

Request for Proposal (RFP)

for

Engagement of Agency for Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.



Tender reference no.: 04/JREDA/BS/FSPP/23-24

Jharkhand Renewable Energy Development Agency (JREDA)

3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-834002.

Ph.: 0651-2491161, Fax: 0651-2491165,

E-mail: info@jreda.com; Website: www.jreda.com

Govt. of Jharkhand
Energy Department
Jharkhand Renewable Energy Development Agency (JREDA)

3rd Floor, S.L.D.C. Building, Kusai Colony, Doranda, Ranchi-834002.

Ph.: 0651-2491161, Fax: 0651-2491165,

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e-Procurement Notice

Tender Reference No. : 04/JREDA/BS/FSP/23-24

Dated: 24.04.2023

1	Name of the work	Engagement of Agency for conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.
2	Work completion period	01 (One) Month
3	Date of publication of NIT on website: http://jharkhandtenders.gov.in	26.04.2023 (Wednesday)
4	Date & time of Pre-bid meeting	08.05.2023 (Monday) at 2.00 P.M.
5	Last date & time for receipt of online bids	22.05.2023 (Monday) upto 05:00 P.M.
6	Submission of original copies of Bid fee & EMD (Offline)	22.05.2023 and 23.05.2023 up to 5.00 P.M.
7	Technical Bid Opening Date	24.05.2023 (Wednesday) at 03:00 PM
8	Name & address of office inviting tender	Director, Jharkhand Renewable Energy Development Agency(JREDA) 3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002 (Jharkhand)
9	Contact no. of procurement officer	9570086777
10	Helpline no. of e-procurement	0651-2491167/68/61

Any corrigendum/addendum can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com. Further details can be seen on website: <http://jharkhandtenders.gov.in> & www.jreda.com

Sd/-
Director,
JREDA, Ranchi

Section -1: List of Important dates & details of Bids

NIB No: 04/JREDA/BS/FSPP/23-24

1.	Name of work	Engagement of Agency for Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.
2	Estimated cost	Rs. 2,00,00,000.00
3	Tender reference no.	04/JREDA/BS/FSPP/23-24
4	Contract period	01 (One) Year
5	Mode of submission of tender	Online through www.jharkhandtenders.gov.in
6	Tentative Quantity	Detailed Survey work of Chandil Dam, Saraikela-Kharsawan.
7	Tender fee	General Bidder: Rs. 10,000/- (Ten Thousand) only.
		MSEs Bidder: Nil.
8	Earnest Money Deposit	General Bidder: Rs. 4,00,000/- (Rupees Four Lakhs only)
		MSEs Bidder: Nil.
9	Publishing on website	26.04.2022 (Wednesday)
10	Period of downloading of bidding documents	Start date: 27.04.2023 Time: 10.00 AM
		End date: 22.05.2023 Time: 05.00 PM
11	Bid online submission	Start date: 10.05.2023 Time: 10.00 AM
		End date: 22.05.2023 Time: 05.00 PM
12	Technical bid opening date	24.05.2023 (Wednesday) Time: 03.00 PM
13	Authority inviting bids	Director, Jharkhand Renewable Energy Development Agency(JREDA)
14	Address	Jharkhand Renewable Energy Development Agency(JREDA)3 rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002. Ph. No: 2491161, Fax No: 0651-2491165 Web site: www.jreda.com E-mail: info@jreda.com

Note: The Tender Fee & EMD in original must be submitted on **22.05.2023 and 23.05.2023** up to 5.00 P.M. If tender fee and EMD are not received before mentioned date and time, tender shall be considered invalid.

Place for receiving Tender fee & EMD:

Jharkhand Renewable Energy Development Agency (JREDA), 3rd Floor, SLDC Building, Kusai, Doranda, Ranchi- 834002.

Section-2: Notice Inviting Bid

NIB No: 04/JREDA/BS/FSPP/23-24

Definitions

Unless the context otherwise requires, the following terms whenever used in this RFP and Agreement have the following meanings:

