Standard Bidding Document

Procurement of Physical Instruments and Software (under the PSDP Project, Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast) (Goods)

National

Single Stage-Two Envelope

November 25, 2026

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REQUEST FOR BIDS

PROCUREMENT OF GOODS

1. The **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO))** has reserved Funds for the procurement planned for FY **2026-27**. The **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO))** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**Procurement of Physical Instruments and Software (under the PSDP Project, Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast)**" with the reference of **"P193260"**

2. The **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO))** invites sealed Bids from eligible Bidders for procurement of goods described in the bidding documents on **EPADS v2.0**.

3. **Single Stage-Two Envelope** will be used by adopting **Quality and Cost Based Selection (QCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2026 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority from time to time.

4. All Bids must be accompanied by a Bid Security amount described in Bid Security Section in Bidding Document in the form of **Pay Order, Banker's Cheque** or all bids must be accompanied by bid securing declaration in the format specified in the Bidding documents

5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at **https://epads.gov.pk/opportunities/federal/procurements/193260** for all the interested bidders registered on **EPADS v2.0**. Bidders are required to get themselves registered on **EPADS v2.0** to participate in Bidding process.

6. The e-bids, prepared in accordance with the instructions in the e-Bidding Documents, must be submitted through **EPADS v2.0** on or before **Thursday,**

December 31, 2026 12:00 PM. E-bids will be opened using **EPADS v2.0** on the same day at **Thursday, December 31, 2026 12:30 PM**. Manual submission of Bids shall not be entertained. Those vendors who have not yet registered on the new version of **EPADS v2.0,** may register themselves on **https://vendors.epads.gov.pk/**. A tutorial to explain the registration process is available at **https://www.youtube.com/watch?v=MNW6T38v7tc**

In terms of Rule 65 of Public Procurement Rules, 2026 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and on Authority's website at (**www.ppra.gov.pk**).

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Instructions to Bidders

A. Introduction

1.Scope of Bids

1.1 The Procuring Agency (PA), as indicated in the **Bids Data Sheet (BDS)** invites Bids **through EPADS v2.0** for the provision of Goods as specified in the BDS and **in Section V – Evaluation Criteria, Specifications & Schedule of Requirements**. The name, identification, and number of items/deliverables are provided in the **BDS**. The successful Bidders will be expected to provide the goods within the specified period and timeline(s) as stated in the **BDS**.

2. Source of Funds

2.1 Source of funds is referred in Clause-2 I of Invitation for Bids.

3. Eligible Bidders

3.1 A Bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country**,** or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture, consortium, or association. In the case of a joint venture, consortium, or association, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture, consortium, or association shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture, consortium, or association during the Bidding process, and in case of award of contract, during the execution of the contract.

Verifiable copy of the agreement that forms a joint venture, consortium or association shall be required to be submitted as part of the Bid.

The appointment of Lead Member in the joint venture, consortium, or association shall be confirmed by submission of a valid Power of Attorney to the Procuring Agency.

Any bid submitted by the joint venture, consortium or association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring Agency and in line with any

instructions issued by the Authority.

(The limit on the number of members of JV or Consortium or Association may be prescribed in BDS, in accordance with the guidelines issued by the PPRA).

3.2 The invitation for Bids is open to all prospective suppliers, manufacturers, or authorized agents / dealers subject to any provisions of incorporation or licensing by the respective national incorporating agency or statutory body established for that particular trade or business. Procuring agencies shall specify the registration/licensing requirements for the foreign bidders keeping in view the requirement of that business.

3.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest with one or more parties in this Bidding process, if they:

1. are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Agency to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the Goods to be purchased under this Invitation for Bids.

2. have controlling shareholders in common; or

3. receive or have received any direct or indirect subsidy from any of them; or

4. have the same legal representative for purposes of this Bid; or

5. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bids of another Bidder, or influence the decisions of the Procuring Agency regarding this Bidding process; or

6. Submit more than one Bid in this Bidding process.

3.4 A Bidder may be ineligible if –

1. he is declared bankrupt or, in the case of company or firm, insolvent;

2. payments in favor of the Bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

3. the Bidder is convicted, by a final judgment, of any offence involving professional conduct;

4. the Bidder is blacklisted locally or by international organizations and hence debarred due to involvement in corrupt and fraudulent practices, or submission of false or misleading information or performance failure or involved in disrupting procurement process or due to breach of bid Securing Declaration.

3.5 As and when required, bidders shall provide to the Procuring Agency evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.

3.6 Bidders shall submit Bids relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract amounting to more than ten (10) percent of the Bid price is envisaged.

4. Eligible Goods and Related Services

4.1 All goods and related services to be supplied under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such goods and services. For purpose of this Bid, ineligible countries are the countries declared ineligible by the Federal Government.

5. One Bid per Bidder

5.1 A bidder shall submit only one Bid, in the same bidding process, either individually as a Bidder or as a member in a joint venture or any similar arrangement.

5.2 **The Bidder shall not engage a subcontractor for any portion of the contract if the value of such subcontracting exceeds thirty percent (30%) of the total contract amount.**

6. Cost of Bidding

6.1 Any cost incurred by the bidder relating to the preparation and submission of its Bid shall be borne by the bidder, and the Procuring Agency shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. Bidding Documents

7. Contents of Bidding Document

7.1 The Goods required, Bidding procedures, and terms and conditions of the contract are prescribed in the Bidding Documents. In addition to the Invitation for Bids, the Bidding documents which should be read in conjunction with any addenda issued in accordance with **ITB 10.1** include:

Section I -Invitation to Bids

Section II Instructions to Bidders (ITB)

Section III Bid Data Sheet (BDS)

Section IV Evaluation Criteria, Specifications, Schedule of Requirements

Section V Bid Forms

Section VI General Conditions of Contract (GCC)

Section VII Special Conditions of Contract (SCC)

Section VIII Contract Forms

Section IX Integrity Pact

Section X Declaration of Beneficial Ownership Information.

7.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding documents. Failure to furnish all the information required in the Bidding documents through EPADS v2.0 will be at the Bidder’s risk and may result in the rejection of its Bids.

8. Clarification of Bidding documents

8.1 A prospective Bidder requiring any clarification of the Bidding documents may notify the Procuring Agency through EPADS v2.0**.**

8.2 The Procuring Agency will within two (02) working days after receiving the request for clarification, respond to any request for clarification through EPADS v2.0 provided that such request is received not later than three (03) days, prior to the deadline for the submission of Bids as prescribed in **ITB 22**

8.3 The Procuring Agency's response will be forwarded to all identified Prospective Bidders through EPADS v2.0, including a description of the inquiry,

but without identifying its source.

8.4 Should the Procuring Agency deem it necessary to amend the Bidding document as a result of a clarification, it shall do so following the procedure under **ITB 9.**

8.5 If indicated **in the BDS**, the Bidder's designated representative is invited at the Bidder's cost to attend a pre-Bid meeting at the place, date and time mentioned **in the BDS**. During this pre-Bid meeting, prospective Bidders may request clarification of the schedule of requirement, the Evaluation Criteria or any other aspects of the Bidding document.

8.6 Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be uploaded on EPADS v2.0. Any modification to the Bidding documents that may become necessary as a result of the pre-Bid meeting shall be made by the Procuring Agency exclusively through the use of an Addendum pursuant to ITB 9. Non-attendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

9. Amendment of Bidding documents

9.1 Before the deadline for submission of Bids, the Procuring Agency for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder or Pre-Bid meeting may modify the Bidding documents by issuing addenda through EPADS v2.0.

9.2 The Procuring Agency shall promptly publish the addendum through EPADS v2.0.

Any addendum issued including the notice of any extension of the deadline shall also be communicated through EPADS v2.0 to all the bidders who have already submitted their bids. Such bidders shall have the right to withdraw their already submitted bid and re-submit the revised bid prior to the original or extended bid submission deadline.

9.3 To give prospective Bidders reasonable time in which to take an addendum/corrigendum into account in preparing their Bids, the Procuring Agency may, at its discretion, extend the deadline for the submission of Bids through EPADS v2.0:

Provided that the Procuring Agency shall extend the deadline for submission of Bids, if such an addendum is issued within last three (03) days of the Bids submission deadline.

C. Preparation of Bids

10. Language of Bid

10.1 The Bid prepared by the bidder, as well as all correspondence and documents relating to the Bids exchanged by the Bidder and the Procuring Agency shall be written in the English language unless otherwise specified in the BDS**.** Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant pages in the English language unless otherwise specified in the **BDS**, in which case, for purposes of interpretation of the Bidder, the translation shall govern.

11. Documents and samples Constituting the Bid

11.1 The Bid prepared by the Bidder shall constitute the documents required in the **BDS**.

Details of sample(s) where applicable and requested in the BDS.

Documentary evidence established in accordance with ITB 13 that the Bidder is eligible and/or qualified for the subject bidding process;

Documentary evidence established in accordance with **ITB 03** that the Bidder has been authorized by the manufacturer to deliver the goods into Pakistan, where required and where the supplier is not the manufacturer of those goods;

Documentary evidence established in accordance with ITB 12 that the goods and related services to be supplied by the Bidder are eligible goods and services, and conform to the Bidding Documents;

Bid security or Bid Securing Declaration furnished in accordance with **ITB ---.**

12. Documents Establishing Eligibility of the Goods and Conformity to Bidding documents

12.1 To establish the conformity of the bidder to the Bidding document, the Bidder shall furnish as part of its Bids the documentary evidence that Goods

provided conform to the technical specifications and standards.

13. Documents Establishing Eligibility and Qualification of the Bidder

13.1 Pursuant to **ITB 10,** the Bidder shall furnish, as part of its Bid, all those documents establishing the Bidder's eligibility to participate in the Bidding process and/or its qualification to perform the contract if its Bid is accepted.

14. Form of Bid

14.1 The Bidder shall fill the Form of Bid furnished in the Bidding document. The Bid Form must be completed without any alterations to its format and no substitute shall be accepted.

15. Bid Prices

15.1 The Bid Prices quoted by the Bidder in the Form of Bid and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the Bidding documents.

15.2 **All items in the Schedule of Requirement must be listed and priced separately in the Price Schedule(s). If a Price Schedule shows items listed but not priced and neither explicitly denied, their prices shall be construed to be included in the prices of other items.**

15.3 In the event that any item(s) in the Price Schedule are not quoted, and such omission is determined by the Procuring Agency not to materially affect the responsiveness of the Bid, the Procuring Agency may, for the sole purpose of bid evaluation and comparison, assign a price to the unquoted item(s) in accordance with the following methodology:

(a) The assigned price shall be the average of the prices quoted for the same item(s) by all substantially responsive bidders; or

(b) In cases where no comparable quotations are available, the Procuring Agency shall apply the corresponding item price from its duly approved cost estimate for evaluation purposes.

The prices so assigned shall be utilized exclusively for bid evaluation and comparison, and shall not, under any circumstances, be incorporated into or form part of the Contract Price.

15.4 The Bid price to be quoted in the Form of Bid in accordance with **ITB 13.1** shall be the total price of the Bid.

15.5 The Bidder shall indicate on the appropriate Price Schedule, the unit prices (where applicable) and total Bid price of the Goods it proposes to provide under the contract.

15.6 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price will be treated as non-responsive and shall be rejected.

16. Bids Currencies

16.1 Prices shall be quoted in Pakistani Rupees unless otherwise specified in the BDS in accordance with Rule 42 (2) of the Public Procurement Rules, 2026.

17. Bids Validity Period

17.1 Such extensions may be more than one time but the total period of such extension shall not exceed the original bid validity period.

17.2 Bids shall remain valid for the period specified in the **BDS** after the Bid submission deadline prescribed by the Procuring Agency. A Bid valid for a shorter period shall be rejected by the Procuring Agency as non-responsive**.** The period of Bid validity will be determined from the complementary Bid securing instrument, i.e. the expiry period of Bid Security or Bids Securing Declaration as the case may be.

The procuring agency shall ordinarily be under an obligation to process and evaluate the bid and to issue letter of award within the stipulated bid validity period.

17.3 Under exceptional circumstances, prior to the expiration of the initial Bid validity period, the Procuring Agency may request the Bidders' consent to an extension of the period of validity of their Bids through EPADS v2.0,. The Bid Security provided under **ITB 17** shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid security or causing to be executed its Bid Securing Declaration. A Bidder agreeing to the request will not be required nor permitted to modify its Bid, but will be required to extend the validity of its Bid Security or Bid Securing Declaration for the period of the extension.

18. Bid Security or Bid Securing Declaration

18.1 The Bidder shall furnish as part of its Bid, a Bid Security in accordance with Rule 36 of the Public Procurement Rules, 2026.

18.2 The original Bid Security shall be enclosed within the sealed envelope and to be submitted physically before closing time for submission of bids. Whereas, scanned copy of bid security shall be uploaded electronically through EPADS v2.0 before closing hours for submission of bids.

18.3 The Bidder who failed to submit the original Bids security before the submission deadline shall be disqualified straightaway.

18.4 The Bid Security or Bid Securing Declaration is required to protect the Procuring Agency against the risk of Bidder’s conduct which would warrant the security’s forfeiture, pursuant to **ITB 18.7.**

18.5 The Bid Security shall be denominated in the local currency or in another freely convertible currency, and it shall be in the form specified in the BDS which shall be in any of the following:

a) a bank guarantee, a bank draft, an irrevocable letter of credit issued by a Scheduled bank in the form provided in the Bidding Documents or another form acceptable to the Procuring Agency;

b) a cashier’s or certified cheque; or

c) another security if indicated in the BDS.

The Bid Security shall be valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Bid Validity is extended. In either case, the form must include the complete name of the Bidder.

18.6 The Bid Security shall be payable promptly upon written demand by the Procuring Agency in case any of the conditions listed in **ITB 18.7** are invoked.

18.7 Unsuccessful Bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the procuring agency pursuant to **ITB 17.** The Procuring Agency shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security documents, after whichever of the following that occurs earliest:

a. the expiry of the Bid Security;

b. the entry into force of a procurement contract and the provision of a Performance Guarantee, for the performance of the contract if such a guarantee, is required by the Bid documents;

c. the rejection by the Procuring Agency of all Bids;

d. cancellation of procurement proceedings.

e. the withdrawal of the Bid prior to the deadline for the submission of Bids, unless the Bid document stipulates that no such withdrawal is permitted.

18.8 The successful Bidder's Bid Security will be discharged upon the Bidder signing the contract**,** or furnishing the Performance Guarantee.

18.9 The Bid Security may be forfeited or the Bid Securing Declaration executed:

a. if a Bidder:

b. withdraws its Bid during the period of Bid Validity as specified by the Procuring Agency, and referred by the Bidder on the Form of Bids except as provided for in **ITB 16.2**; or

c. does not accept the correction of errors**;** or

d. in the case of a successful Bidder, if the Bidder fails:

e. to sign the contract; or

f. to furnish Performance Guarantee**.**

19. Withdrawal, Substitution, and Modification of Bid

19.1 Before Bid submission deadline, any Bidder may withdraw, substitute, or modify its Bid after it has been submitted through EPADS v2.0.

20. Format and Signing of Bid

20.1 The Bidder shall prepare and submit Bids with due diligence after carefully reading all the terms and condition before bid submission deadline through EPADS v2.0.

D. Submission of Bids

21. Submission of Bids through EPADS v2.0 before bid submission deadline.

21.1 The Technical and Financial Bids, shall be submitted electronically through EPADS, before bid submission deadline. The bid submission option shall be automatically disabled once the deadline is over.

22. Deadline for Submission of Bids

22.1 Bids shall be received by the Procuring Agency through EPADS v2.0 before bid submission deadline.

22.2 The Procuring Agency may, under exceptional circumstances, extend the deadline for the submission of Bids, after recording reasons in writing and in an equal opportunity manner.

In such case, all rights and obligations of the Procuring Agency and the Bidders that were previously governed by the original deadline shall thereafter be subject to the revised deadline.

E. Opening and Evaluation of Bids

23. Opening of Bids

23.1 The respective Bid Evaluation Committee of the Procuring Agency shall open all Bids through the EPADS v2.0, on the date and time specified in the Bid Data Sheet (BDS).

23.2 The respective Bid Evaluation Committee **shall generate minutes through EPADS v2.0 containing brief details of bid opening process.** The record of the Bid opening shall include, as a minimum: the name of the Bidder, the Bid price if applicable, and the presence or absence of a Bid Security or Bid Securing Declaration.

23.3 The procuring agency shall live broadcast the opening of bids on national media or on their website or digital channels, if the volume of procurement exceeds five hundred million rupees in case of goods and services and one thousand million rupees in case of works.

23.4 In case the date of opening of bid has been declared as public holiday or the procuring agency fails to open bid due to any EPADS v2.0 related issues, the submission and opening of bids shall be shifted to the next working day at the same time.

23.5 In case of Single Stage One Envelope Procedure, the Bidders names, the Bid prices, the total amount of each Bid and, the presence or absence of Bid Security, Bid Securing Declaration and such other details as the Procuring Agency may consider appropriate, will be announced by the Bid respective Evaluation Committee.

23.6 No bid will be rejected at the time of bid openning except for bids whose original bid security has not been provided to the procuring agency before bid submission deadline.

24. Clarification of Bids

24.1 To assist in the examination, evaluation and comparison of Bids of the Bidders, the respective Bid Evaluation Committee may, ask any Bidder for a clarification of its Bid including breakdown of prices.

24.2 The request for clarification and the response shall be sought through EPADS v2.0 before **three days prior to the deadline for submission of bids.** No change in the prices or substance of the Bids shall be sought, offered, or permitted.

24.3 The alteration or modification in the bids which in any way affect the following parameters will be considered as a change in the substance of a Bid:

1. evaluation & qualification criteria;
2. required scope of work or specifications;
3. all securities requirements;
4. tax requirements;
5. terms and conditions of Bidding documents.
6. change in the ranking of the Bidder

24.4 From the time of bid(s) opening to the time of Contract award if any Bidder wishes to contact the Procuring Agency on any matter related to the Bids it should do so through **EPADS v2.0**.

25. Preliminary Examination of Bids

25.1 Prior to the detailed evaluation of Bids, the respective Bid Evaluation Committee will determine whether each Bid:

1. meets the eligibility criteria defined in **ITB 3**;

2. has been prepared as per the format and contents defined by the Procuring Agency in the Bidding documents;

3. is accompanied by the required securities; and

4. is substantially responsive to the requirements of the Bidding documents.

25.2 The respective Bid Evaluation Committee's determination of a Bid's responsiveness will be based on the contents of the Bid itself.

25.3 A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one that: -

1. affects in any substantial way the scope, quality, or performance of the Goods;

2. limits in any substantial way, inconsistent with the Bidding documents, the Procuring Agency's rights or the Bidders obligations under the Contract; or

3. if rectified, would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.4 If a Bid is not substantially responsive, it will be rejected by the respective Bid Evaluation Committee and may not subsequently be evaluated for complete technical responsiveness.

26. Examination of Terms and Conditions; Technical Evaluation

26.1 The respective Bid Evaluation Committee shall examine the Bids to confirm that all terms and conditions specified in the **GCC** and the **SCC** have been accepted by the Bidder without any material deviation or reservation.

26.2 The respective Bid Evaluation Committee shall evaluate the technical aspects of the Bids submitted, to confirm that all requirements specified in Schedule of Requirements and Technical Specifications of the Bidding documents have been met without material deviation or reservation.

26.3 If after the examination of the terms and conditions and the technical evaluation, the respective Bid Evaluation Committee determines that the Bid is not substantially responsive in accordance with **ITB,** it shall reject the Bid.

27. Correction of Errors

27.1 Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

1. if there is a discrepancy between unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the respective Evaluation Committee there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;

2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and

3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.

4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

27.2 The amount stated in the Bid will be adjusted by the respective Bid Evaluation Committee in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, its Bid will then be rejected, and the Bid Security may be forfeited or the Bids Securing Declaration may be executed.

28. Conversion to Single Currency

28.1 For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency in accordance with Rule 42(2) of Public Procurement Rules,2026.

29. Evaluation of Bids

29.1 The Bids, quotations, or proposals shall be evaluated by the respective evaluation committees as per evaluation criteria prescribed in the Bidding Documents in accordance with Rule 11, 12 and 13 of the Public Procurement Rules, 2026.

29.2 While evaluating the bids, the procuring agency shall consider the following:

i. Bids will be evaluated on lump sum bid basis or items wise or Lot wise (contracts), as specified in the BDS; and the Bid Price;

ii. correction of arithmetic errors in accordance with ITB 27;

30. Domestic Preference

30.1 The respective Bid Evaluation Committee shall evaluate and compare bids, allow for preference to domestic bidders, while competing with the international bidders in accordance with the policies of the Federal Government.

The percentage of preference, to be accorded shall be clearly mentioned in the bidding documents under the bid evaluation criteria.

31. Determination of Successful Bid

31.1 **Selection technique will be adopted for determining the Successful Bid in accordance with the criteria referred in the BDS or prescribed in the separate section titled as Evaluation Criteria.**

31.2 **Least Cost Based Selection (LCBS)**
After meeting the requirements of eligibility, qualification and substantial responsiveness, the bid in compliance with all the mandatory (technical) specifications/requirements and/or requisite quality threshold (if any), and having lowest evaluated cost (or financial proposal) shall be considered Successful Bid.

31.3 **Quality and Cost Based Selection (QCBS)**
In such combination, there shall be some specific weightage of both the technical features and financial aspects of the proposal. The financial marks shall be awarded on the basis of inverse proportion calculations. The successful bid shall be declared, on the basis of combined evaluation.

31.4 **Quality Based Selection (QBS)**
After meeting the requirements of eligibility, qualification and substantial responsiveness the bid in compliance with all the mandatory (technical) specifications/requirements and attaining highest marks in the Technical Evaluation considering all other qualitative and/or quantitative parameters (or point rated criteria) for technical proposal(s) such as working methodology, implementation plan, resource allocation, additional functionalities, risk

management approach, knowledge transfer techniques, post implementation methodology etc. shall be treated as highest ranked bid. Later on, the financial proposal of highest ranked bidder shall be opened, however, in case of failure to proceed further with such a bidder, the procuring agency may resort to second highest bidder and so on.

31.5 The Procuring Agency may adopt the Quality & Cost Based Selection Technique due to the following two reasons:

1. Where the Procuring Agency knows about the main features, usage and output of the products; however not clear about the complete features, technical specifications and functionalities of the goods to be procured and requires the bidders to submit their proposals defining those features, specifications and functionalities; or

2. Where the Procuring Agency, in addition to the mandatory requirements and mandatory technical specifications, requires parameters specified in Evaluation Criteria to be evaluated while determining the quality of the goods.

31.6 In such cases, the Procuring Agency may allocate certain weightage to these factors as a part of Evaluation Criteria, and may determine the ranking of the bidders on the basis of combined evaluation in accordance with provisions of Rule 2(1)(xxviii) of the Public Procurement Rules, 2026.

32. Abnormally Low Financial Bids

32.1 An abnormally low bid is a bid that, in light of the Procuring Agency's cost estimate, market conditions, or other received bids, appears to be unrealistically low and may not be sustainable for successfull contract execution.

32.2 **Where the Bid price is considered to be abnormally low, the Procuring Agency shall perform price analysis either during determination of Successful Bids or as a part of the post-qualification process.**

32.3 The Procuring Agency may reject an Abnormally low financial bid in accordance with Rule 43 of the Public Procurement Rules, 2026.

32.4 In order to identify the Abnormally Low Bids (ALB) following approaches can be considered to minimize the scope of subjectivity:

1. Comparing the Bid price with the cost estimate;

2. Comparing the Bid price with the Bid(s) offered by other Bidders submitting substantially responsive Bids; and

3. Comparing the Bids price with prices paid in similar contracts in the recent past either government- or development partner-funded.

32.5 The respective Bid Evaluation Committee will determine to its satisfaction whether the Bidder that is selected as having submitted the successful bid is qualified to perform the contract satisfactorily.

32.6 The determination will take into account the Bidder's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Procuring Agency deems necessary and appropriate. Factors not included in these Bidding documents shall not be used in the evaluation of the Bidders' qualifications.

32.7 Respective Bid Evaluation Committee may seek "Certificate for Independent Price Determination" from the Bidder and the results of reference checks may be used in determining an award of contract.

Explanation: The Certificate shall be furnished by the Bidder. The Bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.

32.8 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's Bid, in which event the respective Bid Evaluation Committee will proceed to the next ranked Bidder to make a similar determination of that Bidder's capabilities to perform satisfactorily.

F. Award of Contract

33. Criteria of Award

33.1 The Procuring Agency will award the Contract to the Bidder whose Bids has been determined to be substantially responsive to the Bidding documents and who has been declared as Successful Bidder.

34. Negotiations

34.1 In accordance with Rule 52A of Public Procurement Rules, 2026, without changing the cost and scope of work or services, the procuring agency may

negotiate with the successful bidder (with a view to streamline the work or task execution, at the time of contract finalization) on methodology, work plan, staffing and special conditions of the contract.

There shall be no limitation on the successful bidder offering voluntary reduction in bid price without affecting the quality or scope of the procurement.

35. Procuring Agency's Right to reject all bids

35.1 The Procuring Agency reserves the right to reject all bids or proposals at any time prior to the issuance of the Letter of Award, without incurring any liability, in accordance with Rule 45 of the Public Procurement Rules, 2026.

36. Cancellation of Procurement

36.1 The procuring agency reserves the right to cancel the procurement proceedings in accordance with Rule 46 of the Public Procurement Rules, 2026.

37. Procuring Agency’s Right to Vary Quantities at the Time of Award

37.1 The Procuring Agency reserves the right at the time of contract award to increase or decrease the **quantity of** Goods originally specified in these Bidding documents provided this does not exceed **by** 15%, without any change in unit price or other terms and conditions of the Bids and Bidding documents.

38. Notification of Award

38.1 Prior to the award of contract, the procuring agency shall announce and publish the result of bid evaluation on EPADS v2.0 in accordance with Rule 48 of the Public Procurement Rules, 2026.

The Bidder whose Bids has been accepted will be notified of the award by the Procuring Agency prior to expiration of the Bids/Bid Validity period. The Letter of Award will state the sum that the Procuring Agency will pay the successful Bidder in consideration for the delivery of Goods as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

38.2 The Letter of award will constitute the formation of the Contract, subject to the Bidder furnishing the Performance Guarantee and signing of the contract.

39. Signing of Contract

39.1 Promptly after issuance of Letter of award, Procuring Agency shall send the successful Bidder the draft Contract, incorporating all terms and conditions as agreed by the parties to the contract.

39.2 Immediately after the Redressal of grievance by the GRC (if any), and **after fulfillment of all conditions precedent** of the Contract Form, the successful Bidder and the Procuring Agency shall sign the Contract.

40. Corrupt & Fraudulent Practices

40.1 Procuring Agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid engaging in any corrupt and fraudulent practices.

F. Grievance Redressal & Complaint Review Mechanism

41. Constitution of Grievance Redressal Committee

41.1 The Grievance Redressal Committee shall address the grievance, if any submitted by any party, including the bidder, in accordance with Rule 65 of the Public Procurement Rules, 2026 read with Redressal of Grievances Regulations, 2021.

In case if any party or the bidder is not satisfied with the decision of the GRC or if it fails to decide within ten days, the bidder or the party may file an appeal before the Appellate Committee of the Authority in accordance with Rule 65(7) of the Public Procurement Rules, 2026 to be read with Redressal of Grievances Regulations, 2021.

G. Mechanism of Blacklisting

42. Mechanism of Blacklisting

42.1 The Procuring Agency shall initiate blacklisting proceedings against any bidder, supplier, or contractor in accordance with the Rule 25 of the Public Procurement Rules, 2026.

42.2 The blacklisted/debarred bidder may file the review petition before the Authority in accordance with Rule 25 (6) of the Public Procurement Rules, 2026 to be read with Procedure of filing and disposal of Review Petitions Regulations, 2021.

43. Contract Management

43.1 For each procurement, the Procuring Agency shall designate a Contract Manager, who shall be duly responsible for the efficient management and administration of the contract in strict compliance with the provisions set forth under Rules 58, 59, and 60 of the Public Procurement Rules, 2026.

44. Inspection of goods and evaluation of services.

44.1 The Inspection Committee or the Firm shall have the right to conduct inspections of the goods in accordance with Rule 61 of the Public Procurement Rules, 2026.

45. Socio-economic development.

45.1 In accordance with Rule 63 of the Public Procurement Rules, 2026, preference may be granted to small and medium enterprises and marginalized groups in accordance with the policies notified by the Federal Government.

46. Environmental objectives

46.1 As per Rule 64 of the Public Procurement Rules, 2026, the procuring agency may seek to procure goods with a reduced environmental impact throughout their life cycle when compared to goods services with the same primary function that may otherwise be procured.

Bid Data Sheet

Bids Data Sheet (BDS)

The following specific data for the procurement of Goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

BDS Clause Number
ITB Number
Amendments of, and Supplements to, Clauses in the Instruction to Bidders

A. Introduction

BDS Clause Number 1
ITB Number 1.1

Name of Procuring Agency: **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO))**

The subject of procurement is: **Procurement of Physical Instruments and Software (under the PSDP Project, Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast)**

Period for Provision of Goods:

Extension Period (if applicable):

Expected commencement date: **Friday, January 15, 2027**

BDS Clause Number 2
ITB Number 2.1

Source of funds [Enter source of funds]

Financial year for the operations of the Procuring Agency: **2026-27**

Name and identification number of the Contract: **P193260**

Identification Number:

BDS Clause Number 3
ITB Clause Number 3.1

Eligible Bidder [Enter eligibility of bidder]

JV/Consortium or Association Allowed: **No**
Number of JV/Consortium Members: **Nil**
see section of eligibility criteria.

B. Bidding Documents

BDS Clause Number 4

ITB Clause Number 4.1

Eligible goods and related services [Enter requirements for eligible goods and related services, if any]

ITB Number 8.1

The Bidders may seek clarifications through **EPADS v2.0** : Clarification Date: Monday, December 28, 2026

ITB Number 8.2

The Bidders may seek clarifications through **EPADS v2.0** : Clarification Date: Monday, December 28, 2026

ITB Number 8.3

The Bidders may seek clarifications through **EPADS v2.0** : Clarification Date: Monday, December 28, 2026

ITB Number 8.5

Pre-bid meeting will be/will not be held [Tick the appropriate] If yes write down the time, and date of the pre-Bid meeting:
[The meeting should take place not later than one weeks before the deadline for Bid submission.]

C. Preparation of Bids

BDS Clause Number 5
ITB Number 10.1

The Language of all correspondences and documents related to the Bids shall be in: **English**

List of documents required along with the bid: No

BDS Clause Number 6
ITB Number 11.1

Documents required / not required with bid submission [enter list of documents] Samples required / not required with the bid [Enter the names and number of samples]
Items/Lots and their related documents:
See section items and Lots

BDS Clause Number 7
ITB Number 12.1

Items / Lots Specifications:

see section of items specifications.

BDS Clause Number 8
ITB Number 15.6

The price shall be **Fixed**.

BDS Clause Number 9
ITB Number 16.1

Currency of the Bids shall be : **PKR**

BDS Clause Number 10
ITB Number 17.1

The Bids/Bid Validity period shall be: **180 Days**

BDS Clause Number 11
ITB Number 18.1

The amount of Bid Security shall be as defined in Bid Security Section for items and lots given in **BDS 6**
Instrument of Bid Security shall be in the Name of : **National Institute of Oceanography (NIO)**
The Bid Security shall be in the form of: **Pay Order, Banker's Cheque**

ITB Number 18.2

The address for submission of original bid security is [Insert the address for bid security submission]

D. Submission of Bids

BDS Clause Number 12
ITB Number 20.1

Bid shall be submitted online on EPADS v2.0 whereas hard copy of the bid security should be submitted to the following;

ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province). before bid submission deadline.

Bids that are not submitted on EPADS v2.0 shall be disqualified.

The deadline for Bids submission is: **Thursday, December 31, 2026 12:00 PM**

Day *:* ***Thursday***

Date: ***Thursday, December 31, 2026***

Time *:* ***12:30 PM***

E. Opening and Evaluation of Bids

BDS Clause Number 13
ITB Number 23.1

The Bids opening shall take place on **EPADS v2.0**.

Day *:* ***Thursday***

Date: ***Thursday, December 31, 2026***

Time *:* ***12:30 PM***

ITB Number 29.2

The procuring agency shall consider the following:
lump sum bid basis; or
items wise; or
Lot wise (contracts),

ITB Number 30.1

BDS Clause Number 14
ITB Number 31.1

Domestic Preference [applicable / not applicable]

ITB Number 31.2

Selection technique adopted will be:
The Procuring Agency shall use any of the following evaluation techniques for determination of successful bid.

Least Cost Base Selection (LCBS)
Quality and Cost Based Selection (QCBS)
Quality Based Selection (QBS)
[Insert the Evaluation Technique]

Selection technique adopted will be: **Quality and Cost Based Selection (QCBS)**
see Evaluation Criteria

F. Review of Procurement Decisions

BDS Clause Number 15
ITB Number 41.1

Grievence against this procurement shall be submitted online on EPADS v2.0.

Arbitrator shall be appointed by mutual consent of the both parties.

ITB Number 42.2

The Address of PPRA Grievance Redressal Appellate Committee to submit a copy of grievance:

Grievance Redressal Appellate Committee,
Public Procurement Regulatory Authority
1st Floor, G-5/2, Islamabad, Pakistan
Tel: +92-51-9202254

Eligibility Criteria

All Active Taxpayers shall be eligible to participate in the procurement process, unless expressly excluded or otherwise restricted under the Eligibility Criteria specified by the Procuring Agency.

Required Registration
NADRA CITIZENSHIP (CNIC/NICOP)
FBR (NTN)
FBR (GSTN)
SECP
PEC

Evaluation Criteria

Eligibile bidder(s) with substantially responsive bid(s) offering **Quality and Cost Based Selection (QCBS)** shall be consider for the award of contract(s).

Quality and Cost Based Selection (QCBS)

Weightage

Technical Evaluation %	Financial Evaluation %
70	30

Technical Marks	**680**
Passing Marks	**340**
Acoustic Doppler Current Profiler (ADCP)	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with required water velocity measurement range, profiling range, cell size, blanking distance, number of cells, velocity accuracy, resolution, sampling rate, temperature range/accuracy, and pressure range/accuracy 20 2 Secondary Specs Compliance with Echo Intensity, Echo Sounder, Wave Measurement, Ice Measurement, Compass, Tilt, AHRS, Data Recording Capacity, Real-Time Clock, and Depth Rating 10 3 Construction Material / Sensors Compliance with specified sensor technologies and construction materials, including acoustic transducers, temperature sensors, pressure sensors, magnetometers, accelerometers, POM body, and titanium fasteners 10 4 Power & Communication Compliance with Ethernet, RS-232/RS-422 serial communication, DC input, power consumption, internal battery, battery operating duration, and connectors 10 5 Software Compatibility with Windows 10/11 and software for deployment planning, instrument configuration, data retrieval, and data conversion 5 6 Training and Documentation Provision of operational and maintenance manuals, technical documentation, user guidance, and operational training 5 7 After-Sales Support Availability of authorized technical support, maintenance, repair, calibration, spare parts, battery/service support, and after-sales services 10 TOTAL Overall Technical Evaluation Score 70 (Quantitative)(Doc Required)	50
Conductivity, Temperature, and Depth (CTD)	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with Conductivity range 0–9 S/m, Temperature range −5 to +35 °C, Conductivity accuracy ±0.0005 S/m, Temperature accuracy ±0.005 °C, Conductivity resolution 0.00005 S/m, Temperature resolution 0.0001 °C, sampling rate, and applicable pressure/depth measurement requirements 20 2 Secondary Specs Compliance with pressure/depth options, depth rating 600 m / 10,500 m, auxiliary sensors up to 7, onboard memory, memory capacity, adaptive sampling, biofouling protection, and other specified secondary features 10 3 Construction Material / Sensors Compliance with housing material options Plastic/Titanium, conductivity and temperature sensors, optional pressure sensor technologies, MCBH connector, and provision for auxiliary sensors 10 4 Power & Communication Compliance with RS-232 communication, internal battery power, 9 × alkaline D-cell battery configuration, MCBH connector, and specified power/operating requirements 10 5 Software Availability of supported software for instrument configuration, setup, data management, and operation 5 6 Training and Documentation Provision of user/operational manuals, configuration and operating documentation, and training as required by the purchaser 5 7 After-Sales Support Availability of authorized technical support, spare parts, maintenance, repair, calibration, sensor/battery service, and after-sales support 10 TOTAL Overall Technical Evaluation Score 70 (Quantitative)(Doc Required)	50
Wave Guage	

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

S. No. Criteria Description Max Points 1 Core Parameters Compliance with Heave range −20 m to +20 m, resolution 0.01 m, accuracy and long-term accuracy, Direction range 0°–360°, direction resolution, handling error, period 1.6–30 s, and Water Temperature range −5°C to +46°C, resolution 0.05°C, and accuracy <0.1°C 20 2 Secondary Specs Compliance with wave period, GPS positioning, integrated datalogger, memory capacity, LED flasher, optional HF/Satellite/GSM communication, solar power option, radar reflectors, hull diameter, operating/storage temperature, and battery operational life 10 3 Construction Material / Sensors Compliance with stabilized platform sensor, 3D fluxgate compass, X/Y accelerometers, water-temperature sensor, stainless steel AISI316 or Cunifer10 construction, and specified hull configuration 10 4 Power & Communication Compliance with specified battery configuration and operational life, HF link, Iridium/Argos satellite communication, GSM communication, and optional solar power system 10 5 Software Compatibility with the instrument's data processing, configuration, data logging, GPS, and communication systems, including processing through the 32-bit microprocessor system 5 6 Training and Documentation Provision of operational and maintenance manuals, technical documentation, user guidance, training, and information required for operation, deployment, and maintenance 5 7 After-Sales Support Availability of authorized technical support, spare (Quantitative) (Doc Required)	50
Drone	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with aircraft specifications including maximum takeoff weight 9 kg, maximum flight time 55 min, maximum speed 23 m/s, wind resistance 15 m/s, hovering accuracy, RTK positioning accuracy, maximum payload, operating temperature, GNSS capability, and IP45 rating. 20 2 Secondary Specs Compliance with aircraft dimensions, wheelbase, angular velocity, ascent/descent speeds, gimbal configurations, obstacle sensing range, FPV camera, remote-controller transmission range, battery capacity, charging time, and Intelligent Battery Station specifications, Laptop for data processing. 10 3 Sensors Compliance with camera and sensor payload specifications, including 45 MP full-frame camera, LiDAR, multispectral bands, thermal sensor, RGB/PAN sensors, 3-axis gimbal, sensor resolution, GSD, FOV, and payload weight 10 4 Power & Communication Compliance with intelligent flight batteries (2 units), battery capacity/energy, charging system, remote-controller communication frequencies, transmission range, USB power supply, Ethernet/serial interfaces, GPIO, Wi-Fi and CFExpress storage interfaces 10 5 Software and Laptop Availability of aerial data processing software supporting camera parameters, image processing, point clouds, DSM/DTM, orthomosaic, multispectral and thermal processing, 3D models, contour generation, measurements, volume calculation, visualization, classification, and data export 5 6 Training (Quantitative) (Doc Required)	50
Manual Meteorological Instrument	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with required measurement ranges and accuracy for Wind Speed (0–30 m/s), Wind Direction (0–359°), Temperature (−40°C to +80°C), Humidity (0–99% RH), and Atmospheric Pressure (0–120 kPa) 20 2 Secondary Specs Compliance with measurement response times, stability specifications, data storage capacity of 130,000 records, and overall operating/measurement performance 10 3 Construction Material / Sensors Compliance with integrated sensors for wind speed, wind direction, temperature, relative humidity, and atmospheric pressure, including specified sensor accuracy and stability 10 4 Power & Communication Compliance with three AA batteries, stated battery life/standby time, and USB data cable for connection to a computer and data export 10 5 Software Compatibility with computer-based data export and any required software/interface for retrieval, storage, and management of recorded measurement data 5 6 Training and Documentation Provision of operational and maintenance manuals, technical documentation, operating instructions, data-download procedures, and user training 5 7 After-Sales Support Availability of authorized technical support, spare parts, sensor replacement, maintenance, repair, calibration, battery support, and after-sales service 10 TOTAL Overall Technical Evaluation Score 70 (Quantitative)(Doc Required)	50
Directional Wave Recorder Buoys	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with Current Meter Doppler measurement requirements, including cell size 0.4–1.1 m, speed range 0–3 m/s, resolution 1 mm/s, speed accuracy, direction range 0–360°, direction resolution 0.1°, Wave Sensor heave range −20 to +20 m, heave accuracy, wave period, and water temperature range/accuracy 20 2 Secondary Specs Compliance with sampling and data output rates, GPS positioning, integrated data logger capacity 1024–2048 Mb, LED flasher, HF transmission range 50 km, hull dimensions, battery operational life, storage temperature, and optional air-temperature measurement 10 3 Construction Material / Sensors Compliance with three 2 MHz acoustic transducers, stabilized platform wave sensor, water-temperature sensor, GPS, and specified hull materials Stainless Steel AISI 316 / Cunifer 10 10 4 Power & Communication power consumption 522 mW, Datacell RC27B battery, specified battery operating life, power switch, HF link 25.5–35.5 MHz, and optional Iridium SBD, Iridium Internet, GSM Internet 10 5 Software Compatibility with instrument data logging, data retrieval, processing, configuration, and communication systems required for operation and management of measurement data 5 6 Training and Documentation Provision of operational and maintenance manuals, technical documentation, deployment/operation procedures, data management guidance, and user training 5 7 After-Sales Support Availability of authorized (Quantitative)(Doc Required)	50
Water Quality Sonde	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with primary water-quality measurements including Optical Dissolved Oxygen, Conductivity, Salinity, Temperature, pH, ORP, and Depth, including specified measurement ranges, resolution, and accuracy 20 2 Secondary Specs Compliance with Turbidity, Nitrate/Nitrogen, Ammonium/Ammonia/Nitrogen, Chloride, Rhodamine, Blue-Green Algae, Phycocyanin, Phycoerythrin, and Chlorophyll measurement specifications, including range, resolution/detection limit, accuracy, and linearity 10 3 Construction Material / Sensors Compliance with ROX™ optical DO sensor, 6560 conductivity/temperature sensor, 6561 pH sensor, 6136 turbidity sensor, 6025 chlorophyll sensor, and other specified water-quality sensors; probe dimensions 2.85 in diameter × 18 in length and IP-67 protection 10 4 Power & Communication Compliance with RS-232 and SDI-12 communications, 12 V DC external power, internal 8 AA alkaline batteries, and associated power requirements 10 5 Software Availability and compatibility of EcoWatch® software for instrument configuration, data collection, monitoring, retrieval, and analysis 5 6 Training and Documentation Provision of operational and maintenance manuals, sensor documentation, calibration procedures, software guidance, user training, and technical documentation 5 7 After-Sales Support Availability of authorized technical support, spare sensors/parts, maintenance, repair, calibration, battery support, software support, (Quantitative)(Doc Required)	50
Physical Balance	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with maximum weighing capacity 200–220 g, readability 0.1 mg (0.0001 g), repeatability ≤0.1 mg, and linearity ±0.2–0.3 mg 20 2 Secondary Specs Compliance with calibration, pan size, weighing units, display, draft shield, operating temperature, overload protection, and application requirements for water-quality, sediment, filtration, and laboratory analysis 10 3 Construction Material / Sensors Compliance with stainless-steel pan, approximately 90 mm pan size, five-sided glass draft shield, wind protection, and electronic analytical weighing system 10 4 Power & Communication Compliance with USB/RS-232 interface, 100–240 V AC power supply, and GLP/GMP-compatible data output 10 5 Software Compatibility with software/interface required for data communication, weighing-data transfer, configuration, and GLP/GMP-compliant data management 5 6 Training and Documentation Provision of user and maintenance manuals, calibration procedures, operating instructions, technical documentation, and user training 5 7 After-Sales Support Availability of authorized technical support, calibration/service facilities, spare parts, repair, maintenance, and after-sales support 10 TOTAL Overall Technical Evaluation Score 70 (Quantitative)(Doc Required)	50
Filtration Assembly	
S. No. Criteria Description Max Points 1 Core Parameters Compliance with 47 mm filter diameter, 9.6 cm^2 filtration area, and 300 mL funnel capacity 20 2 Secondary Specs Compliance with overall dimensions 22.9 cm (H) × 7.6 cm (D) and compatibility with a standard 1000 mL filtering flask 50 TOTAL Overall Technical Evaluation Score 70 (Quantitative)(Doc Required)	50
Multibeam	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with operating frequency, beamwidth/resolution, number of beams/soundings, swath coverage, ping rate, depth range, bottom/depth resolution, stabilization, position accuracy, heading accuracy, pitch/roll accuracy, and heave accuracy 20 2 Secondary Specs Compliance with backscatter, sidescan capability, Forward Looking Sonar multidetect, integrated Sound Velocity Probe, GNSS/INS integration, immersion depth, deep-water options, cable lengths, dual-head/dual-swath capability, and 1024-beam option 10 3 Construction Material / Sensors Compliance with curved-array multibeam transducer, integrated/field-replaceable Sound Velocity Probe, carbon-fibre pole, titanium housing/fairing, active roll/pitch/yaw stabilization, and applicable mounting configuration 10 4 Power & Communication Compliance with specified power consumption, 10–28 VDC / applicable AC input, Ethernet/10/100/1000Base-T interface, cable options, GNSS/INS interfaces, and system connectivity 10 5 Software and Laptop Availability of data acquisition and processing software, compatibility with HYPACK, QPS, BeamworX, EIVA or equivalent third-party software data processing, and required laptop for data acquisition/processing 5 6 Training and Documentation Provision of operational and maintenance manuals, technical documentation, sonar configuration and survey procedures, operator training 5 7 After-Sales Support Availability of authorized technical support, (Quantitative)(Doc Required)	50
Side Scan Sonar	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with bathymetric sonar frequencies 520/850 kHz, beamwidth, optimal operating depth, maximum swath width, maximum swath sector 200°, maximum 800 soundings per ping, sounding patterns, side-scan frequencies 520/850/1600 kHz, range resolution, maximum range, and ping rate up to 60 Hz 20 2 Secondary Specs Compliance with CW/FM CHIRP pulse modulation, bathymetry and side-scan capabilities, backscatter, real-time uncertainty products, deck cable length, depth rating 50 m, sonar dimensions/weight, rack-mount unit specifications, and USV integration 10 3 Construction Material / Sensors Compliance with sonar construction using polycarbonate and aluminum, bathymetric transducer, side-scan sonar, gap-fill side-scan capability, and specified beamwidth/range-resolution performance 10 4 Power & Communication Compliance with 24–36 VDC or 100/240 VAC auto-sensing power input, typical/maximum power consumption 55 W / 70 W, current draw, 20 m standard deck cable, and applicable system connectivity 10 5 Software and Laptop Provision of Windows-based EdgeTech Discover Bathymetric Acquisition and Sonar Control software for data acquisition, sonar control, processing, and generation of bathymetry/backscatter/side-scan data products 5 6 Training and Documentation Provision of operational and maintenance manuals, sonar deployment/operation procedures, software guidance, data acquisition/After-Sales Support 10 (Quantitative)(Doc Required)	50
Digital Camera	

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

S. No. Criteria Description Max Points 1 Core Parameters Compliance with full-frame 35.6 × 23.8 mm Exmor R CMOS sensor, approximately 24.2 MP, ISO 100–51,200 expandable to 50–204,800, continuous shooting up to 10 fps, 5-axis image stabilization, 14-bit RAW, maximum still image resolution 6000 × 4000, and 4K UHD video recording 20 2 Secondary Specs Compliance with 4K frame rates 30p/25p/24p, video bitrate up to 100 Mbps, HD high-speed recording up to 120 fps, S-Log2/S-Log3/HLG picture profiles, dual memory-card slots, electronic viewfinder, tilting touchscreen LCD, and location-information linking 10 3 Construction Material / Sensors Compliance with full-frame Exmor R CMOS sensor, Sony E-mount, 5-axis sensor-shift stabilization, magnesium-alloy body, dust/moisture resistance, and interchangeable-lens configuration 10 4 Power & Communication Compliance with NP-FZ100 rechargeable battery, Wi-Fi 2.4 GHz, Bluetooth 4.1, USB connectivity, Micro HDMI, and supported SD etc memory cards 10 5 Software Compatibility with camera firmware/software and supported image/video file formats including RAW, XAVC S, and MPEG-4 AVC/H.264, with applicable connectivity and data-transfer functions 5 6 Training and Documentation Provision of user manual, technical specifications, operating instructions, maintenance guidance, camera configuration guidance, and user training 5 7 After-Sales Support Availability of authorized technical support, warranty etc (Quantitative)(Doc Required)	50
Multifunction Wireless Plotter Printer	

S. No. Criteria Description Max Points 1 Core Parameters Compliance with print, copy and scan functions; maximum print speed of 24 D-size prints/hour; scan speed up to 1.5 in/sec color / 4.5 in/sec grayscale at 200 dpi; color resolution up to 2400 × 1200 optimized dpi; line accuracy ±0.1%; and maximum optical density 20 2 Secondary Specs Compliance with 4 print cartridges (C, M, Y, mK), supported print languages, sheet/roll feed, 50-sheet input tray, media bin, automatic horizontal cutter, supported media sizes up to A0/D/E, custom media sizes, media types, roll diameter, and media thickness up to 11.8 mil 10 3 Construction Material / Hardware Compliance with the specified printer hardware, media handling system, input/output trays, automatic cutter, roll-feed mechanism, and physical components suitable for technical drawings, engineering plans, maps, and large-format documents 10 4 Power & Communication Compliance with 100–240 V auto-ranging power input, 50/60 Hz operation, specified power consumption, automatic scheduled printer on/off function, and applicable connectivity/data interfaces 10 5 Software Availability of Windows 11 driver and relevant applications for Windows, macOS, Android, and iOS, with support for specified print languages and document formats 5 6 Training and Documentation manuals, installation/setup documentation, user guidance, software/driver documentation, and required operational training 5 7 After-Sales Support (Quantitative)(Doc Required)	50
3. Financial Evaluation (30 Points) Criterion Description Points Price Competitiveness Total cost including device, installation, training, manuals, and warranty with technicalsupport and delivery 30 (Quantitative)(Doc Required)	30

Items/Lots

Items Without Lots :

Item	UNSPSC	Delivery Schedule	Quantity	Bid Security	Manufacturer / Dealer Authorization	Warranty
Acoustic Doppler Current Profiler (ADCP)	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 2/Qty	2/Qty	508128 PKR	Any	--
Conductivity, Temperature, and Depth (CTD)	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120Days **Quantity:** 2/Qty	2/Qty	308519.32 PKR	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Bid Security	Manufacturer / Dealer Authorization	Warranty
Wave Guage	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	143170 PKR	--	--
Drone	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	220796 PKR	--	--
Manual Meteorological Instrument	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	77860 PKR	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Bid Security	Manufacturer / Dealer Authorization	Warranty
Directional Wave Recorder Buoys	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 2/Qty	2/Qty	896256.04 PKR	--	--
Water Quality Sonde	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120Days **Quantity:** 1/Qty	1/Qty	140000 PKR	--	--
Physical Balance	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	20990 PKR	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Bid Security	Manufacturer / Dealer Authorization	Warranty
Filtration Assembly	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	16750 PKR	--	--
Multibeam	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	737065 PKR	--	--
Side Scan Sonar	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	1128937 PKR	--	--

Item	UNSPSC	Delivery Schedule	Quantity	Bid Security	Manufacturer / Dealer Authorization	Warranty
Digital Camera	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	25750 PKR	--	--
Multifunction Wireless Plotter Printer	Miscellaneous	**Address:** St.47, Block-1, Clifton, Karachi 74600 Tel: 021-99251172-78, Harbour Sub-Division, Karachi West (District), Karachi (Division), Sindh (Province). **Schedule:** 120 Days **Quantity:** 1/Qty	1/Qty	40700 PKR	--	--

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Related Services of Goods:

No

Items/Lot Specification

Items Without Lots :

Item: Acoustic Doppler Current Profiler (ADCP)

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Technical Specifications: Water velocity measurements Maximum profiling range* 60 m (burst mode), 70 m (average mode) Cell size 0.5-4 m Minimum blanking 0.5 m Maximum number of cells 256 (burst)/200 (average) Velocity range (along beam) User-selectable 1.0 to 5.0 m/s Minimum accuracy 0.3% of measured value ± 0.3 cm/s Velocity precision Broadband processing, consult instrument software Velocity resolution 0.1 cm/s Max sampling rate 8 Hz (4 Hz using 5 beams) AD2CP measurement modes Single Burst or average Concurrent Burst and average Alternate Single and/or concurrent Echo intensity (along slanted beams) Sampling Same as velocity Resolution/ dynamic range 0.5 dB / 70 dB Transducer acoustic frequency 500 kHz Number of beams 5; 4 slanted at 25°, 1 vertical Beam width 2.9° Echo sounder option Resolution 6 mm - 0.5 m Number of bins 11,000 Transmit pulse length 32 µs - 1 ms Transmit pulse Monochromatic or pulse compressed (25% BW) Resolution / dynamic range 0.01 dB / 70 dB Wave measurement option AST frequency 500 kHz AST max distance 75 m Maximum wave measurement depth 60 m Height range -15 to +15 m Accuracy/resolution (Hs) < 1% of measured value / 2 cm Accuracy/resolution (Dir) 2° / 0.1° Period range 1-50 s Cut-off period (Hs) 5 m depth; 0.6 sec, 20 m depth; 1.1 sec, 60 m depth; 1.9 sec Cut-off period (dir) 5 m depth; 1.5 sec, 20 m depth; 3.1 sec, 60 m depth; 5.5 sec Sampling rate (velocity and AST) 4 Hz Sensors Temperature: Thermistor in head (sampled at meas. rate) Temp. range -4 to +40 °C Temp. accuracy/resolution 0.1 °C/0.01 °C Temp. time response 2 min Compass: Solid State magnetometer (max 1 Hz samplerate) Accuracy/resolution 2° for tilt < 30°/0.01° Tilt: Solid State accelerometer (max 1 Hz sample rate) Accuracy/resolution 0.2° for tilt < 30°/0.01° Maximum tilt Full 3D orientation sensing. Recommended instrument orientation and allowable tilt depend on the measurement application. Up or Down Automatic detect Pressure: Piezoresistive (sampled at meas. rate) Standard range 0-100 m (inquire for options) Sensors Accuracy/precision 0.1% FS / Better than 0.002% of full scale AHRS option Accelerometer dynamic range ± 2 g Gyro dynamic range ± 250°/sec Magnetometer dynamic range ± 1.3 Gauss Pitch and roll range /resolution ± 90° (pitch) ± 180° (roll) /0.01° Pitch and roll accuracy ± 2° (dynamic)*, ± 0.5° (static, ±30°) Heading range / resolution 360°, all axis /0.01° Heading accuracy ± 3° (dynamic)*, ± 2° (static, tilt < 20°) Sampling rate Same as measurement rate (up to 8 Hz) Power Using AHRS draws more power than the regular compass and tilt sensor. Data recording Capacity 16 GB, 64 GB or 128 GB (inquire for

larger capacity) Data record Consult instrument software Mode Stop when full Real-time clock Accuracy ± 1 min/year Data communications Ethernet 10/100 Mbits Auto MDI-X, TCP/IP, UDP/IP, HTTP protocols, Fixed IP / DHCP client /Auto IP address assignment, UPnP and Nortek proprietary instrument discovery over Ethernet Serial Configurable RS-232/RS-422 300-1250000 bps Recorder download baud rate 20 Mbit/s (Ethernet only) - 1 GB in 6 minutes Controller interface ASCII command interface over Telnet and serial Connectors Depending on configuration MCBH6F (Ethernet), MCBH8F (serial), MCBH2F-G2 (pwr), optional Souriau M-series metal connector for online use (10M) Software Functions Deployment planning, instrument configuration, data retrieval and conversion (for Windows®) Power DC input 12-48 V DC Maximum peak current 1.5 A Max. average consumption at 1 Hz 8 W at 1 Hz, Ethernet adds 0.75 W Typical average consumption 25 mW Sleep consumption 100 µA, power depending on supply voltage Transmit power per beam 0.3-30 W, adjustable levels Power Ping sequence Parallel Batteries Internal 180 Wh alkaline, 540 or 1800 Wh with long canister Duration Depending on configuration, consult software Environmental Operating temperature -4 to +40 °C Storage temperature -20 to +60 °C Vibration IEC60068-2-64 EMC approval IEC/EN 61000-6-2, 61000-6-3 Depth rating 300 m (for 6000 m version, contact Nortek for specifications) Materials Standard model POM with titanium fasteners Dimensions Maximum diameter 228 mm Maximum length with room for internal batteries 274 mm (180 Wh), 464 mm (540 Wh or 1800 Wh Li) Maximum length without room for internal batteries 184 mm Weight In air, no battery 6.4 kg (5.2 kg short) In water, no battery -0.35 kg (0.6 kg short) Battery 1.8 kg - Supplier shall provide operational / maintenance manual and training. Note: it is requested that only authorized dealers should apply in the bid.

Item: Conductivity, Temperature, and Depth (CTD)

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Specification Value Communication Options RS-232 Conductivity range 0–9 S/m Temperature range −5 to +35 °C Pressure/depth options From 20 m upward, depending on sensor configuration Conductivity accuracy ±0.0005 S/m Temperature accuracy ±0.005 °C Conductivity resolution 0.00005 S/m Temperature resolution 0.0001 °C Sampling rate 4 Hz Auxiliary sensors Up to 7 Depth Rating (Meters) 600m, 10500m Power Source Internal Housing Material Options Plastic, Titanium Onboard Memory Yes Connector MCBH Adaptive Sampling Yes Sampling Rate 10-14 seconds From user manual Memory Capacity (Samples) 64mb 140,000 - 355,000 Power Consumption Battery (9 × alkaline D-cell) Accuracy Conductivity ± 0.0005 S/m Temperature ± 0.005 °C Optional Pressure Strain-gauge ± 0.1% of full scale rang Software Supported Software for configuration Resolution Resolution Conductivity 0.00005 S/m typical Temperature 0.0001 °C Optional Pressure Strain-gauge 0.002% of full scale range; Quartz 0.0006% of full scale range for 1-sec integration Biofouling Protection Yes

Item: Wave Guage

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Category Parameter Specification General Measurement technology ZPulse multi-frequency Doppler Data logger Digital data logger platform Recording system SD card Storage capacity ≥ 2 GB Recording interval From 2 seconds, depending on sensor configuration Recording settings Fixed interval or customized sequence Communication protocol AiCaP CANbus Maximum sensor capacity Up to 6 sensors Analog sensor inputs Up to 4 sensors, 0–5 V Supply voltage 6–14 V Operating temperature −5 to +50°C Depth ratings 300 m, 3,000 m and 6,000 m; 7,000 m and 10,000 m on request Configuration interface Windows CE-based logger with TFT colour touch panel Visualization software SeaGuard Studio Real-time output XML output, optional Water applications Seawater and freshwater Power estimation Built-in deployment-duration calculator Dimensions Height, 300 m version 356 mm Height, 3,000 m version 352 mm Height, 6,000 m version 368 mm Outside diameter, 300 m version 139 mm Outside diameter, 3,000 m version 140 mm Outside diameter, 6,000 m version 143 mm Materials 300 m version PET, titanium, stainless steel 316, Durotong DT322 polyurethane 3,000 m and 6,000 m versions Titanium, stainless steel 316, Durotong DT322 polyurethane Weight Weight in air, 300 m version 7.6 kg Weight in air, 3,000 m version 11.5 kg Weight in air, 6,000 m version 12.4 kg Weight in water, 300 m version 2.0 kg Weight in water, 3,000 m version 5.2 kg Weight in water, 6,000 m version 7.2 kg Battery Alkaline battery model 3988 Alkaline battery voltage 9 V Alkaline battery capacity 15 Ah; nominal capacity 12.5 Ah Alkaline battery power condition 20 W down to 6 V at 4°C, as stated in the document Lithium battery model 3908 Lithium battery voltage 7 V Lithium battery capacity 35 Ah Current sensor Measurement method Multi-frequency acoustic Doppler Current speed measurement Vector-averaged Current speed range 0–300 cm/s; higher range on request Current speed resolution 0.1 mm/s Mean current speed accuracy ±0.15 cm/s Relative current speed accuracy ±1% of reading Statistical variance (standard deviation) 0.3 cm/s in ZPulse mode; 0.45 cm/s in the other stated mode Statistical variance basis 300 pings Current direction range 0–360° magnetic Current direction resolution 0.01° Direction accuracy ±3° at 0–15° tilt; ±5° at 15–35° tilt Tilt range 0–90° Tilt resolution 0.01° Tilt accuracy ±1.5° Acoustic frequency 1.9–2.0 MHz Acoustic pulse power 25 W in 1 ms pulses Main-lobe beam angle 2° Installation distance from surface 0.75 m Installation distance from bottom 0.5 m Temperature sensor Model 4060 Measurement range −4 to 36°C (32–96.8°F) Resolution 0.001°C (0.0018°F) Accuracy ±0.03°C (0.054°F) Response time (63%) Less than 2 seconds Extended range Available on request Conductivity sensor Model 4319 Measurement range 0–7.5 S/m Resolution 0.0002 S/m Accuracy, Model 4319A ±0.005 S/m Accuracy, Model 4319B ±0.0018 S/m Response time Less than 3 seconds Response-time dependency Depends on flow-through cell bore Wave and tide sensor Models 5217/5218 Tide pressure range 0–60 MPa (0–8,700 psia) Maximum wave pressure 1,000 kPa (145 psia) Resolution Less than 0.0001% FSO Accuracy ±0.02% FSO Wave sampling rate 2 Hz or 4 Hz Number of samples 256, 512, 1,024 or 2,048 Pressure sensor Model 4117 Resolution Less than 0.0001% FSO Accuracy ±0.02% FSO Model 4117A range 0–1,000 kPa (0–145 psia) Model 4117B range 0–4,000 kPa (0–580 psia) Model 4117C range 0–10,000 kPa (0–1,450 psia) Model 4117D range

0–20,000 kPa (0–2,900 psia) Model 4117E range 0–40,000 kPa (0–5,800 psia) Model 4117F range 0–60,000 kPa (0–8,700 psia) Availability Certain models/ranges available on request Turbidity sensor Model 4112 Output Analog, 0–5 V Model 4112 range 0–25 FTU Model 4112A range 0–125 FTU Model 4112B range 0–500 FTU Model 4112C range 0–2,000 FTU Linearity limitation Nonlinear above 750 FTU Oxygen optode Models 4835/4330 Oxygen concentration range 0–500 mM Air saturation range 0–150% Oxygen concentration resolution Less than 1 mM Air saturation resolution 0.4% Oxygen concentration accuracy Less than 8 mM or 5%, whichever is greater Air saturation accuracy Less than 5% Response time, fast-response foil (4330F) Less than 8 seconds Response time, standard foil (4835/4330) Less than 25 seconds Salinity condition Salinity compensation required below 1 mS/cm Air saturation calibration Accuracy applies within calibrated range of 0–120% Included accessories Software Related software SD card 2 or 4 GB Battery Alkaline battery, Model 3988 Documentation Memory stick Carry handle Model 4132 Optional accessories Carry handles Models 4032, 3965 In-line mooring frames Models 4044, 3824A Clamp-on mooring frame Model not specified Bottom mooring frame Model 3448R Protecting rods Model 3783 Sub-surface floats Models 2211, 2212 Internal lithium battery Model 3908 Internal alkaline battery Model 3988 Internal battery shell Model 4513 El

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Item: Drone

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Aerial Survey Dimensions Unfolded, propellers excluded, 810×670×430 mm (L×W×H) Folded, propellers included, 430×420×430 mm (L×W×H) Diagonal Wheelbase 895 mm Weight (with single downward gimbal) Approx. 7 kg (with two batteries) Single Gimbal Damper’s Max Payload 930g Max Takeoff Weight 9 kg Operating Frequency 2.4000-2.4835 GHz 5.725-5.850 GHz EIRP 2.4000-2.4835 GHz: 29.5 dBm (FCC); 18.5dBm (CE) 18.5 dBm (SRRC); 18.5dBm (MIC) OR 5.725-5.850 GHz: 28.5 dBm (FCC); 12.5dBm (CE) 28.5 dBm (SRRC) Hovering Accuracy (P-mode with GPS) Vertical: ±0.1 m (Vision System enabled) ±0.5 m (GPS enabled) ±0.1 m (RTK enabled) Horizontal: ±0.3 m (Vision System enabled) ±1.5 m (GPS enabled) ±0.1 m (RTK enabled) RTK Positioning Accuracy When RTK enabled and fixed: 1 cm+1 ppm (Horizontal) 1.5 cm + 1 ppm (Vertical) Max Angular Velocity Pitch: 300°/s, Yaw: 100°/s Max Pitch Angle 30° (P-mode, Forward Vision System enabled: 25°) Max Ascent Speed S mode: 6 m/s P mode 5 m/s Max Descent Speed (vertical) S mode: 5 m/s P mode 4 m/s Max Descent Speed (tilt) S Mode: 7 m/s Max Speed S mode: 23 m/s P mode 17 m/s Max Wind Resistance 15m/s Max Flight Time 55 min Gimbal Configurations Single Downward Gimbal, Dual Downward Gimbals, Single Upward Gimbal, Upward and Downward Gimbals, Triple Gimbals Ingress Protection Rating IP45 GNSS GPS+GLONASS+BeiDou+Galileo Operating Temperature -20°C to 50°C (-4°F to 122° F) Remote Controller Operating Frequency 2.4000-2.4835 GHz 5.725-5.850 GHz Max Transmitting Distance (unobstructed, free of interference) NCC/FCC: 15 km CE/MIC: 8 km SRRC: 8 km EIRP 2.4000-2.4835 GHz: 29.5 dBm (FCC)

18.5dBm (CE) 18.5 dBm (SRRC); 18.5dBm (MIC) OR 5.725-5.850 GHz: 28.5 dBm (FCC); 12.5dBm (CE) 20.5 dBm (SRRC) External battery Intelligent Battery Capacity: 4920 mAh Voltage: 7.6V Type: LiPo Energy: 37.39Wh Charging time (using Intelligent Battery Station): 70 minutes (15°C to 45°C); 130 minutes (0°C to 15°C) Built-in battery Type: lithium-ion battery (5000 mAh @ 7.2 V) Charging: Use a USB charger with specification of 12V / 2A Rated power: 17 W Charging time: 2 hours and 15 minutes (Using a USB charger with specification of 12V / 2A) Battery Life Built-in battery: Approx. 2.5h Built-in battery + External battery: Approx. 4.5h USB Power Supply 5 V / 1.5 A Operating Temperature -20°C to 40°C (-4 °F to 104 °F) Vision System Obstacle Sensing Range Forward/Backward/Left/Right: 0.7-40m Upward/Downward: 0.6-30m FOV Forward/Backward/Downward: 65° (H), 50° (V) Left/Right/Upward: 75°(H), 60°(V) Infrared ToF Sensing System Obstacle Sensing Range 0.1-8m FOV 30° (±15°) Operating Environment Large, diffuse and reflective obstacles (reflectivity >10%) Top and bottom auxiliary light Effective lighting distance 5 m FPV Camera Resolution 960p FOV 145° Frame rate 30 fps Intelligent Flight Battery Quantity 02 Capacity 5935 mAh Voltage 52.8 V Battery Type LiPo 12S Energy 274 Wh Net Weight Approx. 1.35 kg Operating Temperature -4°F to 122°F (-20°C to 50°C) Ideal storage temperature 71.6°F to 86°F (22°C to 30°C) Charging Temperature -4°F to 104°F (-20°C to 40°C) Charging time Using Intelligent Battery Station: 220V input: 60 minutes (fully charging two batteries), 30 minutes (charging two batteries from 20% to 90%) Intelligent Battery Station Dimensions 501*403*252mm Net Weight 8.37kg Maximum Capacity Intelligent Flight Battery × 8 Intelligent Battery × 4 Input 100-120 VAC, 50-60 Hz / 220-240 VAC, 50-60 Hz Max. Input Power 1070W Output Power 100-120 V: 750 W 220-240 V: 992 W Operating Temperature -4°F to 104°F (-20°C to 40°C) RTK 2 High Precision GNSS Mobile Base Station with Tripod Body, Extension Rod, Charging Hub. AC Power Adapter, Intelligent Battery, Battery Cover, AC, Power Cable, USB-C Cable, USB-C OTG Cable, Hex Key, Tripod Camera Payload Weight Approx. 800 g Dimensions 198×166×129 mm Power 20W Ingress Protection (IP) Rating IP4X Operating Temperature -20° to 50° C Storage Temperature -20° to 60° C Absolute Accuracy Horizontal: 3 cm, Vertical: 5 cm * Sensor Sensor size (Still): 35.9×24 mm (Full frame) Sensor size (Max video recording area): 34×19 mm Effective Pixels: 45MP Pixel size: 4.4 µm SD Card SD: UHS-I rating or above; Max capacity: 512 GB Storage Files Photo / GNSS Raw Observation Data/ Image Log File Shutter Speed Mechanical Shutter Speed: 1/2000*-1 s Electronic Shutter Speed: 1/8000-1 s *Aperature value no larger than f/5.6 Aperture Range f/2.8-f/16 Supported formats JPEG, TIFF, MP4, MOV Video Frame Rate 60fps Gimbal Angular Vibration Range ±0.01° Stabilized System 3-axis (tilt, roll, pan) Mount Detachable Controllable Range Pitch: -120° to +30° Yaw: ±320° Mechanical Range Pitch: -132.5° to +42.5° Yaw: ±330° Roll: -90° to +60° Multispectral Payload Weight 460 g Lidar Multiple returns per pulse, DEM/DTM generation Dimensions 11.0 x 8.0 x 6.9 cm (4.3in x 3.1in x 2.7in) External Power 7.0 V - 25.2 V Spectral Bands & Wavelength(nm) Blue (475 nm center, 32 nm bandwidth), Green (560 nm

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Item: Manual Meteorological Instrument

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Power supply Three AA batteries Data output USB data cable to connect to computer to export Storage capacity 130,000 records Battery life 5 years standby time Detect/Parameters Range Accuracy Stability Response time Wind speed 0~30m/s ±(0.3m/s±0.03*v) — 1s Wind direction 0~359° ≤±1/2 direction — 0.5s Temperature -40℃~+80℃ ±0.5℃(25℃) ≤0.1℃/y ≤25s(1m/s wind speed²) Humidity 0%~99%RH ±3%RH(60%RH,25℃) ≤1%/y ≤8s(1m/s wind speed²) Atmospheric pressure 0-120kPa ±0.15kPa@25℃ 101kPa -0.1kPa/y ≤2s

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Item: Directional Wave Recorder Buoys

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Current Meter General Method: Doppler Cell size: 0.4 m to 1.1 m from surface Update rate: every 10 minutes Sensors: three 2 MHz acoustic transducers Speed Range: 0 to 3 m/s, resolution 1 mm/s Accuracy: 1% of measured value ± 2 cm/s Std. (1σ): 1 to 3 cm/s (depending on wave height) Direction Range: 0° to 360°, resolution 0.1° Accuracy: 0.4° to 2° (depending on latitude), typically 0.5° Reference: magnetic north Wave Sensor Type and processing Type: Stabilized platform sensor Sampling: 8-channel, 14 bit @ 5.12 Hz Data output rate: 2.56 Hz Processing: 32 bits microprocessor system Heave Range: -20 m to +20 m, resolution: variable, 1 mm smallest step Sampling: < 0.5% of measured value after calibration < 1.0% of measured value after 3 years Period: 1.0 s to 30 s Direction Range: 0° to 360°, resolution: 0.1° Heading error: 0.4° to 2° (depending on latitude), typically 0.5° Period: 1.0 s to 30 s (free floating) 1.0 s to 20 s (moored) Reference: magnetic north Other Water temperature Range: -10 °C to +50 °C, resolution: 0.01 °C Sensor accuracy: 0.1 °C Measurement accuracy: 0.2 °C Integrated data logger Compact flash module 1024 Mb to 2048 Mb LED flashlight Antenna with integrated LED flasher, colour yellow (590 nm), standard length 35 cm, “Standard pattern”: 5 flashes every 20 s, “Increased pattern”: 5 flashes every 15 s. GPS position 50 channel, update every 10 minutes, precision < 5 m HF link Frequency range 25.5 to 35.5 MHz (35.5 to 45.0 MHz on request) Transmission range 50 km over sea, user replaceable. For use with HVA compatible RX-C4 receivers. General Power consumption 522 mW Material Stainless steel AISI 316 or Cunifer 10 Hull diameter 0.7 m or 0.9 m (excluding fender) Weight Approx 109 kg 0.7 m AISI 316, 113 kg 0.7 m Cunifer 10 Approx 192 kg 0.9 m AISI 316, 201 kg 0.9 m Cunifer 10 Batteries 0.7 m operational life 11 months 0.9 m operational life 23 months Type: Datacell RC27B (270 Wh black) Power switch Data files are closed and secured Temperature range Operating: -5 °C to +35 °C Storage: -5 °C to +40 °C (+55 °C short term, weeks only) Hull painting Brantho-Korrux “3 in 1” paint system (no anti-fouling) Optional features Air Temperature Measuring height: 2 m above sea surface Temperature range: -20 °C to +70 °C Resolution: 0.01 °C Exposed accuracy: ±0.5 °C (±1.0 °C when solar induced uncertainty detected) Power switch Data files are

closed and secured Solar power system Solar panel combined with BOOSTCAP capacitors Peak power: 5 W, Capacity: 2 Wh Transmission Iridium SBD, Iridium internet, GSM internet and Argos 02

Item: Water Quality Sonde

UNSPSC: Miscellaneous

Specifications / Requirementsss:

General Sonde Specifications Medium Fresh, sea or polluted water Temperature - Operating -5 to +50°C Temperature - Storage -10 to +60°C Communications RS-232, SDI-12 Software EcoWatch® Diameter 2.85 in, 7.24 cm Length 18 in, 45.7 cm Weight 4 lbs, 1.8 kg Power - External 12 V DC Power - Internal 8 AA-size alkaline batteries Certifications CE, EU Battery Compliance, FCC, IP-67, WEEE, and MCERTS; Assembled in the USA Sensor specifications Range Resolution Accuracy ROX™ Optical Dissolved Oxygen• % Saturation 0 to 500% 0.1% 0 to 200%: ±1% of reading or 1% air saturation, whichever is greater; 200 to 500%: ±15% of reading ROX™ Optical Dissolved Oxygen• mg/L 0 to 50 mg/L 0.01 mg/L 0 to 20 mg/L: ± 0.1 mg/L or 1% of reading, whichever is greater; 20 to 50 mg/L: ±15% of reading Conductivity•• 6560 Sensor‡ 0 to 100 mS/cm 0.001 to 0.1 mS/cm (range dependent) ±0.5% of reading + 0.001 mS/cm Salinity 0 to 70 ppt 0.01 ppt ±1% of reading or 0.1 ppt, whichever is greater Temperature 6560 Sensor‡ -5 to +50°C 0.01°C ±0.15°C pH 6561 Sensor‡ 0 to 14 units 0.01 unit ±0.2 unit ORP -999 to +999 mV 0.1 mV ±20 mV Depth - Deep 0 to 656 ft, 200 m 0.001 ft, 0.001 m ±1 ft, ±0.3 m Depth - Medium 0 to 200 ft, 61 m 0.001 ft, 0.001 m ±0.4 ft, ±0.12 m Depth - Shallow 0 to 30 ft, 9.1 m 0.001 ft, 0.001 m ±0.06 ft, ±0.02 m Vented Level 0 to 30 ft, 9.1 m 0.001 ft, 0.001 m ±0.01 ft, 0.003 m Turbidity• 6136 Sensor‡ 0 to 1,000 NTU 0.1 NTU ±2% of reading or 0.3 NTU, whichever is greater** Nitrate / nitrogen••• 0 to 200 mg/L-N 0.001 to 1 mg/L-N (range dependent) ±10% of reading or 2 mg/L, whichever is greater Ammonium / ammonia / nitrogen••• 0 to 200 mg/L-N 0.001 to 1 mg/L-N (range dependent) ±10% of reading or 2 mg/L, whichever is greater Chloride••• 0 to 1000 mg/L 0.001 to 1 mg/L (range dependent) ±15% of reading or 5 mg/L, whichever is greater Rhodamine• 0-200 µg/L 0.1 µg/L ±5% reading or 1 µg/L, whichever is greater Blue-Green Algae Sensor Specifications Range Detection Limit Resolution Linearity Blue-Green Algae Phycocyanin• ~0 to 280,000 cells/mL† 0 to 100 RFU ~220 cells/mL§ 1 cell/mL 0.1 RFU R2 > 0.9999** Blue-Green Algae Phycoerythrin• ~0 to 200,000 cells/mL† 0 to 100 RFU ~450 cells/mL§§ 1 cell/mL 0.1 RFU R2 > 0.9999*** Chlorophyll• 6025 Sensor‡ ~0 to 400 µg/L 0 to 100 RFU ~0.1 µg/L§§§ 0.1 µg/L Chl 0.1% RFU R2 > 0.9999****

Item: Physical Balance

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Parameter Specification Type Electronic analytical balance Maximum capacity 200–220 g Readability 0.1 mg (0.0001 g) Repeatability ≤0.1 mg Linearity ±0.2–0.3 mg Calibration Internal automatic calibration Pan material Stainless steel Pan size Approximately 90 mm Display High-contrast LCD/LED Draft shield 5-sided glass draft shield Units g, mg, ct and other standard units Interface USB / RS-232 Data output GLP/GMP-compatible Operating temperature Approximately 5–40°C Power supply 100–240 V AC Wind protection Included Overload protection Required Application Water-quality, sediment, filtration and laboratory analysis

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Item: Filtration Assembly

UNSPSC: Miscellaneous

Specifications / Requirementsss:

• Filter diameter: 47 mm • Filtration area: 9.6 cm2 • Funnel capacity: 300 ml • Outlet fitting: No. 8 perforated silicone stopper mounts in standard 1000 ml filtering flask • Dimensions: 22.9 cm (h) x 7.6 cm (d)

Item: Multibeam

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Sonar Performance Specifications Standard Parameter Specification Depth Range 0.2 – 400 m (standard) Operating Frequence Wideband 200 – 700 kHz (adaptive) Nominal Operation ~400 kHz central frequency Resolution (Across x Along) 0.9° x 0.9° @400kHz Beamforming Up to 1024–2048 beams (adaptive) Common Sonar Specifications Swath Coverage Up to 210° sector coverage Backscatter Outputs Bathy Intensity, Sidescan, Snippets, Water Column Stabilisation Roll, pitch, yaw stabilization (active) Ping Rate High repetition rate (adaptive up to ~60 Hz or more) Physical & System Performance Wet-end Weight Portable Roll Accuracy ~0.01° Pitch Accuracy ~0.01° Heading Accuracy ~0.02° Motion Compensation Full (roll, pitch, yaw) Beam Density Up to 2048 beams (dual swath option) Power Consumption 50–80 W typical Mobilization Single cable, rapid deployment OEM GNSS/INS Integration Applanix OceanMaster (embedded built-in) Heading Accuracy 0.02° with 2m antenna separation Pitch/Roll Accuracy The Applanix OceanMaster Inertial Measurement Unit (IMU) is tightly embedded, offering 0.01-degree roll and pitch accuracy. Heavy-Duty Transit Cases Waterproof, crushproof, and shock-resistant custom-foamed Pelican-style transport cases housing the towfish, topside processor, cables, and accessories. INS/IMU / MRU Integrated and built-in INS/IMU / MRU (high precision motion sensor) . MOUNTING & INSTALLATION SYSTEM • Carbon fibre or aluminium pole mount system • Quick release mechanism for rapid deployment • Shock and vibration isolation • Waterproof connectors • Integrated cable management system Dual Swath Enabling the sonar to transmit multiple pings simultaneously (2048 beams), providing substantial efficiency gains for the user. This allows higher sounding density when the same survey speed is maintained as a traditional single swath configuration, making it easier to satisfy sounding density requirements for the project. 1024 Beams Increase sounding density across track TX Scanning Directing the sonar to sweep an along-track sector to enhance coverage behind pillars and quay walls. Sonar’s steerable transmission technology steers the transmit beam in a 20-degree sector, allowing it to effectively survey regions 01 Set 2 Software HYPACK HYSWEEP Software 01 License 3 Software SonarWiz Acquisition & Post Processing Software Functionality: Industry-standard software package for side-scan sonar, bathymetry, and sub-bottom profile data acquisition and post-processing 01 License 4 POSITIONING SYSTEM (RTK GNSS / INS) The system shall include a tightly integrated GNSS/INS solution: • External survey-grade RTK GNSS receiver (mandatory) • For RTK : 2x GNSS (One GNSS base station system and one GNSS rover system) • Dual-antenna configuration preferred for precise heading • Horizontal accuracy: ±(8 mm + 1 ppm) or better • Vertical accuracy: ±(15 mm + 1 ppm) or better • Heading accuracy: ≤ 0.02° (dual antenna preferred) • Pitch/Roll accuracy: ≤ 0.01° • Integrated IMU providing high-accuracy roll, pitch, heading, and heave • Real-time time synchronization with sonar system • NMEA + proprietary data integration 01 Set 5 Power Conditioning System UPS / stabilizer + surge protection 01 Set 6 Sound Velocity Profiler (SVP/CTD) Water column sound velocity correction 01 Set 7 Data Storage & Backup System NAS / RAID storage system 01 Set 8 SURVEY WORKSTATION • Rugged marine-grade laptop/workstation • CPU: Intel i7/i9 or equivalent of latest generation • RAM: 32–64 GB • SSD storage ≥ 2 TB • Dual monitor support • UPS / power conditioning system • Marine-grade cabling 01 Set

