



IRRIGATION AUTHORITY

**OPEN NATIONAL BIDDING
FOR WORKS**

**Supply, Installation, Testing and Commissioning of a
Centrifugal Surface Pumpset complete with an Auto-
Transformer type Control Panel at Palmar Pumping Station**

**Procurement Reference No:
OAB/OMD/PALMARPUMP/10/24**

BIDDING DOCUMENTS

**Public Body: Irrigation Authority
5th Floor, Fon Sin Building
12, Edith Cavell Street
Port Louis**

April 2023

Section I - Instruction to Bidders

Table of Contents

1. Introduction	3
2. Validity of Bids	4
3. Works Completion Period.....	4
4. Site Visit.....	4
5. Sealing and Marking of Bids.....	4
6. Submission of Bids	4
7. Bid Opening.....	5
8. Evaluation of Bids.....	5
9. Eligibility Criteria	5
10. Qualification and Experience Criteria	6
11. Contents of bid.....	7
12. Joint Venture.....	8
13. Prices and Currency of Payment.....	8
14. Bid Securing Declaration	9
15. Margin of Preference	9
16. Award of Contract.....	9
17. Performance Security and signing of contract	9
18. Notification of Award and Debriefing.....	10
19. Advance Payment	10
20. Integrity Clause	10
21. Rights of Public Body.....	11
22. Challenge and Appeal	11

1. Introduction

The Irrigation Authority also referred to as the Employer, invites eligible local contractors to submit their bid for the works described in detail hereunder. Any resulting contract shall be subject to the terms and conditions referred to in this document.

The Works consist of the Supply, Installation, Testing and Commissioning of a Surface Centrifugal Pumpset complete with an Auto-Transformer type Control Panel at Palmar Pumping Station.

Participation is limited to citizens of Mauritius or entities incorporated in Mauritius. Joint Ventures should be among entities incorporated in Mauritius.

- 1.1. Clarifications, if any, should be addressed to:

The General Manager

Irrigation Authority

5th Floor, Fon Sing Building

12, Edith Cavell Street

Port Louis

- 1.2. The Employer will respond in writing to any request for clarification, provided that such request is received 7 days prior to the deadline for submission of bids.

The Employer shall respond to such request at latest 7 days prior to the deadline set for submission of bids.

- 1.3. Bidders are advised to carefully read the complete Bidding document, including the Particular Conditions of Contract in Section IV, before preparing their bids. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

2. Validity of Bids

The bid validity period shall be Ninety (90) days from the date of bid submission.

3. Works Completion Period

The Intended Completion period for the whole of the works shall be **One hundred and Twenty (120)** calendar days from the Start Date.

4. Site Visit

Bidders or their designated representatives are invited to attend a pre-bid meeting/ site visit scheduled for **Friday 18 April 2024 at 10.30 hrs** at our pumping station at Palmar Pumping Station. The purpose of the pre-bid meeting / site visit will be to clarify issues and to answer questions on any matter that may be raised at that stage.

The bidders shall be deemed to have a thorough understanding of the nature and extent of the works and thus, any request for extension of time during the bidding period will be not entertained.

5. Sealing and Marking of Bids

Bids should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the Public Body with the Bidder's name at the back of the envelope.

6. Submission of Bids

Bids should be deposited in the Tender Box located at the reception at:

Irrigation Authority

5th Floor, Fon Sing Building

12, Edith Cavell Street

Port Louis

not later than 15.30 hours local time on **Friday 10 May 2024**. Bids by post or hand delivered should reach the above-mentioned address by the same date and time at latest. Late bids will be rejected. Bids received by e-mail will not be considered.

7. Bid Opening

Bids will be opened by the Irrigation Authority at **16:00 hours on the same day and date** of submission of Bids referred to in section 6 above. Bidders or their representatives may attend the Bid Opening if they choose to do so.

8. Evaluation of Bids

The Public Body shall have the right to request for clarification during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost to determine the lowest evaluated bid.

9. Eligibility Criteria

To be eligible to participate in this bidding exercise, Bidder should:

- a. have the legal capacity to enter into a contract to execute the works;
- b. be duly registered with the CIDB under the grade that would allow him to perform the value of works for which he is submitting his bid. (Note 1)
- c. not be insolvent, in receivership, bankrupt, subject to legal proceedings for any of these circumstances or in the process of being wound up;
- d. not have had your business activities suspended;
- e. not be under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission or appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group;
- f. not have a conflict of interest in relation to this procurement requirement; and
- g. have a Business Registration Card.

Note 1

Sub-contractors undertaking works are also subject to registration with CIDB as applicable to Contractors.

10. Qualification and Experience Criteria

Bidders should have the following minimum qualifications and experience:

(a) Valid registration certificate with the CIDB under the grade that will enable the contractor to perform the works quoted for under the following class: Civil Engineering Construction works or Building Construction works or Mechanical, Electrical and Plumbing Works (MEP Works).

(b) Experience in one (1) work of similar nature related to supply, installation, testing and commissioning of Pumpset complete with an Auto-transformer type Control Panel of similar size and duty point over the last 10 years, of value not less than MUR 2 Million.

(c) Qualification and experience of Key personnel required for the Contract shall be:

(i). One Contract Manager (part time), holding at least a Degree in Mechanical or Electromechanical Engineering or Building Services Engineering works from a recognised institution. He shall have at least 5 years experience in Mechanical or Electromechanical engineering works or Building Services Engineering works and shall be registered with the Council of Registered Professional Engineer of Mauritius

(ii). Site agent (full-time) holding at least a Degree in Mechanical or Electromechanical engineering works or Building Services Engineering works from a recognised institution and shall be registered with the Council of Registered Professional Engineer of Mauritius. He shall have at least 3 years post registration experience in Mechanical or Electromechanical engineering works or Building Services Engineering works.

- (iii). One foreman having at least 3 years of experience in pipe laying works, plumbing works and installation of water works.
 - (iv). At least one qualified plumber/pipe fitter having a minimum 3 years of experience related to installation of water works.
- (d) Minimum amount of liquid assets and/or credit facilities, **“net of other contractual commitments”** of two million Mauritian rupees (MUR 2,000,000).

11. Contents of bid

The Bid shall comprise the following:

- (a) Duly filled Bid Submission Form;
- (b) Duly filled Priced Bill of Quantities/Activity Schedule;
- (c) Duly filled Qualification Information Form and attachments required
- (d) Report on the financial standing of the Bidder for the last three years, such as certified copies of Financial Statements or Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids
- (e) Valid Registration certificate with the CIDB, as applicable
- (f) Signed C.V of Contract Manager;
- (g) Documentary evidence of liquid assets and/or credit facilities (Note 1);
- (h) Any other documents deemed necessary as per the requirements of this bidding document

Note 1

Bidders to demonstrate access to, or availability of, financial resources such as liquid assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for the contract and its current commitments. Documentary evidence may comprise but not limited to Bank certificate, Certificate from Auditors, Certificate from a Professional Accountant registered with MIPA, Certificate from Insurance companies.

12. Joint Venture

Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:

- a. The Bid shall include all the information required as per the Qualification Information form for each joint venture partner;
- b. The Bid shall be signed so as to be legally binding on all partners;
- c. The Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; **alternatively**, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;
- d. one of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and
- e. The execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

13. Prices and Currency of Payment

Bidders should quote for the whole works. Prices for the execution of works shall be quoted and fixed in Mauritian Rupees (MUR). Items for which no rate or price is entered by Bidders, shall not be paid for by the Public Body when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

Bids shall cover all costs of labour, materials, equipment, overheads, profits and all associated costs for performing the works, and shall include all duties. The whole cost of

performing the works shall be included in the items stated, and the cost of any incidental works shall be deemed to be included in the prices quoted. Bidders are required to submit their bid prices **including contingency sum and exclusive of 15% VAT.**

14. Bid Securing Declaration

Bidders are required to subscribe to a Bid Securing Declaration in the Bid Submission Form.

15. Margin of Preference

Margin of Preference shall not apply.

16. Award of Contract

The Bidder having submitted the lowest evaluated substantially responsive bid and qualified to perform the works shall be selected for award of contract. Award of contract shall be by issue of a Letter of Acceptance in accordance with terms and conditions contained in Section IV: General Conditions of Contract and Particular Conditions of Contract.

17. Performance Security and signing of contract

Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish a Performance Security, in the amount equal to 10% of the Contract price (exclusive of VAT), in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section II Contract Forms.

The contract agreement shall be signed within 28 days after the successful bidder receives the letter of acceptance unless the parties agree otherwise.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the contract within the required time may constitute sufficient grounds for the annulment of the award.

18. Notification of Award and Debriefing

Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above Rs 15 million, notify the selected bidder of the proposed award and accordingly notify unsuccessful bidders. Subject to Challenge and Appeal, the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

The Public Body shall after award of contract, exceeding Rs 1 million and up to Rs 15 million, promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount.

Furthermore, the Public Body shall attend to all requests for debriefing for contract exceeding Rs 1 million, made in writing within 30 days the unsuccessful bidders are informed of the award.

19. Advance Payment

The Public Body shall provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract. The Advance Payment shall be guaranteed by an Advance Payment Security as per the format contained in Section II.

The Advance Payment shall be limited to fifteen percent (15%) of the Contract Price, excluding 15% VAT less any provisional and contingencies sums.

20. Integrity Clause

The Public Body commits itself to take all measures necessary to prevent corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

21. Rights of Public Body

The Irrigation Authority reserves the right to split, accept or reject any bid or to cancel the bidding process and reject all bids at any time prior to contract award without incurring any liability to the Public body.

22. Challenge and Appeal

Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.

The address, Tel. & Fax No. & Email address to file Challenges in respect of this procurement is:

**The General Manager,
Irrigation Authority
5th, Floor, Fon Sing Building
12, Edith Cavell Street
Port Louis**

**Tel : +230 2106596
Fax: +230 212 7652
Email :irrig@irrig.org**

The address to file Application for Review is:

**The Chairperson
Independent Review Panel,
5th Floor,
Belmont House
Intendence Street
Port-Louis**

**Tel : +230 2602228
Email : irp@govmu**

Section II

Bidding Forms

Note: Bidders are required to fill all the forms in this section and submit as part of their bid. Non-submission of any form may lead to rejection of the bid

Table of Contents

BID SUBMISSION FORM 14

BID SECURING DECLARATION 18

QUALIFICATION INFORMATION..... 19

QUOTATION CHECKLIST 21

BID SUBMISSION FORM

Date:

Procurement Reference No: OAB/OMD/PALMARPUMP/10/24

To: The General Manager
Irrigation Authority
5th, Floor, Fon Sing Building
12, Edith Cavell Street
Port Louis

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued;
- (b) We offer to execute in conformity with the Bidding Documents the Works under **CONTRACT: OAB/OMD/PALMARPUMP/10/24** consisting of, inter alia:
 - (i) Dismantling of the existing pumpset complete with all the unserviceable electrical control panel, fittings, valves and accessories and deliver same to our store at either Plaine des Papayes or Palmar (to be advised by the Project Manager)
 - (ii) Supply, install, test and commissioning of one centrifugal electric pumpset at Palmar Pumping Station, complete with Auto-Transformer type electrical control panel, circuits breakers, pressure switches, protective relays, earthing system, Surges arrestors, main isolator switch and auxiliary accessories.
 - (iii) Connection of the inlet and outlet port of the new pump to the existing pipe arrangement in the pump room as per drawing OAB/OMD/PALMARPUMP/10/24/02. (All the supports, gate valve, non-return valves, and transition fitting connections materials c/w all accessories, gaskets, bolts, nuts and washers shall be provided and installed by the successful bidder)
 - (iv) To undertake all minor concrete works which are associated with the installation of the pump and this shall be deemed to be included in quoted rates.

- (v) To ensure protection of the pump against dry running by installing the appropriate pressure switches and relay protection system.
- (vi) To provide appropriate fixing support/metal bracket/ anchor block to the piping works inside the pump room so as to prevent vibration.
- (vii) To supply, install and test appropriately sized auto-transformer type control panel which includes selected circuit breakers, contactors, thermal overload relay, capacitor banks, control relays which will be capable to operate the proposed pump efficiently and effectively, with full protection against lightning and surges.
- (viii) To supply, connect and test all appropriately sized electrical cables to connect electrical power from CEB incoming (CEB meter) up to the pump motor via control panel c/w all accessories cable trays, PVC trunking, conduit, fixation and support materials.
- (ix) To supply, connect and test electrical earthing, surge arrestors and bonding cables as appropriate.
- (x) To supply, install and test 2 complete sets of LED tubelights, one (1) industrial socket 16A and One (1) single switch socket 13A, c/w appropriate electrical cables, switch, PVC conduits, circuit breakers and accessories (Circuit breaker to be installed in Pump Control Panel).
- (xi) Overall commissioning of the pumpset and control panel.
- (xii) Submit 2 set hard copies and 1 set soft copy of O&M manuals, electrical line diagram and As-Built drawings.
- (xiii) Training on operation and maintenance of the pumpset to the pump operators.

The intended completion period shall be **One Hundred and Twenty (120) calendar days** from the Start Date.

The whole of the works shall be carried out in strict accordance with the Drawings, Scope of Works, Specifications and Performance Requirements; and Conditions of Contract.

(c) The total price of our Bid and contingency sum excluding 15% VAT is:

Amount in Figures : MUR _____

Amount in Words : MUR _____

- (d) Our bid shall be valid for a period of ninety (90) days from the date fixed for the bid submission deadline in accordance with the Bidding and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.
- (f) If our bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Document;
- (g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 9;
- (h) We are not participating, as a Bidder in more than one bid in this bidding process;
- (i) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;
- (j) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:
 - i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body's employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
 - iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

- (k) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

- (l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (m) If awarded the contract, the person named below shall act as Contractor’s Representative:

Name: _____

In the capacity of: _____

Signed: _____

Duly authorized to
sign the Bid for and
on behalf of: _____

Date: _____

Seal of Company _____

BID SECURING DECLARATION

By subscribing to the undertaking in the Bid Submission Form:

I/We accept that I/we may be disqualified from bidding for any contract with any Public Body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are in breach of any obligation under the Bid conditions, because I/we:

- (a) have modified or withdrawn my/our bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Bid Submission Form; or
- (b) have refused to accept a correction of an error appearing on the face of the bid; or
- (c) having been notified of the acceptance of our bid during the period of bid validity,
 - (i) Have failed or refused to execute the Contract, if required, or
 - (ii) Have failed or refused to furnish the Performance Security, in accordance with the Instructions to Quote.

I/We understand this Bid Securing Declaration shall cease to be valid:

- (a) in case I am /we/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us; or
- (b) if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

QUALIFICATION INFORMATION

*[The information to be filled in by **bid**ders in the following pages shall be used for purposes of post-qualification or for verification of prequalification as provided for in ITB. This information shall not be incorporated in the Contract. Attach additional pages as necessary. Pertinent sections of attached documents should be translated into English. If used for prequalification verification, the Bidder should fill in updated information only.]*

1. Individual Bidders or Individual Members of Joint Ventures

- 1.1 Constitution or legal status of Bidder: *[attach copy]*
 Place of registration: *[insert]*
 Principal place of business: *[insert]*

1.2 Bidder shall provide 2 works of a nature and amount similar to the Works performed as Contractor over the last 5 years.

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency)
(a)			
(b)			

1.3 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.

Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
(a)			
(b)			

[Bidders have to ascertain that sub-contractors executing works are duly registered with the CIDB in accordance with CIDB Act 2008.]

1.4 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body.