- a. “Applicable Law” means the laws and any other instruments having the force of law in India as they may be issued and in force from time to time.
- b. “Proposals” means proposal submitted by respondents in response on the RFP issued by Jharkhand Renewable Energy Development Agency (JREDA), on behalf of Government of Jharkhand for engagement of Consultants.
- c. “Competent Authority” means the Director JREDA.
- d. “Committee” means committee constituted for evaluation of Technical Proposals.
- e. “Consultant” means Firm/Agency/Individual Expert on the panel drawn up in pursuance of this RFP, which will provide the services to JREDA.
- f. “Agreement” means the Agreement signed by the parties for engagement along with the entire documentation specified in the RFP.
- g. “Day” means Calendar day.
- h. “Effective date” means the date on which the agreement comes into force and effect.
- i. “ITB” means Instructions to Bidders, specified in Section II of RFP.
- j. “IFP” means Invitation for Proposals, specified in Section I of RFP.
- k. “Government” means the Jharkhand State Government.
- l. “Member” means any of the entities that makeup the joint venture / consortium /association, in relation to responding to this RFP.
- m. “Personnel” means professional and support staff provided by the Consultant detailed to perform services to execute an assignment and any part there of
- n. “SOW” means Scope of Work for the Respondents, specified in Section III of RFP.
- o. “Services” means the work to be performed by the Consultants pursuant to the engagement by JREDA and to the agreement to be signed by the parties in pursuance of any specific assignment awarded to them by JREDA

- p. “Resource” means manpower position.
- q. “LOA” means Letter of Award.

Sub.: Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.

Jharkhand Renewable Development Agency incorporated as a society under the Society Act, 1860 under the administrative control of the Department of Energy, Govt. of Jharkhand for promoting use of renewable energy sources and having its registered office at Kusai Colony, Doranda, Ranchi, Jharkhand-834002.

JREDA invites tender for Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.

Technical Eligibility Conditions:

The Bidder should be a registered legal Company/firm/Corporation/LLP in India. The bidder should fulfil the following criteria:

i. Technical

- a) Consortium, Associations and Sub Contractors are not allowed for this tender.
- b) The Bidder should be registered in India with appropriate statutory authorities as required under law. Copies of all such registration papers including PAN, GST and ITR etc. must be enclosed.

ii. Experience:

- a) **The bidder with experience of having successfully completed similar works in any SNA / Govt. Organization / PSU during last 7 years ending last day of receipt of online bids of this tender. The bidder should fulfil the following experience requirement:**

- Three similar completed works costing not less than the amount equal to 40% of the estimated Project cost.

or

- Two similar completed works costing not less than the amount equal to 50% of the estimated Project cost.

or

- One similar completed work costing not less than the amount equal to 80% of the estimated Project cost.

Note: Similar nature of work means carried out Hydrographic / Bathymetric surveys in rivers / large water bodies using Automated Hydrographic Survey System (AHSS), post processing, preparation of drawings and submission of reports as stipulated independently.

iii. Turnover:

- a) Average Annual Financial Turnover in the last 3 years, ending 31st March 2022 should not be less than **60 Lakhs**, obtained only from similar nature of work.

iv. Net worth Requirement:

- a) Bidder should have Positive Net Worth as on 31.03.2022 on the basis of audited annual accounts.

Section-3: Instructions to Bidders (ITB):

NIB No: 04/JREDA/BS/FSPP/23-24

The guidelines to submit bid online can be downloaded from website <http://Jharkhandtenders.gov.in>

The interested bidders can download the bid from the website “<http://Jharkhandtenders.gov.in>”.

To participate in bidding process, bidders have to get ‘Digital Signature Certificate (DSC)’ as per Information Technology Act-2000 to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mention digital signature certificate from any approved vendors (CCA). Bidders, who already possess valid Digital Certificates, need not to procure new Digital Certificate.

The bidders have to submit their bids online in electronic format with digital Signature. The bids without digital signature will not be accepted. No proposal will be accepted in physical form.

Bids will be opened online as per time schedule mentioned in Section 1

Bidders should get ready with the scanned copies of cost of documents & tender fee as specified in the tender document. Before submission of online bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid.

Bidder have to produce the original DD towards tender fee in approved form to the authority “Director, Jharkhand Renewable Energy Development Agency, Ranchi” on the date & time as mentioned in the NIT failing which bidder will be disqualified. The details of cost of documents specified in the tender documents should be the same as submitted online (scanned copies) otherwise tender will summarily be rejected.

Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder has to provide the originals to the concerned authority. The department will not be responsible for delay in online submission due to any reason.

All the required information for bid must be filled and submitted online.

Other details can be seen in the bidding documents.

