

- b) Suitable founding strata for the pile and the pile depth at respective locations.
- c) Estimated length of pile for 300 mm dia, 350 mm, 400 mm dia and 450 mm dia and any other diameter to be suggested by the investigating agencies.
- d) Type of pile- End bearing and/or Frictional resistance and whether bored cast-in-situ or Pre cast driven pile shall be indicated separately. The estimated pile capacity clearly identifying the end bearing and treated resistance capacities contributes in the total capacity.
- e) Magnitude of negative skin friction, if any, to be considered in pile design.

C. GROUND WATER / RAIN WATER HARVESTING

The scope of work includes conducting Geo-physical and Geo-hydrological survey of the entire area and a study of the environmental conditions that may affect the fitness of the underground water source for domestic and non-domestic purpose. The total water requirement for the proposed site is approximately 2 lakh liters per day. The alternative sources of ground water i.e tube well and rain water-harvesting scheme be assessed scientifically. This also includes the assessment of the capacity and dependability of the different sources to meet water for project.

The detailed scope of work will be as below:

1. With the objective to meet total water requirement at least 4 points shall be subjected to vertical electrical sounding to ascertain suitability for locating tube wells with a depth range upto 150 meters or whatever suitable in and around project site. A/C or D/C (digital type) resistivity meter will be used for the study. The resistivity data so procured shall be analysed, computed and plotted on log-log graph paper with modules of 62.5 mm, smooth curves shall be drawn for each vertical electrical sounding. Geophysical interpretations of the curves drawn by computer and using auxiliary charts shall reveal the following information.
2. Full details of the existing underground sources of water, nature and extent aquifers, their depth and yield expected from tube well or open dug wells in entire campus.
3. Best point selection on the field for the tube well drilling. The same to be marked on overall plot plan with co-ordinate. The exact bench markings for individual wells suggested will be got done by your representative at site as directed by Engineer.
4. Apparent resistivity of existing sub-Geoelectrical layers and corresponding geology of the layer. Correlation of data with CGWB data.
5. Detailed design and specification for tube wells.
6. Recommended drilling depth and drilling techniques of each tube well.
7. Expected yield of tube well in (litre /hr) and rate of withdrawal.
8. Suggest number of tube wells required to meet total water requirement.
9. Recommended capacity (discharge, head) of submersible pump, pumping hrs for individual bore well, type of material and dia. of pipe for tube well.
10. Recommended spacing between the tube wells to avoid minimum interference.
11. Recommendations for functional utility of the bore wells/ dug wells.
12. Suggest method for improvement of bore well yield and quality of water.
13. Suggest scheme for piping network for interconnection of different tube wells.
14. Suggest rainwater harvesting scheme / ground water recharge method and maximum percolation rate through recharge pit.
15. Water quality Assessment

The quality of surface as well as Ground water is to be tested as per IS: 10500, (23 parameters) standards. The scope of water analysis is not limited to ascertaining potability or being semi-salty or salty. It should also include chemical and bacteriological tests. A range regarding percentage salt content shall be given which should be close to 90% of salt content once water is actually pumped out.

The study report shall also include the required Geo-electrical sections for the area, as well as samples of the curves used for matching.

16. Contents of the report.

A. The Geo-hydrological investigation report should have the following contents:

- a. Introduction
- b. Location of the Study Area
- c. Objectives of Ground Water studies
- d. Applied Methodologies
- e. Available basic Data
- f. Ground Water level
- g. Geology of the area
- h. Information and details of existing ground water sources.
- i. Delineation of potential ground water bearing zones
- j. Assessment of hydraulic parameters of aquifers
- k. Water producing capabilities of aquifers likely to be tapped for construction of tube wells/ Dug wells in liters/hour
- l. Correlation of the data obtained from site with data from CGWB etc.
- m. Number of tube wells/ dug wells to meet the water requirement of the project.
- n. Spacing between tube wells/ dug wells.
- o. Specification of tube wells/ dug wells and type of pump set, type of material and dia of pipe for tube well.
- p. Details of rain water harvesting scheme.
- q. Recommendations.

General Conditions of Contract

The General Conditions of Contract are as under.

1.0 Security Deposit

Security deposit at the rate of 5% of the amount of each running bill shall be retained and the same shall be released after six months of the successful completion of the work at site. However no interest shall be payable to the Agency for the amount of security deposit for the period retained by HSCC.

1.1 Delay and extension

If the work is delayed by force majeure or any other cause in the absolute discretion of Employer is beyond the Agency's control, they shall immediately upon the happening of such event contributing to delays give notice thereof in writing to Employer but shall nevertheless use constantly their best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of HSCC to proceed with the work.

Request for extension of time shall be made by the Agency in writing within seven days of the happening of the event causing delay. The survey Agency shall also indicate with any such request, the period for which extension is required. In any such case HSCC may give a fair and reasonable extension of time for completion of individual items or group of items of work for which separate period of completion is specified in the contract as a whole, but it shall be the sole discretion of the Employer to grant or refuse such extension.

The decision of HSCC in regard to the extension will be communicated to the Agency in writing within a reasonable time but no compensation or any extra amount shall be paid for such extension granted by HSCC.

1.2 Compensation payable for delay in completion and risk prejudice clause

The Agency shall be liable to pay compensation to HSCC in case of delay in fulfilling obligation under this agreement for causes solely attributable to the survey Agency at 1% (One percent) of contract amount per week of delay subject to maximum of 5% (five percent only) of the total contract price towards their contract.

1.3 Risk Prejudice Clause

In case progress of any part of Agency's work is found to be unsatisfactory by HSCC at any time during the execution vis-a-vis, the terms of contract, HSCC shall give the Agency a fortnight's notice in writing asking for their plans for remedying the situation and to complete the job within the time mutually agreed, subject however to the conditions that the entire work falling within their scope of work shall be completed within the stipulated time. On the failure to remedy the situation as per agreed time with HSCC, HSCC shall have the right to withhold that portion of the work and get the same done at the risk and cost of the Agency after giving one weeks' notice.

1.4 Arbitration

If at any time any doubt, question, dispute or difference whatsoever, shall arise between the Agency and HSCC upon or relating to or in connection with this contract, either of the parties may give the other notice in writing of the existence of such doubt, question, dispute or difference and the same shall be referred to the Chairman - cum - Managing Director, HSCC or his nominee as Sole Arbitrator. The decision of the sole arbitrator thereon shall be final, conclusive and binding upon the parties to dispute. The party invoking arbitration shall specify the dispute or disputes to be referred to the arbitration under the clause together with the amount or amounts claimed in respect of each of dispute.

1.5 Jurisdiction of Court

All disputes arising out of the contract shall have the jurisdiction of courts of the Union Territory of Delhi only.

1.6 Termination of Contract

HSCC reserves the right to terminate, or postpone the work on account of unfulfillment of contractual obligation(s) or any sufficient cause, HSCC being sole judge of the same. The Agency shall be paid for the useful work done upto the date of termination. HSCC shall determine the credit to be given to the detailer for the value of the work executed by the Agency. The Agency shall give HSCC all the data, compiled report, drawings etc. prepared by them till the date of termination before the final dues are paid to the Agency. Even after the termination of agreement, the Agency shall continue to cooperate with HSCC to such a reasonable extent as may be necessary to clarify or explain any reports or recommendations in documents or detailing made by them.

1.7 Breach of Trust

Unless otherwise directed by HSCC specifically, the Agency shall not contact directly or indirectly the client or any other authorities connected with the project. Non compliance of this clause shall be treated as breach of trust resulting in the termination of contract

between HSCC and the Agency for with without any prior notice to him. In such event, no job will be entrusted to him in future by HSCC.

1.8 Discussions with HSCC and Approvals

The Agency shall make themselves available at reasonable notice to be present for discussions with HSCC. The Agency shall also provide assistance, advice and information to HSCC as may be required from time to time for discussions with other agencies or HSCC officials connected with the work.

The Agency shall get approved the work done by him at every stage throughout the period from HSCC. However, such approval by HSCC shall not be deemed to absolve the Agency of the total responsibility of the correctness and soundness of the work and other obligations under this contract.

1.9 Guarantee and liability of the Agency

The Agency shall be liable for all consequence of errors and omissions arising from errors solely attributable to Agency or on the part of their employees to the extent and with the limitation specified by HSCC.

2.0 Periodical Progress Report

The Agency shall prepare and submit periodical progress reports and status of works being performed by them. Such submissions of reports and review and approvals, if any, thereof by HSCC shall not be deemed to absolve the responsibilities of the Detailer for timely completion of the assignment.

2.1 Unit Rates

The Lump sum / Unit rates quoted shall remain firm throughout the validity of the contract. The rate shall include cost of materials, labor, tools and equipments, transport charges, taxes, royalties, octroi, service tax etc. payable on all transactions for the due performance of work under this contract. The rates shall be given in the schedule, as specified herein before. No escalation shall be paid on whatever account it may be.

2.2 Variation in scope of work and schedule of quantity

The scope of work & schedule of quantities may vary to any extent. The rates quoted by the Agency shall remain firm for the complete job as directed by the Engineer.

2.3 Mobilisation advance

No Mobilization advance shall be paid.

2.4 Income tax

Income tax shall be deducted from Agency's bill as per rules.

2.4 Computerized output

The Agency shall prepare a CD of the complete work assigned to them including drawings, report work, data, and other documents & the same shall be submitted to HSCC after completion of job. All drawings shall be on AUTOCAD and in A1 & A4 sizes only.

2.5 Water for construction purposes

The Agency shall make his/ their own arrangements for unfiltered water required for the work and nothing will be paid for the same.

2.6 Power

The Agency shall make his own arrangements for obtaining electrical connections if required and make necessary payments directly to the departments concerned.

2.7 Return of earnest Money

Earnest Money of the unsuccessful bidders shall be returned after the expiry of bid validity period.