



- GENERAL NOTES**
- DO NOT SCALE FROM THIS DRAWING. NO VARIATION TO THE STATED DIMENSIONS OR MATERIALS SPECIFIED WILL BE PERMITTED WITHOUT PRIOR WRITTEN CONSENT FROM UK POWER NETWORKS. ALL DIMENSIONS ARE IN MILLIMETRES.
 - THE RUNNING OF HEATING, GAS, TELECOMS, WATER AND OTHER SERVICES THROUGH OR UNDER THE SUBSTATION AREA IS NOT PERMITTED.
 - WORKMANSHIP AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE RELEVANT CODES OF PRACTICE OR BRITISH STANDARD AND EUROCODES.
 - THE LIGHTING AND POWER REQUIREMENTS ARE SUMMARISED BELOW. REFER TO EDS 07-0119 FOR FURTHER DETAILS.
 - ALL WORK AND TESTING SHALL BE CARRIED OUT BY SUITABLY COMPETENT OPERATIVES IN ACCORDANCE WITH BS 7671.
 - ALL ACCESSORIES AND ACCESSORY MOUNTING BOXES OR ENCLOSURES SHALL BE IP56 SURFACE MOUNTED FROM THE MK MASTERSSEAL RANGE OR EQUIVALENT.

- POWER SUPPLY OPTIONS**
- MINIMUM 4mm² SWA FROM THE LV CABINET/BOARD 32A AUXILIARY SUPPLY TERMINALS OR 35mm² SERVICE FROM LV PILLAR OR LV DISTRIBUTION NETWORK. ALL SUPPLIES SHALL BE TERMINATED IN A 100A CUT-OUT FUSED AT 30A.

- DISTRIBUTION BOARD**
- THE DISTRIBUTION BOARD SHALL BE INSULATED SINGLE-PHASE AND NEUTRAL (TO BS EN 61439-3) WITH A MINIMUM OF 5 WAYS AND INCLUDE:
 - A 100A/125A DOUBLE-POLE (PHASE AND NEUTRAL) DISCONNECTOR WITH 15kA BREAKING CAPACITY (TO BS EN 60947).
 - RCSBS (TO BS EN 61009-1) AND MCBs (TO BS EN 60898-2) WITH 15kA BREAKING CAPACITY.
 - 16/20A RCBO FOR THE 13A SOCKET OUTLET CIRCUIT.
 - 16A MCB FOR THE TEST EQUIPMENT 13A SOCKET OUTLET.
 - 6/10A MCB FOR THE LIGHTING CIRCUIT.
 - 6A MCB FOR EACH RTU OR PLTU (IF INSTALLED).
 - A SPARE WAY COMPLETE WITH BLANKING PLATE FOR FUTURE USE.
 - THE DISTRIBUTION BOARD SHALL BE MOUNTED AT A HEIGHT OF 1350mm TO 1450mm ABOVE FINISHED FLOOR LEVEL.

- INTERNAL LIGHTING**
- THE SUBSTATION SHALL A MINIMUM OF ONE LIGHT FITTING ABOVE THE DOOR. IF REQUIRED ADDITIONAL LIGHT FITTINGS SHALL BE INSTALLED TO PROVIDE ADEQUATE LUMINANCE TO ALL AREAS.
 - THE LIGHT FITTINGS SHALL BE POSITIONED TO AVOID SHADOWS WHEN EQUIPMENT DOORS ARE OPEN.
 - ALL LIGHT FITTINGS SHALL BE MOUNTED AT A MAXIMUM HEIGHT OF 2200mm ABOVE FINISHED FLOOR LEVEL AND BE POSITIONED TO AID FUTURE MAINTENANCE. LIGHT FITTINGS SHALL NOT BE INSTALLED ABOVE AN LV BOARD.
 - GENERAL PURPOSE LIGHT FITTINGS SHALL BE OF THE FLUORESCENT IMPACT AND CORROSION RESISTANT TYPE, CORROSION RESISTANT WITH A POLYCARBONATE PRISMATIC DIFFUSER (TO BS EN 60598-1) AND SHALL HAVE A MINIMUM DEGREE OF PROTECTION OF IP56. THE PREFERRED SIZE IS A 1500mm TWIN LAMP FITTING.
 - LIGHT FITTINGS SHALL BE FITTED WITH 35W OR 40W T5 OR T16 LINEAR FLUORESCENT TUBES OF THE HIGH FREQUENCY ENERGY EFFICIENT TYPE (TO BS EN 60081) OR EQUIVALENT LED. ALL LAMPS SHALL HAVE CAPS OF THE 'BI' PIN TYPE AND A MINIMUM COLOUR TEMPERATURE OF 3500K (A WHITE APPEARANCE).
 - LIGHT FITTINGS SHOULD BE CONNECTED VIA A PLUG IN ROSE (OR SIMILAR) TO AID FUTURE MAINTENANCE. A PROTECTIVE CONDUCTOR SHALL BE CONNECTED TO THE EARTH TERMINAL OF EACH FITTING.
 - A SURFACE MOUNTED LIGHT SWITCH WITH NEON INDICATOR SHALL BE POSITIONED ADJACENT TO THE SUBSTATION DOOR.
 - ALL LIGHT SWITCHES SHALL BE MOUNTED AT 1400mm ABOVE FINISHED FLOOR LEVEL.

- POWER**
- ONE DOUBLE 13A SOCKET OUTLET (TO BS 1363) SHALL BE INSTALLED IN ADDITION TO ANY SOCKET IN THE LV CABINET.
 - AN ADDITIONAL SINGLE 13A SOCKET OUTLET (TO BS 1363) SHALL BE INSTALLED, DESIGNATED AND LABELLED AS A 'TEST EQUIPMENT SOCKET' AND SUPPLIED VIA A SEPARATE MCB.
 - ANY RTU/PLTU SHALL BE SUPPLIED BY AN UNSWITCHED FUSE CONNECTION UNIT (TO BS 1363) FUSED AT 5A AND INSTALLED ADJACENT TO THE EQUIPMENT.
 - RADIAL CIRCUITS SHALL BE USED FOR ALL POWER CIRCUITS.
 - ALL SMALL POWER ACCESSORIES SHOULD BE MOUNTED AT 1000mm ABOVE FINISHED FLOOR LEVEL.

- CABLING**
- ALL CABLES SHALL BE 6491B LSHQ TO BS EN 50525-3-41 AND SHALL COMPLY WITH BASEC. ALL INSULATION SHALL USE PHASE OR NEUTRAL COLOURS THROUGHOUT THE LENGTH OF THE CONDUCTOR IN ACCORDANCE WITH BS 7671. NOTE: THE USE OF COLOURED SLEEVES TO MARK CONDUCTORS IS NOT ACCEPTABLE.
 - ALL CABLES SHALL USE STRANDED COPPER CONDUCTORS WITH THE FOLLOWING MINIMUM CROSS SECTIONAL AREA:
 - CUT-OUT UNIT TAILS 25mm².
 - LIGHTING 1.5mm².
 - SMALL POWER 4.0mm².
 - ALL CABLES, EXCEPT ARMoured CABLES AND CUT-OUT TAILS, SHALL BE ENCLOSED IN PLASTIC CONDUIT OR TRUNKING. THE TYPES AND SIZES SHALL BE SUITABLE FOR THE OPERATING CONDITIONS.
 - ALL CABLES SHALL BE INSTALLED WITHOUT JOINTS OTHER THAN AT EQUIPMENT AND TERMINAL FITTINGS.

- CONDUIT, TRUNKING AND TRAYS**
- ALL CABLING SHALL BE INSTALLED IN MINIMUM 20mm CONDUIT SIZED IN ACCORDANCE BS 7671.
 - ALL CONDUIT, BOXES AND FITTINGS SHALL BE HIGH IMPACT, NON-FLAME PROPAGATING, SELF-EXTINGUISHING, HEAVY-DUTY PVC CONDUIT (TO BS EN 61386-1). DIMENSIONS SHALL COMPLY WITH BS EN 60423.
 - THERE SHALL BE SUFFICIENT JUNCTION BOXES, DRAW-IN BOXES AND INSPECTION FITTINGS INSTALLED TO ALLOW CABLES TO BE INSPECTED, WITHDRAWN AND REPLACED IF NECESSARY. THE COMPLETE INSTALLATION SHALL BE ARRANGED USING A LOOP-IN TYPE SYSTEM WITH JOINTS BEING CARRIED OUT AT SWITCHES, ISOLATORS OR APPLIANCE FITTINGS.
 - ALL ADAPTABLE BOXES AND ACCESSORIES SHALL MATCH THE CONDUIT AND SHALL BE FITTED WITH EARTHING TERMINALS.
 - JOINTS BETWEEN CONDUITS MAY BE PUSH-FIT, COMPRESSION, MECHANICAL LOCKING OR SOCKET-END SEALED WITH PVC ADHESIVE. WHERE A WEATHERPROOF OR WATERTIGHT CONNECTION IS REQUIRED PUSH-FIT ARRANGEMENT ALONE IS NOT ACCEPTABLE.
 - ALL CONDUIT SHALL BE SECURED USING MATCHING DISTANCE SADDLES SPACED AT A MAXIMUM DISTANCE OF 750mm AND 200mm FROM ANY BEND, JOINT OR ACCESSORY. ALL BOXES AND ACCESSORIES SHALL BE SECURED INDEPENDENTLY.
 - REFER TO EDS 07-0119 FOR TRUNKING AND CABLE TRAY REQUIREMENTS.

- LABELLING**
- ALL LABELLING SHALL COMPLY WITH BS 7671.
 - ALL DISTRIBUTION BOARD WAYS SHALL BE PERMANENTLY LABELLED TO IDENTIFY CIRCUIT FUNCTION, CABLE SIZE AND PROTECTIVE DEVICE RATING.

- HOT SITES**
- ALL SOCKETS SHALL BE DISCONNECTED OR REMOVED.
 - ALL LIGHTING AND RTU SUPPLIES FROM AUXILIARY TERMINALS SHALL BE VIA AN ISOLATION TRANSFORMER.
 - REFER TO ECS 06-0023 FOR FURTHER INFORMATION.

- TESTING AND CERTIFICATION**
- UPON COMPLETION OF THE WORKS, THE INSTALLATION SHALL BE TESTED IN ACCORDANCE WITH BS 7671. AN ELECTRICAL INSTALLATION CERTIFICATE TOGETHER WITH A SCHEDULE OF TEST RESULTS AS DETAILED IN BS 7671 SHALL BE FORWARDED TO UK POWER NETWORKS.

A	09-08-17	ORIGINAL	S.T.	RDH
Version	Date	Description	Checked	Drn.
			Approved	Designed
TITLE				
SMALL POWER & LIGHTING ARRANGEMENT FOR SINGLE TRANSFORMER SUBSTATION				
SCALE	1:20	@A1	APPROVED	Version
DRAWING NO.	EDS 07-3102.GP			A
SITE	SECONDARY SITES			