

**NAME OF WORK: DEVELOPMENT OF TALUKA LIBRARY AT JHAGADIYA,
DIST: BHARUCH.**

:: ITEM WISE ADDITIONAL SPECIFICATION FOR THIS WORK::

Item No 3. Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth upto 300mm removal of stumps of trees cut earlier and disposal of unserviceable materials. A) By Mechanical means in area of light jungle.

1. Material

Jcb machine, tractor

2. Workmanship

The contractor shall clean the site of any trees including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.

Jungle clearance shall comprise uprooting of rank vegetation, grass, brushwood, shrubs, stumps, trees and saplings of girth up to 30 cm measured at a height of one metre above the ground level. Where only clearance of grass is involved it shall be measured and paid for separately.

The roots of trees and saplings shall be removed to a depth of 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower. All holes or hollows formed due to removal of roots shall be filled up with earth rammed and levelled. Trees, shrubs, poles, fences, signs, monuments, pipe lines, cable etc., within or adjacent to the area which are not required to be disturbed during jungle clearance shall be properly protected by the contractor at his own cost and nothing extra shall be payable.

3. Mode of measurement and payment:

The rate shall be for a unit of One Sq.Mtr. Incl. Complete the Job Describe Above, in all respected manners.

The rate shall be for a unit of Square Meter.

Item No 4. Felling trees of the girth (measured at a height of 1 m above ground level), including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material. Beyond 60 cm girth upto and including 120 cm girth

1.0. General

1.1. The work shall consist of felling trees of girth beyond 60 cm and upto and including 120 cm measured at a height of 1.0 m above ground level, including cutting of trunk and branches,

removal of roots, stacking of serviceable materials and disposal of unserviceable materials as directed by Engineer-in-Charge.

1.2. The work shall be carried out only after obtaining necessary permission from competent authorities wherever required.

2.0. Materials

2.1. No material shall be required except tools, equipment and incidental materials necessary for execution of the work.

3.0. Workmanship

3.1. Before commencement of work, the trees to be felled shall be identified and marked as directed by Engineer-in-Charge.

3.2. Necessary precautions shall be taken to prevent damage to adjoining structures, roads, utility services, buildings, fences, overhead lines and surrounding property.

3.3. The tree shall be cut carefully by approved methods in such a manner that it falls in the desired direction without causing danger to life or property.

3.4. The trunk and branches shall be cut into suitable lengths as directed by Engineer-in-Charge.

3.5. All roots, stumps and underground portions of the tree shall be completely removed from the ground.

3.6. Pits formed due to removal of roots and stumps shall be filled with approved earth and compacted properly to surrounding ground level.

3.7. Serviceable timber, logs, branches or other useful materials obtained from felling shall be stacked neatly at locations directed by Engineer-in-Charge.

3.8. Unserviceable materials, roots, leaves, twigs and debris shall be removed and disposed of at approved dumping locations.

3.9. The area shall be left clean and free from all rubbish and obstructions after completion of work.

3.10. All labour, tools, machinery, ropes, lifting devices and safety arrangements necessary for safe execution of work shall be provided by the contractor.

4.0. Mode of measurements and payment

4.1. Measurement shall be made on number basis for trees actually felled and removed.

4.2. The girth of tree shall be measured at a height of 1.0 m above ground level and classified under this item for girth beyond 60 cm and upto and including 120 cm.

4.3. The rate shall include cutting of tree, removal of branches, removal of roots and stumps, filling of pits, stacking of serviceable materials, disposal of unserviceable materials, labour, tools, plants, equipment and all incidental charges necessary for completion of work.

4.4. No separate payment shall be made for cutting branches, excavation for removal of roots, backfilling of pits, loading, unloading, transportation or disposal of materials.

4.5. The rate shall be for a unit of one number complete.

Item No 12. Add extra for Disposing off the excavated stuff of above items for lead of 0.5 k.m. to 3 km

(1) The specification of the item shall be as per PWD Hand book Vol. I and II as per the item moreover.

(2) The rate including the cost of carting Loading Un loading etc. complete.

(3) excavation in all kind of soil including soft murrum sandy and gravelly soil including shoring, strutting, dewatering, removing monuments stones old structures etc.

(4) The excavation shall be done as per plan. The bottom shall be levelled and site shall be dressed properly as directed.

(5) The contractor shall have to excavate as per plan, the excessive excavation shall have to brought to the desired level by B.B.C.C. 1:5:10 for which no extra payment shall be done to contractor.

(6) The contractor shall have to set right the incoming pipe line telephone cable etc. without any extra cost. The contractor shall be fully responsible for any damage any accident occurred during excavation.

(7) Excavated materials shall be filling in proper stacked leveling watering and dressing as per instruction of EIC at a distance as per tender item From the excavation pit and surplus stuff shall be removed within lead of 500 mt. As directed by the Engineer-in- charge.

(8) The payment shall be made on cu.mt. basis.

Item No 14. Carring out plinth treatment to post construction / existing structure by spraying chemical solution for termite control treatment including labour and material consistment with I.S.I specification. Using Chlordene and Chiorpurfiles 20 EC. As Per 6131_paret-II Consentration Weight one percent is recommended i.e one litre 20 EC chemical emulsion with 19 liter give 1 % concntration inclusive of one litre chemical emulsion appication at the rate of 5 Litre chemical / Sqm of surface is recommended as per I.S (The Product Perfomance Shall Carry Guarantee for 5 Years)

1.0. Materials

1.1. The anti-termite chemical shall be Chlorpyrifos 20% EC or approved equivalent chemical conforming to relevant IS specifications and approved by Engineer-in-Charge.

1.2. The chemical emulsion shall be prepared by mixing one litre of Chlorpyrifos 20 EC with nineteen litres of water to obtain one percent concentration by weight as specified.

1.3. Water used for preparation of emulsion shall be clean and free from harmful impurities.

1.4. The chemical shall be obtained in sealed containers from approved manufacturers and shall be brought to site in original packing.

1.5. The chemical shall be handled, stored and used strictly in accordance with the manufacturer's recommendations and applicable safety regulations.

2.0. Workmanship

2.1. The work shall consist of carrying out post-construction anti-termite treatment to existing/plinth areas of the structure by drilling, injecting and spraying chemical emulsion as required and as directed by Engineer-in-Charge.

2.2. Before commencement of treatment, the area shall be inspected and all rubbish, debris and loose materials shall be removed.

2.3. Holes shall be drilled along the wall-floor junctions, around columns, expansion joints, pipe entries and other vulnerable locations at suitable spacing as directed by Engineer-in-Charge.

2.4. The prepared one percent chemical emulsion shall be injected through drilled holes and sprayed uniformly over the surfaces to create a continuous chemical barrier against termite infestation.

2.5. The emulsion shall be applied at the rate of 5 litres of chemical solution per square metre of treated surface or as directed by Engineer-in-Charge.

2.6. Care shall be taken to ensure complete penetration of chemical solution into the soil and contact surfaces without leaving untreated gaps.

2.7. Any holes drilled for treatment shall be properly sealed with cement mortar after completion of chemical application.

2.8. During application, adequate precautions shall be taken to protect occupants, workers, electrical installations, water supply lines and adjoining finishes.

2.9. The contractor shall provide all labour, spraying equipment, pumps, hoses, drilling machines, safety equipment and accessories required for satisfactory execution of the work.

2.10. The treated area shall not be disturbed until the chemical barrier is properly established.

3.0. Mode of measurements and payment

3.1. The anti-termite treatment shall be measured in square metres of surface area actually treated.

3.2. The rate shall include cost of Chlorpyrifos 20 EC chemical, water, preparation of emulsion, drilling holes, spraying, injecting, sealing holes, labour, tools and plants, equipment, safety measures and all incidental charges necessary for complete execution of the work.

3.3. No separate payment shall be made for drilling, sealing holes, wastage of chemicals, transportation, storage, safety arrangements or any ancillary operations required for completion of treatment.

3.4. The rate shall be for a unit of one square metre complete.

Item No 19. Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand (zone-III) derived from natural sources : 6 graded stone aggregate 20 mm nominal size derived from natural sources) over 75 mm thick bed of dry brick ballast 40 mm nominal size, well rammed and on solidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.

1.0. Materials

1.1. Cement shall conform to M-3 and shall be of approved make.

1.2. Fine aggregate shall consist of coarse sand conforming to relevant I.S. specifications and shall be Zone-III sand derived from natural sources.

1.3. Coarse aggregate shall consist of graded stone aggregate of 20 mm nominal size derived from natural sources and shall conform to relevant I.S. specifications.

1.4. Brick ballast shall be of approved quality, hard, sound and broken to approximately 40 mm nominal size.

1.5. Sand used for grouting shall be clean, coarse and free from silt, clay and organic impurities.

1.6. Water used for mixing, grouting and curing shall conform to M-1.

2.0. Workmanship

2.1. The work shall consist of constructing plinth protection around the building as shown on the drawings and as directed by the Engineer-in-Charge.

2.2. Necessary excavation shall be carried out to the required width and depth. The foundation bed shall be properly levelled, dressed and compacted.

2.3. A 75 mm thick layer of dry brick ballast of 40 mm nominal size shall be spread uniformly over the prepared surface and thoroughly rammed and consolidated.

2.4. The voids in the brick ballast layer shall be filled by grouting with clean fine sand and the surface shall be compacted to form a firm and even base.

2.5. Over the prepared base, cement concrete of mix 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate) shall be laid to a uniform thickness of 50 mm.

2.6. Concrete shall be laid in panels of suitable size and compacted properly to eliminate honeycombing and voids.

2.7. The finished surface shall be provided with the required slope away from the building to ensure proper drainage of rainwater.

2.8. The top surface shall be finished smooth and even without undulations and shall be true to line, level and slope.

2.9. Expansion joints, if required, shall be provided as directed by the Engineer-in-Charge.

2.10. The completed concrete surface shall be protected from damage and properly cured for a minimum period of seven days.

2.11. Any defective or damaged portions shall be removed and replaced by the contractor at his own cost.

3.0. Mode of Measurements and Payment

3.1. Plinth protection shall be measured in square metres of finished surface area actually completed and approved by the Engineer-in-Charge.

3.2. The length and width shall be measured along the finished surface of plinth protection.

3.3. The rate shall include excavation, dressing, levelling, compaction, supply and laying of brick ballast, sand grouting, cement concrete, finishing, curing, labour, tools, plants and all materials required for complete execution of the work.

3.4. No separate payment shall be made for excavation, disposal of surplus earth, compaction, curing, slopes, joints, wastage or any incidental operations required for satisfactory completion of the work.

3.5. The rate shall be for a unit of one square metre complete.

Item No 48. Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sq cm for super structure above plinth level up to floor two level in cement mortar 1:5 (1 cement : 5 fine sand) complete as per Technical Specification

1.0. Materials

1.1. Aerated light weight concrete blocks shall be of approved manufacture and shall have minimum crushing strength of 35 kg/sq.cm or as specified in the item.

1.2. The blocks shall be uniform in size, shape and texture and shall be free from cracks, honeycombing, broken edges and other defects.

1.3. The dimensions and tolerances of blocks shall conform to relevant I.S. specifications applicable to aerated concrete blocks.

1.4. Cement shall conform to relevant I.S. specifications.

1.5. Fine sand shall be clean, hard, durable and free from organic impurities and deleterious materials.

1.6. Cement mortar shall be in the proportion of 1:5 (1 cement : 5 fine sand) by volume.

1.7. Water used for mixing mortar and curing shall be clean and free from harmful salts, acids and organic matter.

2.0. Workmanship

2.1. The blocks shall be soaked lightly or wetted as recommended by the manufacturer before laying.

2.2. The masonry shall be set out true to line, level and plumb as shown on drawings or as directed by Engineer-in-Charge.

2.3. Blocks shall be laid in regular courses with proper bond. Vertical joints of successive courses shall be staggered.

2.4. Every block shall be laid on a full bed of mortar and all vertical and horizontal joints shall be completely filled with mortar.

2.5. The thickness of joints shall be kept uniform and shall generally not exceed 10 mm unless otherwise directed.

2.6. The masonry shall be carried up truly in line, level and plumb. Courses shall be kept horizontal and joints shall be truly vertical.

2.7. Openings for doors, windows, ventilators and other fixtures shall be formed accurately as shown on drawings.

2.8. Holdfasts, inserts, sleeves, pipes, anchors and other fixtures required to be built into masonry shall be embedded during the progress of work.

2.9. Chases, recesses and openings required for services shall be formed carefully without damaging the masonry.

- 2.10. The top of masonry work shall be properly protected at the end of each day's work.
- 2.11. Green masonry shall be protected from rain, direct sunlight and mechanical damage.
- 2.12. The masonry work shall be cured continuously for a minimum period of seven days or as directed by Engineer-in-Charge.
- 2.13. Scaffolding required for execution of the work shall be provided by the contractor. Any damage caused due to scaffolding shall be made good at no extra cost.
- 2.14. The faces of masonry intended for plastering shall be left rough to provide proper key for plaster.

3.0. Mode of measurements and payment

- 3.1. The masonry work shall be measured in cubic metres.
- 3.2. The quantity shall be calculated from actual dimensions of completed masonry work.
- 3.3. No deduction shall be made nor extra payment made for openings, holdfasts, pipes, sleeves and fixtures as per standard measurement rules.
- 3.4. The rate shall include cost of aerated light weight concrete blocks, cement mortar 1:5, labour, scaffolding, curing, tools and plants and all materials and operations necessary for completion of the work.
- 3.5. The rate shall be for a unit of one cubic metre.

Item No 52. Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand) Internal Wall Plaster for Ground Floor and First Floor

Item No 53. Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)Internal Wall Plaster for Second Floor

Item No 54. Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (ii) Cement mortar 1:4 (1-cement :4-sand)Internal Wall Plaster for Third Floor

Materials:

- a. Cement: Ordinary Portland Cement (OPC) conforming to relevant standards.
- b. Fine Sand: Clean and sharp sand free from impurities.
- c. Water: Clean and potable water suitable for construction.
- d. Admixtures (if necessary): Any approved admixtures should meet relevant standards and be used as per manufacturer's recommendations.
- e. Bonding Agent: Where necessary, a bonding agent compatible with cement and masonry substrates should be used.

Proportions:

The cement mortar for plaster shall have a mix ratio of 1:4 (1 part cement: 4 parts fine sand) by volume.

Surface Preparation:

- a. Ensure that the substrate (brick or concrete) is clean, free from dust, loose particles, and contaminants.
- b. Repair any defects or cracks in the substrate before applying plaster.
- c. Wet the substrate thoroughly prior to plastering if it's porous to prevent excessive suction.

Application:

- a. Prepare the plaster mix using the specified proportions of cement and fine sand.
- b. Mix the materials with clean water until a uniform, workable consistency is achieved.
- c. Apply a bonding agent if necessary, following the manufacturer's recommendations.
- d. Apply the plaster in a single coat to a thickness of 15 mm, using a trowel or float.
- e. Ensure that the surface is leveled, and all hollows are filled while maintaining uniform thickness.
- f. Keep the plastered surface moist for at least 24 hours and cure it for a minimum of 7 days to prevent cracking and ensure proper bonding.

Finishing:

- a. After the plaster has set but is still damp, smooth the surface using a wooden or steel float.
- b. The finished surface should be even and smooth, free from undulations and defects.
- c. Allow the plaster to dry and harden completely before further finishing.

Neat Cement Slurry Coat:

- a. Prepare a neat cement slurry mix by mixing cement with clean water until a thick, paint-like consistency is achieved.
- b. Apply a floating coat of neat cement slurry over the finished plastered surface to enhance the appearance and durability.

c. The slurry coat should be applied evenly and allow it to set.

Quality Control:

- a. Regularly inspect the plastering work for compliance with specified thickness, evenness, and smoothness.
- b. Conduct adhesion tests as necessary to ensure proper bonding between the plaster and the substrate.
- c. Check for curing and drying times to ensure proper hardening of the plaster.

Environmental and Safety Considerations:

- a. Ensure that work areas are properly ventilated.
- b. Follow safety guidelines for handling and using cement and other construction materials.

Measurement and Payment:

Measurement and payment for the plastering work shall be as per the contract terms and conditions, and in accordance with the measured area in square meters of the finished plastered surface.

Item No 55. Applying two coats of acrylic lapy (putty) & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.

Materials:

Cement primer shall be Asian, Nerolac or Berger-make. Lapi (putty) shall be of Birla or J . K. White

Workmanship:

Preparation of surface:

The undecorated surface to be paint shall be thoroughly brushed off from dust, dirt, grease, mortar dropping and other foreign matter and sand papered smooth.

All un-necessary nails shall be removed; painting in plaster shall be made good with plaster of Paris mixed with colour to be used. The surface shall then be rubbed down again with a fine grade sand paper and made smooth. For any unevenness shall be made good by applying putty made of plaster of Paris mixed with water on entire surface including filling up the undulation and the sand papering the same after it is dry. Application of primer shall be applied with a brush on the clean dry and smooth surface. Horizontal strokes shall be given first and vertical strokes shall be applied immediately afterwards. The mixed lapi

shall be applied with M. S . plate. After applying the lapi surface shall be kept for dry. After surface become dry the sand papering shall be done for preparing the even surface. The second coat of Birla lapi shall be applied and after drying second coat the final sand papering shall be done to prepare the surface for carrying out the paint work. This entire operation will constitute two coats. The surface shall be finished as uniformly or possible leaving no brush marks.

Mode of measurement & Payment :

The rate shall be including the cost of materials and labour. The rate shall be consolidated for above item. **The rate shall be for a unit of one Square metre.**

Item No 57. Washed stone grit plaster on exterior walls height upto 10 metre above ground level, in two layers, under layer 12 mm cement plaster 1:4 (1cement : 4 coarse sand), furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 Kg of cement per square metre, top layer 15 mm cement plaster 1:1/ 2:2 (1 cement: 1/2 coarse sand : 2 stone chipping 10 mm nominal size), in panels with groove all around as per approved pattern, including scrubbing and washing the top layer with brushes and water to expose the stone chippings ,complete as per specification and direction of Engineer-in-charge (payment for providing grooves shall be made separately).

57.1 Scaffolding shall be as specified in 13.1.1.

57.2 Preparation of surface shall be as specified in 13.1.2 and 13.4.2.

57.3 Materials

57.3.1 Stone chippings obtained by crushing hard stone shall be free of dust and deleterious material. 10 mm nominal size stone chippings, where specified, shall pass 100% through 12.5 mm sieve and fully retained on 6.3 mm sieve. Stone chippings shall be thoroughly washed with water and sieved before use.

57.3.2 Mortar : Cement mortar for under coat and cement mortar to be mixed with stone chippings for top coat shall be as specified in 3.5.

57.4 Application of Plaster

57.4.1 12 mm Under Coat : Under coat of cement mortar 1:4 (1 cement : 4 coarse sand) shall be applied as specified in 13.1.3 except that the finishing, after the mortar has been brought to level with the wooden straight edge, shall be done with wooden float only. The surface shall be further roughened by furrowing with a scratching tool. Furrowing shall be done diagonally

both ways and shall be about 2 mm deep to provide a key for the top coat. The scratched lines shall not be more than 10 cm apart. The surface shall be kept wet till top coat is applied.

57.4.2 15 mm Top Coat : Top coat comprising cement mortar and stone chippings shall have an overall proportion of 1:0.5:2 (1 cement : 0.5 coarse sand : 2 stone chippings 10 mm nominal size) or as specified. The top coat shall be applied a day or two after the under coat has taken the initial set.

The surface of the under coat shall be cleaned and a coat of cement slurry at 2 kg of cement per sqm shall be applied before the application of coat. The top coat shall be applied in uniform thickness on the under coat after the application of slurry and sufficiently pressed with wooden float for proper bonding with the under coat. Vacant space, if any shall be filled with the specified mix.

57.5 Finish

The top coat of plaster shall be finished to a true and plumb surface. The surface shall be tested frequently as the work proceeds with a true straight edge not less than 2.5 m long and with plumb bobs. All horizontal lines and surfaces shall be tested with a level and all jambs and corners with a plumb bob as the work proceeds. All the corners angles and junctions shall be truly vertical or horizontal as the case may be. Rounding or chamfering of corners junctions etc. Where required shall be true to template.

Finished surface of the top coat after the mix has taken the initial set, shall be scrubbed and washed with suitable brushes and plain water. Scrubbing and washing shall continue till the stone chippings are sufficiently exposed. Stone chippings which may come out while scrubbing shall be replaced using the specified mortar mix. A sample of the washed stone grit plaster shall be got approved from the Engineer-in-Charge.

57.6 Grooves

Grooves of size 15 mm x 15 mm or as specified shall be provided as shown on the drawing or as required by the Engineer-in- Charge. Tapered wooden battens to match the size and shape of the grooves shall be fixed on the under coat with nails before the application of the top coat and these shall be removed carefully so that the edges of the panels of top coat are not damaged. Damage, if any, shall be made good by the contractor.

57.7 Curing

Curing shall be started 24 hours after finishing the plaster. The plaster shall be kept wet for a period of seven days. During this period, it shall be suitably protected from all damages at the contractor's expense by such means as the Engineer-in-Charge may approve.

57.8 Measurements

57.8.1 Length and breadth shall be measured correct to the nearest cm and the area shall be calculated in sqm correct to two places of decimal.

57.8.2 Measurements shall be taken for the work actually done with deductions for all openings and addition for all jambs soffits and sills. However, no deduction is to be made for the grooves provided as specified in 13.42.6.

57.8.3 Washed stone grit plaster on circular surfaces not exceeding 6 m in radius and on external surfaces at a height greater than 10 m shall be measured separately.

57.9 Rates

The rates shall include the cost of all labour and materials involved in all the operations described above except for providing grooves. The length of grooves shall be measured in running metres and paid for separately.

Item No 58. Extra for washed grit plaster on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.

1. Scope of Work

This item covers the additional costs involved in the execution of washed grit plaster on external walls at heights greater than 10 meters above ground level. The rate covers every additional height of 3 meters, or part thereof, over the baseline height of 10 meters. This includes the provisions for specialized double-scaffolding, safety staging, vertical lift of materials, increased labor efforts, protection of lower surfaces from slurry wash, and compliance with high-elevation safety protocols.

2. Operational & Material Requirements

Baseline Condition: The basic item for washed grit plaster covers the work up to a standard height (typically up to 10 meters or up to floor two/three level depending on the local PWD schedule). This item is strictly an additive rate applied to the base plastering area.

