

BILL NO. 3
ELECTRICAL WORKS
(BQ 3/1-BQ 3/56)

T2 TRANSFORMER UPGRADE
SLIGO UNIVERSITY HOSPITAL, THE, MALL, SLIGO
FOR
HEALTH SERVICE EXECUTIVE WEST

Description		Qty	Unit	Rate	€	c
(6-) REMOVALS & ALTERATIONS: EXISTING ELECTRICAL SERVICES						
REMOVALS & ALTERATIONS: EXISTING ELECTRICAL SERVICES INSTALLATION						
Drawings						
The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document						
For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities,			Note			
<u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u>						
A	The Main Contractors rates are deemed to make provision for, and have included within his rates and/or preliminaries clauses for any consequential protection, repairs, temporary surfacings & patching that may be necessary at interim phases due to damage resultant from the Contractors heavy Construction traffic.		Note			
B	The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site.		Note			
	The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services					
	Refer to full Appendix 3 Info pack		Note			

Description	Qty	Unit	Rate	€	c
<u>(Cont'd) REMOVALS & ALTERATIONS: EXISTING ELECTRICAL SERVICES INSTALLATION</u>					
<u>(Cont'd) Drawings</u>					
<u>(Cont'd) The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u>					
<u>(Cont'd) The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services</u>					
The Contractor shall liaise with statutory authorities (ESB) on disconnection of existing MV/LV services, and later reconnections of new Equipment		Note			
The Main Contractor shall be responsible for ensuring the structural integrity of the existing hospital buildings and retained paved areas are not compromised during these works.		Note			
A Note: Liason & Co-ordination between Main Contractor & Electrical Contractor & their designated LV & MV Equipment Supplier: The specialist Electrical Contractor (& his proposed Equipment Suppliers) are expected to be in constant liaison and communication with the Main Contractor and HSE Maintenance Manager to agree the sequence and co-ordination of all Existing Electrical Equipment stripping out, provision of temporary Electrical services and installation of new Electrical services & Equipment. The works are to be carried out in the sequence of work prescribed in works requirements, and the need to maintain continual power and backup to the hospital throughout the works is paramount. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which are also listed in detail within M&E Engineers Specification 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 section 2 (23.3 & 23.4) and Appendix 10 (3.1.5 & 3.1.6), and again within section 2.5h of BQ1 Preliminaries.		Note			

	Description	Qty	Unit	Rate	€	c
	<u>(6-) REMOVALS & ALTERATIONS: EXISTING ELECTRICAL SERVICES INSTALLATION</u>					
A	Note: For detailed descriptions/specifications of work described hereafter, see M&E Service Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002 & 0003 (Existing MEP services to be removed) and 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0007, 0008 & 0009 (Sequence in which existing MEP services are to be removed)		Note			
	<u>REMOVALS & ALTERATIONS: EXISTING ELECTRICAL SERVICES INSTALLATION</u>					
	<u>Removing: Plumbing & Engineering Installations (Refer to drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002 & 0003 (Existing MEP services to be removed) and 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0007, 0008 & 0009 (Sequence in which existing MEP services are to be removed) and Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly sections 2/9 & 2/23)</u>					
	Remove Existing; Plumbing & Engineering Installations					
B	Existing MV2 Switchgear Unit; circa 1000mm x 750m x 1600mm high (floor mounted)	1	Nr			
C	Existing T2 Transformer Unit; circa 2200mm x 1800mm x 1800mm high, cincl cage enclosure (floor mounted)	1	Nr			
D	Existing LV Panel Unit; circa 1800mm x 1600mm (wall mounted)	1	Nr			
E	Existing Busbar B Link Box; circa 700mm x 500mm (wall mounted)	1	Nr			
F	Existing Site Temp DB from ST1; circa 600mm x 400mm (wall mounted)	1	Nr			
G	Existing Isolator ST1; circa 400mm x 300mm (wall mounted)	1	Nr			
H	Existing Switches / Panel (on Power/Lighting/FA); Circa 100mm x 100mm (wall mounted)	6	Nr			
J	Existing Switches / Panel (on Power/Lighting/FA); Circa 150mm x 100mm (wall mounted)	1	Nr			
	Remove Part of Existing; Plumbing & Engineering Installations					
K	Existing Meter only from Otherwise Retained MDB2 (Main Board floor mounted)	1	Nr			

To Collection €

Description	Qty	Unit	Rate	€	c
COLLECTION Page No. BQ 3/1 Page No. BQ 3/2 Page No. BQ 3/3 Page No. BQ 3/4 (6-) REMOVALS & ALTERATIONS Carried to Summary					
SUH Transformer Upgrade					
Health Service Executive					

Description	Qty	Unit	Rate	€	c
Drawings The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities, <u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u> A The Main Contractors rates are deemed to make provision for, and have included within his rates and/or preliminaries clauses for any consequential protection, repairs, temporary surfacings & patching that may be necessary at interim phases due to damage resultant from the Contractors heavy Construction traffic. B The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site. The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services Refer to full Appendix 3 Info pack		Note Note Note			

Description	Qty	Unit	Rate	€	c
(Cont'd) Drawings (Cont'd) The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries. The Main Contractor shall be responsible for ensuring the structural integrity of the existing hospital buildings and retained paved areas are not compromised during these works. <u>(61) ELEC SUPPLY (TEMPORARY)</u> A Note: For detailed descriptions/specifications of work described hereafter, see M&E Service Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) B Note: Liaison between Main Contractor & Electrical Contractor & his Generator(s) Supplier: The specialist Electrical Contractor (& his proposed Generators Supplier) are expected to be in constant liaison and communication with the Main Contractor and HSE Maintenance Manager to agree the sequence and co-ordination or all Existing Electrical Equipment stripping out, provision of temporary Electrical services and installation of new Electrical services & Equipment. The works are to be carried out in the sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which are also listed in detail within M&E Engineers Specification 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 section 2 (23.3 & 23.4) and Appendix 10 (3.1.5 & 3.1.6), and again within section 2.5h of BQ1 Preliminaries.		Note Note			

To Collection €

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) TEMPORARY GENERATOR & DISTRIBUTION SYSTEM (MV INSTALLATION)</u> Temporary Genertaors (GEN 01 &02) <u>Install New Trailer Mounted, Containerized Diesel Generator Sets on Flatbed (2 Nr), such as ADE Cummins AC1250D5 1250 kVA Three Phase Silent Diesel Generator, c/w with Cummins KTA38-G9 Engine / Leroy Somer Alternator / Voltage 400V / Frequency 50 Hz / Amps Per Phase: 1805.7 / Control Panel Deep Sea DSE7320 / Connection Type Circuit Breaker / Circuit Breaker 4-Pole / Exhaust Emissions Level Unregulated / Base Fuel Tank Capacity 1650 Litres / Fuel Consumption 256 litres per hour (at 100 perc load) / Dimensions (L x W x H) 5820mm x 2200mm x 2400mm / Dry Weight 10,546kg / Warranty 2 Years / 1000 Hours , or other "Equivalent" Generator by alternative Manufacturer; Generator c/w weatherproof, acoustic enclosures of a min rating of 1,250 KVA / 1,000KW each; Switchgear & controls for each generator capable of synchronizing one with the other and sharign load or operating on a duty/standby basis with automatic starting of the standby set in the event of a failure of the Duty set; Flexible temporary cables of sufficient size to carry 1,200A on a continuous basis, c/w metal cable ladder; Seperate fuel storage for each set of sufficient capacity to run its associated generator for 12 Hours on full rated load; Continuous 24/7 Attendance on site by a Technician Representative of the rental Generator provider; Arrangements for regular Fuel Oil Deliveries throughout the duration of the Shutdown; Temporary containerized Generators to be fully balanced, load tested & commissioned by manufacturers commissioning engineer prior to delivery to site (All as per Service Engineers drawing 25672-ZZ-Z-ZZZ-DR-VCE-EE-0007)</u>					
A	External Containerized Generator & Assoc Fuel Storage Tank; TEMP GEN -01	1	Nr			
B	External Containerized Generator & Assoc Fuel Storage Tank; TEMP GEN -02	1	Nr			
	Mains & Submains Cables <u>Mains Cables (C1 - C7), to comply with IS 10101 (As per design and Specifications details on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010, & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly sections 2/16 thru 2/21, and sections 3/10, as well as Appendices 1 thru 15 inclusive, particularly appendix 10/8)</u>					
C	Generator Suppliers Control Cabling System: SY Cable (As supplied as part of Generator System)		Item			
SUH Transformer Upgrade Health Service Executive						<i>To Collection €</i>

