



Ref:NRG/ TDD/HCEAS/2017/157669

Date: 08 /09/2017

NIT for Minor Fabrication
Due date: 03/10/2017

Sealed quotations are invited for and on behalf of the President of India for the work as described below. The last date of submission of sealed quotation is 03/10/2017 up to 15:00 hrs at 201, WIP service building, Trombay, and Mumbai 400085, of Technology Development Division. Please mention the reference number on the front cover of the sealed quotation. Sealed quotation shall only be sent through Postal Speed Post/Normal Post only. Hand delivery of the quotations is strictly not allowed. The sealed quotation will be opened on the same day at 15:30 hrs. in the office of authorized tender opening officer, TDD NRG, BARC.

| Description of work | Duration |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Supply, erection, testing & commissioning of Integrated E-fencing & Closed Circuit Television System for a BARC facility at Trombay,Mumbai-400 085. | Four months |

1.0: General: An E-fencing system for Perimeter Intrusion Detection and Close Circuit Television (CCTV) System is intended to be installed in an integrated way for one of the new Facility while the existing E-fencing and CCTV system of an ad-joining facility is needed to be upgraded and integrated as one Composite System with local and remote monitoring and viewing features at BARC, Trombay, Mumbai-400 085.

1.1: Technical Specifications and Requirements for E-fencing System:

1.1.1: The total perimeter length of new E-Fencing to be carried out is 60.0 mts.and height of the Fence is 3.3 mts.with 100 mm spacing between wires. This constitutes 32 lines fence component system. The perimeter has 03 sides and has one Gate(4.7 meter wide). It has seven corner posts to be firmly supported with Powder coated MS Angles, while line posts shall be supported using existing chain link fence. It is to be configured as two zones and is to be powered by Two zone Energizer with TCP/IP adaptor.The schematic sketch will be given to the successful tenderer. The existing E-fencing of an ad-joining facility is a functional system with earlier version of Energizers without TCP/IP adaptor. This system needs to be upgraded with Two zone Energizer having TCP/IP adaptor. Both these Energizers are to be networked to a common Server which will be common for E-Fencing as well as CCTV system.

1.1.2: **The supply and installation of following items is in the scope of Tenderer.**

| Sr. No | Description | Qty. & Unit | Supply Rate Each (Rs.) | Total Cost of Supply (Rs.) | Installation Rate (Rs.) | Total Cost of Installation(Rs.) |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------|----------------------------|-------------------------|---------------------------------|
| 1 | Supply &Installation of 2 Zone Energizer, 8-10 KVPulse, 8 Joules (4 Joules/Zone) E-fence energizerJVA Z 28 or equivalent with TCP/IP adaptor, lightening protector, sounder, power supply and backup SMF battery in weatherproof enclosure as per specifications at 1.1.4 | 02 Nos. | | | | |
| 2 | Supply & Installation of Gate Switch | 01 No. | | | | |
| 3 | Supply, Installation of Server (for E-fence & CCTV) with Licensed Operating System Windows 10 Professional, Microsoft SQL Server 2008 or higher with requisite licenses as per specifications at 1.1.5 | 01 Nos. | | | | |
| 4 | Supply, Installation of monitoring stations (Local & remote) with networking & OFC connectivity with requisite licenses as per specifications at 1.1.8 | 04 Nos. | | | | |
| 5 | JVA Perimeter Patrol Pro or equivalent GUI software compatible with energizer, inclusive of local and remote station with requisite licenses. | 01 Set. | | | | |
| 6 | Supply and Installation of HDPE (ID-2 inch) Sleeve. | 200 mts | | | | |
| 7 | Supply and laying of armoured cable for sounder. | 250 mts | | | | |
| | Sub Total | - | | | | |

| | | | | | | |
|--|-----------------------------|---|--|--|--|--|
| | GST @ | - | | | | |
| | Sub total with GST | - | | | | |
| | Sub total with GST in words | | | | | |

Note: All the Price/Rate values, GST shall be clearly mentioned in all above columns. The Grand Total shall also be written in words.

1.1.3: The following items will be made available at site as Free Issue Materials hence the Tenderer's scope includes only their installation.

| Sr. No | Description | Qty. & Unit | Installation Rate Rs. | Total cost of Installation Rs. |
|--------|--------------------------------------------------------------------------------------|-------------|-----------------------|--------------------------------|
| 1. | Installation of E- fence components comprising of following (will be issued as FIM) | 01 Lot | | |
| 1a | Gripper | 500 Nos. | | |
| 1b | Clip | 500 Nos. | | |
| 1c | Line Post | 25 Nos. | | |
| 1d | Line Clamp | 50 Nos. | | |
| 1e | Corner Post | 07 Nos. | | |
| 1f | GI support post for corner post | 14 Nos. | | |
| 1g | Insulated HT wire Bundle | 400 Mtrs. | | |
| 1h | Wire 2.5 Sq mm SS wire | 2000 Mtrs. | | |
| 1i | Tension Springs | 500 Nos. | | |
| | Sub Total (Rs) | - | - | |
| | GST @ | - | - | |
| | Sub Total with GST Subtotal with GST in Words | - | - | |

1.1.3a

| | | |
|--|---------------------------------|--|
| | Grand Total (table 1.1.2+1.1.3) | |
| | Grand Total Rs. in words: | |

Note: All the Price/Rate values, GST shall be clearly mentioned in all above columns. The Grand Total shall also be written in words.

Tenderer shall be responsible for complete installation of e- fence system as per site requirements with all accessories and mounting support as per E-fence installation practices. The installation should be of very rugged nature.

1.1.4: Technical specification of E- fence Energizer units

- Maximum Distance Rating: 5km of live wire.
- Type: 2 Zone Energizer suitable for 2.5 sq. mm SS live wire.
- Output Impedance: Excellent (Low).
- Pulse Energy: 8 Joules (4 Joules/Zone) as per standard and do not exceed any fatal/ deadly hazard limits under fault / failure condition
- Pulse: 8-10 KV Pulse
- Networking : TCP/IP adaptor, MODBUS / TCP compatible
- Power supply: 230 V AC, 50 HZ, Single phase
- Enclosure IP Ratings: IP 66
- Battery: SMF with life 3 to 5years under normal operating conditions.
- Certification : Compliance to National and International Safety Standards (IEC or equivalent)

Features :

- High voltage wire and earth wire monitoring and alarm with tamper alarm.
- LCD Display with out and return voltage display
- Gate monitor input to monitor gate
- Built-in lighting and surge protection
- 15 hrs. of battery back up
- High & low power options.
- Diagnostic mode

- Fully programmable relay output
- Key pad for E- fence Energizer units to be supplied with backlit LCD, up to 100m dist. Max
- Enclosure canopy and accessories
- Latest e-Fence firmware for regular operation & maintenance as well as configuration testing of the system with complete fault diagnostic features

Installation & commissioning of E-fence energizer unit

Supplier shall install energizer units and shall establish proper connectivity with the e-Fence system. One unit will be connected to newly installed E-fence system and other will be used for up gradating of existing E-fence. Both units shall be supplied in a lockable CRCA powder coated cabinet with cabling, glanding & MCB etc. Supplier shall conduct proper erection and site testing and configure the units as per the site requirements. Expert from the OEM shall be engaged for the site jobs.

1.1.5: Technical specification of Server (Common for E-Fence and CCTV System)

E fence system shall be provided with suitable Server PC with licensed operating system & E-fence O&M GUI software and configuration firmware. Supplier shall provide requisite licenses (i.e. 3 nos) for the server & local & remote monitoring stations. Typical technical Specifications of the server is given below:

- Processor : Intel® Xeon® E5-2640 v4 product family
- Number of processors: 1
- Processor core available: 10
- Processor cache: 25MB
- Processor speed: 2.4 GHz
- Form factor (fully configured): 4U, 19" rack mountable
- Monitor: 40" High Definition LED Display with interfacing cable 10 meters
- Expansion slots: (4) Minimum
- Memory: 64GB Minimum
- Memory slots: 4 DIMM slots
- Memory type: DDR4 UDIMM
- Memory protection features: Unbuffered ECC
- Hard Disk Capacity : 2 x 1 TB SATA
- System fan features: Non-hot plug non-redundant
- Network controller: Intel® Ethernet Connection I219-LM 1 Ports per controller
- Number of NICs : 04 nos.
- Storage controller: Integrated SATA RAID
- Infrastructure management: Intel® Active Management Technology (Intel® AMT)
- SMPS : 2 Redundant SMPS
- Warranty: min 3 Year on all components

1.1.6: Installation & commissioning of E-fence server

E fence server shall be installed in the room/Cabin next to the energizers units. Server shall be pre-installed with all authorized / licensed copy of OS and Software mentioned at 1.1.2. The server shall be connected to local and remote monitoring station via OFC (**existing optical fiber cable**) link. Supplier shall establish required OFC connectivity with all requisite hardware. Other specific feature of networking & communications are described below

- **Computer Interface:** Energizer should have RS485 and Ethernet port to enable integrating a computer based network located in different areas. The energizer firmware shall support alarm and configuration setting parameters via MODBUS / TCP protocol. Configuration of units at site with PC on Ethernet port is in the scope of supplier.

1.1.7: Integration of CCTV surveillance system with E-fence system

Supplier shall be responsible for integration of E-fence system with CCTV surveillance system. So that the security can assess the E-fence alarm via CCTV Surveillance and monitoring system. Cameras shall be properly mapped as per the zones and in case of zone alarm the CCTV camera will display the respective footage & shall record the same for alarm assessment purpose. Supplier shall be responsible for site implementation with all requisite accessories as per system and site requirements. He shall provide proper demonstration, training & documentation (soft and hard format).

1.1.8: Technical specification of Local & Remote monitoring stations

Local monitoring station: Supplier shall provide PC based monitoring station for local monitoring purpose. The system will be installed at the Guard House of the facility & will be hooked up using existing FO link.

Standard Desktop - Small Form Factor Tower

- Processor: Intel Core i5-7600 @ 3.5GHz
- Monitor: 32" High Definition LED Display
- Memory: 8 GB
- Hard Drive 1: 1 TB SATA HDD
- Optical Drive: CD/DVD writer 16x
- Video: Intel HD Graphics 630
- Keyboard: 104+ keyboard (USB)

- Mouse: USB Optical Wheel Mouse
- I/O port , 6 or more
- Licensed copy of Operating system (Windows 10Professional) & E-fence related software & licenses inbuilt for local and remote units.
- Warranty 3 year comprehensive on site

1.1.9: Installation and commissioning of Local & Remote monitoring stations :

Supplier shall install, configure & hook up existing PC based monitoring / viewing terminal situated at remote location using existing FO link. Supplier shall be responsible for supply, erection including accessories for the local & remote monitoring station. System demonstration & training & documentation (soft and hard format) shall be arranged by the supplier.

1.1.10: Erection of Poles and GI support-post: Supplier shall be responsible for site erection of all poles & pole support with powder coated angles. The erection shall be carried out as per the standard procedure. This job involves site digging, RCC & masonry works. Supplier shall bring good quality cement, sand, stones, bricks etc for the job & shall complete the job with quality workmanship. The civil design of poles shall be got approved from Engineer-in-charge.

1.1.11: Erection of SS wires with Grippers & clips for E-fence system: Supplier shall be responsible for site erection of complete SS wires with grippers & clips for E-fence system. Wires will be placed at 100mm apart and will be tied properly with grippers & clips. Separate arrangement shall be provided for the 4.7m gate for entry. **Gate frame and gate switches** shall be in the scope of the contractor.

1.1.12: Input Power- Supplier shall arrange separate MCB 230V AC $\pm 10\%$, 50 Hz, single Phase Supply, mains ON/OFF indication, through built in suitable switch fuse unit for E-fence system. All cables will be FRLS grade. **Suitable design features shall be incorporated to provide immunity against EMI/RFI and line transients. All power cables used shall be of FRLS grade.**

1.1.13: Digging & Cable laying: Supplier shall be equipped for cable laying practices on wall, ceiling, and trenches etc. as per site requirements. Depending upon the type / spec of energizer unit supplier shall provide all connectivity options and supply FRLS grade, armored cables i.e. signal cable, control cable, networking etc as per standard procedure. Outside cables shall be laid in HDPE pipes as per practice. Such HDPE pipes shall be laid on ground after surface digging on the route approved by engineer-in-charge. Supplier shall include all cable requirements as per their system configurations/ architecture and prepare a list mentioning type & make to be used and submit to BARC for approval. Contractor shall be responsible for supply and laying at site as per practices.

1.1.14: Vendor Evaluation: Purchaser reserves the right to evaluate supplier's work himself or by his authorized representative after opening of bids. Full co-operation shall be rendered during the evaluation.

1.2: Technical Specifications and Requirements for Close Circuit Television Surveillance System:

1.2.1: The work involves supply and installation of New Cameras of both Bullet Network Cameras and Outdoor PTZ dome Network cameras for a new facility as well as existing facility, supply and installation of 32 channel NVR, configuration with common Server and Local and Remote Viewing Stations, overall integration with E Fencing System, testing and commissioning of Composite System. **Laying of network cabling infrastructure for cameras is not in the scope of the vendor, as it is existing.**

1.2.2: **The supply and installation of following items is in the scope of Tenderer.**

| Sr No | Description | Qty. & Unit | Supply Rate Each (Rs.) | Total Cost of Supply (Rs.) | Installation Rate Each (Rs.) | Total cost of Installation Rs. |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------|----------------------------|------------------------------|--------------------------------|
| 1 | Honeywell HBD3PR2 or equivalent Bosch make, 1/3", 3MP, WDR Vari-focal MFZ, IR, Outdoor Bullet Network Camera | 15 Nos. | | | | |
| 2 | Honeywell HDZP252DI/ or equivalent Bosch make 2MP, 25 X , Outdoor PTZ, IR dome network camera | 13 Nos. | | | | |
| 3 | Wall mount for above cameras at Sr. No. 02 | 13 Nos. | | | | |
| 4 | Honeywell make 32 channel NVR model HEN32304 or equivalent Bosch/Honeywell with 12 TB RAID 6/RAID 6 CCTV Grade Storage Hard Disks (2*6TB/ 3*4 TB) | 01 No. | | | | |
| 5 | 32" Full HD LED Monitor | 02 Nos. | | | | |

| | | | | | | |
|---|---------------------------------------------------------------------------------------------------------------------|---------|---|--|--|--|
| 6 | Video Configuration Surveillance, Monitoring and management Software compatible with NVR and cameras being supplied | 01 No. | | | | |
| 7 | 2 meter long Factory made Patch Cords Make: AMP | 60 Nos. | | | | |
| | Sub Total | - | - | | | |
| | GST @ | - | - | | | |
| | Sub Total with GST | - | - | | | |
| | Grand Total | - | - | | | |
| | Grand Total in words | | | | | |

1.2.3: Technical Specifications of 3MP WDR Vari-focal Bullet Network Camera:

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|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Camera: | |
| Image Sensor | 1/3" Progressive Scan CMOS |
| Signal System | PAL |
| Minimum Illumination | 0.1 lux (colour), 0 lux with IR |
| Lens | 2.7 mm to 12 mm @ f/1.4 motorized lens |
| Angle of view | 86°-24° |
| IR | IR Cut filter with auto switch |
| IR Range | More than 30 Meters |
| Wide Dynamic Range | 120 dB |
| Digital Noise Filter | 3D |
| Video Compression | H.264/H.264+/MPEG 4(Profile 10) |
| Audio Compression | G.711/G722.1/G726 |
| Dual Stream Audio Support | Yes |
| Max. Image Resolution | 2304(H)x1296(V) |
| Image Enhancement | Using WDR, Zone configurable BLC |
| Alarm Trigger | Intrusion Detection, Motion detection, Dynamic analysis, Tampering alarm, Network disconnect , IP address conflict, Storage exception |
| Alarm Input | 1-ch terminal block audio in (mic in/line in)/out interface |
| Alarm Output | 1-ch terminal block audio in (mic in/line in)/out interface |
| Protocols | TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS,D DNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv6 |
| Security | User Authentication, Watermark, IP address filtering, Anonymous access |
| Camera Compatibility | ONVIF (Profile S, Profile G) |
| Audio Interface | 1-ch terminal block audio in (mic in/line in)/out interface |
| Network Interface | 10/100 Ethernet using RJ45 connector |
| Onboard storage | Using built-in micro SD slot upto 128 GB(Micro SD Card of 128 GB, Class 10 will be included in supply) |
| Smart Features: | |
| Intrusion Detection | Entry and Exit to/from predefined programmable virtual region |
| Operating conditions: | |
| Power Supply | 12 V/24 V DC and PoE(802.3 af) compatible, External power supply will be in the scope of the supplier |
| Temperature | 0°-60° C |
| Humidity | 95% RH |
| IP Grade | IP66/67 |

1.2.4: Technical Specifications of 2MP 25X Network IR PTZ Camera

| | |
|----------------------|-------------------------------------------------------------|
| Camera | |
| Image Sensor | 1/3" CMOS |
| Signal System | PAL |
| Minimum Illumination | 0.005 lux @ (f/1.6, AGC on)colour, 0.001 B/W, 0 lux with IR |
| Lens | |
| Focal Length | 4.8-120 mm zoom, 25X |
| Max Aperture | F1.6 – F4.4 |
| Angle of View | 59° or better – 2.4° |
| Pan-Tilt | |
| Pan Range | 360° endless |
| Tilt | -15° - 90° (Auto flip with a provision to disable autoflip) |

| | |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Pan Speed | .1 – 240°/S Preset Speed 240°/S |
| Tilt Speed | .1 – 200°/S Preset Speed 200°/S |
| Preset Positions | More than 200 |
| Patrols | At least 8 Patrols with not less than 30 presets/patrol |
| Infrared | |
| IR | IR Cut filter with auto switch |
| IR Range | More than 100 Meters |
| IR radiation angle | Adjustable by zoom |
| Video and Image | |
| Wide Dynamic Range | 120 dB |
| Digital Noise Filter | 3D |
| Video Compression | H.264/H.264+/H.265/MPEG 4(Profile 10) |
| Audio Compression | G.711/G722.1/G726 |
| Dual Stream Audio Support | Required |
| Max. Image Resolution | 1920x1080 @ 30 fps |
| Image Enhancement | Using WDR, Zone configurable BLC |
| White Balance | Auto/Manual/Indoor/Outdoor/Day light etc. |
| AGC | Auto/Manual |
| BLC & HLC | Support |
| WDR | DWDR |
| Alarm Trigger | Intrusion Detection, Motion detection, Dynamic analysis, Tampering alarm, Network disconnect , IP address conflict, Storage exception |
| Alarm Input | 1-ch terminal block audio in (mic in/line in)/out interface |
| Alarm Output | 1-ch terminal block audio in (mic in/line in)/out interface |
| Network and storage | |
| Protocols | TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS,D DNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv6 |
| Security | User Authentication, Watermark, IP address filtering, Anonymous access |
| Camera Compatibility | ONVIF (Profile S, Profile G) |
| Audio Interface | 1-ch terminal block audio in (mic in/line in)/out interface |
| Network Interface | 10/100 Ethernet using RJ45 connector |
| Onboard storage | Using built-in micro SD slot upto 128 GB(Supply of SD Card lies in the scope of the contractor) |
| Number of signal Streams | Not less than three with image resolution and frame rates described above. |
| Number of simultaneous users | Not less than 15 |
| Users and user levels | Three user levels : Administrator, operator and user |
| Smart Features | |
| Intrusion Detection | Entry and Exit to/from predefined programmable virtual region |
| Privacy Mask | 8 Programmable privacy mask |
| Auto focus | Auto/semi-auto/Manual |
| Operation conditions | |
| Power Supply | 12 V/24 V DC and PoE Plus(802.3 at) compatible, External power supply will be in the scope of the supplier |
| Temperature | 0° -65° C |
| Humidity | 95% RH |
| IP Grade | IP66/67 |
| Lightning Protection | 4,000V lightning protection, surge protection and voltage transient protection |

1.2.5: Technical Specifications of 32 channel NVR:

The NVR shall support the cameras supplied wide this work order. The NVR shall also support cameras of other manufacturers having ONVIF S and G Profiles.

| | |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video/Audio Input | |
| IP video input | 32-ch |
| Two-way audio input | 1-ch, RCA (2.0 Vp-p, 1kΩ) |
| Network | |
| Incoming bandwidth | 320Mbps |
| Outgoing bandwidth | 320 Mpb |
| Remote connections | Minimum 40 |
| Video/Audio Output | |
| HDMI/VGA output | 2 Ch. HDMI1: 4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 2K (2560 × 1440)/60Hz, 1920 × 1080p/60Hz, 1600 × 1200/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz VGA1 : 2K (2560 × 1440)/60Hz, 1920 × 1080p/60Hz, 1600 × 1200/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz HDMI2/VGA2 – same as HDMI1 &VGA1 Optionally 2 HDMI and One VGA |

| | | |
|------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recording Resolution | | 12MP/8MP/6MP/5MP/4MP/3MP/1080p/720p/VGA |
| Recording Compression | | H.265/H.264/MJPEG/MPEG4 |
| Recording Modes | | Schedule (Regular/Continuous, Motion Detection, Alarm); Manual |
| Live view / Playback | | 12MP/8MP/6MP/5MP/4MP/3MP/1080p/ 720p/VGA |
| Backup mode compatibility | | USB Device; Network; Internal SATA burner; eSATA Device |
| Hard Disk | | |
| SATA | | 8 SATA interfaces for 8 HDDs |
| Capacity | | 6 TB/disk (Supplier shall provide total 12 TB of Storage with NVR either 3x4 TB Configuration or 2 x 6TB Configuration, cost of which should be included in NVR) The hard disks shall be of CCTV Grade |
| Interface | | |
| Network | | RJ-45 10/100/1000Mbps self-adaptive Ethernet interfaces, atleast 16 ports shall be PoE ports for interfacing PoE cameras. |
| Supported protocols | | HTTP, TCP/IP, IPv4/IPv6, UPnP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, PPPoE, DDNS, FTP, Alarm Server, IP Search, P2P |
| Serial Interface | | RS-232, Keyboard |
| USB Interface | | 4 USB, atleast two on front panel, USB 2.0/USB3.0 |
| Alarm Inputs | | 16 Channels (The supply will include any internal/external hardware required for Alarm Interface) |
| Relay Outputs | | 06 Nos.(The supply will include any internal/external hardware required for relay outputs) |
| Operating Conditions: | | |
| Power Supply | | 230 V \pm 10%, 50 Hz |
| Temperature | | 0 - 60° C |
| Humidity | | 95% RH |
| Mounting | | 19" Rack Mountable (Mounting brackets will be included in the supply) |

1.2.6: Installation Practices:

1. The contractor shall submit a drawing, giving details of positions of all cameras , soon after entering into the contract. This drawing shall be got approved by the officer-in-charge of the project prior to commencement of installation.
2. Supplier shall supply and fix SS Engraved tags on all cables, junction boxes, cameras, enclosures etc. as per the requirement for proper identification.
3. The contractor shall use proper electrical plug/sockets. Use of loose wiring will not be permitted.
4. The contractor shall use all safety gears like helmets, safety belts, safety shoes etc. and follow safe installation practices. All the safety precautions shall be meticulously followed, The instructions given by safety coordinator from time to time shall be abided.
5. The cameras shall be mounted on wall at a height of about 4-5 meters(outdoors) and about 3-4 meters for indoors.
6. About four cameras shall be mounted on metallic beam structure using a metallic back plate of approx. 5 mm thickness to provide adequate strength to the cameras. These plates shall be welded on the structure followed by painting. Supply, welding, applying red oxide and painton such plates, supply of SS Nut-bolts for mounting camera mount of plate etc. will be in the scope of the contractor. The contractor shall consider this scope for installation while quoting the bid. No extra payment shall be made towards this.
7. The contractor shall integrate the cameras with NVR using existing cable infrastructure.PoE+ Switch and built-in PoE Ports of NVR and configure the complete system and demonstrate features.**(PoE+ Switch is not in the scope of the vendor)**
8. After commissioning, the contractor shall demonstrate the full system performance including local and remote operations of cameras and NVRs, train the users for operation and maintenance.
9. Installation shall be neat and workmanship shall be of excellent quality.
10. Any other materials required, if not specifically mentioned in the bill of material, for the completion of work, should be quoted separately. However, the vendor should supply and install all the fixtures, which may not be specifically mentioned in above, but necessary for the completeness of the work, without any additional cost.
11. All the accessories such as clamps, MS boxes, MS Angles, screws, fixers, ravel plugs, PVC flexible conduits etc. should be supplied by the vendor.
12. The contractor shall be responsible for any loss or damage during transportation, handling and storage of system or any component of the system.
13. The installation of the above work should be as per the guidance of Engineer-in-charge of work.

1.2.7: INSPECTION & TESTING:

1. All the items / materials shall be inspected at Contractor's end/Sourcing Agency before dispatch by Engineer in Charge and his team.
2. Functional tests shall be repeated at site after installation & commissioning, but before final acceptance.

2.0: Working Conditions:

- 2.1: Supplier shall bring all requisite mounting accessories, fittings, connectors /adapters etc, for completing installation and commissioning of e- fencing and CCTV system.

- 2.2: Wiring & cabling, cable laying, networking, FO cabling, splicing, any cabling trench works, drilling works, cable tray work etc related all accessories shall be in the scope of the contractor and contractor shall bring all the accessories to complete the work at site. The accessories shall of standard quality.
- 2.3: All handling equipment, scaffoldings, tools and tackles, ladders, other machines, safety belts, welding machines etc. required for the erection work shall be arranged by the supplier.
- 2.4: The vendor should arrange transport of materials required for carrying out the work in advance i.e. prior to starting of the field jobs. Please note **materials /tools etc entry to the site & their exits** is subjected to **security checks & procedure laid down by BARC security sections** & shall be strictly followed during the site execution. Electricity and Water will be provided free of cost for the above work.
- 2.5: This work involves installation of cabling infrastructure at two distantly located facilities.
- 2.6: The vendor shall arrange adequate accident insurance coverage of his personnel. BARC shall not be responsible for any liability arising out of any accident / injury caused to vendor's personal while executing the work.
- 2.7: To the extent possible the work shall be carried during the normal working hours i.e 9.30 A.M to 5.30 P.M. Monday to Friday. Prior permission will be required to work on holidays and beyond office hours on working & holidays.
- 2.8: This work involves working in restricted area with security restrictions on entry of workers, working time etc.
- 2.9: All the workers and their supervisors need to have police verification done and cleared.
- 2.10: Contractor shall at his own cost, make arrangements for transport of his personnel, materials, tools etc. to and from the site.

3.0: Notes:

- 3.1: Quotation shall be valid for minimum **45 days** from the date of opening.
 - 3.2: The supplier shall be of qualified for similar types of works with PO /WO references to be submitted.
 - 3.3: Supplier shall provide a self declaration that the scope of the work is properly understood by him and he will complete the works in time as per the schedule of the contract.
 - 3.4: The Payment will be made as per Government procedure after the job is completed satisfactorily in all respects and has been approved by the officer supervising the job. Payment shall be made only on satisfactory completion of work, removal of debris/waste arising out of the work carried out from site and on production of bill in duplicate, advance stamped receipt, guarantee / warranty certificates, stores receiving voucher duly signed by ASO (if applicable), No Demand Certificate from Security. In general after submission of all the papers mentioned in work order, it takes about a month period for releasing the payment, as per standard practice followed in BARC. Income tax @ prevailing rate at the time of execution of work and applicable surcharge on Income Tax as applicable & education cess on IT & SC as applicable, will be deducted from the bill.
 - 3.5: Work shall be completed **within four months** of release of work order. Supply of items shall be completed in first two months.
 - 3.6: Your quotations are to be in printed letter head / quotation format which should consist of Goods and Services Tax (GST) Registration Number as well as any other prevailing Tax Registration Number registered with local, state/Central authority, PAN Number of the firm, Service Tax Registration Number etc.
 - 3.7: Quotations that are received in computer generated form are to be construed as invalid and rejected.**
 - 3.8: Similarly claims preferred by the firms are also to be in Printed Invoice formats consisting of the above Registration Numbers.
 - 3.9: It is necessary to mention Taxes Registration Numbers clearly in the quotation, without which the offers will not be considered.
- 4.0 **Undertaking:** The vendor shall give undertaking stating that he has understood the entire scope of work inclusive of technical, supply, installation, testing and commissioning requirements as well as other associated security/safety and other general requirements.
- 5.0: Contact undersigned for any other technical enquiry about the job.

(Shri Sumit Maity)

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