Scaffolding Staging: Requires heavy-duty, multi-tier steel tubular scaffolding (cup-lock system) anchored securely to the structural concrete frame. It must include fully planked working platforms, toe-boards, and double guardrails.

Safety Equipment: Provisions for safety nets spanning the perimeter, life-lines, and mandatory personal protective equipment (PPE) like full-body safety harnesses for all plasterers and helpers.

Water & Slurry Management: At high elevations, the water washing process for grit plaster creates significant down-wash. The item includes installing temporary tarpaulin sheets or catch-platforms to prevent the cement-grit slurry from defacing already finished plaster or openings on lower floors.

3. Workmanship & Execution

Material Hoisting: All raw materials (cement, sand, graded stone grit/pebbles), mixing water, and tools must be hoisted safely using mechanical winches or builders' hoists. Manual passing of materials over staging lines is strictly prohibited beyond 10 meters.

Application Continuity: To avoid visible patches, cold joints, or color variations in the grit plaster, the application must be seamless. The scaffolding must be configured so that plasterers can work across a continuous architectural facade panel without interruption.

Washing Process: The timing of the surface washing (using a fine spray of water or a wet sponge to expose the aggregate grit) must be precisely managed despite faster evaporation rates caused by higher wind velocities at elevated levels.

4. Mode of Measurement & Payment Protocol

Unit of Measurement: Square Meter (Sqm)

Item No 59. Forming groove of uniform size in the top layer of washed stone grit plaster as per approved pattern using wooden battens, nailed to the under layer, including removal of wooden battens, repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge : 20 mm wide and 15 mm deep groove

1. Scope of Work

Providing and forming architectural grooves of a true, uniform size (15 mm wide and 15 mm deep) in the top layer of washed stone grit plaster. The grooves shall be executed according to the approved pattern/grid using seasoned wooden battens nailed to the plaster under-layer. The work includes the subsequent removal of the battens, rectangular edge repairs of the panels, and finishing the inner surfaces of the grooves across all floors and heights. [1]

2. Material Specifications

- Wooden Battens: Seasoned, straight-grained hardwood or high-quality soft wood battens. They must be planed true to the exact dimensions of 15 mm x 15 mm with a slight taper (1 to 2 mm) to facilitate easy removal without chipping the plaster edges.

- **Fixing Nails:** Standard steel wire nails or headless pins of appropriate length to securely hold the battens to the under-layer coat without shifting during plastering.
- **Groove Finishing Mortar:** Cement mortar mix matching the specification of the base plaster under-layer (typically CM 1:3 or 1:4) using fine, sieved sand passing through a 1.18 mm IS sieve. [1, 2]

3. Execution & Workmanship

- **Layout and Alignment:** The contractor must mark out the approved grid pattern on the cured plaster under-layer using a chalk line, spirit level, and plumb bob to ensure absolute horizontal and vertical accuracy.
- **Fixing Battens:** Securely nail the wooden battens along the marked layout lines onto the fresh or cured under-layer coat. Ensure the joints between different batten pieces are perfectly flush and mitered neatly at 90-degree intersections. [1]
- **Plastering Application:** Apply the top layer of washed stone grit plaster flush against the sides of the fixed wooden battens. Pack the grit mix tightly around the edges to avoid structural voids.
- **Batten Removal:** Carefully remove the wooden battens after the stone grit plaster has achieved its initial set but before it hardens completely. Use specialized pry bars to avoid fracturing the sharp panel edges.
- **Edge Rectification & Finishing:**
 - o Repair any minor edge spalling, chips, or honeycomb patches immediately using a fine cement mortar mix.
 - o Finish the inner surfaces of the groove to a perfectly smooth, straight, and uniform finish using a customized steel groove tool or trowel.
 - o Maintain sharp, clean, unblemished rectangular profile margins throughout the line matrix.

4. Curing

- The repaired groove channels and panel edges must be kept continuously damp by water spraying or misting for a minimum period of 7 days alongside the primary plaster matrix.

5. Quality Control Standards

- The grooves must be perfectly straight. A maximum deviation of ± 1.5 mm over a 3-meter straight edge is acceptable.
- The depth and width must remain uniform at 15 mm throughout the layout line. Any structural waviness or variations will result in rejection.

Item No 60. 40 mm thick rubbed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints 3 mm thick, side buttered with cement mortar 1:2 (1 cement : 2 stone dust) admixed with pigment to match the shade of stone and pointing with same mortar. Red sand stone

1. Material Specifications

Red Sandstone Slabs: Shall be of the best quality, obtained from approved quarries. The stone must be hard, sound, durable, uniform in texture, free from cracks, soft veins, flaws, or structural defects. All slabs must be machine-cut to required dimensions and have their top surface finely rubbed/dressed to a smooth, non-slip finish before laying.

Thickness: The finished thickness of the stone slabs shall be a minimum of 40 mm, with a permissible tolerance of 2 mm.

Bedding Mortar: Cement shall conform to IS: 8112 or IS: 12269. Coarse sand shall be clean, sharp, well-graded, and conform to IS: 383. The mix ratio shall be 1:5 (1 cement : 5 coarse sand) by volume.

Jointing Mortar & Pigment: The mortar for side-buttering and pointing shall consist of 1:2 (1 cement : 2 fine stone dust). It must be admixed with premium-quality, UV-resistant dry mineral pigment (such as red oxide) in exact proportions to seamlessly match the natural color shade of the selected Red Sandstone.

2. Workmanship & Execution

Preparation of Sub-Grade: The structural concrete base slab (PCC or RCC) must be thoroughly cleaned of all dirt, loose mortar laitance, and debris. The surface shall be lightly roughened, watered, and slurred with a neat cement grout (2.75 kg/Sqm immediately before spreading the bedding mortar.

Laying the Bedding Mortar: The 1:5 cement mortar bedding shall be spread evenly over the base to an average thickness of 20 mm (varying locally from 15 mm to 25 mm to maintain the required floor gradient). It must be properly rammed and leveled.

Fixing Slabs & Side-Buttering: The dressed Red Sandstone slabs shall be soaked in water prior to laying.

- Each slab shall be lower-positioned onto the mortar bed, tapped firmly with a wooden mallet until it is fully bedded and aligned true to level and slope.
- The vertical side joints shall be strictly maintained at a uniform width of 3 mm.

- Before butting adjacent slabs together, the vertical edges must be fully side-buttered with the shade-matched 1:2 cement-stone dust mortar, ensuring no hollow voids are left within the joints.

Pointing & Finishing: The joints shall be raked out to a depth of 10 mm while the mortar is green. The joints shall then be cleanly pointed, flush or slightly grooved, using the same pigment-admixed 1:2 mortar. Any surplus mortar on the stone surface must be wiped clean immediately with a wet cloth or sponge to prevent staining.

Curing: The finished flooring must be protected from traffic and kept continuously wet by ponding or covering with damp gunny bags for a minimum period of 7 days.

3. Mode of Measurement

Unit of Measurement: Square Meter (Sqm)

Item No 61. Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.

1.0. Materials

1.1. Granite stone slabs shall be 18 mm thick, machine cut, mirror polished and of approved quality, colour, shade and pattern as shown in architectural drawings or as approved by Engineer-in-Charge.

1.2. The granite stone shall be hard, sound, dense and free from cracks, cavities, flaws, veins and other defects impairing strength, durability and appearance.

1.3. The slabs shall be of uniform thickness and accurately cut to required sizes and shapes including straight, curved and irregular profiles wherever required.

1.4. Cement shall conform to relevant I.S. specifications.

1.5. Coarse sand shall be clean, hard and free from organic and deleterious matter.

1.6. Cement mortar for bedding shall consist of 1:4 (1 cement : 4 coarse sand) by volume.

1.7. White cement used for pointing shall be of approved quality.

1.8. Pigments used for matching the shade of granite shall be colour fast and approved by Engineer-in-Charge.

1.9. Water used for mixing mortar, slurry and curing shall be clean and free from harmful impurities.

2.0. Workmanship

2.1. The base surface shall be thoroughly cleaned and prepared before laying the granite flooring.

2.2. The flooring shall be laid in required design, pattern, alignment and levels as shown in architectural drawings including straight, diagonal, curved and other special layouts.

2.3. A bed of 20 mm average thickness cement mortar 1:4 shall be laid evenly and brought to proper line, level and slope as required.

2.4. Granite slabs shall be thoroughly cleaned and wetted before laying.

2.5. Cement slurry shall be spread uniformly over the mortar bed and the granite slabs shall be laid carefully in position.

2.6. Each slab shall be properly bedded by gentle tapping with wooden mallet to achieve full contact and uniform levels.

2.7. The flooring shall be truly level, even and free from irregularities, depressions and projections.

2.8. Joints between slabs shall be kept as thin as possible and shall be uniform throughout the work.

2.9. The joints shall be filled and pointed with white cement slurry admixed with approved pigment matching the shade of granite.

2.10. Curvilinear portions, border pieces, edge pieces, cut-outs, grooves, patterns and special shapes shall be executed neatly as shown on drawings.

2.11. After laying, the flooring shall be kept continuously moist and cured for a minimum period of seven days.

2.12. After curing, the surface shall be rubbed and polished to obtain a smooth, uniform and mirror finished appearance.

2.13. The finished flooring shall be truly level, free from lipping, cracks, stains and other defects.

2.14. Any damaged, stained or defective slab shall be removed and replaced by the contractor at his own cost.

2.15. The finished surface shall be cleaned thoroughly and protected from damage until completion of the work.

3.0. Mode of measurements and payment

3.1. The granite flooring shall be measured in square metres of finished surface area.

3.2. Length and breadth shall be measured correct to the nearest centimetre and the area calculated accordingly.

3.3. No separate payment shall be made for cutting, shaping, curved work, edge finishing, patterns, grooves, wastage, matching of grains, polishing, pointing or curing.

3.4. The rate shall include cost of granite stone slabs, cement mortar bedding, cement slurry, white cement pointing with matching pigment, rubbing, polishing, curing, labour, tools and plants, scaffolding and all materials and operations necessary for completion of the work.

3.5. The rate shall be for a unit of one square metre.

Item No 63. P & L 24" x 24" vitrified 8 mm thick tile flooring over 20 mm(average) base of cement mortar 1:6 (1 cement: 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with color cement slurry including finished with flush pointing & cleaning the surface etc. complete for antiskit For Toilet

1.0. Materials

1.1. The vitrified tiles shall be anti-skid type, 24" × 24" size and 8 mm thick of approved make, quality, shade and pattern as specified in the item and approved by Engineer-in-Charge.

1.2. The tiles shall be first quality vitrified tiles, uniform in size, shape and thickness and shall be free from cracks, chips, crazing, warping and other defects.

1.3. Cement shall conform to relevant I.S. specifications.

1.4. Coarse sand shall be clean, hard, durable and free from organic and deleterious matter.

1.5. Cement mortar for bedding shall be in proportion 1:6 (1 cement : 6 coarse sand) by volume.

1.6. Tile adhesive, where required for laying over existing flooring, shall be polymer modified adhesive of approved make and quality as recommended by the manufacturer.

1.7. Colour cement slurry used for joint filling shall consist of white or grey cement mixed with approved matching pigment.

1.8. Water used for mortar, slurry and cleaning shall be clean and free from harmful impurities.

2.0. Workmanship

2.1. The existing flooring, wherever specified, shall be carefully dismantled and removed without damaging adjoining structures, fittings or finishes.

2.2. The dismantled debris and unserviceable materials shall be removed from site and disposed of as directed by Engineer-in-Charge.

2.3. The base surface shall be cleaned thoroughly and brought to proper line, level and slope before laying the flooring.

2.4. For new flooring work, a bedding layer of cement mortar 1:6 having average thickness of 20 mm shall be laid evenly and compacted to proper levels.

2.5. Where flooring is to be laid over existing flooring, the existing surface shall be roughened, cleaned and prepared and approved tile adhesive shall be applied as per manufacturer's specifications.

2.6. The anti-skid vitrified tiles shall be soaked only if recommended by the manufacturer and shall be laid in approved pattern, line and level.

2.7. Tiles shall be laid true to alignment and slope required for toilet floors to ensure proper drainage towards floor traps.

2.8. Each tile shall be properly bedded and pressed into position to obtain full contact with bedding mortar or adhesive.

2.9. The joints between tiles shall be straight, uniform and as thin as possible.

2.10. Joints shall be filled with coloured cement slurry matching the shade of tiles and finished flush with the tile surface.

2.11. The finished flooring shall be free from hollowness, unevenness, lipping, cracks and other defects.

2.12. The surface shall be thoroughly cleaned after completion and all stains, mortar marks and surplus materials shall be removed.

2.13. The completed flooring shall be protected from damage until handing over of the work.

3.0. Mode of measurements and payment

3.1. The flooring shall be measured in square metres of finished floor area.

3.2. The rate shall include dismantling of existing flooring wherever specified, disposal of debris, preparation of surface, cement mortar bedding, tile adhesive, anti-skid vitrified tiles, joint filling with coloured cement slurry, cutting, fitting, finishing, cleaning, labour, tools and plants and all materials required for complete execution of the work.

3.3. No separate payment shall be made for cutting of tiles, wastage, making openings around pipes, floor traps, sanitary fittings, slope formation, joint filling, cleaning or disposal of dismantled materials.

3.4. The rate shall be for a unit of one square metre.

Item No 64. Providing and laying Vitrified tiles 8 to 10 mm thick , 24" x 24" in skirting risers of steps and dedo on 10mm thick cement plaster 1:3 (1-cement : 3-coarse sand) and jointed with white cement slurry”

1.0. Materials

Water shall conform to M-1. Cement mortar shall conform to M-11 as per ‘GENERAL TECHNICAL SPECIFICATIONS FOR BUILDING WORKS’ booklet,. 8 mm thick (600mm x 600mm) vitrified tiles shall conform to relevant Indian standard. The size & colour of vitrified tiles shall be approved by Engineer in charge.

2.0. Workmanship

2.1. Bedding :

2.1.1. The sub grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the mason to place wooden planks across and squat on it.

2.1.2. The vitrified flooring tiles shall be laid on cement mortar bedding of 20 mm. thick in C.M. 1:6 (1 cement: 6 coarse sand). The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 12 mm. at any place and average 20 mm thickness. The proportion of the cement mortar shall be as specified in the item.

2.2. Fixing tiles :

2.2.1. The tiles before laying shall be soaked in water for at least two hours. Neat gray cement grout at 33 kg/Cement/Sq.mt. of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles shall be smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per pattern.

2.2.2. The tiles shall not have staggered joints. The joints shall be true to centre line both ways. The Nahni trap coming in the flooring shall be so positioned that its grating shall replace only one tile as far as possible. Where full size tiles cannot be fixed they shall be cut (Swan) to the required size and the edges rubbed smooth to ensure straight and true joints. The joints shall be filled with grey cement grout with wire brush or trowel to a depth of 5 mm. and loose

material removed. White cement shall be used for pointing the joints. After fixing the tiles finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days. The pattern shall be approved by Engineer in charge.

2.3. Cleaning :

2.3.1. The surplus cement grout that may have come out of the joints shall be cleaned off before it sets. Once the floor has set, it shall be carefully washed, cleared by dilute acid and dried. Proper precautions and measures shall be taken to ensure that the tiles are not damaged in any way till the completion of the construction.

3.0. Mode of measurements & payment

3.1. The work done shall be measured in sq.mt. for visible area of work done. The length and width of the flooring shall be measured not between the faces of skirting or dedos or plastered face of wall as the case may be. The paving under dedo or skirting shall not be measured. No deduction shall be made not extra paid for any opening in the floor of area upto 0.1 sq.mt. Nothing extra shall be paid for laying the floors at different levels in the same rooms.

3.2. The rate shall be for a unit of one sq. meter.

Item No 65. Providing and laying 18mm thick granite of specified size colour, shade and of approved make, in Wall, column cladding, risers of steps, dedo and , sill and jambs of door, window & ventilation frame with mini. two coat of construction chemical and as per manufacture specification incl. rubbing and polishing, rounding edge and All joints filled with coloured cement putty as per architect detail and wiped to give sharp joints with flush pointing and washed clean with acid As per drawings and design supplied by architect and instruction given by authority and E.I.C. incl. cost of steel fastener of approved make at every 1/3 span if required etc. complete colour and shed as approved by architect engineer in charge.

1.0. Materials

1.1. Water shall conform to M-1. Lime mortar shall conform to M-10. Cement mortar shall conform to M-11. machine cut matt finished polished 16 to 18 mm thick Granite stone in single piece (Max. 1.5m) shall conform to M-52.

2.0. Workmanship

2.1. Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges. The sides trust dressed shall have a full contract if a straight edge is laid along. The sides shall be table rubbed with coarse sand before paving. All angles and edges of the slabs shall be

true square and free from chippings and giving a plane surface. The thickness shall be 20 mm. (Average) as specified in the item but not less than 25 mm. at any place of the slab.

2.2. Bedding for the machine cut matt finished polished 16 to 18 mm thick Granite stone in single piece (Max. 1.5m) shall be of cement mortar 1:1 (1 cement : 1 coarse sand) or L.M. 1:1.5 of average thickness 20 mm given in the description of the item. Sub grade shall be cleaned wetted and mopped mortar of the specified mix and thickness shall then be spread on an area sufficient to receive one Granite stone slab. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped gently to bring it in level with the other slabs. It shall then be lifted and laid aside. Top surface of the mortar shall then be corrected by adding fresh mortar at hollows or depressions. The mortar shall then be allowed to harden bit. Over this surface, cement slurry of honey-like consistency shall be applied. The slab shall then be gently placed in position and tapped with wooden mallet till it is properly padded in level with and close to the adjoining slab. The joint shall be as fine as possible. The slabs fixed in the floor adjoining, the walls shall enter not less than 10 mm. under the plaster, skirting or dedo. The junction between the wall and floor shall be finished neatly. The finished surface shall be true to levels and slopes as directed.

2.3. The floor shall be kept wet for a minimum period of 7 days so that bedding and joints set properly

2.4. Polishing shall be normally commenced after 14 days of laying the stone slab. First polishing shall be done with carborundum stones of 120 grade grit fitted in the heavy machine and then second polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly used during polishing. The stone shall then be washed clean with water When directed by the Engineer-in-charge, wax polish of approved quality shall be applied on the surface with the help of soft cloth over a clean and dry surface. Then the polishing machine fitted with bobs shall be run over it.

2.5. The holes required for Nahni traps, pipes and any other fittings shall be made, without any extra cost.

3.0. Measurement & payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described above. The Granite stone flooring shall be measured in square meters correct to two places decimal, length and breadth shall be measured correct to a centimeter and between the finished face of skirting dedo plaster and no deduction shall be made nor extra paid for any opening in floor of areas upto 0.1 sq.

3.2. The rate shall be for a unit of one sq. meter.

Item No 66. Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300mm height including cleaning the surface before treatment. b) Laying of 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs

c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/sqm of cement admixed jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge : (The work shall be carried out through approved specialised agency and shall carry ten years performance guarantee. (Plan area should be measured. No extra payment shall be made for gola, vatas, khurras, water spouts edges etc.)

With average thickness of 120 mm and minimum thickness at khurra as 65 mm. (The Product Performance Shall Carry Guarantee for 5 Years Against Any Leakage)

1.0. Materials

1.1. Cement shall conform to relevant I.S. specifications and shall be fresh and free from lumps.

1.2. Coarse sand shall be clean, hard, durable and free from organic impurities and deleterious matter.

1.3. Integral waterproofing compound shall conform to IS : 2645 and shall be of approved make and approved by Engineer-in-Charge.

1.4. Glass fibre cloth shall be of approved quality, alkali resistant type and suitable for waterproofing applications.

1.5. Water used for mixing and curing shall be clean and free from harmful salts and impurities.

1.6. Cement mortar for waterproofing treatment shall be prepared using specified proportions and approved waterproofing compound strictly in accordance with manufacturer's recommendations.

2.0. Workmanship

2.1. Surface Preparation

2.1.1. The RCC slab surface and adjoining wall surfaces upto 300 mm height shall be thoroughly cleaned and made free from dust, dirt, oil, grease, laitance, loose particles and other foreign matter.

2.1.2. All cracks, honeycombs, depressions and damaged portions shall be repaired before commencement of waterproofing treatment.

2.1.3. The surface shall be wetted adequately before application of waterproofing layers.

2.2. First Cement Slurry Coat

2.2.1. A slurry coat consisting of neat cement using 2.75 kg of cement per square metre admixed with approved waterproofing compound conforming to IS : 2645 shall be applied uniformly over the prepared RCC surface.

2.2.2. The slurry coat shall also be extended on adjoining walls upto 300 mm height.

2.2.3. The slurry shall be applied uniformly to form a continuous bond coat without leaving untreated areas.

2.3. Waterproofing Base Layer

2.3.1. Over the slurry coat, a layer of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with approved waterproofing compound shall be laid to required slope.

2.3.2. The average thickness of the treatment shall be 120 mm and minimum thickness at khurra shall not be less than 65 mm.

2.3.3. Necessary slopes shall be provided towards rainwater outlets, khurras and spouts to ensure efficient drainage.

2.3.4. The mortar layer shall be continued over adjoining walls upto 300 mm height.

2.3.5. Junctions between slab and wall shall be rounded properly by forming suitable gola to avoid stress concentration and water penetration.

2.4. Second Cement Slurry Coat

2.4.1. After at least two days of curing of the base layer, a second coat of cement slurry using 2.75 kg cement per square metre admixed with waterproofing compound shall be applied uniformly.

2.5. Protective Mortar Layer

2.5.1. Over the second slurry coat, a jointless layer of cement mortar 1:4 (1 cement : 4 coarse sand) admixed with waterproofing compound shall be laid and finished properly.

2.5.2. Approved quality glass fibre cloth shall be embedded in the top layer of plaster while the mortar remains green.

2.5.3. The glass fibre cloth shall be laid continuously with necessary overlaps to achieve complete reinforcement of the waterproofing layer.

2.6. Finishing

2.6.1. The finished surface shall be trowel finished with neat cement slurry to obtain a dense and smooth surface.

2.6.2. The surface shall be divided into panels of 300 mm × 300 mm by forming grooves 3 mm deep or as directed by Engineer-in-Charge.

2.6.3. The finished treatment shall be uniform, free from cracks, blisters, honeycombing and other defects.

2.7. Curing and Testing

2.7.1. The waterproofing treatment shall be cured continuously and adequately throughout the curing period.

2.7.2. After completion of work, the terrace shall be flooded with water and maintained under ponding condition for a minimum period of two weeks for curing and performance testing.

2.7.3. Any leakage, dampness or defects noticed during testing shall be rectified by the contractor at his own cost and the test repeated until satisfactory results are achieved.

2.8. Specialized Agency and Guarantee

2.8.1. The waterproofing work shall be carried out through an approved specialized waterproofing agency.

2.8.2. The contractor shall furnish a written performance guarantee for a period of ten years from the date of completion of work against leakage and seepage.

2.8.3. Any defect occurring during the guarantee period shall be rectified by the contractor without any additional cost to the department.

3.0. Mode of measurements and payment

3.1. The waterproofing treatment shall be measured on plan area basis in square metres.

3.2. No extra measurement or payment shall be made for gola, vatas, khurras, water spouts, upturns on walls, edges, overlaps, grooves, rounding of junctions or other incidental works required for completion of waterproofing treatment.

3.3. The rate shall include cost of cement, waterproofing compound, sand, glass fibre cloth, labour, curing, pond testing, tools and plants, scaffolding, preparation of surface, formation of slopes and all operations described in the specification.

3.4. The rate shall also include all materials, labour and services required for providing ten years performance guarantee.

3.5. The rate shall be for a unit of one square metre of plan area complete.

Item No 67. Providing and laying broken china mosaic flooring for terrace using 12 mm to 20 mm broken pieces of glazed tiles to be laid over cement mortar 1:3 to plain or slope and to be tempered to bring mortar cream out upto surface using white cement including rounding off junctions and extending them upto 15 cm along the wall, clearing with water and oxalic acid etc. as directed. (The Product Performance Shall Carry Guarantee for 5 Years Against Any Leakage)

1.0 GENERAL:

The work shall be carried out as per general technical specification volume and as per National Building Code as amended from time to time.

2.0 MATERIALS:

The water shall conform to M-2.

The cement shall conform to M-3

The cement Mortar shall conform to M-22.

The sand shall conform to M-6.

The glazed tiles to be of approved quality shall conform to M-55.

3.0 WORKMANSHIP:

3.2 PREPARATION OF SURFACE:

First the existing R.C.C. surface of slab shall be clean thoroughly then the surface where this china mosaic water-proofing work is to be carried out shall be roughened manually. Thereafter first coat of cement slurry at a rate of 2.75 Kg/ 20Sqmt With water-proofing compound shall be admixed and shall be applied on the cleaned surface.

3.2 PREPARATION OF BASE:

The China Mosaic flooring shall be laid on a bed of Cement concrete 1:3:6 base and tiles shall be laid on neat cement slurry as directed.

The work so completed shall be cured for a period of minimum two days either by spreading wet gunny bags or preparing ponds. After completion of the curing the second layer

of cement mortar 2:3 with admixing of water proofing materials shall be laid in proportion of 2.75 Kg/Sqmt. Required slope shall be maintain and tempered to bring mortar crème out up to surface using white cement incl. rounding off junctions and extending them upto 25.00 cm. Along with walls & slabs clearing with water and oxalic acid etc. as directed.

On completion of sub base work the china mosaic tiling work shall be carried out. The china mosaic tiles shall be in form of pieces of required size from glazed tiles be trowelled with white cement slurry.

3.3 FINAL FINISHING:

On completion of the entire work the whole terrace where work has been carried out shall be flooded with sufficient quantity of water for a period of at lest two weeks of curing and for final test. All above operations to be done in order and as directed and specified by the Engineer in charge.

4.0 MODE OF MEASUREMENT AND PAYMENT

The rate shall include the cost of all materials and labour involved in all operation described above. No deduction shall be made nor extra payment shall be made for any opening upto 0.2 Sq.Mt in area in the floor, nothing extra shall be paid for laying the floor at different levels in the same room on the court yard.

5.0 Additional Performance Guarantee for china mosaic item (Item No. 45):-

The whole slab area in ceiling or wall above which china mosaic water proofing item is to be done shall not be leaked or shall not show any dampness for the period of three years from the date of completion of work.

Minimum three year guarantee bond should be submitted to the Executive Engineer, District (R & B) Division, Rajkot by the contractor and 20% (Ten percent) of total amount for this item shall be with held for three years from bills.

The said with held amount shall be refunded only after satisfactory completion of the three year guarantee period. For any bad performance a notice will be given by concerned Deputy Executive Engineer and contractor has to rectify the defect within 25-days. In case of non-responsive to department's notice, necessary action will be taken by the deptt. at the risk and cost of contractor. A sample performance bond is shown on next page.

6.0 The Rate shall be paid per Sq.Mt. Basis.

:: FORM OF GUARANTEE BOND [On Rs.200.00 Stamp Paper] ::-

I / We _____ (Contractor) here by

Guarantee that work of china mosaic flooring will remain unaffected by water and will not leak any where or any type of dampness will not be seen in terrace slab or slab ceiling for a period of 3 Years after completion of work of China Mosaic water proofing treatment on terrace as per terms and condition of the contract I am hereby indemnifies and agree to save harmness to the Government of Gujarat from any loss and or damage that might be caused on account of leakage or dampness and hereby guarantees to make good any loss and damages which may occur within period of three years. Further I am guarantee to re-do the effective work by providing water proofing treatment or redoing fresh china mosaic flooring without claiming any extra cost as per instruction of Engineer-in-Charge.

This guarantee shall remain in force for the period of 3-years from the completion of the work under the contract and it shall remain binding to me for period of 3-Years. In case of my non-responsive of any notice by the department, my deposit amount if utilised for rectification work, I will not take any objection.

An Amount equivalent to 10% of this item shall be kept in Deposit for Three years after certified date of completion and shall be refundable on satisfactory completion of 3 years Gurantee Period.

(In presence of me)

(Sign of Contractor)

Executive Engineer,

Project

Branch

Vadodara Municipal Corporation

Item No 68. Providing and fixing stainless steel railing 50mm dia.(16 gauge-Grade 304) TOP RAIL with 1 mtr c/c VERTICAL SUPPORT 37.5mm dia.(16 gauge-Grade 304), 3 NO. 25mm dia.(16 gauge-Grade 304) HORI. MEMBER .for up to 1.2mt height at any floor, including welding, grinding, buffing, polishing and making curvature (wherever required) ,for staircase on the side of waist slab with suitable arrangement as per drwaing (for payment purpose only hand rail Running meter will be consider, and other stainless steel members shall are inclusive of fixing accessories such as Baluster, supports, horizontal members, nuts, bolts, fasteners etc.)Rate includes for all lead & lift. etc, complete as per drawings and design supplied by architect and instruction given by authority and E.I.C.

1. Scope of Work

The work consists of providing, fabricating, transporting, assembling, and fixing in position Stainless Steel (Grade 304) railing for staircases, balconies, or corridors up to a height of 1.2

meters from the finished floor/tread level. The assembly includes a 50 mm dia. top rail, 37.5 mm dia. vertical supports spaced at 1.0 meter center-to-center, and 3 nos. of 25 mm dia. horizontal intermediate runners. The rate includes side-mounting on the waist slab/floor using heavy-duty fixtures, welding, grinding, buffing, polishing, forming curves, and all associated hardware.

2. Material Specifications

Stainless Steel Tubing: All stainless steel sections, pipes, and sheets shall strictly conform to Grade 304 (18-8), ensuring high corrosion resistance.

Wall Thickness: All pipes (50 mm, 37.5 mm, and 25 mm nominal outer diameter) must have a uniform wall thickness of 16 gauge (1.65 mm). No underweight or commercial-grade pipes will be permitted.

Fixing Accessories: All anchor bolts, expansion fasteners, base plates, screws, nuts, and internal sleeves must be of Stainless Steel Grade 304 or higher to prevent galvanic corrosion.

3. Workmanship & Execution

Fabricating & Assembly: The vertical posts (37.5 mm dia) shall be accurately spaced at intervals not exceeding 1.0 meter center-to-center. They must be perfectly plumb and aligned.

Jointing & Welding: Jointing shall be done by continuous, TIG (Tungsten Inert Gas) welding. The welds must be deep-penetrating to ensure structural stability under standard crowd-load conditions.

Finishing (Grinding & Buffing): All welded joints must be ground smooth using appropriate abrasive wheels to match the parent pipe surface. The entire assembly shall be systematically buffed and polished to achieve a uniform, flawless, mirror-like or satin-matte finish (as dictated by the architectural drawings). No external weld scars, pitting, or discoloration shall be visible.

Curvature: Wherever the staircase or landing turns, the pipes must be smoothly bent or curved using specialized pipe-bending machinery without crimping, buckling, or flattening the cross-section.

Fixing Arrangement: The vertical balusters shall be securely anchored to the side of the concrete waist slab or stringer beam using a robust side-mounting arrangement. This involves heavy-duty SS base plates, anchor fasteners, and decorative SS cover caps to hide the bolted connections completely.

4. Mode of Measurement & Payment

Unit of Measurement: Square Meter (Sqm)

Item No 69. Providing and fixing structural glazing with using the 17 micron anodised of approved colour aluminium section as transium, mullium of size 63mm x 38mm x 2 mm with using 6 mm thick reflective structural glass of approved make, colour, toughned and shade and fixed with silicone sealant and spacer tap and at corner sealed neoprene foam dust and air sealed gasket mirred including scaffolding, cleaning of glass etc.complete at all heights anf lifts with all necessary fitting and fixtures, anchore fasteners, necessary m.s. or aluminium brackets, suitable design for openable window as per architectural drawing and as directed by engineer-in-charge. Grooves between the glasses to be filled with sealant of dow corning - structural sealant 995, weather sealant 789. The entire façade should be water proof. The mullions are to be connected to bracket by ss-304 nut bolts. Measurement shall be given as per actual execution of the work.

1.0. Materials

1.1. Aluminium sections used for structural glazing shall be extruded aluminium alloy sections of approved make conforming to relevant I.S. specifications and shall be anodized with minimum 17 micron coating thickness in approved colour and finish.

1.2. The transoms and mullions shall be of size 63 mm × 38 mm × 2 mm or as approved by Engineer-in-Charge and shall be capable of safely resisting design wind loads and dead loads of glazing.

1.3. Structural glazing glass shall be 6 mm thick reflective toughened glass of approved make, colour, shade and performance characteristics as approved by Engineer-in-Charge.

1.4. The toughened glass shall be free from scratches, bubbles, distortions, cracks and other defects affecting strength or appearance.

1.5. Structural silicone sealant shall be Dow Corning 995 or approved equivalent specifically designed for structural glazing applications.

1.6. Weather sealant shall be Dow Corning 789 or approved equivalent suitable for exterior weatherproof sealing.

1.7. Spacer tapes, setting blocks and glazing accessories shall be compatible with structural silicone sealant and approved by the sealant manufacturer.

1.8. Neoprene foam gaskets, dust seals and air seals shall be of approved quality and suitable for long-term exposure to weather conditions.

1.9. Stainless steel fasteners, nuts, bolts and washers used for fixing mullions and transoms shall be SS-304 grade.

1.10. Aluminium or M.S. brackets, anchor fasteners and supporting accessories shall be of approved design and adequate strength to withstand imposed loads.

1.11. All materials shall be sourced from approved manufacturers and shall be accompanied by relevant test certificates wherever required.

2.0. Workmanship

2.1. The work shall be carried out strictly in accordance with approved architectural drawings, structural design calculations, shop drawings and manufacturer's recommendations.

2.2. Prior to fabrication, all dimensions at site shall be verified and coordinated with structural and architectural requirements.

2.3. Aluminium mullions and transoms shall be accurately fabricated, assembled and erected to true line, level and plumb.

2.4. The mullions shall be fixed to structural members through approved aluminium or M.S. brackets using SS-304 nuts, bolts and anchor fasteners.

2.5. Adequate provisions shall be made for thermal expansion, building movements, wind pressure and seismic movements without affecting performance of the façade.

2.6. Reflective toughened glass panels shall be cut, processed and installed strictly as per manufacturer's recommendations and approved shop drawings.

2.7. The glass panels shall be positioned accurately using approved setting blocks and spacer tapes to maintain uniform joints throughout the façade.

2.8. Structural silicone sealant Dow Corning 995 shall be applied in specified dimensions to achieve permanent structural bonding between glass and aluminium framing members.

2.9. All external weather joints shall be sealed using Dow Corning 789 weather sealant to provide complete protection against water penetration and air leakage.

2.10. Neoprene foam gaskets and approved dust and air seals shall be installed continuously at all joints, corners and interfaces.

2.11. Openable window units wherever shown in architectural drawings shall be incorporated into the glazing system complete with approved aluminium sections, hardware, locking arrangements, hinges, handles and weatherproof sealing systems.

2.12. The entire façade system shall be designed and executed to be completely watertight and weather resistant.

2.13. Any gaps, voids or discontinuities in the sealant system shall be rectified immediately before final acceptance.

2.14. The contractor shall provide all necessary scaffolding, lifting equipment, safety arrangements and temporary supports required for execution of work at all heights and levels.

2.15. Upon completion, all aluminium surfaces, sealants and glass panels shall be cleaned thoroughly and protected from damage until handing over.

2.16. Any damaged glass, sealants, aluminium members or accessories shall be replaced by the contractor at his own cost.

3.0. Mode of measurements and payment

3.1. Structural glazing shall be measured in square metres based on actual completed area of façade installed and accepted by Engineer-in-Charge.

3.2. The measurement shall be taken on the visible finished face of glazing including fixed and openable portions.

3.3. No separate payment shall be made for mullions, transoms, brackets, anchor fasteners, SS-304 nuts and bolts, silicone sealants, spacer tapes, neoprene gaskets, weatherproofing arrangements, openable window provisions, scaffolding, lifting equipment, cleaning or protection.

3.4. The rate shall include cost of anodized aluminium sections, reflective toughened glass, structural sealant Dow Corning 995, weather sealant Dow Corning 789, gaskets, brackets, fasteners, fabrication, transportation, erection, testing, labour, tools and plants and all incidental items required for complete execution of the work.

3.5. The rate shall include providing a fully weatherproof, dustproof and watertight façade system complete in all respects.

3.6. The rate shall be for a unit of one square metre.

Item No 70. Providing & fixing 12mm thick toughened glass door with enox fittings & also with floor spring of enox & Locking system .note:- flooring cutting covered in this item so no extra claim for vitrified / kotah/Granite flooring.

1.0 Materials

1.1 Toughened glass door shutter shall be manufactured from 12 mm thick clear toughened safety glass conforming to relevant I.S. specifications.

1.2 Toughened glass shall be free from bubbles, waviness, scratches, distortion and other visible defects.

1.3 All exposed edges of glass shall be machine polished and smoothly finished.

1.4 Floor spring shall be of Enox make or approved equivalent and suitable for the weight and size of glass door shutter.

1.5 Patch fittings, handles, connectors, pivots, clamps and all hardware fittings shall be of Enox make or approved equivalent.

1.6 Locking system shall be heavy duty approved make compatible with toughened glass door assembly.

1.7 Stainless steel fittings shall be corrosion resistant and of approved finish.

1.8 Fasteners, screws, anchor bolts, bushes and accessories shall be of stainless steel or approved non-corrosive material.

1.9 Sealant, gaskets and packing materials wherever required shall be compatible with glass fixing application.

2.0 Workmanship

2.1 The work shall be executed strictly as per approved drawings and instructions of Engineer-in-Charge.

2.2 Toughened glass shall be factory processed and accurately cut to required size and shape before tempering.

2.3 Necessary holes and cut-outs required for fittings and locking system shall be factory made only.

2.4 Floor cutting required for fixing floor spring shall be carried out carefully without damaging adjoining flooring.

2.5 Floor spring shall be fixed firmly in proper alignment and level to ensure smooth operation of door shutter.

2.6 Glass door shutter shall be installed true to line, level and plumb with proper clearances.

2.7 Enox patch fittings, pivots, handles and locking system shall be fixed securely and neatly.

2.8 Necessary gaskets, bushes and packing shall be provided to avoid direct metal to glass contact.

2.9 Door shutter shall open and close smoothly without vibration, rubbing or misalignment.

2.10 All fittings shall be properly aligned and adjusted for smooth functioning of door assembly.

2.11 Exposed surfaces of glass and fittings shall be cleaned thoroughly after installation.

2.12 Damaged glass or defective fittings shall not be accepted and shall be replaced by contractor at no extra cost.

3.0 Mode of Measurement & Payment

3.1 Toughened glass door shall be measured in square meter of finished shutter area.

3.2 The rate shall include toughened glass, Enox floor spring, patch fittings, locking system, handles, pivots, connectors, floor cutting, fixing accessories, sealants, labour, tools & plants and all incidental works required for complete installation.

3.3 No separate payment shall be made for floor cutting in vitrified tile, Kota stone or granite flooring, holes, polishing, hardware fixing or cleaning.

3.4 The rate shall be for complete toughened glass door assembly fixed in position and functioning properly.

Item No 71. Providing and fixing 38mm thick shutter flush door shutters, solid core finshed with 1mm thick laminate on both side with guled PVC edge beading as patten & Selection hinges, Hydraulic Pelmet Arm Door Closer with Double Speed for Heavy Door/Soft Door Closer (ISO 9001 Certified) (Capacity 120 Kg, Silver) with necessary screw,s.s handle,s.s Aldrops.s Stopper for door 120CM x 210CM- D1 Single Shutter.

- ☐ The Materials shall be used as per the general specifications.
- ☐ The Materials shall be used as per description of item given and as directed by the engineer in charge.
- ☐ Design of item & make shall be approved by engineer and architect in charge.

Workmanship:

- ☐ Workmanship shall be as per description given above and to the satisfaction of the engineer in charge.

Mode of Measurement and Payment.

- ☐ The rate shall includes cost of all materials and labor required for satisfactory Completion of this item as described above.
- ☐ The Work shall be measured for the finished work.
- ☐ The Rate shall be for a unit of Sqm.

Item No 72. Providing and fixing 38mm thick shutter flush door shutters, solid core finshed with 1mm thick laminate on both side with guled PVC edge beading as patten & Selection hinges, Hydraulic Pelmet Arm Door Closer with Double Speed for Heavy Door/Soft Door Closer (ISO 9001 Certified) (Capacity 120 Kg, Silver) with necessary screw,s.s handle,s.s Aldrop,s.s Stopper for door 90CM x 210CM- D2 Single Shutter

1.0. Materials

1.1. Flush door shutters shall be 38 mm thick solid core type conforming to relevant I.S. specifications and shall be of approved make and quality.

1.2. The core shall consist of solid timber block board or engineered solid core construction bonded under pressure with approved adhesives.

1.3. Both faces of the shutter shall be finished with 1.0 mm thick decorative laminate of approved shade, texture and pattern as selected by the Architect/Engineer-in-Charge.

1.4. All exposed edges of the shutter shall be finished with approved PVC edge beading securely glued and neatly finished.

1.5. Butt hinges shall be stainless steel heavy duty type of approved make and size suitable for the door shutter.

1.6. Hydraulic door closer shall be heavy duty pelmet arm type, ISO 9001 certified, double speed adjustment type suitable for door weight up to 120 kg and finished in silver colour or approved equivalent.

1.7. Stainless steel handles shall be of approved design, size and make.

1.8. Stainless steel aldrop, stopper, screws and all other accessories shall be of approved quality and make.

1.9. Adhesives, screws, fasteners and fittings shall be of approved make and suitable for the intended application.

2.0. Workmanship

2.1. The door shutter shall be manufactured strictly to the dimensions shown in drawings and approved by Engineer-in-Charge.

2.2. The shutter shall be properly framed and bonded to ensure rigidity, dimensional stability and freedom from warping.

2.3. Decorative laminate shall be fixed on both faces of the shutter using approved adhesive under pressure and finished free from blisters, wrinkles or surface defects.

2.4. PVC edge beading shall be fixed to all exposed edges of the shutter and finished flush with the laminate surface.

2.5. The shutter shall be hung in position with approved stainless steel hinges and shall operate smoothly without binding or distortion.

2.6. Hydraulic pelmet arm door closer shall be fixed strictly as per manufacturer's recommendations and adjusted to ensure smooth closing action.

2.7. Stainless steel handles, aldrop, stopper and all accessories shall be fixed at approved locations with stainless steel screws.

2.8. The door shall be properly aligned in frame and shall open and close freely without obstruction.

2.9. All fittings shall be firmly secured and properly adjusted after installation.

2.10. Any damage occurring during transportation, fixing or execution shall be made good by the contractor at his own cost.

2.11. The completed door assembly shall be cleaned and protected from damage until handing over.

3.0. Mode of measurements and payment

3.1. The flush door shutter shall be measured in square metres of finished shutter area.

3.2. Measurement shall be taken for the actual size of shutter fixed in position.

3.3. The rate shall include cost of 38 mm thick solid core flush door shutter, 1 mm thick laminate on both sides, PVC edge beading, stainless steel hinges, hydraulic pelmet arm door closer, stainless steel handles, stainless steel aldrops, stainless steel stopper, screws, adhesives, labour, tools and plants and all materials required for complete execution of the work.

3.4. No separate payment shall be made for cutting, fitting, edge finishing, hardware fixing, adjustments, wastage, transportation or protection of completed work.

3.5. The rate shall be for a unit of one square metre complete.

Door Size: 900 mm × 2100 mm (D2 Single Shutter).

Item No 73. Supply and professional installation of Toughened safety glass (12mm thick) sliding door system, Heavy-Duty Sliding Track System, Patch Fittings, Handles, Locks, Consumables (Screws, Fasteners, Silicon Sealant, etc.) Complete with application of frosted film as per approved by Engineer in charge.

1.0. Materials

1.1. Toughened safety glass shall be 12 mm thick, fully tempered clear glass conforming to relevant I.S. specifications and approved by the Engineer-in-Charge.

1.2. The glass shall be free from bubbles, waves, scratches, cracks, chips, distortions and other defects affecting strength, safety or appearance.

1.3. The sliding track system shall be heavy-duty stainless steel or anodized aluminium type specifically designed for frameless toughened glass doors and capable of carrying the imposed load without deformation.

1.4. Rollers, bearings, stoppers, guide channels and track accessories shall be of approved make and heavy-duty construction suitable for smooth and noiseless operation.

