Scope of Work
Advanced Traffic Management System (ATMS)

Construction of ATMS building including construction of Column, Column foundations, Back Filling foundation, Plinth beam, Brick work, RCC Roof, RCC Chajja, RCC Staircase, Balcony, RCC Beam, Parapet wall, Stair roof, Doors and windows, Glass panel at stair, hand rail, plinth protection, Electrical, Plumbing , Painting ,Interior work, etc all complete as per attached drawing & technical specifications at the following projects-

ATMS Building				
Name of Project	**SPV Name**	**Nos of building**	**Nos of Floor**	**Remark**
Amravati - Tarsod Section	NWPPL	2	Ground Floor	

1. Scope of Work-

1.1 Architecture and Civil Work

a. Construction of ATMS control centre building (Office Room, Video Hall with Control Room, Workspace, Server Room, Electrical, UPS & battery room and Toilets) as per attached drawing.

b. The work including construction of Column, Column foundations, Back Filling foundation, Plinth beam, Brick work, RCC Roof, RCC Chajja, RCC Staircase, Balcony, RCC Beam, Parapet wall, Stair roof, Doors and windows, Glass panel at stair, hand rail, plinth protection, Electrical, Plumbing, Painting ,Interior work, etc all complete as per attached drawing & technical specifications.

c. **Ground Improvement: -** The Contractor shall carry out Soil Penetration Test prior to the execution in order to confirm that SBC of soil is min. 10ton/sq.m. Ground improvement shall be carried out to achieve the required soil density (SBC) as per the approved design, drawings, and relevant MoRTH specifications.

d. **Excavation-**Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means

e. **Plinth Protection-** Providing and carrying out anti-termite treatment to create a continuous chemical barrier under and around column pits, wall trenches, basement excavations, the top surface of plinth filling, junctions of walls and floors, external perimeter of the building, expansion joints, top surface of

consolidated earth over which the approach is to be laid, and surrounding pipes and conduits, etc., complete in all respects as per the relevant specifications and directions of the Engineer-in-Charge.

f. **Brick works:** Providing and constructing 1st Class brick masonry in walls using bricks of approved quality, laid in cement mortar as specified, including preparation of mortar conforming to IS 2250, mixing, laying, jointing, alignment, levelling, plumbing, curing, scaffolding and all incidental works. For 230 mm thick walls, cement mortar shall be in the proportion of 1:6 (cement:sand). For 115 mm thick walls, cement mortar shall be in the proportion of 1:4 (cement:sand), reinforced with two numbers of 6 mm diameter MS bars in every fourth course, properly embedded in mortar and continued into intersecting walls. The masonry course shall be constructed only after removal of the formwork of the slab or beam above, wherever applicable, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.

g. **Plain Cement Concrete M15-** Providing and laying plain cement concrete of grade M15 using coarse aggregate of up to 40 mm nominal size, black trap stone, in foundations, plinths and bedding, including proportioning of materials, mixing, transportation, placing, spreading, ramming, compaction and consolidation to the required lines, levels, slopes and profiles. The item includes all necessary labour, materials, tools, equipment and incidental works required to complete the concrete work as per applicable specifications and directions of the Engineer-in-Charge

h. **RCC M-25 Concrete:** All concrete shall be Shall be RCC M25 grade of concrete. RCC M25 grade concrete for foundations, Beam, Slab & Column as per approved drawings and technical specifications, conforming to MoRTH Sections 1500, 1700, and 2200. The concrete shall be produced using a batch mix plant, transported via transit mixers, and placed in position using appropriate equipment. The mix design, including approved admixtures, shall be submitted for approval by the Engineer-in Charge (EIC) before production. Aggregates shall not exceed a maximum size of 20 mm, and the concrete shall have a workable slump suitable for RCC. Quality control measures include sampling, testing, and certification as per IS codes like IS 456 and IS 516 to verify strength and compliance. Environmental, material handling, and safety protocols shall be adhered to during execution. All incidental costs related to labor, material, machinery, and overheads are deemed included in the scope of work.

i. **Reinforcement Steel:** Reinforcement steel of designation TMT FE 500 as per IS 1786 for construction work. The vendor shall supply all necessary steel and 18-gauge black annealed binding wire. Reinforcement steel bars are to be cut, bent, and tied per approved bar bending schedules and structural drawings, ensuring

precise dimensions and placements. Steel bars shall be securely tied at all intersections using 18-gauge black annealed binding wire to maintain stability during concrete placement. Laps shall conform to MoRTH specifications and as directed in drawings, with no separate payment for laps or overlaps as per MoRTH Clause 1600. Proper clear cover shall be maintained with spacers and chairs as per drawings and CPWD standards. Steel will be measured by weight in kilograms, excluding binding wire and without allowances for overlaps or wastage. The scope of work includes supply, handling, and on-site quality assurance for positioning, alignment, and compliance with specifications and as directed by EIC. Safety measures and quality checks shall be implemented during all stages, ensuring high-standard reinforcement for structural integrity. Reinforcement bars from the approved make shall only be used.

j. **Damp Proof Course (DPC):-**Providing and laying 40 mm thick damp proof course (DPC) using cement concrete in the proportion of 1:2:4, comprising 1 part cement, 2 parts coarse sand and 4 parts graded stone aggregate of 12.5 mm nominal size, including preparation and cleaning of the receiving surface, mixing of concrete, laying to the required thickness and level, proper compaction, finishing, curing and all necessary labour, materials, tools, tackles and incidental works required for complete execution, as per approved drawings, specifications and directions of the Engineer-in-Charge.

k. **Plastering:**

Inner Plastering: 12 mm thick Inner plaster in as per CPWD Clause 13. The 12 mm thick shall be in cement mortar 1:4 (1 cement: 4 fine sand), roughened while green for bonding. The work includes raking joints, cleaning, surface preparation, uniform application of both layers, curing as specified, and ensuring a smooth finish. The cost includes all materials cement, sand, labor, curing, scaffolding, and quality checks. The work shall conform to IS 1661:1980 and CPWD specifications.

External Plastering: Providing and applying 20 mm thick external cement plaster in two coats using screened sand, comprising a 16 mm thick base coat in cement mortar in the proportion of 1:6 (1 part cement and 6 parts sand) and a 4 mm thick finishing coat in cement mortar in the proportion of 1:4 (1 part cement and 4 parts sand), including preparation and cleaning of the surface, removal of loose mortar and dust, wetting of the surface, application of the base coat to the required thickness, proper levelling and ruling of the base coat, application of the finishing coat, and finishing the surface with Dhuabara sponge finish to achieve a uniform texture and appearance. The item shall include all materials, cement, screened sand, water, labour, scaffolding, tools and tackles, mixing, surface preparation, curing, finishing, and all incidental works necessary for the proper completion of the plastering work, complete in

all respects as per approved specifications and the directions of the Engineer-in-Charge.

Celling Plastering: Providing and applying 6 mm thick cement plaster to ceiling surfaces in cement mortar mix 1:4, comprising 1 part cement, 2 parts coarse sand and 2 parts fine sand, including preparation and cleaning of the ceiling surface, removal of loose particles, wetting of the surface, mixing and application of mortar to the required thickness, proper levelling and smooth finishing, curing, scaffolding, tools and tackles, labour, materials and all incidental works required for completion, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.

l. Roof Top Finishing with Waterproofing Chemical:

Providing and applying roof top finishing using cement mortar in the proportion of 1:6 (1 part cement and 6 parts coarse sand), finished with cement slurry mixed with approved waterproofing chemical as per the manufacturer's recommendations. The work shall include preparation and cleaning of the roof surface, removal of loose materials, mixing and application of mortar to the required slope and level, application of cement slurry with waterproofing chemical, proper finishing to ensure a uniform and impervious surface, curing, labour, materials, tools, tackles and all incidental works necessary for complete execution, as per approved drawings, specifications and directions of the Engineer-in-Charge.

m. Flooring dado, basin counter and jamb work:-

Polished Granite Stone Flooring on Porch, Stairs and Ramp-Providing and laying polished granite stone flooring using 18 mm thick granite slabs over an average 20 mm thick base of cement mortar in the proportion of 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry, including cutting, edge finishing, levelling, polishing and skirting, wherever required, complete in all respects as per approved specifications and directions of the Engineer-in-Charge.

Vitrified Tiles – Toilet Wall Dado (600 × 1200 × 10 mm)- Providing and fixing 600 × 1200 × 10 mm vitrified tiles on toilet walls using cement-based, high-polymer-modified quick-setting tile adhesive, including surface preparation, cutting, laying, alignment, joint filling with suitable grout, finishing and cleaning. Tiles shall be laid up to the full height of the washroom or up to 2100 mm height, as specified in the approved drawings, complete in all respects as per approved specifications and directions of the Engineer-in-Charge.. (Make-Kajaria, Spartex, Johnsons, Naveen, Somani, Bajaj)

Matt Finish Vitrified Tiles – Toilet Flooring (600 × 1200 × 10 mm)-Providing and fixing 600 × 1200 × 10 mm matt-finish vitrified tiles on toilet floors using cement-

based, high-polymer-modified quick-set tile adhesive, including surface preparation, cutting, levelling, alignment, joint filling with suitable grout, finishing and cleaning, complete in all respects as per approved specifications and directions of the Engineer-in-Charge.

Granite Stone Basin Counter Platform-Providing and fixing polished granite stone slabs up to 18 mm thick and 600 mm wide for the washbasin counter platform, including rounding and nosing of edges, laying over a 25 mm thick bed of cement mortar in the proportion of 1:4 (1 cement: 4 coarse sand), cutting, edge finishing, jointing and polishing, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.

Granite Stone for Window Jambs-Providing and fixing 16–18 mm thick granite stone slabs on window jambs, including frame top, bottom and both sides, using suitable stone adhesive or white cement, including cutting, edge finishing, alignment, joint filling and polishing, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.

Granite Stone for Door Jambs-Providing and fixing 16–18 mm thick granite stone slabs on door jambs, including frame top and both sides, using suitable stone adhesive or white cement, including cutting, edge finishing, alignment, joint filling and polishing, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.

n. **False ceiling**: Providing and fixing suspended false ceiling consisting of G.I. perimeter channels (size 0.55 mm thick, 27 mm wide with 20 mm flanges), fixed to walls/partitions with suitable fasteners at 450 mm centres, suspended using G.I. intermediate channels (size 0.9 mm thick, 45 mm wide with two flanges of 15 mm each) fixed to the perimeter channel with connecting clips. Ceiling sections (size 0.55 mm thick, 80 mm wide with two flanges of 26 mm each and a web of 0.55 mm) shall be fixed to the intermediate channel with connecting clips at 610 mm centres. Ceiling panels of 12.5 mm thick gypsum board conforming to IS:2095, fixed to the ceiling section with self-drilling screws 25 mm long at 230 mm centres, including jointing and finishing to achieve a flush finish, using jointing compound and paper tape, as per manufacturer's specification and direction of Engineer-in-Charge.

o. **Painting:**

External Painting: Preparation and application of 1 coat of primer and 2 coats of weatherproof paint in the approved shade to the exterior surfaces of the building. The work involves thoroughly cleaning the surface to remove all dirt, dust, oil, grease, efflorescence, and other contaminants that could affect paint adhesion. After cleaning, a coat of primer is applied, followed by two coats of

weatherproof paint, ensuring a durable and uniform finish. The work will be carried out in accordance with MoRTH Clause 800, CPWD specifications, and the directions of the Engineer-in Charge

Interior Painting - Providing and applying acrylic paint of approved make, quality and shade on prepared internal plastered surfaces and ceiling surfaces, as specified, to achieve a uniform and even finish, including surface preparation, necessary touch-ups, application of two or more coats as required to obtain the desired finish and shade, erection and dismantling of scaffolding at all heights and positions, and all necessary materials, labour, tools and tackles, complete in all respects as per the manufacturer's recommendations, approved specifications and directions of the Engineer-in-Charge.

Painting of Woodwork with Primer and Enamel Paint- Providing and applying painting to wooden surfaces, including doors, windows, frames, shutters and other woodwork, with one coat of approved pink or grey wood primer, followed by two coats of approved quality synthetic enamel paint of the specified colour and shade. The work shall include surface preparation by cleaning, sanding and removing dust, dirt, grease and loose particles; filling minor imperfections with suitable wood filler; applying primer uniformly; allowing adequate drying between coats; light sanding between coats wherever required; and applying two uniform coats of enamel paint to achieve a smooth, durable and even finish. The item shall include all materials, paints, primer, brushes, sandpaper, labour, tools, scaffolding and incidental works necessary for complete execution as per approved specifications and directions of the Engineer-in-Charge.

Painting of MS Work with Primer and Enamel Paint:

Providing and applying painting to all mild steel (MS) works, including gates, grills, railings, steel frames, supports and other structural or fabricated steel surfaces, with one coat of approved metal primer followed by two coats of approved quality synthetic enamel paint of the specified colour and shade. The work shall include preparation of the steel surface by removing rust, mill scale, dust, dirt, grease and other foreign materials using wire brushes, sandpaper or other suitable methods; application of primer uniformly over the prepared surface; allowing adequate drying time between coats; light sanding wherever required; and application of two uniform coats of enamel paint to achieve a smooth, durable and corrosion-resistant finish. The item shall include all materials, primer, enamel paint, labour, brushes, tools, tackles, scaffolding and incidental works necessary for complete execution as per approved specifications and directions of the Engineer-in-Charge.

p. Doors and Windows:

Teak Wood Door Frame and Flush Door with Accessories (Main Door)- Providing and fixing teak wood or approved equivalent timber door frame with 30 mm thick flush door shutter, complete with all necessary accessories and fittings. The work shall include supplying, cutting, sizing, assembling, aligning and fixing the door frame in position, providing and fixing the flush door shutter with suitable hinges, necessary screws, ISI-marked stainless-steel hardware and approved aluminium fittings, including handles, door stoppers, tower bolts, locks and other required accessories as specified. The frame and shutter shall be properly fitted, plumbed, levelled and aligned to ensure smooth opening and closing, with all necessary fastening, finishing, adjustment and incidental works, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.

Providing and fixing of uPVC Door and Windows-

Providing & fixing factory-made uPVC frame made of uPVC extruded sections having an overall dimension as mentioned in the drawing (tolerance +/- 1mm), with wall thickness 2.0 mm (+/- 0.2mm), corners of the door frame to be jointed with galvanized brackets and stainless-steel screws, joints mitered and Plastic welded. The hinges side vertical of the fames reinforced by galvanized M.S tube of size 19 x19mm and 1mm(+/-0.1mm) wall thickness and 3 no's stainless-steel hinges fixed to the frame complete as per manufacturers specification and direction of engineers in -charge.

Providing & fixing of uPVC shutter with glass (5mm thick Toughened glass/louvers/fostered glass of door/window and ventilator in the frame.

Locations of Doors and window as per approved drawings.

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Providing and Fixing of MS Solid Bar Window Grill- Providing, fabricating and fixing mild steel (MS) solid bar window grills of approved design and pattern, made of MS solid bars of specified size and spacing, including cutting, welding, bending, grinding, surface preparation, applying one coat of anti-corrosive primer and two coats of approved enamel paint, including all necessary clamps, holdfasts, fasteners, welding electrodes, and fixing accessories, complete in all respects as per approved drawings and as directed by the Engineer-in-Charge.

q. **Cladding Work:** Cladding work shall be done all doors and windows with 18 mm thick Granite stone gang saw cut, mirror polished, remoulded and repolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels.

1.2 Plumbing & Sanatory works

a. **SWR UPVC TYPE - B pipe:** SWR UPVC TYPE - B pipe with all kinds of relevant Fittings as per IS: 13592. In case of ceiling hanging, the supply of Pipe Clamps (Chilly/MS angle)

b. U-PVC Agriculture Pipes: U-PVC Agriculture Pipes as per IS: 4985. Cut to required lengths including all necessary fittings and specials such as bends, tees, unions, reducers, flanges and plugs etc. The pipes & fittings shall be tested to a pressure of 10 Kg/Sq.cm. Fixing at wall/ ceiling /floor level supported by clamps, fastener, hangers etc. as per specification. Cutting hole in wall / floor slab and making good the same with cement concrete 1:2:4 complete as required. For basin, sink and urinal waste line

c. Water Tap: cast iron 'P' or 'S' trap conforming to I.S. 3989 /1970 and 1729 / 1964 including drip sealed joints and painting two coats to the exposed surface. (Painting to be paid separately). In case of ceiling hanging, the supply of Pipe Clamps (Chilly/MS angle).

d. SS grating: Supplying, fitting and fixing 10mm SS grating or top grating or Jali with connection pipe for Floor trap/Floor wash as per approved design.

e. Butterfly valve: butterfly valve with Bronze, body, disc & stem union flanges, washer nuts & bolts rated to a temperature of 85 Deg C & suitable for pressure not less than 15 kg/sqcm. Including nitrile rubber insulation with proprietary fireproof protective coating against mechanical damage as per manufacturer's specification (GI boxing to be provided).

f. Rainwater Pipe: Supply, fixing, testing and commissioning in position UV stabilised 100mm dia SWR UPVC TYPE - B pipe with all kind of relevant Fittings as per IS: 13592. In case of ceiling hanging, the supply of Pipe Clamps (Chilly/MS angle), 250 mm x 250 mm. dia CI Rainwater Grating for pipes upto 110 mm dia shall be provided.

g. Urinals and Accessories

I. **Urinals:** Installation, Fitting and fixing Flat back small urinal (half stall in urinal, Size: 460 mm x 350 mm x 260 mm.) in star white vitreous chinaware complete in position with brass screws on 75 mm x 75 mm x 75 mm wooden blocks complete. (NOTE: 1 LTR PER FLASH)

II. **Partion:** Supplying, fitting and fixing 25 mm thick Chinaware partition including cutting groove in wall approx. 75 mm x 75 m x required ht. and setting concrete (1:2:4) including all hardware.

III. 32 mm (for placing in Urinal). dome shaped C.P. Waste coupling.

IV. PVC Bottle trap of heavy quality of 32 mm dia with 190 mm long connecting pipe and wall flange.

V. Supplying, Fitting and fixing approved brand PVC connector (300 mm/600mm long) flexible with both ends coupling with heavy brass

over C.P. nut 15 mm dia.

VI. 15mm Dia C.P. on brass angular stop cock with wall flange or similar brand)

h. Sink Sets & Accessories:

I. Stainless steel sink with drain board Overall Size 1040 mm x 510 mm, Bowl Size 460 mm x 410 mm x 205 mm.

II. Sink without drain board with inbuilt waste coupling - Bowl Size 410 mm x 355 mm x 175 mm.

III. Supply, fitting, fixing of C.P over brass Bottle trap of heavy quality of 32 mm dia with 190 mm long connecting pipe and wall flange.

IV. Installation, Fitting and fixing of C.P on brass Sink Cock (Wall Mounted) with regular swinging casted spout with connecting legs and flanges. (NOTE: 3.5 LTRS PER MINUTE)

V. C.P. on brass Angular stop cock with wall flange, 15MM DIA for RO

VI. Installation, Fitting and fixing of C.P. Bib cock of approved make and brand tested to 21 kg per sq. cm.

i. Basin Sets & Accessories:

I. Supplying, Fitting and fixing Rectangle shape Wash basin (countertop/under counter) wash basin star white vitreous china of approved make (without fittings) Fitted and fixed in position on 75 mm x 75 mm wooden blocks and C.I. brackets with two coats of painting of C.I brackets including mending good all damages**.**

II. C.P over brass Bottle trap of heavy quality of 32 mm dia with 190 mm long connecting pipe and wall flange.

III. Installation, Fitting and fixing C.P on brass Piller cock with regular swinging casted spout with flanges (NOTE: 1.4 ltrs per minute)

IV. Supply, Fitting and fixing C.P. Angular stop cock of approved make and brand tested to 21 kg per sq. cm.

V. Any Other necessary item shall be fixed as per site condition.

j. SANITARY FIXTURES AND FITTINGS:

I. Installation, fixing, testing and commissioning of exposed plastic low level cistern for WC, with 6/3 litres dual flush facility complete with all necessary fittings, 40 mm dia heavy duty flush bend pipes & accessories including all supports and making good.

II. Installation, Fitting and fixing full set of Sanitary fixtures and fittings for Paraplegic Toilet consisting of Star white Wash basin of size 650 mm x 350 mm with one pair of mounting brackets, Starwhite European water closet and concealed Cistern complete with fittings and Seat cover, one no. of Hinged rail 760 mm, five nos of Grab rails 600 mm.

III. C.P. on brass Hand shower (Health faucet) with 8 mm dia, 1-metre-long Flexible tube with wall hook. All hardware is in the Contractor scope.

IV. Supplying, Fitting and fixing Wall mounted Roll type C.P. on brass Toilet paper holder with wooden spindle as necessary of size 250 mm X 125 mm.

V. Supplying, Fitting and fixing 40 mm dia.(for EPWC/APWC) C.P on brass (heavy quality) flush bend of approved make, coupling short piece, insertion piece, clamps etc. complete. [Note:- Flush bend only shall be supplied as a free issue Material.

VI. Fitting and fixing approved brand CP on brass connector flexible with both ends coupling with heavy brass over C.P. nut 15 mm dia.

VII. Any Other necessary item shall be fixed as per site condition.

k. Installation of overhead syntax water storage tanks (1000Ltr).

l. construction of soak pit and septic tank as per approved design, drawings, and technical specifications

m. **Providing Pipe Fittings and Water Point for RO Water -** Providing and installing the necessary plumbing pipework and fittings for the RO water purifier, including water inlet connection, outlet pipe, UPVC/CPVC pipes of required size, elbows, tees, unions, connectors, valves, clamps, and other necessary

1.3 Electrical Works

a. **LED Light:** Supply of "Recess/Surface square lighting fixtures 36 W Similar to HAVELLS PLANO RECESS 36 WATT 2X2 PANEL 5700K UGR 19 cool white (Wipro/Philips /Trilux/Bajaj make.) to be fixed in control room, UPS, Server room, office, Work space , Entrance and non-office area like toilet & other area mounted Round LED Downlight 18Watt" Similar to Havells Make -'INTEGRA NXT DLR 18W 857-WHITE' (Or equivalent to Wipro/Philips /Trilux/Bajaj make.) with 3x1.5 mm. PVC copper wire, connections etc. as required including supply of all fixing and connecting materials.

b. **Ceiling fan:** Supply of 1200 mm Sweep Ceiling fan (Orient,Bajaj,Crompton Greaves) shall have minimum 3 years OEM warranty.

c. Supplying & Fixing of Box type fan clamp of 150mm dia & 80mm depth made of 16 SWG CRCA sheet with one end duly sealed by cover, properly welded, incl. S&F 12mm dia 600mm long MS rod duly bent by heat treatment at the center position of rod to grip fan bobbin properly, incl. binding the rod and fan box with reinforcement by 22 SWG steel binding wire, incl. supplying & covering the box with alkathene sheet, placed in order to prevent concrete from entering the box.

d. Fan regulator: Supply & Fixing 240V, Modular Socket (1 Module) type fan regulator (Step type) (Brand approved by EIC) on existing Modular GI switch board with top cover plate incl. making neck. connections etc.

e. Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (up to 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.
f. Providing and fixing extra conduit down rod of 20 mm dia, 2 X 10 cm length, wiring with 2 X 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)
g. Exhaust Fan: Exhaust Fan shall be (Approved make 230MM) shall have minimum 3 years OEM warranty.
h. Call Bell: Call Bell/Buzzer suitable for single phase, 230 V,Complete as required.
i. **Point Wairing:** Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLSH PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. Total 3 Runs of wires to be laid including Earth Wire.
j. **Secondary Point Wiring:** Wiring for group controlled (looped) light point (without independent switch etc.) with 1.5 sq. mm FRLSH PVC insulated copper conductor single core cable in surface/medium class PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required. Total 3 Runs of wires to be laid including Earth Wire.

k. **Providing, Fixing, Testing and Commissioning of RCCB/ELCB for Electrical Installation** – Providing and fixing 2-Pole / 4-Pole, 240V / 415V, 50 Hz, Residual Current Circuit Breaker (RCCB/ELCB) of approved make, 25A / 40A / 63A rated current, 30 mA residual operating current for personal protection, with minimum 6 kA rated conditional short-circuit withstand capacity, conforming to IS 12640 (Part 1) / IEC 61008-1, as applicable. The item shall include mounting on DIN rail in the distribution board, necessary internal wiring, connections, lugs, terminals, and all required accessories, testing and commissioning, complete in all respects as per approved electrical drawings and as directed by the Engineer-in-Charge.
l. **Providing and Fixing of Miniature Circuit Breaker (MCB)-** Supplying and fixing a single-pole MCB, rated from 5 A to 32 A, suitable for 240/415 V operation, with a 10 kA breaking capacity and C-curve tripping characteristic, suitable for inductive loads, in the existing MCB distribution board, including connections, fixing accessories, testing and commissioning, complete as per approved electrical specifications and directions of the Engineer-in-Charge
m. **Providing and Fixing of Control Panel:** - Supply and Fixing of 3 Phase 415 V Suitable capacity indoor panel / Power Control Center (PCC) panel to be fixed for distribution of Power supply in building area. • System: 415 V, 3-Phase, 4-Wire,

50Hz,ACsupply. • Enclosure: Fabricated from CRCA sheet steel (1.6 mm / 2.0 mm for frame and covers) with a 7-tank or 9-tank powder coating process (shade RAL 7032 / approved shade), IP42 / IP54 degree of protection. • Busbars: High-conductivity electrolytic aluminium alloy (or copper) TPN busbars with neutral and a continuous earth busbar running along the length of the panel.
• Base Channel: MS channel structure (e.g., 100 mm x 50 mm x 5 mm).
Supply and fixing of Incoming Breaker / Switchgear:
• [e.g., 63A/125A/250A] FP Air Circuit Breaker (ACB) / MCCB [Microprocessor-based with overload, short-circuit, and earth-fault protection]. Digital Volt-Meter (0–500V) with selector switch. Digital Ammeter of suitable rating with CTs (Current Transformers) and selector switch. Phase-indicating lamps (Red, Yellow, Blue) with protective fuses/MCBs. On / Off / Trip LED indicator lamps. Supply and fixing of Outgoing MCCBs / MCBs / SFUs of required ratings (configure per load list):
•e.g., [100A / 63A / 32A /6A/25A/ etc.] 4-Pole / 3-Pole MCCB /1P/2P/4P MCB. Internal control wiring with FRLS copper wires, ferrule numbering, power cables/links, and connection to main copper/GI earth studs (2 nos.) on the panel.

Shifting, positioning, floor anchoring, megger/HV testing, load trials, and statutory liaison/certification

n. **Providing and Fixing of ESE Lighting Arrester-** Supply and Fixing of ESE Lighting arrester with radius of 110-115 m for protection of server/UPS from lighting strikes to relate 3 nos Separate Earthing through 70 Sq MM SC Copper wire as per suitable arrangement.

o. **Power Cable-** Supply and Fixing of Main Power Cable to relate existing Electrical System to New Proposed Indoor panel for this Building. Cable Size will be calculated based on the Connected Load, i.e. 125 A/150A/200A.(50/70/90 Sq MM 4C XLPE Armoured cable)

p. CIRCUIT WIRING FOR LIGHTING:

i. Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLSH PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required. (2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire,)

ii. Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLSH PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required for AC to be install in building (2 x 2.5 Sq Wire + 1x 1.5 Sq MM Earth Wire)

iii. Medium class PVC conduit along with accessories in surface/recess

including painting in case of surface conduit or cutting the wall and making good the same in case of recessed conduit as required.

q. Power Socket Details:

i. Point Wiring for 16A Socket for Bathroom Water Heater (Geyser) : Supplying, Laying, connecting, testing & commissioning of 16 Amp socket point wiring for Geyser in concealed system complete as per specification & drawing. Cost of point wiring shall include necessary wiring from Distribution Board to the individual switch board with 2 x 2.5 sq. mm + 1 x 2.5 sq.mm 1.1 KV single core FRLS PVC insulated copper wires (1 No. being earth with green insulation) in 20/25 mm bore medium gauge rigid FRLS PVC conduit complete with approved sizes of switch board , socket board (Geyser switch & socket should be fixed in separate board) , junction box, normal / deep circular box, modular cover plate, modular type switch, socket blank plate. including supply of all required material & necessary connection as required. Cost of chisel cutting in brick wall and making good all damages are also deemed to be included in the quoted rates. All materials shall be ISI marked and as specified and approved.

ii. Supplying and fixing suitable size GI box (3 Module) with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.

iii. Providing and Fixing of 5/6A Modular Socket with Switch- Supplying and fixing a suitable-size GI box with modular plate and cover, for surface or recessed installation, including providing and fixing one 3-pin, 5/6A modular socket outlet and one 5/6A modular switch, complete with internal wiring connections, fixing accessories, terminations and testing, as per approved electrical drawings, specifications and directions of the Engineer-in-Charge..

iv. Providing and Fixing of 15/16A Modular Socket with Switch- Supplying and fixing a suitable-size GI box with modular plate and cover, for surface or recessed installation, including providing and fixing one 6-pin, 5/6A and 15/16A modular socket outlet and one 15/16A modular switch, complete with internal wiring connections, fixing accessories, terminations and testing, as per approved electrical drawings, specifications and directions of the Engineer-in-Charge.

v. Supplying and fixing suitable size modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch on the existing modular GI box including connections etc. as required.

vi. Metal box on surface or in recess Wall Junction box including providing suitable size of phenolic laminated sheet cover in the front including

painting.

vii. Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.

viii. Providing and Fixing of 5/6A Modular Socket with Switch- Supplying and fixing a suitable-size GI box with modular plate and cover, for surface or recessed installation, including providing and fixing one 3-pin, 5/6A modular socket outlet and one 5/6A modular switch, complete with internal wiring connections, fixing accessories, terminations and testing, as per approved electrical drawings, specifications and directions of the Engineer-in-Charge.

ix. Providing and Fixing of 15/16A Modular Socket with Switch- Supplying and fixing a suitable-size GI box with modular plate and cover, for surface or recessed installation, including providing and fixing one 6-pin, 5/6A and 15/16A modular socket outlet and one 15/16A modular switch, complete with internal wiring connections, fixing accessories, terminations and testing, as per approved electrical drawings, specifications and directions of the Engineer-in-Charge.

r. **LADDER TYPE CABLE TRAY:** Supply, Installation, Testing and Commissioning of Hot dip Galvanized Ladder Type Cable tray with other necessary accessories as required to complete the job.

s. RACEWAY & JB: Supply & fixing of UPVC Raceway with appropriate cover including cutting the wall or floor etc. as required.

t. EARTHING:

i. Supply of earth electrode for earthing:

Supply & driving of 3 meter long, 40mm dia. MS rod as earth electrode & one end will be conical shaped for easy penetration in soil.

The rod shall be provided with a clamping arrangement (opposite to the conical side & 150mm apart from the end) made of 75mm X 8mm MS flat duly welded thoroughly with the rod + 2 Nos Chemical Earthing 3 Mtr Long 80 MM dia to be provided additionally for UPS/Building Equipment earthing.

ii. Earthing Installation by CU Plate Earthing –(For Main Panel Neutral Earthing) : Earthing with Copper plate (610x610x3mm size) having weight of 9.84 Kg and 2 Nos. 40x6 mm Copper strip (3.20 mt long) & 1 no. 6 sqmm PVC insulated stranded Copper wire (4 Mt long) incl. S & F 15 mm dia GI pipe (ISI-Medium) protection (4 mt. long) to be filled with bitumen, partly under the ground level & partly above ground level to an average depth of 3.65 Mts. below the ground level and restoring the surface duly

rammed incl. providing 3.0 mt long, 25 mm dia GI pipe (ISI-Medium) for periodic treatment, incl. providing masonry enclosure on the top of the earth electrode of overall size 86.36x86.36x46cm deep (below Ground level) complete with cemented brick work (1:6) of 25 cm width, duly plastered with cement mortar (inside) CI hinged inspection cover of size 36.56x35.56cm with locking arrangement, GI reducer and treatment of soil by using salt & charcoal or coke for plate electrode.

iii. **Earthing Strips:** Supplying, laying, jointing and connection of earthing strips for equipotential bonding, interconnecting system Neutral/ equipment body and earthing station. The scope includes supply & fittings of accessories like earthing clamp, saddle etc. and jointing of strips by welding/ brazing/soldering etc.

iv. Supplying and fixing of 75x6 mm and 500 mm long GI Earth Busbar with G.I.nuts, bolts and spring washers as required. No of holes in earth busbar for termination of strips should be as per drawing & as directed by EIC.

list approved brands/makes of materials to be used for constructing an ATMS or related building. List of approved makes mentioned below:

S. no.	Items	Approved Make List
1.	Cement	Ultratech Cement Ltd Ambuja Cement J K Super/Laxmi Shree Cement Birla/Mangalam Cement
2.	Flooring at Staircase	Kota stone flooring (Damage Proof, with 5-year warranty).
3.	Wall Tiles	Kajaria/Somany/Johnson/ Nitco/ Asian Granito
4.	False Celling	Armstrong/SHERA/ USG Boral/ Buildwell/ Trimurti/ Gypcore/ Everest/ Aerolite/ India Gypsum/ Sintex
5.	Building Floor tiles	Vitrified Floor tiles (Make: Somany Ceramics Limited, Nitco Tiles, Kajaria Ceramics, Johnson Tiles)
6.	Paint	Asian/Nerolac/Berger
7.	PVC/HDPE Pipes	FIP/ Astral/ Xiamen Sanideng/ Finolex/ Prince
8.	Staircase Railing	Stainless steel
9.	Brick	1st Class
10.	Overhead Water Tank	Syntex or Supremo
11.	Submersible Motor-	Crompton, Kirloskar (Minimum 3HP)
12.	Sanitary Fittings (Leak Proof with 5-year warranty)	Parryware /Jaguar / Hindware/ Cera/ Somany

S. no.	Items	Approved Make List
13.	Electrical fittings (Concealed wiring)	Havells/Orient/Crompton/Philips
14.	Light fitting	
15.	Air Conditioner (5 Star Rating)	o'generall/Daikin
16.	Ceiling Fan and wall mounted fan, Exhaust fan	Orient or Philips or Khaitan
17.	Almirah	Godrej or Neelkamal
18.	RO water Purifier	Eureka forbes
19.	Down take Pipe	Finolex/6Kg/cm^2
20.	Sewage pipes	Earthware
21.	Doors and windows	Providing & fixing factory-made uPVC frame made of uPVC extruded sections having an overall dimension as mentioned in the drawing (tolerance +/- 1mm), with wall thickness 2.0 mm (+/- 0.2mm), corners of the door frame to be jointed with galvanized brackets and stainless-steel screws, joints mitered and Plastic welded. The hinges side vertical of the fames reinforced by galvanized M.S tube of size 19 x19mm and 1mm(+/-0.1mm) wall thickness and 3 no's stainless-steel hinges fixed to the frame complete as per manufacturers specification and direction of engineers in -charge. Providing & fixing of uPVC shutter with glass (5mm thick Toughened glass/louvers/fostered glass of door/window and ventilator in the frame.

S. no.	Items	Approved Make List
22.	Doors	Teak Wood Door Frame and Flush Door with Accessories- Providing and fixing teak wood or approved equivalent timber door frame with 30 mm thick flush door shutter, complete with all necessary accessories and fittings. The work shall include supplying, cutting, sizing, assembling, aligning and fixing the door frame in position, providing and fixing the flush door shutter with suitable hinges, necessary screws, ISI-marked stainless-steel hardware and approved aluminium fittings, including handles, door stoppers, tower bolts, locks and other required accessories as specified. The frame and shutter shall be properly fitted, plumbed, levelled and aligned to ensure smooth opening and closing, with all necessary fastening, finishing, adjustment and incidental works, complete in all respects as per approved drawings, specifications and directions of the Engineer-in-Charge.
23.	Reinforcement Steel	Tata Steel/SAIL/RINL/ Jindal Steel Power Ltd
24.	Structural Steel	Tata Steel/SAIL/RINL/ Jindal Steel Power Ltd
25.	Aluminum Section	Hindalco/ BALCO/ NALCO
26.	Bajri/Frosted/Wired Glass/ Clear Float Glass for Doors, windows, ventilators	saint Gobain/ Asahi Float/ Modiguard
27.	Mortised Locks & Door Accessories	Assa Abloy India Pvt. Ltd (Yale) Everiet Godrej & Boyce Manufacturing Company Limited Link Group of Industries Europa
28.	Light fittings	Wipro/CGL/ Philips/ Bajaj
29.	Limit switch	Siemens/ Schneider/ Honeywell/ Pyrotech
30.	MCB/MCC/ELCB	Siemens/ Schneider/ Honeywell/ Havells
31.	Switch/socket/industrial receptircal/switch board	Hager/Havells/Anchor/Indo Asian
32.	Wires	Polycab/Rpg/ Havells/ Finolex
33.	Office furniture-Sofa, Chair, Table etc.	Godrej

Note: Any Other items should be of industry standard and should be installed after

approval of Authority Engineer.

Payment Schedule for Each Building-

S No	Stage	weightage	Time of Completion
Ground Floor-		**100%**	
1.	Completion Ground floor upto plinth level	15%	3 months within issue of Work order
2.	Completion of Ground floor Slab Bottom	10%	
3.	Completion of Ground Floor Slab	15%	
4.	Completion of Plastering works	10%	
5.	Completion of Flooring Work	10%	
6.	Completion of Electrical and Plumbing work	10%	
7.	Completion of painting, false celling	15%	
8.	Other Misc. Works and completion of all activities as per drawing	15%	

Note: -

1. The above payment schedule shall be applicable separately to each building.
2. Payment shall be considered based on the Plinth area of the respective building.
3. Payments shall be released upon completion and verification of the respective stages by the Engineer-in-Charge, in accordance with the approved drawings and specifications.

BoQ

1. Amravati – Tarsod Project (NH-53)

Sr. No.	Description	Particulars
1.	Subject	**Ch No 21 8 /750 Toll Plaza Katepurna AKOLA Kurankhed pincode 4441 07, Maharastra**.
2.	Background	The New ATMS Command and Control Center structure will be established adjacent to Toll Building, and the minimum required area of the building is as per D&D. The Concessionaire shall set up and operate the ATMS Command and Control Center as per the Standards and Specification The Concessionaire shall undertake any additional civil works, interior works, MEP works, for setting up the Command Center, including all additional related electrical, lighting, electrical connection, DG set, power backup, HVAC works, access control, building CCTV, PTZ cameras outside building, firefighting system, alarm, fire extinguishers, raised floor, housekeeping, building cleaning, maintenance, recurring charges including electricity bills, telephone bills, DG fuel, servicing, security. **Km 21 8 +750 kurankhed.**

Sr.No.	Product	Specification	Quantity	UoM	Rate	Total
1	Construction of ATMS Building complete in all respect as per attached drawings	Construction of New ATMS building the scope of work includes but is not limited to All works shall confirm to the latest revision of the Specifications for Building Works relevant IRC codes and sound engineering practices All necessary labour materials equipment, safety arrangements and environmental safeguards shall be arranged by the Contractor. The Contractor shall be responsible for completing the works with due diligence quality assurance safety compliance and within the prescribed timelines to the satisfaction of the Engineer-in-Charge.	As per Drawing	L/s		
		Total				

2. Amravati - Chikhali section of NH-53

Sr. No.	Description	Particulars
3.	**Subject**	**Amravati - Chikhali section of NH-53 formerly (Old NH-6) in the state of Maharashtra, India.**
4.	Background	The New ATMS Command and Control Center structure will be established adjacent to Toll Building, and the minimum required area of the building is as per D&D. The Concessionaire shall set up and operate the ATMS Command and Control Center as per the Standards and Specification \The Concessionaire shall undertake any additional civil works, interior works, MEP works, for setting up the Command Center, including all additional related electrical, lighting, electrical connection, DG set, power backup, HVAC works, access control, building CCTV, PTZ cameras outside building, firefighting system, alarm, fire extinguishers, raised floor, housekeeping, building cleaning, maintenance, recurring charges including electricity bills, telephone bills, DG fuel, servicing, security. **Km 280-+642 Tarod kasba**

Sr.No.	Product	Specification	Quantity	UoM	Rate	Total
1	Construction of ATMS Building complete in all respect as per attached drawings	Construction of New ATMS building. The scope of work includes but is not limited to All works shall conform to the latest revision of the Specifications for Building Works relevant IRC codes and sound engineering practices. All necessary labour materials equipment safety arrangements and environmental safeguards shall be arranged by the Contractor. The Contractor shall be responsible for completing the works with due diligence quality assurance safety compliance and within the prescribed timelines to the satisfaction of the Engineer-in-Charge.	As per Drawing	L/s		
		Total				