- a) Details of documents to be furnished for online bidding

- 1) Scanned copies of the following documents to be up-loaded in pdf format on the website <http://Jharkhandtenders.gov.in>.
1. DD towards Tender fee.
 2. EMD.
 3. GST certificate.
 4. PAN Card
 5. Firm's registration certificate.
 6. Audited Balance sheet of last three years
 7. Corresponding Income Tax Return (ITR).
2. Scanned Copies of the Annexures as per the enclosed formats should be uploaded after converting the same to .pdf format.
- I. Annexure-1 Covering Letter (On Bidder's Letterhead)
 - II. Annexure 2: Work Experience
 - III. Annexure-3: Format for Financial Requirement – Annual Turnover
 - IV. Annexure-4: Format for Financial Requirement - Net Worth Certificate
 - V. Annexure-6: Contact Person for the NIB
- 3) Uploaded documents of valid successful bidders will be verified with the original before signing the agreement. The valid successful bidder has to provide the originals to the concerned authority on receipt of such letter, which will be sent though registered post.

b) Validity of proposals

Proposals shall remain valid for the period of 180 days from the date of publication of this RFP. A Proposal valid for shorter period may be rejected as non-responsive.

c) Conflict of interest

JREDA requires that the Surveyor should provide professional, objective, and impartial advice purely based on standard and accepted technical norms and a tall times hold the JREDA's interest's paramount, strictly avoid conflicts with other assignments/jobs or their own corporate interests and act without any consideration for future work. The norms should be based on sound engineering principles guided

by all connected codes and guidelines issue from time to time by central and state authorities.

d) Right to accept proposal

JREDA reserves the right to accept or reject any Proposal, and to annul the Engagement process and reject all Proposals at any time prior to the signing of the agreement, without there by incurring any liability to the affected Respondent(s) or any obligation to inform the affected Respondent(s) of the grounds for such decision.

e) Fraud and Corruption

JREDA requires that the surveyor empaneled through this RFP must observe the highest standards of ethics during the performance and execution of such agreement. In pursuance of this policy,

- a. Defines, for the purposes of this provision, the terms set forth as follows:
 - i. "**Corrupt practice**" means the offering, giving, receiving or soliciting of anything of value to influence the action of JREDA or any personnel of Consultant(s) in contract executions
 - ii. "**Fraudulent practice**" means amiss-presentation of facts, in order to influence a procurement process or the execution of a contract, to JREDA, and includes collusive practice among Respondents (prior to or after Proposal submission) designed to establish Proposal prices at artificially high or non- competitive levels and to deprive JREDA of the benefits of free and open competition;
 - iii. "**Unfair trade practices**" means supply of services different from what is ordered on, or change in the Scope of Work which was given by the JREDA.
 - iv. "**Coercive practices**" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the execution of contract.

b. JREDA shall reject a proposal for award, if it determines that the Respondent recommended for award, has been determined by JREDA to having been engaged in corrupt, fraudulent or unfair trade practices.

c. JREDA shall declare a Consultant ineligible, either indefinitely or for a stated period of time, for awarding the contract, if it at any time determines that the Consultant has engaged in corrupt, fraudulent and unfair trade practice in competing for, or in executing, the contract.

f) Liquidated Damages for Delay in Completion:

If the agency fails in the due performance of the contract to deliver the work within the time fixed under the contract or any extension thereof granted to him by JREDA and/or to fulfill his obligations in time under the contract, he shall be liable to pay to JREDA @ 0.5% per week maximum up to 10% of work value delayed beyond contract period.

g) Security Deposit

Successful bidder shall submit a security deposit @10% of the allotted work order value in the form of DD/Bank Guarantee valid for one year on or before 15 days from issuing work order. If Bank Guarantee will not be submitted within stipulated period from the date of issue of work order, then JREDA shall cancel the work order. The Security Deposit shall be refunded / released to the bidder after successful completion of work in line with work completion time line.

Submission of Reports:

NIB No. 04/JREDA/BS/FSPP/23-24

- i. Three (3) copies of each final report should be submitted along with soft copies (editable as well as non-editable) to JREDA.
- ii. All the necessary drawing should be submitted in PDF format, editable AutoCAD format. Final copies of all drawings should be given in Colors.
- iii. Three (3) copies in hard of original drawings in color format in A0 and A1 formats shall be submitted to JREDA.
- iv. Soft copies of original drawings in both PDF and AutoCAD format shall be submitted to JREDA in editable format at the end of each consignment in a compact disk (CD drive) inscribed with the site name and work done.
- v. Levels, coordinates and calculations taken& done for specified survey locations shall be provided in soft copy in both PDF, editable Excel and AutoCAD format. The files so shared shall as in such be suitable for JREDA to edit any changes that occurs in future.

Payment Terms and Conditions

- i. 80 % of the payment shall be made to the successful bidder as per the work order issued after submission of the report in line with Section- Submission of Reports and scope of work and acceptance of report from concerned department.
- ii. 20% payment may be paid after successful implementation of the project; Bidders have the option to claim the remaining 20% payment against submission of BG of equivalent amount valid for one year.
- iii. Subject to any deduction, which JREDA may be authorized to make under this contract, the contractor shall be entitled to payment.