1.5. Patch fittings shall be manufactured from SS-304 grade stainless steel with satin or mirror finish and shall be of approved make.

1.6. Handles shall be stainless steel grade SS-304 of approved design, size and finish.

1.7. Locks shall be heavy-duty stainless steel glass door locks of approved make complete with keys and accessories.

1.8. Silicone sealant shall be weather-resistant neutral cure sealant of approved make suitable for structural glass applications.

1.9. Screws, anchor fasteners, brackets and fixing accessories shall be corrosion resistant and of approved quality.

1.10. Frosted film shall be premium quality self-adhesive architectural film of approved shade, pattern and opacity as approved by Engineer-in-Charge.

1.11. All materials shall be new, free from defects and obtained from approved manufacturers.

2.0. Workmanship

2.1. The work shall be executed strictly in accordance with approved drawings, manufacturer's recommendations and directions of Engineer-in-Charge.

2.2. Before fabrication and installation, all dimensions shall be verified at site.

2.3. Toughened glass panels shall be factory processed and no cutting, drilling or modification shall be carried out after tempering.

2.4. The sliding track system shall be fixed securely to structural members using approved anchor fasteners and brackets.

2.5. Tracks shall be installed true to line and level to ensure smooth operation of the sliding door.

2.6. Glass panels shall be carefully lifted and fixed in position without causing damage to edges or surfaces.

2.7. Patch fittings shall be fixed accurately and securely in accordance with manufacturer's specifications.

2.8. Rollers and sliding mechanisms shall be adjusted to provide smooth, silent and effortless movement of the door shutter.

2.9. Handles and locking arrangements shall be fixed at approved locations and tested for proper functioning.

2.10. Silicone sealant shall be applied neatly at joints and interfaces wherever required to ensure proper sealing and finishing.

2.11. Frosted film shall be applied on cleaned glass surfaces free from dust, grease and moisture. The film shall be applied without wrinkles, bubbles, creases or visible defects.

2.12. The completed sliding door system shall operate smoothly without vibration, rattling, misalignment or binding.

2.13. All exposed surfaces shall be cleaned thoroughly after completion of installation.

2.14. Any damaged glass, fittings, hardware or film shall be replaced by the contractor at his own cost.

2.15. Necessary scaffolding, lifting arrangements, tools, tackles and safety measures required for execution of the work shall be provided by the contractor.

3.0. Mode of measurements and payment

3.1. The sliding glass door system shall be measured in square metres of finished glass door area actually installed and approved.

3.2. The measurement shall include fixed and sliding glass portions forming part of the door assembly wherever specified.

3.3. The rate shall include cost of 12 mm thick toughened safety glass, heavy-duty sliding track system, rollers, patch fittings, handles, locks, frosted film, silicone sealant, screws, fasteners, brackets, labour, transportation, lifting, scaffolding, tools and plants and all incidental items necessary for complete installation.

3.4. No separate payment shall be made for cutting templates, hardware fixing, adjustments, testing, cleaning, protection or consumables required for completion of the work.

3.5. The completed installation shall be delivered in perfect working condition and to the satisfaction of Engineer-in-Charge.

3.6. The rate shall be for a unit of one square metre complete.

Item No 74. Providing and fixing FRP frame size 125x65 mm and 35mm thick FRP shutter having extra reinforcement on sides & edges in polish finish. The core of the shutter & frame is to be filled up with injected polyurethane foam done in situ alongwith embedded wooden pieces for stiffening & also taking hinges & finitues. The whole FRP frame & shutter is to be water proof weather proof, termite proof & resistance to mild acid/alkali. Rates are to be inclusive of S.S hinges with necessary screws & alluminium S.S fixtures & fastenings & fastener sleeve.

1.0. Materials

1.1. The door frame shall be made of Fibre Reinforced Plastic (FRP) section of size 125 mm × 65 mm having approved profile, design and finish as shown in drawings or approved by Engineer-in-Charge.

1.2. The door shutter shall be 35 mm thick FRP moulded shutter with extra reinforcement at edges, corners and hinge locations.

1.3. The FRP frame and shutter shall be manufactured from quality resin reinforced with glass fibre and shall be free from cracks, distortions, pin holes, delamination and surface defects.

1.4. The cavity of frame and shutter shall be filled with injected polyurethane foam in situ to provide rigidity, thermal insulation and dimensional stability.

1.5. Embedded wooden blocks of approved quality and dimensions shall be provided within the frame and shutter at locations required for fixing hinges, handles, locks and other fixtures.

1.6. The FRP frame and shutter shall be waterproof, weatherproof, termite proof and resistant to mild acids and alkalis.

1.7. Stainless steel hinges shall be of approved make and suitable size for the door shutter.

1.8. Aluminium and stainless steel fixtures and fastenings shall be of approved design, quality and make.

1.9. Anchor fasteners, screws, sleeves and fixing accessories shall be corrosion resistant and of approved quality.

1.10. All materials used in the manufacture and installation of the FRP door shall be new and free from defects.

2.0. Workmanship

2.1. The FRP frame and shutter shall be fabricated strictly in accordance with approved drawings and manufacturer's specifications.

2.2. The frame shall be installed true to line, level and plumb and securely fixed to masonry, concrete or structural members with approved fasteners and anchor sleeves.

2.3. The frame shall be adequately braced during fixing to maintain correct alignment and dimensions.

2.4. Polyurethane foam filling shall be injected uniformly throughout the frame and shutter cavities to achieve complete filling without voids.

2.5. Embedded wooden stiffeners shall be accurately positioned to receive hinges, locks, handles and other fixtures.

2.6. The shutter shall be hung on approved stainless steel hinges and shall operate smoothly without binding, warping or sagging.

2.7. All fixtures and fastenings shall be fixed firmly with approved screws and accessories.

2.8. Necessary cutting, drilling and fitting required for fixing hardware shall be carried out carefully without damaging the FRP surface.

2.9. The exposed surfaces shall have a smooth polished finish and shall be free from scratches, dents, cracks and manufacturing defects.

2.10. The completed door shall be properly aligned and shall open and close freely without obstruction.

2.11. Any damage caused during transportation, storage or installation shall be made good or replaced by the contractor at his own cost.

2.12. The completed work shall be cleaned and protected from damage until handing over.

3.0. Mode of measurements and payment

3.1. The FRP door shall be measured in square metres of finished shutter area fixed in position.

3.2. The rate shall include cost of FRP frame of size 125 mm × 65 mm, 35 mm thick FRP shutter, polyurethane foam filling, embedded wooden stiffeners, stainless steel hinges, aluminium and stainless steel fixtures and fastenings, anchor sleeves, screws, labour, tools and plants and all materials required for complete execution of the work.

3.3. No separate payment shall be made for reinforcement at edges, polyurethane foam filling, embedded wooden blocks, fixing accessories, cutting, fitting, alignment, transportation, wastage or protection of completed work.

3.4. The rate shall include all operations necessary to provide a waterproof, weatherproof, termite proof and chemically resistant FRP door assembly complete in all respects.

3.5. The rate shall be for a unit of one square metre.

Item No 75. Providing and fixing window having extruded aluminum Colour anodized section frame main outer size 95mm x 24mm x 1.17mm @ wt.of 0.738 Kg/mt , horizontal Three track member size 92mm x 31.75mm x 1.30mm,@Wt.1.07 Kg/mt , vertical member of size 92mm x 31.75mm x 1.50mm @ Wt. 1.06 Kg/mt with sliding shutters of horizontal member size 40 mmx18mmx1.29mm @ wt.of 0.456 Kg/mt, vertical member of size 40mm x 18mm x 1.29 mm @ wt.of 0.456Kg/mt/ with 5mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc with Mosquito jali window with extra track

1.0. Materials

1.1. Aluminium sections used for window fabrication shall be extruded aluminium alloy sections conforming to relevant I.S. specifications and shall be colour anodized/powder coated as approved by Engineer-in-Charge.

1.2. The outer frame shall be of size 95 mm × 24 mm × 1.17 mm having weight not less than 0.738 kg/rmt.

1.3. The horizontal three-track member shall be of size 92 mm × 31.75 mm × 1.30 mm having weight not less than 1.07 kg/rmt.

1.4. The vertical frame member shall be of size 92 mm × 31.75 mm × 1.50 mm having weight not less than 1.06 kg/rmt.

1.5. Sliding shutter horizontal members shall be of size 40 mm × 18 mm × 1.29 mm having weight not less than 0.456 kg/rmt.

1.6. Sliding shutter vertical members shall be of size 40 mm × 18 mm × 1.29 mm having weight not less than 0.456 kg/rmt.

1.7. The glazing shall consist of 5 mm thick transparent bronze colour tinted float glass of approved make.

1.8. The glass shall be of best quality, free from bubbles, waves, scratches, cracks, smoke veins and other defects.

1.9. Mosquito mesh shutter shall be provided with an additional track and shall consist of powder coated aluminium frame fitted with approved quality fibre or stainless steel mosquito mesh.

1.10. Aluminium fittings, rollers, handles, locking arrangements, stoppers and fixtures shall be of approved make and quality.

1.11. Transparent silicone sealant shall be of approved make suitable for glazing work.

1.12. Rubber gaskets, glazing beads, screws, anchor fasteners and fixing accessories shall be of approved quality and compatible with the aluminium window system.

2.0. Workmanship

2.1. The aluminium window shall be fabricated and installed strictly in accordance with approved drawings and manufacturer's specifications.

2.2. All aluminium sections shall be accurately cut, machined and assembled true to dimensions shown on drawings.

2.3. The outer frame shall be fixed rigidly in position with approved anchor fasteners and shall be truly plumb, level and square.

2.4. Necessary holdfasts, brackets and fasteners shall be provided to ensure proper anchorage of the frame to the surrounding structure.

2.5. Sliding shutters shall be fabricated from specified aluminium sections and fitted with approved rollers to ensure smooth and noiseless operation.

2.6. The three-track system shall accommodate glass shutters and separate mosquito mesh shutters complete with independent movement.

2.7. The mosquito mesh shutter shall slide smoothly within the additional track without obstruction.

2.8. Glass panels shall be fixed carefully in aluminium shutters using approved glazing beads, rubber gaskets and transparent silicone sealant.

2.9. The glazing shall be watertight and free from rattling under normal operating conditions.

2.10. All corners and joints shall be neatly finished and firmly secured.

2.11. Handles, locks, stoppers and other hardware shall be fixed at approved locations and adjusted for proper functioning.

2.12. The completed window shall open and close freely without binding, vibration or excessive play.

2.13. Aluminium surfaces shall be protected against scratches and damages during transportation and installation.

2.14. Any damaged section, glass, hardware or mosquito mesh shall be replaced by the contractor at his own cost.

2.15. Upon completion, the window shall be cleaned thoroughly and all protective coverings removed.

3.0. Mode of measurements and payment

3.1. Aluminium window shall be measured in square metres of clear opening covered by the window including mosquito mesh shutter.

3.2. The area shall be calculated based on outer dimensions of the window frame fixed in position.

3.3. The rate shall include cost of colour anodized/powder coated aluminium sections, three-track frame, sliding shutters, additional track for mosquito mesh shutter, 5 mm thick bronze tinted float glass, mosquito mesh, rollers, locks, handles, stoppers, glazing beads, rubber gaskets, silicone sealant, anchor fasteners, fittings, fixtures, labour, tools and plants and all materials required for complete execution of the work.

3.4. No separate payment shall be made for cutting, fabrication, wastage, glazing, sealants, mosquito mesh shutter, hardware, transportation, fixing or protection of completed work.

3.5. The rate shall be for a unit of one square metre complete.

Item No 76. Providing and fixing standard extruded of aluminium section of size 63mm x 38.10mm x 1.2mm @ Wt. 0.643 Kg/mt with colour anodized aluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation

1.0. Materials

1.1. Aluminium sections used in the manufacture of ventilators shall be standard extruded aluminium alloy sections conforming to relevant I.S. specifications and approved by Engineer-in-Charge.

1.2. The aluminium frame section shall be of size 63 mm × 38.10 mm × 1.20 mm having a weight of not less than 0.643 kg per running metre and shall be colour anodized finish.

1.3. The aluminium sections shall be straight, true to profile and free from cracks, twists, surface defects, dents, scratches and other imperfections.

1.4. The glazing shall consist of 5 mm thick frosted glass of approved make and quality.

1.5. The glass shall be uniform in thickness and free from bubbles, waves, cracks, scratches, smoke veins and other defects.

1.6. Glazing clips, aluminium beads and retaining members shall be of approved make and suitable for securing the glass firmly in position.

1.7. Rubber gaskets shall be of approved quality, weather resistant and suitable for aluminium glazing work.

1.8. Hinges, pivots, stays and other fittings, wherever required, shall be of approved make and quality.

1.9. Screws, anchor fasteners and fixing accessories shall be of non-corrosive material and of approved quality.

1.10. All materials shall be new and obtained from approved manufacturers.

2.0. Workmanship

2.1. The ventilator shall be fabricated strictly in accordance with approved drawings, schedules and directions of Engineer-in-Charge.

2.2. Aluminium sections shall be accurately cut, mitred, machined and assembled to form rigid and true frames.

2.3. All joints shall be neatly formed and secured with approved cleats, screws or connectors to provide a strong and durable assembly.

2.4. The ventilator frame shall be fixed in position true to line, level and plumb using approved anchor fasteners.

2.5. Necessary packing pieces, brackets and fixing accessories shall be provided to ensure proper alignment and rigidity.

2.6. Frosted glass shall be cut accurately to size and fixed securely within the aluminium frame using approved glazing clips, aluminium beads and rubber gaskets.

2.7. Glass shall be fixed in a manner that prevents rattling and allows for thermal expansion without inducing stresses.

2.8. All exposed surfaces of aluminium sections shall be protected from damage during fabrication, transportation and installation.

2.9. Hinges, stays or other operating hardware, wherever provided, shall be fixed accurately and adjusted to ensure smooth operation.

2.10. The completed ventilator shall be weatherproof, properly aligned and free from distortion, looseness or defects.

2.11. Any damaged aluminium section, glass or fitting shall be replaced by the contractor at his own cost.

2.12. After installation, all surfaces shall be cleaned thoroughly and all protective coverings removed.

3.0. Mode of measurements and payment

3.1. The ventilator shall be measured in square metres based on the overall outer dimensions of the frame fixed in position.

3.2. The rate shall include cost of colour anodized aluminium sections, 5 mm thick frosted glass, glazing clips, aluminium beads, rubber gaskets, hinges, fittings, screws, anchor fasteners, labour, fabrication, transportation, installation, tools and plants and all materials necessary for complete execution of the work.

3.3. No separate payment shall be made for cutting, wastage, fixing accessories, glazing materials, alignment, cleaning or protection of completed work.

3.4. The rate shall be for a unit of one square metre complete.

Item No 77. Acrylic Signages (Name Plate 150 mm high) Providing and fixing ACRYLIC SIGNAGES of 10 mm Acrylic name plate with vinyl cut work on top of brand Ptglass, astari etc., with all laser and cnc work, including all material, labour, studs for mounting

and other hardwares, waste of materials etc. and complete the work satisfactorily as per instruction of Architect or engineer-in charge.

1.0. Materials

1.1. The signage shall consist of 10 mm thick acrylic sheet of approved make such as Ptglass, Astari or equivalent approved by Engineer-in-Charge.

1.2. The acrylic sheet shall be clear, uniform in thickness, free from scratches, cracks, bubbles, waviness and other manufacturing defects.

1.3. Vinyl graphics, lettering, logos and symbols shall be computer cut from premium quality self-adhesive vinyl of approved colour, shade and finish.

1.4. Laser cutting, CNC routing and engraving materials shall be suitable for achieving precise and smooth edges as per approved drawings.

1.5. Studs, spacers, mounting brackets, anchor fasteners, screws and other fixing hardware shall be of stainless steel or approved non-corrosive material.

1.6. Adhesives, tapes and fixing accessories shall be of approved quality and suitable for long-term interior or exterior application as required.

1.7. The signage shall conform to approved architectural drawings, artwork, colour schemes and design details.

2.0. Workmanship

2.1. The signage shall be fabricated strictly in accordance with approved drawings, artwork and instructions of Architect or Engineer-in-Charge.

2.2. The acrylic sheet shall be cut accurately to the required size and shape using laser cutting or CNC routing machines.

2.3. All edges shall be smooth, uniform and neatly finished without chipping, cracks or visible defects.

2.4. Vinyl lettering, logos, symbols and graphics shall be accurately positioned and applied on the acrylic surface without wrinkles, air bubbles or distortions.

2.5. Laser engraving, CNC engraving or decorative cutting work wherever specified shall be executed neatly and accurately.

2.6. The completed signage shall be mounted using approved stainless steel studs, spacers, brackets or other approved fixing systems.

2.7. Fixing shall be carried out in true alignment and level to ensure a neat appearance.

2.8. Holes required for fixing shall be drilled carefully without causing damage to the acrylic sheet.

2.9. The contractor shall verify all dimensions, artwork details, spelling, fonts and locations before fabrication and installation.

2.10. Necessary templates shall be used to ensure proper positioning and alignment during installation.

2.11. Any damaged, scratched or defective signage shall be replaced by the contractor at his own cost.

2.12. After installation, the signage shall be thoroughly cleaned and all protective films removed.

2.13. The completed signage shall present a smooth, attractive and professional appearance to the satisfaction of the Architect and Engineer-in-Charge.

3.0. Mode of measurements and payment

3.1. Acrylic signages shall be measured in numbers of completed signboards installed and approved by Engineer-in-Charge unless otherwise specified in the schedule.

3.2. The rate shall include cost of 10 mm thick acrylic sheet, vinyl graphics, laser cutting, CNC routing, engraving work, studs, spacers, mounting hardware, anchor fasteners, adhesives, labour, transportation, installation, tools and plants and all materials necessary for complete execution of the work.

3.3. No separate payment shall be made for artwork preparation, wastage of materials, templates, fixing accessories, drilling, alignment, cleaning or protection of completed work.

3.4. The rate shall include all labour, materials and incidental charges required for satisfactory completion of the work as directed by Architect or Engineer-in-Charge.

3.5. The rate shall be for a unit of one number complete.

Item No 79. Providing and fixing eco-friendly light weight calcium silicate false ceiling tiles having Tegular edge & 15 mm Thick Densified edges on the Tile Periphery for Extra Strength The Light weight calcium silicate ceiling tiles shall have , light reflection 85% non-combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity 0.043° w/m KC. for the best thermal Insulation . The Light weight calcium Silicate tile shall be of approved texture Fine fissured/ Spintone/Cosmos having NRC value of 0.5 & Globe having NRC value of 0.75 NRC or equivalent of size 595 X 595 mm to be laid on true horizontal level suspended inter locking metal grid of hot dipped

galvanized steel sections (galvanizing @120 grams per sqm including both side) consisting of main 'T' runner suitably spaced at joints to get required length and size of 24X38mm made from 0.30 mm thick (minimum) sheet, 1200mm centre to centre, and cross 'T' of size 24X28mm made out of 0.33mm (Minimum) sheet spaced 1200mm along spaced between main 'T' at 600mm centre to centre to form a grid of 1200X600mm and secondary cross 'T' of length 600mm and size 24x28mm made of 0.30 mm thick (Minimum) sheet to be interlocked at middle of the 1200X600mm panel to form grid of size 600X600mm resting on periphery walls/partitions on a perimeter wall angle pre-coated steel of size (24X24X3000mm made of 0.40mm thick (minimum) sheet with the help of rawl plugs at 450mm centre to centre with 25mm long dry wall screws @ 230mm interval and laying 15mm thick Densified edges light weight calcium silicate ceiling tiles of approved texture (Fine Fissured/Cosmos/Spintone) in the grid including, cutting /making opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc., wherever required, Main 'T' runners to be suspended from ceiling using G.I. slotted cleats of size 25X35X1.6mm fixed to ceiling with 12.5mm dia and 50mm long dash fasteners, 4mm G.I. adjustable rods with galvanized steel level clips of size 85X30X0.8mm, spaced at 1200mm centre to centre long main 'T' bottom exposed with 24mm of all T-sections shall be pre-painted with polyester baked paint, for all heights, as per specifications, drawings and as directed by engineer-in-charge. Note:- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening (cut outs) having area less than 0.30 sqm. The calcium silicate ceiling tiles shall have NRC. Value of 0.50 (Minimum) for Fine fissured/Spintone/Cosmos and 0.75 NRC for Globe, light reflection 85% non-combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity. 0.043° w/m KC. for the best thermal Insulation

1.0. Materials

1.1. The false ceiling tiles shall be eco-friendly light weight calcium silicate ceiling tiles of approved make, texture and design having Tegular edges and 15 mm thick densified edges on the tile periphery for additional strength.

1.2. The ceiling tiles shall be of size 595 mm × 595 mm and shall be Fine Fissured, Spintone, Cosmos, Globe or equivalent approved texture as specified in the item.

1.3. The tiles shall possess minimum light reflectance of 85%, humidity resistance of 100%, thermal conductivity not exceeding 0.043 W/mK and shall be non-combustible conforming to B.S. 476 Part-IV.

1.4. The Noise Reduction Coefficient (NRC) shall be minimum 0.50 for Fine Fissured, Spintone and Cosmos textures and minimum 0.75 for Globe texture.

1.5. The suspended ceiling grid system shall consist of hot dipped galvanized steel sections having galvanization coating of not less than 120 grams per sq.m on both sides.

1.6. Main 'T' runners shall be of size 24 mm × 38 mm made from 0.30 mm thick (minimum) galvanized steel sheet.

1.7. Cross 'T' sections shall be of size 24 mm × 28 mm made from 0.33 mm thick (minimum) galvanized steel sheet.

1.8. Secondary cross 'T' sections shall be of size 24 mm × 28 mm made from 0.30 mm thick (minimum) galvanized steel sheet.

1.9. Perimeter wall angle shall be pre-coated steel section of size 24 mm × 24 mm × 3000 mm made from 0.40 mm thick (minimum) galvanized steel sheet.

1.10. Suspension system shall consist of G.I. slotted cleats of size 25 mm × 35 mm × 1.6 mm, 4 mm diameter G.I. adjustable rods, galvanized steel level clips of size 85 mm × 30 mm × 0.8 mm and approved dash fasteners.

