



TAMIL NADU Dr.J.JAYALALITHAA FISHERIES UNIVERSITY
NAGAPATTINAM – 611 002

TENDER DOCUMENT

INVITATION FOR PRICE TENDER

Single Cover System

Name of Work : Providing the Artificial reefs all along the inshore waters of Pazhaverkkadu in Tiruvallur District.

EMD Amount : Rs.1,73,000/-

Date of Tender : 18.05.2022

Issued To : Thiru. M/s

Estate Officer i/c,
Tamilnadu Dr.J.Jayalalithaa
Fisheries University,
Nagapattinam.

SCHEDULE "A"**SCHEDULE OF RATES AND APPROXIMATE QUANTITIES**

(a) The quantities given here are those upon which the lumpsum tender cost of the work is based but they are subject to alternations omissions, deductions or addition as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates noted below are those Governing payment for extras or deductions or omissions according to the condition of the contract, as set forth in the General conditions to contract of the TAMILNADU BUILDING PRACTICE and other conditions or specifications of the contract.

(b) It is to be expressly understood that the measured work is to be taken (not withstanding any custom or practice to be contrary) according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by Engineer In charge and the cost calculated by measurement or weight at the respective prices, without any additional changes for any necessary and contingent works connected therewith. The rates quoted are for works in site and complete in every respect.

Item no.	Probable quantity	Description of work	RATE (in words & figures)	UNIT (in words & figures)	Amount in figures.

Vide separate sheet enclosed

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

SCHEDULE "B"
LIST OF DRAWINGS

Note : All drawings to be signed by the Contractor
as well as the officer entering in to contract

Sl. No.	Drawing No.	Description	Title	Sub Title	Revision	Date on which the drawing was supplied

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

TAMIL NADU Dr.J.JAYALALITHAA FISHERIES UNIVERSITY
Nagapattinam

- Name of work : **Providing the Artificial reefs all along the inshore waters of Pazhaverkkadu in Tiruvallur District.**
- Last date of receipt of tender : **18.05.2022 up to 3.00pm**
- E.M.D. to be remitted : **RS.1,73,000/-**
- Mode of E.M.D. to be remitted : E.M.D. will be accepted in the shape of Demand Draft of the nationalized Banks in the name of The Finance Officer, Tamilnadu Dr.J.Jayalalithaa Fisheries University, Nagapattinam-1 and National Savings scripts / Deposits / Accounts / I.V.P. Postal Department and pledged in the name of the Finance Officer, Tamilnadu Dr.J.Jayalalithaa Fisheries University, Nagapattinam - 2.

Tender not submitted in sealed cover will be summarily rejected.

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

Annexure

PARTICULARS TO BE FURNISHED BY THE TENDERER

1. Name of the Tenderer and address
2. Name of work
3. Date of tender
4. Details about EMD enclosed for this tender and its validity
5. Registered class of the Tenderer with monetary limit and Department / Organization in which registered
6. Recent works executed (details about name and place of work, value of work etc. should be furnished)
7. Works under execution (details about name and place of work value of work etc. should be furnished)
8. Command of labour in brief
9. Turnover of previous year (particulars for period of five consecutive years to be furnished).
10. Whether income tax clearance certificate is enclosed if not when it will be produced.
11. (i). GST registration No.
(ii). Whether GST verification certificate is enclosed. If not, when it will be produced.
12. In case of registered co-operative societies, they should furnish name of the nominee with their credential details at the time of tender itself. They should also certify that the nominee of the society is not a registered contractor in the Department.
13. Technical Assistant details
 - (i). Name
Qualification certificate
Experience certificate
 - (ii). Name
Qualification certificate
Experience certificate
Or
Name
If retired civil Engineer Designation
And date of retirement (copy may be enclosed)
14. List of various machineries and other equipment's at the disposal of the tenderer for use in the execution of the work.
15. Any other details.

Note: The consent letter from the Technical Assistant proposed to be employed should be furnished and enclosed with the tender

SPECIAL INSTRUCTIONS TO THE TENDERERS

1. The tenderer should carefully go through the schedules and quote their rates for all items.
2. The rates should be filled in neatly in figures and words and taking into account the metric unit specified in the tender, scrubbing, over writing and erasing should be attested by the tenderer.
3. The amount for each item of work should be worked out and furnished. Proper care must be taken in working out the amount of each item of work taking into account the unit for which the rate is quoted and the quantity of work to be done under the item.
4. The total of each page should be noted at the end of each page and carried over to every page and the grand total value of work should be worked out and shown at the end both in words and figures.

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**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

TENDER NOTICE

On behalf of the Tamil Nadu Dr.J.Jayalalithaa Fisheries University, sealed tenders will be received by the **Estate Officer**, TNJFU, Nagapattinam at his office up to **3.00 P.M.** on **18.05.2022** for the work of **"Providing the Artificial reefs all along the inshore waters of Pazhaverkkadu in Tiruvallur District"**.

- 1.1. The tender should be in the prescribed form obtainable from the office of the **Estate Officer**, Tamilnadu Dr.J.Jayalalithaa Fisheries University, Nagapattinam-1. The tenders will be opened by the **Estate Officer**, Tamilnadu Dr.J.Jayalalithaa Fisheries University, Nagapattinam-2 at 4.00 PM at the place and on the date before mentioned.
- 1.2. The tenderers or their agents are expected to be present at the time of opening of tenders. The tender receiving officer will on opening each tender, prepare a statement of the attested and unattested corrections there in and hand it over to the tenderer concerned and initial all corrections in the presence of the tenderer. If any of the tenderers or their agents finds it inconvenient to be present at the time, then in such a case, the tender receiving officer will, on opening the tender of the absentee tenderer, make out a statement of the unattested corrections and communicate it to him. The absentee tenderer shall then accept the statement of the corrections without any questions whatsoever.
2. Tenders may be submitted in sealed covers and should be addressed to the **Estate Officer**, Tamilnadu Dr.J.Jayalalithaa Fisheries University, Nagapattinam-2. The name of the tenderer with their address and the name of the work being noted in the cover.
 - 2.1. If the tender is made by an individual, it shall be signed with his full name and his address shall be given. If it is made by a firm, it shall be signed with the co-partnership name by a member of the firm who shall also sign his own name, and the name and address of each member of the firm shall be given. If the tender is made by a corporation, it shall be signed by a duly authorized officer who shall produce with his tender, satisfactory evidence of his authorization. Such tendering corporation may be required to furnish evidence of the corporate existence.
3. Each tenderer must also send a current certificate of income tax clearance from the appropriate income tax authority in the form prescribed therefore. The certificate will be valid for one year from the date of issue for all tenders submitted during the period.
 - 3.1. In the case of proprietary or partnership firm, it will be necessary to produce the certificate afore mentioned for the proprietors and for each of the partner as the case may be.
 - 3.2. The current certificate for Registration of contractor in TN State PWD, other Government Departments and Public Sector Undertakings is to be produced.
 - 3.3. All tenders received without a certificate as afore mentioned will be summarily rejected.
4. Each tender must pay earnest money deposit a sum of **RS.1,73,000/- (Rupees one lakh seventy three thousand only)**. Tenders submitted without EMD will be summarily rejected. The Earnest money will be refunded to the unsuccessful tenderer on application after intimation is sent on rejection of the tender or at the expiration of ninety days from

