Tender for Supply, Installation, Testing and Commissioning of 01 No. of 160 kVA Diesel Generator Set for BTMC New Office Building Bodhgaya

BTMC OFFICE, MAHABODHI TEMPLE, BODHGAYA TENDER SCHEDULE

Issue of Tender:

01 February 2024

Last date for submission of Sealed Tender:

28 February 2024 till 4 pm

Opening of Technical & Price Bids:

28 feb 2024 at 5pm

Client:

SECRETARY

BODHGAYA TEMPLE MANAGEMANR COMMITTEE

BODHGAYA - 824231

Secretary B.T.M.C.

PART-1 (TECHNICAL BID)

NOTICE INVITING TENDER

<u>Tender for Supply, Installation, Testing and Commissioning of 01 No. of 160 kVA DG Set for BTMC New Office Building, Bodhgaya.</u>

Bodhgaya Temple Management Committee (BTMC) invites tender for Supply, Installation, Testing and Commissioning of 01 No. of 160 kVA DG Set for BTMC New Office Building, Bodhgaya, Bihar. Interested parties are requested to submit the Bids in sealed envelope for the aforesaid work as per detailed specifications and other requirements as mentioned more specifically elsewhere in this tender document.

- 2. Sealed Bids in TWO separate sealed Envelopes indicating clearly 'Envelope No.1 Technical bid' and 'Envelope No.2 Price bid', shall be addressed to SECRETARY, BODHGAYA TEMPLE MANAGEMENT COMMITTEE, BODHGAYA, BIHAR 824231 and envelops should also be super scribed "Tender for Supply, Installation, Testing and Commissioning of 1 No. of 160 kVA DG Set for BTMC New Office Building, Bodhgaya" Last date for the submission of tender is 28 feb 2024 till 5 pm Technical bid will be opened on same day at 5pm This NIT (tender document) can be downloaded from our website at https://bodhgayatemple.com/, the tender document will be available on the website, till the last date of submission.
- 3. The two envelopes must carry the following:

Envelope no. 1:

- a) "Technical bid" of tender with every page signed and stamped.
- b) An initial part amount of Rs 37,500/- (Rupees Thirty-Seven thousand and five hundred Only) towards Earnest Money Deposit (EMD) by way of DD and payable at SBI, Bodhgaya to be submitted along with "Technical Bid". The detail of account number is as follows:-

Name of the Account	Bodhgaya Temple Management Committee
Bank Name	SBI Bodhgaya
Branch IFS Code	
Account Number	

Envelope No.2:

a) Price Bid shall be addressed to SECRETARY, BODHGAYA TEMPLE MANAGEMENT COMMITTEE, BODHGAYA, BIHAR 824231.

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- b) Envelope No.2 will be opened on a suitable/same date.
- 4. Before filling up the tenders, the bidders may note the following:
- a. The bids shall remain valid and open for acceptance for 03 months from the date of opening of Envelope No.1.
- b. The tenderers must include in their tender prices quoted for all duties royalties, GST, cess and sales tax, works contract tax or any other taxes or local charges, transportation charges, installation charges, labour charges etc. if applicable. No extra claim on this account will in any case be entertained.
- c. The tender document must be filled in English/Hindi. If any of the documents are missing or un-signed in price bid, the tender shall be considered invalid.
- d. BTMC reserves the right to accept or reject any /all tender/s in part or whole of any firm / firms without assigning any reasons for doing so.

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FORM OF TENDER

Secretary

Temple Management Committee

Bodhgaya

Bodhgaya

Bihar-824231

Dear Sir/Madam

Tender for Supply, Installation, Testing and Commissioning of 01 No. of 160 kVA DG for BTMC, Bodhgaya at IBH Monks quarters Japanese Temple Bodhgaya, Bihar.

- 1. I / We have examined the Scope of Works, Specifications and Schedule of Quantities and Terms and Conditions relating to the tender for the said works after having obtained the Tender document invited by you.
- 2. I / We have visited the site, examined the site of works specified in the Tender Document and acquired the requisite information relating thereto as affecting the Tender.
- 3. I / We hereby offer to execute and complete the works in strict accordance with the Tender Document at the item rates quoted by me / us in the attached Schedule of Quantities in all respects as per the specifications and Scope of Works described in the Tender Document and the Annexures containing Terms and Conditions.
- 4. I / We enclose herewith interest-free receipt of payment of Earnest Money Deposit (EMD) for Rs 37,500/- (Rupees Thirty Seven thousand and five hundred Only) towards Earnest Money Deposit (EMD) by DD in favour of Bodhgaya Temple Management Committee, payable at SBI, Bodhgaya and the DDmust be valid for 6 months from date of tender bid.
- 5. I/ We agree to pay all Government (Central and State) Taxes such as Excise Duty, GST, Income tax etc. and other taxes prevailing from time to time and the rates quoted by me/us are inclusive of the same.
- 6. The rates quoted by me / us are firm and shall not be subjected to variations on account of fluctuation in the market rates, taxes or any other reasons whatsoever, during the currency of the contract.
- 7. Should this tender be accepted, I / we hereby agree to abide by and fulfill all the Terms and Conditions and Provisions of the said Contract Document annexed hereto.

Name of the person authorized to sign and submit the Tender

I)______

II)

Yours faithfully

PRE-QUALIFICATION CRITERIA

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Minimum Eligibility Criteria for pre-qualification of tenderers is as follows:

The Bidding Firm/Company: -

- 1. Should have at least 03 years of experience in the field of S/I/T/C of DG set.
- 2. Should have successfully completed in last 05 Year, in the field of S/I/T/C of DG set for government buildings, similar specification in premises, reputed private organizations etc.
- i. Three similar works whose value is not less than Rs.5 Lakh each of the estimated cost or
- ii. Two similar works whose individual value is not less than Rs.6 Lakh each of the estimated cost or
- iii. One similar work whose value is not less than Rs.8.00 Lakh of the estimated cost.
- 3. Work/Purchase orders and Completion certificates issued by the client should be enclosed with Technical Bid and need to be produced before BTMC, whenever called for verification purposes.
- 4. Should have annual turnover of at least Rs. 4.50 lakh during each of last three years.
- 5. Should submit income Tax Return certificates for the last 03 financial years.

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TERMS AND CONDITIONS

- 1. The Tender is strictly on Item Rate basis.
- 2. Bidders are advised to visit the site at their cost, conduct survey of existing conditions so as to familiarize themselves with the site conditions, nature of works etc. and get all clarifications as may be necessary from BTMC before quoting the rates.
- 3. Rates should include for removal of debris out of premises to the safe Municipal limits, removing stains, cleaning the site thoroughly and unless the same is done to the satisfaction of the BTMC, the bill will not be accepted.
- 4. Quantities mentioned in the schedule of quantities may vary to any extent or may be deleted without assigning any reasons and as such, the rates quoted should be firm, workable, reasonable and should include all kinds of Taxes, Duties, Work Contract Tax, GST etc. as applicable, overheads and profit etc
- 5. Rates should be filled in the Bidders Schedule of Quantity in the Price –Bid neatly and no correction shall be made. Corrections, if any should be duly authenticated by the signing authority.
- 6. Any damages caused to the building / premises during the execution of the work shall be made good by the Contractor at his risk and cost and if necessary, through suitable Insurance cover.
- 7. BTMC reserves the right to accept / negotiate / reject any Quotation either in whole or in part without assigning any reasons therefore whatsoever and without entering into any further correspondence and hence, BTMC shall be under no obligation to accept the lowest or any other Quotations received in response to this Quotation. The decision of BTMC in this regard shall be final and indisputable.
- 8. The contractor shall require shifting some of the furniture, electrical items, etc., to some other places within the office premises during the time of work and may also be required to place them in the appropriate place after completing the work. No extra payment will be made for those works.
- 9. Measurement Book: The payment for all works done and for all materials supplied shall be made on the basis of detailed measurements recorded in MBs.
- 10. Final bill: The final bill has to be submitted by the contractors as early as possible after the completion of the work along with completion of recording the final measurements.
- 11. Two or more bidders having same rate, the tender will be executed by lottery which will be valid for all.
- 12. Jurisdiction of any kind of legal dispute Hon'ble High Court, Patna.

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TECHNICAL SPECIFICATION FOR 160 KVA DG SET

Applicable standards

- 1. ISO-8528- Part-1 to 10, applicable for generating set
- 2. IS- 1000- Part-1 to 13, 1980 applicable naturally aspired engines
- 3. BS-5514-Part-5-1979, IS-13018 & BS-649 Reciprocating internal combustion engines, Performance, torsional vibrations
- 4. ISO-3046-Part-5-2001, Part-1-2002, Part-3-1989, Part-4-1997, Part-6-1990, IS 60034
- 5. IS-4889/BS-269, IS-4722-1992, IS-13364-part-1&2-19992, IEC-34-1-1983, BS 2613/1970, IS 4889, IP-21 as per IS-4691/85 applicable to Alternator
- 6. IS-8183, ISO-3744-1988 (E), ISO-8528- Part-10-1998 (E), ISO-9614-1993-Part-1, 2 applicable for acoustic enclosure
- 7. IS-2147-1962 and IS-4722 applicable for control panels.
- 8. IS-1460: Automative Diesel Fuel.
- 9. IS/IEC 60034-1: Rotating electrical machines.
- 10. ISO 9001
- 11. IS 13018: Internal Combustion Engine.

Diesel Engine:

The engine shall be the standard design of the original manufacturers. It should be 4-stroke, water cooled, naturally aspired/ turbo charged as per manufacturer standard, diesel engine developing about 80.1 BHP for giving a power rating in kVA at the load terminals of alternator at 1500RPM at actual site conditions as above. The engine shall be capable of delivering specified prime power rating at variable loads for PF of 0.8 lag with 10% overload available in excess of specified output for one hour in every 12 hours. The average load factor of the engine over a period of 24 Hours shall be 0.85 (85%) for prime power output.

The engine shall be fitted with the following accessories subject to the design of the manufacturer.

- 1. Dynamically balanced flywheel.
- 2. Necessary flexible coupling and guard for alternator and engine.
- 3. Air cleaner (dry/oil bath type) as per manufacturer standard.
- 4. Governor of class G2 and shall be self-contained unit capable of monitoring speed.

- 5. Daily fuel service tank with minimum capacity of 150Liters, fabricated from MS sheet with inlet, outlet connections, air vent tap, drain plug and level indicator (gauge), Stainless steel fuel piping from tank to engine with valves, unions, reducers, flexible hose connection and floor mounting pedestal, twin fuel filters and fuel injectors. The fuel tank shall be located inside the acoustic enclosure itself.
- 6. Dry exhaust manifold with suitable exhaust residential grade silencer to reduce noise level.
- 7. Suitable self-starter for 12 V/24 V DC.
- 8. Battery charging alternator unit and voltage regulator, suitable for starting batteries, battery racks, interconnecting leads and terminals.
- 9. Battery charger.
- 10. Necessary gear driven oil pump for lubricating oil, priming of engine bearing as well as fuel systems as per manufacturer's recommendations.
- 11. Naturally aspirated/turbo charger (as per manufacturer standard).
- 12. Lubrication oil cooler.
- 13. Lubrication oil filters with replaceable elements.
- 14. Crank case heater as per standards.
- 15. Fuel injection system to minimize the fuel consumption.
- 16. Fuel control solenoid.
- 17. Fuel pump with engine speed adjustment.
- 18. Electronic engine management control panel: fitted and having digital display for following:
 - a) Start/stop key switch
 - b) Lube oil pressure indication
 - c) Water temperature indication
 - d) RPM indication
 - f) Engine hours indication
 - g) Battery charging indication
 - h) Low Lube oil trip indication
 - i) High water temperature indication

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- j) Over speed indication
- 19. Fuel consumption: 180-200gram/bhp at 75% load
- 20. All moving parts of the engine shall be mechanically guarded with M.S. mesh guard in such a manner that a human finger cannot touch any moving part.
- 21. Radiator
- 22. Any other item not mentioned/ specified but is a standard design of the manufacturer.

De-rating of the set

The output of the DG set specified in tender shall be under the following climatic conditions and in conformity with CPCB approved type tests.

a) Outside maximum temperature: 43 degree C

b) Height above MSL: 560 Mt

c) RH: 70%

DG set should be type tested for noise and emission norms/ standards as per latest CPCB norms.

Common bed plate:

Engine and alternator shall be coupled by means of flexible coupling and both the units shall be mounted on a common bed plate (6"x4"x4" MS channel) together with all auxiliaries to ensure perfect alignment of engine and alternator with minimum vibrations. The bed plate shall be suitable for installation on suitable anti vibration mounting system.

Exhaust system:

- 1. The entire MS pipe used for exhaust piping shall conform to IS. The runs forming part of factory assembly on the engine flexible connections up to exhaust silencer shall be exclusive of exhaust piping item. The work includes necessary cladding of exhaust pipe work using 50mm thick glass wool/ mineral wool/ rock wool, density not less than 120 Kg per meter cube and aluminum cladding of 0.6mm thick for the complete portion. The exhaust pipe work includes necessary supports, foundations etc to avoid any load and stress on turbo charger/ exhaust piping. Exhuast pipe shall be run along the existing wall of the building duly clamped/supported on independent structure for which the design and drawing for such structure shall be got approved from BTMC.
- 2. The exhaust system should create minimum back pressure.

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- 3. No of bends should be kept minimum and smooth bends should be used to minimize the back pressure.
- 4. Exhaust piping inside the acoustic enclosure shall be lagged with asbestos rope along with aluminum sheet cladding to avoid heat input to the room
- 5. Exhaust flexible shall have its free length when it is installed.
- 6. Class B MS pipes and long bends to be used.
- 7. The exhaust outlets shall be in the direction of the prevailing winds and should not allow exhaust gases to enter air inlet/ windows etc.
- 8. When tail end is horizontal, 160 degree downward cut should be given at the end of the pipe to avoid rain water entry into the exhaust piping

Air system:

It is preferred to provide vacuum indicator to indicate choked filter. Maximum air intake restrictions with clean and choked filters should be within prescribed limit as per manufacturer recommendation. Genset shall be supplied with medium duty air cleaner.

Cooling system:

- 1. System should be designed for ambient temperature of 50 degree C.
- 2. Coolant should be mixed with additive in suitable proportion as per recommendation of engine vendor.
- 3. Radiator fan flow should be free from any obstructions

Fuel tank:

Fuel tank of minimum capacity of 225 ltrs shall be located at the bottom of the unit with provision for filling and fitted with gauge. The same shall be fabricated out of 3mm thick HR sheet.

Alternator:

Self-excited, screen protected, self-regulated, brush less alternator, horizontal foot mounted in single bearing construction with following specifications.

Rated PF

0.8 Lag

Rated voltage

415V

Rated frequency

10

50 Hz

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No of phases

3

Enclosure

SPDP

Degree of protection

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Ventilation

Self ventilated, air cooled

Ambient temperature

50 degree (Max)

Insulation class

F/H

Temperature rise

within limits of class F/H insulation

Voltage regulation

+/- 1 % +/- 5%

Voltage variation

Over load duration / capacity 10% for one hour in every 12 hours of continuous use

Frequency variation

+/-1% (As defined by engine governor)

Excitation

Self excited

Type of AVR

Electronic (soft)

Type of bearing and lubrication Anti friction bearing with grease lubrication

Arrangement:

Protection:

In the event of any fault due to over voltage/ high bearing temperature/ high winding temperature, or an external fault, the AVR shall remove the excitation voltage to the alternator. An emergency trip PB shall also be provided which is located outside the acoustic enclosure.

Performance:

Voltage dip shall not exceed 20% of the rated voltage for any step load or transient load. The winding shall not develop hot spots exceeding safe limits due to imbalance of 20% between any two phases from no load to full load. The generator shall preferably be capable of withstanding a current equal to 1.5 times the rated current for a period of not more than 15 seconds.

The performance characteristics of the alternator shall be as below:

Efficiency at full load 0.8 PF	Not less than 86%
Total distortion factor	Less than 3%
10% over load	1 hour in every 12 Hours of continuous use
50% over load	15 seconds

Auto Mains Failure (AMF) Panel

- 1. Engine Control panel will be provided inside the acoustic enclosure.
- 2. AMF Panel will be fabricated out of 1.6mm CRCA sheet totally enclosed, dust, damp and vermin proof with IP 42.

The same shall be equipped with following.

- 1. 1 no MCCB of suitable rating with built in thermal over load and magnetic short circuit releases, front operating handle with door interlock and shunt trip coil suitable for 230V AC.
- 2. 1 no Electronic KWH meter
- 3. 1 No electronic PF meter
- 4. 1 No electronic frequency meter
- 5. 1 No electronic earth fault relay
- 6. 1 no MCB of suitable rating for potential circuit
- 7. 3 nos Resin Cast CTs of ratio required ratio and class-1, 10 Va for metering
- 8. 3 nos LED type indication lamps for RYB indications
- 9. Push button for manual start and stop
- 10. Air break contactor of adequate rating
- 11. 1 No battery charger with all instruments and protection to charge the starting battery from external source.
- 12. The microprocessor (PLC) based engine management system module to read all the engine conditions like oil pressure, water temperature, RPM, Hour run, will be fixed in this panel with

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required internal cabling from engine. Any abnormal condition should trigger and followed by tripping of the engine. This also will have AMF logic to sense Mains supply and give command to start and stop the engine with time delay and auto manual switch.

Starting battery

100-120 Amh battery shall be as required at 24/12V DC. Batteries supplied with DG set shall be dry and uncharged. The same shall be charged by authorized people before same is connected to DG set. Initial charging shall be done for 72-80 hrs. The batteries shall be placed on stands and relatively cool place inside the acoustic enclosure.

Platform for mounting of DG set:

A PCC foundation platform (1:2:4, M-20 grade) of weight 2.5 times of the operating weight of DG set and of approximate depth of 200 mm below ground surface and height of 150mm above ground surface is required so as to provide leveled surface for placement of the acoustic enclosure. The length and breadth of the platform shall be at least 250mm more than the size of the enclosure. Genset shall be mounted on AVMs inside the enclosure. The platform levels to be checked diagonally as well as across the length for even flatness. The platform shall be within +/-0.5 degree (angle) of any horizontal plane. The contractor shall submit the drawings for our approval before proceeding with the work

Guarantee:

All equipment shall be guaranteed against unsatisfactory performance and/ or break down due to defective design, workmanship or material for a period of 12 months from the date of taking over the installation by BTMC. The equipment or components or any part thereof, so found defective during the guarantee period shall be forthwith repaired or replaced free of cost to the entire satisfaction of the client. In case it is felt that undue delay is being caused by the contractor in attending the defect/fault removed, the same will be got done by BTMC at the risk and cost of the contractor. The decision of BTMC in this respect will be final.

Secretary Secretary

MAKE OF MATERIALS

Sr. No.	Description	Make-1	Make-2	Make-3 Make-4		
1	MCB	Legrand	L&T	Schneider Havells		
2	MCB DB	Legrand	L&T	Schneider Havells		
3	МССВ	L&T	Havells	Siemens Legrand		
4	LED indication lamps	Technique	Schneider	Siemens L&T		
5	Electrical and control Panel/ AMF	Reputed make approved by BTMC				
6	Resin cast CTs	Карра	A.E.	L&T		
7	Power cables	Polycab	Kei	Havells G		GEMSCAB
8	PVC Insulated copper wire	Polycab	Havells	Finolex		
9	Contactor	Legrand	L&T	Crompton		Siemens
10	DG set(Soundless)	Kirloskar				
11	Engine	Kirloskar				
12	Alternator	Kirloskar				
13	Cable Glands	Comet	Braco	Reputed make approved by BTMC		
14	Cable lugs	Dowell	Reputed make approved by BTMC			
15	Meters	Rishab	Trinity	Schneider AVE		AVE

NOTE: Makes mentioned above are only tentative and prior approval of all equipment/items shall be taken from BTMC before supply at site. Contractor may supply equipment of any other make not mentioned above with the prior approval of BTMC.

Secretary Secretary B.T.M.C.

Makes offered by the tenderer

Sr No	Description	Make offered
1	MCB	
2	MCB DB	
3	MCCB	
4	LED indication lamps	
5	Electrical and control panel	
6	Resin cast CTs	
7	Power cables	
8	Insulated copper wire	
9	Contactor	
10	DG set	
	Engine	
	Alternator	
11	Cable Glands	
12	Cable lugs	
13	Meters	

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CHECK LIST FOR SUBMISSION OF BID

1	Name of firm/Contractor
2	Registration No.
3	EMD
4	PAN
5	Income Tax Clearance
6	ESIC No.
7	Sale Tax Certification (GST)
8	Character Certificate
9	Affidavit of debar/blacklisting
10	Work Experience
11	Makes offered by tenderer

NOTE: Documents, which are required to be submitted for the subject job, which are specifically mentioned in the Bidding Document.

SIGNATURE OF BIDDER	:
NAME OF BIDDER	:
COMPANY SEAL	:

Secretary Secretary B.T.M.C.

PART-2 (PRICE BID)

BILL OF QUANTITIES

<u>Tender for Supply, Installation, and Testing and commissioning of 01 No. of 160 kVA DG Set for BTMC New Office Building, Bodhgaya.</u>

	BILL OF QUANTITY					
Supply, Installation, Testing and Commissioning of 01 No. of 160KVA DG Set for BTMC New Office Building, Bodhgaya						
S. No.	Item	Unit	Qty	Rates in Rs.	Amount in Rs.	
1	Supply, Installation, testing and commissioning of (Soundless)160KVA Dg , AMF panel and necessary equipment, acoustic enclosure	Set	1			
2	Civil foundations, Shade and all other accessories as per technical specification.	Set	1			
3	Providing earth station with copper plate 600mmx600mmx3mm with chamber and funnel, water pipe including supply & laying of 50x6mm copper earth strip up to the test point as directed.	No	3			
4	Supply and fixing of 25mm x 3mm copper earth strip with required materials such as clamps, screws, spacer and with proper joints and connections with chromium/Nickel plates nut and bolts complete as directed. (for body, LT Panel and equipment earthing)	Mtr	20			
5	Supply and fixing of 50mm x 6mm copper earth strip with required materials such as clamps, screws, spacer and with proper joints and connections with chromium/Nickel plates nut and bolts complete as directed. (for neutral earthing)	Mtr	10			

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6	Preparation of necessary electrical and physical layout drawings of DG set and ifnecessary, submission of same to the local electrical inspectorate or any other statutory authority for their approval and arrange for inspection of the installations by the competent authorities and rectification of any defects at free of cost and submit approval for running of DG set and installation to BTMC	Job	1	
7	Supplying, laying down, connection, testing and commissioning of aluminum cables of 185sq mmarmored for connection from DG set/Main Distribution panel to required electrical points etc. complete with all accessories as per detailed scope of work and as per direction of the engineer in charge depending on the requirement of the site to complete the work in totality. Cable to be lay in underground/open/casing etc. as per site requirement and complete with proper termination at both ends.	Mtr	200	
8	Supply and installation of exhaust pipe with required Dia M.S. class "B" pipe including hardware like flange, bends, bolts, and nuts, gasket, supportetc. as required at the site	Mtr	10	
9	Testing and commissioning charges along with supply of diesel	Job	1	
10	Monthly AMC charges for new 160kva DG set at New Office Building after defect liability period. The rate quoted for AMC shall be fixed for the period of 3 years.	Job	1	
11	Supply, installation, testing of 400AmpATS embedded/separate with 200 Amp copper bus bar box, 4 core	job	1	
-	Total:			

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Note:

- 1. AMC charges should be quoted for 1 year only in sr. no.10 in the price bid.
- 2. The rates quoted for Annual Maintenance Contract shall be fixed for 3 years and no change in the AMC charges shall be made whatsoever.
- 3. Above rates shall include GST, all applicable taxes, fees, duties, levies, transportation charges, insurance charges, installation charges, material charges, labor charges and all other charges required for the successful completion of work.
- 4. Price Bid shall not contain any condition whatsoever and any conditional bids shall be rejected.

Mules Secretary B.T.M.C.