

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

**MINISTRY OF AGRICULTURE, LIVESTOCK, LANDS AND
IRRIGATION**



MAHAWELI AUTHORITY OF SRI LANKA

BIDDING DOCUMENT

For

**Replacement of Rubber Seals, Repainting of the Gates, and Servicing and
Renovation of the Hydraulic System at the Tunnel Intake of the Bowatenna
Reservoir.**

CONTRACT NO.: DDG/TS/CON/HW/BOW/50

NAME OF THE BIDDER :
EMAIL ADDRESS :
WHATSAPP NUMBER :

August 2026

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SECTION – 01

INSTRUCTIONS TO BIDDERS

Instructions to bidders applicable for this Contract are that given in section – 01 of the standard Bidding Document for Procurement of Works, ICTAD Publication No. ICTAD/SBD/01, second Edition, January 2007, published by the Institute for Construction Training and development (ICTAD).

This publication will not be issued with the Documents and the Bidder is advised to procure it from ICTAD.

Instructions to Bidders shall be read in conjunction with Bidding Data provided under Section – 05 of the Bidding Document.

Instructions to Bidders will not be a part of the Contract.

VOLUME 1

SECTION 2

STANDARD FORMS (CONTRACT)

- **Form of Agreement**
- **Performance Security**
- **Advance Payment Security**
- **Retention Money Guarantee**

STANDARD FORM: FORM OF AGREEMENT

This Agreement, made the [day] of [month] 2026 between Mahaweli Authority of Sri Lanka incorporated under the provisions of the Mahaweli Authority of Sri Lanka Act. No. 23 of 1979 having its Head Office at No. 500, TB Jayah Mawatha, Colombo 10 (hereinafter called the Employer) of one part and
.....
.....
(Hereinafter called the Contractor) of the other part.

WHEREAS the Employer is desirous that certain works should be executed, viz **“REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR”, DDG/TS/CON/HW/BOW/50** and has accepted a Bid by the Contractor for the execution, completion and maintenance of such works.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS: -

- (1) In this agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereafter referred to.
- (2) The following documents shall be deemed to form and be read and construed as part of this agreement, viz.
 - a. The Letter of Acceptance dated
 - b. The Letter of Acknowledgement of the letter in (a) above by the Contractor dated
 - c. The said Bid dated
 - d. Addenda Nos.....
 - e. Contract Data
 - f. Conditions of Contract
 - g. Specifications by
 - Publication No. CIDA/SP/102 Standard Specification for Irrigation and Land Drainage Works (1st Edition-January 2017)
 - Publication No. SCA/4/1 – ‘Specifications for Building Works - Volume I’
 - Publication No. SCA/8 – Electrical & Mechanical Works
 - specifications prepared by MASL
 - h. Drawings
 - i. Priced Bill of Quantities
 - j. Any other relevant Correspondence (Specify)
- (3) In Consideration of the payments to be made by the Employer to the contractor as hereafter mentioned the Contractor hereby convents with the Employer to execute, complete and remedy any defects therein in conformity in all respect with the provisions of the Contract.
- (4) The Employer hereby convents to pay the contractor in consideration of the execution, completion and remedying any defects wherein the Contract Price at the time and in the manner prescribed by the Contract.

In witness whereof the employer has set his hand and the Contractor has set his hand/has caused his common seal to be hereunto affixed on the day, month and year afore written at the beginning hereof

Signature/Common Seal of Employer
.....

was hereunto affixed in the presence of

Witness:

- 1)
- 2)

Signature/Common Seal of
.....

was hereunto affixed in the presence of

Witness:

- 1).....
- 2)

**STANDARD FORM: PERFORMANCE GURANTEE
(Unconditional)**

..... [Issuing Agency's
Name, and Address of Issuing Branch or Office]

**Beneficiary: Director General Mahaweli Authority of Sri Lanka, No. 500, T.B. Jayah Mawatha,
Colombo 10.** [Name and Address of Employer]

Date

PERFORMANCE GUARANTEE No. :

We have been informed that [Name of Contractor]
(Herein after called "the contractor") has entered in to **Contract No. DDG/TS/CON/HW/BOW/50**
datedwith you for the **"REPLACEMENT OF RUBBER SEALS, REPAINTING OF
THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE
TUNNEL INTAKE OF THE BOWATENNA RESERVOIR"** [herein after called "the Contract"]

Furthermore, we understand that, according to the conditions of contract, a performance guarantee
is required.

At the request of the contractor, we [Name of the Agency]
Hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of
..... [Amount in figures] (.....)[amount
in words], upon receipt by us of your first demand in writing accompanied by a written statement
stating that the contractor is in breach of its obligation(s) under the contract, without your needing
to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than theDay of2026 [Insert date, 28 days beyond the
intended completion Date] and any demand for payment under it must be received by us at this
office on or before that date.

.....
[Signature(s)]

STANDARD FORM: FORM OF ADVANCE PAYMENT GUARANTEE

..... [Name and Address of Agency, and Address of Issuing Branch or Office]

Beneficiary: Director General Mahaweli Authority of Sri Lanka, No. 500, T.B. Jayah Mawatha, Colombo 10.[Name and Address of Employer]

Date

ADVANCE PAYMENT GUARANTEE No. :

We have been informed that [Name of Contractor] (Herein after called "the contractor") has entered in to **Contract No. DDG/TS/CON/HW/BOW/50** datedwith you for the **"REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR,** [herein after called "the Contract"]

Furthermore, we understand that, according to the conditions of contract, an advance payment in the sum [Amount in figures] (.....) [Amount in words] is to be made against an advance payment guarantee.

At the request of the contractor, we [Name of the Agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [Amount in figures] (.....)[amount in words], upon receipt by us of your first demand in writing accompanied by a written statement stating that the contractor is in breach of its obligation in repayment of the Advance payment under the contract.

This guarantee shall expire on [Insert the date, 28 days beyond the intended completion Date]

Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

.....
[Signature(s)]

STANDARD FORM: FORM OF RETENTION MONEY GUARANTEE

.....[Issuing
Agency's Name, and Address of Issuing Branch or Office]

Beneficiary: **Director General Mahaweli Authority of Sri Lanka, No. 500, T.B. Jayah Mawatha, Colombo 10.** [Name and Address of Employer]

Date

RETENTION MONEY GUARANTEE No.:

We have been informed that [name of Contractor]
(herein after called "the contractor") has entered in to Contract No. **DDG/TS/CON/HW/BOW/50**
dated..... with you "**REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE
GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE
TUNNEL INTAKE OF THE BOWATENNA RESERVOIR**", [Herein after called "the Contract"]

Furthermore, we understand that, according to the conditions of contract, when the works have
been taken over and the first half of the retention Money has been certified for payment, payment of
the second half of the retention Money may be against a Retention Money guarantee.

At the request of the contractor, we [Name of the Agency]
Hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of.....
..... [Amount in figures] (.....)[amount in
words], upon receipt by us of your first demand in writing accompanied by a written statement
stating that the contractor is in breach of its obligation under the contract because the contractor has
not attended to the defects in accordance with the contract.

This guarantee shall expire, at latest [Insert 28 days after the end of the Defects
Liability Period] Consequently, any demand for payment under this guarantee must be received by
us at this office on or before that date.

.....
[Signature(s)]

VOLUME 1

SECTION 3

CONDITIONS OF CONTRACT

Conditions of Contract that will be applied for this Contract is that given in Section - 3 of the Standard Bidding Document for Procurement of Works, ICTAD Publication No. ICTAD/SBD/01, Second Edition January 2007 published by the Institute for Construction Training and Development (ICTAD).

This publication will not be issued with the Bid documents and the Bidder is advised to procure it from ICTAD.

Conditions of Contract shall be read in conjunction with Contract Data provided under Section - 5 of the Contract Documents.

Invitation for Bids

MINISTRY OF AGRICULTURE, LIVESTOCK, LANDS AND IRRIGATION



MAHAWELI AUTHORITY OF SRI LANKA

BID NOTICE

On behalf of the Chairman, Department Procurement Committee of Mahaweli Authority of Sri Lanka (MASL), sealed Bids will be received by the Director General, Mahaweli Authority of Sri Lanka, 9th Floor, No. 500, T.B. Jayah Mawatha, Colombo 10, up to **11.00 hrs.** on **18.08.2026** for the following works.

Contract No.	Description of Work	CIDA(Grade) & Field of Registration	Non-Refundable Bid Fee per Set of a Bidding Document (Rs.)
DDG/TS/CON/ HW/BOW/50	REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR. (Estimate Rs. 23.12 Mn including price contingencies without VAT, Contract period 90 days)	EM3 or above & Heavy Steel Fabrications & Electrical Installations (Low Voltage) (EI-LV)	6,500.00

Bidders, who have the Grade and field of registration under the CIDA scheme of registration mentioned in the above table against the work and in the case of the contract value is above Rs.5Mn. registered in Department of the Registrar of companies under the provision of public contract Act No.3 of 1987 only will be eligible for bidding.

Bidding will be conducted through National Competitive Bidding (NCB) and shall apply other Government Circulars issued time to time.

Prospective Bidders can obtain the Bidding Documents by a written request on a company/firm letter head, addressed to the **Deputy Director General (Technical Services), Mahaweli Authority of Sri Lanka, 3rd Floor, No. 500, T.B. Jayah Mawatha, Colombo 10** from **03.08.2024** up to **17.08.2026** from **9.30 hrs. to 15.00 hrs** on working days, on payment of a non-refundable tender fee as given above per set of Bidding Documents. Bidders are free to bid for more than one tender but selections will be made according to the capacity limits in the CIDA registration.

The Bidding documents may be available for inspection in **Deputy Director General (Technical Services) office, Mahaweli Authority of Sri Lanka, 3rd Floor, and No. 500, T.B. Jayah Mawatha, Colombo 10** for **free of charge** from **03.08.2026** up to **17.08.2026** from **9.30 hrs. to 16.00 hrs** on working days and in the <http://mahaweli.gov.lk> website.

Sealed Bids in **duplicate** clearly marked the contract name and the number on the top left corner of the envelope may be dispatched either by Registered Post or hand delivered to the **Director General, Mahaweli Authority of Sri Lanka, 9th Floor, No. 500, T.B. Jayah Mawatha, Colombo 10** before **11.00 hrs** on **18.08.2026**. Bids will be opened immediately thereafter. Bidders or their authorised representatives, not exceeding two (2) in numbers are permitted to be present at the opening of bids.

For further details, please contact Technical Services Division of Mahaweli Authority of Sri Lanka on **Tel: 011-2689651, 011-2687475.**

**Director General
Mahaweli Authority of Sri Lanka**

VOLUME 2

SECTION 4

FORM OF BID & QUALIFICATION INFORMATION

FORM OF BID

Name of Contract: **REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR**

Contract No: **DDG/TS/CON/HW/BOW/50**

To: **Director General, Mahaweli Authority of Sri Lanka, 500, T.B. Jayah Mawatha Colombo 10**

Gentleman,

1. Having examined the Conditions of Contract given in the Standard Bidding Document – Procurement of Works [ICTAD/SBD/01 – Second Edition , January 2007], Specifications, Drawings and Bill of Quantities and Addenda for the execution of the above-named works, we, the undersigned, offer to execute and complete such Works, and remedy any defect therein in conformity with the said Conditions of Contract, Specifications, Drawings, Bill of Quantities and Addenda for the sum of Sri Lankan Rupees.....
.....
.....
+VAT. (Rs..... + VAT) or such other sums as may be ascertained in accordance with the said Conditions.
2. We acknowledge that the Contract Data forms part of our Bid.
3. We undertake, if our Bid is accepted, to commence the Works as stipulated in the Contract Data, and complete the whole of the Works comprised in the Contract within the time stated in the Contract Data.
4. We agree to abide by this Bid for the period of **Seventy Seven (77)** days from the date fixed for receiving or any extended period and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
6. We understand that you are not bound to accept the lowest or any Bid you may receive.
Dated thisday of 2026 in the capacity of
.....duly authorized to sign Bids for and on behalf of.....
.....

