

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
STATE MINISTRY OF CANAL & COMMON INFRASTRUCTURE DEVELOPMENT IN
SETTLEMENTS IN MAHAWELI ZONE



Division of Major Dams and Reservoir Operation
MAHAWELI AUTHORITY OF SRI LANKA

BIDDING DOCUMENT

FOR

RECTIFICATION OF WATER LEAKAGE THROUGH THE BOTTOM OUTLET SERVICE
(TAINTER) GATE No. 1 OF THE RANDENIGALA DAM

CONTRACT NO: DDG/TS/CON/HW/RAN/DM/16

NATIONAL COMPITIVE BIDDING

<i>Bidder Number</i>	
<i>Bidder Name</i>	
<i>Address</i>	
<i>Email Address & WhatsApp Number</i>	

Volume 1

Section 1 – Instruction to Bidders

Section 2 - Standard Forms (Contract)

- ❖ ***Agreement***
- ❖ ***Performance Security***
- ❖ ***Advance Payment Security***
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Section 3 – Conditions of Contract

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Invitation for Bids

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Section 7 –Bill of Quantities

Section 8 – Drawings

Section 9 – Standard Forms (Bid)

- ❖ ***Bid Security***

Invitation to Bids

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA, STATE MINISTRY OF CANAL & COMMON
INFRASTRUCTURE DEVELOPMENT IN SETTLEMENTS IN MAHAWELI ZONE



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 **11.00hrs. on 05.10.2021** 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/H W/RAN/DM/16	Rectification of Water Leakage Through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam. (Estimate Rs. 3.46 M without VAT, Contract period 90 days)	EM4 or above	2,000.00

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 **13.09.2021** up to **04.10.2021** 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 or sending the written request by email to ddgts.masl@gmail.com with the Bank Payment Slip paid the respective non-refundable tender fee to the Mahaweli Authority of Sri Lanka Bank Account no. of 2327542 at Bank of Ceylon, Hyde Park Branch. The bidding documents are issue by courier service to those who applied through email. 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 the <http://mahaweli.gov.lk> website for references.

The pre-bid meeting is conducted through the zoom technology on **29.09.2021** at **11.00hrs**. The Meeting ID: 966 0840 6614, Passcode: 878088

Site visit will be held on **28.09.2021** at **10.00hrs.** in the Randenigala Dam area. For further details, please contact Engineer -in – Charge (Randenigala) on Tel: **0552245772, 0552245821**

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 or courier to the **Director General, Mahaweli Authority of Sri Lanka, 9th Floor, No. 500, T.B. Jayah Mawatha, Colombo 10** before **11.00 hrs** on **05.10.2021**. 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. The bid opening meeting is conducted through the zoom technology on **05.10.2021** at **11.00hrs** for those who are unable to participate physically to the bid opening meeting. The Meeting ID: **956 0135 7690**, The Pass Code: **336472**

The bidders are encouraged to use electronic media to as far as possible overcome the current Covid 19 pandemic situation.

For further details, please contact Technical Services Division of Mahaweli Authority of Sri Lanka on Tel: 011-2689651, 011-2687475 email: ddgts.masl@gmail.com.

Director General
Mahaweli Authority of Sri Lanka

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Invitation for Bids

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PREFACE

This Bidding Document has been prepared based on the Standard Bidding Document-Procurement of Works, ICTAD/SBD/03 Second Edition - January 2007, published by the Construction Industry Development Authority (CIDA/ICTAD) and Subsequent Addendum 1 Issued by the ICTAD/CIDA dated 12.01.2009.

The Bidders are advised to procure the Standard Bidding Document from ICTAD/CIDA as it will not be issued with this Bidding Document.

This Standard Bidding Document ICTAD/SBD/03 and Subsequent Addendum 1 are to be read in conjunction with Schedule of Section 5 of Volume 2 of this Bidding Document.

VOLUME 1

Section 1

Instructions to Bidders

Instructions to Bidders that will be applicable for this Contract is as given in Section – 1 of the Standard Bidding Document Procurement of Works ICTAD/SBD/03 Second Edition - January 2007, published by the Construction Industry Development Authority (CIDA/ICTAD) and Subsequent Addendum 1 Issued by the ICTAD/CIDA dated 12.01.2009

The Bidders are advised to procure the above document from ICTAD/CIDA and the Standard Bidding Document will not be issued with the Bidding Documents.

Instructions to Bidders shall be read in conjunction with Conditions of Contract given in section -3 of the same documents and the Schedule provided under section 5 of the bidding document. (Volume2)

VOLUME 1

Section 2

Standard Forms (Contract)

FORM OF AGREEMENT

This **AGREEMENT** made the.....[day] of[month]20...[year],between **Director General, Mahaweli Authority of Sri Lanka, No. 500, T.B. Jayah Mawatha, Colombo 10** (hereinafter calledband referred to as “the Employer”), of the one part, and[name and address of the Contractor](hereinafter called and referred to as “the Contractor”), of the other part:

Whereas the Employer desires that the contractor executes “**Rectification of Water Leakage through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam**”, Contract No: **DDG/TS/CON/HW/RAN/DM/16** (Hereinafter called and referred to as “the Works”) and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and remedying of any defects therein.

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meaning as are respectively assigned to them in the Contract hereinafter 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 and Notice to proceed dated.....
 - B. The Letter of acknowledgement of the letter on (A) above by the Contractor, dated.....
 - C. Memorandum of Understanding (if any)
 - D. Schedule
 - E. Conditions of Contract of Standard Bidding Document –Procurement of Works ICTAD Publication- ICTAD/SBD/03 Second Edition, January 2007 and Subsequent Addendum 1 in January 2009
 - F. General Technical Specifications -
 - G. Drawings
 - H. Priced Bill of Quantities
 - I. Any other relevant correspondence
2. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completing the works and remedying any defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In witness whereof the parties hereto have caused this Agreement to be executed the day, month and year aforementioned, in accordance with the Law of the Democratic Socialist Republic of Sri Lanka Signed at Mahaweli Authority of Sri Lanka, No. 500, T.B. Jayah Mawatha, Colombo 10

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)

**FORM OF PERFORMANCE GUARANTEE
(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]* (Hereinafter called "the Contractor") has entered into Contract No: **DDG/TS/CON/HW/RAN/DM/16** (dated With you, for the "**Rectification of Water Leakage through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam**" (hereinafter called "the Contract")

Furthermore, we understand that, according to the condition of the Contract, a performance guarantee is required.

