

No 23-69 /2012 /HOD /Engg. Cell /Civil
FOREST RESEARCH INSTITUTE
(ICFRE), P.O. New Forest Dehra Dun

NOTICE INVITING TENDER

Dated:- 15th Sept. 2012

Sealed tenders are hereby invited on behalf of Director Forest Research Institute Dehra Dun for the following work from reputed . Authorized dealer of Generator set having experience for providing doing similar type & cost of the work in Govt. organizations on contract basis. Tender will be received up to **2.30 PM 5-10-12** and will be opened on the same day at 3.00 P.M. in presence of tenderers or their authorized representative if any.

S l. N o	Name of Work	Estimated cost. Rs. in Lacs	Earnest Money Rs.	Last date of receipt of application for tender	Date & time of issue of tender form	Cost of tender form	Period of comple tion
1	Provision of 630 KVA Diesel Driven Generator set for ICFRE, Main Building FRI, experimental area at FRI.	57,22,000 /-	1,14,400/-	01-10-12 up to 5.00 PM	04-10-12 at 5.00 PM.	500+ 13.5% VAT	20 Days

1. The rates must be quoted in ink, in prescribed tender form only, obtained from Engg. Cell FRI.
2. No enclosure should be attached alongwith the tender form . Enclosures will not be considered
3. Tender document shall be obtained on producing Demand draft of tender cost favoring to Account officer FRI as maintained in table.
4. Earnest money must be enclosed with tender as shown table in the form of CDR/ DD pledged to Accounts Officer FRI.
5. Attested copies of the following documents should be enclosed along with the application for the tender form.
 - (i) Valid Authorized dealership of reputed manufacture of Diesel generator set.
 - (ii) Valid Income Tax clearance Certificate or PAN.
 - (iii) Up to date balance sheet of the firm.
 - (v) Undertaking of Annual financial turnover which should not be less than **1.5 Crore** during last financial year duly verified by C.A.
 - (vii) Experience certificates of similar type of one work 500 KVA DG set or two works of 380/400 KVA DG set during last three financial year.
 - (ix) Application without attested copy of the document will not be consider for issuing Tender form.
6. The above documents enclosed with the application will be thoroughly scrutinized by the technical evolution committee on **03-10-12 at 11.00AM** and tender will be issued only to those contractors who will be recommended by the said committee.
7. Incomplete tenders/tender without earnest money will be rejected.
8. Rates should be inclusive of all taxes.ie. ST, CST, VAT.etc.
9. Payment will be made only after successful completion of the work.
10. Tender notice may be seen on website www.icfre.gov.in & [http:// fri.icfre.gov.in](http://fri.icfre.gov.in).
11. Detail particular specification and special condition can be seen/ downloaded for the website icfre.
- 12..The Director FRI reserves the right to issue, accept or reject any or all the tenders without assigning any reason Whatsoever.

**HEAD
ENGINEERING CELL**

FOREST RESEARCH INSTITUTE.

Name of work :-Tender for Supply, Installation, Testing and Commissioning of 630 KVA DG Set at the Forest Research Institute

Tender Notice

On behalf of Director FRI, sealed Tender are invites on “TURN KEYBASIS” in two part system for the above work, as per the enclosed specification, list of material and as per the terms and conditions spelt out in this notice. You are requested to inspect the site and the nature of work prior to submitting the tenders. **The first Part of the Tender will form the Earnest Money Deposit.**

The second part will form the price bid. The rates should be valid upto 90 days from the date of opening of the tender. Also the rates should be inclusive of all taxes and duties for Supply, installation, maintenance during currency of the contract.

As per Tendering schedule pre-bid meeting for the technical bidding will be held on 03.10.12 at 11.00 AM in the chamber of Head Engineering cell FRI , Dehra Dun .

A. Submission of Tender:

Tenders in sealed cover superscribing “**Supply, Installation, Testing and Commissioning of 630 KVA SILENT DG SETS at Forest Research Institute , Dehradun**” as mentioned on the cover page (page no. 1) of the tender and quoting the reference number of the letter forwarding this notice should reach the office of, Head Engineering Cell latest by 2.30 p.m. on 05 Oct. 2012 . Separate envelop to be used for each part.

The first part will form the Earnest Money Deposit, second part will form Technical Bid and the third part will form the price bid. **The rates should be valid upto 90 days.** Also the rates should be inclusive of all taxes and duties for supply, installation, maintenance and operation at any place.

All entries in Tender document must be made in ENGLISH. It must be hand written in INK and must NOT be typed.

NOTE: 1) The contractor / tenderer means the person / the firm / the agency who is participating in the contract bid which shall also include their Legal Representatives, Successors, Hirers and Assignee of the firm.

2) *Engineer-in-charge means, the Engineer/ advisor/ consultants/ specialized agency/ person appointed by the FRI And Services Ltd who will be supervising the work, certifying the bill and who will also be responsible for the entire project. For this work the Engineer in-charge is*

b) As far as possible correction in the tender documents to be avoided. However in case of any correction, the same should be authenticated by the person who is signing the Tender. Over writing on the tender document is not permitted.

c) The Tender should be forwarded in the official letterhead of the tenderer

*d) The Earnest Money Deposit in the form of the Demand Draft should be placed in a separate envelope along with the tender duly marked as, " **Earnest Money Deposit** for the Work of Supply, Installation, Testing And Commissioning of DG Set In FRI.*

*e) The Price schedule indicating "Work contract" price for the job quoted by you should be enclosed in second envelope which should be clearly marked in bold letters "**Price schedule** for the Work of Supply, Installation, Testing And Commissioning of DG Set for FRI, Dehradun.*

*f) On these two sealed envelopes the Name of the job and your firms name should be clearly indicated. All the three sealed envelopes should be properly closed in the cloth bound sealed envelop. **The same shall also be submitted duly sealed with all entries on the envelope filled in and signed properly.***

5. The complete Tender documents (duly signed tender conditions, specification, priced bill of quantities etc.) Shall be addressed to Head Engineering Cell and reach the office on or before date fixed and notified in the tender document.

6 The Tenders will not be received after the due date and the time fixed. However, if the Director FRI. desires to extend the time limit, it will do so by informing all the tenderers either before the due date and time fixed for submission or after the due date and time.

7 In case the due date for submission / opening of the tender is declared as a public holiday in the State, (where the tender document is to be submitted), the time limit will be automatically changed to the next working day at the same time.

8 In case, the tenderer does not wish to quote for the work, the same should be informed to Head Engineer Cell over letter / fax addressed to Head Engineering Cell FRI or before the due date of submission of the Tender. **The blank Tender also must be returned to the FRI , Dehradun.** The technical specification, design and all other contents of the tender documents are patent and the same should not be reproduced without the prior permission of the Head FRI Engineering Cell. The payment made to A.O. FRI towards the cost of the tender document is not refundable.

