

**TENDER  
FOR  
SOIL INVESTIGATION FOR THE CONSTRUCTION OF  
NEW BUILDING  
AT  
FHC KUNISSERY, PALAKKAD DISTRICT, KERALA**

**HLL/HCD/PS/SOIL-INV/FHC-KNS/PKD/2023-24, DT. 18.12.2023**



**HLL LIFECARE LIMITED**

(A GOVT. OF INDIA ENTERPRISE)

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**DECEMBER 2023**

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## **INVITATION FOR BIDS (IFB)**

HLL Lifecare Limited (HLL), a Government of India Enterprise, invites sealed and super-scribed lump sum quotations from interested contractors having minimum three years' experience in the relevant field of Geotechnical Investigation along with the documents supporting their eligibility and experience in the respective field.

The tender document can be downloaded from the website, <http://www.lifecarehll.com>

The tender document will be available up to 16.00 Hrs. on 26.12.2023.

- a) Issue of tender document - 18.12.2023 at 16.00 hrs
- b) Last date and time of receipt of bids - 26.12.2023 at 16.00 hrs
- c) Date and time of opening of bids - 26.12.2023 at 16.30 hrs

**Associate Vice President (HCD)**

**SOIL INVESTIGATION FOR CONSTRUCTION OF NEW BUILDING AT FHC  
KUNISSERY, PALAKKAD DISTRICT, KERALA**

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## PROJECT BRIEF AND SITE DETAILS

HLL as Executing Agency of MoHFW, GOI invites sealed quotations For Soil Investigation Work for Construction of New Building at FHC Kunissery, Palakkad District, Kerala

### **Brief Description of Project:**

HLL Lifecare Ltd (A Government of India Enterprise) with Regional office at HLL Bhavan, Poojappura, Thiruvanthapuram – 12.

HLL has been entrusted by Health and Family Welfare, Government of Kerala for the Construction of New Building at FHC Kunissery, Palakkad District, Kerala.

### **1. Site-Work Details:**

The work involves Soil Investigation for The Construction of New Building at FHC Kunissery, Palakkad District, Kerala.

The foot print area of proposed Main building is 350 sq.m. (Aprox)

It is requested to submit your offer (format attached) for soil investigation of the following along with certified copies of Award letters, completion certificates etc proving eligibility. One set of soil investigation report submitted to the client as shown in experience certificate may also be enclosed along with.

Location	No of Floors
FHC Kunissery, Palakkad District, Kerala	<b>G+2</b>

It is proposed to conduct soil investigation for Construction of New Building at FHC Kunissery, Palakkad District, Kerala building before starting the site work.

## **SCOPE OF WORK:**

### **1. Geotechnical Investigation and Report submission:**

- Detailed Geo-technical Investigation shall be carried out for the area of plot and submission of a detailed Geo-technical report (**NABL accredited/State Government/Central Government institutions or labs**) which shall be the basis for the design and detailing of foundations for buildings and structures.
- Item wise list of investigations shall be conducted along with approximate Estimated Quantities that are given in the Schedule of Quantities against for which the agency shall quote the rates in figures as well as in words. However, payment shall be made as per quantities actually executed.
- The work shall include mobilization of all necessary equipment's, providing necessary Engineering supervision and technical personnel, skilled and unskilled labour etc. as required to carry out the entire field as well as laboratory investigation, analysis and Interpretation of data collected and preparation of a Geo-technical report.
- The Agency shall make their own arrangements for locating the coordinates and positions of bore holes, trial pits, dynamic cone penetration tests and other field tests.
- All the field and laboratory data shall be recorded in the Performa recommended in Indian Standards codes. The Agency shall submit to the HLL one copy of field bore logs and all field records soon after the completion of each borehole/test.
- The Agency shall interact with HLL and get acquainted with the broad guidelines about the different types of structures envisaged and in assessing the load intensities on the foundations for the various structures of the project in order to enable him to make specific recommendations for the depth, founding stratum, type of foundation and the allowable bearing pressure.
- The Agency shall carry out all work meant within specifications even if not explicitly mentioned under the scope. All work shall be executed to the satisfaction of the Engineer-in-Charge in Charge.

### **2. Field Investigations - Soil**

#### **a. BORING**

- i. Bore holes shall be taken at specified locations to obtain information about the subsoil profile, its nature and strength and to collect soil samples for strata identification and conducting laboratory tests. The sequence of boring shall be fixed with the approval of the Engineer-in-Charge and on ascertaining preliminary nature of subsoil profile, the Engineer in Charge in charge shall reserve the right to increase or decrease the number of proposed Bore holes by any limit. However, payment shall be made as per actual quantities executed. The minimum diameter of the bore holes shall be 150 mm and boring shall be carried out in accordance with the provisions of latest relevant IS codes for lab investigation, penetration test for soil, subsurface investigations for foundation etc.
- ii. All boreholes shall extend up to the desired depths or refusal whichever is met earlier complete in all respect as directed by the Engineer-in-Charge. The refusal criteria shall be strictly as per IS: 1892. When the boreholes are to be terminated in soil strata an additional Standard Penetration Test shall be carried out at the termination depth. No extra payment shall be made for carrying out Standard Penetration Tests. The site data shall be made available to HLL as and when each bore is completed either by fax/ courier/speed post/hand delivery showing location of the borehole on the plan and the soil data along with visual description. The comments regarding the strata and the nature of variations shall also be included.
- iii. On completion of the boreholes, the Agency shall backfill all the bore holes as directed by the Engineer-in-Charge. The boreholes shall not be back filled till verified by the Engineer-in-Charge. Arrangements shall be made by the agency to preserve the boreholes so that the depth can be verified.

- Tests on undisturbed samples

- Bulk density and moisture content

- Relative density (for sand)
- Unconfined compression test
- Box shear test (in case of sand)
- Tri-axial shear tests: (Depending on the type of soil and Field conditions on undisturbed or remoulded samples).
  - Unconsolidated undrained
  - Consolidated undrained test with the measurement of Pore Water Pressure.
  - Consolidated drained.

- Consolidation Test (In case of cohesive soil)
- Particle size Analysis
- Atterberg Limits

b. SALIENT TEST REQUIREMENT

- i. Chemical analysis of sub-soil shall include determination of pH value, carbonate, sulphate (both SO<sub>3</sub> and SO<sub>4</sub>), chloride and nitrate contents; organic matter; salinity and any other chemical harmful to the foundation material. The contents in soil shall be indicated as percentage (%).
- ii. Chemical analysis of sub-soil water sample include the determination of the properties such as colour, odour, turbidity, pH value and specific conductivity both at 250 C and chemical contents such as Carbonates, Sulphates (both SO<sub>3</sub> and SO<sub>4</sub>), Chlorides, Nitrates, Organic matter and any other chemical harmful to the foundation material. The contents such as Sulphates, Saltpetre, etc. shall be indicated as ppm by weight.

c. GENERAL

- i. On completion of all the field and laboratory work(**NABL accredited/State Government/Central Government institutions or labs**), the Agency shall submit a formal report containing Geological information of the region, procedure adopted for investigation, field observations, summarized test data, conclusion and recommendations. The report shall include detailed bore-logs, subsoil sections, field test results, laboratory observations and test results both in tabular as well as graphical form, practical results both in tabular as well as graphical form, practical and theoretical considerations for the interpretation of test results, the supporting calculations for the conclusions drawn, etc. Initially the Agency shall submit three copies of the report in draft form for review.
- ii. The Agency's qualified Geotechnical Engineer shall have detailed discussion with HLL on his draft report. During the discussions, HLL shall decide as to the modifications that need to be done in the draft report. Thereafter the Agency shall incorporate in his report the agreed modifications and after getting the amended draft report approved, six copies of the detailed final report (in A4 size and spiral binding with plastic covers) shall be submitted along with one set of reproducible of the

graphs, tables, etc.

- iii. The detailed final report based on field observation, in-situ and laboratory tests shall encompass theoretical as well as practical considerations for foundations for different types of structures envisaged in the area under investigation. The Agency shall acquaint himself about the type of structures, foundation loads and other information required from the Engineer in Charge.
- iv. The agency shall arrange all required facilities at site including water / electricity etc., required for the scope of work at their own cost.

d. DATA TO BE FURNISHED

- i. The report (in soft as well as hard copy) shall also include, but not limited to, the following:-
- ii. A true cross section of all individual bore holes and trail pits with reduced levels and coordinates showing the classification and thickness of individual stratum, position of ground water table, various in-situ tests conducted and samples collected at different depths and the rock stratum, if met with.
- iii. A set of longitudinal and transverse soil profiles connecting various boreholes in order to give a clear picture of the variation of the subsoil strata as per the latest version. (IS 6065 or latest version)(Each soil profile to be submitted in separate sheets).
- iv. Past observations and historical data, if available, for the area or for other areas with similar soil profile or with similar structures in the surrounding areas.
- v. Plot of Standard Penetration Test (N values both uncorrected and corrected) with depth for identified areas.
- vi. Results of all laboratory (**NABL accredited/State Government/Central Government institutions or labs**)tests summarized (i) for each sample and for each layer along with all the relevant charts, tables, graphs, figures, supporting calculations, conclusions and photographs of representative 'rock cores'.
- vii. For all tri-axial shear tests stress vs strain diagrams as well as Mohr's circle envelopes shall be furnished. If back pressure is applied for



saturation, the magnitude of the same shall be indicated. The value of modulus of elasticity, E shall be furnished for all tests along with relevant calculations.

- viii. Soil resistivity Test results
  - a. For all consolidation tests, the following curves shall be furnished:-  
e vs log p
  - b. **e vs p** and as per applicability

### **Compression vs log t or Compression vs square root of t**

(Depending upon the shape of the plot for proper determination of co-efficient of consolidation). The point showing the initial condition of the soil shall be marked on curves.

The procedure adopted for calculating the compression index from the field curve and settlement of soil strata shall be clearly specified. The time required for 50% and 90% primary consolidation along with secondary settlements, if significant, shall also be calculated.

- ix. Drilling into the underlying rock, coring, logging, sampling (if encountered) and testing wherever necessary. Mention the RQD values when the strata encountered with hard rock with its uniaxial compression strength.

### **3. Recommendations**

Recommendations shall be given area wise duly considering the type of soil, structure and foundation in the area. The recommendations shall include but not be limited to the following:-

a.

#### **or shallow foundations**

The following shall be indicated with comprehensive supporting calculations.

- i Net safe allowable bearing pressure for isolated strip footings of suitable sizes (Varying from Footings and continuous 1 to 4m) at suitable foundation depth as per site condition below ground level considering both shear failure and settlement criteria, giving reasons for type of shear failure adopted in the calculations.
- ii Net safe allowable bearing pressure for Raft Foundation at suitable foundation depth as per site condition below ground level considering both shear failure and settlement criteria, giving reasons for type of shear failure adopted in the calculations. Such Footings to be suggested for Raft Foundation giving data for modulus of Sub grade Reaction.
- iii Rate and magnitude of settlement expected of the structure.

b.

#### **or Deep Foundation/Pile Foundation**

The following shall be indicated with comprehensive supporting calculations.

If Raft foundation is unable to take load of buildings and pile foundation is required, provide all parameters viz. safe load, lateral load, uplift capacities etc related to design of pile foundation.

## GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract are as under:

**1.1 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 HLL.

**1.2 Delay and extension**

If the work is delayed by force majeure or any other cause in the absolute discretion of Employer, which is beyond the Agency's control, the agency shall immediately upon the happening of such event contributing to delays give notice thereof in writing to HLL/Engineer-in-Charge 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 HLL 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 HLL 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 HLL 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 HLL.

**1.3 Compensation payable for delay in completion and risk prejudice clause**

The Agency shall be liable to pay compensation to HLL in case of delay in fulfilling obligation under this agreement for causes solely attributable to the Agency @ 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.

**1.4 Risk Prejudice Clause**

In case progress of any part of Agency's work is found to be unsatisfactory by HLL at any time during the execution vis-à-vis the terms of contract, HLL 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 decided by Engineer in Charge/HLL, 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 HLL, HLL 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.

**1.5 Arbitration**

If at any time any doubt, question, dispute or difference whatsoever, shall arise between the Agency and HLL 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 Engineer-In- Charge, HLL 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.

**1.6 Jurisdiction of Court**

The courts at Thiruvananthapuram shall have jurisdiction to entertain and adjudicate any disputes.

**1.7 Termination of Contract**

HLL reserves the right to terminate, or postpone the work on account of fulfillment of contractual obligation(s) or any sufficient cause, HLL being sole judge of the same. The Agency shall be paid for the useful work done up to the date of termination. HLL shall determine the credit to be given to the agency for the value of the work executed by the Agency. The Agency shall give HLL 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 HLL to such a reasonable extent as may be necessary to clarify or explain any reports or recommendations in documents or detailing made by them.

**1.8 Breach of Trust**

Unless otherwise directed by HLL 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 HLL and the Agency for which without any prior notice to him. In such event, no job will be entrusted to him in future by HLL.

**1.9 Discussions with HLL and Approvals**

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

The Agency shall get approved the work done by him at every stage throughout the period from HLL. However, such approval by HLL 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.

