

JABATAN KERJA RAYA MALAYSIA

**PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI
MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR**

SENARAI KUANTITI

Kami seperti nama syarikat di bawah mengesahkan tawaran harga yang tersenarai di dalam senarai kuantiti ini adalah sama sepertimana di dalam Borang Tender yang dihasilkan di dalam sistem dan sebarang percanggahan akan menyebabkan tawaran kami ditolak.

- A. Nama Syarikat: **Nama Petender**
- B. CIDB/UPKJ/PUKONSA No.: **No.Pendaftaran Petender**
- C. Harga Tawaran: **Harga Tawaran Petender**
- D. No. Siri Tender: **JKR/CKE/22517/2024**
- E. Tarikh Cipta Senarai Kuantiti: **24/10/2024**

Senarai kuantiti ini dikeluarkan oleh UPRJP/JKR. Sebarang pertanyaan boleh berhubung dengan pegawai yang menyediakan tender dan maklumat pegawai untuk dihubungi boleh didapati di laman iklan.

JABATAN KERJA RAYA MALAYSIA

PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR

SENARAI KUANTITI

No. Tender: JKR/CKE/22517/2024

RINGKASAN TENDER**PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI MARKAS
OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR**

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Jumlah di bawa ke Borang Tender			-

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A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
A		<p>PART I - GENERAL INFORMATION</p> <p>Notes: The amounts inserted by the Nominated Sub-Contractor for such Preliminary Items shall be deemed to apply to the whole of the Works carried out under this Sub-Contract.</p> <p>Each Preliminary Item or Clause shall be individually priced. Bulk pricing for sections, trades, groups or pages of Preliminary Items or Clauses shall not be accepted and no subsequent claims for loss or expenses and/or profit shall be entertained for failure to comply with this clause.</p> <p>Where any Preliminary Item or Clause is left unpriced, it shall be deemed that the cost of such Preliminary Items or Clauses have been allowed for elsewhere within these Sub-Contract Document. No subsequent claims arising out of expenses and/or loss incurred against such unpriced Preliminary Item or Clauses shall be entertained.</p> <p>Notwithstanding the above clauses, the S.O. reserves the right to request from the Contractor the detailed breakdown of the pricing for Preliminary Items or Clauses or the rates in the Bill of Quantities for examination and approval. The approved detailed breakdown pricing shall then be used as a basis for the administration of the Sub-Contract.</p> <p>Headings are not comprehensive and do not necessarily reflect or modify the meaning of the items in the B.Q. The exact nature and extent of the work to be carried out shall be ascertained by reference to the Contract as a whole, in particular the Conditions of Contract, the Specification and the Drawings.</p> <p>Where Preliminary Items or Clauses or items in the Bill of Quantities are priced but have not been executed on site by the Contractor, the cost of such priced items or clauses or items in the Bill of Quantities shall accordingly be deducted from the Contract Sum when so instructed by the S.O.</p>				
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A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<u>Pricing of Bill of Quantities</u>				
1.1		The sum of the amounts of all items of the Bill of Quantities priced by the tenderer shall truly represent the amount shown in his tender. The rates set down by the Tenderer against each item in the Bill of Quantities shall be the full inclusive rates and prices for the finished work (unless expressly provided to the contrary) and shall be held to include providing and delivering all materials, unloading, cutting and waste on materials, storage, packing, carriage and cartage, hoisting, all labour, setting, fitting and fixing in position, use of plant, providing suspension, establishment charges, profit and all other labour and everything else necessary for the due and proper completion of each item.				
1.2		Where the tenderer leaves any item blank in the preliminaries or insert only a dash against any item in these Bill of Quantities the value thereof shall be deemed to be included in the prices or rates of other items therein.				
1.3		No unauthorised alteration, addition or note entered in these Bill of Quantities shall modify the printed text.				
1.4		Headings and notes appearing shall not by itself be deemed to be comprehensive and do not modify the meaning of the items in the Bill of Quantities.				
1.5		Any rates found to be overpriced, inconsistently priced, underpriced or erroneously priced shall be subjected to adjustment, rectification and rationalisation before the signing of the contract and the authority to fix a reasonable rates/amount shall be with the S.O. The amended rates shall be used for computing the progress payments and the measuring of variations.				
1.6		Where Quantities in these Bill of Quantities are marked provisional, the works shall be remeasured on completion basing on drawings certified as true and correct representation of the completed works by the Superintending Officer.				
1.7		There shall be no alteration or amendment, specifying or submission of condition in contravention to those contained in Bills of Quantities. If such conditions are included, the tender submitted may not be considered and liable to be disqualified.				
PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR						To Collection Page

A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
2.0		<p><u>Currency of Payment</u></p> <p>Pricing of the Sub-Contract shall be in Malaysian Ringgit to two decimal place. Payment to the Nominated Sub-Contractor under the Sub-Contract shall be in Malaysian Ringgit.</p>				
3.0		<p><u>Form of Sub-Contract</u></p> <p>The Conditions of Sub-Contract will be those contained in the Standard Form of Sub-Contract-PWD Form 203N Rev.1/2010 and Instruction To Tenderers (ITT). A copy of the said Form and General Condition which form part of the Tender Table Documents is available for inspection online (for online tendering) or during normal office hours on any working day up to the time appointed for receiving tenders.</p>				
4.0		<p><u>Compliance with Safety Requirement and Regulations</u></p> <p>The Nominated Sub-Contractor shall always adhere to all requirement and regulations under Occupational Safety and Health Act and maintain a safe and healthy working environment through out the execution of Sub-Contract Works.</p>				
5.0		<p><u>Making Good Defects During Defects Liability Period (DLP)</u></p>				
5.1		The Nominated Sub-Contractor shall make good of any defects, shrinkage and any other faults which may appear within the Defects Liability Period as provided in the Sub-Contract, commencing from Practical Completion of the Sub-Contract Works as certified by the S.O.				
5.2		No claim shall be entertained if the repair of any defects results an increment in cost.				
6.0		<p><u>Duty Stamping</u></p> <p>The Nominated Sub-Contractor shall solely bear the cost for stamp duties and anything incidental thereto.</p>				

A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		PART II - PRICING OF PRELIMINARIES ITEMS				
		<u>Material and Workmanship</u>				
		The description of materials and workmanship in these Bill of Quantities and/or Drawings are to be read in conjunction with the relevant Specifications contained in the Sub-Contract. Materials and equipment supplied and installed shall comply with the condition set down in the Instruction To Tenderers (ITT).	LS	LS		
2.0		Allow for submission of samples of materials and workmanship as the S.O.'s Representative may require for this approval before the materials are supplied and installed or workmanship are embodied in the finished works. All samples which are approved shall be retained on the Site and shall represent or indicate the standard to be maintained in the execution of the Sub-Contract Works. All samples shall be cleared away when no longer so required for the purpose.	LS	LS		
		<u>Application To and Testing By The Authorities</u>				
		Allow for submission of applications, inspections, tests and approvals including the registration of the installation and endorsement of documents by professional/competant person in compliance to the requirements of the relevant Authorities having jurisdiction over the Sub-Contract Work. All cost and fees incurred in the process of gettings the Sub-Contract Works inspected, tested and approved by the relevant Authorities shall be included in the Sub-Contract Sum. No additional costs will be entertained in this respect. It shall include the following but not limited to:-	LS	LS		
	a)	Earth Resistance test results shall be verified by a Service Engineer (The Earth Resistance Tester shall be calibrated every 2 years).				
	b)	Test methods must comply with IEEE Std 81- Guide For Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Grounding System.				

A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.0		<p><u>Application To Internet and Telecommunication Provider*</u></p> <p>Allow assisting client in liaising with Internet Service Provider (ISP) and Telecommunication Service Provider (TSP) Authorities for submission of registration and application for Internet and telephone system services.</p>	LS	LS		
4.0		<p><u>Clause 24 - Insurance Against Personal Injuries and Property</u></p> <p>The Nominated Sub-Contractor shall be liable and shall indemnify both the Main Contractor and the Government against any expenses, damage, liability, loss, claim, or proceedings whatsoever arising from any common law or statute in the course of the execution of the Sub-Contract Works as per described under Clause 24.</p>	LS	LS		
5.0		<p><u>Clause 26 - Employee's Social Security Act 1969</u></p> <p>The Nominated Sub-Contractor shall cause to register all local workmen under his employment under Employee's Social Security Scheme (SOCSO) in accordance with the Employment's Social Security Act 1969 or any subsequent modification and re-enactment of the said Act. The Nominated Sub-Contractor shall submit Code Number and Social Security Numbers of all workmen under the SOCSO scheme to the S.O for verification.</p> <p>The Nominated Sub-Contractor shall make payment of all contributions from time to time on the first day on which the same ought to be paid and until the completion of the Sub-Contract Works, and upon demand the Nominated Sub-Contractor shall produce to the S.O.'s Representative contribution cards or stamp vouchers as evidence of payment of such contribution.</p>	LS	LS		

A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
6.0		<u>Clause 27 - Insurance of Sub-Contract Work</u> The Nominated Sub-Contractor shall insure for the full value amount of the Sub-Contract Works (including materials and goods of the Nominated Sub-Contractor properly delivered on the Site for use in the Sub-Contract Works) and keep or have them kept insured against loss or damage by fire, lightning, explosion, storm, tempest, flood, ground subsidence, bursting or overflowing of water tanks, apparatus or pipes, aircraft and other aerial devices or articles dropped therefrom, riot and civil commotion as per described in Clause 27. All excesses, if any, imposed by the Insurance Company shall be borne by the Nominated Sub-Contractor.	LS	LS		
7.0		<u>Clause 28 - Performance Bond</u> The Nominated Sub-Contractor shall, as a condition precedent to the commencement of any work under this Sub-Contract, deposit with the Contractor a performance bond in the form of a Banker's Draft or an approved Banker's or Insurance Guarantee equivalent to five (5%) percent of the Sub-Contract Sum to secure the due performance of the obligations under this Sub-Contract by the Nominated Sub-Contractor.	LS	LS		
8.0		<u>Protection of Existing Services*</u> Protect, uphold and maintain all existing and in use pipes, ducts, sewers, services mains, underground cables, etc. During the execution of the Sub-Contract Works, unless otherwise directed. If the Nominated Sub-Contractor discovers any underground cables, pipes, etc, he shall immediately stop work and report to the S.O's Representative of the findings. The Nominated Sub-Contractor shall be responsible for making good all damages to the cable, pipes, etc. and shall indemnify the Government against any claims as a results of such damage.	LS	LS		

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Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
9.0		<p><u>Sub-Contract Work Programme</u></p> <p>Provide for implementing the Critical Path Method programme in conjunction with Main Contract Works for planning, monitoring, control of resources and progress of work shall include :</p> <p>Planning, preparing, maintaining and updating the CPM programme preferably using latest version of Microsoft Project. The identification of critical path for the timely execution of the work to completion.</p>	LS	LS		
10.0		<p><u>Competent Persons</u></p>				
10.1		<p>The Nominated Sub-Contractor shall appoint a Competent Person or Competent Persons in compliance with the Electricity Regulations 1994 to provide necessary superintendence over the whole site operation for the full duration of the Sub-Contract Works and as long thereafter as the S.O.'s Representative may consider necessary for the proper fulfillment the Nominated Sub-Contractor's obligation under this Sub-Contract Works.</p>	LS	LS		
10.2		<p>The qualification of the Competent Persons shall be in compliance with the Electricity Regulations 1994 and approved by the S.O.'s Representative, and he shall be constantly on the Site and shall devote his whole time to the superintendence of the Sub-Contract Works. He shall take responsibility for the construction, installation testing, commissioning and operation of the whole Sub-Contract Works in compliance with the Electricity Regulations 1994 and any other laws having jurisdiction over the Sub-Contract Works.</p>				
10.3		<p>The S.O.'s Representative will be at liberty to object to and requires the Nominated Sub-Contractor to remove forthwith from the Site such Competent Person, who in the opinion of the S.O.'s Representative, misconducts himself or is incompetent or negligent in the proper considered by the S.O.'s Representative to be undesirable. The Nominated Sub-Contractor shall, upon the removal of such person, thereafter replaced as soon as possible a new Competent Person in compliance with the requirement of this section.</p>				

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Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
11.0		<u>Resources For Site Safety</u>				
		The Nominated Sub-Contractor shall provide and maintain all Personal Protective Equipment required for the use of the S.O.'s Representative and his supervisory staff and any other officials complete as specified and complying with DOSH requirements. All items must obtain approval from the S.O.'s Representative. The items are as follows:				
a)		Safety Helmet (white colour c/w JKR's Logo) (* 2 nos for HODT office)	NR	4		
b)		Reflective Safety Vest/Protection Clothing (c/w JKR's Logo) (2 nos for HODT office)	NR	4		
c)		Safety Boots (2 nos for HODT office)	NR	4		
d)		Safety Cones*				
e)		Warning Lights*				
12.0		<u>Progress Reports and Photographs</u>				
		Allow for providing monthly reports including photographs showing the progress of the Sub-Contract Works in digital format, each of different view of the Sub-Contract Works as directed by the S.O.'s Representative. A total of three (3) sets of reports properly binded and the digital format shall be provided to the S.O.'s Representative (2 sets) and HODT office (1 set).	LS	LS		
13.0		<u>Shop / Working Drawings</u>				
13.1		Provide for the preparation, submission and thereafter the approval for construction from the S.O.'s Representative all shop / working drawings for the Sub-Contract Works as required in the relevant Specifications in the Sub-Contract. The contractor will be provided with project site plan and electrical layout drawings in digital format by JKR for shop/working drawing preparation.	LS	LS		
13.2		Detail final sub-circuits and switching arrangement, shall be prepared, calculated and approved before installation. Final sub-circuits shall include lighting and power installation.				

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Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
13.3		For project using Building Information Modelling (BIM), all drawings shall be in 3D model using Autodesk REVIT software which includes preparation of all related electrical system complete with conduit and trunking, all components, system modeling and integration with all related building model not limited to Architectural, Structural and Mechanical model and other services. The integrated 3D model shall be used to generate working drawings as specified in the Sub-Contract.				
14.0		<p><u>Coordination of Work (IBS)</u></p> <p>All electrical works e.g. conduits, openings, back boxes, etc. shall be coordinated with IBS Provider, architectural and structural works for implementation of IBS including Modular Coordination at IBS plant.</p>	LS	LS		
15.0		<p><u>Electrical Protection Schemes (Calibrations)</u></p> <p>Allow for fees and charges for the employment of an Electrical Services Contractor registered under Electricity Regulations 1994 to study and submit proposal (with relevant data and calculations) for the electrical protection scheme for the whole electrical installation in the Sub-Contract works. Thereafter, if the proposal is agreeable by the S.O.'s Representative, he shall check, test and calibrate accordingly all protective relays and device provided in the Sub-Contract Works to the requirements of the Electricity Regulations 1994. He shall also prepare, duly sign and submit all certification as required under Electricity Regulations 1994.</p>	LS	LS		
16.0		<p><u>Clearing and Cleaning of Site</u></p> <p>The Nominated Sub-Contractor shall, upon completion of the work, remove away immediately from site all plants and surplus materials except those ordered to be left on the site, together with all rubbish and debris. The site is to be restored in a neat, clean and workmanlike manner to the satisfaction of the S.O.</p>	LS	LS		

A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
17.0		<u>Equipment Inventory List</u>				
17.1		Allow for preparation of inventory list for equipment installed as per in the Sub-Contract. The inventory list shall include and not limit to all data and particulars of the equipment and accessories pertaining to their types, models, descriptions and quantities. The format shall be in MS Excel of latest version as per Appendix A of Preliminaries. Two (2) sets of softcopy in CD-RW/DVD-RW and four (4) sets of hardcopy in comb binded shall be submitted to S.O.'s Representative.	LS	LS		
17.2		To submit four (4) sets of hardcopy & softcopy (CD-RW/DVD-RW) of the following documents:- List of component in each room as specified in latest version of Sistem Pengurusan Bersepadu (SPB) JKR Malaysia, " <i>Borang Senarai Aset Tak Alih Mengikut Ruang (Lampiran 16)</i> ". A copy of this form should also be attached at each room during T&C for S.O verification purposes.	LS	LS		
18.0		<u>Documentation Upon Completion</u>				
		Upon completion of the work and before handing over, the Nominated Sub-Contractor shall submit documents as follow:	LS	LS		
a)		Four (4) sets contained the following documents, properly titled and bound in hard covers :-				
i)		Installation Manuals, Operation Manuals, Service and Maintenance Manuals, and Part Lists for all equipment supplied and installed in the Sub-Contract;				
ii)		All Product Data and Catalogue of equipment supplied and installed in the Sub-Contract;				
iii)		All Supervision and Completion Certificate, and Test Certificate in compliance with the Electricity Regulations 1994;				
iv)		All other Test Certificates;				
v)		As-installed drawings as actually fixed pertaining to the Works including all services and facilities systems. The As-installed drawings shall be submitted by the Contractor for the approval of the S.O / S.O's Representative as to allow for a complete understanding of the Works as they were actually fixed;				
vi)		All Certificate of Warranties and Guarantees copies issued by the original equipment manufacturers.				

A PRELIMINARIES

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
b) i)		For BIM projects : Four (4) sets of Digital Copies of As-installed drawings in AutoCAD(dwg.) and/or BIM 3D Model Revit MEP format to be stored in compact discs or physical digital storage.				
ii)		For Non BIM projects : Four (4) sets of Digital Copies of As-installed drawings in AutoCAD(dwg.) or any other compatible format to be stored in compact discs or physical digital storage.				
c)		Four (4) sets of Digital Copies of As-installed drawings in Acrobat (.pdf) to be stored in compact discs or physical digital storage.				
d)		All original Certificate of Warranties and Guarantees issued by the original equipment manufacturers.				
e)		One (1) copy of List of username and password (administrator) for logging in of ELV and ICT systems / equipments (if applicable)				
f)		One (1) set maintenance tools as prescribed in the relevant Specifications.				
19.0		<u>Sub-Contract Document</u> Allow for the cost for eight (8) copies of contract document binding. The document format shall follow as per JKR standard.	LS	LS		

PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR JOHOR

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A PRELIMINARIES						
Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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A/12/12						

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p>WIRING</p> <p>i) All wiring shall be installed as per drawing, relevant rules, regulation and specification.</p> <p>ii) Minimum cross section area of cpc in relation to the cross section area of associated phase conductor shall be install as per MS-IEC60364-5-54, Table 54.3</p> <p>iii) For top floor and wiring above ceiling shall be in heavy duty uPVC conduits and Hot Dipped Galvanised trunking. The trunking shall be supported by fixing brackets. All accessories shall be provided such as brass bush, elbow, flexible conduit, saddle, adaptor and etc for complete installation.</p> <p>iv) Any other items which not mentioned in this section, shall be comply with the latest revision of CKE.LS.01.01.(04).2017</p> <p>v) All prices shall include the cost of conduits, trunking and any other accessories used for the wiring system.</p> <p>vi) All concealed / surface conduit wiring shall use heavy duty uPVC conduit.</p> <p>vii) All wiring for Emergency Light & Keluar Sign shall be in heavy duty uPVC conduit if conduit is embedded in the concrete.</p> <p>viii) All trunking shall used Hot Dipped Galvanised Trunking.</p> <p>ix) Switches for lighting and fans shall generally be grouped.</p> <p>x) Switch plates of size 85mm x 85mm (max. allowable number of big rocker switches is 3)</p> <p>xi) Back boxes for switches and switched socket outlet shall be of galvanised sheet steel type of minimum thickness 0.8mm.</p> <p>CONCEALED CONDUIT WIRING</p>				
1.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush big rocker switch (1000mm above Finished Floor Level).	NR	72		
1.2		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way flush big rocker switch (1000mm above Finished Floor Level).	NR	2		
1.3		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way 2 gang flush big rocker switch (1000mm above Finished Floor Level).	NR	8		
PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR					To Collection Page	

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.4		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	47		
1.5		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor for self contained emergency and keluar sign luminaire.	NR	17		
1.6		Fan point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w ceiling rose.	NR	5		
1.7		Ventilation Fan point using 2 x 1.5 sq. mm PVC cable & protective conductor interlock with thermostat c/w ceiling rose.	NR	5		
1.8		Alarm and emergency warning system for Tandas OKU. a) Buzzer, flashlight point and reset button point using 2 x 1.5 sq. mm PVC cable c/w CPC b) Pull cord switch with 2 red bangles for flashlight and buzzer (height of bangles 1000mm and 100mm respectively) c) reset button (1000mm above finished floor level) d) Flashlight and buzzer	LOT	1		
1.9		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (300mm above finished floor	NR	12		
1.10		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (915mm above finished floor	NR	33		
1.11		15A Socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 1 gang 15A round 3 pin flushed switched socket outlet with indicator light for ACSU. (300mm below ceiling level)	NR	8		
1.12		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (300mm above finished floor level)	NR	14		
1.13		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (915mm above finished floor level)	NR	6		

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WILAYAH 2, MUAR JOHOR

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B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.14		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Television. (300mm below	NR	4		
1.15		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Access Card. (300mm	NR	8		
		<u>SWITCH DISCONNECTOR</u> To supply and install Rotary type Metalclad Switch Disconnecter in service rooms whereas polycarbonate type for other rooms /spaces c/w cable termination.				
1.16		Switch Disconnecter point using 4C 10mm² PVC cable c/w Disconnecter Switch i) Switch Disconnecter 30A TPN ii) Switch Disconnecter 20A TPN	NR NR	2 2		
2.0		<u>LUMINAIRES AND EQUIPMENT</u> <u>T8 LED LUMINAIRES</u> i)The luminaires shall be of rust proof type and/or anti corrosive type or specially treated.				
2.1		2 x (18 to 20watt) Surface Mounted Luminaire c/w Self Ballasted Double Capped T8 LED tube, Daikon Diffuser. (1200mm, CCT 4000K).	NR	10		
2.2		2 x (18 to 20watt) Surface Mounted Luminaire Explosion Proof c/w Self Ballasted Double Capped T8 LED tube, Lourve and Cross Blade. (1200mm, CCT 4000K).	NR	6		
2.3		1 x (6 to 11watt) Ceiling Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (600mm, CCT 4000K).	NR	2		
2.4		2 x (18 to 20watt) Ceiling Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	7		
2.5		2 x (18 to 20watt) Wall Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	13		
2.6		2 x (6 to 11watt) Ceiling Mounted Weather Proof Type c/w Self Ballasted Double Capped T8 LED tube (600mm, CCT 4000K).	NR	3		
PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR						

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity		
		<u>LED DOWNLIGHT LUMINAIRES</u>				
2.8		ii)The construction of the luminaires shall be either two separate housing/compartements or integrated. 10 to 20watt LED recessed downlight luminaire c/w frosted glass diffuser, 200mm dia. (8"), CCT 4000K.	NR	88		
		<u>EMERGENCY LIGHT & KELUAR SIGN</u>				
2.9		Surface mounted LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	5		
2.10		Recess type LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	4		
2.11		Surface mounted LED KELUAR SIGN c/w 3 hours battery back-up. (slim type) (approved by Jabatan Bomba)	NR	2		
2.12		Wall mounted LED KELUAR SIGN c/w 3 hours duration battery back-up. (approved by Jabatan Bomba).	NR	6		
		<u>FAN</u>				
2.13		500mm dia. wall fan c/w integrated thermal fuse, 3 speed On/Off pull switch, full automatic oscillation control, aluminium blade, Turbo Fin Guard cover, and all necessary accessories (anti-corrosive).	NR	5		
3.0		<u>SENSOR</u>				
3.1		Motion Sensor For Toilet Lighting Supply and install high-performance Passive Infra Red (PIR) motion sensor with minimum 3 meters distance of detection and detection angle in range between 110° to 360° for lighting control, c/w built in delay timer (adjustable), wiring and accessories, recessed and surface mounted as per drawing.	NR	2		
PEMASANGAN ELEKTRIK UNTUK MEROBOK DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR						

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity		
4.0		<u>SUBMAINS CABLES</u> i)To supply, install, testing and commisioning submains cables as per drawing and specifications. ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
4.1		2C 10 mm² PVC/PVC cable c/w cpc i) SSB1 to DBL A1 ii) SSB1 to DBP A1 iii) SSB2 to DBL B1 iv) SSB2 to DBP B1 v) SSB2 to DBM B1 vi) SSB2 to DB BENGKEL vii) SSB2 to DB FLOOD LIGHT viii) ESSB1 to DBEL A1 ix) ESSB1 to DBEP A1 x) ESSB2 to DBEL B1 xi) ESSB2 to DBEP B1	M M M M M M M M M M M	10 10 10 10 10 10 10 10 10 10 10		
4.2		4C 10 mm² PVC/PVC cable c/w cpc i) SSB1 to DBM A1	M	10		
4.3		4C 25 mm² PVC/PVC cable c/w cpc i) SSB1 to SUB SSB PAM	M	30		
5.0		<u>DISTRIBUTION BOARD</u> To supply, install, test and commission wall mounted Stainless Steel DB c/w bracket and including all cable terminations as per specification and drawing .				
5.1		DBL A1, 14 way SPN	LOT	1		
5.2		DBP A1, 10 way SPN	LOT	1		
5.3		DBM A1, 6 way TPN	LOT	1		
5.4		DBL B1, 10 way SPN	LOT	1		
5.5		DBP B1, 10 way SPN	LOT	1		
5.6		DBM B1, 6 way SPN	LOT	1		
5.7		DB BENGKEL, 10 way SPN	LOT	1		
5.8		DB FLOOD LIGHT, 10 way SPN	LOT	1		
5.9		DBEL A1, 10 way SPN	LOT	1		
5.10		DBEP A1, 6 way SPN	LOT	1		
5.11		DBEL B1, 6 way SPN	LOT	1		
5.12		DBEP B1, 6 way SPN	LOT	1		

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
6.0		<u>EARTHING SYSTEM</u>				
6.1		Protective conductor 50mm X 6mm or 25mm X 6mm tinned copper bar.	LS	LS		
6.2		50mm X 6mm tinned copper Main Earthing Bar c/w porcelain insulators to mount the main earthing bar and a transparent protective cover with label engraved and marked in red 'Main Earthing Bar- Safety Electrical Connections-Do Not Remove' to cover full length of the main earthing bar. (MEB shall be Factory Ready)	LS	LS		
6.3		Earthing conductor 2 sets of 2 X 25mm X 3mm copper tape.	LS	LS		
6.4		≥14mm dia. X 3000mm (L) copper jacketed (minimum radial thickness 0.25mm) steel core earth electrode c/w precast heavy duty concrete earth chamber & removable concrete cover etc.	LOT	4		
6.5		Test lead 2.5mm ² green cable current probe & potential probe	LS	LS		
6.6		≥14mm dia. X 1500mm (L) copper jacketed (minimum radial thickness 0.25mm) steel core earth electrode c/w precast heavy duty concrete earth chamber & removable concrete cover etc. <u>Note:-</u> a) The connection of the copper tape to the earth electrode shall be exothermic welded connections. b) The connection of the 2.5mm ² green PVC cable to the earth electrode shall be by clamp	LOT	2		