2. Additional

2.1 Bidders should provide any additional information Requirements requested in the Bidding Document.

QUOTATION CHECKLIST

Procurement Reference No: OMD/PUMPSET/08/23

S.N	Description	Attached (please tick if submitted)
1	Bid Submission form	
2	Priced Bill of quantities	
3	Specifications and Compliance sheet	
4	Bid Securing declaration	
5	Qualification Information	
6	Programme of Works	
7	Origin of goods	

Disclaimer: The list defined above is meant to assist the Bidder in submitting the relevant documents and shall not be a ground for the bidder to justify its non-submission of major documents for its quotation to be responsive. The onus remains on the Bidder to ascertain that it has submitted all the documents that have been requested and are needed for its submission to be complete and responsive.

Section III

Statement of Requirements

Table of Contents

A.	SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS.....	26
1.	General.....	26
1.1.	Brief description.....	26
1.2.	Scope of Works	26
1.3.	Specifications	28
1.4	Operations and Maintenance Manuals	47
1.5	Warranty	48
1.6	Drawings of the works	48
1.7	Details of existing pipelines, CEB lines and other infrastructures	49
1.8	Programme of the works	49
1.9	Regulations, Standards and Workmanship.....	50
1.10	Quality of materials.....	53
1.11	Plant and equipment	54
1.12	Patent Rights.....	54
2.	The Site	55
2.1.	Site	55
2.2.	Inspection of site.....	55
2.3.	Access to site.....	55
2.4.	Clearance of site.....	56
2.5.	Site to be tidy	56
2.6.	Safety on site.....	56
2.7.	First aid outfit.....	56

2.8.	Reinstatement of sites, tracks and estate roads	57
2.9.	Maintenance of services and structures.....	57
2.10.	Pipes, fittings, irrigation equipment and store yard.....	57
2.11.	Contractor’s staff, communication, offices etc.	58
2.12.	Inspections by project manager during defects liability period	59
2.13.	Progress photograph	60
2.14.	Notice of operation.....	60
2.15.	Progress meetings.....	60
2.16.	As-built drawings	60
2.17.	Conditions of site and wayleave	61
3.	Pipes, Control Valves, Pumpset, Fittings and Pipework	61
3.1.	General description.....	61
3.2.	Periods for delivery	62
3.3.	Approval of drawings	62
3.4.	Installation, Operation and maintenance manuals	63
3.5.	Inspection and testing at works	63
3.6.	Marking.....	64
3.7.	Packing, transportation and handling	65
3.8.	Design, Workmanship and Material	66
3.9.	Reliability of equipment.....	68
3.10.	Pipes general.....	68
3.11.	Fittings general	69
3.12.	Gate valves.....	69
3.13.	Air valve.....	70

Section III- Statement of Requirements

3.14. Pressure control valve/ pressure regulating valve	71
3.15. Non-return valves/check valve	72
3.16. Flexible couplings and flange adaptor	72
3.17 Bolts, nuts, washers and gaskets	73
3.18. Manometer	74
3.19. Other proposed valves and fittings.....	74
3.20. Flanges & bolting for pipes, valves and fittings	74
3.21. Cutting pipes	74
3.22. Proprietary joints and couplings.....	75
3.23. Grouting in ironwork & pipes	75
3.24. Fixing valves	75
3.25. Thrust blocks	76
3.26. Support blocks	76
B. SPECIFICATION AND COMPLIANCE SHEET	77

A. SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

1. General

1.1. Brief description

Trou D'eau Douce Small Scale Irrigation Project

The Trou D'eau Douce Small Scale Irrigation Project (TDD SSIP) is implemented on the state land situated on the East part of Mauritius along the Pas Geometriques.

The Trou D'eau Douce SSIP constitutes a total area of 16 Hectares of state land which are leased to 78 small planters. The actual method of irrigation used is the low pressure sprinklers using infield dragline aluminium and PVC pipe taking water from the nearest hydrant.

Water for irrigation is pumped to the project area by an electric submersible pump situated at Le Glassis (Palmar), within the property of Constance la Gai ete Co Ltd. The project is in operation since 1983.

During the dry season of each year, the water table in the borehole decreases and the salinity of the water increases due to intrusion of sea water. Due to this phenomenon, it is necessary to find another source of water for the project. Accordingly, necessary arrangement was done with the Belle Mare water users Co-operative society to enable diversion of water into the pipe network for TDD SSIP.

The need for boosting water from Providence pumping station into the pipe network to Trou d'Eau Douce SSIP was felt and provision was made accordingly.

1.2. Scope of Works

The works under **CONTRACT: OAB/OMD/PALMARPUMP/10/24** shall consist of, inter alia:

- (a) **CONTRACT: OAB/OMD/PALMARPUMP/10/24** consisting of, inter alia:

- (i) Dismantling of the existing pumpset complete with all the unserviceable electrical control panel, fittings, valves and accessories and deliver same to our store at either Plaine des Papayes or Palmar (to be advised by the Project Manager)
- (ii) Supply, install, test and commissioning of one centrifugal electric pumpset at Palmar Pumping Station, complete with Auto-Transformer type electrical control panel, circuits breakers, pressure switches, protective relays, earthing system, Surges arrestors, main isolator switch and auxiliary accessories.
- (iii) Connection of the inlet and outlet port of the new pump to the existing pipe arrangement in the pump room as per drawing OAB/OMD/PALMARPUMP/10/24/02. (All the supports, gate valve, non-return valves, and transition fitting connections materials c/w all accessories, gaskets, bolts, nuts and washers shall be provided and installed by the successful bidder)
- (iv) To undertake all minor concrete works which are associated with the installation of the pump and this shall be deemed to be included in quoted rates.
- (v) To ensure protection of the pump against dry running by installing the appropriate pressure switches and relay protection system.
- (vi) To provide appropriate fixing support/metal bracket/ anchor block to the piping works inside the pump room so as to prevent vibration.
- (vii) To supply, install and test appropriately sized auto-transformer type control panel which includes selected circuit breakers, contactors, thermal overload relay, capacitor banks, control relays which will be capable to operate the proposed pump efficiently and effectively, with full protection against lightning and surges.
- (viii) To supply, connect and test all appropriately sized electrical cables to connect electrical power from CEB incoming (CEB meter) up to the pump motor via control panel c/w all accessories cable trays, PVC trunking, conduit, fixation and support materials.
- (ix) To supply, connect and test electrical earthing, surge arrestors and bonding cables as appropriate.
- (x) To supply, install and test 2 complete sets of LED tubelights, one (1) industrial socket 16A and One (1) single switch socket 13A, c/w appropriate electrical cables, switch, PVC conduits, circuit breakers and accessories (Circuit breaker to be installed in Pump Control Panel).
- (xi) Overall commissioning of the pumpset and control panel.
- (xii) Submit 2 set hard copies and 1 set soft copy of O&M manuals, electrical line diagram and As-Built drawings.
- (xiii) Training on operation and maintenance of the pumpset to the pump operators.

The intended completion period shall be **One Hundred and Twenty (120) calendar days** from the Start Date.

The whole of the works shall be carried out in strict accordance with the Drawings, Scope of Works, Statement of requirement; and Conditions of Contract.

1.3. Specifications

1.3.1 Irrigation Centrifugal Surface Pumpset (Horizontal type)

The pumpset to be supplied, installed and tested shall be horizontal centrifugal surface and should be single stage split casing type with flanged inlet and outlet.

The pumpset shall have a best operating duty point of 360 m³/hr at a total manometric head of 40 m and shall preferably have an electrical power rating of 75 Kw or better and a revolution per minute (RPM) of 1450-3000.

The pumpset shall draw in water from the existing pipe network having a positive suction head.

The pumpset shall be installed inside the pumping station.

The diameter of the existing suction pipes and the delivery pipes are as follows:

S.n	Pump	Pumping Station	Suction Pipe Dia. (mm)	Delivery Pipe Dia. (mm)
1	Pump No. 1	Palmar	200	200

General Description of Surface Pumpset

The Bidder shall propose pumpset which are suitable for operation with the existing suction and outlet pipes arrangement.

The pumpset shall consist separately of 1 No. pump and 1 No. electric motor mounted on a common baseplate fitted with anti-vibration pad and their shafts connected together

by a flexible coupling, so as to ensure that no vibration is transmitted from either unit to the other. This flexible coupling as well as the shafts of the pump and motor shall be covered with a proper shaft guard to ensure protection to pump operators and to other maintenance personnel.

The pumpset shall be fitted with renewable **neck ring** and with soft packing.

The pumpset shall be centrifugal and shall be of the single stage split casing type with flanged inlet and outlet which are appropriate for connection to the existing pipes and fitting arrangement on sites. Any pipe network modifications inside the pump room shall be submitted for approval to the designated Project Manager prior to the installation.

The pump shall have high reliability and be quiet while in operation. Inlet/outlet ports of pumps shall be compatible with the existing diameter of suction and delivery pipes respectively. The whole unit shall be self-priming and priming maintained after pump shut down. Appropriate bellow couplings and anti-vibration pads shall be provided in the installation.

The impeller shall be hydraulically thrust compensated and dynamically balanced. The impeller material for each pumpset shall be made **from stainless steel AISI 316 or of higher grade**.

The pump shaft shall be of **high tensile steel or a suitable stainless-steel grade**. The diameter shall be such as to keep distortion within acceptable limits.

The base plate assembly of the motor-pump unit shall be rigid and, if of welded construction, shall be stress-relieved. Substantial lugs fitted with jacking screws shall be provided for adjusting the alignment of the motor, shaft and pump assembly.

The pump casing shall be constructed of close-grained cast iron, with ribbing as necessary to ensure adequate strength and rigidity. **Tests performed on each pump at**

manufacturing and assembly stage shall include pressure testing of the casing up to 1.5 times the closed valve pressure developed by the pump for a minimum period of five (5) minutes.

The pump shall be designed to facilitate maintenance and hand holes shall be provided where appropriate to allow **inspection of all internal parts**. It shall be possible to inspect bearings and seals without dismantling of the pump.

The bearing housing shall be manufactured from close-grained iron and lubrication of bearings shall be done with either oil or grease. **Bearings shall be of anti-friction type designed for at least 62,000 hours of operation.**

Where bearing lubrication is done by oil, appropriate means for filling and draining the oil shall be provided with a suitable means of level measurement.

Where bearing lubrication is done by grease, the filling shall be done through steel grease nipples and same shall be covered with a plastic/rubber cap.

A combined vacuum/pressure gauge shall be fitted to the suction port of the pump and a pressure gauge on the delivery port. The gauges shall be of glycerine type and shall be calibrated in bars.

In order to avoid priming and cavitation problems, the NPSH (required) of the pump should be such that it is less than or equal to the NPSH (available) on site. The NPSH of the pump set shall be chosen accordingly.

Performance and Characteristics Curves

The characteristic curves of the pump together with the NPSH curve, power curve and efficiency curve shall be provided by the Bidder at the time of Bidding, with a clear

indication of duty range and the various conditions of operation. The pump efficiency at duty point shall be as close as possible to the best efficiency point (BEP) for the pump as indicated by the manufacturer. The following curves as a function of discharge shall be submitted and shall extend from zero flow to **130 % of duty flow**:

- a) Delivery Head,
- b) Efficiency, and
- c) Power input

The pump shall have head-delivery curves which rise continuously and monotonously to shut off. The pump shall be capable of operating under closed-valve conditions in the delivery mains for a minimum duration of five (5) minutes. **A flat pump curve would be preferred.**

Dry running of pumpset shall be controlled by means of appropriate pressure switches and relays.

Performance Tests of Pump

Guaranteed efficiency is required at the duty point. The combined Pump and Motor efficiencies shall be achieved through performance tests in conformity with **BS EN ISO 9906:2012**. **At Evaluation Stage**, consideration will be given to the **energy consumption by the electrical motor of the pump at required head** in the analysis of the offers.

1.3.2 Electric Motors

The electrical motor shall comply in all respect with the relevant parts of **BS EN 60034-1:2010**, **BS EN 60034-30-1:2014** or latest equivalent ISO Standard. The electrical motor shall be of **IE3 (High efficiency) class or higher**. The test methods and results of the efficiency values as defined in BS EN 60034-30-1: 2014 shall be **submitted at the bidding stage**.

The motor shall be fed by a **three-phase power supply of 400 V / 50 Hz**.

The motor shall be totally enclosed, air cooled, squirrel-cage type designed for **Auto-transformer/Star-Delta starting/VSD/soft-starter**. It shall be designed for 24 hours operation with frequent starts (min. 8 starts per hour) required when the pump is in normal operation.

The electrical insulation shall be to **BS EN 60085:2008, Class F** or latest equivalent standard. **The Bidder shall also submit full details of the methods being proposed to ensure adequate cooling of the motors at all times.**

The motor shall be fitted with locating type bearings and/or heavy-duty type thrust bearings at the non-drive end and roller type bearings at the drive end according to the type of motor offered, but all bearings shall be of adequate proportions and designs suitable for the particular application, and shall have ample capacity to allow the pump to operate for short periods with discharge valve closed. For lubrication by grease, the filling shall be done through steel grease nipples and same shall be covered with a plastic/rubber cap.

Motors of power rating greater or equal to 10 kW shall be fitted with **Temperature Sensitive Thermistor** embedded in the motor to control a winding over-temperature relay mounted in the control panel. The motor shall have **at least one (1) thermistor for alarm and shutdown**. A winding over-temperature relay shall be provided with each pump set.

The pump input (shaft) power shall not overload the motor at any point on the pump performance characteristic curve and the pump operating range, within the limits of stable pump operation, as recommended by the manufacturer.

The motor shall be capable of delivering a **minimum of 10% and up to a maximum of 36% in excess of the maximum power absorbed** when the pump is operating against the specified duty head.

The motor shall be built of **high-grade components and materials** in accordance with the best practice for round the clock water pumping.

The power factor of the motor shall not be less than 0.8 at the duty points.

The motor shall be supplied with the following accessories:-

- (i) The necessary fixture accessories
- (ii) Lifting rings for motors weighing over 50 kg
- (iii) A name plate indicating the type of connections
- (iv) Over temperature protection by thermostatic trip out contacts

1.3.3 Specification for Starter Panel – Autotransformer

Bidder shall also supply a new Auto Transformer electrical starter panel of rating 92 kW (Annex 1) along with all the cables (flexible type) from the pumpset to the panel.

All electrical installations shall conform to BS 7671:2018/A1:2020 - Requirements for Electrical Installations - IET Wiring Regulations.

Isolating transformer shall not be accepted in the panel. The control and power electrical schematic are illustrated in Annex. If any deviation from the proposed schematics has been made, it shall be indicated in the, Specification and Compliance Sheet, accompanied with the modified schematic at the bidding stage.

a. Enclosure

An extractor fan and an air vent shall be fitted in starter panel. The fan shall be located at the side face at the top, while the air-vent shall be on the opposite face at the bottom. Fan & vent openings shall be equipped with appropriate grills and dust filters, such that a minimum protection class of IP54 is ensured for the panel.

The fan shall draw air from inside the panel to the outside. It shall have the appropriate air flow rating, such that air is drawn from the outside through the bottom vent into the panel, raised up and pushed outside the panel at the top. There shall be no large components (such auto-transformer and MCCBs) too close to the vent and fan that might obstruct the air flow.

- The surface treatment for the enclosure and door shall be electrophoresis with hot polymerized polyester epoxy powder. The outer structure shall be of steel sheet of a minimum thickness of 2 mm, with no sharp corners and edges.
- Detached gland plates shall be provided at the bottom and at the side, with compression type cable glands of appropriate sizes. Adequate space shall be provided for the safe bending and termination of cables.
- The starter panel shall be floor-standing of a maximum working height of 2 m

b. Panel Door:

- Door shall not be wider than 900 mm and should be of lift-off type.
- Doors up to a maximum of height 1000 mm shall be equipped with a minimum of two hinges whereas door exceeding 1000 mm shall be equipped with minimum three hinges. The minimum door swing shall be 115°.
- All doors shall be provided with fasteners and door locks with individual locking key, such that the doors are safely, securely and tightly closed around their whole perimeter.
- Door sealing materials and fixing adhesives shall be non-absorbent and resistant to petroleum-based lubricants and cleaning products (such as, oil, grease, etc.).
- A permanent data pocket shall be fitted inside the panel preferably on the door interior to accommodate drawings and manuals.
- Warning signs shall be placed on the front of the starter panel.

c. Panel Base:

- Panel shall be free standing (floor mounted) type and shall be fitted with a raised metal plinth (base) of 200 mm or higher above the floor. The base shall be of rigid

(non-flexible) metallic construction to enable horizontal rolling movement of the starter panel along the floor, without damaging the panel base.

d. Lifting Facilities:

- Eye bolts shall be fitted at the top of the panel to facilitate panel handling/lifting.

e. Panel Dimension, Spacing, and Fixation of Equipment/Components

Equipment Fixation Base Plate/Grill:

Equipment shall be fixed preferably on a specialized prefabricated, non-corrosive metallic grid with pre-designed and displaceable fixation bolts and nuts. In the absence of such a grid, a steel plate of minimum thickness 2.5 mm shall be provided for the purpose; with reinforcement at the rear where necessary so as to be able to support the equipment/components and to have sufficient thickness to allow engagement of at least two full threads.

In this case, all electrical components and/or rails shall be mounted on the steel plate by means of fixing screws into threaded holes in the plate, whereby bolts and nuts fixing at the back of the plate shall then be avoided.

Panel and Equipment Clearances

- All components including terminals shall be located at least 175 mm above the panel's bottom metallic face.
- There shall be a minimum internal clearance of 50 mm or more between the door interior (including the back surface of door mounted components) and the components projecting from the base plate of metal grid.
- Adequate spacing between electrical components shall be maintained to ensure easy removal of elements (contactor coils, etc.) for replacement/repairs and for operating reset buttons and potentiometer knobs (of overload thermal relay and other relays).
- Sufficient space shall be ensured for internal wiring as per BS 7671:2008 and provision shall be made for spare capacity in the raceway to cater for future alterations or additions as and when necessary. In addition, a minimum of 20%

or more spare space shall be provided to cater for future addition of components/equipment.

Components/Equipment Positioning and Spacing

- All control devices (relays, fuses etc.) shall be mounted in numerical order corresponding to designation in the as-made electrical drawing, in a single or double row. These shall be at appropriate levels for accessibility to maintenance personnel.
- Power devices shall be grouped and separated from control devices.
- Only one layer of terminal blocks shall be allowed which may be mounted either vertically or horizontally. Rail-mounted type terminal shall be used. Terminals for power and control voltages shall be separately grouped. Spare terminals shall be provided as follows: at least six (6) for control circuit wires and four (4) for power circuit wires.
- Heat emitting device (e.g MCCB) shall be mounted in the upper part of the panel such that heat dissipation does not affect other components.
- Heavy electrical components/accessories (e.g autotransformer) shall be mounted at the bottom and appropriate additional panel thickness and/or supports shall cater for proper and secure fixation of such items, without causing distortion to the enclosure.
- No component shall be mounted on the door except operating, signaling and measured devices.
- All the components inside the enclosure and on the front door, shall be properly labelled internally/externally as per requirement based on the proposed schematic.
- All the exposed live parts or terminals that can be accidentally touched after the panel door has been opened shall have appropriate insulation covers of breakdown insulation voltage of 1000V minimum.
- Appropriately sized earth bars shall also be mounted in the panel to accommodate incoming and outgoing earthing cables.

f. Wiring

- All wiring shall be of single core, flexible type, PVC insulated and shall be done in close raceways.
- Tapping of supply for control cables from power supply cables connections shall be made through appropriate lugs and should be done after the main MCCB so as the panel can be appropriately disconnected for maintenance.
- Conductors shall be identified at ends by sleeve-type tags bearing numbers corresponding to the final submitted as-made drawing. Engraved identification ferrules, marked to correspond with the wiring diagrams shall be fitted to both ends of each wire. Ferrules shall be of yellow color with black lettering.
- All incoming and outgoing cables connected to terminal blocks shall be provided with numbers according to the final as-made drawing.
- Termination of more than two conductors at each terminal shall be avoided by using additional strip to accommodate the extra conductors.
- There shall be no crossing of the cables on terminals.

g. Power and Control Cables

- The power cables (single core) shall be generally of 1 kV grade conductor of high conductivity copper wires insulated with PVC.
- Color codes and specifications of the power cables shall conform to BS7671: 2008 as given below:

Three Phase	Single Phase
Phase 1 – Brown	Phase - Brown
Phase 2 – Black	Neutral - Blue
Phase 3 – Grey	Earth - Yellow/Green
Neutral – Blue	
Earth - Yellow/Green	

Color codes and specification of power cables

Lugs of appropriate size shall be used for termination of power cables. Heat shrink tubing with appropriate flame-retardant and insulation properties shall be used to insulate the exposed part of the lugs. The colour of the shrink tubes shall be according to the above table.

- Single core, PVC insulated 600V grade copper conductors shall be used for the wiring of the control circuit. The control cables and components shall be protected with fuse holder complete with suitably sized fuse. The minimum conductor size for the control cable shall be 1.5 mm².
- Cables for connection between panel and pump shall be provided by the supplier and **appropriately sized**. The specifications shall meet the requirements as hereunder:

Three Core Flexible Copper Cable	
Description	CWA Requirement
Type	Flexible (non-armoured)
Conductor Material	Plain annealed copper
Sheath Material	PVC Compound
Insulation Material	XLPE Compound
Rated Voltage U ₀ /U	600/1000V
Colour Coding for each core	Brown, Black, Grey (As per BS7671:2008)
Colour of sheath	Black
Standards	Compliant to relevant parts of BS 6920, BS EN 60228:2005 and BS 7889:2012 or appropriate equivalent British Standard
Labelling	The Rated Voltage U ₀ /U shall be clearly printed on the sheath of the power cables at regular intervals along its whole length.

h. MCCB

- Moulded Case Circuit Breakers shall be **4 poles, rated 400V, 50 Hz** and shall be fixed type fitted with tripping device to monitor under/over voltage. MCCBs shall provide class II insulation, according to **BS EN 61140:2016, IEC 61140:2016** (Protection against electric shock. Common aspect for installation and equipment) between the front and internal power circuits. The MCCB shall preferably have a rotary handle (ON/OFF) fixed on the front of the enclosure for isolating purposes.
- The MCCB shall be appropriately rated for overload protection, short circuit protection and motor application. These shall be designed for use with contactors of **AC-3 utilization** category. It shall conform to the following standard: **BS EN 60947-2:2017+A1:2020** (low-voltage switchgear and control gear circuit breakers) and have a minimum breaking capacity of 25 kA. The MCCB shall have a normally open (NO) auxiliary contact (Q1 as indicated in the schematic diagram) for the motor control.
- They shall be designed and tested to standard **BS EN IEC 60947-1:2021** (low-voltage switchgear and control gear general rules) and shall be provided with an inverse time delay, adjustable thermal release and adjustable magnetic release as well as other necessary features.
- They shall also be fitted with an adjustable earth leakage module which shall be in the range of 30mA to 10A with adjustable trip_time-delay setting.
- In case the MCCB cannot accommodate an integrated adjustable earth leakage module, a separate earth leakage protection relay (with adjustable range 30mA to 5A, and adjustable trip time-delay setting) along with appropriate current transformers (toroids), shall be included in the panel and control circuit.

i. Three Phase Auto Transformer

- The auto-transformer shall be three phase type suitable for 400V, 50 Hz AC supply. It shall be air-cooled, copper wound with tapping to provide 65% of

the full line voltage. The auto-transformer shall have its nameplate fixed with appropriate data, such as, rating, number of starts per hour, etc. and same shall be clearly visible at all time.

- Each auto-transformer shall be of appropriate rating to cater for the minimum specified kW of the starter. The auto-transformer shall be capable of a minimum of ten starts per hour in an ambient temperature of 45°C and shall contain an embedded thermal protection for each winding. It shall be fixed at the bottom of the panel and shall be easily accessible for maintenance and repair. The bidder shall submit the manufacturer's technical documents/standard catalogue product showing the standard of the auto-transformer and electrical/mechanical specifications of same.

j. Contactors

- The power contactors for starting and operating the motor shall be rated 400V, 3 poles, 50 Hz and the utilization category shall be AC-3. **All contactors shall be rated accordingly.** The contactor coil shall operate on 230V, 50 Hz power supply. The contactor shall comprise of a minimum of 2 normally close (NC) and 2 normally open (NO) auxiliaries contacts. Provision for additional component, as add-ons clipped on the contactor, shall be made if additional auxiliary contacts are required. The operating rate shall be of a minimum of 120 cycles per hour at $\leq 55^{\circ}\text{C}$. The mechanical durability shall be at least of 1,200,000 cycles.
- The panel shall be equipped with three appropriately sized power contactors (KM1, KM2 and KM3) of the same make, model and rating. A mechanical interlock device shall also be provided between KM1 and KM3.

k. Control and Protective Devices

The entire control and signal circuit voltage shall have a single source and shall be of **230Vac, 50 Hz**. The starter shall comprise of appropriate components against the following protections as indicated in the schematic diagram.

Over/Under Voltage, Loss of Individual Phase & Phase Sequence Monitoring Relay (RL1):

- Phase monitoring relay shall be of 'plug-in' type and the base socket shall be DIN rail mounted so as to be unaffected by mechanical vibration. If any

of the phases goes outside the acceptable range, the relay shall trip and disconnect the control circuit.

Over Current Monitoring Relay (RL3):

- The over-current monitoring relay shall be coupled with a dedicated CT, independent and not looped to any one of the ammeters CTs.

Pressures switches for dry running protection:

- Appropriate pressure switches complete with relays for protecting the pump against dry running shall be provided and installed.

Thermal Overload Relay (F1):

- Thermal overload relay shall be of non-differential type and of class 10.

Relays:

- All auxiliary and monitoring relays shall be of 'plug-in' type continuous duty with an 11-pin base socket. The base socket shall be DIN rail mounted and the entire unit shall be robust and unaffected by mechanical vibration. The relay contact shall have a minimum contact rating of 10A at 250V. The coil shall be suited for 230Vac, 50 Hz supply

On-Delay Pneumatic Timer:

- On-delay pneumatic timers KA1, KA2, KA3 and KA5 shall be of pneumatic type, i.e., mounted on the corresponding auxiliary contactors.

Real time 24 hours Programmable Time Switch:

- The real time 24 hours Programmable Time Switch shall be of cam-type. The contact rating shall be a minimum of 10A at 250V.

Surge Arresters:

- Four pole surge arrester (400V, modular type with replaceable cartridge) shall also be installed as indicated in the Schematic diagram. The surge arrester shall be of Type 2 with a minimum rated current ($I_{nominal}$) of 10 KA and complete with corresponding circuit disconnection device (circuit breaker).

I. Indicator lights

- The indicator light shall be equipped with high luminosity LED lamps. Proper labels for the indicator lights shall be fixed on the front door. The visual indications shall be as given below:

S.N.	Description	Colour
1	Power Supply	L1: White/ L2: White/ L3: White
2	Motor in ON condition/ operating	Green
3	Motor tripped due to overload	Red
4	Fault in Phase monitoring relay	Red

Color of indicator lights and labels

- A lamp test push button shall also be installed on the front of the enclosure to enable verification of the status of all the pilot lamps. The testing circuit for the purpose shall not affect the control circuit when energized.

m. Hour Counter

- An hour counter of mechanical type supplied by 230Vac, 50 Hz shall be flush mounted on the front panel for the number of running hours of the pump. It shall also be non-resettable type and registering up to 99,999.9 hours.

n. Digital Panel Meter

- The digital meter shall have an integrated display and shall be installed on the door of the starter panel. The digital meter shall measure and display three phases instantaneous rms values of current, voltage, frequency, real power, reactive power, apparent power, power factor, active, reactive and apparent energy.

o. Analogue Panel Meter

- The panel shall also include an analogue ammeter and voltmeter with associated appropriate selector switches (as shown in schematic at ANNEX 1).
- The voltmeter shall indicate line-to-line and line-to-neutral voltages.

- The ammeter shall be of appropriate range and scaling, and shall be coupled with CTs of appropriate ratings, to monitor any one of the three selected line currents during motor starting and normal running periods.

p. Visit and Inspection of Panel

The successful bidder shall inform the CWA Engineers or representatives to visit the contractor's workshop to inspect the installation in progress at the mounting stage of panel being made in house; and/or to inspect imported (pre-mounted) prior to delivery.

1.3.4 Spare parts

The Contractor shall supply all the necessary manufacturer's recommended spare parts for two years normal duty and shall quote for such items as listed in the Bill of Quantities: The spare parts to be supplied shall include the following as listed below:-

(i) Pumpset

Item No.	Description	Quantity (Unit)
1	Impeller	1 No.
2	Soft packing	1 roll
3	Gasket Kit and O-ring	2 Sets
4	Neck Ring (if applicable)	1 No.
5	Bearing (DE/NDE) for Pump	2 Sets
6	Bearing (DE/NDE) for Motor	2 Sets

Any additional spare parts as recommended by the pump set manufacturer for two years of operation shall also be provided by the bidder. Any special tool required for dismantling of pump units proposed shall be quoted as an option in the offer.

(ii) Panel

The successful bidder shall supply the following spare parts per panel:

Item No.	Description	Quantity (Unit)
1	A full set of cartridges for the surge arresters installed in the panel	2
2	A full set of fuses for each set of fuse holder.	2
3	Fuse holders	2
4	'On delay start' electronic timer	1
5	Auxiliary relay (KA#)	1
6	'On Delay' pneumatic add-on block (for auxiliary relay)	1
7	Power contactor coil (for KM#)	2
8	Over/Under Voltage Monitoring Relay	1
9	Pressure switches for dry running protection	1

Technical details and documents to be submitted at Bidding Stage**(i) Pumpset**

The Bidder shall provide the following technical details **at the bidding stage**:

- Pump and Motor Performance and Characteristic Curves of pump set.
- Motor make, Nominal Speed (rpm), rating, manufacturer and country of origin.
- Details of motor electrical rating, starting and full load current under rated voltage and efficiency at duty point.
- Pump make, manufacturer and country of origin.
- Dimensions and weight of each unit.
- Foundation details.
- Manufacturer's name, addresses, contact persons, email address, fax no.

(ii) **Panel**

The bidder shall submit detailed (to scale) layouts (front, side and top view) of the proposed panel **at bidding stage** and the layout shall consist of the following:

- Dimension of the panel (length, width and depth).
- Proposed positioning of all components.
- Proposed positioning of the cable runway.
- Proposed positioning of components on the front and back of door including warning sign on the front door.
- Proposed routing of power cables.

The layout shall also show the dimensions of the bulky components and the space available between the components, such as, contactors and autotransformer so that the available spare space is determined at the appraisal stage.