9 Head Engineering Cell Shall take no responsibility for delay or loss or non-receipt of tenders after dispatch, by the tenderer.

10 The tenderers are advised to hand over the duly filled tender directly to the office of The office of Head Engg. Cell or ensure that the tender reaches the office before the due date fixed for submission of the tender.

11 The tenderers are requested to inspect the site of work and acquaint about the site conditions and rules and regulations before quoting the rates. For this, the officials of Head Engg. Cell may be contacted to make the arrangements.

12 The rate quoted should be inclusive of the cost of materials, labour, transportation, Sales Tax, Excise Duty, Cess, Sales Tax on works contract, VAT or any other expenditure that may be incurred during the course of work.

13 The tender should be submitted strictly as per the terms & conditions spelt out in the tender notice. The tenderer should not make any alteration in the terms & conditions, drawings, specifications etc. In case of any alteration the tender may be considered as invalid/void.

Criteria for Pre-qualification of contractors and Evaluation of Performance

The tenderer shall fulfill any of the following condition to get pre-qualified in the tender ;

a. Three similar completed works (at least one of them should be in Central Government / Financial Institutions / Public Sector undertaking) costing not less than the amount equal to 40% of estimated cost i.e. Rs.23,00,000.00 *in the last seven years ending the last day of the month previous to the one in which the tenders are invited.*

b. Two Similar Works (at least one of them should be in Central Government / Financial Institutions / Public Sector undertaking), costing not less than the amount equal to 50% of the estimated cost i.e. Rs. 29,00,000.00 *in the last seven years ending the last day of the month previous to the one in which the tenders are invited.*

c. One similar work of aggregate cost not less than the amount equal to 80% of the estimated cost i.e. Rs. 46,00,000.00 *in the last seven years ending the last day of the month previous to the one in which the tenders are invited.*

Important :

The bidders are required to attach a relevant certificate/Work order from the authority from whom the work is carried out.

B. Opening of the Tender:

1. The sealed tenders will be opened in the presence of the authorised official of the Forest Research Institute on the day as specified on the tender notice.

2. Intending tenderers who wish to be present at the time of opening of tenders may be present at the office of Head Engineering Cell , FRI , Dehra Dun on the day fixed for opening of the tender. Only the cover containing Earnest Money shall be opened first and the cover containing over riding conditions etc. shall be opened after opening the envelop of Earnest money. **Without earnest money tender shall be rejected.**

C. Acceptance of the tender:

1. The rates quoted by the contractors should be valid as specified in the cover page.
2. Director FRI. reserves the right to accept / reject summarily any / all tenders in whole or part thereof without assigning any reason whatsoever and also does not bind itself to accept the lowest or any other tender.
3. It will be open to FRI to negotiate the terms including the rates quoted with the lowest tenderer. The negotiated price by FRI will be the contract value and work order will be placed for the said amount.
4. The tenders for the work shall remain for acceptance for a period as specified on the cover page or the period that may be extended by mutual agreement and the tenderers shall not cancel / withdraw the tenders during that period.
5. Each tenderer must submit an Earnest Money Deposit of Rs. 1,14,400/- (Rupees One lac fourteen thousand four hundred only) in the form of a Demand Draft in favour of A.O. FRI. Payable at Dehradun drawn on any Nationalized bank / Scheduled Bank (and which shall not bear any interest). The Demand Draft should be placed in a separate envelope along with the tender duly marked with details. No tender will be received without EMD in separate cover. The EMD will not carry any interest. In case of failure on the part of the contractor for commencement of work / delay in execution of the project, the said amount will be forfeited.
6. The Earnest Money will be returned to the unsuccessful tenderer after the intimation of rejection of the tender is sent. The Earnest Money will be retained in the case of the successful tenderer and will get converted as a part of Security Deposit for the due performance of the contract.
7. Earnest Money Deposit will be forfeited, if the contractor:
 - a. Revokes the tender or increases the earlier quoted rates within the validity period.
 - b. Refuse, delay to sign and execute the contract after tender is accepted.
 - c. Does not commence the work within the time specified in the letter of intent/work order or 7 days from the issue of such letter, whichever is later.

8. The tenders will be rejected if ;
 - a. If the contractor does not quote any of the item / sub-item in the tender
 - b. If the contractors makes the correction in the rate while quoting and not countersigned duly stamped at that particular item of work.
9. The tender which does not fulfil any of the prescribed conditions will not be accepted.
10. Canvassing in connection with the tender is strictly prohibited.

D. Execution of Work :

1. The work should commence *within the period specified in the tender notice* from the date of the award of work order or the date that may be indicated in the work order. Accordingly, date of commencement of the work will be reckoned from the day as specified in the tender notice.
2. The *work should be completed as specified on the tender notice calculated* from the date of commencement of the work or within the time limit that may be indicated in the work order.
3. Time allowed for execution of work, as specified in tender, shall be the essence of the contract.
4. If the tenderer commits default in commencing the work, as required by the work order and found that the date stipulated cannot be adhered to, Head Engineering Cell shall be entitled without prejudice to any other rights or remedies available may terminate / rescind the contract.
5. If the tenderer fails to carry out the work within the stipulated time mentioned in the work order, the Director will have liberty *to impose penalty @ 2 % of the total contract value per week* of delay subject to an overall limit of 10 %, without prejudice to other remedies available.

The tenderer has to pay to A.O FRI such amount that may fall short over the amount due to them, if any.

6. However, if Head Engineering Cell is convinced that the delay in execution of the work is beyond the circumstances created by the tenderer, they may award extension of the same to the extent they feel justified based on the request of the tenderer. In such case liquidated damages will be levied for the balance period, if any as provided as per the condition of the tender.

7. If the tenderer fails to commence the work within the days as specified on the cover page from the date of receipt of intimation for commencement of the work and / or the contractor fails to show progress in execution of work and Head, Engineering Cell feels the work cannot be completed within the stipulated time, Head, Engineering Cell will have the right to terminate the contract by **giving three days notice** to the contractor, at the full discretion of Head, Engineering Cell and the decision of FRI will be final and binding. In case of termination of the contract, the payment if any, due to the contractor will be released only on completion of the entire project. The amount that may be spent for completion of the balance work will be recovered from the contractor. It will be the full discretion of Head, Engineering Cell to carry out the balance work through any agency at any rate as per the specification.

8. All the *materials and workmanship* shall be of the kind described in the schedule of quantities / specifications and in accordance with relevant BIS/ISI codes and as per directions of the Engineer-in-charge.

9. The tenderers shall submit photocopies / originals of vouchers / challans etc., for verification of actual purchases of any material, if so, desired by the Engineer-in-charge.

10. The tenderer shall have to carry out testing of all materials brought on site at their own cost in any institute / laboratory / site of works as desired by the Engineer-in-charge. No extra claim will be entertained for such testing of materials.

11. The tenderer shall not at any time do, cause or permit any nuisance on the site/ do anything which shall cause unnecessary disturbances or inconvenience to the occupants / visitors at site or near the site of work.