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

the date of tender whichever is earlier. However, the earnest money for the first three lowest tenderers will be retained till the final decision is taken on tender. The earnest money will be retained in the case of successful tender and will not carry any interest. It will be dealt with as provided in the tender.

5. (i). The tender will remain valid for a period of ninety days from the last date of receipt of tender. The validity period can be extended further if the contractor gives his consent in writing, specifying the period of extension.

(ii). The tenderer whose tender is under consideration shall attend the **Estate Officer's** office before the end of the period specified on written intimation to him. If the tenderer fails to attend the office before the end of the specified period his tender will not be considered. He shall forthwith upon intimation being given to him of acceptance of his tender by the officer, duly authorized in this behalf, herein after called the accepting authority, furnish security deposit of 2% of the value of contract, in one lump sum, in one of the form prescribed by TNJFU (i.e.) by taking into account of the amount of Earnest Money Deposit already deposited with the tender. It would be sufficient to pay the balance amount to make it the 2% of the value of contract for the purpose of security deposit. The security deposit together with earnest money deposit and the deductions made at 5% of the value of each bill towards withheld amount vide clause 64 (i) of General conditions to contract will be retained as security for the fulfilment of contract, such deposit shall not bear any interest.

(iii). On receipt of written communication of acceptance of tender, if the tenderer fails to pay the requisite security deposit within the period specified in the written communication or backs out from the tender, or withdraws his tender, the EMD shall be forfeited and credited to the University.

(iv). If the contractor fails to carry out the contract after paying the requisite deposits, then he will be liable for the excess expenditure if any, incurred to complete the work, as contemplated in the General conditions of contract.

(v). It shall be expressly understood by the tenderer, that on receipt of written communication of acceptance of tender from the accepting authority, there emerges a valid contract between TNJFU and the tenderer for execution of the work. For this purpose the tender documents (i.e.) tender notice, tender offered by contractor, General conditions to the contract, special condition to the contract, negotiation correspondence written communication of acceptance of tender etc. shall constitute a valid contract and that will be the foundation of the rights of both the parties to the contract, provided that it shall be open to the accepting authority to insist execution of any written agreement by the tenderer, if administratively considered necessary or expedient.

6. The tenderer shall examine closely the Tamil Nadu Building Practice and also General conditions to the contract contained therein and sign the divisional office copy of the Tamil Nadu Building Practice and its addenda volume in token of such study before submitting his tender, unit rates which shall be for finished work in situ. He shall also carefully study the drawings and additional specification and all the documents connected with the contract. The Tamilnadu buildings practice and other documents connected with the contract such as specifications, plans descriptive specification sheet regarding materials, etc. can be seen at any time during office hours from 10.00 A.M. to 5.00 P.M. at the office of the **Estate Officer**, Tamilnadu Dr.J.Jayalalithaa Fisheries University, Nagapattinam-2.
7. The tenderer's attention is directed to the requirements for materials under the materials and workmanship in the General conditions to the contract. Materials conforming to the Indian standard specification shall be used on the work and he shall quote his rates accordingly.

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

8. Every tenderer is expected before quoting his rates to inspect the sites of the proposed work. He should also inspect the quarries and satisfy himself about the quality and availability materials. The best class of materials to be obtained from the quarries or other sources be used on the work. In every case, the materials must comply with the relevant standard specification. Samples of materials as called for in the standard specification or in this tender notice or as required by the **Estate Officer** in any case shall be submitted **Estate Officer's** approval before the supply to the site of work is begun.
- 8.1. The University will not pay any extra charges for lead or for any other reasons in case, the contractor is found later on to have misjudged materials available after acceptance of contract, rate, Attention of the contractor is directed to the general conditions to the contract regarding payment of Seigniorage, tolls etc.
9. The tenderer's particular attention is drawn to the section and clauses in the General conditions to the contract dealing with.

- 9.1. Test inspection and rejection of defective materials and work.
- 9.2. Carriage
- 9.3. Construction plant
- 9.4. Water and lighting
- 9.5. Cleaning up during progress and for delivery
- 9.6. Accidents
- 9.7. Delays
- 9.8. Particulars of payment

The contractor should closely peruse all the specification clauses for items of works for which he is tendering his rates.

- 10(i). A schedule of quantities accompanies this tender notice. It shall be definitely understood that, the TNJFU does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable to alternation by omissions, deductions or additions at the discretion of the **Estate Officer**, Tamilnadu Fisheries University, Nagapattinam-1 or as set forth in the conditions of contract. The tenderer will however base his lumpsum tender on this schedule of quantities. He should quote specific rates for each item in the schedule and the rates should be in rupees and in sum of five paisa. The rate should be written both in words and figures and the units in words.
- 10(ii). The tenderer should also show the total of each item and the grant total of the whole contract and quote in the tender a lumpsum for which he will undertake to do the whole work subject to the condition of contract such lumpsum agreeing with the total amount of schedule (a). This schedule accompanying the lumpsum tender shall be written legibly and free from erasures / over writing, Correction where unavoidable should be made by crossing out, initialling dating and rewriting.
10. (iii) The tenderer offering a percentage deduction from or increase on the estimate amount (except in the case of tender called for specifically under the percentage rate tender system) and those not submitted in prescribed form or in due time will be rejected. Rates or lumpsum amounts for item not called for shall not be included in the tender. No alteration which is made by the tenderer in the contract form, the conditions or contract, the drawings, specifications or quantities accompanying the same will be recognized and, if any such alternations are made the tender will be void.
11. The tenderer should work out his own rates without reference being made to PWD current schedule rates or estimates.
12. The attention of the tenderer is directed to the contract requirements at the time of beginning work, the rates of progress and the dates for the completion of the whole work

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

and its several parts. The following rate of progress and proportionate value of work done from time to time as will be indicated by the **Estate Officer** and certificates of the work done will be required. Date of commencement of this programme will be the date on which the site (or) premises is handed over to the contractor.

Period after date of commencement (1)	Percentage of work to be completed based on contract lumpsum amount (2)
First three Months	30%
Second three Months	35%
Third three Months	35%

TOTAL NINE MONTHS	100%

In case of not achieving the rates of progress, as given above, TNJFU reserves the right to impose a penalty at pro rata basis. Also, penalty will be levied for not correcting defects in works completed, if any, pointed out by the Engineer-In charge with in stipulated period.

13. No part of the contract shall be sub-let without written permission of the **Estate Officer**, nor shall transfer be made by power of attorney, authorizing others to receive payment on the contractor's behalf.
14. If further necessary information is required, the **Estate Officer** will furnish such information but it must be clearly understood, that tenders must be received in order and according to instructions.
15. The **Estate Officer** or other sanctioning authority reserves the right to reject any tender or all the tenders.
16. The tenderer should have or employ Technical Assistants as required for this work.
 - a. A penalty of Rs.2000/- per month for diploma holders and Rs.5000/- per month for degree holder be levied in case of default on the part of contractors in following the norms laid down above.
 - b. It will not be incumbent on the part of the contractor to employ Technical Assistants when the work is kept in abeyance due to valid reasons and if during such period in the opinion of the **Estate Officer**, the employment of technical assistant is not required for the due fulfilment of the contract.
 - c. A movement register should be opened and maintained for Technical Assistants by the contractor. The Technical Assistants should note the arrival and departure timings every day along with their initials. Such register should be produced during inspection of the inspecting officers.
17. A tenderer submitting a tender which the tender accepting authority considers excessive and or indicative in sufficient knowledge of current prices or definite attempt at profiteering will render himself liable to be debarred permanently from tendering or for such period as the tender accepting authority may decide. The tender rates should be based on the controlled price for materials, if any fixed by Government or the reasonable price permissible for the tenderer to charge a private purchaser under the provisions of clause 8 of the Hoarding & profiteering Prevention ordinance 1943, as amended from time to time on similar principles in regard to labour and supervision in the construction.

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

19. The contractor should offer employment to ex-toddy tappers as far as possible. The number of ex-toddy tappers to whom he can so offer employment should be mentioned in the tender and he should undertake in the contract to offer such employment to such number.
20. The contractor shall comply with the provisions of the Apprentices, Act 1961 and the rules and orders issued there under from time to time. If he fails to do so, his failure will be breach of contract and the competent authority, may at his discretion, cancel the contract, or invoke any of the penalties for the breach of contract provided in the conditions of the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provision of the Act.
21. All rates quoted in the tender shall be inclusive of sales tax payable under the General sales tax act as amended from time to time (including amendment, Act 28/84) and that the contractor is responsible to file the sales tax return and pay the amount as amended by the C.T. Department. No request for payment of sales tax separately in addition to tendered rates due to any plea of subsequent levy increase in tax will be entertained vide clause 38 (2) of General contains to contract.
22. The contractor should possess valid EB/EA License issued by Tamilnadu State Electrical Licensing Board, Guindy, Chennai-32

TENDER**To****The Estate Officer i/c,****TNJFU, Nagapattinam - 2.**

Sir,

I/We do hereby tender and if this tender be accepted, undertake to execute the following work viz.....

as shown in the drawings and described in the specification deposited in the office of the **Estate Officer**, Tamilnadu Fisheries University, Nagapattinam-1 with such variations by way of alternations or additions to and omission from the said works and method of payment as are provided for in the "Conditions of contract" for the sum of Rupees or such sums as may be arrived at under the clause of the "General conditions to the contract" relating to payment on lumpsum basis or by final measurements at unit prices.

2 (i). I/We have also completed the price list of items in Schedule "A" annexed (in words and figures) for which I/We agree to execute the works and receive payment on measured quantities as per the General conditions to the contract.

3. I/We do hereby distinctly and expressly declare and acknowledge that before the submission of my / our tender. I / We have carefully followed the instructions in the tender notice and have read the Tamilnadu Building Practice and the General conditions to the contract therein and the Tamilnadu Building practice addenda volume and I/We have made such examinations of the contract documents and of the plans, specifications, quantities and of the location where the said work is to be done and such investigation the work required to be done and in regard to the materials required to be furnished to enable me / us to thoroughly understand the intention of the same and the requirement covenants stipulations and restrictions contained in the contract and in the said plans and specifications and distinctly agree that I/ We will not hereafter make any claim or demand upon TNFU based upon or arising misunderstandings or misconception of mistake or my / our part of the said requirements and covenants, stipulations restrictions and conditions.

4. I/We enclose an income tax verification certificate. I / We being registered Public Works Department contractor. The legal address of the contractor for service of all letters and notices will be as follows

5 (i). (a) I / We enclose herewith for the payment of the sum of Rs..... as Earnest money not to bear interest.

5 (i). (b) I am / We are and hence exempted from payment of E.M.D.

5 (i) (c) If my / our tender is not accepted this sum shall be returned to me / us on my / our application, when intimation sent to me / us of rejection or at the expiration of ninety days from date of this tender whichever is earlier. If my / our tender is accepted, the EMD shall be retained by TNFU as security for the due fulfilment of the contract. If upon written intimation being given to me / us by the authority authorized by TNFU. (Here in after called "the accepting authority") of acceptance of tender. I / we fail to make the additional security deposit then I/We agree to the forfeiture of the EMD.

Contractor**The Estate Officer i/c,
TNJFU, Nagapattinam.**

Any notice required to be served on me / us if delivered to me / us personally or forwarded to me / us by post (registered or ordinary) or left at my / our address given herein. Such notice shall if sent by post be deemed to have been served on me / us at the time when in due course of post, it would be delivered at the address to which it is sent.

7. I / We fully understand that on receipt of communication of acceptance of tender from the accepting authority there emerges a valid contract, between me / us and TNFU and Tender documents (i.e.) tender notice tender with schedule, general condition to the contractor, and special condition of the tender, negotiation letter communication of acceptance of tender shall constitute the contract for this purpose and be the foundation of rights of both the parties as defined in, clause V of tender notice, provided that it shall be open to the accepting authority to insist on execution any written agreement by the tenderer. If administratively considered necessary or expedient.

8. I / We have also signed the copy of Tamilnadu Building Practice and addenda volume there to maintained in the office of the **Estate Officer**, Tamilnadu Fisheries University, Nagapattinam-1 in acknowledgement of being bound by all conditions of the clauses of the General conditions to be contract and all specifications for items of works described by the specification number in Schedule (A).

9. In consideration of the payment of Rs..... or such other sum as may be arrived at under the clause of the General conditions to the contract relating to the payment on lumpsum basis or by final measurements at unit prices, I/We agree subject to the said condition to execute and complete the works shown upon the said drawing serially number from 1 to inclusive of (schedule B) and described in the specifications (Schedule C) and to the extent of probable quantities shown in (Schedule A) with such variation by way of additions to or deductions from / alternations, the said works and method of payment therefore as are provided for in the said conditions.

10. The term **Estate Officer** in the said condition shall mean the officer in charge of the Division having jurisdiction for the time being over the work, who shall be competent to exercise all the powers and privileges reserved, herein, in favour of TNFU with the previous sanction of or subject to ratification by the competent authorities in case, where such sanction or ratification may be necessary.

11. I / We agree that the time shall be considered as the "Essence of this contract" and to commence the work as soon as this contract is accepted by the competent authority as defined by the Tamilnadu PWD code and the site or premises is handed over to me / us as provided for in the said condition and agree to complete the work **within 9 Month** from the date of such handing over of the site or premises and to show progress as defined in the tabular statement. "Rate of progress" subject nevertheless to the provision for extension of time contained in clause 56 of the General conditions to the contract appended to the Tamilnadu Building Practice.

12. I / We agree that upon the terms and conditions of this contract being fulfilled and preformed to the satisfaction of the **Estate Officer**, the security deposited by me / us herein before executed of such portion thereof as I / We may be entitled to under the said conditions be paid back to me // us as provided in clause 64 of General conditions to the contract.

13. I / We in pursuance of clause of tender notice undertake to employ the following technical staffs for supervising the works and will see that one of them is always at site during working hours personally checking all items of works and paying extra attention to such works as may required special attention (e.g.) reinforced cement concrete works.

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

Name of technical staffs proposed to employed	Qualification and Experience

14. I / We agree that the arbitrator for fulfilling the duties set forth in the arbitration clause of the General conditions to contract shall be the person appointed by The Vice- Chancellor, TNFU in his sole discretion.

Signature of the contractor

With full address with

Name in block letters and seal

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

**GST REGISTRATION &
DEDUCTION OF TDS FROM BILLS**

The tenderers could be required to indicate their registration number under the Tamilnadu General GST Act 2018 in the tender form and produce TDS clearance certificate issued by the Commercial Tax department before final settlement of bills.

According to the notification issued by the Commissioner of GSTR Chennai with regard to "Deduction of GSTR at source in respect of works contract in the TAMILNADU GOVERNMENT GAZETTE CHENNAI, dated 17.10.2018, a new provision under 7F for deduction of tax at sources is introduced in the Tamilnadu GSTR Act 1959 by Tamilnadu Act 15 of 2018 with effect from 17.10.18.

Insurance for Men and Material:

Contractor has his own risk for the men and material used at site. He should made his own arrangement to insure for all risks till the handing over of the building.

Contractor

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

Part – B
Price Bid
Envelope – B
Date.....

Invitation for Bid No.02/E.O./Tender/2022-2023/Dated: 20.04.2022.

To:
 The Estate Officer i/c,
 Tamilnadu Dr.J.Jayalalithaa
 Fisheries University,
 Nagapattinam District

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents.
- (b) We offer to execute in conformity with the Bidding Documents for the work of
- (c) The total price of our Bid, excluding any discounts offered in item(d)below is

“Providing the Artificial reefs all along the inshore waters of Pazhaverkkadu in Tiruvallur District”.

In figures:-Rs...../-

(i) (ii)In Words:-

Rupees

- (d) The discounts offered are

(i) In figures:-

Rs...../-(ii)In

Words:-Rupees

- (e) **The net price of our bid, after discount offered in (d) above is**

- (f)

(i) In figures:-Rs...../-

(ii)In Words:-Rupees.....only

- (g) Our Bid shall be valid for a period of **90days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (h) If our Bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents with the stipulated time.

Contractor

**The Estate Officer i/c.,
 TNJFU, Nagapattinam.**

SCHEDULE OF RATES AND APPROXIMATE QUANTITIES

- (a) The quantities given here are those upon which the lump sum tender cost of the work is based, but they are subject to alternations, omissions, deductions or addition as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates quoted below are those governing payment for extras or deductions or omissions according to the condition of the contract.
- (b) It is to be expressly understood that the measured work is to be taken net (Not withstanding any custom or practice to the contrary) according to the actual quantities. When in places and finished according to the drawings, or as may be ordered from time to time by the **Estate Officer** and the cost calculated by measurement or weight at the respective prices, without any additional charge for any necessary or contingent works concerned therewith. The rates quoted are for the finished works in situ and complete in every respect.
- (c) The descriptions given in Schedule are to indicate the item of work only and need not be constructed as full specification. The quoted rate shall be for carrying out the item as per standards and specifications described in the relevant MOST specification. The contractor shall take no advantage of any apparent error or omission in the Schedule description.
- (d) The Tenders should quote their rates for the quantity and units specified under metric units under Schedule.
- (e) The contractor should sign all the pages of schedule enclosed in the tender document without any omission. Otherwise, the tender will be liable for rejection as per the rules.

SCHEDULE

Name of the Work: Providing the Artificial reefs all along the inshore waters of Pazhaverkkadu in Tiruvallur District.

a) The quantities given here are those upon which the lump sum tender cost of the work is based but they are subjected to alterations, omissions, deduction, addition as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates noted below are those governing payment for extra or deduction or omission according to the conditions of the contract as set forth in the preliminary specification of the Tamilnadu Detailed Standard Specifications, other Conditions or specifications of this contract.

b) It is to be expressly understood that the measured work is to be taken out (notwithstanding any custom or practice to the contrary) according to the actual quantities when in place and finished according to the drawing or as may be ordered from time to time by the **Estate Officer** and cost calculated by measurement or weight at the respective prices, without any additional charge for the necessary or contingent works connected therewith. The rates quoted are for works in site and complete in every respect.

Sl. No.	QTY	DESCRIPTION OF WORK	UNIT	RATE	RATE IN WORDS	AMOUNT
1		Providing and placing insitu design mix reinforcement cement concrete of M30 (M. Thirty only) by weight basis using ordinary port land cement (OPC) 43 grade confirming to IS 8112 and as per table 5 of BIS-456-2000 with minimum cement concrete of 440 Kg/M3 (Three hundred and Eighty kilogram) and graded course aggregate using 20mm and 12mm gauge HBG stone jelly in the ratio of 70:30 (Seventy part of 20mm and thirty part of 12mm stone jelly) with maximum water cement ratio of 0.45 and using Superplasticizer 250 ml per 50Kg of cement but the rate excluding cost of steel reinforcement and form work etc. complete complying with standard specification. The rate is inclusive of cost and conveyance of all ingredient materials labour charges for weighing batching mixing laying tamping,				

Contractor

**Overwriting:
Correction:**

**The Estate Officer i/c.,
TNJFU, Nagapattinam.**

		vibrating finishing, curing and conducting sample standard cube test to ascertain compressive strength of concrete and including hire charges.				
	75.00	Threegono Module	Cum			
	81.00	Tetragono Module	Cum			
	82.00	Dome Module	Cum			
2		Supply, fabrication and placing of reinforcement steel of high yield strength ribbed bars of various diameters and grade conforming to IS 1786 for reinforced concrete work. The work includes de-coiling, straightening, cutting, bending, fabricating, and placing in position, at all levels including lead and lift, according to drawings, specifications etc. complete and supply & use of 18G black annealed binding wire double fold to tie the bars in position and providing precast cement/PVC cover blocks for main reinforcement to ensure specified cover and complete., including all labour charges etc as directed by departmental officers.				
	13.50	Threegono Module	MT			
	20.35	Tetragono Module	MT			

Contractor

Overwriting:
Correction:The Estate Officer i/c.,
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	13.55	Dome Module	MT			
3		Supplying and Manufacturing M.S. Sheet Moulds to suit the casting of M.30 Concrete R.C.C Fishing modules of threegona, Tetragono, and dome Module types as per the given diagrams using mild steel sheets of suitable size of 10B.G, stiffened with welded M.S angles of suitable size at required intervals, Complete complying with standard specification and as directed by the NIOT officers. the rate is inclusive of all materials, labour charges for fabrication, decoiling sheet and straightening the M.S sheets, cutting sheets and M.S angle to required size and pattern to suit base area, inner and outer sides, bending and welding the sheet with M.S angles at required places, and cost of bolt and nuts to fix the moulds and conveyance charges and other incidental charges. The finished moulds should be got approved by the Department and NIOT officers.				
	10.00	Threegono Module	use			
	10.00	Tetragono Module	Use			
	20.00	Dome Module	Use			

Contractor**Overwriting:
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4		Stucco plastering 12mm thick using blue granite chips of size 10mm and below over the existing base plastering with cement mortar 1:5, (one part of cement and five part of P.sand)12mm thick, etc., complete complying with standard specifications (SI 314)				
	455.00	Threegono Module	Sqm			
	570.00	Tetragono Module	Sqm			
	490.00	Dome Module	Sqm			
5		Stucco plastering with shells 12mm thick using blue granite chips of size 10mm,SHELLS and below over the existing base plastering with cement mortar 1:5(one part of cement and five part of P.sand), 12mm thick, etc., complete complying with standard specifications (SI 314)				
	455.00	Threegono Module	Sqm			
	595.00	Tetragono Module	Sqm			
	490.00	Dome Module	Sqm			

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6		Fixing and Removal of moulds for preparation of modules per single use				
	1778.00	Threegono Module	Sqm			
	2265.00	Tetragono Module	Sqm			
	1545.00	Dome Module	Sqm			
7		Providing and laying of weld mesh size 75x25mm, 10 gauge for concrete elements etc.,				
	912.00	Threegono Module	Sqm			
	1300.00	Tetragono Module	Sqm			
	925.00	Dome Module	Sqm			
8		Supplying and fabrication of 20 mm dia HDPE rope including cost and conveyance and all labour charges etc., complete.				
	1224.00	Threegono Module	Rmt			

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	1224.00	Tetragono Module	Rmt			
	1224.00	Dome Module	Rmt			
9		Deployment of Artificial reefs using machineries and Transportation charges for Threegona fish modules, Tetragonal fish modules and Dome fish modules weighing 800 kg to 1.00 tonne using mechanised sailing vessels, barge, crane ,tipper lorries ,winch equipments for placing the fabricated artificial reefs at a distance of up to 3 nautical miles from sea shore ,create a sea bed substratum to support marine life ,from the casting yard to the prefixed locations in the sea using G.P.S positioning with great accuracy , as directed by TNJFU and NIOT officers .The rates includes hire & fuel charges, statutory fees, berthing fee, vehicle entry fee for cranes and lorries ,barges ,any other fee, labour charges of all activities such as loading the reefs from casting yard to harbour berth, lifting to MSV or barge and placing on the sea bed ,reef deployment, monitoring and under water scuba diving for ascertaining the reef position. The rate is also including insurance charges (for men, materials and machineries) of general liability for loss of life and damage of reefs during transportation and placing at sea bed etc complete as directed by the TNJFU and NIOT officers.				
	204.00	Threegono Module	Nos			

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	204.00	Tetragono Module	Nos			
	204.00	Dome Module	Nos			

Contractor**Overwriting:
Correction:****The Estate Officer i/c.,
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General Conditions to Contract

1. The works shall be commenced on the date of signing of agreement and should be completed within 9 months from the date of signing of agreement. The schedule showing the programme of the work should be handed over to the Estate Officer, Tamil Nadu Dr.J.Jayalalithaa Fisheries University, duly signed by the contractor on receipt of work order.
2. The contractor should fabricate the work in accordance with the specifications and drawings and as per the instructions of Assistant Executive Engineer.
3. The measurement and check measurement will be done by the Engineering wing of the project.
4. The Estate Officer and other officials of NIOT will inspect the work. Quality control tests should be conducted and recorded in the Quality Control Register.
5. The contractor may sub contract with the approval of the Estate Officer, TNJFU, but may not assign the contract without approval of Estate Officer in writing. Sub contract should not alter the contractor's obligations.
6. The contractor shall employ the key personnel and use the equipment identified in its tender, to carry out works or other personnel and equipment approved by the Estate Officer.
7. The contractor carries the risks which this contract states are contracting risks.
8. From the date of starting, until the defects liability certificate has been issued, the risks of personal injury, death and loss of or damage property (including, without limitation, the works, plants, materials and equipment) are contractor's risks.
9. The contractor shall provide insurance cover from the start date to the end of defects liability period, in the amount, for the following events which are due to the contractor's risk.
 - a) Loss of (or) damage to the works, plant and materials.
 - b) Loss of (or) damage to equipments.
 - c) Loss of (or) damage to property (except the works, plant, materials and equipment) in connection with the contract.

(and)

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Estate Officer i/c.,
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- d) Personal injury (or) death.
10. Policies and certificate for insurance shall be delivered by the contractor to the Estate Officer for approval before the start date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.
 11. If the contractor does not provide any of the policies and certificates required, the employer may effect the insurance which the contractor should have provided and recover the premiums the employer has paid from payments otherwise due to the contractor (or), if no payment is due, the payment of the premium shall be a debt due.
 12. Alterations to the terms of an insurance shall not be made without the prior approval of Estate Officer.
 13. The contractor shall be deemed to have examined any site data, supplemented by any information available to the contractor.
 14. The contractor shall construct and install the works in accordance with the specifications and drawings.
 15. The contractor shall be responsible for the design of temporary works.
 16. The contractor shall be responsible for the safety of all activities on the site.
 17. Anything of historical or other interest or of significant values, unexpectedly discovered on the site and sea shore shall be the property of Government. The contractor shall notify the Estate Officer of such discoveries and carry out the Estate Officer's instructions for dealing with them.
 18. The contractor shall allow the University Engineers and NIOT Officers, access to the site and to any place where work in connection with the contract is being carried out or is intended to be carried out.
 19. The University Engineers, shall check the contractor's work and notify the contractor of any defects that are found.
 20. The Estate Officer shall give notice to the contractor of any defects before the end of defects liability period which begins at completion and the defects liability period shall be extended for as long as the defects remain to be corrected.

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TNJFU, Nagapattinam.

21. If the contractor has not corrected a defect within the time specified by the Estate Officer's notice, the Estate Officer shall assess the cost of defect correction and the contractor shall pay that amount.
22. The Estate Officer may terminate the contract if the other party causes a fundamental breach of the contract.

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Supplementary informations:

Special Conditions:

1. Clean 'M'.Sand shall be used in all cases as per IS 383-1970 for concrete and 'P'.Sand for plastering as per IS 1542-1992.
2. Only clean fresh water shall be used for, on the work. The contractor shall make his own arrangements for water and shall meet all charges therefor. The special attention of the contractor is drawn to the clause-39 of preliminary specification of Tamil Nadu Building Practice regarding water and lighting.
3. The broken stone for concrete and R.C.C. work shall be Hard blue granite and approved by the Estate Officer.
4. All iron works or steel works of every kind such as to be embedded in concrete shall immediately on arrival at the site be properly scrapped and wire brushed and given priming coat of approved (Corlok-cp) anticorrosive painting.
5. The work will be carried out with the least hindrance to the adjoining building and the contractor will be responsible to the damages caused to the existing fixtures, electrical fittings etc during the course of execution and the contractor shall make good any damages without claiming any extra cost.
6. For all R.C.C. works, the rates shall include the treatment by curing as per TNBP.
7. **Concrete works:** all exposed concrete surfaces will be required to be finished by cement plaster.
8. All testing charges, cost of cubes, labour, transport and other incidental charges will be borne by the contractor.
9. It is the responsibility of the contractor to get water from the approved sources. Water shall confirm the specification 108-12-2112 and 1007.02 of SSRS. The rates quoted shall be inclusion of all charges for processing and transport of water to site whatsoever be the distance.
10. The Contractors has to make his own arrangement for all tools and plants, equipments required for casting and deployment etc.

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11. Conditions for cement, steel and other materials:

- a) The contractor has to make his own arrangement for the procurement of cement and steel for the work either bagged or in bulk as required by specification of the works. Each shipment of bagged cement shall be stored separately so that, it may readily be distinguished from other shipments and shall stored in a dry, enclosed area protected from moisture. Storage of materials shall be as described in IS 4082-1977 (IS recommendation on stacking and storage of construction materials at site).
To prevent undue aging of bagged cement after delivery, the contractor shall use bags of cement in the chronological order in which they were delivered to the job site. All storage facilities shall be subject to approval of the Engineer-in-charge and shall be constructed to prevent every access for inspection and identification.
- b) Reinforcing bars shall be placed in the concrete as shown in the drawings or as directed. Applying one coat of anticorrosive treatment on steel reinforcement rods (20 litres of anticorrosive chemical for one metric tonne of steel reinforcement rods) at site including cost of anticorrosive chemicals of best, approval quality, cement, consumables such as brushes, gloves and labour for anticorrosive painting. The quality and brand of anticorrosive shall be approved by the Estate Officer.
- c) Any varieties in the cost of materials procured by contractor will be to their account. The contractor will not be eligible for claiming any extra amount on this account at any time.

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Specifications of Structures

General specifications for the fabrication of 204 nos. of Threegono modules, 204 nos. of tetragono modules and 204 nos. of dome modules are as below:

i) Threegono modules (204 nos.)

- a) The modules shall be cast as per the drawings given by the University Engineers with the reinforcement as prescribed by them. Curing to be done in the fresh water for 7 days.
- b) The overall dimension of the base of module is 1.40m x 1.40m. The side of triangular portion is 1.00m and the thickness of module is 100mm. Square and round holes should be provided at the places described in drawing to the required size.
- c) Anticorrosive painting should be applied to the steel reinforcements.
- d) M-30 design mix concrete using 12mm to 20mm HBG metal should be used and packing to be carried out by using vibrators.
- e) The mortar mix can incorporate silicate and porous M.Sand to have more corrosive settlements and the surface of the structures should be coarser.
- f) The outer side of slabs, bottom portion are finished with stucco plastering, 12mm thick and stucco plastering with shells, 12mm thick using HBC chips of size 10mm and below
- g) Weld mesh of size 75 x 25mm should be provided outside the slabs.
- h) The structure should be tied together using the 20mm HDPE rope, suspending HDPE rope loops for lifting purposes. The coir frond placed at the joints.
- i) The P^H value of the mix should be neutralized and cured in sea water before deployment.
- j) After setting and removal of the mould, the sides are dressed with C.M 1:2 mortar and allowed to cure in fresh water for a minimum period of 7 days.

ii) Tetragono modules (204 nos.)

- a) The modules shall be cast as per the drawings given by the University Engineers with the reinforcement as prescribed by them. Curing to be done in the fresh water for 7 days.
- b) The overall dimensions of base of module is 1.40 x 1.40m. The side of tetragono is 1.00m and thickness is 100mm. Square holes of 250mm x 250mm should be provided at the places shown by the University Engineers, at all the 4 sides of modules and described in the drawing.
- c) Anticorrosive painting should be applied to the steel reinforcements.
- d) M-30 design mix concrete using 12mm to 20mm HBG metal should be used and packing to be carried out by using vibrators.

Contractor

**Estate Officer i/c.,
TNJFU, Nagapattinam.**

- e) The mortar mix can incorporate silicate and porous M.Sand to have more corrosive settlements and the surface of the structures should be coarser.
- f) The outer side of slabs, bottom portion are finished with stucco plastering, 12mm thick and stucco plastering with shells, 12mm thick using HBC chips of size 10mm and below
- g) Weldmesh of size 75 x 25mm should be provided outside the slabs.
- h) The structure should be tied together using the 20mm HDPE rope, suspending HDPE rope loops for lifting purposes. The coir frond placed at the joints.
- i) The P^H value of the mix should be neutralized and cured in sea water before deployment.
- j) After setting and removal of the mould, the sides are dressed with C.M 1:2 mortar and allowed to cure in fresh water for a minimum period of 7 days.

iii) Dome Modules (204 nos.)

- a) The modules shall be cast as per the drawings given by the University Engineers with the reinforcement as prescribed by them. Curing to be done in the fresh water for 7 days.
- b) The diameter of the base of dome modules is 1.40m. and the overall height of dome is 1.00m. Thickness of module slab is 100mm. Necessary rectangular holes of 400 x 450mm and circular holes of required dia should be provided in the dome module at the appropriate places as shown in the drawing.
- c) Anticorrosive painting should be applied to the steel reinforcements.
- d) M-30 design mix concrete using 12mm to 20mm HBG metal should be used and packing to be carried out by using vibrators.
- e) The mortar mix can incorporate silicate and porous M.Sand to have more corrosive settlements and the surface of the structures should be coarser.
- f) The outer side of slabs, bottom portion are finished with stucco plastering, 12mm thick and stucco plastering with shells, 12mm thick using HBC chips of size 10mm and below
- g) Weldmesh of size 75 x 25mm should be provided outside the slabs.
- h) The structure should be tied together using the 20mm HDPE rope, suspending HDPE rope loops for lifting purposes. The coir frond placed at the joints.
- i) The P^H value of the mix should be neutralized and curved in sea water before deployment.
- j) After setting and removal of the mould, the sides are dressed with C.M 1:2 mortar and allowed to cure in fresh water for a minimum period of 7 days.

TECHNICAL CONDITIONS

1.OBJECTIVE

1. The main objective is to deploy artificial reefs (4 locations) all along the inshore waters of Pazhaverkkadu in Thiruvallur District, from the fabrication sites specified by Tamil Nadu Dr.J.Jayalalithaa Fisheries University Engineers to the predetermined inshore locations identified by the National Institute of Ocean Technology.

2. SCOPE OF WORK

The fabricated modules on the sea shore are to be transported into the inshore by fishing trawlers or barges from the nearest fabrication sites.

In view of the above, the services of contractors/firms are likely to be utilized for the deployment purpose with community participation.

- Transportation of fabricated reefs from the fabrication site to the harbour for loading into barge.
- Loading of fabricated reefs (153 modules for each site) in barge/ boat.
- Transportation of reefs to the inshore deployment sites identified by the TNJFU and NIOT.
- Deployment of reefs at the specified latitude & longitude with desired orientation, as mentioned by TNJFU and NIOT.

In all works, the fishermen community should be involved wherever feasible.

DETAILS OF MODULES

This artificial reef includes 612 modules comprising of Threegono modules, Tetragono module and Dome modules as designed below.

- i. threegono fish modules - 204 numbers
- ii. tetragono fish modules - 204 numbers
- iii. dome fish modules - 204 numbers

FACILITIES TO BE USED

Heavy vehicles shall be used for the transportation of fabricated reefs from the fabrication site to the deployment site. Crane or Excavator shall be used for loading of modules into barges. Contractor can own or hire these facilities.

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TNJFU, Nagapattinam.**

Care shall be taken to ensure the safe loading and deployment of the modules and safety of labours involved in these. Contractor is responsible for any damage of the fabricated reefs during loading, unloading, transportation & deployment process. Barges of minimum carrying capacity of 110MT with hydraulic winches shall be used for deployment of heavy weight structural modules. Barge berthing charges and barge fuel cost shall be borne by the bidder. Modules should be deployed at the designated reef site in the desired orientation.

3. ELIGIBILITY CRITERIA (TECHNICAL QUALIFICATION)

Minimum Qualifications and Experience:

The bidders shall meet the following minimum qualifications:

- A copy of ownership or lease agreement for a barge of 110MT minimum capacity in the name of the bidder should be produced. Insurance of the Barge should be in live.
- The location of reefs must be documented by Global Positioning Data (GPS) by the contractor and certified by a marine surveyor/hydrographer/land surveyor. Acquisition of the survey data may require repositioning of the vessel and/or making passes over the deployment site to document the location of each individual reef unit. The time required to obtain the survey data is included in the contractor's lump sum price in Bid Schedule.

Description of Materials:

The Deployment Zone for these reef units shall be designated by NIOT upon award but will generally be defined as a large square measuring 720-ft wide by 720-ft long which will hold the 153 Reef modules) to be systematically placed in four different configurations throughout the deployment region. The water depth at the site is approximately 48 feet (ft) at the permitted center while depth ranges between 46 and 54 feet (ft). The profile (height off bottom) cannot exceed 18 ft. Within the deployment zones, the bottom is believed to be free of major obstructions.

Deployment specifications and requirements:

The Contractor is responsible for placing all materials within the deployment zones as described above. The Tamil Nadu Dr.J.Jayalalithaa Fisheries University reserves the right to alter, by written notification, the location of the deployment zone up to 48 hours prior to the Contractor's departure for the reef site, but in any case, all reef materials shall be placed within the boundaries of the Districts specified.

Contractor

**Estate Officer i/c.,
TNJFU, Nagapattinam.**

Contractor shall be responsible for determining the best method for ensuring reef units are deployed inside the designated reef zone and all reef units are inside the designated clusters of 153 each, with no more than 3 ties lying on top of each other on the sea floor. All arrangements for labor and equipment required to load or transport the reef units, including rental or lease of cranes, lift barge or other equipment and the hiring of labor preferably from the fishermen of the local fishing villages are the responsibility of the contractor.

1. Reef material must be deployed in a manner that results in the ties lying flat on the ocean bottom and within the designated Deployment Zones as specified by the Tamil Nadu Dr.J.Jayalalithaa Fisheries University based on the recommendation of NIOT. Some overlapping of material is acceptable but the maximum vertical profile possible is three (3) foot from the sea floor.
2. Divers (provided by the Contractor) must be used to ensure that no assemblage of reef structures exceeds the three (3) foot from the sea floor.
3. The center point of each reef cluster (4 total clusters) must be documented via GPS and the database presented to Department of Fisheries upon completion of deployment.
4. The Contractor's submitted bid shall be inclusive of a deployment plan and the plan shall include a methodology for verifying that all deployed structures meet the requirements as stated in this bid document. Failure to submit a design/plan that is consistent with the requirements of this bid document may cause the bid to be rejected as non-compliant.
5. The nearshore deployment of artificial reef material shall be implemented within the permitted area, avoiding any existing artificial reef materials as well as any identified hard outcrops, uneven surfaces, or geologic features.
6. All navigation safety measures shall be followed.
7. All hazardous materials handled during construction shall be contained and appropriate barriers shall be in place to ensure the protection of adjacent water resources from potential spills and leaks. Proper procedures for handling, storage, transport and disposal of all hazardous materials during on site construction activities shall be followed in accordance with Occupational Safety and Health Administration (OSHA) and state and local requirements.
8. All occupational and marine safety regulations and laws shall be followed to ensure safety of all workers and monitors.
9. Personal protective equipment shall be required for all construction personnel and authorized access zones shall be established at the perimeter of the worksite during construction.

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Deliverables:

Deliverables consist of the following:

1. Confirmation that all locations have been deployed with reefs as per the specifications directed in the award by written manifest from contractor.
2. Delivery and successful deployment of all reef materials within the designated deployment zones, in accordance with the specifications herein.
3. Memorandum/database confirming the GPS location of each individual reef cluster deployed by contractor and that all clearance requirements have been met by measurements made by the contractor. The memorandum must include the actual GPS coordinates of each reef unit.
4. Contractor shall supply a hard copy and electronic copy of a bathymetric chart showing the location and water depth of each pyramid reefed at the designated sites and certified by a marine surveyor/hydrographer/land surveyor to department of Fisheries.

Contractor Requirements

1. The contractor should build the capacity and confidence among local fishers and create awareness about the project implementation in consultation with TNJFU and NIOT.
2. Contractor shall monitor the sea and weather conditions, and select a departure date that, in the Contractor's best judgment, will provide favorable conditions for conducting the work. Contractor shall notify Tamil Nadu Dr.J.Jayalalithaa Fisheries University not less than twenty-four (24) hours prior to previously announced departure date if such departure is cancelled.

4. TERMS OF PAYMENT

- The value of work done will be payable to the contractor according to satisfactory completion of work subject to the certification.
- The position where the reefs are deployed should be verified and certified by the NIOT.
- Any damage/ breakage of the fabricated reefs during loading, unloading, transportation & deployment will be charged, in the final payment.

5. SUCCESSFUL DEPLOYMENT

- The deployment will be considered as successful when the contractor deploys fabricated reefs (153 modules for each site) at the specified latitude & longitude coordinates identified by the NIOT.

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TNJFU, Nagapattinam.

- The experts from NIOT or his/her representative will be present during the deployment and assist in deploying the reef modules at the exact GPS locations identified.

6. PORT FORMALITIES

Berthing of barge and port formalities should be taken care by the bidder. Statutory clearances and Government clearances with regard to the transportation of reefs in barge should be taken care by the bidder.

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GENERAL SPECIFICATIONS

The term Indian Standard Specifications herein after referred to as IS means the relevant Indian Standard Specifications with all Amendments published upto the date of submission of tenders.

A Statement of relevant IS applicable to this context, is enclosed.

LIST OF INDIAN STANDARDS

Sl.No.	Short Title	IS Number
I	CEMENT	
	1. Specifications for ordinary Portland Cement	IS 269-1976
	2. Specification for Portland Pozzolana Cement (Fly Ash based)	IS 1489 -1991 (Part 1)
	3. Specification for Portland Pozzolana Cement (Calcined clay based)	IS 1489- 1991 (Part 2)
II	AGGREGATE	
	1. Specification for Coarse and Fine Aggregates from natural sources for concrete	IS 383- 1970
	2. Specification for Sand for masonry Mortars	IS 2116- 1980
	3. Methods of Test for aggregates for concrete	IS 2386- 1963 (Part I to VII)
III	BUILDING STONES	
	1. Method of test for Determination of strength properties of natural building stones Part –I Compressive strength Part –II Transverse strength Part –III Tensile strength Part –IV Shear strength	IS 1121- 1974 (Part I to IV)
	2. Method of Measurement of Building and Civil Engineering works (Stone masonry)	IS 1200- 1976 (Part –IV)
	3. Method of Measurement of Building and Civil Engineering works (Plastering and pointing)	IS 1200- 1976 (Part –XII)
IV	EARTH WORK	

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TNJFU, Nagapattinam.**

	1. Method of Measurement of Building and Civil Engineering works (Earth work) 2. Safety code for Piling and other deep foundations 3. Method Test for soils (Determination of water content) 4. Safety code for excavation work 5. Methods of Test for soils (Determination of water Content –Dry density relation using light compaction) 6. Methods of Test for soils (Determination Dry density of soils in-place by the sand replacement method) 7. Methods of Test for soils (Determination Dry density of soils in-place by the Core-cutter method)	IS 1200 -1992 (Part I) IS 5121 -1969 IS 2720 -1973 (Part II) IS 3764 -1992 IS 2720 -1980 (Part VII) IS 2720 -1974 (Part XXVIII) IS 2720- 1975 (Part XXIX)
V	STEEL	
	1. High strength Deformed Steel Bars and wires for concrete Reinforcement 2. Code of practice for bending and fixing of bars for concrete reinforcement	IS 1786 -1985 IS 2502 -1963
VI	BRICK	
	1. Specification for Common Burnt clay Building Bricks 2. Code practice for Brick work 3. Method of Measurement of Building and Civil Engineering works (Brick work) 4. Specification Burnt clay facing brick	IS 1077 -1992 IS 2212- 1991 IS 1200 -1976 (Part III) IS 2691 -1988
VII	Form Work	
	Specification for form work for concrete	IS 6464 -1972 (Part V)
VIII	OTHER SUBJECTS	
	1. Safety code for scaffolds and ladders (Part 1) for Scaffolds. 2. Safety code for scaffolds and ladders (Part 2) for Ladders. 3. Stacking and storage of construction materials and components at site –Recommendations.	IS 3696 -1987 (Part 1) IS 3696 -1991 (Part 2) IS 4082 -1996.

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