(IN BLOCK CAPITALS)

Signature :
Name :
Address :
Witness :
Occupation :
Address :

Qualification Information

(To be completed by the Bidder and submitted with the Bid)

ICTAD Registration	(attach certified copies, as annex)
Registration number	
Grade	
Speciality	
Expiry Date	
VAT Registration No.	
Income Tax File Ref. No.	
Construction Program	(attach as annex)
Legal Status (Sole proprietor, Partnership, Company etc.)	(attach certified copies, as annex)
Authentication of Signatory	(attach certified copy of Power of Attorney, as annex)
Value of construction works performed in last 5 years	(attach certified copies of Certificate of Completion etc., as annex)
Value of similar works completed in last 10 years (indicate only the three largest projects and attach certified copies of Certificate of Completion)	(Form EXP-2)
Key Personnel	
Qualification and Experience of key personnel (for minimum requirements see Sub-Clause 9.1 of Contract Data)	(Annex - 01)
List of Resources	
List of resources intended to be deployed	(attach as annex)
Proof for liquid assets and/or credit facilities.	
Proof for at least Rupees Nineteen Million (Rs. 19 Million) of liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the contract.	(attach as annex)
Work in hand and Affidavit	(Form -CCC & Annex – 02b)
Performance Security	
Name and address of the proposed surety for the Performance Bond or Bank Guarantee referred to in Clause 52 of the Conditions of Contract.	
Bid Security	
Bid Bond in the given format for the amount stated in the Bidding Data	(attach)

Signature of Bidder

VOLUME 2

SECTION 5

BIDDING DATA & CONTRACT DATA

G. Bidding Data

Instructions to Bidders

Clause Reference

(1.1) The Employer is

Name: **The Director General, Mahaweli Authority of Sri Lanka**
Address: **9th Floor,
No. 500, T.B. Jayah Mawatha,
Colombo 10.**

Authorized Representative

Name: **Deputy Director General(T/S)**
Address: **Mahaweli Authority of Sri Lanka
3rd Floor,
No. 500, T.B. Jayah Mawatha,
Colombo 10.**

The Works consists of: **REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR**

The site is located in **Naula Town.**

(1.2) Intended Completion Date is 90 days from the Start Date.

(1.3) the office for collection of bid forms is

Name: **Technical Services Division**
Address: **Mahaweli Authority of Sri Lanka
No. 500,
T.B. Jayah Mawatha,
Colombo 10**

The non-refundable Bid fee is Rupees **6,500.00**

The Bid forms will be issued until 15.00 hrs. On **17.08.2026**

(2.1) the source of funds is Government of Sri Lanka. (GOSL)

(3.1) the registration required
Specialty: **Heavy Steel Fabrications & Electrical Installations (Low Voltage) (EI-LV)**
Grade : **CIDA- EM3 or above.**

Bidders, who have registered in Department of the Registrar of companies under the provision of public contract Act. No. 3 of 1987 only will be eligible for bidding.

(4.1) The following information shall be provided in Section 4

- CIDA Registration
 - Registration number
 - Grade
 - Specialty
 - Expiry Date
- VAT Registration number
- Construction Programme

- Legal Status (Sole proprietor, Partnership, Company etc.)
- Total monetary value of construction works performed for last five year;
- Experience in work of similar nature and size for last ten years
- Major items of construction equipment proposed to carry out the contract
- Qualifications and experience of key site management and technical personnel proposed for the Contract(Annex-1)
- Proof for at least Rupees **Nineteen Million (Rs. 19 Million)** of liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the contract.
- Works in hand Form -CCC

(4.4)

- Average of the annual volume of construction work performed in the last five years shall be at least Rupees **Twenty Two Million Eight Thousand (Rs. 22.8 Million)**.
- Experience as prime contractor in the construction of at least one contract of the similar nature equivalent to the works over the last 10 years **(at least Rs. 9.5 Million, Heavy Steel Fabrications & Electrical Installations)**
- Proposal for the timely acquisition (own, lease, hire, etc.)of the essential equipment listed in the Bidding Data clause 4.3;
- Following technical and managerial Staff:

Grade of staff	Minimum qualifications	Minimum no of positions
Construction Manager	B.Sc. Eng. (Mechanical) or equivalent with 8 years' experience out of which 5 years in relevant field	1
Site Engineer (Mechanical)	B.Sc. Eng. (Mechanical)-3 Year experience or NCT equivalent with 8 years total experience and 5 years similar work experience	1
Supervisor	Minimum 5 Year experience as Supervisor in similar works	1

- The minimum amount of liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the contract shall not be less than Rs 19 **million**.

(9.1) Employer' address for the purpose of clarification is ;

Name Deputy Director General (T/S)
Address 3rd Floor, No 500, T.B.Jayah Mawatha, Colombo 10.
Fax 0112689651

(11.1) The language of the bidding document shall be in English

(13.3) (a) Value Added Tax

VAT component shall not be included in the rates. The amount written in the Form of Bid shall be without VAT. However, VAT component shall be shown separately at the end of the BOQ.

If bidder is registered for the purpose of VAT, the bidder shall indicate the amount of VAT claimed separately at the end of the Bill of Quantities, in addition to the net

value of the bid, along with VAT registration number. The amount written on the Form of bid shall be without VAT. Any bidder who does not declare his VAT registration number will be liable for rejection of his bid.

If any bidder is not registered for VAT, bidder shall obtain a letter from the Commissioner of Inland Revenue Department, certifying the Company has not been registered for VAT and shall be attached to the bid. Any bidder who does not comply with this requirement will be liable for rejection of his bid.

- (13.4) The Contract is not subjected to price adjustment in accordance with Clause 47 of the Conditions of Contract.
- (15.1) The Bid shall be valid up to 03.11. 2026 (77 days)
- (16.1) Bid shall include a Bid Security using the form included in section 9.
- (16.2) The Bid Security shall be:
- For an amount **Rs. 307,000.00**
 - Valid until **01.12.2026 (105 days)**
- Issued by an agency acceptable to Employer using the form for bid security (unconditional guarantee) included in section 9, standard forms
- Security shall be a Guarantee from a reputed bank registered in Central Bank of Sri Lanka or Construction Guarantee Fund. The form acceptable is unconditional.
- (17.0) Pre Bid meeting will be held at 10.00 hrs. on 11.08. 2026 Bowatanna EIC office
- A site visit will be organized and conducted by the Employer on 10.08.2026 Commencing at 13.00 hrs onwards.
- (19.2) a The address for delivery of the Bids is:
- Chairman, Department Procurement Committee,
Mahaweli Authority of Sri Lanka,
9th Floor, Procurement Section,
No. 500, T.B.Jayah Mawatha,
Colombo 10.**
- (19.2)b Contract Name: **REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR**
- Contract No. - **DDG/TS/CON/HW/BOW/50**
- (20.1) The deadline for submission of Bids shall be **11.00** hrs on 18.08.2026
- (23.1) Bids will be opened immediately after closing of Bids at 11.00 hrs **18.08.2026** at the **Director General (MASL)'s Office, MASL, Procurement Section, 9th Floor, No.500, T.B. Jayah Mawatha, Colombo 10.**

- (31.1) After evaluating Bids according to procedures described in the Bidding Document, the employer will inform all the bidders in writing the selection of the successful bidder and the intention of contract award to such bidder.

The standard still period for the contract shall be 07 working days.

Any unsuccessful bidder, if they so wish, may make a request for a debriefing within three working days of such notice to Director General, MASL.

If any unsuccessful bidder, if wishes to submit an appeal shall be made before the expiry of the stand still period with the non-refundable cash deposit equivalent to the amount and address given below.

**Address: Chairman (Department Procurement Appeal Committee),
Mahaweli Authority of Sri Lanka,
500, T.B. Jayah Mawatha, Colombo 10.
Cash Deposit: LKR 10,000.00**

- (34.0) Amount of Performance Security required is 5% of the Initial Contract Price.

Contract Data

(Please note that the Clause nos. given hereunder is that of Conditions of Contract. The information given under Contract Data will supersede Conditions of Contract)

(1.1) The Employer is:
Name: **The Director General, Mahaweli Authority of Sri Lanka**
Address: **9th Floor,
No. 500, T.B. Jayah Mawatha,
Colombo 10.**

Employer's Authorized Representative is:
Name: **Deputy Director General (Technical Services)**
Address: **Mahaweli Authority of Sri Lanka
3rd Floor,
No. 500, T.B. Jayah Mawatha,
Colombo 10.**

Engineer is **Director,
Division of Major Dams & Reservoir Operation,
Mahaweli Authority of Sri Lanka,
Rajawella,
Digana.**

Name of Engineer's Representative: To be nominated by the Engineer

The Works consists of:

**REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND
SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE
TUNNEL INTAKE OF THE BOWATENNA RESERVOIR.**

Contract No. DDG/TS/CON/HW/BOW/50

The site is located in **Naula Town.**

The Start Date shall be 14 Days from the Date of the Letter of Acceptance.

The **Intended Completion Date** for the whole of Works shall be **90 days** from the Start Date.

(7.2) add the following as new Sub-Clause 7.2:
To subcontract a part of value exceeding 5% of the Initial Contract Price, the Employer's approval is required.

(8.1) Schedule of other Contractors: None

(9.1) Schedule of Key Personnel

The Contractor must employ the minimum number of key personnel indicated in the schedule below for the proper execution of the Works.

Grade of staff	Minimum qualifications	Minimum no of positions
Construction Manager	B.Sc. Eng. (Mechanical) or equivalent with 8 years' experience out of which 5 years in relevant field	1
Site Engineer (Mechanical)	B.Sc. Eng. (Mechanical)-3 Year experience or NCT equivalent with 8 years total experience and 5 years similar work experience	1
Supervisor	Minimum 5 Year experience as supervisor in similar works	1

The above schedule defines the minimum requirements and the Contractor must employ sufficient numbers to suit the requirements.

(13.1) the minimum insurance covers shall be:

- (a) • The maximum deductible for insurance of the Works and of Plant and Materials is 5% of the Initial Contract Price
 - The minimum cover for insurance of the Works and of Plant and Materials is 110% of the Initial Contract Price
- (b) • The maximum deductible for insurance of Equipment is 2% of the Initial Contract Price
 - The minimum cover for loss or damage to Equipment is 5% of the Initial Contract Price
- (c) • The maximum deductible for insurance of other property is Nil
 - The minimum cover for insurance of other property is Rs. 500,000/-
- (d) • The minimum cover for personal injury or death,
 - For third party and employees of the Employer and other persons engaged by the Employer Rs. One million per event.

(13.2) the minimum cover for personal injury or death

- For the Contractor's workmen is Rs. One million per person per event
- For Contractor's employees other than workmen is Rs. One million. per person per event

(14.1) Site investigation report: None

(17.1) The Intended Completion Date for the whole of Works shall be **90 days** from the Start Date.

(21.1) The **Site Possession Date** shall be 7 Days from the Date of Letter of Acceptance.

(26.2) Delete the sub clause insert the following.

The composition of the arbitral tribunal is three Arbitrators, one of each to be nominated

by the Employer and the Contractor, and the third to be appointed by the two Arbitrators who shall act as the Chairman.

- (27.1) The Contractor shall submit a revised Program for the Works within 14 Days of Date of the Letter of Acceptance.
- (27.3) The Period between Program update is 28 Days
- (27.4) The amount to be withheld for late submission of an updated Program is 2% of the Initial Contract Price
- (35.1) The Defects Liability Period is **365 days**
- (39.2) Engineer may order variations within the contract sum. If the variation exceeds The Contract Sum, Employer's approval shall be obtained prior to commencement.
- (47.1) The Contract Price is not subjected to price adjustment.
- (48.1) The retention from each payment shall be 10 percent of the certified work done.
The limit of retention shall be 5 percent of the Initial Contract Price.
- (49.1) The liquidated damages for the Works shall be **0.05% of Initial Contract Price Per Day**.
The maximum amount of liquidated damages for the whole of the Works shall be 10% of the initial contract price.
- (50.1) The maximum amount of liquidated damages for the whole of the Works shall be 10% of the initial contract price.
- (51.1) The advance payment amount is 30% of the contract sum (Less provisional sums and contingencies) Upon the payment of the advance payment in full the Employer shall return the original of the advance payment guarantee to the Contractor.
- (52.1) Amount of Performance Security required is 5% of the Initial Contract Price and shall be a Guarantee from a reputed bank registered in Central Bank of Sri Lanka or Construction Guarantee Fund. The form acceptable is unconditional.
- (58) Delete the entire texts of Sub-Clauses 58.1 and 58.2.
- (60.1) the percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is 25%

VOLUME 2
SECTION 6
SPECIFICATIONS

Specifications applicable for this contract are given in Specifications by

- a. CIDA/SP/102 Standard Specification for Irrigation and Land Drainage Works (1st Edition-January 2017)
- b. ICTAD publication No. SCA/4/1 – ‘Specifications for Building Works - Volume I’
- c. ICTAD publication No. SCA/8 “ Electrical & Mechanical Works”

CIDA publications will not be issued with the Documents and the Bidder is advised to procure them from CIDA.

- o The following specifications prepared by MASL

Specifications Prepared by MASL

1 Site installation, services and environmental obligations

1.1 General

The Contractor shall be responsible for providing plant, equipment, materials and labour for the provision of all necessary site installations, temporary works and services adequate for the realisation of the Works under this Contract.

The Contractor shall furnish, install, maintain and operate all site installations, temporary works and Contractor's equipment for his own use and for the use of the Project Manager and Subcontractors, and as required for third parties, including workshops, warehouses, storage and assembly areas, all machinery, vehicles, scaffolding, equipment, water and power supply, etc.

Site installations, temporary works and services provided by the Contractor for his own use as well as for that of the Project Manager or for third parties shall conform to the applicable standards, codes and sanitary requirements set down by the Sri Lankan authorities for such purpose.

The construction, operation and maintenance of the Contractor's site installations, temporary works and services shall be subject to inspection and written consent by the Project Manager.

All plants, facilities, installations and services for the Contractor's and Project Manager's use shall at all-time remain the Contractor's property, except as specified hereinafter. Should the Contractor wish to sell his plant after the Completion of the Contract facilities and equipment in the country of the Works, he shall pay any and all taxes and duties required by law as stipulated in the Conditions of Contract.

The scope of the Works includes but is not limited to following site installation parts:

- a) All temporary structures required for the performance of the works such temporary working platforms
- b) Stores, Warehouses, Materials Yards
- c) Construction equipment
- d) Power supply and illumination
- e) Water supply
- f) Sanitation, sewerage and waste disposal
- g) Communication System
- h) Site security

All installations of any Subcontractors shall comply with these Specifications.

1.2 Construction Facilities

1.2.1 Stores, warehouse, workshops and material yards

The Contractor shall provide and equip, for his own and his Subcontractors' use, warehouses, materials storage areas and fuel storage areas, all of which shall be maintained in good condition until the completion of works.

Listed hereunder are the buildings, workshops and warehouses expected to be constructed and equipped by the Contractor for use in the performance of the work under this Contract, in addition to facilities explicitly specified elsewhere in these specifications:

- a) Main warehouse and parts store
- b) Storage facilities for all materials applied within the conduction of the rehabilitation works

1.3 Utilities

1.3.1 Power supply and illumination

The Contractor shall supply, install, operate and maintain an adequate power supply system and illumination for running the site installation facilities during the whole rehabilitation period. The concept shall be approved by the Project Manager.

1.3.2 Water supply

The Contractor shall provide, install, operate and maintain adequate and suitable water supplies for the works within the contract including storage for drinking purposes, sanitation, construction, cleaning, testing and commissioning of the various equipment items and plant components of the construction lot.

The water supplies shall be continuously available during working hours and rated to meet the maximum demand required during construction on the basis of 'firm supply' and shall supply all temporary installations.

The drinking water provided shall at all times meet the criteria of the local health authority.

The concept shall be approved by the Project Manager.

1.3.3 Sanitation, sewerage and waste disposal

The installations shall meet the requirements of the local health authorities and environmental regulation.

The Contractor shall collect waste material and garbage from site on a daily basis and transport it to an approved area where it shall be treated and disposed of in accordance with local environmental requirements.

The Site shall be kept clean and free of refuse at all times. No waste shall be dumped in areas other than those approved by the Project Manager for waste disposal. No waste of any kind shall be deposited in any water courses.

1.4 Site security

The Contractor shall employ an adequate force of trained security guards at the worksite and at the construction camp on 24-hour duty including weekends and holidays.

1.5 Demobilisation

Upon the completion of works the Contractor shall reinstate the site and dismantle and demobilize all temporary facilities erected by himself or his Subcontractors, and remove all debris, objectionable material and all other refuse which may have been deposited on site during the construction period. Such materials may be deposited only in areas approved by the Project Manager.

1.6 Environmental obligations

The Contractor shall, during the whole period of the works comply fully with all national Sri Lankan laws and regulations relating to environmental protection, mitigating measures for reducing environmental impacts and remedial works on completion of the Works. This obligation shall extend to the construction sites themselves and all of the Contractor's site installations.

1.7 Safety and health precautions

This section covers the precautions that have to be taken for the health and safety of all personnel on Site that the Contractor and his Sub-Contractors shall apply in all civil construction and equipment erection works during the construction time.

1.7.1 Safety standards

In addition to the requirements of the following specified herein, the Contractor shall comply with all currently applicable safety documents and/or organizations:

1.7.2 Security of personnel and working areas

The Contractor shall take at all times the necessary measures to ensure the safety and security of all persons, work and property. This shall include but not be limited to the following:

- Access control to all areas related to the Works
- Installation of fences
- Security patrols

1.7.3 Maintenance of traffic and safety on roads

The Contractor shall be responsible for the safety on the roads related to the Site. He shall take all necessary precautions for the protection of the work and the safety of the public on the roads affected by his activities. Where the work will be carried out at the site of, or close to an existing road, the Contractor shall maintain the vehicular and pedestrian traffic safe at all times. If his operations can cause traffic hazards, he shall repair or fence or take other measures for ensuring safety which are satisfactory to the Project Manager.

1.7.4 Health precautions

1.7.4.1 Noise control

The Contractor shall take the provisions required to assure that noise from his construction activities and from the operations of any plants are within the limits established by the WHO for the health of his personnel, or shall provide his personnel with ear protectors. Ear protectors shall be provided to all personnel subject to noise levels above 85 dB on a continuous basis during work shifts.

1.7.4.2 Ventilation of sluices

The Contractor shall furnish, install and operate ventilating systems for work in sluice barrels.

All parts of the works shall be maintained in a state which will not be injurious to the health of the personnel. The air in the sluice barrel shall contain no less than 20% oxygen and shall not contain a concentration of gases, vapours or dust greater than is safe for the health of workmen.

1.8 Execution

1.8.1 Drainage and dewatering systems

The Contractor shall design, furnish, construct and install, operate and maintain all care of water facilities, including cofferdams, drainage systems etc. necessary to maintain all work areas as free as possible from water during construction. This shall include all necessary labour, materials, equipment, power supplies and auxiliary works as required for a safe and dry construction of the works.

1.8.2 Dewatering

The Contractor shall furnish, operate and maintain all necessary pumps, pipes and other dewatering devices as necessary for keeping all work areas free from water. The Contractor shall be held liable for any damage caused by failure of the drainage and dewatering systems.

2. Technical Specification

2.1 Hydro - Mechanical Equipment and Electro-Mechanical

2.1.1 General standards and design criteria

All hydro-mechanical equipment, such as gates, embedded parts etc., and their appurtenant hoisting equipment, shall be designed according to latest edition of DIN 19704 "Hydraulic Steel Structures" and DIN 18800 "Structural Steelwork" or standards locally available in Sri Lanka approved by the Project Manager or equivalent standards in British, American, Japan with specific DIN code may be proposed,

All structural components shall provide reliable service for a period of 50 years. The mechanical equipment shall have a minimum calculated lifecycle of 25 years

For dimensioning of driven equipment, the lifting forces shall be calculated as per DIN 19704 as available Sri Lankan standard for hydraulic structures and those nominal forces shall be increased by a safety factor 25%.

To assure the tightness of the gate a minimum force on the weir sill shall be 5000 N/m.

Gate leaves shall be carefully designed to satisfy the standards stated above, and considering the possible hydraulic influences. The shape of the bottom edges shall be constructed in such a way to assure no resonance may occur with the gate in any intermediate position.

Embedded parts shall be designed to guarantee strength and resistance against corrosion. The minimum thickness shall be 8 mm. All parts shall be furnished with fastening bolts to be used as regulating devices (fasteners) to facilitate alignment during erection.

Regulating fasteners shall have a minimum diameter of 16 mm. They shall be secured firmly to prevent movement during concreting. All embedded steel parts shall have a final concrete cover of not less than 5 cm.

2.1.2 Materials

The following parts shall be made of corrosion resistant stainless steel or another approved corrosion resistant material:

Sealing surfaces.

Fasteners for rubber seals or removable parts.

All pins for lifting devices.

Where stainless steel cladding consists of plates welded to mild steel sections, the welds shall be adequate to ensure that the stainless steel is securely fixed for all conditions of load and wear. Generally, all stainless-steel parts shall be welded with stainless electrodes. The thickness of the stainless-steel cladding shall not be less than 6 mm.

2.1.2.1. Metal work and NDT testing

The gates metalwork inspection and repair shall be carried out in accordance with ASME Section IX. All NDT examinations shall be carried out in accordance with ASME BPVC Section V, and thickness measurements as applicable. All weld repairs shall be executed using approved Welding Procedure Specifications (WPS) and Procedure Qualification Record (PQR) by qualified welders and shall be subjected to post-repair NDT. Or equivalent standard

2.1.3 Rubber seals

Seals shall be designed and mounted in such a manner that they are adjustable, water tight and shall be readily removed and replaced.

All adjusting screws and bolts for securing the seals and seal assembly in place shall be of stainless steel and Nylon washers shall be used for taking care of the corrosion protection.

Seals shall be moulded. Where seals are installed curved, they shall be clamped in a jig which shall form them to the proper radius before the holes are laid out and drilled, and the ends trimmed. Holes in related parts of the seal assemblies shall be carefully drilled, using a template, and assure proper matching when the seal units are assembled. Forming holes with a heated tool is not allowed. Arrangements shall be made to provide effective continuity of sealing at the corners of the Plant.

Seals shall be made of natural or synthetic rubber suitable for the temperature ranges and conditions at the Site and shall be of a material that has proven successful in similar applications. Joints shall be water tight and seal materials shall have following physical properties as determined by tests made in accordance with the relevant Standards.

2.1.3.1 Leakage of gates

Water leakage under any head and without the use of any additional sealing materials shall be as follows:

For gates 0.5 l/s per m length of seal

2.2 Corrosion Protection

The Contractor's services shall cover the procurement of all materials, and the preparation and application of the painting and other protective coats as specified. The Contractor shall provide a complete, reliable coating system, and follow ISO 12944 or equivalent standard

2.2.1 Painting materials

Coating materials shall be standard products from a paint manufacturer with proven experience in the field of corrosion protection to the types of materials to be supplied.