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
7.0		BILIK DB				
7.1		Approved type of rubber mat shall be provided infront of the switchboards . The rubber mat shall extend to the full length of the switchboard, the thickness not less than 6mm and width 1000 mm.	NR	1		
7.2		Standard notice inside the switchroom : i. 'BAHAYA' ii. 'DILARANG MEROKOK' iii. Electric shock treatment chart.(cpr) iv. As installed drawing	NR NR NR NR	1 1 1 1		
7.3		Standard notice outside the switchroom : i. 'BAHAYA' ii. 'DILARANG MEROKOK' iii. 'DILARANG MASUK' iv. 'BILIK DB '	NR NR NR NR	1 1 1 1		

B1 LV SYSTEM (BLOK PEJABAT ARAS 1)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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B2 LV SYSTEM (BLOK PEJABAT ARAS MEZZANINE)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p>WIRING</p> <p>i) All wiring shall be installed as per drawing, relevant rules, regulation and specification.</p> <p>ii) Minimum cross section area of cpc in relation to the cross section area of associated phase conductor shall be install as per MS-IEC60364-5-54, Table 54.3</p> <p>iii) For top floor and wiring above ceiling shall be in heavy duty uPVC conduits and Hot Dipped galvanised trunking. The trunking shall be supported by fixing brackets. All accessories shall be provided such as brass bush, elbow, flexible conduit, saddle, adaptor and etc for complete installation.</p> <p>iv) Any other items which not mentioned in this section, shall be comply with the latest revision of CKE.LS.01.01.(04).2017</p> <p>v) All prices shall include the cost of conduits, trunking and any other accessories used for the wiring system.</p> <p>vi) All concealed / surface conduit wiring shall use heavy duty uPVC conduit.</p> <p>vii) All wiring for Emergency Light & Keluar Sign shall be in heavy duty uPVC conduit if conduit is embedded in the concrete.</p> <p>viii) All trunking shall used Hot Dipped Galvanised Trunking.</p> <p>ix) Switches for lighting and fans shall generally be grouped.</p> <p>x) Switch plates of size 85mm x 85mm (max. allowable number of big rocker switches is 3)</p> <p>xi) Back boxes for switches and switched socket outlet shall be of galvanised sheet steel type of minimum thickness 0.8mm.</p> <p>CONCEALED CONDUIT WIRING</p>				
1.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush big rocker switch (1000mm above Finished Floor Level).	NR	4		
1.2		Lighting point for highbay using 2 x 2.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush big rocker switch (1000mm above Finished Floor Level).	NR	14		
1.3		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way intermediate flush big rocker switch (1000mm above Finished Floor Level).	NR	2		

PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR JOHOR

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B2 LV SYSTEM (BLOK PEJABAT ARAS MEZZANINE)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.4		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor for self contained emergency and keluar sign luminaire.	NR	20		
1.5		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (915mm above finished floor level)	NR	9		
1.6		15A Socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 1 gang 15A round 3 pin flushed switched socket outlet with indicator light for ACSU. (300mm below ceiling level)	NR	1		
2.0		<u>LUMINAIRES AND EQUIPMENT</u> <u>T8 LED LUMINAIRES</u> i)The luminaires shall be of rust proof type and/or anti corrosive type or specially treated.				
2.1		2 x (18 to 20watt) Surface Mounted Luminaire c/w Self Ballasted Double Capped T8 LED tube, Daikon Diffuser. (1200mm, CCT 4000K).	NR	8		
2.2		2 x (18 to 20watt) Ceiling Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	1		
2.3		3 x (18 to 20watt) Ceiling Recessed Mounted c/w Self Ballasted Double Capped T8 LED tube, Louver and Cross Blade (1200mm x 600mm, CCT 4000K). <u>LED LIGHTING</u> i)The luminaires shall consist two separate components comprising of LED control gear and optical system. ii)The construction of the luminaires shall be either two separate housing/compartements or integrated.	NR	3		
2.4		100watt LED Suspended High Bay Weatherproof (IP65) c/w aluminium faceted reflector, frosted lens cover, black powder finished with suitable bracket. CCT 4000K	NR	23		
2.5		(30 to 100watt) LED Floodlight with CCT 5000K	NR	4		
2.6		(30 to 100watt) RGB LED Floodlight c/w DMX controller system and other accessories for installation.	NR	7		
2.7		(40 to 60watt) LED Compound Lighting wall mounted c/w mounting bracket and other accessories for installation.	NR	8		
PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR					To Collection Page	

B2 LV SYSTEM (BLOK PEJABAT ARAS MEZZANINE)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
2.8		<u>EMERGENCY LIGHT</u> Surface mounted LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba).	NR	13		
2.9		Recess type LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	6		
2.10		Wall mounted LED KELUAR SIGN c/w 3 hours duration battery back-up. (approved by Jabatan Bomba).	NR	1		

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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B3 LV SYSTEM (BLOK PEJABAT ARAS 2)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p>WIRING</p> <p>i) All wiring shall be installed as per drawing, relevant rules, regulation and specification.</p> <p>ii) Minimum cross section area of cpc in relation to the cross section area of associated phase conductor shall be install as per MS-IEC60364-5-54, Table 54.3</p> <p>iii) For top floor and wiring above ceiling shall be in heavy duty uPVC conduits and Hot Dipped galvanised trunking. The trunking shall be supported by fixing brackets. All accessories shall be provided such as brass bush, elbow, flexible conduit, saddle, adaptor and etc for complete installation.</p> <p>iv) Any other items which not mentioned in this section, shall be comply with the latest revision of CKE.LS.01.01.(04).2017</p> <p>v) All prices shall include the cost of conduits, trunking and any other accessories used for the wiring system.</p> <p>vi) All concealed / surface conduit wiring shall use heavy duty uPVC conduit.</p> <p>vii) All wiring for Emergency Light & Keluar Sign shall be in heavy duty uPVC conduit if conduit is embedded in the concrete.</p> <p>viii) All trunking shall used Hot Dipped Galvanised Trunking.</p> <p>ix) Switches for lighting and fans shall generally be grouped.</p> <p>x) Switch plates of size 85mm x 85mm (max. allowable number of big rocker switches is 3)</p> <p>xi) Back boxes for switches and switched socket outlet shall be of galvanised sheet steel type of minimum thickness 0.8mm.</p> <p>CONCEALED CONDUIT WIRING</p>				
1.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush big rocker switch (1000mm above Finished Floor Level).	NR	84		
1.2		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way 2 gang flush big rocker switch (1000mm above Finished Floor Level).	NR	12		
1.3		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way 3 gang flush big rocker switch (1000mm above Finished Floor Level).	NR	6		
PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR					To Collection Page	

B3 LV SYSTEM (BLOK PEJABAT ARAS 2)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.4		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	43		
1.5		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor for self contained emergency and keluar sign luminaire.	NR	35		
1.6		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (300mm above finished floor	NR	18		
1.7		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (915mm above finished floor level)	NR	53		
1.8		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Television. (300mm below ceiling level)	NR	2		
1.9		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Access Card. (300mm above ceiling level)	NR	8		
1.10		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Projector and motorised screen. (300mm below ceiling level)	NR	2		
1.11		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 2 gang. (300mm above finished floor level)	NR	3		
1.12		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 2 gang. (915mm above finished floor level)	NR	2		
1.13		15A Socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 1 gang 15A round 3 pin flushed switched socket outlet with indicator light for ACSU. (300mm below ceiling level)	NR	21		
PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR					To Collection Page	

B3 LV SYSTEM (BLOK PEJABAT ARAS 2)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.14		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (300mm above finished floor level)	NR	8		
2.0		<u>LUMINAIRES AND EQUIPMENT</u> <u>T8 LED LUMINAIRES</u> i)The luminaires shall be of rust proof type and/or anti corrosive type or specially treated.				
2.1		2 x (18 to 20watt) Surface Mounted Luminaire c/w Self Ballasted Double Capped T8 LED tube, Daikon Diffuser. (1200mm, CCT 4000K).	NR	8		
2.2		2 x (18 to 20watt) Wall Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	3		
2.3		3 x (6 to 11watt) Ceiling Recessed Mounted c/w Self Ballasted Double Capped T8 LED tube, Louver and Cross Blade (600mm x 600mm, CCT 4000K).	NR	85		
		<u>LED DOWNLIGHT LUMINAIRES</u> i)The luminaires shall consist two separate components comprising of LED driver and optical system for LED Downlight. ii)The construction of the luminaires shall be either two separate housing/compartements or integrated.				
2.4		10 to 20watt LED recessed downlight luminaire c/w frosted glass diffuser, 200mm dia. (8"), CCT 4000K.	NR	48		
		<u>EMERGENCY LIGHT & KELUAR SIGN</u>				
2.5		Surface mounted LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	6		
2.6		Recess type LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	24		
2.7		Wall mounted LED KELUAR SIGN c/w 3 hours duration battery back-up. (approved by Jabatan Bomba).	NR	5		

PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR JOHOR

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B3 LV SYSTEM (BLOK PEJABAT ARAS 2)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.0		<u>SENSOR</u>				
3.1		Motion Sensor For Toilet Lighting Supply and install high-performance Passive Infra Red (PIR) motion sensor with minimum 3 meters distance of detection and detection angle in range between 110° to 360° for lighting control, c/w built in delay timer (adjustable), wiring and accessories, recessed and surface mounted as per drawing.	NR	2		
4.0		<u>UNDERFLOOR TRUNKING SYSTEM</u> To supply, install, testing and commissioning of underfloor trunking system for distribution of power, telecommunication and networking-services as per specification and drawing. HQL.2/2/131-127/2022-50/51				
4.1		3 compartment 100mm X 50mm Hot-dipped Galvanised underfloor trunking c/w suitable accessories for complete system.	M	70		
4.2		Supply and install Underfloor Service outlet box c/w zinc alloy die-casting cover of size : 300mm x 300mm x 56mm 3 compartment service outlets for 2 Nos 1 gang 13A 3 pin switched socket outlet underfloor type and 1 no. (RJ 45) underfloor type angular faceplate for network/telephone point.	NR	3		
4.3		300mm x 300mm x 56mm 3 compartment service outlets for 2 Nos 1 gang 13A 3 pin switched socket outlet underfloor type and 1 no. (RJ 45) underfloor type angular faceplate for printer point.	NR	1		
4.4		300mm x 300mm x 56mm 4 compartment service outlets for 2 Nos 1 gang 13A 3 pin switched socket outlet underfloor type, 1 no. (RJ 45) underfloor type angular faceplate for network point and 1 no. (RJ 11) underfloor faceplate for telephone point .	NR	6		
4.5		300mm x 300mm x 56mm 4 compartment Essentials service outlets for 2 Nos 1 gang 13A 3 pin switched socket outlet underfloor type, 2 Nos. (RJ 45) underfloor type angular faceplate for network and telephone point .	NR	2		
4.6		250mm x 250mm x 56mm 3 compartment junction box c/w galvanised flyover .	NR	16		
4.7		225mm x 25mm 3 compartment vertical access box	NR	3		

PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR JOHOR

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B3 LV SYSTEM (BLOK PEJABAT ARAS 2)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
5.0		<u>SUBMAINS CABLES</u> i)To supply, install, testing and commisioning submains cables as per drawing and specifications. ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
5.1		2C 10 mm² PVC/PVC cable c/w cpc i) SSB3 to DBL A2 ii) SSB3 to DBP A2 iii) SSB3 to DBL B2 iv) SSB3 to DBP B2 v) ESSB3 to DBEL 2 vi) ESSB3 to DBEP 2	M M M M M M	10 10 10 10 10 10		
5.2		4C 10 mm² PVC/PVC cable c/w cpc i) SSB3 to DBM A2 ii) SSB3 to DBM B2	M M	10 10		
6.0		<u>DISTRIBUTION BOARD</u> To supply, install, test and commission wall mounted Stainless Steel DB c/w bracket and including all cable terminations as per specification and drawing .				
6.1		DBL A2, 14 way SPN	LOT	1		
6.2		DBP A2, 10 way SPN	LOT	1		
6.3		DBM A2, 6 way TPN	LOT	1		
6.4		DBL B2, 10 way SPN	LOT	1		
6.5		DBP B2, 10 way SPN	LOT	1		
6.6		DBM B2, 6 way TPN	LOT	1		
6.7		DBEL 2, 10 way SPN	LOT	1		
6.8		DBEP 2, 6 way SPN	LOT	1		
7.0		<u>BILIK DB</u> Approved type of rubber mat shall be provided infront of the switchboards . The rubber mat shall extend to the full length of the switchboard, the thickness not less than 6mm and width 1000 mm.	NR	1		
7.1		Standard notice inside the switchroom : i. 'BAHAYA' ii. 'DILARANG MEROKOK' iii. Electric shock treatment chart.(cpr) iv. As installed drawing	NR NR NR NR	1 1 1 1		
7.2		Standard notice outside the switchroom : i. 'BAHAYA' ii. 'DILARANG MEROKOK' iii. 'DILARANG MASUK' iv. 'BILIK DB '	NR NR NR NR	1 1 1 1		

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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B4 LV SYSTEM (BLOK PEJABAT ARAS 3)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p>WIRING</p> <p>i) All wiring shall be installed as per drawing, relevant rules, regulation and specification.</p> <p>ii) Minimum cross section area of cpc in relation to the cross section area of associated phase conductor shall be install as per MS-IEC60364-5-54, Table 54.3</p> <p>iii) For top floor and wiring above ceiling shall be in heavy duty uPVC conduits and Hot Dipped galvanised trunking. The trunking shall be supported by fixing brackets. All accessories shall be provided such as brass bush, elbow, flexible conduit, saddle, adaptor and etc for complete installation.</p> <p>iv) Any other items which not mentioned in this section, shall be comply with the latest revision of CKE.LS.01.01.(04).2017</p> <p>v) All prices shall include the cost of conduits, trunking and any other accessories used for the wiring system.</p> <p>vi) All concealed / surface conduit wiring shall use heavy duty uPVC conduit.</p> <p>vii) All wiring for Emergency Light & Keluar Sign shall be in heavy duty uPVC conduit if conduit is embedded in the concrete.</p> <p>viii) All trunking shall used Hot Dipped Galvanised Trunking.</p> <p>ix) Switches for lighting and fans shall generally be grouped.</p> <p>x) Switch plates of size 85mm x 85mm (max. allowable number of big rocker switches is 3)</p> <p>xi) Back boxes for switches and switched socket outlet shall be of galvanised sheet steel type of minimum thickness 0.8mm.</p> <p>CONCEALED CONDUIT WIRING</p>				
1.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush big rocker switch (1000mm above Finished Floor Level).	NR	79		
1.2		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way 2 geng flush big rocker switch (1000mm above Finished Floor Level).	NR	37		
1.3		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	33		

B4 LV SYSTEM (BLOK PEJABAT ARAS 3)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.4		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	6		
1.5		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor for self contained emergency and keluar sign luminaire.	NR	22		
1.7		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (300mm above finished floor level)	NR	13		
1.8		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang. (915mm above finished floor level)	NR	14		
1.9		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Television. (300mm below ceiling level)	NR	2		
1.10		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 1 gang for Projector and motorised screen. (300mm below ceiling level)	NR	2		
1.11		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 2 gang. (300mm above finished floor level)	NR	3		
1.12		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush switch socket 2 gang. (915mm above finished floor level)	NR	12		
1.13		15A Socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 1 gang 15A round 3 pin flushed switched socket outlet with indicator light for ACSU. (300mm below ceiling level)	NR	17		
1.14		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin weatherproof switch socket 1 gang. (for buliding signage)	NR	1		

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B4 LV SYSTEM (BLOK PEJABAT ARAS 3)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.15		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (300mm above finished floor level)	NR	8		
2.0		<u>LUMINAIRES AND EQUIPMENT</u> <u>T8 LED LUMINAIRES</u> i)The luminaires shall be of rust proof type and/or anti corrosive type or specially treated.				
2.1		2 x (18 to 20watt) Surface Mounted Luminaire c/w Self Ballasted Double Capped T8 LED tube, Daikon Diffuser. (1200mm, CCT 4000K).	NR	3		
2.2		1 x (18 to 20watt) Wall Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	4		
2.3		2 x (18 to 20watt) Wall Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	3		
2.4		3 x (6 to 11watt) Ceiling Recessed Mounted c/w Self Ballasted Double Capped T8 LED tube, Louver and Cross Blade (600mm x 600mm, CCT 4000K). <u>LED DOWNLIGHT LUMINAIRES</u> i)The luminaires shall consist two separate components comprising of LED driver and optical system for LED Downlight. ii)The construction of the luminaires shall be either two separate housing/compartements or integrated.	NR	56		
2.5		10 to 20watt LED recessed downlight luminaire c/w frosted glass diffuser, 200mm dia. (8"), CCT 4000K. <u>EMERGENCY LIGHT & KELUAR SIGN</u>	NR	87		
2.6		Surface mounted LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	2		
2.7		Recess type LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	14		
2.8		Surface mounted LED KELUAR SIGN c/w 3 hours battery back-up. (slim type) (approved by Jabatan Bomba)	NR	1		
2.9		Wall mounted LED KELUAR SIGN c/w 3 hours duration battery back-up. (approved by Jabatan Bomba).	NR	5		

PEMASANGAN ELEKTRIK UNTUK MEROBOK DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
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B4 LV SYSTEM (BLOK PEJABAT ARAS 3)

Item	Code No.	Description	Unit	Quantity		
3.0		<u>SENSOR</u>				
3.1		Motion Sensor For Toilet Lighting Supply and install high-performance Passive Infra Red (PIR) motion sensor with minimum 3 meters distance of detection and detection angle in range between 110° to 360° for lighting control, c/w built in delay timer (adjustable), wiring and accessories, recessed and surface mounted as per drawing.	NR	2		
4.0		<u>UNDERFLOOR TRUNKING SYSTEM</u> To supply, install, testing and commissioning of underfloor trunking system for distribution of power, telecommunication and networking-services as per specification and drawing. HQL.2/2/131-127/2022-51/51				
4.1		3 compartment 100mm X 50mm Hot-dipped Galvanised underfloor trunking c/w suitable accessories for complete system.	M	50		
4.2		Supply and install Underfloor Service outlet box c/w zinc alloy die-casting cover of size : 300mm x 300mm x 56mm 4 compartment essentials service outlets for 2 Nos 1 gang 13A 3 pin switched socket outlet underfloor type, 2 Nos. (RJ 45) underfloor type angular faceplate for network and telephone point .	NR	3		
4.3		300mm x 300mm x 56mm 3 compartment essentials service outlets for 2 Nos 1 gang 13A 3 pin switched socket outlet underfloor type and 1 no. (RJ 45) underfloor type angular faceplate for printer point.	NR	1		
4.4		250mm x 250mm x 56mm 3 compartment junction box c/w galvanised flyover .	NR	7		
4.5		225mm x 25mm 3 compartment vertical access box	NR	1		
5.0		<u>SUBMAINS CABLES</u> i)To supply, install, testing and commisioning submains cables as per drawing and specifications. ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
5.1		2C 10 mm² PVC/PVC cable c/w cpc i) SSB4 to DBL A3 ii) SSB4 to DBP A3 iii) SSB4 to DBL B3 iv) SSB4 to DBP B3 v) ESSB4 to DBEL 3 vi) ESSB4 to DBEP 3	M M M M M M	10 10 10 10 10 10		

B4 LV SYSTEM (BLOK PEJABAT ARAS 3)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
5.2		4C 10 mm² PVC/PVC cable c/w cpc i) SSB4 to DBM A3 ii) SSB4 to DBM B3	M M	10 10		
6.0		DISTRIBUTION BOARD To supply, install, test and commission wall mounted Stainless Steel DB c/w bracket and including all cable terminations as per specification and drawing .				
6.1		DBL A3, 14 way SPN	LOT	1		
6.2		DBP A3, 10 way SPN	LOT	1		
6.3		DBM A3, 6 way TPN	LOT	1		
6.4		DBL B3, 14 way SPN	LOT	1		
6.5		DBP B3, 10 way SPN	LOT	1		
6.6		DBM B3, 6 way TPN	LOT	1		
6.7		DBEL 3, 10 way SPN	LOT	1		
6.8		DBEP 3, 6 way SPN	LOT	1		
7.0		BILIK DB Approved type of rubber mat shall be provided infront of the switchboards . The rubber mat shall extend to the full length of the switchboard, the thickness not less than 6mm and width 1000 mm.	NR	1		
7.1		Standard notice inside the switchroom : i. 'BAHAYA' ii. 'DILARANG MEROKOK' iii. Electric shock treatment chart.(cpr) iv. As installed drawing	NR NR NR NR	1 1 1 1		
7.2		Standard notice outside the switchroom : i. 'BAHAYA' ii. 'DILARANG MEROKOK' iii. 'DILARANG MASUK' iv. 'BILIK DB '	NR NR NR NR	1 1 1 1		

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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B5 LV SYSTEM (BLOK PEJABAT ARAS 4 DAN ARAS 5)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p><u>WIRING</u></p> <p>i) All wiring shall be installed as per drawing, relevant rules, regulation and specification.</p> <p>ii) Minimum cross section area of cpc in relation to the cross section area of associated phase conductor shall be install as per MS-IEC60364-5-54, Table 54.3</p> <p>iii) For top floor and wiring above ceiling shall be in heavy duty uPVC conduits and Hot Dipped galvanised trunking. The trunking shall be supported by fixing brackets. All accessories shall be provided such as brass bush, elbow, flexible conduit, saddle, adaptor and etc for complete installation.</p> <p>iv) Any other items which not mentioned in this section, shall be comply with the latest revision of CKE.LS.01.01.(04).2017</p> <p>v) All prices shall include the cost of conduits, trunking and any other accessories used for the wiring system.</p> <p>vi) All concealed / surface conduit wiring shall use heavy duty uPVC conduit.</p> <p>vii) All wiring for Emergency Light & Keluar Sign shall be in heavy duty uPVC conduit if conduit is embedded in the concrete.</p> <p>viii) All trunking shall used Hot Dipped Galvanised Trunking.</p> <p>ix) Switches for lighting and fans shall generally be grouped.</p> <p>x) Switch plates of size 85mm x 85mm (max. allowable number of big rocker switches is 3)</p> <p>xi) Back boxes for switches and switched socket outlet shall be of galvanised sheet steel type of minimum thickness 0.8mm.</p> <p><u>SURFACE WIRING</u></p>				
1.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 2 way 2 gang flush big rocker switch (1000mm above Finished Floor Level).	NR	3		
1.2		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	19		
1.3		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor for self contained emergency and keluar sign luminaire.	NR	1		

B5 LV SYSTEM (BLOK PEJABAT ARAS 4 DAN ARAS 5)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.4		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (915mm above finished floor level)	NR	2		
1.5		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 2 gang. (300mm above finished floor level)	NR	2		
1.6		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin weatherproof essentials switch socket 1 gang. (for building signage and for other sevicees)	NR	2		
1.7		15A Socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 1 gang 15A round 3 pin flushed switched socket outlet with indicator light for ACSU. (300mm below ceiling level)	NR	1		
2.0		<u>LUMINAIRES AND EQUIPMENT</u> <u>T8 LED LUMINAIRES</u> i)The luminaires shall be of rust proof type and/or anti corrosive type or specially treated.				
2.1		2 x (6 to 11watt) Surface Mounted Luminaire c/w Self Ballasted Double Capped T8 LED tube, Daikon Diffuser. (600mm, CCT 4000K).	NR	1		
2.2		2 x (18 to 20watt) Surface Mounted Luminaire c/w Self Ballasted Double Capped T8 LED tube, Daikon Diffuser. (1200mm, CCT 4000K).	NR	2		
2.3		2 x (18 to 20watt) Wall Mounted Bare Channel c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	9		
2.4		2 x (18 to 20watt) Surface Mounted Weather Proof Type c/w Self Ballasted Double Capped T8 LED tube (1200mm, CCT 4000K).	NR	1		
2.5		3 x (6 to 11watt) Surface Mounted c/w Self Ballasted Double Capped T8 LED tube, Louver and Cross Blade (600mm x 600mm, CCT 4000K).	NR	10		
2.6		<u>EMERGENCY LIGHT & KELUAR SIGN</u> Surface mounted LED emergency luminaire c/w 3 hours duration battery back-up. (approved by Jabatan Bomba)	NR	1		
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B5 LV SYSTEM (BLOK PEJABAT ARAS 4 DAN ARAS 5)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.0		<u>SUBMAINS CABLES</u> i)To supply, install, testing and commisioning submains cables as per drawing and specifications. ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
3.1		2C 16 mm² PVC/PVC cable c/w cpc i) ESSB4 to DBEPL 4&5	M	20		
4.0		<u>DISTRIBUTION BOARD</u> To supply, install, test and commission wall mounted Stainless Steel DB c/w bracket and including all cable terminations as per specification and drawing .				
4.1		DBEPL 4&5, 10 way SPN	LOT	1		

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Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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C LV SYSTEM (BANGUNAN SOKONGAN)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p><u>WIRING</u></p> <p>i) All wiring shall be installed as per drawing, relevant rules, regulation and specification.</p> <p>ii) Minimum cross section area of cpc in relation to the cross section area of associated phase conductor shall be install as per MS-IEC60364-5-54, Table 54.3</p> <p>iii) For top floor and wiring above ceiling shall be in heavy duty uPVC conduits and Hot Dipped galvanised trunking. The trunking shall be supported by fixing brackets. All accessories shall be provided such as brass bush, elbow, flexible conduit, saddle, adaptor and etc for complete installation.</p> <p>iv) Any other items which not mentioned in this section, shall be comply with the latest revision of CKE.LS.01.01.(04).2017</p> <p>v) All prices shall include the cost of conduits, trunking and any other accessories used for the wiring system.</p> <p>vi) All concealed / surface conduit wiring shall use heavy duty uPVC conduit.</p> <p>vii) All wiring for Emergency Light & Keluar Sign shall be in heavy duty uPVC conduit if conduit is embedded in the concrete.</p> <p>viii) All trunking shall used Hot Dipped Galvanised Trunking.</p> <p>ix) Switches for lighting and fans shall generally be grouped.</p> <p>x) Switch plates of size 85mm x 85mm (max. allowable number of big rocker switches is 3)</p> <p>xi) Back boxes for switches and switched socket outlet shall be of galvanised sheet steel type of minimum thickness 0.8mm.</p> <p><u>PONDOK PENGAWAL</u></p> <p>CONCEALED CONDUIT WIRING</p>				
1.0						
1.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	4		
1.2		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (900mm above finished floor level)	NR	4		
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C LV SYSTEM (BANGUNAN SOKONGAN)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.3		Fan point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w ceiling rose.	NR	1		
		LUMINAIRES AND EQUIPMENT				
		T8 LED LUMINAIRES				
		i)The luminaires shall be of rust proof type and/or anti corrosive type or specially treated.				
1.5		2 x (18 to 20watt) Wall Mounted Weatherproof Luminaire c/w Self Ballasted Double Capped T8 LED tube,(1200mm, CCT 4000K).	NR	2		
1.5		2 x (18 to 20watt) Ceiling Mounted Weatherproof Luminaire c/w Self Ballasted Double Capped T8 LED tube,(1200mm, CCT 4000K).	NR	1		
1.7		3 x (6 to 11watt) Ceiling Recessed Mounted c/w Self Ballasted Double Capped T8 LED tube, Single Parabolic Reflector and Cross Blade Louvre (600mm x 600mm, CCT 4000K).	NR	1		
		<u>FAN</u>				
1.8		400mm dia. wall fan c/w integrated thermal fuse, 3 speed On/Off pull switch, full automatic oscillation control, Guard cover, and all necessary accessories (anti-corrosive).	NR	1		
		LED FLOOD LIGHT				
		i)The luminaires shall consist two separate components comprising of LED driver and optical system.				
		ii)The construction of the luminaires shall be either two separate housing/compartements or integrated.				
1.9		60watt LED Floodlight with CCT 5000K	NR	2		
		SUBMAINS CABLES				
		i)To supply, install, testing and commissioning submains cables as per drawing and specifications.				
		ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
1.10		2C 25 mm² PVC/SWA/PVC cable c/w cpc i) ESSB1 to DB PONDOK PENGAWAL	M	30		