At the request of the Contractor, we*[Name of 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 of 20..... *[Insert the 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)]

FORM OF ADVANCE PAYMENT GUARANTEE

..... *[Issuing Agency's Name and address, 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]* (Hereinafter called "the Contractor") has entered into **Contract No. : DDG/TS/CON/HW/RAN/DM/16** (dated with you, for **"Rectification of Water Leakage through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam"**, (hereinafter called "the Contract")

Furthermore, we understand that, according to the conditions of the 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 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.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor.

This guarantee shall expire on*[Insert the date, 28 days beyond the expiration date of the Contract]*

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

.....
[signature(s)]

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/RAN/DM/16** (dated..... with you **“Rectification of Water Leakage through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam”**. [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)]

SECTION - 3

Conditions of Contract

Condition of Contract that will be applicable for this Contract is that given in section – 3 of the Standard Bidding Document Procurement of Works ICTAD/SBD/03 Second Edition - January 2007, published by the Construction Industry Development Authority (CIDA/ICTAD) and Subsequent Addendum 1 Issued by the ICTAD/CIDA dated 12.01.2009.

Conditions of Contract shall be read in conjunction with Schedule provided under section 5 of the bidding document. (Volume 2)

Volume 2

Invitation for Bids

Section 4 – Form of Bid & Qualification Information

Section 5 – Schedule

Section 6 – Specifications

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Section 8 – Drawings

Section 9 – Standard Form (Bid)

❖ Form of Bid Security

VOLUME 2

SECTION 4

FORM OF BID AND QUALIFICATION INFORMATION

FORM OF BID

Name of Contract: **“Rectification of Water Leakage through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam”**

Contract No: DDG/TS/CON/HW/RAN/DM/16

To: *Director General, Mahaweli Authority of Sri Lanka, No 500, T.B.Jayah Mawatha, Colombo 10.*

Gentleman,

1. Having examined the Standard Bidding Document- Procurement of Works – Minor Contracts [ICTAD /SBD/03- Second Edition, January 2007], Schedule, Specifications, Drawings and Bills of Quantities and Addenda for the execution of the above named Works, We/I the undersigned, offer to execute and complete such Works and remedy any defects therein conformity with the aforesaid Conditions of Contract, Schedule, Specifications, Drawings, Bill of Quantities and Addenda for the Sum of Sri Lankan Rupees

.....

.....

.....+VAT. (SLRs.....+VAT) or such other sums as may be ascertained in accordance with the said Conditions

- 2. We/ I acknowledge that the Schedule forms part of our Bid.
- 3. We/ I undertake, if our Bid is accepted, to commence the Works as stipulated in the Schedule, and to complete the whole of the Works comprised in the Contract within the time stated in the Schedule.
- 4. We/ I 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/me.
- 6. We/ I understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this day of 20...in the capacity of

Duly authorized to sign tenders for and on behalf of

.....

(IN BLOCK CAPITALS)

Signature:

Name:

Address:

Witness.....

Occupation.....

Witness:

Qualification Information

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

ICTAD/CIDA Registration	(attach certified copies, as annex)
Registration number	
Grade	
Speciality	
Expiry Date	
Blacklisted Contractors	
Have you been declared as a defaulted Contractor by NPA or any other Agency?	Yes / No
IF yes provide details.	
VAT Registration No.	
Income Tax File Ref. No.	
Construction Program	(attach as annex)
Legal Status	Public Company / Private Company / Partnership / Sole Proprietor
Authentication of Signatory	(attach certified copy of Power of Attorney, as annex)
Key Personnel	
Qualification and Experience of key personnel	(Annex - 01)
List of Resources	
List of resources intended to be deployed	(attach as annex)
Proof for Liquid Assets and/or Credit Facilities	
Relevant documents as letters issued from banks to Prove for at least Rupees One Million Sixty Eight Hundred Thousand (Rs. 1.68 million) of Liquid assets and/or Credit facilities net of other contractual commitments and exclusive of any advance payment and advance payments which may be made under the Contract	(attach as annex)
Work in hand and Affidavit	(Annex – 2a and Annex – 2b)
Bid Security	
Bid Security in the given format for the amount stated in the Schedule	(attach) (See ITB Clause 16 in the schedule)

Signature of Bidder

VOLUME 2

SECTION 5

SCHEDULE

Note:

This section shall be read in conjunction with Section 1 - Instructions to Bidders and Section 3- Conditions of Contract, and is intended to provide specific information in relation to corresponding Clauses in Sections 1 & 3. Whenever there is an ambiguity, the provisions in Section 5 – Schedule shall supersede these provided in the Section 1 - Instructions to Bidders and Section 3- Conditions of Contract.

Schedule

ITB Clause	Conditions of Contract Clause	Item	Data
1.	1.1.8	Employer is	Director General, Mahaweli Authority of Sri Lanka 500. T.B. Jayah Mawatha, Colombo 10
	1.1.9	Employer's Representative Address:	Deputy Director General (Technical Service), Mahaweli Authority of Sri Lanka, 500. T.B. Jayah Mawatha, Colombo 10
	1.1.10	Engineer is	Director, Division of Major Dams & Reservoir Operation, Mahaweli Authority of Sri Lanka, Digana.
		Engineers Representative	Engineer in Charge, Engineer in Charge Office, Mahaweli Authority of Sri Lanka, Randenigala
1.	1.1.21	Summary of work	the works consists of: Rectification of Water Leakage through the Bottom Outlet Service (Tainter) Gate No.01 of the Randenigala Dam. Contract No. : DDG/TS/CON/HW/RAN/DM/16
1.	1.1.14	Intended Completion Days	90 Days from start date
2.		Source of Funds	The Source of funds is GOSL.
3.		Eligibility	Bidders shall be registered in the Department of Registrar of companies under the Provision of Public contracts Act.No.03 of 1987. Shall hold a valid membership of the/CIDA Grade EM4 or above Minimum amount of liquid assets and/or credit facilities shall not be less than Rupees One Million Sixty Eight Hundred Thousand (Rs. 1.68 million)
4	4.0	Schedule of Key Personnel	The Contractor must employ the minimum Number of key personnel indicated in the schedule for the proper execution of the Works.

Grade of Staff	Minimum Qualifications	Minimum No of Positions
Construction Manager (to provide construction Management Services)	B.Sc. Eng (Mechanical) or equivalent with 5 years' experience out of which 3 years in relevant field or an Engineering Assistant NDT or equivalent with 8-year experience Out of which 5 years in relevant field.	1
Site Agent cum supervisor	Minimum 5 years' experience as site agent in similar works or NCT with minimum 3 years in similar works	1

Taxes

(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.

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, he/she shall indicate the net value of the bid under the category bidder shall obtain a letter from the Commissioner of Inland Revenue Department, certifying the Company has not been registered for VAT shall be attached to the bid. Any bidder who does not comply with this requirement will be liable for rejection of his bid.

13	10.10	Price Adjustment	This contract is not subjected to price adjustment.
16		Bid Security	Bid Security shall be an amount Rs. 50,000.00 Valid until 4th January 2022 Security shall be an Unconditional Guarantee from a Reputed Bank registered under Central Bank of Sri Lanka or Construction Guarantee Fund.

17 Pre-Bid meeting Field inspection and Pre-Bid meeting scheduled to be held as follows.

Pre-Bid meeting: Date: 29.09.2021
Time: 11.00hrs.
At Office of the Engineer In charge, Randenigala.
 Phone: +94 552245772 Fax: +94 552245774
 Join Zoom Meeting
 Meeting ID: 966 0840 6614, Passcode: 878088

Field visit : 28.09.2021 at 10.00hrs in the Randenigala Dam area.
For further details, please contact Engineer-In Charge (Randenigala) on
Tel: 0552245772,0552245821

20 Dead line of submission of Bids: **The deadline for the submission of Bids shall be at 11.00 hrs on 5th October 2021 at the Director General's Office in the 9th Floor of Mahaweli Authority of Sri Lanka, No.500, T.B. Jayah Mawatha, Colombo-10.**

Join Zoom Meeting
<https://zoom.us/j/95601357690?pwd=M3pwZ0tpT0EvdUQ3bERXdVNsRUQ4Zz09>

Meeting ID: 956 0135 7690
 Passcode: 336472

31 4.4 Performance Security Amount of Performance Security is 5% of the initial contract price
 Security shall be an Unconditional Guarantee from a Reputed Bank registered under Central Bank of Sri Lanka or Construction Guarantee Fund.

6.4 Late Completion The amount to be paid is 0.05% of Initial Contract Price per day.
 Maximum amount is 10% of the Initial Contract Price.

8.1 Notification of Defects The period for Defect Notification is 365days from Taking Over

10.3 Retention The amount of retention is 10% of certified work done.
 The maximum amount of retention is 5% of Initial Contract Price.

32 10.12 Advance Payment The amount of advance payment is equivalent to 30% of the initial contract price excluding Provisional sum 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.
Security shall be an Unconditional Guarantee from a reputed bank registered under Central Bank of Sri Lanka or Construction Guarantee Fund.

13.1(c)	Insurance, third Party	Minimum amount for third party insurance is Rs. 500,000.00 per person per event.	
13.1	Insurance for Employer and Contractors Personnel	Minimum amount for Insurance for employer and Contractors Personnel is Rupees 500,000.00 per person per event.	
33	14.3	Arbitration	The composition of arbitration tribunal is three Arbitrators, one of each to be nominated by the Employer and the Contractor, and third to be appointed by the two Arbitrators who shall act as the Chairman.

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SECTION 6

GENERAL TECHNICAL SPECIFICATIONS

INTRODUCTION

The Contractor shall strictly observe these General Technical Specifications in conjunction with any separate Particular Technical Specifications, the Reference Drawings and Documents and all other Tender Documents as far as they are applicable to the works.

If the Contractor finds the Tender Documents to contain any error, mistakes or other indistinctness, he shall promptly notify the Engineer or Engineer Representative.

If the Contractor, based on his knowledge and experience finds any part of the specifications not to contain the most appropriate or “State of the Art” solution for the purpose, or if he finds any possibilities for improvements, he shall clearly specify such deviations in his Tender and give the reason.

He shall carry out all works in a skilled and workmanlike manner in compliance with modern industry practice. All design, calculations, materials, works and facilities, manufacture and testing shall conform to the latest applicable standards.

In addition, the Contractor shall conform to all applicable regulations regarding the execution of construction and installation work, and shall follow all instructions issued by the competent Authorities, and the Engineer. Whenever a Tender deviates from these specifications and drawings, he shall furnish the data called for in the Technical Data Sheets in addition to a summary of, and the reasons for all deviations.

Some data in the Tender Documentation may be slightly modified by the Employer if necessary according to the detailed design progress. Those modifications will be updated as soon as they are available.

ELECTRICAL & MECHANICAL WORKS

Scope of Work

This General Technical Specification refers to all Electro-Mechanical equipment and shall hereafter be referred to as E&M Equipment for this Contract.

Detailed description of the Scope of Work, together with the applicable Reference Drawings, is given in the main Contract Specifications.

The scope of work (or supply) in this Contract shall comprise the complete design, manufacture, transportation, storage, erection, testing, commissioning, training and documentation for the Electromechanical Equipment according to the details in the main Contract Specifications.

The supply shall furthermore include spare parts and tools for the equipment, as specified in this document and as recommended by the Contractor/ Manufacturer.