	Description	Qty	Unit	Rate	€	c
	(Cont'd) TEMPORARY GENERATOR & DISTRIBUTION SYSTEM (MV INSTALLATION) (Cont'd) Mains & Submains Cables (Cont'd) Mains Cables (C1 - C7), to comply with IS 10101 (As per design and Specifications details on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010, & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly sections 2/16 thru 2/21, and sections 3/10, as well as Appendices 1 thru 15 inclusive, particularly appendix 10/8)					
A	3 x 1 x 185sqmm 12/20kV LSZH/CWA/XPLE/CU N2XS(FL)H 12/20kV		Item			
B	Earth cable 95sqmm		Item			
	Final Circuits					
C	Radial Circuits	10	Nr			
	General Earthing & Bonding					
D	Earthing & Bonding		Item			
	Miscellaneous Items					
E	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
F	Include for operating and maintenance manuals		Item			
G	Include for working drawings		Item			
H	Include for Co-ordination drawings		Item			
J	Include for as built drawings		Item			
K	Include for marking of holes and chases.		Item			
L	Include for testing and commissioning all plant in this section		Item			
M	Include for protection against damage		Item			
N	Include for leaving clean all work and equipment in this section		Item			

To Collection €

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) CABLE LADDER/TRAY/TRUNKING INSTALLATIONS</u>					
	Cable Tray / Cable Ladder;					
	<u>Heavy Duty Type; to BS EN 50085.1, BS EN 50085 and BS EN 61537; Refer to M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly sections 2/12 thru 2/21, and sections 3/10 thru 3/13, as well as Appendices 1 thru 15 inclusive, particularly appendix 3, 8, 9 & 10)</u>					
A	Heavy duty LV/MV Tray for Power Cables (From Generator to MDB2 - laid over existing Flat Roofs); 650mm x 50mm high Cable Ladder, on proprietary big foot support system (Circa 60 Lin.M on Plan as layout on drawing 25672-ZZ-Z-ZZZ-DR-VCE-EE-0007)		Item			
	General Earthing & Bonding					
B	Earthing & Bonding as per Electrical Engineers Drawings and Specifications		Item			
	Miscellaneous Items					
C	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
D	Include for operating and maintenance manuals		Item			
E	Include for working drawings		Item			
F	Include for Co-ordination drawings		Item			
G	Include for as built drawings		Item			
H	Include for marking of holes and chases.		Item			
J	Include for testing and commissioning all plant in this section		Item			
K	Include for protection against damage		Item			
L	Include for leaving clean all work and equipment in this section		Item			

To Collection €

Description	Qty	Unit	Rate	€	c
COLLECTION					
Page No. BQ 3/6					
Page No. BQ 3/7					
Page No. BQ 3/8					
Page No. BQ 3/9					
Page No. BQ 3/10					
Page No. BQ 3/11					
Page No. BQ 3/12					
Page No. BQ 3/13					
(61) ELEC SUPPLY (TEMPORARY) Carried to Summary					
SUH Transformer Upgrade Health Service Executive					
BQ 3/14					

Description	Qty	Unit	Rate	€	c
<u>(61) ELEC SUPPLY AND MAINS DISTRIBUTION</u>					
Drawings					
The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document					
For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities,		Note			
<u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 (Sequence in which existing Electrical services are to be removed, and New Electrical service installed) which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 section 2/23, and within section 2.5h of BQ1 Preliminaries.</u>					
A The Main Contractors rates are deemed to make provision for, and have included within his rates and/or preliminaries clauses for any consequential protection, repairs, temporary surfacings & patching that may be necessary at interim phases due to damage resultant from the Contractors heavy Construction traffic.		Note			
B The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site.		Note			
SUH Transformer Upgrade Health Service Executive			To Collection €		

To Collection €

Description	Qty	Unit	Rate	€	c
<u>(Cont'd) (61) ELEC SUPPLY AND MAINS DISTRIBUTION</u>					
<u>(Cont'd) Notes:</u>					
A Note: Liason & Co-ordination between Main Contractor & Electrical Contractor & their designated LV & MV Equipment Supplier: The specialist Electrical Contractor (& his proposed Equipment Suppliers) are expected to be in constant liaison and communication with the Main Contractor and HSE Maintenance Manager to agree the sequence and co-ordination of all Existing Electrical Equipment stripping out, provision of temporary Electrical services and installation of new Electrical services & Equipment. The works are to be carried out in the sequence of work prescribed in works requirements, and the need to maintain continual power and backup to the hospital throughout the works is paramount. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which are also listed in detail within M&E Engineers Specification 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 section 2 (23.3 & 23.4) and Appendix 10 (3.1.5 & 3.1.6), and again within section 2.5h of BQ1 Preliminaries. Regular programme updates to HSE and Design Team should incorporate manufacturing progress and delivery times for the major Equipment components (OLB2 Offloading Switchboard / T2 transformer / MV2 RMU) as well as details of the ongoing Electrical service activities. The Main Contractor and his Electrical Sub-Contractor shall in good time (all such dates to be pre-agreed) inform the ER and HSE Maintenance Staff of all their requirements, e.g temporary shutdown during night/weekend for new equipment installations, or removal of now redundant electrical equipment, ESB re-connections and such like		Note			
<u>(61) ELECTRICAL SUPPLY AND MAINS DISTRIBUTION</u>					
<u>General Information</u>					
B For details of installation and full description of the works hereafter refer in particular to Electrical Engineers drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009 (Illustrating Phased Sequence of LV/MV Equipment Install) & 0010 (OLB2 Board Elevations) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Part 3.1 Electricity Centre & Mains Distribution System (61), well as Appendix 3 (Low Voltage Switchgear), Appendix 9 (OLB1 Proposed Control Philosophy), Appendix 10 (MV installation), and Appendix 13 (New OPW Metering System)		Note			
SUH Transformer Upgrade Health Service Executive	BQ 3/17		To Collection €		

	Description	Qty	Unit	Rate	€	c
	<u>MAIN LV/MV POWER DISTRIBUTION</u>					
	OLB2 OFFLOADING SWITCH BOARD (LV)					
	Equipment (Main OLB2 Board)					
	<u>OLB-02; New Offloading Main Switchboard; 100kA Enclosure Type - Floor mounted c/w Ventilation Grilles, multi-cubicle modular system finished in PPC to agreed RAL; Degree of protection IP42; Colour Light Grey (RAL 7035); Material Electro galvanised steel plate multi-cubicle c/w viewports at 1.5m intervals; Fault withstand classification: Form 4A, Class 2 Protection; 3,200A TPN & PE Busbar, 100 kA RMS for 1 Sec ; Supply characteristics 400V 50Hz TP&N; Check Synch Relays; Bottom cable entry; Type 1&2 Surge Protection; Inbuilt Fire Suppression by way of Pressurised Novec 1230 System - Linear detection tubing installed throughout the panels and cableways; c/w Neutralising link to LV Earthbar (100kA), and test link Earthrod (Less than 10 OMH Req); c/w 3,200A Mains & Generator(s) & 1,600A MDB1 and 100A/160A/250A/260A & 630A to various and New T2 / Retained MDB2 / Spares & Earthing; c/w all necessary Trips / Interlocks / ACB's / MCCB's / DM's / Contactors, etc to each circuit; Designed and manufactured to meet all schematic requirements detailed on 25672-ZZ-Z-ZZZ-DR-VCE-EE-0009 LV Schematic for OLB2; (As per design and Specifications on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009 (Illustrating Phased Sequence of LV/MV Equipment Install) & 0010 (OLB2 Board Elevations) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0010, sections 1-3 inclusive, particularly section 3 Part 3.1 Electricity Centre & Mains Distribution System (61), well as Appendix 3 (Low Voltage Switchgear), Appendix 9 (OLB1 Proposed Control Philosophy), and Appendix 13 (New OPW Metering System)</u>					
A	Distribution Board; OLB-02, Size 4400mm & 3000mm long x 2500mm high x 850mm deep (As Configuration illustrated on drawing 25672-ZZ-Z-ZZZ-DR-VCE-EE-0010 Typical Board Elec) <u>Extra over on Main OLB2 Board for associated on board sub-equipment for controls;</u>	1	Nr			
B	Generator operation facilitated to future Gen 1 & 2 with ComAp Intelli IM-NTC-BB Controller / IVS Displays / IOB-B-A I/O expansion controllers / Protection relay for parallel operations / Gen set controllers / Comprehensive switchgear controllers / Utility Protection Relays	2	Nr			
C	Generator operation facilitated to Mains with ComAp Intelli Pro Controllers (G10) / IM-NTC-BB Controller / IVS Displays / IOB-B-A I/O expansion controllers / Protection relay for parallel operations / Gen set controllers / Comprehensive switchgear controllers / Utility Protection Relays / 32 Inch HMI Display	1	Nr			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) MAIN LV/MV POWER DISTRIBUTION (Cont'd) Equipment (Main OLB2 Board) (Cont'd) Extra over on Main OLB2 Board for associated on board sub-equipment for controls;					
A	Panel Mounted Digital meters such as Crompton Integra 1222 (10 Nr) T2 TRANSFORMER (MV) Equipment (T2 Transformer, Oil Filled) <u>T2 Transformer c/w MV & LV Cable Box; Type: Hematically Sealed Conservator, Tier 2 Unit (Eco Directive); to comply with IS EN 60076, IEC 60270, IEC 61378-1 & 60076-6; Insulating/Cooling Medium 0680-000 Mineral Oil IEC60296; 1,600kVa Rated; overall weight 5,150kg; overall size 2277mm long x 1796mm wide x 2582mm high, c/w 2511mm x 1872mm x 368mm Bund Tray, c/w skid base, flat rollers, lifting lugs & jack pads; c/w test link Earthrod (2.5 OMH Req); Designed and manufactured to meet all requirements detailed on Specification 25672-ZZ-Z-ZZZ-SP-VCE-EE-0010 Appendix 10 (Particularly Appendix 10/7 & Schedule A therein); (As per design and Specifications on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009 (Illustraing Phased Sequence of LV/MV Equipment Install) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, as well as Appendix 10 (MV Installation)</u>	10	Nr			
B	T2 Transformer; overall weight 5,150kg; overall size 2277mm long x 1796mm wide x 2582mm high, c/w 2511mm x 1872mm x 368mm Bund Tray	1	Nr			

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) MAIN LV/MV POWER DISTRIBUTION</u>					
	MV2 MV RING MAIN UNIT					
	Equipment (MV2 Medium Voltage Ring Main Unit)					
	<u>MV2 Medium Voltage Ring Main Unit; 4-cubicle (CCVV) Ring Main Unit as supplied by ABB or "Equivalent"; Ring Main Units shall be of the fully arc proof metal enclosed, free standing, floor mounting, flush fronted type, consisting of modules assembled into one or more units. Each unit shall be made of a cubicle sealed-for life with SF6 and shall contain all the high voltage components sealed off from the environment.; c/w Pressure Relief Device; Min degree of protection - IP67 for tank with high voltage components / IP 2X for the front covers of the mechanism / IP 3X for the cable connection covers; Rated voltage kV 24 RMU; Power frequency withstand voltage kV 50; Impulse withstand voltage kV 125; Rated frequency Hz 50/60; Rated current busbars A 630; Rated current (cable switch) A 630; Rated current (T-off) A 200; Short circuit breaking current (T-off circuit breaker) kA 16; Rated making capacity kA 40; Rated short time current 3 sec. kA 16; Panel Module / Circuit Breakers / Busbars / Cable & Earthing Switch / Mechanisms / Protection Relays / Battery Tripping Unit / Instrument Transformers / Ancillary Contacts / Sundries / Testing to meet all requirements detailed on Specification 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 Appendix 10/6 (MV Switchgear); (As per design and Specifications on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009 (Illustrating Phased Sequence of LV/MV Equipment Install) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, and particularly Appendix 10/6 (MV Switchgear)</u>					
A	MV2 Medium Voltage Ring Main Unit	1	Nr			
	Mains & Submains Cables					
	<u>Mains Cables (MV/LV), to comply with IS 10101 (As per design and Specifications details on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009 (Illustrating Phased Sequence of LV/MV Equipment Install) & 0010 (OLB2 Board Elevations) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly section 3 Part 3.1 Electricity Centre & Mains Distribution System (61), well as Appendix 3 (Low Voltage Switchgear), Appendix 9 (OLB1 Proposed Control Philosophy), Appendix 10 (MV installation), and Appendix 13 (New OPW Metering System)</u>					
B	3 x 1 x 50sqmm MV		Item			
C	3 x 1 x 95sqmm 10/20kV LSZH/CWA/XPLE/CU N2XS(FL)H 10/20kV		Item			
D	3 x 1 x 185sqmm 12/20kV LSZH/CWA/XPLE/CU N2XS(FL)H 12/20kV		Item			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) MAIN LV/MV POWER DISTRIBUTION (Cont'd) Mains & Submains Cables (Cont'd) Mains Cables (MV/LV), to comply with IS 10101 (As per design and Specifications details on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009 (Illustrating Phased Sequence of LV/MV Equipment Install) & 0010 (OLB2 Board Elevations) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly section 3 Part 3.1 Electricity Centre & Mains Distribution System (61), well as Appendix 3 (Low Voltage Switchgear), Appendix 9 (OLB1 Proposed Control Philosophy), Appendix 10 (MV installation), and Appendix 13 (New OPW Metering System)					
A	32 x 1 x 120sqmm PVC/PVC/LSOH (L1-8 L2-8 L3-8 N-8)		Item			
B	20 x 1 x 240sqmm PVC/PVC/LSOH (L1-4 L2-4 L3-4 N-4 E-4)		Item			
C	Earth cable 95sqmm		Item			
D	Earth cable 9 x 240 sqmm		Item			
	Final Circuits					
E	Radial Circuits	75	Nr			
	General Earthing & Bonding					
F	Earthing & Bonding		Item			
	Miscellaneous Items					
G	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
H	Include for operating and maintenance manuals		Item			
J	Include for working drawings		Item			
K	Include for Co-ordination drawings		Item			
L	Include for as built drawings		Item			
M	Include for marking of holes and chases.		Item			
N	Include for testing and commissioning all plant in this section		Item			

