B Installation

Estimate For : Supply & Commissioning of an Hanging Electric fence (around 1200m)

Sri Lanka School of Animal Husbandry – Seeppukulama

Power Cabin Equipment's

Item	Description	Qty	Unit	Rate Rs.	Amount Rs.
01.	Energizer (with complete set of spares) 15j – 12 kv – 1 year Warranty	1.00	nos		
02.	Solar panel with Galvanized Array Frame Kit - 1 year Warranty	1.00	nos		
03.	Solar Control Unit 10 Ah - 1 year Warranty	1.00	nos		
04.	100 Ah Battery - 1 year Warranty	1.00	nos		
05.	Battery Charger (12 v/ 30 A)	1.00	nos		
06.	Fence Voltage Alarm With Siren	1.00	nos		
07.	Lightning Diverter	1.00	nos		
08.	Battery Connector	1.00	nos		
09.	Cutout Switch	1.00	nos		
10.	2.5 mm Flexible wire	1.00	m		
11.	Lead Out Cable	25.00	m		
12.	Galvanized Earth Stake -5 Feet Long	4.00	nos		
13.	PVC Pipe (1" =3m)	10.00	nos		
14.	PVC Joint Socket	15.00	nos		
15.	On /off Swich	1.00	nos		
	Total				

Hanging Fence Equipment's

01.	1 ½" GI pipes (2.3mm) Fence post	100.00	nos		
02.	1 ½" GI pipes (2.3mm) support post for corner post	35.00	nos		
03.	Iron Bracket for Support to pipe bend	15.00	nos		
04.	Pipe Bending Grinding and painting	135.00	nos		
05.	2.5 mm Galvanize Fence Wire (10 year Warranty)	1500.00	m		
06.	1.5 mm Galvanize Fence Hanging Wire (10 year Warranty)	12000.00	m		
07.	Ceramic Insulator (1year Warranty)	100.00	nos		
08.	Bullnose Insulator (1year Warranty)	30.00	nos		
09.	Wire Tighter (10 year Warranty)	30.00	nos		
10.	Spring Gate	8.00	nos		
11.	Posts Concrete (Details Attached)	135.00	nos		
12.	5 g Concrete Cubes for Hanging Cables	3000.00	nos		
13.	Installation and Programming cost with All other relevant material	1.00	Bulk		
14.	Transport Charge	1.00	Bulk		
	Total				

Total Amount With 3 wire line's

01.	Power Cabin Equipment's				
02.	Hanging Fence Equipment's				
	Total				

Technical Specification For Energizar

No.	Required Specification	Compliance Yes/Partially/No	Manufacturer's Specifications & Model Nos.
1	Energizar: Energizer shall be manufactured to IEC 60335-2-76 Ed.3.0 International Electromechanical Commission standard (or latest) for current limited electric fence Energizers.		
1.1	Make		
1.2	Model		
1.3	Country of Origin		
1.4	Country of Manufacture		
	Energizar Specification.		
1.5	The peak energizer stored energy shall be 18 Joule or Higher.		
1.6	The energizer shall maintain at least 8000V for load resistance above 1k Ohms.		
1.7	The energizer shall incorporate internal adaptive control, so that as the fence is more heavily loaded, the output energy of the controller is automatically increased to compensate, and to maintain effective high energy deterrent pulses of at least 6500V from load resistance of 250 Ohms upwards.		
1.8	The current consumption of the energizer shall not exceed 1.3 Amp under normal working conditions and 2.2 Amps under any circumstance.		
1.9	Energizer shall work with 12 volts DC Battery power and AC 230V with a power adapter.		
1.10	Output energy of the energizer shall be limited to a maximum of 6.5 Joules at 500 Ohms load resistance.		
1.11	Main Energizer parameters should be configurable (Thresh,hold voltages, Alarm Modes., ext..)		
1.12	Energizer shall incorporate a display to indicate necessary parameters. Following parameters of the energizer should be displayed ▪ Stored energy/fence current ▪ Output voltage ▪ Earth voltage ▪ Energizer failure		
1.13	The energizer should visually indicate ▪ Whether it is in normal operation or electrical interference mode. ▪ When the Energizer is in failure		
1.14	The device shall be conforming to IP X4 standard.		
1.15	Spare replaceable modules should be available in market for easy servicing		

1.16	The energizer unit must be able to incorporate lightning protection prescribe by IEC 60335-276(2013V2.2) during installation		
1.17	Certified copy of complete type test certificate from independent third party accredited laboratory confirming to IEC 60335-2-76 should be submitted		

Specification for the Supply & Installation and Commissioning of an Electric Fence

At Sri Lanka School of Animal Husbandry – Seeppukulama

General

Approximately *1200 m* long Wire Hanging Type Electric fence should be constructed along the perimeter Sri Lanka School of Animal Husbandry – Seeppukulama to protect the cultivation and property from wild elephants and other wild animals. Fence has to be constructed to ensure the security of the entire premises while clearly defining the title perimeter of the property. The Electric Fence must contain Solar Power / Battery operated Energizer unit with suitably fixed in a place given by the client. (On the wall of watcher hut). Bidders should construct suitable canopy and stand to mount system components and to protect same from rain. A horizontal High Tensile Galvanized Wire (2.5 mm / 1.6 mm2) should be drawn with 3.6 m ground clearance along insulators mounted on L shape bracket welded to the suitably spaced GI poles. Maximum spacing allowed between two in line GI poles is 20 m. All GI poles should be painted and supported on corner poles. Galvanized wires should be connected to the horizontal wire with 450 mm apart, in such a way that they are hanging down maintaining 750 mm ground clearance. (Please refer the attached drawings)

Specifications given in this document are the minimum expected. As such bidders are always encouraged and are at their liberty to submit better and competitive proposals.

Solar power / Battery operated/Main Power Operated Energizer

Rating of the energy discharge should not be less than 13 J – 15 J and repetitive high voltage pulses of DC current must be delivered along the entire length with 01 Conductor and Hanging Wires. Each pulse shall last for a very short time (approximately 500 microseconds) and is produced at one second intervals. The voltage peak of each consecutive pulse shall rise to a limit of 8000- 10,000 V and maintain effective high energy deterrent pulses of at least 6500 V from load resistance of 250 Ohms upwards (Eg. Short circuits such as tree branches or grass touching fence wire etc.). The unit should be powered by 12V DC battery and 230V mains power. The system should have maintenance free deep cycle Lead Acid DC Battery backup to sustain the system for a period not less than three days without the supply power. The offered energizer shall comply to IEC 60335-2-76 standard.

Quote separately for remote control unit which can be used to turn the fence energizer OFF or ON out in the field remotely by touching the remote control onto the electric fence wire, or otherwise.

Conducting Wire, Cut out Switches, Earthling, Lightning Diverter Kits, Lead out Cable, Insulators, Wire Tightness, Flood Gate Controllers, Security Alarm Kit and Fence Management Tools should be provided as applicable. The site plan is attached.

Installation Procedure:

Land preparation and setting up GI posts along the perimeter shall be done by the contractor. Since the soil in the area is sandy, extra attention should pay while fixing of GI posts and actions to be taken to prevent GI posts are lifting up from loosen soil. It is imperative that the gap between the ground and the hanging conducting wire has to be maintained not less than 450 mm at all times. As such every remedial step (decreasing the space between supporting posts, putting up rubble walls and raising the ground level etc.) has to be taken to maintain this condition and to prevent animals creeping through gaps

The energizer should be installed in the control room/ location provided by the client according to the instructions given by the client. The energizer should be solidly grounded as per the earthing specification. They should also be sited away from flammable materials and away from the risk of mechanical hazards too.

The lead out wire from the energizer to the fence and from one fence to another fence should be insulated and fitted with a cut-out switch.

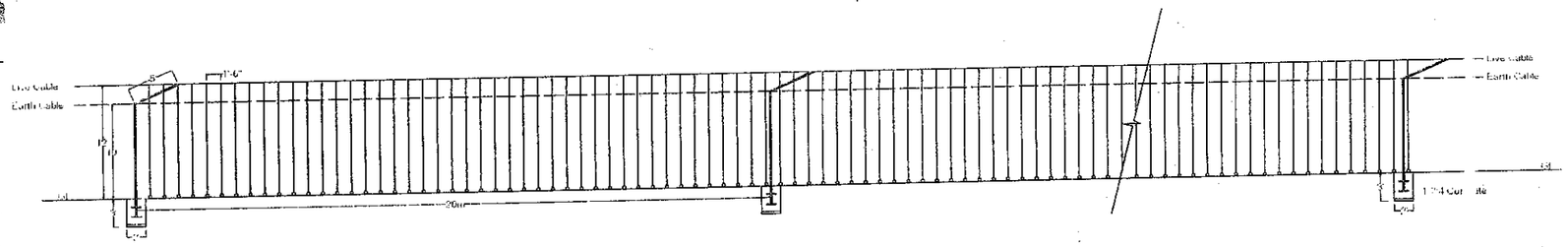
The conductor line wires should be secured to and insulated from GI posts with insulators to prevent current leakage to earth. It is imperative that only insulators that are designed and manufactured specifically for electric fencing should be used. A measurement of resistance is taken from the wire to a point on the post 150 mm (6 inches) from the wire and a reading of 25–200 Mega Ohms is required.

The contractor should train and guide the staff of the client to arrange conducting wires, tracing clearing faults, operation and maintenance of the fence etc in order to maintain the fence in working order.

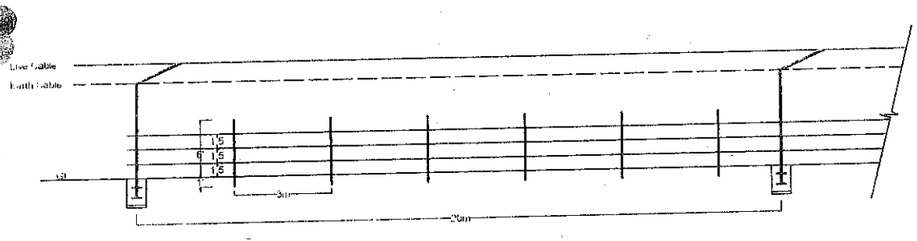
Other Conditions:

1. The bidder should fill the attached price schedule with correct information and signed.
2. There shall be a proven track record of maintenance /after sales in Sri Lanka, for energizers offered by the supplier.
3. Bidder should be capable to provide onsite after sales service within the area and spare parts and spare energizers shall be available with bidder.
4. Bidder should be the Local agents or dealer of the offered brand of energizer and letter of proof should be attached to the bidding documents.
5. Bidder should be able to supply all the accessories to construct the fence and unit price of required accessories should be attached.
6. Successful bidder shall train the users to install and maintain the energizer and electric fence.
7. Comprehensive and complete product literature in English should be provided with bidding document.
8. Customer list for similar constructions with their contact details should be attached.
9. Copies of company registration and VAT registration documents should be attached to the offer.
10. Payment will be done on measure and pay basis.

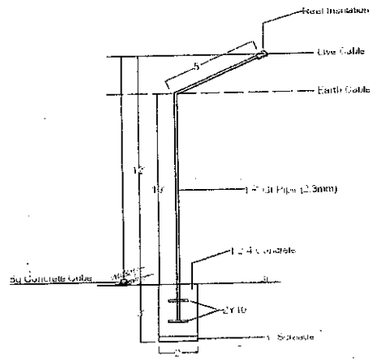
Bidder's Signature: ..... Date: .....



HANGING FENCE



NORMAL FENCE



GI Post Detail

DEPARTMENT OF AGRICULTURE
CHIEF ENGINEER'S OFFICE
PERADENIYA

PROJECT: CONSTRUCTION WORK OF HANGING FENCE AND NORMAL FENCE

TITLE:

SHEET NO: 01

DRAWN BY:

CHECKED BY:

APPROVED BY:

DATE:

SCALE: