वाप्कोस लिमिटेड
WAPCOS LIMITED
(भारत सरकार का उपक्रम)
जल संसाधन, नदी विकास व गंगा संरक्षण मंत्रालय
(A Government of India Undertaking)
Ministry of Water Resources, River Development & Ganga Rejuvenation

ISO 9001: 2008
Consultancy Services
Engineering, Procurement & Construction (EPC)

EoI No.: WAP/KOL/RO/AUTOMATION MASSANJORE/I&WD/2018-19; Dated May 15, 2018

NOTICE INVITING

EXPRESSION OF INTEREST (EoI)

For

'Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning state-of-the-art Supervisory Control And Data Acquisition System (SCADA) for automatic operation of radial (Tainter) spillway and canal head regulator sluice (vertical) gates by integrating real time catchment hydrological inflow forecast of CWC and dam safety monitoring instrumentation for Messanjore Dam (within P.S Dumka in District Dumka of Jharkhand under Mayurakshi Reservoir Project, Irrigation & Waterways Department, Government of West Bengal), including operation & maintenance (O&M) for a period of six years with extended warranty and improvisation of existing electro-mechanical gate drive mechanisms. Training to the project staff, both through class room and on-the-job sessions, is included.'

WAPCOS Limited
(A Government of India Undertaking)
Regional Office,
10th Floor, Jalsampad Bhawan,
Sector-I, Salt Lake, Kolkata-700091
Telephone: 033-23597011/23597045 E-mail: kolkata@wapcos.co.in

WAPCOS Limited
(A Government of India Undertaking)
Regional Office,
10th Floor, Jalsampad Bhawan,
Sector-I, Salt Lake, Kolkata-700091

NOTICE INVITING EoI FOR FOR MOST SUITABLE TECHNICAL SPECIFICATIONS, BOQ AND BUDGETARY QUOTES

Offline bids are hereby invited by the Chief Engineer & Regional Manager(ER), WAPCOS Ltd Kolkata Regional Office on behalf of the Irrigation & Waterways Department of West Bengal through single stage offline sealed bid for obtaining most suitable Methodology, Technical specifications, BOQ and Budgetary quotes from all interested bidders/agencies/contractors within the country having specified Pre-Qualification (eligibility) credential for execution of works of similar nature and financial capabilities. The technical bid and the financial bid will determine the final selection and acceptance of price schedule, items of work, ToR, Specifications and even scope of work for framing of a DPR of the project mentioned later.

The participants may submit their bid with all necessary documents along with the covering letter duly signed by an authorized signatory **on or before 05.06.2018 by 15.00 Hrs** at the following address:

The Chief Engineer & Regional Manager(ER)
WAPCOS Limited
(A Government of India Undertaking)
10th Floor, Jalsampad Bhawan,
Sector-I, Salt Lake, Kolkata-700091
Telephone: 033-23597011/23597045
E-mail: kolkata@wapcos.co.in

(Sd/-)
CE & RM (ER),
WAPCOS Limited,
Regional Office, Kolkata

CONTENTS

SECTION – I

NOTICE INVITING EXPRESSION OF INTEREST (EoI)

EoI No.: WAP/KOL/RO/AUTOMATION MASSANJORE/I&WD/2018-19; Dated May 15, 2018

Subject: Notice inviting EoI for obtaining Technical Specifications, BOQ and Budgetary Quotes.

WAPCOS LIMITED
(A Govt. of India Undertaking)
REGIONAL OFFICE(ER), KOLKATA

Offline Expression of Interests (EoIs) are invited by **CE & RM (ER), Kolkata Regional Office, WAPCOS, on behalf of I&WD, Govt. of West Bengal** from eligible registered firms for obtaining **Methodology, Specifications, BOQ and Budgetary Quotes** for Automation of monitoring & control of Massanjore Dam Spillway Gates and Its Canal Head Regulator Gates at Massanjore , Dumka, Jharkhand.

1.	EoI Document	The EoI document can be downloaded from **www.wapcos.co.in & www.wbiwd.gov.in** from 15.05.2018 onwards
2.	Last date and time for bid Submission	**05.06.2018 at 15:00 Hrs.**
3.	Pre-bid meeting	**22.05.2018** at 10th floor , Jalsampad Bhawan, Salt Lake, Kolkata-700091
4.	Bid Security	**NIL**

For any queries, bidders may contact this office latest by 28.05.2018, 15:00 hours at 033-23597011/45, E-mail: kolkata@wapcos.co.in and semeciwd2017@gmail.com

(Sd/-)
CE & RM (ER),
WAPCOS Limited,
Regional Office, Kolkata

SECTION - II

1.0 INTRODUCTION

The Mayurakshi Reservoir Project essentially consists of a storage reservoir at Massanjore of gross capacity 5,00,000 ac.ft. with three pick-up barrages, one each at, Deocha, Baidara, and Kultor over rivers Dwarka, Brahmani and Kopai respectively as well as a barrage(Tilpara) on river Mayurakshi itself below the dam and a pick-up weir on river Bakreshwar at Kadisala.The project aims to Irrigation a net command area of 5,60,000 acres and 50,000 acres of lands for khariff and Rabi crops respectively in the Districts of Birbhum, Murshidabad and Burdwan. In addition to above, a total area of about 25,000 acres in the territory of Jharkhand State is fed through a canal directly off taking from Massanjore Dam for irrigation purpose. It also generates 2 x 2 MW Hydro-electric power from two sets of Penstock Gates.

The whole of the command area of the project is within the State of West Bengal which has been divided into Blocks as detailed below:

Block A	Brahmani-Pagla Basin	74,000 acres
Block B	Dwarka Brahmani Basin	77,000 acres
Block C	Mayurakshi Dwarka Basin	1,33,750 acres
Block D	Mayurakshi Bakreswar Basin	76,750 acres
Block E	Bakreswar Kopai Basin	45,000 acres
Block F	Kopai Ajoy Basin	1,53,500 acres
	Total	**5,60,000 acres**

The main services of the project were completed in the year on 01-11-1955. Since then, necessary extension and improvement services and modernization of the canal system were in progress. The construction services of the project were completed at the end of 1978-79 and the following physical progress has been achieved in respect of extension and improvement services and modernization of the canal system.

Sl. No.	Item of services	Progress upto March/79
1	Distributaries and Minors	594 km.
2	Water Courses	418 km
3	Additional Canal structures	37 Nos.
4	Buildings	357 Nos.
5	Inspection Paths	343 km.
6	Modernization of canal system (Lining of canal)	23 m.

2.0 SALIENT FEATURES OF THE MASSANJORE DAM

2.1 The Dam is located in between two hillocks at Massanjore (in Jharkhand) and across the river Mayurakshi at about 60 miles from its source. It is Boulder Masonry structure with a concrete spillway having total length of 2,170 feet long with a roadway on the top. The storage reservoir has an area of 27 sq. miles at R.L 398.00 ft (P.W.D).

2.2 i. Height – 155 ft above the deepest foundation level

ii. Level at maximum storage ……398.00 ft. (at FRL).

iii. Capacity corresponding to full reservoir level:

- Live storage – 4,45,000 ac. ft.
- Dead storage - 55,000 Ac. ft.

