



COCHIN PORT TRUST

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E-QUOTATION DOCUMENT FOR PROVIDING BARBED WIRE FENCING BY
THE SIDE OF NH966B NEAR KANNANGATTU BRIDGE

Website:www.tenderwizard.com/CPT

EXE. ENGINEER(CM-I)'S OFFICE

COCHIN PORT TRUST

COCHIN-682009

QUOTATION No.T1/Q-02/2022-C

I. GENERAL CONDITIONS

1. The work under this contract covers **Providing barbed wire fencing by the side of NH966B near Kannangattu Bridge** and includes the following:
 - i) Earth Work Excavation in ordinary soil.
 - ii) RCC 1:1.50:3 for posts.
 - iii) Cement concrete 1:3:6 for fixing the posts.
 - iv) Providing barbed wire fencing
2. The bidders need to obtain the one time User ID & password for log-in to e-tendering Portal www.tenderwizard.com/CPT from the service provider M/s. KEONICS by paying registration amount of Rs.1124/- through online Payment using Credit/Debit Card/Net banking or DD in favour of “KSEDCL, Bangalore”.
3. The intending bidder must have valid Class-II or III digital signature certificate to submit the bid. For further details, please contact e-Tender Help Desk No. 080-40482000/ 080-49352000/ 9746118529/ 9605557738.
4. e-Quotations are invited from the Registered contractors of Cochin Port as well as firms specialized in doing Pest control operations as approved by CoPT.
5. The Quotationer shall submit the Quotation Notice, General conditions & Schedule of Quantities of work ‘**Online**’. The name and address of the quotationers shall be necessarily entered in the space provided in the Schedule of Quantities of Work.
6. The Quotationer shall inspect the site before submitting the quotation in order to make them fully aware of the site and its conditions.
7. Clarifications if any required can be obtained by contacting the Asst. Exe. Engineer/ Asst. Engineer of concerned Civil section.
8. The period of contract is **2 Months** from the date of commencement of the work.
9. The Engineer-in-Charge of the work (Engineer’s Nominee/ Nominee) shall be Exe. Engineer (CM-I).
10. **Water & Electricity**

Water: Water, if required for the work, shall be arranged by the Quotationer at his own cost.

Electricity: The Quotationer shall make his own arrangements for the temporary connection for electricity required, if any, and make necessary payment for it direct to the Department concerned. No payment will be made by the Employer on this account.
11. The rate/percentage quoted shall be excluding Goods & Service Tax (GST).
12. The Quotationer shall have valid GST Registration number. GST as applicable for the work will be paid extra by the Port. The GST applicable as per law can be billed on the Port Trust, which will be paid to the Quotationer by the Board along with the bills, for which the Quotationer shall hold valid GST Registration number.

13. All labour, skilled or unskilled for the work shall be provided by the Quotationer at his own cost and settling any disputes with the labour shall be, Quotationer's responsibility.
14. All care and precautionary measures for avoiding any kind of damage/ accidents in the work site shall be taken by the Quotationer. All safety precautions shall be taken while carrying out the work. The Quotationer shall supply the necessary safety equipments to the workers employed by him and also ensure that they use it, while carrying out the work. The Quotationer shall be solely liable and responsible for accidents if any, occurring during the period of Contract.
15. The work shall be completed without causing any damage to the existing structures/cables etc. In case any damage is caused, the same has to be rectified at Quotationer's risk and cost.
16. The Port will in no way be responsible for any loss/damages caused in connection with the work.
17. The quantities specified in the schedule of quantities of work are only approximate and shall be increased or decreased at the discretion of the Engineer-in-Charge according to actual requirements. Payment will be made as per actual measurements, according to the percentage quoted.
18. Quotations shall be valid for a period of 60 days from the due date of submission of quotation.
19. **Liquidated Damages:** In case of delay in completion of the contract, liquidated damages (L.D) may be levied at the rate of half percent ($\frac{1}{2}\%$) of the Contract Price per week of delay, subject to a maximum of 10% of the Contract Price. The amount of Liquidated Damages can be adjusted or set-off against any sum payable to the Quotationer.
20. **Defects Liability Period:** The defects liability period for the work shall be 12 months from the date of completion of the work. In the event of any defect/ deficiency being noticed during the period, which is attributable to the defective materials/design/ workmanship, the Quotationer shall make good the same at his cost.
21. **Security Deposit:** Security deposit @ 5% of Contract Price or cost work done whichever is high shall be recovered from the Quotationer's bill. The amount towards Security Deposit so deducted will be released only after successful completion of the defect liability period, subject to certification from the Engineer-in-Charge.
22. **Execution of Agreement:** The successful Quotationer will be required to execute **within 5 days from the date of receipt of work order**, an agreement

at his expense on proper value Kerala State Stamp Paper in the prescribed departmental form, consisting of the work order issued to the Quotationer, together with the Quotation submitted by him including General Conditions, for the due and proper fulfilment of the contract.

