

SECTION 3: Scope of Works

This Bill of Quantities calls for the **Engineering Design and Structural Strengthening of Existing Reinforced Concrete Floor Slab for Additional 66 kV GIS Equipment at BPC Facilities.**

1. This Scope of Services must be read in conjunction with the attached Sections 4 and 4a.
2. The bid price for the Works shall be fixed price lump sum and represents the full cost to the Client for the performance and delivery of the Services by the Contractor. The Contractor is deemed to have understood, be familiar with, have considered and allowed for all site constraints and requirements.
3. The rates in these bills shall include labour, materials, tools, drafting equipment and machineries, consumables, construction utilities, transportation and logistics, duties and taxes, etc, deemed necessary to complete the works required. The Contractor shall undertake to do or cause to be done all things necessary for satisfactory completion of the scope of supply, Work and services.
4. The quoted tender shall be firmed in BND.

Part I: Schedule of Price for Preliminaries and HSE

Item	Description	Qty	Unit	Total Amount BND
1.0	Preliminaries and HSE			
1.1	Contractor shall ensure that all provisions covering general conditions and requirements which are necessary to implement and complete the works are provided, inclusive of the following: i) General and preliminaries inclusive of mobilization and demobilization of personnel, equipment & tools to site, insurance policies for Workman's Compensation for site representatives to undertake the works at site, transportation, any permits, and licences required, weather conditions, records/documentations and all associated requirements or works that are deemed necessary for the execution of the works. <u>Note:</u> The Client shall arrange and maintain Contractor's All Risk (CAR) for the works undertaken at site. The Contractor shall be responsible for Workman's Compensation coverage. ii) Perform all necessary data gathering, complete and submit all documentation for engineering design in 3 sets of hardcopy in binder format and electronic format (CAD and PDF in USB pendrive). iii) Contractor must comply with all site safety, security, health, conduct, welfare regulations and requirements pertaining to all work and people employed on the site and as detailed in the BPC HSE procedures provided, inclusive of the following: a) Compliance with all relevant safety rules and regulations implemented by the relevant Government Authorities and regulations (i.e., Ministry of Development Health Safety & Environment Manual, Workplace Safety and Health Order 2009, and all its subsequent regulations, etc.) and all relevant BPC's HSE requirement at all times.	1	Lot	

Item	Description	Qty	Unit	Total Amount BND
	b) Provision and use of Personal Protective Equipment (PPE) at site at all times, etc. Note: BPC has the right to stop work should there be any non-compliance of HSE procedures by the Contractor.			
	TOTAL FOR PART I			

Part II: Schedule of Price for Engineering Design Works

Item	Description	Qty	Unit	Rate	Total Amount BND
1.0	Detailed Engineering Design Works				
1.1	Provision of complete detailed engineering design, structural assessment & analysis, calculations, specifications, construction drawings, and technical documentation for all civil and structural works associated with the provision of additional new Switchgear on existing reinforced concrete floor slab including structural strengthening and new cable entry points, coordination with all interfacing disciplines and compliance with project requirements, applicable international standards, codes of practice, authority requirements, and utility standards. Reference to be made to attached drawings. Design works shall include consideration of all applicable dead loads, live loads, operational loads, equipment loads, wind loads, seismic loads, geotechnical parameters, drainage requirements, constructability considerations, durability requirements, maintenance access, and long-term operational performance. The item shall include all engineering studies, design calculations, structural analysis, design reports, detailed drawings, material specifications, authority submissions, technical coordination, revisions, approvals, Professional Engineer endorsement, shop drawing reviews, and preparation of construction-ready and as-built documentation necessary for the complete execution of the Works. All engineering design documents shall be submitted to BPC in a minimum of three (3) hard copies, properly compiled and bound in binders, together with electronic copies in both CAD and PDF formats stored on a USB flash drive.				