Total - 5, 00,000 Ac. ft.

iv.	Catchment area	:	718 sq. miles.
v.	Submerged area	:	27 Sq. miles
vi.	No. of flood gates	:	21 Nos.
vii.	Average annual inflow into the reservoir:		7,59,000 ac. ft.
viii.	Super flood discharge capacity	:	3,00,000 Cusec.
ix.	Expected life of the dam	:	100 years

2.3 Type of Dam structure : Boulder masonry dam

2.4 Structural Data

i)	Length of Dam	:	661.41 m (2170.00 ft.
ii)	Height above deepest foundation	:	47.24 m (155.00 ft.)
iii)	Length of non- over~flow section	:	435.86 m (1430.00 ft.)
iv)	Length of over~flow section	:	225.45 m (740.00 ft.)
v)	Top width of the Dam	:	5.48 m (18.00 ft.)
vi)	Top level of non over~flow section	:	124.35 m (408.00ft.)
vii)	Top level of over~ flow section	:	116.73 m (383.00ft.)
viii)	No. of bays in over~ flow section	:	21 (21)
ix)	Width of each bay of over~flow section	:	9.144 m (30.00 ft.)
x)	Bucket invert level	:	93.87 m (308.00 ft.)
xi)	Bucket sill level	:	95.09 m (312.00ft.)
xii)	No. of low level undersluice gates	:	3 (3)
xiii)	Sill level of low level undersluice gates	:	91.44 m (300.00 ft.)
xiv)	No. of high level under undersluice gates	:	3 (3)
xv)	Bed level of high level undersluice gates	:	103.63 m (340.00 ft.)
xvi)	Linear waterway of each under sluice gates	:	2.438 m (8.00 ft)

2.5 Hydraulic data

i.	Full reservoir level	:	121.31 m (398.00 ft.)
ii.	Basin flood level	:	123.14 m (404.00 ft.)
iii.	Dead storage level	:	106.3 m (349.00 ft.)
iv.	Design discharge corresponding to reservoir level	:	4443 cumec. (1,57,000 cusec.)full
v.	Design discharge through low level gates) Head gates	:	67.24 cumec. (2376 cusec/Head
vi.	Canal discharge	:	99.05 cumec (3500 cusec.)

2.6 Hydrological data

i)	Catchment area of the reservoir	:	1859.6 sq. Km (718 Sq. miles)
ii)	Live storage	:	54,868.5ha.m (4,45,000 acre ft.)
iii)	Dead storage	:	6,781.5ha.m (55,000 acre ft)
iv)	Total storage	:	61,650ha.m (5,00,000 acre ft.)

2.7 Other data

i)	H.W.L (i.e., FRL)	:	121.31 R.L (398.00 R.L)
ii)	F.T.L (i.e., FRL)	:	121.31 R.L (398.00 R.L)
iii)	H.F.L (i.e.,FRL)	:	123.14 R.L (404.00 R.L)
iv)	Head over crest of spillway of w.r.t FRL	:	4.572 m (15 ft)

2.8 Irrigation in West Bengal

i)	Benefitted Districts	: Birbhum, Murshidabad and Burdwan
ii)	Gross command area	: 3471 sq.km (1340 sq. miles)
iii)	Net Irrigation area (Khariff)	: 2, 26,688ha. (5,60,000 acres)
iv)	Irrigation (Rabi)	: 20,242 ha.(50,000 acres)

2.9 Mechanical & Electrical sub-components of all radial and canal head gates:-

i. Worm reduction gear box.
ii. Spur Gear and pinion sets of main drive gear box.
iii. Shafts of gear pinion sets of main drive gear box.
iv. Chain and sprocket sets of manual drive system
v. All couplings i.e. between motor to gear box and gear box to floating/torque shaft etc.

vi. Gate lifting chain and sprocket system (partially damaged).
vii. Side guide rollers.
viii. Bush bearings at each rotating points.
ix. Gate structural components i.e. gate leaf, radial arm assembly, horizontal girders etc.
x. Trunion and bracket assembly (trunion hub, pin, bush bearing, bracket etc.)
xi. Anchorage system of bracket assembly with concrete pears.
xii. Rubber seal of Radial, low level undersluice & high level undersluice gates and Jharkhand canal gates.
xiii. Bottom seal beam of each of the gates.
xiv. Head gates lifting ladder and sprocket set etc of each Head gates gate.
xv. Squirrel cage induction motors of each gate of 2.0 H.P and 4 H.P
xvi. Local operating Electrical Control system with push button switches.
xvii. Central operating Electrical Control system with push button switches.(partially damaged)
xviii. Lifting and lowering limit switches (Partially damaged).
xix. Electrical cables.
xx. Gantry Crane with movement for full length of dam but stop-log lowering arrangement for Low Level and High Level Gates only

Irrigation & Waterways Directorate has appointed **WAPCOS Limited**, A Government of India Undertaking under the Ministry of Water Resources, River Development and Ganga Rejuvenation as***'Consultant'*.**

Accordingly, Expression of Interest (EOI) is invited from interested, experienced, registered firms meeting the prescribed qualifying criteria as mentioned in EoI document.

3.0 ELIGIBILITY CRITERIA/PRE-QUALIFICATION

While submitting the proposal, the bidder shall ensure that the bidder meets the conditions of eligibility as described below:

Sl. No.	**Eligibility criteria**	**Capability Assessment Documents**
1.	Should be registered in India	• IT Return • GST No. (If applicable)
2.	Should be a able to supply goods and services from reputed manufacturer	• Authorization of manufacturer, if any

4.	Technical Credentials	• It is desirable to firm have experience in similar nature of works in water resources sector preferably on Dams, Barrages, Hydraulics Structures and Automation areas either as a single entity or as a consortium. • Completion certificate, If any

4.0 INSTRUCTIONS TO BIDDERS

Submission of Application

The EoI document can be downloaded from www.wbiwd.gov.in & www.wapcos.co.in from 15.05.2018 onwards.

Last date & time of submission of bid manually in drop box at office of CE & RM (ER), WAPCOS Kolkata, is on 05.06.2018 till 15:00 Hours (IST).

No processing fee or bid security (EMD) is required during submission of the bid.

The applicant bidders/contractors are advised to carefully read all the 'Terms & Conditions' contained in this EoI. They should particularly go through the minimum desired Pre-qualification (PQ) works credential & financial eligibility criteria and satisfy them for all the mandatory eligibility requirements. Bidders desirous of participating in the EoI and should submit bids only if they fulfill the minimum PQ eligibility criteria and are in possession of all the required PQ Credential documents "in original"

This EoI is not an agreement and is neither an offer nor invitation by 'The Authority' to the prospective Bidders or any other person to allot the project. The information contained in this EoI or subsequently provided to Bidder, whether verbally or in documentary or any other form by or on behalf of the 'Authority' or any of its employees or advisors, is provided to Bidder on the terms and conditions set out in this EoI and such other terms and conditions subject to which such information is provided. The purpose of this EoI is to provide interested parties with information that may be useful to them in making their financial offers (Bids) pursuant to this EoI. This EoI includes statements, which reflect various assumptions and assessments arrived at by the 'Authority' in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This EoI may not be appropriate for all persons, and it is not possible for the 'Authority', its employees or advisors to consider the objectives, financial situation and particular needs of each party who reads or uses this EoI. The assumptions, assessments, statements and information contained in the Bidding Documents, especially the Project Report/data may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments,

statements and information contained in this EOI and obtain independent advice from appropriate sources.

Information provided in this EoI to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The 'Authority' accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The 'Authority', its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this EoI or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the EoI and any assessment, assumption, statement or information contained therein or deemed to form part of this EoI or arising in any way for participation in this Bid Stage.

The 'Authority' also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this EoI.

The 'Authority' may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this EoI.

The issue of this EoI does not imply that the 'Authority' is bound to select a Bidder or to appoint the Selected Bidder/Consortium or Contractor, as the case may be, for the Project and the 'Authority' reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of their Bid including but not limited to preparation, documentation, scanning uploading, expenses associated with any demonstrations or presentations which may be required by the 'Authority' or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and the 'Authority' shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the e-Bid, regardless of the conduct or outcome of the e-Bidding Process.

WAPCOS/I&WD reserve the right to verify all statements, information and documents submitted by the applicant in response to the EoI Document. Failure of the WAPCOS/I&WD to undertake such verification shall not relieve the applicant of its obligations or liabilities hereunder nor will it affect any rights of WAPCOS/I&WD thereunder.