SCHEDULE "A"

Detailed Scope of Work for the Survey Work

NIB No. 04/JREDA/BS/FSPP/23-24

Scope of Work per for Surveyor: -

A. Conducting Bathymetric and Hydrographic Survey for Floating Solar PV (FSPV) power plant

1. The scope of work includes carrying out detailed hydrographic survey including Geophysical & Geotechnical Survey for onshore & offshore of the sites identified for installation of floating solar PV projects.
2. The objective of the survey is to get the bed level contours and Geological & Geotechnical information along banks of the lake to plan and design suitable foundation system like pile, anchor etc. and On-shore Geotechnical Investigations. The purpose of the hydrographic survey is also to locate any rock outcrops, any obstacles at bed level etc. through side scan sonar; and to prepare the bed contour plans at specified contour interval with reference to Datum level, collection of data for depth of water (season wise) and daily & seasonal water level variations under wave or similar action, water flow velocity, and sediment, soil/ rock composition of the banks and at bottom of the water body, etc.
3. The scope includes supplying and mobilizing specially designed survey vessel/boat with all necessary survey tools, equipment and instruments, automated data collection and processing unit including necessary software, qualified and experienced survey personnel, labor, materials etc. as required for detailed hydrographic, geophysical, and geotechnical survey work.
4. The contractor shall provide any clarifications/justification required by Employer during the acceptance of report for the work carried out by the contractor.
5. Safety of survey equipment and survey personnel shall be contractor's responsibility.
6. The work shall be carried out as per applicable Indian regulations.

B. Detailed Scope of Work for Hydrographic Survey:

The scope of work shall cover the following:

- a. Conducting detailed bank to bank Hydrographic Survey of the area under study in a grid of 20m x20m to get the reservoir bed levels. The soundings are to be reduced to Chart Datum (CD) / Sounding Datum (SD) to assess the bed profile. However, at the time of execution of the survey work, depending on the actual area size and hydrographic features, Employer may reduce the survey grid spacing.
- b. Establishing min. 4 (2 on each bank) permanent benchmark at the location (PBM) (accuracy $\pm 0.005\text{m}$) with minimum life span of 5 (five) years for use in future check surveys. The levels shall be on the basis of GTS benchmark or any other established source like Railway station, Permanent PWD/ WRD structure etc. in the vicinity as approved by the Engineer by flylevelling.
- c. Establishing horizontal control (accuracy $\pm 1\text{m}$) and vertical control (accuracy $\pm 0.1\text{m}$) & establishing peg marks at survey grid interval along the shore.

- d. Installing automatic water level gauges at critical locations (to be established during the survey) for recording daily water level variations for min. period of 30 days, low water level (LWL), high water level (HWL).
- e. Collecting data for daily water levels for preceding 10-15 years, LWL, HWL, High and Low tide etc. from Central water commission (CWC), state and local authorities as available.
- f. Clearance of bushes/ shrubs etc. and plants as required to facilitate the on shore geotechnical survey work.
- g. Preparing survey charts/ drawing(s) (contour map) at appropriate scale. Permanent structures located along the shore like berthing place, existing jetty, ferry ghats, water intake, lift irrigation structures, buildings, road/ railway line, overhead HT/LT transmission lines, telephone lines and any cross works across the water body like road or rail bridge, HT/LT overhead transmission lines, telephone lines, cables etc. shall also be surveyed through fly levelling with reference to PBM and marked on the survey drawings.
- h. Standard method shall be adopted for transfer of Datum to PBM as per IHO standard or National Admiralty Manual if any.
- i. Locating and recording survey details of existing obstacles, rock outcrops, any large size sunken objects etc. under water through side scan sonar. Suitable care shall be taken to safeguard any biodiversity at project location during survey.
- j. Photographs of all important on shore and cross water works/ structures and objects shall be taken and included in the survey report.
- k. Studying the existing condition of both the banks (Protected / Unprotected) and length & type of bank protection as required to ensure stable slopes are to be indicated in the report.
- l. Collecting and testing water sample (at 03 points per location) at surface at 0.5 depth & at 0.2d from river bed (d = Depth of Water)
- m. Collecting soil / rock samples (DS & UDS) at bed level through bore hole (BH) at 1.5m interval up to 7m depth below bed level, conducting in-situ tests (CPT/PCPT, Van shear test) and laboratory tests on collected soil samples to obtain design soil properties like soil classification, grain size distribution including hydrometric analysis, organic material content, dry density, total unit weight/ relative density, Atterberg limits, water content, undrained shear test, shear parameters (cohesion, angle of friction), and in case of rock samples RQD, water absorption, total unit weight, and unconfined compressive strength. There shall be 5 No. of BH per location at project site.
- n. Identifying and surveying bed features and obtaining geological (sub-bottom) information (up to depth of 7m) through seismic reflection study.
- o. Measuring water flow/ current velocity (at 03 points per location) (at surface level, half of the depth & at riverbed) for min. 30 days at the time of survey work. Collecting data for daily flow/current velocity over preceding 10-15 years from CWC, State and local authorities as available.

C. Detailed scope of work for Off-Shore Geotechnical Survey:

The scope of work shall cover the following:

- a. Grid – 500mx500m
- b. Bore hole depth 5m below reservoir depth.
- c. Total number of bore holes – 45 evenly spread.
- d. Type of the reservoir bed material and its classification as per Unified Soil Classification System
- e. Assessment of the strength parameters tri-axial shear, direct shear, cohesion, and angle of repose.
- f. Conducting in-situ tests (CPT, Van shear) and laboratory tests on collected soil samples to obtain design soil properties like soil classification, grain size distribution including hydrometric analysis, organic material content, dry density, optimum moisture content, total unit weight/ relative density, Atterberg limits, water content, undrained shear test, shear parameters (cohesion, angle of friction), and in case of rock samples RQD, water absorption, total unit weight, and unconfined compressive strength. Adequate no. of soil samples shall be collected to perform the various laboratory tests.
- g. Chemical analysis of sub-soil and ground water samples. Chemical analysis of sub-soil shall include determination of pH value, carbonate, sulphate (both S03 and S04), chloride and nitrate contents, organic matter, salinity, and any other chemicals harmful to the foundation material. The contents in soil shall be indicated as percentage. Chemical analysis of sub-soil water sample shall include the determination of the properties such as colour, odor, turbidity, pH value and chemical contents such as carbonate, sulphate (both S03 and S04), chloride, nitrate, organic matter, and any other chemicals harmful to the foundation material. The contents such as sulphate etc. shall be indicated as ppm by weight.
- h. Conducting 4 No in-situ ERT tests per location.

D. Methodology to be followed for Hydrographic survey.

- a. The detailed hydrographic survey shall be carried out by using Automated Hydrographic Survey System (using digital Single Beam Echo sounder for depth measurement, GPS/DGPS/latest equipment for position fixing and Hypack (or) equivalent Hydrographic survey software for data logging). All co-ordinates to be shown in the report shall be based on WGS, 1984 reference ellipsoid and UTM, relevant zone with WGS 84 co-ordinates and MSL.
- b. The Horizontal control shall be made from the charts generated from Satellite imageries duly registered with the corresponding Topo sheets. The chart shall also be suitably updated with prominent land features from the Topo sheets/ site condition.
- c. The Vertical control shall be established with respect to the Chart Datum (CD)/ Sounding Datum (SD) already established by Central Water Commission / State Irrigation Department gauge stations along the river / canal (or) suitable CD / SD shall be established by the Bidder. The Datum values shall be given w.r.t. Mean Sea Level (MSL).
- d. The Zero of the gauge shall be connected to the top level of the nearest Bench Mark by levelling. The Zero of the Gauge shall be kept at the Zero level of the CD / SD.
- e. Cross-section sounding lines are to be run from bank to bank at 20 m interval (same as hydrographic survey).

- f. Dry area / very shallow depth area within the bank to bank at datum, which could not be surveyed by using boat shall be surveyed by spot levels using Total Station / equivalent auto levelling instruments with the same interval of Hydrographic survey soundings and their levels shall be reduced to Datum, so that the entire bank to bank cross sections shall have soundings reduced to Datum.
- g. Necessary bar check on depth shall be conducted daily at the starting & ending day of survey work.
- h. The soundings are to be reduced to the Chart Datum/ Sounding Datum established at every gauge station. Relevant environmental parameters which affect accuracy of echo-sounding shall be measured regularly and appropriate correction shall be applied.
- i. Measurement of Current velocity - Float observation (03 nos. per location) (right side, centre & left side of the waterbody) and discharge are to be observed continuously for 30 days. The report shall contain information about max/ min daily values for observation period.
- j. Collecting and testing water sample at surface, at 0.5 d & at 0.2 d from river bed (d = Depth of Water).
- k. Bed features and obstructions like rock outcrops, sunken objects of size >1m shall be identified and located with survey details
- l. Geological information (sub-bottom level) shall be studied using seismic reflection system.
- m. Photographs of the existing prominent along shore objects like Road, Railway track, Pipelines, HT/LT power line, Telephone line, cables on-route, bank protection works, tide gauges, levelling works, bar checks, rock outcrops and any visible exposure of bedrock etc. shall be taken
- n. Matrix (MKS) system should be used for all measurements.
- o. Following minimum information (metadata) shall accompany the sounding data presented in suitable template:
 - Information about the survey in general, e.g. date, area, equipment used, name of survey platform
 - The name of surveyor/agency who conducted the work
 - The geodetic reference system used, such as horizontal and vertical datum
 - Calibration procedures and results
 - Tidal datum and reduction details
 - Total Propagated Error (including respective confidence levels)

Note – Calibration procedure and results which can't be covered in the template shall be documented in a separate report that can be subsequently recovered if necessary to confirm associated data quality.

E. Deliverables, reports and recommendations

The report shall include all the survey details and information as per the scope of work and as listed below including the recommendations.

i. Hydrographic Survey

- a. Survey chart/ drawings shall be prepared on a scale of 1:10000 (for width more than 500 m) & 1:5000 (for width less than 500 m) Contours of 0.5 m interval of the bed shall be indicated on the charts
- b. Positions and values of daily water level, current velocity & discharge are to be marked on the charts and details are to be mentioned in the report.
- c. Positions of collecting water samples and BH under water shall be marked on the charts
- d. Preparing cross sectional and longitudinal profiles of the bed surface surveyed showing Low Water Level (Chart Datum), High Water Level w.r.t MSL
- e. Charts/ bed profile plans showing bed features, rock outcrops, sunken objects (of size >1m)
- f. Sub-bed (sub-bottom) geological profiles (up to depth of 7m) including cross section profiles
- g. Data regarding HWL, MWL, High & Low tide and daily record of current velocity and flow measurement over last 10-15 years obtained from CWC, state and local authorities
- h. Photographs of all important on- shore and cross water works/ structures like road, railway track, pipelines, HT/LT power line, telephone line, cables on-route, bank protection works, benchmark pillars, tide/ level gauges, Bar checks, visible exposure of bedrock and Hydrographic Survey works etc.
- i. The existing condition of banks, whether protected or unprotected and recommendations for any slope protection needed

ii. Geotechnical Investigations

- a. The location and reduced levels of BHs properly drawn to scale and dimensioned with reference to the established grid lines/ coordinates shall be shown on the charts/ survey drawings.
- b. Geological information of the region/area such as geomorphology, geological structure, lithology, stratigraphy and tectonic faults, seismicity of the region and site, core recovery and rock quality designation etc.
- c. A true cross section of all individual boreholes with reduced levels and co- ordinates 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
- d. Plot of standard penetration test 'N' values (both uncorrected and corrected) with depth
- e. Results of all field tests in tabular as well as in graphical forms.
- f. Results of all laboratory tests summarized for each sample as well as in a consolidated table giving the layer-wise soil and rock properties.
- g. All the relevant charts, tables, graphs, figures, supporting calculations, conclusions and photographs of representative rock cores shall be included in the report
- h. For 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.
- i. Photographs of test set up

F. Submission of deliverables

The Bidder shall submit the following as well:

- Draft Report & Survey Charts (Survey chart in pdf & dwg AutoCAD format and Report in pdf & doc / xls MS Office format) shall be prepared & submitted by the Bidder within 21 days after completion of field works. The Bidder shall obtain Employer views / comments and same shall be incorporated in the final Report / Charts.
- Final Report and Charts are to be submitted by the Bidder within 15 days after the acceptance of draft Report & Charts. The Final Hydrographic / Topographic survey charts and geotechnical report shall be prepared as per technical specification.
- All raw data, edited data, processed data and final plotting charts etc. of Automated Hydrographic Survey system and Topographic survey shall be submitted along with final charts.
- All drawing & charts shall be made in good quality of chart paper in A1 size and submitted each set-in good folders.
- Final report shall be prepared in good binding works in 3 sets plus soft copy in pen-drive.
- All Raw data, edited data, processed data and final plotting charts etc. of Automated Hydrographic Survey system and Topographic survey shall be submitted along with final charts in Pen Drives.