C LV SYSTEM (BANGUNAN SOKONGAN)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.11		DISTRIBUTION BOARD To supply, install, test and commission wall mounted Stainless Steel DB c/w bracket and including all cable terminations as per specification and drawing . DB PONDOK PENGAWAL, 10 way SPN	LOT	1		
2.0		<u>RUMAH SAMPAH</u> CONCEALED CONDUIT WIRING				
2.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch (1000mm above Finished Floor Level).	NR	2		
2.2		13A socket outlet point using 2 x 4.0 sq. mm PVC cable & protective conductor c/w 13A 3 pin flush essentials switch socket 1 gang. (915mm above finished floor level)	NR	1		
2.3		DISCONNECTOR SWITCH To supply and install Rotary type Metalclad Isolator in service rooms whereas polycarbonate type for other rooms /spaces c/w cable termination. Disconnecter switch point using 2 x 2.5mm² PVC cable c/w Disconnecter Switch i) Disconnecter Switch 20A SPN	NR	1		
2.4		LUMINAIRES AND EQUIPMENT T8 LED LUMINAIRES 1 x (18 to 20watt) Ceiling Mounted Weatherproof Luminaire c/w Self Ballasted Double Capped T8 LED tube,(1200mm, CCT 4000K).	NR	2		
2.5		SUBMAINS CABLES i)To supply, install, testing and commissioning submains cables as per drawing and specifications. ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories . 2C 25 mm² PVC/SWA/PVC cable c/w cpc i) DB PONDOK PENGAWAL to DB RUMAH SAMPAH	M	60		
2.6		DISTRIBUTION BOARD To supply, install, test and commission wall mounted Electrogalvanised DB c/w bracket and including all cable terminations as per specification and drawing . DB RUMAH SAMPAH, 6 way SPN	LOT	1		

C LV SYSTEM (BANGUNAN SOKONGAN)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.0		<u>GARAJ BERBUMBUNG</u>				
		CONCEALED CONDUIT WIRING				
3.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w 10A 1 way flush essentials big rocker switch at Pondok Pengawal	NR	6		
		LUMINAIRES AND EQUIPMENT				
		T8 LED LUMINAIRES				
3.2		1 x (18 to 20watt) Ceiling Mounted Weatherproof Luminaire c/w Self Ballasted Double Capped T8 LED tube,(1200mm, CCT 4000K).	NR	6		
4.0		<u>PAGAR</u>				
		CONCEALED CONDUIT WIRING				
4.1		Lighting point using 2 x 1.5 sq. mm PVC cable & protective conductor c/w loop in loop out box laid in heavy duty uPVC conduit as per specification and drawing.	NR	5		
		LUMINAIRES AND EQUIPMENT				
		LED LUMINAIRES				
4.2		16watt LED fance lighting	NR	4		
4.3		60watt LED Strip Lighting for signage as per drawing	LOT	1		
5.0		<u>JETI TERBUKA</u>				
		SUBMAINS CABLES				
		i)To supply, install, testing and commisioning submains cables as per drawing and specifications.				
		ii)Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
5.1		4C 35 mm² XLPE/SWA/PVC cable c/w cpc i) SSB2 to CRANE	M	35		
5.2		4C 50 mm² XLPE/SWA/PVC cable c/w cpc i) SSB2 to SHORE SUPPLY 1 ii) ESSB2 to SHORE SUPPLY 2	M M	20 45		

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C LV SYSTEM (BANGUNAN SOKONGAN)

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
5.3		SHORE SUPPLY To supply, install, test and commission Cubicle Type Floor Mounted Front & Rear Access Stainless Steel Shore supply (Form 2B) (25kA @ 400V, 1sec) including all cable terminations as per specification and drawing SHORE SUPPLY a) 100A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Volt meter and ammeter c/w CT class 1 c) MCCBs (for outgoing) d) Phase Indicator light (LED) c/w push button and protection fuse e) Busbar as per drawing & specification f) 60A Weatherproof commando type 5 pin socket outlet for 3 phase c/w disconnect switch. g) 32A Weatherproof commando type 3 pin socket outlet for single phase c/w disconnect switch. h) 15A Weatherproof switch socket outlet i) 13A Weatherproof switch socket outlet	LOT	2		
5.4		To supply and install solar powered LED Beacon Light c/w accessories for full installation complied with JABATAN LAUT MALAYSIA requirement and regulation	LOT	2		

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p><u>MAIN SWITCHBOARD</u></p> <p>To supply, install, testing and commissioning of the following Cubicle Type Floor Mounted Front & Rear Access Stainless Steel Main Switchboard (Form 2B) c/w termination etc.shall comply with L-S1 specification.</p> <p>Notes:-</p> <p>a) All switchgears shall be rated 50kA@400V,1 sec.</p> <p>b) Comprehensive catalogues of the MSB, Surge Protective Device (SPD), Automatic Transfer Switch (ATS) offered are to be submitted with this tender.</p> <p>c) Tender with incomplete catalogues and specifications may result in failure to comply to technical specifications.</p>				
1.1		<p><u>MAIN SWITCHBOARD (NON-ESSENTIAL)</u></p> <p>The Main Switchboard , NMSB (50kA @ 400V, 1sec), shall consist of following equipment but not limiting etc. per specification and drawing. (Rotary handle for padlocking facilities is required for all MCCBs).</p> <p>a) 600A 4P MCCB c/w shunt trip (for incoming)</p> <p>b) IDMT microprocessor based protection relays + RS485 c/w current transformer, control/relay fault alarm, etc. (Please attach catalogues)</p> <p>c) DPM</p> <p>d) MCCBs (for outgoing)</p> <p>e) SPD (MOP: L-N, N-E)</p> <p>f) Busbar as per drawing & specification</p> <p>g) Phase Indicator light (LED)</p>	LOT	1		
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D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.2		MAIN SWITCHBOARD (ESSENTIAL) The Main Switchboard , EMSB (25kA @ 400V, 1sec) , shall consist of following equipment but not limiting etc. per specification and drawing. a) 160A 4P MCCB c/w shunt trip (for incoming) b) IDMT microprocessor based protection relays + RS485 c/w current transformer, control/relay fault alarm, etc. (Please attach catalogues) c) DPM d) MCCBs (for outgoing) e) SPD(MOP: L-N, N-E) f) 160A 4P Automatic Transfer Switch g) Busbar as per drawing & specification h) Phase Indicator light (LED)	LOT	1		
2.0		UNDERGROUND CABLES All cable shall be handled, laid and installed accordingly to the specification. All prizes must included excavation of trenches, clean sand, laying ducting, cable markers, making good and etc. as per specification. Notes: Complete with Heat Shrinkable dry type cable termination / cable gland c/w earth tag washer and protective conductor. If the cable size >50sq.mm, the cable termination shall be using heat shrinkable cable termination. For Cable size ≤50sq.mm, the cable termination shall be using Cable Gland c/w Earth Tag Washer and Protective Conductor. To supply, install, testing and commissioning copper cables: As per drawing no :- 2 Nos of 4C 240 sq. mm XLPE/SWA/PVC Underground Cable from : a) TNB CSU to MSB				
2.1		As per drawing no :- 2 Nos of 4C 240 sq. mm XLPE/SWA/PVC Underground Cable from : a) TNB CSU to MSB	M	70		
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D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.0		<u>SUB SWITCHBOARD</u> To supply, install, test and commission Wall Mounted cubicle type Stainless Steel Sub Switchboard (25kA @ 400V, 1sec) including all cable terminations as per specification and drawing .				
3.1		SSB 1 a) 100A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
3.2		SSB 2 a) 200A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
3.3		SSB 3 a) 100A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
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D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.4		SSB 4 a) 100A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
3.5		ESSB 1 a) 40A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
3.6		ESSB 2 a) 125A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
3.7		ESSB 3 a) 40A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
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D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.8		ESSB 4 a) 40A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) Digital Power Meter (DPM) c) MCCBs (for outgoing) d) SPD (MOP: L-N, N-E) e) Busbar as per drawing & specification f) Phase Indicator light (LED) c/w push button and protection fuse	LOT	1		
3.9		SUB SSB PAM a) 60A TPN MCCB (for incoming) c/w Earth Leakage Relay (adjustable type time & current), ZCT & shunt trip etc. b) MCCBs (for outgoing) c) Busbar as per drawing & specification	LOT	1		
4.0		<u>SUBMAINS CABLES</u> i) To supply, install, testing and commissioning submains cables as per drawing and specifications. ii) Submain Cable in HDG trunking c/w CPC, bracket, supports and other required accessories .				
4.1		4C 70 mm² PVC/PVC cable c/w cpc i) MSB to EMSB ii) EMSB to SSB2	M M	15 43		
4.1		4C 50 mm² PVC/PVC cable c/w cpc i) MSB to SSB1 ii) MSB to SSB3 iii) MSB to SSB4	M M M	15 55 60		
4.2		2 Nos 4C 50 mm² PVC/PVC cable c/w cpc i) MSB to SSB2	M	43		
4.1		4C 16 mm² PVC/PVC cable c/w cpc i) EMSB to ESSB1 ii) EMSB to ESSB3 iii) EMSB to ESSB4	M M M	15 55 60		
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D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
4.0		<p>POWER FACTOR CORRECTION BOARD To supply, install, test and commission stainless steel cubicle type floor mounted, front and rear access (50kA, 1 sec). FORM 2B POWER FACTOR BOARD as per drawing and specification.</p> <p>(Separate board placed beside the NMSB) The Automatic Power Factor Correction Boards 170 kVAR shall consist of following equipment but not limiting, etc as per specification & drawing.</p> <p>i. 11 step power factor regulator of circulating operation c/w indicator lights, relay, fuses, etc.</p> <p>ii. Capacitor unit (dry type and self healing) 525V 50Hz and 7% reactors. - 5 kVAR (2 nos.) - 10 kVAR (2 nos.) - 20 kVAR (7 nos.)</p> <p>iii. CONTACTORS (Category AC-6B) with 2 N/C auxiliary contacts 2 nos rapid discharge resistor etc. - 5 kVAR (2 nos.) - 10 kVAR (2 nos.) - 20 kVAR (7 nos.)</p> <p>iv. MCCBs shall be Icu \geq 50kA, Ics \geq 50% of Icu - 15 TPN MCCB (2 nos.) - 20 TPN MCCB (2 nos.) - 40 TPN MCCB (7 nos.)</p> <p>v. 6mm X 30mm tinned copper busbars with maximum current carrying of (270A).</p> <p>vi. 20mm dia. heavy duty ventilation fan c/w dust filter and automatic thermostat control - 1 no.</p> <p>vii. PFCB earthing bar using 50mm X 6mm tinned copper bar with M6 bolts & nuts. (PC to MEB MSB)</p>	LOT	1		

D MAIN SWITCHBOARD, SUBSWITCHBOARD & POWER FACTOR CORRECTION BOARD

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
		<u>Collection</u>				
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E STANDBY GENERATOR SET

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<p>To supply, install, testing and commissioning as per drawing and specifications. All quantities given are PROVISIONAL. The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.</p> <p><u>STANDBY GENERATOR SET</u></p> <p>The catalogues for Standby Genset shall be submitted for technical evaluation.</p> <p>FAILURE to submit will render the tender to be DISQUALIFIED.</p> <p>To supply, install, testing and commissioning to use as per drawing and specification</p>				
1.1		<p><u>STANDBY GENERATOR SET</u></p> <p>125 kVA, 0.8 p.f, 3 Phase, 400V, 50 Hz system, starting system, protective and alarm system, anti vibration, absorption system (e.g. spring, rubber etc.), automatic shuttered louvre and other associated work as per specification and drawing.</p>	LOT	1		
1.2		<p>24Vdc heavy duty Nickel Cadmium battery of sufficient capacity (as recommended provide minimum of six (6) successive abortive starts of the engine without recharging shall be provided). The battery shall be equipped with external recombinators which are designed to effect recombination of oxygen and hydrogen to increase the intervals between topping up with distilled water to at least five years. A durable battery stand shall be supplied and installed.</p>	SET	1		
1.3		<p>Battery charger (stand alone unit) for Nickel Cadmium Battery. The unit shall be capable of :-</p> <ul style="list-style-type: none"> - Continuous Charge 14 Amps - Boost Charge 30 Amps - Trickle Charge 	SET	1		
1.4		<p>Electric motor-driven pump for transferring fuel into the fuel tank c/w accessories, fuel valve, etc.</p>	LOT	1		
1.5		<p>Manual fuel pump c/w accessories as per drawing and specification.</p>	LOT	1		
1.6		<p>Tank c/w piping and other associated work as per drawing and specification.</p>	LOT	1		
1.7		<p>To supply a full tank capacity of fuel at time of handover.</p>	LOT	1		
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E STANDBY GENERATOR SET

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
2.0		<u>AMF BOARD</u>				
2.1		Floor mounted cubicle front access AMF Board, current transformers, Digital Power Meter (DPM), frequency meter, hour meter, kWh meter, control and indicator alarm, phase switch, microprocessor based feeder protection and bay control unit c/w CT, control relay fault alarm, cable box etc. as per specification and drawing. (25kA @ 400V, 1 Sec)	LOT	1		
3.0		<u>CABLES</u>				
3.1		4 x 50sq.mm MI/MS Fire Resistant cable (insulated and sheated) on Perforated Hot Dipped Galvanised cable tray and termination from AMF Board to 125kVA Generator Set.	M	20		
3.2		4 x 50sq.mm MI/MS Fire Resistant cable (insulated and sheated) on Perforated Hot Dipped Galvanised cable tray c/w CPC and termination from EMSB to AMF Board.	M	20		
3.3		4C 70sq.mm PVC/PVC cable on Perforated Hot Dipped Galvanised cable tray from M&E interlocks to 160A 4P MCCB at NMSB as per Drawing	M	20		
3.4		Generator under voltage relay cable using 4C 2.5sq.mm MI/MS fire resistant cable on Perforated Hot Dipped Galvanised cable tray from NMSB to standby generator set as required.	M	10		
4.0		<u>ACOUSTIC TREATMENT</u>				
4.1		To supply and install a complete acoustic or noise reduction system for the generator and generator room c/w solid acoustic fire rated door (1 hours) with frame acoustic seals, hinge's lock set, primary and secondary exhaust silencers, inlet and outlet air attenuators for radiators to specification and requirement of Dept. of Environment. Shop drawings to be approved by S.O. prior installation.	LS	LS		

E STANDBY GENERATOR SET

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
5.0		<u>GENERATOR SET EARTHING</u>				
5.1		Protective conductor of 25mm x 3mm tinned copper tape for Frame to MEB.	LS	LS		
5.2		25mm x 6mm tinned copper Main Earthing Bar (Factory Ready) c/w porcelain insulators to mount the main earthing bar and a transparent protective cover with label engraved and marked in red " Main Earthing Bar - Safety Electrical Connections - Do Not Remove" to cover full length of the main earthing bar.	LS	LS		
5.3		Main Protective Bonding of 50mm x 6mm (or 2 sets of 2 x 25mm x 3mm) tinned copper tape from MEB Genset to MEB NMSB.	LS	LS		
5.4		Earthing conductor 1 x 25 sq.mm (based on design calculation for genset earthing) PVC Black Cable	LS	LS		
6.0		NEUTRAL TO EARTH				
6.1		1 x 25 sq.mm (based on design calculation for genset earthing) PVC BLACK cable as per drawing from N-E to MEB Genset.	LS	LS		

E **STANDBY GENERATOR SET**

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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F LIGHTNING PROTECTION SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
		LIGHTNING PROTECTION SYSTEM				
		To supply, install and testing as per drawing and specifications. All quantities given are PROVISIONAL.				
		The actual quantities installed shall be measured on site after completion and prices adjusted accordingly.				
		To supply, install and test the lightning protection system as per specification and drawing: As per drawing no.:-				
1.0		AIR TERMINATION NETWORK				
1.1		25mm x 3mm copper tape for LPS air termination network c/w necessary support, bracket and other accessories as per drawing and specification	LS	LS		
1.2		16mm dia. & 500mm height Air Finial c/w mounting bracket, lock, nut & base and other accessories	LOT	6		
1.3		16mm dia. & 500mm height Air Terminal c/w 3500 height mounting bracket for support system, lock, nut & base and other accessories	LOT	1		
1.4		copper puddle plange at roof for copper tape pass through c/w waterproofing, sealant, concrete or specialist roofing materials.	LS	LS		
2.0		DOWN CONDUCTOR				
2.1		25mm x 3mm copper tape c/w necessary supports, brackets, etc. for down conductor c/w 50mm x 25mm heavy duty uPVC ducting, 100mm x 100mm x 38mm PVC junction box c/w cover and DC Tape Clip. Shall be concealed in RC column.	LS	LS		
2.2		Testing joint at 2500mm height from floor level.	NR	22		
2.3		Brass joint or bimetalic joint to connect the down conductor (copper tape) with ground point bar (stainless steel bar)	NR	22		
3.0		BONDING TO THE STRUCTURE				
3.1		Bonding to the structure by using 50mm dia. stainless steel bar for ring network at plaform with Galvanised steel clamps with contact plate to platform structure steel bar at every 1000mm and other accessories as per drawing and specification.	LOT	1		

F LIGHTNING PROTECTION SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
4.0		GROUNDING POINT				
4.1		Bonding to pile cap and piling steel bar by using 50mm dia. stainless steel bar with Galvanised steel clamps with contact plate and other accessories as per drawing and specification. (Resistance <10 ohm)	LOT	22		
5.0		TESTING AND COMMISSIONING				
5.1		To conduct earth electrode resistant test and continuity test. All the test result must be submitted to S.O. Representative with endorsed by Competent Person two (2) weeks after the completing of the testing.	LS	LS		

F LIGHTNING PROTECTION SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<u>PUBLIC ADDRESS SYSTEM</u> Refer to drawing : HQL.ELV.2/2/131-127/2022-6/14 All quantities given are PROVISIONAL. The actual quantity installed shall be measured on site after completion and prices adjusted accordingly. Manufacturer's catalogues and technical specification shall be submitted. Failure to do so may result in failure to comply to technical specifications. Contractor shall deemed to have examined the site. All network infrastructure cabling and related accessories shall be of type as approved in the JKR JMAL website. All cabling and wiring infrastructure works shall be referred to the current JKR Specification for Low Voltage Internal Electrical Installation (L-S1).				
1.1		<u>CABLING</u> All internal cabling shall be in heavy duty uPVC trunking/hot-dipped galvanised (HDG) trunking. Wiring works (inclusive breaking, hacking, cutting hole, and making good, restoration, backfilling and permanent reinstatements of damage brickwall, etc. necessary for the installation of the system. All fibre and UTP cablings shall be tested according to the relevant standard (price are deemed to be inclusive of these works). All works carried out shall comply to the specifications and drawings.				
1.1.1		Box speaker point from equipment rack using 1 x 18 AWG twisted pair speaker cable c/w all necessary accessories.	NR	22		
1.1.2		Ceiling speaker point from volume controller using 1 x 18 AWG twisted pair speaker cable c/w all necessary accessories.	NR	76		
1.1.3		Horn speaker point from equipment rack using 1 x 18 AWG twisted pair speaker cable and 2 x 1.5mm sq. PVC cable c/w all necessary accessories.	NR	5		
1.1.4		Volume controller point from equipment rack using 1 x 18 AWG twisted pair speaker cable and 2 x 1.5mm sq. PVC cable c/w all necessary accessories.	NR	21		

PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR JOHOR

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G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.1.5		Paging microphone point from equipment rack using CAT6A cable & 18 AWG twisted pair screened cable c/w connector and all necessary accessories.	NR	1		
1.1.6		Cabling from fire alarm interface to fire alarm panel using 2 x 1.5mm sq. PVC cable c/w all necessary accessories.	NR	1		
1.17		Cabling from fire fire alarm panel to card access system using RS485 screened cable c/w all necessary accessories.	NR	1		
1.2		TO SUPPLY AND INSTALL				
		All works carried out shall comply to the specifications and drawings.				
1.2.1		Preamplifier.	NR	1		
1.2.2		Emergency paging microphone.	NR	1		
1.2.3		Paging microphone.	NR	1		
1.2.3		200W 100V line power amplifier.	NR	3		
1.2.4		Amplifier monitoring unit.	NR	1		
1.2.4		Automatic amplifier changeover unit.	NR	1		
1.2.5		6 channel zone selector (with all call).	NR	1		
1.2.5		100AH 24VDC sealed lead acid battery c/w automatic battery charger.	NR	1		
1.2.6		24VDC regulated power supply unit for battery charger.	NR	1		
1.2.6		Tuner c/w USB MP3 player.	NR	1		
1.2.7		Voice alarm module with overriding & priority.	NR	1		
1.2.7		Fire alarm interface.	NR	1		
1.2.8		6W (tapping at 1.5W) 100V line box loudspeaker.	NR	74		
1.2.9		6W (tapping at 3W) 100V line box loudspeaker.	NR	22		
1.2.10		15W (tapping at 10W) 100V line box loudspeaker.	NR	5		
1.2.11		6W volume controller.	NR	20		

PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR JOHOR

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G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.2.12		19" standard equipment rack to house all the Public Address equipment, power pack c/w mounting support, mounting bracket, ventilation panel, ventilation fan and all necessary accessories.	NR	1		
1.3		OTHERS				
1.3.1		Testing, commissioning and handover in approved working order of the complete Public Address system.	LS	LS		
1.3.2		Training to client which includes system description, equipment, operation and maintenance. Training duration shall be based on the complexity of the installed system. The number of attendees shall be as advised by the client.	LS	LS		
2.0		<u>CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM</u>				
		Refer to drawing : HQL.ELV.2/2/131-127/2022-10/14				
		All quantities given are PROVISIONAL. The actual quantity installed shall be measured on site after completion and prices adjusted accordingly.				
		Manufacturer's catalogues and technical specification shall be submitted. Failure to do so may result in failure to comply to technical specifications.				
		Contractor shall deemed to have examined the site.				
		Works shall include all termination, labelling and interacking cablings within equipment rack, c/w all necessary connectors, mountings and accessories.				
		All network infrastructure cabling and related accessories shall be of type as approved in the JKR JMAL website.				
		All cabling and wiring infrastructure works shall be referred to the current JKR Specification for Low Voltage Internal Electrical Installation (L-S1).				
2.1		CABLING				
		All internal cabling shall be in heavy duty uPVC trunking/hot-dipped galvanised (HDG) trunking.				
		Wiring works (inclusive breaking, hacking, cutting hole, and making good, restoration, backfilling and permanent reinstatements of damage brickwall, etc. necessary for the installation of the system).				

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
		All fibre and UTP cablings shall be tested according to the relevant standard (price are deemed to be inclusive of these works).				
		All works carried out shall comply to the specifications and drawings.				
2.1.1		Camera point using 1 x CAT6A UTP cable c/w connector and all necessary accessories.				
		i) At Aras 1	NR	15		
		ii) At Pondok Pengawal	NR	2		
2.2		TO SUPPLY AND INSTALL				
		All works carried out shall comply to the specifications and drawings.				
2.2.1		Surface mounted type varifocal IR dome camera c/w mounting box and other necessary accessories.	NR	5		
2.2.2		Varifocal IR bullet camera c/w mounting box and other necessary accessories.	NR	12		
2.2.3		24 channel network video recorder (NVR) c/w 30 TB storage capacity, CCTV management software and camera licenses.	LOT	1		
2.2.4		Server for video management and video recording c/w antivirus software.	NR	1		
2.2.5		Video management software (VMS) for the CCTV system.	NR	1		
2.2.6		VMS licenses for Workstation and CPU licenses.	NR	1		
2.2.7		CCTV workstation c/w 19" monitor, MS Office, antivirus software and other necessary equipment to ensure full functionality at Bilik Kawalan	NR	1		
2.2.8		42" LED monitor	NR	1		
2.2.9		Wall bracket system for all the LED monitors. The bracket shall be made of epoxy painted sheet steel c/w tilt adjustment mechanism.	LOT	2		
2.2.10		CCTV operator table made of epoxy painted electrogalvanized sheet steel suitable for a minimum of 2 workstations with monitors and 2 person operation c/w 2 CPU compartments, 2 drawers and 2 nos swivel chairs.	LOT	1		
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G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
2.3		OTHERS				
2.3.1		Testing, commissioning and handover in approved working order of the complete CCTV system.	LS	LS		
2.3.2		Training to client which includes system description, equipment, operation and maintenance. Training duration shall be based on the complexity of the installed system. The number of attendees shall be as advised by the client.	LS	LS		
3.0		<u>ELECTRONIC ACCESS CONTROL SYSTEM</u> Refer drawing : HQL.ELV.2/2/131-127/2022-11/14 All quantities given are PROVISIONAL. The actual quantity installed shall be measured on site after completion and prices adjusted accordingly. Manufacturer's catalogues and technical specification shall be submitted. Failure to do so may result in failure to comply to technical specifications. Contractor shall deemed to have examined the site. Works shall include all termination, labelling and interacking cablings within equipment rack, c/w all necessary connectors, mountings and accessories. All network infrastructure cabling and related accessories shall be of type as approved in the JKR JMAL website. All cabling and wiring infrastructure works shall be referred to the current JKR Specification for Low Voltage Internal Electrical Installation (L-S1).				
3.1		CABLING Refer to drawing : HQL.ELV.2/2/131-127/2022-11/14 All internal cabling shall be in heavy duty uPVC trunking. Wiring works (inclusive breaking, hacking, cutting hole, and making good, restoration, backfilling and permanent reinstatements of damage brickwall, etc. necessary for the installation of the system). All fibre and UTP cablings shall be tested according to the relevant standard (price are deemed to be inclusive of these works).				

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.1.1		All works carried out shall comply to the specifications and drawings. Access controller point using 1 x CAT6A UTP cable c/w connector and all necessary accessories.	NR	9		
3.1.2		System cabling using RS 485 shielded cable (no of core to suit requirement) from access controller to card readers, emergency break glass, electromagnetic lock and magnetic contact c/w all necessary accessories.	NR	27		
3.1.3		System cabling using 1 x Jellyfilled CAT6A UTP cable partly in uPVC trunking and underground ducting c/w connector and all necessary accessories from boomgate access controller to boomgate controller.	NR	4		
3.1.4		Loop sensor cable using multicore PVC cable c/w sealant.	NR	4		
3.1.5		System cabling works from up, stop and down push button to boom gate controller using 4C 2.5 mm sq. PVC/SWA/PVC underground cable partly in G.S conduit/trunking and underground ducting c/w all necessary accessories.	NR	2		
3.2		TO SUPPLY AND INSTALL				
		All works carried out shall comply to the specifications and drawings.				
3.2.1		Electronic access control management software.	LOT	1		
3.2.2		Server for electronic access control system c/w antivirus software.	NR	1		
3.2.3		Computer c/w MS Office and antivirus software.	NR	1		
3.2.4		Desktop card reader.	NR	2		
3.2.5		Card printer.	NR	1		
3.2.6		Contactless smart card.	NR	100		
3.2.7		Access controller c/w power supply, battery, enclosure etc.	NR	9		
3.2.8		Card reader.	NR	20		
3.2.9		Emergency break glass.	NR	9		

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.2.10		Electromagnetic lock c/w mounting bracket.	NR	11		
3.2.11		Magnetic door sensor.	NR	11		
3.2.12		Boom gate system controller c/w electrogalvanised enclosure and concrete plinth.	LOT	4		
3.2.13		Heavy duty boom gate c/w 3 meter straight barrier gate arm.	NR	2		
3.2.14		Power supply surge protective device.	NR	4		
3.2.15		Data surge protective device.	NR	4		
3.2.16		Signal surge protective device.	NR	4		
3.2.17		Up, stop and down push button.	NR	1		
3.2.18		Single line loop detector.	NR	4		
3.3		OTHERS				
3.3.1		Testing, commissioning and handover in approved working order of the complete Access Control system.	LS	LS		
3.3.2		Training to client which includes system description, equipment, operation and maintenance. Training duration shall be based on the complexity of the installed system. The number of attendees shall be as advised by the client.	LS	LS		
4.0		INTERCOM SYSTEM				
		Refer drawing : HQL.ELV.2/2/131-127/2022-12/14				
		All quantities given are PROVISIONAL. The actual quantity installed shall be measured on site after completion and prices adjusted accordingly.				
		Manufacturer's catalogues and technical specification shall be submitted. Failure to do so may result in failure to comply to technical specifications.				
		Contractor shall deemed to have examined the site.				
		Works shall include all termination, labelling and interacking cabling within equipment rack, c/w all necessary connectors, mountings and accessories.				

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
4.1		All network infrastructure cabling and related accessories shall be of type as approved in the JKR				
		All cabling and wiring infrastructure works shall be referred to the current JKR Specification for Low Voltage Internal Electrical Installation (L-S1).				
		CABLING				
		All internal cabling shall be in heavy duty uPVC trunking.				
		Wiring works (inclusive breaking, hacking, cutting hole, and making good, restoration, backfilling and permanent reinstatements of damage brickwall, etc. necessary for the installation of the system).				
		All fibre and UTP cablings shall be tested according to the relevant standard (price are deemed to be inclusive of these works).				
		All works carried out shall comply to the specifications and drawings.				
		Intercom door station from master ststation using minimum 18 AWG shielded twisted cable c/w all necessary accessories.				
		Speech line from master station to door station using minimum 18 AWG shielded twisted cable c/w all necessary accessories.				
		Power supply for master station using 2 x 1.5mm sq. PVC cable c/w all necessary accessories.				
4.1.1		Intercom door station from master ststation using minimum 18 AWG shielded twisted cable c/w all necessary accessories.	NR	1		
4.1.2		Speech line from master station to door station using minimum 18 AWG shielded twisted cable c/w all necessary accessories.	NR	1		
4.1.3		Power supply for master station using 2 x 1.5mm sq. PVC cable c/w all necessary accessories.	NR	1		
4.1.4		Intercom service box device located inside ceiling	NR	1		
4.2		TO SUPPLY AND INSTALL				
		All works carried out shall comply to the specifications and drawings.				
		Master station panel located at Bilik Kawalan				
		Door station panel located at Bilik Kebal senjata & Peluru				
		12V, 12AH, SLA Battery c/w battery charger				
4.2.1		Master station panel located at Bilik Kawalan	NR	1		
4.2.2		Door station panel located at Bilik Kebal senjata & Peluru	NR	1		
4.2.3		12V, 12AH, SLA Battery c/w battery charger	NR	1		

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
4.3		OTHERS				
4.3.1		Testing, commissioning and handover in approved working order of the complete Fireman Intercom system.	LS	LS		
4.3.2		Training to client which includes system description, equipment, operation and maintenance. Training duration shall be based on the complexity of the installed system. The number of attendees shall be as advised by the client.	LS	LS		
5.0		<u>VISUAL SYSTEM</u> Refer drawing : HQL.ELV.2/2/131-127/2022-12/14 at Bilik Mesyuarat dan Bilik Gerakan. All quantities given are PROVISIONAL. The actual quantity installed shall be measured on site after completion and prices adjusted accordingly. Manufacturer's catalogues and technical specification shall be submitted. Failure to do so may result in failure to comply to technical specifications. Contractor shall deemed to have examined the site. Works shall include all termination, labelling and interacking cablings within equipment rack, c/w all necessary connectors, mountings and accessories. All network infrastructure cabling and related accessories shall be of type as approved in the JKR JMAL website. All cabling and wiring infrastructure works shall be referred to the current JKR Specification for Low Voltage Internal Electrical Installation (L-S1).				
5.1		CABLING All internal cabling shall be in heavy duty uPVC trunking. Wiring works (inclusive breaking, hacking, cutting hole, and making good, restoration, backfilling and permanent reinstatements of damage brickwall, etc. necessary for the installation of the system).				

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
5.1.1		<p>All fibre and UTP cablings shall be tested according to the relevant standard (price are deemed to be inclusive of these works).</p> <p>All works carried out shall comply to the specifications and drawings.</p> <p>Cabling works using CAT 6 shielded twisted pair (STP) cable c/w connector and all other necessary accessories from HDMI receptacle panel to HDMI receiver.</p>	NR	2		
5.1.2		Cabling works using 2 X 2.5mm sq. PVC cable c/w CPC and all necessary accessories from wall mounted on/off switch to 13A switch socket outlet.	NR	2		
5.1.3		System cabling work using 4 X 1.5mm sq. PVC cable c/w all necessary accessories from motorised screen to up/down switch.	NR	2		
5.2		TO SUPPLY AND INSTALL				
		All works carried out shall comply to the specifications and drawings.				
5.2.1		HDMI receptacle panel c/w recessed box and other accessories.	NR	2		
5.2.2		HDMI receiver.	NR	2		
5.2.3		HDMI transmitter.	NR	2		
5.2.4		HDMI switcher.	NR	2		
5.2.5		HDMI audio de-embedder.	NR	2		
5.2.6		5000 Lumens LCD projector c/w pole, bracket and other accessories.	NR	2		
5.2.7		220 (W) x 124 (H) motorised screen c/w mounting bracket, up/down switch button and other necessary accessories.	NR	2		
5.2.8		Factory fitted HDMI cable.	NR	2		
5.3		OTHERS				
5.3.1		Testing, commissioning and handover in approved working order of the complete Visual system.	LS	LS		

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
5.3.2		Training to client which includes system description, equipment, operation and maintenance. Training duration shall be based on the complexity of the installed system. The number of attendees shall be as advised by the client.	LS	LS		
6.0		<p>SATELLITE MASTER ANTENNA TELEVISION (SMATV) SYSTEM</p> <p>Refer drawing : HQL.ELV.2/2/131-127/2022-13/14</p> <p>All quantities given are PROVISIONAL. The actual quantity installed shall be measured on site after completion and prices adjusted accordingly.</p> <p>Manufacturer's catalogues and technical specification shall be submitted. Failure to do so may result in failure to comply to technical specifications.</p> <p>Contractor shall deemed to have examined the site.</p> <p>Works shall include all termination, labelling and interacking cablings within equipment rack, c/w all necessary connectors, mountings and accessories.</p> <p>All network infrastructure cabling and related accessories shall be of type as approved in the JKR JMAL website.</p> <p>All cabling and wiring infrastructure works shall be referred to the current JKR Specification for Low Voltage Internal Electrical Installation (L-S1).</p>				
6.1		<p>CABLING</p> <p>All internal cabling shall be in heavy duty uPVC trunking.</p> <p>Wiring works (inclusive breaking, hacking, cutting hole, and making good, restoration, backfilling and permanent reinstatements of damage brickwall, etc. necessary for the installation of the system).</p> <p>All fibre and UTP cablings shall be tested according to the relevant standard (price are deemed to be inclusive of these works).</p> <p>All works carried out shall comply to the specifications and drawings.</p>				
PEMASANGAN ELEKTRIK UNTUK MEROBOKH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR					To Collection Page	-

G EXTRA LOW VOLTAGE

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
6.1.1		RG11 cable from antenna to headend, headend to splitters/ multiswitches/tap off units and between splitters/multiswitches/tap off units c/w all necessary accessories.	M	100		
6.1.2		TV wall outlet point using RG6 cable c/w all necessary accessories. i) Pejabat Am Aras 1 ii) Ruang Menunggu Aras 2 iii) Ruang Menunggu Aras 3 vi) Bilik Gerakan Aras 3	NR	4		
6.2		TO SUPPLY AND INSTALL All works carried out shall comply to the specifications and drawings.				
6.2.1		Antenna pole c/w hot dipped galvanised mounting bracket.	LOT	1		
6.2.2		UHF antenna with minimum 10 elements.	NR	1		
6.2.3		Satellite dish c/w LNB and mounting bracket.	NR	1		
6.2.4		Lightning surge protective device for terrestrial antenna.	NR	1		
6.2.5		Lightning surge protective device for satellite disc	NR	4		
6.2.6		Headend housing/cabinet.	LOT	1		
6.2.7		UHF channelized amplifier (DVB - T2)	NR	2		
6.2.8		Regulator power supply unit	NR	1		
6.2.9		Stellite amplifire	NR	1		
6.2.10		8 output multiswitch unit	NR	1		
6.2.11		Wall TV outlet	NR	5		
6.3		OTHERS				
6.3.1		Testing, commissioning and handover in approved working order of the complete SMATV system.	LS	LS		
6.3.2		Training to client which includes system description, equipment, operation and maintenance. Training duration shall be based on the complexity of the installed system. The number of attendees shall be as advised by the client.	LS	LS		

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
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H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<u>PASSIVE INFRASTRUCTURE</u>				
1.1		STRUCTURED CABLING				
1.1.1		HORIZONTAL CABLING				
1.1.1.1		(Please Refer To Drawing HQL.2/2/131-127/2022-2/9) Supply , install and terminate Network point with the following requirement:- i) Pathways: In hot-dipped galvanised / electrogalvanised trunking ii) Cable : UTP / STP Cat 6A 23AWG (EIA/TIA) Low Smoke Zero Halogen (LSZH) from patch panel to faceplate. iii) Outlet: Metalclad back box, 1 gang angular faceplate and modular RJ45 jack / 1 gang angular faceplate and modular RJ45 jack comply with underfloor finishing floor				
		ARAS 1				
		a. Network Point	NR	9		
		b. Telephone Point	NR	9		
		c. Network Printer Point	NR	1		
		d. Access Point (WIFI)	NR	3		
		ARAS 2				
		a. Network Point	NR	29		
		b. Telephone Point	NR	27		
		c. Network Printer Point	NR	2		
		d. Access Point (WIFI)	NR	3		
		e. Fax Point	NR	1		
		ARAS 3				
		a. Network Point	NR	10		
		b. Telephone Point	NR	8		
		c. Network Printer Point	NR	1		
		d. Access Point (WIFI)	NR	3		
		ARAS 5				
		a. Network Point	NR	2		
		b. Telephone Point	NR	2		
		c. Access Point	NR	1		
		PONDOK PENGAWAL				
		a. Network Point	NR	1		
		b. Telephone Point	NR	1		

PEMASANGAN ELEKTRIK UNTUK MEROBOK DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN
WILAYAH 2, MUAR, JOHOR

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H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.1.1.2		Supply and install UTP/ STP Cat 6A 23 AWG (EIA/TIA) Low Smoke Zero Halogen (LSZH) factory terminated patch cords c/w RJ45 connectors and boots				
		ARAS 1				
		a. 2.0 meter (patch panel to network switch)	NR	22		
		b. 1.5 meter (faceplate to Wireless AP)	NR	3		
		c. 2.0 meter (faceplate to end device)	NR	19		
		ARAS 2				
		a. 2.0 meter (patch panel to network switch)	NR	62		
		b. 1.5 meter (faceplate to Wireless AP)	NR	3		
		c. 2.0 meter (faceplate to end device)	NR	59		
		ARAS 3				
		a. 2.0 meter (patch panel to network switch)	NR	22		
		b. 1.5 meter (faceplate to Wireless AP)	NR	3		
		c. 2.0 meter (faceplate to end device)	NR	19		
		ARAS 5				
		a. 2.0 meter (patch panel to network switch)	NR	5		
		b. 1.5 meter (faceplate to Wireless AP)	NR	1		
		c. 2.0 meter (faceplate to end device)	NR	4		
		PONDOK PENGAWAL				
		a. 2.0 meter (patch panel to network switch)	NR	3		
		b. 2.0 meter (faceplate to end device)	NR	1		
		c. 5.0 meter (device to device) for CCTV & Boom Gate	NR	4		
		BACKBONE CABLING				
1.1.2		FIBRE OPTIC CABLE (Outdoor)				
		Supply, install, test and commision singlemode outdoor corrugated steel-armoured fibre optics cable with the following requirements: i) Type: OS2 singlemode outdoor armoured fibre optics cable. All core shall be terminated to the patch panel.. ii) Installation shall be in hot-dipped galvanised / electrogalvanised trunking				
1.1.2.1		6 core OS2 Singlemode outdoor armoured fibre optic from fibre optic patch panel at Bilik TCR Aras 1 to fibre optic patch panel at Pondok Pengawal	M	40		
1.1.2.2		Termination of 6 core OS2 Singlemode outdoor armoured fibre optic cable c/w pigtail and splicing cassette.	NR	12		