Description		Qty	Unit	Rate	€	c
<u>(Cont'd) MAIN LV/MV POWER DISTRIBUTION</u>						
<u>(Cont'd) General</u>						
(Cont'd) The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.						
A	Include for protection against damage		Item			
B	Include for leaving clean all work and equipment in this section		Item			
Documentation						
The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.						
C	Inspection & Testing		Item			
D	Testing		Item			
E	Record Drawings		Item			
F	Maintenance Manual		Item			
Identification and Labelling						
G	Include for identification and labelling all plant and equipment		Item			
H	Include for identification and labelling of all cables and circuits		Item			
<u>CABLE LADDER/TRAY/TRUNKING INSTALLATIONS</u>						
General Information						
J	The work in this element refers to the Cable Ladder/Tray/Trunking Installations.		Note			
Cable Ladder/Tray/Trunking Installations						
K	Various sizes galvanised steel, heavy duty, MV/LV submains ladder		Note			
L	Deemed to be included here are all joints (including fittings required in running lengths of rack/tray and trunking), all brackets and supports, drops, earth continuity, etc.		Note			

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) CABLE LADDER/TRAY/TRUNKING INSTALLATIONS</u>					
	Cable Tray / Cable Ladder;					
	<u>Heavy Duty Type; to BS EN 50085.1, BS EN 50085 and BS EN 61537; Refer to M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly section 3 - 3.1 (3.1/10 thru 3.1/18), as well as Appendices 1 thru 15 inclusive)</u>					
A	Heavy duty LV/MV Tray for Power Cables (Internal); 650mm x 50mm high Cable Ladder, suspended from underside of ceiling on threaded bar support system		Item			
B	Heavy duty LV/MV Tray for Power Cables (Internal); 750mm x 50mm high Cable Ladder, suspended from underside of ceiling on threaded bar support system (Refer to drawing 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005)		Item			
	General Earthing & Bonding					
C	Earthing & Bonding as per Electrical Engineers Drawings and Specifications		Item			
	Miscellaneous Items					
D	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
E	Include for operating and maintenance manuals		Item			
F	Include for working drawings		Item			
G	Include for Co-ordination drawings		Item			
H	Include for as built drawings		Item			
J	Include for marking of holes and chases.		Item			
K	Include for testing and commissioning all plant in this section		Item			
L	Include for protection against damage		Item			
M	Include for leaving clean all work and equipment in this section		Item			

To Collection €

Description	Qty	Unit	Rate	€	c
COLLECTION					
Page No. BQ 3/15					
Page No. BQ 3/16					
Page No. BQ 3/17					
Page No. BQ 3/18					
Page No. BQ 3/19					
Page No. BQ 3/20					
Page No. BQ 3/21					
Page No. BQ 3/22					
Page No. BQ 3/23					
Page No. BQ 3/24					
(61) ELEC SUPPLY AND MAINS DISTRIBUTION Carried to Summary					
SUH Transformer Upgrade Health Service Executive					
BQ 3/25					

Description	Qty	Unit	Rate	€	c
<u>(62) POWER DISTRIBUTION</u>					
Drawings					
The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document					
For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities,		Note			
<u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u>					
A The Main Contractors rates are deemed to make provision for, and have included within his rates and/or preliminaries clauses for any consequential protection, repairs, temporary surfacings & patching that may be necessary at interim phases due to damage resultant from the Contractors heavy Construction traffic.		Note			
B The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site.		Note			
The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services					
Refer to full Appendix 3 Info pack		Note			
SUH Transformer Upgrade Health Service Executive			To Collection €		

Description	Qty	Unit	Rate	€	c
<u>(Cont'd) (62) POWER DISTRIBUTION</u> <u>(Cont'd) Drawings</u> <u>(Cont'd) The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u> The Main Contractor shall be responsible for ensuring the structural integrity of the existing hospital buildings and retained paved areas are not compromised during these works. The Contractor should afford adequate protection to all wiring, conduit & trunking during the building stage to ensure no damage is caused by construction processes. <u>(62) POWER DISTRIBUTION</u>					
A For details of installatiion and full description of the works refer to M&E Engineers drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Small Power, as well as Appendices 1 thru 15 inclusive, particularly appendix 7 Wiring Accessories Schedule Fittings <u>Fittings, Supplied & Fitted by Electrical Sub-Contractor; General service sockets shall be twin 13 Amp 2-pole and earth to comply with ISO 180 : 1973, BS 1363-1-2 : 1991 and Part M of the Building Regulations. socket outlets shall have integral double pole switches incorporated together with interlocking shutters, outboard rocker switches (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Small Power, as well as Appendices 1 thru 15 inclusive, particularly appendix 7 Wiring Accessories Schedule)</u>		Note			
B Unswitched socket, twin, with dual earth terminals & top entry	3	Nr			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) (62) POWER DISTRIBUTION (Cont'd) Fittings <u>Fittings. Supplied & Fitted by Electrical Sub-Contractor; ABB or similar Isolating switch complying with EN 60947-3: 1999; Three phase switches must be three phase plus neutral switched. Where mounted internally, the switches must be Class IP67 metal finish; (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Small Power, as well as Appendices 1 thru 15 inclusive, particularly appendix 7 Wiring Accessories Schedule)</u>					
A	One phase TP & N Isolator	1	Nr			
B	Three phase TP & N Isolator	1	Nr			
	<u>Fittings: Electric Radiator (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Small Power, as well as Appendices 1 thru 15 inclusive, particularly appendix 7 Wiring Accessories Schedule)</u>					
C	EH-01; Ref Code RF1000, 1000 kW Electric panel heater c/w thermostat; size 580mm x 740mm x 100mm	2	Nr			
	Mains & Sub-mains Cables <u>Mains Cables: Distribution wiring PVC LSF insulated cables / Pirelli FP2000, MICC and PVC type can be used where necessary. The screen or armour shall be connected to earth at the outstanding end only, to section 527 of IS 10101; (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Small Power, as well as Appendices 1 thru 15 inclusive, particularly appendix 7 Wiring Accessories Schedule)</u>					
	Cabling / Wiring					
D	3 x 2.5mm sq XLPE/SWA/DCA		Item			
E	3 x 4mm sq XLPE/SWA/DCA		Item			
	Final Circuits (Including Points Terminations)					
F	Radial / Ring Circuits	4	Nr			

To Collection €

To Collection €

Description	Qty	Unit	Rate	€	c
COLLECTION					
Page No. BQ 3/26					
Page No. BQ 3/27					
Page No. BQ 3/28					
Page No. BQ 3/29					
Page No. BQ 3/30					
(62) POWER DISTRIBUTION					
Carried to Summary					
SUH Transformer Upgrade					
Health Service Executive					
BQ 3/31					