**1.10 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 HLL.

**1.11 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 HLL shall not be deemed to absolve the responsibilities of the completion of the assignment. Detailer for timely

**1.12 Unit Rates**

Contractor must ensure to quote rate of each item, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO). The Unit rates quoted shall remain firm throughout the validity of the contract. The rate shall include cost of materials, machineries, labour (including lodging and boarding charges), removal of bushes and vegetation as required to carry out and complete the scope of work without any hindrances, tools and equipment's, transport charges, taxes, royalties, octroi, GST 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 itself positively**. No additional cost or escalation shall be paid on whatever accounts it maybe.

**Rate quoted shall be binding for any quantity of each of the items.**

**1.13 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 in Charge.

**1.14 Mobilization Advance**

No Mobilization advance shall be paid.

**1.15 Tax**

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

**1.16 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 HLL after completion of job. All drawings shall be on AUTOCAD and in A0 sizes only. All Reports/ investigation. Data in 03 (three) sets to be attached in copy including Drawings etc. complete. If any.

**1.17 Water**

The Agency shall make his/ their own arrangements for water of suitable quality required for their scope of work and nothing will be paid extra for the same.

**1.18 Power**

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

**1.19 Submission of Tender:**

Sealed Quotations (Hard Copy) addressed to **Associate Vice President (HCD)** are to be submitted before 4.00pm by 26.12.2023 at following address (**HLL Lifecare Limited, HLL Bhavan, No26/4, Tambaram-Velachery Main Road, Pallikaranai, Chennai 600 100, Tamilnadu**) will be valid for 60 days from the date of submission of quote.

The date & time of opening of Bids is on 26.12.2023 at 16.30 Hrs. The venue of opening of bids shall be Chennai Office, HLL at the above address.

All pages of the NIQ documents and supporting documents if any and quotation sheet (Annexure-1 ) to be signed & sealed by authorized representative of Agency. Multiple forms can be submitted for different projects.

**1.20 Completion Time**

Total time period for completion of job will be as per following from the date of issue of letter of award. The work is to be done in phases in order of priority as given below:-

**Table-1**

<b>S.NO.</b>	<b>Particulars(a)</b>	<b>Submission of Draft report (b)</b>	<b>Submission of Final Report (c)</b>
<b>A.</b>	Soil Investigation Report	10 Days from the date of award of work	20 Days from the date of award of work

**1.1 TERMS OF PAYMENT**

**Table-2**

<b>S. No.</b>	<b>Stage of Work</b>	<b>Percentage of Total fees payable</b>
<b>1.</b>	After submission of Report and recommendation	90 %
<b>2.</b>	After completion of foundation works	10 %

## ANNEXURE 1

**PRICE BID FOR SOIL INVESTIGATION FOR THE CONSTRUCTION OF NEW BUILDING AT FHC KUNISSERY, PALAKKAD DISTRICT, KERALA.**

	<b>Details</b>	<b>Rate, Rs/Unit.</b>
1	Mobilization including transportation of all necessary plant and equipment's and materials of boring, field testing and sampling, including loading & unloading, Site clearance needed if any and demobilization after completing the work. (Site visit may be done prior to quote)	/Site
2	Setting up boring rig at each bore hole locations including carrying all necessary plant, equipment and materials of boring and field tests and collection of samples at each bore hole location including shifting of machine from bore hole to bore hole.	/Each Bore hole
3	Boring with rotary power drilling equipment's in all types of soil excluding hard rock or medium rock for strata including conducting S.P.T and recovery of samples at specific intervals.	
a)	Upto 10m	/m
b)	For next 10m upto a depth of 20m	/m
c)	From 20m to 30m depth from GL	/m
d)	From 30m to 40m depth from GL	/m
4	Boring through soft rock/ boulders/laterite (except hard rock). N value >50 using Tungsten carbide core drilling as per specification.	
i)	0 to 10m	/m
ii)	10 to 20m	/m
iii)	20 to 30m	/m
5	Boring through hard rock / boulders using Tungsten carbide drill coring as per specification (minimum of 2.5m to 3m per borehole is required to assess the type of joints, rock etc)	/m
6	A comprehensive report with Compilation of all field data with recommendation for a suitable foundation after conducting necessary lab tests (report in triplicate) (three to five boreholes for a site)	/Set
	<b>Total estimated amount for the work</b>	
	<b>GST @ 18%</b>	
	<b>Grand Total (Estimate)</b>	