The easiness in troubleshooting and maintaining the panel shall be considered during the appraisal. However, the proposed layout may be subjected to modifications during the implementation stage. The technical documents/standard product catalogues of the panel and for each electrical/electronic/mechanical component shall also be submitted at bidding stage.

1.3.5 Testing and Commissioning

The Contractor shall provide the methodology for testing of the pumpset and panel.

Upon approval of the methodology, testing of the pumpset shall be performed and same approved by the Project Manager. All test results shall be included in the Operation and Maintenance Manual.

The following inspections and test shall be performed upon installation of the pump and panel.

- Inspection of all supplied and installed goods for physical damage or anomalies (which includes missing parts, detached parts, scratches, deformities, cracks, discoloration, peeling and/or spalling of surface coating, corrosion... etc.).
- Visual check on the pump, motors and lead cable
- Insulation resistance test on the windings of the motors
- Continuity test on windings of the motors
- Resistance measurement of the windings of the motors
- Visual check of the panel and components to verify that there is no damage to the panel components, and that panel, components/cables and workmanship are up to the standards, as specified in the bidding document.
- A test report for the auto-transformer from the manufacturer shall be submitted to the IA upon delivery of the panel. Insulation resistance and continuity tests shall be performed on the autotransformer windings on delivery and the results shall be compared with manufacturer's test report.
- An off-load test shall be performed on the panel for the verification of the following:
 - a. Starting sequence of autotransformer starter and
 - b. Proper functioning of equipment (simulation of faults).

Commissioning of the whole works shall be done prior to issue of Taking Over Certificate.

1.3.6 Maintenance During Guarantee Period

The bidder shall carry out all necessary maintenance on the installations during the guarantee period. This shall include regular visits to ascertain the proper operation of the pumping station, attendance to breakdowns and replacement of parts as necessary.

1.4 Operations and Maintenance Manuals

(i) Pumpset

The successful bidder(s) shall submit **Two (2) hardcopies and one (1) soft copy** of the Installation, Operation and Maintenance Manual(s) for proposed pump set upon Supply and Installation of the equipment on site. In addition, the following documents must be provided:

- a detailed component list,
- exploded view and relevant drawings, and
- Test performed on pump.

A test report for the pump from the manufacturer shall be submitted to the **IA** upon delivery and installation of the panel. Insulation resistance and continuity tests shall be performed on the pump windings on delivery and the results shall be compared with manufacturer's test report.

(ii) Panel

The successful bidder shall supply together with the starter panel **two (2) hard copies and one (1) soft copy** of legible as-made schematic drawings among which one shall be plastic coated (or plastic binder-cover, in case of multi-sheets drawings). The plastic protected schematics shall be placed inside the panel with an appropriate holder.

The drawing shall have the cable numbering which shall reflect accurately the wiring numbering in the panel. Any deviation made from the proposed schematic diagram (**ANNEX 1**) shall not alter the control philosophy.

Moreover, all user manuals (technical and operation) of components shall be submitted for the starter panel in appropriate cover file. **Two (2) hard copies and one (1) soft copy of the layout of each panel**, showing the positioning of the components on the door (internal & external) and inside the panel shall be provided. The dimensions of the panel shall also be clearly indicated on the panel.

1.5 Warranty

The Bidder shall warrant that the equipment and accessories supplied under the Contract are brand new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Bidder shall further warrant that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except insofar as the design or material is required by the Public Body's Specifications) or from any act or omission of the Bidder, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination.

This warranty shall remain valid for **twelve (12) months** after the equipment and accessories have been commissioned by the Successful Bidder and accepted by the Public Body.

The Public Body shall promptly notify the Successful Bidder in writing of any claims arising under this warranty period.

Upon receipt of such notice, the successful Bidder shall, within a maximum delay of two weeks, repair or replace the defective equipment and accessories or parts thereof, without costs to the Public Body other than, where applicable, the cost of inland delivery of the repaired or replaced equipment and accessories or parts from the port of entry to the final destination.

If the successful Bidder, having been notified, fails to remedy the defect(s) within a maximum delay of two weeks, the Public Body may proceed to take such remedial action as may be necessary, at the Successful Bidder's risk and expense and without prejudice to any other rights which the Public Body may have against the successful Bidder under the Contract.

1.6 Drawings of the works

All the Drawings of the Works are attached herewith in the Bidding Documents. It shall be the responsibility of the Bidder to check any information therein prior to submitting

his bid and to start of works. Any modifications or assumptions made on these drawings shall be notified by the Bidder in the separate memorandum.

The Bidder shall submit with his bid any additional drawings which he has used for pricing his bid.

As-built drawings shall be supplied as specified hereinafter.

1.7 Details of existing pipelines, CEB lines and other infrastructures

The Contractor shall verify the presence of pipelines, electric cables, underground structures and other infrastructures prior to execution of works within immediate surroundings to the site, and execute works without disturbing and damaging any of these features. Any disturbance caused to such infrastructures shall be immediately notified to the Project Manager.

Prior to excavations, the Contractor shall dig out the number of trial pits he judges necessary for exact identification of location and depth of the existing buried pipes. He shall submit to the Project Manager for approval of a methodology for excavation so as not to disturb or damage the existing components, prior to execute work.

1.8 Programme of the works

- a. The whole of the works shall be completed within 180 calendar days from start date.
- b. The Contractor shall submit a programme of works to the Project Manager for approval within fourteen (14) days from the date of issue of the Letter of Acceptance.
- c. The Contractor shall during execution of the contract, revise the programme of works every fortnight and in addition as and when requested and directed by the Project Manager.
- d. The works shall be carried out according to the programme submitted by the Contractor and approved by the Project Manager. The Contractor shall take the following into consideration while preparing the Programme of Works:
 - Pipeline will be closed for a maximum of 2 days on a particular site to allow for connection works.

- The Contractor shall ensure that track roads are not obstructed and shall remain accessible to planters and irrigation workers
- The Programme of works shall show all resources (labour, plant and equipment and cash flow) necessary to plan the weekly and monthly progress between the commencement and completion dates. Additionally, it shall show the timing, order of procedure and general method for carrying out the works, with timing for mobilisation of plant and equipment and for the purchase/ordering of goods for different stages of works.
- The critical path with all activities involved therein shall clearly be shown.
- The Programme of Works shall also take due regards of the time required for drawings approval, testing and inspection at the works, freight and delivery to the storage area.

1.9 Regulations, Standards and Workmanship

Except where otherwise specified, all materials to be supplied under the contract shall conform to the requirements of the relevant and latest standards issued by the International Standard Organisation and the workmanship shall conform to the requirements of the relevant and latest British Standard Codes of Practice issued by the British Standard Institution. Other equivalent national standard specifications may be used in the absence, or in the place of a relevant ISO or BSCP standard, at the sole discretion of the Project Manager and with his approval. The standards of workmanship and finish shall be uniform throughout the whole contract and shall be approved by the Project Manager. The standards mentioned herein are issued by the Organisations listed in table 1 where the abbreviations used are defined.

All materials and workmanship not fully specified herein or covered by the standards mentioned before shall be of such kind as is used in first class work. The Project Manager shall determine whether all or any of the materials offered for use in the works are

suitable for the purpose for which they are intended and the Project Manager's decision in that respect shall be final.

The Contractor shall supply at his own cost and shall permanently keep on sites all the standard specifications and Codes of Practice. These documents shall be available at all times for inspection and use by the Project Manager's Representative and shall revert to the Contractor at the end of the Contract.

A list of these standards shall be supplied in the Separate Memorandum of the Bidder.

Table 1: List of standards

Name and Address	Abbreviation
International Standard Organisation Code Postale 56 1211 GENEVA 20, Switzerland	ISO
Mauritius Standard Bureau MOKA, Mauritius	MS
British Standard Institution 389 Chiswick High Road GB- London W4 4 AL	BS BSCP
Association Française de Normalisation 23, Rue Notre Dame des Victoires 75002 - PARIS, France	AFNOR
Deutsches Institut für Normung Benth Vertrich Strasse 1 BERLIN 30, West Germany	DIN
American Water Works Association 6666 West Quincy Avenue DENVER CO 80197, USA	AWWA
American Society for Testing Materials 1916, Race Street PHILADELPHIA PA 19103, USA	ASTM
International Electrotechnical Commission Boite Postale 56 1211 GENEVA 20, Switzerland	IEC

Name and Address	Abbreviation
Standard ComiteEuropeen de Normalisation Rue de Stassart, 36 B 1050 Bruxelles	CEN
Normes Francaise, AFNOR Tour Europe, F92049 Paris- La Defense FRANCE	NFC
Union Technique de L'Electricite 33, Ave. du General Leclerc BP 23-92262 Fontenay-aux-Roses – CEDEX	UTE
European Norm ON-CEN, PO Box 130, A-1021 Wien AUSTRIA	EN
Indian Standard Bureau of Indian Standards ManakBhavan, 9 Bahadur Shah Zafar Marg New Delhi-110002 INDIA	ISI
American Petroleum Institute American Society of Mechanical Project Managers American Welding Society American National Standards Institute 1819 L Street NW, WashingtonDC20036, USA	API, ASME AWS ANSI

The performance of the equipment supplied under the Contract shall be guaranteed in accordance with:

- (i) BS EN ISO 9906:2012 – Rotodynamic Pumps: Hydraulic performance and acceptance tests, Grades 1,2 & 3 or equivalent.
Mechanical installations shall be carried out to good standards of workmanship and all equipment, materials and fittings shall be new and according to specifications.

All other standards to be used to ensure conformity of mechanical equipment installation are as follows:

- (i) BS EN 60034-1:2010 – Rotating electrical machines. Rating and performance
- (ii) BS 5000-3:2006 – Rotating electrical machines of particular types or particular applications. Generators to be driven by reciprocating internal combustion engines. Requirements for resistance to vibration.
- (iii) BS EN 60085:2008 – Electrical insulation. Thermal evaluation and designation.
- (iv) BS 7889:2012. Electric cables. Thermosetting insulated, non-armoured cables with a voltage of 600/1000v, for fixed installations.
- (v) BS EN ISO 9906:2012- Rotodynamic pumps: Hydraulic performance acceptance tests. Grade 1,2 and 3
- (vi) BS ISO 3046-4:2009 – Reciprocating internal combustion engines, Performance speed governing
- (vii) BS EN 12285-2:2005- Workshop fabricated steel tanks horizontal cylindrical single skin and double skin tanks for the aboveground storage of flammable and non-flammable water polluting liquids.
- (viii) BS EN 10255:2004 – Non-alloy steel tubes suitable for welding and threading. Technical delivery conditions.
- (ix) BS 7671:2008+A1:2011- Requirements for electrical installations. IET wiring regulations. Seventeenth edition
- (x) BS EN 1092- 1:2007+A1:2013 – Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated cast steel flanges.
- (xi) BS EN 1092 – 2:1997 – Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated cast iron flanges.
- (xii) BS EN 14341:2006 – Industrial valves. Steel check valves
- (xiii) BS EN 12334:2001 – Industrial valves. Cast iron valves

1.10 Quality of materials

All goods to be supplied under this contract (pipes, control valves, filtration system, jointing materials, nuts, bolts, gaskets & other fittings) shall be suitable for irrigation water purposes. The quality of materials and goods shall be of first grade and best quality. All goods supply shall be new, unused, free from any defects and conforming to BS, EN, ISO or other equivalent standards and shall be approved by the Project Manager. Inferior or low-grade supplies shall be rejected by the Project Manager.

Bidder shall submit a complete catalogue information, descriptive literature, specifications and technical data for pipes, fittings, Pumpset and control valves proposed

in their Bids to enable the Employer to access their proposal. The Bidder shall be specific as to the country of origin and manufacturing firm of the items intended to supply under this Procurement.

1.11 Plant and equipment

Contractor shall provide and install all necessary plant and equipment (mechanical and otherwise) for all other trades and allow for altering, adapting and maintaining them as necessary for efficient and expeditious execution of the works and at or before completion clear same from the site and make all good, to the entire satisfaction of the Project Manager.

In addition to what has already been specified, all Plant and Equipment shall be designed to provide adequate protection against the entry of vermin and dust and to minimise fire risk and consequential fire damage.

All parts which can be worn or damaged by dust shall be totally enclosed in dust proof housings.

All equipment shall operate without excessive vibration and with minimum of noise.

All similar items of plant and equipment and their components together with spare parts shall be made from the same material and shall be fully interchangeable.

All manually operated plants and equipment not located inside a building shall be provided with facilities for making it tamperproof. This is in addition to any requirements of the specification for securing plant under operational conditions.

1.12 Patent Rights

The Bidder shall enclose in his bid a statement from the equipment manufacturer that the Bidder is authorised to supply and install the goods in Mauritius.

The successful Bidder shall indemnify the Public Body against any third party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in the Public Body's country.

Moreover, the successful Bidder may be requested to submit a certificate of conformity for any material and equipment to be supplied which is equivalent to the existing ones. The Public Body shall not be held responsible for any failure by the successful Bidder with respect to non-suitability of quoted parts and the Bidder shall, in case of non-conformity of the parts, replace them with the conforming ones at no additional cost.

2. The Site

2.1. Site

The location of the site is indicated in Drawing No. OAB/OMD/PALMARPUMP/10/24/01.

2.2. Inspection of site

The availability of data and drawings do not relieve the Contractor of his responsibility to inspect the Site for further investigations required for execution of the Works.

The Contractor is recommended to acquaint himself with the site locations. He shall assess the presence of all visible existing services, structures or obstacles, rock piles and ranges, trees, steep slopes, conditions of track roads, etc. The Contractor shall ascertain that the equipment he intends to propose is perfectly adapted to operate fully and satisfactorily under the topographical conditions of the site. He shall take into consideration all the above factors while pricing in the Bill of Quantities.

2.3. Access to site

- The Contractor shall give notice to the Employer prior to shipment and delivery of equipment and supplies to Site. The Employer shall grant possession of site or part of it to the Contractor as specified in Conditions of Contract and directed by the Project Manager taking into consideration the programme of work.
- The Contractor shall give notice to the Project manager prior to commence work.

- The Contractor shall be responsible for the reinstatement of existing roads if same were disturbed/damage at respective site and shall also be responsible for safe and easy passage of vehicles on the existing track roads.

2.4. Clearance of site

Site clearance shall be carried out over the areas to be occupied by the works and for working space and shall consist of removal and carting away of all unserviceable materials, debris, trees, sugar cane bushes and other vegetation and the grubbing out of all roots and also rocks and boulders. Topsoil so removed shall be kept aside for reinstatement.

2.5. Site to be tidy

The site shall be maintained in a neat, tidy and healthy condition, and the Contractor shall remove all waste, debris and unwanted materials and other litter from site upon completion of works.

2.6. Safety on site

The Contractor shall adhere to all rules and regulations regarding health and safety of personnel as directed by the OSHA 2005 & regulations and the Irrigation Authority's Health and safety officer. The successful bidder shall take all necessary steps to ensure that the works are done in an orderly manner and that safety precautions are enforced to avoid accidents to the personnel of the successful bidder and to other parties working on Site.

2.7. First aid outfit

The Contractor shall provide and maintain on Site in readily available positions near the sites of work, adequate first aid outfit and have experienced first aid man available for attending minor accidents. Fire extinguishers shall also be kept on site.

2.8. Reinstatement of sites, tracks and estate roads

Upon completion of Works the successful bidder shall reinstate the Sites, Tracks and Estate roads in a condition not less satisfactory than they were prior to commencement of work.

2.9. Maintenance of services and structures

The Contractor shall ascertain the location of all watercourses, sewers, drains, water pipes, electricity, telecommunication cables, other services and structures which may be encountered during the construction of the Works. He shall temporarily support or divert and subsequently reinstate all such services and structures as necessary and to the satisfaction of the Project Manager.

As soon as any such service or structure is encountered on, over, under, in or through the Site during the performance of the Contract, the Contractor shall make a record of the location and detailed description of such service or structure and shall send the same forthwith to the Project Manager.

Where permanent diversion or support of such service or structure is rendered necessary as the unavoidable result of the construction of the Works in accordance with the Contract, the Project Manager - after consultation with the Employer will instruct the Contractor as to the diversion or support to be provided and the Contractor shall be paid the costs thereof in accordance with Clause 40 of the General Conditions of Contract.

2.10. Pipes, fittings, irrigation equipment and store yard

All pipes, fittings, equipment and other materials to be used in temporary or permanent works shall be delivered from ships or local suppliers to a store yard approved by the Project Manager. No equipment shall be stored directly on site of works without approval from the Project Manager. The programme of delivery of these pipes, fittings, control valves and equipment to site shall be supplied by the Contractor in his separate memorandum.

The Contractor shall make his own arrangements for all land, store yards, stores, workshops, offices, etc. and for all services in connection therewith. The storage of the fittings and irrigation equipment shall be to the satisfaction of the Project Manager. The Project shall have access to the store yard to inspect the all pipes, control valves, fittings, pumps and equipment by the Project Manager prior to acceptance.

At time of delivery and acceptance, the equipment to be incorporated in the Works shall be inspected by the Contractor who shall thereafter be responsible for their storage, stock control and safe keeping. The Employer or the Project Manager shall be in no way responsible for breakages or losses of equipment and such items shall be replaced or repaired by the Contractor to the satisfaction of the Project Manager at no cost to the Employer.

The Contractor shall keep structured records on all items available in the store, i.e date of shipment, date of delivery, date of issue to be incorporated in Works, quantity used/left in stock, quantity damaged, etc. Such records shall be made available to the Project Manager on a regular basis.

2.11. Contractor's staff, communication, offices etc.

a. General

The Contractor shall advise the Project Manager at which of his offices any notices may be served.

b. Language of Correspondence and Records

All communications between the Contractor, the Project Manager and the Employer shall be in the English language. All books, time sheets, records, notes, drawings, documents, specifications and manufacturers' literature etc. shall be in the English language.

If any document is in a language other than English a certified translation to English by an approved translator shall be submitted to the Project Manager or his Representative.

c. Contractor's Duty Staff & Offices

The Site Agent of the Contractor shall be permanently on the Site during normal working hours and immediately available at all other times. He shall be delegated full authority to act upon instructions given by the Project Manager or his authorised staff and shall be fluent in the spoken and written English language.

The Contractor shall provide at its own cost and maintain at the site, offices for the use of his representative and to which written instructions by the Project Manager can be delivered. Any instructions delivered to such offices shall be deemed to have been delivered to the Contractor.

d. Public Relations

The Contractor shall designate within his site organisation competent staff whose responsibility shall be to ensure good public relations.

The Contractor shall provide and maintain suitable and sufficient shelters and mess rooms for his workmen and supervisory staff.

The Contractor shall provide sufficient closets or latrines and washing facilities to the satisfaction of the relevant authority. They shall be properly screened and maintained in a clean and sanitary state at all times.

The mess rooms, closets and latrines shall be located in positions to be approved by the Project Manager. The Contractor shall be responsible for making all arrangements for the disposal of waste from mess rooms, closets and latrines.

The Contractor shall satisfy the Project Manager or his representative that all his personnel working on the site are medically fit.

2.12. Inspections by project manager during defects liability period

The Project Manager will give the Contractor due notice of his intention to carry out any inspections during the Defects Liability Period and the Contractor shall thereupon arrange for an authorised representative acceptable to the Employer to be present at the times

and dates named by the Project Manager. This representative shall render all necessary assistance and take note of all matters and things to which his attentions is directed by the Project Manager.

2.13. Progress photograph

The Contractor shall provide progress photographs, illustrating each stage of the work being effected to the Project Manager. Photos shall be colored and of minimum size A6 (105mm*148mm). Photos are to be supplied in hardcopy and soft copy in USB pen drive. The location, date when taken and the direction in which the camera was facing shall be inscribed on the back of each photograph. The photographs shall be submitted to the Project Manager in an album.

2.14. Notice of operation

The Contractor shall give full and complete written notice of all important operations to the Project Manager to make such arrangements as the Project Manager may consider necessary for the inspection of works and for any other purpose. The Contractor shall not start any important operation without the written approval of the Project Manager.

2.15. Progress meetings

The Contractor's Contract Manager shall attend regular progress meetings on Site which will be convened by the Project Manager. The Contractor shall also attend any other meetings requested by the Project Manager.

2.16. As-built drawings

The Contractor shall supply copies of the as built drawings for the project for:

- The new pumpset and allied equipment installed;
- Other drawings as requested by the Project Manager.

The number of copies and date by which “as built” drawings are to be submitted by the Contractor are as follows:

Three (3) hardcopies, duly approved by the Project Manager, upon completion of the project. One set of final as built drawings shall also be submitted on USB pen drive in AutoCAD drawing format.

2.17. Conditions of site and wayleave

Before carrying out work on site, the site shall be inspected by the Contractor in conjunction with the Project Manager to establish its general condition which shall be agreed and recorded in writing, and where in the opinion of the Project Manager it is deemed necessary, by means of photography.

Any damage caused as a result of the Contractor’s operation to existing plant and equipment beyond the permitted working area mentioned above shall be made good (site reinstatement, crop compensation, and other damages) at the Contractor own expense within two weeks after receipt of the Project Manager’s instruction.

3. Pipes, Control Valves, Pumpset, Fittings and Pipework

3.1. General description

In this Section "Goods" refers to pipes, control valves, pumpset and pipe fittings. All goods to be supplied shall be suitable for waterworks purposes in the conditions prevailing in Mauritius and particularly in the location of the works, for the conveyance of water. All pipes, fittings and control valves shall have a pressure rating of 16 bars unless otherwise specified.

Alternative bids are permitted and alternative pipe material offered should be equivalent to the Original Bid requirement. Equivalent means similar quality, durability and reliability. This means that the Manufacturer of alternative material should show that his material should have the same levels of quality, durability and reliability as the item specified.

The manufacturing process should have a quality control and assurance program which is ISO 9001. The manufacturing of goods, which fails to meet these criteria will lead to a non-responsive bid and shall no longer be taken into consideration.

In order to better understand our requirement all bidders are requested to attend a pre-bid meeting/site visit which shall be fixed by the Irrigation Authority during the bidding stage.

In addition, the Bidder shall submit a complete original catalogue, descriptive literature, specifications and technical data for pipes, control valves, fittings and Pumpset proposed in their Bids to enable the Employer to assess their proposal. The Bidder shall be specific as to the country of origin and manufacturing firm of the items intended to supply under this Procurement.

3.2. Periods for delivery

In order to comply with the requirements of the installation programme, the Contractor shall arrange his delivery programme to meet the stage delivery periods stated in the Programme of Works or Program of Shipment/Delivery calculated from the date of the Letter of Acceptance.

The Contractor may be required to concentrate his earliest deliveries in order to meet the programme for installation and due flexibility should therefore be allowed for in manufacturing.

3.3. Approval of drawings

The Contractor shall submit to the Project Manager for approval within 7 days of the Project Manager's order to commence the Works detailed drawings of the Goods and a general arrangement of a typical installation, including critical dimensions for associated civil works. They are to be accompanied, if required, by calculations and explanations to show that they comply with all requirements of these Specifications.

Two weeks shall be allowed for approval by the Project Manager following receipt of drawings. Alteration to approved drawings shall only be made with the written consent of the Project Manager.

3.4. Installation, Operation and maintenance manuals

The Contractor shall supply to the Project Manager with the material, plant or/and equipment, all the manuals and drawings describing the recommended procedures for their assemblies, dismantling, installation and operation. These documents shall give the dimensions, weight and space required for the operation and maintenance of the said plant and equipment. A draft of these documents shall first of all be submitted for approval by the Project Manager. After approval by the Project Manager, the Contractor shall submit within two (2) weeks two (2) copies of the approved documents suitably bound under hard cover and one (1) final set of the document shall also be submitted on USB pen drive to the Project Manager.

3.5. Inspection and testing at works

Details of the type of manufacturing process shall be submitted for the Project Manager's approval. Independently of the tests to be made on the constituent materials and on the Goods in accordance with the provisions of the Specification the Project Manager will have the right to ask that factory checks be made concerning either the ways in which materials are used or on the manufacturing processes such as casting, founding, cooling, annealing, burring, welding, riveting, centrifuging, machining, drilling of flanges or any other process.

In this respect, the Contractor shall authorise the Project Manager to carry out the corresponding inspections at the various stages of manufacture.

The Project Manager reserves the right to inspect all or part of the stages of manufacture of components at any Sub-Contractors factory under the same conditions as those applied for inspection at the Contractor's factory.

All Goods shall be tested at works in accordance with relevant standards under this Specification.

All Goods shall be subject to inspection prior to packing for shipment. Such inspection shall include visual inspection, compliance with the Specification, checking of test results as required by the Specification and appropriate Standard or other superior internationally recognized standard and witness testing as required. An inspection of packing and marking of all items may also be undertaken prior to shipment.

For all tests and inspections, the Contractor shall also provide the Project Manager prior to dispatch with test and inspection certificates from an Independent Inspection Agency approved by the Project Manager. The test and inspection certificates shall pertain to actual witness of test and physical inspection by the Agency on the particular consignment. Inspection by the Independent Inspection Agency shall not, however, relieve the manufacturer of his responsibility to furnish material and perform work in accordance with this specification and the relevant standards.

For the items tested, inspected and found to be satisfactory a Project Manager's approval will be issued allowing the Contractor to proceed with arrangements to deliver the materials.

The Contractor shall furnish the Project Manager with a manufacturer's certificate in respect of every consignment of the goods confirming that all items of goods comprising the consignment comply in all respects with the specified standard. The original and one copy of such manufacturer's certificate shall be delivered to the Project Manager not later than 7 days prior to the intended date of delivery of the Goods to the storage area.

3.6. Marking

Except where expressly agreed between the Contractor and the Project Manager all components of the Goods shall be marked in a clear and lasting manner with the following information:

- Symbol of factory where component was manufactured;
- Date of manufacture
- Nominal diameter, pressure class in metric unit;
- Symbol designating quality of material;
- Direction of flow (where applicable).

3.7. Packing, transportation and handling

All materials and goods are to be properly packed and clearly marked:

OAB/OMD/PALMARPUMP/10/24.

All sensitive materials such as gaskets etc., shall be fully protected by means of a moisture-excluding coating or a drying agent or a plastic sealant or plastic covers and/or wooden crates as appropriate to the approval of the Project Manager.

The Contractor shall provide all necessary means of protecting the Goods during loading, transit, unloading and re-handling and delivery. The measures adopted by the supplier at the port of shipment, at the port of unloading and for the transport to the site of work shall be to the approval of the Project Manager. Likewise, the methods adopted by the civil works Contractor on site will be subject to the approval of the Project Manager. No unprotected hooks or wire slings will be permitted. Any damages cause due to transportation and handling shall be made rejected and replaced with new one at the Contractor's expenses.

All packing shall be suitable for unpacking and repacking during inspection and for storing the Goods at the site in the open air at the Contractor's storage area.

All flange connections shall be fitted with protective covers. Nuts, bolts and washers shall be properly labelled and packed in cases. Sealing gaskets shall be fully protected against moisture and properly labelled and packed in cases.

All spare parts which are ordered shall be delivered with the main order and shall be adequately labelled, protected and packed in a suitable container or containers complete with three copies of a detailed inventory.

The Contractor shall supply all necessary materials and equipment for making good, where instructed by the Project Manager, any damage to coatings of pipes, fittings and control valves. In the event of any damage, the Contractor shall be liable for the cost of repairs or replacement and the cost of any delays. The Project Manager shall determine whether the damage shall be repaired or replaced.

3.8. Design, Workmanship and Material

a. Design

The Contractor shall ensure that the Goods comply with the duties stated in this Specification, to the Project Manager's satisfaction and in accordance with modern practice and it shall be such as will facilitate inspection, cleaning, maintenance and repair and ensure satisfactory operation under all conditions.

b. Standards of Workmanship

The standard of workmanship shall be of the best quality and to the satisfaction of the Project Manager and shall comply with the requirements of the standards or codes of practices issued by any recognized organisations.

The Contractor may propose other internationally recognised codes of practice or regulations equivalent to those specified for approval by the Project Manager. Such approval to these alternative standards must be obtained prior to start work under this Contract. Two copies of such alternative standards are to be supplied in English to the Project Manager when required.

c. Materials

All materials used in the manufacture of the Goods shall be approved by the Project Manager.

All materials shall be new and of first-class quality, free from imperfections and selected for long life and minimum maintenance. Particular attention shall be paid to the prevention of corrosion either due to the proximity of dissimilar metals or due to severe

ambient conditions. All parts shall be corrosion resistant or adequately protected against corrosion.

They shall have no modifying effect whatsoever on the physical, chemical bacteriological or organoleptical qualities of the water normally conveyed in the system under consideration, either by reason of the materials construction or leaching from protective coating and painting system. All materials shall be such as have been proved under working conditions to be the most suitable for the purpose for which they are used.

Low grade goods shall be rejected. All goods supply shall be new, free from any defects and conforming to BS, EN, ISO or equivalent standards and shall be approved by the Project Manager.

The manufacturing process should have a quality control and assurance program which is ISO 9001 certificate and same shall be submitted to the Project Manager.

Materials shall also meet the following conditions:

- Materials shall be of the best quality and design.
- They shall be for long time durability with a minimum maintenance;
- They shall be suitable for conveyance of raw or treated water under pressure;
- They shall be watertight under all operation and testing pressure prescribe by respective standards; and
- They shall be capable of withstanding without damage all stresses that will be induced during handling, fixing, testing and operation.

The Contractor shall supply the following information for each nominal diameter of Control valves:

- Nominal bore (DN)
- Flange to flange length of valve
- Weight of valve
- Nominal pressure (PN)
- Typical detailed drawings, including cross sections for each diameter.

The Contractor shall state the conditions of storage required for all couplings. Restrictions regarding temperature, humidity, orientation etc. shall also be stated.

3.9. Reliability of equipment

The Goods shall be so manufactured as to ensure the highest standards of operational reliability. All Goods shall be capable for long life with a minimum of maintenance and to meet the following conditions:

- Materials shall be of the best quality and design.
- They shall be for long time durability with a minimum maintenance;
- They shall be suitable for the conveyance of raw or treated water under pressure;
- They shall be capable of withstanding without damage all stresses that will be induced during handling, testing and operation;
- They shall be watertight under all operating and testing pressure prescribed by the respective Standard;
- They shall have long-term resistance to all external factors by virtue of the nature of the materials used in their manufacture as far as water action is concerned and, in a more general manner, the surrounding environment;

3.10. Pipes general

The Contractor shall supply the following information for each nominal diameter of pipe viz Ductile Iron (DI), Unplasticised Polyvinyl chloride pipe (UPVC) and Galvanised Steel Pipes.

- a. External diameter
- b. Internal diameter
- c. Overall length per unit
- d. Effective length per unit
- e. Unit weight

- f. Thickness

3.11. Fittings general

Pipe fittings shall be to the diameters and classes indicated in the Bill of Quantities and in accordance with the specified standards. Note that the pressure and flowrates provided in bill of quantities will be subjected to a variation of $\pm 10\%$.

The Contractor shall supply the following information for each nominal diameter of fittings:

- a. External diameter
- b. Internal diameter
- c. Overall length per unit
- d. Effective length per unit
- e. Weight
- f. Thickness

3.12. Gate valves

Gate valves shall conform to relevant clauses of BS 5163-1, and BS EN 1074-1:2000 and BS EN 1074-2:2000 or BS EN 1171:2015 or other equivalent standards. Gate valve shall also conform to BS EN 1092-1:2018 for flanges dimension and drills and to BS EN 558:2017 for face to face (flange to flange) length. Also, it shall comply with BS 12266-1 for pressure test.

Unless otherwise specified by the Project Manager, all Gate valves shall be doubled flanged, non-rising spindle type and be of Wedge type. The wedge shall be clear of the water way when in the fully open position. Unless otherwise specified Gate valves DN 400 and above shall be metal seated and gate valves of diameter less than DN 400 shall be resilient type.

The valves shall have inside screw spindles and shall close clockwise. The spindle shall be shouldered to allow repacking of the gland whilst the pipeline remains in service. The spindle (stem) shall be made of stainless steel X20Cr13 or higher grade stainless steel or

bronze of gun metal. Also, they shall withstand a nominal pressure 16 bars and shall have a low operating torque and be easily actuated.

Gate valves body and bonnet shall be of ductile iron or cast iron. The wedge (disc) shall be solid of ductile iron or stainless steel. The wedge facing ring and body seats shall be made of stainless steel or alternatively of bronze of gun metal. The stem nut shall be made of bronze of gun metal or equivalent copper alloy.

The extension spindles shall be equipped with square headed cap for all sizes of valves.

Bypass of gate valves shall be supplied with hand wheel for opening and closing.

The valves to be installed in chambers shall be supplied with either a cast iron or malleable iron hand wheel.

All Gate Valves shall be coated with a protective coating, fusion bonded epoxy having minimum thickness of 250 microns or equivalent coating, for maximum corrosion protection.

Note that flanged to flanged length of gate valve to be supplied and installed shall be such as to fit inside existing chamber.

3.13. Air valve

Air release valves/air valves shall have a pressure rating of 16 bar and conform to BS EN 1074-4 or equivalent standards and be either

- *Single orifice /one way air valves (single function) which automatically release air from a pressure pipeline to the atmosphere during normal operation, or*
- *Double orifice/ two way air valves (triple function) which release large volume of air during pipe filling, intake large volume of air into the pipe during emptying or in case of pipe burst and automatically release air from a pressure pipeline to the atmosphere during normal operation, as specified in the Bill of Quantities.*

Single and Double orifice air valves shall be supplied with surge protection system (non-slam/anti-slam) resulting from sudden filling of the drained air pocket by the flow water.

All air valves shall have a low operating pressure that is less than 0.5 bar.

The body shall be made of ductile iron or cast iron and the float(s) shall be of plastic (ABS, HDPE, polypropylene, etc.) or stainless steel or steel coated with EPDM rubber.

Air Valves shall be coated with a protective coating, fusion bonded epoxy having minimum thickness of 250 microns or equivalent coating, for maximum corrosion protection.

Air valves shall be flanged and conform to BS EN 1092-1:2018 for flange dimensions and drills. Air valves shall be mounted on an isolating valve (gate valve) as specified to allow safe and easy dismantling during maintenance.

The Contractor shall indicate in writing to the Project Manager the manufacturer's recommended maximum pipe diameter on which each size of air valve can be mounted.

3.14. Pressure control valve/ pressure regulating valve

The Pressure Control valves shall be a downstream pressure stabiliser and piston actuated type for size above DN 350 unless otherwise specified. It shall automatically reduce the upstream pressure to a preset but adjustable downstream pressure so that the downstream pressure is maintained during operation whatever the variations of the upstream pressure above the preset value and whatever the variation in flow rate between zero flow to the maximum flow rate.

The range of the downstream pressures of the Pressure Control valve shall be adjustable as specified in Bill of Quantities.

The maximum pressure variation in the regulated downstream pressure shall not exceed 10% of the preset regulated pressure.

The Valve shall be fitted with a drain plug and with two pressure gauges (glycerin type manometer), one upstream and one downstream of the Pressure Control Valve. These manometers shall be mounted through three-way valves.

Pressure control valves body of shall be of ductile iron, bronze cast-iron, cast iron or gun metal. PCV shall be flanged and conform to BS EN 1092-1:2018 for flanges dimension and drills.

All Pressure relief valve shall be coated with a protective coating, fusion bonded epoxy having minimum thickness of 250 microns or equivalent coating, for maximum corrosion protection.

3.15. Non-return valves/check valve

Non-return valves shall be double-flanged and made of a corrosion resistant material. They must be designed and manufactured to prevent the return of fluid in a direction opposite to the normal flow direction.

The non-return valves shall be water-tight when closed and, when opened, the fluid shall flow through the valve without turbulence. The operation shall be silent. The Non-return valve shall be swing type unless otherwise specified.

3.16. Flexible couplings and flange adaptor

The Contractor shall supply the following information for each nominal diameter of flexible coupling and flange adaptor:

- Nominal bore (or bores in the case of stepped coupling)
- Coupling length
- Weight
- Nominal pressure
- Typical detailed drawings, including cross sections for each diameter of offered couplings.

The Contractor shall state the conditions of storage required for all couplings and flange adaptors. Restrictions regarding temperature, humidity, orientation etc. shall also be stated.

Flexible couplings, straight or stepped coupling and flange adaptors shall be made of ductile iron.

Couplings and flange adaptors shall be coated with a protective coating, fusion bonded epoxy having minimum thickness of 250 microns or equivalent coating, for maximum corrosion protection.

The bolts of the coupling and flange adaptors shall be of either galvanised or stainless steel. Contactor shall assume full responsibility for compatibility of coupling/flange adaptor with existing pipe. Coupling and flange adaptors shall withstand a nominal pressure of 16 bar. Flexible couplings shall be supplied without a locating stud.

Stepped couplings shall be suitable for connecting difference types of pipes.

Flanged adaptors shall be suitable for connecting PN 10, PN 16 or PN 25 drilled flanges to BS 4504 to ductile iron or steel pipes as indicated in the Bill of Quantities.

3.17 Bolts, nuts, washers and gaskets

New and unused bolts, nuts and gaskets are to be supplied for the replacement and installation of control valve under this contract.

All bolts, nuts and washer for flange connection shall be of Grade A-2 stainless steel unless otherwise specified or directed by the Project Manager. Bolts and nuts shall be hexagonal.

All bolts and nuts size for connections shall be in accordance with BS EN 1092-1:2018.

The tightening of the bolts shall be carried out in the crisscross sequence and to the torque recommended by the manufacturer. A torque wrench shall always be used and in no case shall excessive tightening be exerted on any nuts or bolts.

The successful bidder shall list all bolts with respect to their grade and diameter which shall be used for the purpose of the work on each valve and fitting and same should be duly checked and endorsed by the Project Manager.

Gaskets shall be made of reinforced type EPDM rubber, in accordance with BS EN681-1 and duly certified as suitable for raw water supply (irrigation water), by one of the International regulations or as recommended by the manufacturer of particular valve and fitting.

3.18. Manometer

Manometers shall be male threaded and of glycerine type with the indicator graduated in 'bar' or combination of 'bar' and 'psi' with intervals of 0.2 or 0.5 and shall be have at least 0 to 20 bars reading unless otherwise specified.

3.19. Other proposed valves and fittings

The Bidder shall furnish suitable element and fittings acceptable to the Project Manager and complying with norms EN, ISO or equivalent standards, to ensure compatibility of piping system with valves. Ancillaries shall withstand a nominal pressure of 16 bars and be of the best quality material and design.

3.20. Flanges & bolting for pipes, valves and fittings

Flanges and bolting for pipes, valves and fittings shall all be to BS EN 1092-1:2018 or alternatively to AFNOR NF E 29-201 or ISO 2084 or to other standard to the approval of the Project Manager, provided that they are each compatible with the other for the purposes of jointing like-sized components and are such that corrosion by galvanic action shall be avoided. The rating and test pressure of the flanges shall not be less than the rating and test pressure of the pipeline specified.

3.21. Cutting pipes

All pipes shall be cut with an approved mechanical pipe cutter and in conformity with the pipe manufacturer's recommendations. The edges of the cut shall be clean, true and square. The use of an oxyacetylene flame cutter will not be permitted in any circumstances. The edges of the cut together with those parts of the pipes from which the coating has been removed shall be given two coats of bituminous paint and the internal lining repaired, if damaged, to the approval of the Project Manager. When the cut pipe is to be inserted in a "Tyton" type joint it shall be bevelled for 10mm at 30° to pipe axis to remove sharp or rough edges.

3.22. Proprietary joints and couplings

Proprietary joints and couplings shall be assembled in accordance with the manufacturer's instructions. The Contractor shall be responsible for obtaining such copies of the manufacturer's instructions as he requires, at his own expense.

The Contractor shall be responsible for obtaining all the necessary special tools, lubricants and appliances necessary for making the joints.

Where pipes are laid above ground and jointed with bolted flexible couplings the nuts bolts and gaskets shall be protected against vandalism by sheathing with an approved heat-shrink moulding as manufactured by Raychem of Swindon UK or similar approved.

3.23. Grouting in ironwork & pipes

All brackets, anchor bolts and other ironwork for which holes have been boxed out or left in the concrete of a structure shall be carefully grouted into their correct positions in all particulars. The grouting in shall be carried out with cement and sand grout in such a manner that there shall be no apparent difference in the texture or colour throughout the face or seepage of water either between the iron work and set grout or between the set grout and the surrounding structures.

The above instructions shall apply also to the building in of pipes except that the class of concrete used for that part of the structure shall be used in lieu of cement grout.

3.24. Fixing valves

Valves and other fittings shall be securely fixed and where required extension spindles and headstocks shall be properly aligned and fixed in vertical position and valve caps shall be fixed securely using the locking nut. They shall be tested for ease of operation and water tightness. Any damaged protective coating shall be made good and they shall be left clean in all respects.

3.25. Thrust blocks

Concrete thrust blocks shall be formed at bends, tees and valves as directed by the Project Manager. The additional excavation shall be made after the bends, etc. have been jointed and the concrete shall then be placed with all possible speed. The back of supports and blocks shall abut on to solid ground with all loose material being removed before concreting.

The concrete used for thrust shall be Grade C20 or as shown on the Drawings and after placing shall be kept in view for not less than six hours. No pressure shall be applied in any section of main until the concrete has had at least three day's curing.

Flexible joints shall not normally be cast into thrust blocks. Where the size of thrust block does not make this possible, additional flexible joint shall be provided no greater than half the pipe diameter beyond each face of the block.

3.26. Support blocks

Where control valves are placed on support block, the concrete used for support blocks shall be of Grade C20. After pouring of fresh concrete, the latter shall be kept in view for not less than six hours. Where new concrete is to be cast and place on existing support block, Contractor shall use an approved high-grade bonding agent prior of placing new concrete. The method of application of the bonding agent shall be applied as per manufacturer's guideline. Existing concrete surfaces shall be clean from wax, grease, oil, dust, loose concrete, etc. prior to apply bonding agent.

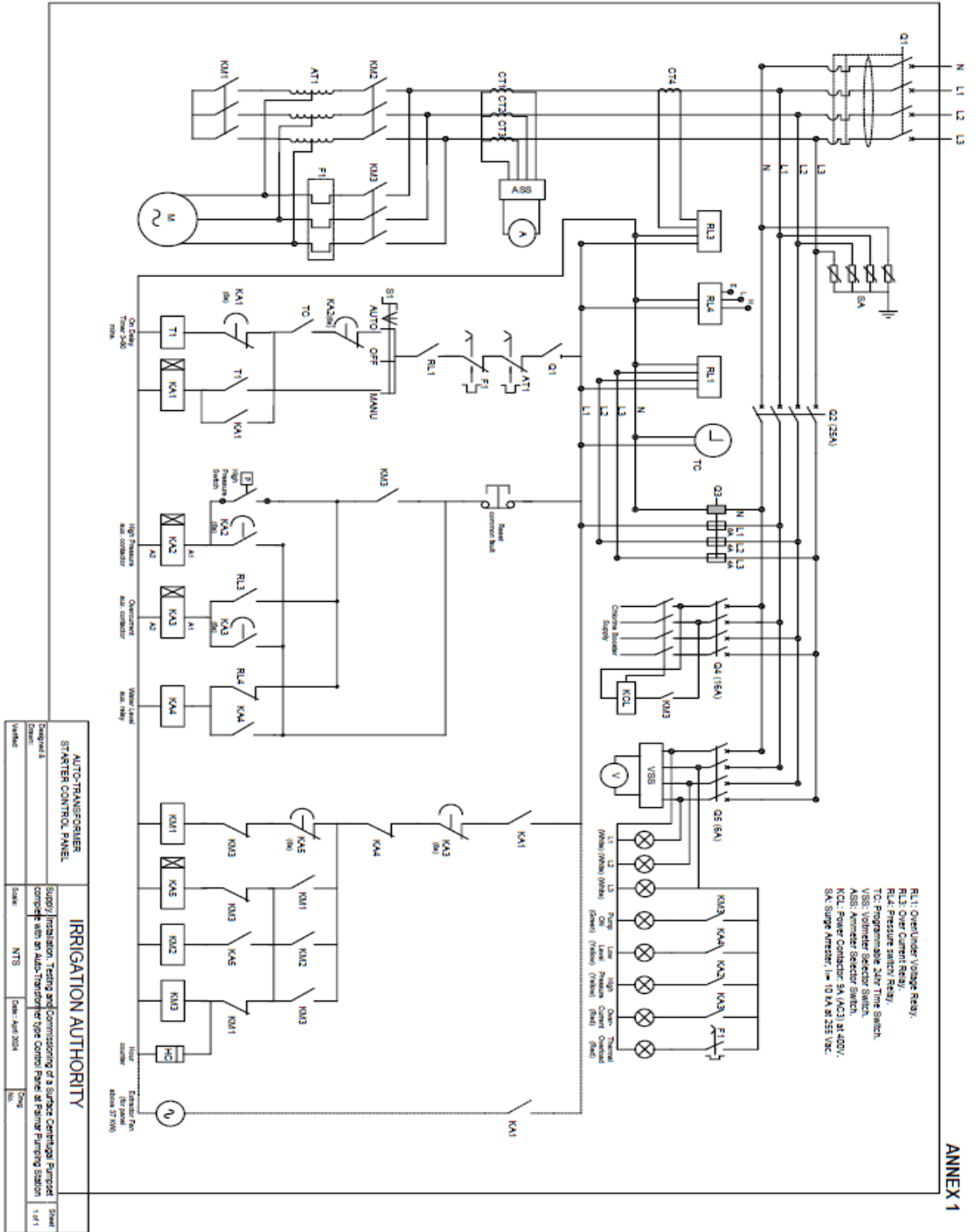
B. SPECIFICATION AND COMPLIANCE SHEET**Procurement Reference Number: OAB/OMD/PALMARPUMP/10/24**

Item No.	Specifications and Performance Required	Compliance of specifications and Performance Offered	Details of Non-Compliance/Deviation (if applicable)
	A	B	C
1.	Supply, installation, testing and commissioning of one-unit centrifugal surface pumpset complete with Auto-transformer type control panel at Palmar Booster pumping Station with a duty point of 360 m ³ /hr at a total manometric head of 40 m, 75 Kw or better and having preferably a revolution per minute (RPM) of 1450-3000.		