12. The quantities indicated in the bill of quantities are approximate and the quantities may vary as per the site conditions / requirements. The rate quoted should be firm for the deviated quantities of work also.

13. The tenderer's workers will not be allowed to stay at the work site.

14. The tenderer or his workers can use the common facilities such as drinking water, toilet etc., provided at the premises. However, it should be ensured that the same should be kept in hygienic condition.

15. Water and Electricity as per the availability at site can be made use of by the contractor. If not available the contractor has to arrange it on his own.
16. In case of any damage to the existing structure, the tenderer should rectify the same free of cost up to the satisfaction of the Engineer-in Charge.
17. Director FRI will have the liberty to modify the design to a reasonable limit. No extra charges will be paid for execution after such modification.
18. The tenderer should protect the work till its completion and handing over against any possible damage, theft, scratches, etc.
19. The tenderer has to make arrangements for cleaning the work site every day and on completion of the work from the work area at his cost.
20. The tenderer should provide samples of the materials for approval of Head Engineering Cell and the samples will be kept in the custody of the Engineer-in-charge.
21. Wherever possible the work has to be carried out at the factory of the contractor and the items to be transported to the site.
22. The tenderer should make necessary arrangement for inspection of the items made at his factory / work place by the Engineer-in-charge. The tenderer should complete fabrication and other works at factory and only assembling work and the finishing may be carried out at the site.
23. The tenderer should abide by the rules and regulations for the premises especially on the working hours, entry to the workers to the premises, interpersonal relation with the staff members and other agencies engaged at the site.
24. The tenderer should make necessary arrangement for covering of all the furniture items/ records, if any of the client with cover / cloth during the course of work.
25. The tenderer should arrange a qualified (minimum diploma holder) technical supervisor at site during the course of the entire work. The tenderer should not change the supervisor till completion of the work. The supervisor should be available at site when the work is in progress.

26. Any damage / loss to FRI Assets will be rectified at the cost & risk of the contractor.

27. The workmanship should be of high quality / standard and the decision of the Engineer- in charge / Consultant shall be final in the regards.

28. The tenderer should not apply primer / putty work / paint or any other finishing material before inspection and certification of the wood work by the Engineer – in – Charge.

29. The tenderer should not engage any person prohibited by the law for execution of the job.

30. The tenderer should carry out the work strictly as per the specification and as directed by the Engineer-in- Charge.

31. All the materials proposed to be used should have the approval of Head, Engineering Cell.

32. The materials required for the work **should be purchased only from the manufactures directly or from the approved dealers.** Confirmation for the same may be submitted if so desired.

33. The tenderer should strictly follow the approved colour scheme. The colour scheme will be intimated to the contractor within a week from the date of issue of the work order. However Director FRI has the liberty to make any other modifications as per requirements.

34. The tenderer should make his own arrangement for storage of materials. Head Engg. may provide some space subject to availability (uncovered) within the premises for storage purpose. Materials only as per requirement are to be stored at site. Security for the material such stood/lying at site will be arranged by the contractor.

35. Any damage / loss will be rectified at the cost & risk of the tenderer.

36. The tenderer has to maintain a book for instructions from the Engineer-

E. Payments :

1. The final bill will be released on satisfactory completion of the entire work and on completion of all the terms and conditions / obligations spelt out and on proper submission of the bill together with the measurements and final payment will be made.
- 2.. The Security Deposit will be refunded after the defect liability period of *12months*.
3. Income Tax, Sales Tax on Work Contract, VAT, Cess and / or any other Statutory deductions as per the prevailing rules at the time of execution will be deducted from the payable amount for which certificate will be issued in favour of the tenderer.
4. Tenderer will not be entitled to any interest on Retention Money or any Running account bill money for the time it will remain with the A.O.FRI.
5. The items of works as well as the approximate quantities against these items as given in the schedule of *quantities and the same should not be considered precise quantity of works to be carried out*. The tenderer shall be paid on the basis of the actual quantity of completed work as per the provisions of the contract and as per the specifications.

F. Defect Liability Period:

1. Defect Liability Period as per the terms of the contract is *12 months* from the date of virtual completion of the work. The work will be considered as virtually completed only when the tenderer completes the entire work as per the specification and joint inspection of work by the Engineer-in-charge and tenderer.
2. The ***Security Deposit*** will be refunded only after the defect liability period of *12 months* and rectification of the defects occurred whether pointed out in inviting or not. It will be the duty of the contractor to inspect the site for defects and rectify the defects within the defect liability period.
3. During the course of Defect Liability Period the tenderer has to rectify all the defects, if any, noticed free of charge.
4. In case the tenderer fails to attend the rectification work within 7 days of reporting the same inwriting, Director FRI will have the liberty to carry out the

said work through some other contractor at the cost & risk of the tenderer. Such expenditure incurred to the client will be recovered from the Security Deposit. In case any expenditure incurred is more than the Security Deposit, the tenderer should pay the difference that may fall short.

5. While carrying out the rectification work, the tenderer should ensure that the surroundings should be protected against any possible damage. In case of any damage, the same should be made good by the tenderer.

G Statutory obligations to be followed:

1. The tenderer should ensure adherence of all statutory requirements under the State and Central Rules in force and other local bodies for smooth and timely completion without any additional cost.

2. The tenderer shall comply with the provisions of all the rules and regulation in respect of labours engaged at site (such as Contract Labour {Regulation & Abolition} Act, 1970, Minimum Wages Act, Apprentice Act and all other labour laws as may be enforced from time to time by the Government Authorities) for execution of work, procurement of material for completion of the entire project. Head Engineering Cell shall not be held responsible for any penalty on failure of any of the labour regulations or on failure of any compliance of any rule in force.

3. The tenderer shall strictly comply with the provision of Sales Tax (both State & Central), Excise Duty, etc. All the duties / taxes with respect to the work should be borne and paid by the tenderer himself. Head Engineering Cell shall not be responsible for any payment/ penalty on this account at any stage.

4. The goods are manufactured at the tenderers office / site, the tenderer has to pay Central Excise and he has to produce Excise Invoice Copy for removal of goods from the manufacturing site. In case the goods are manufactured or produced at the site then Excise Invoice showing that the Central Excise has been paid should be submitted to Head Engineering Cell.

5. The tenderers should submit an affidavit / Declaration on payment of Central Excise as per the enclosed format.

6. The tenderer should also submit when required, a copy of the declaration filed with the Central Excise for the last financial year.

7 . The tenderers are required to take *Contractor's All risk insurance policies* (CAR Policies) with respect to the work within one week from the receipt of the work order and the workmen with an approved Indian Insurance Company in the joint name of Head Engineering Cell and the Tenderer from the day of commencement of work till the defect liability period.

8. The value of the work to be insured would be 125% of the contract value.

9. The CAR policies should have additional coverage under 3rd party liabilities and maintenance period. The liabilities should be one lakh rupees per accident and the number of accidents should be infinity. The maintenance period shall be the defect liability period as per the terms of the contract. The photocopies of the premium receipt and the policies should be submitted to Head Engg of Engg. Cell.

10. The tenderer has also to insure their workers under Workman's compensation Act- 1923.

11. HOD will have the right to protect its interest either by taking insurance directly or by any action that may deem fit on account of the tenderer and recover the same from the tenderer incase the tenderer fail to do so.

H. Responsibilities of the tenderer

1. The tenderer should enter into an agreement as per the articles of agreement on stamp paper attached with this notice within 7 days of issue of acceptance of the tender.

2. The tenderer shall not sublet the work without written approval from Director FRI.

3. The tenderer should co-ordinate with all the other contractors for execution of the project.

4. The tenderer should set out the layout at site before commencement of work and obtain approval to the same from Head Engineering Cell.

5. The contractor should arrange for sufficient light & power point required for entire project at his cost.

6. The tenderer should clear the site within 7 days of virtual completion of work of all material not paid for.

7. The tenderer should take adequate precaution against fire hazard at site. The tenderer should ensure that all fire safety measures are taken during execution and that the work carried out is as per the fire safety norms of the local Fire office.

8. The tenderer should arrange scaffoldings / ladders for proper execution of work, also to ensure safety of the workers as per the relevant provisions of the law.

10. The tenderer should submit rate analysis for the extra/deviated items of work before commencement of the work.

11. The tenderer should submit samples of the material proposed to be used for the approval of such as UG cable, ACB, vibration , pods etc.

12. The tenderer should prepare mock-up of the items for the approval of the Head Engineering Cell and as per the advise of HOD, the contractor has to modify the mock-up samples till it meets with the approval of the HOD The expenditure that may be incurred for making the mock-up samples should be included in the respective items of work.

13. In case the tenderer is a partnership firm, any change in the constitution of the firm shall take place only with the prior approval of HOD Engg. Cell during the contract period.

14. The tenderer should submit shop drawings for all the items for the approval of HOD Engg. Cell before execution of each item of work.

15. The tenderer should remove the rejected work / materials immediately on receipt of instruction to do so.

16. The tenderer has to ensure safety of the premises and the work till handing over of the same to HOD Engineering Cell.

17. The tenderer should submit the As-built drawings of the entire work together with the Final bill.

18. All disputes/ differences, if any, arising between the parties out of or relating to the works, meaning or operation or effect of this Contract or the breach thereof will be settled by two Arbitrators, one each appointed by the tenderer and FRI in accordance with the rules of Arbitration of the Indian Council of Arbitration and the award made in pursuance thereof shall be binding on both the parties.

- The special conditions annexed with this notice has to be strictly followed.
- This notice shall form part of the contract.

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Summary		
	Time of Completion	20 days from the date of commencement of work
	Date of Commencement of work	Within 7 days from the date of issue of work order
	Liquidated damages	2 % of the total contract value per week subject to the maximum of 10 % of the contract value
	Minimum Value of work for interim certificate	Not Applicable
	Validity of the offer	20 days from the date of opening the tender. Security Deposit
	Sales Tax, Excise duty, Royalty, Octroi, Work contract tax or any other statutory levies / Taxes / Cess.	To be entirely borne by the Contractor. The amount quoted shall be inclusive of all the taxes, VAT, duties and levies valid for the entire contract period. The rates to be all inclusive.
	Insurance policy	1.CAR policy with value of 125% of the contract value

		2.Third Party Insurance – Rs.1 Lac per accident and no. of accidents infinite.
	Defects Liability Period	12 (Twelve) months from the date of virtual completion / handing over.
	Terms of Payment	Only fund payment will be made at for settlement completion.
	Deductions	Income Tax at source as per Income Tax Rules Sales Tax / Works Contract Tax/ Commercial Tax as applicable in the statement. Cess applicable as per the local rules Any other Levy/Cess/Tax to be deducted at source by law.

I / we hereby agree and accept the above terms and conditions.

(Seal)
For (Name and address of the Contractor)

Signature of the Tenderer
For (Name of the Contractor
And Designation)

Annexure-I

(On Rs.100/- non-judicial stamp paper by the successful bidder)

From: The Contractor

To: Head Engg. Cell FRI , Dehradun

Dear Sirs,

We refer to the tender dated _____ for _____ at the premises at

_____. We hereby confirm that we have complied with all formalities in the performance of our Contract for the supply of goods and services under all statutes governing the same, Central, State or Local. We further confirm that we have paid all taxes and duties including sales tax and excise duty in respect of the goods and services supplied to you and undertake to be responsible for the same.

We agree to indemnify and keep you indemnified against any claim or demand and all loss, costs, charges and expenses incurred or suffered by you as a result of any claim being made by any person in respect of our obligation under the said tender for payment of taxes, duties or otherwise.

Yours truly,

Date : _____

**SIGNATURE OF CONTRACTOR
WITH RUBBER STAMP**

Annexure - II

(On Rs.100/- non-judicial stamp paper by the successful bidder)

From : The Contractor

To: Head Engineering Cell FRI Dehradun.

Dear Sirs,

We / I refer to the tender / contract dated _____ for supply of goods and services to you at your premises at _____. We / I advise that, we / I are / am covered under the exemption limit prescribed by the Central Excise Act 1944 and no Excise is payable by us / me on the goods and services supplied to you. We / I further confirm that we / I have complied with all the formalities in the performance of our contract for the supply of goods and services and under all statutes governing the same, Central, State or local.

We / I undertake that if any taxes and duties including sale tax and Excise duty in respect of goods and services supplied to you by us / me is payable, the responsibility of paying the same shall be our / mine.

We / I agree to Indemnify and keep you Indemnified against any claim or demand and all loss, cost, charges and expenses incurred and suffered by you as a result of any claim being made by any person in respect of our / my obligation under the said tender / contract for payment of taxes, duties or otherwise.

Yours truly,

Date: _____

**SIGNATURE OF TENDERER
WITH RUBBER STAMP**

ARTICLES OF AGREEMENT

(On Rs.100/- non-judicial stamp paper by the successful bidder)

ARTICLES OF AGREEMENT made at Mumbai this ____ day of _____, 2012 between ____ part) and _____ (name and address of the contractor) (hereinafter called the 'Contractor' of the other part).

WHEREAS the consultant is desirous of carrying Supply, Installation, Testing and Commissioning of 630 KVA SILENT DG SET at the Office premises DG set room) Engg. Cell of FRI and has prepared drawings/specifications the Schedule of Quantities.

AND WHEREAS the contractor has agreed to execute upon and subject to the conditions and instructions set forth herein (hereinafter referred to as the 'the said conditions') the works shown upon the said drawings and/or described in the said specifications and included in the said Abstract Schedule of Quantities at the item rates therein set forth amounting to the contract sum of Rs. _____/- (Rupees _____ only) hereinafter referred to as 'the said contract amount'.

