BMA

BUILDING SERVICES CONSULTING ENGINEERS

2nd Floor Britannic Building
3 Upperhead Row
Huddersfield
HD1 2JL

Electrical Engineering Specification

For The : **Proposed New Dwelling**
At : **Newfold Farm, Sytch Road, Stoke-on-Trent**

For : **France + Associates**
83 Fitzwilliam Street
HUDDERSFIELD
HD1 5LG

Document Ref : **2022-106/SE01**

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Constructionline

British Assessment Bureau
UKAS MANAGEMENT SYSTEMS 8289
ISO 9001 QUALITY MANAGEMENT

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SECTION 1

GENERAL REQUIREMENTS

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SECTION 1

1.00 GENERAL REQUIREMENTS

General Requirements and Standard Technical Clauses are contained within separate documents comprising :-

1 For Mechanical Services

Brian Mellor Associates Document reference STSMS01 Rev B dated April 2015.

2 For Electrical Services

Brian Mellor Associates Document reference STSES01 Rev B dated April 2015.

These documents will be issued as part of the Tender Documentation and should be read in conjunction with all relevant specifications and Tender Drawings etc.

Copies will only be issued in CD / electronic format.

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SECTION 2

SCOPE OF WORKS

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SECTION 2

DESCRIPTION OF WORKS

2.1 GENERAL BUILDING DESCRIPTION

The Contract Works comprise the provision of new Electrical Services Installations within the new dwelling in conjunction with the contract works.

2.2 SCOPE OF ENGINEERING WORKS

The scope of Electrical Works for the contract comprises:-

- New supplies from new MCB distribution boards to new lighting and power circuits
- General purpose lighting
- General small power via ring mains and fused connection units.
- External Lighting and Power
- Security systems.
- Fire alarm systems
- Data Installations
- CCTV Installations
- Mechanical Services Equipment Wiring
- Solar PV Installations and Battery Storage

2.3 PROGRAMME OF WORKS

Reference should be made to the Main Contract Preliminaries for specific programme periods.

2.4 ACCESS TO THE SITE

Separate access to the site will be provided by the Main Contractor and details should be obtained from the Tendering Main Contractors.

2.5 SITE COMMUNICATIONS

The contact for the works is given in the Main Contract Preliminaries.

2.6 MAINTAINING OTHER SERVICES

The Electrical Sub-Contractor shall take care not to damage any services not covered by this Contract. Should any service be damaged by the Contractor then the Site Engineer should be informed immediately. The Contractor may be required to make good any damage at his own expense.

2.7 BUILDERS WORK

The Electrical Sub-Contractor will be responsible for the drilling of all holes up to and including 50mm diameter (clearance). All other builders work will be carried out by the Main Contractor.

Tenderers shall include for the provision of all builders work in conjunction with the electrical installation including the following:-

- Cutting out and making good holes for control panel boxes, switches and accessories.
- Chasing for conduit drops.
- Holes for cables, conduits and trunking.
- Trenching for external cables.

All builders work information shall be provided to the Tendering Main Contractors prior to submission of their Tender.

2.8 SCHEDULE OF DRAWINGS

Refer to the Schedule at the end of this specification.

These drawings are provided for Tendering purposes only and the Contractor shall provide all Working Drawings considered necessary for the complete installation of the works.

2.9 PERFORMANCE AND DESIGN REQUIREMENTS

The following parameters have been used in compiling the design data:-

Mains Voltage - 400 Volts/50 Hz.

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Supply Cables

Voltage Drop		
		4% - Final Circuits (Power)
		3% - Final Circuits (Lighting)
Prospective Fault Level	)	
System of Earthing	)	Details to be obtained from Site Inspection/Measurement
Earth Loop Impedance at Source	))	

2.10 STANDARD SPECIFICATION SECTION

This section of the Specification shall be read in conjunction with the National Engineering Specifications included in Section 3.

All materials and workmanship supplied by the Contractor shall comply fully with the requirements of Part 3.

The installation shall also comply with the requirements of the current edition of BS 7671 Requirements for Electrical Installations and Part P of the Building regulations.