H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.1.3		FIBRE OPTIC CABLE (Indoor)				
		Supply, install and terminate multimode indoor fibre optics cable with the following requirements: i) Type: minimum OS2 singlemode indoor fibre optics cable. All core shall be terminated to the patch panel. ii) Installation shall be in hot-dipped galvanised / electrogalvanised trunking				
1.1.3.1		6 core OS2 singlemode indoor fibre optic cable from fibre optic patch panel at Main TCR to fibre termination box at Bilik SDF	M	20		
1.1.3.2		Termination of 6 core OS2 singlemode indoor fibre optic cable c/w pigtail and splicing cassette.	NR	12		
1.1.3.3		Supply, install and terminate multimode indoor fibre optic cable with the following requirements: i) Type: Minimum OM4 multimode indoor fibre optic cable. All core shall be terminated to the Fibre Optic patch panel. ii) Installation shall be in hot-dipped galvanised / electrogalvanised trunking				
		6 core OM4 indoor multimode from fibre optic patch panel at Main TCR to fibre optic patch panel at :-				
		a. TCR Aras 1	M	10		
		b. TCR Aras 3	M	15		
		c. TCR Aras 5	M	25		
1.1.3.4		Termination of 6 core OM4 indoor multimode indoor optic c/w pigtail and splicing cassette:-				
		a. MTCR and TCR Aras 1	NR	12		
		b. MTCR and TCR Aras 3	NR	12		
		c. MTCR and TCR Aras 5	NR	12		
1.1.4		FIBRE OPTIC PATCH CORD				
1.1.4.1		Supply and install 3.0 metre length 1 pair OM4 factory terminated patch cord	NR	7		
1.1.4.2		Supply and install 3.0 metre length 1 pair OS2 factory terminated patch cord	NR	2		

H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.2		EQUIPMENT RACK				
		Supply and install 19" Equipment Rack with the following requirements: i. Cable Management Units and Blank Plate (Please refer to Rack Population Drawing : HQL.ICT 2/2/131-127/2022-7/9) ii. Perforated 1.5mm panel, frame thickness of 2mm				
1.2.1		Wall Mounted Network Rack				
1.2.1.1		Size: 9U network rack (Please refer to Rack Population drawing : HQL.ICT 2/2/131-127/2022-8/9) a) Dimensions: Min. 600mm (w) x 800mm (d) b) 3 Nos 13A 3 pin 1 gang SSO (JMAL Approved) Factory Fabricated c) Located at : i) Menara Kawalan Aras 5 ii) Pondok Pengawal	LOT	2		
1.2.1.2		Size: 15U network rack (Please refer to Rack Population drawing : HQL.ICT 2/2/131-127/2022-8/9) a) Dimensions: Min. 600mm (w) x 800mm (d) b) Power Distribution Unit (Factory Fabricated): 3 Nos 13A SSO c) Located at : i) Bilik TCR Aras 1 ii) Bilik TCR Aras 3	LOT	2		
1.2.2		Network Rack in MTC Room				
C		Size: 42U equipment rack (Please refer to Rack Population drawing : HQL.ICT 2/2/131-127/2022-7/9) a) Dimensions: Min. 800mm (w) x 1000mm (d) b) Power Distribution Unit (Factory Fabricated): 2 x C13 socket outlet (32A) (Left and Right)	LOT	1		
1.2.3		UTP Patch Panel				
1.2.3.1		To supply and install 24 port Cat 6A (EIA/TIA) rackmountable patch panel c/w cable support and cable management	LOT	9		
1.2.4		Fibre Optic Patch Panel				
1.2.4.1		To supply and install 6 port Fibre Optic Panel c/w duplex for singlemode fibre optic cable.	LOT	4		
1.2.4.2		To supply and install 12 port Fibre Optic Panel c/w duplex for singlemode fibre optic cable.	LOT	1		

H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
2.0		ACTIVE INFRASTRUCTURE (Network Equipment) (Please Refer To Drawing: HQL 2/2/131/-127/2022-1/9) Supply, install, configure, testing and commissioning all the equipment rack using the latest image software, redundant power supply and complete quarantine functionality as per specification. Please refer to Network Schematic Diagram to understand the detail design. All the active shall be onsite 8x5xNBD (8 Hours, 5 Days Next Business Day Service Level) support service during DLP and Warranty for 3 Years of the delivery date.				
2.1		Firewall				
2.1.1		Supply, install and configure firewall, antivirus, anti-malware, intrusion prevention system (IPS), network security and web security. The Firewall shall comply with the minimum following requirement: a. Firewall Throughput: 5 Gbps b. VPN Tunnel/Throughput: 2 nos/1.5 Gbps c. IPS Throughput: 1.5 Gbps d. Antivirus Throughput: 1.0 Gbps e. Concurrent connections: 3,000,000	NR	1		
2.2		Core Switch				
2.2.1		Supply, install and configure fully managed Core Switch c/w accessories with the following minimum requirements: a. Switching capacity is 180 Gbps b. Forwarding rate is 130 Mpps c. Layer 2/3 Switching d. 24-port 1 GbE Base-T e. Support 12 port 1/10GbE	NR	1		
2.3		Access Switch POE+				
2.3.1		Supply, install, and configure 24-port stackable Layer 2/4 switching Access Switch with the following minimum requirements: a. 24-port 1000 Base-T (Ethernet) b. Switching capacity is 184 Gbps c. forwarding rate is 136.9 Mpps d. POE+ switch 12 port e. 2 ports SFP+ fixed 1/10 GbE f. 10Gb Stacking module c/w cable	NR	8		

H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
2.3.2		Supply, install, and configure 12-port stackable Layer 2/4 switching Access Switch with the following minimum requirements: a. 12-port 1000 Base-T (Ethernet) b. Switching capacity is 256 Gbps c. forwarding rate is 190.46 Mpps d. POE+ switch 24 port e. 2 ports SFP+ fixed 1/10 GbE f. 10Gb Stacking module c/w cable	NR	1		
2.4		Transceiver Module				
2.4.1		10G Base-SR SFP+ Transceiver module with LC connector	NR	8		
2.4.2		10G Base-LR SFP+ Transceiver module with LC connector	NR	2		
2.5		Wireless Access Point				
2.5.1		Supply, install and configure Wireless Access Point c/w antenna, mounting bracket, cable and necessary accessories etc for full functionality with following requirements: a. 802.11a/b/g/n/ac/ax networks WiFi standard with appropriate license. b. Power Over Ethernet (POE+) c. AP bracket shall be hung with mounting steel rod to the the floor slab / direct mounted on the wall. d. Lockable	NR	10		
2.6		Uninterruptable Power Supply (UPS)				
2.6.1		Supply and install 1.5kVA rack mount UPS c/w 30 minutes full load with 50% battery discharge with SNMP enable and 15A power cable for 15A 3 pin plug top.	NR	2		
2.6.2		Supply and install 3.0kVA rack mount UPS c/w 30 minutes full load with 50% battery discharge with SNMP enable and 15A power cable for 15A 3 pin plug top.	NR	3		
2.6.3		Supply and install 5.0kVA rack mount UPS c/w 30 minutes full load with 50% battery discharge with SNMP enable and 15A power cable for 15A 3 pin plug top.	NR	1		

H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3.0		TELEPHONE SYSTEM				
		(Please Refer To Drawing: HQL 2/2/131-127/2022-XX) Supply of material, construct the complete telephones systems as per drawings and scope of works & accordance to the requirements and spesification of JKR/ TELCO (Refer to drawing). All shall must be done by registered contractor with TMB. To liase on and coordinate with TM's technical and sales team for the application of a new Multiline Session Initiation Protocol (SIP)/ direct line as per S.O representative instruction and TELCO requirement. The Multiline SIP line shall be connected to the new IP PBX.				
3.1		IP PBX System				
3.1.1		To supply, install and configure IP PBX for Small Business up to 150 number c/w required licensing, SIP Gateway that shall be configured c/w licenses, cablings and accessories as per technical compliance and specification: a. 150 number of user license b. 30 number of channel license c. Call Billing system (Web Searchable User Interface) d. Inclusive service maintenance, Factory Acceptance Test, Testing & Commissioning. Onsite 8x5xNBD (8 Hours, 5 Days NDxt Business Day Service Level) maintenance service during DLP and Warranty for 3 Years	LOT	1		
3.2		Telephone Set and Fax Machine				
		To supply, install and configure telephone set with the following specification c/w required licensing, cablings and/or other necessary accessories, 1 years onsite or approve equivalent to comply with requirement as below:				
3.2.1		Basic IP Phone	NR	47		
3.2.2		Fax Machine c/w Analog telephone adapter	NR	1		

H ICT AND TELEPHONE SYSTEM

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
4.0		EARTHING SYSTEM (Please Refer To Drawing: HQL2/2/131-127/2022-9/9) Note: a. It accordance to recommendations contains in IEC 30129, ANSI/TIA/EIA 607 and IEC 60364 Telecommunication Bonding and Earthing Standard for all equipment rack and raise flooring in SDF,MDF,TCR, all Distribution Frame/ Panels and Telephone System. b. Installation shall comply with JKR Specification (L-S38) c. Brand (jMAL) d. Please refer to drawing for details information.				
4.1		To supply, install, testing and commissioning as per JKR specification of earthing system c/w 2 Nos earthing conductor copper tape 25mm x 3mm copper tape (for Telecommunication Bonding Conductor (TBC), Telecommunications Bonding Backbone (TBB), and Backbone Bonding Conductor (BBC)), 50mm x 6mm copper as Primary Bonding Bar, 25mm x 6mm copper as Secondary Bonding Bar, 16mm sqr earth cable Rack Bonding Conductor RBC, Rack Bonding Terminal (RBT)	LS	LS		
5.0		TESTING & COMMISSIONING Testing and commissioning the following systems and guarantee full functionality of the system during defect and liability period as per scope of works & according to the requirements and specifications of JKR. (Contractor need to carry out pre-T&C for all the systems and submit the test results to JKR before T&C with JKR)				
5.1		Structure Cabling System Test by using Fluke Tester min model DTX8000	LS	LS		
5.2		Network Equipment Test	LS	LS		
5.3		Telephone System Test	LS	LS		

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I MISCELLANEOUS

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1.0		<u>DUCT SEALS</u>				
1.1		To supply and install duct seal for all cable entry to all buildings.	LS	LS		
2.0		<u>FIRE BARRIERS</u>				
2.1		Supply and install fire barriers for minimum two (2) hours fire rating as per Jabatan Bomba requirement and UBBL to cover all floor/wall openings and Riser Rooms for cable access using 100mm thick mineral wool and 12mm thick non-sag self-leveling fire stop sealant and accessories to UL standards.	LS	LS		
3.0		<u>HACKING AND MAKING GOOD</u>				
3.1		Breaking, hacking, cutting holes / coring and making good, restoration, backfilling and permanent reinstatements of damaged brickwall, roads, drains, hardstandings, tarmac area, IBS panel other civil works, etc. necessary for the installation of the system.	LS	LS		
4.0		<u>SWITCHROOM</u>				
		To provide switchroom peripherals, labels and signages as follows :-				
4.1		<u>Bilik MSB</u>				
		a) Signage 'Bilik Suis Utama' at MSB room	LS	LS		
		b) 'Dilarang Masuk' , 'Bahaya','Dilarang Merokok' at MSB room				
		c) Rubber mats of thickness not less than 6mm & 1000mm width in front of full length of switchboard				
		d) CPR/Shock treatment chart				
		e) Alat melawan kebakaran : 5kg CO2 (1 no.)				
		f) Electrical Layout and Schematic Diagram				
		g) To provide circuits numbering system and laminating/frame for As-Installed Layout Plans, Schematic Wiring Diagram, plans showing cable routes, positions of earthing point				

I MISCELLANEOUS

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
4.2		Pencawang Elektrik Padat (CSU)				
A		a) 'Dilarang Masuk' , 'Bahaya','Dilarang Merokok' and others accessories	LS	LS		
5.0		<u>INSPECTION, TESTING AND COMMISSIONING</u>				
5.1		Allow here or in the rates for the cost of carrying out inspection and test at works, testing and commissioning of the Sub-Contract Works as required in the relevant Specification including providing all necessary labour, materials, transportation, appliance/equipment, electricity and fuels, and paying all fees and charges for tests carried out by others.	LS	LS		
5.2		To provide training to JKR Staff and client representative for the operation of total Elektrical System.	LS	LS		
5.3		Factory Acceptance Test (FAT) at local manufacturer	LS	LS		
6.0		<u>LIAISON WITH AUTHORITY</u>				
6.1		Allow here or in the rates for the cost of liaison with Tenaga Nasional Berhad (TNB) or any other relevant authorities inclusive of all submissions, self service Portal TNB and any charge related to this work	LS	LS		
7.0		<u>SERVICE AND MAINTENANCE</u>				
7.1		The Electrical Contractor shall make good of any defect, shinkage and any other faults which may appear within the Defect Liability Period and comprehensive service and maintenance Schedule/Breakdown during the Defects Liability Period as provided in the contract, commencing from Practical Completion of the contract Works as certificate by the S.O.'s Representative	LS	LS		

Item	Code No.	Description	Unit	Quantity	Rate (RM)	Amount (RM)
		<div>Collection</div> <div>Page I/1/3</div> <div>Page I/2/3</div>				
PEMASANGAN ELEKTRIK UNTUK MEROBOH DAN MEMBINA SEMULA JETI MARKAS OPERASI PASUKAN POLIS MARIN WILAYAH 2, MUAR JOHOR					To "Ringkasan Tender"	