The Contractor shall submit for the Project Manager's approval full details of the preparation, type of materials, methods and sequences he proposes to use to comply with the requirements for material protection.

The entire paint material for a particular specified paint system shall be supplied by one manufacturer only, who shall guarantee consistent compatibility and quality of the paint material. For multicoated painting systems each coat shall have a different colour.

Paint material shall be delivered in unopened original containers bearing the manufacturer's brand name, colour designation, storage directions and handling instructions. A complete list of the proposed paint material shall be submitted to the Project Manager.

With regard to materials, the Contractor shall submit full details including the source of the basic raw materials, volatile matter content, nature of solvent, number of components, type of coat, coverage, time interval between coats, number of coats, compatibility of each coat with the previous coat, toxic properties, physical properties, shelf life, resistance against chemical attack, resistance against ozone and compatibility with drinking water standards, etc.

The Contractor shall describe in detail the treatment he proposes to apply in order to give adequate protection during transport, site storage, building, concreting and subsequent erection.

The different coats of primer and subsequent coats shall be of different shades of colour where practicable.

All pigment, paints and primers shall be delivered to Site in sealed containers packed by the manufacturer. The manufacturer's instructions for preparation and application of all painting and protective coats shall be strictly observed.

Paint materials shall be stored and mixed by the Contractor in strict accordance with the manufacturer's instructions. Paint material shall be used before the expiration of the shelf life. All safety regulations shall be observed, especially with regard to fire.

2.2.2 Workmanship

2.2.2.1 Contractor's equipment

The Contractor shall observe all safety and health precautions to protect his workers and others during painting works. The necessary equipment, such as fans, air-conditioning units, safety masks, nets, etc. shall be provided by the Contractor. All equipment shall be in strict accordance with the respective safety codes and regulations assuring efficient work of high quality.

The Contractor shall be responsible for the collection and disposal of empty containers, dirty rags and other waste. It shall also be the Contractor's entire responsibility to protect equipment and structures not being painted such as nameplates, instruments, panels, floors, walls, etc. and he shall provide and install all necessary drop cloths and screens.

2.2.2.2 Preparation of paint material

Paint shall be delivered ready mixed wherever possible. Adding of diluting agents and mixing of two or multi-component systems shall be done in the field in accordance with the directions of the manufacturer. Mixing and homogenising of the paint material shall be done by a mechanically driven paddle or agitator in the original container. After mixing, the paint shall be poured into a clean container to ensure that no settled pigments are at the bottom.

The Contractor's equipment shall be of perfect quality and servicing and maintenance must be guaranteed. Cleaning of equipment shall be consistently carried out at each working interval.

2.2.3 Surface preparation

The term "preparation", as used below, includes any cleaning, smoothening or similar operations that shall be required to ensure that the material to be painted attains a suitable condition.

To be ready for painting, a surface should be clean, dry and sound. The surface to be coated shall be free from any deleterious material liable to impair good paint adhesion or attack the coat.

For removing rust and mill scale on structural steel, piping and other steel surfaces, those parts suitable for power-brushing. This applies particularly to parts which will be in contact with water, exposed to heavy condensation and humidity or subjected to high temperature.

All parts of the works shall be power-brushed specified or approved by the Project Manager.

The Contractor shall proceed with blast cleaning only when the following time and relative humidity schedule for application of the first coat can be achieved and maintained:

Relative humidity	Time
85% or above	Do Not Blast
80 - 84%	2 hours
70 - 79%	4 hours
60 - 69%	10 hours
50 - 59%	12 hours
30 - 49%	24 hours
Under 30%	1 week

Parts which cannot be sandblasted shall be cleaned of rust by power tool cleaning to the highest degree possible.

Hand or power tool cleaned parts of minor importance and not exposed to water or humidity may be coated with a quick-drying rust-proof primer formulated on a combination of synthetic resins (ready-mixed paint).

Where remedial and repainting work is being carried out on existing metallic surfaces, additional preparation works will be required to deal with any corrosion pitting and similar defects. This will include filling welding on isolated pitting and/or filling compound applied as part of the corrosion protection system (normally after the primer coat has been applied). The table in this document details the requirements for this work.

2.2.4 Application

The most commonly used methods of application are painting by brush, roller, pressure and airless spraying equipment. Selection of the application method depends on the surface to be painted. The quality of the paint shall in no way be negatively influenced. The manufacturer's directions shall govern the choice of application method. Inaccessible surfaces shall be painted prior to erection with prime and finish coats according to the specification. Areas inaccessible to spraying equipment shall be painted by brush. Corners and edges shall be pre-coated. Bolts, screws, studs, rivets, etc. shall be painted as a whole with the complete paint system after erection.

The primer shall be applied to an absolutely clean and dry surface only. Temperature and dry-out time shall be in accordance with the manufacturer's directions. Whenever possible the prime coat as well as one intermediate coat shall be applied in-doors at the Contractor's shop.

During painting the air temperature shall be at least +5°C and the temperature of the items being painted must be at least 3°C above the dew point. During drying of the paint, the temperature shall not be below 0°C. For all paints the surface temperature of the metal shall not be higher than +50°C during painting. Concerning special paints, the requirements set by the paint manufacturer shall be followed.

Cleaning and painting work shall be interrupted if performed outdoors or in non-conditioned rooms under the following conditions: rain, fog, dew, polluting winds, sand and other dusts. Surface preparation and application of the first paint layer are parallel operations to be carried out within a maximum delay of 4 hours.

All painting shall be free of cracks and blisters and all runs shall be brushed out immediately. After application of the last coat the paint system shall be free of pores. After erection of the equipment all damage to painted surfaces shall be repaired. Welds, rusty spots, beads, flux deposits, etc. shall be repaired and repainted. For touching up, the same materials used for the main painting work shall be used. Repaired finish coats shall be of the same appearance as the original coating.

Electrical plates, surface hardware, fittings and fastenings shall be removed before starting painting operations. They shall be carefully stored, cleaned and reinstalled after completion of painting work.

Equipment requiring special knowledge, skills and tools shall be prepared to receive field coating and painting to meet the requirements of the painting schedule.

Parts which are embedded in concrete must not be protected against corrosion; however, transition zones of large steel pipes and of steel linings shall be painted. In linings surrounded by concrete, surface preparation and painting works shall be carried out after all work such as concreting, welding, grouting and cleaning have been completed. The Contractor shall take into account the local climatic conditions and use adequate installations for sandblasting, dust control and sand extraction.

A properly equipped paint shop shall be set up at the Site with a crew of specialists experienced and skilled in the preparation and application of protective coatings.

2.2.5 Quality control

The minimum dry-film thickness prescribed in these Specifications shall be observed. No measured thickness shall be less than the specified thickness. Where the minimum thickness is not achieved, the coat shall be repaired to reach the specified minimum dry-film thickness.

The dry-film thickness shall be measured by approved gauges.

For checks on porosity, the Contractor shall furnish a DC variable high tension test instrument with built-in pore counter. The test voltage shall not exceed 2,000 V. The tests shall not be performed within 0.5 m distance from uncovered, corrosion resistance surfaces.

Upon completion of each coat, the painter shall make a detailed inspection of the painting finish and shall remove from adjoining work all spattering of paint material. He shall make good all damage that can be caused by such cleaning operations.

A detailed inspection of all painting work shall likewise be made, and all abraded, stained, or otherwise disfigured portions shall be touched up satisfactorily or refinished as required to produce a first-class job throughout and to leave the entire work in a clean and acceptable condition.

Adherence tests shall be performed and the acceptance criteria shall be in accordance with ASTM D3359, Method A, and a Scale of 5B for ASTM B3359, Method B.

2.2.6 Guarantee

The guarantee period for all painting shall be 5 years, starting from the issue of the "Certificate of Completion". This painting guarantee period shall be effective regardless of any other guarantee periods for the project or parts of the project.

At the end of the painting guarantee period the anti-corrosive protection of the painted or galvanized surfaces shall not have a degree of rusting higher than Ri 1 (one) according to DIN 53210.

2.2.7 Protection of machined surfaces

Machine-finished surfaces shall be thoroughly cleaned of foreign matter. Finished surfaces of large parts and other surfaces shall be protected with wooden pads or other suitable means.

Unassembled pins or bolts shall be oiled or greased and wrapped with moisture-resistant paper or protected by other approved means.

2.2.8 Bolts, studs, nuts, screws, washers

All bolts, studs, nuts, etc., shall have a standard metric threading and conform to the relevant standards as regards shape and tolerance. They shall be marked by the manufacturer's symbol and class of strength.

All bolts, studs, nuts, washers, screws, etc., used in steel structures, above size M 10, shall, if not in stainless steel or other corrosion resistant material, be hot dip galvanised, except for bolts above Strength Class 8.8, for which corrosion resistant materials or electrolytic zinc-coating will be preferred.

Bolts, etc., smaller than size M 10 shall be electrolytic zinc coated if not provided in stainless steel. Bolts, nuts, studs and screws which require frequent tightening and unbolting during inspection or maintenance procedures shall be of stainless steel.

For equipment within closed cabinets, in oil sumps and similar locations the Project Manager may approve other types of corrosion protection.

All bolts, nuts and screws shall be secured in an approved manner to prevent loosening during operation.

The Contractor shall supply the net quantities plus 10% spare of all permanent bolts, screws and other similar items and materials required for installation of the works at the site. Any such bolts, screws, etc., which are surplus after the installation of the equipment has been completed, shall become spare parts and shall be wrapped, marked and handed over to the Project Manager.

2.2.9 Coasting System Specification for Underwater/ above-water/ intermittent sub-merged Structures

Below is the most ideal system which can be specified/ recommended as an anti-abrasion coating system with maximum anti-abrasion properties and characteristics with FDA approval which doesn't tent dry and or liquid cargos/ water for human consumption.

Surface Cleaning: Removal of contaminants prior to commencement of dry-abrasive blasting to ensure that soluble and insoluble both including other foreign matters which can lead for dry or wet blistering via the profile embedment in the long run.

Then dry abrasive blasting to ISO SA 2.5 surface standard with (Rz-Average Blast Profile) of 30-75 mic.

2.3 Hydraulic System Renovation- Technical Specification

The work shall comprise the renovation, upgrading, testing, and commissioning of the existing hydraulic operating system of the reservoir control roller gate. The objective is to restore reliable operation, improve system performance, and ensure safe and efficient gate opening and closing functions. The hydraulic system shall operate within a design pressure range of 100 to 250 bar, depending on the operating head, and required actuating force. The renovated hydraulic system shall be designed for continuous-duty operation and shall be capable of performing both normal and emergency gate opening and closing functions reliably. The hydraulic power unit, pumps, motors, valves, and associated components shall be adequately sized to withstand frequent operation without overheating or performance degradation. The system shall be capable of developing sufficient force to lift and lower the roller gate under all operating conditions and shall be designed for a minimum of 100% of the gate lifting load, including allowances for frictional resistance, seal drag, guide roller resistance, and other operational factors.

The Contractor shall inspect the existing hydraulic power pack, hydraulic cylinders, and pipework, valves, fittings, instrumentation, and control components and replace all defective, worn, corroded, or malfunctioning parts. The existing hydraulic oil reservoir tank shall be retained and reused, subject to satisfactory inspection, cleaning, repair (if required), and confirmation of structural integrity and suitability for continued service.

The scope of work shall include, but not be limited to:

2.3.1 Inspection and Assessment

- Detailed inspection of the existing hydraulic system.
- Identification of defective components and preparation of a condition assessment report.
- Verification of compatibility between with existing one.

