

# **BILL OF QUANTITIES**

**Construction of Substation for Voltage Stabilizer & Bypass Panel**

V. Fulidhoo  
10/12/2024



**SUMMARY OF BILLS OF QUANTITIES**

**Construction of Substation for Voltage Stabilizer & Bypass Panel**

10/12/2024

Bill No	Description	Amount
1	PRELIMINARIES	Bill no. 01
2	GROUND WORKS	Bill no. 02
3	CONCRETE	Bill no. 03
4	MASONRY AND PLASTERING	Bill no. 04
5	PAINTING	Bill no. 05
6	METAL WORKS	Bill no. 06
7	DOORS & WINDOWS	Bill no. 07
8	TENDERER'S ADJUSTMENTS	Bill no. 08
<b>GRAND TOTAL carried to form of bid</b>		

**BILL OF QUANTITIES**  
**Construction of Substation for Voltage Stabilizer & Bypass Panel**  
**V. Fulidhoo**

10/12/2024

Item	Description	Unit	Quantity	Total Unit		Amount
				Rate	Units	
<b>1.1 General Notes</b> (1) Abbreviations m - meter No - numbers m <sup>3</sup> - cubic meter m <sup>2</sup> - square meter Lm - Linear meter KG - Kilograms incl - including mm - millimetre dia - diameter SS - Stainless Steel GI - Galvanized Iron	<b>BILL No: 01</b> <b>PRELIMINARIES</b>					
<b>1.2 Site Management Costs</b> Day to day management of site activities includes carrying out construction works with in stipulated period as per working drawings and technical specification and terms of contract, labour control, material management, stores management and overseeing the safety of work and stores equipment and personnel at site. (1) Allow for all on and off site management cost including costs of foreman and assistants, temporary services, telephone, fax, hoardings and similar.		item	1.00			
<b>1.3 Clean-up</b> (1) Allow for clean-up of completed works and site upon completion.		item	1.00			
<b>BILL No: 01 PRELIMINARIES</b> <b>TOTAL OF BILL No: 01 - Carried over to summary</b>						

**BILL No: 02**

**GROUND WORKS**

<p><b>2.1 General</b> (a) Rates shall include for: leveling, grading, trimming, compacting to faces of excavation, keep sides plumb, backfilling, consolidating and disposing surplus soil.</p>		
<p><b>2.2 Excavation</b> Excavation shall be carried out in all type of materials and by whatever means are necessary accurately to the lines and levels shown in the approved drawing. No blasting of any kind will be permitted. Excavation for foundations and will include timbering of soil faces and dewatering. Excavation quantities are measured to the faces of concrete members. Rates shall include for dewatering, leveling, grading, trimming compacting to faces of excavation, keeping sides plumb, backfilling, consolidating and disposing surplus soil and include for all additional excavation required to place the formwork / shuttering and dewatering the trench for the required days also back filling for necessary areas.</p>		
<p>(1) Excavation for TB, C1, (Boundary and By pass panel shed)</p>	m <sup>3</sup>	4.50
<p>(2) Excavation for Voltage Stabilizer Foundation</p>	m <sup>3</sup>	0.69
<p>(3) Excavation for Trench</p>	m <sup>3</sup>	4.57
<p><b>2.3 FILLING</b></p>		
<p>(1) Back filling to the excavations. Rate to include leveling of filling and achieve appropriate degree of compaction.</p>	item	1.00
<p>(2) Filling inside subsatation to achieve the proposed ground level inside substation as per the drawing.</p>	m <sup>3</sup>	2.00
<p><b>2.4 Damp Proof Membrane</b></p>		
<p>(1) Bituminous application to sides of Footings, foundation beams &amp; columns below ground level and upto 300mm above ground level.</p>	item	1.00
<p><b>BILL No: 02 - GROUND WORKS</b> <b>TOTAL OF BILL No: 02 - Carried over to summary</b></p>		



**BILL No: 03**  
**CONCRETE**

**3.1 General**

Rates shall include for cleaning, fabrication, placing, the provision for all necessary temporary fixings and supports including tie wire and other supports, laps and wastage, all reinforcement bars except 6 mm dia bars shall be of deformed high strength bars. 6 mm bar shall be round mild steel bars. Binding wire shall be of 1.6 mm or 1.4 mm soft iron wire.

Reinforcement bars shall be cleaned before use i.e. should be free from rust, oil, din, or other coatings that reduces bonds, all reinforced bars and binding wires shall be stored under cover of at least 450 mm above the ground, cutting and bending according to approved manner & the approved working drawing, placing and fixing in position and binding should be as per the approved working drawing, laps in the bars shall be staggered, concrete cover for reinforcement shall not less than 50 mm for substructure, 40 mm for columns & side beams and not more than 30 mm for slab and beam bottoms.

**3.2 Lean Concrete**

Lean concrete shall be 50mm thick & mix ratio shall be 1:3:6 by dry volume. Lean concrete placed at bottom of footing and foundation beam and below plinth for protection according to line and length mentioned in the approved drawing. Quantity measured to the edges of concrete foundation members. Rate shall include of placing any formwork where necessary, batching, mixing, casting in all required items pouring & compacting and curing for 3 days and removal of any formwork include for provision casting of required items & finishing after removal of formwork and additional concrete required to confirm to structural and excavated tolerances and rates shall include supply of all required works

- (1) TB 200x200mm (Boundary and By pass panel shed)
- (2) Voltage Stabilizer Foundation 1540x800x800mm
- (3) Trench

m<sup>3</sup> 0.45  
m<sup>3</sup> 0.10  
m<sup>3</sup> 0.35

**3.3 Reinforced Concrete**

- (1) TB 200x200mm (Boundary and By pass panel shed)
- (2) C1 200x200mm (9 Columns)
- (4) RB/CB 200x200mm
- (5) 100mm Thick Mass concrete Slab at Bypass Panel Shed
- (6) Voltage Stabilizer Foundation (1540x800x900mm)
- (7) Trench as per drawing

m<sup>3</sup> 1.81  
m<sup>3</sup> 1.44  
m<sup>3</sup> 1.74  
m<sup>3</sup> 0.97  
m<sup>3</sup> 1.22  
m<sup>3</sup> 2.16

<p><b>3.4 Formwork</b></p> <p>(a) Rates shall include for all necessary boarding, supports, erecting, framing, temporary cambering, cutting, perforations for reinforcing bars, bolts, straps, ties, hangers, pipes and removal of formwork. All materials such as plywood, shutter oils and other items and transportation to work place and secure the formwork in highly precise manner guaranteeing straight and smooth concrete edges. Cutting, fixing, bracing and oiling according to line and length as per approved working drawings removal of it after concrete has set without damaging the concrete faces.</p>				<p>16.63 28.86 26.57 4.63 30.96 1.50 6.00</p>	
	<p>(1) TB 200x200mm (Boundary and By pass panel shed) (2) C1 200x200mm (3) RB/CB 200x200mm (4) Voltage Stabilizer Foundation (5) Trench (6) 100mm Dia pvc pipe for bypass trench end (for cable entering from road) (7) 100mm Dia pvc pipe caps</p>	<p>m<sup>2</sup> m<sup>2</sup> m<sup>2</sup> m<sup>2</sup> m<sup>2</sup> m nos</p>			
	<p><b>3.5 Reinforcement</b></p> <p>GENERAL : Rates shall include for cleaning, fabrication, placing, the provision for all necessary temporary fixings and supports including tie wire and other supports, laps and wastage, all reinforcement bars except 6 mm dia bars shall be of deformed high strength bars. 6 mm bar shall be round mild steel bars. Binding wire shall be of 1.6 mm or 1.4 mm soft iron wire. Reinforcement bars shall be cleaned before use i.e. should be free from rust, oil, din, or other coatings that reduces bonds, all reinforced bars and binding wires shall be stored under cover of at least 450 mm above the ground, cutting and bending according to approved manner &amp; the approved working drawing, placing and fixing in position and binding should be as per the approved working drawing, laps in the bars shall be staggered, concrete cover for reinforcement shall not less than 50 mm for substructure, 40 mm for columns &amp; side beams and not more than 30 mm for slab and beam bottoms. (b) All reinforcing bars shall be high strength bars.</p>				

<p>3.5.1 <b><u>TB 200x200mm (Boundary and By-Pass Panel Shed)</u></b>  (1) Steel deformed bars, 12mm dia  (2) Steel ring bars, 6mm dia</p>	<p>m m</p>	<p>182.16 163.64</p>
<p>3.5.2 <b><u>C1 200x200mm (Boundary and By-Pass Panel Shed)</u></b>  (1) Steel deformed bars, 12mm dia  (2) Steel ring bars, 6mm dia</p>	<p>m m</p>	<p>144.29 129.62</p>
<p>3.5.4 <b><u>RB /CB 200x200mm</u></b>  (1) Steel deformed bars, 12mm dia  (2) Steel ring bars, 6mm dia</p>	<p>m m</p>	<p>173.36 155.74</p>
<p>3.5.3 <b><u>Voltage Stabilizer (VS) Foundation</u></b>  (1) Steel deformed bars, 12mm dia</p>	<p>m</p>	<p>86.94</p>
<p>3.5.5 <b><u>Cable Trench</u></b>  (1) Steel deformed bars, 12mm dia</p>	<p>m</p>	<p>263.74</p>
<p><b>BILL No: 03 - CONCRETE WORKS</b>  <b>TOTAL OF BILL No: 03 - Carried over to summary</b></p>		

**BILL No: 04**  
**MASONRY AND PLASTERING**

<p><b>4.1 General</b></p> <p>Rates shall include for: cleaning out cavities, forming rebated reveals and pointing and cleaning down to reveals where necessary; fractional size blocks, all necessary machine cutting, cutting or forming chases or edges of floor slabs, cutting or leaving holes and openings as recesses for and building in pipes, conduits, sleeves and similar as required for all trades; leaving surfaces rough or raking out joints for plastering and flashings, bedding frames or plates, building in joists, bearers or similar, temporary supports to openings, templates, reinforcement in walls and for all necessary making good.</p> <p>Bedding mortar (mixing ratio 1:4 i.e. cement: River sand) shall be of OPC &amp; fine aggregate shall be imported river sand shall be approved in grading &amp; clean from any harmful substance.</p> <p>Masonry work shall be done with approved cement blocks (300X150X150) with no defects. Lay in line and length as per approved working drawing</p> <p>floor slabs, cutting or leaving holes and openings as recesses for and building in pipes, conduits, sleeves and similar as required for all trades; leaving surfaces rough or raking out joints for plastering and flashings, bedding</p> <p>Rates shall include for: 25mm groove lines on external surfaces as shown on the drawing.</p> <p>Block Making (mixing ratio 1:4 i.e. cement: Local sand) shall be of OPC &amp; local (salt free) sand shall be approved in grading &amp; clean from any harmful substance.</p>			
<p><b>4.2 Cement block work</b></p> <p>(1) 150mm Thick Hollow block Masonry wall (Boundary)</p> <p>(2) 150mm Thick Hollow block Masonry wall (By-Pass Panel Shed)</p>		<p>m<sup>2</sup></p> <p>m<sup>2</sup></p>	<p>62.19</p> <p>46.53</p>
<p><b>4.3 Plastering (Both Boundary and Bypass Panel Shed inclusive.)</b></p> <p>GENERAL: Interior and Exterior: Plaster All masonry wall have smooth finishing of 20 mm thick cement plastering with mix ratio 1:4 (i.e. cement: River sand), plastering material shall be of OPC &amp; fine aggregate shall be imported river sand shall be approved in grading &amp; clean from any harmful substance. Plastic net should be provided wherever concrete surface and masonry meets, and cracks are unacceptable. Regular curing up to 7 days must be done</p> <p>Interior and Exterior: 20mm thick plastering of blockwork and all other exposed concrete members, inclusive of substructure.</p>		<p>m<sup>2</sup></p>	<p>236.20</p>
<p><b>BILL No: 04 - MASONRY AND PLASTERING</b></p> <p><b>TOTAL OF BILL No: 04 - Carried over to summary</b></p>			

**BILL No: 5  
PAINTING**

**5.0 General**

**Boundary wall** shall be of 2 coats Weather proof emulsion paint system finish on plastered and concrete surfaces of sigma or equivalent external and normal emulsion paint on internal walls. External paint should be oil based over 1 coat of Nippon/sigma or equivalent oil based sealer or equivalent. Erection of scaffolding, preparing of working platforms, applying sealer and two coats of paint as specified in the working drawings. Removal of scaffolding if any after completion of work. Rates shall include for: the provision, erection and removal of scaffolding, preparation, rubbing down between coats and similar work, the protection and/or masking floors, fittings and similar work, removing and replacing door and window and including soffits and sides of beams.

All painting work shall be carried in accordance with the Specifications

**5.1 Wall painting**

(1) Plastered surfaces of wall as per above specification

m<sup>2</sup>

236.20

**BILL No: 5 - PAINTING  
TOTAL OF BILL No: 5 - Carried over to summary**

	<p align="center"><b>BILL No:6</b> <b>METAL WORKS</b></p>		
(a) Rates shall include for ; all labour in framing, cutting, welding, cleats, baseplates, flanges,screws, nails, bends, and similar complete with grinding, surface smoothing and polish finishes.			
(b) gate - Supply, Fabrication and Fixing gates complete with Hinges, Base plates, Bolts, nuts, Washers etc including Paint Finishes. Refer drawing details			
(c) Rates shall include Fabrication of gates with 38mm dia GI pipes.			
(d) rates shall include fabrication and fixing and all other necessary provisions			
(e) Rates shall include application of redoxide paint at all welded connections,			
(f) Rates shall Include application of undercoat and epoxy paint finish on all gates, gate frames & fence frame .			
(g) gate hinges shall be embedded in concrete gate columns before casting of the columns at the right positions,			
(h) Rates shall include for: all fabrication work, welding, marking, drilling, for bolts including those securing timbers, steel plates, bolts, nuts and any type of washer, riveted work, counter sinking and tapping for bolts or machine screws.			
(i) Rates shall include for fabrication and erection and temporary supports and fixing in to position			
(j) Rates for roofing accessories, turn-ups, metal support,dowels,screws, bolts, nuts, angles, intersections, laps, and welded joints, etc. as per manufacturer's standard shall be included.			
(k) Rates for roofing sheets shall include for all cuttings and holes for pipes passing through roof, cleaning down on completion and for obtaining and furnishing necessary written guarantees.			
(l) Rates shall include for:Painting all items, fair edges, dressing over angel fillets, turning into grooves, all other labours, circular edges, nails, screws and other fixings and laps.			
<b>6.1 Metal Work</b>			
(1) Embedding 38mm dia. GI pipe to three Corner Columns of Boundary wall as per drawing. Rates shall include all provisions.		item	3.00
(2) Fabrication and Installation of MS angle brackets on boundary wall, rates shall include installaiton of Barbed Wires (STELCO will provide)		item	1.00
(3) 9mm MS sheet as trench cover. (cover size = 500mm x 400mm)		m <sup>2</sup>	5.18
<b>6.2 Roofing works and transformer area side covering</b>			
(1) Rafters (50x100mm GI RHS) at 900mm c/c		m	50.37
(2) Purlins ( 50x50mm GI SHS) at 600mm c/c		m	59.93
(3) 50mm thick Glass Wool Insulation with Aluminium foil on both sides, including PVC insulated wire mesh.		m <sup>2</sup>	34.54
(4) By-Pass Panel Shed and Voltage stabilizer area Roof - Lysaght Zinc Alum roof sheeting, including all fixings, fixed in accordance with manufacturer's instructions and as per drawings		m <sup>2</sup>	41.28
(5) Fabrication and installation of Gutter, Fascia Board and down pipes at bypass panel shed and voltage stabilizer area roof		item	1.00
<b>BILL No:6 - METAL WORKS</b>			
<b>TOTAL OF BILL No: 6 - Carried over to summary</b>			

<u>BILL No:7</u> <u>DOORS &amp; WINDOWS</u>				
<b>7.1</b> <u>GENERAL</u>	<p>(a) Rates shall include for door frames and window frames, mullions, transoms, trims, glazing, tinting, timber panels, boarding's, framing, lining, fastenings, rubber sealing and all fixings and installation.</p> <p>(b) All glazing to be with 25micron anodized aluminum in natural color finish with 6mm clear glass or as specified in the drawing.</p> <p>(c) Rates shall include for door and window jamb or as specified in the drawing.</p> <p>(d) All doors and windows shall be as specified in the drawing.</p> <p>(e) Rates shall include for all painting as specified. Rates allow for hinges , locks and door closers.</p> <p>(g) All dimensions for doors and widows shall be as per the detailed drawings.</p>			
<b>7.2</b> <u>DOOR UNITS</u>				
	7.2.1 D1 1600x2248mm as per drawing	nos		1
	7.2.2 D2 1515x2147mm Aluminum as per drawing	nos		1
<b>7.4</b> <u>WINDOW UNITS (ALUMINIUM)</u>				
	7.4.1 V1 1220x600mm Aluminum as per drawing	nos		4
<b>BILL No:7 -DOORS &amp; WINDOWS</b>				
<b>TOTAL OF BILL No: 7 - Carried over to summary</b>				

<p style="text-align: center;"><b>BILL No:8</b> <b>TENDERER'S ADJUSTMENTS</b></p> <p>(a) Provide detail description of work items under each bill and insert extra pages if required. (b) Please Provide a list of any/all items/components, tenderer believes that should be in this BOQ, but that are not listed or list to be removed. Note that the list should be inclusive of all items.</p> <p><b>6.1 Additions</b></p> <p>(1) PRELIMINARIES, Bill no. 01 (2) GROUND WORKS, Bill no. 02 (3) CONCRETE, Bill no. 03 (4) MASONRY AND PLASTERING, Bill no. 04 (5) PAINTING, Bill no. 05 (6) METAL WORKS Bill no. 6 (7) DOORS &amp; WINDOWS (8) TENDERER'S ADJUSTMENTS Bill no.7</p> <p><b><u>ADDITIONS TOTAL</u></b></p> <p><b>6.2 Omissions</b></p> <p>(1) PRELIMINARIES, Bill no. 01 (2) GROUND WORKS, Bill no. 02 (3) CONCRETE, Bill no. 03 (4) MASONRY AND PLASTERING, Bill no. 04 (5) PAINTING, Bill no. 05 (6) METAL WORKS Bill no. 6 (7) DOORS &amp; WINDOWS (8) TENDERER'S ADJUSTMENTS Bill no.7</p> <p><b><u>OMISSIONS TOTAL</u></b></p>		
<p><b>BILL No: 8 - TENDERER'S ADJUSTMENTS</b> <b>TOTAL OF BILL No: 8 - Carried over to summary</b></p>		