The EoI document shall be submitted by the bidder duly signed on each page of the document. In case the proposal is submitted on the document downloaded from official website, the applicant shall be responsible for its accuracy and correctness as per the version uploaded by WAPCOS/I&WD and shall ensure that there are no changes caused in the content of the downloaded document. In case of any discrepancy between the downloaded or photocopied version of the EoI document and the original EoI document issued by the WAPCOS/I&WD, the latter shall prevail.

The right to suspend the short-listing process or part of the process to accept or reject any or all applications at any stage of the process and / or to modify the process or any part thereof at any time without assigning any reason therefore is reserved by I&WD without any obligation or liability whatsoever.

The bid document should be sealed in single envelope marked with the address, Name of work and EoI notice No., Last Date and Time of submission, Date and time of opening, name and address of the applicant.

The bid document should contain the following documents attached as annexure:

1. Cover Letter (as per Annexure-A/1)
2. Details of Representative from Bidder/Lead Member of Consortium (as per Annexure-A/2)
3. Technical Credentials of the Bidder and / or Consortium (Form-1)
4. Approach and Methodology being adopted by the Bidder and / or Consortium (Form-2)
5. BOQ details with Estimated cost in item rate (as per Form-3)

If the envelope is not sealed and marked as instructed above, WAPCOS/I&WD assumes no responsibility for the misplacement or premature opening of the contents of the Proposal submitted. WAPCOS/I&WD is not responsible for the non-receipt or delayed receipt of bid document send through courier or post.

Note: -

The envelope shall contain EoI document, signed copy of budgetary quotes along with Annexure in the prescribed format

The Proposal shall be made in the Forms specified in this EoI Document. Any attachment to such Forms must be provided on separate sheets of paper and only information that is directly relevant should be provided. This may include photocopies of the relevant pages of printed documents.

EoIs received by WAPCOS after the specified time on the due date shall not be eligible for consideration and shall be summarily rejected.

WAPCOS is not bound to accept any EoI and reserve the right to accept or reject any EoI, and reserve the right to annul the selection process and reject all EoI at any time prior to the award of the selection without assigning any reason(s) whatever and without thereby incurring any liability towards the affected participant(s) on this ground.

5.0 SCOPE OF WORK

Project comprises following sub-components:-

A. **Refurbishing of all 21 no. spillway radial gates, high level and low level Head gates (Total 06 nos.), 02 nos. hydel penstock gates, 03 nos. Jharkhand canal Head gates gate, Gantry crane for high level and low level gates only, repair and servicing, change of spares & components of radial gates and hoist as required & finally suitable rust removal treatment and painting of all structural steel members of Messanjore Dam.**

B. **Refurbishing including replacement of components as necessary of electrical drive motors, local control panels and gate drive mechanisms master control panel, revamping of dedicated AC electric power supply & distribution to Dam proper for automation & DCR including provision for an additional DG set.**

C. **Establishing automatic reservoir operation system through tender in item rate contract under EPC. Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning state-of-the-art Supervisory Control and Data Acquisition System (SCADA) for automatic operation of radial (Tainter) spillway and canal head regulator sluice (vertical) gates.**

   The SCADA system consist of a Master Control Station(The Dam Control Room or DCR) involving Master Control Panel at the Dam inspection gallery and an ancillary control panel, computer servers (with standby computer with video wall)for Human Machine Interface (HMI), data collection, data base and communication with remote field data collection units for exchange of data and control commands; Remote Terminal Units (RTUs) for each gates connecting to sensors in the process, converting sensor signals to digital data and sending digital data to the Master Control Station system; Controller used in RTUs for initiating control action and matching set point under DCS control; and communication network connecting the supervisory system to the Remote Terminal Units.

D. **Collection and dissemination of real time hydrological inflow data of CWC either by sms (GSM) to servers or integrating with CWC flood forecasting website to be integrated with SCADA system; Provide advanced measuring instrumentation such as ARG, silt transducers, strain-stress measurement**

instrument and water level measuring sensors at upstream and downstream of Dam and Gate position sensors interfaced with the SCADA Master Station.

E. **Demonstration of trial runs of the systems installed for satisfactory operation of Authority.**

F. **Civil construction of the SCADA Master Control Station known as Dam Control Room adjoining to the Dam and construction two other Monitoring Stations at Suri & Burdwan in campuses of offices of Irrigation & Waterways Directorate.**

G. **Operation & Maintenance (O&M) of hardware and software systems during guarantee and Extended Warranty for six years**

H. **Imparting training on to the project both by way of class room and on-the-job training sessions.**

I. **Guarantee against defect liability for one year after the satisfactory completion of total work and Extended Warranty of further five years.**

5.1 The intent for implementation of the above described system is to leverage the advances in sensor, data acquisition, wireless communication and IT technologies, and benefit reservoir operation efficiency and accuracy supported by Decision Support System (DSS) leading to flood passage in view of dam safety and water resource conservation and distribution.

The detailed cost estimate will be prepared in four parts:-

Part I – containing repair, maintenance, overhauling and replacement if required of the existing electro mechanical components after thorough inspection of 21 nos. spillway radial gates, high level and low level Head gates (Total 06 nos.), 02 nos. hydel penstock gates, 03 no. Jharkhand canal Head gates with their hoisting system, 01 no stop log gate and gantry crane for smooth and safe operation of the whole automation system.

One set of spares of electro mechanical components may also be included as redundancy in, hoist system, electrical system and power supply.

Part II – Item wise detailed specifications for:

- SCADA system components e.g Master Station HMI, alarm monitoring / handling and other allied servers, sensors, RTU, PLC and communication front end server.
- Rain gauges with telemetry, Automatic Weather Station.
- Seepage, uplift pressure cells and tilt measuring system.
- Reservoir and stream gauging station water stage measuring instruments.
- Hydrological model software

- SMS message facility
- Cloud data storage on NIC
- HMI of PC based and panel based with touch screen control and 98" LED video walls at DCR, Suri and Burdwan (3 nos. location) offices of Irrigation & Waterways Directorate.
- Real time data and video streaming in local control room and any headquarters as specified by the Department through VSAT by suitable extended C band with upon obtaining WPC.
- VSAT communication between the four stations with WPC
- Redundancy in PC, Control panels, sensors, telemetry, all software and hardware.
- Protection against software hacking of the level of DRDO
- Integrations of CWC inflow forecast into Dam Reservoir with SCADA
- Installation of adequate no. of lighting arresters and taking preventive protections against lightning strikes to various electrical and electronics components at the Dam and the control and monitoring stations.

Part III Construction of a Dam Control Room adjoining the main dam structure on Government land including complete electrification, sanitary and plumbing services with full furnishing and repair, maintenance, renovation and improvement of the dam, civil structure.

Part-IV Appropriate painting of all gates, electro mechanical components, gantry crane etc after undertaking suitable rust removal treatments.

6.0 DECLARATION

I/We have completely read and hereby accept the scope of work, requirements, terms & conditions.

Signature of bidders authorised
Representative with seal:

Full address:

SECTION - III

ANNEXURE – A/1

Cover letter for Expression of Interest

To,
The Chief Engineer & RM (ER)
WAPCOS Limited
Jalasampad Bhava, 10th Floor
Salt Lake, Kolkata 700091
Ph. No. 033 23597045 & 033 23597075
E-mail: kolkata@wapcos.co.in

Sub: ***Submission of bid for obtaining Methodology, Technical Specification, BOQ and Budgetary Quote for the proposed:***
Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning state-of-the-art Supervisory Control And Data Acquisition System (SCADA) for automatic operation of radial (Tainter) spillway and canal head regulator undersluice (vertical) gates with integral real time catchment hydrological data acquisition system and dam safety monitoring instrumentation for Messanjore Dam

Dear Sir,

In response to the Invitation for Expressions of Interest (EoI) published on _____ bearing Ref. No. _____ "Design, formulate, supply, integrate, installation, testing, conduct trial runs, and commission, state-of-the art Supervisory Control And Data Acquisition System (SCADA) for automatic operation of radial (Tainter) spillway and canal head regulator sluice (vertical) gates and real time catchment hydrological data acquisition system for Messanjor Dam (within P.S Dumka in District Dumka of Jharkhand under Mayurakshi Reservoir Project, Irrigation & Waterways Department, Government of West Bengal), including operation & maintenance (O&M) for a period of six years with extended warranty and improvisation of existing electro-mechanical gate drive mechanisms. Training to the project staff, both through class room and on-the-job sessions, is included."