SCHEDULE "B"

NIB No. 04/JREDA/BS/FSPP/23-24

Location & Site details of Chandil Dam where survey needs to be done

A. SALIENT FEATURES & HYDRAULIC PARTICULARS OF CHANDIL DAM

S No.	Particulars	Details
1	Silent Features:	
i	Location	Chandil
ii	District	Saraikela-Kharsawan
iii	River	Subernarekha
iv	Seismic Zone	Seismic Zone-II
v	Coordinates	22.974820°N, 86.020803°E
vi	Water Catchment area	5646 Sq. Km
vii	Full reservoir level	189 M
viii	Flood Level	192 M
ix	Minimum drawdown level	169.161 M
x	Dead storage level	169.169 M
2	Name of the Project	Subernarekha Multipurpose Project
3	Purpose	(i) Irrigation (ii) Industrial water supply (iii) Power Generation (iv) Flood Control
4	Benefited states	(i) Jharkhand (ii) Orissa (iii) West Bengal
5	Type of Dam	Composite (Earthen/ Gravity & Masonry)
6	Axis of Dam	22° 58' 15"N Latitude, 86° 1' 20"E Longitude
7	Total length of Dam	720.10M (484 M Concrete+336.10 M Earthen)
8	Width of Dam	8.75 M
9	Width of Pier	4 M (11 nos.), 6 M (2 nos.)
10	Height of Dam	(i) Above Deepest Foundation Level - 56.5 M (ii) Above Lowest River Bed Level - 44.0 M
11	Catchment Area of Chandil Reservoir	5646 Sq. Km.
12	Gross Storage Capacity	(i) At FRL - 1446.966 Mm ³ (ii) At MWL - 1929.303 Mm ³
13	Dead Storage Capacity	58.622 Mm ³
14	Dead Storage Level	169.161 M
15	Design Flood Adopted	(PMF/SPF & Other) 32.340 cumecs
16	Spill Way Type	Ogee, Clear over flow discharge -24700cumecs
17	Spill Way Gate	Number-13, type-radial, size-15mx16m
18	Left Canal outlet-type conduit sill level	171.96m, discharge-84.10 cumecs
19	Pen Stock Row	2-Diameter-3.4m Each length -235m.(Q-55.00 cumecs V – Assuming 3.0 m/sec)
20	Power Generation	2x4 MW Hydel Power

21	Precipitation	Max.-1756mm (1941) Min.-870mm (1954) Avg.-1192mm
22	River sluice	No. & Type -2 Nos. over flow (3mx4m) over flow capacity 45cumecs Each crest level-164.50m
23	Emergency sluice	No. & Type- 2 Nos. over flow (2mx3m) over flow Capacity 30 cumecs Each crest level-152.0m
24	Irrigation from Reservoir	(i) GCA-115261 Ha (ii) CCA - 68800 Ha
25	Important controlling Levels	
i	Deepest Foundation Levels	139.50 m
ii	Lowest River Bed Level	152.00 m
iii	Left outlet crest Level	171.96 m
iv	Right outlet crest level	168.50 m
v	Left Canal Bed Level of Irrigation Bye Pass Channel	170.80 m
vi	Maximum Draw Down Level	169.161 m
vii	Crest Level of Spill Way	177.00 m
viii	Full Reservoir Level	189.00 m
ix	Maximums. Water Level	192.00 m
x	Dam Top Level	196.00 m
xi	Free Board	4.0 m
26	Canal Length	
i	Left bank Canal	127.88 KM (Lined)
ii	Right Canal	0
27	Submergence	
i	Area under submergence	17103.62 hectare
ii	Culturable area	8371 hectare
a	Fully Submerged	2093 hectare
b	Partaly Submerged	6278 hectare
iii	Total population affected	67505
iv	Families affected	14931
v	No. of villages affected	116
a	Fully	38
b	Partly	78
28	Unit Cost of Storage	
i	Cost per MCM of gross storage (Rs. Lacs)	50.05
ii	Cost per MCM of live storage (Rs. Lacs)	60.98
29	Irrigation from Reservoir	
i	G.C.A	115261 hectare
ii	C.C.A	68800 hectare
iii	Annual Irrigation	104883 hectare

Annexure-1 Covering Letter (On Bidder's Letterhead)

NIB No. 04/JREDA/BS/FSPP/23-24

To,

Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, SLDC Building, Kusai Colony,
Doranda, Ranchi-2
Jharkhand

Sir,

Sub: Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.

Having examined the RFP, we, the undersigned, offer to propose for the Engagement of Surveyor with JREDA, in full conformity with the said RFP.

We have read the provisions of RFP and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our proposal shall not be given effect to.

We agree to abide by this Proposal, consisting of this letter, the Pre-qualification and Technical Proposal, the duly notarized written power of attorney, and all attachments including the presentation to be made to the evaluation Committee, if required, it shall remain binding upon us and at any time before the expiration of the period of engagement.

Until the formal final Contract is prepared and executed between us, this Proposal, together with your written acceptance of the Proposal and your notification of award, shall constitute a binding contract between us.

We hereby declare that all the information and statements made in this proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

We are hereby submitting our offer in full compliance with the terms and condition of the above NIB No. We have submitted the requisite amount of Tender Fee in the form of Demand Draft & "Earnest Money" in the form of Bank Guarantee, valid for twelve months.