NOW IT IS HEREBY AGREED AS FOLLOWS:

4. This Contract comprises:

(i) Tender documents serial pages ____ to _____.

(ii) Subsequent correspondence:

(a) Letter no. - _____

Signed by the Contractor:

Signature: _____

Date:

In the presence of:

Signature: _____

Name: _____

Address: _____

Date:

For and on behalf of

UTI Infrastructure And Services Ltd.

Signed by -----

Name: _____

Address: _____

Date:

In Presence of:

Signature: _____

Name: _____

Address: _____

FOREST RESEARCH INSTITUTE

Name of the work	Tender for Supply, Installation, Testing and Commissioning of 630 KVA DG Set at ICFRE ,FRI.
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Special conditions of the contract

- 1. FRI interpretation of the design and the specifications mentioned in the entire document shall be final and without appeal. In case of Errors or inconsistency, if any discovered in the drawing and specifications, FRI interpretation shall be final and without appeal.**
2. The contractor will not subletting the Head Engg . for job to any specialized agency if the same is to a specialized agency.
3. In case Head Engg. Cell rejects a particular work the tenderer shall remove the same within two days and no payment shall be made for such work.
4. The Contractor has to take all safety measures with regard to the workmen employed as per relevant laws and good engineering practices at site and safety measures against the fire hazard.
5. The contractor has to make necessary arrangement for internal lighting at the site.
6. The contractor has to carry out the job strictly as per specification spelt out in the bill of quantities, the drawings, instructions that may be issued by the Engineer-in-charge and the specification of the Bureau of Indian Standards, National Building Code etc.
7. In case of any discrepancy between the specifications and the drawings, the details mentioned in the specifications / Bill of quantities may be taken as final.

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PREAMBLE TO THE BILL OF QUANTITIES

The premises are proposed to be provided with Furnishing, civil, Electrical and LAN cabling works. The quality of work proposed should have *the best* workmanship. The contractor should ensure that only the first quality materials mentioned in the list of material is purchased for the project.

1. The work should be carried out in such a way that the structure is not disturbed.
2. Any difference / discrepancies in the specification should be clarified with the Engineer in charge before submitting the tender. The Engineer in charge will have the liberty to modify the specification to a reasonable limit to suit the basic concept during the course of work; the tenderer should carry out such work with out any extra cost.
3. In case of any major modification such items will be considered as an extra items. Payment for such items will be paid based on the Engineering rate / Market rate analysis. *15% of the total cost of material and labour* will be considered as *tenderer's profit*.
4. The contractor should co-ordinate with the other contractors employed at the site for smooth flow of work.

ALTERNATOR :

Synchronous alternator of single bearing, suitable for continuous operation at 1500 RPM generating 415 volts at 0.8 p.f. (lag) 50 Hz, 3-phase, 4-wire system. The alternator shall be Brushless type, self excited & self regulated through an AVR. The alternator will be suitable for tropical climate and shall generally conform to IS: 4722. The salient features of the alternator are: -

+ 1.5% voltage regulation (max) in static conditions.

IP : 23 protection with class 'H' insulation.

Permanent lubricating bearing.

Permissible overload of 10% for one hour in 12 hours of operation.

CONTROL PANEL :

The standard Control Panel is alternator mounted & fabricated from 14 SWG sheet and Powder Coated after seven tank treatment process to give long lasting finish. The Panel is equipped with: One no. ACB 1000 Amp 3 pole 50 ka EDO \Microprocessor based .Combined digital meter for indication of: -

Current.

Voltage.

Frequency.

Three nos. current transformers.

Copper bus bars of suitable capacity with outgoing termination ends.

Indication lamps for 'Load On' and 'Set Running'.

Instrument fuses.

BASE FRAME

Engine and alternator are mounted through AVMs, coupled and aligned on a common channel iron fabricated Base Frame with pre-drilled holes.

FUEL TANK

Daily service fuel tank of standard capacity fabricated from 14 SWG sheet metal inbuilt within the base complete with drain valve, air vent, inlet and outlet connection.

BATTERY

Two Nos./Exide/Eq. make battery of 12V, 180 AH capacity in charged condition with its leads.

. DOCUMENTATION:

1 set of following documents shall be provided with each set :-

O & M Manual of Diesel Engine

Spare parts catalogue of Diesel Engine

Test Certificate of Diesel Engine

Test certificate of Alternator

Test Certificate of D.G. Set

SPECIFICATIONS FOR
AUTOMATIC START ON MAINS FAILURE (AMF) CONTROL PANEL :

Cubical type, floor mounted, dust and vermin proof Control Panel [powder coated] with hinged doors, un drilled bottom gland plate fitted with:

- 1 No. Automatic Mains Failure Logic consisting of :
Mains supply monitor to identify low voltage complete failure and initiate necessary signal for operation or automatic control gear.
- Three attempt engine-cranking relay.
- 1No.Contactor of suitable rating for alternator supply.
- 1No.Contactor of suitable rating for alternator supply.
- 2 Nos. Contactor of suitable rating for neutral.
- 2 Sets HRC Fuses for back-up protection.
- 1No.Combined digital meter for Voltage, Amperes & Frequency.
- 1 Set Current Transformers
- 1 Set Indicating Lamps for 'SUPPLY ON' & 'LOAD ON'
- 1Set Instrument fuses.
- 1No.Battery Charger.
- 1 No. Hooter in the event of failure of starting of DG after 3 attempts of cranking.
- 1 Set Automatic changeover switch of suitable capacity.

AUTOMATIC MAINS FAILURE PANEL : SEQUENCE LOGIC
Following sequence logic should be followed while designing the logic for
AMF Panel:

1. Automatic starting of diesel generating set in the event of mains voltage below preset value / total failure.
2. On restoration of mains supply, its quality will be monitored for a preset time and then load is automatically transferred on the mains and diesel engine is shutdown after a preset idle running period.
3. In the event of failure of diesel engine to start on failure of mains supply on first attempt, two more attempts are made automatically. If, engine still fails to start due to some defect, it will get locked automatically and necessary **audiovisual signal** shall be given.
4. In the manual mode the DG Set can be started by the operator by pressing the start button and stopped by stop button irrespective of the mains condition.
5. In the test-mode, mains failure condition is simulated. However, the load will not be transferred on the DG Set.

Technical Specifications for Acoustic Enclosures

The of the acoustic enclosure should be :-

Approved for 630 KVA rating of silent DG sets.

It should have modular construction with the provision to assemble and dismantle easily as per site condition.

There should be no protruding parts.

The container should be fabricated out of sheet of 14 SWG.

The sheet metal components should be **hot dip seven tank pre-treated.**

To have long life of the enclosure, it should be **Pure polyester based powder coated** (inside as well outside). All nuts and bolts/hardware should be stainless steel type.