2.3.2 Hydraulic Oil Reservoir Tank

- Retain and utilize the existing hydraulic oil tank.
- Drain and dispose of contaminated oil in accordance with environmental regulations.
- Clean the tank internally and externally.
- Inspect for corrosion, cracks, leakage, and structural defects.
- Repair and repaint the tank as required.
- Replace breather filters, level gauges, drain valves, and associated accessories where necessary.

2.3.3 Hydraulic Power Unit Renovation

- Supply and install new hydraulic pumps, motors, control push buttons, Indication lamps, warning and alarm system, couplings, pressure relief valves, directional control valves, check valves, flow control valves, pressure gauges, and filters as required.
- Hydraulic pump and motor shall be connected through a jaw-type flexible coupling or approved equivalent.
- Replace worn seals, gaskets, and flexible hoses.
- Upgrade electrical control and protection systems where necessary.
- Hand pump unit for emergency operation.

2.3.4 Hydraulic Piping and Accessories

- Replace damaged or corroded hydraulic pipes, tubing, fittings, clamps, and hose assemblies.
- Ensure all piping is designed and installed to withstand the maximum operating pressure with an adequate safety factor.

2.3.5 Filtration and Hydraulic Oil

- Install new suction, return-line, and pressure-line filters.
- Fill the system with new hydraulic oil conforming to ISO VG 68 or equivalent grade recommended by the equipment manufacturer and consider availability of the local market.
- Ensure oil cleanliness meets ISO 4406 cleanliness requirements.

2.3.6 Testing and Commissioning

- Perform hydrostatic pressure testing of the hydraulic system.
- Conduct functional testing of all hydraulic controls and safety devices.
- Carry out dry testing and wet testing of the roller gate.
- Verify gate opening and closing speeds, smooth operation, holding capability, and emergency operation.
- Record operating pressures, flow rates, temperatures, and system performance parameters.
- Leakage testing.
- Gate opening and closing cycle tests. Speed 0.2-0.5 m/min as required by the Engineer.

2.3.7 Documentation

- Provide operation and maintenance manuals.
- Submit test certificates, calibration records, and commissioning reports.
- Provide as-built drawings showing all modifications.

2.3.8 Applicable Standards

The renovation work shall comply with the latest editions of:

- ISO 4413 – Hydraulic Fluid Power – General Rules and Safety Requirements.
- ISO 4406 – Hydraulic Fluid Cleanliness Classification.
- ISO 12100 – Safety of Machinery.
- IEC 60204-1 – Electrical Equipment of Machines.
- Relevant manufacturer recommendations and engineering best practices.

2.4 Hoist service- Technical Specification

The work shall consist of the comprehensive inspection, servicing, testing, and commissioning of the existing electrical motor driven wire rope hoist used for the operation of the reservoir bulkhead gate. The objective of the servicing is to restore the hoist to a safe, reliable, and efficient operating condition and to ensure its continued suitability for gate lifting and lowering operations under all operating conditions.

The Contractor shall carry out a detailed condition assessment of the complete hoisting system, including the electric motor, gearbox, brake assembly, wire rope drum, wire ropes, sheaves, bearings, couplings, limit switches, electrical control panel, and all associated mechanical and electrical components. Any worn, damaged, corroded, or malfunctioning parts identified during the inspection shall be repaired or replaced with components of equivalent or superior specifications.

2.4.1 Inspection and Condition Assessment

- Conduct a detailed inspection of the complete hoist system.
- Check alignment, wear, corrosion, cracks, deformation, and operational condition of all components.
- Submit a condition assessment report with recommendations for repairs or replacements.

2.4.2 Electric Motor Servicing

- Clean and inspect the motor internally and externally.
- Check insulation resistance, winding condition, bearings, cooling fan, and terminal connections.
- Replace defective bearings and damaged electrical components as required.
- Perform insulation resistance (IR) testing and functional testing.

2.4.3 Gearbox Servicing

- Drain existing lubricant and clean the gearbox.
- Inspect gears, shafts, bearings, seals, and housings for wear or damage.
- Replace defective parts and refill with manufacturer-recommended lubricant.
- Verify smooth and quiet operation after servicing.

2.4.4 Brake System Servicing

- Inspect brake linings, springs, pins, levers, and adjustment mechanisms.
- Replace worn brake components.
- Adjust braking torque to ensure safe holding of the gate under all operating conditions.

2.4.5 Wire Rope and Drum Inspection

- Inspect the wire rope for broken wires, corrosion, wear, bird-caging, kinks, crushing, and diameter reduction.
- Inspect the rope drum grooves and anchorage arrangements.
- Replace the wire rope if deterioration exceeds allowable limits in accordance with relevant standards.
- Lubricate the wire rope with approved wire rope lubricant.

2.4.6 Sheaves, Bearings, and Couplings

- Inspect sheaves for groove wear, alignment, and free rotation.
- Inspect bearings and couplings for wear, vibration, and lubrication condition.
- Replace defective bearings, bushes, and coupling elements as required.

2.4.7 Electrical Control System

- Inspect control panel components, contactors, relays, MCCBs, limit switches, push buttons, and indication lamps.
- Tighten electrical connections and replace damaged components.
- Verify proper operation of upper and lower limit switches and emergency stop functions.

2.4.8 Lubrication

- Clean and lubricate all moving parts, bearings, gears, sheaves, and wire rope in accordance with manufacturer recommendations.

2.4.9 Testing and Commissioning

- Conduct no-load and load tests of the hoist.
- Verify proper operation of brakes, limit switches, motor protection devices, and control circuits.
- Carry out gate opening and closing cycle tests.
- Confirm smooth operation without abnormal vibration, overheating, excessive noise, or mechanical defects.
- Record operating current, voltage, lifting speed, brake performance, and other relevant parameters.

2.4.10 Documentation

- Submit inspection reports, test records, and commissioning reports.
- Provide recommendations for future maintenance and replacement of critical components.

2.4.11 Applicable Standards

The servicing work shall comply with the latest editions of following standard or equivalent;

- ISO 4309 – Cranes – Wire Ropes – Care, Maintenance, Inspection and Discard.
- ISO 4301 – Classification of Cranes.
- IEC 60204-1 – Safety of Machinery – Electrical Equipment.
- ISO 12100 – Safety of Machinery.
- Manufacturer's operation and maintenance manuals

2.5 Hydraulic Cylinder Overhaul – Technical Specification

The Contractor shall carry out a complete overhaul of the existing hydraulic cylinder(s) used for operation of the gate system. The work shall include dismantling, inspection, repair, replacement of worn components, reassembly, testing, and commissioning to restore the cylinder to its original operating condition and performance.

2.5.1 Scope of Work

2.5.1.1 Dismantling and Inspection

- Isolate, disconnect, and remove the hydraulic cylinder from service.
- Completely dismantle the cylinder, including cylinder barrel, piston, piston rod, gland, end caps, seals, bearings, and associated fittings.
- Clean all components and inspect for wear, corrosion, pitting, scoring, deformation, cracks, or other defects.
- Measure critical dimensions and verify tolerances against the manufacturer's specifications.

2.5.1.2 Cylinder Barrel Inspection and Repair

- Inspect the internal bore for scoring, wear, corrosion, and surface defects.
- Check straightness, roundness, and internal surface finish.
- Repair minor defects by honing or polishing as approved by the Engineer.
- Replace the barrel if damage exceeds allowable limits.

2.5.1.3 Piston Rod Inspection and Repair

- Inspect the piston rod for straightness, corrosion, pitting, scoring, surface damage, and wear.
- Verify rod diameter and surface finish.
- Repair minor surface defects by polishing where permissible.
- Re-build, or replace the piston rod if deterioration exceeds acceptable limits.

2.5.1.4 Piston, Gland, and Bearing Components

- Inspect piston assemblies, gland assemblies, wear rings, guide rings, bushings, bearings, and retaining components.
- Replace all worn, damaged, or defective components.

2.5.1.5 Seal Replacement

- Replace all dynamic and static seals, including:
 - Piston seals
 - Rod seals
 - Wiper seals
 - O-rings
 - Back-up rings
 - Wear rings
- Seal materials shall be compatible with the hydraulic oil and operating conditions.

2.5.2 Non-Destructive Testing (NDT)

- Conduct Dye Penetrant Testing (PT) or Magnetic Particle Testing (MT) on critical components where cracking is suspected if required by the Engineer.
- Additional Ultrasonic Testing (UT) shall be performed if required by the Engineer.

2.5.3 Reassembly

- Reassemble the cylinder using new seals and replacement components.
- Apply approved lubricants during assembly.
- Ensure correct alignment and tightening of all fasteners.

2.5.4 Pressure and Performance Testing

- Conduct hydrostatic pressure testing at 1.5 times the maximum working pressure.
- Perform leakage tests to verify seal integrity.
- Verify smooth extension and retraction throughout the full stroke.
- Confirm cylinder holding capability without drift under load.

2.5.5 Surface Protection

- Clean and prepare external surfaces.
- Apply corrosion protection and repaint exposed external surfaces in accordance with the specified painting system.

2.5.6 Installation and Commissioning

- Reinstall the overhauled cylinder.
- Reconnect all hydraulic lines and fittings.
- Bleed air from the hydraulic system.
- Perform functional testing under no-load and operating conditions.
- Demonstrate satisfactory operation of the gate throughout the full travel range.

2.5.7 Standards

The overhaul work shall comply with the latest editions of the following standards or approved equivalents:

- ISO 4413 – Hydraulic Fluid Power Systems and Components
- ISO 6020 – Hydraulic Cylinders
- ISO 6022 – Hydraulic Cylinders for Heavy Duty Applications
- ISO 10100 – Hydraulic Cylinder Acceptance Tests
- ISO 4406 – Hydraulic Fluid Cleanliness
- ASTM E1417 – Liquid Penetrant Testing
- ASTM E709 – Magnetic Particle Testing

2.5.8 The Contractor shall submit:

- Inspection and condition assessment report.

- Dimensional measurement records.
- NDT reports.
- Pressure test and leakage test certificates.
- List of replaced components and seals.
- Commissioning and functional test report.
- Warranty certificate for the overhauled hydraulic cylinder

2.6 Testing and commissioning

The Contractor shall carry out the complete commissioning of the Hydraulically Operated Fixed Roller Control Gate and the Electrically motor Operated Wire Rope Hoist Bulkhead Gate, including all associated mechanical, hydraulic, electrical, instrumentation, control, and safety systems. Commissioning shall demonstrate that the gates and operating equipment function safely, reliably, and in accordance with the design requirements under both no-load and operating conditions.

2.6.1 Commissioning of Hydraulically Operated Fixed Roller Control Gate

The commissioning works shall include, but not be limited to, the following:

- Inspection and verification of gate installation, alignment, guide tracks, rollers, seals, embedded parts, hydraulic cylinders, anchor bolts, and structural connections.
- Inspection of the hydraulic power unit, including hydraulic pumps, electric motors, oil reservoir, filters, valves, pressure gauges, piping, hoses, and control panels.
- Filling the hydraulic system with approved hydraulic oil and flushing the system to remove contaminants.
- Air bleeding of hydraulic circuits and cylinders to ensure smooth operation.
- Calibration and testing of pressure relief valves, pressure switches, position transmitters, level indicators, and control devices.
- Functional testing of hydraulic cylinders and gate movement through the full operating range.
- Verification of gate opening, closing, stopping, and holding at intermediate positions.
- Testing of local and remote control functions, emergency stop facilities, alarms, and interlocks.
- Measurement and recording of operating pressure, oil temperature, motor current, gate travel speed, and cylinder performance.
- Dry testing by carrying out a minimum of three complete opening and closing cycles without water load.
- Wet testing under actual operating head conditions to verify gate performance, stability, vibration characteristics, seal effectiveness, and hydraulic system operation.
- Verification that the gate operating speed is within the specified range of 0.2–0.5 m/min, or as specified by the Engineer.

The gate shall operate smoothly throughout its travel without abnormal vibration, noise, hydraulic leakage, sticking, or instability.

2.6.2. Commissioning of Electrically Operated Wire Rope Hoist Bulkhead Gate

The commissioning works shall include, but not be limited to, the following:

- Inspection and verification of bulkhead gate installation, alignment, seating arrangements, guide frames, lifting points, and embedded components.
- Inspection of the wire rope hoist assembly, including electric motor, gearbox, brake system, rope drum, wire ropes, sheaves, bearings, couplings, and supporting structure.
- Verification of correct wire rope installation, rope tension, lubrication, and end terminations.
- Inspection and testing of electrical power supply systems, motor protection devices, control panels, overload relays, and control circuits.
- Functional testing of the wire rope hoist through the full lifting and lowering range.
- Adjustment and testing of upper and lower limit switches and position indicators.
- Testing of brake performance and load-holding capability during power failure conditions.

- Verification of emergency manual operation facilities.
- Measurement and recording of hoisting speed, motor current, vibration levels, and brake performance.
- Dry testing by carrying out a minimum of three complete lifting and lowering cycles.
- Wet testing, where applicable, to verify satisfactory lifting, lowering, seating, and operational reliability under service conditions.
- Inspection of gate seating and leakage performance.

The wire rope hoist and bulkhead gate shall operate smoothly and safely without rope slippage, excessive vibration, abnormal noise, overheating, or mechanical defects.

2.6.3 Testing and Acceptance

Upon completion of commissioning, the Contractor shall submit all test reports, calibration certificates, operating records, and commissioning documentation for approval.

The commissioning shall be considered satisfactory when:

- All mechanical, hydraulic, and electrical systems function correctly.
- Gates complete the required dry and wet testing cycles without malfunction.
- Operating speeds comply with the specified requirements.
- Safety devices, brakes, limit switches, overload protection systems, alarms, and interlocks operate correctly.
- Leakage through gate seals is within the permissible limits specified by the Engineer.
- No abnormal vibration, noise, deformation, oil leakage, or operational defects are observed.

All commissioning activities shall be carried out in accordance with DIN 19704, ISO 4413, IEC 60034, FEM Rules for Hoisting Equipment, and the Engineer's approved commissioning procedures.

2.7 Repair of Defective Concrete

The Contractor shall inspect, assess, prepare, repair, cure, and protect all defective concrete surfaces identified by the Engineer. The repair works shall be carried out in accordance with ACI 546R – Concrete Repair Guide, ACI 562 – Code Requirements for Assessment, Repair and Rehabilitation of Existing Concrete Structures, USBR Concrete Repair Manual, ACI 210R, USACE EM 1110-2-2002, and other relevant international standards and best engineering practices.

3 Scope of Work

3.1 Bowatenna Irrigation Tunnel Intake Structure

Bowatenna Irrigation Tunnel Intake Structure constructed in early 1970's is provided with Dual Steel Gates, comprising slide type Control Gate for the controlled water discharges and fixed wheel type Bulkhead Gate on the upstream side for the purpose of carrying out repairs/ maintenance of the Control Gate.

The following Equipment associated with Tunnel Intake have been maintained and in operational condition up to now,

Hydraulically operated Control Gate

Electrical Motor Driven Bulkhead Gate (with Gear Reducer and Wire Rope Hoist)

Hydraulic Operating System

According to the information Gate system has been operating for about fifty+ years and a comprehensive rehabilitation program has not done since commissioning the project, therefore refurbishment of the Equipment is required to prolong its useful life and thereby ensure reliability of operating equipment for the foreseen future.

Water releases through this structure are mainly used for the agricultural purpose in the System 'H' area of Mahaweli Development program and therefore the refurbishment works shall be carried out with minimum curtailment of water issues.

3.2 Scope of Rehabilitation works

The work "Refurbishment of Gates and Renovation of Hydraulic System" of Bowatenna Tunnel Intake, means Electro-Mechanical Equipment including the entire Hydraulic System, Gates, Hoists and associated equipment shall be rehabilitated by replacing, repairing, correcting the deteriorated/defective items or assemblies where applicable by designing, supplying, installing and commissioning new equipment.

The contract shall also include site investigations, designing, manufacturing, testing before delivery, finishing, protective coating where specified shop inspection, insuring, transporting from the workshop to the site, site storing, erection, site testing, commissioning and remedying etc.,

As built drawings are not available and the dimensions and drawings submitted with this document are for estimates only.

The contractor shall be responsible for the supply of all the items with correct dimensions. Such items shall be subjected to prior approval of the Engineer.

The Equipment including all materials, parts etc., shall be complete and compatible in all respects, so as to provide a complete and satisfactory Installation

Everything necessary for erection and operation of the Equipment shall be included in this contract even though not specifically mentioned in the BOQ or in this document

Works to be carried out are generally listed under following subtitles of the Technical Specifications and in the BOQ but not necessarily limited thereto.

3.2.1 Repair/ Renovation of Bulkhead Gate and Hoist Gear Equipment

Application corrosion protection on Gate body and associated parts, repairs to Guide Rollers, Servicing of Pulley Mechanism used for reeving wire rope, Servicing Hoist Motor including repair and correction defects of Solenoid released type Brake, Replacing Motor Shaft Bearings, 02nos

3.2.2 Repair/ Renovation of Control Gate

Application corrosion protection on Gate body and associated parts, repairs to Guide Rollers, repair Gate Shaft, Couplings and Brackets shall fixed firmly on the holding surfaces.

3.2.3 Replacement of Rubber Seals

All Rubber Seals fastened to the Control and Bulkhead Gates shall be replaced with new Seals with Bolts, Nuts, and Washers (With nylon washers), the side Seals, top and bottom Seals to be supplied are of same size and material as those of the existing Seals. The holes of rubber seals shall be made by drill for rubber with silicon liquid using drilling machines (making holes by punching is not permitted)

3.2.4 Repainting of Gates

Control Gate, Bulkhead Gate and appurtenant steel structures shall be repainted including blast cleaning surfaces to SA 2.5 standard and applying Marine type Epoxy Primer and Epoxy Resin Coating material (industrial type paint material not accepted), total DFT around 500 micron thickens. The approval of the Engineer shall be obtained for the Paint Material before its purchase.

3.2.5 Repairing Rollers of Gates

All Rollers/ Wheels of the two gates shall be overhauled to restore their original function, any damaged part identified shall be repaired or supplied to ensure the smooth operation of the Gate to the satisfaction of the Engineer.

3.2.6 Hydraulic Operating system of Control Gate

Existing Tank mounted Hydraulic system shall be replaced with a single compact unit of a modern design, existing pipe lines extending from the pump up to Hoist Cylinder shall be used with necessary refurbishment to it including replacement of line valves and components. If the proposal is for replacing Oil Tank it shall be equipped with Sight Level Gauge, Floating Switch to trigger an Alarm for minimum Oil Level, Suction and Reverse Flow Filters, Filler Cap with Strain Valve, Tank shall hold a volume of Oil sufficient for Control Gate operation at any frequency, Oil pump shall be driven by 3-Phase Electric Motors

Automatic operation shall be used with the capability of Manual operation using a Hand Pump mounted on the Oil Tank

Electric Motors, Oil Pumps, Switches, Valves, Gauges and other equipment incorporated in the system shall be of high-quality equipment suitable for the function that is required to perform, The Viscosity Grade of hydraulic Oil to be used in the new system shall be VG 68 or equivalent.

3.2.7 Replacement of Pressure Seals (Stuffing Box Seals) of Lifting Cylinder

Top and Bottom Seals of Hydraulic Cylinder Shall be replaced and Cylinder to be tested as per standard pressure testing procedure for optimum operating condition.

All necessary Seals, O-Rings, Felt Rings are of commercially manufactured items and high-quality units. The Hydraulic Unit shall be provided with a Local Control Panel installed within the Intake Hoist Room adjacent to the new System and shall be interconnected with other existing Control Panels.

TECHNICAL SCHEDULE FOR HYDRAULIC SYSTEM
(The Bidder shall complete the “Particulars – as offered” column)

REF		UNITS	PARTICULARS	
			As Specified	As Offered
1	Hydraulic System			
1.1	Manufacturer’s Name		Pl. Specified	
1.2	Country of Origin		Pl. Specified	
1.3	Power	hP	Pl. Specified	
1.4	Relief Pressure	bar	28	
1.5	Oil Volume	L	Pl. Specified	
2	3 Phase Induction Motor			
2.1	Manufacturer’s Name		Pl. Specified	
2.2	Country of Origin		Pl. Specified	
2.3	Make		Pl. Specified	
2.4	Model		Pl. Specified	
2.5	Motor power	hP	Pl. Specified	
2.6	Voltage	V	415	
2.7	Frequency	Hz	50	
2.8	Speed		Pl. Specified	
2.9	Protection		IP55 or more	
2.10	Insulation		Class F or more	
2.11	Duty class		Pl. Specified	
3	Hydraulic Pump			
3.1	Manufacturer’s Name		Pl. Specified	
3.2	Country of Origin		Pl. Specified	
3.3	Make		Pl. Specified	
3.4	Model		Pl. Specified	
3.5	Pump Type		Pl. Specified	
3.6	Flow Rate	L/min	Pl. Specified	

3.7	Operating Pressure	bar	Pl. Specified	
3.8	Maximum Pressure	bar	Pl. Specified	
3.9	Drive Motor	hP	Pl. Specified	
3.10	Hydraulic Oil		Pl. Specified	
3.11	Efficiency		Pl. Specified	
4	Emergency operated Hand Pump			
4.1	Manufacturer's Name		Pl. Specified	
4.2	Country of Origin		Pl. Specified	
4.3	Make		Pl. Specified	
4.4	Model		Pl. Specified	
4.5	Type		Pl. Specified	
4.6	Rated Pressure	bar	Pl. Specified	
4.7	Oil Displacement	L/min	Pl. Specified	
4.8	Relief Valve Setting		Pl. Specified	
4.9	Operation		Pl. Specified	
5	Valve box and other Valves (Directional control valve, Pressure relief valve, Flow control valve, Check valve, Counterbalance valve, Pilot-operated check valve, Isolation valves)			
5.1	Manufacturer's Name		Pl. Specified	
5.2	Country of Origin		Pl. Specified	
5.3	Make		Pl. Specified	
5.4	Model		Pl. Specified	
6	Electrical Control Panel • Motor starter (DOL) • MCB/MCCB • Overload protection • Indication lamps • Control switches			
6.1	Manufacturer's Name		Pl. Specified	
6.2	Country of Origin		Pl. Specified	

6.3	Make		Pl. Specified	
6.4	Model		Pl. Specified	
7	Instrumentation • Pressure transmitters • Temperature sensors • Oil level switches • Flow indicators • Alarm contacts			
7.1	Manufacturer's Name		Pl. Specified	
7.2	Country of Origin		Pl. Specified	
7.3	Make		Pl. Specified	
7.4	Model		Pl. Specified	
8	Flexible hose			
8.1.1	Manufacturer's Name		Pl. Specified	
8.1.2.	Country of Origin		Pl. Specified	
8.1.3	Make		Pl. Specified	
8.2	Steel pipe		Stainless Steel(316 or equvelent)	
9	Filters, Air Breather Filter			
9.1	Manufacturer's Name		Pl. Specified	
9.2	Country of Origin		Pl. Specified	
9.3	Make		Pl. Specified	
9.4	Models		Pl. Specified	
10	Hydraulic Oil		Pl. Specified	
11	Hydraulic Oil tank		Can be used existing tank	
12	Recommended free supply Spare Parts List		Pl. Attached	
13	Recommended free supply Tool List		Pl. Attached	
14	Manufacture Warranty		Three Year or more	

VOLUME 2

SECTION 7

BILL OF QUANTITIES

**REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND
RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE
BOWATENNA RESERVOIR
CONTRACT NO. DDG/TS/CON/HW/BOW/50**

PREAMBLE TO THE BILL OF QUANTITIES

1. LOCATION

The site is located in **Naula Town**.

