

श्री विकास निर्माण निर्देशनालयको लागि आवश्यक रहेका सामग्रीहरूको पूर्व Validated Specification को

विवरण

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| | Concertina Wire |
| | Barbed wire |
| | 6 ft Picket |
| | 3 ft Picket |

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Specification of Cement

| S.N. | Parameter | Technical Specification | Remarks |
|------|----------------------|---|---------|
| 1 | Type | OPC | |
| 2 | Grade | 53 | |
| 3 | Compressive Strength | Minimum 53 MPa (28 days Strength) | |
| 4 | Standard | NS marked and confirmed to IS 269-2015 or Equivalent | |
| 5 | Test Certificate | Tested according to IS 4031 | |
| 6 | Sealing of Bag | Manufacturer's unbroken sealed bags with packing date clearly mentioned | |
| 7 | Date of Manufacture | Should not be before 3 months on the day of delivery. | |

Specification of Machinemade Gabion Box

| S.N. | Parameter | Technical Specification | Remarks |
|-------------|------------------------------|---|---------|
| 1 | Box Size | 3 x 1 x 1m; 2 x 1 x 1m; 1.5 x 1 x 1m | |
| 2 | Galvanization | All the wires and box shall be galvanized with heavy coating of zinc by electrolytic or hot dip galvanizing process | |
| 3 | Tensile Strength | 350-550 N/mm ² | |
| 4 | Mesh Type | 10 x 12 cm Hexagonal (fabricated from double twisted soft annealed, heavily zinc coated wire) | |
| Wire | | | |
| 5 | Material Type | Mild steel wire complying with NS 169-2045 | |
| 6 | Zinc Coating | Uniform that can withstand min no. of dips & adhesion test specified as per NS 163-2045 | |
| 7 | Weight of Deposition of Zinc | According to NS 163-2045 | |
| 8 | Diameter | 3 mm \pm 2.5% | |
| 10 | Selvedge | 3.9 mm \pm 2.5% | |
| 11 | Lacing | 2.4 mm \pm 2.5% | |
| 12 | Standard | NS 163 & 169b- 2045 or Equivalent | |
| 13 | Test Certificate | Tested according to NS 163-2045 | |
| 14 | Brochure/Manual | Manufacturer's original brochure should be provided | |
| 15 | Warranty | Minimum 2 years/provided by manufacturer whichever is greater | |

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Specification of Drilling Equipment

| S.N. | Parameter | Technical Specification | Remarks |
|--|---------------------|---|---------|
| <u>Air Compressor</u> | | | |
| 1 | Type | Oil injected Diesel engine powered Portable Screw Air Compressor with Air Dryer | |
| 2 | Receiver Tank | Conforming to ASME Norms fitted with safety valves, pressure gauge, and drain valve | |
| 3 | Air Delivery | Minimum 400 CFM (Free Air Delivery) | |
| <u>Working Condition</u> | | | |
| 4 | Temperature Range | Minimum 0-50°C | |
| 5 | Relative Humidity | Minimum 95% | |
| 6 | Working Pressure | 7 to 8 Bar | |
| <u>Diesel Engine</u> | | | |
| 7 | Rated Power | Minimum 110 Hp | |
| 8 | No. of Cylinder | 4 | |
| 9 | Rated Speed | Minimum 2200 rpm | |
| 10 | Noise Level | Maximum 75 dB @ 1 meter form machine | |
| 11 | Air Dryer | Integrated air-cooled refrigeration | |
| 12 | Features | Whole System should be mounted in Trailer | |
| 13 | Standard | ISO or Equivalent | |
| 14 | Brochure/Manual | Operation Manual, Maintenace Manual and Electric Circuit | |
| 15 | Warranty | Minimum two years or provided by OEM whichever is greater | |
| <u>Pneumatic Rock Drill Machine (Jack Hammer)</u> | | | |
| 16 | Type | Double hand hold operator one optional | |
| 17 | Weight | Maximum 25kg | |
| 18 | Air Consumption | 125 cfm to 150 cfm | |
| 19 | Impact Rate | Minimum 2000 blows/min | |
| 20 | Hole Range | Minimum 27 to 48 mm Diameter Holes | |
| 21 | Fitting button bit | 36 & 38 mm dia, 7 button 11 degree (to be provided) | |
| 22 | Maximum Noise level | Maximum 100 db at 2 meter | |
| 23 | Standard | ISO or Equivalent | |
| 24 | Brochure/Manual | Operation Manual, Maintenace Manual | |
| 25 | Warranty | Minimum two years or provided by OEM whichever is greater | |
| <u>Drill Rod/Bit</u> | | | |
| 26 | Steel Grade | Equivalent to SANDBAR 20 | |
| 27 | Size | Hex 19 mm, Hex 22 mm, Hex 25 mm, Hex 32 mm | |
| 28 | Tapered Degree | 11-12 Degree | |
| 29 | Warranty | Minimum 1 year or provided by OEM whichever is greater | |

Specification of Steel Components (Bailey Bridge)

| S.N. | Parameter | Technical Specification | Remarks |
|------|----------------------------------|---|---------|
| 1 | Span | Minimum 36 meters, Single Lane | |
| 2 | Type | DD 24R | |
| 3 | Design | Loading should be equivalent to either AASTHO highway loading HS 20-44 or Indian Standard IRC 6 or equivalent | |
| 4 | Structural Members and Fasteners | Hot rolled medium and high yield strength micro-alloy steel should be used for manufacture of panel, transom, racker, deck unit and other componets confirming to IS 2062:2011 (Fe 540B, Fe410WA, Fe410 WB) or AASHTO M270 (Gd65, Gd50) | |
| | | Panel pins shall be manufactured from special quality of Chrome Molybdenum Steel duly heat treated to give minimum yield strength of Minimum 78 kg/sqmm and minimum izod value of 5.5 kg.m having maximum hardness range between 280 & 340 BHN or shall confirm to ASTM A193 Gd B7 and AASHTO M164M-A325 respectively | |
| | | Deck units shall be manufactured from anti chequered plates and backside shall be stiffened with high tensile steel channels | |
| 5 | Surface Finishing | All major components shall be glavanized according to BS EN ISO 1461, not less than 610 gm/m ² or appropriately equivalent IRC or IS | |
| | | All bolts shall be hot dipped galvanized and pins shall be electro galvanized | |
| | | All major components shall be sand blasted and painted according to IS or IRC in Olive Green | |
| 6 | Welding | The structural components shall be shop welded generally as per relevant IS (IS:9595) or equivalent ASTM Standard | |
| 7 | Standard | IS or ASTM or AASHTO or Equivalent | |
| 8 | Test Certificate | Test certificated should be provided | |
| 9 | Brochure/Manual | Operation Manual, Maintenace Manual | |
| 10 | Warranty | Minimum two years or provided by OEM whichever is greater | |

Specification of Heavy Equipment (Lease)

Hydraulic Excavator Track PC120 or Equivalent

| S.N. | Parameter | Technical Specification | Remarks |
|------|-----------------------|---|---------|
| 1 | Gross Power | Minimum 85 Hp | |
| 2 | Engine Type | 4 cycle, water-cooled, direct-injection | |
| 3 | Track Dimension | Standard | |
| 4 | Maximum Digging Force | Minimum 8500 kg | |
| 5 | Bucket Capacity | Minimum 0.5 m ³ | |
| 6 | Fuel Tank Capacity | Minimum 230 ltrs | |

Hydraulic Excavator Track PC130 or Equivalent

| S.N. | Parameter | Technical Specification | Remarks |
|------|-----------------------|---|---------|
| 1 | Gross Power | Minimum 89 Hp | |
| 2 | Engine Type | 4 cycle, water-cooled, direct-injection | |
| 3 | Track Dimension | Standard | |
| 4 | Maximum Digging Force | Minimum 8500 kg | |
| 5 | Bucket Capacity | Minimum 0.5 m ³ | |
| 6 | Fuel Tank Capacity | Minimum 230 ltrs | |

Hydraulic Excavator Track PC140 or Equivalent

| S.N. | Parameter | Technical Specification | Remarks |
|------|---------------------------|---|---------|
| 1 | Gross Power | Minimum 115 Hp | |
| 2 | Engine Type | 4 cycle, water-cooled, direct-injection | |
| 3 | Track Dimension | Standard | |
| 4 | Max. Digging Force | Minimum 8500 kg | |
| 5 | Reference Bucket Capacity | Minimum 0.6 m ³ | |
| 6 | Fuel Tank Capacity | 230-270 ltrs | |

Hydraulic Excavator Track PC200 or Equivalent

| S.N. | Parameter | Technical Specification | Remarks |
|------|---------------------------|---|---------|
| 1 | Gross Power | Minimum 150 Hp | |
| 2 | Engine Type | 4 cycle, water-cooled, direct-injection | |
| 3 | Track Dimension | Standard | |
| 4 | Max. Digging Force | Minimum 12000 kg | |
| 5 | Reference Bucket Capacity | 0.48 - 1.53 m ³ | |
| 6 | Fuel Tank Capacity | Minimum 400 ltrs | |

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Hydraulic Excavator Track PC210 or Equivalent

| S.N. | Parameter | Technical Specification | Remarks |
|------|---------------------------|---|---------|
| 1 | Gross Power | Minimum 145 Hp | |
| 2 | Engine Type | 4 cycle, water-cooled, direct-injection | |
| 3 | Track Dimension | Standard | |
| 4 | Max. Digging Force | Not less than 15000 kg | |
| 5 | Reference Bucket Capacity | Minimum 1 m ³ | |
| 6 | Fuel Tank Capacity | Minimum 400 ltrs | |

Hydraulic Excavator Track PC220 or Equivalent

| S.N. | Parameter | Technical Specification | Remarks |
|------|---------------------------|---|---------|
| 1 | Gross Power | Minimum 165 Hp | |
| 2 | Engine Type | 4 cycle, water-cooled, direct-injection | |
| 3 | Track Dimension | Standard | |
| 4 | Max. Digging Force | Minimum 17000 kg | |
| 5 | Reference Bucket Capacity | 0.72 - 1.26 m ³ | |
| 6 | Fuel Tank Capacity | Minimum 400 ltrs | |

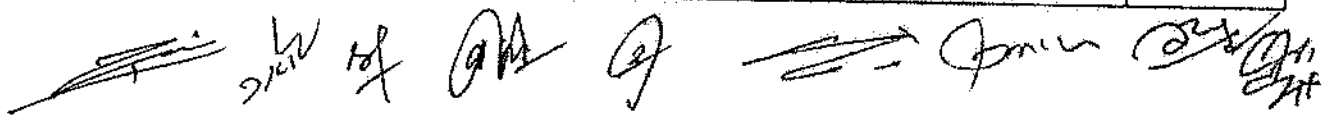
Hydraulic Breaker

| S.N. | Parameter | Technical Specification | Remarks |
|------|--------------------|-------------------------|---------|
| 1 | Working Weight | Minimum 1750 kg | |
| 2 | Oil Flow | 160 - 200 ltr/min | |
| 3 | Operating Pressure | 14 - 18 Mpa | |
| 4 | Impact Rate | 450 - 630 blows/min | |
| 5 | Chisel Diameter | 135 mm | |

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Back hoe Loader Leasing

| S.N | Parameters | Technical Specification | Remarks |
|-----|-------------|---|---------|
| 1 | Engine Type | Turbo charged Intercooled, 4 cyclinder, Minimum 80 HP | |
| 2 | Axles | Four wheel drive with fixed rear axle and at least 15 degree oscillating front axles. | |
| 3 | Loader | Multi purpose (6-in-1, to facilitate dozing, digging, grading, backfilling, grabbing and loading application) bucket with bolt on teeth of SAE rated capacity nominally heaped approx. 1 cu.m | |
| 4 | Backhoe | Backhoe bucket with bolt on teeth of SAE rated ;capacity approx 0.3 cu.m. | |
| 5 | Steering | Power assisted | |



Specification of Utensils

| S.N | Parameters | Technical Specification | Remarks |
|-----|--|--|---------|
| 1 | 50 person cooking utensils set all complete | Various sizes Aluminium cooking pots with lids and carrying handles ; minimum pieces ideal for 50 person , pressure cooker minimum 15 litres; 1x 22"diameter parat; 2 x 3' long ladle and 2 x 3' spatula | |
| 2 | 10 person cooking utensils set all | Various sizes Steel cooking pots with lids and carrying handles ; minimum pieces ideal for 10 person, pressure cooker minimum 5 litres, 2 ladle and 2 spatula | |
| 3 | Dinner plates, small plate, bowl with spoon and fork | 12" Dinner Melamine Plate; 6" Small Melamine Plate; 300 ml Melamine bowl, 6" Steel Spoon and Fork | |
| 4 | Dinner plates, small plate, bowl with spoon and fork for Guest | 12" Dinner Ceramic Plate; 6" Small Ceramic Plate; 300 ml Ceramic bowl, 6" Steel Spoon and Fork | |
| 5 | Glass 250ml | 250ml; Material Glass | |
| 6 | Cup Set | Material : Ceramic; Minimum 6 x Cup and Base Plate | |
| 7 | Various sizes Hotcase set with serving spoons | Stainless Steel Double walled, 1 ltr, 3 liter , 5 liter and 7 liters | |
| 8 | Kitchen Knives | Stainless Steel; 9", 12" and 15" | |



Specification of Laptop (i7)

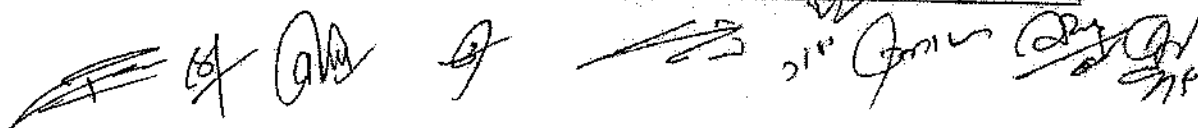
| S.N | Parameters | Technical Specification | Remarks |
|-----|------------------|---|---------|
| 1 | Processor | Intel Core i7, Minimum 8th Generation, 8M Cache | |
| 2 | Memory | Minimum 16GB | |
| 3 | Storage | Minimum 256GB SSD+ Minimum 1TB SATA | |
| 4 | Graphics | Minimum 4GB dedicated | |
| 5 | Display | Minimum 15" LED display, Full HD | |
| 6 | Interfaces | Minimum 3 x USB (Minimum 1XUSB 3.0), HDMI, Gigabit Ethernet, Wireless 802.11 AC | |
| 7 | Operating System | Genuine Windows 10 Professional (Serial key should be provided) | |
| 8 | Accessories | Laptop Bag, Wireless high DPI Mouse, charger | |
| 9 | Battery Backup | Minimum 4 hours in operation such as office package | |
| 10 | Standard | ISO or equivalent | |
| 11 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |

Specification of Laptop (i5)

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------------|---|---------|
| 1 | Processor | Intel Core i5, Minimum 8th Generation, or above | |
| 2 | Memory | Minimum 8GB | |
| 3 | Storage | Minimum 1TB SATA | |
| 4 | Graphics | Minimum 2GB | |
| 5 | Display | Minimum 15" LED display, Full HD | |
| 6 | Interfaces | Minimum 3 x USB (Minimum 1XUSB 3.0), HDMI, Gigabit Ethernet, Wireless 802.11 AC | |
| 7 | Operating System | Genuine Windows 10 Professional (Serial key should be provided) | |
| 8 | Accessories | Laptop Bag, Wireless high DPI Mouse, charger | |
| 9 | Battery Backup | Minimum 4 hours in operation such as office package | |
| 10 | Standard | ISO or equivalent | |
| 11 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |

Specification of A4 Laser Printer

| S.N | Parameters | Technical Specification | Remarks |
|-----|---------------------|--|---------|
| 1 | Printer Type | Laser Monochrome | |
| 2 | Interface | USB, Ethernet, Wireless | |
| 3 | Duplex Printing | Yes | |
| 4 | Print Resolution | Minimum 600x600 dpi | |
| 5 | Print Speed | Minimum 24 ppm | |
| 6 | Print Memory | Minimum 256MB | |
| 7 | Monthly page volume | Minimum 2000 pages | |
| 8 | Paper Input | Minimum 240 Sheet | |
| 9 | Paper output | Minimum 40 Sheet | |
| 10 | Paper Sizes | A5, A4, A6, Letter, Legal, Executive | |
| 11 | Accessories | Driver, CD/DVD, User Manual, Minimum 1 set of Toner/Cartridge included | |
| 12 | Standard | ISO or equivalent | |
| 13 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |



Specification of A3 Laser Printer

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------------|--|---------|
| 1 | Printer Type | Laser Monochrome | |
| 2 | Interface | USB, Ethernet | |
| 3 | Duplex Printing | Yes | |
| 4 | Print Resolution | Minimum 600x600dpi, | |
| 5 | Print Speed | Minimum 40 ppm (A4); Minimum 20 ppm (A3) | |
| 6 | Print Memory | Minimum 512MB | |
| 7 | Paper Input | Minimum 240 Sheet | |
| 8 | Paper output | Minimum 40 Sheet | |
| 9 | Paper Sizes | A5, A4, A3, A6, Letter, Legal, Executive | |
| 10 | Accessories | Driver, CD/DVD, User Manual, Minimum 1 set of Toner/Cartridge included | |
| 11 | Standard | ISO or equivalent | |
| 12 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |

Specification of Multifunctional 3 in 1 Laser Printer

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------------|--|---------|
| 1 | Printer Type | Laser Monochrome, Print, Copy, Scan | |
| 2 | Interface | USB, Ethernet, wireless | |
| 3 | Duplex Printing | Yes | |
| 4 | Print Resolution | 1200x1200dpi | |
| 5 | Print Speed | Minimum 27 ppm (A4) | |
| 6 | Copy speed | Minimum 27 ppm (A4) | |
| 7 | Copy resolution | Minimum 600x600dpi | |
| 8 | Scan resolution | Minimum 600x600 dpi | |
| 9 | Memory | Minimum 512MB | |
| 10 | Paper Input | Minimum 240 Sheet | |
| 11 | Paper Sizes | A5, A4, A6, Letter, Legal, Executive | |
| 12 | Accessories | Driver, CD/DVD, User Manual, Minimum 1 set of Toner/Cartridge included | |
| 13 | Standard | ISO or equivalent | |
| 14 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |

Specification of Satellite (Television)

| S.N | Parameters | Technical Specification | Remarks |
|-----|----------------------|---|---------|
| 1 | System Configuration | With settop box, wiring cable, Transceiver, Dish | |
| 2 | Compatibility | Should be compatible with DTH in Nepal. | |
| 3 | Standard | ISO or equivalent | |
| 4 | Warranty | Minimum 1 year/Provided by OEM whichever is greater | |

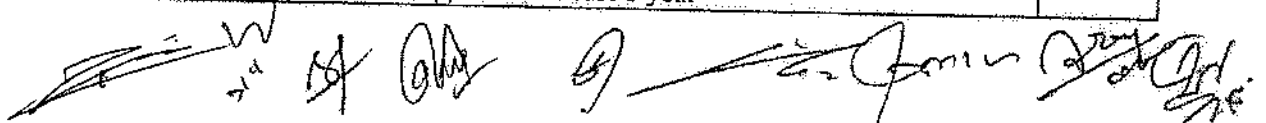
Specification of Auto level surveying equipment

| S.N | Parameters | Technical Specification | Remarks |
|-----|-------------------------------|----------------------------|---------|
| | Telescope | | |
| 1 | Length | Maximum 215mm | |
| 2 | Magnification | minimum 24x | |
| 3 | Objective Aperture | minimum 32 mm | |
| 4 | Resolving Power | maximum 4" | |
| 5 | Field of View (at 100m/328ft) | Minimum 1°25' (2.5m/8.2ft) | |

| | | | |
|--|------------------------------------|---|--|
| 6 | Minimum Focus | 0.2m (7.9 in.) from end of telescope 0.3m (1ft) from instrument center | |
| 7 | Image | Erect | |
| 8 | Stadia Constant | 0 | |
| 9 | Stadia Ratio | 100 | |
| | Accuracy (1km double run leveling) | | |
| 10 | Without Micrometer | Maximum 2.0mm (0.08inch) | |
| 11 | With Micrometer | Maximum 0.5mm (0.02 inch) | |
| | Compensator | | |
| 12 | Type | Pendulum compensator with magnetic damping system | |
| 13 | Setting Accuracy | maximum 0.5" | |
| 14 | Working Range | Minimum ±15' | |
| | Circular Level | | |
| 15 | Sensitivity | Maximum 10'/2mm | |
| | Horizontal Circle | | |
| 16 | Diameter | 100 to 105 mm | |
| 17 | Minimum Divison | Maximum 1°/1gon | |
| | General | | |
| 18 | IP rating (Water resistance) | IPX6 or better | |
| 19 | Operating Temperature Range | Minimum (-20 to 40 degree Celcius) | |
| 20 | Size | Portable | |
| 21 | Weight | Maximum 1.85 kg | |
| | Accessories | | |
| 22 | Tripod | 1 set | |
| 23 | Staff | Standard ISO equivalent | |
| 24 | Includes | Hard carrying case, user manual, lens cap, cleaning cloth, vinyl cover, adjusting pins, Hex wrench, Plumb bob | |
| | Warranty and training | | |
| 25 | Demonstration | The vendor must provide a demonstration of the instrument and accessories to confirm the above specification. | |
| 27 | Warranty | Minimum 2 years/provided by OEM whichever is greater | |
| 28 | Service Center | Manufacturer's Authorized Service Center in Nepal is mandatory. A letter from manufacturer's with the details of the Service Center must be included with the bid . Nepal Army shall visit company authorized Service Center. | |
| Remarks: Any technical requirements as per the specification above, Which is not mentioned in the product brochure should be defined by the Authorized letter from the manufacturer. | | | |

Specification of Road design software

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|--|---------|
| 1 | Origin | Nepali | |
| 2 | Features | Autocad interface, 3D Visualization, Built-in Digital Terrain Modelling, Capability to design hill roads, automated quantity and drawing extraction, Easy profile, cross section editor. | |
| 3 | Training | Training for 4 persons | |
| 4 | Validity | Software support for atleast 1 year | |



| | | | |
|----|----------|--|--|
| 29 | Warranty | Minimum 1 year/ provided by OEM whichever is Greater | |
| 30 | Standard | ISO or Equivalent | |

Specification of Color Printer A3

| S.N | Parameter | Technical Specifications | Remarks |
|-----|--------------------------------|--|---------|
| 1 | Type | Color Printer | |
| 2 | Printing Speed | Minimum 17ppm | |
| 3 | Print Resolution | Minimum 1200 x 6000 or Equivalent | |
| 4 | Paper Capacity | Minimum 100 Sheets | |
| 5 | Paper Support | Minimum A3 | |
| 6 | Paper Weight Support | Minimum 75g/m ² | |
| 7 | Interface | Minimum 1 x USB | |
| 8 | Operating System Compatibility | Windows 7,10 or above | |
| 9 | Accessories | Necessary Cables and Connectors, Printer Driver, User Manual | |
| 10 | Standard | ISO or Equivalent | |
| 11 | Warranty | Minimum 1 Year/Provided by OEM whichever is greater | |

Specification of Multimedia Projector

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------------------------|--|---------|
| 1 | Native Resolution | True XGA (1024 x 768 pixels) | |
| 2 | Supported Resolution | Minimum SXGA (1280 x 1024) ,WXGA (1280x800) | |
| 3 | Brightness | Minimum 3000 ANSI lumens | |
| 4 | Contrast Ratio | Minimum 3000:1 (full on/full off) | |
| 5 | Displayable Colors | Minimum 1.07 Billion | |
| 6 | Lamp Life and Type | Minimum 4000/3000 Hours (STD/Bright) 230W P-VIP | |
| 7 | Projection Method | Front, rear, ceiling mount, table top | |
| 8 | Keystone Correction | Minimum ±40 Vertical | |
| 9 | Aspect Ratio at least | 16:10 Native, 4:3 and 16:9 compatible | |
| 10 | Projection Distance at least | 0.5m to 5m | |
| 11 | Image Size at least | 32" to 200" | |
| 12 | Projection Lens | F=2.8, f=7.34mm, manual focus | |
| 13 | Audio | Minimum 2 x 3W stereo speakers | |
| 14 | Noise Level maximum | Approx 29dB/31dB | |
| 15 | Remote Control | IR remote mouse control | |
| 16 | Power Supply | AC Input 240V, 50-60Hz | |
| 17 | Power Consumption maximum | 325 watts max (Bright), 250 watts (STD), <1 watt (Standby) | |
| 18 | Computer Compatibility | UXGA, WXGA, SXGA+, SXGA, XGA,SVGA | |
| 19 | Video Compatibility | NTSC, PAL, SECAM. SDTV (480i), EDTV (480p), HDTV (720p, 1080i/p) | |

| | | | |
|----|---------------------------|--|--|
| 20 | 3D Compatibility | 120Hz Frame sequential 3D for resolutions up to up to 480i | |
| 21 | Vertical Scan Rate | 24 - 85, 120 Hz | |
| 22 | Horizontal Scan Rate | 15.3 - 91.1 KHz | |
| 23 | I/O Connection Ports | HDMI v1.3OR higher version, VGA-in, VGA-out, S-Video, composite video, RCA audio-in, stereo audio-in, Stereo audio-out, microphone-in, mini-USB for interactive pen output to computer, mini-USB for display, RJ45, RS-232, and 12V trigger. | |
| 24 | Loop Through (Audio, VGA) | D-Sub 15-pin VGA output (Functional in both normal and standby modes) and stereo audio out | |
| 25 | Dimensions | Portable | |
| 26 | Standard | ISO or Equivalent | |
| 27 | Warranty | Minimum 1 year/ provided by OEM whichever is Greater | |

Specification of Projector Screen

| S.N | Parameters | Technical Specification | Remarks |
|-----|-----------------------|---|---------|
| 1 | Screen Size | Minimum 90" Diagonal | |
| 2 | Viewing Angle | Minimum 160° | |
| 3 | Viewing Surface | White | |
| 4 | Aspect Ratio (Native) | Minimum 16:9 | |
| 5 | Resolution Support | 4K or above | |
| 6 | Viewing Surface | Matte White, Washable with mild soap and water, Flame Retardant, Mildew Resistant | |
| 7 | Accessories | Stand should be provided | |
| 8 | Standard | ISO or Equivalent | |
| 9 | Warranty | Minimum 1 year/provided by OEM (which ever is greater) | |

Specification of Digital Smart Board 82"

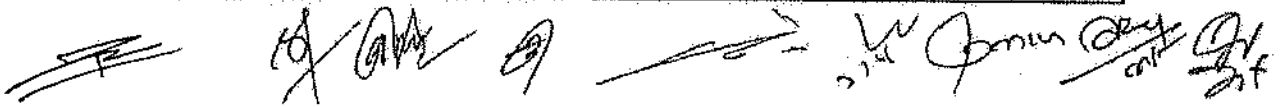
| S.N | Parameters | Technical Specification | Remarks |
|-----|------------------------|---|---------|
| 1 | Size | Minimum 82 " | |
| 2 | Aspect Ratio | 16:09 | |
| 3 | Resolution | Minimum Full HD | |
| 4 | Mount | Wall Mount (Height Adjustable) with Mount Kit | |
| 5 | Color | Minimum 16 M | |
| 6 | Brightness | Minimum 350 cd/m2 | |
| 7 | Contrast Ratio | Minimum 3000:1 | |
| 8 | Cables and Accessories | -USB Cable Length of Minimum 3m -USB extenders which support Minimum 20m USB Cable. - Minimum 5m HDMI Cable | |

Specification of Solar Panel Set (High Capacity)

| S.N | Parameters | Specification | Remarks |
|--|-------------|---|---------|
| 1 | Solar Panel | Minimum 4 x 210 Wp Solar Panel | |
| 2 | Battery | Minimum 4 x 200 Ah, 12 V | |
| 3 | Inverter | Minimum 1x 3.5 KVA | |
| 4 | Standard | ISO Certified or better | |
| 6 | Warranty | Minimum 2 Years/provided by OEM whichever is greater | |
| 7 | Accessories | All necessary accessories to be provided by supplier. | |
| Installation and Demonstration is responsibility of Supplier. | | | |

Specification of Solar Panel Set (Low Capacity)

| S.N | Parameters | Specification | Remarks |
|--|-------------|---|---------|
| 1 | Solar Panel | Minimum 2 x 100 Wp Solar Panel | |
| 2 | Battery | Minimum 1 x 200 Ah, 12 V | |
| 3 | Inverter | Minimum 1x 2 KVA | |
| 4 | Standard | ISO Certified or better | |
| 6 | Warranty | Minimum 2 Years/provided by OEM whichever is greater | |
| 7 | Accessories | All necessary accessories to be provided by supplier. | |
| Installation and Demonstration is responsibility of Supplier. | | | |

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Specification of Safety Construction Helmets

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|--|---------|
| 1 | Use | Should provide head protection from falling objects mainly used in road construction sites | |
| 2 | Material | High density Polyethylene or better | |
| 3 | Features | Reinforced ribs for better impact resistance | |
| | | Extended nap for extra neck protection | |
| | | Ventilated slots which can be opened or closed to prevent rain water seepage and good rain water management to reduce flow of water down to neck | |
| | | Sufficient clearance for optimum shock absorption | |
| 4 | Adjustment | Ratchet type adjustment for comfort and grip | |
| 5 | Clamps | Detachable clamps for easy replacement of chin strap | |
| 6 | Sweat band | Replaceable sweat band made from high absorbant cushioned, skin friendly material | |
| 7 | Colour | White and yellow | |
| 8 | Standard | ISO or equivalent | |
| 10 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |

Specification of Full body harness

| S.N | Parameters | Technical Specification | Remarks |
|-----|-----------------------|--|---------|
| 1 | Use | Full body positioning adjustable harness for fall arrest especially during road constructions with comfort | |
| 2 | Load Bearing Capacity | Minimum 150 Kg | |
| 3 | Attachments | 1 dorsal D-ring, 2 front Textile loops for fall arrest and 2 lateral d rings for work positioning | |
| 4 | Adaptability | Adjustable shoulder, thigh straps and waist belt | |
| 5 | Standard | ISO or equivalent | |
| 6 | Warranty | Minimum 1 year/ provided by OEM whichever is greater | |

Specification of Static rope

| S.N | Parameters | Technical Specification | Remarks |
|-----|---------------------|-------------------------|---------|
| 1 | Weight | Minimum 80 gram/meter | |
| 2 | Diameter | Minimum 11 mm | |
| 3 | Length | Minimum 50 meters | |
| 4 | Tensile Strength | Minimum 30 kN | |
| 5 | Additional features | Seam taped | |
| 6 | Standard | ISO or equivalent | |

Specification of Construction Shirt and Pant

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|--|---------|
| 1 | Features | Both full sleeves shirt and pant should be made of same material with multiple pockets and reflective strip on both front and back | |
| | | Should withstand normal abrasion | |
| 2 | Material | 100 % Cotton | |
| 3 | GSM | Minimum 175 | |
| 4 | Colour | Dark Green | |
| 5 | Size | Small, Medium , Large and XL | |

Specification of Reflective Safety Vests

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|----------------------------------|---------|
| 1 | Material | Plain Polyester, Colour: Orange | |
| 2 | Mesh | Polyester Reflective Tape, Green | |
| 3 | Standard | ISO or equivalent | |
| 4 | Size | Small, Medium , Large and XL | |

Specification of Safety goggles

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|--|---------|
| 1 | Features | Protection against dust and small debris | |
| 2 | Lens | Polycarbonate lenses and clear hard coat | |
| 3 | Frame | Plastic frame | |
| 4 | Standard | ISO or equivalent | |

Specification of Dust mask

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|--|---------|
| 1 | Features | Protection against dust specially in road construction | |
| | | Foldable and easy to carry | |
| | | Washable | |
| | | Avoid glasses from fogging | |
| 2 | Material | 100 % Cotton | |
| 3 | Colour | Dark green | |
| 4 | Band | Elastic Band comfort in Ear. | |

Specification of Safety Shoes

| S.N | Parameters | Technical Specification | Remarks |
|-----|----------------|---|---------|
| 1 | Upper Material | 100 % Leather | |
| 2 | Lining | Moisture wicking breathable fabric lining | |
| 3 | Steel Toe | Steel Toe cap | |
| 4 | Sole | Single density light weight PU sole | |
| 5 | Features | Anti-Skid Sole Design , Oil Resistant , Water Resistant | |
| 6 | Weight | Maximum 1.5 kg | |

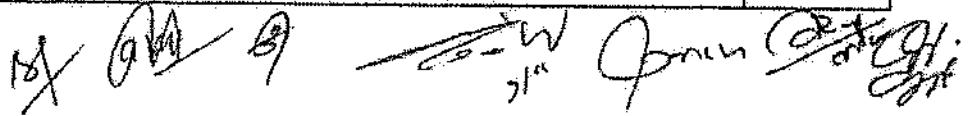
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| 7 | Standard | ISO or equivalent | |
| 8 | Warranty | Minimum 1 year/provide by OEM whichever is greater | |

Specification of Fire Blanket

| S.N | Parameters | Technical Specification | Remarks |
|-----|------------|--|---------|
| 1 | Material | Smooth continuous filament glass fibre or better | |
| 2 | Dimension | Minimum 6' x 4' | |
| 3 | Features | Wall mounting hole in a flexible pack | |
| 4 | Standard | ISO or Equivalent | |

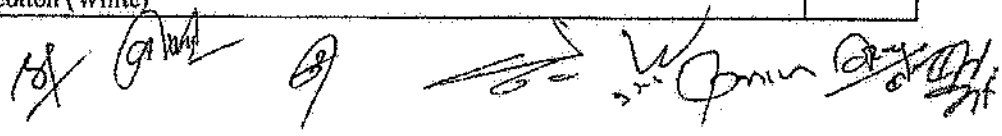
Specification of First Aid kit

| S.N | Parameters | Technical Specification | Remarks |
|-----|---------------------|---|---------|
| 1 | Features | Sturdy and well organised complete set with first aid kit box | |
| 2 | Must include | Scissors, Vicks Vaporub, Tweezers, Thermometer Digital, Alcohol Swab, Mupirocin Ointment, Crepe Bandage 4", Cotton Buds, Cotton Rolls, Handiplast, Sterile Gauze swab, Adhesive tape, Povidine Iodine, Analgesic Spray Moov, Gauze Roll, Hand Sanitizer, surgeons gloves, tape (1/2"x 5 meter), Burn gel | |
| 3 | Date of manufacture | Not before 6 months at the time of delivery | |
| 4 | Standard | ISO or equivalent | |


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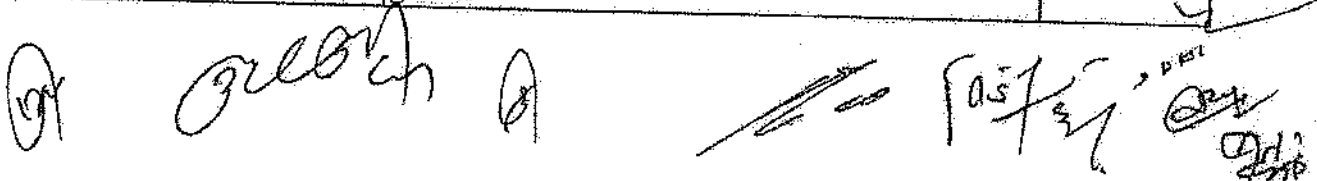
Specification of Furnitures

| S.N | Parameters | Technical Specification | Remarks |
|-----|--------------------------------|--|---------|
| 1 | Steel cupboard | Size : Minimum (6'X 3' X 1.5') ; 3-4 tier ; Small Vault inside with lock; Double Swinging Door ; Lock system outside ; Material: Steel, minimum 18 guage ; Colour : green | |
| 2 | Simple Office table | Size : Minimum (3'-6" X 2' X 2'-6") ; Materail : steel frame and plywood top with tek finish, Polished finished in frame (colour : green/black);2 nos drawers with slider and locks with appropriate paintings. | |
| 3 | Simple office chair | Metal Square frame with arm rest, High density foam with black resine in top, back and arm rest; , Metal Primer and Enamel Paint on Metal | |
| 4 | Tea table | Size : Minimum (3'-6"x1'-8"x1'-6") , Material : Seasoned wood; 19 mm ply wood on top with tek finish. | |
| 5 | Computer Table | Size : (2'-6" x 1'-6" x 2'-6"); Material Plywood with tek finish. | |
| 6 | Sofa set | Seasoned wood leg and frame; high density foam in good quality fabric upholstery | |
| 7 | Plywood | 3'x6'; 12mm thick waterproof plywood, ISO or equivalent standard | |
| 8 | Wooden bed | 3' x 6' Seasoned wood with polish finish; 12 mm thick plywood on top. | |
| 9 | Plastic chair | Arm rest; Weight minimum 2 kg ; Material : HDPE | |
| 10 | Plastic table | Material : HDPE ; Colour same as Plastic chair; Shape round; Four Leg; Foldable | |
| 11 | Rosterm | Portable Rosterm 2'6"x2'6"x4'6" ; Wooden | |
| 12 | Mattress, Bed Sheet and Pillow | Size : 3' x 6' ; Filling : High Quality Coir; Fabric Cover : 90 % Polyster and 10 % Cotton; Should have Hight delcity PU foam Quilt layer on at least one side; All edge should be sealed with fabric; Thickness : Minimum 3 inch and Weight less than 11 to 13 kg; 100 % cotton bed sheet and Fiber pillow with cover | |
| 13 | Quilt (Sirak) | Size ;Minimum 7' x 5'; Weight : Minimum 5 kg; Filling : 100 % Cotton; Cover: 100 % Cotton (White) | |



Specification of Concertina Wire (Coil)

| S.N | Parameters | Technical Specification | Remarks |
|-----|---------------------------|--|---------|
| 1 | Type | Concertina Wire (Razor Wire) | |
| 2 | Diameter | 90 cm to 99 cm | |
| 3 | Stretch | Minimum 8 m | |
| 4 | Coil Dia when Stretched | 850 mm \pm 5mm | |
| 5 | Spiral Turn per Coil | 45/46 | |
| 6 | Clips per turn | 4 | |
| 7 | Blade size | 12mm to 60 mm | |
| 8 | Spacing between two Blade | 25mm to 100 mm | |
| 9 | Diameter of Wire | 2.5mm \pm 0.1 mm | |
| 10 | Weight of the Coil | Minimum 12 kg \pm 500 gram | |
| 11 | Features | Should provide handle for Carrying, Opening and collapsing the concertina coil | |
| 12 | Material Used | Hot dipped galvanised Zinc coated tape with a thickness of > 0.55mm having double edge profile, symmetrical spikes with cutting edge compression. | |
| 13 | Standard | Certification of quality check from "Gunastar tatha naap taul bibhag" to be submitted by vendor and secondly costing for the quality check of such 5 sample as given by NA authority shall also bear by vendor | |
| 14 | Warranty | Minimum 1 year/ Provided by OEM whichever is greater | |



| | | | |
|----|---------------------------------------|---|--|
| 18 | Plastic Welding Safety Google Glasses | Adjustable elastic strap, adjusting for a better fitting Indirect ventilation, soft and flexible PVC frame 50mm round flip front lens Flip front lens for easy weld inspection | |
| 19 | Long Leather Safety Apron | Feature : Waterproof, Anti-Dirty, Anti-Radiation, Heat Resistant Material: Leather, Pattern: Plain | |
| 20 | Safety Goggles | Plastic, Lightweight, Comfortable, Eye Protection, Clear Design | |
| 21 | Standard | ISO or Equivalent | |
| 22 | Warranty | Provided by OEM | |

Specification of Portable Arc Welding M/C

| S.N | Parameters | Technical Specification | Remarks |
|-----|-------------------------|---|---------|
| 1 | Rated Input | 220V & 50 Hz | |
| 2 | Rated Output | Minimum 250 A | |
| 3 | Rated Duty Cycle | 60% | |
| 4 | Current Adjusting Range | Minimum 60 - 250 A | |
| 5 | Accessories | Hand Shield, Welding holder, Welding gloves, Welding glass and 20 meter welding cable should be provided. | |
| 6 | Standard | ISO or equivalent. | |
| 7 | Warranty | Minimum 1 year / provided by OEM (whichever is greater) | |

Specification of Wheel Barrow

| S.N | Parameter | Technical Specification | Remarks |
|-----|------------------------|------------------------------|---------|
| 1 | Load Carrying Capacity | Minimum 120kgs | |
| 2 | Volume | Minimum 60 Liters | |
| 3 | Material | Mild Steel | |
| 4 | Handle | Mild Steel with rubber grip | |
| 5 | Wheel | 16"x4.00-8 (Pneumatic Wheel) | |
| 6 | Tray thickness | minimum 6 mm | |
| 7 | Standards | ISO or Equivalent | |
| 8 | Warranty | Minimum 1 year | |

Defense Store

Specification of Barbed Wire(Coil)

| S.N | Parameters | Technical Specification | Remarks |
|-----|-----------------------|--|---------|
| 1 | Type | Barbed Wire(Galvanized) | |
| 2 | Diameter of line wire | 2.5 mm (nominal), $\pm 0.8\text{mm}$ tolerance | |
| 3 | Point wire | 2.5 mm (nominal), $\pm 0.8\text{mm}$ tolerance | |
| 4 | Weight of wire | 155g/m ± 3 gram tolerance | |

| | | | |
|----|--|---|--|
| 5 | Distance between two barbs | 75 ± 12mm | |
| 6 | No. of lays between two consecutive barb | 2 to 7 | |
| 7 | Material Used | Mild steel wire confirming to IS 280. | |
| 8 | Features | Galvanised coating shall confirm to the requirements as given in IS 4826 | |
| | | The barbed wire shall be formed by twisting two line wire together one or both containing barbs. | |
| | | Must contain protective chromate conversion coating | |
| | | Have tensile strength 390-590 N/mm ² | |
| | | Breaking load Minimum 3.7 KN | |
| | | Should provide handle for Carrying the barbed coil | |
| 9 | Weights per Coil | 23 kg± 500 grams | |
| 10 | Standard | Certification of quality check from "Gunastar tatah naap tool bibhag" to be submitted by vendor and secondly costing for the quality check of such 5 sample as given by NA authority shall also bear by vendor. | |
| 11 | Warranty | Minimum 1 year/ Provided by OEM whichever is greater | |

Specification of Concertina Wire (Coil)

| S.N | Parameters ^ | Technical Specification | Remarks |
|-----|---------------------------|--|---------|
| 1 | Type | Concertina Wire (Razor Wire) | |
| 2 | Diameter | 90 cm to 99 cm | |
| 3 | Stretch | Minimum 8 m | |
| 4 | Coil Dia when Stretched | 850 mm | |
| 5 | Spiral Turn per Coil | 45/46 | |
| 6 | Clips per turn | 4 | |
| 7 | Blade size | 12mm to 60 mm | |
| 8 | Spacing between two Blade | 25mm to 100 mm | |
| 9 | Diameter of Wire | 2.5mm | |
| 10 | Weight of the Coil | Minimum 12 kg ± 500 gram | |
| 11 | Features | Should provide handle for Carrying, Opening and collapsing the concertina coil | |
| 12 | Material Used | Feature : Waterproof, Anti-Dirty, Anti-Radiation, Heat Resistant Material: Leather, Pattern: Plain | |
| 13 | Standard | Certification of quality check from "Gunastar tatah naap tool bibhag" to be submitted by vendor and secondly costing for the quality check of such 5 sample as given by NA authority shall also bear by vendor | |

| | | | |
|----|----------|--|--|
| 14 | Warranty | Minimum 1 year/ Provided by OEM whichever is greater | |
|----|----------|--|--|

Specification of Binding Wire

| S.N | Parameter | Technical Specification | Remarks |
|-----|-----------------|-------------------------|---------|
| 1 | Material | Galvanized Iron | |
| 2 | Thickness | 18 Gauge or 16 Gauge | |
| 3 | Weight per Coil | Minimum 10 kg | |

Specification of 6 ft Picket

| S.N | Parameters | Technical Specification | Remarks |
|-----|---------------|---|---------|
| 1 | Material used | High Grade Iron | |
| 2 | Length | 6 ft | |
| 3 | Thickness | 5mm | |
| 4 | Mass | 6kg ±100gm | |
| 5 | Features | Red oxide coated. | |
| | | Hot dipped | |
| | | Green color painted | |
| 6 | Holes at | 2.5 cm from top and each hole at 15 cm each | |
| 7 | Standard | Certification of quality check from "Gunastar tatah naap tool bibhag" to be submitted by vendor and secondly costing for the quality check of such 5 sample as given by NA authority shall also bear by vendor. | |
| 8 | Warranty | Minimum 1 year/ Provided by OEM whichever is greater | |

Specification of 3 ft picket

| S.N | Parameters | Technical Specification | Remarks |
|-----|---------------|---|---------|
| 1 | Material used | High Grade Iron | |
| 2 | Length | 3 ft | |
| 3 | Thickness | 5 mm | |
| 4 | Mass | 3 kg ±100gm | |
| 5 | Features | Red oxide coated. | |
| | | Hot dipped | |
| | | Green color painted | |
| 6 | Holes at | 2.5 cm from top and each hole at 15 cm each | |
| 7 | Standard | Certification of quality check from "Gunastar tatah naap tool bibhag" to be submitted by vendor and secondly costing for the quality check of such 5 sample as given by NA authority shall also bear by vendor. | |
| 8 | Warranty | Minimum 1 year/ Provided by OEM whichever is greater | |

Surveillance Equipment

Specification of CCTV (4 Camera)