Description	Qty	Unit	Rate	€	c
(63) LIGHTING & EMERGENCY LIGHTING					
Drawings					
The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document					
For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities,		Note			
<u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u>					
A The Main Contractors rates are deemed to make provision for, and have included within his rates and/or preliminaries clauses for any consequential protection, repairs, temporary surfacings & patching that may be necessary at interim phases due to damage resultant from the Contractors heavy Construction traffic.		Note			
B The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site.		Note			
The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services					
Refer to full Appendix 3 Info pack		Note			

Description	Qty	Unit	Rate	€	c
(Cont'd) (63) LIGHTING & EMERGENCY LIGHTING (Cont'd) Drawings (Cont'd) The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries. The Main Contractor shall be responsible for ensuring the structural integrity of the existing hospital buildings and retained paved areas are not compromised during these works. The Contractor should afford adequate protection to all wiring, conduit & trunking during the building stage to ensure no damage is caused by construction processes. (63) LIGHTING & EMERGENCY LIGHTING A For details of installation and full description of the works refer to Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Lighting Services, as well as Appendices 1 thru 15 inclusive, particularly appendices 4, 5, & 7 Luminaire & Emergency Luminaire Schedule Equipment: Emergency Lighting Control System <u>ELP: FIREscape EL-2 Addressable Emergency Lighting Control Panel to include the FIREscape EL-35V Transformer, FIREscape EL-LAN Terminal Server (TCP/IP-RS232 Converter), FIREscape Installation & Maintenance Package, FIREscape Graphics Package, FIREscape User Licenses and FIREscape Server Licences. The system shall be supplied complete with a client PC. (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Lighting Services, as well as Appendices 1 thru 15 inclusive, particularly appendices 4, 5, & 7 Luminaire & Emergency Luminaire Schedule)</u> B ELP Addressable Lighting Control Panel		Note			
	1	Nr			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) (63) LIGHTING & EMERGENCY LIGHTING (Cont'd) Equipment: Emergency Lighting Control System <u>Extra over on ELP Lighting Control for associated sub-fittings</u>					
A	IO: FIREscape EL-IO Addressable Emergency Lighting Input/Output Unit I/O unit which is connected to a line of the EL-2 Emergency Light Control Panel, from which it receives its power. The unit links test switches and phase monitors to the FIREscape system.	1	Nr			
B	PM: FIREscape EL-PM Phase Monitor Relay Unit Under-voltage monitoring device that constantly assesses the condition of a mains lighting circuit. When the lighting circuit is deemed faulty, the unit will provide a signal that can be relayed to the control equipment to initiate emergency luminaire activation. To be supplied to the Distribution Board Manufacturer for installation in the distribution boards.	1	Nr			
C	EKP: FIREscape EL-KP Addressable Emergency Lighting Control Panel Keypad One EL-2 control panel can support a total of 8 EL-KP keypad units, with up to a max of 15 panels on one system.	1	Nr			
	Fittings <u>Lighting Fittings: CE marked and shall comply I.S.10101; CE marked and labelled distinctly and durably in accordance with IEC: 60598, Fittings from SEAI Triple E register; Photometric data to comply with I.S. EN 13032 Parts 1,2 & 3 (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Lighting Services, as well as Appendices 1 thru 15 inclusive, particularly appendices 4, 5, & 7 Luminaire & Emergency Luminaire Schedule)</u> Type P; Surface & Suspended mounted fitting as manufactured by Fagerhult; 39321 KAPTUR; IP67; Ra 80 plus; L90/B50 50K. Life expectancy of the LED 50,000 hours, when the light output has reduced to 90perc of its initial level and when 50 perc of the LEDs have failed to meet operational expectations; 6136 lm LL/CW 159 Luminaire lumens per circuit watt, the luminaire efficiency including ALL optical and gear losses.					
D	Type P; Suspended IP44 1200mm x 123 LED	8	Nr			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) (63) LIGHTING & EMERGENCY LIGHTING (Cont'd) Fittings <u>Emergency Light Fittings & Signs, to IS 3217, c/w DALI addressable Inverter packs comprising battery units (3 hour output) with charger and changeover relays, each fitting having red neon indicator (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0010, sections 1-3 inclusive, particularly section 3 Lighting Services, as well as Appendices 1 thru 15 inclusive, particularly appendices 4, 5, & 7 Luminaire & Emergency Luminaire Schedule)</u> Type EB; FIREscape NFW89/0 - High Power Open Space Down Light Addressable open space down light featuring one high-powered LED with a specially engineered dual surface free-form optic. The units body contains the electronics and the stand-by battery and features a bi-coloured LED indicating charge/fault status (green for charging, red for fault). The unit shall be supplied complete with Hochikis standard sensor base, YBN-R/3(WHT). The unit shall be supplied complete with Hochiki NF89BAT rechargeable battery. IP20 a dome enclosure shall be provided, NFW68/89-IP64					
A	Type EB; Surface Emergency LED Type EX; FIREscape N68-0-3 - Open Space Down Light Addressable open space down light featuring one high-powered LED with a specially engineered dual surface free-form optic. The units body contains the electronics and the stand-by battery and features a bi-coloured LED indicating charge/fault status (green for charging, red for fault). The unit shall be supplied complete with Hochikis standard sensor base, YBN-R/3(WHT). The unit shall be supplied complete with Hochikis EL-BAT450 rechargeable battery. The unit shall be supplied complete with Hochikis External Weatherproof Enclosure & Bracket, EL-DEB.	10	Nr			
B	Type EX; Wall Mounted IP66 Surface Emergency LED Type EXIT; FIREscape EL-20 - 20m Emergency Exit Sign Frame The unit shall be supplied complete with Hochikis standard sensor base, YBN-R/3(WHT). The unit shall be supplied complete with Hochikis EL-BAT450 rechargeable battery. The unit shall be supplied with the appropriate Sign/Lens; EL-20G-D(ISO); Sign EL-20G-U(ISO)	5	Nr			
C	Type EXIT; Direction 2 Sided Surface / Suspended Exit Sign	2	Nr			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) (63) LIGHTING & EMERGENCY LIGHTING					
	(Cont'd) Fittings					
	<u>Retractive Light Switches, to BS 3676 & EN 60669-1 (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0010, sections 1-3 inclusive, particularly section 3 Lighting Services, as well as Appendices 1 thru 15 inclusive, particularly appendices 4, 5, & 7 Luminaire & Emergency Luminaire Schedule)</u>					
A	1 way, 1 gang, switch	1	Nr			
B	2 way, 1 gang, switch	2	Nr			
C	2 way, 1 gang, intermediate switch	1	Nr			
	Submains Cables; lighting (external & internal) & switches					
	<u>Sub-mains Cables; All cabling to be a minimum rating of Class class Cca-s2, d2, a2 in accordance with I.S. EN 50575; to comply with IS 10101:2020 (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3 Lighting Services, as well as Appendices 1 thru 15 inclusive, particularly appendices 4, 5, & 7 Luminaire & Emergency Luminaire Schedule)</u>					
D	1 x 2.5mm ² , LSF		Item			
E	2 x 2.5mm ² , LSF		Item			
F	4C 6mm ² XLPE/SWA/PVC		Item			
	Final Circuits (Including Points Terminations)					
	Cabling & Wiring; Final Circuits					
G	Radial / Ring Circuits	10	Nr			
	General Earthing & Bonding					
H	Earthing & Bonding as per Electrical Engineers Drawings and Specifications		Item			
	Miscellaneous Items					
J	Amount for the supply & installation of the miscellaneous items not outlined above		Item			