Specification and Compliance Sheet Authorized By:

Name:		Signature:	
Position:		Date:	
Authorized for and on behalf of:		Company:	

Schematic diagram of Control Panel



**Section IV:
General Conditions of Contract and
Particular Conditions of Contract**

Any resulting contract shall be placed by means of a Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC), (**Ref:W/GCC10/12-21**), for the Procurement of Works (available on website ppo.govmu.org) except where modified by the Particular Conditions of Contract below.

Particular Conditions of Contract

Procurement Reference Number: **OAB/OMD/PALMARPUMP/10/24**

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

A. General	
GCC 1.1 (o)	The Defects Liability Period is 12 months from the Completion Date.
GCC 1.1 (r)	The Employer is: Irrigation Authority 5 th Fon Sing Building 12 Edith Cavell Street Port Louis The Authorised representative is Mr. G. SEETAH who is also the General Manager
GCC 1.1 (v)	The Intended Completion Date for the whole of the Works shall be One hundred and Twenty (120) calendar days calculated from the start date. The Start date shall be 7 days from the date of issue of the Order to Commence works to be issued by the Project Manager
GCC 1.1 (y)	The Project Manager shall be a representative of the Irrigation Authority
GCC 1.1 (aa)	The Sites is located along the coastal road of Belle Mare/Palmar as defined in drawings No. OAB/OMD/PALMARPUMP/10/24 .
GCC 1.1 (dd)	“The Start Date shall be seven (7) days from the issue of Order to Commence works to be issued by the Project Manager
GCC 1.1 (hh)	The Scope of Works under Contract OAB/OMD/PALMARPUMP/10/24 shall consist of viz.: (i) Dismantling of the existing pumpset complete with all the unserviceable electrical control panel, fittings, valves and accessories and deliver same to our store at either Plaine des Papayes or Palmar (to be advised by the Project Manager)

	<ul style="list-style-type: none"> (ii) Supply, install, test and commissioning of one centrifugal electric pumpset at Palmar Pumping Station, complete with Auto-Transformer type electrical control panel, circuits breakers, pressure switches, protective relays, earthing system, Surges arrestors, main isolator switch and auxiliary accessories. (iii) Connection of the inlet and outlet port of the new pump to the existing pipe arrangement in the pump room as per drawing OAB/OMD/PALMARPUMP/10/24/02. (All the supports, gate valve, non-return valves, and transition fitting connections materials c/w all accessories, gaskets, bolts, nuts and washers shall be provided and installed by the successful bidder) (iv) To undertake all minor concrete works which are associated with the installation of the pump and this shall be deemed to be included in quoted rates. (v) To ensure protection of the pump against dry running by installing the appropriate pressure switches and relay protection system. (vi) To provide appropriate fixing support/metal bracket/ anchor block to the piping works inside the pump room so as to prevent vibration. (vii) To supply, install and test appropriately sized auto-transformer type control panel which includes selected circuit breakers, contactors, thermal overload relay, capacitor banks, control relays which will be capable to operate the proposed pump efficiently and effectively, with full protection against lightning and surges. (viii) To supply, connect and test all appropriately sized electrical cables to connect electrical power from CEB incoming (CEB meter) up to the pump motor via control panel c/w all accessories cable trays, pvc trunking, conduit, fixation and support materials. (ix) To supply, connect and test electrical earthing, surge arrestors and bonding cables as appropriate. (x) To supply, install and test 2 complete sets of LED tubelights, one (1) industrial socket 16A and One (1) single switch socket 13A, c/w appropriate electrical cables, switch, PVC conduits, circuit breakers and accessories (Circuit breaker to be installed in Pump Control Panel). (xi) Overall commissioning of the pumpset and control panel. (xii) Submit 2 set hard copies and 1 set soft copy of O&M manuals, electrical line diagram and As-Built drawings. (xiii) Training on operation and maintenance of the pumpset to the pump operators.
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	<p>The completion period shall be One hundred and Twenty (120) calendar days from the Start Date.</p> <p>The whole of the works shall be carried out in strict accordance with the Drawings, Scope of Works; Statement of Requirements; and Conditions of Contract.</p>
GCC 2.2	Sectional Completions are not applicable to this Contract
GCC 2.3(i)	<p>The following documents also form part of the Contract:</p> <ol style="list-style-type: none"> 1) Pre-award correspondences 2) Post- award Submissions: <ol style="list-style-type: none"> (a) Performance Security (b) Insurance policies (c) Joint Venture Agreement (if any) (d) Programme of Works 3) Technical Documents including all catalogues and brochure of control valves supplied under this Contract 4) Any other document submitted by the Bidder which the Employer considered to be necessary for inclusion in the Contract
GCC 3.1	<p>The language of the contract is English</p> <p>The law and regulations that apply to the Contract are those of Mauritius.</p>
GCC 4.1	The Project Manager shall obtain specific approval from the Employer before carrying out any of his duties under the Contract which in the Project Manager's opinion will cause the amount finally due under the Contract to exceed the Contract Price or will give entitlement to extension of time. This requirement shall be waived in an emergency affecting safety of personnel or the Works or adjacent property.
GCC 5.1	The Project Manager may not delegate any of his duties and responsibilities without the approval of the Employer.
GCC 6	<p>Any notice shall be sent to the following addresses:</p> <p>The General Manager, Irrigation Authority, 5th Floor Fon Sing Building, 12 Edith Cavell Street Port Louis.</p>

	For the Contractor, the address shall be as given on the first page of the Letter of Acceptance and the contact name shall be _____.
GCC 8.1	Schedule of other contractors is not applicable.
GCC 9.1	<p>To add under Key Personnel:</p> <ul style="list-style-type: none"> (i). One Contract Manager, holding at least a Degree in Mechanical, Electromechanical or Building Services Engineering from a recognised institution. He shall have at least 5 years experience in Mechanical or Electromechanical engineering works or Building Services Engineering works and shall be registered with the Council of Registered Professional Engineer of Mauritius. (ii). Site agent holding at least a Degree in Mechanical or Electromechanical engineering works or Building Services Engineering works from a recognised institution and shall be registered with the Council of Registered Professional Engineer of Mauritius. He shall have at least 3 years post registration experience in Mechanical or Electromechanical engineering works or Building Services Engineering works. (iii). One foreman having at least 3 years of experience in pipe laying works, plumbing works and installation of water works. (iv). At least one qualified plumber/pipe fitter having a minimum 3 years of experience related to installation of water works.
GCC 13.1	<p>Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be:</p> <ul style="list-style-type: none"> (a) for the Works, Plant and Materials: Contract Price plus 15% (b) for loss or damage to Equipment: Cost of equipment plus 15% of its value

	<p>(c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract: MUR 1,000,000.00 (One Million Rupees)</p> <p>(d) for personal injury or death:</p> <p>(i) of the Contractor's employees: As per Law of Mauritius</p> <p>(ii) of other people: MUR 2,000,000 (Two Million Rupees). This cover shall be in the joint name of the two parties covering any third party and extended to the site representatives of the Irrigation Authority.</p> <p>(e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable.</p> <p>The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.</p> <p>All insurance covers shall be valid from commencement of works until the end of the defects liability period and shall be approved by the Project Manager.</p>
GCC 14.1	<p>Site Investigation Reports are:</p> <p>There are no Site Investigation Reports available for this project. Bidders are however advised to visit the site prior to submission of bid. They should acquaint themselves with the nature of the site, extent of the work, means of access, general nature of the soil and all other matters which may influence preparation and execution of their bid. All costs incidental thereof shall be at the Bidder's own expense.</p> <p>No claim due to ignorance of these factors as mentioned in the preceding paragraph shall be entertained from the contractor.</p>
GCC 16.1	<p>The intended completion date shall be One hundred and Twenty (120) calendar days from the Start Date.</p>
GCC 20.1	<p>The Site Possession Date shall be stated by the Project Manager in the order to commence work and based on the Programme of Works to be approved by the Project Manager as stated in GCC 25.1.</p>

GCC 23.1 & GCC 23.2	Appointing Authority for the Adjudicator: No Adjudicator shall be appointed for this Contract.
GCC 24.	<p>No Adjudicator shall be appointed under the contract and arbitration shall not apply. If any dispute arises between the Employer and the Contractor in connection with or arising out of the Contract, the parties shall seek to resolve any such dispute by amicable agreement.</p> <p>If the parties fail to resolve such dispute by amicable agreement, within 14 days after one party has notified the other in writing of the dispute, then the dispute shall be referred to court by either party.</p>
B. Time Control	
GCC 25.1	The Contractor shall submit for approval a Programme for the Works within 7 days from the date of the Letter of Acceptance.
GCC 25.3	Program updates shall be required and the period between Program updates is fourteen (14) days. The amount to be withheld for late submission of an updated Program is MUR 1,000 per day delayed.
C. Quality Control	
GCC 33.1	The Defects Liability Period is 365 calendar days calculated from the date of completion of the works certified by the Project Manager in accordance with Clause 53.
GCC 34.1	<p>Delete sub-clause 34.1 and replace by the following:</p> <p>Should any defect arise during the contractual period and up to the end of the Defects Liability Period and the Contractor fails to correct the Defect within the time specified in the Project Manager's notice, this shall constitute a breach of the Contractor's obligations under the contract. The Project Manager shall assess the cost of having the defect corrected and recover the money from the Performance Security.</p>
GCC 37.1	<p>To add:</p> <p>Prior to issue of any Variation Order (VO) involving cost implication, the Project Manager shall assess the variation and seek the approval of the Employer.</p>
GCC 37.2	To add:

	The Project Manager shall assess all quotations and submit recommendation to Employer for approval prior to issue of the VO.
GCC 39.7	Payment shall be made as per progress of works without payment for materials on site.
D. Cost Control	
GCC 40.1	<p>Replace second sentence “The Employer shall pay the Contractor the amounts certified by the Project Manager within 21 days of the date of each certificate with supporting documents from the Contractor” by</p> <p>“The Project Manager shall certify the amount after verification within fourteen (14) days from the receipt of an invoice supported by an interim payment application from the Contractor and the Employer shall pay the Contractor for the amount certified by the Project Manager within 56 days of receipt of the certified interim payment certificate from the Project Manager.”</p> <p>To add:</p> <p>Minimum amount of Interim Payment shall be MUR 500,000.</p>
GCC 41.1 (l)	<p>The term “exceptionally adverse weather conditions” is hereby defined as any one of the following events:</p> <p>(i) 100 mm rainfall or above recorded in one day of the nearest rain station;</p> <p>(ii) An official declaration of ‘Torrential Rain’ by meteorological Department of Mauritius; and</p> <p>(iii) Cyclone warning Class II or above.</p>
GCC 43.1	The currency of the Employer’s country is: Mauritian Rupees.
GCC 44.1	The Contract is not subject to price adjustment. It shall be a fixed price which shall not revised or adjusted for any fluctuations in the cost of inputs.
GCC 45.1	<p>10% of the amount shall be retained from any payment in respect of the value of work certified. Half of the retention money will be released after formal taking over of the Works and the remaining shall be released after the Defect Liability Period subject to the Contractor making good all defects.</p> <p><i>The Limit of Retention Money shall be 5% of Contract Price.</i></p>
GCC 46.1	The liquidated damages for the whole of the Works shall be MUR 5,000 per calendar day beyond the Intended Completion Date.

	The maximum amount of liquidated damages for the whole of the Works is 10% of the Contract Price.
GCC 47.1	The Bonus for the whole of the Works is not applicable.
GCC 48.1	The Advance Payments shall be: 15 % of the Contract Price excluding VAT and shall be paid to the Contractor within 14 days after signature of the Contract and submission of the Advance Payment security by the contractor no later than 7 days from the signature of the Contract.
GCC 49.1	The Performance Security amount is 10% of Contract price excluding VAT.

E. Finishing the Contract	
GCC 56	<p>The date by which operating and maintenance manuals are required is two weeks before the intended completion date. The date by which “as built” drawings are required is two weeks before the intended completion date.</p> <p>“As built” drawings shall be worked out by the Contractor and submitted for approval by the Project Manager in case of changes to drawings of the bidding document, failing which these drawings shall be drawn by the Employer at the cost of Rs 1000 per drawing which will be deducted from the final payment to the contractor.</p>
GCC 57.2 (g)	The maximum number of days shall be computed based on the maximum amount of liquidated damages for the whole of the Works.
GCC 59.1	The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is 25%.

Section V

Contract Forms

Table of Contents

PERFORMANCE SECURITY..... 90

ADVANCE PAYMENT SECURITY..... 91

CONTRACT AGREEMENT..... 92

PERFORMANCE SECURITY

.....*Bank/Insurance Company's Name and Address of Issuing Branch or Office*.....

Beneficiary:*Name and Address of Public Body*.....

Date.....

PERFORMANCE GUARANTEE No.:

We have been informed that*[name of the Contractor]* (hereinafter called "the Contractor") has entered into Contract No.....*[reference number of the Contract]* dated..... with you, for the execution of*[name of Contract and brief description of Works]*(hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance security is required.

At the request of the Contractor, we *[name of Bank/Insurance Company]*hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures (amount in words)]* such sum being payable in the types and proportions of currencies in which the Contract Price is payable, 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 and returned to us not later than twenty- one days from the date of issuance of the Defects Liability Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the.....day of,, whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

.....**Seal of bank/Insurance Guarantee and**

Signature(s).....

ADVANCE PAYMENT SECURITY

[Bank’s/ Insurance Company’s Name, and Address of Issuing Branch or Office]

Beneficiary: *[Name and Address of Employer]*

Date:.....

Advance Payment Guarantee No.:

We have been informed that *[name of the Contractor]* (hereinafter called “the Contractor”) has entered into Contract No. *[reference number of the Contract]* dated with you, for the execution of *[name of contract and brief description of Works]* (hereinafter called “the Contract”).

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum *[name of the currency and amount in figures]* ¹. (. *[amount in words]*) is to be made against an advance payment guarantee.

At the request of the Contractor, we *[name of the Bank/Insurance Company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[name of the currency and 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 used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number *[Contractor’s account number]* at *[name and address of the Bank/Insurance Company]*

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the . . . day of ,², whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

..... *[Seal of Bank/Insurance Company and Signature(s)]*

CONTRACT AGREEMENT

THIS AGREEMENT made the of *[Date]*, between *[Name of employer]* (Hereinafter “the Employer”), of the one part, and *[Name of the Contractor]* (Hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as..... *[Name of the Contract]* should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

- 1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
- 2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all the other Contract documents.
 - a) The Letter of Acceptance
 - b) The Bid
 - c) The Addenda Nos.....(Insert Addenda numbers if any)
 - d) The Appendix to the General Conditions of Contract
 - e) The General Conditions of Contract;
 - f) The Specifications
 - g) The Drawings; and
 - h) The Completed Schedules
- 3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby convenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

- 4. The Employer hereby convenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of 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 in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by:

.....

For and on behalf of the Employer

Signed by:

.....

For and on behalf of the Contractor

In the presence of:

.....

Witness, Name, Signature, Address, Date

In the presence of

.....

Witness, Name, Signature, Address, Date

Section VI
Bill of Quantities

Supply, Installation, Testing and Commissioning of a Surface Centrifugal Pumpset complete with an Auto-Transformer type Control Panel at Palmar Pumping Station

Procurement Reference No: OAB/OMD/PALMARPUMP/10/24

SUMMARY OF BILL OF QUANTITIES

S.N	General Summary	Amount (MUR)
1	Preliminaries (To include costs for mobilization, demobilization, Insurance, Securities, etc..)	
2	Bill No. 1: Supply, Installation, Testing and Commissioning of a Surface Centrifugal Pumpset complete with an Auto-Transformer type Control Panel at Palmar Pumping Station	
Subtotal		
VAT @15%		
Total		

Supply, Installation, Testing and Commissioning of a Surface Centrifugal Pumpset complete with an Auto-Transformer type Control Panel at Palmar Pumping Station

Procurement Reference No: OAB/OMD/PALMARPUMP/10/24

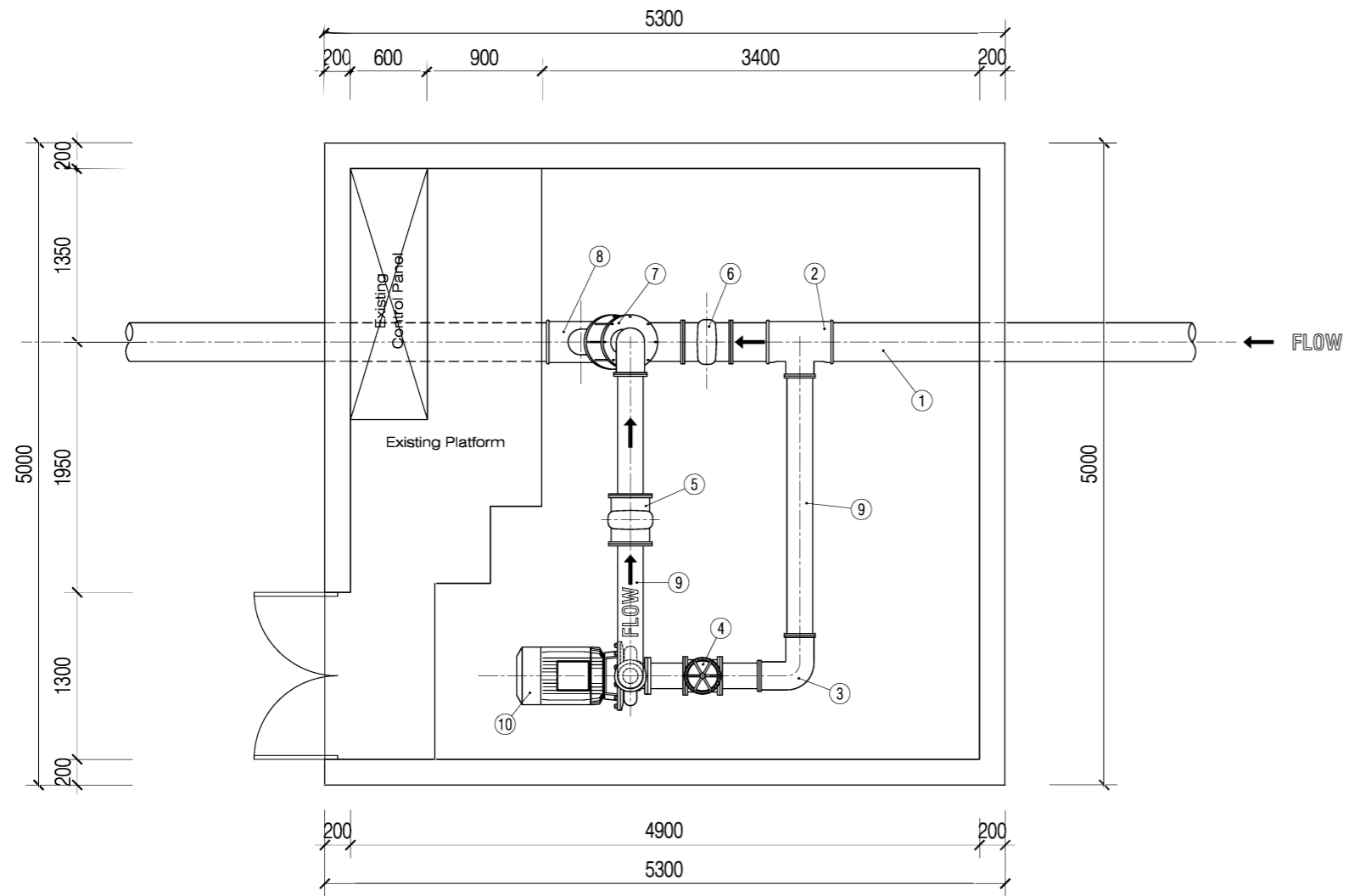
Bill No. 1: Supply, Installation, Testing and Commissioning of a Surface Centrifugal Pumpset complete with an Auto-Transformer type Control Panel at Palmar Pumping Station

Item	Description	Unit	Qty	Rate (MUR)	Amount (MUR)
1	Supply, Installation, Testing and Commissioning of a Surface Centrifugal Pumpset complete with an Auto-Transformer type Control Panel at Palmar Pumping Station				
1.1	Dismantle and remove one existing pumpset, complete with electrical control panel, unused pipe and fittings from pump room and transport same to IA's store at Plaines de Papayes.	Sum	1		
1.2	Supply, install, test and commission of 1 No. electric horizontal type centrifugal surface pumpset of duty point 360 m ³ /hr at a total manometric head of 40 m, having a power rating of 75 kW or better and an RPM of 1450-3000, complete with electric motor as specified to replace defective pumpset at Palmar Pumping Station. The pump inlet and outlet ports shall be connected to the existing pipe setup in the pump room as per drawing OAB/OMD/PALMARPUMP/10/24/02 Bidder to include for all the transition pieces, pipe modification works, manometers, fittings, gaskets, bolts, nuts, washers and accessories.	No	1		
1.3	Supply, install and test Non-return Valve DN 200, PN 16 c/w appropriate gasket bolts, washers and nuts	No	1		
1.4	Supply, install and test Non-return Valve DN 300, PN 16 c/w appropriate gasket bolts, washers and nuts	No.	1		
1.5	Supply, install and test Gate Valve DN 200, PN 16 c/w appropriate gasket bolts, washers and nuts	No.	1		
	TOTAL C/F				

Item	Description	Unit	Qty	Rate (MUR)	Amount (MUR)
	TOTAL B/F				
1.6	All associated civil and metal fabrication works to be undertaken during the installation of pump such as refurbishment and casting of concrete support block, demolition of thrust block and upgrading work on the floor of the pump room to accommodate the new pumpset.	Sum	1		
1.7	Supply, install and test an auto-transformer control panel of rating 92 Kw, complete with RCD, circuit breakers, contactors, thermal overload relay, capacitor bank, control relays, surge arrestors, switches, cables, etc... as morefully specified.	Sum	1		
1.8	Supply, install and test one main isolator switch of appropriate capacity. (Include for all the liaison with CEB for disconnection and reconnection of power during installation)	No.	1		
1.9	Supply, connect and test all appropriately sized electrical cables to connect electrical power from CEB meter to the new pump motor via control panel c/w all accessories cable trays, PVC trunking, conduit, fixation and support materials.	Sum	1		
1.10	Supply, connect and test electrical earthing protection and bonding cables.	Sum	1		
1.11	Supply, connect and test Manometer as per specifications.	No.	2		
1.12	Supply, install, test and commissioning of double 4 feet 36W LED tubelights, controlled by one switch (1gang, 1 way) c/w switch, electrical cable, PVC conduit, circuit breaker and accessories. (Circuit Breaker to be installed in Pump Control Panel)	No.	2		
	TOTAL C/F TO BILL No. 1 OF SUMMARY OF BOQ				

Item	Description	Unit	Qty	Rate (MUR)	Amount (MUR)
	TOTAL B/F				
1.13	Supply, install, test and commissioning of One (1) industrial socket 13A (Single phase) and One (1) single switch socket 13A c/w appropriate electrical cable, PVC conduit, circuit breaker and accessories. (Circuit Breaker to be installed in Control Panel) (location to be shown on site).	Sum	1		
1.14	Supply, fixing and testing of propeller type flow meter DN 200. (Include the dismantling of the existing venturi type flowmeter housed in a chamber, dismantling joints, gasket, bolts and nuts). Bidder shall provide for the required flexible couplings and accessories in the installation.	No	1		
1.15	Training to pump operators/ technicians on operation and maintenance of the pumpset, VSD and electrical control panel	Sum	1		
1.16	Submit full set of O&M manuals, workshop manuals, electrical line diagram and As-Built drawing which shall include hard and soft copy on pendrive.	Sum	1		
	TOTAL C/F TO BILL No. 1 OF SUMMARY OF BOQ				

Item	Description	Unit	Qty	Rate (MUR)	Amount (MUR)
	TOTAL B/F				
1.17	Supply the following Spares parts as specified for the pumpset and the control panel:				
	(i) Impeller	No.	1		
	(ii) Soft Packing	Roll	1		
	(iii) Gasket Kit and O-Rings	Set	2		
	(iv) Neck Ring (if applicable)	No	1		
	(v) Bearing (DE/NDE) for Pump	Set	2		
	(vi) Bearing (DE/NDE) for Motor	Set	2		
	(vii) A full set of cartridges for the surge arresters installed in the panel	No	2		
	(viii) A full set of fuses for each set of fuse holder.	No	2		
	(ix) Fuse holders	No	2		
	(x) 'On delay start' electronic timer	No	1		
	(xi) Auxiliary relay (KA#)	No	1		
	(xii) 'On Delay' pneumatic add-on block (for auxiliary relay)	No	1		
	(xiii) Power contactor coil (for KM#)	No	2		
	(xiv) Over/Under Voltage Monitoring Relay.	No	1		
	(xv) Pressure switches for dry running protection	No	1		
	TOTAL C/F TO BILL No. 1 OF SUMMARY OF BOQ				



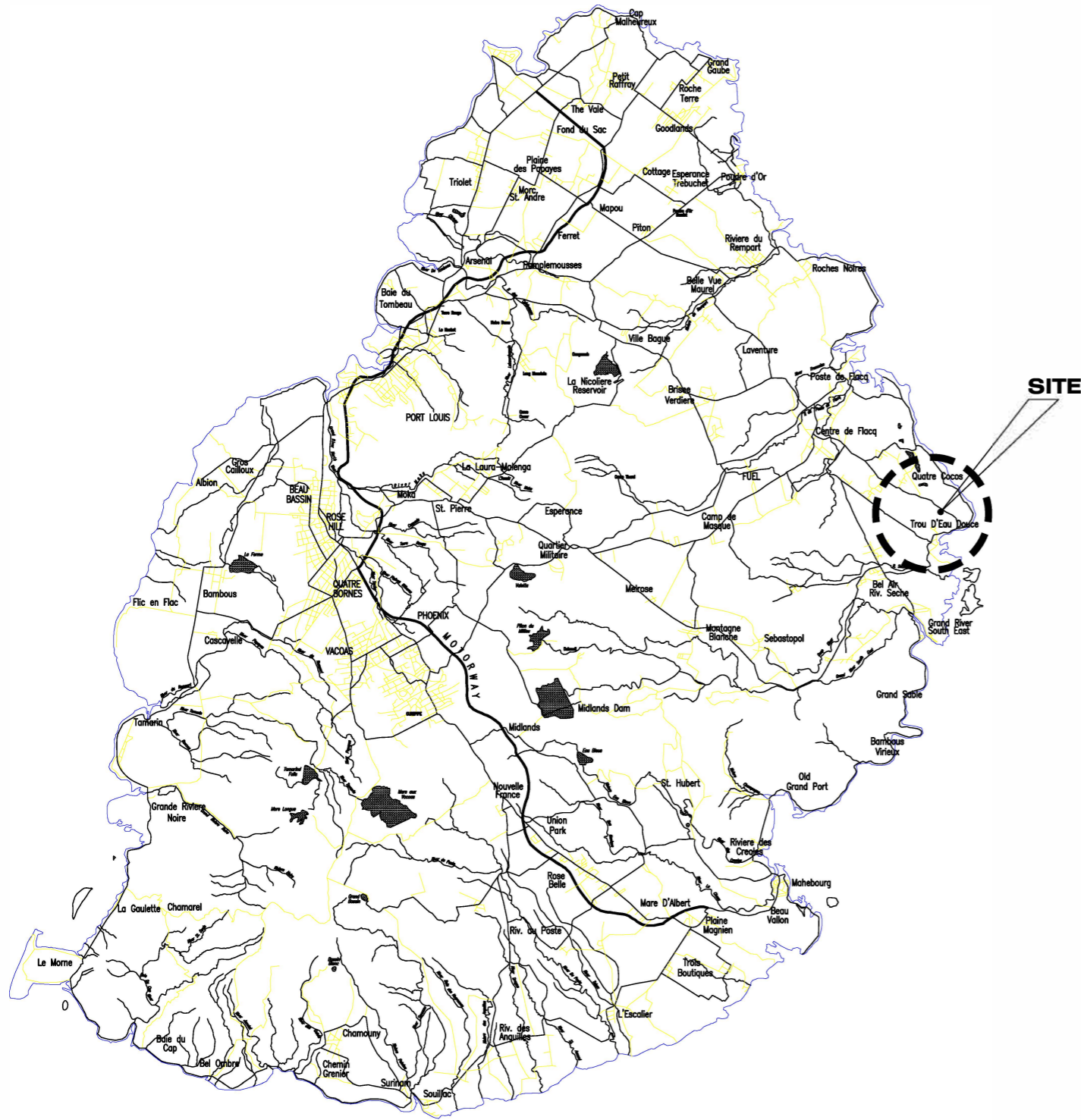
PLAN

Item No.	Item Description
①	DI Pipe ϕ 300
②	DI TEE ϕ 300 X ϕ 200 X ϕ 300
③	DI ELBOW ϕ 200
④	GATE VALVE ϕ 200
⑤	NRV ϕ 200
⑥	NRV ϕ 300
⑦	DISMANTLING JOINT
⑧	Y-TEE ϕ 300 X ϕ 200 X ϕ 300
⑨	DI Pipe ϕ 200
⑩	EXISTING PUMP

MARK	REVISION	DATE	DRAWN : S.T.D.O (W.Rioux)	DESIGNED ...	PROJECT IRRIGATION AUTHORITY SUPPLY, INSTALLATION , TESTING & COMMISSIONING OF A SURFACE CENTRIFUGAL PUMPSET COMPLETE WITH AUTO-TRANSFORMER CONTROL PANEL AT PALMAR PUMPING STATION Procurement Reference No: OAB/OMD/PALMARPUMP/10/24	TITLE	PROPOSED PUMPROOM LAYOUT	
			SCALE : 1:50	SURVEYED ..		DRG No. OAB/OMD/PALMARPUMP/10/24/02		ISSUE
			DATE : April 2024	CHECKED ...				
			FILE NAME : Palmar Det...	APPROVED ...				



REPUBLIC OF MAURITIUS



SITE

N.T.S



SITE

Scale 1:25000

MARK	REVISION	DATE	DRAWN : S.T.D.O (W.Rioux)	DESIGNED ...
			SCALE : AS SHOWN	SURVEYED ...
			DATE : April 2024	CHECKED ...
			FILE NAME : Location Pl ...	APPROVED ...

PROJECT **IRRIGATION AUTHORITY**
SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF A SURFACE CENTRIFUGAL PUMPSET COMPLETE WITH AUTO-TRANSFORMER CONTROL PANEL AT PALMAR PUMPING STATION
 Procurement Reference No: OAB/OMD/PALMARPUMP/10/24

TITLE **CONTEXT / LOCATION PLAN**
 DRG No. **OAB/OMD/PALMARPUMP/10/24/01** ISSUE