Any additional equipment, not specifically listed in the specifications but which is required for the functionality and the safe and reliable operation of the specified equipment, shall be included in the scope of supply.

3 STANDARDS AND MATERIALS

3.1 General

The design, materials, manufacture, testing and performances of the Works shall comply with the latest current ISO/IEC BS/EN Standards and Codes where applicable, or equivalent JIS Standards or Codes approved by the Engineer, even if no reference to any Standard is made in the Specifications.

When the Contract Documents contain more restrictive requirements than those of the Standards or Codes, the Contract Documents shall prevail.

Any reference in the Contract to Standards and Codes or to materials and equipment of a particular manufacturer shall be regarded as followed by the words "or equivalent". The Contractor may propose for approval by the Engineer alternative recognised Standards or Codes, materials or equipment, provided that they are substantially equivalent or better, in every significant respect, to those specified.

For all Standards and Codes referred to, the latest Revision/Edition in effect at the date of signing of the Contract shall apply, together with any Amendments issued to that date.

The Contractor shall keep on Site during the period of the site works the applicable Standards and Codes of Practice concerning the site works in general, and the field tests of materials and equipment in particular. One set of these documents shall be provided by the Contractor to the Engineer. The list of these documents established by the Contractor shall be submitted to the Engineer prior to starting the site works.

The standard chosen shall be made available to the Engineer in the English language.

Standards for general application

Standard publications issued by the following organisations of standardisation are considered as already approved standards for the works:

BS *	British Standards
CMAA	Crane Manufacturers Association of America
DIN	Deutsches Institut für Normung
FEM	Fédération Européenne de la Manutention
EN	EURONORM
IEC	International Electro-technical Commission

IIW	International Institute of Welding
ISO	International Standards Organisation
JEC	Standards of the Japanese Electrotechnical Committee
NEMA	National Electrical Manufacturers Association
VDE	Verein Deutscher Elektroingenieure
VDI	Verein Deutscher Ingenieure

* The British Standards in recent times have undergone a general revision in order to satisfy European Union (EU) Regulations, to which Britain is a member, and the standard code number can now be seen to include additional lettering denoting EURONORM (EN) "Euro Norm" within the code number, i.e. BS 7671 is now also written as BS EN 7671. The change does not in any way dilute the standard, but serves to reinforce its recognition. There may be instances within this General Technical Specification that both forms of the code number can be seen.

Material standards and certifications

Structural steel will comply with EN 10025, EN 10026, EN 10029, EN 10113, EN 10088, or equivalent.

Material tests according to EN 10204-3.1 shall be provided for all important parts of the equipment such as steel plates for parts under hydraulic pressure, all major castings and forgings, highly stressed large bolts, etc.

For less important parts, certificates according to EN 10204-2.2 or to the locally available standard are acceptable.

Additional material tests may be specified in the Particular Specifications.

The Contractor shall indicate in the Data Sheets the materials and applicable standards for all major parts of the supply.

Units of measurements

The international SI-system of units shall be used for all documents, calculations, correspondence, drawings, etc. with the exception of pressure which shall be indicated in bar.

Works identification system

The various components of the electrical & mechanical installations, equipment, appliances, conductors, cables, terminals, etc. shall be allocated and indelibly marked with a unique tag number, which shall be used to identify the equipment both on drawings and in the field.

The Employer is expected to introduce a joint Works Identification System for the entire Work. The details of the system may be available upon signing of the Contract. If this is the case, the contractor shall prepare and submit his detailed Works Identification System, based on the Employer's system, for approval prior to implementation.

4 CONSTRUCTION PROGRAMME

4.1 Progress information required

The Contractor shall prepare and submit a separate construction programme for the Electro-Mechanical Works. This programme shall include, but not be limited to, the following information:

- Design work
- Shop and modification work
- Transport to the Site
- Erection and commissioning
- Acceptance testing
- Putting into operation
- Handing over
- Removal of erection equipment and clearing of the Site
- Interdependence with work of other Contractors (if applicable).

4.2 Coordination of works

Since the scheduled dates are dependent on the progress of other site works the Contractor shall coordinate his operations at the Site with those of other contractors and the Employer respectively.

4.3 Calculations for Calibration & Outputs

The Contractor shall submit to the Engineer for checking, the appropriate calculations for determining the main sizes, dimensions and operational characteristics, clearly indicating the principles on which the calculations were based. The calculations shall include the formulae, standards, test results, basic assumptions, etc. used. Submission of computer calculations without baseline information such as derivation of the calculation method, applied formulas, definition of variables and constants, explanation of abbreviations etc. will not be accepted.

4.4 Installation and commissioning procedures

4.4.1 Installation procedures

The installations procedures shall describe in sequential steps the erection of major equipment and shall contain sufficient details regarding equipment preparation on the erection bay, handling of large and heavy pieces, levelling, anchoring, site welding, site painting, erection checks, site pressure tests, site flushing and cleaning of hydraulic systems, and alignment and run out checks.

4.4.2 Pre-commissioning procedures

Pre-commissioning tests and procedures shall be described in sequential steps and in sufficient detail for the pre-commissioning of all electrical and mechanical equipment and shall contain all information required for checking of installations, ratings, cable terminals and operational testing of all auxiliary equipment.

4.4.3 Commissioning procedures

The commissioning procedures shall sequentially and in sufficient detail describe activities and tests of the work.

5 PARTICULAR TECHNICAL SPECIFICATION FOR SPECIALIZED ELECTROMECHANICAL AND TELECOMMUNICATION WORK

5.1 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.

5.2 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.

