH ELECTRODES, **mm DIAMETER SHALL BE INSTALLED ** METRES DEEP AND SPACED A MINIMUM OF ** METRES APART *(SEE DESIGN NOTE 7)*
2. INDIVIDUAL ELECTRODE RESISTANCE CALCULATED TO BE ** Ω
3. ELECTRODE SYSTEM RESISTANCE CALCULATED TO BE ** Ω

SOIL RESISTIVITY TESTS

PERFORMED BY *(PERSON) (COMPANY) (DATE)*

DISTANCE (m)	**	**	**	**	**	**
RESISTANCE (Ω)	**	**	**	**	**	**
SOIL RESISTIVITY (Ωm)	**	**	**	**	**	**

CODE SCHEDULE

LEB	LOCAL EARTH BAR
LNB	LOCAL NEUTRAL BAR
MEB	MAIN EARTH BAR
MNB	MAIN NEUTRAL BAR
MSD	MAINS SURGE DIVERTER
SCS	SUPPLY CHANGEOVER SWITCH

ELECTRODE SYSTEM RESISTANCE TEST RESULTS

TEST DATE	DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY
LV1 RESISTANCE (Ω)	**	**	**	**	**	**
LV2 RESISTANCE (Ω)	**	**	**	**	**	**
LV* RESISTANCE (Ω)	**	**	**	**	**	**
LV* RESISTANCE (Ω)	**	**	**	**	**	**
SYSTEM RESISTANCE (Ω)	**	**	**	**	**	**

DESIGN NOTES

1. *REFER TO DS22 FOR EARTHING CONNECTIONS WHEN SUPPLIED FROM WATER CORPORATION TRANSFORMER*
2. *REFER DS22 FOR HV EARTHING REQUIREMENTS FOR BORE PUMP STATIONS*
3. *ANCILLARY EQUIPMENT TO BE DETAILED BY ELECTRICAL DESIGN ENGINEER*
4. *FLOWMETER TO BE EARTHED IN ACCORDANCE WITH SCADA BRANCH DIRECTION*
5. *SMALL POWER OPTIONAL FOR MAIN SWITCHBOARD ON MULTIPLE SWITCHBOARD SITE*
6. *ELECTRICAL DESIGN ENGINEER SHALL DETAIL METHOD OF CONNECTION OF GENERATOR AND MOTOR CABLES. E.G. APPLIANCE INLET OR DISCONNECT CUBICLE*
7. *OPTIMAL SPACING OF EARTH ELECTRODES IS 2 x ELECTRODE LENGTH*
8. *WHICH EARTH ELECTRODE TO BOND COMMUNICATIONS EARTH TO IS DEPENDENT ON PROJECT REQUIREMENTS*
9. *PORTABLE GENERATOR SHOWN, FOR PERMANENT GENERATOR DETAIL REFER MN01–2–1. PERMANENT GENERATOR NEUTRAL SWITCHING SHALL BE AT THE GENERATOR*
10. *FOR VARIABLE SPEED CONTROLLER AND VARIABLE SPEED CONTROLLER FILTER OPTIONS REFER MN01–2–5*

GENERAL NOTES

1. THE OVERALL EARTHING RESISTANCE OF THE ELECTRICAL EARTHING SYSTEM SHALL BE NOT MORE THAN 15 OHMS
2. UNLESS OTHERWISE SHOWN ALL BONDING CABLES FOR PIPES, METALLIC STRUCTURES, BUILDING FRAME AND CONCRETE REINFORCEMENT SHALL BE 70mm^2 COPPER

ISSUE	DATE	GRID	REVISION	DRN	REC	APPD
G	03/2024		PORTABLE GENERATOR NEUTRAL CONNECTION REVISED	SAM	TL	EG
F	01/2024		ELECTRODE SYSTEM RESISTANCE TEST RESULTS TABLE ADDED	SAM	TL	EG
E	08/2021		MOTOR EARTHING CONFIGURATIONS MADE OPTIONAL FOR VSC, DESIGN NOTE 10 ADDED	PH	TL	EG
D	02/2020		REFERENCE TO OPTIONAL PERMANENT GENERATOR DETAIL ADDED TO DESIGN NOTE 9	SM	TL	EG
C	11/2019		DESIGN NOTE 9 REVISED	PH	EG	NJ

566
810

DESIGN SURVEY NONE | VERTICAL DATUM NONE | COORDINATE SYS NONE | ASCON SURVEY NONE | DES REF | DES CALC E FONG | DES CHD K O'GRADY | DRN P HARVEY | Q.C. CHD S MEMORY | NORTH POINT

SUBMITTED 24/07/2017 E FONG (SIGNED) SENIOR ENGINEER – ELECTRICAL

RECOMMENDED 24/07/2017 K O'GRADY (SIGNED) PRINCIPAL ENGINEER – ELECTRICAL

APPROVED 24/07/2017 N JOHNSON (SIGNED) SNR PRINCIPAL ENGINEER – ELECT

ENGINEERING

WATER CORPORATION

ELECTRICAL STANDARD SWITCHBOARD DESIGNS
SMALL PUMP STATIONS
PRIMARY DESIGN – EARTHING DIAGRAM TEMPLATE
MULTIPLE SWBDS SEPARATED > 50m, GENERATOR AT PS SWBD

FILE | PROJECT | PLAN MN01–2–2.2 | CAD | ISSUE G | ORIGINAL SHEET SIZE A1 | MF

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STANDARDS\APPROVED\MN01\PREAPPROVAL\MN01–002–002–02G 15:24 12/03/2024 MEMORYSO/NB46194