STATE OF NORTH CAROLINA

Cape Fear Community College

Request for Quote: 83-CFCC-2024-1186

Building/Manufacturing of Aluminum Catamaran Research Vessel

Date Issued: 1/27/2025

Quote Due Date: 2/19/2025

At 14:00 PM ET

Direct all inquiries concerning this RFQ to:

Steve Childress

Director of Procurement

Email: aschildress934@mail.cfcc.edu

Phone: 910-362-7067

STATE OF NORTH CAROLINA

Request for Quote

83-CFCC-2024-1186

For internal State agency processing, including tabulation of Quotes, provide your company's eVP (Electronic Vendor Portal) Number. Pursuant to G.S. 132-1.10(b) this identification number shall not be released to the public. **This page will be removed and shredded, or otherwise kept confidential**, before the procurement file is made available for public inspection.

This page shall be filled out and returned with your Quote.
Failure to do so shall be sufficient cause to reject your Quote.

_____

Vendor Name

_____

Vendor eVP #

Note: For a contract to be awarded to you, your company (you) must be a North Carolina registered vendor in good standing. You must enter the vendor number assigned through eVP (Electronic Vendor Portal). If you do not have a vendor number, register at https://vendor.ncgov.com/vendor/login

Electronic responses ONLY will be accepted for this solicitation.

STATE OF NORTH CAROLINA
Cape Fear Community College

Refer *ALL* Inquiries regarding this RFQ to: **Steve Childress** **aschildress934@mail.cfcc.edu** **910-362-7067**	**Request for Quote # 83-CFCC-2024-1186** **Quotes will be opened:** **2/19/2025 at 2:00PM ET**
Using Agency: Cape Fear Community College	**Commodity No. and Description:**
Requisition No.:	**721540 – Specialty Building & Trades Services**

EXECUTION

In compliance with this Request for Quote (RFQ), and subject to all the conditions herein, the undersigned Vendor offers and agrees to furnish and deliver any or all items upon which prices are Quote, at the prices set opposite each item within the time specified herein.

By executing this Quote, the undersigned Vendor understands that false certification is a Class I felony and certifies that:

- this Quote is submitted competitively and without collusion (G.S. 143-54),
- that none of its officers, directors, or owners of an unincorporated business entity has been convicted of any violations of Chapter 78A of the General Statutes, the Securities Act of 1933, or the Securities Exchange Act of 1934 (G.S. 143-59.2), and
- it is not an ineligible Vendor as set forth in G.S. 143-59.1.

Furthermore, by executing this Quote, the undersigned certifies to the best of Vendor's knowledge and belief, that:

- it and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal or State department or agency.

As required by G.S. 143-48.5, the undersigned Vendor certifies that it, and each of its sub-Contractors for any Contract awarded as a result of this RFQ, complies with the requirements of Article 2 of Chapter 64 of the NC General Statutes, including the requirement for each employer with more than 25 employees in North Carolina to verify the work authorization of its employees through the federal E-Verify system.

As required by Executive Order 24 (2017), the undersigned vendor certifies will comply with all Federal and State requirements concerning fair employment and that it does not and will not discriminate, harass, or retaliate against any employee in connection with performance of any Contract arising from this solicitation.

G.S. 133-32 and Executive Order 24 (2009) prohibit the offer to, or acceptance by, any State Employee associated with the preparing plans, specifications, estimates for public Contract; or awarding or administering public Contracts; or inspecting or supervising delivery of the public Contract of any gift from anyone with a Contract with the State, or from any person seeking to do business with the State. By execution of this Quote response to the RFQ, the undersigned certifies, for Vendor's entire organization and its employees or agents, that Vendor are not aware that any such gift has been offered, accepted, or promised by any employees or agents of Vendor's organization.

By executing this Quote, Vendor certifies that it has read and agreed to the **INSTRUCTION TO VENDORS** and the **NORTH CAROLINA GENERAL TERMS AND CONDITIONS incorporated herein**. These documents can be accessed from the ATTACHMENTS page within this document.

Failure to execute/sign quote prior to submittal may render quote invalid and it MAY BE REJECTED. Late quotes cannot be accepted.

<table>
<tr><td colspan="4">COMPLETE/FORMAL NAME OF VENDOR:</td></tr>
<tr><td colspan="2">STREET ADDRESS:</td><td>P.O. BOX:</td><td>ZIP:</td></tr>
<tr><td colspan="2">CITY & STATE & ZIP:</td><td>TELEPHONE NUMBER:</td><td>TOLL FREE TEL. NO:</td></tr>
<tr><td colspan="4">PRINCIPAL PLACE OF BUSINESS ADDRESS IF DIFFERENT FROM ABOVE (SEE INSTRUCTIONS TO VENDORS ITEM #21):</td></tr>
<tr><td colspan="2">PRINT NAME & TITLE OF PERSON SIGNING ON BEHALF OF VENDOR:</td><td colspan="2">FAX NUMBER:</td></tr>
<tr><td>VENDOR'S AUTHORIZED SIGNATURE:</td><td>DATE:</td><td colspan="2">E-MAIL:</td></tr>
</table>

VALIDITY PERIOD

Offer shall be valid for at least sixty (60) days from date of quote due date, unless otherwise stated here: _____ days, or if extended by mutual agreement of the parties. Any withdrawal of this offer shall be made in writing, effective upon receipt by the agency issuing this RFQ.

QUOTE ACCEPTANCE

If your quote is accepted, all provisions of this RFQ, along with the written results of any negotiations, shall constitute the written agreement between the parties ("Contract"). The NORTH CAROLINA GENERAL TERMS AND CONDITIONS are incorporated herein and shall apply. Depending upon the Goods or Services being offered, other terms and conditions may apply, as mutually agreed.

FOR STATE USE ONLY: Offer accepted and Contract awarded this ____ day of _____, 20____, as indicated on the attached certification, by _____

(Authorized Representative of Cape Fear Community College)

1.0 PURPOSE AND BACKGROUND

The purpose of this Request for Quote (RFQ) is to obtain proposals for the designing, building, launching, and outfitting of an Aluminum Catamaran Research Vessel to be used by the Cape Fear Community College (CFCC) Marine Technology program for educational purposes.

Background: The CFCC Marine Technology program utilizes research vessels to conduct various cruises each semester. These cruises provide the experience and training that students need to graduate from their program(s) as well as obtain careers in their field of study.

The intent of this solicitation is to award an Agency Specific Contract.

2.0 GENERAL INFORMATION

2.1 REQUEST FOR QUOTE DOCUMENT

The RFQ is comprised of the base RFQ document, any attachments, and any addenda released before Contract award, which are incorporated herein by reference.

2.2 E-PROCUREMENT FEE

ATTENTION: The E-Procurement fee may apply to this solicitation. See paragraph entitled ELECTRONIC PROCUREMENT of the North Carolina General Terms and Conditions.

General information on the E-Procurement Services can be found at: http://eprocurement.nc.gov/.

2.3 NOTICE TO VENDORS REGARDING RFQ TERMS AND CONDITIONS

It shall be the Vendor's responsibility to read the Instructions to Vendors, the North Carolina General Terms and Conditions, all relevant exhibits and attachments, and any other components made a part of this RFQ and comply with all requirements and specifications herein. Vendors also are responsible for obtaining and complying with all Addenda and other changes that may be issued in connection with this RFQ.

If Vendors have questions or issues, or exceptions regarding any component within this RFQ, those must be submitted as questions in accordance with the instructions in the QUOTE QUESTIONS Section. If the State determines that any changes will be made as a result of the questions asked, then such decisions will be communicated in the form of an RFQ addendum. The State may also elect to leave open the possibility for later negotiation of specific provisions of the Contract that have been addressed during the question-and-answer period, prior to contact award.

Other than through this process or negotiation under 01 NCAC 05B.0503, the State rejects and will not be required to evaluate or consider any additional or modified terms and conditions submitted with Vendor's quote. This applies to any language appearing in or attached to the document as part of the Vendor's quote that purports to vary any terms and conditions or Vendors' instructions herein or to render the quote non-binding or subject to further negotiation. Vendor's quote shall constitute a firm offer that shall be held open for the period required herein ("Validity Period" above).

The State may exercise its discretion to consider Vendor proposed modifications. By execution and delivery of this RFQ Response, the Vendor agrees that any additional or modified terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect, and will be disregarded unless expressly agreed upon through negotiations and incorporated by way of a Best and Final Offer (BAFO). Noncompliance with, or any attempt to alter or delete, this paragraph shall constitute sufficient grounds to reject Vendor's quote as nonresponsive.

2.4 RFQ SCHEDULE

The table below shows the *intended* schedule for this RFQ. The State will make every effort to adhere to this schedule.

Event	Responsibility	Date and Time
Issue RFQ	State	1/27/2025
Hold Pre-Bid Conference/Site Visit	State	N/A

Submit Written Questions	Vendor	1/31/2025
Provide Responses to Questions	State	2/4/2025
Submit Quotes	Vendor	2/19/2025
Contract Award	State	TBD
Contract Effective Date	State	TBD

2.5 QUESTIONS ABOUT QUOTE

Upon review of the RFQ documents, Vendors may have questions to clarify or interpret the RFQ in order to submit the best quote possible. To accommodate the Quote Questions process, Vendors shall submit any such questions by the "Submit Written Questions" date and time provided in the RFQ SCHEDULE Section above.

Written questions shall be e-mailed to aschildress934@mail.cfcc.edu by the date and time specified above. Vendors will enter "RFQ # *:* Questions" as the subject for the email. Question submittals will include a reference to the applicable RFQ section and be submitted in a format shown below:

Reference	**Vendor Question**
RFQ Section, Page Number	Vendor question …?

No information, instruction or advice provided orally or informally by any State personnel, whether made in response to a question or otherwise in connection with this RFQ, shall be considered authoritative or binding. Vendors shall rely *only* on written material contained in an addendum to this RFQ.

2.7 QUOTE SUBMITTAL

IMPORTANT NOTE: This is an absolute requirement. Vendor shall bear the risk of late submission due to unintended or unanticipated delay. It is the Vendor's sole responsibility to ensure its quote has been received as described in this RFQ by the specified time and date of opening. The date and time of receipt will be marked on each quote when received. Any quote or portion thereof received after the quote submission deadline will be rejected.

Quotes may be submitted via electronic means, including but not limited to email, in response to this Request for Quote: *aschildress934@mail.cfcc.edu* . Submission by any means shall include this RFQ, as provided in section 2.8.

If confidential and proprietary information is included in the proposal, also submit one (1) signed, REDACTED copy of the proposal. Such information may include trade secrets defined by N.C. Gen. Stat. § 66-152 and other information exempted from the Public Records Act pursuant to N.C. Gen. Stat. §132- 1.2. Vendor may designate information, Products, Services or appropriate portions of its response as confidential, consistent with and to the extent permitted under the statutes and rules set forth above. By so redacting any page, or portion of a page, the Vendor warrants that it has formed a good faith opinion, having received such necessary or proper review by counsel and other knowledgeable advisors, that the portions determined to be confidential and proprietary and redacted as such, meet the requirements of the Rules and Statutes set forth above. However, under no circumstances shall price information be designated as confidential.

If the Vendor does not provide a redacted version of the proposal with its proposal submission, the Department may release an unredacted version if a record request is received.

IMPORTANT NOTE: It is the responsibility of the Vendor to have the signed quote physically in this Office by the specified time and date of opening, regardless of the method of delivery. **This is an absolute requirement.** The time of delivery will be marked on each quote when received, and any quote received after the submission deadline will not be accepted or evaluated. Quotes, subject to the conditions made a part hereof, will be received at the address indicated in the table in this Section, for furnishing and delivering the commodity as described herein.

2.8 QUOTE CONTENTS

Vendors shall populate all attachments of this RFQ that require the Vendor to provide information and include an authorized signature where requested. Failure to provide all required items, or Vendor's submission of incomplete items, may result in the State rejecting Vendor's quote, in the State's sole discretion

Vendor RFQ responses shall include the following items and attachments, which shall be arranged in the following order:

a) Cover Letter, which must contain all of the following; (i) a statement that confirms that the Vendor has read the RFQ in its entirety, including all links, and all Addenda released in conjunction with the RFQ; (ii) a statement that the Vendor agrees to perform in accordance with the scope of work, requirements, and specifications contained herein; and (iii) Vendor's agreement to comply with all instructions, terms and conditions, and attachments.

b) Title Page: Include the company name, address, phone number and authorized representative along with the Quote Number.

c) Completed and signed version of EXECUTION PAGES, along with the body of the RFQ.

d) Signed receipt pages of any addenda released in conjunction with this RFQ, if required to be returned.

e) Completed version of ATTACHMENT A: PRICING

f) Completed version of ATTACHMENT D: HUB SUPPLEMENTAL VENDOR INFORMATION

g) Completed version of ATTACHMENT E: CUSTOMER REFERENCE FORM

h) Completed version of ATTACHMENT F: LOCATION OF WORKERS UTILIZED BY VENDOR

i) Completed and signed version of ATTACHMENT G: CERTIFICATION OF FINANCIAL CONDITION

2.9 ALTERNATE QUOTES

Unless provided otherwise in this RFQ, Vendor may submit alternate quotes for comparable Goods, various methods or levels of Service(s), or that propose different options. Alternate quotes must specifically identify the RFQ requirements and advantage(s) addressed by the alternate quote. Any alternate quote, in addition to the marking described above, must be clearly marked with the legend: "Alternate Quote # 83-CFCC-2024-1186 *[for 'name of Vendor']".* Each quote must be for a specific set of Goods and Services and must include specific pricing. If a Vendor chooses to respond with various offerings, each must be offered with a separate price and be contained in a separate quote. Each quote must be complete and independent of other quotes offered.

2.10 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

Relevant definitions for this RFQ are provided in 01 NCAC 05A .0112 and in the Instructions to Vendors referenced below which are incorporated herein by this reference.

3.0 METHOD OF AWARD AND QUOTE EVALUATION PROCESS

3.1 METHOD OF AWARD

North Carolina G.S. 143-52 provides a general list of criteria the State shall use to award contracts, as supplemented by the additional criteria herein. The Goods or Services being procured shall dictate the application and order of criteria; however, all award decisions shall be in the State's best interest. All qualified proposals will be evaluated, and awards will be made to the Vendor(s) meeting the specific RFQ Specifications and achieving the highest and best final evaluation, based on the criteria described below.

While the intent of this RFQ is to award a Contract(s) to a single Vendor for all line items, the State reserves the right to make separate awards to different Vendors for one or more line items, to not award one or more line items or to cancel this RFQ in its entirety without awarding a Contract, if it is considered to be most advantageous to the State to do so.

If a Vendor selected for award is determined by the State to be a non-resident of North Carolina, all responsive bids will be reviewed to determine if any of them were submitted by a North Carolina resident Vendor who requested an opportunity to match the price of the winning bid, pursuant to Executive Order #50 and G.S. 143-59 (for more information, please refer to ATTACHMENT H: VENDOR REQUEST FOR EXECUTIVE ORDER #50 PRICE MATCHING. If such bid(s) are identified, the State will then determine whether any such bid falls within the price-match range, and, if so, make a Contract award in accordance with the process that implements G.S. 143-59 and Executive Order #50.

The State reserves the right to waive any minor informality or technicality in quotes received.

3.2 CONFIDENTIALITY AND PROHIBITED COMMUNICATIONS DURING EVALUATION

While this RFQ is under evaluation, the responding Vendor, including any subcontractors and suppliers, is prohibited from engaging in conversations intended to influence the outcome of the evaluation. See Paragraph 29 of the Instructions To Vendors entitled COMMUNICATIONS BY VENDORS.

Each Vendor submitting a quote to this RFQ, including its employees, agents, subcontractors, suppliers, subsidiaries and affiliates, is prohibited from having any communications with any person inside or outside the using agency; issuing agency; other government agency office or body (including the purchaser named above, any department secretary, agency head, members of the General Assembly and Governor's office); or private entity, if the communication refers to the content of Vendor's quote or qualifications, the content of another Vendor's proposal, another Vendor's qualifications or ability to perform a resulting contract, and/or the transmittal of any other communication of information that could be reasonably considered to have the effect of directly or indirectly influencing the evaluation of proposals, the award of a contract, or both.

Any Vendor not in compliance with this provision shall be disqualified from evaluation and award. A Vendor's proposal may be disqualified if its subcontractor and/or supplier engage in any of the foregoing communications during the time that the procurement is active (*i.e.*, the issuance date of the procurement until the date of contract award or cancellation of the procurement). Only those discussions, communications or transmittals of information authorized or initiated by the issuing agency for this RFQ or inquiries directed to the purchaser named in this RFQ regarding requirements of the RFQ (prior to proposal submission) or the status of the award (after submission) are excepted from this provision.

3.3 QUOTE EVALUATION PROCESS

Only responsive submissions will be evaluated.

The State will conduct an evaluation of responsive Bids, as follows:

Bids will be received according to the method stated in the Bid Submittal section above.

All bids must be received by the issuing agency not later than the date and time specified in the RFQ SCHEDULE Section above, unless modified by Addendum. Vendors are cautioned that this is a request for offers, not an offer or request to contract, and the State reserves the unqualified right to reject any and all offers at any time if such rejection is deemed to be in the best interest of the State.

At the date and time provided in the RFQ SCHEDULE Section above, unless modified by Addendum, the bids from each responding Vendor will be opened publicly and all offers (except those that have been previously withdrawn, or voided bids) will be tabulated. The tabulation shall be made public at the time it is created. When negotiations after receipt of bids is authorized pursuant to G.S. 143-49 and 01 NCAC 05B.0503, only the names of offerors and the Goods and Services offered shall be tabulated at the time of opening. Cost and price shall become available for public inspection at the time

of the award... Interested parties are cautioned that these costs and their components are subject to further evaluation for completeness and correctness and therefore may not be an exact indicator of a Vendor's pricing position.

At their option, the evaluators may request oral presentations or discussions with any or all Vendors for clarification or to amplify the materials presented in any part of the bid. Vendors are cautioned, however, that the evaluators are not required to request presentations or other clarification—and often do not. Therefore, all bids should be complete and reflect the most favorable terms available from the Vendor. Prices bid cannot be altered or modified as part of a clarification.

Bids will generally be evaluated, based on completeness, content, cost, and responsibility of the Vendor to supply the requested Goods and Services. Specific evaluation criteria are listed in Section 3.1 METHOD OF AWARD.

Upon completion of the evaluation process, the State will make Award(s) based on the evaluation and post the award(s) to IPS under the RFQ number for this solicitation. Award of a Contract to one Vendor does not mean that the other bids lacked merit, but that, all factors considered, the selected bid was deemed most advantageous and represented the best value to the State.

The State reserves the right to negotiate with one or more Vendors, or to reject all original offers and negotiate with one or more sources of supply that may be capable of satisfying the requirement, and in either case to require Vendor to submit a Best and Final Offer (BAFO) based on discussions and negotiations with the State.

3.4 EVALUATION CRITERIA

BEST VALUE: "Best Value" procurement methods are authorized by N.C.G.S. §§143-135.9 and 143B-1350(h). The award decision is made based on multiple factors, including: total cost of ownership, meaning the cost of acquiring, operating, maintaining, and supporting a product or service over its projected lifetime; the evaluated technical merit of the Vendor's offer; the Vendor's past performance; and the evaluated probability of performing the specifications stated in the solicitation on time, with high quality, and in a manner that accomplishes the stated business objectives and maintains industry standards compliance. The intent of "Best Value" procurement is to enable Vendors to offer and the Agency to select the most appropriate solution to meet the business objectives defined in the solicitation and to keep all parties focused on the desired outcome of a procurement.

A ranking method of source selection will be utilized in this procurement using evaluation criteria listed in order of importance in the Evaluation Criteria section below to allow the State to award this RFP to the Vendor(s) providing the Best Value and recognizing that Best Value may result in award other than the lowest price or highest technically qualified offer. By using this method, the overall ranking may be adjusted up or down when considered with, or traded-off against, other non-price factors.

EVALUTION METHOD: Narrative and by consensus of the evaluating committee, explaining the strengths and weaknesses of each proposal and why the recommended awardee(s) provide the best value to the State.

All qualified proposals will be evaluated, and award made based on considering the following criteria listed in descending order of importance, to result in an award most advantageous to the State:

1. Vendor Technical Approach (Section 5.4
2. Vendor Experience (Attachment E)
3. Pricing (Section 4.1 and Attachment A)
4. Delivery (Section 4.5)

3.5 PERFORMANCE OUTSIDE THE UNITED STATES

Vendor shall complete ATTACHMENT F: LOCATION OF WORKERS UTILIZED BY VENDOR. In addition to any other evaluation criteria identified in this RFQ, the State may also consider, for purposes of evaluating proposed or actual contract performance

outside of the United States, how that performance may affect the following factors to ensure that any award will be in the best interest of the State:

a) Total cost to the State
b) Level of quality provided by the Vendor
c) Process and performance capability across multiple jurisdictions
d) Protection of the State's information and intellectual property
e) Availability of pertinent skills
f) Ability to understand the State's business requirements and internal operational culture
g) Particular risk factors such as the security of the State's information technology
h) Relations with citizens and employees
i) Contract enforcement jurisdictional issues

3.5 INTERPRETATION OF TERMS AND PHRASES

This RFQ serves two functions: (1) to advise potential Vendors of the parameters of the solution being sought by the State; and (2) to provide (together with other specified documents) the terms of the Contract resulting from this procurement. The use of phrases such as "shall," "must," and "requirements" are intended to create enforceable contract conditions. In determining whether quotes should be evaluated or rejected, the State will take into consideration the degree to which Vendors have proposed or failed to propose solutions that will satisfy the State's needs as described in the RFQ. Except as specifically stated in the RFQ, no one requirement shall automatically disqualify a Vendor from consideration. However, failure to comply with any single requirement may result in the State exercising its discretion to reject a quote in its entirety.

4.0 REQUIREMENTS

This Section lists the requirements related to this RFQ. By submitting a quote, the Vendor agrees to meet all stated requirements in this Section, as well as any other specifications, requirements, and terms and conditions stated in this RFQ. If a Vendor is unclear about a requirement or specification or believes a change in a requirement would allow for the State to receive a better quote, the Vendor is encouraged to submit these items in the form of a question during the question-and-answer period in accordance with the Quote Questions Section above.

4.1 PRICING

Proposal price shall constitute the total cost to the State for complete performance in accordance with the requirements and specifications herein, including all applicable charges for handling, transportation, administrative and other similar fees. Complete ATTACHMENT A: PRICING FORM. The pricing provided in ATTACHMENT A, or resulting from any negotiations, is incorporated herein and shall become part of any resulting Contract.

4.2 PRODUCT IDENTIFICATION

SUITABILITY FOR INTENDED USE

Vendors are requested to offer only items directly complying with the specifications herein or comparable items which will provide the equivalent capabilities, features and diversity called for herein. The State reserves the right to evaluate all quotes for suitability for the required use and to award the one best meeting requirements and considered to be in the State's best interest.

4.3 TRANSPORTATION AND IDENTIFICATION

The Vendor shall deliver Free-On-Board (FOB) Destination to any requested location within the State of North Carolina with all transportation costs and fees included in the total quote price**. Delivery is expected between January 2026 and May 2026.**

When an order is placed using a purchase order, the purchase order number shall be shown on all packages and shipping manifests to ensure proper identification and payment of invoices. If an order is placed without using a purchase order, such as via phone, the Buyer's name shall be shown on all packages. A complete packing list shall accompany each shipment. Vendors shall not ship any products until they have received an order.

4.5 DELIVERY

The Vendor shall deliver Free-On-Board (FOB) Destination to the following location(s):

Cape Fear Community College
411 N. Front St.
Wilmington, NC 28401

Vendor should complete delivery within Fourteen (14) consecutive calendar months, OR by May 2026, after receipt of purchase order.

For completion by Vendor: Delivery will be made from _____ (city, state) within _____ consecutive calendar months after receipt of purchase order. Promptness of delivery may be used as a factor in the award criteria.

Delivery shall not be considered to have occurred until all required sea trials and final inspections are complete and the vessel is delivered to Cape Fear Community College. Upon completion of the installation, the Vendor shall remove and properly dispose of all waste and debris from the installation site. The Vendor shall be responsible for leaving the installation area clean and ready to use.

4.6 AUTHORIZED RESELLER

The Vendor shall be authorized by the manufacturer to distribute or resell the products and/or maintenance offered in this RFQ. The Vendor shall provide a signed statement from the manufacturer confirming authorization with its quote response. Failure to provide this statement shall constitute sufficient grounds for rejection of Vendor's offer, at the discretion of the State.

Vendor is the: ☐ **Manufacturer** ☐ **Dealer** ☐ **Reseller** ☐ **Distributor**

Authorized: ☐ **Yes** ☐ **No** **Attached Manufacturer's Authority:** ☐ **Yes** ☐ **No**

4.7 WARRANTY

Manufacturer's standard warranty shall apply. Vendors shall include a copy of the manufacturer's standard warranty with the quote response.

The report of a problem does not presuppose that every call must result in an "on-site" visit for service/repair. The Vendor and/or service sub-contractor shall utilize best efforts to resolve problems in a timely fashion by using acceptable servicing methods to include, but not limited to, verbal problem analysis and remote diagnosis. The warranty requirement does not impose any additional duty on the State to make other than normal and good faith problem resolution efforts or expenditures of time. Vendor shall be responsible for compliance with warranty terms by any third-party service provider. Vendor shall provide contact information for warranty service provider, below.

Vendor is authorized by manufacturer to repair equipment offered during the warranty period? ☐ YES ☐ NO

Will the Vendor provide warranty service? ☐ YES ☐ NO, a manufacturer-authorized third party will perform warranty service.

Contact information for warranty service provider:

Company Name: _____

Company Address: _____

_____

Contact Person (name): _____

Contact Person (phone number): _____

Contact Person (email): _____

4.8 DEMONSTRATION

DEMONSTRATION

Vendor shall be capable of demonstrating proposed equipment within 30 consecutive calendar days after notification to do so, at no additional cost to the State. If required, this will be a comprehensive demonstration at a site designated by the State with hands-on participation by agency operator(s) if necessary or appropriate. Failure of Vendor or his authorized representative to perform a satisfactory demonstration (if requested) in accordance with these requirements shall be a sufficient basis for rejection of the quote. The results of such demonstration will be considered in the evaluation and award of a contract.

4.10 HUB PARTICIPATION

Pursuant to North Carolina General Statute G.S. 143-48, it is State policy to encourage and promote the use of small, minority, physically handicapped, and women contractors in purchasing Goods and Services. As such, this RFQ will serve to identify those Vendors that are minority owned or have a strategic plan to support the State's Historically Underutilized Business program by meeting or exceeding the goal of 10% utilization of diverse firms as 1st or 2nd tier subcontractors. Vendor shall complete ATTACHMENT D: HUB SUPPLEMENTAL VENDOR INFORMATION.

4.11 REFERENCES

Vendors shall provide at least three (3) references, using ATTACHMENT E: CUSTOMER REFERENCE FORM, for which your company has supplied the exact model of equipment offered. The State may contact these users to determine quality level of the offered equipment; as well as, but not limited to user satisfaction with Vendor performance. Information obtained may be considered in the evaluation of the quote.

4.12 VENDOR'S REPRESENTATIONS

If the quote results in an award, Vendor agrees that it will not enter any agreement with a third party that may abridge any rights of the State under the Contract. If any Services, deliverables, functions, or responsibilities not specifically described in this solicitation are required for Vendor's proper performance, provision and delivery of the Service and deliverables under a resulting Contract, or are an inherent part of or necessary sub-task included within such service, they will be deemed to be implied by and included within the scope of the contract to the same extent and in the same manner as if specifically described in the Contract. Unless otherwise expressly provided herein, Vendor will furnish all of its own necessary management, supervision, labor, facilities, furniture, computer and telecommunications equipment, software, supplies and materials necessary for the Vendor to provide and deliver the Services and/or other Deliverables.

4.13 FINANCIAL STABILITY

As a condition of contract award, the Vendor must certify that it has the financial capacity to perform and to continue to perform its obligations under the Contract; that Vendor has no constructive or actual knowledge of an actual or potential legal proceeding being brought against Vendor that could materially adversely affect performance of this Contract; and that entering into this Contract is not prohibited by any contract, or order by any court of competent jurisdiction

Each Vendor shall certify it is financially stable by completing the ATTACHMENT G: CERTIFICATION OF FINANCIAL CONDITION. The State is requiring this certification to minimize potential performance issues from contracting with a Vendor that is financially unstable. This Certification shall be deemed continuing, and from the date of the Certification to the expiration of the Contract, the Vendor shall notify the State within thirty (30) days of any occurrence or condition that materially alters the truth of any statement made in this Certification.

4.14 AGENCY INSURANCE REQUIREMENTS MODIFICATION

A. Default Insurance Coverage from the General Terms and Conditions applicable to this Solicitation:

☐ Small Purchases

☐ Contract value in excess of the Small Purchase threshold, but up to $1,000,000.00

☒ Contract value in excess of $1,000,000.00

5.0 PRODUCT SPECIFICATIONS

5.0 GENERAL

Cape Fear Community College seeks a qualified vendor (Builder) to design, build, launch, and outfit for an Aluminum Catamaran Research Vessel to be used by the CFCC Marine Technology program for educational purposes. Items offered by the vendor must approximately meet or exceed the specifications to be considered for award. Documentation, catalogs, spec sheets, etc. shall be required for any suggested variation to the specs listed below. Vendor shall demonstrate why something is an approved equal or better. The current vessel is no longer viable, so the delivery of this vessel, is of the utmost importance. Delivery is expected between January 2026 and May 2026.

5.1 SPECIFICATIONS

5.1.1 HULL DESIGN/CONSTRUCTION

The vessel shall be built in North America, and incorporate the following specifications:

1. Shall be an aluminum catamaran-type design.
2. The vessel shall have a catamaran hull form with chines and running strakes strategically placed to ensure minimum hull resistance.
3. The vessel shall be based upon a proven hull system to reduce resistance and vertical accelerations, thereby reducing fuel consumption, and increasing the ride comfort.
4. Any flat, plane surface on the hull shape shall be avoided, thereby enhancing the seakeeping characteristics in rough seas at cruising speed.
5. Care shall be taken in the shape of the foreparts of the demi-hulls to ensure that directional stability shall be maintained even though the hulls are asymmetrical.
6. The forward wing deck area shall be designed to prevent any slamming in the tunnel.
7. General Construction: The vessel hull shall be of all welded alloy construction in accordance with the requirements of USCG and shall conform to the scantlings as shown on the plans. All aluminum and filler material to be of ship building quality, with appropriate mill certificates.
8. Limber holes shall be provided in the structure of the hull to prevent accumulation of condensation water in the hull, other than at bilge suction points.
9. Scuppers shall be fitted through the gunwale and side plating to drain deck water from the aft deck directly overboard. The scupper arrangement shall be approved by the Purchaser's representative prior to construction.
10. Scuppers and drains shall have suitable fairings to prevent spray from entering the boat via the openings.
11. Cabin interior shall maintain a maximum decibel rating of 85 decibels and meet all applicable OSHA decibel and frequency rating specification requirements.
12. Aluminum Alloys: The designer specifies the aluminum alloys used for construction of structural and non-structural portions of the vessel.
13. Plating shall be AA5083 H116, or approved equivalent.
14. Extrusions shall be AA6082-T6, AA6061-T6, AA6005A and AA6063-T6, or approved equivalent. Welding filler wire shall be AA5183. These alloys shall be high quality marine grade as required by USCG.

5.1.2 **DOCUMENTATION**

The vessel construction shall be in accordance with the following primary documentation:

1. USCG 46 CFR, Subchapter T, as applicable for service for vessels limited to operate on "Oceans" route
2. The builder shall fit, by way of welding it to the hull structure inside an engine room, an inscribed plate with the vessel's documentation number.
3. An inscribed plaque will be fitted in an appropriate position in the passenger or wheelhouse areas, depicting the names of the builder, designer, vessel, and the launch date.

5.1.3 **REGULATORY REQUIREMENTS & STANDARDS**

The vessel must be constructed in accordance with the following regulations and standards in effect at time of delivery of the vessel:

1. United States Coast Guard (USCG) with 46 CFR Subchapter T – Small Passenger Vessels (Under 100 Gross Tons)
2. American Boating and Yachting Council (ABYC)
3. National Marine Manufacturers Association (NMMA)
4. American Welders Society Standards
5. Institute for Electrical and Electronics Engineers (IEEE) 0400 and 45-2002 Standards
6. US Environmental Protection Agency (EPA)
7. Applicable US Occupational Health and Safety (OSHA)
8. Structural design shall be in accordance with an internationally recognized classification society for this size vessel, for example Del Norske Veritas-Germanischer Lloyd (DNV GL), International.

A. GENERAL

The vessel shall be a twin engine, propeller driven aluminum catamaran outfitted for scientific survey.

The vessel will operate as a research vessel along the Atlantic East Coast and Offshore on an Oceans Route up to 150 miles offshore. The vessel shall be complete in all respects, except as specifically noted in sections herein. It shall be fully equipped and fitted out by the Contractor, constructed in accordance with the following regulations and standards, complying with best marine practices and the required rules and regulations of the United States Coast Guard, Subchapter T vessels.

Principal dimensions shall be approximately as follows:

1. Preferred Length (hull) of 80'
2. Preferred Length (overall) of 80' but no more than 89'
3. Beam (moulded) Between 26' and 29'
4. Draft (navigation) 6'
5. Engines two (2) Caterpillar
6. Power 588 kW @ 2100 RPM
7. Transit Speed TBD
8. Propulsion Propeller
9. Minimum speed 1.5 Knots (survey operation)
10. Fuel capacity 1,600 gallons
11. Construction Marine grade aluminum
12. Complement (Live Aboard) 20
13. Complement (Day) 40
14. Crewup to three (3), as determined by USCG
15. ● Construction Standard USCG, Subchapter T

* The projected speed is approximate and is based on sea trial speed at 85% of rated power, with a deadweight of operating in calm seas and a clean bottom. Seawater, and ambient temperatures should not exceed the standard engine rating

test conditions. The vessel will be capable of traveling 400 nm 25 knots with 10% reserve fuel capacity. Greater distances can be achieved at lighter loads and slower speeds.

* The deadweight conditions and vessel performance are based on the following values:

a. Passengers and Crew (185 lbs. x TBD) TBD
b. Fuel (TBD) TBD
c. Water (TBD) TBD
d. Payload & Stores 5,000 lbs.***
e. Total TBD***

** Based on engine and propulsion manufacturer's recommendations, the vessel is designed to be operated in conditions within air temperatures from 0° F to 90°F, and seawater temperatures 30°F to 90°F. Engine may de-rate at higher temperatures.

** Deadweight is subject to final engineering mass calculations.

B. USCG SURVEYS

1. The boat shall be constructed and outfitted to meet the regulations of the United States Coast Guard, Subchapter T, for vessels operating on an "Oceans" route (no more than 150 nm offshore). Stability criteria will meet "Exposed Waters".
2. The Builder shall submit all relevant drawings for approval by USCG and shall arrange for the USCG to do surveys during construction.
3. The Builder shall ensure that all equipment necessary for compliance with the requirements of USCG, be fitted to the vessel.
4. The Builder shall perform a deadweight survey. Based on the deadweight measurements, the Designer shall calculate and compile stability calculations for the vessel in various conditions of loading.

C. ALTERNATIVES

1. The Builder may wish to propose alternative materials, equipment, or methods, which would be more economical and/or practical for them to supply and fit. In such cases they should discuss alternative solutions with the Designer and Purchaser's representative for approval prior to implementation.
2. The Purchaser shall have the right to make changes, alterations and additions to the specification, but changes must be requested in writing.
3. Any variation to the drawings or specification that is proposed by the Builder or the Purchaser, shall be documented on an Engineering Change Proposal (ECP) document, and signed by all parties, prior to implementation.

D. MATERIALS, EQUIPMENT AND WORKMANSHIP

1. All materials shall be of good quality and suitable and fit for the purpose intended. All materials used in the construction and equipment installed shall be new and free from all defects.
2. It is intended that machinery components shall be selected that shall give best service with the least amount of maintenance. The machinery and equipment shall be installed complete and ready for operation.
3. The Builder shall construct the vessel in a manner consistent with best trade practices and in accordance with best commercial quality finishing, consistent with the industry standards which would be applied for the construction of similar hull vessels using modern technology.
4. The Builder shall ensure that only suitably skilled and experienced employees or subcontractors be engaged to work on the vessel.
5. All materials and equipment used on the vessel shall be in accordance with the specification and drawings supplied unless alternatives are approved. For other materials and minor items of equipment not specified, the Builder shall ensure that they comply with the requirements of USCG and are in accordance with good shipbuilding practice and lightweight in design, suitable for use in medium speed craft.

E. CLEANLINESS

1. The vessel is to be maintained in a clean state throughout the building process. At regular intervals the entire vessel is to be cleaned and the tanks and bilges be cleared of all debris, filings and waste.

2. All equipment, including engines are to be properly covered with protective material to ensure that its original clean state is maintained throughout.

3. Special care is to be taken to ensure that all soft fabrics and materials are completely covered with fixed plastic sheeting. Before handing over, the vessel shall be completely and thoroughly cleaned in every detail.

F. AMBIENT CONDITIONS

The systems shall be designed and installed to operate in moderate conditions, commensurate with the ambient conditions prevalent in the coastal Carolinas.

G. STRUCTURE

G.1 Construction General

1. The vessel hull shall be of all welded alloy construction in accordance with the requirements of USCG and shall conform to the
scantlings as shown on the plans. All aluminum and filler material to be of shipbuilding quality, with appropriate mill certificates.

2. Limber holes shall be provided in the structure of the hull to prevent accumulation of condensation water in the hull, other than at bilge suction points.

3. Scuppers shall be fitted through the gunwale and side plating to drain deck water from the aft deck directly overboard. The scupper arrangement shall be approved by the Purchaser's representative prior to construction.

4. Scuppers and drains shall have suitable fairings to prevent spray from entering the boat via the openings.

G.2 Aluminum Alloys

The designer specifies the aluminum alloys used for construction of structural and non-structural portions of the vessel. Plating shall be AA5083 H116, or approved equivalent. Extrusions shall be AA6082-T6, AA6061-T6 and AA6063-T6, or approved equivalent. Welding filler wire shall be AA5183. These alloys shall be high quality marine grade as required by USCG.

G.3 Welder Qualifications

All welders shall be certified to the Builder welding procedure as required by the USCG.

G.4 Welding

All welding shall be electric arc type using either MIG or TIG process. All welding shall meet the requirements of the USCG. All welding shall be graded to ISO 10042 Level D.

G.5 Grinding

H. FABRICATION

High spots in weld beads on exterior hull plate welds below waterline shall be ground to be flush with surrounding welding. Deck plating welds shall have high spots removed on the external side of the plating. Grinding shall not be done to the detriment of the required strength at the joint.

H.1 Fendering and Guards

Each side of the vessel will be fitted with a fabricated fender extending approximately 50' forward of the transom. The forward and aft ends shall be neatly faired into the hull.

H.2 Spray Rails

The vessel shall be fitted with spray rails as required.

H.3 Deck

1. External and internal decks shall be fabricated from aluminum deck extrusion.

2. All decks will have camber to eliminate standing water except those areas in the vicinity of the deck sockets. Those areas shall be flat.

3. Decks shall be reinforced in way of all machinery, deck fittings, deck sockets, etc. that require direct load carry connections to deck girders and frames.

H.4 Deck Sockets

1. 40 recessed deck sockets inserts shall be fabricated in the aft deck and should be included as part of the GA Drawing Developed in the Concept Design Phase. Each socket will have a countersunk 3/4" -10 NC stainless insert. The depth of the countersunk area will allow a blanking bolt to be installed leaving the deck flush. A 3/4" – 10 threaded synthetic plugs shall be provided for each deck socket to prevent debris accumulation in sockets while maintaining a flush deck. Each installed assembly shall be tested with a 750 lb. vertical pull test and the socket stamped accordingly with the SWL. 10 3/4-10 cast stainless steel eye bolts with a 1.5" ID eye shall be provided for use when inserted into the sockets. These eyes will have a SWL of 1,500 lbs. minimum.

2. Approximately 20 recessed deck sockets inserts shall be fabricated in the upper deck as per the GA drawing. Each socket will have a countersunk 3/4" – 10 NC stainless insert. The depth of the countersunk area will allow a blanking bolt to be installed leaving the deck flush. A 3/4" – 10 threaded synthetic plug shall be provided for each deck socket to prevent debris accumulation in sockets while maintaining a flush deck. The capacity of the upper deck sockets will be determined upon final engineering.

3. Any additional attachment hardware shall be supplied by CFCC.

H.5 Fuel Tank

1. Two integral fuel tanks shall be fabricated and fitted. Capacity shall be 800 gallons each.

2. Each tank shall be inspected during construction and witnessed by the Purchaser. Pressure testing shall be done per the USCG regulations 46 CFR 182.435 and witnessed by the USCG.

3. Fuel tanks shall be thoroughly cleaned of all debris, weld spatter and other foreign matter prior to initial filling and shall be kept closed thereafter until ready for use.

4. Filling of the fuel tanks shall be affected through a single Starboard (Stbd) side filler located on the main deck. The filling station for each tank will enable spilt fuel to be contained in a cofferdam. Fuel filler caps to be camlocks with cap attachment chains.

5. Each fuel tank shall be fitted with a vent/overflow pipe fitted at the forward end of each fuel tank. The vent pipe shall be fitted with a vent to atmosphere (with anti-flash gauze). Each tank will have a connection for draining water in the lowest part of the tank.

H.6 Handrails and Ladders

1. Ladders shall be located as described below. All ladders shall be bolted in place with 316 stainless steel bolts in such a way that the ladders can be easily removed and replaced. The interior inclined ladders shall be built of aluminum and of the width and slope required by the United States Coast Guard for their service.

2. Interior vertical ladders shall be fitted to provide access below each hatch. An interior inclined ladder with handrails shall be located as shown on the GA drawing for access from the main cabin to the pilot house. An exterior inclined ladder shall be fitted to provide access between the main deck and the cabin top located on the aft cabin bulkhead. The exterior ladder shall be constructed of precut plate and folded aluminum steps using 1 1/4" aluminum pipe for handrails.

3. Cabin top rails and all main deck rails mounted on the bulwark cap shall be fixed and meet USCG regulations, § 46 CFR 177.900. The top of the uppermost course shall be at least 36" above the deck. Stanchions shall be aluminum plate and intermediate rails shall be 3/4" aluminum pipe and be spaced at intervals not exceeding 12" with the lower course no higher than 9". Stanchions shall be no more than 5'-0" apart.

4. Grab rails shall be installed throughout the interior/exterior of the vessel, including the pilothouse overhead, to ensure safe handholds in any location. Transom grab rails shall be provided for the swim platform. Rails shall be 1" standard aluminum pipe. The ends of the rails shall be faired into the mounting surface. Grab rails as approved by the Purchaser to assist in entry and exit from spaces shall be fitted.

5. Ladders with handrails shall be fitted to provide access into the engine rooms. Ladders without handrails shall be fitted to provide forepeak access.

H.7 Hatches and Portlights

The vessel shall be fitted with rebate mounted (flush with deck), quick acting, hinged and dogged watertight hatches. The exterior hatches shall be *Freeman,* or equal aluminum hatches with drain tubes to lead overboard and preclude the accumulation of significant amounts of water or dirt. Hatches shall be located clear of main deck traffic areas whenever possible.

Freeman or equal hatches shall be fitted in the following places:

1. Port forepeak 15" x 24"
2. Starboard forepeak 15" x 24"
3. Port lazarette 15" x 24"
4. Starboard lazarette 15" x 24"
5. Fabricated watertight hatches shall be fitted in the following places:
6. Port Tank Compartment 31" x 32"
7. Starboard Tank Compartment 31" x 32"

Welded on soft patches to assist with the long-term maintenance and upkeep of the vessel will be fitted in the following areas:

1. Port aft deck (genset and main engine removal)
2. Starboard aft deck (genset and main engine removal)
3. Starboard cabin deck (black water tank removal)
4. Starboard lazarette (grey water removal)

H.8 Stairwells

1. Exterior stairs will be fitted as shown on the General Arrangement Drawings, leading up to the foredeck.
2. The stairways shall be fabricated from folded aluminum plates. The stair tread plates shall be finished with non-skid tread noses.
3. Each stairway shall be fitted with a handrail.

H.9 Arch and Radar Tower

1. An aluminum radar arch and mast shall be mounted on the housetop port and starboard and secured to the inboard sides of the flying bridge. The arch shall support mounts for the radar antennas on centerline and mounts for the antennas including radio and GPS port and starboard.

2. The mast shall be mounted to the arch on centerline and shall carry the masthead and anchor lights. A ladder or suitable equivalent shall be included in the mast design to allow ready access to the upper mast for equipment installations and repairs.

3. The mast shall be fitted with a crosstree, mounted with two (2) port and two (2) starboard flag halyard blocks. Halyard cleats shall be mounted on the radar arch near the base of the mast. Halyards, complete with snaps shall be provided. In addition to standard navigational lights, RAM (restricted ability to maneuver) lights and day shapes in accordance with the COLREGS shall be furnished by Purchaser. A flag flying system shall be installed.

4. The arch will be fitted with a universal mount for fitting a Starlink antenna. The universal mount will be oversized by 2" to allow for future equipment upgrades. The mount will be a folded plate welded to the top of the arch structure. The location will be determined in the radar arch and equipment arrangement drawing.

See Section M.14 LIFE SAVING EQUIPMENT for safety placard information.

H.10 A-Frame

1. The A-Frame design shall include hydraulic cylinders with internal stops. The frame and cylinders foundation pads shall be mounted directly to the deck frames using insert plates with full penetration welds.

2. The SWL of the A-Frame shall be based on a 5,000 lbs. total load, vertically suspended and hooked onto the sheave mounting points, through the full travel arc of the frame. The SWL stress shall be based on a safety factor of 3 on the yield strength of the materials from which it is fabricated. The 5,000 lbs. total load is measured from the pick point on the A-Frame, not to be confused with the pulling load from the winch. It is important to understand that if the winch is pulling at 3,267 lbs. then the A-frame will experience 5,000 lbs. because of geometry.

3. The frame shall have 15 feet clearance above deck. Clearance will be 15 feet between uprights.

4. The A-frame shall extend at least 10 feet aft and 8 feet forward of the transom.

5. The A-frame shall be operated from the main deck as well as the upper deck through the scientific winch belly pack as well as hydraulic controls hardwired to the hydraulic control station on aft upper deck. The A-frame will be outfitted with a PL5 PullMaster (4,500 lb. WLL) cross-member mounted winch for lifting on centerline. The PL5 will have controls at the main deck and upper control station. This will be able to lift the full capacity because there is no geometry, it is picking directly straight up and down.

6. The A-Frame will be provided with a sheave of sufficient diameter for use with either 3/8" wire or 3/8" synthetic cable for use with the Hydro Winch and designed in accordance with the requirements of UNOLS recommendations for sheave size and load rating. Please refer to section I.10 Crane, Devit, Winches for scientific winch specifics.

7. The A-Frame will be provided with a sheave of sufficient diameter for use with the CTD winch 3 conductor 0.322" cable. The sheave shall be suitable for use with the conducting wire and designed in accordance with the requirements of UNOLS recommendations for sheave size and load rating. Please refer to section I.10 Crane, Devit, Winches for scientific winch specifics.

8. The cross member shall have four attachment points with the same working load limit, two ports, and two starboard of centerline and in line with the Hydro and CTD winches on the upper level.

9. The legs of the A-frame shall be provided with ladder rungs to provide access to the top of the frame. Flood lights shall be mounted on the A-frame to illuminate the water's surface below the frame when deployed. Two-line cleats, one (1) per side, mounted on inboard verticals.

H.11 Gates

1. Chain gates shall be installed in the following locations:

1A.Main deck rails at head of swim-step ladders.

2A. Main deck transom opening between the A-frame legs.

3A. Between the upper deck rails at the top of the aft ladder leading from the upper deck to the main, aft deck.

4A. At the top of the interior stairs leading from the pilot house down into the main cabin.

5A. Main deck, port side, in way of the J-Frame opening.

2. These chain gates shall be made with 316 SS 3/16" proof coil chain rated at 930 lbs. WLL. Both ends of the chain will have 316 SS carabiners and shall be attached to fixed attachment points.

3. A hinged, inward swinging gate will be fit in the bulwarks below the cap rail between frames D & E on the starboard side. The gate will be secured closed with latches and vertical barrel bolts on the gate. This gate shall have a means to secure open.

H.12 Bollards and Cleats

1. Four (4) mooring cleats shall be installed on each side of the vessel parallel to the bulwark. The cleats shall be located so as to lead through the port and starboard closed scupper holes. They shall be mounted parallel to the gunwale. All will be an 18" aluminum weld on deck cleats. The cleats shall be installed on suitable deck inserts and supported by under deck structure. All welds shall be ground smooth to eliminate snags which will damage synthetic lines.

2. Four (4) 7.5" line cleats to be installed in way of the A-frame at customer directed locations.

H.13 Seats and Stowage

1. Deck lockers shall be built integral to the house front. The space shall be divided into individual lockers with hinged and latched tops. Drains shall be installed in each locker. The entire assembly shall be configured to serve as a deck bench.

2. The Vessel will be provided with stowage for 26 *Taylortec* or equal Type 1, USCG approved, adult life jackets.

3. Stowage shall be provided in the pilothouse settee/day bunks, bunkrooms and in deck boxes as required.

4. 20 *Mustang* immersion suits or similar shall be provided and stowed underneath the settees in the main cabin or other locations allowed by applicable USCG regulations.

I. SYSTEMS

I.1 Engines

1. Electronic, high efficiency, Tier 3 low emission diesel engines that meet or exceed all federal emission standards shall be reverse mounted with a remote mounted gearbox.

Model	Caterpillar
Model	C-18 ACERT "D" Rated
Rating	588 kW (800 hp) @ 2100 rpm*
Gearing	ZF 665A Gear Box

* IFN Rating: Intended for intermittent use where rated power is available 1 out of every 3 hour period. Accumulated load factor must not exceed 80% of rated power. Unlimited h/year service time. Total service time depends on load factor.

2. Exhaust Turbocharger, water cooled

·1Fuel filter, flame proof piping and hosing

2 Lube oil filter and oil cooler, combined, standard.

3 Exhaust manifold water-cooled

4 Sea-water pump

5 24 volt 120-Amp alternator

6 Isolated (above ground) DC electrical

7 Unit Mounted Fuel Primer assembly and ¾-37 JIC (male) Connections

8 Engine Oil Drain Valve (service) kit (1ea port and starboard).

9 Two Marine power displays, one in each Engine Room

10 Two Marine power displays for flybridge (7" dual engine monitor)

11 Twin Engine Shipset Custom Harness Package

12 Start and Stop Panels for Wheelhouse

13 Initial Coolant Fill

14 Initial Oil Fill

3 Gear Box

1 ZF 665A

2 Raw Water Cooled for MAN

3 Electric Shift 24v (FTN – fail to neutral)

4 Electric Troll

5 Bell Housing SAE1

6 MAN Smart Command Kit

7 Prop Flange up to 125mm shaft

4 The main engines shall be installed as per the recommendations and requirements of and under the supervision of the manufacturer's technical representatives.

5 The main engines shall be arranged for start and stop from the helm station and in the engine rooms.

6 The main engines will be supplied with standard manufacturer's warranty.

I.2 Props and Shafts

1. The Contractor shall provide and install NiBrAL propellers. The propellers shall be right and left hand, turning outboard when going ahead. The propellers shall be designed for maximum efficiency and shall be matched to available transmission gear ratios. They shall be mounted with a tip clearance of ~20% of the propeller diameter.

Diameter	TBD
Pitch	TBD
Material	NiBrAl
Grade	Commercial Duty

2. The gear coupling will be connected directly to an *Aquamet* 22 HS propeller shaft. Shaft diameter will comply with USCG requirements.

3. The shaft couplings and propellers will be blue fit to the shaft tapers in order to verify no less than 80% contact has been achieved.

4. The shaft will be fit with two (2) shaft bearings. The stern bearing will be housed in a fabricated A-bracket. The intermediate bearing will be fit in the stern tube.

5. The stern tube will be fitted with a *PYI* PSS drip less shaft seal that is cooled with water from the main engine raw water-cooling circuit.

6. The shaft bearings shall be *Johnson Duramax* Mandy bearings.

7. The ends of the shaft shall be machined to standard SAE tapers and fitted with keys. The shaft coupling shall be machined to match the propeller shafts. The bearings shall be locked in place with SS grub screws.

I.3 Genset

1. Two diesel generator sets will be fitted. Output will be three phase 120/208v. The engine will be fitted with a 24V DC starting system.

2. The gensets will be fitted with sound shields.

3. The engine will be heat exchange cooled.

- Make Kohler
- Model 24EKOZD
- Rating 24kW/60Hz
- Voltage 120/208 V AC
- Phase 3 ph.

4. Generator features: Standard equipment will include:

1. Heavy-duty construction
2. Certified by the Environmental Protection Agency (EPA) to conform to Tier III marine auxiliary
3. Diesel fueled, three cylinders, Four cycle
4. Electric fuel lift pump
5. Lifting eye

5. Generator features:

1. Remote start 12-pin connector
2. Class H insulation
3. Voltage regulation of ±1.0%
4. Radio suppression
5. Outstanding motor-starting capability
6. Directly connected to the engine, the generator has sealed precision ball bearings with a precision-machined steel sleeve in the end bracket to prevent shaft misalignment and extend bearing life.
7. P-Gen Parallel technology
8. Raw Water/Heat Exchanger Cooling
9. 24-volt DC starter motor
10. Remote mount engine gauge panel
11. Automatic safety shutdown systems
    - Low oil pressure shut down
    - Engine Overspeed
    - High engine temperature shut down
    - Loss of coolant shut down
    - Seawater pump impeller failure shutdown
12. Vibration mounts

I.4 Engine Exhaust

1. Each engine will be fit with a water-lock silencer wet exhaust system. The exhaust gas shall discharge through the wet exhaust elbows and pass through FRP piping to one wet muffler. The wet elbows will be plumbed with the raw water discharge from the main engine. The wet exhaust gasses will exit the muffler thru FRP piping plumbed thru the side plate. The thru hulls will be located in the engine room.

2. The systems shall be installed to be within the engine manufacturer's back pressure requirements.

3. The systems shall be installed to be within the engine manufacturer's back pressure requirements. Engine cooling water shall be plumbed with water dumps to control the amount of water going to the exhaust system. The systems shall be installed to protect the engines from back filling with seawater.

I.5 Genset Exhaust

1. The generator engine shall be fitted with a water-lock silencer wet exhaust system.

2. A mixer shall be fit to the generator engine to mix seawater-cooling water with the exhaust gas. The wet exhaust gas will discharge through heat resistant wet exhaust hose, muffler, and connect to an aluminum pipe welded to the side of the vessel in the engine compartment.

3. The systems shall be installed to be within the generator manufacturer's back pressure requirements. The systems shall be installed to protect the engines from back filling with seawater.

I.6 Steering System

1. A 4-station electric hydraulic power steering system will be installed. The power system will consist of a *Dometic Optimus EPS 5000* power unit with two (2) electric driven hydraulic pumps (EP1600). Provisions shall be made to provide overcurrent protection for steering-gear systems. The main helm control station will be fitted with an electronic Helm and a large diameter steering wheel.

2. Maximum rudder angle +/- 35 degrees

3. Rudder speed (+35 degrees to -35 degrees) 10 seconds

4. Turns Hard over – Hard over 8 (manual)

5. The main helm station will be fitted with a rudder angle indicator. The main helm station dash will be fitted with *Simrad AP70 Mk2* autopilot remote that will provide follow up jog steering and rudder position indication.

6. The wing stations both port and starboard shall be fitted with an electronic helm and a jog lever. Rudder angle indicators shall be incorporated into the wing station arrangement. The aft facing control station shall be fitted with an electronic jog lever and rudder angle indicator.

7. Each tiller will be fitted with mechanical stops. Prior to launching, the steering rudders will be perfectly aligned by measurements taken behind the transom. The position of the tiller arms will then be permanently marked on the inside of the transom for later reference. The system will be plumbed with SS hydraulic tubing.

8. The Dometic Optimus steering system integrates with the Glendenning control system to provide basic station keeping capabilities.

9. The control system shall be served by two (2) sources of uninterruptible DC power.

I.7 Controls

1. A 4-station control system will be fitted to the vessel dual lever control heads.

· Make Glendenning
· Model Complete Control 2

2. The following areas will be fitted with controls:

· Main helm
· Wing Stations Port and Starboard

· Upper deck aft station

3. The control system shall be served by two sources of uninterruptible DC power.

I.8 Fire Suppression

1. Each engine room shall be fitted with a USCG approved *Stat-X* pre-engineered fire suppression system of suitable capacity. The system shall be capable of automatic discharge upon heat detection. The manual release controls shall be fitted outside of the engine room space.

2. The system shall be installed to control the ventilation system and shut down the main engine and genset in that space upon fire detection.

3. Battery Powered smoke alarms will be fit in each sleeping area and a battery powered Carbon Monoxide Alarm shall be fit in the main cabin area.

4. A *Maretron* fire detection system will be fitted in the pilot house. It will be a seven-zone system with annunciation in the PH as well as strobe lights. The midships bunk room shall also be fitted with a wiggler alert system.

5. The following zones will be monitored for smoke and heat:

· Port engine room
· Starboard engine room
· Port fwd. bunk room
· Starboard bunk room
· Main cabin
· Pilothouse
· Port midships bunk room

6. The following additional equipment will be supplied and fitted:

1 · One (1) x 2 1/2 lb. ABC fire extinguisher will be fitted in the pilot house.

2 · One (1) x 10 lb. CO2 fire extinguishers will be fitted in the wet lab.

3· One (1) x 2 1/2 lbs. ABC fire extinguishers will be fitted in each bunk area.

4 · One (1) x 5 lbs. C02 fire extinguisher will be fitted near the server rack.

5 · One (1) x 10 lb. ABC fire extinguisher will be fitted near the galley.

6 · One (1) x 10 lb. CO2 fire extinguishers will be fitted in each engine room.

7 · One (1) x 5 lb. ABC fire extinguishers will be fitted at each engine room entrance.

I.9 Anchor System

1. One (1) anchor, chain and line shall be supplied and fitted. The anchor line end shall be permanently connected to the vessel

2. A *Windline* anchor roller shall be fit into a hawse hole through the foredeck.

3. One (1) Rocna 55 kg anchor shall be shackled to 50 ft of 3/8 inch diameter galvanized anchor chain and 150 feet of 3/4 inch Yale 8-strand braid nylon anchor line.

4. The electric anchor windlass will be a Maxwell RC1212-24V with capstan. Control will be via a tethered remote stowed in the locker.

I.10 Crane, Davit and Winches

1. A boom type Morgan Marine 350.4, hydraulic and marinized with a 1,210 lbs. capacity at 19-foot reach shall be supplied. The crane will be fitted with a canvas all-weather, removable cover.

2. The vessel shall be supplied with twin hauling winches, located on the upper deck facing aft and shall have the following features:

1. One (1) Okeanus "Waterfall Style" Hydraulic Scientific Winch

o Self-Contained with independent hydraulic motors for individual operation of the two winch drums

o Hydro drum spooled with 1,000 meters of 3/8" HMPE line with a SWL drum pull of 5,000 lbs.

o CTD drum spooled with 1,000 meters of .322" conducting wire with a 1,500 lb. SWL on a fully loaded drum.

o 4 Pass *Moog/Focal* slip ring for conducting wire four (4) conductors), wired back to dry lab space.

o Equipped with a level wind

o Joystick controlled with a display for fine speed control and real-time data.
o Maximum drum speed of 80 m/min

2. Controls (two (2) hard wired panels, one (1) for each drum and two (2) belly packs. Plug in ports will be located at each deck panel and at lab stations 1 and 2. Panels will be located at the upper control station as depicted on the GA drawing.

3 One (1) EM Cable spooling (EM Cable to be supplied by Okeanus)
4. One (1) Hydro line spooling (3/8" HMPE line to be supplied by Okeanus)
5. Canvas all weather, removable cover.

3. A portside J-Frame shall be provided to accommodate small, towed survey equipment and shall support an 800 lb. safe working load (SWL). Final engineering is required to determine the maximum survey speed and through water speed while the universal sonar mount strut is in the deployed position*. The J-Frame shall be serviced by a hydraulic winch with 300 meters of *Spectra* line located on the upper deck as per the GA drawing.

I.11 HVAC

1. The forepeaks, tank voids and lazarette will have pipes fitted to allow for ventilation. Ventilation pipes will terminate at an airhead type vent check valve. Ventilation in these areas shall be natural.

2. The wet lab shall have exhaust ventilation extraction supplied via two (2) 190CFM overhead ventilation fans.

3. A clothes dryer vent will be installed outboard of the interior accessed bathroom with shower. Vent will be a 4" diameter tube with an airhead vent check valve.

4. The vessel shall be fit with *Pompanette* direct expansion Reverse Cycle air conditioning system providing **heat & cooling**. Exhaust from the bunkroom units shall be vented outside of the bunkrooms. Exhaust from the PH and main cabin units shall be vented to the outside. The system shall be arranged as follows:

4A Two (2) x 10,000 BTU for the pilot house.
4B Two (2) x 16,000 BTU for the labs and galley.
4C Two (2) x 10,000 BTU for the Main Deck bunkrooms. Each unit will have an individual thermostat.

5. The Microwave oven will be fit with a fan to provide galley ventilation. The heads and bunkrooms shall be fit with a *4"* ventilation exhaust fan rated at 190 CFM. The bunkrooms shall also be fit with one (1) each oscillating overhead fan for air circulation. Ventilation grates or louvers shall be fitted between the bunk cabins and main cabin to facilitate air circulation.

I.12 Machinery Ventilation

1. Engine rooms shall be fitted with ventilation systems consisting of ventilation fans with variable frequency drives of suitable capacity. Fans shall be fitted on rubber mountings. And the casings shall be aluminum. The ventilation shall be controlled at the helm.

2. Each engine room shall be fitted with air inlet and discharge openings. The openings shall be oriented and shrouded to minimize spray induction into the engine room. All air inlets and outlets shall be fitted with *Zazz* or equivalent fire dampers and salt-water spray diffusers. Fire dampers will be remote controlled and electrically operated.

I.13 Acoustical Insulation

1. The noise level in passenger spaces shall be kept as low as possible. Furthermore, noise levels shall meet the OSHA permissible noise exposure regulations 29 CFR Part 1910.95, and reasonable effort will be made so that interior spaces occupied by passengers shall be as close as possible to an 8-hour time-weighted average of 78 decibels measured on the A-scale, when the vessel is traveling at specified cruise speed with the generator running at normal load factor. This measurement shall be from the main cabin area.

2. The engine rooms shall be insulated on the deck heads, ventilation trunks, as well as engine room sides and forward bulkhead. Insulation on the sides shall extend down to the lower chine.

3. The lazarette, machinery space, tank void, and forward void shall be fitted with acoustical insulation as follows:

3A · Overhead
- 1 30 mm Air Gap
- 2 Layer 1 - USP, ALU1 36kg/60mm Roll ALU1 facing
- 3 Layer 2 - 2.5 mm Wavebar Quadzero NL 1lb-ft²

3B· Forward USP, ALU1 36kg/60mm Roll ALU1 facing

3C· Aft USP, ALU1 36kg/60mm Roll ALU1 facing

3D · Inboard USP, ALU1 36kg/60mm Roll ALU1 facing

3E· Outboard USP, ALU1 36kg/60mm Roll ALU1 facing

3F · Ventilation Trunk and Engine Room Entrance
- 1 Layer 1 - USP, ALU1 36kg/60mm Roll ALU1 facing
- 2 Layer 2- 2.5 mm Wavebar Quadzero NL 1lb-ft²

4. Insulation shall generally be installed with pins and caps glued directly to bare aluminum plate. All seams shall be taped.

5. Interior bulkheads and partitions within the superstructure shall be acoustically insulated with 2.5 mm Wavebar Quadzero NL 1lb-ft² where practical.

I.14 Life Saving Equipment

1 A restricted maneuverability day shape will be provided by the Purchaser. Accompanying mast lights will be provided.

2 Two (2) 20 person SOLAS A IBA type life rafts will be supplied and fit on the upper deck with quick release and float free cradles.

3 The following equipment shall be supplied and fitted:

1 Two (2) x 20 person IBA with container, cradle and lashing.

2 44 Adult sized *Taylortec* Type I USCG approved, silk screen printed life vests with ships name shall be provided

3 Four (4) Child sized *Taylortec* Type I USCG approved, silk screen printed life vests with ships name shall be provided.

4 20 Type V Work Vests.

5 20 *Mustang* or similar immersion suits. (19 adult sized, one (1) XL, and one (1) adult small)

6 Three (3) x 24” life rings (one (1) mounted on the aft deck)

7 One (1) x Man overboard light

8 One (1) x Life Ring throw rope

9 One (1) x Lifesling 3

10 One (1) x ACR 2830 Satellite-3 406 Cat 1 EPIRB

11 Two (2) x Orion 802 Red Flare kit (3 ea.) – current within 90 days

12Two (2) x Orion 958 Orange Smoke kit (3 ea.) – current within 90 days

13 One (1) x Orion 4267 Orange Ammo Box

14 Two (2) x Orion 811 Lifeboat First Aid Kit

15 Four (4) x Pelican Flashlight 3610PL

16 12" bell, Perko 0179012PLB

17 One (1) x Phillips Heartstart AED

18 One (1) x Thermal Blanket 56" x 84"

4 The following placards and signage will be provided:

1· Two (2) x MARPOL Oil Discharge Placard

2· One (1) x MARPOL No Dumping Placard

3· One (1) x Personnel to Remain Clear When Electronics Are in Operation

4· Three (3) x Sink Drain and Pollution

5· Two (2) x Hearing Protection Required for Engine Rooms

I.15 Galley Equipment

1 The galley will be fit with the following equipment:

1· One (1) x 15-cu ft Bottom-Freezer Refrigerator

2· One (1) x Whirlpool 1.9 cu. ft. Over the Range Convection Microwave/Hood in Stainless Steel with Sensor Cooking

3· One (1) x 3-Burner Electric Range, Force 10 or equal

4· Sink with Garbage Disposal

I.16 Lines and Buoys

1 The following shall be provided:

1 Six (6) x 7/8" x 70' 2-1 double braid nylon deck line w/ 24" eye splice one end

2 Six (6) x Polyform F10 Fender w/ 8' tagline

I.17 Anodes

1 The vessel shall be fitted with eight (8) x *Divers Dream* Aluminum anodes. Each anode shall be 6" x 12" x 1/2". Two (2) shall be located on each transom two (2) shall be located in the forward tunnel, two (2) mounted on the port hull and two (2) mounted on the starboard hull.

2 A separate earth bonding system, which will not be normally current conducting, must be installed. Metal casings of all machinery and equipment shall be commonly bonded to the hull and the anodes.

3 Piping shall be protected with zinc anodes or with isolation as necessary.

4 The vessel will be fit with a Digital logging hull potential meter to monitor the condition of the anodes.

5 Bonding: See Section O. ELECTRICAL.

I.18 Driveline Shrouds

1 All rotating machinery, such as drive shafts and remote mounted pumps, will have aluminum fabricated safety guards fitted to adequately protect crew from injury.

2 The guards shall be lightweight and easily removable to facilitate inspection and servicing.

J. PLUMBING

1 Runs of pipework will, as far as possible, be kept clear of work or access areas, etc. Pipes shall be secured to the vessel's structure by suitable blocks. Pipe runs shall be connected with short runs of suitable hose to facilitate removal. Where aluminum pipes pass through shell, bulkheads or deck, a short length of the pipe with suitable flange doublers shall be welded into the structure.

2 All plumbing shall be installed with accessible low point drains.

3 Unless otherwise specified, copper alloy (such as brass or bronze) equipment or fittings will not be fitted below the main deck. All systems' piping shall be labeled with system identification and flow direction.

4 Conveniently sized and properly labeled access panels shall be provided for access to all wiring, valves, and pipe connections.

5 Where possible, ducts, pipes, etc., in the accommodation spaces, shall be installed behind linings, or shall be boxed in. Panels covering ducts, piping, wire ways, etc., shall be removable.

6 Cable trays and pipes for scientific instrumentation shall be placed in easily accessible locations and not be covered or boxed in.

7 Plumbing systems with dissimilar metals which are threaded together shall be lubricated with either Tefgel or Eck or similar as a dielectric lubricant. Dissimilar metals with flanges shall have isolation plastic shoulder washers to insulate from each other.

8 All system piping will be color coded and labeled for the system served.

9 All piping shall be installed per USCG Sub Chapter T regulations.

J.1 Fuel System

1 Each fuel tank shall be fitted with sight gauges. The sight glass on each tank will have self-closing 316 stainless steel valves at both the upper and lower end of the glass. The sight glass shall be protected with a slotted aluminum guard, which shall be marked to indicate tank content in increments of 50 gallons.

2 SS ball valves and hose tails shall be used for all fuel lines outside the tanks. Piping inside the tanks shall be per USCG requirements. The port tank shall supply fuel to the port engines, and the starboard tank to the starboard engines. Each supply line will have a shut off valve inside the engine room, with a remotely controlled cable to enable the valve to be shut from outside of the engine room space. Cable levers shall be properly labeled. Long straight runs shall be plumbed in 304 SS tubing.

3 Each main engine supply line shall be fitted with a single *Racor* 75/1000MAX10 Duplex fuel filter. Each filter shall be fitted with a drain valve and a drip pan under each filter assembly to contain fuel spilled during servicing.

J.2 Oil Change System

4 Each main engine, gear and generator engine will be manifolded and connected to a common pipe plumbed to the ER entrance. A portable, bi-directional transfer pump will be provided with *Parker* quick connects. A discharge hose that will reach to the main deck edge. The system shall remove old oil from the sumps and pump that to waste receptacles (provided by the Purchaser) located on deck and pull fresh oil from containers (provided by the operator) located on deck, and pump that into the engines.

J.3 Engine Cooling

1 The main engines will be equipped with its own raw water pump, which shall take suction from a dedicated sea chest thru a 3" SS butterfly valve and *Arctic Steel* 3" bottom in and side out stainless-steel strainer. The strainers will be installed to allow easy inspection and cleaning of the strainers. Piping to the engine will be 5086 Aluminum. The raw water shall be discharged from the engines through the exhaust system. The piping from the engine discharge to the exhaust connection shall be CuNi.

2 A suitable hard wall hose will be used for flexibility. All flexible connections will be double clamped.

3 Zincs are to be installed in strainers and in aluminum piping every 4-6 ft.

J.4 Genset Cooling

1 The generator engine will be equipped with its own raw water pump, which shall take suction from a dedicated sea chest thru a 2" SS butterfly valve and *Arctic Steel* 2" bottom in and side out stainless-steel strainer. The strainers will be installed to allow easy inspection and cleaning of the strainers. The raw water shall be discharged from the engines through the exhaust system. This sea strainer will also provide raw water to the Fire Pump. (See Section N.6 FIRE PUMP SYSTEM**)**

2 A suitable hard wall hose will be used for flexibility. All flexible connections will be double clamped.

3 Zincs are to be installed in strainers and in piping every 4-6 ft.

J.5 Bilge System

1 The bilge system shall consist of one (1) engine driven *Jabsco* pump in the Port engine room, and the vessel's main fire/bilge pump in the Stbd engine room. Both pumps will be electromagnetic clutched. The pumps shall be mounted one (1) on each main engine and shall be driven via a V-belt. The suction side of the pumps shall be connected to a bilge manifold in each engine room. The bilge manifold shall have feed pipes from the lazarette, engine room, tank void and forward void spaces in the respective hulls. The system shall be fitted with crossover plumbing. The discharge shall be overboard.

2 Each pump will have a local and pilot house control fit with a prominent pump running indicator light.

3 All bilge piping shall be plumbed with aluminum pipe with aluminum flanges where necessary (when transitioning to stainless steel). A check valve with an intake screen will be installed as a foot valve.

4 Each watertight compartment aft of the fuel tank void shall have a *Rule* DC submersible pump for housekeeping, connected to a float switch and overboard drain.

5 The pumps shall be mounted at the lowest accessible point in the compartments with bows slightly trimmed up.

6 An audible alarm and warning lamps shall be fitted at the helm station operated from float switches. Alarm-silence switches shall be fitted in the helm area. The bilge pumps shall be connected to a 24-hour power supply.
The following points shall be monitored:

1· Port Forward Void Space	High Bilge
2· Stbd Forward Void Space	High Bilge
3· Port Tank room	High Bilge
4· Stbd Tank room	High Bilge
5· Port Engine room	High Bilge
6· Stbd Engine room	High Bilge
7· Port Lazarette	High Bilge
8· Stbd Lazarette	High Bilge

7 Forepeak voids shall be serviced with a manual bilge pump, *Beckson* 136P, with a flexible suction hose terminating at the bottom of the void and a flexible discharge hose with enough length to clear vessel side.

J.6 Fire Pump System

1 The fire pump shall be an *Oberdorfer* electromagnetic clutch pump, sized to meet USCG requirements. The fire pump shall be mounted onto the main engine and shall be driven via a V-belt. The suction side of the pump shall be connected to the genset raw water strainer. The discharge shall be to the fire main and pressure relief overboard. This pump shall be controlled from the bridge and engine room.

2 One fire hydrant with 50’ lay-flat hose and suitable nozzle shall be fitted. The fire station shall be located as per the GA drawing.

3 The fire pump system shall be plumbed with aluminum pipe with suitable corrosion protection when transitioning to dissimilar metals.

J.7 Black Water System

1 The vessel will be fitted with one (1) - *AHEAD TANK Model AT-12T* Type II MSD unit. This shall be located in the starboard tank space. The AHEAD unit is equipped with a 62-gallon black water tank to hold pre-treated effluent prior to treatment and discharge into the grey water system.

2 Three (3) SANIMARIN-48 24VDC marine toilets shall be fitted to the vessel. The toilet flushing water will be plumbed from the raw-water pressure system (*Sureflo* AquaKing II Standard) and the freshwater system vis a backflow preventer and 3-way selector valve. The toilet discharge shall be plumbed directly to the MSD treatment system, treated water from MSD system shall discharge to the gray water holding tank. The gray water tank drain line will be fitted with a salt water back flushing line.

3 The head will be fit with handrails and with a SS toilet paper holder.

4 The tank will be supplied with a 4” clean out port. The tank outlet will be plumbed with a valve overboard and to a deck mounted pump out connection for discharging through a shore facility. The tank shall be vented between the hulls with a check valve to prevent back flushing when underway at high speeds.

5 Liquid level sensing devices will be fitted to monitor the tank levels.

6 All sanitary piping will be PVC.

7 The MSD system will also be fit with valves and plumbing fittings at the cleaning ports for discharging through the shore pump out plumbing for cleaning.

J.8 Fresh Water System

1 Freshwater shall be supplied from integral freshwater tanks located in the lazarettes. The freshwater supply line shall be fitted with two (2) each *Shurflo* Aqua King II Supreme 24VDC water pumps. The tank shall be vented through a 1-1/2” vent check with a protective screen. The tank shall be filled through a standpipe located on the PORT side of the vessel.

2 The fresh-water pumps shall be powered by the vessel's electrical systems.

3 All freshwater piping shall be CPVC and have drains at the low points.

4 A fresh cold-water spigot shall be provided on the aft deck and the upper deck.

5 A *Whale* six (6) gallon electrically and engine waste heat-powered on-demand hot water heater will be fit.

6 One *Bluewater Spectra* “NewPort 700C” Series water maker (700 gallons per day) will be installed in the starboard tank room.

7 Hot and cold fresh water will be plumbed to the following:

1 Shower stall in each head
2 Sink in heads
3 Sink in the galley
4 Sink in wet lab
5 Clothes Washer

See Section M.14 LIFE SAVING EQUIPMENT for safety placard information.

J.9 Gray Water

1 All gray water plumbing shall be PVC.

2 Gray water sources must be piped to a lockable manifold that allows discharge to the waste tank or overboard. The waste tank shall be emptied via suction fitting located on deck or a gravity overboard drain.

3 The vessel will be fitted with a 210-gallon polypropylene gray water tank.

J.10 Wash Down

1 The fire pump system will supply sea water to a wash down faucet located on the aft cabin bulkhead.

2 A general washdown service from Stbd genset seawater intake will provide sea water to:

1 Aft and upper deck Spigot

2 Toilet Flushing

3 This shall be fed from the (Sureflo AquaKing II Standard) pump noted in the Black Water system.

J.11 Hydraulics

1The Vessel shall be fitted with an engine driven hydraulic system. The pumps shall be suitably sized axial piston pumps, Bosch Rexroth or similar, using a direct PTO through drive arrangement. The system shall have a load sensing pump and control manifold. The system will provide a minimum of 32 GPM at 3,200 psi. In order to minimize passive hydraulic noise when not in operation, the pumps shall be fitted with an unloader valve to put the pumps at zero output when not in use. The pressure system shall be manifolded and share a common 60-gallon reservoir. The pumps shall be heat exchanger cooled.

2The vessels hydraulic system shall power the following:

1 Deck crane
2 Aft A-Frame cylinders
3 Scientific Winch
4 J-Frame cylinder
5 J-Frame Okeanus hauling winch

3 Auxiliary hydraulic power take off ports shall be included on the aft deck.

4 The hydraulic system shall have emergency shut offs at the hydraulic control station.

5 The system shall be hard plumbed with ASTM A269 / A213 seamless SS hydraulic tubing. The fitting for this system shall be Parker Triple-Loc fittings meeting SAE J514 and ISO 8434-2 industry standard for 37 deg flare fittings or commonly known as JIC fittings. The flexible hoses shall be SAE 100 R2 AT.

K. ELECTRICAL

1 The complete electrical, normally current conducting, system shall be an above earth, two-wire system.

2 All cables shall be adequately protected against mechanical damage, chafing, heat, corrosion, and wherever possible be installed clear of bilges.

3 The cables between engine rooms and wheelhouse shall be neatly fastened to aluminum cable trays fitted below deck.

4 Cable penetrations through bulkheads and decks must have adequate sealing arrangements to maintain water and, where appropriate, fire integrity.

5 All cable voltage ratings must be suitable for the circuit voltage. Conducting wire must be stranded copper. All sub-circuits shall be double insulated cables.

6 Cabling and installation will comply with the USCG regulations.

7 The Builder will supply a complete set of as-built wiring diagrams of the vessel's electrical system on delivery of the vessel.

8 Electrical control panels must be provided containing all necessary controls and starters for the proper control and running of all systems. Circuit breakers shall be mounted on the panel and to be used for switching circuits. Provision must be made for at least four spare circuit breakers on each of the primary AC and DC distribution panels. Additional Spares shall be considered during final engineering.

9 Each electrical cable will have an identification label on each end. The labeling system will be a Brady wire labeling system using self-laminating vinyl thermal transfer labels. Cable numbers shall be devised by the Contractor and on the electrical drawings.

10 Care shall be taken to not mount electrical equipment under the exhaust and engine room vents and avoid routings under soft patches.

11 Shore Power will be isolated through a galvanic isolated transformer.

K.1 DC

1 All batteries shall be extra heavy duty low-maintenance type. Battery banks shall be installed in vented, non-metal lined, plastic boxes. The battery boxes will have lids and be strapped into place.

2 An isolating switch shall be placed as close as practicable to each battery set.

3 Automatic Charge Relays will be installed between the engine start batteries and the house services battery. When the Automatic Charge Relay senses a charging source from any engine alternator or battery charger it will close and charge that battery bank. The Automatic Charge Relay can be manually closed to provide emergency parallel starting. Provision is to be made to supply power to the bilge pumps when the normal service distribution is isolated.

4 Each main engine will have a 24V starting battery bank, consisting of Lifeline GPL XT starting batteries. The electrical system will allow engines to be started from either bank of batteries. Batteries shall be charged from the main engine fitted alternators.

5 Each generator will start from the 24-volt main engine starting banks. Each generator will be isolated through a battery switch.

6 A 24V house services battery bank, consisting of 4 x 6 Lifeline GPL-6CT batteries, shall be installed to supply the vessel's DC consumers. The batteries shall be in series to have 24V. The generator or shore power via the Inverters will charge the Services battery bank.

7 A load analysis will be completed prior to electrical system installation.

8 The 24V DC electrical system will supply power to the following equipment:

1 DC Circuit breaker/switch panels
2 Maxwell 24VDC Anchor Windlass
3 DC Electronics Circuit breaker/switch panels
4 Engine room ventilation
5 Main engine start and monitoring
6 Main engine controls
7 Genset start and monitoring
8 Bilge pumps
9 A windshield wiper system with freshwater window washing to ensure blades to clear 70% of the glass surface.
10 Horn (Buell 15" Air Horn)
11 Newmar PI-10 intercom
12 Main Console (Bridge)- Base station, handset, speaker
13 Foredeck- Talk back, waterproof speaker
14 Aft main deck- Talk back, waterproof speaker
15 Upper aft deck- Talk back, waterproof speaker
16 Dry Lab- Talk back speaker
17 Wet Lab- Talk back speaker
18 Settee (dining)- Speaker
19 Berthing areas- Speaker
20 12 x Red / White DC lights
21 1 x 10" Imtra DHR230 LED Searchlight with operator control panel,
22 2 x 12 VDC outlets in dash

23• Navigation lights (individually controlled from the wheelhouse switch panel)

23A Steaming light
23B Port light
23C Starboard light
23D Stern light
23F Red/white/red signal lights on the signal mast (switchable from anchor light and Restricted Ability to Maneuver As required by COLREGS)

24 Vessel Alarm System (Maretron, or equal)

24A Bilge High levels
24B Main Engine Exhaust High Temperature
24C Engine Room High Temperature
24D Genset Exhaust High Temperature
24E Grey Water Tank High Level
24F MSD II Black Water
24G Port and Starboard fuel levels
24H Fresh Water level

25 Individual reading lights will be provided for each bunk.

26 Floodlights

26A Four (4) x Vision-X DURA660 LED work light (Fwd. Deck Lights)
26B Four (4) x Vision-X DURA660 LED work light (Aft Deck Lights)
26C Four (4) x Vision-X DURA660 LED work light (A-Frame Lights)
26D Two (2) x Vision-X DURA660 LED work light (Aft Upper Deck Lights)

27 24 x F-28 LED or equal machinery/below deck lighting

27A Four (4) x each Propulsion Room
27B Two (2) x each Lazarette
27C Two (2) x each Tank Space
27D Two (2) x each Forepeak
27E Two (2) x each Main Cabin Void

28 12 x F-22 LED Exterior Lights

29 Oscillating fans for each bunk room.

30 Ventilation fans for heads, bunkrooms, and wet lab.

31 A 24V DC to 12V DC converter shall be installed to power 12V electronic components, if required.

K.2 AC

1 The AC installation shall be 120 /208 V, 3Ø, 60 Hz, with Neutral Earth but non-hull return. Supplies shall be from the diesel generators (see 5318 genset) or the dual shore power connections.

2 The shore power inlets shall be a 120/208V, 3Ø, 50 amp thru isolation transformers for galvanic protection and be located on the port side of the vessel next to the engine room entrance. Two (2) 50’ long, shore power leads complete with inlet cord connectors, will be provided with storage in the Port Laz. There will be two (2) AC distribution panels with source selection of: Genset(s)/Shore power #1/Shore power #2.

3 One (1) Eaton UPS (9PX3000RT) system shall be installed in the server rack in the dry lab to provide clean, uninterrupted 120VAC power to the lab and pilot house to prevent power dropouts to Purchaser furnished science and pilot house equipment.

4 One (1) Eaton UPS system shall be installed in the server rack in the dry lab to provide clean, uninterrupted 208VAC 1Ø power to the aft main deck and 208VAC 1Ø to the wet and dry lab.

5 The AC electrical system will supply power to the following equipment to be installed:

1 AC Circuit breaker/switch panel

2 Air Conditioning/Heating system
3 Hot water tank
4 Engine room ventilation
5 Two (2) x 3kVA UPS
6 Internal lighting
- 6A Six (6) x Lithonia 4" LED downlight or equal in the pilot house
- 6B 30 x Lithonia 6" LED downlight or equal in the main cabin and bunk rooms
- 6C Cabin lights color temperature shall be at or below 3000K

7 Power outlets, etc.
8 Galley equipment
- 8A Galley refrigerator
- 8B Microwave oven and vented hood combo
- 8C Cooktop Range

9 208V 1Ø 30 amp outlet on the aft cabin bulkhead (survey scientific)
10 208V 3Ø 50 amp outlet on the aft cabin bulkhead (survey scientific)
11 208V 3Ø 30 amp outlet in the main lab (survey scientific)
12 120v Splendide Washer/Dryer Combo (as per G.A. drawing)
13 AC Outlets
- 13A Two (2) x Duplex (with USB jacks) power outlets in wheelhouse
- 13B Two (2) x Quad and 2 x Duplex and 1x Duplex (with USB Jacks) power outlets dry lab port side.
- 13C Two (2) x Quad and 2 x Duplex and 1x Duplex (with USB jacks) power outlets dry lab starboard side.
- 13D Two (2) x Duplex (with USB jacks) power outlets galley settee area.
- 13E Galley equipment
- 13F One (1) x Duplex power outlet in each lazarette
- 13G One (1) x Duplex power outlet in each engine room
- 13H One (1) x Duplex power outlet in each void space
- 13I One (1) x Duplex (with USB jacks) power outlet in each bunk
- 13J Two (2) x Duplex power outlet upper deck
- 13K Four (4) x Duplex power outlet main deck
- 13L One (1) x Duplex power outlet foredeck
- 13M One (1) x Duplex power outlet in each head

6 Duplex receptacles shall be provided for general use in the bunkroom, galley, engine rooms, each lazarette, and pilothouse as required. Outlets shall be waterproof and GFCI where appropriate.

K.3 Electronic Equipment

1 The navigation and communication at the helm shall include a Multifunction Navigation display and two (2) 24" computer displays. One computer display shall be cabled to a server computer in the lab space, the other to a computer running navigation software. The DGPS output in NMEA format shall be provided to the dry lab workstation desk by means of a labeled serial cable or serial bus bars.

2 The following list includes electronic items that shall be fit on the vessel:

1 Two (2) ea. VHF radios with DSC- (ICOM M510)
2 Two (2) ea. 24" Wide 1920x1080 Pilothouse 12v Display
3 One (1) ea. 19" 1280x1024 Pilothouse touch screen 12v Display.
4 One (1) ea. NavNet TZtouch3 Black Box Chart Plotter/Fish
5 One (1) ea. MCU004 Remote Control for NavNet TZtouch/NavNet
6 One (1) ea. DRS6ANXT Solid-State Doppler Radar with Target Analyzer/Fast Target Tracking
7 One (1) ea. DRS4NXT SOLID STATE DOPPLER RADAR 24"
8 One (1) ea. 6' open array antenna
9 One (1) ea. Professional V4 Nobeltec Time Zero Professional V4
10 One (1) ea. Nobeltec Second Station License for TimeZero
11 One (1) ea. Nobeltec PBG Module
12 One (1) ea. United States East Coast C-MAP Media Vector Charts
13 One (1) ea. Lenova Tiny PC Mini PC i5 10500T, 16GB RAM, 512GB SSD

14 One (1) ea. Logitech K360 Wireless Keyboard - Glossy Black
15 Two (2) ea. Logitech Wireless Trac Ball Mouse
16 One (1) ea. SCX20 Compact Dome Satellite Compass, NMEA2000
17 One (1) ea. GP-330B GPS/WAAS Sensor - NMEA 2000
18 Two (2) ea. QNB-1-PMW NEMA 2000 Quick Network Block
19 Two (2) ea. IF-NMEA2K2 NMEA0183 format to NMEA2000
20 One (1) ea. SS60-0 Mix & Match SS60 Depth & Temp 50/200 kHz 600 Watt Transducer
21 One (1) ea. Furuno 600W Mix & Match Cable w/Furuno 10pin
22 One (1) ea. A200 Class A AIS Class A transceiver
23 Two (2) ea. GX6000 25W Commercial Grade Fixed Mount VHF AIS receiver
24 One (1) ea. VHF 162-HD AIS System Antenna
25 Two (2) ea. MEK-4 Vertex Standard Front Panel Microphone Extension
26 Two (2) ea. MMB-84 Flush Mount Bracket For Vertex Standard
27 Two (2) ea. 156 HD Morad, Heavy Style VHF Hot Rod Antenna
28 Three (3) ea. V8 8 ft. Morad extension
29 Two (2) ea. M600 Morad M6 Laydown Mounts
30 One (1) ea. EDS-205 MOXA industrial grade ethernet switch
31 One (1) ea. Wilson Pro 70 5 Band Cellular Voice & Data Booster System
32 One (1) ea. Wilson 700-230... Splitter w/ N Fema
33 One (1) ea. 301135 Wilson Dual-Band Panel Antenna
34 Four (4) ea. Maretron J2K100-01 J1939 to NMEA 2K Data Converter
35 Maritime Starlink assembly
35A One (1) month of service for testing.
36 Multi-camera display at main helm – 8-Channel 4K NVR and 8 Outdoor 4K (8MP) IP Fixed 30FPS Real-Time Format Nocturnal Cameras with Color Night Vision, includes a 3TB Hard Drive, LorexTechnology or equal
36A 8-Port POE switch
36B Beetronics 22" standard format Marine Display, 800 Nit LED Backlit, AR Glass, (2) Signal Inputs, VGAx1, HDMI DVIx1, Resolution 1920 x 1080
36C Two (2) x one (1) ea. Port and Starboard engine rooms
36D Two (2) x aft deck
36E Two (2) x foredeck
36F Two (2) x upper deck facing aft
37 3 Fusion Apollo radios will be fitted (pilot house, main aft deck and lab)
37A Four (4) ea. JBL 23-1WH Exterior Speakers with JBL Weather Max grills will be supplied as follows:
37B Two (2) x Main Deck aft
38C Two (2) x Upper Deck aft
39D Two (2) ea. Bose "Freespace" FS4CE Black in ceiling speaker (pilot house)
39E Four (4) ea. Bose "Freespace" FS4CE White in ceiling speaker (two (2) ea. lab)

3 The Purchaser will assist with the placement of the above equipment to suit the Purchaser's requirements and operation. The final arrangement will be agreed upon 30 days prior to the start of electrical work on the vessel.

K.4 Mission Specific Equipment

1 One server rack with 19" wide 30" deep and 68" high racks equipped with rubber shocks. The rack will be mounted as per the GA drawings, with final orientation subject to Purchaser approval. A shelf will be provided above the computer rack for storage.

2 Network cabling will be run from the server rack location to the bridge and dry lab and accessible mounted ports. Network Wi-Fi to be available in labs, galley, bridge, berthing areas, and engine rooms. Networked system to be equipped with approved Purchaser IT department components.

3 Cable trays and pipes for scientific instrumentation shall be placed in easily accessible locations and not be covered or boxed in.

3A Penetrations for temporary gear:

3A Dry Lab Aft Bulkhead:

- One (1) ea. x 2", 4" and 6" schedule 80 aluminum pipes, extending 2" outboard, capped and dogged with a hinged aluminum pipe cap on the outboard end, the other temporarily capped for customer supplied Roxtec. Located outboard of the door, not less than six (6) feet above the deck.

3B Wet Lab seawater supply:

- Wet lab scientific sea water will flow from a dedicated pump, drawing off a dedicated sea chest, via CPVC piping up to the wet lab wall. The scientific sea water system will be fitted with a filter system and degassing assembly designated by Purchaser. Purchaser will designate the fixed plumbing of the Thermosalinograph (Sea-Bird Scientific SBE45 MicroTSG) and layout of CPVC plumbing in the wet lab. To further support this system installation, a Thermosalinograph remote temperature sensor (Sea-Bird Scientific SBE 38) mounting kit shall be incorporated into the scientific sea chest. The science seawater pump shall be switched on from the wet lab, and there shall be an "on" indicating light when the pump is operational.

- There shall be a hard piped drain extension from the wet lab sink drain line above the countertop for the Owner furnished plumbing to discharge into. The Scientific Seawater service shall additionally be plumbed from this system to an outlet on the aft deck bulkhead. A non-filtered seawater system shall be provided for raw water wash-down of the ship's handling equipment in the weather and the scientific equipment on the Working Deck area.

- A Stirling SU105UE under counter scientific freezer shall be installed in the wet lab per the GA drawing.

3C Acoustic Doppler Current Profiler (ADCP) shall be installed.

3D A J-Frame shall be located on the port side of the aft working deck. This J-Frame shall have a minimum 800 lbs. SWL and the ability to hydraulic extend off the side of the vessel by 65". The height of the J-Frame shall be 8' above the deck.

3E A Universal Sonar Mount shall be mounted on the port side for deployment of customer and client supplied transducers and sonars.

L. COATINGS

1 All paints shall be applied in accordance with the manufacturer's recommendations and specifications. All surfaces not intended to be painted shall be carefully masked and protected during painting. After painting, any extraneous paint and masking shall be removed.

L.1 Sandblast/Clean-Up

1 The Contractor shall remove or seal off machinery, equipment and interior openings whenever sandblasting is done nearby to prevent possible damage to any machinery or equipment from any abrasive grit, filings or dust. All surfaces below the water line to be painted shall be abrasive blasted to Sa 2 1/2 ISO 8501-1 and shall be immediately coated with the first primer coat.

L.2 Top Side Paint

1 The hull, handrails, and bulwarks will not be blasted or painted. A vinyl boot strip will be applied.

All surfaces to be painted shall be grit blasted. Fairing will be limited to small local defects. All stitch welding shall be sealed before painting.

2 General paint application schedule:

1 One (1) coat of Alexseal 161 Protective Primer (8-12 wft 3-5 dft)

2 One (1) coat Alexseal HS-series High Solids Urethane Topcoat (1.6-3.2 wft .8-1.2 dft)

3 One (1) coat Alexseal H0150 Urethane clearcoat (3-4 wft 2.4-4 dft)

Topcoat colors: TBD

L.3 Bottom Paint

1 The bottom shall be painted with anti-fouling paint to approximately 4" above the loaded waterline.

2 General paint application schedule:

2A Two (2) x coats Interprotect 2001E/2001E epoxy primer

2B Two (2) x coats Pettit Black Widow paint

3 The bottom paint color shall be black.

L.4 Bilge Paint

1 Bilges plate in the engine room will be painted from the keel to the first stiffeners inboard and outboard of the keel. Paint will go 2" up keel and stiffeners. The area directly under the shaft seal will also be painted.

2 Paint application schedule:

2A Prepare by sanding with 36 grit

2B Two (2) x 6 mils dry coats international 300 epoxy primer

L.5 Deck Paint

1 The general deck surface shall be media blasted to provide for a non-skid surface. The 12" along the transom between the A-frames will have aggressive peel and stick tiles. A "danger zones" will be identified with 4" safety yellow tape. The arrangement of the "danger zones" will be approved by the purchaser. The edges of the peel-and-stick tiles/tape will be sealed.

M. INTERIOR

1 The interior layout shall be as per the general arrangement drawings. All corners of furnishings shall be well rounded and there shall be no sharp protrusions in the cabin area.

2 Work surfaces shall be provided with Tec-Lock tie-down rails for securing equipment. Two (2) Tec-Lock tie-down rails will be fit on top of each of the counters in the lab. The purchaser shall approve final locations. Counter tops in the Labs shall be 3/4" Plywood to accommodate mounting of monitor arm stands.

M.1 Interior Insulation

1 50mm fiberglass of density of 24 kg/m3 with aluminum face thermal insulation shall be fit inside the cabin and in the overhead. All seams shall be taped to form moisture barriers. All insulation shall be secured in place by pins and caps.

M.2 Interior Hardware

1 All hardware shall be SS and of good marine quality unless otherwise specified in the specification.

M.3 Paneling and Trim

1 In general, 10 mm and 20 mm Ayres Aluminum honeycomb panels covered with laminate will be used on the cabin walls. Aluminum skins of 0.5 mm front 0.3 mm back per aluminum sheet, with 0.71 mm vertical grade laminate applied to both sides of the panel.

2 10 mm Ayrlite 2052 laminate covered aluminum cored panel shall be used to finish the cabin interior.

3 20 mm Ayrlite 2052 laminate covered aluminum cored panel shall be used for interior partitions. Trim shall be aluminum extrusions from Ayres. All joints shall be bonded using Sika 292i white adhesive compound.

M.4 Cabinets

1 The cabinets will be made out of 10 mm and 20 mm Aluminum honeycomb panels covered with laminate. Frames will be made out of aluminum. Aluminum extrusions will be used for Trim. The assembly of the cabinets will be glued and fastened with Sika 292i structural adhesive compound. Cabinet locations will be as shown on the GA Drawings.

M.5 Drawers

1 The drawers will be made out of 10 mm Aluminum honeycomb panels covered with laminate. Aluminum extrusions will be used for Trim. The assembly of the drawers will be glued and fastened with Sika 292i structural adhesive compound. The drawers will be installed with 150 lbs. SS drawer slides. The drawers will be retained in the closed position by push button latches.

M.6 Bunks

1 The Bunk bases will be made from 20 mm Ayres aluminum honeycomb panels covered with laminate. The assembly of the bunk will be glued and fastened with Sika 292i structural adhesive compound. Removable covers will be provided for cushions and shall be 10-14 ounce material with plastic zippers. Fabric and color shall be as selected, from supplier's standard charts, by the Purchaser.

2 There shall be three bunkrooms. Three bunk rooms shall be located on the main deck and shall have the capacity to hold 6 people per room. An additional bunk room shall be situated behind the pilot house on the upper deck. This shall have accommodations for two (2) people.

3 Each lower bunk shall have two (2) drawers. Bunk cubbies shall be provided where possible, as per the GA drawing. All Berths shall have additional storage compartments. Compartments will be below each (bottom) berth and have open face access. The

Builder shall install fabric privacy curtains on each of the upper and lower bunks. Fabric and color shall be as selected, from supplier's standard charts, by the Purchaser. Care shall be taken that there is adequate room between the mattress and the ceiling to accommodate an average sized person. ~25" inches of headroom will be provided above each bunk. See GA drawing.

M.7 Dinette

1 The dinette will be made from Ayres aluminum honeycomb panels. Aluminum extrusions will be used for the trim. The assembly of the dinette will be glued and fastened with Sika 292i structural adhesive compound. Storage will be provided as per the general arrangement drawings. Removable covers will be provided for cushions and shall be 10-14 ounce material with plastic zippers. The dinette shall function as a convertible settee and to function as an additional 1-2 person sleeping berth. The table will stow in a lowered position and back rest cushions will be fit to form a cushioned sleeping surface.

M.8 Laminate

1 The color and texture of the laminate shall be selected by the Purchaser. Builder to supply a color-board of recommended materials at least 30 days prior to selection deadline.

M.9 Flooring

1 All interior cabin flooring including heads shall be Loncoin Flecks II. Stairs shall be fit with stair tread noses of contrasting color.

M.10 Headliner

1 The ceiling system will be 600x600 Dampa Tiles, 0.7 mm, beveled edge aluminum folded plate sections fitted to an overhead structure. The individual aluminum tiles will be removable. The system will incorporate all edge trimmings, end closures and finishing. Interior lighting will be flush mounted into the ceiling panels.

M.11 Windows and Glass

1 All windows shall be clamp-in style single pane windows. Forward facing windows shall be clear glass. All other glass on the vessel shall be tinted, 45% gray, 6 mm thickness. The forward and side windows in Wheelhouse will be fitted with Mylar shades. The exterior head door for the amidships head will be fitted with an opaque window to allow light. The thickness of the glass shall be as required by USCG rules.

M.12 Exterior Doors

1 The cabin doors shall be weather tight, Bomar or equal, aluminum doors and frames. The doors shall be hinged and equipped with dogs, if required to meet applicable USCG regulations, stainless locks and round corners. The perimeter of the doors shall be equipped with a replaceable neoprene gasket.

2 The Engine Room doors shall be fit 6" above the surrounding weather deck. The lab doors leading to the aft working deck, the aft head door, the side doors, and the pilot house doors shall have reduced combings as allowed by the USCG to allow for easier wheelchair accessibility. The hinged entrance and dividing doors in the head shall be made from 20 mm Aluminum honeycomb panels covered with laminate and Ayres aluminum Extrusions. The tops of doors shall be at least 6'-2" above the finished deck surface unless otherwise specified. All exterior doors except those leading into the machinery spaces shall be fitted with drop windows including pilot house doors. All door hardware shall be good quality aluminum or stainless steel.

M.13 Seating

1 Two (2) Llebrock "Bandera Series 2" Helm Chair with pedestal mounts with slider and footrest will be installed in the pilot house. The helm chair will also include a left-hand cup holder, headrest and lumbar support pump. The second Llebrock "Bandera Series 2" shall be installed and located offset and aft of the helm seat. The pilothouse will have a built-in settee located on the Port Side and a desk and workstation located on the starboard side as illustrated in the GA drawing.

M.14 Galley

1 The galley will be made out of 10 mm and 20 mm Aluminum honeycomb panels covered with laminate. Frames will be made out of aluminum. Aluminum extrusions will be used for Trim. The assembly of the cabinets will be glued and fastened with Sika 292i structural adhesive compound.

M.15 Helm Station

1 The helm will be made out of 10 mm Aluminum honeycomb and 12 mm plywood panels covered with laminate. Frames will be made out of aluminum. Aluminum extrusions will be used for Trim. The assembly of the cabinets will be glued and fastened with Sika 292i structural adhesive compound.

2 The instrument panel will have a dull dark, matte colored finish and will house all the vessel controls, navigation and communication equipment. DC electrical distribution and switch panels shall be fitted on the instrument panel. All instrumentation shall be installed to reduce glare and provide maximum visibility to the captain. Final configuration requires Purchasers approval. Drawers and storage will fit as per the general arrangement drawings.

M.16 Heads

1 The vessel shall be fitted with two (2) complete head compartments both of which shall be equipped with a shower unit.

2 There shall be an additional head with just a toilet and sink accessible from the aft working deck.

3 The toilet compartments shall be finished with Ayres panels and trim. FRP panels will be applied to walls in direct contact with moisture.

4 Amidships Head Shower: Fiberglass, 32" x 32" w/ 20" entrance; Frosted Acrylic door. The door shall be positively latched.

5 Shower Fixture: Adjustable spray shower head with a single lever mixing valve and an attached soap tray.

M.17 Lettering and Striping

1 The vessel name in decal form cut from vinyl shall be installed on each of the bows 10" tall. The name, Purchaser's hull number, and port of registry in decal form cut from vinyl shall be installed on the stern.

2 A premium 2-mil cast vinyl strip with permanent adhesive shall be installed as the boot stripe. The Purchaser will approve the color.

3 Maximum draft and trim limits will be marked on the hull via 1" x 8" welded plates at points defined by the Naval Architect. The draft numbers will be vinyl.

4 Purchaser's Logo 18" diameter, design provided by Customer shall be installed on both Port and Starboard Hull. Additional graphics shall be done on a time and materials basis.

5 A moderate insignia for Builder and Designer shall be affixed to the exterior of the vessel in a prominent location on both sides of the vessel.

6 Small arrows on the side of the vessel below the rub rail will be welded to mark the location for lifting straps.

TASKS/DELIVERABLES

A. DESIGN

1 Builder shall be responsible to procure drawings and information. Builder will retain the copyright to the design and contents of all material and information supplied. No part shall be used in any way whatsoever, reproduced or modified in whole or in part without their written permission.

CONCEPT DESIGN PHASE

Builder shall provide General Agreement (GA) Drawings for a preferred 80' long catamaran style vessel with a fixed propeller including the following:

a. Main Deck

b. Upper Deck

c. Outboard Profile

d. Inboard Profile

2 Builder shall develop and provide a provisional Specification Book in conjunction with the Purchaser's representative and provide two (2) rounds of Purchaser's feedback for incorporation.

3 Builder shall provide rough estimated performance data, within approximately three (3) knots accuracy, on the fixed propeller propulsion system. This shall include the following:

a. Overall range of the vessel

b. Overall estimated speed of the vessel

4 The vessel shall be designed to operate as an Oceanographic Research Vessel and a Subchapter T Inspected Passenger Vessel on "Oceans" route (no more than 150 nm offshore) with up to 20 persons on board, as allowed by the USCG certification for this design (COI), as per CFR definition.

5 The vessel, as built, will comply with regulation 46 CFR part 69 Subpart E Simplified Measurement System for less than 100 gross tons.

1. Approval: Builder will submit plans to Cape Fear Community College

2. Cape Fear Community College may return approved and signed plans or submit changes to the Builder. Cape Fear will have the approved signatures of the Provost, VP of Economic & Workforce Development, and the College President

3. Builder will resubmit changes to Cape Fear Community College for approval. CFCC will then approve or reject.

B. DOCUMENTS

1 All manuals, warranties and technical documentation as supplied by the manufacturers of equipment shall be provided to the Purchaser upon delivery of the vessel.

2 As-Built drawings for the purpose of maintenance of the vessel will be supplied following delivery of the vessel. The set of drawings will be as follows:

2A General Arrangement

2B Schematic: Bilge and raw water system

2C Schematic: Fuel system

2D Electrical load chart

2E DC electrical diagrams

2F AC electrical diagrams

2G Docking plan

2H Survey equipment arrangement including A-frame dimensions.

C. CERTIFICATIONS

1 Following completion of successful sea-trials and completion of any outstanding work the vessel shall be delivered to the Purchaser, ready for operation.

2 Builder shall furnish to the Purchaser the following certificates and/or documents:

2AStability Letter

2B FCC Bridge-to-Bridge Radiotelephony Certificate

2C FCC Communications ACT Safety Radiotelephony Certificate

2D USCG Construction Oversight Letter

2E Liferaft (IBA) certificates

3 Following completion of successful sea-trials and completion of any outstanding work and after the USCG has issued the stability letter the vessel shall be operational and accepted by the Purchaser, ready for operation. Builder will construct the vessel having met all construction requirements for obtaining a USCG Certificate of Inspection. The USCG will typically issue a USCG Construction Oversight Letter. The vessel shall be subject to a final inspection, crew safety demonstrations and official acceptance and issuance of the Certificate of Inspection by the Purchaser's local OCMI.

D. TESTS AND SEA TRIALS

1 On completion of the vessel, and prior to launching, the vessel shall be weighed on calibrated load cells, and the measurements recorded. Thereafter, a series of wharf tests and sea-trials shall be carried out at the Builder's yard to confirm that all systems are in proper working order, and that the vessel and its equipment perform in accordance with the contract.

2 A representative of the Purchaser may witness all equipment commissioning. A detailed test procedure will be developed and approved by all parties at least two (2) weeks before tests are to be commenced.

3 The Builder shall conduct the sea trials and shall provide all the necessary personnel, fuel, lubricating oils, fresh water, testing equipment and all other items required for the operation of the vessel on trials. The Builder shall be responsible for collecting all data on the trials.

4 The Builder shall be responsible to arrange for the attendance of representatives of the equipment suppliers/manufacturers at each of the trials where necessary. Suppliers of main engines, drive shafts, painting, electronic equipment, etc., must sign their approval of the installation and proper working order of the respective systems.

5 All underwater surfaces shall be in a clean state prior to commencement of sea trials.

6 The sea trials will include, but not be restricted to, a series of measurements listed below, which will be done throughout the engine speed range at intervals not exceeding 100 rpm. The sea trials will be done in sea state 1, or otherwise at the discretion of the Designer.

6A Engine power output and average speed over ground (measured by GPS in opposite directions).

6B Fuel consumption. The engine manufacturer's ECM supplied data will be used for calculating consumed fuel.

6C Dynamic trim angle

5.2 CERTIFICATION AND SAFETY LABELS

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate state inspector which customarily requires the label or re-examination listing or identification marking of the appropriate safety standard organization; such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and /or National Electrical Manufacturers' Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and state and federal requirements relating to clean air and water pollution.

5.3 PROJECT ORGANIZATION

Vendor shall describe the organizational and operational structure it proposes to utilize for the work described in this RFQ and identify the responsibilities to be assigned to each person Vendor proposes to staff the work.

5.4 TECHNICAL APPROACH

Vendor's proposal shall include, in narrative, outline, and/or graph form the Vendor's approach to accomplishing the tasks outlined in the Scope of Work section of this RFP. A description of each task and deliverable and the schedule for accomplishing each shall be included.

5.5 DEVIATIONS

The nature of all deviations from the Specifications listed herein shall be clearly described by the Vendor. Otherwise, it will be considered that items offered by the Vendor are in strict compliance with the Specifications provided herein, and the successful Vendor shall be required to supply conforming goods. Deviations shall be explained in detail on an attached sheet. However, no implication is made or intended by the State that any deviation will be acceptable. Do not list objections to the North Carolina General Terms and Conditions in this section.

6.0 CONTRACT ADMINISTRATION

All Contract Administration requirements are conditioned on an award resulting from this solicitation. This information is provided for the Vendor's planning purposes

6.1 CONTRACT MANAGER AND CUSTOMER SERVICE

The Vendor shall be required to designate and make available to the State a contract manager. The contract manager shall be the State's point of contact for Contract related issues and issues concerning performance, progress review, scheduling, and service.

Contract Manager Point of Contact	
Name:	
Office Phone #:	

Mobile Phone #:	
Email:	

The Vendor shall be required to designate and make available to the State for customer service. The customer service point of contact shall be the State's point of contact for customer service-related issues.

Customer Service Point of Contact	
Name:	
Office Phone #:	
Mobile Phone #:	
Email:	

6.2 POST AWARD PROJECT REVIEW MEETINGS

The Vendor, at the request of the State, shall be required to meet periodically with the State for Project Review meetings. The purpose of these meetings will be to review project progress reports, discuss Vendor and State performance, address outstanding issues, review problem resolution, provide direction, evaluate continuous improvement and cost saving ideas, and discuss any other pertinent topics.

6.3 CONTINUOUS IMPROVEMENT

The State encourages the Vendor to identify opportunities to reduce the total cost to the State. A continuous improvement effort consisting of various ideas to enhance business efficiencies as performance progresses.

6.4 PERIODIC STATUS REPORTS

At the request of the state, the Vendor shall be required to provide Project Management Reports to the Vice President of Economic Workforce and Development- John Downing (jdowning@cfcc.edusdixon@cfcc.edu) and the North Campus Provost- Shawn Dixon (). This report shall include, at a minimum, information concerning the work accomplished during the reporting period; work to be accomplished during the subsequent reporting period; problems, real or anticipated, and notification of any significant deviation from previously agreed upon work plans and schedules. These reports shall be well organized and easy to read. The Vendor shall submit these reports electronically using the format required by the Purchasing Agency. The Vendor shall submit the reports in a timely manner and on a regular schedule as agreed by the parties.

6.5 ACCEPTANCE OF WORK

Performance of the work and delivery of Goods shall be conducted and completed at least in accordance with the Contract requirements and recognized and customarily accepted industry practices. Performance shall be considered complete when the Services or Goods are approved as acceptable by the Contract Administrator.

The State shall have the obligation to notify Vendor, in writing ten (10) calendar days following completion of such work or delivery of a deliverable described in the Contract that it is not acceptable. The notice shall specify in reasonable detail the reason(s) it is unacceptable. Acceptance by the State shall not be unreasonably withheld; but may be conditioned or delayed as required for reasonable review, evaluation, installation, or testing, as applicable to the work or deliverable. Final acceptance is expressly conditioned upon completion of all applicable assessment procedures. Should the work or deliverables fail to meet any specifications, acceptance criteria or otherwise fail to conform to the Contract, the State may exercise any and all rights

hereunder, including, for Goods deliverables, such rights provided by the Uniform Commercial Code, as adopted in North Carolina.

6.6 INVOICES

Vendor shall invoice the Purchasing Agency. The standard format for invoicing shall be Single Invoices meaning that the Vendor shall provide the Purchasing Agency with an invoice for each order. Invoices shall include detailed line item information to allow Purchasing Agency to verify pricing at point of receipt matches the correct price from the original date of order. At a minimum, the following fields shall be included on all invoices:

Vendor's Billing Address, Customer Account Number, NC Contract Number, Order Date, Buyer's Order Number, Manufacturer Part Numbers, Vendor Part Numbers, Item Descriptions, Price, Quantity, and Unit of Measure.

INVOICES MAY NOT BE PAID UNTIL AN INSPECTION HAS OCCURRED AND THE GOODS ACCEPTED.

6.7 DISPUTE RESOLUTION

During the performance of the Contract, the Parties agree that it is in their mutual interest to resolve disputes informally. Any claims by the Vendor shall be submitted in writing to the State's Contract Manager for resolution. Any claims by the State shall be submitted in writing to the Vendor's Project Manager for resolution. The Parties shall agree to negotiate in good faith and use all reasonable efforts to resolve such dispute(s).

During the time the Parties are attempting to resolve any dispute, each shall proceed diligently to perform their respective duties and responsibilities under this Contract. The Parties will agree on a reasonable amount of time to resolve a dispute. If a dispute cannot be resolved between the Parties within the agreed upon period, either Party may elect to exercise any other remedies available under the Contract, or at law. This provision, when agreed in the Contract, shall not constitute an agreement by either party to mediate or arbitrate any dispute.

6.8 PRODUCT RECALL

Vendor expressly assumes full responsibility for prompt notification to the Buyer listed on the face of this RFQ of any product recall in accordance with the applicable state or federal regulations. The Vendor shall support the State, as necessary, to promptly replace any such products, at no cost to the State.

6.9 CONTRACT CHANGES

Contract changes, if any, over the life of the Contract shall be implemented by contract amendments agreed to in writing by the State and Vendor. Amendments to the contract can only be made through the contract administrator.

The remainder of this page is intentionally left blank

7.0 ATTACHMENTS

IMPORTANT NOTICE

RETURN THE REQUIRED ATTACHMENTS WITH YOUR RESPONSE

FOLLOW THE LINKS TO ACCESS EACH ATTACHMENT

ATTACHMENT A: PRICING

Complete and return the Pricing associated with this RFQ, which can be found in the table below:

ITEM	*EXTENDED COST*
DESIGN OF ALUMINUM CATAMARAN RESEARCH VESSEL	*$*
CONSTRUCTION OF ALUMINUM CATAMARAN RESEARCH VESSEL	*$*
DELIVERY OF ALUMINUM CATAMARAN RESEARCH VESSEL	*$*
WARRANTIES/MAINTENANCE OPTION	*$*
ADDITONAL/MISCELLANEOUS FEES (List out on a separate sheet)	*$*
TAXES	*$*
TOTAL EXTENDED COST	*$*

PERCENTAGE OF TOTAL COST OF PROJECT TO BE INVOICED PER MILESTONE	**COST TO CFCC**
10% UPON DESIGN APPROVAL	$
10% UPON RECEIPT OF RAW MATERIALS	$
15% UPON RECEIPT OF THE LONG LEAD RUNNING GEAR AND ENGINES	$
10% UPON COMPLETION OF HULL AND WELDOUT	$
10% UPON COMPLETION OF UPPER DECKS	$
15% UPON OUTFITTING AND INTERIOR FINISHES	$
10% AFTER INITIAL INSPECTION/CERTIFICATION	$
10% UPON DELIVERY	$
10% UPON FINAL INSPECTION	$
TOTAL PROJECT COST	$

ATTACHMENT B: INSTRUCTIONS TO VENDORS

The Instructions to Vendors, which are incorporated herein by this reference, may be found here:

https://ncadmin.nc.gov/formnorth-carolina-instructions-vendors032023/download?attachment

ATTACHMENT C: NORTH CAROLINA GENERAL TERMS & CONDITIONS

The North Carolina General Terms and Conditions, which are incorporated herein by this reference, may be found here:

https://www.doa.nc.gov/form-north-carolina-general-terms-and-conditions-11-2023/open

ATTACHMENT D: HUB SUPPLEMENTAL VENDOR INFORMATION

Complete and return the Historically Underutilized Businesses (HUB) Vendor Information form, which can be found at the following link:

https://www.doa.nc.gov/pandc/onlineforms/form-hub-supplemental-vendor-information-9-2021/download

ATTACHMENT E: CUSTOMER REFERENCE FORM

Complete and return the Customer Reference Form, which can be found at the following link:

https://ncadmin.nc.gov/media/15503/open

ATTACHMENT F: LOCATION OF WORKERS UTILIZED BY VENDOR

Complete and return the Location of Workers Utilized by Vendor, which can be found at the following link:

https://www.doa.nc.gov/pandc/onlineforms/form-location-workers-09-2021/download

ATTACHMENT G: CERTIFICATION OF FINANCIAL CONDITION

Complete, sign, and return the Certification of Financial Condition, which can be found at the following link:

https://www.doa.nc.gov/pandc/onlineforms/form-certification-financial-condition-09-2021/download

***** Failure to Return the Required Attachments May Eliminate Your Response from Further Consideration *****