Property	Limits
Tensile strength (DIN 53504)	>17 N/mm ²
Durometer hardness (Shore, Type A)	65 ±5
Specific gravity	1.1 to 1.3
Water absorption (70°C for 48 hours)	≤5% by weight
Compression set (DIN 53517)	≤25%
Tensile strength after oxygen bomb ageing (24 hours at 70°C)	≤25%

Oil durability (TL 91843)	GII
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5.3 Coefficient of friction

For the purpose of design, the coefficient of friction shall not be less than the following:

	Relationship if static friction coefficient to sliding friction coefficient	Maximum	Minimum
	static friction	sliding friction, wetted	
Steel/Steel	1.1	0.35	0.20
Steel/Copper (alloys)	1.1	0.30	0.18
Stainless steel/Polyethylene (PR-UHMW)	1.2	0.20	0.10
Steel/Elastomer (50-70 Shore A)	1.0	1.00	0.80
Steel/Elastomer (with PTFE coating)	1.0	0.10	0.10

5.4 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

5.5 Temporary and non-structural attachments and cut-outs

Temporary and non-structural attachments shall be fitted to the shape of the surface to which they are attached, and welding shall be to an approved procedure by qualified welders. Temporary or non-structural attachments shall not be welded within 75 mm of any other structural weld measured from weld toe to weld toe.

Locations and fixing details of all temporary attachments are subject to the prior approval of the Engineer.

Temporary attachments shall not be removed by hammering, or by any other technique which may cause mechanical damage to the surface of the steel forming the main structure.

Following removal, any damage area shall be ground to merge smoothly with the original surface, and the surface is to be magnetic particle inspected. Where gouges up to 20 % of the steel member thickness have been made, they shall be repair welded to an approved procedure after grinding and testing. The repair procedure or alternative solution shall be proposed by the Contractor and be subject to the approval of the Engineer.

The need for temporary cut-outs shall be subject to the approval of the Engineer

When temporary cut-out are necessary, they shall be prepared with the same degree of care as permanent cut-outs and shall be cut-out prior to erection of the member(s).

Special care shall be taken to ensure that the weld preparation applied to cut-outs is appropriate for execution of the re-welding after final erection. The cut out shall be

trial fitted prior to erection of the member. An approved welding sequence developed such that welding will be minimised shall be followed. All cut-outs shall be prepared with rounded corners with a radius of not less than 50 mm

5.6 Finishing and repair of surfaces

Prior to completion, the Contractor shall remove all burrs, tack welds and other marks made by welding, scaffolding or temporary bracing used in the fabrication procedures.

Any plate defects resulting from handling or fabrication works shall be repaired mechanically or to an approved welding procedure.

Surface defects revealed during fabrication or blast cleaning shall be treated in accordance with the requirements of DIN 18800 or BS 4360. Repair by welding of any surface defect or exposed edge lamination shall only be carried out with the approval of the Engineer and using a procedure complying with BS 5135 or equivalent approved Standard.

5.7 CORROSION PROTECTION

5.7.1 Scope of Work

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.

5.7.2 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 Engineer'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 Engineer.

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 UV-radiation, 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.

The Contractor shall submit to the Engineer for approval an overall colour scheme in accordance with these Specifications and the Particular Technical Specifications. All final coats shall be in the colours approved by the Employer. On request of the Engineer, painting samples for the different coats and colours shall be provided.

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.

5.7.3 Workmanship

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.

5.7.4 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.

5.7.5 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 sandblasting shall be sandblasted to a grade 2.5 specified or

required in accordance with EN 12944. This applies particularly to parts which will be in contact with water, exposed to heavy condensation and humidity or subjected to high temperature.

For blasting suitable materials according to ISO 11126 shall be used and specified with the quotation for approval.

All parts of the works shall be sandblasted at the shop unless otherwise specified or approved by the Engineer.

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).

Hot-dip galvanized surfaces which are to be painted shall be lightly sandblasted prior to through cleaning.

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.

5.7.6 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 over a length of 1 m within the concrete. All other steel surfaces embedded in concrete shall be painted over a length of 200 mm within the concrete.

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.

5.7.7 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.

5.7.8 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.

5.7.9 Colour code

For colour of equipment the Contractor shall refer to the Particular Technical Specifications (if part of the Contract Documentation). If colour code for equipment is not listed in the Particular Technical Specifications, it shall be agreed upon after award of the contract.

The colouring of piping, moving parts, etc., shall be according to internationally recognised standards. The standard to be applied for this project will be specified by the Engineer.

5.7.10 Repair of primer and finish coats

General

For touching up, the same paint shall be used as for the original painting work. Repaired finish coats shall be of identical appearance with the original and no difference in the colour shall occur. The Engineer may require any damaged paint work to be removed and repainted.

Painted structures

Repairs on galvanized and painted structures shall be carried out as follows:

Damages to painting and galvanization:

Surface Preparation: Scraping, wire-brushing or grinding to Grade ST 3 according to SIS 055 900-1967.

Repair of Coatings: One coat of 2-component epoxy resin zinc-chromate primer. Dry film thickness minimum 0.050 mm.

Two coats of 2-component epoxy-resin micaceous iron oxide (mio) paint. Total film thickness minimum 0.160 mm. The colour of the paint shall be the same as originally applied. Coal-tar epoxy may be proposed as an alternative to mio paint.

Damage to painting only:

Surface Preparation: Thorough cleaning of the damaged surface i.e. removal of oil, grease, dust, etc.

Repair of Coatings: Two coats of 2-component epoxy-resin micaceous iron oxide (mio) paint. Total film thickness min. 0.160 mm. Coal-tar epoxy may be proposed as an alternative to mio paint.

The colour of the paint shall be the same as originally applied.

Painted structures

Repairs on painted structures shall be carried out as follows:

Surface Preparation: Scraping, wire-brushing or grinding to Grade ST 3 according to SIS 055 900-1967.

Prime Coat: One coat of 2-component epoxy resin zinc-chromate primer. Dry film thickness minimum 0.050 mm.

Type	Description	Surface Preparation	Paint System	Main Dry Film Thickness in μm	Remarks
A.	-Gates, stoplogs and trashracks incl. armatures, hydraulic hoists, Lifting Beams, etc. -Internal surfaces of steel linings, turbine distributor, valves and other wetted internal ferrous surfaces -Internal surfaces of steel linings, turbine distributor, valves and other wetted internal ferrous surfaces	Sa 2 1/2 – 3 And see note 1 below	Prime Coat: 1 x zinc dust primer, 2-component Base : epoxy resin	1 x 50	-The pure metallic zinc shall be as high as possible
			Intermediate Coat : 2 x micaceous iron oxide paint, 2-component Base: epoxy resin	2 x 150	-This paint system is for temperatures up to 120°C
			Intermediate Coat : 2 x micaceous iron oxide paint, 2-component Base: epoxy resin	2 x 150	-This paint system is for temperatures up to 120°C
			Finish Coat : 1 x topcoat, 2-component Base : epoxy resin	1 x 150	- The colours of intermediate and finish coats shall be black - brown - black
Total				500 min	
B.	-External surfaces of, Gantries, Cranes, Fixed Hoist supports and other Drive Supports	Sa 2 1/2 - 3	Prime Coat : 1 x zinc dust primer, 2-component Base : epoxy resin	1 x 50	-The pure metallic zinc shall be as high as possible
			Intermediate Coat : 2 x micaceous iron oxide paint, 2-component Base : epoxy resin	2 x 100	-This paint system is for temperatures up to 60°C
			Finish Coat : 1 x micaceous iron oxide paint, coloured, 2-component Base : epoxy resin	1 x 80	
Total				300 minimum 320 average	

Note 1: Where existing surfaces are being repainted, corrosion pitting and similar defects will be dealt with as follows:

For isolated pitting: filler welding then grinding smooth.

For extensive pitting: primer coat then putty knife applied 2-part solvent free epoxy filler.

5.7.11 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.

Specification:

1xF/C Two component multipurpose poly amid cured 75 mic dft anticorrosive epoxy system 75 mic dft

1xF/C Two component reinforces how solids polyamine adduct cured epoxy coating 200 mic dft

1xF/C Two component reinforces how solids polyamine adduct cured epoxy coating 200 mic dft

F/C=full cost

Dft=dry film thickness

Total minimum dft—475 mic

5.8 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 or other corrosion resistant material.

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 Engineer 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 Engineer.

VOLUME 2

SECTION 7

Bill of Quantities

**“RECTIFICATION OF WATER LEAKAGE THROUGH THE BOTTOM OUTLET
SERVICE (TAINTER) GATE NO.01 OF THE RANDENIGALA DAM”**

CONTRACT NO. : DDG/TS/CON/HW/RAN/DM/16

PREAMBLE TO THE BILL OF QUANTITIES & LIST OF WORKS

- 1.1 The Bill of Quantities shall be read in conjunction with all parts of this entire Bidding Document; the Instructions to Bidders, General and Particular Conditions of Contract, Technical Specifications, Drawings, and supplementary information.
- 1.2 The Bill of Quantities includes lump Sum items, unit price items and provisional sum items. The lump sum price quoted will be deemed to be full compensation for completion of work items and paid in full when the work is completed. The quantities given in the Bill of Quantities for the unit price items are estimated and provisional, and are given to provide a common basis for bidding. They are not intended to be the maximum or minimum quantities for payment. The unit prices will be considered full compensation for those work items. The basis of payment will be the actual quantities of work carried out under the provisions of the Contract, measured and valued at the applicable rates and prices in the priced Bill of Quantities.
- 1.3 The rates and prices bid in the priced Bill of Quantities shall, except as otherwise provided under the Contract, include all construction plant, equipment, labour, supervision, materials, transport, erection, maintenance, testing, insurance, overheads, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
- 1.4 A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
- 1.5 The rates and prices entered in the Bill of Quantities shall be full compensation for completed work and shall have taken full account of all requirements and obligations, covered by all parts of the contract, including but not limited to, the following, unless expressly stated otherwise:
 - a. All setting out and survey works including Pre and Post Construction Surveys.
 - b. All additional site surveys and investigations, preparation of field amendment drawings, shop drawings and As-Built drawings.
 - c. Mobilization and Demobilization of labour, all construction plant and equipment.
 - d. Establishment, Maintenance and Removal of all temporary facilities (Contractor’s and Project Manager’s) including offices, workshops, houses, labour camps construction and storage yards, Laboratory facilities and Equipment, Transport for staff and labour etc.
 - e. Labour and all costs in connection therewith, including but not limited to social charges or fringe benefits.
 - f. The supply of material and goods, storage and costs in connection therewith including delivery to site and handling material within the site/sites.

- g. Taking delivery of materials and goods supplied by others, unloading, storage, handling materials within site, and costs in connection therewith.
 - h. Construction Plant & Equipment and all costs in connection therewith.
 - i. Fixing, erecting and installing or placing of materials and goods in position, including usual auxiliary material etc.
 - j. Temporary Works.
 - k. Complying with any limitations and constraints on the use of the site/sites including coordinating with other Contractor's, with regard to site access, security etc., maintenance of access to households and other users, maintenance of existing roads, waterways etc.
 - l. Dealing with the existing flow of water from any source including rainfall and surface runoff, groundwater, wave action and the like. This includes all and any dewatering operations necessary for the execution of the Works.
 - m. General obligations, liabilities and risks involved in the execution of the Works set forth or reasonably implied in the documents on which the bid is based.
 - n. Overheads and profit.
 - o. Waste of material.
 - p. Attendance and transport for surveys including provision of boats and survey instruments, sampling and testing carried out by the Engineer.
 - q. Performing all sampling and testing which are required to be carried out by the Contractor, and supplying results of such tests.
 - r. Providing required material delivery certificates.
 - s. Coordination with Regulatory Institutes & all stake holders.
 - t. Disposal of all waste material.
 - u. Complying with all requirements in Specifications and Conditions of Contract where separate items have not been provided.
- 1.6 Where Bill of Quantities items describe the replacement of existing equipment or components, including mechanical and electrical equipment, the equipment removed remains the property of the Employer, unless stated otherwise in the contract documents. The rates entered shall include for delivery of such equipment to the Employer or for disposal if so directed by the Employer.
- 1.7 The whole cost of complying with the provisions of the Contract (excluding VAT) shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.**
- 1.8 General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

1.9 Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part or not at all at the direction and discretion of the Engineer and in accordance with the Conditions of Contract.

1.10 The method and unit of measurement of completed work for payment shall be in accordance with the method described in the specifications for each item or in the Bill of Quantities. For Lump Sum items, measurements for Interim Payment Certificates shall be based on percentage completion of such item of work or milestone as per the Contractor's proposed schedule of monthly payments, as approved by the Engineer.

1.11 Whenever the method of measurement is not clear from the documents available, the principles as given in the Sri Lanka Standard 573, 1999 [Revision] Method of Measurement of Building Works shall be applicable.

2. UNITS

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

mm	Millimetre	m ²	Square meter
cm	Centimetre	Ha	Hectare
Lm	Linear metre	m ³	Cubic meter
km	Kilometre	Nos.	Numbers
g	Gram	cum	Cubic metre per second
kg	Kilogram	Rs	Sri Lankan Rupee
l	Litre	Cts	Cents
t	Tonne (Metric Ton.)	MHr	Machine hours

Descriptions of Items and Measurement Methods

1. GENERAL

The description of the Scope of Services, including design, construction, supply & installation, Employer's Staff training, and documentation submission along with the technical specifications for each Item in the Bills of Quantities is described comprehensively in the relevant sheets of the BOQ and in the Section 6 – Employer's Requirements and Specifications.

It is Bidder's responsibility to ensure that the prices include in the BOQ is complying with all the requirements in all other sections in the bidding document.

The Bidder is advised to visit the sites of the proposed work and it is the responsibility of the Bidder to ascertain the conditions governing access to the site, the extent of working space, storage area etc.

2. BILL NO. 1 - PRELIMINARIES

Items included in the Preliminaries include lump sum items, unit price items and provisional sum items.

Method of payment to be adopted in each item is stated in the Bill of Quantities under mode of payments and the Payments will be made as per the measurement sheet approved by the Engineer.

3. DAYWORKS

3.1 Labour

Payment in respect of labour employed on a 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 Bidder in the relevant BOQ.

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

The rates shall be deemed to include the costs of the Contractor's site supervisory and administrative staff (including supervising foremen) and all other costs in respect to the employment of labour on a day work basis. Rates for types of labour not listed will be determined by the Engineer by reference to the listed rates.

3.2 Materials

Payment in respect of materials used in the execution of work on day work basis shall be the cost of the materials delivered to store or stockpile on the site, including all overheads and profit. Rates should be entered by the Bidder in the relevant Bill of Quantity (BOQ).

Rates shall be deemed to cover the costs of taking delivery and putting into store or stockpile, storage, overheads, profit and all other charges and costs in respect of the procurement and handing of such materials. Rates for other materials will be determined by the Engineer with reference to the listed rates entered in the BOQ.

4 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 in the relevant BOQ. These rates shall be deemed to include all cost in respect of fuel and consumable stores, maintenance, operators and attendants, Contractor's site supervisory and administrative staff, overheads, profit 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.

Rates for other plant/equipment will be determined by the Engineer with reference to the listed rates entered in the BOQ.

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 Agent Cum Supervisor	Minimum 5 years experience as site agent in similar works or NCT with minimum 3 years in similar works	1		

VALUE ADDED TAX (VAT)

1. 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.**

2. 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.
3. 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 Tendered:

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

“RECTIFICATION OF WATER LEAKAGE THROUGH THE BOTTOM OUTLET SERVICE (TAINTER) GATE NO.01 OF THE RANDENIGALA DAM”

Contract No – **DDG/TS/CON/HW/RAN/DM/16**

Summary

Bill No.	Description	Amount (LKR)
1	Preliminaries	
2	Mechanical work	
A	SUB TOTAL 01 (Sum of Bill No 01 and 02)	
B	Total Amount of Provisional Sum items in Bill No. 01 to 02	
C	Sub Total II (A - B)	
D	Discount if Any (.....%x C)	
E	Total Amount of Provisional Sum items in Bill No. 01 to 02	
F	Sub Total III (C - D + E)	
G	Add : Provisional Sum for contingencies (10% x F)	
H	Sub Total IV (F+G) ,(Total Bid Price Carried to Letter of Bid)	
I	Provisional Sum for Day Works	
J	Total Amount of Provisional Sum items in Bill No. 01 to 02	
	SUB TOTAL V (Bid price with Day works but excluding other provisional Sums)= (F-E+I) [Will be considered only for evaluation purpose]	
Total Bid Price (Amount in Words)		
Add - Value Added Tax (VAT 8%)		
GRAND TOTAL INCLUDING VAT		
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 be fill and annex a copy of certificate of Registration Issued by the Department Bidder who is not registered for VAT Should Submit a letter from Department of Inland Revenue stating that they have not registered for VAT.

**RECTIFICATION OF WATER LEAKAGE THROUGH THE BOTTOM OUTLET SERVICE (TANTER) GATE NO.01 OF THE
RANDENIGALA DAM**

Contract No: DDG/TS/CON/HW/RAN/DM/16

Bill of Quantities

Bill No. 01 – Preliminaries

Item No.	Description	Unit	Qty	Rate	Amount
1.1	Provisional sum for insurance property, material & work at site and third party insurance.	Provisional Sum			24,000.00
1.2	Provisional sum for insurance against accident injury to workmen (for both contractors and employers)	Provisional Sum			42,000.00
1.3	Provisional Sum for Providing a Performance Security.	Provisional Sum			12,000.00
1.4	Provisional Sum for Providing an Advance Payment Security.	Provisional Sum			12,000.00
1.5	<u>Engineer Facilities</u> Provisional sum to provide Engineer's facilities as directed by the Engineer	Provisional Sum			
1.6	Providing of monthly progress charts with coloured photographs, schedule, reports etc. & Maintenance of contractor's all facilities (electricity, water services, telephone bills, security services etc.)	Month	3		
1.7	Payment for stamp duty	Provisional Sum			5,000.00
	Total				

Bill No. 02 - Mechanical Works

Item No	Description	Unit	Qty	Rate	Amount	Rate in Word
2.1	Scaffolding works, installation of temporary hoisting equipment and dealing with water by closing the Emergency gate directed by the Engineer/Engineer's Representative, during the period of gate repair works	Item	Allow	Sum		
2.2	Removing existing all rubber seals with fixing bolts and handed over to the Client	Item	Allow	Sum		
2.3	According to the Particular Technical Specifications, Drawings, Replacement of the corrosion protection (Average dry film thickness 500 microns) of the control gate (1.8 m width x 2.4 m height, 4 m Radius) and welded structure (i.e. gate frame) including necessary repairs to bushing, axle, bracket, etc. of guide wheels and painting for proper working	Item	Allow	Sum		
2.4	According to the Particular Technical Specifications, Drawings, Supplying and fixing of all rubber sealings of the control gate such as 1. 02 Nos of musical note J type side seals 2. 01 No Bottom flat seal 3. Top wing type seal 4. All corner seals With set of stainless steel fixing bolts, nuts, nylon washers etc & all packing between gate & seal mounting frames	Item	Allow	Sum		
2.5	Straighten the embedded stainless steel side plates as required by metal filling or other method such that good contact with side seals in order to no water leakages between seals and side plate when the gate is full closed position as well as operating condition.	Item	Allow	Sum		

Item No	Description	Unit	Qty	Rate	Amount	Rate in Word
2.6	Testing & Commissioning satisfaction to the Engineer	Item	Allow	Sum		
	SUB TOTAL					

DAYWORKS SCHEDULE

Item	Description	Unit	Qty	Rate	Amount (LKR)	Rate in Words
1	Labour					
1.1	Skilled Labourer	day	25			
1.2	Unskilled Labourer	day	35			
1.3	Steel fixer	day	10			
1.4	Mechanic	day	5			
1.5	Plumber, Electrician	day	5			
1.6	Welder, Fitter	day	15			
1.7	Driver	day	5			
2	Materials					
2.1	Mild Steel	tone	0.25			
2.2	Tor Steel	tone	0.1			
2.3	Mild Steel Plate	tone	0.25			
2.4	Stainless Steel Plate	tone	0.1			
2.5	Fabricated Steelwork	tone	0.25			
3	Construction Plant					
3.1	Mobile Crane 30T	hr	5			
3.2	Air Compressor 3-Tool	hr	25			
3.3	Drill Rig	hr	5			
3.4	Welding Set 10KVA	hr	25			
	TOTAL (carried to Grand Summary)					

SECTION 8

Drawings

List of Drawings

No	Drawing Title	Drawing No.
01	DETAILS OF SERVICE GATE SEALING FRAME OF RANDENIGALA DAM BOTTOM & IRRIGATION OUTLET	505114005 sheet 1 of 3
02	DETAILS OF SERVICE GATE SEALING FRAME OF RANDENIGALA DAM BOTTOM & IRRIGATION OUTLET	505114005 sheet 2 of 3
03	DETAILS OF SERVICE GATE SEALING FRAME OF RANDENIGALA DAM BOTTOM & IRRIGATION OUTLET	505114005 sheet 3 of 3
04	DETAILS OF SERVICE GATE OF RANDENIGALA DAM BOTTOM & IRRIGATION OUTLET	505114006 sheet 1
05	DETAILS OF SERVICE GATE SEALING OF RANDENIGALA DAM BOTTOM & IRRIGATION OUTLET	505114007 sheet 1

VOLUME 2
SECTION 9

Standard Forms (Bid)

FORM OF BID GUARANTEE

STANDARD FORM: BID SECURITY GUARANTEE

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

Beneficiary: Director General, Mahaweli Authority of Sri Lanka, 500, T.B. JayahMawatha, 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 execution/supply [select appropriately] of **“RECTIFICATION OF WATER LEAKAGE THROUGH THE BOTTOM OUTLET SERVICE (TAINTER) GATE NO.01 OF THE RANDENIGALA DAM”** under Invitation for Bids No: **DDG/TS/CON/HW/RAN/DM/16** (“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 amount of Rs. (Rs.) 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 the successful bidder furnish the Performance Security, otherwise it will remain in force up to..... at the office on or before that date.

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

[signature(s) 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.

Key Personnel

No.	Category (Construction Manager)	Proposed man months (Full contract period)	Name	*Qualification/ Experience(CV to be attached)	In-house or Contract	Remuneration per man month
1						

* Minimum Qualifications

B.Sc. Eng (Mechanical) or equivalent with 5 years' experience out of which 3 years in relevant field or Engineering Assistant NDT or equivalent with 8-year 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 cum supervisor		

Annex -2a

Works in Hand

Contract	Name of the Employer	Description of work (attach a copy of letter of award)	Date of award of contract	Value of contract(Rs.)	Contract period	Whether extension of time has been granted	Percentage completion as at present
Contract 1							
Contract 2							
Contract 3							
Contract 4							
Contract 5							

Annex –2b

AFFIDAVIT

I..... (Name of the bidder) of
.....
.....(addressed of the bidder), being a Buddhist/Christian/ Muslim, do hereby
solemnly, sincerely and truly declare and affirm as follows;

1. I am the Affirmant above named.
2. My National Identity Card No. is.....
3. I hereby declare and affirm that all information furnished in our tender including details submitted in Annex-2a as Work in Hand are true and correct

.....
(Signature)

The above contents were read by the
affirmant who having understood the
Same, affirmed to and placed his signature
in my presence at
onthis day of
.....
Before me



.....
Justice of the Peace

Annex – 03

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?		
Qualification Information		
All relevant information completed?		
Signed?		
Addendum		
Contents of the addendum (if any) taken into account?		
Other		
Affidavit completed as Annex-2b?		
Liquid Assets and/or credit facilities		
Construction programmed		
CV of personnel to be engaged in construction management services and key personals to be engaged in this contract.		
List of Resources intended to be deployed for this tender		
BID package		
All the documents given in ITB Clause 12 enclosed in the original and copy?		