Item: Side Scan Sonar

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Sonar Performance Specifications Standard Parameter Specification Sonar Type Dual frequency CHIRP side scan sonar Frequency Options 400/900 kHz Operating Range 200 m (400 kHz), 75 m (900 kHz), Beam Width 0.46°–0.20° (frequency dependent) Vertical Beam ~50° Pulse Type Full Spectrum® CHIRP Resolution 2.3 cm to 0.6 cm (frequency dependent) Swath Coverage High-resolution dual channel port/starboard Towfish Specifications Length ~114.8 cm Diameter ~9.5 cm Weight (Air) ~20.4 kg Depth Rating 200 m) Sensors Heading, pitch, roll, pressure (depth sensors) Deployment Towfish, pole mount system Tow cable conductors: RG-58 coax/Kevlar Operating range: 150 m (400 kHz) 75 m (900 kHz) Across-track resolution: 2.3 cm (400 kHz) 1.0 cm (900 kHz) Along-track resolution: 80 cm @ 100 m (400 kHz) 40 cm @ 50 m (400 kHz24 cm @ 50 m (900 kHz) 20 cm @ 25 m (400 kHz) 12 cm @ 25 m (900 kHz) Horizontal beam width: 0.46° (400 kHz) 0.28° (900 kHz) Pulse-type: CHIRP Navigation interfaces: RS-232, NMEA0183 Pressure sensor working depth: 0–137 m Pitch and roll accuracy: For indicative Use Only. Options: Keel Weight Kit Depressor Wing Kit Hull Scan Kit Magnetometer Interface Topside processor SPECIFICATION TOPSIDE (Option 1) TOPSIDE (Option 2) Size: 19.0 cm (7.3 in.) high 49.0 cm (19.2 in.) wide 39.0 cm (15.2 in.) deep 8.9 cm (3.50 in.) high 48.3 cm (19 in.) wide 50.6 cm (19.9 in.) deep Weight: 13.2 kg (w/ laptop computer) 10 kg (w/o laptop computer) 6.4 kg Case construction: High-impact structural polypropylene Aluminum 19-inch rack mount Case sealing method: Watertight cover with O-ring seal and purge valve N/A (not watertight) AC input power: 90–260 VAC, 50/60 Hz, 72–110 watts operating, auto-switching 0.7 A/1.3 A at 120 VAC idling/operating 0.3 A/0.56 A at 240 VAC idling/operating 90–260 VAC, 50/60 Hz, 72–110 watts operating, auto-switching 0.6 A/1.1 A at 120 VAC idling/operating 0.3 A/0.56 A at 240 VAC idling/operating DC input power: 12–24 VDC, 72 watts operating 4.3 A/6.0 A at 12 VDC idling/operating 2.4 A/3.3 A at 24 VDC idling/operating N/A Wired Ethernet 10/100 Mb/s RJ-45 LAN connection 10/100 Mb/s RJ-45 LAN connection Processor: Intel® Core I7-1370P Memory: 8 GB DDR Data storage: 512 GB SSD Operating system: Windows 11 64-bit Display: 14-inch LCD Topside processor System Type Portable or rack-mounted processor Power Input AC / DC compatible Operating System Windows-based system Software acquisition software Interface Ethernet / VDSL / serial GNSS input Weight ~10–13 kg (portable system) Power Consumption 50–80 W typical Mobilization Single cable, rapid deployment Heavy-Duty Transit Cases Waterproof, crushproof, and shock-resistant custom-foamed Pelican-style transport cases housing the towfish, topside processor, cables, and accessories. MOUNTING & INSTALLATION SYSTEM • Kevlar reinforced tow cable (standard length 50–200 m) • Optional depressor wing / keel weight system • Pole mount option for shallow water surveys • Quick release tow safety system • Integrated cable management system 01 Set 2 Software SonarWiz Acquisition& Post Processing Software Functionality: Industry-standard software package for side-scan sonar, bathymetry, and sub-bottom profile data acquisition and post-processing 01 License 3 Software HYPACK Software 01 License 4 Software Seabed Classification Software 01 License 5 Software GIS Software 01 License 6 Acoustic Altimeter For towfish height above the seabed 01 Set 7 POSITIONING SYSTEM (RTK GNSS / INS) The system shall

include a tightly integrated GNSS/INS solution: • External survey-grade RTK GNSS receiver (mandatory) • For RTK : 2x GNSS (One GNSS base station system and one GNSS rover system) • Dual-antenna configuration preferred for precise heading • Differential GNSS / NMEA input Performance requirements: • Horizontal accuracy: ±(8 mm + 1 ppm) or better • Heading accuracy: ≤ 0.2° (typical GNSS compass systems) • Fully time-synchronized with sonar system • Real-time position logging with acoustic data 01 Set 8 USBL ACOUSTIC POSITIONING SYSTEM (OPTIONAL – SEPARATE MODULE) • Vessel-mounted acoustic transceiver • Towfish-mounted acoustic transponder • Real-time 3D positioning (X, Y, Z) • Accuracy: 1–3 m (typical operational range) Integration with HYPACK navigation system 01 Set 9 SURVEY WORKSTATION • Rugged marine-grade laptop/workstation • CPU: Intel i7/i9 or equivalent of latest generation • RAM: 32–64 GB • SSD storage ≥ 2 TB • Dual monitor support • UPS / power conditioning system • Marine-grade cabling 01 Set 10 Sound Velocity Profiler (SVP/CTD) Water column sound velocity correction 01 Set 11 Data Storage & Backup System External SSD (≥4–8 TB) + field backup 01 Set 12 Deployment System Tow winch, cable meter counter, A-frame or davit 01 Set 13 Power Conditioning System UPS / stabilizer + surge protection 01 Set 14 Motion Reference Unit (INS/MRU/IMU) – Pitch, roll, heave correction (high precision motion sensor)

Item: Digital Camera

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Parameter Specification Camera type Full-frame interchangeable-lens digital camera Sensor 35.6 × 23.8 mm full-frame Exmor R CMOS Effective pixels Approx. 24.2 MP Total pixels Approx. 25.3 MP Aspect ratio 3:2 Image processor BIONZ X ISO range 100–51,200; expandable to 50–204,800 Continuous shooting Up to 10 fps Autofocus Phase + contrast detection AF sensitivity −3 to +20 EV Image stabilization 5-axis in-body sensor-shift stabilization RAW 14-bit RAW, uncompressed/compressed options Maximum still image 6000 × 4000 pixels Video 4K UHD 3840 × 2160 4K frame rates 30p / 25p / 24p 4K bitrate Up to 100 Mbps HD high-speed recording Up to 120 fps Video format XAVC S / MPEG-4 AVC/H.264 Picture profiles Includes S-Log2, S-Log3 and HLG Memory cards 2 slots; SD/SDHC/SDXC, UHS-I/II support Viewfinder 0.5-inch electronic, 2.36 million dots LCD 3.0-inch tilting touchscreen Wi-Fi Yes, 2.4 GHz Bluetooth Version 4.1 USB USB connectivity HDMI Micro HDMI Location information Smartphone location-information linking Battery NP-FZ100 rechargeable battery Body Magnesium-alloy construction with dust/moisture resistance Weight Approx. 650 g with battery and memory card

Item: Multifunction Wireless Plotter Printer

UNSPSC: Miscellaneous

Specifications / Requirementsss:

Functions Print, copy, scan Print speed, maximum 25 sec/page for D size, 90 D size 24" x 36" prints per hour Scan speed, maximum Up to 1.5 in/sec (color, 200 dpi), up to 4.5 in/sec (grayscale, 200 dpi) Resolution (color) Up to 2400 x 1200 optimized dpi Number of print cartridges 4 (C, M, Y, mK) cartridges Print languages TIFF, JPEG, URF, PDF, HP-GL/2, HP-RTL, CALS G4 Line accuracy ±0.1% Maximum optical density (black) 15 L* min/1.7 D Finished output handling Sheet feed, roll feed, input tray (50 sheet capacity), media bin, automatic horizontal cutter Media sizes supported Input tray: A, B; Manual feed: A, B, C, D, E Media sizes supported Input tray: A4, A3; Manual feed: A4, A3, A2, A1, A0 Media sizes, custom Input tray: 8.3 x 11 to 12 x 18 in; Manual feed: 8.3 x 11 to 36 x 66 in Media types Bond and coated paper (bond, coated, heavyweight coated, plain, bright white, blueprint), technical paper (natural tracing), film (clear, matte), photographic paper (ID satin, ID gloss), self-adhesive (adhesive matte/gloss, adhesive polypropylene gloss), Polypropylene (matte) Media sizes, standard 14.5 to 36 in Roll external diameter 3.9 in Media thickness Up to 11.8 mil Power Input voltage (auto ranging): 100-240 V (±10%), 50/60 Hz (±3 Hz), 1.2 A max Power consumption 35 W (printing), <11 W (ready), <3.5 W (sleep), <0.1 W (off). Auto-scheduled printer on/off usage Operating temperature range 41 to 104°F Warranty Two-year hardware warranty Software included Driver for Windows 11, relevant app for Windows, macOS, Android, and iOS Dynamic security Dynamic security enabled printer Supplier shall provide operational / maintenance manual and training.

Price Schedule

For Individual Items

#	Item Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
1							
2							

For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

PUBLIC PROCUREMENT REGULATORY AUTHORITY
(PPRA)
EPADS

General Conditions of Contract

A. General

1. Definitions

1.1 Unless the context otherwise requires, the following terms whenever used in this Contract shall have the same meaning and shall be interpreted as indicated

a. “Applicable Law” means the laws and any other instruments having the force of law in the Government’s Country, or in such other country as may be specified in the Special Conditions of the Contract (SC), as they may be issued and in force from time to time;

b. The “Arbitrator” is the person appointed with mutual consent of both the parties, to resolve contractual disputes as provided for in the General Conditions of the Contract GCC Clause 35 hereunder.

c. “Authority” means Public Procurement Regulatory Authority.

d. The “Commencement Date” is the date when the Supplier shall commence execution of the contract as specified in the SCC.

e. “Completion date” means the date of completion of the Contract by the Bidder as certified by the Procuring Agency.

f. “Procuring Agency” means:-

a. any Ministry, Division, Department or any Office of the Government;

b. any authority, corporation, body or organization established by or under a Law or which is owned or controlled by the Government;.

g. “The Contract” means an agreement enforceable by law;

h. “The Contract Price” means the price payable to the Bidder under the Contract for the full and proper performance of its contractual obligations;

i. “Ancillary Services” means those services ancillary to the provision of Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Bidder covered under the Contract;

j. “GCC” means the General Conditions of Contract contained in this section;

k. “SCC” means the Special Conditions of Contract by which the GCC may be amended or supplemented;

l. **“**Day” means calendar day unless indicated otherwise.

m. “Defective Goods” are those goods which are below standards, requirements or specifications stated by the Contract.

n. “Delivery” means the transfer of the goods from the supplier equipment, machinery, and /or other materials which the Supplier is required to supply to the Procuring Agency under Contract.

o. “Effective Date” means the date on which this Contract comes into force and effect.

p. “Force Majeure” means an unforeseeable event which is beyond reasonable control of either Party and which makes a Party’s performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

For the purposes of this Contract, “Force Majeure” means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of a Party, and which makes a Party’s performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances. and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood, epidemics, or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by Government agencies.

q. The Bidder” means the individual or corporate body whose Bids to provide the Goods has been accepted by the Procuring Agency;

r. “The Project Site,” where applicable, means the place or places named in Bids Data Sheet and technical Specifications;

s. “Government” means the Government of Pakistan;

t. “Subcontractor” means any entity to which the Bidder subcontracts any part of the Goods.

u. The “Services” means the work to be performed by the Bidder pursuant to this Contract and as prescribed in the Specifications and Schedule of Activities included in the Bidder’s Bids;

v. “Party” means the Procuring Agency or the Bidder, as the case may be, and “Parties” means both of them;

w. “Foreign Currency” means any currency other than the currency of the country of the Procuring Agency;

x. “Completion Date” means the date of completion of the contract by the Bidder as certified by the Procuring Agency;

y. “In Writing” means communicated in written form with proof of receipt;

z. “Local Currency” means the currency of Pakistan;

a. “Origin” means the place where the Goods were mined, grown, or produced or from which the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized new produce results that is substantially different in basic characteristics or in purpose or utility from its components.

b. “Specification” means the Specification of the Goods and performance of incidental services in accordance with the relevant standards included in the Contract and any modification or addition made or approved by the Procuring Agency.

c. “Procuring Agency” means: -
any Ministry, Division, Department or any Office of the Federal Government;
any authority, corporation, body or organization established by or under a Federal Law or which is owned or controlled by the Federal Government;

2. Application and Interpretation

2.1 These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.

2.2 In interpreting these Conditions of Contract headings and marginal notes are used for convenience only and shall not affect their interpretations unless specifically stated; references to singular include the plural and vice versa; and masculine include the feminine. Words have their ordinary meaning under the language of the Contract unless specifically defined.

3. Applicable Law

3.1 The contract shall be governed and interpreted in accordance with the laws of Pakistan, unless otherwise specified in SCC.

4. Governing Language

4.1 The Contract as well as all correspondence and documents relating to the Contract exchanged between the Bidder and the Procuring Agency, shall be written in the **English language** unless otherwise stated in the **SCC**. Supporting documents and printed literature that are part of the Contract may be in another language provided these are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5. Notices

5.1 Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram, or facsimile to such Party at the address specified in the **SCC**.

6. Standard

6.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, the American Standards (such as ACI, IEEE, ASME, etc.) or the Pakistani standards such as PSQCA Such standards shall be the latest issued by the concerned institution.

7. Delivery/Location

7.1 The Goods shall be delivered to such locations as the Procuring Agency may approve and as specified in SCC.

8. Authorized Representatives / Authority of Member in charge

8.1 Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Procuring Agency or the Bidder may be taken or executed by the officials specified in the **SCC**.

B. Commencement, Completion, Modification, and Termination of Contract

8. Effectiveness of Contract

8.1 This Contract shall come into effect on the date the Contract is signed by both parties and such other later date as may be stated in the SCC.

9. Commencement of the Contract

9.1 The Bidder shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the SCC.

10. Program

10.1 Before commencement of the Contract, the Bidder shall submit to the Procuring Agency for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated.

11. Starting Date/Expiration Date

11.1 The Bidder shall start carrying out the Services Five (05) days after the date the Contract becomes effective, or at such other date as may be specified in the **SCC.**

11.2 Unless terminated earlier pursuant to Clause **GCC 16** hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SCC.

12. Entire Agreement

12.1 This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

13. Modification

13.1 Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any Bids for modification or variation made by the other Party.

13.2 In cases of any modifications or variations, the prior written consent of the Procuring Agency is required.

14. Force Majeure

14.1 Definition

For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

14.2 No Breach of Contract

The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract in so far as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

14.3 Extension of Time

Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure. However, such period shall not exceed sixty (60) days.

14.4 Payments

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Bidder shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.

15. Termination

15.1 By the Procuring Agency

The Procuring Agency may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (e) of this Clause. In such an occurrence the Procuring Agency shall give at least thirty (30) calendar days' written notice of termination to the Bidder in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e);

a. If the Bidder fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension;

b. If the Bidder becomes (or, if the Bidder consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;

c. If the Bidder fails to comply with any final decision reached as a result of arbitration proceedings;

d. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;

e. If the Procuring Agency, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

15.2 By the Bidder

The Bidder may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Procuring Agency, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

a. If the Procuring Agency fails to pay any money due to the Bidder pursuant to this Contract and not subject to dispute within forty-five (45) calendar days after receiving written notice from the Bidder that such payment is overdue.

b. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.

c. If the Procuring Agency fails to comply with any final decision reached as a result of arbitration.

d. If the Procuring Agency is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Bidder may have subsequently approved in writing) following the receipt by the Procuring Agency of the Bidder's notice specifying such breach.

C. Obligations of the Bidder

16. General

16.1 Standard of Performance

1. The Bidder shall deliver the product and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Bidder shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Procuring Agency, and shall at all times support and safeguard the Procuring Agency's legitimate interests in any dealings with the third parties.

16.2 Law Applicable to Goods

The Bidder shall deliver the goods in accordance with the Contract and in accordance with the Law of Pakistan and shall take all practicable steps to ensure that any of its Experts and Sub-Bidders, comply with the Applicable Law.

17. Conflict of Interests

17.1 Bidder Not to Benefit from Commissions and Discounts.

The remuneration of the Bidder shall constitute the Bidder's sole remuneration in connection with this Contract or the Services, and the Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Bidder shall use their best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration.

17.2 Bidder and Affiliates Not to be Otherwise Interested in Project

The Bidder agree that, during the term of this Contract and after its termination, the Bidder and its affiliates, as well as any Subcontractor and any of its affiliates, shall be disqualified from providing Goods for any project resulting from or closely related to the Services.

17.3 Prohibition of Conflicting Activities

Neither the Bidder nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

a. during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract;

b. during the term of this Contract, neither the Bidder nor their Subcontractors shall hire public employees in active duty or on any type of leave, to perform any activity under this Contract;

18. Confidentiality

18.1 Except with the prior written consent of the Procuring Agency, the Bidder and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the contract.

19. Insurance to be Taken Out by the Bidder

19.1 The Bidder(a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Procuring Agency, insurance against the risks, loss or damage, and for the coverage, as shall be specified in the SCC; and (b) at the Procuring Agency's request, shall provide evidence to the Procuring Agency showing

that such insurance has been taken out and maintained and that the current premiums have been paid.

20. Bidder's Actions Requiring Procuring Agency's Prior Approval

20.1 The Bidder shall obtain the Procuring Agency's prior approval in writing before taking any of the following actions:

(a) appointing such members of the Personnel not provided by the Bidder;

(b) changing the Program of activities; and

(c) any other action that may be specified in the SCC.

21. Reporting Obligations

21.1 The Bidder shall submit to the Procuring Agency the reports and documents in the numbers, and within the periods as prescribed by the Procuring Agency.

22. Liquidated Damages

22.1 If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring Agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in **SCC** of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the performance security (or guarantee) specified in **SCC**. Once the said maximum is reached, the Procuring Agency may consider termination of the Contract pursuant to **GCC Clause 16.**

22.2 Correction for Over-payment

If the Intended Completion Date is extended after liquidated damages have been paid, the Procuring Agency shall correct any overpayment of liquidated damages by the Bidder by adjusting the next payment certificate. The Bidder shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in SCC.

22.3 Lack of performance penalty

If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, a penalty for Lack of performance will be paid by the Bidder. The amount to be paid will be calculated as a percentage of the cost of having the Defect corrected, assessed as specified in the SCC.

23. Performance Guarantee

23.1 The Performance Security (or Guarantee) shall be provided to the Procuring Agency no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form acceptable to the Procuring Agency as specified in SCC, and denominated in the types and proportions of the currencies in which the Contract Price is payable as specified in the SCC.

23.2 Within Seven (07) days from the issuance of acceptance letter from the Procuring Agency, the successful Bidder shall furnish the Performance Guarantee in shape of ------- at the discretion of the PA in the amount **specified in SCC.** In case the amount of Bids security is equal or greater than

23.3 The proceeds of the Performance Guarantee shall be payable to the Procuring agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

23.4 The Performance Guarantee shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Procuring agency and shall be in the acceptable form as specified in SCC.

23.5 The Performance Guarantee will be discharged by the Procuring agency and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC.**

23.6 The bid security of the successful bidder shall not be substituted with the Performance Guarantee.

24. Fraud and Corruption

24.1 The Procuring Agency requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the Bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

25. Sustainable Procurement

25.1 The Bidder shall conform to the sustainable procurement contractual provisions, if and as specified in the SCC.

D. Bidder's Personnel

26. Description of Personnel

26.1 The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Bidder's Key Personnel. The Key Personnel listed by title as well as by name are hereby approved by the Procuring Agency.

27. Removal and/or Replacement of Personnel

27.1 Except as the Procuring Agency may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Bidder, it becomes necessary to replace any of the Key Personnel, the Bidder shall provide as a replacement a person of equivalent or better qualifications.

27.2 If the Procuring Agency finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Bidder shall, at the Procuring Agency's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Procuring Agency.

27.3 The Bidder shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

E. Obligations of the Procuring Agency

28. Assistance and Exemptions

28.1 The Procuring Agency shall use its best efforts to ensure that the Government shall provide the Bidder such assistance and exemptions as specified in the SCC.

29. Change in the Applicable Law

29.1 If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost of the related Services rendered by the Bidder, then the remuneration and reimbursable expenses otherwise payable to the Bidder under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred in the SCC.

30. Services and Facilities

30.1 The Procuring Agency shall make available to the Bidder and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described , at the times and in the manner specified in the SCC or terms of reference.

30.2 In case that such services, facilities and property shall not be made available to the Bidder, the Parties shall agree on (i) any time extension that it may be appropriate to grant to the Bidder for the performance of the Services, (ii) the manner in which the Bidder shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the Bidder as a result thereof.

F. Payments to the Bidder

31. Contract Price

31.1 The price payable shall be in Pakistani Rupees unless otherwise specified in the SCC. Prices charged by the Supplier for Goods delivered under the Contract shall not vary from the prices quoted by the Supplier in its Bid.

32. Terms and Conditions of Payment

32.1 Payments will be made to the Bidder according to the payment schedule stated in the SCC and as per actual invoice submitted by the Bidder.

32.2 Unless otherwise stated in the SCC, the advance payment shall be made against the provision by the Bidder of a bank guarantee for the same amount, and shall be valid for the period stated in the SCC. Any other payment shall be made after the conditions listed in the SCC for such payment have been met, and the Bidder have submitted an invoice to the Procuring Agency specifying the amount due.

33. Currency of Payment

33.1 Any payment under this Contract shall be made in the currency(ies) specified in the SCC.

G. Quality Control

34. Identifying Defects

34.1 The principle and modalities of Inspection of the Goods by the Procuring Agency shall be as indicated in the SCC. The Procuring Agency shall check the Bidder’s performance and notify him of any Defects that are found. Such checking shall not affect the Bidder’s responsibilities. The Procuring Agency may instruct the Bidder to search for a Defect and to uncover and test any service that the Procuring Agency considers may have a Defect. Defect Liability Period is as defined in the SCC.

35. Correction of Defects, and

Lack of Performance Penalty

35.1 The Procuring Agency shall give notice to the Bidder of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice a Defect is given, the Bidder shall correct the notified Defect within the length of time specified by the Procuring Agency's notice.

35.3 If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, the Procuring Agency will assess the cost of having the Defect corrected, the Bidder will pay this amount, and a Penalty for Lack of Performance.

36. Taxes and Duties

36.1 A Supplier shall be entirely responsible for all taxes, duties, fees, etc., incurred until delivery of the contracted Goods to the Procuring Agency.

H. Settlement of Disputes

37. Alternate Dispute Resolution

37.1 Upon the commencement of the Procurement Contract, any disputes arising between the contracting parties shall be resolved in accordance with Rule 66 of the Public Procurement Rules, 2026.

37.2 The procuring agency may refer the matter to the Chief Justice Islamabad High Court or Managing Director PPRA or the Secretary Ministry of Law & Justice for appointment of Arbitrator.

37.3 The fee for the Arbitrator shall be specified in Pak Rupees as determined by the appointing authority which shall be borne and shared equally by the contracting parties.

38. Change Orders

The Procuring Agency may at any time, by a written order given to the Supplier, make changes within the general scope of the Contract in any one or more of the following:

a)Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Procuring Agency;
b)The method of shipment or packing;
c)The place of delivery; and/or
d)The Services to be provided by the Supplier.

39. Contract Amendenments

39.1 Subject to GCC Clause 32, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

40. Sub-Contracts

40.1 The Supplier shall consult the Procuring Agency in the event of subcontracting under this contract if not already specified in the Bid. Subcontracting shall not alter the Supplier's obligations.

Special Conditions of Contract

SECTION VIII. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

Number of GC Clause

Amendments of, and Supplements to, Clauses in the General Conditions of Contract

Number of GC Clause 1

Definitions

The Procuring Agency is: **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO)), Administrative Officer ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

The Supplier is:

The title of the subject procurement is: **Procurement of Physical Instruments and Software (under the PSDP Project, Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast)**

Number of GC Clause 3

Applicable/Governing Law:

The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan

Number of GC Clause 4

Language:

The language of the Contract, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be in **English.**

Number of GC Clause 5

Notices:

The addresses for the notices are:

The Authority:

National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO)), Administrative Officer
ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).
+92-300-210-1755
niopk.gov.pk@gmail.com

Contractor/ Bidder:

[Name, address and telephone number].

The Contractor/ Bidder's Representative(s)

[Name, address, telephone number and e-mail address]

Number of GC Clause 7.1

The Authorized Representatives are:

For the Procuring Agency:

National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO)), Administrative Officer
ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).
+92-300-210-1755
niopk.gov.pk@gmail.com

For the Bidder:

Name: ……

Designation: ……..

Address: ……..

Number of GC Clause 8

Effectiveness of the contract

Number of GC Clause 9

Commencement of Contract:

Number of GC Clause 11.2

Expiration of Contract:

Number of GC Clause 15

Termination

In the event of termination of the contract due to any reason as already defined in the General Conditions of Contract, the Bidder shall be responsible for providing to the Authority the Goods till the time of alternate arrangements.

Number of GC Clause 17

Conflict of Interest:

The Procuring Agency reserves the right to determine on a case-by-case basis whether the Bidder should be disqualified from providing goods or services due to a conflict of a nature described in Clause GCC 17**.**

Number of GC Clause 22

Liquidated Damages

If the Bidder fails to provide services as required under the contract or in case of any data loss/data breach or any incident compromising the data security or other such failures related to any services, the Bidder shall pay to the Procuring Agency as Liquidated Damages at a rate of **0.00%** to **0.00%** of the Contract value, in accordance with the extent of performance failure & the cost of investigating such incidents as judged by the Authority.

Number of GC Clause 23

Performance Guarantee:

Instrument of Performance Guarantee shall be in the Name of : **Nil**

The amount of performance guarantee shall be **0%** of the contract price in acceptable form of **Nil**

Number of GC Clause 32

Payment terms:

Payment will be made to the Bidder against the procured Goods and services according to the actual invoice or running bills submitted by the Bidder against the services provided within the time given in the conditions of the contract.

Number of GC Clause 33

Currency of Payment:

All the payment to be released to the contractor/Bidder shall be in Pakistani Rupees.

Number of GC Clause 34

Identifying Defects:

The Authority reserves the right at any time to inspect the premises of the provider to inspect the goods and monitor the goods being provided.

Inspections & Tests Requirements

For being Brand New, bearing relevant reference numbers of the equipment (Certificate from supplier)

For Physical Fitness having No Damages (Certificate from supplier)

For the Country of Origin as quoted by the Supplier (Certificate from manufacturer)

For conformance to specifications and performance parameters, through Prior to delivery inspection (Inspection Report by Procurement Committee / Inspection Team)

For successful operation at site after complete installation, testing and commissioning of the equipment (Installation, Testing and Commissioning Report by Procurement Committee / Inspection Team)

Copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;

Original and two copies of the usual transport document (for example, a negotiable bill of lading, a non-negotiable sea waybill, an inland waterway document, an air waybill, a railway consignment note, a road consignment note, or a multimodal transport document) which the buyer may require to take the goods;

Copies of the packing list identifying contents of each package;

Insurance Certificate;

Manufacturer's or Supplier's Valid Warranty Certificate;

Inspection Certificate issued by the Nominated Inspection Agency (if any), and the Supplier's Factory Inspection Report;

Certificate of Origin.

The above documents would be required even if the equipment has already been imported and is available with the supplier ex-stock

Number of GC Clause 37

Following is the guidance for Dispute Resolution

(a) For Contracts to be entered with foreign Contractor/ Service Provider:

All disputes arising in connection with the present Contract shall be finally settled under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with said Rules.

(b) For Contracts to be entered with nationals of Pakistan:

i. If any dispute of any kind whatsoever shall arise between the Authority and the Bidder in connection with or arising out of the Contract, including without prejudice to the generality of foregoing, any question regarding its existence, validity, termination and the execution of the Contract – whether during developing phase or after their completion and whether before or after the termination, abandonment or breach of the Contract – the parties shall seek to resolve any such dispute or difference by mutual diligent negotiations in good faith within 14 (fourteen) days following a notice sent by one Party to the other Party in this regard.

ii. At future of negotiation the dispute shall be resolved through mediation and mediator shall be appointed with the mutual consent of the both parties.

iii. At the event of failure of mediation to resolve the dispute relating to this contract such dispute shall finally be resolved through binding Arbitration in accordance with GCC clause 38.

iv. The cost of the mediation and arbitration shall be shared by the parties in equal proportion however the both parties shall bear their own costs and lawyer's fees regarding their own participation in the mediation and arbitration. However, the Arbitrator may make an award of costs upon the conclusion of the arbitration making any party to the dispute liable to pay the costs of another party to the dispute.

v. Arbitration proceedings as mentioned in the above clause regarding resolution of disputes may be commenced prior to, during or after completion of the contract.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree that the Authority shall pay the Bidder any monies due to the Bidder.

Rules of procedure for arbitration proceedings:

Any dispute between the Authority and a Bidder who is a national of the Islamic Republic of Pakistan arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Islamic Republic of Pakistan including Arbitration Act 1940, however above provision shall prevail in referring the case to the Arbitrator.

Place of Arbitration and Award:

The arbitration shall be conducted in English language and place of arbitration shall be at Islamabad. The award of the arbitrator shall be final and shall be binding on the parties.

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Bid Securing Declaration

Form 9: Bid Securing Declaration

Date: *[insert date (as day, month and year)]*

Bid No.:***P193260***

Alternative No.: **[insert identification No if this is a Bid for an alternative]**

To: **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO)), Administrative Officer ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

1. have withdrawn or modified our Bid during the period of Bid Validity specified in the Form of Bid;

2. Disagreement to arithmetical correction made to the Bid price; or

3. having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid Validity, (i) failure to sign the contract if required by Procuring Agency to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the Bidding Documents.

We understand this Bid Securing Declaration shall expire if we are not the successful

Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight (28) days after the expiration of our Bid.

Signed: [insert signature of person whose name and capacity are shown] In the capacity of
[insert legal capacity of person signing the Bid Securing Declaration]

Name: [insert complete name of person signing the Bid Securing Declaration]

Duly authorized to sign the Bid for and on behalf of: [insert complete name of Bidder]

Dated on day of , [insert date of signing]
Corporate Seal (where appropriate)

Contract Form

SECTION IX: CONTRACT FORMS

THIS AGREEMENT made the _____ day of _____ 20_____ between **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO)), Administrative Officer ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

(hereinafter called "the Procuring Agency") of the one part and *[name of Bidder]* of *[city and country of Bidder]* (hereinafter called "the Bidder") of the other part:

WHEREAS the Procuring Agency invited Bids for provision of goods, viz., **Procurement of Physical Instruments and Software (under the PSDP Project, Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast) (*P193260*)** and has accepted a Bids by the Bidder for the provision of Goods in the sum of *[contract price in words and figures]* (hereinafter called "the Contract Price").

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-

1. This form of Contract;
2. the Form of Bids and the Price Schedule submitted by the Bidder;
3. the Schedule of Requirements;
4. the Technical Specifications;
5. the Special Conditions of Contract;
6. the General Conditions of the Contract;
7. the Procuring Agency's Letter of Acceptance; and
8. [*add here: any other documents*]

3. In consideration of the payments to be made by the Procuring Agency to the Bidder as hereinafter mentioned, the Bidder hereby covenants with the Procuring Agency to provide the Goods related services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Agency hereby covenants to pay the Bidder in consideration of the provision of Goods 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 Contract to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____the _____ (for the Procuring Agency)

Witness to the signatures of the Procuring Agency:

……

Signed, sealed, delivered by _____the _____ (for the Procuring Agency)

Witness to the signatures of the Bidder: ……

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BYTHE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: Contract Value: Contract Title:

Dated:

[Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

Performance Guarantee Form

Performance Guarantee Form

To: **National Institute of Oceanography (NIO) (National Institute of Oceanography (NIO)), Administrative Officer ST.47, Block-1, Clifton, Karachi 75600 Tel: 021-99251172-73, Saddar Sub-Division, Karachi South (District), Karachi (Division), Sindh (Province).**

WHEREAS *[name of Bidder]* (hereinafter called "the Bidder") has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* for provision of Goods*(*hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Bidder shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Bidder's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Bidders guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, up to a total of *[amount of the guarantee in words and figures]*, and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

_____

[name of bank or financial institution]

_____

[address]

_____

[date}

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Annexure

Multibeam Echo Sounder Specifications for clarity

Information (Read-Only)

See Form Under Additional Forms and Documents: **Multibeam Echo Sounder Specifications for clarity** (page number: 97)

Side Scan Sonar Specifications for clarity

Information (Read-Only)

See Form Under Additional Forms and Documents: **Side Scan Sonar Specifications for clarity** (page number: 103)

Tender Document

Information (Read-Only)

See Form Under Additional Forms and Documents: **Tender Document** (page number: 111)

PUBLIC PROCUREMENT REGULATORY AUTHORITY (PPRA) EPADS

Procurement Forms

PUBLIC PROCUREMENT REGULATORY AUTHORITY
(PPRA)
EPADS

PUBLIC PROCUREMENT REGULATORY AUTHORITY
(PPRA)
EPADS

Additional Forms and Documents

1. MULTIBEAM ECHO SOUNDER

Procurement of a Portable High-Resolution Multibeam Echo Sounder (MBES) System with Integrated RTK GNSS/INS, Motion Compensation, and Complete Hydrographic Processing Workflow for Coastal and Shelf Survey Operations.

2. INTRODUCTION

The procuring agency intends to acquire a modern, ultra-compact, high-performance multibeam echo sounder system for high-resolution bathymetric surveys in coastal, nearshore, estuarine, and continental shelf waters of Pakistan.

The system shall be optimized for:

- Small and medium survey vessels
- Rapid pole-mounted deployment
- High-resolution seabed and object detection
- Tight GNSS/INS synchronization
- Efficient survey operations in shallow to medium waters

3. SCOPE OF SUPPLY (TURNKEY REQUIREMENT)

The bidder shall supply a complete operational hydrographic survey system including:

- Multibeam Echo Sounder system
- Integrated sonar wet-end + processing electronics
- Applanix OceanMaster or equivalent INS system (integrated and built-in)
- Survey-grade RTK GNSS system (external or integrated receiver)
- Data acquisition software
- Post-processing software
- Built-in INS/IMU / MRU (roll, pitch, yaw, heave)
- Rugged marine-grade Workstation Laptop
- Mounting and deployment system
- Power, UPS and communication interface system
- Installation, training, and commissioning
- Warranty and technical support

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4. **MULTIBEAM ECHO SOUNDER SYSTEM**

4.1 Core Requirement

The system shall be:

- Compact integrated multibeam sonar system
- Wideband curved-array architecture
- Lightweight wet-end
- Fully stabilized system with roll, pitch, and yaw compensation
- Capable of high-density seabed mapping with uniform sounding distribution
- Suitable for pole-mounted on small/medium survey vessels.

4.2 Preferred System

4.3 Technical Specifications

<table>
<tr><th>Item No.</th><th>Equipment /Software Description, Specification & Key Features</th><th>QUANTIITY</th></tr>
<tr><td>1</td><td>
<table>
<tr><th colspan="2">Sonar Performance Specifications</th></tr>
<tr><th>Standard Parameter</th><th>Specification</th></tr>
<tr><td>Depth Range</td><td>0.2 – 400 m (standard)</td></tr>
<tr><td>Operating Frequence</td><td>Wideband 200 – 700 kHz (adaptive)</td></tr>
<tr><td>Nominal Operation</td><td>~400 kHz central frequency</td></tr>
<tr><td>Resolution
(Across x Along)</td><td>0.9° x 0.9° @400kHz</td></tr>
<tr><td>Beamforming</td><td>Up to 1024–2048 beams (adaptive)</td></tr>
</table>
<table>
<tr><th colspan="2">Common Sonar Specifications</th></tr>
<tr><td>Swath Coverage</td><td>Up to 210° sector coverage</td></tr>
<tr><td>Backscatter Outputs</td><td>Bathy Intensity, Sidescan, Snippets, Water Column</td></tr>
<tr><td>Stabilisation</td><td>Roll, pitch, yaw stabilization (active)</td></tr>
<tr><td>Ping Rate</td><td>High repetition rate (adaptive up to ~60 Hz or more)</td></tr>
</table>
<table>
<tr><th colspan="2">Physical & System Performance</th></tr>
<tr><td>Wet-end Weight</td><td>Portable</td></tr>
<tr><td>Roll Accuracy</td><td>~0.01°</td></tr>
<tr><td>Pitch Accuracy</td><td>~0.01°</td></tr>
<tr><td>Heading Accuracy</td><td>~0.02°</td></tr>
<tr><td>Motion Compensation</td><td>Full (roll, pitch, yaw)</td></tr>
<tr><td>Beam Density</td><td>Up to 2048 beams (dual swath option)</td></tr>
<tr><td>Power Consumption</td><td>50–80 W typical</td></tr>
<tr><td>Mobilization</td><td>Single cable, rapid deployment</td></tr>
</table>
</td><td>01 Set</td></tr>
</table>

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	OEM GNSS/INS Integration		
	Applanix OceanMaster (embedded built-in)		
	Heading Accuracy	0.02° with 2m antenna separation	
	Pitch/Roll Accuracy	The Applanix OceanMaster Inertial Measurement Unit (IMU) is tightly embedded, offering 0.01-degree roll and pitch accuracy.	
	Heavy-Duty Transit Cases	Waterproof, crushproof, and shock-resistant custom-foamed Pelican-style transport cases housing the towfish, topside processor, cables, and accessories.	
	INS/IMU / MRU	Integrated and built-in INS/IMU / MRU (high precision motion sensor) .	
	MOUNTING & INSTALLATION SYSTEM	• Carbon fibre or aluminium pole mount system • Quick release mechanism for rapid deployment • Shock and vibration isolation • Waterproof connectors • Integrated cable management system	
	Dual Swath	Enabling the sonar to transmit multiple pings simultaneously (2048 beams), providing substantial efficiency gains for the user. This allows higher sounding density when the same survey speed is maintained as a traditional single swath configuration, making it easier to satisfy sounding density requirements for the project.	
	1024 Beams	Increase sounding density across track	
	TX Scanning	Directing the sonar to sweep an along-track sector to enhance coverage behind pillars and quay walls. Sonar's steerable transmission technology steers the transmit beam in a 20-degree sector, allowing it to effectively survey regions	
2	**Software**	HYPACK HYSWEEP Software	01 License

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3	**Software** — SonarWiz Acquisition & Post Processing Software **Functionality**: Industry-standard software package for side-scan sonar, bathymetry, and sub-bottom profile data acquisition and post-processing	01 License
4	**POSITIONING SYSTEM (RTK GNSS / INS)** — The system shall include a tightly integrated GNSS/INS solution: • External survey-grade RTK GNSS receiver (mandatory) • For RTK : 2x GNSS (One GNSS base station system and one GNSS rover system) • Dual-antenna configuration preferred for precise heading • Horizontal accuracy: ±(8 mm + 1 ppm) or better • Vertical accuracy: ±(15 mm + 1 ppm) or better • Heading accuracy: ≤ 0.02° (dual antenna preferred) • Pitch/Roll accuracy: ≤ 0.01° • Integrated IMU providing high-accuracy roll, pitch, heading, and heave • Real-time time synchronization with sonar system • NMEA + proprietary data integration	01 Set
5	Power Conditioning System — UPS / stabilizer + surge protection	01 Set
6	Sound Velocity Profiler (SVP/CTD) — Water column sound velocity correction	01 Set
7	Data Storage & Backup System — NAS / RAID storage system	01 Set
8	**SURVEY WORKSTATION** — • Rugged marine-grade laptop/workstation • CPU: Intel i7/i9 or equivalent of latest generation • RAM: 32–64 GB	01 Set

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			• SSD storage ≥ 2 TB • Dual monitor support • UPS / power conditioning system • Marine-grade cabling	

5. Data Outputs

- High-density bathymetric point clouds
- DTM / surface models
- Backscatter mosaics
- Snippets and intensity data
- Water column data (optional)
- Fully georeferenced survey datasets

6. MOTION & ENVIRONMENTAL SENSORS

- Integrated and built-in INS/IMU / MRU (high-precision motion sensor)
- Real-time sound speed correction, velocity sensor on transducer head
- Tide correction (RTK or model-based)
- Full motion stabilization integration (key system feature)

7. DATA ACQUISITION SOFTWARE (MANDATORY)

8.1 SonarWiz/ HYSWEEP

System shall support:

- Real-time multibeam data acquisition
- RTK GNSS + INS integration
- Line planning and navigation
- Coverage monitoring and QC
- Time-synchronized logging of all sensors

8. DATA PROCESSING SOFTWARE (MANDATORY)

9.1 Primary Processing Software

- SonarWiz (preferred)
- HYSWEEP

9.2 Processing Capabilities

- Raw data import (S7K / XTF/compatible formats)
- Automated cleaning and spike removal
- Motion and tide correction
- Sound velocity corrections
- DTM / DEM generation
- Backscatter processing
- Point cloud editing (LAS/LAZ)
- GIS export workflows

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9. GIS & OUTPUT DATA REQUIREMENTS

The system shall support:

- XTF export (mandatory requirement)
- ASCII XYZ
- GeoTIFF
- BAG format
- LAS / LAZ point clouds
- Shapefile and GIS-compatible outputs

Compatible with:

- SonarWiz/HYSWEEP
- ArcGIS / QGIS

10. SYSTEM INTEGRATION REQUIREMENTS

- Fully synchronized GNSS + INS + MBES time stamping
- WGS84 datum compatibility
- Real-time RTK integration
- Seamless acquisition-to-processing workflow
- Fully stabilized bathymetric output

11. OPTIONAL EQUIPMENT

- Patch test and calibration tools
- Additional mounting accessories

TRAINING & SUPPORT

- 5–7 days on-site training covering:
- System deployment
- SonarWiz/ HYSWEEP acquisition
- Mutibeam system operation
- SonarWiz processing workflow
- Minimum 1-year warranty
- Software updates and remote support

ACCEPTANCE TESTING

- System shall undergo:
- Factory Acceptance Test (FAT)
- Site Acceptance Test (SAT)
- Sea trial in coastal operational conditions

Performance validation shall confirm:

- IHO S-44 compliance
- Full motion stabilization performance
- GNSS/INS synchronization accuracy
- Backscatter and bathymetric quality consistency

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Side Scan Sonar

1. INTRODUCTION

Procurement of a High-Resolution CHIRP Dual Frequency Side Scan Sonar Systemwith integrated towfish, topside processor, navigation interface, ancillary/misc. items and complete hydrographic acquisition and processing workflow software for coastal, nearshore sonar imaging applications /investigations such as search, exploration, geohazard mapping, geological and environmental studies, geo-engineering survey for submarine cables, pipelines, ports/ harbours surveying.

The system shall be based on advanced CHIRP-based sonar technology.

The system shall be optimized for:

- Coastal and shallow water surveys
- Wreck detection and identification
- Pipeline and cable route inspection
- Harbour and navigation channel surveys
- Search and recovery (SAR) operations
- Seabed feature mapping

2. SCOPE OF SUPPLY (TURNKEY REQUIREMENT)

The bidder shall supply a complete operational side scan sonar system including:

- Dual frequency side scan sonar towfish
- Portable topside processor
- Tow cable (Kevlar reinforced)
- Navigation interface (GNSS integration ready)
- Acquisition software
- Post-processing software
- Rugged marine-grade Workstation Laptop
- Power , UPS and communication interface system
- Survey-grade RTK GNSS system (external or integrated receiver)
- Acoustic Altimeter
- Mounting accessories (towfish / pole options)
- Heavy-Duty Transit Cases
- Installation, training, and commissioning
- Warranty and technical support

3. **SIDE SCAN SONARSYSTEM**

3.1 Core Requirement

The system shall be:

- Lightweight, portable dual-frequency side scan sonar system
- CHIRP-based high-resolution imaging system
- Capable of shallow and medium depth seabed imaging
- Towfish-based system with integrated sensors
- Suitable for single-boat deployment operations
- Fully compatible with hydrographic survey software/workflows

3.2 Preferred System

3.3 Technical Specifications

<table>
<tr><th>Item No.</th><th>Equipment /Software Description, Specification & Key Features</th><th>QUANTIITY</th></tr>
<tr><td>1</td><td>
<table>
<tr><th colspan="2">Sonar Performance Specifications</th></tr>
<tr><th>Standard Parameter</th><th>Specification</th></tr>
<tr><td>Sonar Type</td><td>Dual frequency CHIRP side scan sonar</td></tr>
<tr><td>Frequency Options</td><td>400/900 kHz</td></tr>
<tr><td>Operating Range</td><td>200 m (400 kHz), 75 m (900 kHz),</td></tr>
<tr><td>Beam Width</td><td>0.46°–0.20° (frequency dependent)</td></tr>
<tr><td>Vertical Beam</td><td>~50°</td></tr>
<tr><td>Pulse Type</td><td>Full Spectrum® CHIRP</td></tr>
<tr><td>Resolution</td><td>2.3 cm to 0.6 cm (frequency dependent)</td></tr>
<tr><td>Swath Coverage</td><td>High-resolution dual channel port/starboard</td></tr>
</table>
<table>
<tr><th colspan="2">Towfish Specifications</th></tr>
<tr><td>Length</td><td>~114.8 cm</td></tr>
<tr><td>Diameter</td><td>~9.5 cm</td></tr>
<tr><td>Weight (Air)</td><td>~20.4 kg</td></tr>
<tr><td>Depth Rating</td><td>200 m)</td></tr>
<tr><td>Sensors</td><td>Heading, pitch, roll, pressure (depth sensors)</td></tr>
<tr><td>Deployment</td><td>Towfish, pole mount system</td></tr>
<tr><td>Tow cable</td><td>RG-58 coax/Kevlar</td></tr>
</table>
</td><td>01 Set</td></tr>
</table>

conductors:	
Operating range:	150 m (400 kHz) 75 m (900 kHz)
Across-track resolution:	2.3 cm (400 kHz) 1.0 cm (900 kHz)
Along-track resolution:	80 cm @ 100 m (400 kHz) 40 cm @ 50 m (400 kHz24 cm @ 50 m (900 kHz) 20 cm @ 25 m (400 kHz) 12 cm @ 25 m (900 kHz)
Horizontal beam width:	0.46° (400 kHz) 0.28° (900 kHz)
Pulse-type:	CHIRP
Navigation interfaces:	RS-232, NMEA0183
Pressure sensor working depth:	0–137 m
Pitch and roll accuracy:	For indicative Use Only.
Options:	Keel Weight Kit Depressor Wing Kit Hull Scan Kit Magnetometer Interface

Topside processor		
SPECIFICATION	TOPSIDE (Option 1)	TOPSIDE (Option 2)
Size:	19.0 cm (7.3 in.) high 49.0 cm (19.2 in.) wide 39.0 cm (15.2 in.) deep	8.9 cm (3.50 in.) high 48.3 cm (19 in.) wide 50.6 cm (19.9 in.) deep
Weight:	13.2 kg (w/ laptop computer) 10 kg (w/o laptop computer)	6.4 kg
Case construction:	High-impact structural polypropylene	Aluminum 19-inch rack mount
Case sealing method:	Watertight cover with O-ring seal and purge valve	N/A (not watertight)
AC input power:	90–260 VAC, 50/60 Hz, 72–110 watts operating, auto-switching 0.7 A/1.3 A at 120 VAC idling/operating 0.3 A/0.56 A at 240 VAC idling/operating	90–260 VAC, 50/60 Hz, 72–110 watts operating, auto-switching 0.6 A/1.1 A at 120 VAC idling/operating 0.3 A/0.56 A at 240 VAC idling/operating

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		DC input power:	12–24 VDC, 72 watts operating 4.3 A/6.0 A at 12 VDC idling/operating 2.4 A/3.3 A at 24 VDC idling/operating	N/A
		Wired Ethernet	10/100 Mb/s RJ-45 LAN connection	10/100 Mb/s RJ-45 LAN connection
		Processor:	Intel® Core I7-1370P	
		Memory:	8 GB DDR	
		Data storage:	512 GB SSD	
		Operating system:	Windows 11 64-bit	
		Display:	14-inch LCD	

Topside processor	
System Type	Portable or rack-mounted processor
Power Input	AC / DC compatible
Operating System	Windows-based system
Software	acquisition software
Interface	Ethernet / VDSL / serial GNSS input
Weight	~10–13 kg (portable system)
Power Consumption	50–80 W typical
Mobilization	Single cable, rapid deployment

Heavy-Duty Transit Cases	Waterproof, crushproof, and shock-resistant custom-foamed Pelican-style transport cases housing the towfish, topside processor, cables, and accessories.
MOUNTING & INSTALLATION SYSTEM	• Kevlar reinforced tow cable (standard length 50–200 m) • Optional depressor wing / keel weight system • Pole mount option for shallow water surveys • Quick release tow safety system • Integrated cable management system

2		**Software**	SonarWiz Acquisition& Post Processing	01 License

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		Software **Functionality**: Industry-standard software package for side-scan sonar, bathymetry, and sub-bottom profile data acquisition and post-processing	
3	**Software**	HYPACK Software	01 License
4	**Software**	Seabed Classification Software	01 License
5	**Software**	GIS Software	01 License
6	Acoustic Altimeter	For towfish height above the seabed	01 Set
7	**POSITIONING SYSTEM (RTK GNSS / INS)**	The system shall include a tightly integrated GNSS/INS solution: • External survey-grade RTK GNSS receiver (mandatory) • For RTK : 2x GNSS (One GNSS base station system and one GNSS rover system) • Dual-antenna configuration preferred for precise heading • Differential GNSS / NMEA input Performance requirements: • Horizontal accuracy: ±(8 mm + 1 ppm) or better • Heading accuracy: ≤ 0.2° (typical GNSS compass systems) • Fully time-synchronized with sonar system • Real-time position logging with acoustic data	01 Set
8	**USBL ACOUSTIC POSITIONING SYSTEM (OPTIONAL – SEPARATE MODULE)**	• Vessel-mounted acoustic transceiver • Towfish-mounted acoustic transponder • Real-time 3D positioning (X, Y, Z) • Accuracy: 1–3 m (typical operational range) Integration with HYPACK navigation system	01 Set
9			01 Set

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	SURVEY WORKSTATION	• Rugged marine-grade laptop/workstation • CPU: Intel i7/i9 or equivalent of latest generation • RAM: 32–64 GB • SSD storage ≥ 2 TB • Dual monitor support • UPS / power conditioning system • Marine-grade cabling	
10	Sound Velocity Profiler (SVP/CTD)	Water column sound velocity correction	01 Set
11	Data Storage & Backup System	External SSD (≥4–8 TB) + field backup	01 Set
12	Deployment System	Tow winch, cable meter counter, A-frame or davit	01 Set
13	Power Conditioning System	UPS / stabilizer + surge protection	01 Set
14	Motion Reference Unit (INS/MRU/IMU)	– Pitch, roll, heave correction (high precision motion sensor)	01 Set

4. SYSTEM CAPABILITIES

- Ultra high-resolution seabed imaging
- Target detection (wrecks, cables, debris)
- Real-time acquisition and display
- Dual frequency simultaneous operation
- Long-range and high-resolution mode switching
- Lightweight deployment (one-person handling capability)
- Fully georeferenced survey datasets

5. MOTION & ENVIRONMENTAL SENSORS

- Integrated towfish sensors (heading, pitch, roll, depth)
- Optional external IMU for high-accuracy survey mode
- Sound velocity profiler (SVP) mandatory for calibration
- Real-time environmental correction capability

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6. DATA ACQUISITION SOFTWARE (MANDATORY)

6.1 Acquisition Software

The system shall include:

- Real-time side scan acquisition
- Towfish tracking and positioning
- Gain control and signal optimization
- Navigation display with track coverage
- Data logging and file management

SonarWiz/HYPACK integration

System shall support:

- Real-time multibeam data acquisition
- RTK GNSS + INS integration
- Line planning and navigation
- Coverage monitoring and QC
- Time-synchronized logging of all sensors
- Real-time display (waterfall + track plot)

7. DATA PROCESSING SOFTWARE (MANDATORY)

The system shall support:

- SonarWiz (recommended) or equivalent processing package
- Mosaic generation (georeferenced seabed imagery)
- Slant range correction
- Bottom tracking and seabed classification
- Georeferenced raster export
- Feature detection and annotation tools
- Gain normalization
- Radiometric correction

8. Seabed Classification Software (MANDATORY FUNCTION)

The software shall support classification based on:

- Backscatter intensity
- Seabed texture analysis
- Acoustic reflectivity patterns

Classification output examples: Sand, Mud, Silt, Gravel, Rock

9. GIS & OUTPUT DATA REQUIREMENTS

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The system shall support export in standard formats including:

- XTF (mandatory requirement for hydrographic compatibility)
- JSF / SEG-Y / proprietary formats
- GeoTIFF mosaic outputs
- ASCII XYZ point data (if applicable)
- Shapefile / GIS vector overlays

Compatibility with:

- SonarWiz/ HYPACK
- ArcGIS / QGIS

10. SYSTEM ARCHITECTURE & WORKFLOW INTEGRATION

The system shall function as a fully integrated digital hydrographic workflow consisting of:

- Acquisition Layer – SonarWiz/HYPACK (navigation + data acquisition)
- Sonar Control Layer – Manufacturer sonar control software
- Processing Layer – SonarWiz (primary processing & classification)
- Optional Positioning Layer – USBL system (if provided)

11. TRAINING & SUPPORT

- 5–7 days on-site training covering:
- System deployment
- SonarWiz/HYPACK acquisition
- Mutibeam system operation
- SonarWiz processing workflow
- Minimum 1-year warranty
- Software updates and remote support

12. DELIVERY & COMMISSIONING

- Complete system delivery
- Installation and testing
- Sea trial demonstration
- Acceptance by the procuring authority

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TENDER DOCUMENT

FOR

Procurement of Physical Instruments and Software (under the PSDP Project, Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast

PSDP Project: Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion, and Land Subsidence along Sindh and Baluchistan Coast

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INSTRUCTIONS TO TENDERERS

(Note: These Instructions along with Tendering Data will not be part of the Contract and will cease to have effect once the Contract is signed).

A. GENERAL

IT.1 Scope of Tender &Source of Funds

1.1 Scope of Tender

The Director General/Project Director, PSDP, NIO as defined in the Tendering Data (hereinafter called "the Employers") wishes to receive tenders for the Procurement of Physical Instruments summarized in the Tendering Data (hereinafter referred to as "the Works").

Tenderers should quote for the latest model (top model) with accessories, consumables, and country of origin.

The bids must be quoted in Pak Rupees on FOR basis/FOR (Free delivery to NIO) and submitted to the undersigned by 31st December 2026 at 12:00 Hrs.

The tenders will be opened on the same date at 12:30 Hrs.

1.2 Source of Funds

The Employers have arranged funds from PSDP funded project “MONITORING THE SEA WATER INTRUSION, SEA LEVEL RISE, COASTAL EROSION, AND LAND SUBSIDENCE ALONG SINDH AND BALOCHISTAN COAST”.

IT.2 Eligible Tenderers

2.1 Tendering is open to all eligible firms and persons. The tenderer should be a manufacturer / authorized distributor / authorized dealer / authorized agent who has the financial, and technical capability necessary to supply the Instrument(s) with software(s)/ accessories along with in-persontraining(s) as indicated in the Tenderingdata, after-sales services, and designated engineers/technicians.

IT.3 Cost of Tendering

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3.1 The tenderer shall bear all costs associated with the preparation and submission of its tender and NIO will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

B. TENDER DOCUMENTS

IT.4 Contents of Tender Documents

4.1 The Tender Documents are those stated below and should be read in conjunction with any Addendum issued by Clause IT.6.1.

1. Instructions to Tenderers &Tendering Data
2. Forms of Tender
3. Standard Forms:
   (I) Form of Performance Security
   (II) Form of Contract Agreement
4. Specification

IT.5 Clarification of Tender Documents

5.1 A prospective tenderer requiring any clarification(s) in respect of the Tender Documents may notify the Project Director, NIO's PSDP project **"Monitoring the Sea Water Intrusion, Sea Level Rise, Coastal Erosion and Land Subsidence along Sindh and Baluchistan Coast"**, at the address indicated in the Tendering Data.

5.2 The NIO will respond to any request for clarification that it receives earlier than 10 daysbefore the deadline for the submission of tenders. Copies of the response will be forwarded to all prospective tenderers, at least 5 daysbeforethe deadline for submission of Tenders, who have received the Tender Documents including a description of the inquiry but without identifying its source.

IT.6 Amendment of Tender Documents

6.1 At any time before the deadline for submission of tenders, the Project Director, PSDP, or NIO may, for any reason, whether at his initiative or in response to a clarification requested by a respective tenderer, modify the Tender Documents by issuing an addendum.

6.2 Any addendum thus issued shall be part of the Tender Documents under Sub-Clause 6.1 hereof and shall be communicated in writing to all purchasers of theTender Documents. Prospective tenderers shall acknowledge receipt of each addendum in writing to the Project Director, PSDP, and NIO.

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6.3 To afford prospective tenderers a reasonable time in which to take an addendum into account in preparing their tenders, the Project Director, PSDP, NIO on behalf of DG, NIO may extend the deadline for submission of tenders.

C. PREPARATION OF TENDERS

IT.7 Language of Tender

7.1 The tender prepared by the tender and all correspondence and documents relating to the Tender, exchanged by the tenderer and the NIO shall be written in the English language, provided that any printed literature furnished by the tenderer may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for purposes of interpretation of the Tender, the English translation shall govern.

IT.8 Documents Comprising the Tender

8.1 The tender prepared by the tenderer shall comprise the following components:

(a) Covering Letter
(b) Form of Tender duly filled, signed, and sealed, by Clause IT. I 4.3.
(c) Tender Security furnished by Clause IT.l3.
(d) Power of Attorney by Clause IT 14.5.
(e) Documentary evidence by Clause IT. II
(f) Documentary evidence by Clause IT. I2.

IT.9 Sufficiency of Tender

9.1 Each tenderer shall satisfy himself before Tendering as to the correctness and sufficiency of his Tender and of the rates and prices entered in the Price Schedule, which rates and prices shall except in so far as it is otherwise expressly provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper supply of Physical Instruments, Software's, Multispectral Satellite Images & Miscellaneous Items.

9.2 The tenderer is advised to obtain for himself at his own cost and responsibility all information that may be necessary for preparing the tender and entering a Contract for the execution of the Works.

IT.10 Tender Prices, Currency of Tender,and Payment

10.1 The tenderer shall fill up the Schedule of Prices (Schedule A to Tender) indicating the unit rates and prices of the Works to be performed under the Contract. Prices

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on the Schedule of Prices shall be entered keeping in view the instructions contained in the Preamble to the Schedule of Prices.

10.2 Unless otherwise stipulated in the Conditions of Contract, prices quoted by the tenderer shall remain fixed during the tenderer's performance of the Contract and not subject to variation on any account.

10.3 The unit rates and prices in the Schedule of Prices shall be quoted by the tenderer in the currency as stipulated in Tendering Data.

IT.11. Documents Establishing Tenderer's Eligibility and Qualifications

11.1 Under Clause IT.8, the tenderer shall furnish, as part of its tender, documents establishing the tender's eligibility to tender and its qualifications to perform the Contract if its tender is accepted.

11.2 Tenderer must possess and provide evidence of the experience as stipulated in Tendering Data.

IT.12. Documents Establishing Works Conformity to Tender Documents

12.1 The documentary evidence of the Works' conformity to the Tender Documents may be in the form of literature, drawings, and data and shall furnish documentation as set out in Tendering Data.

12.2 The tenderer shall note that standards for material and equipment, and references to brand names or catalog numbers, designated by the Employer in the Technical Provisions are intended to be descriptive only and not restrictive.

IT.13 Tender Security

13.1 Each tenderer shall furnish, as part of his tender, a Tender Security of 5% of the bid price in Pak. Rupees in the form of a Bank Guarantee issued by a Scheduled Bank in Pakistan in favor of the Employer valid for a period of 28 days beyond the tender validity date.

13.2 Any tender not accompanied by an acceptable Tender Security shall be rejected by the Employer as non-responsive.

13.3 The tender securities of unsuccessful tenderers will be returned upon award of contract to the successful tenderer or on the expiry of the validity of Tender Security whichever is earlier.

13.4 The Tender Security of the successful tenderer will be returned when the tenderer has furnished the required Performance Security, under Clause IT.21, and signed

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the Contract Agreement, under Clause IT.20.2.

13.5 The Tender Security may be forfeited:

(a) If a tenderer withdraws his tender during the period of tender validity.
(b) If a tenderer does not accept the correction of his Tender Price, under Sub-Clause 16 .4 (b) hereof; or
(c) In the case of a successful tenderer if he fails to:
    (I) Furnish the required Performance Security by Clause IT.21, or
    (II) Sign the Contract Agreement, by Clause IT.20.2

IT.14 Validity of Tenders, Format, Signing, and Submission of Tender

14.1 Tenders shall remain valid for the period of 120 days as stipulated in the Tendering Data after the date of tender opening.

14.2 All Schedules to Tender are to be properly completed and signed.

14.3 No alteration is to be made in the Form of Tender except in filling in the blanks as directed. If any alteration is made or if these instructions are not fully complied with, the tender may be rejected.

14.4 Each tenderer shall prepare the Original and number of copies specified in the Tendering Data of the documents comprising the tender as described in Clause IT.8 and mark them "ORIGINAL" and "COPY" as appropriate. In the event of a discrepancy between them, the original shall prevail.

14.5 The original and all copies of the tender shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign (in the case of copies, Photostats are also acceptable). This shall be indicated by submitting a written Power of Attorney authorizing the signatory of the tenderer to act for and on behalf of the tenderer. All pages of the tender shall be initialized, and the official seal be affixed by the person or persons signing the tender.

14.6 The Tender shall be delivered in person or sent by registered mail at the address to the employer as given in Tendering Data.

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D-SUBMISSION OF TENDER

IT.15 Deadline for Submission, Modification & Withdrawal of Tenders

15.1 Tenders must be received by the NIO at the address/provided in Tendering Data not later than the time and date stipulated therein.

15.2 Tenders submitted through telegraph, telex, fax, or e-mail shall not be considered.

15.3 Any tender received by the Employer after the date and time of tender opening prescribed in Tendering Data will be returned unopened to such tenderer.

15.4 Any tenderer may modify or withdraw his tender after tender submission provided that written notice of the modification or withdrawal is received by the Employer before the deadline for submission of tenders.

15.5 No tender may be modified by a tenderer after the deadline for submission of tenders. Withdrawal of a tender during the interval between the deadline for submission of tenders and the expiration of the period of tender validity specified in the Form of Tender may result in forfeiture of the Tender Security under Clause IT.13.5(a).

E. TENDER OPENING AND EVALUATION

IT.16 Tender Opening &Clarification and Evaluation

16.1 The NIO will open the tenders, in the presence of tenderers' representatives who choose to attend, at the time, date, and location stipulated in the Tendering Data.

16.2 The tenderer's name, Tender Prices, any discount, the presence or absence of Tender Security, and such other details as the Director General NIO at its discretion may consider appropriate, will be announced by the NIO at the tender opening.

Any Tender Price or discount not read out and recorded at the tender opening will not be considered in the tender evaluation.

16.3 To assist in the examination, evaluation, and comparison of Tenders the NIO may its discretions ask the tenderer for a clarification of its Tender. The request for clarification and the response shall be in writing and no change in the price or substance of the Tender shall be sought, offered, or permitted.

16.4 (a) Before the detailed evaluation, under Sub-clause IT.16.7 to 16.9, the NIO will determine the substantial responsiveness of each tender to the Tender Documents. To these Clauses, a substantially responsive tender conforms to all the terms and conditions of the Tender Documents without material deviations. It

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will include determining the requirements listed in Tendering data.

(b) Arithmetical errors will be rectified on the following basis:

If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the words and figures the amount in words shall prevail. If there is a discrepancy between the Total Tender price entered in the Form of Tender and the total shown in the Schedule of Prices-Summary, the amount stated in the Form of Tender will be corrected by the NIO by the Corrected Schedule of Prices.

If the tenderer does not accept the corrected amount of the Tender, his Tender will be rejected, and his Tender Security forfeited.

16.5. A Tender determined as substantially non-responsive will be rejected and will not subsequently be made responsive by the tenderer by correction of the nonconformity.

16.6 Any minor informality or non-conformity or irregularity in a Tender that does not constitute a material deviation may be waived by NIO, provided such waiver does not prejudice or affect the relative ranking of any other tenderers.

16.7 The Director General NIO will evaluate and compare only the tenders previously determined to be substantially responsive under Sub-clauses IT.16.4 to 16.6. as per requirements given hereunder. Tenders will be evaluated for the complete scope of work. The prices will be compared based on the Evaluated Tender Price under Sub-Clause 16.8 herein below.

(a) Technical Evaluation

It will be examined in detail whether the items offered by the tenderer comply with the Technical Provisions of the Tender Documents. For this purpose, the tenderer's data submitted will be compared with the technical features/criteria of the Tendering Data detailed in the Technical Provisions. Other technical information submitted with the tender regarding the Tendering Data will also be reviewed.

(b) Commercial Evaluation

It will be examined in detail whether the tenders comply with the commercial/contractual conditions of the Tender Documents. It is expected that no major deviation/stipulation shall be taken by the tenderers.

16.8 Evaluated Tender Price

In evaluating the tenders, the Project Director, NIO will determine for each tender

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in addition to the Tender Price, the following factors (adjustments) in the manner and to the extent indicated below to determine the Evaluated Tender Price:

(I) Making any correction for errors under Sub-Clause 16.4 hereof.

(II) Making an appropriate price adjustment for any other acceptable variation or deviation.

(III) Making an appropriate price adjustment for Deviations in terms of Payments (if any and acceptable to Director General, NIO).

16.9 Evaluation Methods

Under Sub-Clause 16.8, Para (ii), and (iii) following evaluation methods for price adjustments will be followed:

(I) Price Adjustment for Technical Compliance

The cost of making good any deficiency resulting from technical noncompliance will be added to the Corrected Total Tender Price for comparison purposes only. The adjustments will be applied by taking the highest price quoted by other tenderers being evaluated in detail in their original Tenders for the corresponding item. In case of non-availability of price from other tenderers, the price will be estimated by the Project Director.

(II) Price Adjustment for Commercial Compliance

The cost of making good any deficiency resulting from any quantifiable variations and deviations from the Tender Schedules and Conditions of the Contract, as determined by the Project Director will be added to the Corrected Total Tender Price for comparison purposes only. Adjustments for commercial compliance will be added to the Corrected Total Tender Prices.

(III) Price Adjustment for Deviation in Terms: If Payments Refer to Tendering Data

IT.17 Process to be Confidential

17.1 Subject to Clause IT. 16.3 heretofore, no tenderer shall contact the Director General/Project Director,NIO on any matter relating to its Tender from the time of the Tenderopening to the time the Contract is awarded.

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17.2 Any effort by a tenderer to influence Project Director, NIO in the Tender evaluation, Tender comparison, or Contract Award decisions may result in the rejection of his Tender.

F. AWARD OF CONTRACT

IT.18. Post-Qualification

18.1 In the absence of pre-qualification, the Project Director,PSDP, NIO will determine to its satisfaction whether the substantially responsive, fulfilling technical requirements, and the lowest evaluated tenderer is qualified to satisfactorily perform the Contract.

18.2 The determination will consider the tenderer's financial and technical capabilities. It will be based upon an examination of the documentary evidence of the tenderer's qualifications submitted under Clause IT.11, as well as such other information as the Project Director NIO deems necessary and appropriate.

IT.19 Award Criteria &Employer's Right

19.1 Subject to Sub-clause IT.19 .2, the Director General/Project Director, PSDP, NIO will award the Contract to the tenderer whose tender has been determined to be substantially responsive to the Tender Documents fulfilling all technical specificationsand who has offered the lowest evaluated Tender Price, provided that such tenderer has been determined to be qualified to satisfactory perform the Contract by the provisions of Clause IT. 18.

19.2 Notwithstanding Sub-clause IT.19.1, the Director General/Project Director NIO reserves the right to accept or reject any tender and to annul the tendering process and reject all tenders, at any time beforethe award of Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the NIO's action.

IT.20 Notification of Award & Signing of Contract Agreement

20.1 Beforethe expiration of the period of tender validity prescribed by the NIO, the NIO will notify the successful tenderer in writing ("Letter of Acceptance") that *his* tender has been accepted.

20.2 Within 7 days from the date of furnishing of acceptable Performance Security

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under the Conditions of Contract, the NIO will send the successful tenderer the Form of Contract Agreement provided in the Tender Documents, incorporating all agreements between the parties.

IT.21 Performance Security

21.1 The successful tenderer shall furnish to the NIO a Performance Security in the form and the amount stipulated in the Conditions of Contract within a period of 14 days after the receipt of Acceptance.

21.2 Failure of the successful tenderer to comply with the requirements of Sub-clauses IT.20.1 & 20.2 or clause 21 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security.

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IT.22 G. Tendering Data

(A) Acoustic Doppler Current Profiler (ADCP)

<table>
<tr><th>S. No.</th><th>Description</th><th>Quantity</th></tr>
<tr><td>01.</td><td>Technical Specifications:
<table>
<tr><td colspan="2">Water velocity measurements</td></tr>
<tr><td>Maximum profiling range*</td><td>60 m (burst mode), 70 m (average mode)</td></tr>
<tr><td>Cell size</td><td>0.5-4 m</td></tr>
<tr><td>Minimum blanking</td><td>0.5 m</td></tr>
<tr><td>Maximum number of cells</td><td>256 (burst)/200 (average)</td></tr>
<tr><td>Velocity range (along beam)</td><td>User-selectable 1.0 to 5.0 m/s</td></tr>
<tr><td>Minimum accuracy</td><td>0.3% of measured value ± 0.3 cm/s</td></tr>
<tr><td>Velocity precision</td><td>Broadband processing, consult instrument software</td></tr>
<tr><td>Velocity resolution</td><td>0.1 cm/s</td></tr>
<tr><td>Max sampling rate</td><td>8 Hz (4 Hz using 5 beams)</td></tr>
<tr><td colspan="2">AD2CP measurement modes</td></tr>
<tr><td>Single</td><td>Burst or average</td></tr>
<tr><td>Concurrent</td><td>Burst and average</td></tr>
<tr><td>Alternate</td><td>Single and/or concurrent</td></tr>
</table>
<table>
<tr><td colspan="2">Echo intensity (along slanted beams)</td></tr>
<tr><td>Sampling</td><td>Same as velocity</td></tr>
<tr><td>Resolution/ dynamic range</td><td>0.5 dB / 70 dB</td></tr>
<tr><td>Transducer acoustic frequency</td><td>500 kHz</td></tr>
<tr><td>Number of beams</td><td>5; 4 slanted at 25°, 1 vertical</td></tr>
<tr><td>Beam width</td><td>2.9°</td></tr>
<tr><td colspan="2">Echo sounder option</td></tr>
<tr><td>Resolution</td><td>6 mm - 0.5 m</td></tr>
<tr><td>Number of bins</td><td>11,000</td></tr>
<tr><td>Transmit pulse length</td><td>32 µs - 1 ms</td></tr>
<tr><td>Transmit pulse</td><td>Monochromatic or pulse compressed (25% BW)</td></tr>
<tr><td>Resolution / dynamic range</td><td>0.01 dB / 70 dB</td></tr>
<tr><td colspan="2">Wave measurement option</td></tr>
<tr><td>AST frequency</td><td>500 kHz</td></tr>
<tr><td>AST max distance</td><td>75 m</td></tr>
<tr><td>Maximum wave measurement depth</td><td>60 m</td></tr>
</table></td><td>02</td></tr>
</table>

Height range	-15 to +15 m
Accuracy/resolution (Hs)	< 1% of measured value / 2 cm
Accuracy/resolution (Dir)	2° / 0.1°
Period range	1-50 s
Cut-off period (Hs)	5 m depth; 0.6 sec, 20 m depth; 1.1 sec, 60 m depth; 1.9 sec
Cut-off period (dir)	5 m depth; 1.5 sec, 20 m depth; 3.1 sec, 60 m depth; 5.5 sec
Sampling rate (velocity and AST)	4 Hz
Sensors	
Temperature:	Thermistor in head (sampled at meas. rate)
Temp. range	-4 to +40 °C
Temp. accuracy/resolution	0.1 °C/0.01 °C
Temp. time response	2 min
Compass:	Solid State magnetometer (max 1 Hz samplerate)
Accuracy/resolution	2° for tilt < 30°/0.01°
Tilt:	Solid State accelerometer (max 1 Hz sample rate)
Accuracy/resolution	0.2° for tilt < 30°/0.01°
Maximum tilt	Full 3D orientation sensing. Recommended instrument orientation and allowable tilt depend on the measurement application.
Up or Down	Automatic detect
Pressure:	Piezoresistive (sampled at meas. rate)
Standard range	0-100 m (inquire for options)
Sensors	
Accuracy/precision	0.1% FS / Better than 0.002% of full scale
AHRS option	
Accelerometer dynamic range	± 2 g
Gyro dynamic range	± 250°/sec
Magnetometer dynamic range	± 1.3 Gauss
Pitch and roll range /resolution	± 90° (pitch) ± 180° (roll) /0.01°
Pitch and roll accuracy	± 2° (dynamic)*, ± 0.5° (static, ±30°)
Heading range / resolution	360°, all axis /0.01°
Heading accuracy	± 3° (dynamic)*, ± 2° (static, tilt < 20°)
Sampling rate	Same as measurement rate (up to 8 Hz)
Power	Using AHRS draws more power than the regular compass and tilt sensor.

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Data recording	
Capacity	16 GB, 64 GB or 128 GB (inquire for larger capacity)
Data record	Consult instrument software
Mode	Stop when full
Real-time clock	
Accuracy	± 1 min/year

Data communications	
Ethernet	10/100 Mbits Auto MDI-X, TCP/IP, UDP/IP, HTTP protocols, Fixed IP / DHCP client /Auto IP address assignment, UPnP and Nortek proprietary instrument discovery over Ethernet
Serial	Configurable RS-232/RS-422 300-1250000 bps
Recorder download baud rate	20 Mbit/s (Ethernet only) - 1 GB in 6 minutes
Controller interface	ASCII command interface over Telnet and serial
Connectors	
Depending on configuration	MCBH6F (Ethernet), MCBH8F (serial), MCBH2F-G2 (pwr), optional Souriau M-series metal connector for online use (10M)
Software	
Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®)
Power	
DC input	12-48 V DC
Maximum peak current	1.5 A
Max. average consumption at 1 Hz	8 W at 1 Hz, Ethernet adds 0.75 W
Typical average consumption	25 mW
Sleep consumption	100 µA, power depending on supply voltage
Transmit power per beam	0.3-30 W, adjustable levels
Power	
Ping sequence	Parallel
Batteries	

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	Internal	180 Wh alkaline, 540 or 1800 Wh with long canister	
	Duration	Depending on configuration, consult software	
	Environmental		
	Operating temperature	-4 to +40 °C	
	Storage temperature	-20 to +60 °C	
	Vibration	IEC60068-2-64	
	EMC approval	IEC/EN 61000-6-2, 61000-6-3	
	Depth rating	300 m (for 6000 m version, contact Nortek for specifications)	
	Materials		
	Standard model	POM with titanium fasteners	
	Dimensions		
	Maximum diameter	228 mm	
	Maximum length with room for internal batteries	274 mm (180 Wh), 464 mm (540 Wh or 1800 Wh Li)	
	Maximum length without room for internal batteries	184 mm	
	Weight		
	In air, no battery	6.4 kg (5.2 kg short)	
	In water, no battery	-0.35 kg (0.6 kg short)	
	Battery	1.8 kg	
	- Supplier shall provide operational / maintenance manual and training.		
Note: it is requested that only authorized dealers should apply in the bid.			

(B) Conductivity, Temperature, and Depth (CTD)

S. No.	Description	Quantity
01.		02

Specification	Value
Communication Options	RS-232
Conductivity range	0–9 S/m
Temperature range	−5 to +35 °C
Pressure/depth options	From **20 m upward**, depending on sensor configuration
Conductivity	±0.0005 S/m

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accuracy	
Temperature accuracy	±0.005 °C
Conductivity resolution	0.00005 S/m
Temperature resolution	0.0001 °C
Sampling rate	**4 Hz**
Auxiliary sensors	Up to 7
Depth Rating (Meters)	600m, 10500m
Power Source	Internal
Housing Material Options	Plastic, Titanium
Onboard Memory	Yes
Connector	MCBH
Adaptive Sampling	Yes
Sampling Rate	10-14 seconds From user manual
Memory Capacity (Samples)	64mb 140,000 - 355,000
Power Consumption	Battery (9 × alkaline D-cell)
Accuracy	Conductivity ± 0.0005 S/m Temperature ± 0.005 °C Optional Pressure Strain-gauge ± 0.1% of full scale rang
Software	Supported Software for configuration
Resolution	Resolution Conductivity 0.00005 S/m typical Temperature 0.0001 °C Optional Pressure Strain-gauge 0.002% of full scale range; Quartz 0.0006% of full scale range for 1-sec integration
Biofouling Protection	Yes

Note: it is requested that only authorized dealers should apply in the bid.

(C) Wave Guage

S. No.	DESCRIPTION	QUANTITY
01.		01

Category	Parameter	Specification
General	Measurement technology	ZPulse multi-frequency Doppler
	Data logger	Digital data logger platform

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		Recording system	SD card
		Storage capacity	≥ 2 GB
		Recording interval	From 2 seconds, depending on sensor configuration
		Recording settings	Fixed interval or customized sequence
		Communication protocol	AiCaP CANbus
		Maximum sensor capacity	Up to 6 sensors
		Analog sensor inputs	Up to 4 sensors, 0–5 V
		Supply voltage	6–14 V
		Operating temperature	−5 to +50°C
		Depth ratings	300 m, 3,000 m and 6,000 m; 7,000 m and 10,000 m on request
		Configuration interface	Windows CE-based logger with TFT colour touch panel
		Visualization software	SeaGuard Studio
		Real-time output	XML output, optional
		Water applications	Seawater and freshwater
		Power estimation	Built-in deployment-duration calculator
	Dimensions	Height, 300 m version	356 mm
		Height, 3,000 m version	352 mm
		Height, 6,000 m version	368 mm
		Outside diameter, 300 m version	139 mm
		Outside diameter, 3,000 m version	140 mm
		Outside diameter, 6,000 m version	143 mm
	Materials	300 m version	PET, titanium, stainless steel 316, Durotong DT322 polyurethane
		3,000 m and 6,000 m versions	Titanium, stainless steel 316, Durotong DT322 polyurethane
	Weight	Weight in air, 300 m	7.6 kg

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		version	
		Weight in air, 3,000 m version	11.5 kg
		Weight in air, 6,000 m version	12.4 kg
		Weight in water, 300 m version	2.0 kg
		Weight in water, 3,000 m version	5.2 kg
		Weight in water, 6,000 m version	7.2 kg
	Battery	Alkaline battery model	3988
		Alkaline battery voltage	9 V
		Alkaline battery capacity	15 Ah; nominal capacity 12.5 Ah
		Alkaline battery power condition	20 W down to 6 V at 4°C, as stated in the document
		Lithium battery model	3908
		Lithium battery voltage	7 V
		Lithium battery capacity	35 Ah
	Current sensor	Measurement method	Multi-frequency acoustic Doppler
		Current speed measurement	Vector-averaged
		Current speed range	0–300 cm/s; higher range on request
		Current speed resolution	0.1 mm/s
		Mean current speed accuracy	±0.15 cm/s
		Relative current speed accuracy	±1% of reading
		Statistical variance (standard deviation)	0.3 cm/s in ZPulse mode; 0.45 cm/s in the other stated mode
		Statistical variance basis	300 pings
		Current direction range	0–360° magnetic
		Current direction resolution	0.01°

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		Direction accuracy	±3° at 0–15° tilt; ±5° at 15–35° tilt
		Tilt range	0–90°
		Tilt resolution	0.01°
		Tilt accuracy	±1.5°
		Acoustic frequency	1.9–2.0 MHz
		Acoustic pulse power	25 W in 1 ms pulses
		Main-lobe beam angle	2°
		Installation distance from surface	0.75 m
		Installation distance from bottom	0.5 m
	Temperature sensor	Model	4060
		Measurement range	−4 to 36°C (32–96.8°F)
		Resolution	0.001°C (0.0018°F)
		Accuracy	±0.03°C (0.054°F)
		Response time (63%)	Less than 2 seconds
		Extended range	Available on request
	Conductivity sensor	Model	4319
		Measurement range	0–7.5 S/m
		Resolution	0.0002 S/m
		Accuracy, Model 4319A	±0.005 S/m
		Accuracy, Model 4319B	±0.0018 S/m
		Response time	Less than 3 seconds
		Response-time dependency	Depends on flow-through cell bore
	Wave and tide sensor	Models	5217/5218
		Tide pressure range	0–60 MPa (0–8,700 psia)
		Maximum wave pressure	1,000 kPa (145 psia)
		Resolution	Less than 0.0001% FSO
		Accuracy	±0.02% FSO
		Wave sampling rate	2 Hz or 4 Hz
		Number of samples	256, 512, 1,024 or 2,048
	Pressure sensor	Model	4117

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		Resolution	Less than 0.0001% FSO
		Accuracy	±0.02% FSO
		Model 4117A range	0–1,000 kPa (0–145 psia)
		Model 4117B range	0–4,000 kPa (0–580 psia)
		Model 4117C range	0–10,000 kPa (0–1,450 psia)
		Model 4117D range	0–20,000 kPa (0–2,900 psia)
		Model 4117E range	0–40,000 kPa (0–5,800 psia)
		Model 4117F range	0–60,000 kPa (0–8,700 psia)
		Availability	Certain models/ranges available on request
	Turbidity sensor	Model	4112
		Output	Analog, 0–5 V
		Model 4112 range	0–25 FTU
		Model 4112A range	0–125 FTU
		Model 4112B range	0–500 FTU
		Model 4112C range	0–2,000 FTU
		Linearity limitation	Nonlinear above 750 FTU
	Oxygen optode	Models	4835/4330
		Oxygen concentration range	0–500 mM
		Air saturation range	0–150%
		Oxygen concentration resolution	Less than 1 mM
		Air saturation resolution	0.4%
		Oxygen concentration accuracy	Less than 8 mM or 5%, whichever is greater
		Air saturation accuracy	Less than 5%
		Response time, fast-response foil (4330F)	Less than 8 seconds
		Response time, standard foil (4835/4330)	Less than 25 seconds
		Salinity condition	Salinity compensation required below 1 mS/cm
		Air saturation calibration	Accuracy applies within calibrated range of 0–120%
	Included accessories	Software	Related software
		SD card	2 or 4 GB
		Battery	Alkaline battery, Model 3988

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		Documentation	Memory stick
		Carry handle	Model 4132
	Optional accessories	Carry handles	Models 4032, 3965
		In-line mooring frames	Models 4044, 3824A
		Clamp-on mooring frame	Model not specified
		Bottom mooring frame	Model 3448R
		Protecting rods	Model 3783
		Sub-surface floats	Models 2211, 2212
		Internal lithium battery	Model 3908
		Internal alkaline battery	Model 3988
		Internal battery shell	Model 4513
		Electrical terminal	Model 4784C
		AC/DC adapter for laboratory use	Model 4908
		Real-time collector	Model not specified
		Analog cable	Model 4564
		Maintenance kit	Models 3813/3813A
		Tools kit	Model 3986A
		Vane plate	Models 3781, 3681
		Documentation	Hardcopy documentation
	System capability	Sensor architecture	Autonomous smart sensors communicate through AiCaP CANbus
		Sensor identification	Sensors report capabilities and specifications during power-up
		Doppler technology	Reduces statistical variance in Doppler shift estimates
		Sampling efficiency	Fewer pings, faster sampling and lower power consumption
		Sensor flexibility	Individual sensors optimized for specific measurements
		Multiple parameters	Sensors may provide several parameters without increasing total system load
		Local configuration	TFT colour touch panel
		Data visualization	Through software

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	Data output	Optional real-time XML output	
	Environmental applications	Seawater and freshwater	
Technical note	Tilt accuracy calibration note	Calibrated range of 0–350°	

Note: it is requested that only authorized dealers should apply in the bid.

(D) Drone

S. No.	DESCRIPTION			QUANTITY
01.	**Aerial Survey**			01
	Dimensions	Unfolded, propellers excluded, 810×670×430 mm (L×W×H) Folded, propellers included, 430×420×430 mm (L×W×H)	
	Diagonal Wheelbase	895 mm	
	Weight (with single downward gimbal)	Approx. 7 kg (with two batteries)	
	Single Gimbal Damper's Max Payload	930g	
	Max Takeoff Weight	9 kg	
	Operating Frequency	2.4000-2.4835 GHz 5.725-5.850 GHz	
	EIRP	2.4000-2.4835 GHz: 29.5 dBm (FCC); 18.5dBm (CE) 18.5 dBm (SRRC); 18.5dBm (MIC) OR 5.725-5.850 GHz: 28.5 dBm (FCC); 12.5dBm (CE) 28.5 dBm (SRRC)	
	Hovering Accuracy (P-mode with GPS)	Vertical: ±0.1 m (Vision System enabled) ±0.5 m (GPS enabled) ±0.1 m (RTK enabled)	Horizontal: ±0.3 m (Vision System enabled) ±1.5 m (GPS enabled) ±0.1 m (RTK enabled)
	RTK Positioning Accuracy	When RTK enabled and fixed: 1 cm+1 ppm (Horizontal)	

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	1.5 cm + 1 ppm (Vertical)	
Max Angular Velocity	Pitch: 300°/s, Yaw: 100°/s	
Max Pitch Angle	30° (P-mode, Forward Vision System enabled: 25°)	
Max Ascent Speed	S mode: 6 m/s	P mode：5 m/s
Max Descent Speed (vertical)	S mode: 5 m/s	P mode：4 m/s
Max Descent Speed (tilt)	S Mode: 7 m/s	
Max Speed	S mode: 23 m/s	P mode：17 m/s
Max Wind Resistance	15m/s	
Max Flight Time	55 min	
Gimbal Configurations	Single Downward Gimbal, Dual Downward Gimbals, Single Upward Gimbal, Upward and Downward Gimbals, Triple Gimbals	
Ingress Protection Rating	IP45	
GNSS	GPS+GLONASS+BeiDou+Galileo	
Operating Temperature	-20°C to 50°C (-4°F to 122° F)	
Remote Controller		
Operating Frequency	2.4000-2.4835 GHz 5.725-5.850 GHz	
Max Transmitting Distance (unobstructed, free of interference)	NCC/FCC: 15 km CE/MIC: 8 km SRRC: 8 km	
EIRP	2.4000-2.4835 GHz: 29.5 dBm (FCC) 18.5dBm (CE) 18.5 dBm (SRRC); 18.5dBm (MIC) OR 5.725-5.850 GHz: 28.5 dBm (FCC); 12.5dBm (CE) 20.5 dBm (SRRC)	
External battery	Intelligent Battery Capacity: 4920 mAh Voltage: 7.6V Type: LiPo Energy: 37.39Wh Charging time (using Intelligent Battery Station): 70 minutes (15°C to 45°C); 130 minutes (0°C to 15°C)	
Built-in battery	Type: lithium-ion battery (5000 mAh @ 7.2 V) Charging: Use a USB charger with specification of 12V / 2A Rated power: 17 W	

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		Charging time: 2 hours and 15 minutes (Using a USB charger with specification of 12V / 2A)
	Battery Life	Built-in battery: Approx. 2.5h Built-in battery + External battery: Approx. 4.5h
	USB Power Supply	5 V / 1.5 A
	Operating Temperature	-20°C to 40°C (-4 °F to 104 °F)
	Vision System	
	Obstacle Sensing Range	Forward/Backward/Left/Right: 0.7-40m Upward/Downward: 0.6-30m
	FOV	Forward/Backward/Downward: 65° (H), 50° (V) Left/Right/Upward: 75°(H), 60°(V)
	Infrared ToF Sensing System	
	Obstacle Sensing Range	0.1-8m
	FOV	30° (±15°)
	Operating Environment	Large, diffuse and reflective obstacles (reflectivity >10%)
	Top and bottom auxiliary light	
	Effective lighting distance	5 m
	FPV Camera	
	Resolution	960p
	FOV	145°
	Frame rate	30 fps
	Intelligent Flight Battery	
	Quantity	02
	Capacity	5935 mAh
	Voltage	52.8 V
	Battery Type	LiPo 12S
	Energy	274 Wh
	Net Weight	Approx. 1.35 kg
	Operating Temperature	-4°F to 122°F (-20°C to 50°C)
	Ideal storage temperature	71.6°F to 86°F (22°C to 30°C)
	Charging Temperature	-4°F to 104°F (-20°C to 40°C)
	Charging time	Using Intelligent Battery Station: 220V input: 60 minutes (fully charging two batteries), 30 minutes (charging two batteries from 20% to 90%)
	Intelligent Battery Station	
	Dimensions	501*403*252mm
	Net Weight	8.37kg
	Maximum Capacity	Intelligent Flight Battery × 8

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	Intelligent Battery × 4
Input	100-120 VAC, 50-60 Hz / 220-240 VAC, 50-60 Hz
Max. Input Power	1070W
Output Power	100-120 V: 750 W 220-240 V: 992 W
Operating Temperature	-4°F to 104°F (-20°C to 40°C)
RTK 2 High Precision GNSS Mobile Base Station with Tripod	
Body, Extension Rod, Charging Hub. AC Power Adapter, Intelligent Battery, Battery Cover, AC, Power Cable, USB-C Cable, USB-C OTG Cable, Hex Key, Tripod	
Camera Payload	
Weight	Approx. 800 g
Dimensions	198×166×129 mm
Power	20W
Ingress Protection (IP) Rating	IP4X
Operating Temperature	-20° to 50° C
Storage Temperature	-20° to 60° C
Absolute Accuracy	Horizontal: 3 cm, Vertical: 5 cm *
Sensor	Sensor size (Still): 35.9×24 mm (Full frame) Sensor size (Max video recording area): 34×19 mm Effective Pixels: 45MP Pixel size: 4.4 μm
SD Card	SD: UHS-I rating or above; Max capacity: 512 GB
Storage Files	Photo / GNSS Raw Observation Data/ Image Log File
Shutter Speed	Mechanical Shutter Speed: 1/2000*-1 s Electronic Shutter Speed: 1/8000-1 s *Aperature value no larger than f/5.6
Aperture Range	f/2.8-f/16
Supported formats	JPEG, TIFF, MP4, MOV
Video Frame Rate	60fps
Gimbal	
Angular Vibration Range	±0.01°
Stabilized System	3-axis (tilt, roll, pan)
Mount	Detachable
Controllable Range	Pitch: -120° to +30° Yaw: ±320°
Mechanical Range	Pitch: -132.5° to +42.5° Yaw: ±330° Roll: -90° to +60°
Multispectral Payload	

	Weight	460 g		
	Lidar	Multiple returns per pulse, DEM/DTM generation		
	Dimensions	11.0 x 8.0 x 6.9 cm (4.3in x 3.1in x 2.7in)		
	External Power	7.0 V - 25.2 V		
	Spectral Bands & Wavelength(nm)	Blue (475 nm center, 32 nm bandwidth), Green (560 nm center, 27 nm bandwidth), Red (668 nm center, 14 nm bandwidth), Red Edge (717 nm center, 12 nm bandwidth), Near-IR (842 nm center, 57 nm bandwidth)		
	Thermal	FLIR LWIR thermal infrared 7.5-13.5um radiometrically calibrated		
	Capture Rate	2 captures per second raw DNG		
	RGB Output	12.4 MP (global shutter, aligned with all bands)		
	Sensor Resolution	2064 x 1544 (3.2MP per MS band) 4112 x 3008 (12MP panchromatic band) 320 × 256 thermal infrared		
	Ground Sample Distance (GSD)	5.28 cm per pixel (per MS band), 2.49 cm per pixel (panchromatic band) 33.5 cm per pixel (thermal)—at 120m (~400ft)		
	Field of View	50° HFOV x 38° VFOV (MS) 46° HFOV x 35° VFOV (PAN) 48º x 40º (thermal)		
	Storage	CFExpress card		
	Interfaces	3 configurable GPIO: select from trigger input, PPS input, PPS output, and top of frame signals. Host virtual button. USB 2.0 port for WiFi. Serial. 10/100/1000 Ethernet. CF Express for storage		
	IP Rating	IP4X		
05	**Aerial Data Processing Software**			
	Outputs		*Applications*	
	• Camera parameters • Bingo and SSK • SSK • Undistorted images • Densified Point Cloud • Digital Surface Model (DSM)-Grid, Raster • Digital Terrain Model (DTM) • Orthomosaic (GeoTIFF, KML, HTML) • Multispectral bands		• Distance & area measurements • Volume calculation • 2D,3D digitization with visualization • Visualization on Google applications • Multispectral indices - Index visualization and color editing • Thermal Map - Visualization & color editing & index • Point cloud classification • Stereo viewing & video animation viewing	

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	• Reflectance Map • Index Map (GeoTIFF) • Grid Index Map Shapefile • Thermal Map • Thermal Index Maps • 3D Textured Mesh • Contour lines • Video animation • 3D Digitized objects	• 3D printing • Contour lines generation and editing • Web viewing and sharing • 3D Digitized objects visualization & editing • In the field inspection (Index Map) • Bundle Adjustment	
	• **Laptop**	• For Data acquisition and processing • RAM : 16 GB • Storage: 1TBNVMe / PCI / M2 • Processor: Core i7 12 Generation	
Note: it is requested that only authorized dealers should apply in the bid.			

(E) Manual Meteorological Instrument

S. No.	DESCRIPTION	QUANTITY
01		01 sets

Power supply	Three AA batteries			
Data output	USB data cable to connect to computer to export			
Storage capacity	130,000 records			
Battery life	5 years standby time			
Detect/Parameters	**Range**	**Accuracy**	**Stability**	**Response time**
Wind speed	0~30m/s	±(0.3m/s±0.03*v)	—	1s
Wind direction	0~359°	≤±1/2 direction	—	0.5s
Temperature	-40℃~+80℃	±0.5℃(25℃)	≤0.1℃/y	≤25s(1m/ wind speed²)
Humidity	0%~99%RH	±3%RH(60%RH,25℃)	≤1%/y	≤8s(1m/s wind speed²)

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	Atmospheric pressure	0-120kPa	±0.15kPa@25℃ 101kPa	- 0.1kPa/y	≤2s		
Note: it is requested that only authorized dealers should apply in the bid.							

(F) Directional Wave Recorder Buoys

S. No.	DESCRIPTION	QUANTITY
01	**Current Meter** General: Method: Doppler; Cell size: 0.4 m to 1.1 m from surface; Update rate: every 10 minutes; Sensors: three 2 MHz acoustic transducers Speed: Range: 0 to 3 m/s, resolution 1 mm/s; Accuracy: 1% of measured value ± 2 cm/s; Std. (1σ): 1 to 3 cm/s (depending on wave height) Direction: Range: 0° to 360°, resolution 0.1°; Accuracy: 0.4° to 2° (depending on latitude), typically 0.5°; Reference: magnetic north **Wave Sensor**	02

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Type and processing	Type:	Stabilized platform sensor	
	Sampling:	8-channel, 14 bit @ 5.12 Hz	
	Data output rate:	2.56 Hz	
	Processing:	32 bits microprocessor system	
Heave	Range:	-20 m to +20 m, resolution: variable, 1 mm smallest step	
	Sampling:	< 0.5% of measured value after calibration < 1.0% of measured value after 3 years	
	Period:	1.0 s to 30 s	
Direction	Range:	0° to 360°, resolution: 0.1°	
	Heading error:	0.4° to 2° (depending on latitude), typically 0.5°	
	Period:	1.0 s to 30 s (free floating) 1.0 s to 20 s (moored)	
	Reference:	magnetic north	

Other

Water temperature	Range:	-10 °C to +50 °C, resolution: 0.01 °C
	Sensor accuracy:	0.1 °C
	Measurement accuracy:	0.2 °C
Integrated data logger	Compact flash module 1024 Mb to 2048 Mb	

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LED flashlight	Antenna with integrated LED flasher, colour yellow (590 nm), standard length 35 cm, “Standard pattern”: 5 flashes every 20 s, “Increased pattern”: 5 flashes every 15 s.	
GPS position	50 channel, update every 10 minutes, precision < 5 m	
HF link	Frequency range 25.5 to 35.5 MHz (35.5 to 45.0 MHz on request) Transmission range 50 km over sea, user replaceable. For use with HVA compatible RX-C4 receivers.	

General

Power consumption	522 mW
Material	Stainless steel AISI 316 or Cunifer 10
Hull diameter	0.7 m or 0.9 m (excluding fender)
Weight	Approx 109 kg 0.7 m AISI 316, 113 kg 0.7 m Cunifer 10 Approx 192 kg 0.9 m AISI 316, 201 kg 0.9 m Cunifer 10
Batteries	0.7 m operational life 11 months 0.9 m operational life 23 months Type: Datacell RC27B (270 Wh black)
Power switch	Data files are closed and secured
Temperature range	Operating: -5 °C to +35 °C Storage: -5 °C to +40 °C (+55 °C short term, weeks only)
Hull painting	Brantho-Korrux “3 in 1” paint system (no anti-fouling)

Optional features

Air Temperature	Measuring height:	2 m above sea surface
	Temperature range:	-20 °C to +70 °C
	Resolution:	0.01 °C
	Exposed accuracy:	±0.5 °C (±1.0 °C when solar induced uncertainty detected)
Power	Data files are closed and secured	

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	switch		
	Solar power system	Solar panel combined with BOOSTCAP capacitors Peak power: 5 W, Capacity: 2 Wh	
	Transmission	Iridium SBD, Iridium internet, GSM internet and Argos	
Note: it is requested that only authorized dealers should apply in the bid.			

(G) Water Quality Sonde

S. No.	DESCRIPTION	QUANTITY
01		01

General Sonde Specifications			
Medium	Fresh, sea or polluted water		
Temperature - Operating	-5 to +50°C		
Temperature - Storage	-10 to +60°C		
Communications	RS-232, SDI-12		
Software	EcoWatch®		
Diameter	2.85 in, 7.24 cm		
Length	18 in, 45.7 cm		
Weight	4 lbs, 1.8 kg		
Power - External	12 V DC		
Power - Internal	8 AA-size alkaline batteries		
Certifications	CE, EU Battery Compliance, FCC, IP-67, WEEE, and MCERTS; Assembled in the USA		
Sensor specifications	**Range**	**Resolution**	**Accuracy**
ROX™ Optical Dissolved Oxygen• % Saturation	0 to 500%	0.1%	0 to 200%: ±1% of reading or 1% air saturation, whichever is greater; 200 to 500%:

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				±15% of reading
ROX™ Optical Dissolved Oxygen• mg/L	0 to 50 mg/L	0.01 mg/L	0 to 20 mg/L: ± 0.1 mg/L or 1% of reading, whichever is greater; 20 to 50 mg/L: ±15% of reading
Conductivity•• 6560 Sensor‡	0 to 100 mS/cm	0.001 to 0.1 mS/cm (range dependent)	±0.5% of reading + 0.001 mS/cm
Salinity	0 to 70 ppt	0.01 ppt	±1% of reading or 0.1 ppt, whichever is greater
Temperature 6560 Sensor‡	-5 to +50°C	0.01°C	±0.15°C
pH 6561 Sensor‡	0 to 14 units	0.01 unit	±0.2 unit
ORP	-999 to +999 mV	0.1 mV	±20 mV
Depth - Deep	0 to 656 ft, 200 m	0.001 ft, 0.001 m	±1 ft, ±0.3 m
Depth - Medium	0 to 200 ft, 61 m	0.001 ft, 0.001 m	±0.4 ft, ±0.12 m
Depth - Shallow	0 to 30 ft, 9.1 m	0.001 ft, 0.001 m	±0.06 ft, ±0.02 m
Vented Level	0 to 30 ft, 9.1 m	0.001 ft, 0.001 m	±0.01 ft, 0.003 m
Turbidity• 6136 Sensor‡	0 to 1,000 NTU	0.1 NTU	±2% of reading or 0.3 NTU, whichever is greater**
Nitrate / nitrogen•••	0 to 200 mg/L-N	0.001 to 1 mg/L-N (range dependent)	±10% of reading or 2 mg/L, whichever is greater
Ammonium / ammonia /	0 to 200	0.001 to 1	±10% of reading

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nitrogen•••	mg/L-N	mg/L-N (range dependent)	or 2 mg/L, whichever is greater	
Chloride•••	0 to 1000 mg/L	0.001 to 1 mg/L (range dependent)	±15% of reading or 5 mg/L, whichever is greater	
Rhodamine•	0-200 µg/L	0.1 µg/L	±5% reading or 1 µg/L, whichever is greater	

Blue-Green Algae Sensor Specifications	**Range**	**Detection Limit**	**Resolution**	**Linearity**
Blue-Green Algae Phycocyanin•	~0 to 280,000 cells/mL† 0 to 100 RFU	~220 cells/mL§	1 cell/mL 0.1 RFU	R2 > 0.9999**
Blue-Green Algae Phycoerythrin•	~0 to 200,000 cells/mL† 0 to 100 RFU	~450 cells/mL§§	1 cell/mL 0.1 RFU	R2 > 0.9999***
Chlorophyll• 6025 Sensor‡	~0 to 400 µg/L 0 to 100 RFU	~0.1 µg/L§§§	0.1 µg/L Chl 0.1% RFU	R2 > 0.9999****

Note: it is requested that only authorized dealers should apply in the bid.

(H) Physical Balance

S. No.	DESCRIPTION	QUANTITY
01		01

Parameter	Specification
Type	Electronic analytical balance
Maximum capacity	**200–220 g**

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		Readability	**0.1 mg (0.0001 g)**
		Repeatability	≤0.1 mg
		Linearity	±0.2–0.3 mg
		Calibration	Internal automatic calibration
		Pan material	Stainless steel
		Pan size	Approximately 90 mm
		Display	High-contrast LCD/LED
		Draft shield	5-sided glass draft shield
		Units	g, mg, ct and other standard units
		Interface	USB / RS-232
		Data output	GLP/GMP-compatible
		Operating temperature	Approximately 5–40°C
		Power supply	100–240 V AC
		Wind protection	Included
		Overload protection	Required
		Application	Water-quality, sediment, filtration and laboratory analysis
Note: it is requested that only authorized dealers should apply in the bid.			

(I) Filtration Assembly

S. No.	DESCRIPTION	QUANTITY
01	• Filter diameter: 47 mm • Filtration area: 9.6 cm2 • Funnel capacity: 300 ml • Outlet fitting: No. 8 perforated silicone stopper mounts in standard 1000 ml filtering flask • Dimensions: 22.9 cm (h) x 7.6 cm (d)	01
Note: it is requested that only authorized dealers should apply in the bid.		

(J) Multibeam

S. No.	DESCRIPTION	QUANTITY

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01		01

Specification	
System type	iWBMS X – Standard**,**Curved-array multibeam bathymetric sonar
Operating frequency	Nominal **400 kHz**, agility 200–700 kHz
Beamwidth / resolution	**0.9° × 0.9° @ 400 kHz**; 0.5° × 0.5° @ 700 kHz
Number of beams/soundings	256 / 512 / 1024 optional / 2 × 1024 Dual/
Swath coverage	**5–210°** flexible sector
Ping rate	Up to **60 Hz**
Depth range	**0.2–275 m**
Bottom/depth resolution	**<10 mm acoustic**, 80 kHz bandwidth
Stabilization	Active **roll, pitch and yaw** stabilization
Backscatter	Intensity, sidescan, snippets, water column
Sidescan capability	Multispectral/TruePix® backscatter; FLS available
Forward Looking Sonar	Switchable FLS
Multidetect	Yes / advanced sounding patterns
Sound Velocity Probe	Integrated, field-replaceable
GNSS/INS integration	Applanix OceanMaster, WaveMaster II, SurfMaster; SBG Ekinox
Position accuracy	HOR ±(8 mm + 1 ppm × distance); VER ±(15 mm + 1 ppm × distance), depending on INS
Heading accuracy	Up to **0.01°** with 4 m antenna separation
Pitch/Roll accuracy	Up to **0.01° RTK / 0.008° IAPPK**
Heave accuracy	**2 cm or 2% TrueHeave™**; 5 cm or 5% real time
Power consumption	**40–85 W** depending on GNSS
Power input	**10–28 VDC / 100–240 VAC**
Data/interface	Ethernet

		Environmental rating	Topside IP67	
		Operating temperature	−4°C to +40°C	
		Storage temperature	−20°C to +60°C	
		Standard immersion depth	**100 m**	
		Deep-water option	Subsea version up to **1500 m**	
		Sonar weight	**6.6 kg air / 3.2 kg water**, excl. bracket	
		Cable options	2 m, 8 m, 25 m	
		Mounting	Carbon-fibre pole / titanium housing / fairing	
		Dual-head option	Available	
		Dual Swath	Available	
		1024-beam option	Available	
		Pitch stabilization	Available	
		Yaw stabilization	Available	
		Data acquisition software	As per hardware configuration	
		Third-party software	HYPACK, QPS, BeamworX, EIVA, others	
		Backscatter processing	BSO; physical-model compatible	
		IHO capability	Exceeds **IHO Exclusive Order & USACE New Work**	
		Resolution highlight	**<10 mm** acoustic depth resolution	
		System form factor	Ultra-compact	
		Special feature	Curved array; active stabilization; integrated SVP	
		Laptop	For Data acquisition and processing RAM : 8 GB Storage: 512 GB NVMe / PCI / M2 Processor: Core i7 12 Generation	

Note: it is requested that only authorized dealers should apply in the bid.

(K) Side Scan Sonar

S. No.	DESCRIPTION	QUANTITY
01	**Technical Specifications**	01

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BATHYMETRY				
Sonar Frequency	520 kHz		850 kHz	
Beamwidths*	1° x 0.5°		1° x 0.4°	
Optimal Operating Water Depth**	< 50 m		< 25 m	
Max Swath Width***	200 m		75 m	
Max Swath Sector	200°			
Max Soundings Per Ping	800			
Sounding Patterns	Equidistant and Equiangular			
SIDE SCAN SONAR IMAGERY				
Frequency	520 kHz	850 kHz	1600 kHz	
Horizontal Beamwidth (2-way)	0.36°	0.29°	0.20°	
Range Resolution	10 mm	9 mm	6 mm	
Max Range**	150 m	75 m	35 m	
SYSTEM				
Pulse Modulation	CW & FM CHIRP			
Ping Rate (Range Dependent)	Up to 60 Hz			
Construction	Polycarbonate and Aluminum			
Sonar Unit Dimensions	L: 72.7 x W: 20.2 x H: 13.9 cm (28.6 x 7.9 x 5.5 in)			
Deck Cable Length	20m (Standard), or custom length to suit USV			

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			(unmannded surface vehicle)		
		Depth Rating	50 m (165 ft)		
		Sonar Unit Weight (In Air)	14 kg (32 lbs)		
		19" Rack Mount Top Unit	6 kg (12 lbs)		
		19" Rack Mount Unit Dimensions	L: 52.1 x W: 48.3 x H: 8.9 cm (20.5 x 19 x 3.5 in)		
		Input Voltage	24-36 VDC or 100/240 VAC (auto sensing)		
		Power (Typical / Max)	55W / 70W (Current draw 1.4 amp)		
		Software	Included, windows based software, EdgeTech's Discover Bathymetric Acquisition and Sonar Control		
		Data Products	Bathymetry, Backscatter, Side Scan Imagery, and Real Time Uncertainties		
		Laptop	For Data acquisition and processing RAM : 8 GB Storage: 512 GB NVMe / PCI / M2 Processor: Core i7 12 Generation		
		GAP-FILL SIDE SCAN SONAR			
		* Across track resolution expressed as a beamwidth at nadir ** Dependent on environmental conditions (i.e. absorption, reverberation, sea noise, etc.) *** Assumes a flat seafloor and dependent on environmental conditions			
Note: it is requested that only authorized dealers should apply in the bid.					

(L) Digital Camera

S. No.	DESCRIPTION		QUANTITY
01			01
	Parameter	**Specification**	
	Camera type	Full-frame interchangeable-lens digital camera	

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	Sensor	35.6 × 23.8 mm full-frame Exmor R CMOS		
	Effective pixels	Approx. **24.2 MP**		
	Total pixels	Approx. 25.3 MP		
	Aspect ratio	3:2		
	Image processor	BIONZ X		
	ISO range	100–51,200; expandable to 50–204,800		
	Continuous shooting	Up to **10 fps**		
	Autofocus	Phase + contrast detection		
	AF sensitivity	−3 to +20 EV		
	Image stabilization	5-axis in-body sensor-shift stabilization		
	RAW	14-bit RAW, uncompressed/compressed options		
	Maximum still image	6000 × 4000 pixels		
	Video	4K UHD 3840 × 2160		
	4K frame rates	30p / 25p / 24p		
	4K bitrate	Up to 100 Mbps		
	HD high-speed recording	Up to 120 fps		
	Video format	XAVC S / MPEG-4 AVC/H.264		
	Picture profiles	Includes S-Log2, S-Log3 and HLG		
	Memory cards	2 slots; SD/SDHC/SDXC, UHS-I/II support		
	Viewfinder	0.5-inch electronic, 2.36 million dots		
	LCD	3.0-inch tilting touchscreen		
	Wi-Fi	Yes, 2.4 GHz		
	Bluetooth	Version 4.1		
	USB	USB connectivity		
	HDMI	Micro HDMI		
	Location information	Smartphone location-information linking		
	Battery	NP-FZ100 rechargeable battery		
	Body	Magnesium-alloy construction with dust/moisture resistance		
	Weight	Approx. 650 g with battery and memory card		
Note: it is requested that only authorized dealers should apply in the bid.				

(M) Multifunction Wireless Plotter Printer

S. No.	DESCRIPTION		QUANTITY
01	Functions	Print, copy, scan	01
	Print speed, maximum	25 sec/page for D size, 90 D size 24" x 36" prints per hour	
	Scan speed, maximum	Up to 1.5 in/sec (color, 200 dpi), up to 4.5 in/sec (grayscale, 200 dpi)	
	Resolution (color)	Up to 2400 x 1200 optimized dpi	
	Number of print cartridges	4 (C, M, Y, mK) cartridges	
	Print languages	TIFF, JPEG, URF, PDF, HP-GL/2, HP-RTL, CALS G4	

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	Line accuracy	±0.1%	
	Maximum optical density (black)	15 L* min/1.7 D	
	Finished output handling	Sheet feed, roll feed, input tray (50 sheet capacity), media bin, automatic horizontal cutter	
	Media sizes supported	Input tray: A, B; Manual feed: A, B, C, D, E	
	Media sizes supported	Input tray: A4, A3; Manual feed: A4, A3, A2, A1, A0	
	Media sizes, custom	Input tray: 8.3 x 11 to 12 x 18 in; Manual feed: 8.3 x 11 to 36 x 66 in	
	Media types	Bond and coated paper (bond, coated, heavyweight coated, plain, bright white, blueprint), technical paper (natural tracing), film (clear, matte), photographic paper (ID satin, ID gloss), self-adhesive (adhesive matte/gloss, adhesive polypropylene gloss), Polypropylene (matte)	
	Media sizes, standard	14.5 to 36 in	
	Roll external diameter	3.9 in	
	Media thickness	Up to 11.8 mil	
	Power	Input voltage (auto ranging): 100-240 V (±10%), 50/60 Hz (±3 Hz), 1.2 A max	
	Power consumption	35 W (printing), <11 W (ready), <3.5 W (sleep), <0.1 W (off). Auto-scheduled printer on/off usage	
	Operating temperature range	41 to 104°F	
	Warranty	Two-year hardware warranty	
	Software included	Driver for Windows 11, relevant app for Windows, macOS, Android, and iOS	
	Dynamic security	Dynamic security enabled printer	
	Supplier shall provide operational / maintenance manual and training.		
Note: It is requested that only authorized dealers should apply in the bid			

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IT-23. INSTRUCTIONS TO TENDERERS (CLAUSE REFERENCE)

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INSTRUCTIONS TO TENDERERS (CLAUSE REFERENCE)

23.1 **Name**of National Institute of Oceanography **and Address**

Director General
National Institute of Oceanography
ST-47, Block-1,Clifton, Karachi-75600 Pakistan
Phones: (92-21) 99251172-8, Fax: (92-21) 99251179, 34166418
E-mail: niopk.gov.pk@gmail.com

23.2 Tender shall be quoted entirely in Pak. Rupees. The items to be imported for this tender should be quoted in Pak Rupees only. The payment shall be made to the supplier in Pak. Rupees.

a. The tenderer/manufacturer/distributor / authorized dealer/agents have the financial, and technical capability necessary to supply Oceanographic Scientific Instruments / Accessories / Consumables & Miscellaneous Items.

b. Tender validity is 120 days, after issuance of supply order(s) at NIO, ST-47, Block-1, Clifton, Karachi, at theirexpense and even at short notice if needed. Payment will be made after satisfaction (demonstration will be mandatory). Delivery will be by No. of days specified in the work/supply order.

c. If supplied items are found sub-standard or in-genuine, the contract will be canceled Security Deposits will be forfeited and the Firm will also be blacklisted.

d. The Firms must have Sales Tax Registration Certificate, National Tax Number, and Vendor Number and have proper offices, shops/stores in Karachi as well as facilities of telephone/fax and email.

e. Submission of any false statement/documents including concealing of information is likely to disqualify the bidder.

f. The bid opening procedure is single stage two enveloping procedure Rule 36(b) of PPRA-2004.

g. Advance payments are prohibited. Payments shall be made in accordance with Rule 43 of PPRA-2004.

h. The Procuring Agency may suspend or terminate the procurement at any stage before contract award. No liability shall arise from such action. This may be done due to any new austerity measures budget cuts or policy directives issued by the Government of

Pakistan or the competent authority.

i. This Institute reserves the right to accept or reject any or all tenders without assigning any reason by rule 33(1) of PPRA-2004.

23.3 (a) A detailed description of the Works, essential technical and performance characteristics.

(b) Complete set of technical information, description data, literature, and drawings as required by Tendering Data, Specific Works Data. This will include but not be limited to a sufficient number of drawings, photographs, catalogs, illustrations, and such other information as is necessary to illustrate clearly the significant characteristics such as general construction dimensions and other relevant information about the works to be performed.

23.5 **Amount of Tender Security**

2% of the quoted price

23.6 **Period** of Tender **Validity**

120 days from the date of tender opening.

23.7 **Number of Copies of the Tender to be Submitted**

One original plus 1 copy.

23.8 (a) National Institute of Oceanography's Address for Tender Submission

Director General
National Institute of Oceanography
ST-47, Block-1, Clifton, Karachi-75600, Pakistan
Phones: (92-21) 99251172-4, Fax: (92-21) 99251179, 34166418
E-mail: niopk.gov.pk@gmail.com

(b) **Warning**

DO NOT OPEN BEFORE: 31st December 2026.

23.9 **Deadline for Submission of Tenders**

12:00 AM, 31st December 2026

23.10 **Venue, Time, and Date of Tender Opening**

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National Institute of Oceanography
ST-47, Block-1, **C**lifton, Karachi-75600, Pakistan

Time: 12:30 PM

Date: 31st December 2026

23.11 **Responsiveness of Tenders**

(i) the Tender is valid till the required period,

(ii) the Tender prices are firm during the currency of the contract.

(iii) completion period offered is within specified limits,

(iv) the Tenderer/Manufacturer is eligible to Tender and possesses the requisite experience,

(v) the Tender does not deviate from basic technical requirements and

(vi) the Tenders are generally in order, etc.

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IT-24. FORMS OF TENDER AND SCHEDULES TO TENDER

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IT-24. FORM OF TENDER

(LETTER OF OFFER)

To: _____

_____

_____

_____

Gentlemen,

1. Having examined the Tender Documents including Instructions to Tenderers, Tendering Data, Conditions of Contract, Contract Data, Specification, and Addenda Nos._____ for the supply of the Oceanographic Scientific Instruments / Accessories / Consumables & Miscellaneous Items., we, the undersigned, being a company doing business under the name of and address _____ _____and being duly incorporated under the laws of Pakistan hereby offer to supply the Oceanographic Scientific Instruments / Consumables & Miscellaneous Items. and remedy any defects therein in conformity with the said Documents including Addenda thereto for the Total Tender Price of Rupees (_____) or such other sum as may be ascertained by the said Documents.

2. We understand that all the Schedules attached hereto form part of this Tender.

3. As security for the due performance of the undertakings and obligations of this Tender, we submit herewith a Tender Security in the amount of _____drawn in your favor or made payable to you and valid for a period of 28 days beyond the period of validity of Tender.

4. We undertake, if our Tender is accepted, to supply the Oceanographic Scientific Instruments / Accessories / Consumables & Miscellaneous Items. comprised in the Contract within the time(s) stated in Contract Date.

5. We agree to abide by this Tender for the period of 120 days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

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6. Unless and until a formal Agreement is prepared and executed, this Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

7. We undertake, if our Tender is accepted, to execute the Performance Security referred to in the Conditions of the Contract for the due performance of the Contract.

8. We understand that you are not bound to accept the lowest or any Tender you may receive.

9. We do hereby declare that the Tender is made without any collusion comparison of figuresor arrangement with any other person or persons making a Tender for the Works.

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Dated this _____day _____ Signature _____ in the capacity of _____duly authorized to sign tenders for and on behalf of

(Name of Tenderer in Block Capitals)

Address:

Witness:

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of 2019 between DIRECTOR GENERAL, NATIONAL INSTITUTE OF OCEANOGRAPHY (hereinafter called the "Employer") of the one part and _____ (hereinafter called the "Contractor") of the other part.

WHEREAS the Employer is desirous that certain Works, viz _____ should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witness as follows:

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1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents after incorporating addenda, if any except those parts relating to Instructions to Bidders, shall be deemed to form and be read and construed as part of this Agreement, viz:

   (a) The Letter of Acceptance;
   (b) The completed Form of Bid along with Schedules to Bid;
   (c) Conditions of Contract & Contract Data;
   (d) The priced Schedule of Prices;

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and all respects within the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, 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.

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IN WITNESS WHEREOF the parties hereto have caused this Contract Agreement to be executed on the day**,** month, and year first before written by their respective laws.

Signature of the Contactor	Signature of the Employer
_____	_____
(Seal)	(Seal)

Signed, Sealed, and Delivered in the presence of:

Witness:	Witness:
_____	_____
(Name, Title, and Address)	(Name, Title, and Address)

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IT-25.BID TECHNICAL EVALUATION CRITERIA

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Preliminary Evaluation (Pass/Fail)

Criteria	Description	Requirement	Pass/Fail
Legal eligibility	Valid business license, tax clearance, registration etc.	Mandatory	
NTN	Active National Tax Number of FBR	Mandatory	
Criteria of non-Blacklisting	Non blacklist from any government entity.	Mandatory	
Bid submission format	Properly filled forms, signed with stamp documents	Mandatory	
Bid security	As per PPRA Rule 36 2026	Mandatory	
Bid Validity	Bids shall remain valid for 180 days after the date of opening of technical proposal	Mandatory	
Compliance with terms of reference	Statement of compliance with technical specifications	Mandatory	
License Terms	2–3, year license offered with full features included	Mandatory	
Training (if applicable)	Official training from the software company or certified partner included	Mandatory	
Technical Support Commitment/warranty & services	Warrantydocument/After sale and services	Mandatory	

(A) Acoustic Doppler Current Profiler (ADCP)

1. Technical Evaluation (70 points minimum passing: 50)

S. No.	Criteria	Description	Max Points
1	**Core Parameters**	Compliance with required water velocity measurement range, profiling range, cell size, blanking distance, number of cells, velocity accuracy, resolution, sampling rate, temperature range/accuracy, and pressure range/accuracy	**20**

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2	**Secondary Specs**	Compliance with Echo Intensity, Echo Sounder, Wave Measurement, Ice Measurement, Compass, Tilt, AHRS, Data Recording Capacity, Real-Time Clock, and Depth Rating	**10**
3	**Construction Material / Sensors**	Compliance with specified sensor technologies and construction materials, including acoustic transducers, temperature sensors, pressure sensors, magnetometers, accelerometers, POM body, and titanium fasteners	**10**
4	**Power & Communication**	Compliance with Ethernet, RS-232/RS-422 serial communication, DC input, power consumption, internal battery, battery operating duration, and connectors	**10**
5	**Software**	Compatibility with Windows 10/11 and software for deployment planning, instrument configuration, data retrieval, and data conversion	**5**
6	**Training and Documentation**	Provision of operational and maintenance manuals, technical documentation, user guidance, and operational training	**5**
7	**After-Sales Support**	Availability of authorized technical support, maintenance, repair, calibration, spare parts, battery/service support, and after-sales services	**10**
	TOTAL	Overall Technical Evaluation Score	**70**

(B) Conductivity, Temperature, and Depth (CTD)

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with Conductivity range 0–9 S/m, Temperature range −5 to +35 °C, Conductivity accuracy ±0.0005 S/m, Temperature accuracy ±0.005 °C, Conductivity resolution 0.00005 S/m, Temperature resolution 0.0001 °C, sampling rate, and applicable	20

		pressure/depth measurement requirements	
2	Secondary Specs	Compliance with pressure/depth options, depth rating 600 m / 10,500 m, auxiliary sensors up to 7, onboard memory, memory capacity, adaptive sampling, biofouling protection, and other specified secondary features	10
3	Construction Material / Sensors	Compliance with housing material options Plastic/Titanium, conductivity and temperature sensors, optional pressure sensor technologies, MCBH connector, and provision for auxiliary sensors	10
4	Power & Communication	Compliance with RS-232 communication, internal battery power, 9 × alkaline D-cell battery configuration, MCBH connector, and specified power/operating requirements	10
5	Software	Availability of supported software for instrument configuration, setup, data management, and operation	5
6	Training and Documentation	Provision of user/operational manuals, configuration and operating documentation, and training as required by the purchaser	5
7	After-Sales Support	Availability of authorized technical support, spare parts, maintenance, repair, calibration, sensor/battery service, and after-sales support	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

(C) Wave Guage

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with Heave range −20 m to +20 m, resolution 0.01 m, accuracy after calibration and long-	20

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		term accuracy, Direction range 0°–360°, direction resolution, handling error, period 1.6–30 s, and Water Temperature range −5°C to +46°C, resolution 0.05°C, and accuracy <0.1°C	
2	Secondary Specs	Compliance with wave period, GPS positioning, integrated datalogger, memory capacity, LED flasher, optional HF/Satellite/GSM communication, solar power option, radar reflectors, hull diameter, operating/storage temperature, and battery operational life	10
3	Construction Material / Sensors	Compliance with stabilized platform sensor, 3D fluxgate compass, X/Y accelerometers, water-temperature sensor, stainless steel AISI316 or Cunifer10 construction, and specified hull configuration	10
4	Power & Communication	Compliance with specified battery configuration and operational life, HF link, Iridium/Argos satellite communication, GSM communication, and optional solar power system	10
5	Software	Compatibility with the instrument's data processing, configuration, data logging, GPS, and communication systems, including processing through the 32-bit microprocessor system	5
6	Training and Documentation	Provision of operational and maintenance manuals, technical documentation, user guidance, training, and information required for operation, deployment, and maintenance	5
7	After-Sales Support	Availability of authorized technical support, spare parts, maintenance, repair, calibration, battery replacement, sensor servicing, and after-sales support	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

(D) Drone

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with aircraft specifications including maximum takeoff weight 9 kg, maximum flight time 55	20

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		min, maximum speed 23 m/s, wind resistance 15 m/s, hovering accuracy, RTK positioning accuracy, maximum payload, operating temperature, GNSS capability, and IP45 rating.	
2	Secondary Specs	Compliance with aircraft dimensions, wheelbase, angular velocity, ascent/descent speeds, gimbal configurations, obstacle sensing range, FPV camera, remote-controller transmission range, battery capacity, charging time, and Intelligent Battery Station specifications, Laptop for data processing.	10
3	Construction Material / Sensors	Compliance with camera and sensor payload specifications, including 45 MP full-frame camera, LiDAR, multispectral bands, thermal sensor, RGB/PAN sensors, 3-axis gimbal, sensor resolution, GSD, FOV, and payload weight	10
4	Power & Communication	Compliance with intelligent flight batteries (2 units), battery capacity/energy, charging system, remote-controller communication frequencies, transmission range, USB power supply, Ethernet/serial interfaces, GPIO, Wi-Fi and CFExpress storage interfaces	10
5	Software and Laptop	Availability of aerial data processing software supporting camera parameters, image processing, point clouds, DSM/DTM, orthomosaic, multispectral and thermal processing, 3D models, contour generation, measurements, volume calculation, visualization, classification, and data export	5
6	Training and Documentation	Provision of operational, maintenance and technical manuals, software documentation, training for aircraft operation, payloads, data acquisition, processing and field inspection, including required laptop/data-processing setup	5
7	After-Sales Support	Availability of authorized technical support, maintenance, repair, calibration, spare parts, batteries, payload/service support, software support and warranty/after-sales services through an authorized dealer	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

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(E) Manual Meteorological Instrument

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with required measurement ranges and accuracy for Wind Speed (0–30 m/s), Wind Direction (0–359°), Temperature (−40°C to +80°C), Humidity (0–99% RH), and Atmospheric Pressure (0–120 kPa)	20
2	Secondary Specs	Compliance with measurement response times, stability specifications, data storage capacity of 130,000 records, and overall operating/measurement performance	10
3	Construction Material / Sensors	Compliance with integrated sensors for wind speed, wind direction, temperature, relative humidity, and atmospheric pressure, including specified sensor accuracy and stability	10
4	Power & Communication	Compliance with three AA batteries, stated battery life/standby time, and USB data cable for connection to a computer and data export	10
5	Software	Compatibility with computer-based data export and any required software/interface for retrieval, storage, and management of recorded measurement data	5
6	Training and Documentation	Provision of operational and maintenance manuals, technical documentation, operating instructions, data-download procedures, and user training	5
7	After-Sales Support	Availability of authorized technical support, spare parts, sensor replacement, maintenance, repair, calibration, battery support, and after-sales service	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

(F) Directional Wave Recorder Buoys

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with Current Meter Doppler measurement requirements, including cell size 0.4–1.1 m, speed range 0–3 m/s, resolution 1 mm/s, speed accuracy, direction range 0–360°, direction resolution 0.1°, Wave Sensor	20

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		heave range −20 to +20 m, heave accuracy, wave period, and water temperature range/accuracy	
2	Secondary Specs	Compliance with sampling and data output rates, GPS positioning, integrated data logger capacity 1024–2048 Mb, LED flasher, HF transmission range 50 km, hull dimensions, weight, battery operational life, operating/storage temperature, and optional air-temperature measurement	10
3	Construction Material / Sensors	Compliance with three 2 MHz acoustic transducers, stabilized platform wave sensor, water-temperature sensor, GPS, and specified hull materials Stainless Steel AISI 316 / Cunifer 10	10
4	Power & Communication	Compliance with power consumption 522 mW, Datacell RC27B battery, specified battery operating life, power switch, HF link 25.5–35.5 MHz, and optional Iridium SBD, Iridium Internet, GSM Internet, and Argos communication	10
5	Software	Compatibility with instrument data logging, data retrieval, processing, configuration, and communication systems	5
6	Training and Documentation	Provision of operational and maintenance manuals, technical documentation, deployment/operation procedures, data management guidance, and user training	5
7	After-Sales Support	Availability of authorized technical support, spare parts, battery replacement, sensor servicing, maintenance, repair, calibration, communication-system support, and after-sales services	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

(G) Water Quality Sonde

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with primary water-quality measurements including Optical Dissolved Oxygen, Conductivity, Salinity, Temperature, pH, ORP, and Depth, including	20

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		specified measurement ranges, resolution, and accuracy	
2	Secondary Specs	Compliance with Turbidity, Nitrate/Nitrogen, Ammonium/Ammonia/Nitrogen, Chloride, Rhodamine, Blue-Green Algae, Phycocyanin, Phycoerythrin, and Chlorophyll measurement specifications, including range, resolution/detection limit, accuracy, and linearity	10
3	Construction Material / Sensors	Compliance with ROX™ optical DO sensor, 6560 conductivity/temperature sensor, 6561 pH sensor, 6136 turbidity sensor, 6025 chlorophyll sensor, and other specified water-quality sensors; probe dimensions 2.85 in diameter × 18 in length and IP-67 protection	10
4	Power & Communication	Compliance with RS-232 and SDI-12 communications, 12 V DC external power, internal 8 AA alkaline batteries, and associated power requirements	10
5	Software	Availability and compatibility of EcoWatch® software for instrument configuration, data collection, monitoring, retrieval, and analysis	5
6	Training and Documentation	Provision of operational and maintenance manuals, sensor documentation, calibration procedures, software guidance, user training, and technical documentation	5
7	After-Sales Support	Availability of authorized technical support, spare sensors/parts, maintenance, repair, calibration, battery support, software support, and after-sales service	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

(H) Physical Balance

S. No.	Criteria	Description	Max Points
1	Core Parameters	Compliance with maximum weighing capacity 200–220 g, readability 0.1 mg (0.0001 g), repeatability ≤0.1 mg, and linearity ±0.2–0.3 mg	20
2	Secondary Specs	Compliance with calibration, pan size, weighing units, display, draft shield, operating temperature, overload protection, and application requirements for water-quality, sediment, filtration, and laboratory analysis	10
3	Construction Material / Sensors	Compliance with stainless-steel pan, approximately 90 mm pan size, five-sided glass draft shield, wind protection, and electronic analytical weighing system	10
4	Power &	Compliance with USB/RS-232 interface, 100–240 V	10

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	Communication	AC power supply, and GLP/GMP-compatible data output	
5	Software	Compatibility with software/interface required for data communication, weighing-data transfer, configuration, and GLP/GMP-compliant data management	5
6	Training and Documentation	Provision of user and maintenance manuals, calibration procedures, operating instructions, technical documentation, and user training	5
7	After-Sales Support	Availability of authorized technical support, calibration/service facilities, spare parts, repair, maintenance, and after-sales support	10
	TOTAL	**Overall Technical Evaluation Score**	**70**

(I) Filtration Assembly

S. No.	Criteria	Description	Max Points
1	**Core Parameters**	**Compliance with 47 mm filter diameter, 9.6 cm² filtration area, and 300 mL funnel capacity**	**20**
2	**Secondary Specs**	**Compliance with overall dimensions 22.9 cm (H) × 7.6 cm (D) and compatibility with a standard 1000 mL filtering flask**	**50**
	TOTAL	**Overall Technical Evaluation Score**	**70**

(J) Multibeam

S. No.	Criteria	Description	Max Points
1	**Core Parameters**	Compliance with operating frequency, beamwidth/resolution, number of beams/soundings, swath coverage, ping rate, depth range, bottom/depth resolution, stabilization, position accuracy, heading accuracy, pitch/roll accuracy, and heave accuracy	**20**
2	**Secondary Specs**	Compliance with backscatter, sidescan capability, Forward Looking Sonar multidetect, integrated Sound Velocity Probe, GNSS/INS integration, immersion depth, deep-water options, cable lengths, dual-head/dual-swath capability, and 1024-beam option	**10**
3	**Construction Material /**	Compliance with curved-array multibeam transducer, integrated/field-replaceable Sound Velocity Probe,	**10**

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	Sensors	carbon-fibre pole, titanium housing/fairing, active roll/pitch/yaw stabilization, and applicable mounting configuration	
4	**Power & Communication**	Compliance with specified power consumption, 10–28 VDC / applicable AC input, Ethernet/10/100/1000Base-T interface, cable options, GNSS/INS interfaces, and system connectivity	**10**
5	**Software and Rugged Laptop**	Availability of data acquisition and processing software, compatibility with HYPACK, QPS, BeamworX, EIVA or equivalent third-party software data processing, and required laptop for data acquisition/processing	**5**
6	**Training and Documentation**	Provision of operational and maintenance manuals, technical documentation, sonar configuration and survey procedures, operator training	**5**
7	**After-Sales Support**	Availability of authorized technical support, sonar maintenance, calibration, spare parts, repair/service facilities, software/firmware support, technical upgrades, and after-sales service	**10**
	TOTAL	Overall Technical Evaluation Score	**70**

(K) Side Scan Sonar

S. No.	Criteria	Description	Max Points
1	**Core Parameters**	Compliance with bathymetric sonar frequencies 520/850 kHz, beamwidth, optimal operating depth, maximum swath width, maximum swath sector 200°, maximum 800 soundings per ping, sounding patterns, side-scan frequencies 520/850/1600 kHz, range resolution, maximum range, and ping rate up to 60 Hz	**20**
2	**Secondary Specs**	Compliance with CW/FM CHIRP pulse modulation, bathymetry and side-scan capabilities, backscatter, real-time uncertainty products, deck cable length, depth rating 50 m, sonar dimensions/weight, rack-mount unit specifications, and USV integration	**10**
3	**Construction Material / Sensors**	Compliance with sonar construction using polycarbonate and aluminum, bathymetric transducer, side-scan sonar, gap-fill side-scan capability, and specified beamwidth/range-resolution performance	**10**
4	**Power & Communication**	Compliance with 24–36 VDC or 100/240 VAC auto-sensing power input, typical/maximum power consumption 55 W / 70 W, current draw, 20 m standard deck cable, and applicable system connectivity	**10**
5	**Software and Rugged Laptop**	Provision of Windows-based EdgeTech Discover Bathymetric Acquisition and Sonar Control software for data acquisition, sonar control, processing, and generation of bathymetry/backscatter/side-scan data products	**5**
6	**Training and Documentation**	Provision of operational and maintenance manuals, technical documentation, sonar deployment/operation procedures, software guidance, data	**5**

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		acquisition/processing instructions, and operator training	
7	**After-Sales Support**	Availability of authorized technical support, sonar maintenance, calibration, repair, spare parts, software support/updates, cable/service support, and after-sales services	**10**
	TOTAL	**Overall Technical Evaluation Score**	**70**

(L) Digital Camera

S. No.	Criteria	Description	Max Points
1	**Core Parameters**	Compliance with full-frame 35.6 × 23.8 mm Exmor R CMOS sensor, approximately 24.2 MP, ISO 100–51,200 expandable to 50–204,800, continuous shooting up to 10 fps, 5-axis image stabilization, 14-bit RAW, maximum still image resolution 6000 × 4000, and 4K UHD video recording	**20**
2	**Secondary Specs**	Compliance with 4K frame rates 30p/25p/24p, video bitrate up to 100 Mbps, HD high-speed recording up to 120 fps, S-Log2/S-Log3/HLG picture profiles, dual memory-card slots, electronic viewfinder, tilting touchscreen LCD, and location-information linking	**10**
3	**Construction Material / Sensors**	Compliance with full-frame Exmor R CMOS sensor, Sony E-mount, 5-axis sensor-shift stabilization, magnesium-alloy body, dust/moisture resistance, and interchangeable-lens configuration	**10**
4	**Power & Communication**	Compliance with NP-FZ100 rechargeable battery, Wi-Fi 2.4 GHz, Bluetooth 4.1, USB connectivity, Micro HDMI, and supported SD etc memory cards	**10**
5	**Software**	Compatibility with camera firmware/software and supported image/video file formats including RAW, XAVC S, and MPEG-4 AVC/H.264, with applicable connectivity and data-transfer functions	**5**
6	**Training and Documentation**	Provision of user manual, technical specifications, operating instructions, maintenance guidance, camera configuration guidance, and user training	**5**
7	**After-Sales Support**	Availability of authorized technical support, warranty, spare parts, battery/accessory support, repair and maintenance services, firmware/software support, and after-sales service	**10**
	TOTAL	Overall Technical Evaluation Score	**70**

(M) Multifunction Wireless Plotter Printer

S. No.	Criteria	Description	Max Points
1	**Core Parameters**	Compliance with print, copy and scan functions; maximum print speed of 24 D-size prints/hour; scan speed up to 1.5 in/sec color / 4.5 in/sec grayscale at 200 dpi; color resolution up to 2400 × 1200 optimized	**20**

		dpi; line accuracy ±0.1%; and maximum optical density	
2	**Secondary Specs**	Compliance with 4 print cartridges (C, M, Y, mK), supported print languages, sheet/roll feed, 50-sheet input tray, media bin, automatic horizontal cutter, supported media sizes up to A0/D/E, custom media sizes, media types, roll diameter, and media thickness up to 11.8 mil	**10**
3	**Construction Material / Hardware**	Compliance with the specified printer hardware, media handling system, input/output trays, automatic cutter, roll-feed mechanism, and physical components suitable for technical drawings, engineering plans, maps, and large-format documents	**10**
4	**Power & Communication**	Compliance with 100–240 V auto-ranging power input, 50/60 Hz operation, specified power consumption, automatic scheduled printer on/off function, and applicable connectivity/data interfaces	**10**
5	**Software**	Availability of Windows 11 driver and relevant applications for Windows, macOS, Android, and iOS, with support for specified print languages and document formats	**5**
6	**Training and Documentation**	Provision of operational and maintenance manuals, installation/setup documentation, user guidance, software/driver documentation, and required operational training	**5**
7	**After-Sales Support**	Availability of authorized technical support, maintenance, repair, spare parts, consumables support, software/driver support, and two-year hardware warranty	**10**
	TOTAL	Overall Technical Evaluation Score	**70**

3. Financial Evaluation (30 Points)

Criterion	**Description**	**Points**
Price Competitiveness	Total cost including device, installation, training, manuals, and warranty with technicalsupport and delivery	30

Scoring formula:
Score = (Lowest Bid / Bidder's Price) × 30

* Lowest bid(Whose bidder price lowest of all bidders)

*Bidder's Price is just the individual total cost offered by each bidder.

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Evaluation Phase	Weight
Technical Score	70%
Financial Score	30%

Final Score = (Technical Score × 0.7) + (Financial Score × 0.3)

The bidder with the **highest combined score** is recommended for award according to PPRA (35,36 and 41).

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