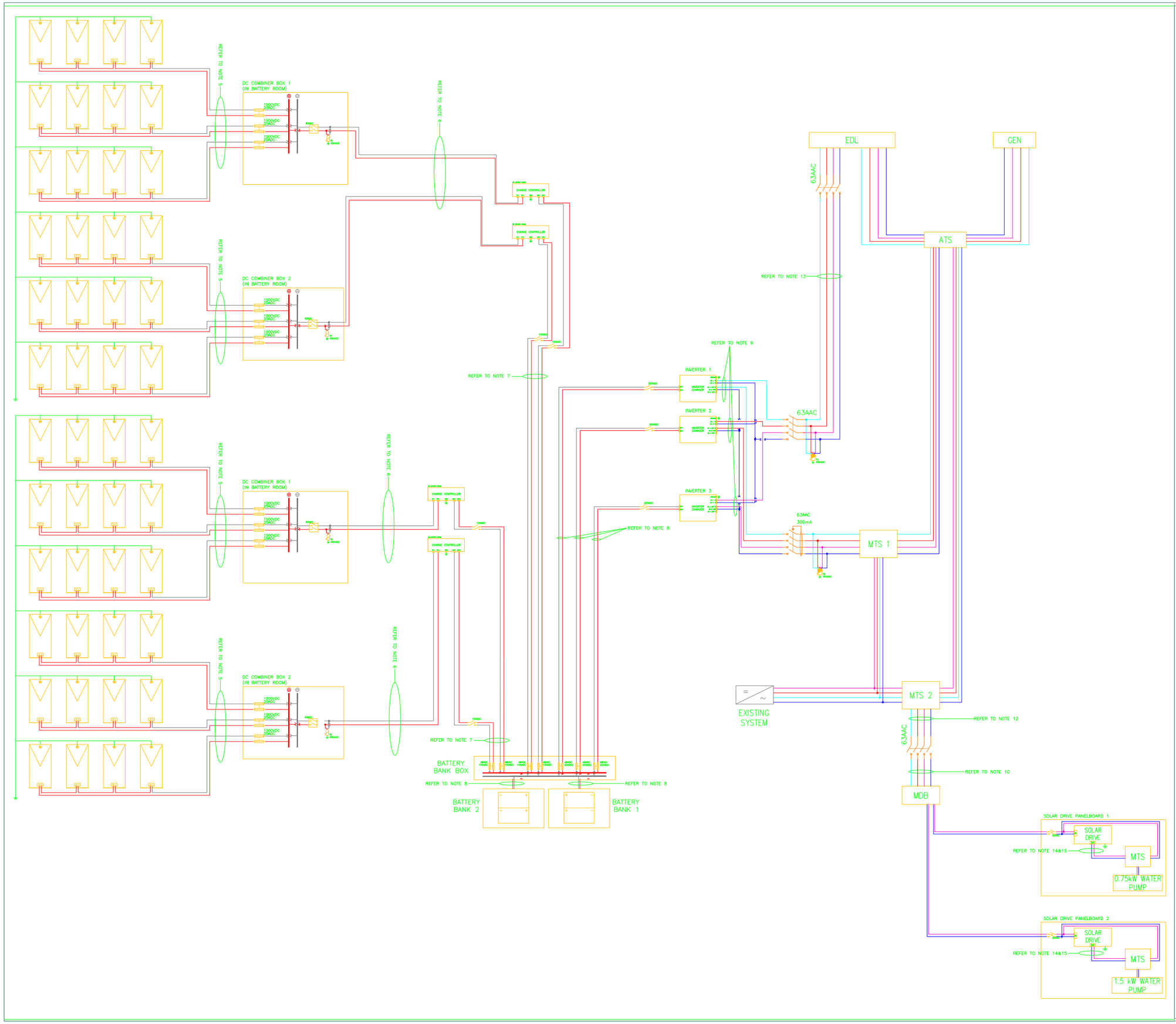

NOTES:

1. EVERY MODULE'S METALLIC FRAME MUST BE EARTHED BY CONNECTING THE FRAME TO THE METALLIC SUPPORTING STRUCTURE USING A 4mm² Cu/PVC/PVC PE CABLE.
2. EVERY METALLIC SUPPORTING STRUCTURE MUST BE EARTHED USING A 16mm² Cu/PVC/PVC PE CABLE.
3. EVERY PANELBOARD'S METALLIC ENCLOSURE AND METALLIC BACKSHEET MUST BE EARTHED USING A 4mm² Cu/PVC/PVC PE CABLE.
4. ALL NEW EARTHING POINTS TO BE CONNECTED TO A NEW EARTHING SYSTEM DEDICATED FOR THE SOLAR PV SYSTEM.
5. ALL PV CABLES SIZES TO BE 1C 4mm², CABLES TO BE KBE SOLAR PV1-F DC CABLE (OR EQUIVALENT), TÜV CERTIFIED (TÜV 2 PIG 1169/08.07), Cu TINNED CLASS 5 CONDUCTOR (ACC. TO IEC 60228), CROSSLINKED SPECIAL POLYOLEFIN, HALOGEN FREE, OZONE RESISTANT, WEATHER & UV-RESISTANT INSULATION & JACKET MATERIAL, 1800VDC MAXIMUM OPEN CIRCUIT VOLTAGE RATING (CONDUCTOR-CONDUCTOR, NON EARTHED SYSTEM), FLAME RETARDANT ACC. TO IEC 60332-1.
6. ALL PV CABLES SIZES TO BE 2x 1C 4mm², CABLES TO BE KBE SOLAR PV1-F DC CABLE (OR EQUIVALENT), TÜV CERTIFIED (TÜV 2 PIG 1169/08.07), Cu TINNED CLASS 5 CONDUCTOR (ACC. TO IEC 60228), CROSSLINKED SPECIAL POLYOLEFIN, HALOGEN FREE, OZONE RESISTANT, WEATHER & UV-RESISTANT INSULATION & JACKET MATERIAL, 1800VDC MAXIMUM OPEN CIRCUIT VOLTAGE RATING (CONDUCTOR-CONDUCTOR, NON EARTHED SYSTEM), FLAME RETARDANT ACC. TO IEC 60332-1.
7. ALL DC POWER CABLES FROM THE SOLAR CHARGE CONTROLLERS TO THE BATTERY BANK MUST BE 1C 25mm² UNARMORED Cu/PVC/PVC.
8. ALL DC POWER CABLES FROM THE BATTERY BANK TO THE INVERTER/CHARGER MUST BE 1C 70 mm² UNARMORED Cu/PVC/PVC. THE BATTERIES POSITIVE AND NEGATIVE BUSBARS SHALL BE WELL SEPARATED AND SECURED FOR SAFETY PURPOSES.
9. ALL AC POWER CABLES TO/FROM THE INVERTERS MUST BE 4C 16mm² UNARMORED Cu/PVC/PVC, 0.6/1kV AND THE CORRESPONDING PE CABLES MUST BE 1C 16mm² UNARMORED Cu/PVC/PVC 0.6kV YELLOW/GREEN. ALL TO BE CONFORMING TO IEC 60502-1.
10. THE INVERTERS SHALL FEED ALL LOADS EXCEPT FOR ALL SPLIT AC UNITS, AND HEATERS. ALL NECESSARY CONTROL MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO GUARANTEE THE REQUIRED LOAD SEGREGATION. THE CONTRACTOR SHALL INSTALL SEPARATE MANUAL SWITCHES ALLOWING OPERATORS TO FEED EACH OF EXCLUDED LOADS WHEN NECESSARY.
11. ALL INVERTERS CABLE GLANDS OPENINGS MUST BE TIGHTLY SEALED USING THE SUPPLIED INVERTER MATERIAL TO ENSURE AN IP65 PROTECTION LEVEL.
12. A POWER METER SHALL BE INSTALLED ON THE AC OUTPUT SIDE AFTER THE MTS TO DISPLAY AT LEAST THE VOLTAGE AND CURRENT READINGS.
13. A PHASE FAILURE/OVER UNDER VOLTAGE PROTECTION RELAY WITH A NORMALLY OPEN CONTACTOR SHALL BE INSTALLED ON THE AC INPUT SIDE OF THE INVERTER TO PROTECT THE SYSTEM.
14. ALL AC POWER CABLES TO/FROM THE SOLAR DRIVE INVERTER MUST BE 2C 4mm² UNARMORED Cu/PVC/PVC, 0.6/1kV AND THE CORRESPONDING PE CABLES MUST BE 1C 4mm² UNARMORED Cu/PVC/PVC 0.6kV YELLOW/GREEN. ALL TO BE CONFORMING TO IEC 60502-1.
15. THE CONTRACTOR SHALL UNDERTAKE ALL REQUIRED MEASURES TO ENSURE THE PROPER INSTALLATION AND OPERATION OF THE SOLAR DRIVE INVERTER, INCLUDING BUT NOT LIMITED TO REPLACEMENT OF EXISTING WATER PUMPS WITH WATER PUMPS COMPATIBLE WITH THE SOLAR DRIVE INVERTER IF NEECED.

LEGEND:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MONOCRYSTALLINE PV MODULE: RATED POWER: 410Wp Vmp: 37.88V , Imp: 9.79A DIMENSIONS(L/W/D): 2015x996x40mm		SOLAR INVERTER: HYBRID INVERTER - 10kVA
	DOUBLE POLE DC FUSE WITH FUSE HOLDER. X REFERS TO THE VOLTAGE RATING (V). Y REFERS TO THE CURRENT RATING (A).		EXISTING SOLAR INVERTER: ON-GRID SMA INVERTER - 20kVA
	DOUBLE POLE DC DISCONNECTING SWITCH. X REFERS TO THE CURRENT RATING (A).		FOUR POLE AC THERMAL-MAGNETIC MINIATURE CIRCUIT BREAKER. X REFERS TO THE TRIP CURRENT RATING (A).
	DOUBLE POLE DC SURGE ARRESTER. X REFERS TO THE SURGE ARRESTER TYPE (CLASS). Y REFERS TO THE NOMINAL DISCHARGE CURRENT RATING in (KA)		FOUR POLE AC THERMAL-MAGNETIC MINIATURE CIRCUIT BREAKER WITH A CLASS AC RESIDUAL CURRENT PROTECTION. X REFERS TO THE TRIP CURRENT RATING (A). Y REFERS TO THE EARTH LEAKAGE PROTECTION SENSITIVITY (mA).
	BATTERY BANK: NUMBER OF BATTERIES IN SERIES: 24 NUMBER OF BATTERIES IN PARALLEL: 1 BATTERY BANK VOLTAGE: 48V		FOUR POLE AC SURGE ARRESTER. X REFERS TO THE SURGE ARRESTER TYPE (CLASS). Y REFERS TO THE NOMINAL DISCHARGE CURRENT RATING in (KA).
			DOUBLE POLE DC CIRCUIT BREAKER. X REFERS TO THE TRIP CURRENT RATING (A).
	SOLAR CHARGE CONTROLLER 250V DC / 85A DC		

REVISIONS:

REVISION NO.	DESCRIPTION	DATE
0	ISSUED FOR EXECUTION	20-04-23
1	ISSUED FOR EXECUTION	05-05-23

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CLIENT:

GIZ

PROJECT DESCRIPTION:

ROOF PV SYSTEM
DEIR QANOUN RAS AL AIN

DRAWING TITLE:

SLD

PROJECT PHASE:	DRAWING SCALE:	DRAWING DISCIPLINE:
EXECUTION	NTS	ELECTRICAL