2.11 MOUNTING HEIGHTS / POSITIONS OF EQUIPMENT

Mounting heights shown are to be measured from the bottom edge of newly installed equipment to the finished floor level, unless stated otherwise, and shall generally be as follows:-

	Dimensions in mm
Lighting control switches	1100mm
Socket outlets (low level)	450mm
Socket outlets (high level)	T.B.A on site
Socket outlets (above worktops)	1100
Telephone / data points	T.B.A on site
Fixed equipment switches, control units etc	1100
Temperate controls / fan	1100

The above information is for Tendering purposes only. Final positions of all accessories etc must be agreed with the Contract Administrator / Client before the commencement of works. Final positions of all equipment shall be co-ordinated on site by the Main Contractor during installation.

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2.12 ELECTRICAL DISTRIBUTION

The existing incoming single phase supply is to be retained. A new SP&N MCB Board shall be provided in the indicated position to replace the existing to distribute the new supply.

New TP&N Proteus distribution boards shall be provided in the positions indicated existing to be complete with 100A TP&N incomer and to be complete with Type B circuit breakers and rcd units. Sizes to be as indicated on the Tender drawings. New sub-mains cables are to be provided. New Type 2+3 SPDs shall be provided integrated into the new distribution boards.

XLPE/SWA sub-main shall be taken to the sub-distribution boards.

Details of sub-circuit protection devices and cables are indicated on the Tender drawings.

2.13 CABLES AND WIRING SYSTEMS

System		Cable System
Lighting and Small Power	-	LSF insulated twin and earth cables in earthed galvanised steel conduits for drops down walls to provide a flush installation throughout.
		RCBOs to be provided to associated circuits.
	-	External Cables to be LSF insulated with SWA protection and LSF sheath
TV Aerial Installation	-	Coaxial Cable
Data Installation	-	Coaxial Cable

2.14 TRUNKING, CONDUIT AND CABLE TRAY

Earthed Galvanised steel conduit shall be provided for drops down walls and other cabling contained in roof/floor voids with fire rated support. Contractor to include within their Tender for all local conduit runs and supplementary trunking runs as deemed required by the Contractor to provide full support and containment along the entire length of the cabling installation.

2.15 GENERAL LIGHTING

1. Luminaires

Luminaires shall be as indicated on the Tender drawings.

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Luminaires shall be as indicated in the Schedule of Luminaires.

2. Luminaire Switches

Lighting switches in general areas shall be MK Aspect finished in Brushed Steel with black inserts. A sample shall be provided for the client to review prior to ordering.

2.16 ACCESSORIES

Socket outlets and fused connection units generally in the property shall be MK Aspect to match the luminaire switches.

Accessories shall be switched, flush mounted.

Accessories connecting fixed items of equipment shall be suitably engraved.

Final connections to all items of equipment shall be included as part of the tender.

2.17 FIRE ALARM SYSTEMS

New Aico Grade D2 interlinked smoke and heat alarms shall be provided as indicated on the tender drawings. These shall be interlinked together throughout the property including back to existing.

Smoke Alarms shall be provided within the Loft area and shall be of the Ionisation Type.

A remote alarm locate, silence and test control switch shall be installed in the property at the indicated position.

The installation shall fully comply with BS5839-6

2.18 MECHANICAL SERVICES WIRING

The electrical services contractor shall provide power supplies to items of equipment as identified on the tender drawings.

The electrical services contractor shall provide power supplies and associated control wiring to the heating control system as identified on the tender drawings.

2.19 EARTHING ARRANGEMENTS

Earthing arrangements shall be provided to fully comply with BS 7671.

Specification details of earthing provisions at the incoming supply shall be obtained from the site.

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2.20 INSPECTION AND TESTING

The installation shall be tested to fully comply with BS 7671

i) Test Results

Test results shall be submitted for approval by the Engineer.

The Sub-Contractor shall give the Site Engineer at least seven days notice, in writing, of his intention to carry out the final inspection, testing and commissioning. In the event of any test indicating failure to comply, that test and those preceding, the results of which may be influenced by the fault indicated, shall be repeated and witnessed after the fault has been rectified. The Contractor will be required to measure and quote the prospective fault current at all distribution centres and distribution boards.

ii) Test Instruments

The Sub-Contractor shall provide all test instruments and equipment necessary to carry out the inspection and testing procedures. The most recent certificate of calibration for any such test equipment shall be produced on demand, the decision to declare any instrument unfit for use will be made by the Engineer and his decision will be final.