To Collection €

Description	Qty	Unit	Rate	€	c
COLLECTION					
Page No. BQ 3/32					
Page No. BQ 3/33					
Page No. BQ 3/34					
Page No. BQ 3/35					
Page No. BQ 3/36					
Page No. BQ 3/37					
(63) LIGHTING					
Carried to Summary					
SUH Transformer Upgrade					
Health Service Executive					
BQ 3/38					

Description	Qty	Unit	Rate	€	c
<u>MECHANICAL WIRING INSTALLATION (65)</u> Drawings The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities, <u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 (Sequence in which existing Electrical services are to be removed, and New Electrical service installed) which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 section 2/23, and within section 2.5h of BQ1 Preliminaries.</u> A The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site. The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services Notes: Refer to full Appendix 3 Info pack The Contractor shall liaise with statutory authorities (ESB) on disconnection of existing MV/LV services, and later reconnections of new Equipment		Note Note Note Note			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) MECHANICAL WIRING INSTALLATION (65) (Cont'd) Notes: The Main Contractor shall be responsible for ensuring the structural integrity of the existing hospital buildings and retained paved areas are not compromised during these works. The Contractor shall allow adequate time within the contract programme for commissioning of all new Electrical services		Note			
A	Note: Liason & Co-ordination between Main Contractor & Electrical Contractor & their designated Mechanical Wiring & OPW Metering & Controls Equipment Supplier: The specialist Electrical Contractor (& his proposed specialists) are expected to be in constant liaison and communication with the Main Contractor and HSE Maintenance Manager to agree the sequence and co-ordination of all Existing Mechanical Wiring & Equipment stripping out, and installation of new OPW Metering & Controls System.		Note			
	MECHANICAL WIRING INSTALLATION (65) Mechanical Wiring Installation (All Mechanical & BMS / OPW Equipment are supplied & commissioned by Electrical Sub-Contractor's BMS & OPW Controls Specilist / All wiring to same, and associated power fittings to same will be completed directly by Electrical Sub-Contractor) Equipment; BMS Panels Panels and Commissioning					
B	The incumbent OPW System is maintained by Power Point Engineering Ltd, whom are likely to be engaged by Electrical Sub-Contractor to provide new OPW "Resource Craft Panels" and Metering System, and provide link back into the current OPW system. The contractor shall supply, install and commission new BMS / OPW Resource Craft panels complete with the necessary additional outstation/communication controllers for the associated additional systems/plant and integrate same into the current OPW/BMS system. The Electrical Sub-Contractor and his BMS supplier shall ensure that the system proposed is 100% compatible with the existing OPW / BMS system used on Hospital campus		Note			
C	Controls Wiring Specialist supplier to confirm to electrical contractor signal cabling requirements . Installation, testing and labelling by electrical contractor. Final terminations by specialist OPW/BMS supplier		Note			
SUH Transformer Upgrade Health Service Executive						To Collection €

Description	Qty	Unit	Rate	€	c
(Cont'd) MECHANICAL WIRING INSTALLATION (65) (Cont'd) Equipment; BMS Panels (Cont'd) Panels and Commissioning					
A A building management system is required to support the building services and plant equipment. The supplier shall include for the production of software code for the BMS, which shall incorporate the control logic for the new inputs and outputs to the BMS. All BMS Mechanical Plant equipment & Fittings are generally described in Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 3.1/6 & 3.1/8 and Appendix 9 (Proposed Control Philosophy), and Appendix 13 (OPW Metering System) and are to be controlled and/or monitored by the Building Management System Primary Equipment; OPW "Resource Craft" Panel (OPW Panel-01 & 02) <u>OPW Panel 01 & 02: OPW "Resource Craft" Control Panel; c/w GSM remote monitoring (To be sired back to current hospital OPW system maintained by Power Point Engineering Ltd); Mechanical Sub-Contractors OPW Specialist shall supply & commission a system interface complete with all necessary hardware, software, components, programming, and interface with existing main hospital campus OPW & BMS system; The panel shall be mounted and housed within Switchboards (OLB1 & MDB2) and all power and shall include all control requirements for the mechanical plant as set out; Panel complete with 72-Hour UPS back up; (Panel construction as per design and Specifications on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009, 0010 (Illustrating Phased Sequence of LV/MV/BMS Install) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3.1/6 & 3.1/8 and Appendix 9 (Proposed Control Philosophy), and Appendix 13 (OPW Metering System))</u>		Note			
B OPW "Resource Craft" Panel 01 & 02: Complete supply, install and commissioning of the OPW "Resoruce Craft" Control panel c/w GSM Monitoring with associated outstations	2	Nr			
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	Description	Qty	Unit	Rate	€	c
	(Cont'd) MECHANICAL WIRING INSTALLATION (65) Accessories associated with Primary Equipment; Digital Power Meters (Fitted into LV/MV Switch Boards / Panels) <u>Digital Power Meters: Crompton Integra 1222 Panel Mounted Meter Units; c/w supply and installation of meter unit and wiring back to existing hospital OPW/BMS systems; comprising Pulse splitters / Chatter bix e-isolation units / output split core current transformers / split core AC current sensors as necessary to fulfill function</u> Include for supply, installation and commissioning of New Digital Power Meters for OPW					
A	Digital Power Meters (Switchboard Mounted)	10	Nr			
B	Accessories associated with Primary Equipment (Existing BMS System); BMS Out Station (Linked into existing BMS main hospital panel) New BMS Outstation; BMS Automatic Controls Outstation to be Cylon based (Currently maintained in existing Hospital by Manutec); BMS Specialist shall supply & commission an out station system interface complete with all necessary software, engineering graphics, and interface with existing main hospital campus BMS network; The outstation panel shall be wall mounted and house all power and control requirements for the mechanical plant; The Controls Specialist shall allow for full demonstration					
C	BMS-Out Station: Complete supply, install and commissioning of the BMS Out Station, complete and in accordance with drawings and specifications Mains & Sub-mains Cables <u>Mains Cables; Wiring to the field devices shall be done by the electrical contractor in 2-core shielded cables with stranded copper wire such as Belden 8760, 9409, 9841, 3105A. The screen or armour shall be connected to earth at the outstanding end only; (As per design and Specifications on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009, 0010 (Illustrating Phased Sequence of LV/MV/BMS Install) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3.1/6 & 3.1/8 and Appendix 9 (Proposed Control Philosophy), and Appendix 13 (OPW Metering System)</u> Cabling / Wiring	1	Nr			
D	2c screen Belden (AWG 18 1.00mm2)		Item			
E	2c screen Belden (AWG 18 1.00mm2)		Item			

	Description	Qty	Unit	Rate	€	c
	(Cont'd) MECHANICAL WIRING INSTALLATION (65) (Cont'd) Mains & Sub-mains Cables <u>(Cont'd) Mains Cables; Wiring to the field devices shall be done by the electrical contractor in 2-core shielded cables with stranded copper wire such as Belden 8760, 9409, 9841, 3105A. The screen or armour shall be connected to earth at the outstanding end only; (As per design and Specifications on Service Engineer's Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0006, 0008, 0009, 0010 (Illustrating Phased Sequence of LV/MV/BMS Install) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 3.1/6 & 3.1/8 and Appendix 9 (Proposed Control Philosophy), and Appendix 13 (OPW Metering System)</u> (Cont'd) Cabling / Wiring					
A	2c screen Belden (AWG 22 0.5mm2)		Item			
B	Cat 6A Data Cable (AWG 24)		Item			
C	62.5/125 duplex fibre optic cable		Item			
D	2 x 1.5mmsq LSF Screened		Item			
E	3 x 2.5mm sq XLPE/LSF/SWA/LSF		Item			
	Final Circuits					
	<u>Final Circuits (All circuits & terminations to all OPW / BMS control points)</u>					
F	Controls panels & fittings; OPW Panels 01 & 02 and associated circuits	25	Nr			
	General Earthing & Bonding					
G	Earthing & Bonding		Item			
	Miscellaneous Items					
H	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
J	Include for operating and maintenance manuals		Item			
K	Include for working drawings		Item			
L	Include for Co-ordination drawings		Item			

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Description	Qty	Unit	Rate	€	c
COLLECTION Page No. BQ 3/39 Page No. BQ 3/40 Page No. BQ 3/41 Page No. BQ 3/42 Page No. BQ 3/43 Page No. BQ 3/44 (65) MECHANICAL WIRING Carried to Summary					
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Description	Qty	Unit	Rate	€	c
<u>(68) PROTECTIVE SERVICES & CONTAINMENT</u>					
Drawings					
The Contractor is referred to the Volume A Structural Engineer's & Services Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document					
For works measured in this element, refer specifically to M&E Engineers Drawings (25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document (25672-ZZ-Z-ZZZ-SP-VCE-EE-0001) all of which accompanies this Bill of Quantities,		Note			
<u>The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u>					
A The Main Contractors rates are deemed to make provision for, and have included within his rates and/or preliminaries clauses for any consequential protection, repairs, temporary surfacings & patching that may be necessary at interim phases due to damage resultant from the Contractors heavy Construction traffic.		Note			
B The Contractor is deemed to have visited the site and ascertained the full extent and nature of the works involved and the location of said works within floor, envelope walls, internal walls or on roofs of a live Acute Hospital building. No claim will be entertained due to the Contractor's failure to visit the site.		Note			
The Contractor is responsible for working around, protecting & maintaining existing building structure, finishes, completions & services					
Refer to full Appendix 3 Info pack		Note			
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Description	Qty	Unit	Rate	€	c
<u>(Cont'd) (68) PROTECTIVE SERVICES & CONTAINMENT</u> <u>(Cont'd) Drawings</u> <u>(Cont'd) The Contractor is referred to the C&S Engineers and M&E Engineer's Drawings and Specifications which are to be read in conjunction with this Pricing Document. The Contractor's attention is particularly brought to phasing notes and sequence of work outlined on M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0003, 0004, 0005, 0006, 0007, 0008 which set out the Phasing of the works and the need to maintain continual power and backup to the hospital throughout the works. No deviation has been made within the measured pricing document elements for this phased completion strategy and the Contractor is deemed to have included for all costs arising from the inherent phasing restrictions which as listed in detail within section 2.5h of BQ1 Preliminaries.</u> The Main Contractor shall be responsible for ensuring the structural integrity of the existing hospital buildings and retained paved areas are not compromised during these works. The Contractor should afford adequate protection to all wiring, conduit & trunking during the building stage to ensure no damage is caused by construction processes.					
<u>(68) PROTECTIVE SERVICES & CONTAINMENT</u>					
<u>FIRE ALARM INSTALLATION</u>					
A Allow for specialist fire alarm installations firm to design, supply, install, certify and commission an approved system to IS 3218 (2013), L1 Type installed in accordance with European standards EN54 local fire authority requirements and integration with existing system at SUH		Note			
B For details of installatiion and full description of the works refer to M&E Engineers drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001, sections 1-3 inclusive, particularly section 2/12 thru 2/21, as well as Appendices 1 thru 15 inclusive, particularly appendix 7 Fire Alarm Schedule		Note			
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To Collection €

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) FIRE ALARM INSTALLATION</u>					
	Final Circuits (Including terminations to fittings)					
A	Fire Alarm System; circuits	7	Nr			
	General Earthing & Bonding					
B	Earthing & Bonding as per Electrical Engineers Drawings and Specifications		Item			
	Miscellaneous Items					
C	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
D	Include for operating and maintenance manuals		Item			
E	Include for working drawings		Item			
F	Include for Co-ordination drawings		Item			
G	Include for as built drawings		Item			
H	Include for marking of holes and chases.		Item			
J	Include for testing and commissioning all plant in this section		Item			
K	Include for protection against damage		Item			
L	Include for leaving clean all work and equipment in this section		Item			
	Documentation					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
M	Inspection & Testing		Item			
N	Testing		Item			
P	Record Drawings		Item			

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) FIRE ALARM INSTALLATION</u> <u>(Cont'd) Documentation</u> (Cont'd) The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
A	Maintenance Manual		Item			
	Identification and Labelling					
B	Include for identification and labelling all plant and equipment		Item			
C	Include for identification and labelling of all cables and circuits		Item			
	<u>CABLE LADDER/TRAY/TRUNKING INSTALLATIONS</u>					
	General Information					
D	The work in this element refers to the Cable Ladder/Tray/Trunking Installations.		Note			
	Cable Ladder/Tray/Trunking Installations					
E	Various sizes galvanised steel, heavy duty, MV/LV submains ladder		Note			
F	Deemed to be included here are all joints (including fittings required in running lengths of rack/tray and trunking), all brackets and supports, drops, earth continuity, etc.		Note			
	Cable Trunking;					
	<u>Surface Cable Trunking; to BS EN 50085.1 and BS EN 61537; Refer to M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly section 3/12, as well as Appendices 1 thru 15 inclusive)</u>					
G	Surface FA Trunking for Fire Detection / Alarm Cables / Emergency Lighting; 75mm x 50mm FA Trunking		Item			
H	Surface LV Trunking for Lighting/General Services/Power Cables; 75mm x 50mm LV Trunking		Item			

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) CABLE LADDER/TRAY/TRUNKING INSTALLATIONS</u>					
	Cable Tray / Cable Ladder;					
	<u>Heavy Duty Type; to BS EN 50085.1, BS EN 50085 and BS EN 61537; Refer to M&E Engineers Drawings 25672-ZZ-Z-ZZZ-DR-VCE-EE-0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010) & Specification Document 25672-ZZ-Z-ZZZ-SP-VCE-EE-0001 sections 1-3 inclusive, particularly sections 2/12 thru 2/21, and sections 3/10 thru 3/13, as well as Appendices 1 thru 15 inclusive, particularly appendix 3, 8, 9 & 10)</u>					
A	Heavy duty LV/MV Tray for Power Cables (From Generator to MDB2 - laid over existing Flat Roofs); 650mm x 50mm high Cable Ladder, on proprietary big foot support system (Circa 60 Lin.M on Plan as layout on drawing 25672-ZZ-Z-ZZZ-DR-VCE-EE-0007)		Item			
	General Earthing & Bonding					
B	Earthing & Bonding as per Electrical Engineers Drawings and Specifications		Item			
	Miscellaneous Items					
C	Amount for the supply & installation of the miscellaneous items not outlined above		Item			
	General					
	The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.					
D	Include for operating and maintenance manuals		Item			
E	Include for working drawings		Item			
F	Include for Co-ordination drawings		Item			
G	Include for as built drawings		Item			
H	Include for marking of holes and chases.		Item			
J	Include for testing and commissioning all plant in this section		Item			
K	Include for protection against damage		Item			
L	Include for leaving clean all work and equipment in this section		Item			