23. Till signing of agreement, the Quotation together with the acceptance letter shall constitute a binding contract between the Quotationer and Cochin Port.
24. The Contractor shall comply with all the provisions of the Indian Workmen's Compensations Act, Public Liability Policy, Provident Fund Regulations, Employees Provident Fund and ESI Act etc. amended from time to time and rules framed there under and other laws affecting the Contract labour that may be brought in to force from time to time.
25. The Contractor shall be registered under EPF and ESI act and the employees employed under them shall be covered in the EPF and ESI Scheme, if required as per applicable rules. The Contractors shall regularly remit, the Employer & Employee contribution to the authorities in such cases. If not, the Dept. would be required to remit the same and the amount so remitted shall be deducted from the part/ final bill of Contractors.

SIGNATURE OF QUOTATIONER.

2.SPECIFICATIONS FOR MATERIALS

1. GENERAL

- 1.1 Except where otherwise specified or authorized by the Engineer-in-Charge, materials supplied by the contractor shall conform to the latest edition of the Indian Standard Specifications and code of practices published by the Indian Standard Institution. Samples of materials to be supplied by the contractor shall be shown to the Engineer-in-Charge sufficiently in advance for approval of its quality for use on the work.
- 1.2 All materials supplied shall be stored appropriately to prevent deterioration/ damage from any cause what so ever and to the entire satisfaction of the Engineer-in Charge.
- 1.3 The materials required for the work shall be brought to the site and stacked at the places shown by the Engineer-in-Charge and the same shall be got approved for use in work sufficiently advance so that the progress of the work is not affected by the supply of materials.
- 1.4 Payment for the materials supplied, shall be given only after they are used on the work.
- 1.5 Tolls are payable by the contractor as per rules for vehicles using the Port's road for supplying the materials.

1. AGGREGATES FOR CONCRETE

- 1.1 Aggregates (fine and coarse) for concrete shall comply with the requirements of IS:383 – ‘Specifications for coarse and fine aggregate from natural sources for concrete’. Aggregate shall be obtained from sources approved by the Engineer-in-Charge. Aggregates, which are not perfectly clean, shall be washed in clean water to the entire satisfaction of the Engineer-in-Charge.
- 1.2 The fine aggregate shall be clean, hard, durable, uncoated, dry and free from injurious, soft or flaky pieces and organic or other deleterious substances.
- 1.3 Each type of aggregate shall be stored separately for the approval of Engineer-in-Charge. Wet aggregate delivered at the site shall be kept in storage for at least 24 hours to ensure adequate drainage before being used for concreting.
- 1.4 Contractor shall maintain at site at all times such quantities of each type of aggregate as are considered by the Engineer-in-Charge to be sufficient to ensure continuity of Work.

2. CEMENT

- 2.1 Quality of cement used for the Work shall be 43 grade ordinary Portland cement conforming to IS:8112 or 53 grade ordinary Portland cement conforming to IS:12269 or Pozzolona cement conforming to IS:1489 unless otherwise approved by the Engineer-in-Charge.
- 2.2 The cement required for the Work will have to be procured by the Contractor and shall comply with the relevant IS. As far as possible, the cement required for the Work will have to be procured from the government agencies. The cement shall, if required by the Chief Engineer / Engineer-in-Charge, be tested

and analyzed by an independent analyst at the Contractor's cost and result produced to the Engineer-in-Charge.

- 2.3 Supply of cement shall be taken in 50kg bags bearing manufacture's name and ISI marking. Samples of cement arranged by the Contractor shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of relevant BIS codes. In case, test results indicate that the cement arranged by the Contractor does not conform to the relevant BIS codes, the same shall stand rejected and shall be removed from the site by the Contractor at his own cost within a week's time of written order from the Engineer-in-Charge to do so.
- 2.4 A cement godown of adequate capacity as directed by the Engineer-in-Charge shall be constructed by the Contractors at the site of the Work for which no extra payment shall be made. Double lock provision shall be made to the door of the cement godown. The key of one lock shall remain with the Engineer-in-Charge or his authorized representative and the key of the other lock shall remain with the Contractor. The Contractor shall be responsible for the watch and ward and safety of the cement godown. The Contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge.
- 2.5 The cement brought to the site and cement remaining unused after completion of Work shall not be removed from the site without written permission from /of the Engineer-in-Charge.
- 2.6 The cement shall be stored in a weather proof building with facilities for inspection.
- 2.7 The Contractor shall maintain a cement register showing dates of receipt and issue, quantities used daily and balance which shall be accessible to the Engineer-in-Charge.

3. STEEL REINFORCEMENT

- 3.1 The reinforcement steel used for the Work will have to be procured by the Contractor and shall be HYSD bars of Fe 500 / Fe415 grade conforming to IS:1786 unless otherwise approved by the Engineer-in-Charge.
- 3.2 The reinforcement steel required for the Work will have to be procured by the Contractor and shall comply with the relevant IS. The Contractor shall obtain approval from the Engineer-in-Charge well in advance for purchase of steel.
- 3.3 The Contractor shall have to obtain and furnish test certificates to the Engineer-in-Charge in respect of all supplies of steel brought by him to the site of Work. Samples shall also be taken and got tested by the Engineer-in-Charge as per provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the Contractor does not conform to BIS codes, the same shall stand rejected and shall be removed from the site of Work by the Contractor at his cost within a week's time of written orders from the Engineer-in-Charge to do so.
- 3.4 The steel reinforcement shall be brought to the site in bulk supply of 10 tonnes or more or as decided by the Engineer-in-Charge.
- 3.5 The steel reinforcement shall be stored by the Contractor at site of Work in such a way as to prevent distortion and corrosion and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored

separately to facilitate easy counting and checking.

- 3.6 For checking nominal mass, tensile strength, bend test etc., specimen of sufficient length as per IS:432/ IS:1608/ IS:1599 or as specified by the Engineer-in-Charge shall be cut from each size of the bar at random at frequency not less than the specified below.

Size of bar	For consignment below 100 tonnes	For consignment over 100 tonnes
Under 10 mm dia	One sample for each 25 tonnes or part thereof	One sample for each 40 tonnes or part thereof
10 mm to 16 mm dia	One sample for each 35 tonnes or part thereof	One sample for each 45 tonnes or part thereof
Over 16 mm dia	One sample for each 45 tonnes or part thereof	One sample for each 50 tonnes or part thereof

- 3.7 The Contractor shall supply free of charge the steel required for testing. The cost of tests shall be borne by the Contractor.
- 3.8 Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-Charge.

4. WATER

- 4.1 Clean fresh water free from oils, acids, alkalies, salt, sugar, organic materials or other harmful materials shall be used for washing aggregates, mixing and curing of concrete. The water used shall comply with clause 5.4 of IS:456-2000. Potable water is generally considered good for mixing concrete.
- 4.2 **Cochin Port Trust will not provide/supply water for the Work.** Water has to be arranged by the Contractor himself for the construction works including curing work **at his own risk and cost.**
- 4.3 Samples of water arranged by the Contractor shall be taken by the Engineer in Charge and got tested in accordance with the provisions of relevant BIS codes. In case test results indicate that the water arranged by the Contractor does not conform to the relevant BIS codes, the same shall not be used for any Works. The cost of tests shall be borne by the Contractor.

5. GI BARBED WIRE

- 5.1 Barbed wire shall be as per IS 278.

6. MATERIALS NOT SPECIFIED

- 6.1 All materials not herein detailed and fully specified but which may be required for use on works, shall be subjected to the approval of the Engineer-in-Charge without which they shall not be used anywhere in the permanent works

7. SAMPLING AND TESTING OF MATERIALS

- 7.1 Sampling and testing of the material supplied by the contractor for use on the

Work shall be done as per the provisions of the relevant BIS codes/specifications. In the absence of BIS specification in a particular case, the sampling and testing shall be done as directed by the Engineer-in-Charge as per sound engineering practice. Material conforming to the specifications and approved by the Engineer-in-Charge shall only be used by the Contractor.

7.2 All the sampling and testing shall be done at the Contractor's cost.

SIGNATURE OF QUOTATIONER

3.DETAILED SPECIFICATIONS FOR ITEMS OF WORKS

1. GENERAL

- 1.1 Except where otherwise specified or authorized by the Engineer-in-Charge, materials supplied by the contractor shall conform to the latest edition of the Indian Standard Specifications and code of practices published by the Indian Standard Institution. Samples of materials to be supplied by the contractor shall be shown to the Engineer-in-Charge sufficiently in advance for approval of its quality for use on the work.
- 1.2 All materials supplied shall be stored appropriately to prevent deterioration/ damage from any cause whatsoever and to the entire satisfaction of the Engineer-in-Charge.
- 1.3 The materials required for the work shall be brought to the site and stacked at the places shown by the Engineer-in-Charge and the same shall be got approved for use in work sufficiently in advance so that the progress of the work is not affected by the supply of materials.
- 1.4 Payment for the materials supplied, shall be given only after they are used on the work.
- 1.5 Tolls are payable by the contractor as per rules for vehicles using the Port's road for supplying the materials.

2. PLAIN AND REINFORCED CEMENT CONCRETE

2.1 General

The concrete used for all Works, concreting procedure etc. shall be in accordance with IS:456–2000.

2.2 Concrete Mix

Mix used for R.C.C. shall be of minimum 1:1.5:3 grade unless otherwise specified.

2.3 Nominal Mix

For nominal mix concrete, proportion of fine aggregate to coarse aggregate shall be 1:2 by volume. The minimum cement content per cubic metre of nominal mix concrete shall be as given below. Water cement ratio not exceeding 0.50.

Sl. No	Type of concrete	Cement content per Cu. M
1	Cement concrete 1:3:6 (1 cement: 3 sand: 8, 20 mm size graded metal)	220 Kg.
2	1:1.50:3 with 20mm size graded metal	400 Kg.

2.4 Size of Coarse Aggregate

For all concrete, plain or reinforced, 20 mm size graded aggregate conforming to IS:383 shall be used unless otherwise specified. If 20 mm graded aggregates as per IS:383 are not readily available, graded 20 mm aggregate shall be

obtained by blending 20 mm and 12.5/ 10 mm aggregates in the proportion arrived based on the combined sieving of aggregates.

2.5 Mixing of Concrete

- 2.5.1 Concrete shall be mixed in a drum or pan type batch mixer, the type and capacity of which is to be approved by the Engineer-in-Charge. Time allowed for mixing, after all ingredients have been placed in the mixers shall not be less than two minutes. If there is segregation after unloading from the mixer, the concrete should be remixed.
- 2.5.2 Ready mix concrete from outside source shall be allowed for use on the work subject to the conditions that: (i) written permission shall be obtained from the Engineer-in-Charge, (ii) all quality control measures as stipulated by the Engineer-in-Charge are strictly adhered to by the Contractor at his cost, (iii) all design mix calculations as per Clause 2.3.4 of Tender Document shall be submitted by the contractor for approval of the Engineer-in-Charge & approval obtained; and (iv) all expenses towards conveyance and incidentals of providing departmental supervision at the mixing plant shall be borne by the Contractor.

2.6 Assembly of reinforcement for Reinforced Cement Concrete.

- 2.6.1 The steel bars used for reinforcement Works shall be either mild steel bars conforming to IS:432 (Part I) or HYSD bars, conforming to IS:1786 (Grade Fe 500 / Fe 415) or both.
- 2.6.2 The Contractor shall, when ordered, submit to the Engineer-in-Charge the detailed bar bending schedule for his scrutiny and approval sufficiently in advance (about four weeks) of the due date of commencement of the relevant items of Works. While Working out the bar bending schedule, the Contractor shall ascertain the length of bars likely to be made available to him and the schedule shall be so made, keeping the wastage/ cut bits of bars to bare minimum without hampering technical requirements. If the size of the steel bars specified in the drawing or schedule is not available, the nearest size available shall be used. Revised drawing shall be issued to the Contractor substituting the new size of reinforcement and bar bending schedule shall be prepared by the Contractor accordingly. No extra payment shall be made to the Contractor for making this substitution. The fabrication of reinforcement shall commence only after the bar bending schedule is approved by the Engineer-in-Charge.
- 2.6.3 Reinforcement shall be cut to the exact length and made truly straight and then bent to the exact shape and dimensions as indicated in the drawings. The bending and fixing of bars shall be done in accordance with IS:2502 unless otherwise specified.
- 2.6.4 All cut bits of steel are the property of the Contractor. However, the Contractor can dispose them off only with the permission in writing of the Engineer-in-Charge. If the department requires the cut lengths, they are to be handed over to the department and will be paid for at the rates at which they were purchased by the Contractor.
- 2.6.5 The reinforcement shall be cleaned by wire brush etc. to remove oil, grease,

loose mill scale, loose rust or other deleterious matter that may reduce or destroy bond etc. before tying in position and also immediately before placing the concrete.

- 2.6.6 All reinforcement shall be placed and maintained in accordance with the drawings. Tolerance on placing of reinforcement shall be in accordance with clause 12.3 of IS:456-2000. Bolts, nuts, washers and rivets etc. required for complete erection of reinforcement and keeping in position shall be supplied by the Contractor at his own cost.

2.7 Form Work

- 2.7.1 The steel/ marine plywood formwork shall be used for concrete work. The form work shall be designed and constructed to the shape, lines and dimensions shown in the drawings within the tolerance limit and specified in clause 11.1 of IS:456-2000. Joints of the form works shall be made water tight by providing suitable beadings / gasket as approved by the Engineer-in-Charge. All rubbish, particularly chippings, shall be removed from the interior of the forms before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly wetted or treated with an approved composition. Care shall be taken that such approved composition is kept out of contact with the reinforcement.
- 2.7.2 Before reuse, all forms shall be thoroughly scraped, cleaned, nails removed, holes that may leak suitably plugged and joints examined and when necessary, repaired and the inside retreated to prevent adhesion, to the satisfaction of Engineer. Warped timber shall be resized. Contractor shall equip himself with enough shuttering material to complete the job in the stipulated time.
- 2.7.3 Forms for sloped surfaces shall be built so that the formwork can be placed board -by- board immediately ahead of concrete placement so as to enable ready access for placement, vibration inspection and repair of the concrete. The formwork shall also be built so that the boards can be removed one by one from the bottom up as soon as the concrete has attained sufficient stiffness to prevent sagging. Surfaces of construction joints and finished surfaces with slopes steeper than 4 horizontal: 1 vertical shall be formed as required herein.
- 2.7.4 For forms for curved surfaces, the Contractor shall interpolate intermediate sections as necessary and shall construct the forms so that the curvature will be continuous between sections. Where necessary to meet requirements for curvature, the form timber shall be built up of laminated splines cut to make tight, smooth form surfaces. After the forms have been constructed, all surface imperfections shall be corrected and all surface irregularities at matching faces of form material shall be dressed to the specified curvature.
- 2.7.5 Care shall be taken to see that the faces of formwork coming in contact with concrete are perfectly cleaned and two coats of mould oil or any other approved material applied before fixing reinforcement and placing concrete. Such coating shall be insoluble in water, non-staining and not injurious to the concrete. It shall not become flaky or be removed by rain or wash water. Reinforcement and/or other items to be cast in the concrete shall not be placed until coating of the forms is complete; adjoining concrete surface shall also be protected against contamination from the coating material.

2.8 Cover to Reinforcement

Cover as specified in drawing shall be provided by using precast cement concrete block made from concrete of same grade as that of main Work unless otherwise directed by the Engineer-in-Charge.

2.9 Transporting, placing, compacting and curing of concrete

- 2.9.1 Transporting, placing, compacting and curing of concrete shall be as per clause 13 of IS:456-2000.
- 2.9.2 Concrete shall be transported from the mixer to the Worksite as rapidly as possible which will prevent the segregation or loss of any ingredient, and for maintaining the Workability.
- 2.9.3 The concrete shall be placed and compacted before setting commences and should not be subsequently disturbed. Care should be taken to avoid displacement of reinforcement or movement of formWork.
- 2.9.4 All concrete shall be vibrated unless otherwise specified or approved by the Engineer-in-Charge and such vibrating shall be as required by the Engineer-in-Charge. The mechanical vibrators complying with IS:2505, IS:2506 or IS:4656 shall be used for compacting concrete. All vibrations shall be carried out to a plan approved by the Engineer-in-Charge. No Workman shall be allowed to operate the vibrator without having received instructions and training in its use. Care must be taken to avoid segregation and excessive vibration.
- 2.9.5 Concreting shall be carried out continuously upto construction joints, the positions and arrangement of which shall be as directed by the Engineer-in-Charge. When the Work has to be resumed the construction joints shall be prepared in accordance with clause 13.4 of IS:456-2000.
- 2.9.6 Unless otherwise specified, all concrete shall be kept continuously in a damp condition by ponding or by covering with a layer of sacking, canvas, hessian or similar materials with fresh water for not less than 7 days after laying the concrete. If curing is not done properly the department will be at liberty to engage labour for curing and the expenditure incurred will be recovered from the Contractor's bill. The decision of the Engineer-in-Charge will be final on this.
- 2.9.7 Stripping time for the form Work shall be as stipulated in clause 11.3 of IS:456-2000. Any impression, fins etc. that may occur from the form Work shall be removed and treated with cement mortar 1:1.5 (1 cement: 1.5 sand).
- 2.9.8 Contractor shall arrange to fix any fixtures wherever necessary while doing concreting Work without any extra cost. Cost of fixtures will be paid separately, if it is provided by the Contractor.

The unit rate quoted by the tenderer shall be for the finished Work and deemed to include cost of all materials and labour, provision of holes, recess, other contingent items etc. required for the completion of Work but excluding shuttering as specified in the schedule etc.

3. EARTHWORK EXCAVATION

- 3.1 Contractor shall be responsible for the true and proper setting out of the work in relation to original points, lines and levels of reference and for corrections of the level dimension and alignment of all parts of work.

- 3.2 All excavations shall be carried out to give exact length, width and depth as per profiles indicated in the drawings or as directed by the Engineer-in-Charge. The phasing and method of excavation shall be to the approval of Engineer-in-Charge. The contractor shall provide suitable arrangements to prevent water from any source entering into excavated pits at his cost.

Necessary shoring and timbering shall be provided as per IS:3764 for preventing slipping of the soil in trenches and for protecting the safety and stability of the existing structures. Dewatering, if required shall also be carried out to keep the excavated surface dry for construction. The cost for pumping or bailing out water by using pump set will be paid separately. Excavation taken wider or deeper than required shall be filled back with crusher run screening or selected materials approved by the Engineer-in-Charge, thoroughly compacted in layers of thickness not more than 20 cm or as decided by the Engineer-in-Charge.

4. R.C.C POSTS.

- 4.1 All posts shall be of standard size, the length of posts being 1.8 m or as specified. These shall be cast in cement concrete 1:1 ½ :3 (1 cement : 1 ½ coarse sand : 3 graded stone aggregate 12.5 mm nominal size) reinforced with 6 mm diameter tor steel bars as directed and finished smooth with cement mortar 1:2 (1 cement: 2 fine sand). The specifications for R.C.C. work shall apply. The posts shall be free from cracks, twists and such other defects. G.I. staples on wooden plugs or 6 mm bar nibs will be provided as directed by Engineer-in-Charge while casting the posts. Quantity of RCC post, to be measured in cubic content.

5. FENCING WITH G.I. BARBED WIRE AND RCC POSTS

5.1 Spacing of Posts

The spacing of posts shall be three metres centre to centre, unless otherwise specified, or as directed by the Engineer-in-Charge to suit the dimensions of the area to be fenced. Every 15th, last but one end post and corner posts shall be strutted on both sides and end posts on one side only.

5.2 Fixing of Posts

Pits 45 x 45 cm and 75 cm deep or as directed shall first be excavated true to line and level to receive the posts so that it is surrounded by concrete by not less than 15 cm at any point. The pits shall be filled with a layer of 15 cm thick cement concrete 1:3:6 (1 cement: 3 fine sand: 6 raded stone aggregate 40 nominal size). The posts shall then be placed in the pits, the posts projecting 1.2 m or to the specified height above ground, true to line and position. The cement concrete 1:3:6 shall be filled in upto 15 cm for posts below ground level at the base of the concrete so that the posts are embedded in the cement concrete block of size 45 x 45 x 60 cm. The concrete in foundations shall be watered for at least 7 days to ensure proper curing. The remaining portions of pits shall be filled up with excavated earth and the surplus earth disposed off as directed by the Engineer-in-Charge and site cleared.

5.3 Fixing G.I. Barbed Wire

The barbed wire shall be stretched and fixed in suitable number of rows and two diagonals. The diagonals shall be stretched between adjacent posts from top wire of one post to the bottom wire of the second post. The diagonal wires will be interwoven with horizontal wires by fixing the odd-rows of wires first, then the diagonal cross wires and lastly the even rows of wires. The barbed wire shall be held to the R.C.C. posts by means of G.I. staples fixed to wooden plugs or G.I. binding wire tied to 6 mm barnibs fixed while casting the posts.

5.4 Measurements

Total length of G.I. barbed wire shall be measured in running meter correct to a cm.

5.5 Rate

The rate shall include the cost of labour and materials involved in all the operations described above but excluding the cost of posts, struts, turn buckle, straining bolts and excavation and concrete in foundations for which separate payments shall be made under respective items.

SIGNATURE OF QUOTATIONER