We understand you are not bound to accept any proposal you receive.

Signature of the authorized person
Full Name, Designation & address
Seal

Annexure 2: Work Experience

NIB No. 04/JREDA/BS/FSPP/23-24

Format for Experience of the Firm

Project Name:		
Client:		Duration (Start; End Date):
Consultancy Contract Value:	Person months input:	Total person months under the Consultancy Contract:
Firm which undertook work:		
Name of associate Consultants, if any:		
Narrative description of project:		
Experience relevant to the present assignment:		

Note: Please attach documentary proof.

Annexure-3: Format for Financial Requirement – Annual Turnover

NIB No. 04/JREDA/BS/FSPP/23-24

[On the letterhead of Auditor/Bidding Company]

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda,
Ranchi - 834002

Sir,

Sub: Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.

We certify that the Bidding Company had an average Annual Turnover of Rs. -----
----- based on audited annual accounts of the last three years ending
31.03.2022.

Sl. No.	Financial Year	Turnover (in Rupees)
1.	2019-20	
2.	2020-21	
3.	2021-22	
	Average Annual Turnover	

UDIN No.:

Authorized Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Annexure-4: Format For Financial Requirement - Net Worth Certificate

NIB No. 04/JREDA/BS/FSPP/23-24
[On the letterhead of Auditor/Bidding Company]

To,

The Director,
Jharkhand Renewable Energy Development Agency
3rd Floor, S.L.D.C. Building,
Kusai Colony, Doranda,
Ranchi - 834002

Dear Sir,

Sub: Conducting and submission of Bathymetry Survey Report and Soil Test Report for the development of Floating Solar Power Project of 600 MW capacity at Chandil Dam, Saraikela-Kharsawan, Jharkhand.

This is to certify that Net worth of _____ {insert the name of Bidding Company}, as on 31st March 2022 is Rs _____.

Particulars	Amount (In Rs.)
Equity Share Capital	
Add: Reserves	
Subtract: Revaluation Reserve	
Subtract: Intangible Assets	
Subtract: Miscellaneous Expenditure to the extent not written off and carried forward losses	
Net Worth as on 31 st March 2022	

UDIN No.:

Authorised Signatory
(Power of Attorney holder)

Statutory Auditor
(Stamp & Signature)

Annexure-5: Price Proposal (in Excel)

NIB No. 04/JREDA/BS/FSPP/23-24
Price schedule for conducting Survey as per Scope of Work

S. No.	Site Location	District	Scope of Work	Unit of Measurement	Quoted Rate including all taxes & charges (in Rs.)
1	Chandil Dam	Saraikela-Kharsawan	Conducting Bathymetric and Hydrographic Survey with ESIA report for Floating Solar PV (FSPV) power plant.	Sq. km	
2			Conducting work for Off-Shore Geotechnical Investigation/ Survey.	Sq. km	
3			Conducting Topography survey for the entire area for locating the existing features.	Sq. km	
Total rate per sq. km (including all taxes and charges)					
Rupees. in words:					

Note:

- 1) The amount indicated in the Financial Proposal shall be inclusive of Goods and Services Tax (GST, associated cases and all other charges).
- 2) JREDA reserves the right to accept or reject any or all the offers without assigning any reason thereof.
- 3) The prices quoted of each item should be firm and for the terms of reference as shown in **Schedule "A"** including cost of man-hours spent in surveyors office and JREDA's office/site during data collection & discussion etc., all expenses for personnel services, visits, transport charges, boarding and Lodging charges, food charges, cost of collecting required data, payment of fees to any department etc. and all necessary services, materials, stationery, computer services, typing, printing Xeroxing etc. to fulfill the requirement of the scope. No escalation in price will be granted on any account. (Refer Clause 3.0)
- 4) The prices quoted must be inclusive of all taxes, duties etc. Service Charges, Taxes and duties, GST as applicable.
- 5) JREDA may have authority to split up the work or allot the work order to multiple Surveyors /Survey agencies on the same rate.
- 6) The rate quoted would be inclusive of lodging, boarding, travelling and other miscellaneous cost.

Annexure-6: Contact Person for the NIB

NIB No. 04/JREDA/BS/FSPP/23-24

[On the letterhead of Bidding Company]

1	Contact Person name for the NIB	
2	Designation	
3	Contact No. (Phone & Mobile)	
4	Fax No.	
5	e-mail ID	
6	Corresponding address with pin code	
7	Remarks	

(Signature of Authorized Signatory)

Name:

Designation:

Company Seal: