ARC • LNR
Excellence in Agricultural Research and Development

TENDER SPECIFICATION

Title: Supply, delivery and installation of fencing for research rotational field trials at the Agricultural Research Council, Vegetable, Industrial and Medicinal Plants, Roodeplaat

1. INTRODUCTION AND BACKGROUND

The Agricultural Research Council (ARC) is a Research Science and Technology institution of excellence in South Africa, which operates within the National System of Innovation. The ARC has a mandate for innovative and creative agricultural research, technology development and transfer aimed at the advancement of South African agriculture.

2. OBJECTIVE

The ARC seeks to appoint an experienced and accredited service provider for the supply, delivery, and installation of anti-climb and maintenance free galvanised steel palisade fence on double brick wall for research field trials at the ARC-Vegetable, Industrial and Medicinal Plants campus based in Roodeplaat, Pretoria.

3. SCOPE OF WORK & PRICING SCHEDULE

3.1. Site survey

- The contractor is to determine the site conditions before providing the ARC with a quotation.
- The contractor must submit a **project plan and a plan of action** to indicate the method solving the situation like rock foundation, loose sand, clay soil, storm water overflow, etc.
- The contractor will make good any services, surfaces and finishing damaged during course of construction and the cost of which is to be borne by the contractor.

3.2. Area cleaning

- The contractor must cut down trees and shrubs on both sides of the proposed fence line. This must be done 5 m on both sides of the fence, inside and outside (where applicable).
- The contractor must remove any existing fencing material within the fencing line.

3.3. Supply, deliver & install, galvanized steel palisade fencing on brick wall.

Bidder to supply, deliver and install new hot-dip galvanised and poly-coated PVC steel Palisade fence (Figure 1) with galvanised and poly-coated steel posts and galvanised steel concertina razor wire on top of palisade panels, installed on newly built double brick wall with hot-dip galvanised shark-teeth spikes on top of the brick wall on both side of the fence.

Figure 1. Composite image of palisade fence to be installed.

Figure 2: Image of galvanised shark-teeth spikes on top of brick wall (left); and flat wrap razor wire (right).

Figure 3: Area 1: Fence (yellow line) 2 228 m long to link to existing fence (blue line) around buildings. Includes three gates (red blocks).

Figure 4. Area 2: Fence (green line) 1183 m long to link to existing fence (blue line) around buildings. Includes two gates (red blocks).

Palisade fence specifications

Item	Size
Area 1 (Figure 3)	2 228 m
Area 2 (Figure 4)	1183 m
Site clearance	• Take out and remove the existing old security fence, where applicable. • Remove all plants, trees, rocks or debris where new fence must be installed. Clear at least 5m on both sides of fence (10 m total) (where applicable). • Rubble must be removed from the site. • Maximum height of remaining tree stumps 100mm above ground level, to be sprayed with Glyphosate herbicide.
Concrete footing and reinforcement for double wall built with solid clay brick (Figure 5)	• Trench excavation: 600 mm deep x300 mm wide • Backfill with suitable G5 material compacted to 95% • Where trenches are sloping down to be at increment of about 85mm • Steel reinforcement cage with 6Y12 R08 strips at the suitable center • Concrete footing at not less than 32MPa strength • All reinforced is located to ensure a concrete cover of 250 mm. • Double brick wall height: 1 m above natural ground level (NGL) • The minimum compressive strength of all pre-stressed components is 32 MPa at 28 days.
Posting	• Hot-dip galvanized, poly-coated PVC mild steel post, colour green, H-beam, 75x75mm, 2.4 high • Post to be planted within the double wall, at a depth of at least 0.5 m into the wall/ground • Posts not more than 3 000 mm apart
L-Brackets	• 75 x 50 x 5 mm L-brackets 62 mm long must be welded to the posts with a 13mm pre-drilled hole (before galvanizing and poly coat) through the middle for M 12 x 40 mm hot-dip galvanized bolts with snap nuts to secure the panels to the posts
Earth Tabs	• Corner posts must be fitted with 30 x 6 x 20 mm earth tabs, 815 mm from the bottom • Earth tabs must face the inside and must have a 13 mm hole drilled in the centre
Palisade panels	• Hot-dip galvanized, poly-coated PVC mild steel palisade panel, colour green, fixed on top of 1 m high wall • Panel 3 000mm long, 1 200 mm high • Two crossbars per panel, top and bottom • Angle iron pales, 40x40 mm, 3mm thick, with 17 pales per panel • Gap between pales not more than 110 mm (or 170 mm center to center) • Pale head: spear point • Gap between brick wall and bottom of panel not more than 100 mm

Shark-teeth spikes	• Hot-dip galvanized hardened steel • Barb lengths from 65 to 110mm and base width of 40 to 50 mm • Fixed on wall, both sides of the palisade fence
Flat wrap razor wire	• Made from durable hot-dip galvanized barbed tape wire with high tensile claps • Coil diameter: 700mm • Blade type: BTO-022, bard length 22 mm, bard width 15 mm and bard spacing 34 mm • The wire shall be single strand 2.5 mm spring steel • All the coils must be securely tied to the extension arms or angle iron with galvanized steel wire at each steel post. Each 700 mm circle of razor wire must be securely tied to the steel strand using galvanized wire.
Sliding Gate with heavy duty motor	• 4m wide x 2.4m high (Refer to Post Specification) • All steel material: hot-dip galvanized, poly-coated PVC mild steel, colour green • Heavy duty industrial sliding gate motor, 24 V, suitable for gate size and weight • Boxed and lockable mechanism for motor • Heavy duty pad lock: 10cm(L) x 10cm(W) x 10cm(H) • Guiding gate wheels: 100mm (heavy duty) • Gate railing: angle iron 38mmx38mmx5mm with round bar (10mm) welded on the angle iron • Railing length: 8m • Gate railing reinforcement should be as follows: ▪ 42.5N cement ▪ Crush runner concrete 8-9mm ▪ Concrete bonding liquid • Flat wrap razor wire on top of gate, across gate length, same as for rest of the fence • Flattened expanded metal fitted over bottom 1 m of fence, for full length of the fence. Consisting of mild steel, mesh dimensions 25x50mm and 2.0 mm thickness.
Drainage opening in brick wall on side next to river	• Drainage openings in the wall, for part of fence alongside the river • Drainage openings at ground level, covered with hot-dip galvanized reinforced steel grid fixed to the wall • Openings not more than 250 mm wide, 250 mm high and placed at least every 100m
Service provider to comply with the following standardized specifications	• SABS Test (2536/YM139) and any other relevant test to move to award stage as part of the handover certificates • Provide certificates of compliance of material and coating.

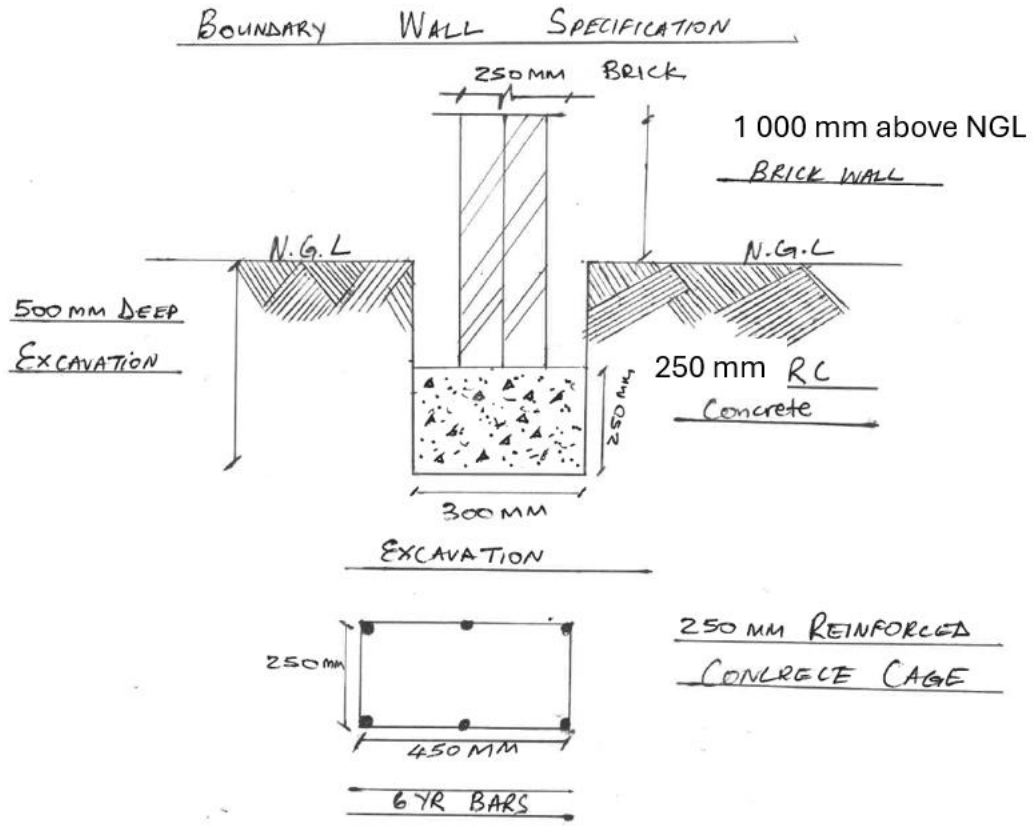

Figure 5: Sketch of the proposed brick wall and foundation

PART B

3.4. Scope of work & pricing schedule

N.B . Area 1 and area 2 to be quoted separately.

All the work carried out under the contract will be measured as executed, and priced at the rates contained therein, or based on, the priced schedule of quantities. The individually priced items in the schedule will be adjusted on merit on a basis to be agreed prior to the signing of the contract if required. **The installation work shall be executed in accordance with all the relevant codes of practices, statutory regulation, standard, regulation, municipal laws and by-laws. The S.A. Bureau of Standards Codes of Practice S.A.B.S. 0400 of 1990, S.A.B.S. 0105 and SANS 10142-1: 2003 (all as amended) and manufacturer's specifications and codes of practice.**

Bidders are to NOTE that the quantities reflected in this document are merely illustrative and no warranty can be given as to the actual quantities of work that will ultimately materialize on the completion of this contract. Therefore, NO CLAIMS for alteration to rates shall be entertained due to changes in quantities.

The rates document forms part of and must be read and priced in conjunction with all other documents forming part of this Bid, including, standard conditions of Bid, conditions of contract, specification and other relevant documentation.

Zero, nil, gratis, unbalanced or non-market related rates will NOT be accepted, and ARC reserves the right to disqualify the Bid.

4. DURATION OF THE PROJECT

- **65 week days (excluding weekends)** has been allocated for the **FULL** completion of this project (or as stipulated during site visit). This **INCLUDES** the snag list corrections and final sign off the project. Regular performance appraisals to monitor the identified Key Performance Indicators shall form part of the SLA.
- The service provider to ensure that all the work is completed within time schedule from the date the service provider received the order.
- Extension of time will only be granted on delays caused by natural causes i.e. rain, floods, etc.
- The project plan must be provided indicating timelines with deliverables.
- The Institute is providing the essential services; the work must be executed in such a manner that it will not have negative impact on service delivery.
- Any damages to the campuses' equipment due to the negligence of the service provider will be repaired or replaced by the service provider at his/her own costs.
- All the work done, and the material used must comply with the requirement of Occupational Health and Safety Act, National building regulation, South African National Standard and any other relevant legislation.
- Warrantee of the equipment must be given to the ARC according to the manufacturer's guidelines.
- The workmanship guarantee of twelve months must also be given to the ARC at no additional costs on the work activities carried out.
- Manufacturer's guarantee on the quality of the material must also be provided

5. GENERAL

- All steel materials shall be of commercial quality, galvanized steel.
- Miscellaneous material shall be galvanized.

6. WARRANTY

All equipment shall be installed with a twelve (12) months manufacturer's warranty/guarantee on the work done.

The service provider shall provide a warranty of not less than 12-month guarantee on the workmanship on the work undertaken at no cost to the ARC.

7. CONTACT PERSON

For technical information

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