Description		Qty	Unit	Rate	€	c
<u>(Cont'd) CABLE LADDER/TRAY/TRUNKING INSTALLATIONS</u>						
Documentation						
The Contractor shall provide all manuals, certificates, maintenance contracts etc to the Employer at Practical Completion of the Works for all electrical aspects of Contract in addition to As Installed drawings.						
A	Inspection & Testing		Item			
B	Testing		Item			
C	Record Drawings		Item			
D	Maintenance Manual		Item			
Identification and Labelling						
E	Include for identification and labelling all plant and equipment		Item			
F	Include for identification and labelling of all cables and circuits		Item			
<u>FIRE SAFETY EQUIPMENT & EXTINGUISHERS</u>						
Notes						
All fire extinguishers shall be kite marked to BSEN3 and have full CE approval and certification by BSI, installation to IS 291, such as Apex or "Equivalent"						
Terminal Equipment and Fittings						
<u>Include for supply, installation and commissioning of all fire extinguishers and fire blankets as Fire Extinguisher schedule, to include all signage to comply with IS 291: (As per design and Specifications Details on Service Engineer's Drawings 25672-ZZ-Z-XXX-DR-VCE-EE-0005 & Specification Document 25672-ZZ-Z-XXX-SP-VCE-EE-0001, sections 1-3 inclusive, particularly Appendix 15 Fire Extinguishers Schedule)</u>						
G	Extinguisher; Model CD2, 2.0kg CO2	3	Nr			
H	Extinguisher; Model CD5, 5.0kg CO2	3	Nr			
J	Extinguisher; 6Kg Dry Powder	3	Nr			
K	Extinguisher ID Sign: Single ID Sign	9	Nr			
L	Fire Point Sign: Fire Point Sign	9	Nr			

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) FIRE SAFETY EQUIPMENT & EXTINGUISHERS</u>					
	<u>(Cont'd) Terminal Equipment and Fittings</u>					
	<u>Miscellaneous items</u>					
A	Amount for the supply & installation of the Miscellaneous items		Item			
	<u>General</u>					
B	To complete cleaning of the Fire Safety Equipment & Extinguishers installation as specified		Item			
C	To complete pressure testing of the Fire Safety Equipment & Extinguishers installation as specified. Item		Item			
D	To complete balancing, testing and commissioning of the Fire Safety Equipment & Extinguishers systems as specified. Item		Item			
E	To provision of operation and maintenance manuals for the Fire Safety Equipment & Extinguishers installation as specified		Item			
F	To provision of working drawings, co-ordination drawings and as-built drawings for the Fire Safety Equipment & Extinguishers installation as specified		Item			
G	Include for protection against damage.		Item			
H	Include for leaving clean all work and equipment (All Fire Safety Equipment & Extinguishers systems in this section)		Item			
	<u>Identification and Labelling (All Fire Safety Equipment & Extinguishers systems in this section)</u>					
J	Include for identification and labelling of all ventilation ductwork and fittings. (All Fire Safety Equipment & Extinguishers systems in this section)		Item			
	<u>PROTECTIVE CLOTHING & EQUIPMENT</u>					
	Notes					
	The Contractor shall include for the supply and installation of a complete set of protective clothing and equipment as part of the contract. All equipment shall be installed within the sub-station in accordance with manufacturers recommendations and shall be handed over to the client as part of practical completion; The clothing & equipment shall be supplied and installed by Power Point Engineering Ltd or "Equivalent"					
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Health Service Executive						
BQ 3/53						
To Collection €						

	Description	Qty	Unit	Rate	€	c
	<u>(Cont'd) PROTECTIVE CLOTHING & EQUIPMENT</u>					
	Terminal Equipment and Fittings					
	<u>Include for supply of all specialist LV/MV protective clothing and equipment as set out in Specification Document 25672-ZZ-Z-XXX-SP-VCE-EE-0001, sections 1-3 inclusive, particularly Appendix 14 Protective Clothing & Equipment Specification</u>					
A	SS-ERB-LV Electrical Rescur Kit: Comprising CPR Sign / SGP Glove Storage Box / SG-50 T10 Class 0 Sofamel Dielectric Gloves / F/G Rod and Phase Check LV Detector / DEK3-H-1 Class 3 Insulating Matting - working voltage up to 26kV / Sofamel BS-45 Rescue Pole 1.75 m 45kV and brackets	1	Nr			
B	SS-ERB-MV Electrical Rescur Kit: Comprising CPR Sign / SGP Glove Storage Box / SG-30 T10 Class 3 Sofamel Dielectric Gloves / F/G Rod and Phase Check LV Detector / VTO-5/36-P Sofamel Analogic MV Detector with Operating Pole / Sofamel BS-45 Rescue Pole 1.75 m 45kV and brackets	1	Nr			
C	Insulated 4 Rung Step Ladder (Product 505110); EN 131 UNE-EN 50528 UNE-EN 61478, electrical insulation tested between rungs - 100 kV	1	Nr			
D	45kV Class 5 Insulating Stool (Product ST-45), UNE 204001	1	Nr			
E	1.79m Rescue Pole 45kV c/w mounting brackets (Product BS-45)	1	Nr			
F	Class 3 Insulating Matting 23kV (10m Rolls), (Product DEK3-H-1), IEC 61111	3	Nr			
G	Class 3 Dielectric Gloves (Size 10) (Product SG-30-T10), IEC 60903EN 60903	2	Nr			
H	Plastic Glove Case (Product 545111)	2	Nr			
J	Survive Arc 51cal Switching Suit Non Vented LARGE (Product 5PJ7-L-SH-G): NFPA 70E SANS 724 IEC 61482-2 CE 0339	1	Nr			
K	Survive Arc 51cal Switching Suit Non Vented LARGE (Product 5PJ7-M-SH-G): NFPA 70E SANS 724 IEC 61482-2 CE 0339	1	Nr			
L	Analogic MV Voltage Detector (Product VTO-5/36-P): Rated voltage: from 5 to 36 kV Frequency: 50 / 60 Hz Insulating pole: 1.30 m (included); Supplied with carrying bag for pole and metallic box to store and transport the voltage detector	1	Nr			
M	Earthing Kit 25kA 1s (Product PATC-MPL-9595): c/w case and operating rod	1	Nr			
N	Hanron Phase Check Voltage Detector	1	Nr			

To Collection €

Description	Qty	Unit	Rate	€	c
COLLECTION					
Page No. BQ 3/46					
Page No. BQ 3/47					
Page No. BQ 3/48					
Page No. BQ 3/49					
Page No. BQ 3/50					
Page No. BQ 3/51					
Page No. BQ 3/52					
Page No. BQ 3/53					
Page No. BQ 3/54					
Page No. BQ 3/55					
(68) PROTECTIVE SERVICES & CONTAINMENT Carried to Summary					
SUH Transformer Upgrade Health Service Executive					
BQ 3/56					

Description	Qty	Unit	Rate	€	c
BQ3 ELECTRICAL WORKS SUMMARY	Page No.				
(6-) REMOVALS & ALTERATIONS	BQ 3/5				
(61) ELEC SUPPLY (TEMPORARY)	BQ 3/14				
(61) ELEC SUPPLY AND MAINS DISTRIBUTION	BQ 3/25				
(62) POWER DISTRIBUTION	BQ 3/31				
(63) LIGHTING	BQ 3/38				
(65) MECHANICAL WIRING	BQ 3/45				
(68) PROTECTIVE SERVICES & CONTAINMENT	BQ 3/56				
ELECTRICAL WORKS TO SUMMARY					
This Bill of Quantities section contains pages numbered BQ 3/1 - BQ 3/56.					