2. RATES AND PRICES

The bill of quantities (BOQ) and this preamble shall be read in conjunction with all the other documents forming the contract, for details of all conditions, obligations, liabilities and instructions which shall be complied with by the Contractor. The cost of complying with all such conditions, obligations, liabilities and instructions including all charges for overheads, profits and all direct taxes shall be deemed to be spread over and included in the rates or sums inserted by the Contractor in the BOQ where they are not themselves covered by specific bill items. In case of the taxes only the value added tax (VAT) will be paid separately.

All items of the work shall comply exactly with the contract unless otherwise approved by the Engineer and the rates and the sum inserted in the BOQ shall be deemed to apply to the work as specified. If, for his own convenience or reasons of availability, the Contractor proposes and the Engineer approves the use or provision of alternative items, materials or methods of working of equivalent or superior quality to those specified in the Contract, the rates and sums inserted in the BOQ shall not in any case be increased as a result.

3. QUANTITIES

The quantities of work and other items set forth in the BOQ are estimate only and are not to be considered as limiting or extending the amount of work to be done and other items to be provided by the Contractor. But any considerable variation of quantities with the BOQ must be informed to the Engineer for approval prior to its execution. The works as completed in accordance with the contract shall be measured and paid in accordance with the provision of the contract.

Where, for his own purpose or due to his default, the Contractor carries out the works in such a manner that the quantity of any item of work in a particular component to be measured for payment purposes differs from that shown on the drawings or directed by the Engineer, then payment shall be made according to the lesser of the actual quantity and that so shown or directed. An excess quantity in one part of the component shall not however be allowed to offset a deficit elsewhere in the same component for measurement purposes. Where the determination for payment purposes of the quantity of any items of the work depends upon the measurement of existing features or ground level and the like, then prior to carrying out any operations which might affect such measurement, the contractor shall first take such levels and measurements as the Engineer may direct and, after the Engineer has had the opportunity to check the same, they shall be certified as agreed by both Engineer and the Contractor. In the event that the Contractor fails to observe the above procedure, the Engineer shall determine the quantity to be assumed for payment purposes using the best information available to him, and his decision in the matter shall be final.

Item in the BOQ marked "PROVISIONAL QUANTITY " or " PROVISIONAL ITEM " shall only be executed if they are the subjects of a written instruction from the Engineer. The Contractor is expected to substantiate his claims under these items, where applicable, with appropriate invoices, receipts etc. The rates set out for such items shall be used for the payment of the work so ordered by the Engineer, whether the quantities shown are used wholly or in part or not at all. The indicated provisional sum is the upper ceiling for the payment of the particular item.

06. Scope of the Hydro- mechanical & Electro-Mechanical works

5. UNITS

Metric units are used throughout the BOQ for measurement purposes unless otherwise indicated. Abbreviations used in the Contract are as follows:

m². Square meter

6. GUIDE TO BOQ

Schedule 01

Preliminary Items

Schedule 02

Construction Items.

MEASUREMENT NOTES

1). Provisional Sum Items in Schedule 1 of the Bill of Quantities

For Provisional Sum items under Schedule 1 , the Contractor is expected to substantiate his claims where applicable, with appropriate invoices, receipts etc.

2). Lump Sum item in schedule 1 Bill of Quantities

The amount quoted by the Contractor for these items are the maximum amount paid by the Employer for obtaining the said services by the Contractor throughout the construction period including any extension to the same.

The Contractor should substantiate his claims under this item with the proofs regarding the assistance, guidance and services obtained from the construction manager with his acknowledgements for receiving the payments. The Engineer may consider the payments under the item 1.6 only if construction manager effectively provided his service.

The details of the construction manager should have been provided by the Contractor in Annex-01 of this document with a firm commitment letter from him indicating that he provides his service to this particular construction work undertaken by the Contractor.

In accomplishment of all the above requirements, as the claim made by the Contractor, the payment will be made in Contractor's progress claims proportionate to the work completed in the contract to the total contract price.

2) Day work Schedules

The prices quoted in the day-work schedules will not be considered in the evaluation.

3) Dealing with water

If an item carrying a Provisional Sum is included in the Schedule 2 of the Bill of Quantities for dealing with water, this item shall include for all works required for dealing with water from each and every source arising, where or not specifically referred to in the specification or shown on the drawing to enable all works to be carried out. Such works shall include, but shall not be limited to protection works, temporary diversions, cofferdams, channels, pipes, flumes, drains, ditches, stop boards and sumps and making good all damages caused by water.

DAY WORK SCHEDULE

(A). LABOUR

Payment in respect of labour employed on the day work basis shall be made at the average daily wage rates (inclusive of contractor's overheads and profits) in construction as entered by the Tenderer in the following "Schedule of Basic Rates" and checked & approved by the "Engineer"

Schedule of Basic Labour Rates

	Description of Labour	Working Day Rate (Rs.)	
1.	Painter	8 hour working day	
2.	Sand Blaster	8 hour working day	.
3	Mason	8 hour working day	
4.	Welder	8 hour working day	
5.	Skilled labour	8 hour working day	
6.	Unskilled Labour	8 hour working day	
7.	Any other (specify)		
8.			
9.			

Payment shall be made on the basis of the actual time worked excluding travelling time.

The above shall be deemed to include the cost of the Contractor's Site Supervisory and Administrative staff (except gangers or charge-hands working with the labour gangs), all cost in respect of portable tools, wheel barrows, ladders, trestles and similar small equipment, overtime working, overheads and all statutory and other charges and costs in respect of the employment of labour on a day-work basis.

(B) MATERIALS

Payment in respect of materials used in the execution of work on day-work basis shall be the cost of materials inclusive of overheads and profits, delivered to store or stockpile on the “site”

Schedule of Prices of Materials for Day-work

	<u>Item</u>	<u>Unit</u>	<u>Rate (Rs)</u>
1	Sand	m ³	
2	Scaffolding.	Nos	
3	Polly sack bags	each	

The above shall be deemed to cover the cost of transport to and within the site, taking delivery, loading/unloading and putting into stores or stockpile, storage, security, overheads and all other charges and costs in respect of the procurement and handling of such materials.

(C) CONSTRUCTION PLANT AND EQUIPMENT

Payment in respect of constructional plant deployed on a day work basis shall be made at the rates entered by the Bidder below. These rates shall be deemed to include all cost in respect of fuel and consumable stores, operators and attendants, contractor's site supervisory and administrative staff, overheads and all other charges and costs in respect of the deployment of constructional plant and equipment on a day work basis.

Payment shall be made on the basis of the actual time worked including such reasonable travelling time as the "Engineer" may allow, but excluding idle time (except under the orders of the "Engineer") and time during which such constructional plant/equipment is broken down or undergoing maintenance.

	<u>Plant & Machinery</u>	<u>Specifications</u> <u>(Capacity/H.P.</u> <u>Weight etc.)</u>	<u>Hourly Rate</u> <u>(Rs.)</u>
1	Arc welding plant		
2	Electric generator		
3	Electric cutter		
4	Airless paint gun		
5	Sand blasting Pot and Equipment		
6	Air Compressor		
7	20 T Crane		
	Others (Specify)		

MINIMUM REQUIREMENT OF CONCTACTOR'S SITE STAFF

The list of staff, above the supervisory grade, indicated in the schedule below is considered to be the minimum staff required at site for the execution of the Works under this Contract. However, the Bidder may revise the schedule to suit his requirements.

Cost of this staff is deemed to be covered under the unit rates for construction items by the Bidder.

Grade of Staff (1)	Required Qualifications (2)	Minimum No. of positions (3)	Bidder's Proposal	
			Qualification (4)	No. of positions (5)
Site engineer	Minimum 5 years' experience as site agent in similar works	1		
Site Supervisor	Minimum 5 years' experience as Supervisor in similar works	1		

VALUE ADDED TAX (VAT)

Value Added Tax (VAT) shall not be included in the unit rates for items in the Bill of Quantities and in the tender sum. **For evaluation purposes, it will be presumed that the Tender Sum does not include VAT.**

1. The **VAT** liability on the service rendered under the Contract shall be considered as a separate expenditure borne by the Employer, and not as a part of the Contract Price.
2. Those who intend to claim the **VAT** liability from the Employer shall be registered for **VAT** with the Department of Inland Revenue and should fill in the information required below:

- a). Name of Contract:
- b). Contract No:
- c). Name & address of Bidder:
- d). **VAT** Registration No.:
- e). Bid Sum:
- f). **VAT** sum at due on the Bid Sum:
- g). Signature of the Tenderer:

[A copy of the Certificate of **VAT** Registration should be attached]

**REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING
AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF
THE BOWATENNA RESERVOIR.**

SUMMARY

Contract No. – **DDG/TS/CON/HW/BOW/50**

Schedule No.	Description	Amount Rs. Ct.
Schedule No 01	Preliminaries	
Schedule No 02	Civil Works	
A	SUB TOTAL 01 (Schedule 01 + Schedule 02)	
B	<u>Ddt</u> – Provisional Sum	1,468,100.00
C	SUB TOTAL 02 (A-B)	
D	<u>Ddt</u> - Discount (if any)% (....% of C)	
E	SUB TOTAL 03 (A-D)	
F	TOTAL without VAT – (Discounted Prices to be transferred to form of Bid) (E + F)	
TOTAL BID PRICE (AMOUNT IN WORDS)		
G	Add - Physical Contingencies (10% of E)	
H	Add - Price Contingencies (4% of E)	
I	Add - VAT (18%) for H	
GRAND TOTAL INCLUDING VAT (H + I)		
VAT Registration No.		

Signed :

Signature of Bidder
for and behalf of

.....
.....

(Place the common seal)

Date:.....

Note: Bidders who are registered with Department of Inland Revenue for payment of VAT should fill and annex a copy of Certificate of Registration issued by the Department.

Bidders who are not registered for VAT should submit a letter from Department of Inland Revenue, stating that they have not registered for VAT.

SCHEDULE 01 - PRELIMINARIES

Item No	Description	Unit	Qty	Rate	Amount	Amount in Words
A.1	Security Bonds and Guarantees					
A.1.1	Advance payment bonds and guarantees	Provisional Sum			113,600.00	
A.1.2	Performance security	Provisional Sum			94,700.00	
A.1.3	Insurance of property, material and works at site	Provisional Sum			56,800.00	
A.1.4	Third party insurance	Provisional Sum			56,800.00	
A.1.5	Insurance against accidents and injury to the workmen	Provisional Sum			56,800.00	
A.2	Project Manager's Facilities					
A.2.1	Maintenance of the Project Manager's Office	Provisional Sum			189,400.00	
A.3	Maintenance of all Contractor's facilities					
A.3.1	Establishment and removal on completion of all Contractor's site facilities, including labour hut, site manager office facility, materials storage facilities, setting up power lines, telecommunication systems etc and dismantling of same at the completion of the project	Lump Sum				

Item No	Description	Unit	Qty	Rate	Amount	Amount in Words
A.4	Other Requirement					
A.4.1	Provide test reports, quality assurance reports, etc.	Provisional Sum			100,000.00	
A.4.2	Compliance with environmental regulations, and project environment management plan.	Provisional Sum			200,000.00	
A.4.3	Employer's share of Adjudicator's fees and expenses	Provisional Sum			600,000.00	
Total of Bill No 01 PRELIMINARIES						

Note: Item No A.3.1 will be paid based on percentage of financial progress.