I / We acknowledge that the WAPCOS will be relying on the information provided in the Bid and the documents accompanying the Bid for recommendation of the most suitable Methodology, Technical Specification, BOQ and Budgetary quotes for the aforesaid Project, and we certify that all information provided therein is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the Bid are true copies of their respective originals.

I / We shall make available to the WAPCOS any additional information it may find necessary or require to supplement or authenticate the Bid.

I / We acknowledge the right of the WAPCOS to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

I / We declare that:

a) I / We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the Authority; and
b) I / We do not have any conflict of interest in accordance with the EoI document; and

I / We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders.

In the event of my / our being declared as the Recommended Bidder, I / we agree to enter into an Agreement in accordance with the documents that has been provided to me / us. We agree not to seek any changes in the aforesaid documents and agree to abide by the same.

I / We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I / we shall have any claim or right of whatsoever nature if the Project / Agreement is not awarded to me / us or our Bid is not opened or rejected.

The estimated budgetary price has been quoted by me / us after taking into consideration all the terms and conditions stated in the EoI documents, our own estimates of costs including all direct and indirect tax liabilities and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.

I / We agree and undertake to abide by all the terms and conditions of the EoI document.

In witness thereof, I / we submit this Bid under and in accordance with the terms of the EoI documents.

Yours faithfully,

(Signature, Name & Designation of the Authorized Signatory)

Date:

Place:

Name & Seal of Bidder

ANNEXURE – A/2

Details of Representative from Bidder/Lead Member of Consortium

Part A : General Information of Bidding Companies/Agency		
1	Name of the Company/Agency	
2	Type of Organization	
3	Address of the registered office of the company/Agency	
4	Year incorporated	
5	Address for communication	
6	Contact person: Name Designation Phone No. Fax No. Mobile No. Email address	
	General Information Subsidiary and Associated Companies (wherever applicable):	
1	Name of the company	
2	Address of the registered office of the company/Agency	
3	Nature of Business	
4	Brief description of company (not more than 100 words)	
5	Any other information the bidder would like to include:	
Part B - Details of GST		
1	GST Registration No.	
2	LUT No. for zero rated supply	

ANNEXURE-B/1

(Form-1)

Technical Credentials of the Bidder and / or Consortium

Name of Client (End User) :	
Name of the Work :	
Nature of Work :	
Description of services performed by the company :	
Project Location :	
Name, e-mail ID, telephone no. and fax no. of client's	
Project Cost (Rs. in lakh)	
Start date and finish date of the services (month and year):	
Brief description of the Work:	

Notes:

- Use separate sheet for each Eligible Assignment.

ANNEXURE-B/2

(Form-2)

DESCRIPTION OF APPROACH AND METHODOLOGY, RESPONDING TO THE EOI SCOPE

A description of the approach, methodology and work plan for performing the assignment, including a detailed description of the proposed methodology and staffing for the assignment.

- ***Technical Approach and Methodology.***{Please explain your understanding of the objectives of the assignment as outlined in the scope mentioned in the Expression of Interest (EoI) document, the technical approach, and the methodology you would adopt for implementing the tasks to deliver the expected output(s), and the degree of detail of such output. Please do not repeat/copy the EoI in here.}

ANNEXURE-B/3

(Form-3)

BOQ DETAILS WITH ESTIMATED COST

a) Schedule of Work of the Project: Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning state-of-the-art Supervisory Control And Data Acquisition System (SCADA) for automatic operation of radial (Tainter) spillway and canal head regulator sluice (vertical) gates by integrating real time catchment hydrological inflow forecast of CWC and dam safety monitoring instrumentation for Messanjore Dam (within P.S Dumka in District Dumka of Jharkhand under Mayurakshi Reservoir Project, Irrigation & Waterways Department, Government of West Bengal), including operation & maintenance (O&M) for a period of six years with extended warranty and improvisation of existing electro-mechanical gate drive mechanisms. Training to the project staff, both through class room and on-the-job sessions, is included.

b) Size of gates (W x H):

(i) Spillway radial gate (21 nos)	-	9.12 m x 4.6 m
(ii) High & low level sluice gate (06 nos)	-	2.045 m x 3.412 m
(iii) Hydel penstock emergency gate (02 nos)	-	3 m x 3.66 m
(iv) Stoplog gate (01 no)	-	2.4 m x 3 m(approx)
(v) Jharkhand canal head valve gates (03 nos)	-	Dia 36 inch

i) Electro-mechanical sub-component (for budget quotes) :

Sl.No.	Description of work based on preliminary assessment	Qty	unit	Description of work proposed by the bidders. (Budgetary quotes)	Qty (Budgetary quotes)	Unit (Budgetary quotes)	Rate/unit (Rs) (Budgetary quotes)	Amount (Rs)
1	Refurbishing of the existing all mechanical & structural components of 21 nos.	1	Complete					

	spillway radial gates, high level and low level sluice gates (06 nos.), 02 nos. hydel penstock emergency gates, 03 no. Jharkhand canal Head gates with their hoisting system, 01 no stop log gate and gantry crane for smooth and safe operation as per desired Technical Specifications and Standards including disposal of replaced parts as per EPC-Agreement to satisfaction of the E.I.C.		Job					
	Scope of work of sl no 1:							
1.1	Opening the main drive gear box, end reduction gear box, worm reduction gear box, removing and cleaning all existing Gears, Pinions, Shafts, Bearings, rope drums, wire ropes & other ancillary components by suitable means / media and remove old Gear Oil/ Grease, rust and foreign contaminants and then Greasing & Lubricating all the Bearings with suitable Volume Pumps by application of adequate quantity of Servo Gem E.P.-2 or equivalent Grease, filling up the gear boxes with Servo Gear HP 140 or equivalent Gear Oil to maintain adequate Oil Level and refitting all the components to correct alignment position including replacement of damaged components, nuts, bolts & washers with							

	new ones of BIS specifications, replacement of new Gasket/ Oil Seals for making the Gear box Oil leak proof. Repairing, servicing fitting fixing with correct alignment of lifting rack pinion mechanism, couplings, plummer block bush bearings, checking and aligning of torque shaft/floating shaft etc.							
1.2	Servicing and repairing of damaged / cracked structural parts, welds of skin plate joints, splice joints, Hoist bridges, Arms, Horizontal girders and bracings, Tie flats, Trunnion girders / Yoke girders, Trunnion brackets etc. Application of suitable quantity of grease to trunnion bearing etc.							
1.3	Servicing, repairing fitting fixing and replacement if required of guide wheel assemblies for any breakage, frozing, corrosion, misalignment etc.							
1.4	Servicing, repairing and replacement of damaged parts and fitting fixing of gantry crane structural and hoist components.							
1.5	Servicing repairing and replacement of damaged parts of Jharkhand canal sluice gates.							

2	**Spillway Gates(Radial Type**), **Sluice Gates, Hydel Gates (Vertical Type) and Valve Type Jharkhand canal gates**							
2.1	Inspection, if required servicing/ overhauling of Driving Motor with all rectifications of connections and terminal wires, alignment checking, adjusting as per direction and to the satisfaction of E.I.C.	30	Job					
2.2	Inspecting and Supplying and fixing ~~of~~ new Limit Switches (Make: Telemecanique /BCH/reputed make) if required for those either missing or nonworking suitable for functioning for each gate of the 21 nos spillway Gates, 6 nos sluice gate, 2 nos hydel emergency gate and gantry crane in place of existing one as per desired specifications to the satisfaction of E.I.C	30	Job					
2.3	Inspecting and Supplying, fitting fixing of new electromagnetic brake system if required for those nonworking as per desired technical specifications and standard, with suitable adjustment for each gate of the 21 nos spillway Gates, 6 nos sluice gate, 03 nos head gate & 2 nos hydel emergency gate and gantry crane as per direction and to the satisfaction of E.I.C.	30	Job					

2.4	Providing, installing, testing and commissioning electrical actuators for with manual drive system of 3 nos Jharkhand canal head gate for taking under automation system. The work including cost of all electro mechanical components to complete the job in all respect as per desired technical specifications and standard to the satisfaction of E.I.C.	3	job					
3	Supply and erection of new Panel Boards for Gantry Crane of Messanjore dam including replacement of old damaged contactor panels, Main Switches, Push button Switches, Drum Controller System and all other necessary components for smooth operation of Gantry Crane and testing it in no load and full load conditions including tightening of all electrical joints checking of cables for smooth operation as per design and drawing to the satisfation of E.I.C. (Make: Siemens/ L&T/Schnieder Electric or equivalent)	1	Job					
4	Replacement of damaged and rusted sprocket chain for 21 nos. Spillway gates with material stainless steel (SS) (5mx2=10m chain/gate) as per drawing conforming to IS:6938-2005 & IS:15530-2004 standard specifications as per	210	R/M					

	directions to the satisfaction of EIC. The work includes supply, assembly, fixing, alignment and service warranty of chain.							
5	Supplying assembly, fixing, alignment with the existing hoisting system of new idle sprocket with bracket arrangement (2nos. For each gate) with service warranty of spillway radial gate (21nos). Conforming to relevant BIS standard specifications.	21	Job					
6	Supplying and fitting fixing of the side & bottom rubber Seal for each of 21 nos. spillway radial gates, high level and low level sluice gates (06 nos.), 02 nos. hydel penstock emergency gates and 01 no stop log gate and dismantling the existing worn out damaged Rubber Seals by suitable means (cutting screw, power cutting wheel etc.) cleaning the Seal base and MS Flats by chipping, scrapping, grinding mending etc. as necessary and fitting, fixing of the new Rubber Seals in position in correct position and alignment by bolting etc. to make it water tight including all other precautionary measures as necessary to complete the job as per drawing and BIS Code							

6.1	For 21 no. spillway Gates Music note or 'J' type rubber seal(solid bulb) as per IS: 11855-1986 & IS:15466 – 2004 of sizes 140 x 16 mm as per desired Technical Specifications & Standards.	200	R/M					
6.2	For 21 no. spillway Gates flat type rubber Seal as per IS: 11855-1986 & IS:15466 – 2004 of sizes 140 x 20 mm thick as per desired Technical Specifications & Standards .	195	R/M					
6.3	For 6 no. under sluice and stop log gates music note or 'J' type rubber Seal(solid bulb) as per IS: 11855-1986 & IS:15466 – 2004 of sizes 130 x 16 mm thick with SS lining as per desired Technical Specifications & Standards .	70	R/M					
6.4	For 6 no. under sluice and stop log gates flat type rubber Seal as per IS:11855-1986 & IS:15466 – 2004 of sizes 100 x 20 mm as per desired Technical Specifications & Standards.	14	R/M					
7	Supply of new MS strips in place of damaged and worn out strips for fixing new rubber Seal on Messenjore Dam Main Gates and Head Regulator Gates of Size:	1	MT					

	50mm (W) x 12 mm(THK) conforming to BIS specifications.							
8	Repairing, maintenance and replacing the damaged bottom seal beam (sill beam length= 9.144m/bay) with new seal beam with stainless steel (SS) sill plate conforming to IS: 4623-2000 specifications after cutting concrete and dismantling the existing sill beam and fitting fixing the new sill beam with steel studs to the correct alignment by grouting with concrete / fire brick stone etc. including disposal of replaced parts for spillway radial gates as per directions to the satisfaction of EIC.	21	Job					
9	Maintenance, repairing and modification of hoist bridge old wooden walkway on 21 nos. spillway radial gates and fitting fixing of new 8 mm Thk MS chequered Plate, angle and flat bar etc. of reputed make to complete the job in all respect for safe movement of operating and inspecting personnel on this way as per desired technical standard .	1	Job					
10	Supply and installation of a new silent type DG set of capacity 100 KVA for entire power supply from Messenjore Dam Power House with all connections and wirings, casings, fittings complete commission and	1	Job					

	connected with auto transfer system chane over switch of Make: Ashoke Layland/Kirloskar/Mahindra or equivalent as per direction and satisfaction of E.I.C							
11	Auto-Transfer system with 3 source change over from 3-Phase AC power supply of WBSEDCL to newly procured DG set power and existing DG Set by installation of converter, suitable change over switches of Siemens/ABB/Mitsubishi Electric/Schnieder Electric/L&T or equivalent reputed brands) including all necessary sub-components retrofitted commissioned to the satisfaction of E.I.C	1	Job					
12	Supplying and fixing of new LED lighting on the existing poles and supplied new poles(as required) for both lighting and beautification purpose in order to improve the general ambience of Messanjore dam as per direction to the satisfaction of EIC.	1	job					
A	**Total amount of Sub –component (i) Electro-mechanical work**							

(ii) Painting of all 32 nos gates with hoisting system, stop log gate, gantry crane and all structural steel members (for budget quotes):

Sl.No	Nomenclature of Item based on Preliminary assessment	Qty.	Nomenclature of Item purposed by the Bidders (Budgetary Quotes)	Qty. (Budgetary Quotes)	Rate per Unit in Rupees (Budgetary quotes)	Amount (Rs) in Lakh
1	Surface preparation with proper protection as per specified standard as laid down in para 4.2.1 of IS code :14177 for painting of barrage/dam gates, stop logs & exposed embedded parts of main barrage/dam gates (covering wire ropes and other lubricating points by suitable protective measure) by sand blast cleaning (SA : 2.5 STD/ requirements given in IS :1477, part-I :1971) including hire charges of compressor, abrasive storage hopper, supply or best quality core sand and all other necessary materials including taxes and scaffolding wherever necessary and all other incidental charge [(description of finish Mili-scale, rust paint and foreign matter is removed completely. Any remaining traces are visible only as slight stains or descoloration in the form of spots or stripes) (ISO 8501-1)] as to remove oil, grease, old painting, dust, rust etc. by use of required suitable material/ solvent to the extent necessary with adequate protective measure for workforce and other parts such as gearbox, roller, bearings etc. as per direction and upto the satisfaction of E.I.C (DFT meter should also be provided by the agency to check the surface roughness after					

	cleaning as per specified standard) [Blast cleaning should be performed with sand/ grit/ shot as per requirements given in IS : 1477 (Part:1) :1971].					
1.1	For Gates and exposed embedded parts as per direction and satisfaction of E.I.C	5995.41 sqm				
2	Surface preparation with proper protection for painting of Hoist bridge and hoisting components etc. of Barrage/dam by hand tool cleaning (wire brushing, chipping, scraping etc. with use of scrapper, abrasive pads, chisels, knives, chipping hammer etc.) mechanical cleaning, and/ or power tools cleaning (pneumatic or electrically operated tools such as impact cleaning tools, rotary cleaning tools, rotary impact cleaning tools etc.) and grinding and also by use of solvent to the extent necessary as and when required in accordance with St 2 as to clean the surface off any rust, moisture, loose/ perished paints, remove oil, grease, dust, scales etc. with cost of materials, labours, scaffolding, staging and all other incidental charges with adopting adequate protective measure for workforce and other parts such as gear box, roller, bearing etc. as per direction and as IS code 14177:1994 to be followed					
2.1	For the Dam/barrage Hoist bridge and hoisting components.	2954.59 sqm				

3	Supplying of Zinc rich primer [Berger Epilux 4 ZR HB Primer Z90-Grey or equivalent Asian Paints, Shalimar, Dulox (containing not less than 85% zinc on dry film) etc. approved by E.I.C.] and applying 2 (two)coats of 40 microns D.F.T. per coat to give a total dry film thickness of 80 micron over prepared surface fit for application of primer on gates and stop logs and other embedded components of gates of barrage/dam gates as necessary including cost of materials, labour, with all scaffoldings, tools, equipments, machineries, safety and precautions,, staging, tools etc and all other incidental charges with providing adequate safety measure for workmen and also to provide D.F.T. meter with latest calibrated certificate issued from reputed institute for checking as per direction and up to the satisfaction of E.I.C. [Application method: Airless or conventional spray](Manufacturer approved thinner for particular paint to be used only) [IS code 14177].					
3.1	For dam/barrage gates and exposed embedded parts as per direction and satisfaction of E.I.C	5995.41 sqm				
4	Supplying & applying of solventless Coaltar epoxy paint (Berger BR Epoxy High Build GF Coating Black or equivalent Asian paint , Shalimar, Dulox etc.approved by E.I.C.) with 2 (two)coats of 150 microns D.F.T. per coat (these should be applied at an interval of 24 hours and also to achieve total dry film thickness including primer coating not be less					

	than 380 micron) over primer coat on gates and stoplogs and other exposed embedded components of Dam/barrage main gates including cost of materials, labour, scaffolding, staging, tools etc and all other incidental charges with providing adequate safety measure for workmen and also provide D.F.T. meter with latest calibration certificate issued from reputed institute for checking as per direction and upto the satisfaction of E.I.C. (Manufacturer approved thinner for particular paint to be used only) [IS code 14177].					
4.1	For barrage/dam gates and exposed embedded parts as per direction and satisfaction of E.I.C	5995.41 sqm				
5	Supply of zinc phosphate primer (Berger Epilux 610 Primer Red Oxide/Grey or equivalent Asian paints, Shalimar, Dulox etc. approved by E.I.C.) and applying 2 (two)coats of 45 micron D.F.T. per coat over prepared surface fit for application of primer on hoist bridge and hoisting components etc. of dam/barrage gates including cost of materials, labour, scaffolding, staging, tools etc. including all other incidental charges with providing adequate safety measure for workmen and also provide D.F.T. meter with latest calibration certificate issued from reputed Recognized institute for checking as per direction and up to the satisfaction of E.I.C. (Manufacturer approved thinner for particular paint to be used only) [IS 14177:1994].					

5.1	For dam/barrage hoists and supporting structures as per direction and satisfaction of E.I.C	2954.59 sqm				
6	Supplying and applying of finished paint consist of one coat of alkyd based micaceous iron oxide paint (Berger EPILUX 4 HB MIO Grey/Blue or equivalent)at dry film thickness of 65 micron followed by two coats of synthetic enamel paint(Berger BR Torpedo GREY/Blue or equivalent) of approved shade conforming to IS 2932: 1974 to give dry film thickness of 25 micron per coat of synthetic enamel (Berger, Asian paints, Shalimar etc approved by EIC)[Total dry film thickness of all the coats including primer coat should not be less than 205 micron] over primer coat on hoist bridge and hoisting components of Dam/barrage including cost of materials, labour, scaffolding, staging , tools etc. including all other incidental charges providing adequate safety measure for workmen and also provide D.F.T. meter with latest calibration certificate issued from reputed institute for checking as per direction and up to the satisfaction of E.I.C. (Manufacturer approved thinner for particular paint to be used only)[IS code 14177:1994].					
6.1	For dam/barrage hoists and supporting structures of Barrage as per direction and satisfaction of E.I.C	2954.59 sqm				
B	**Total amount of sub component (ii) Painting works**					

(iii) SCADA system schedule of work (Budget Quotes):

Sl.No	Nomenclature of Item based on Preliminary assessment	Qty.	Nomenclature of Item purposed by the Bidders (Budgetary Quotes)	Qty. (Budgetary Quotes)	Rate per Unit in Rupees (Budgetary quotes)	Amount (Rs) in Lakh
1	**Complete SCADA system as detailed below:** The broad objective of the project is to monitor and control retainment of reservoir storage and passage of flood discharge through the spillway by automatic operation of its radial gates as per operating rule and the upper and lower sluice gates of Messenjore Dam, and the Jharkhand Canal as required. The SCADA system will receive online inflow data from CWC gauging station situated upstream to be integrated into the system. The spillway gates required to be operated from a control centre to be established at dam site called Dam Control Room (DCR) as per dynamic operational rule, to be incorporated in the system, in order to ensure optimum reservoir filling and passage of flood in emergency. The dam, hydel and canal sluice gates are operated as per water demands from stakeholders. The flow releases are derived from gate openings the rating needs calibration by flow measurement of the discharges and data stored at control centre data base at DCR	**1** Job				

	for accounting. To achieve these objectives, an agency will be engaged for the following: Automation of the reservoir operation by installing a suitable SCADA system comprising following subsystems: • A Human-Machine Interface or HMI that presents operation process data to a human operator. • A computer based supervisory system, situated at a convenient site, which acquires requisite data and sends commands to the control units. • Remote Terminal (telemetry) Units (RTUs) that connects to measuring and status sensors, converting sensor signals to digital data and storing locally and transmitting digital data to the supervisory system. • Programmable Logic Controllers (PLCs) that are alternative to RTUs as field devices being affordable, multi-purpose, flexible, and modifiable in comparison to special-purpose RTUs. • Communication infrastructure which connects the supervisory system to the RTUs/PLCs for exchange of data and commands.					

	Automatic operation of the spillway and sluice gates should ideally meet the following performance requirements: • Flexibility in operation to open and close when required. • Structurally strong and robust. • Safety and reliability. • Automatic opening and closing, not reliant on an operator. • Back up features for redundancy. • Manual overrides. • Minimal maintenance. • Ability to isolate under full head for inspection and maintenance.					
2	**Scope of work:** **A.** Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning state-of-the-art Supervisory Control And Data Acquisition System (SCADA) for automatic operation of radial (Tainter) spillway, upper & lower sluice (vertical), hydel and canal head regulator gates by integrating real time catchment hydrological inflow forecast of CWC and dam safety monitoring instrumentation for Messanjore Dam (within P.S Dumka in District Dumka of Jharkhand under Mayurakshi Reservoir Project, Irrigation & Waterways Department, Government of West Bengal), including operation & maintenance (O&M) for a period of six years with extended warranty and improvisation of existing electro-mechanical gate drive mechanisms. Documentation and training to	1 Job				

	the project staff, both through class room and on-the-job sessions, is part of the work. No. of gates: Radial (Tainter) Gates : 21 Upper and Lower Level sluice Gates : 6 Hydel Gates : 2 Jharkhand Canal sluice gates : 3 **B.** Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning state-of-the-art SCADA control station consisting of comprehensive package of Human machine Interface (HMI) system with drawing program and Servers for interfacing large LED (preferably 110 inch) wall mounted mimic display, data base, SCADA software, communication front end and web. Decision Support System software based on Messenjore dam operating procedure will be desirable to enable operator to issue control commands on that basis. Comprehensive alarm indication and handling shall be included. The web server should be loaded with mailing and SMS software for information select operation personnel for action if any. The SCADA server is to be provided with redundant sever for hot swap. **C.** Design, formulation, supply, integration,					

	installation, testing, conducting trial runs, and commissioning state-of-the-art RTUs/PLCs for data acquisition with local display of: i. Gate positions in terms of gate opening in meters and status - Moving UP/Down/Static employing reliable rotary and/or linear absolute shaft encoder sensors of all gates. ii. Drive Motor supply status: On/trip/single phasing iii. Water Levels with 2 Nos. Radar type Reservoir Water Level Sensors one each for left and right bank iv. RTU for Automatic Weather Station (AWS) data for: Air Temperature Relative Humidity Rainfall Wind Speed Wind Direction Solar Radiation v. Jharkhand Canal discharge measurement using ultrasonic transit time or Doppler method to calibrate gate opening discharge rating vi. All diagnostic parameters battery voltage, Motor current, signal strength etc. Gate RTUs/PLCs to be provided with local control switches to operate individual gate in local mode.					

	The RTU/PLC enclosures should be of grade IP66 The electromechanical gate drive is provided with a 3 phase squirrel cage induction motor and with on-off control. It is proposed to add Variable Frequency Drive (VFD) for control. The control under DCS strategy shall include PID control. Siren alarm to be provided on dam for emergency operations. **D.** Design, formulation, supply, integration, installation, testing, conducting trial runs, and commissioning of Communication Network to transmit data to control centre and based on analysis and decision reached send control commands to RTUs/PLCs for activation to a commanded set point. In the Messenjore dam the distances involved are about 2 km from the end point of last gate. Among the available broad alternative choices are wireline and wireless communications. The wireline choice includes copper wire and optical fibre. In wireless plausible choices are GSM/GPRS and VSAT. It is considered that since the control devices and data collection points are within 2 km and for reliable communication wireline communication links with optical fibre are suited in this					

	case. When it is laid in loop topology it inherently provides redundancy However, suggestions for other alternatives are welcome keeping in view the reliability of 99.9% availability. The communications protocols to be used have to be from open standards.					
3	**Supply of:** Downward looking ADCP for discharge measurements with floating platform mounted with DGPS, communication hardware and PC for data collection. Upward looking ADCP for canal discharge measurement	1No.				
4	Automatic Weather Station with sensors for Air Temperature Relative Humidity Rainfall Wind Speed Wind Direction Solar Radiation With data logger and communication interface.	1 Unit				
5	Radar type water level sensors	2 Nos.				
6	Supply & Installation of split-type Air conditioning system each of 2 ton capacity electric saver with 5-star rating of Hitachi/LG/ Samsung or equivalent reputed brand (2 nos at DCR) including civil and complete electrical, overall wiring works as per Technical Specifications & Standards of the RFP	4 Per Set				

7	Contractors/Manufacturers Guarantee for replacement of any defective spares, equipments, components, accessories of entire project work during the such period and providing security against theft or pilferage to ensure uninterrupted operation (Guards, Operator, Mechanic, Helper in three shifts per day x 365 days) as per EPC Agreement.	12 Month				
8	Operation & Maintenance of all 32 nos. Messenjore Dam and canal head regulator gates as per direction and instruction of the E.I.C issued from time to time and guidelines for operation through remote control system including safety & security of automation equipments only and its installations, providing warranty period repair of all spares, equipments, components, accessories & installations of entire automation system(Remote control and other equipments) only during such period from 2nd year to 6th year of extended warranty defect liability period for five years as detailed under the Technical Specification & Standards of the RFP.					
9	At the successful completion of 1st year of extended warranty period	12 Month				
10	At the successful completion of 2nd year of extended warranty period	12 Month				
11	At the successful completion of 3rd year of extended warranty period	12 Month				

12	At the successful completion of 4th year of extended warranty period	12 Month				
13	At the successful completion of 5th year of extended warranty period	12 Month				
14	Trainings of Departmental engineers and operators as detailed in the Technical Specification & Standards (Type of trainings and session periods) of the RFP on entire remote control system of operation and other equipments and training to deal with emergent situation along with submission of 4 sets of O&M Manual on Gate operation both in soft copies (DVD) as well as hard bound paperback booklet forms as durable documentation as desired by the E.I.C	15 Number of Training Session				
15	Supply, installation, commissioning and trial-run of PTZ Night vision Cameras of Sony/Cannon brand with NVR GW Security 16CH independent PoE 5MPixel NVR 4TB Network Security System with 12 HD 1920P 2.8 12mm Manual Varifocal Lens 64PCs IR LED Waterproof IP Cameras or equivalent of 25GB storage of recording with 240° rotation screen resolution compatable to with stand harsh environments for 24 X 7 monitoring as per Technical Specifications & Standards of the RFP.	6 Nos.				
C	**Total amount for sub component (iii) SCADA-PLC system Automation sub component schedule of work including one year defect liability O&M and extended Warranty period O&M for next 5 years**					

(iv) Sub component of civil work (for budget quotes):

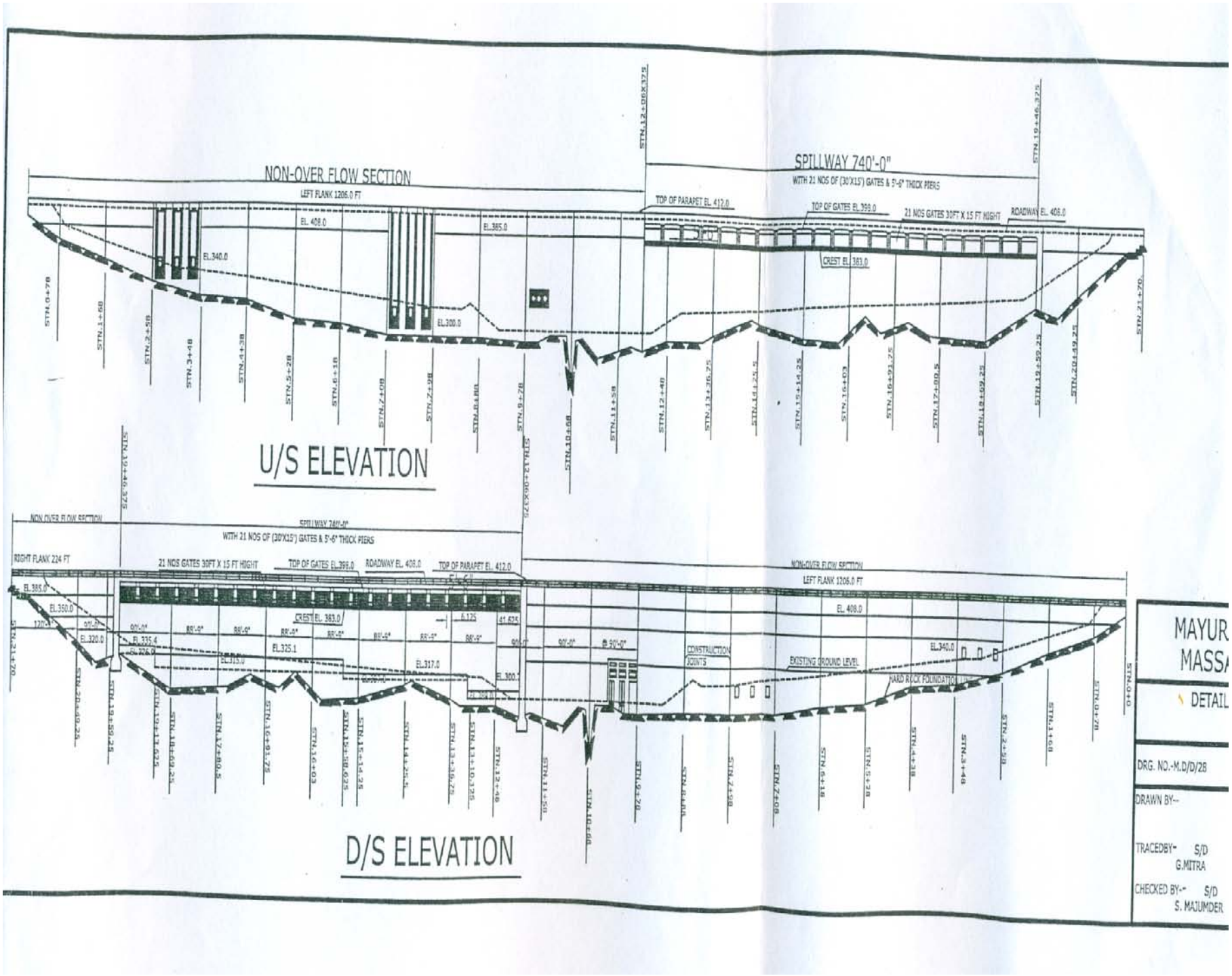
Sl.No	Nomenclature of Item based on Preliminary assessment	Qty.	Nomenclature of Item purposed by the Bidders (Budgetary Quotes)	Qty. (Budgetary Quotes)	Rate per Unit in Rupees (Budgetary quotes)	Amount (Rs) in Lakh
1	Civil Construction of Dam Control Room (DCR) with toilet block at Massanjore and renovation of two monitoring stations, complete interior and exterior decorative works, procurement of furniture required for renovation and remodelling of Dam control room and two other monitoring stations at Suri and Malda/Kolkata (all equipments of the Master controller at DCR is required to be installation of Automation & Remote control panel system with all furniture, equipments and fixtures as per SCADA Room cum DCR as per GAD Plan). – - Control room size would be 6.5 X 5 meter over the existing WBSEDCL Power House control room. - Two side brick wall and two side tampered see thru window glass with RCC roof top facing toward dam downstream spillway. - The scope includes plastering, tile fixing, painting, wiring, aluminium window and door fixing etc.					
2	Supplying of Furniture (Godrej interio make) and Office Appliances – - Computer table with revolving chair - Sofa set (Three seater) - Chair (wooden type) - Office Table - Wardrobe - Refrigerator	2sets 2 sets 10 nos. 2 nos. 2 nos. 1 no. —				

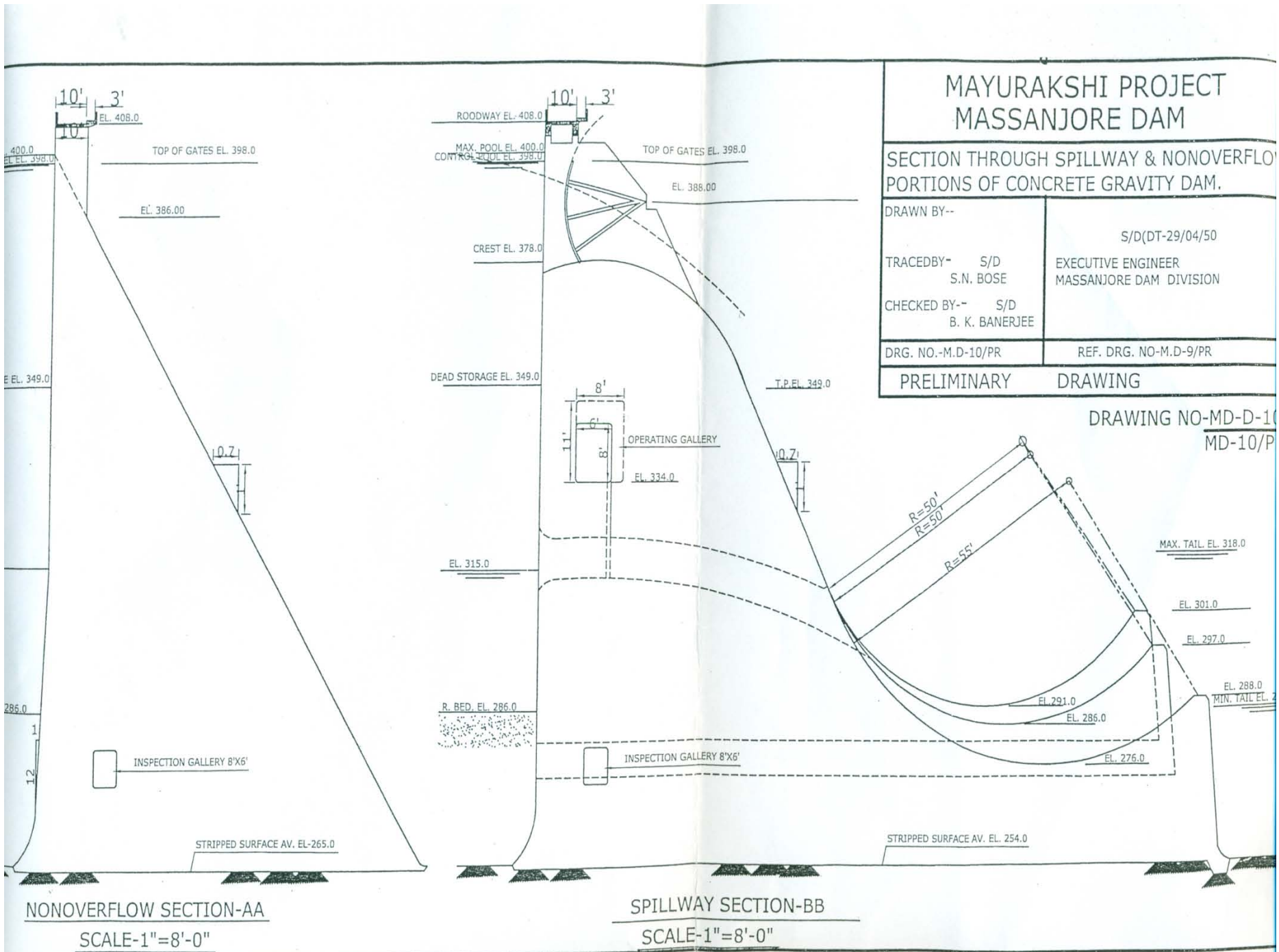
	- Air Conditioner(as per control room requirement) - Microwave oven - Electric kettle - Water Purifier	1 no. 1 no. 1 no.				
3	Renovation of existing room in I&WD campus at two locations namely Myaurakshi Head Quarters, Suri and Malda/Kolkata as a monitoring station with separate toilet blocks. The work comprising, repair, floor tiling, plastering, panting, door-window supply & fixing and supply of required appliances and furniture of Godrej interio make as per the requirement.	2 sets				
D	**Total amount of Sub component (iv) civil work**					
	Total amount (A+B+C+D)					

Note:-

1) Set for remote stations includes required sensors, data collection platform, solar power charging system & Solar power panel with battery backup, grounding and surge protection, pole/mast and sensor supports and brackets, lightening protection, GSM radio and antenna or VSAT radio and antenna as per the requirement of particular category of stations or their combinations as specified in the above table.
2) Set of SCADA includes Remote Terminal Unit and frame, Housing boxes, Gate Control Console, Diesel generators and AMF panels, local barrage control software, control cable wiring OFC/Ethernet housing etc. This set will be used for Barrage location proposed for SCADA and no data collection platform will be needed.
3) If Technical Specifications do not cover any equipment or any other item specified in list of goods, appropriate specifications may be assumed which shall satisfy functional requirement of the equipment under consideration as per BIS, German or American Standards only..
4) Each station will need civil work in the form of gauge house, chain link fencing and foundation or support for mounting equipment. Approximate size of gauge house to be constructed in brick masonry will be 2.5mX2.5m and height 3.0m.The chain link fencing for 7.0mX7.0m area and of appropriate height. Appropriate mount or support or foundation block size for mounting equipment may be assumed by agency which will satisfy functional requirement of the equipment.
5) All descriptions in the schedule of works are indicative of the details provided in the complete EPC Agreement document.

ANNEXURE-C


NON-OVER FLOW SECTION
LEFT FLANK 1206.0 FT
SPILLWAY 740'-0"
WITH 21 NOS OF (30'X15') GATES & 5'-6" THICK PIERS
TOP OF PARAPET EL. 412.0
TOP OF GATES EL.398.0
21 NOS GATES 30FT X 15 FT HIGHT
ROADWAY EL. 408.0
CREST EL. 383.0
U/S ELEVATION
RIGHT FLANK 224 FT
CONSTRUCTION JOINTS
EXISTING GROUND LEVEL
HARD ROCK FOUNDATION
D/S ELEVATION
MAYUR
MASSA
DETAIL
DRG. NO.-M.D/D/28
DRAWN BY--
TRACEDBY- S/D
G.MITRA
CHECKED BY-- S/D
S. MAJUMDER



NONOVERFLOW SECTION-AA

SCALE-1"=8'-0"

SPILLWAY SECTION-BB

SCALE-1"=8'-0"