Fuel tank at the base of Silent DG Set should have required capacity. It should be provided with breather, drain plug. The fuel level should be indicated with the help of fuel gauge meter. It should have provision for filling the fuel from outside as in the case of automobiles with locking arrangement.

Battery should be accommodated in a separate tray in the enclosure.

There should be provision for drain plugs for draining lube oil/diesel.

The doors should be provided with high quality EPDM gaskets to avoid leakage of sound. The door handles should be of lockable type.

Sound proofing of enclosure should be done with high quality rock wool/mineral wool conforming to IS 8183, of **50 mm thickness and density at 64kg/m³.**

The rock wool should be further covered with fiber glass cloth and perforated powder coated sheet.

A **special residential silencer** should be provided with the DG set to control exhaust noise. **Attenuates** are to be provided to control sound at air entry to the enclosure and exit from the enclosure.

To make the system **vibration free**, engine and alternator should be mounted on specifically designed anti vibration pads. **Adequate ventilation** is to be provided to meet air requirement for combustion and heat removal. If required, a blower is to be used to meet total air requirement & air changes.

Temperature of enclosure should not exceed beyond 5-7°C of ambient temp.

There should be provision of **emergency shut down** from outside the enclosure.

Noise Level should be 75dB (A) at 1 mtr. distance.

INSTRUMENTATION AND CONTROLS

INSTRUMENTATION

Instruments shall be housed in a panel resiliently

mounted on the engine or at the free end of the engine

Following instruments shall be provided

- i) Starting switch with key
- ii) Lubricating oil temperature gauge (Indicator C)
- iii) Lubrication oil Pressure gauge (Gauge paig)
- iv) Cooling water temperature gauge(Indicator C)
- v) Cooling water Flow meter
- vi) Cooling water pressure Indicator paig.
- vii) Lubricating oil flow meter
- viii) Techo meter Engine running hour meter
- x) Engine over speed indicator(alarm and light)
- xi) Cooling water temperature high (alarm and light)
- xii) Low lube oil pressure,(alarm and light)
- xiii) Battery charging Ammeter
- xiv) RPM Indicator meter with hour meter
- xv) Push Button for start, stop and rest
- xvi) necessary signal lamps
- xvii), Battery charger
- xviii) On/Off M.C.B

Following protective devices and equipment shall be provided for the engine protection (Safety Controls) along warning and tripping devices with indicators of reasons for tripping.

i) Mechanical over speed governor and shutdown device. Visual and audible alarms and associated devices shall be provided for the following conditions. Shut down solenoids and relays shall also be provided to stop the engine in the event of any of these faults

ii) Low lubricating oil pressure

iii) Excessive (High) cooling water temperature

iv) Excessive lubricating oil temperature

Contractor shall furnish all the under mentioned information during Tender stage.

ENGINE AND AUXILIARIES

i) Make, type, and continuous ratings

ii) Bore, stroke and number of cylinders

iii) Efficiency curve at various loads

iv) Fuel consumption curve and capacity of FUEL TANK.

v) Speed load characteristics

vi) Governor response time

vii) Lubrication system

viii) Starting Battery system

ix) Safety controls, alarms and trips

**x) Weight of complete set erection and maintenance,
and headroom clearance for maintenance**

xi) Complete parts list

xii) Any other information which is necessary

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SPECIFICATIONS

General

A: MATERIALS

Materials shall be of the best-approved quality obtainable / available and they shall comply to the respective Bureau of Indian Standard Specifications.

Samples of all materials shall be got approved before placing order and the approved sample shall be deposited with Head Engineering Cell.

In case of non-availability of materials in metric sizes, the nearest higher size in FPS units shall be provided with the prior approval of Head Engineering Cell. for which neither extra will be paid nor any rebate shall be recovered.

If directed, materials shall be tested in any approved Testing Laboratory and the Test certificate in original shall be submitted to Head Engineering Cell. and the entire charges of testing including charges for repeated tests if ordered shall be borne by the Tenderer.

It shall be obligatory for the tenderer to furnish Certificate, if demanded by Head Engineering Cell from the manufacturer or the material supplier that, the work has been carried out using their material and as per their recommendation.

Unless otherwise shown on the drawings or mentioned in the Schedule of Quantities or Specification the quality of materials, workmanship, dimensions etc., shall be as specified here-in-under.

All equipment and facilities for carrying out field tests on materials shall be provided by the tenderer without any extra cost.

NOTES:

(THE ABOVE ARE THE GENERAL SPECIFICATION SHOULD BE READ IN CONJUNCTION WITH BILL OF QUANTITIES. THE BILL OF QUANTITIES MAY BE TAKEN AS THE BASIS FOR THE WORK TO BE EXECUTED. IN CASE OF ANY DISCREPANCY IN THE SPECIFICATION AND THE BILL OF QUANTITIES, THE BILL OF QUANTITIES MAY BE TAKEN AS FINAL IN CASE THE CONTRACTOR SHOULD CHECK UP WITH THE ENGINEER IN CHARGE WHO'S DECISION WILL BE FINAL.)

PARTICULAR SPECIFICATIONS

1. MATERIALS AND GENERAL SPECIFICATIONS

- 1.1 All equipments and materials shall be new and conform to the relevant Indian standards/British standard in case Indian standards are not available for a particular equipment/item. The contractor shall also produce test certificate from the manufacturer that the equipments/items conform to the relevant IS/BS.
- 1.2 The various equipments shall be of any of the makes as indicated in Abstract at the contractor's option, subject to approval of the Head Engineering Cell.
- 1.3 The contractor shall submit complete technical details, specifications, illustrated technical pamphlets/ literature of the equipments proposed to be incorporated by him.
- 1.4 All similar equipments and similar materials shall be of the same make and shall be inter- changeable.
- 1.5 The contractor shall be responsible for supplying , installing, connecting, Commissioning, and testing all equipments and fittings according to sound Engineering practice and tested as specified to the entire satisfaction of the Engineer-In-Charge.

2. STANDARD OF QUALITY AND WORKMANSHIP

- 2.1 The supply of the electrical equipment and accessories shall strictly comply with the provision contained in the latest edition of Indian Standards , in case , it has not been issued, they shall comply with the current British Standard as applicable to above mentioned work, except where such regulations and rules are modified by these particular specifications.

- 2.2 Unless specified otherwise, the installation of all electrical equipments and accessories shall strictly comply with provisions contained in the latest edition of the Indian Electricity rules.
- 2.3 All electrical works shall be carried out by properly skilled and licensed Electricians under the supervision of qualified electrical supervisors/ Engineers. The contractor shall on demand by the Engineer-in-Charge, produce such evidence of qualifications of his workman/supervisors/ Engineers either at commencement of work or at any time thereafter during the currency of the contract. The entire work shall be of high class best workmanship and to the entire satisfaction of Engineer-In-Charge.
- 2.4 The equipments specified in this contract are for important installations Where continuity of service is very essential. The design and manufacture of the equipments and the materials used thereafter shall be of the highest standard to ensure continuous and trouble free services.

3. LAYOUT OF EQUIPMENT

The contractor shall submit in triplicate to the Engineer-in-charge layout plan showing actual positions of DG set, cable run, earthing pits, earthing leads and all other information that will be necessary for record, (earth test report maintenance and operations.

4. L.T. CABLES

- 4.1 L.T. cables shall be XLPE insulated , PVC sheathed and armoured with Aluminum conductor, 3 core or 3.5 core, 1100 volts grade, heavy duty as indicated in Schedule of abstract and shall conform to IS-1554.
- 4.2 No joint in the cable shall be permitted . However where jointing of cable is inescapable viz, when length of cable to be provided is more than one cable drum etc. straight through joint shall be provided under the direction of Engineer-in-charge. No extra amount shall be payable to the contractor on this account.

4.3 The tenderer shall submit test certificate giving full particular specifications of cable, constructional details and maximum continuous current carrying capacities in ground, air and in duct along with standard design conditions.

5. DG SET

5.1 The same shall be provided all as per abstract.

5.2 TESTING OF DG SET

5.2.1 All routine test certificates from the manufacturer in respect of the diesel Engine, alternator, and the control panel will be made available by the contractor.

5.2.2 The Generating set shall be run for a period of 12 hours of which at least 6 hours shall be at the rated load.

5.2.3 All instruments , equipments , materials including DHPP and Engine oil and labour required for testing will be made available by contractor at his own cost and unit rate of respective item in abstract will be deemed to be included for Material & Labour for testing to the entire satisfaction of the Engineer-in-charge:-

(i)Insulation resistance test on the alternator and control panel.

(ii)High voltage test as per BS-2613 clause 33 on the alternator when still hot.

(iii)Efficiency test at rated load and over load.

The electrical output in terms of KW from the above observation will be worked out and compared to the output indicated by the manufacturer for assessing the performance. The observations in respect of cooling temperature, oil pressure etc. made during the test shall be compared with these laid down by the manufacturer to ensure that the set is performing within the designed conditions. Attention shall also be paid to the foundation/fixing, to ensure that there are no undue vibrations in the set.

5.2.4 All the expenses included on above tests including provision of testing apparatus required to carryout above mentioned test shall be borne by the contractor without any extra cost to Government. If the results of test are not found satisfactory, the contractor shall at his own expenses replace the defective equipment/materials or any part there of as directed by the Engineer-in-charge. The decision of the Head Engineering Cell shall be final, conclusive and binding in this respect.

5.2.5 The test as described above under clause 5.2.1 to 5.2.3 shall be carried out in presence of electrical Engineer.

5.3 COMPLETION

After test, the installation will be approved and accepted by Head Engineering Cell. The installation will taken over provisionally for one month and if no defect noticed during one month period, the final completion certificate will be issued. If any defect is found during one month period, the contractor will repair it and installation will again be taken provisionally for one month. Maintenance period for one year will start from the date of final completion certificate which is issued after one month of his satisfactory working from the date of provisional take over.

5.4 TRAINING OF STAFF

The contractor will give training to operator /staff as detailed by Engineer-in-charge for 15 days period regarding operating and running maintenance of generating set.

6. GUARANTEE

The contractor shall ensure that the generating set, panels, electrical Fittings/accessories etc under this contract, shall be of best quality and shall be strictly n accordance with specifications and particulars contained/ mentioned in the clause there of and the contractor shall guarantee that the said generating set will continue to confirm the description and quality aforesaid for a period of 12 Months. Head

Engineering Cell have inspected or approved it . if during the aforesaid period of 12 Months the said generating set, articles are discovered not to confirm the description, quality, type aforesaid or have deteriorated and the decision of Head Engineering Cell in that matter will be final conclusive and binding the rejected item will be replaced by the contractor free of cost.

7. PAINTING

Electric control panel shall be factory made and duly painted , having undergone rigorous rust proofing process, treated with high corrosion resistant primer and finally painted with rust proof synthetic enamel paint of gray tint.

8. CATALOGUES

(a) The tenderer shall supply the following literature after acceptance of tender to the Engineer-in-charge.

(i) Manufacturer's instructions/Books on maintenance and operation of the plant-4sets.

(ii) Spare parts catalogue of each of the unit of plant-4sets.

Note:- Cost of spare parts shall be deemed included by the contractor under unit rates of items of Sch 'A'.

(b)The tenderer shall supply the literature giving technical information of equipments offered by him—2 sets.

9. LAYOUT PLAN

The contractor shall to the Head Engineering Cell layout plan , in triplicate duly signed by contractor and Engineer-in-charge showing actual position of DG set, fuel tank, electric control panel, and change over switch, batteries etc, and all other information that will be necessary for record, maintenance, and operation. The contractor shall also submit sufficient copies of the recommended design of foundation for DG set supplied by the manufacturer for perusal and approval of the Electrical Engineer.

10.The metallic bodies of DG set and connected metal works shall be electrically connected at two points to earth by means of GI strips and shall

be fixed over the entire length on floors/ walls or in duct by GI clamps/clips, saddle, staple etc.(at every one meter centre to centre) which shall not in any way damage the earthing strips. The contractor shall get the layout of the earth strips and positions of proposed earthing pits approved from Engineer-in-charge before installing the same.

- 10.1 The charcoal dust and returning filling shall be done in layers not exceeding 15 cm thick and shall be properly watered and rammed. Surplus spoil shall be disposed off upto a distance not exceeding 150 meter and site left clean and tidy on completion.
- 10.2 The ultimate depth of earth electrode would depend on the nature of soil and contractor is required to take it to depth where sufficient moisture exist and nature conditions are suitable for resistance as specified here-in –after.
- 10.3 The test link shall be provided in the circuit on earth pit, and a suitable point to be approved by the Engineer-in-charge for carrying out resistance system as near as possible to zero ohm and shall not in any case exceed one ohm.
- 10.4 As far as possible joints in the GI earthing strips shall be avoided . But wherever it is absolutely necessary, prior permission of Engineer-in-charge will be obtained in wiring. While jointing , strip shall be properly cleaned, straight joint shall be over lap 50 mm. All joints in GI strips shall be riveted (using 6 mm dia GI rivets in two rows with 2 nos. rivets in each row) and than welded on all the four sides to full length of the joint.
- 10.5 Curing and protection of cement concrete surfaces:- All cement concrete surfaces shall be cured and protected as directed.

Confirmation of Acceptance of Tender terms and conditions

(To be signed by the bidder and enclosed along with their offer in a separate envelope)

We have studied the terms and conditions of Tender Enquiry including General and Special terms and conditions, the specifications, lay-out drawings, Schedule of Quantities, Commercial terms and conditions, Approved Makes, etc.

We are accepting all terms and conditions of the Tender without any deviation. Offer with any deviations from the Tender Enquiry are likely to be rejected.

We also understand that the order / s will be placed in the name of principals only and not in the name of their dealer/s. Our quotation is based on the above.

Date : _____

**SIGNATURE OF TENDERER
WITH RUBBER STAMP**

DECLARATION

I / We hereby declare that I / We have read and understood the Terms and Conditions of the contract, Specifications, Drawings, Schedule of Quantities etc. and hereby agree to abide by them. In token thereof, I / We have signed below and at the end of the Schedule of Quantities, failing which the tender is liable to be rejected.

I / We understand that our Tender will not be considered if the rates for items are not written both in FIGURES and WORDS.

I / We hereby confirm that only the relevant entries asked for, have been made within the Tender documents issued to us. I / We also confirm that in the event of any entry in this Tender document other than the relevant entry or condition shall make this Tender invalid.

Date : _____

**SIGNATURE OF TENDERER
WITH RUBBER STAMP**

Schedule of Quantity

Sl.No	Description of Item of work	Qty	Unit	Rate	Amount
	<p>Supply , installation, testing & commissioning of static type silent diesel engine driven generator set of capacity 630 KVA, 504 KW conforming to IS including alternator rated 1500 RPM 630 KVA , 504 KW at 415 volt , 3 phase 4 wire 50 HZ AC supply with 0.80 power factor including engine, alternator mounted on common platform of rigid fabricated steel base frame with anti vibration pads (six nos.) and foundation completely as per foundation design of the manufacture. The DG set should be fitted with integrated acoustic enclosure . The Gen set and acoustic enclosure should confirm to the emission norms & noise level. Supply and mounting of standard accessories i e residential silence fuel tank batteries exide make 180 AH with lead, arm pads, acoustic enclosure with AMF control panel of approved Make.</p> <p>The technical specification of gen set is comprising of following.</p> <p>accessories:- Diesel Engine</p> <p>(a) Cooling System radiator Centrifugal water pump.</p> <p>(b) Exhaust system exhaust manifold flexible pipe for silencing Residential silencer</p> <p>(c)fuel System</p> <p style="padding-left: 20px;">Fuel pump</p> <p style="padding-left: 20px;">Fuel injector</p> <p style="padding-left: 20px;">Fuel filter.</p> <p>(d) Lub oil system</p> <p style="padding-left: 20px;">Lub oil pump</p> <p style="padding-left: 20px;">Lub oil filter</p> <p style="padding-left: 20px;">Lub oil cooler</p> <p style="padding-left: 20px;">Air intake manifold</p> <p style="padding-left: 20px;">Air cleaner assembly</p> <p>(f) Governor Electronic</p> <p>(g) Starting system</p> <p style="padding-left: 20px;">Electric starting-24 V DC</p> <p style="padding-left: 20px;">Battery charging alternator</p> <p style="padding-left: 20px;">Wiring harness for connection engine to control panel.</p> <p>(H) Coupling Arrangement</p> <p style="padding-left: 20px;">ASE1 flywheel housing</p> <p style="padding-left: 20px;">flywheel suitable for SAE 14 disc coupling for close coupling</p> <p style="padding-left: 20px;">Single bearing alternator.</p>				

	<p>(i) Safety controls low lub oil pressure High coolant temperature</p> <p>(k) Engine instrument panel Engine safety mouldle with buil inon/off/start key Lub oil pressure switch gauge battery charging volt meter Electronic hour meter Coolant temperature gauge Controller for electronic governor.</p> <p>(i) Manuls Engine operation and maintenance chart Part catalogue Engine routine test certificate Engine warranty card</p> <p>(m) Alternator Synchronous alternator of suitable rating , single bearing, suitable for continuous operation at 1500 RPM generating 415 volt at 0.80 P.F(lag) suitable for 50 HZ, 3 phase, 4 wire system, The alternator shall be brushless type, self excited & self regulated through an AVR. The alternator will be suitable for tropical climate and shall generally confirm to IS 4722.</p> <p>(n)AMF panel auto mainually faiter control panel factor made suitable for 415 V, 3 phase, 4 wire 50 HZ A.C supply dust proof, vermin proof, treated duly wired legrand make as per standard powder coated consisting of following features (i) MCCB (ii) Current transformers (iii) Guses(iv) volt meter with selector switch (v) Amp meter (vi) frequency meter (vii) Terminals (viii) Hours metre. Indications (a) load on, (b) Set on Safeties (a) LLOP (b) HWT/HCT.</p> <p>(o) Base frame. Heavy duty base frame of sturdy design made of MS channel with necessary reinforcement oand pre drilled holes</p> <p>(p) fuel tank Daily service, fuel tank of sheet metal suitable for 950 litre (outside the encloser) complete with drain plug, air vent, in let and outlet connection.</p> <p>(q) Battery Two nos batteries of 12 V , 180 Ahwith le ad complete make Exide , prestolite or eqvilant.</p>	1	No		
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2.	Supply , installation, testing & commissioning heavy duty fully autocharged of air circuit breaker 1000 Amp, 4 pole electrical draw out type including fixing in existing panel and making necessary arrangement & painting including necessary indication complete.	2	Nos		
3.	M/L earthing complete with copper earth plate electrode of size 600 x 600 x 3.15 mm thick burried directly in ground (Earth pit not less than 2.25 Mtr deep below ground level) with top edged of the plate not less than 1.5 mtr below ground , connectedto copper earth lead strip 20x 3.15 mm by means of bolts, nuts check nut & washers of galavinised iron and including 40 mm dia G.I light grade pipe from upper and of earth plate upto LT panel board/feeder pillar box including 20 mm dia GI medium grade as water pipe, CI funnel with wire mesh fixed on water pipe all as shown in the electric plate no 5 including earth work in soft/ loose soil PCC:1:3:6 type C1 for pit chamber , RCC 1:2:4 type B1 pit cover with suitable lifting handles complete all as specified and directed. complete including providing & fixing copper strips 20x 3.15 mm complete with connection(to be welded with plate and including test joint).	4	Nos		
4.	Supply , testing , commissioning LT UG cable XLPE insulated PVC sheated and armored with Aluminum conductor size 3.5 core x 300 sqmm 1100 volt grade heavy duty including necessary connection at both end proper size of aluminum lugs on cable gland complete all as directed or required at site, make Havells , POLYCAB, NICCO, Universal	135	R.M		
5.	Laying of one Nos. PVC insulated and PVC sheated/ XLPE power cable of 1.1 KV grade of size not exceeding 25 sqmm. Direct in ground including excavating, and refilling trenches etc. as reqd. but excluding sand cushioning sushinining protective covering and re filling the trench etc as required.	90	Mtr		

Note:-

1. Rates are inclusive of all taxes.
2. Tender form received from office of the Engineering Cell , duly signed by the Head, Engineering Cell to the qualified bidder of technical bid will be acceptable only.