Item	Description	Qty	Unit	Rate	Total Amount BND
	The locations are:				
	a) 66kV Substation building (Istana)	1	LS		
	b) 66kV Substation building (Manggis)	1	LS		
TOTAL FOR PART II					

Part III: Schedule of Price for Civil and Structural Works

Item	Description	Qty	Unit	Rate	Total Amount BND
1.0	66kV Substation Building (ISTANA)				
1.1	Clearing, grubbing, removal and disposal of all debris, unsuitable materials, obstructions, abandoned services and other materials encountered within the designated work area, including preparation of the area to receive the Works. The scope shall include all necessary labour, plant, equipment, transportation and disposal at approved locations, complete in accordance with the Project Specifications, approved drawings and applicable requirements.	1	Lot		
1.2	Supply and execution of structural strengthening works to the existing reinforced concrete floor slab, including all necessary modifications, alterations and associated works to accommodate the installation of additional 66 kV Gas-Insulated Switchgear (GIS) equipment at the designated location. The Works shall include verification of existing site conditions, assessment of the existing structure, provision of strengthening measures, and all associated materials, labour, equipment and making good, complete in accordance with the Project Specifications, approved drawings and approved structural design.	1	Lot		
1.3	Forming of floor penetrations at designated locations for cable entry, including setting out, controlled cutting or coring, removal and disposal of cut materials, protection of existing reinforcement and embedded services, and all necessary trimming, reinstatement and associated structural strengthening works. All penetrations shall be coordinated with the cable routing and structural requirements and completed in				

Item	Description	Qty	Unit	Rate	Total Amount BND
	accordance with the Project Specifications, approved drawings and approved method statements: a) HV cable entry (750mm x 750mm opening) b) LV cable entry (200mm x 200mm opening) c) LV cable entry (400mm x 400mm opening)	3 4 4	No. No. No.		
1.4	Bidder to specify any other works: a)..... b)..... c).....				
2.0	66kV Substation Building (MANGGIS)				
2.1	Clearing, grubbing, removal and disposal of all debris, unsuitable materials, obstructions, abandoned services and other materials encountered within the designated work area, including preparation of the area to receive the Works. The scope shall include all necessary labour, plant, equipment, transportation and disposal at approved locations, complete in accordance with the Project Specifications, approved drawings and applicable requirements.	1	Lot		
2.2	Supply and execution of structural strengthening works to the existing reinforced concrete floor slab, including all necessary modifications, alterations and associated works to accommodate the installation of additional 66 kV Gas-Insulated Switchgear (GIS) equipment at the designated location. The Works shall include verification of existing site conditions, assessment of the existing structure, provision of strengthening measures, and all associated materials, labour, equipment and making good, complete in accordance with the Project Specifications, approved drawings and approved structural design.	1	Lot		
2.3	Forming of floor penetrations at designated locations for cable entry, including setting out, controlled cutting or coring, removal and disposal of cut materials, protection of existing reinforcement and embedded services, and all necessary trimming, reinstatement and associated structural strengthening works. All penetrations shall be coordinated with the cable routing and structural requirements and completed in accordance with the Project Specifications, approved drawings and approved method statements: a) HV cable entry (750mm x 750mm opening) b) LV cable entry (200mm x 200mm opening)	3 4	No. No.		

Item	Description	Qty	Unit	Rate	Total Amount BND
	c) LV cable entry (400mm x 400mm opening)	4	No.		
2.4	Bidder to specify any other works: a)..... b)..... c).....				
	TOTAL FOR PART III				

SUMMARY PAGE

PART	DESCRIPTION	TOTAL AMOUNT BND
I	SCHEDULE OF PRICE FOR PRELIMINARIES AND HSE	
II	SCHEDULE OF PRICE FOR ENGINEERING DESIGN WORKS	
III	SCHEDULE OF PRICE FOR CIVIL AND STRUCTURAL WORKS	
GRAND TOTAL AMOUNT		

(In Words

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.....)

PERFORMANCE GUARANTEED

Guaranteed Completion Time of Weeks for the completion of the Engineering Design and Structural Strengthening of Existing Reinforced Concrete Floor Slab for Additional 66 kV GIS Equipment at BPC Facilities commencing from the Contractual Date and ending on the date of Practical Completion Certificate signed by the Client. (*Client's requirement is less than Six (6) Weeks.*)

Schedule of Rates for Unforeseen Works

1.0 Rates for Manpower

Should the Contractor's personnel be required to undertake works due to unforeseen circumstances, the rates stated below shall apply. Such work can only commence after the issuance of Purchase Order by the Client.

The Hourly Rate below shall be inclusive of manpower rate, tools, expenses, transportation, etc. Normal Working Time is 0730 – 1700 hrs.

1.0	Position	Normal Work Hours		Hourly Rate (BND)
1.1	Project Manager	1	Hour	
1.2	Site Engineer	1	Hour	
1.3	Design Engineer	1	Hour	
1.4	Draftsman	1	Hour	
1.5	Site Supervisor/foreman	1	Hour	
1.6	Safety Officer	1	Hour	
1.7	Skilled Worker (i.e., Steelworker, welder and the like)	1	Hour	
1.8	Skilled Worker (i.e., Concretor, Carpenter, Painter and the like)	1	Hour	
1.9	Surveyor	1	Hour	
1.10	Chainman	1	Hour	
1.11	Machinery Operator	1	Hour	
1.12	Semi-skilled worker	1	Hour	
1.13	Labourer / Helper	1	Hour	
1.14	Others ... (bidder to specify)	1	Hour	
1.15	Others ... (bidder to specify)	1	Hour	

2.0 Rates for Machinery and Equipment

Should the Contractor's personnel be required to undertake works due to unforeseen circumstances, the rates stated below shall apply. Such work can only commence after the issuance of Purchase Order by the Client.

The Hourly Rate below shall be inclusive of fittings, hose, fuel, consumables, etc to ensure their completeness for proper operation.

Normal Working Time is 0730 – 1700 hrs.

2.0	Type	Capacity/Model	Normal Work Hours		Hourly Rate (BND)
2.1	Mobile crane		1	Hour	
2.2	HIAB truck		1	Hour	
2.3	Trailer c/w prime mover		1	Hour	

2.4	Mobile Elevated Work Platform (MEWP)		1	Hour	
2.5	Portable generator		1	Hour	
2.6	Portable plate compactor		1	Hour	
2.7	Air compressor		1	Hour	
2.8	Welding equipment including accessories and consumables		1	Hour	
2.9	150mm diameter Coring equipment including accessories and consumables		!	Hour	
2.10	Pneumatic jack hammer including accessories		!	Hour	
2.11	Approved scaffolding structure	Per m3 volume lot	1	Hour	
2.12	Others ... (bidder to specify)		1	Hour	
2.13	Others ... (bidder to specify)		1	Hour	

3.0 Rates for Provisional Works

Should the Contractor be required to undertake works due to unforeseen circumstances, the rates stated below shall apply. Such work can only commence after the issuance of Purchase Order by the Client.

The Rate below shall be inclusive of all resources, consumables, etc to ensure their completeness for proper operation. Rate shall include supply, delivery and install.
Normal Working Time is 0730 – 1700 hrs.

3.0	Works	Quantity		Rate (BND)
3.1	Coring of floor opening including removal of debris and making good to works disturbed	1	No.	
3.2	Reinforced concrete works including Grade 30 concrete, reinforcement bars, formwork, lean concrete, etc to ensure compliance to Contract requirements.	1	m3	
3.3	Others ... (bidder to specify)	1		
3.4	Others ... (bidder to specify)	1		

APPENDIX 1: Reference Drawings/Documents:

66kV Istana Substation

No.	Drawings/Document Title	Drawings/Document Number	Revision
1	Upper Level and Roof Plan	B266/GIII/66/L/2	F
2	Upper Floor Top Bars and Bottom Slab reinforcement Details	B266/GIII/66/L/3	D
3	Foundation Plan, Plinth Layout plan and Footing Details	B266/I/66/P/1	A
4	Pipe Sleeves Layout Plan	B266/I/66/PS/1	-
5	66kV Istana Substation W14 BPC GIS Extension F35-41 Layout Drawing	SG8A000216	02

66kV Manggis Substation

No.	Drawings/Document Title	Drawings/Document Number	Revision
1	Upper Level and Roof Plan	B338/MGI /66/L/2	F
2	Upper Floor Top and Bottom Slab reinforcement Plans	B338/MGI /66/L/3	-
3	Foundation Plan	B338/MGI/66/P/1	-
4	V58 BPC GIS Extension F35-41 Civil Work Drawings	SG8A000190	03