2.21 OPERATION AND MAINTENANCE MANUALS/AS INSTALLED DRAWINGS

The Sub-Contractor shall provide two sets of the manuals as indicated in the main contract preliminaries.

2.22 VARIATIONS

The Electrical Sub-Contractor shall provide a schedule showing all quantities, labour and material costs, within fourteen days from the date of request. The complete Schedule of Rates shall equate to the Tender Sum.
The priced schedule shall form the Schedule of Rates upon which the cost of any variations or extras shall be based.

2.23 SCHEDULE OF ALTERNATIVES

The Sub-Contractor may submit additional alternative items for consideration. Full specification details demonstrating full compliance with the specification shall be provided on request by the Contract Administrator.
The Tender must be based on the specified items only.

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2.24 TV AERIAL INSTALLATION

The Contractor shall provide and install a new aerial distribution system with new roof void digital amplifier and external aerial for the extensions. The installation shall be carried out by a CAI registered installer.
Positions of each outlet and the associated power socket are to be agreed with the Client and CA on site prior to installation.

At each indicated outlet a TV Outlet shall be fitted. Plates shall be from the same range as the electrical accessories.

2.25 SECURITY SYSTEM

The Electrical Sub-Contractor shall engage a Specialist Sub-Contractor to provide, install and commission a new complete intruder alarm system for the property.

The new intruder alarm modifications shall comprise PIR detectors and door contacts, as indicated on the Tender drawings.

New keypad entry units shall be provided to the indicated positions.

2.26 CCTV AND INTERCOM INSTALLATION

The Electrical Sub-Contractor shall provide new complete CCTV system to the property to the positions indicated on the drawing. The system shall comprise:-

Hikvision Ultra series Dome Type 5MP POE Network Cameras Internally with Audio recording and IR Facility. Each camera to be complete with Cat 6 cable back to data cabinet.

Hikvision Ultra series Dome Type 5MP POE Network Cameras Externally with Wall mount bracket with Audio recording and IR Facility. Each camera to be complete with Cat 6 data cable back to data cabinet.

Hikvision NVR suitably sized for the quantity of cameras with at least 20% spare on completion. Recorder to provide audio and video recording and ability for Live view of any camera and audio via app functionality to be set up on the Families chosen devices prior to completion. HDD to be provided for 21 Day storage.

Provide a 17” monitor on the adjacent the NVR for viewing of the camera images.

POE Switches to be provided suitably sized for the quantity of cameras and installed data outlets with at least 20% spare.

Equipment to be housed in a 6U 600x450mm cabinet to be wall mounted in the store.

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2.27 DATA INSTALLATION

The Electrical Sub-Contractor shall provide Cat 6 data cabling to the property to the positions indicated on the drawing. The system shall comprise:-

Cat 6 UTP LS0H Data cabling to outlet positions indicated, terminating in a Cat 6 plate. Plates shall be from the same range as the electrical accessories.

All cabling to terminate in new wall mounted 9U data cabinets within the Utility rooms.

Cabling to be run on 50mm basket within the roof void.

A new Cat 6 Link between the new cabinets shall be provided. Together with 2 No. New Cat 6 Link Cables between the Extension Cabinet and the existing router position within the property. To be terminated in a twin faceplate adjacent the router.

2.28 PV ARRAY AND BATTERY STORAGE

The Contractor shall be responsible for engaging a specialist contractor to supply and install a new PV array to the property to supply the Site. A New 2.2kW Peak PV array comprising 8 No Panels. and separate support shall be provided and not supported on the roof.

A new 3 Phase G98/99 Compliant inverter shall be provided and be connected into the main distribution. New DC and AC wiring shall be provided and mounted on new tray work to be provided between panels and the inverter. Contractor to make G98/99 applications as part of their scope of works.

The Installation shall comply with BS7671, BS EN 62446 and G99 requirements.

The contractor shall provide 1 No. Giv Energy 80,5kWh Storage Batteries to the system. System to be provided with smart inverter with smartphone app to view historic battery/export/self consumption data for the system as well as live.

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SECTION 3

STANDARD TECHNICAL CLAUSES

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SCHEDULES

SCHEDULE OF TENDER DRAWINGS

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SCHEDULE OF TENDER DRAWINGS

ELECTRICAL SERVICES

DRG. NO.	TITLE	SCALE
2022-106-E-101 P03	Proposed Power	A1 @ 1:50
2022-106-E-102 P03	Proposed Solar PV Installation	A1 @ 1:50
2022-106-E-201 P03	Proposed Lighting	A1 @ 1:50
2022-106-ME-601 P03	Proposed External Mechanical & Electrical Services	A1 @ 1:50

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SECTION 4

ELECTRICAL

SUMMARY OF TENDER

SCHEDULE A

NEWFOLD FARM, SYTCH ROAD, STOKE

ELECTRICAL SERVICES INSTALLATION

SUMMARY OF TENDER

		£	p
1.	New Distribution Boards		
2.	Earthing		
3.	General Lighting Installation		
4.	External Lighting		
5.	Small Power Installation		
6.	Fire Alarm Installation		
7.	Mechanical Services Equipment Wiring		
8.	External Electrical services		
9.	Solar PV and Battery Storage Installation		
10.	Security System		
11.	TV Aerial Installation		
12.	CCTV installation		
13	Data Installation		
14.	Mechanical Services Controls Wiring		
15.	Inspection and Testing		
16.	Builders work in Connection with the Electrical Installation		
17.	Any other items not included above		
	SUB-TOTAL TO COLLECTION		

Signed……..

Company Name……

Address…….

……

Date……

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SCHEDULE B

NEWFOLD FARM, SYTCH ROAD, STOKE

ELECTRICAL SERVICES INSTALLATION

PROVISIONAL SUMS

			£	p
1.0	Provisional Sums to be expended or deducted at the discretion of the Contract Administrator			
	1.01	Include the Provisional Sum of £2,000 (Two Thousand Pounds) for Additional Sockets	2,000	00
	1.02	Include the Provisional Sum of £1,000 (One Thousand Pounds) for Supply to Hot Tub	1,000	00
	1.03	Include the Provisional Sum of £6,000 (Six Thousand Pounds) for new electricity supply	6,000	00
	1.04	Include the Provisional Sum of £2,000 (Two Thousand Pounds) for new comms lines	2,000	00
	1.04	Include the Provisional Sum of £2,000 (Two Thousand Pounds) for Roof void lighting	2,000	00
		Total to Tender Summary	12,000	00

Signed……

Company Name…….

Address……..

……..

Date……..

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SCHEDULE C

NEWFOLD FARM, SYTCH ROAD, STOKE

TENDER SUMMARY FOR ELECTRICAL SERVICES

		£	p
1.0	Preliminaries and General Requirements		
2.0	Electrical Works in Schedule A		
3.0	Provisional Sums in Schedule B	11,000	00
4.0	Any Other Items Not Included Above		
5.0	Sub – Total		

TOTAL CARRIED TO MAIN
CONTRACTOR TENDER SUMMARY

Signed……

Company Name…….

Address……..

……..

Date……..

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SCHEDULE D

NEWFOLD FARM, SYTCH ROAD, STOKE

ELECTRICAL SERVICES

COMPLIANT TENDERING

Tenderers shall confirm by signature of this document that their Tender is fully compliant and based on the provision of the specified plant and materials, methods of installation and programme of works.

Signed……

Company Name…….

Address……..

……..

Date……..

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APPENDIX I – BUILDERS WORK

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MECHANICAL AND ELECTRICAL SERVICES INSTALLATION

PRELIMINARY SCHEDULE OF BUILDERS WORK REQUIREMENTS

1.0 ELECTRICAL INSTALLATION

The Electrical Contractor is to allow for the creation of all holes of up to but not exceeding 50mm dia.

The system of wiring will generally be flush mounted. 2.5m chases will be required Allow for re-plastering and making good to decorations upon completion. Using the following matrix system we estimate the numbers of points as:-

OCCUPIED	UNITS
Luminaires	90
Sockets Outlets	90
Others	50

2.0 EXTERNAL

Excavate 120m meters of 600mm wide x 1000mm deep trenching for new services. Provide 40mm compacted sand base and 40mm compacted sand cover to cables. Provide reinstated cover with warning tile tape below the surface.

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