SCHEDULE 02- Hydro- Mechanical & Electro-Mechanical Works

Item No	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Rate in Words
1	Mobilization and Demobilization, Site Cleaning including Debris Disposal					
1.1	Dealing with Water / Erection coffer dam and Scaffolding.	Item Allow				
1.2	Transport within the Site (Labour and Machinery) and machinery deployed in the site during the contract period.	Item Allow				

Item No	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Rate in Words
2	Repair and Repaint Control gate and Bulkhead Gate					
2.1	Disconnection of Control Gate & Bulkhead Gate From Hoist Arrangement.	Item Allow				
2.2	Fabrication of Wire Slings for lifting Bulkhead Gate and Control gate	Item Allow				
2.3	Lifting Control Gate & Bulkhead Gate from the chamber and Placing on the Ground Level and reinstallation of after the repair. (Using 20T Crane)	Item Allow				
2.4	Attend repairs to Bulkhead Gate & Control Gate Removing, Cleaning, Servicing and Reinstalling Guide Rollers (Replaced bearing, seals, and metal work of the roller Pins), Brackets and other Attachments.	Item Allow				
2.5	Metal work of the Bulkhead gate & Control Gate (Skin plate, main beam, bottom beam and other side beam, etc), Gate Embedded parts (lintel beam, seal beam, side/roller guide rail, Bottom sill beam, etc), Gate chamber ladder and etc, Surface Preparation (sand blasting) and Painting of Gate and Steel Sections of Bulkhead Gate Chamber. Surface preparation of the eroded concrete structures.	Item Allow				
3	Supplying and Fixing Rubber Seals for Control and Bulkhead Gate					
3.1.	Removing and Re-fixing Clamp Bar, Rubber Seals from Bulkhead Gate & Control Gate Drilling Holes on rubber seals and Supplying and Fixing stainless steel Nuts / Blots /washers. (with Nylon washers)	Item Allow				

4	Repair / Renovation of Hydraulic Operating System of Control Gate					
4.1	Flushing Hydraulic Oil Tank and pipe lines, Cleaning, Pressure Testing of lines.	Item Allow				
4.2	Paint Zn Phosphate (Yellow/ Black) metal primer, two coats on steel work after removing scales and wire brushing.	m²	31			
4.3	Paint enamel, applying two coats after cleaning and preparing surface.	m²	31			
4.4	Hydraulic Cylinder Dismantle, Removing, Inspection and refitting Static and Dynamic seals. Inspection of Cylinder, Piston and Shaft, Attend Repairs to any damaged surfaces found during the inspection, servicing the cylinder.	Item Allow				
4.5	Supplying and Fixing Cylinder Seal Kit of the control gate hydraulic Cylinder.	Item Allow				
4.6	Installation of New Hydraulic Pack (With all Pressure Regulating and Flow Control Valves, indicators etc.	Item Allow				
4.7	Calibration, Pressure Setting, Testing of Newly Installed Hydraulic System. Directed by engineer	Item Allow				
5	Servicing Hoist Gear machinery of Bulkhead Gate.					
5.1	Servicing Hoist Gear machinery of Bulkhead Gate.	Item Allow				

6	Completion of Work				
	Rectification, correction work for Satisfactorily completing all work, commissioning and site clearing. a) Testing and commissioning, of the bulkhead gate b) Testing and commissioning of the control gate c) Satisfactorily completing all work and site clearing handling over drawing of the remedial works.	Item Allow			
Bill No.02-Total Amount (Rs.)					

VOLUME 2

SECTION 8

LIST OF DRAWINGS

No	Title
01	Rough Sketch of the Control gate surface Area
02	Rough Sketch of the Bulkhead gate Surface Area
03	Rough Sketch of the Hydraulic Cylinder
04	Rough Sketch Tunnel Vent
05	Rough Sketch ladder

VOLUME 2

SECTION 9

STANDARD FORMS (BID)

- **Form of Bid Security**

FORM OF BID SECURITY

[This Guarantee form shall be filled in accordance with the instructions indicated in brackets]

.....
[Insert issuing agency's name, and address of issuing branch or office].....

Beneficiary: *Director General, Mahaweli Authority of Sri Lanka, 500, T.B. Jayah Mawatha, Colombo 10.*

Date: [Insert (by issuing agency) date]

BID GUARANTEE No.: [Insert (by issuing agency) number]

We have been informed that
..... [Insert (by issuing agency) name of the Bidder; if a joint venture, list complete legal names of partners] (Hereinafter called "the Bidder") has submitted to you its bid dated [Insert (by issuing agency) date] (Hereinafter called "the Bid") for the **"REPLACEMENT OF RUBBER SEALS, REPAINTING OF THE GATES, AND SERVICING AND RENOVATION OF THE HYDRAULIC SYSTEM AT THE TUNNEL INTAKE OF THE BOWATENNA RESERVOIR"**, under invitation for Bids No. **DDG/TS/CON/HW/BOW/50** ("the IFB")

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we [Insert name of issuing agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [Insert amount in figures]
..... [insert amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB") of the ITB; or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date.

[Signature of authorized representative(s)]

Annex - 01

Details to be furnished regarding Item No. 1.6 of BOQ - Contract Management Services

Furnish the names, qualifications and experience of the recommended personnel under item 1.6 of the Bill of Quantities in the Format given below. Include whether they are in-house or on contract, and if on contract, a firm commitment from the individual or the firm should be annexed.

No.	Category (Construction Manager as requested in cl.4.4 of bidding data)	Proposed man months (Full contract period)	Name	*Qualification/ Experience (CV to be attached)	In-house or Contract	Remuneration per man month

***Minimum Qualification:-**

B.Sc. Eng. (Mechanical) or equivalent with 8 years' experience out of which 5 years in relevant field.

Other Staff

No.	Grade of staff	Name	*Qualification/ Experience (CV to be attached)
1	Site Agent		
2	Supervisor		

Form EXP - 1

General Experience

Bidder's Legal Name: _____ Date: _____
 JV Partner Legal Name: _____ Bidding No.: _____
 Page _____ of _____ pages

Starting Month / Year	Ending Month / Year	Years*	Contract Identification	Role of Bidder
_____	_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____
_____	_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____
_____	_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____
_____	_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____
_____	_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____
_____	_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____

* List calendar year for years with contracts with at least nine (9) months activity per year starting with the earliest year

Form EXP – 2

Specific Experience

Bidder's Legal Name: _____ Date: _____

JV Partner Legal Name: _____ Bidding No.: _____

Page _____ of _____ pages

Similar Contract Number: _____ of (Total number of contracts) required.	Information		
Contract Identification	_____		
Award date	_____		
Completion date	_____		
Role in Contract	☐ Contractor	☐ Management Contractor	☐ Subcontractor
Total contract amount	_____		LKR_____
If partner in a JV or subcontractor, specify participation of total contract amount	_____%	_____	LKR_____
Employer's Name:	_____		
Address:	_____ _____ _____		
Telephone/fax number:	_____		
E-mail:	_____		

Form EXP – 2 (cont.)
Specific Experience (cont.)

Bidder's Legal Name: _____ Page _____ of _____ pages

JV Partner Legal Name: _____

Similar Contract Number: _____ of (total number of contracts) required.	Information
Description of the similarity contracts given in the Form of General Experience	
Amount	_____
Physical size	_____
Complexity	_____
Methods/Technology	_____
Physical Production Rate	_____

Form CCC

Current Contract Commitments / Works in Progress

Name of Bidder or partner of a joint venture
--

Bidders and each partner to a JVA should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Name of contract	Employer, contact address/tel/fax	Value of outstanding work (LKR equivalent)	Estimated completion date	Average monthly invoicing over last six months (LKR)
1.				
2.				
3.				
4.				
5.				
etc.				

Value at current price levels of existing commitments and on-going works to be completed during the next 1 year:

The Bidder shall provide evidence to substantiate the adequacy of the sources of finance to meet the Bidder's cash flow requirements on the above contracts.

Form FIN – 1
Financial Situation

Historical Financial Performance

Bidder's Legal Name: _____ Date: _____
JV Partner Legal Name: _____ Bidding No.: _____

Page _____ of _____ pages

To be completed by the Bidder and, if JV, by each partner

Financial information in LKR	Historic information for previous past 05 years					
	2025-2024	2024-2023	2023-2022	2022-2021	2021-2020	Average
Information from Balance Sheet						
Total Assets (TA)						
Total Liabilities (TL)						
Net Worth (NW)						
Current Assets (CA)						
Current Liabilities (CL)						
Total Revenue (TR)						
Profits Before Taxes (PBT)						

The Bidder shall attach copies of financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following conditions:

- Statements must reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
- Historic financial statements must be audited by a certified accountant.
- Historic financial statements must be complete, including all notes to the financial statements.
- Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

Form FIN – 2

Average Annual Turnover

Bidder's Legal Name: _____ Date: _____
 JV Partner Legal Name: _____ Bidding No.: _____
 Page _____ of _____ pages

Annual turnover data (civil engineering construction work only)

Year	Turnover	Sri Lanka Rupee (LKR) equivalent
2020-2021		
2021-2022		
2022-2023		
2023-2024		
2024-2025		
Total:		
Average*		

* Average annual turnover calculated as total certified payments received for work in progress or completed over the number of years specified in Section 5 (Bidding Data and Contract Data).

Annex 2b

Non-collusion Affidavit

The undersigned bidder or agent, hereby solemnly, sincerely, and truly declares and affirms/makes an oath and states as follows ;

- a) That he/she has not, nor has any other member, representative, or agent of the firm, company, corporation, or partnership representing him/her, entered into any combination, collusion, or similar agreement with any person in connection with the price to be bid;
- b) That he/she or anyone representing him/her has not taken any step whatsoever to prevent any person from bidding, nor to induce anyone to refrain from bidding; and
- c) That this bid is made without reference to any other bid and without any agreement, understanding, or combination with any other person in reference to this bid

He/she further states that no person, firm, or corporation has received or will receive, directly or indirectly, any rebate, fee, gift, commission, or thing of value in connection with the submission of this bid.

The bidder accepts full responsibility for ensuring the absence of collusion and hereby pledges to abide by fair and ethical competition practices throughout the procurement process and fully comply with the applicable Procurement Guidelines.

I hereby affirm, under the penalties for perjury, that all statements made by me in this affidavit are true and correct.

.....
Signature of the Declarant

The foregoing Affidavit having been duly read over and explained by me to the Affirmant above named and he/she having understood the contents therein and admitted to be correct, affirmed and set his/her signature hereto before me on this day of at

BEFORE ME,

.....
JUSTICE OF THE PEACE/COMMISSIONER OF OATHS
.....

Check List for Bidders

Bidders are advised to fill the following table:

ITEM	YES (tick)	REFERENCE
Form of Bid		
Addressed to the Employer ?		
Completed?		
Signed?		
Bid Security		
Submitted in the given format issued by an agency acceptable to employer. (ref. cl. 16.2 – Bidding Data		
Qualification Information		
All relevant information completed?		
Signed?		
Addendum		
Contents of the addendum (if any) taken into account?		
Other		
Bidder's specifications for fittings?		
Affidavit completed as Annex-2b?		
Proof for liquid assets and/or credit facilities		
Construction programme?		
CV of personnel to be engaged in construction management services?		
List of Resources intent to be deployed for this tender?		
Schedule of Basic Labour Rates?		
Schedule of Prices of Materials for Day-Work?		
Schedule of Rates of Plants for Day-Work?		
Bidder's proposal on Contractor's Site Staff?		
BID package		
All the documents given in ITB Clause 12 enclosed in the original and copy?		
ITB Clause 19 followed before Sealing the Bid Package?		