1.11. The exposed surfaces of all T-sections shall be factory pre-painted with polyester baked paint.

1.12. Rawl plugs, screws, dash fasteners, clips and all fixing accessories shall be of approved make and quality.

2.0. Workmanship

2.1. The work shall be carried out in accordance with approved drawings, specifications and directions of Engineer-in-Charge.

2.2. The perimeter wall angle shall be fixed on walls, beams or partitions at required levels using approved rawl plugs at 450 mm centres and 25 mm long drywall screws at approximately 230 mm intervals.

2.3. Main T-runners shall be suspended from the structural ceiling using G.I. slotted cleats, adjustable rods and level clips at spacing not exceeding 1200 mm centre to centre.

2.4. Main T-runners shall be installed at 1200 mm centre to centre and properly aligned to obtain true horizontal levels.

2.5. Cross T-sections shall be fixed at 600 mm centres between main runners to form modules of 1200 mm × 600 mm.

2.6. Secondary cross T-sections of 600 mm length shall be interlocked midway to form grid modules of 600 mm × 600 mm.

2.7. All grid members shall be securely interlocked to form a rigid and level suspension system.

2.8. The calcium silicate ceiling tiles shall be carefully placed within the grid system without damaging edges, surfaces or corners.

2.9. Necessary openings for diffusers, air grilles, light fittings, smoke detectors, sprinklers, access panels and other services shall be neatly cut and finished.

2.10. The ceiling shall be maintained true to line, level and plane without visible sagging, waviness or irregularities.

2.11. Damaged, broken, stained or defective tiles shall be replaced with new tiles at no extra cost.

2.12. All exposed surfaces shall be cleaned after installation and left free from dust, stains, marks and other defects.

2.13. The completed ceiling shall provide a neat appearance, proper acoustic performance and thermal insulation as specified.

3.0. Mode of measurements and payment

3.1. The calcium silicate false ceiling shall be measured in square metres of finished ceiling area measured from wall to wall.

3.2. No deduction shall be made for openings, cut-outs or exposed frames having individual area not exceeding 0.30 square metre.

3.3. The rate shall include supply and fixing of calcium silicate ceiling tiles, suspended galvanized steel grid system, perimeter angles, suspension rods, level clips, cleats, dash fasteners, rawl plugs, screws, cutting of tiles, formation of openings for services, scaffolding, labour, tools and plants and all materials required for complete execution of the work.

3.4. No separate payment shall be made for wastage, cutting, fitting around services, suspension accessories, alignment, levelling, cleaning or replacement of damaged tiles.

3.5. The rate shall be for a unit of one square metre complete.

Item No 84. Providing & Fixing the Chickenmesh - 20 guage (Crimp Jali) of approved size applying between the RCC and masonry junction in proper line, level and plumb with all material, labour, tools, tackles and equipment including fixing the jali with nails, etc complete as directed by the Engineer-in-charge.

1.0. Materials

1.1. The chicken mesh shall be galvanized iron crimped wire mesh (Crimp Jali) of 20 gauge or as specified in the item.

1.2. The mesh shall be of approved make and shall be free from rust, distortion, broken wires and manufacturing defects.

1.3. The mesh shall have uniform openings and shall be sufficiently rigid to prevent displacement during plastering operations.

1.4. Nails, screws, washers and fixing accessories shall be galvanized steel and of approved quality.

1.5. All materials used in the work shall be new and approved by the Engineer-in-Charge.

2.0. Workmanship

2.1. The chicken mesh shall be provided at all junctions of RCC members and masonry work wherever shown on drawings or directed by the Engineer-in-Charge.

2.2. Before fixing the mesh, the surfaces shall be cleaned thoroughly and all loose mortar, dust, laitance and foreign matter shall be removed.

2.3. The mesh shall be cut neatly to the required width and length and fixed centrally over the junction of RCC and masonry.

2.4. The mesh shall provide a minimum overlap of 100 mm on either side of the junction or as directed by the Engineer-in-Charge.

2.5. The mesh shall be fixed firmly with approved galvanized nails, screws, washers or other approved fixing arrangements at suitable spacing to prevent sagging, displacement or loosening.

2.6. The mesh shall be fixed true to line, level and plumb and shall remain properly stretched without wrinkles or undulations.

2.7. Care shall be taken to ensure that the mesh remains in proper position during subsequent plastering operations.

2.8. Damaged or distorted mesh shall not be used and shall be replaced at the contractor's cost.

2.9. The work shall be completed in a neat and workmanlike manner to the satisfaction of the Engineer-in-Charge.

3.0. Mode of measurements and payment

3.1. The chicken mesh shall be measured in square metres of actual area fixed in position.

3.2. Measurement shall be taken for the net area of mesh fixed over RCC and masonry junctions.

3.3. The rate shall include cost of 20 gauge galvanized crimped wire mesh, nails, screws, washers, fixing accessories, cutting, overlapping, fixing, labour, tools, tackles, scaffolding and all materials required for complete execution of the work.

3.4. No separate payment shall be made for wastage, overlaps, cutting around openings, temporary supports or any incidental work necessary for proper completion of the item.

3.5. The rate shall be for a unit of one square metre complete.

Item No 86. UNDER GROUND WATER TANK

Constructing Under Ground water tank with Providing and laying controlled cement concrete M250 mix for R.C.C. work including reinforcement, boxing, centering, vibrating, curing, concrete work for top, bottom slab – 150mm thick & side pardi – 380mm (150mm RCC Wall, 230mm Brick masonry wall), column, beam for under ground water tank item incl. Necessary excavation & refilling the available earth, 15 cm thk 1:2:4 for bedding of concrete, 15 mm thk. water proofing cement plaster in C.M. 1:4 with smooth finishing & Glazed tile Dado, vata, 150mm thick cement concrete flooring watering etc. Comp. to all face of tank . including locking arrangement outlet, inlet, overflow and washout outlet pipe arrangement as necessary & C.I. Cover 0.60 x 0.45 weight not less than 35 kg with locking arrangement, steps etc. comp as per structural detail drawing Including thermo Mechanically treated bars (TMT BARS) Fe 500D as directed by Eng-in-charge. (The Product Performance Shall Carry Guarantee for 5 Years Against Any Leakage)

1. Scope of Work

The work consists of the complete construction of an Underground Water Tank of required capacity, including earthwork excavation, refilling, lean concrete bedding, Reinforced Cement Concrete (M250 mix) for the bottom slab, top slab, columns, beams, and core pardi walls, brick masonry outer protective walls, interior water-proof plastering, glazed tile dadoing, internal flooring, provision of C.I. manhole covers, internal access steps, plumbing connections (inlet, outlet, overflow, washout), and testing for water tightness.

2. Material Specifications

- **Concrete Mix:** Controlled concrete of **M250 Grade** (25 N/mm² characteristic compressive strength) shall be used for all structural RCC components.
- **Reinforcement:** High-yield strength **Thermo Mechanically Treated (TMT) steel bars conforming to Grade Fe 500D** shall be used.
- **Brick Masonry:** First-class conventional or fly-ash bricks having minimum crushing strength as specified, laid in cement mortar 1:4 or 1:6 as per drawing.
- **Finishing Materials:** Premium quality **Glazed Ceramic Tiles** for the internal dado.
 - Water-proofing compound of approved make (e.g., Dr. Fixit, Fosroc, or equivalent) conforming to IS: 2645.

- Heavy-duty **Cast Iron (C.I.) Manhole Cover** (0.60 m x 0.45 m), weighing not less than 35 kg, equipped with a robust locking arrangement.

3. Workmanship & Execution

- **Earthwork & Bedding:** Excavation shall be carried out to the exact depths and dimensions shown in the structural drawings. The bed shall be consolidated, watered, and rammed. A **15 cm thick lean concrete bedding of mix 1:2:4** (1 cement : 2 sand : 4 graded stone aggregate) shall be evenly laid and compacted.
- **Structural RCC Works:**
 - **Bottom & Top Slabs:** Shall be cast to a minimum finished thickness of **150 mm**.
 - **Side Pardi (Composite Wall):** The perimeter wall shall have a total thickness of **380 mm** comprising an inner **150 mm thick structural RCC wall** cast monolithically with the base, backed by an outer **230 mm thick brick masonry wall** providing insulation and protection.
 - **Formwork & Curing:** Formwork (boxing, centering, and shuttering) must be rigid, watertight, and properly propped. Mechanical vibrators must be used during pouring. All concrete elements must be continuously cured for at least 14 days.
- **Finishing & Waterproofing:**
 - **Plastering:** The internal faces of the brickwork and concrete shall be finished with a **15 mm thick water-proofing cement plaster in Cement Mortar 1:4**, mixed with an approved water-proofing compound, trowelled to a perfectly smooth finish.
 - **Glazed Tile Dado & Vata:** Premium glazed tiles shall be fixed over the plaster on all inner faces. At all floor-to-wall and wall-to-wall intersections, a smooth coved concrete/plaster corner fillet (**Vata**) shall be constructed to prevent water stagnation and corner leakage.
 - **Flooring:** A **150 mm thick cement concrete floor** shall be provided, properly graded toward the washout pipe.
- **Fixtures & Appurtenances:** Rigid PVC/GI sleeve pipes for inlet, outlet, overflow, and washout lines must be cast into the concrete at designated heights. Plastic-encapsulated or MS rungs/steps shall be securely anchored to the wall for internal maintenance access.

4. Mode of Measurement & Payment

- Unit of Measurement: Litre

Item No 87. Providing and placing and fixing 12 mm thick glass with necessary jointing, fitting and fixtures, Rubber gasket for glass beading, half round Edge Labour Charges, Structural steel for framing, hoisting steel rope, Gusset plate all required to fitting labour charges structure etc. Freight, Transport Etc Completed. As per Architectural drawing and direction of EIC

1.0. Materials

1.1. Glass shall be 12 mm thick clear/toughened glass of approved make, quality and shade as specified in the drawings and approved by the Engineer-in-Charge.

1.2. The glass shall be free from bubbles, waves, scratches, cracks, smoke veins and other manufacturing defects.

1.3. Structural steel sections required for framing, supports, brackets, stiffeners and fixing arrangements shall conform to relevant I.S. specifications and shall be free from rust, distortion and defects.

1.4. Rubber gaskets shall be of approved make, weather resistant and suitable for glazing applications.

1.5. Glass beading, fixing clips, patch fittings, connectors, brackets and other hardware shall be of approved make and quality.

1.6. Fasteners, anchor bolts, screws, nuts and washers shall be stainless steel or corrosion-resistant material of approved quality.

1.7. Silicone sealant used for glazing shall be weatherproof, UV resistant and of approved make.

1.8. Gusset plates, hoisting ropes and other accessories required for fabrication and installation shall be of approved quality.

1.9. All materials shall conform to approved samples and architectural drawings.

2.0. Workmanship

2.1. The work shall be executed strictly in accordance with approved architectural drawings, specifications and directions of the Engineer-in-Charge.

2.2. Structural steel framing members shall be accurately fabricated, assembled and fixed in true line, level and plumb to receive the glass panels.

2.3. All steel sections shall be properly aligned and securely connected using approved welding, bolting or fastening methods as specified.

2.4. Gusset plates, brackets, cleats and stiffeners shall be provided wherever required to ensure adequate strength and stability of the framing system.

2.5. The glass shall be cut, handled, transported and installed carefully to avoid damage, breakage or edge chipping.

2.6. Glass panels shall be fixed in position using approved glazing systems, rubber gaskets, beads, clips and sealants to provide a secure and weatherproof installation.

2.7. Half-round edge finishing shall be provided to exposed glass edges wherever specified in the drawings.

2.8. Silicone sealant shall be applied uniformly to joints and interfaces to ensure watertight and airtight performance.

2.9. Necessary hoisting equipment, lifting arrangements, steel ropes and safety devices shall be used during installation.

2.10. All exposed surfaces shall be free from scratches, stains, sealant marks and other defects after installation.

2.11. Any damaged glass panel, fitting or framing member shall be replaced by the contractor at his own cost.

2.12. The completed work shall be cleaned thoroughly and handed over in perfect condition to the satisfaction of the Engineer-in-Charge.

3.0. Mode of measurements and payment

3.1. The glass work shall be measured in square metres of actual glass area fixed in position.

3.2. The area shall be measured based on the visible dimensions of the glass panel installed.

3.3. The rate shall include supply and fixing of 12 mm thick glass, structural steel framing, gusset plates, brackets, rubber gaskets, glass beading, patch fittings, connectors, anchor fasteners, silicone sealant, hoisting arrangements, transportation, freight, labour, tools, tackles, scaffolding and all materials required for complete execution of the work.

3.4. No separate payment shall be made for cutting, edge polishing, half-round edge finishing, wastage, temporary supports, lifting equipment, fixing accessories, sealants or incidental works required for proper completion of the item.

3.5. The rate shall be for a unit of one square metre complete.

Item No 87. Providing and fixing Precast [Max. in 5" thickness, GRC Type decorative & Curved] controlled cement concrete R.C.C. work in M-250, at superstructure for all floor lvl., For Wall & Column panelling, Webs, Bottom slabs and Decorative wall panel, Diaphragms Walls, Detailed Designer Jali [No deduction made for jali hole & Column groove], Column, including scaffolding, ramming, and finishing, Fixing at Location complete. For Work in (II) etc. Complete, as per detailed by Architect / Consultant and directed by EI

1.0. Materials

1.1. The precast units shall consist of Glass Fibre Reinforced Concrete (GRC) or controlled cement concrete of grade M-25 (250 kg/cm² characteristic compressive strength) as specified in the item and approved by the Engineer-in-Charge.

1.2. Cement shall conform to relevant I.S. specifications and shall be of approved make.

1.3. Fine and coarse aggregates shall be clean, hard, durable and conform to relevant I.S. specifications.

1.4. Glass fibres used in GRC units shall be alkali resistant and of approved quality suitable for architectural applications.

1.5. Reinforcement, where required, shall conform to relevant I.S. specifications and shall be free from rust, oil, scales and other harmful substances.

1.6. Inserts, lifting hooks, fixing anchors, brackets and embedded fixtures required for installation shall be of approved design and quality.

1.7. Cement mortar, non-shrink grout, sealants and fixing compounds shall be of approved make and suitable for the intended application.

1.8. All decorative GRC/RCC panels, curved members, wall panels, column cladding, jalis, diaphragms, webs, bottom slabs and other architectural elements shall conform to the approved architectural drawings and shop drawings.

1.9. The finished surfaces shall be dense, uniform in colour and texture and free from cracks, honeycombing, warping, chips and other defects.

2.0. Workmanship

2.1. The work shall be executed strictly in accordance with approved architectural drawings, structural details, shop drawings and instructions of the Engineer-in-Charge.

2.2. Precast GRC/RCC units shall be cast in approved moulds to the required dimensions, profiles, curves, patterns and architectural finishes.

2.3. Adequate care shall be taken during casting to ensure dimensional accuracy, uniform thickness, proper compaction and surface finish.

2.4. The maximum thickness of precast decorative units shall generally not exceed 125 mm (5 inches) unless otherwise specified in the approved drawings.

2.5. All precast members shall be properly cured for the specified period before transportation and installation.

2.6. The units shall be transported, handled and stacked carefully to prevent cracking, chipping, distortion or damage.

2.7. Necessary scaffolding, lifting devices, supports and erection equipment shall be provided for safe installation at all heights and levels.

2.8. Precast units shall be fixed accurately in position using approved brackets, anchors, inserts, fasteners, grout and fixing systems.

2.9. The members shall be aligned true to line, level, plumb and curvature as shown in the approved drawings.

2.10. Joints between adjacent units shall be neatly finished and sealed where required to obtain a uniform architectural appearance.

2.11. Decorative wall panels, curved panels, webs, diaphragms, column claddings and architectural jalis shall be fixed securely to withstand all design loads and environmental conditions.

2.12. No deduction shall be made for perforations, openings, decorative patterns, grooves or cut-outs forming part of approved architectural jali work and column detailing.

2.13. Damaged, cracked, warped or defective units shall not be accepted and shall be replaced by the contractor at his own cost.

2.14. Upon completion, all exposed surfaces shall be cleaned and protected from damage until handing over of the work.

3.0. Mode of measurements and payment

3.1. Precast GRC/RCC decorative work shall be measured in square metres of finished surface area fixed in position unless otherwise specified in the schedule of quantities.

3.2. Measurement shall be based on the actual visible surface area of completed work as approved by the Engineer-in-Charge.

3.3. No deduction shall be made for openings, perforations, decorative jali patterns, grooves, recesses or architectural cut-outs forming part of the approved design.

3.4. The rate shall include cost of cement, aggregates, glass fibres, reinforcement, moulds, casting, curing, transportation, loading, unloading, lifting, scaffolding, erection, fixing

brackets, anchors, inserts, grouting, sealants, finishing, labour, tools and plants and all materials required for complete execution of the work.

3.5. No separate payment shall be made for shop drawings, templates, lifting arrangements, wastage, temporary supports, alignment, protection of completed work or any incidental items required for proper completion of the work.

3.6. The rate shall be for a unit of one square metre complete.

Item No 89. Providing in position PVC pipe sleeves of 6Kg/cm² and length as per design for following diameters for services wherever pipes pass through walls/ slabs/beam in mtrs length. All pipes shall be accurately cut to the required sizes, laid as per drawing, kept in the position while concreting, and burrs removed before laying. Open ends of the pipe shall be closed as the pipe is installed to avoid clogging while concreting. Rate shall be inclusive of removal of sleeves before waterproofing or grouting. For all floors/all levels /all heights. (a) 50mm Diameter

Item No 90. Providing in position PVC pipe sleeves of 6Kg/cm² and length as per design for following diameters for services wherever pipes pass through walls/ slabs/beam in mtrs length. All pipes shall be accurately cut to the required sizes, laid as per drawing, kept in the position while concreting, and burrs removed before laying. Open ends of the pipe shall be closed as the pipe is installed to avoid clogging while concreting. Rate shall be inclusive of removal of sleeves before waterproofing or grouting. For all floors/all levels /all heights. (a) 75mm Diameter

Item No 91. Providing in position PVC pipe sleeves of 6Kg/cm² and length as per design for following diameters for services wherever pipes pass through walls/ slabs/beam in mtrs length. All pipes shall be accurately cut to the required sizes, laid as per drawing, kept in the position while concreting, and burrs removed before laying. Open ends of the pipe shall be closed as the pipe is installed to avoid clogging while concreting. Rate shall be inclusive of removal of sleeves before waterproofing or grouting. For all floors/all levels /all heights. (a) 110mm Diameter

Item No 92. Providing in position PVC pipe sleeves of 6Kg/cm² and length as per design for following diameters for services wherever pipes pass through walls/ slabs/beam in mtrs length. All pipes shall be accurately cut to the required sizes, laid as per drawing, kept in the position while concreting, and burrs removed before laying. Open ends of the pipe shall be closed as the pipe is installed to avoid clogging while concreting. Rate shall

be inclusive of removal of sleeves before waterproofing or grouting. For all floors/all levels /all heights. (a) 160mm Diameter

1.0. Materials

1.1. PVC pipe sleeves shall be of approved make and shall conform to relevant I.S. specifications for medium duty pipes having working pressure of 6 kg/cm².

1.2. The sleeves shall be of diameters as specified in the Schedule of Quantities and of length as shown in the drawings or as directed by the Engineer-in-Charge.

1.3. The pipes shall be straight, circular, free from cracks, blisters, dents, deformities and other manufacturing defects.

1.4. All accessories required for fixing and supporting the sleeves in position shall be of approved quality.

1.5. Temporary caps, plugs or suitable materials for closing the pipe ends during concreting shall be provided by the contractor.

2.0. Workmanship

2.1. PVC sleeves shall be provided wherever service pipes are required to pass through walls, beams, slabs or other structural members as shown in the drawings or as directed by the Engineer-in-Charge.

2.2. The sleeves shall be accurately cut to the required lengths and diameters and installed strictly according to approved drawings and service layouts.

2.3. Burrs and rough edges resulting from cutting shall be removed before placing the sleeves in position.

2.4. Sleeves shall be securely fixed and adequately supported to prevent displacement, movement or distortion during concreting operations.

2.5. The sleeves shall be maintained true to line, level and alignment and shall be positioned accurately to suit the service requirements.

2.6. Open ends of sleeves shall be tightly closed with suitable caps, plugs or approved materials before concreting to prevent entry of concrete, mortar, debris or foreign matter.

2.7. The contractor shall ensure that the sleeves remain unobstructed and undamaged throughout the construction period.

2.8. After completion of structural work, sleeves shall be cleaned and checked to ensure free passage for services.

2.9. Wherever specified, sleeves shall be removed before carrying out waterproofing treatment, grouting or sealing operations.

2.10. Any sleeve displaced, damaged or blocked during execution shall be replaced or rectified by the contractor at his own cost.

2.11. The work shall be carried out at all floors, all levels and all heights complete as directed by the Engineer-in-Charge.

3.0. Mode of measurements and payment

3.1. PVC pipe sleeves shall be measured in running metres of sleeve actually provided and fixed in position.

3.2. Measurement shall be taken separately for each diameter specified in the Schedule of Quantities.

3.3. The rate shall include supply of PVC sleeves, cutting, positioning, supporting, plugging of ends, removal of burrs, fixing accessories, labour, tools and plants and all materials necessary for complete execution of the work.

3.4. The rate shall also include removal of sleeves wherever specified before waterproofing, grouting or sealing operations.

3.5. No separate payment shall be made for temporary supports, plugs, caps, wastage, cleaning or incidental operations required for satisfactory completion of the work.

3.6. The rate shall be for a unit of one running metre for the respective diameter specified in the item.

Item No 93. Core cutting: Providing and wet drilling accurate and clean holes of specified diameter in RCC walls, slabs, beam or any other RCC member without vibration by core cutting (diamond drilling) machine including scaffolding, safety majors, disposing the debris, cleaning for all levels/ all height as per structural consultant's drawing, after approval of engineer in charge etc compete. Rate shall be inclusive of filling the hole with non-shrink grout/Chemical Anchoring in good manner. Measurement shall be taken for the depth of holes in running meter for specified diameter. Holes shall made by authorised approved agency. (a) Holes from 100 dia.

1.0. Materials

1.1. Core cutting shall be carried out using approved diamond core drilling machines capable of producing accurate circular holes without causing vibration or damage to the existing RCC structure.

1.2. Water used during drilling operations shall be clean and free from harmful impurities.

1.3. Non-shrink grout shall be of approved make and shall conform to relevant specifications.

1.4. Chemical anchoring material, where required, shall be of approved make and suitable for structural applications.

1.5. All consumables, drilling bits, anchor materials and accessories required for the work shall be of approved quality.

2.0. Workmanship

2.1. The work shall be carried out only after obtaining approval from the Engineer-in-Charge and in accordance with the structural consultant's drawings and instructions.

2.2. Core cutting shall be executed through an approved and authorized specialized agency having adequate experience in diamond core drilling work.

2.3. Holes shall be drilled in RCC walls, slabs, beams, columns or other reinforced concrete members strictly at the locations and diameters shown on the approved drawings.

2.4. Drilling shall be carried out using diamond core cutting machines to obtain smooth, true and accurately sized holes without causing vibration, cracking or damage to the surrounding structure.

2.5. Before commencement of drilling, the contractor shall verify the location of reinforcement bars, embedded services, conduits and other concealed elements to avoid accidental damage.

2.6. Necessary scaffolding, platforms, safety arrangements and protective measures shall be provided for execution of the work at all heights and levels.

2.7. Continuous water cooling shall be used during drilling operations wherever required to prevent overheating and ensure smooth cutting.

2.8. The drilled core and debris generated during the operation shall be carefully removed and disposed of from the site as directed by the Engineer-in-Charge.

2.9. The drilled surfaces shall be thoroughly cleaned and prepared for subsequent fixing, grouting or anchoring work.

2.10. After completion of the intended work, the annular gap around pipes, sleeves, anchors or inserts shall be filled with approved non-shrink grout or chemical anchoring material as directed.

2.11. Filling and grouting shall be carried out carefully to ensure complete bonding and watertightness wherever required.

2.12. Any damage caused to the structure or adjoining finishes during execution shall be made good by the contractor at his own cost.

2.13. The completed work shall be left clean and in a condition acceptable to the Engineer-in-Charge.

3.0. Mode of measurements and payment

3.1. Core cutting shall be measured in running metres based on the actual depth of hole drilled for the specified diameter.

3.2. Measurement shall be taken separately for each diameter specified in the Schedule of Quantities.

3.3. The rate shall include marking, positioning, diamond core drilling, water supply, scaffolding, safety arrangements, labour, tools, tackles, disposal of debris, cleaning of drilled holes, non-shrink grouting, chemical anchoring, finishing and all materials necessary for complete execution of the work.

3.4. No separate payment shall be made for setting out, temporary supports, protection of adjacent work, removal of debris, water used during drilling, grouting materials, anchoring materials or any incidental operations required for satisfactory completion of the work.

3.5. The rate shall be for a unit of one running metre depth of hole drilled for the specified diameter complete.

Item No 94. Providing and Placing News paper Stand 600 W X 900 D X 900 H mm. To be made from prime-quality CRCA steel tubes and sheets for durability & longevity, and the reading top is made from high-quality pre-laminated MDF for a seamless finish and contemporary look. H-type cross bracings, paired with levelling bolts at the base, provide extraordinary strength and stability, ensuring steady performance even on uneven floors.

MATERIALS

Newspaper stand shall be fabricated from prime quality CRCA steel tubes and sheets of approved thickness. Reading top shall be made from pre-laminated MDF board of approved make, shade and finish. Adjustable levelling bolts, brackets, fasteners and accessories shall be of approved quality. All exposed steel surfaces shall receive approved anti-corrosive treatment and powder-coated finish.

WORKMANSHIP

The stand shall be fabricated accurately to the dimensions shown in drawings. The steel frame shall be adequately reinforced with H-type bracing and stiffeners to provide rigidity and stability. All welds shall be neatly finished and ground smooth. MDF top shall be properly fixed and aligned. The completed unit shall be free from sharp edges, distortion and visible defects.

FIXTURES & ACCESSORIES

Adjustable levelling bolts, reinforcement brackets, stiffeners, fixing plates, screws, nuts, bolts and all accessories necessary for proper functioning and installation shall form part of the item.

INSTALLATION

The newspaper stand shall be transported, assembled and placed at designated locations as directed by the Engineer-in-Charge. The stand shall be levelled properly and adjusted to ensure stability. The completed unit shall be cleaned and handed over in ready-to-use condition.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.) of completed units. Rate shall include cost of all materials, fabrication, finishing, transportation, loading, unloading, installation and all incidental works required for completion.

Item No 95. Table : Providing & fixing office table / staff table having ht of 750 mm Top, with 19mm thk plywood as per Architect/ Engineer Design or Selection and Back and side Ply of table is also made up of 19mm Thick. Top of Table is 19mm thk ply with laminate Finish Per Requirement and All internal & external Joints finished with teakwood beading Patti. Item includes fixing of drawers and keyboard tray and storage with shutters under table as per drawing. With grooves shown as per drawing. All exposed and internal surfaces covered with Laminate Finish of approved shade & Complete as per detail drawings & as instructed by Architect/consultant/ Engineer In charge. Complete with all necessary hardware like nails, ss screws, table chain, TDS channel, adhesives etc. Contractor has to provide all necessary cut outs for Electrical works & no extra payment shall be made for it. All ply should follow IS 710

MATERIALS

Table top, side panels and back panels shall be manufactured from 19 mm thick BWR grade plywood of approved make conforming to relevant standards. Top surface shall be finished with approved decorative laminate. All exposed edges shall be finished with teakwood beading or approved PVC edge banding. Drawer components, shelves and partitions shall be fabricated from approved plywood or board. Hardware including telescopic channels, hinges, locks, handles and fasteners shall be of approved make.

WORKMANSHIP

Table shall be fabricated strictly as per approved drawings. All members shall be accurately cut, aligned and assembled to achieve rigid and stable construction. Joints shall be neat and tight fitting. Exposed surfaces shall be smooth and free from dents, cracks or warping. Grooves,

profiles and decorative features shall be executed as indicated in the drawings. Laminate finishes shall be free from bubbles and delamination.

FIXTURES & ACCESSORIES

Drawer units, keyboard tray, storage shutters, shelves, cable management provisions, locks, handles, telescopic channels, hinges, screws, brackets and all fixing accessories required for satisfactory completion shall form part of the item.

INSTALLATION

Table shall be assembled and installed at designated locations. Necessary service openings for electrical, LAN and communication systems shall be provided. The completed unit shall be fixed true to line and level and handed over after proper adjustment and cleaning.

MEASUREMENTS

Measurement shall be made in Square Metres (Sq.m.) unless otherwise specified in the BOQ. Rate shall include materials, labour, hardware, fabrication, transportation, installation and all incidental works.

Item No 96. Supplying and providing High Back Mesh office Chair As per specification below:

- Metal frame seat made of Mesh fabric upholstery (foam base)**
- Adjustable Head rest**
- Fixed Arm rest**
- Knee tilt mechanism**
- 360 swivel motion/ 100mm stroke gas**
- Nylon Star base**
- Pushback mechanism & Comfy seating.**
- Complete as per architectural design and concept and approved by Architect & Client.**

MATERIALS

Chair shall consist of breathable mesh back upholstery with moulded foam seat upholstered in approved fabric. The base shall be heavy-duty nylon five-star type fitted with twin wheel castors. Gas lift mechanism, reclining mechanism, armrests and headrest shall be of approved quality suitable for continuous office use.

WORKMANSHIP

Chair shall be ergonomically designed and factory assembled. All components shall be securely fixed and free from manufacturing defects. Moving parts shall operate smoothly and safely. Upholstery shall be neatly finished without wrinkles or sagging.

FIXTURES & ACCESSORIES

Adjustable headrest, adjustable armrests, lumbar support, gas lift height adjustment, knee tilt mechanism, reclining lock system, nylon base and castors shall be included.

INSTALLATION

Chair shall be supplied completely assembled and ready for use. All operational functions shall be tested before handing over.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include supply, transportation and all accessories complete.

Item No 97. Reading Table/Work Station : Providing & fixing work station / table having ht of 750 mm Top, with MS Pipe Structure of Frame as per Architect/ Engineer Design or Selection and Back and side Ply of table is also made up of 19mm Thick. Top of Table is 19mm thk ply with laminate Finish Per Requirement and All internal & external Joints finished with teakwood beading Patti. Common or front Part of Table is Sectionized with MS Perforated Sheet. All exposed and internal surfaces covered with Laminate Finish of approved shade & Complete as per detail drawings & as instructed by Architect/consultant/ Engineer In charge. Complete with all necessary hardware like

nails, ss screws, table chain, Key board tray, TDS channel, adhesives etc. Contractor has to provide all necessary cut outs for Electrical works & no extra payment shall be made for it. All ply should follow IS 710

MATERIALS

Framework shall be fabricated from MS pipe sections of approved size and thickness. Table top, side panels and partitions shall be manufactured from 19 mm thick plywood finished with approved decorative laminate. Perforated MS sheet shall be provided where indicated. Edge finishing shall be done with teakwood beading or approved edge banding.

WORKMANSHIP

The workstation shall be fabricated accurately as per approved drawings. Metal framework shall be properly welded and finished. Laminate surfaces shall be smooth and uniformly bonded. All components shall be aligned correctly to provide a rigid and durable workstation.

FIXTURES & ACCESSORIES

Keyboard tray, cable management provisions, electrical cut-outs, data outlets, TDS channels, support brackets, fasteners and all accessories necessary for complete installation shall form part of the item.

INSTALLATION

The workstation shall be assembled and installed at designated locations. Service openings and routing provisions shall be incorporated as required. The completed installation shall be level, secure and ready for use.

MEASUREMENTS

Measurement shall be made in Square Metres (Sq.m.). Rate shall include materials, fabrication, hardware, transportation, installation and finishing.

Item No 98. Chair Type - 02 (Cabin Visitor Chair) : Supplying and providing Mid Back Mesh office Chair As per specification below:

-Metal frame seat made of Mesh fabric upholstery (foam base)

-Center tilt mechanism

-100mm class 4 gas lift

-PP Fixed Arm rest

-Nylon Star base/Twin wheel nylons casters

-Complete as per architectural design and concept and approved by Architect & Client.

MATERIALS

Chair shall consist of a metal frame, breathable mesh backrest, moulded foam seat with approved upholstery, nylon base and castors. Gas lift and tilt mechanisms shall be of approved make.

WORKMANSHIP

The chair shall be manufactured and assembled to ergonomic standards. All components shall be securely fixed and finished smoothly. Upholstery shall be free from wrinkles and defects.

FIXTURES & ACCESSORIES

Fixed armrests, gas lift, centre tilt mechanism, nylon base, castors and all accessories required for satisfactory performance shall be included.

INSTALLATION

Chair shall be supplied complete and ready for use. All operational functions shall be checked before handover.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include supply, transportation and all accessories.

Item No 99. Providing, assembling, transporting & placing/fixing of bookshelf of size: 900W x 410D x 1800mmH. Upper section and Lower section with 5mm thick glass and with 18mm thick BWR plywood (IS303:1989) doors with 1mm thick laminate (IS 2046:1995) finish. Main structure made of 18mm thick BWR plywood (IS303:1989) with 1mm thick laminate (IS 2046:1995) finish. All exposed edges to be finished with 2mm thick PVC edge banding. Complete with handles, locks, and all necessary hardware As per design and drawing provided and finishing as per approval of architect and material as approved by engineer in charge.

MATERIALS

Bookshelf shall be fabricated from 18 mm thick BWR grade plywood finished with decorative laminate on exposed surfaces. Glass shutters shall be made from 5 mm thick clear glass. Exposed edges shall be finished with 2 mm PVC edge banding. Hardware shall be of approved make.

WORKMANSHIP

The bookshelf shall be accurately fabricated to approved dimensions. Shelves shall be properly supported and aligned. Glass shall be securely fixed. All laminate surfaces shall be smooth and free from defects.

FIXTURES & ACCESSORIES

Locks, handles, hinges, shelf supports, screws, brackets and all hardware required for complete installation shall be included.

INSTALLATION

The bookshelf shall be assembled, positioned and installed at designated locations. All fittings shall be adjusted for smooth operation. The completed unit shall be cleaned and handed over.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include materials, fabrication, transportation, installation and finishing.

Item No 100. Gang Chair (3 Seater) : Providing and Fixing 3 Seater (moulded foam seat and back In PU upholstery) Pero Cross Beam made of powder coated regular MS ERW tube having 8.0+/-0.03 cm x 4.0 +/- .03 cm x 0.2 +/- 0.014 cm size. Legs to be chrom plated made of rolled steel with 0.12 +/- 0.013 cm thickness.Seat and Back Shell to be peforated made from cold rolled M.S. Sheet (DIN 1623 Part 1 ST -12 Grade), 0.14 +/- 0.013 cm thickness. The side Bar is made of chrome Plate solid steel 3.0 cm +/- 0.03cm x 1.2 cm +/- 0.03 cm with fluting and plastic inserts. The Shell to be assembled on the cross beam with help of M8 Bolts.

MATERIALS

Gang chair shall consist of powder-coated MS beam structure, CRCA steel supports, perforated steel seat and back assembly and moulded polyurethane foam components wherever specified. Surface finish shall be powder coated and chrome plated as approved.

WORKMANSHIP

All structural members shall be accurately fabricated and assembled. Welds shall be smooth and finished properly. Seat and back units shall be securely fixed. The completed chair shall be rigid and suitable for heavy public use.

FIXTURES & ACCESSORIES

Chrome plated side bars, fixing brackets, fasteners, beam supports and all accessories required for complete installation shall form part of the item.

INSTALLATION

The gang chair shall be assembled and fixed at designated locations. Alignment and stability shall be checked prior to handover.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include supply, transportation, assembly and installation

Item No 101. Supplying and Placing Folding Wheel Chair with Overall dimension: (L) 790 x (W) 600 x (H)870mm Frame structure Foldable frame structure is made of section 22x1.2mm A3 carbon steel with chrome finish. Cross bar are made of A3 carbon steel with section 25.4 x 1.2mm. Rear wheel 24 inch Solid mag wheels with alloy in the rim Hand rim Integrated hand rim provide to drive the wheel chair of section 16x1.2mm A3 carbon steel with chrome finish Front wheel 8 inch HUB made of PA polymer and outer with solid rubber Arm rest PU molded arm rest & base is made of ABS for better arm support Calf rest & seat Leatherette strap for calf rest & leatherette cushion for seat Footrest Adjustable alluminium die cast foot rest with updown & swivel type mechanism Push handle Handles are made of moulded rubber grip to push the wheelchair Brakes Hand brakes are provided to lock the wheelchair at desired location. Foot press Extended base with molded plastic for better grip Finish Anti rust chrome finish safe working load 100kg.etc.complete as per drawings and design supplied by architect and instruction given by authority and E.I.C.

MATERIALS

Wheelchair frame shall be manufactured from carbon steel tubing with chrome plated finish. Rear wheels shall be solid tyre type with alloy rims. Front wheels shall be PU type. Seat and backrest shall be made from durable upholstery material. Footrests, armrests and braking systems shall be of approved quality.

WORKMANSHIP

The wheelchair shall be foldable, durable and suitable for regular use. All moving parts shall operate smoothly. Frame members shall be free from defects and corrosion.

FIXTURES & ACCESSORIES

Hand-operated brakes, foldable footrests, calf support straps, PU armrests, wheel locks and all standard accessories shall be included.

INSTALLATION

Wheelchair shall be supplied fully assembled and ready for use. Functional performance shall be checked before delivery.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include supply, transportation and accessories.

Item No 102. Supplying and providing dust bin made of 100% virgin plastic with paddle. Capacity-10 to 15 Ltr.

MATERIALS

Dust bin shall be manufactured from virgin plastic of approved quality. Material shall be impact resistant, washable and suitable for indoor institutional use. Lid and pedal mechanism shall be durable and corrosion resistant.

WORKMANSHIP

The dust bin shall be free from cracks, sharp edges and manufacturing defects. Surface finish shall be smooth and easy to clean. Pedal operation shall be smooth and reliable.

FIXTURES & ACCESSORIES

Foot-operated pedal mechanism, hinged lid and all integral accessories shall form part of the item.

INSTALLATION

Dust bin shall be supplied and placed at designated locations complete and ready for use.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include supply, transportation and placement

Item No 103. Providing, assembling, transporting & placing/fixing of decorative wood panelling (1200mm x 3000mm) with melamine polish for reception area vertical wall with Photo frame 10 nos size of A4 (210 X 297 MM), 03 nos A3 (420 X 297 MM), 2 nos A2 (594 X 420 MM) with 50mm wooden frame with plastic glazing. MDF back with metal hangers. In Dark brown, Solid colour. As per design and drawing provided and finishing as per approval of architect and material as approved by engineer in charge. Complete with all necessary hardware and accessories.

MATERIALS

Panelling shall comprise MDF boards, wooden framework, decorative mouldings, approved laminate or melamine finish, plastic glazing where specified and MS brackets for fixing. All materials shall be of approved quality and finish.

WORKMANSHIP

Panelling shall be installed true to line, level and plumb. Joints shall be neatly aligned and finished. Decorative mouldings and profiles shall be fixed accurately. Finished surfaces shall be smooth, uniform and free from visible defects.

FIXTURES & ACCESSORIES

Wooden framework, decorative mouldings, glazing panels, MS brackets, screws, anchors and all fixing accessories required for complete installation shall be included.

INSTALLATION

Panelling shall be securely fixed to wall surfaces with approved support systems. Finished surfaces shall be protected until completion of the project.

MEASUREMENTS

Measurement shall be made in Square Metres (Sq.m.) unless otherwise specified in the BOQ. Rate shall include materials, fabrication, finishing and installation

Item No 104. Providing and Placing Goddess Saraswati idol, seated gracefully on a swan having Copper detailing and with dimensions of Height: 24 inches (61 cm), Width: 22 inches (55.88 cm), Depth: 11.5 inches (29.21 cm). As per design and drawing provided and finishing as per approval of architect and material as approved by engineer in charge.

MATERIALS

The idol shall be manufactured from approved material with decorative copper detailing and superior finish. The material shall be durable, stable and suitable for indoor installation.

WORKMANSHIP

The idol shall be artistically crafted with fine detailing and proportion. Surface finish shall be smooth and free from cracks, chips or defects.

FIXTURES & ACCESSORIES

Base supports and accessories necessary for safe placement shall form part of the item.

INSTALLATION

The idol shall be transported and carefully placed at the designated location. Necessary precautions shall be taken during handling and installation.

MEASUREMENTS

Measurement shall be made in Numbers (Nos.). Rate shall include supply, transportation and placement.

Item No 105. Providing and fixing of approved quality roller blinds using phifer or equivalent fabric of premium grade, with roller tube, bottom bar leveller made of extruded aluminium alloy an Idler, Insert Type- Brackets, PVC chain etc. all complete at all floor and heights as per approved specification. Roller Tube Control, Clutch, Idler Side by side or single Roller Tube of extruded Aluminium 38mm inner dia - 41mm outer dia minimum wall thickness of 1.6mm. Roller blind - roller blind fabric should be made up of 35% FibreGlass, 65% PVC, it should have specific low emissivity treatment and lead free with Greenguard gold certification. It should have 3% to 5% openness, fabric thickness should be 0.43 mm, mesh weight approx 400 gms/ sqmtr. It should cut UV rays, with antimicrobial properties preferably with Microban. The fabirc should be Flame retardant and Lead Free. It should be GreenGuard certified with Gold Standard for low chemical emissions for indoor use. including all accessories, material, labour,installation etc..and complete the work satisfactorily as per instruction of architect or Engineer-in charge.

MATERIALS

Roller blinds shall be fabricated using Phifer or approved equivalent fabric. Fabric shall be UV resistant, flame retardant and suitable for interior applications. Roller tube shall be extruded aluminium. Brackets, bottom rail and operating chain mechanism shall be of approved make.

WORKMANSHIP

Blinds shall be fabricated accurately to suit opening dimensions. Fabric shall be evenly tensioned and free from wrinkles. Operating mechanism shall function smoothly without obstruction.

FIXTURES & ACCESSORIES

Aluminium roller tube, bottom rail, side brackets, operating chain, mounting hardware and accessories necessary for complete installation shall be included.

INSTALLATION

Roller blinds shall be installed plumb, level and securely fixed. Proper functioning shall be checked and adjusted before handover.

MEASUREMENTS

Measurement shall be made in Square Metres (Sq.m.) of installed blinds. Rate shall include materials, fabrication, transportation, installation and accessories.

Item No 106. Providing & fixing laminate finish partition up to false ceiling ht (thickness of partition is 82 mm or as specified in drawing) having 12 mm thick marina plywood IS 710 grade both side on aluminum framing of gauge 16. Aluminum framing size for vertical & horizontal support is 50 mm x 25 mm. Grid of aluminum framing is 600 mm x 600 mm. All exposed surfaces finished with 1 mm thick Laminate of approved shade complete with mat finish. Necessary framing to be erected above false ceiling. No extra cost to be paid for the same. Before installation, make hole/face plate for conduit pipes of electrical / networking cables with open able stud from partition Including all materials and labor etc. Make necessary grooves as per shown in drawing. Using of 12 mm thick clear glass with proper crystal edges & with suggested frosted films on glass. All joints are covered with teakwood beading Patti finished with polish matching with laminate. Including door of same design if required Complete with all necessary hardware & adhesives as per details given in drawing and as per instructions of Architect/consultant/Engineer In charge. Contractor has to provide all necessary cut outs (race ways.) for Electrical works & no extra payment shall be made for it.

MATERIALS

Partition framework shall be fabricated from approved aluminium sections. Cladding shall consist of 12 mm thick marine plywood finished with 1 mm thick decorative laminate. Glazed portions shall comprise 12 mm thick clear toughened glass with polished edges. Teakwood beading, sealants and fixing accessories shall be of approved quality.

WORKMANSHIP

Framework shall be erected true to line, level and plumb. Laminate finish shall be smooth and properly bonded. Glass panels shall be securely installed with neat joints and proper sealing. The completed partition shall be rigid, stable and free from visible defects.

FIXTURES & ACCESSORIES

Aluminium framework, glass fixing systems, teakwood beading, sealants, brackets, fasteners and all accessories required for complete installation shall form part of the item.

INSTALLATION

Partition shall be erected up to false ceiling level as shown in approved drawings. Necessary openings and cut-outs for electrical and communication services shall be provided. The completed partition shall be cleaned and protected until handover.

MEASUREMENTS

Measurement shall be made in Square Metres (Sq.m.) of completed partition work. Rate shall include materials, labour, glazing, laminate finish, hardware, transportation, installation and all incidental works necessary for complete execution.

Item No 123. Providing, Stacking and Plantation of Trees/ Shrubs/ Hedge at site i/c watering and removal of unserviceable material's as per direction of officer in charge.

Item No 123. 1. [1-A] Foxtail Palm

Item No 123. 2. [2-A] FHONIEX DACTYLITERAIL (Date Palm)

Item No 123. 3. [1-B] JETROFA

Item No 123. 4. [2-B] TICOMA YELLOW

Item No 123. 5. [3-B] CROTONCE

Item No 123. 6. [4-B] PENDENUS DWARFF

Item No 123. 7. [5-B] IXORA VER

Item No 123. 8. [6-B] ACCALIPH HISPIDA

Item No 123. 9. [7-B] NERIAM RED AND WIGHT DWAFF

As per Detailed Description and Directed by Engineer Incharge

Item No 124. Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge

1.0. Materials

1.1. Earth used for mixing shall be good agricultural soil, free from stones, clods, weeds, roots, debris and other deleterious materials.

1.2. Sludge, manure or organic fertilizer shall be well decomposed, free from harmful chemicals, stones, rubbish, weeds and other foreign matter.

1.3. Farmyard manure, compost manure, sludge or other organic matter shall be of approved quality and obtained from approved sources.

1.4. Water used, if required, shall be clean and free from harmful impurities.

2.0. Workmanship

2.1. The work shall consist of mixing earth with sludge, manure or organic fertilizer in the proportion specified in the Schedule of Quantities, drawings or as directed by the Officer-in-Charge.

2.2. The area to be treated shall be cleared of weeds, stones, rubbish and other objectionable materials before commencement of the work.

2.3. The required quantity of earth and manure shall be spread uniformly over the specified area.

2.4. Mixing shall be carried out manually or mechanically as approved by the Officer-in-Charge until a homogeneous mixture is obtained throughout the specified depth.

2.5. Large clods of earth shall be broken and all foreign matter removed before mixing.

2.6. The mixture shall be thoroughly worked into the soil to the required depth to ensure uniform distribution of organic matter.

2.7. Care shall be taken to avoid segregation of manure and earth during mixing and handling operations.

2.8. The mixed soil shall be dressed to the required levels, slopes and contours as shown on drawings or directed by the Officer-in-Charge.

2.9. The work shall be completed in a neat and workmanlike manner to the satisfaction of the Officer-in-Charge.

3.0. Mode of measurements and payment

3.1. Measurement shall be made in cubic metres of earth and manure mixture prepared and placed in position, unless otherwise specified in the Schedule of Quantities.

3.2. The quantity shall be measured based on the finished dimensions approved by the Officer-in-Charge.

3.3. The rate shall include supply, loading, unloading, spreading, mixing, breaking clods, removal of foreign matter, dressing, labour, tools, plants and all materials necessary for complete execution of the work.

3.4. No separate payment shall be made for watering, handling, transportation within the site, repeated mixing or any incidental operations required for satisfactory completion of the work.

3.5. The rate shall be for a unit of one cubic metre complete.

Item No 125. Supplying and stacking of good earth at site including royalty and carriage upto 5 km lead complete (earth measured in stacks will be reduced by 20% for payment).

1.0. Materials

1.1. The earth shall be good quality agricultural soil or approved earth obtained from approved borrow areas.

1.2. The earth shall be free from stones, gravel larger than 20 mm size, roots, weeds, rubbish, organic matter, salts and other deleterious materials.

1.3. The earth shall be capable of supporting healthy growth of grass, plants and shrubs wherever intended for horticultural or landscaping purposes.

1.4. The source of earth shall be approved by the Officer-in-Charge before commencement of excavation and transportation.

2.0. Workmanship

2.1. The work shall consist of supplying, transporting and stacking approved earth at the locations shown on drawings or as directed by the Officer-in-Charge.

2.2. The earth shall be excavated from approved borrow pits and transported to the site with all leads, lifts and handling operations complete.

2.3. Royalty, permits and other statutory requirements in connection with excavation and transportation of earth shall be arranged by the contractor at his own cost.

2.4. The earth shall be stacked neatly at the specified locations in regular stacks of measurable dimensions.

2.5. Stacks shall be formed on cleared ground and maintained in proper shape to facilitate accurate measurement.

2.6. The contractor shall protect the stacked earth from contamination by rubbish, debris or other unsuitable materials.

2.7. Any rejected or contaminated earth shall be removed and replaced with approved earth at no extra cost.

2.8. The work shall include carriage of earth up to 5 km lead complete unless otherwise specified.

2.9. The completed stacks shall be available for measurement and inspection by the Officer-in-Charge before use.

3.0. Mode of measurements and payment

3.1. The earth shall be measured in cubic metres based on the stack measurements recorded at site.

3.2. The volume of earth measured in stacks shall be reduced by 20 percent to account for voids, settlement and conversion to consolidated quantity for payment purposes.

3.3. The rate shall include excavation, royalty, loading, transportation, unloading, stacking, labour, tools, plants and all incidental charges required for complete execution of the work.

3.4. No separate payment shall be made for handling, re-stacking, protection of stacks, permits, testing or any incidental operations necessary for satisfactory completion of the work.

3.5. The rate shall be for a unit of one cubic metre of consolidated earth quantity after applying the prescribed deduction complete.

Item No 126. Supplying and stacking of well decayed cattle manure at site including royalty and carriage upto 05 k.m. lead complete (Cattle manure measured in stacks will reduced by 8% for Payment).

1.0. Materials

1.1. The cattle manure shall be well decayed, thoroughly decomposed and obtained from approved sources.

1.2. The manure shall be free from undecomposed organic matter, stones, weeds, roots, rubbish, harmful chemicals and other foreign materials.

1.3. The manure shall be friable in nature and suitable for improving soil fertility and supporting healthy plant growth.

1.4. The source of manure shall be approved by the Officer-in-Charge before transportation to the site.

2.0. Workmanship

2.1. The work shall consist of supplying, transporting and stacking approved well decayed cattle manure at locations shown on the drawings or as directed by the Officer-in-Charge.

2.2. The manure shall be collected from approved sources and transported to the site including all handling, loading, unloading and carriage operations complete.

2.3. Royalty, permits and statutory charges, wherever applicable, shall be arranged by the contractor at his own cost.

2.4. The manure shall be stacked neatly at designated locations in regular measurable stacks.

2.5. The stacks shall be formed on clean ground and maintained in proper shape to facilitate accurate measurement.

2.6. Care shall be taken to prevent contamination of the manure by soil, debris, stones or other foreign matter during transportation and stacking.

2.7. Any manure found to be partially decomposed, contaminated or otherwise unsuitable shall be removed from the site and replaced with approved material at no extra cost.

2.8. The work shall include carriage of manure up to 5 km lead complete unless otherwise specified.

2.9. The stacked manure shall be protected from excessive drying, erosion or contamination until measured and utilized.

3.0. Mode of measurements and payment

3.1. The cattle manure shall be measured in cubic metres based on the stack measurements recorded at site.

3.2. The volume of manure measured in stacks shall be reduced by 8 percent to account for settlement and conversion to consolidated quantity for payment purposes.

3.3. The rate shall include cost of manure, royalty, loading, transportation, unloading, stacking, labour, tools, plants and all incidental charges required for complete execution of the work.

3.4. No separate payment shall be made for handling, re-stacking, protection of stacks, permits, wastage or any incidental operations necessary for satisfactory completion of the work.

3.5. The rate shall be for a unit of one cubic metre of consolidated quantity after applying the prescribed deduction complete.

Item No 127. Tree plantation: Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) 2.14.3 Holes 60 cm dia, and 60 cm deep

1.0. Materials

1.1. Earth used for refilling shall be approved good earth free from stones, roots, weeds, rubbish and other deleterious matter.

1.2. Cattle manure, sludge or compost shall be well decomposed, free from harmful substances and approved by the Officer-in-Charge.

1.3. Water used for flooding and watering shall be clean and free from harmful impurities.

1.4. Saplings shall be supplied separately under relevant items unless otherwise specified.

2.0. Workmanship

2.1. The work shall consist of digging tree pits of 60 cm diameter and 60 cm depth at locations shown on the drawings or as directed by the Officer-in-Charge.

2.2. Excavated earth shall be stacked separately and all stones, roots, rubbish and unsuitable materials shall be removed.

2.3. The excavated earth shall be mixed thoroughly with approved manure or sludge in the ratio of 2:1 by volume, i.e., two parts of earth (after reduction of stack measurement by 20%) and one part of manure (after reduction of stack measurement by 8%).

2.4. The prepared mixture shall be used for refilling the pits around the sapling after plantation.

2.5. The pits shall be flooded with water before and after planting as directed.

2.6. Surplus earth and rubbish arising from excavation and refilling shall be removed and disposed of as directed.

2.7. The finished surface around the tree shall be properly dressed and formed into a watering basin where required.

2.8. The work shall be completed in a neat and workmanlike manner to the satisfaction of the Officer-in-Charge.

3.0. Mode of measurements and payment

3.1. Measurement shall be made on the basis of number of pits of specified size excavated, refilled and completed.

3.2. No separate measurement shall be made for excavation, mixing, refilling, watering, dressing and disposal of surplus earth.

3.3. Cost of manure, sludge and additional good earth, if supplied under separate items, shall be paid separately.

3.4. The rate shall include excavation, mixing of earth and manure, refilling, flooding with water, dressing, disposal of surplus materials, labour, tools, tackles and all incidental charges required for complete execution of the work.

3.5. The rate shall be for one completed pit of 60 cm diameter and 60 cm depth.

Item No 128. Making tree guard 53 cm dia and 1.3 m high as per design from empty coal tar drums, supplied free by the department, including providing and fixing 2 nos M.S. sheet rings 50 x 0.5 mm fixed with rivets complete in all respects including painting inside and outside of tree guard with: Two or more coats of synthetic enamel paint of approved quality shade over a priming coat

1.0. Materials

1.1. Empty coal tar drums supplied by the Department shall be used for fabrication of tree guards.

1.2. M.S. sheet rings shall be 50 mm wide and 0.50 mm thick or as specified in the item.

1.3. Rivets used for fixing the rings shall be of approved quality and suitable size.

1.4. Synthetic enamel paint and primer shall be of approved make and shade.

1.5. All materials used shall be free from defects and approved by the Officer-in-Charge.

2.0. Workmanship

2.1. The work shall consist of fabricating tree guards from empty coal tar drums supplied free of cost by the Department.

2.2. The drum shall be cut, shaped and finished to form a tree guard of 53 cm diameter and 1.30 m height or as shown in the approved design.

2.3. All sharp edges, burrs and projections shall be removed and smoothened properly.

2.4. Two numbers M.S. sheet rings of size 50 mm × 0.50 mm shall be fixed to the tree guard with approved rivets to provide rigidity and strength.

2.5. The tree guard shall be erected in true position around the planted tree and fixed firmly as directed by the Officer-in-Charge.

2.6. The entire surface shall be cleaned thoroughly and given one coat of approved primer before painting.

2.7. The inside and outside surfaces shall then receive two or more coats of approved synthetic enamel paint of the specified shade.

2.8. Each coat of paint shall be applied only after the previous coat has dried satisfactorily.

2.9. The finished tree guard shall be rigid, properly aligned and free from dents, distortions and paint defects.

3.0. Mode of measurements and payment

3.1. Tree guards shall be measured by number of completed tree guards fabricated, painted and fixed in position.

3.2. The rate shall include cutting, shaping, fabrication, fixing of M.S. rings, riveting, surface preparation, priming, painting, erection, labour, tools, tackles and all materials required for complete execution of the work.

3.3. Empty coal tar drums supplied by the Department shall not be measured separately.

3.4. No separate payment shall be made for wastage, handling, transportation within the site, temporary supports or incidental works required for proper completion of the item.

3.5. The rate shall be for one number tree guard complete in all respects.

Item No 129. Providing and fixing pre-cast Rubber Dye / steel Dye inter locking concrete block 60mm thick with grade of concrete M300 pneumatic compressed / vibrated mechanically and as per approved design Confirming to IS 15658 : 2006 including 35 mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidlines of IRC : SP 63-2018 etc. Complete

1.0 MATERIAL

(1) Water shall confirm to M-1.

(2) Cement shall conform to M-3

(3) Sand shall conform to M-6

2.0 CEMENT CONCRETE INTERLOCKING TILES

2.1 pre-cast inter locking Rubber Dye concrete block of gray cement based concrete block shall be hard even sound, and regular in shape and generally uniform in colour. The colour of the interlocking tiles shall generally be uniform cement colour. Broken tiles or damaged tiles with cracks shall not be allowed for use. They shall be without any soft veins cracks of flaws

2.2. The size of the pre-cast inter locking Rubber Dye concrete block shall be 60 mm Thick , of M200 grade concrete as per approved design However smaller sizes will be allowed to be used to the extent of maintaining required pattern. Thickness shall be as specified.

2.3. Tolerance of minus 30 mm. on accounts of chisel dressing of edges shall be permitted for length as well as breadth. Tolerance in thickness shall be +3 mm.

2.4. The edges of pre-cast inter locking Rubber Dye concrete block shall in true shape of casting. All angles and edges of the Interlocking cement concrete tiles shall be true, square and free chipping and surface shall be true and plain.

2.5. The pre-cast inter locking Rubber Dye concrete block shall have flat plain surface. When brought on site, the pre-cast inter locking Rubber Dye concrete block shall be in good condition. The pre-cast inter locking Rubber Dye concrete block for paving shall generally be used in good condition

3.0 WORKMANSHIP

3.1 pre-cast inter locking Rubber Dye concrete block of approved quality shall be laid evenly to level and slope as directed by Engineer in charge over a bed of a base layer consisting of sand average 75mm thick.

3.2. During hot weather, all finished or partly finished work shall be covered or wetted in such manner as will prevent rapid drying of the flooring work.

3.3. Joints of flooring shall be through and continuous throughout the building as directed by Engineer in charge

3.4. joints shall be filled with sand in proper line and level.

3.5. The rate of pre-cast inter locking Rubber Dye concrete block is inclusive of providing and laying in true line and level including filling the joints with sand in line and level.

4.0 MODE OF MEASUREMENT & PAYMENT :

4.1. The unit rate of pre-cast inter locking Rubber Dye concrete block shall include the cost of all materials, tools and plant required for mixing, placing stones in position in true line and level , as shown on the drawings and according to these specifications. They shall also include the cost of making, fixing and removing of all scaffolding and forms required for the work. The rate of pre-cast inter locking Rubber Dye concrete block shall include the cost of all labour, materials tools and plant scaffolding and all incidental expenses as described herein above.

4.2. The pre-cast inter locking Rubber Dye concrete block work shall be measured for its length and, limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one square meter.

4.3. The payment will be made on square Meter basis of the finished work.

Item No 130. Providing and fixing pre-cast concrete kerb stone of gray cement based concrete block 30cm length,30cm height and 15cm thick of M250 grade concrete as per approved design and including excavation for fixing in proper line and level, filling the joint with C:M 1:3 (1cement:3fine sand) etc complete.

The work shall consist of scarifying the existing road surface to require depth, preparing pre cast C.C. M 20 blocks of required shape and size and fixing them in two rows as per drawing and joining them in C.M. 1:3 and filling the central portion with selected soil and compacting etc. complete.

2.0 MATERIAL:

2.1 M-200 Precast C.C. Blocks:

- (1) Water shall conform to M-1.
- (2) Cement shall conform to M-3
- (3) Sand shall conform to M-6
- (4) Mortar shall conform to M-11.
- (5) Aggregates shall conform to M-12
- (6) Shuttering shall conform to M-26. Construction of Pre cast C.C.

Block:

MATERIALS:

Pre cast C.C. Block:-

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6.

Mortar shall conform to M-11. Aggregates shall conform M-12. Shuttering shall conform to M-26. Construction of Pre cast C.C. Block:- It shall be of cement concrete M-200.

GENERAL:

The concrete mix is not required to be designed by preliminary tests. The proportion of the concrete mix shall be 1:2:4 (1 cement: 2 coarse sand: 4 graded tone aggregate 100 mm. nominal size) by volume. Concrete work shall have exposes concrete surface or as specified in the item.

The designation ordinary M-100, M-150 m M-200 specified tests. The proportion of the concrete mix shall be 1:2:4, 1:1 ½: 3:1:2 nominal mix of ordinary concrete by volume respectively.

The ingredients required for ordinary concrete containing one bag of cement of 50 kg. by weight (0.0342 Cum) for different proportions of mix shall be as under: Grade of concrete Total quantity of dry aggregate by volume per 50 kg. of cement to be taken of fine and coarse aggregates, maximum Proportion of fine aggregate to coarse aggregate Quantity of water per 50 kgs. of cement maximum.

The water cement ratios shall not more than those specified in the above table. The cement content of the mix specified in the table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement and compaction so that the water cement ratio specified in the table is not exceeded.

Workability of the concrete shall be controlled by maintaining a water cement ratio that is bound to give a concrete mix which is just sufficiently wet to be placed and compacted without difficulty with that means available.

The maximum size of coarse aggregates shall be as large as possible within the limits specified but in no case greater than one fourth of the minimum thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form.

For reinforced concrete members as in the case of ribs of main beams, the nominal maximum size of coarse aggregate should usually be restricted to 5 mm. less than the minimum clear distance between the main bars, or 5 mm less than the minimum cover to the reinforcement whichever is smaller.

Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregates may not be important and the nominal maximum size may sometimes be as great as or greater than the minimum cover.

Admixture may be used in concrete only with approval of Engineer in charge based upon the evidence that with the passage of time, neither the compressive strength of concrete is reduced nor are other requisite qualities of concrete and steel impaired by the use of such admixtures.

WORKMANSHIP:

Proportioning:

Proportioning shall be done by volume, except cement which shall be measured in terms of bags of 50 kg. weight. The Volume of one such bag being taken as 0.0342 cu. metre. Boxes of

suitable sizes shall be used for measuring sand aggregates. The size of the boxes (internal) shall be 35 cms x 25 cms and 40 cms . deep while measuring the aggregate and san, the box shall be filled without shaking ramming or hammering.

the proportioning of sand shall be on the basis of its dry volume and in case of damp sand, allowances for bulk age shall be made.

MIXING:

For all work, concrete shall be mixed in mechanical mixer high along with other accessories shall be kept in first class raking condition and so maintained throughout the construction. Measured quantity of aggregate, sand, cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running.

After about half a minute of dry mixing, measured quantity of water required for each batch of concrete mix shall be added gradually and mixing continued for another one an half minute. Missing shall be continued till materials are uniformly distributed and uniform colour of the entire mass is obtained and each individual particle of the coarse aggregate shown complete coating of mortar containing its proportionate amount of cement. In no case shall the mixing be done for less than 2 minutes after all ingredients have been put into the mixer.

When hand mixing is permitted by the Engineer in charge for small jobs or for certain other reasons, it shall be done on the smoothest watertight platform large enough to allow efficient turning over the ingredients of concrete before and after adding water. Mixing platform shall be so arranged that no foreign material gets mixed with concrete nor does the mixing water flow out. Cement in required number of bags shall be placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate and cement shall then be mixed thoroughly by running over to get a mixture to uniform color. Specified quantity of water shall than be added gradually through a rose can and the mass turned over till a mix of required consistency is obtained. In hand mixing, quantity of cement shall be increased by 10 percent above that specified.

Mixers which have been out of use of more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed by the Engineer in charge the first batch of concrete form texture shall contain only two thirds of normal quantity of coarse aggregate.

Mixing plant shall be thoroughly cleaned before changing form one type of cement to another.

Consistency:

The degree of consistency which shall depend upon the nature of the work and methods of vibration of concrete shall be determined by regular slump tests in accordance with I.S. 11199-1959. The slump of 10mm to 25 mm shall be adopted when vibrators are used and 80 mm when vibrators are not used.

Inspection: Contractor shall give the Engineer in charge due notice before placing any concrete in the forms to permit him to inspect and accept the false work and rooms as to their strength, alignment and general fitness but such inspection shall not relieve the contractor of his responsibility for the safety of men, machinery, materials and for results obtained.

Immediately before concreting, all forms shall be thoroughly cleaned.

Centering design and its erection shall be got approved from the Engineer in charge. One carpenter with helper shall invariably be kept present throughout the period of concreting. Movement of labour and other persons shall be totally prohibited for reinforcement laid in position. For access to different parts, suitable mobile platforms shall be provided so that steel reinforcement in position is not disturbed.

For ensuing proper cover, mortar blocks of suitable size shall be cast and tied to the reinforcement. Timber, kapachi and metal pieces shall not be used for this purpose.

Transporting and laying:

The method of transporting and placing concrete shall be as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place.

All form work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete. No concrete shall be placed in any part of the structure until the approval of the Engineer in charge has been obtained.

Concreting shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer.

Except where otherwise agreed by the Engineer in charge concrete shall be deposited in horizontal layers to a compacted depth of not more than 0.45 meter when internal vibrators are used and not exceeding 0.30 meter in all other cases.

Unless otherwise agreed by the Engineer in charge, concrete shall not be dropped into place from a height exceeding 2 meters. When trucking or chutes are used they shall be kept close and used in such a way as to avoid segregation. When concreting has to be resumed on a surface

which has hardened, it shall be roughened, swept clean, thoroughly wetted and covered with a 13 mm thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13mm layer of mortar shall be freshly mixed and placed immediately before placing of new concrete. Where concrete has not fully hardened.

laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of any particles of coarse aggregate. The surface shall then be thoroughly wetted, all free water removed and then coated with neat cement grout. The first layer of concrete to be placed on this surface shall not exceed 150 mm in thickness and shall be well rammed against old work, particular attention being given to corners and close spots.

All concrete shall be compacted to produce a dense homogeneous mass with the assistance of vibrators, unless, otherwise permitted by the Engineer in charge for exceptional cases, such as concreting under water, where vibrators cannot be used. Sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the event of breakdowns.

Concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream in to form an even surface. Compaction shall be completed before the initial setting starts i.e. within 30 minutes of addition of water to dry mixture. During compaction, it shall be observed that needle vibrators are not applied on reinforcement which is likely to destroy the bond between concrete and reinforcement.

Curing:

Immediately after compaction, concrete shall be protected from weather, including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process. It shall be covered with wet sacking, Hessian or other similar absorbent material approved, soon after the initial set and shall be kept continuously wet for a period of not less than 14 days from the date of placement.

Masonry work over foundation concrete may be started after 48 hours of its laying but curing of concrete shall be continued for minimum period of 14 days.

Sampling and Testing of Concrete:

Samples from fresh concrete shall be taken as per I.S. 1199-1959 and cubes shall be made cured and tested at 7 days or 28 days as per requirements in accordance with I.S. 516-1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested i.e. the sampling should be spread over the entire period of concreting

and cover all mixing units. The minimum frequency of sampling of concrete of each grade shall be in accordance with following:

NOTE:

At least one sample shall be taken from each shift. Ten test specimens shall be made from each sample, five for testing at 7 days and the remaining five at 28 days. The samples of concrete shall be taken on each day of the concreting as per above frequency. The number of specimens may be suitably increased as deemed necessary by the Engineer in charge when procedure of tests given above reveals a poor quality of concrete and in other special cases.

The average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 kg/Cm² at 28 days. 20% of the cubes cast for each day may have value less than the specified strength provided the lowest value is not less than 85% of the specified strength. If the concrete made in accordance with the proportions given for a particular grade, does not yield the specified strength, such concrete shall be classified as belonging to the appropriate lower grade. Concrete made in accordance with the proportions given for a particular grade shall not, however, be placed in the higher grade on the ground that the test strength are higher than the minimum specified.

Stripping:

The Engineer in charge shall be informed i.e. advance by the contractor of his intention to strike the form work. While fixing the time for removal of form work, due consideration shall be given to local conditions, character of the structure, the weather another condition that influence the setting of concrete and of the materials used into the mix. In normal circumstances (generally where temperatures are above 20 C) and where ordinary concrete is used, forms may be struck after expiry of periods specified in it.No.9.1(A) for respective item form work.

All formwork shall be removed without causing any shock or vibration as would damage the concrete. Before the siffut and stets ate removed, the concrete surface shall be exposed, where necessary in order to as certain that the concrete has sufficiently hardened. Centering shall be gradually and uniformly lowered in such manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal ties are permitted, they or their removable parts shall be extracted without causing any damage to the concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less than 25 mm cover to the finished concrete surface. Where it is intended to reuse the form work, it shall be cleaned and made good to the satisfaction of the Engineer in charge.

After removal of form work and shuttering, the in charge shall inspect the work and satisfy by random checks that concrete produced is of good quality.

Immediately after the removal of forms, all exposed bolts etc. passing through the cement concrete member and used for shuttering or any other purpose shall be cut inside the cement concrete member to a depth of at least 25 mm. below the surface of the concrete and the resulting holes be filled by cement mortar. All fine caused by form joints, all cavities produced by the removal of form ties and all other holes and depressions honey comb spots, broken edges or corners and other defects shall be thoroughly cleaned, saturated with water and carefully pointed and rendered true with mortar of cement and fine aggregates mixed into the proportions used in the grade of concrete that is being finished and of as dry consistency as is possible are pointed shall be kept moist for a period of 24 hours.

If rock pockets/honeycombs in the opinion of the Engineer in charge are of such an extent or character as to affect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare the concrete defective and require the removal and replacement of the portions of the structure affected.

Mode of measurement and payment:

The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess of section shown on drawings or as directed shall not be measured. No deduction shall be made for

(a) Ends of dissimilar materials, labours, tools and plant required for mixing, placing in position, vibrating and compacting, finishing, as directed, curing and all other incidental expenses for producing concrete of specified strength. The rate excluded the cost of form work.

(b) Opening upto 0.1 Sq.m. The rate shall be for a unit of one cubic meter The strength of C.C. Block shall have compressive strength of 25 N/mm² after 28 days. It shall fixed on road surface with necessary excavation and shall be jointed in C.M.1:3 to required line and fixed level.

Excavation of pre cast Block shall be carried out as per the size shall be as specified in drawing and the surface shall have fair finish.

The strength of the C.C. Block shall have compressive strength of 15N/mm² after 28 days.

2.2 : Soil :

The soil to be filled in the central portion shall be brought from approved borrow area and shall be free from stone or hard stuff.

3.0 Construction:

The road surface shall be excavated to required depth on approved alignment. The vertical precast C.C. stones shall be fixed as shown in drawing to line and level and jointed in C.M. 1:3. The selected soil shall be filled in the gap between the vertical kerb stones and shall be compacted and shall be covered with 75 mm thick precast C.C. stone laid horizontally and

joined to each other and the vertical kerb stones in C.M. 1:3 in a manner that the alternate vertical joints match with the joints of the horizontal top slab.

4.0 Mode of Measurement and Payment:

The measurement shall be on Running meter basis and shall include all the work including necessary excavation, pre cast C.C. Blocks and soil filling and joining C.C. Blocks in C.M. 1:3, curing, including all labour, material tools & plants etc. complete.

Item No 132. Construction Septic tank inside dimension of 6 m in length & 3 m in width & 2 m depth including excavating any type of soil as shown and mentioned in the drawing, providing and laying 0.10 m thick plain cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone agg.) 40 mm thick IPS flooring at bottom with brick masonry 0.23 m thick walls CM 1:5 (1 cement : 5 coarse sand) and intermediate partition CM 1:4 & RCC Top slabs 12 cms thick in 1:2:4 (1 cement : 2 coarse sand : 4 graded stone agg) including reinforcement as per design and 15 mm thick cement plaster in CM 1:4 with floating coat of neat cement slurry inside, top and around tank below 15 cm on ground level, Also provide Two nos CI Manhole frame and cover of size 60 cm x 45 cm & 75 mm dia. PVC 6 kgf / Sq cm pressure air vent pipe in 3.00 length with cowl etc complete as per direction of Engineer in charge

1.0. Materials

1.1. Cement shall conform to M-3 and shall be of approved make.

1.2. Fine aggregate shall conform to M-6 and coarse aggregate shall conform to M-7.

1.3. Bricks shall conform to M-15 and shall be first class burnt clay bricks unless otherwise specified.

1.4. Reinforcement steel shall conform to M-20 and shall be free from loose rust, scales, oil and other deleterious matter.

1.5. Plain cement concrete 1:3:6 shall conform to relevant specifications for lean concrete.

1.6. Reinforced cement concrete 1:2:4 shall conform to relevant specifications for RCC work.

1.7. Cement mortar 1:5 and 1:4 shall conform to M-11.

1.8. Cast iron manhole frame and cover shall be of approved make and quality.

1.9. PVC vent pipe shall be 75 mm diameter, 6 kg/cm² pressure class complete with mosquito proof cowl and fittings.

1.10. Water shall conform to M-1.

2.0. Workmanship

2.1. The septic tank shall be constructed to the dimensions shown on the approved drawings with inside dimensions of 6.00 m length, 3.00 m width and 2.00 m depth or as directed by the Engineer-in-Charge.

2.2. Excavation shall be carried out in any type of soil to the required depth, width and alignment. The bottom shall be properly dressed, levelled and compacted before laying concrete.

2.3. The excavated material suitable for backfilling shall be stacked separately. Surplus earth shall be disposed of as directed.

2.4. A 100 mm thick plain cement concrete bed in cement concrete 1:3:6 shall be laid over the prepared foundation bed true to line, level and slope.

2.5. Over the PCC bed, 40 mm thick IPS flooring shall be provided and finished smooth, dense and watertight.

2.6. The side walls shall be constructed with 230 mm thick brick masonry in cement mortar 1:5.

2.7. Intermediate partition walls and baffle walls shall be constructed in brick masonry using cement mortar 1:4 as shown in the drawings.

2.8. Brick masonry shall be laid in proper bond with joints not exceeding 12 mm thickness and all joints shall be completely filled with mortar.

2.9. RCC top slab shall be 120 mm thick in cement concrete 1:2:4 including reinforcement as per approved structural design and drawings.

2.10. Centering and shuttering shall be rigid, true to line and capable of supporting all loads during concreting.

2.11. Reinforcement shall be accurately bent, fixed and secured in position before concreting and shall have the specified cover.

2.12. All internal surfaces of walls, partition walls and floor shall be plastered with 15 mm thick cement plaster in cement mortar 1:4 and finished with a floating coat of neat cement slurry to obtain a smooth impervious finish.

2.13. External surfaces of the tank up to 150 mm below ground level shall also receive 15 mm thick cement plaster in cement mortar 1:4 finished smooth.

2.14. All corners and junctions between walls and floor shall be rounded properly to ensure watertightness.

2.15. The completed tank shall be water tested and any leakage observed shall be rectified by the contractor at his own cost.

2.16. Two numbers cast iron manhole frames and covers of size 600 mm × 450 mm shall be fixed in the RCC slab at locations shown in the drawings.

2.17. One 75 mm diameter PVC vent pipe of 6 kg/cm² pressure class shall be fixed complete with approved cowl and necessary fittings. The vent pipe shall extend 3.00 m above the slab level or as shown in the drawings.

2.18. All concrete, masonry and plaster work shall be properly cured for the specified period.

2.19. Necessary scaffolding, dewatering, centering, shuttering, curing, testing and protection of completed work shall be provided by the contractor.

2.20. The septic tank shall be completed in all respects as per approved drawings and to the satisfaction of the Engineer-in-Charge.

3.0. Mode of Measurements and Payment

3.1. The septic tank shall be measured and paid as one complete unit including all components shown on the drawings.

3.2. The rate shall include excavation in any type of soil, PCC bed, IPS flooring, brick masonry, RCC slab, reinforcement steel, centering and shuttering, plastering, curing, testing, backfilling, CI manhole frames and covers, PVC vent pipe with cowl, labour, tools, plants, scaffolding and all materials required for complete execution of the work.

3.3. No separate payment shall be made for excavation, disposal of surplus earth, dewatering, reinforcement, shuttering, curing, testing, watertight treatment, vent pipe fittings, manhole installation or any incidental works required for proper completion of the septic tank.

3.4. Any rectification required to make the tank watertight shall be carried out by the contractor at his own cost.

3.5. The rate shall be for one complete septic tank unit fully constructed, tested and approved by the Engineer-in-Charge.

Item No 133. Geophysical Survey for pin point for bore well including survey done by GWSSB department with relay repair of pin point location including fees to GWSSB department & Transportation charges.

1.0. Materials

1.1. The geophysical survey shall be carried out using approved scientific methods and instruments suitable for locating groundwater potential zones.

1.2. Survey equipment shall be calibrated, accurate and capable of identifying subsurface water-bearing formations.

1.3. All field markers, pegs, paint markings and reference points required for identification of bore well locations shall be provided by the contractor.

1.4. The survey shall be conducted through the Gujarat Water Supply and Sewerage Board (GWSSB) or any other Government-approved agency as directed by the Engineer-in-Charge.

2.0. Workmanship

2.1. The work shall consist of carrying out a detailed geophysical survey for identification and pin-pointing of suitable bore well locations within the project area.

2.2. The survey shall be conducted by qualified and experienced personnel using approved geophysical investigation methods such as electrical resistivity survey or other suitable techniques approved by the Engineer-in-Charge.

2.3. The contractor shall coordinate with the GWSSB Department and obtain all necessary permissions, approvals and survey services required for the work.

2.4. All fees, charges and expenses payable to GWSSB or other approved agencies for conducting the survey shall be borne by the contractor.

2.5. The survey shall include identification of the most suitable bore well location, probable depth of water-bearing strata, expected yield and geological conditions.

2.6. Pin-point locations shall be physically marked on site using approved methods and shall be referenced with respect to permanent site features.

2.7. Relay, re-checking, re-pegging or re-confirmation of the identified location, if required by the Engineer-in-Charge, shall be carried out without additional cost.

2.8. The contractor shall submit survey reports, field observations, recommendations and location sketches indicating the proposed bore well point.

2.9. Necessary transportation, mobilization, demobilization and site visits required for conducting the survey shall form part of the work.

2.10. The completed survey report and pin-point location shall be submitted to the Engineer-in-Charge for approval before commencement of bore well drilling work.

3.0. Mode of Measurements and Payment

3.1. The geophysical survey shall be measured and paid on a lump sum basis for one complete survey conducted and approved by the Engineer-in-Charge.

3.2. The rate shall include mobilization of equipment, field investigations, geophysical testing, pin-pointing of bore well location, survey report preparation, GWSSB fees, transportation

charges, labour, instruments, tools, consumables and all incidental expenses required for complete execution of the work.

3.3. No separate payment shall be made for repeat visits, coordination with government authorities, submission of reports, marking of locations, transportation or any incidental work required for completion of the survey.

3.4. The rate shall be for one complete geophysical survey including approved pin-point location of bore well and submission of final report.

Item No 134. Drilling of 315 mm dia bore in overburden strata & lowering of 200 mm dia PVC Casting Pipe up to Required Length and Further Drilling of 200 mm dia Bore in all Types of Rocky Strata, Soft Rock & Hard Rock by DTH Rig and Fixing the Bore Plug in all talukas of all districts of zone - III upto 350 mtr (Up to 350 Mtr Depth)

1.0. Materials

1.1. Bore well drilling shall be carried out using suitable hydraulic rotary cum DTH (Down-The-Hole) drilling rigs capable of drilling through overburden, soft rock, hard rock and other geological formations encountered at site.

1.2. PVC casing pipes shall be of approved make, heavy duty type, conforming to relevant I.S. specifications and suitable for bore well applications.

1.3. PVC casing pipes shall be 200 mm diameter and of pressure class as approved by the Engineer-in-Charge.

1.4. Bore plug shall be of approved design and material suitable for sealing the bottom of the bore well.

1.5. All accessories including couplers, centralizers, clamps and fixing arrangements required for lowering and installation of casing pipes shall be of approved quality.

1.6. Water, drilling mud, compressed air and other consumables required for drilling operations shall be arranged by the contractor.

2.0. Workmanship

2.1. The work shall consist of drilling a bore well of 315 mm diameter through overburden strata and lowering 200 mm diameter PVC casing pipe to the required depth as directed by the Engineer-in-Charge.

2.2. After completion of drilling in overburden strata, further drilling shall be carried out with 200 mm diameter bore through all types of rock formations including soft rock, medium rock and hard rock using DTH drilling equipment.

2.3. The drilling shall be executed in accordance with approved hydrogeological recommendations and at locations approved by the Engineer-in-Charge.

2.4. Suitable drilling methods shall be adopted to ensure verticality and stability of the bore throughout the drilling operation.

2.5. The contractor shall maintain detailed drilling logs indicating depth, strata encountered, water-bearing zones and other relevant geological information.

2.6. The bore hole shall be cleaned thoroughly during and after drilling to remove cuttings, loose material and drilling debris.

2.7. PVC casing pipe of 200 mm diameter shall be lowered carefully into the bore without damage and shall be installed to the required depth as directed.

2.8. Proper joints, couplers and accessories shall be provided to ensure alignment and stability of the casing pipe.

2.9. A suitable bore plug shall be fixed at the bottom of the casing pipe wherever required and as directed by the Engineer-in-Charge.

2.10. Adequate precautions shall be taken to prevent collapse of bore walls and contamination of groundwater during drilling operations.

2.11. The contractor shall provide all labour, drilling rigs, compressors, tools, tackles, consumables, transportation and equipment necessary for completion of the work.

2.12. Upon completion of drilling, the bore shall be flushed, cleaned and made ready for development and testing operations.

2.13. The work shall be carried out in all talukas of all districts falling under Zone-III and at locations specified by the Engineer-in-Charge.

3.0. Mode of Measurements and Payment

3.1. Measurement shall be made in running metres of bore actually drilled and completed.

3.2. The depth shall be measured from the ground level to the bottom of the completed bore.

3.3. Separate measurements shall be recorded for drilling in overburden strata and drilling in rock strata if specified in the Schedule of Quantities.

3.4. The rate shall include mobilization and demobilization of drilling rigs, drilling through overburden and rock strata, supply and lowering of 200 mm diameter PVC casing pipe, fixing of bore plug, flushing, cleaning, labour, fuel, compressors, tools, tackles, transportation and all materials required for complete execution of the work.

3.5. No separate payment shall be made for drilling logs, alignment checks, bore cleaning, handling of casing pipes, consumables, temporary arrangements, standby equipment or incidental works required for satisfactory completion of the bore well.

3.6. The rate shall be for a unit of one running metre of completed bore well up to a depth of 350 metres complete as approved by the Engineer-in-Charge.

Item No 135. Providing and supplying in standard length ISI mark high density Polyethylene H.D.P.E. Pipes suitable for potable water as per IS specification no. 4984/1995 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the dept. stores etc. comp. 6.0 Kg/cm² – 50mm Dia.

1.0. Materials

1.1. High Density Polyethylene (HDPE) pipes shall be ISI marked and conform to IS 4984 (latest revision) for potable water supply applications.

1.2. The pipes shall be manufactured from virgin PE material suitable for drinking water conveyance and approved by the Engineer-in-Charge.

1.3. The pipes shall be of 50 mm nominal diameter and pressure rating of 6.0 kg/cm² (PN-6) unless otherwise specified.

1.4. Pipes shall be uniform in colour, free from cracks, dents, blisters, pinholes, foreign inclusions and other manufacturing defects.

1.5. All pipes shall bear permanent markings indicating manufacturer's name, nominal diameter, pressure class, batch number and ISI certification mark.

1.6. Necessary couplers, fittings, end caps and accessories required for transportation and handling shall be of approved quality.

2.0. Workmanship

2.1. The work shall consist of supplying and delivering HDPE pipes in standard lengths to the department stores or designated locations as directed by the Engineer-in-Charge.

2.2. Pipes shall be carefully loaded, transported and unloaded in a manner that prevents damage, distortion, scratching or deterioration.

2.3. The contractor shall arrange all transportation, freight, loading, unloading and handling necessary for delivery of the pipes.

2.4. Pipes shall be stacked properly at site or departmental stores on level ground and protected from damage during storage.

2.5. Any pipe found damaged, cracked, distorted or not conforming to specifications shall be rejected and replaced by the contractor at no extra cost.

2.6. The contractor shall submit manufacturer's test certificates and ISI certification documents whenever required by the Engineer-in-Charge.

2.7. Inspection of materials may be carried out at the manufacturing works, transit location, departmental stores or site as directed by the Engineer-in-Charge.

2.8. The contractor shall provide all assistance required for inspection, testing and verification of materials.

2.9. Only approved materials shall be accepted for measurement and payment.

3.0. Mode of Measurements and Payment

3.1. HDPE pipes shall be measured in running metres of pipe supplied and accepted by the Engineer-in-Charge.

3.2. Measurement shall be based on the actual length of pipe supplied excluding fittings and accessories unless otherwise specified.

3.3. The rate shall include manufacture, testing, supply, loading, unloading, transportation, freight, octroi, royalties, taxes, insurance, inspection charges, handling, stacking and delivery to departmental stores or specified locations complete.

3.4. No separate payment shall be made for wastage, handling charges, testing certificates, storage arrangements, replacement of damaged pipes or any incidental expenses required for satisfactory completion of the supply.

3.5. The rate shall be for a unit of one running metre of 50 mm diameter HDPE pipe of 6.0 kg/cm² pressure class complete.

Item No 136. Supplying of following size of STANDARD UPVC column pipe with coupler and wire lock [D] 50 mm dia

1.0. Materials

1.1. The column pipes shall be Standard uPVC (Unplasticized Polyvinyl Chloride) column pipes specially manufactured for bore well and submersible pump applications.

1.2. The pipes shall be of 50 mm nominal diameter and of approved make conforming to relevant I.S. specifications and manufacturer's standards.

1.3. The pipes shall be capable of withstanding the tensile load of the pump, water column and associated accessories under operating conditions.

1.4. The uPVC material shall be free from cracks, blisters, dents, inclusions and other manufacturing defects.

1.5. Each pipe shall be supplied complete with matching threaded couplers and stainless steel wire locking arrangement to prevent loosening during operation.

1.6. Couplers shall be manufactured from compatible uPVC material of adequate strength and shall provide leak-proof and secure joints.

1.7. Wire locks shall be corrosion resistant and suitable for long-term submersible installation.

1.8. All materials shall bear manufacturer's identification and shall be approved by the Engineer-in-Charge.

2.0. Workmanship

2.1. The work shall consist of supplying Standard uPVC column pipes of specified diameter complete with couplers and wire locking arrangements.

2.2. Pipes shall be supplied in standard lengths as specified by the manufacturer and approved by the Engineer-in-Charge.

2.3. The pipes shall be carefully handled during loading, unloading, transportation and stacking to avoid damage.

2.4. All threaded ends shall be properly protected during transportation and storage.

2.5. Couplers shall be supplied complete with matching threads and shall ensure proper alignment and strength of joints.

2.6. Wire locking systems shall be supplied complete for each joint to prevent accidental loosening during installation and operation.

2.7. Pipes found cracked, damaged, distorted or otherwise defective shall be rejected and replaced by the contractor at no additional cost.

2.8. The contractor shall provide manufacturer's test certificates and product literature whenever required by the Engineer-in-Charge.

2.9. All materials shall be delivered to the designated store or site location as directed by the Engineer-in-Charge.

3.0. Mode of Measurements and Payment

3.1. uPVC column pipes shall be measured in running metres of pipe supplied and accepted by the Engineer-in-Charge.

3.2. Measurement shall be based on the actual length of pipe supplied excluding overlaps and wastage.

3.3. The rate shall include supply of uPVC column pipes, couplers, wire locking arrangements, loading, unloading, transportation, freight, handling, stacking, taxes, royalties, insurance and all incidental charges required for complete supply.

3.4. No separate payment shall be made for couplers, wire locks, protective caps, testing certificates, handling charges or replacement of damaged materials.

3.5. The rate shall be for a unit of one running metre of 50 mm diameter Standard uPVC column pipe complete with coupler and wire lock.

Item No 137. Supply of following size of TOP & BOTTOM accessories i.e. Adaptor set (CI) long, pump guard set, starter pipe Rubber ring for submersible pump & UPVC column pipe as directed by Engineer - in - charge with necessary plumbing as desired. [D] 50 mm dia

1.0. Materials

1.1. The item shall consist of supplying top and bottom accessories required for installation of submersible pumps with uPVC column pipes of 50 mm diameter.

1.2. Adaptor sets shall be of Cast Iron (C.I.) long pattern, heavy duty type and suitable for connection of submersible pumps with uPVC column pipes.

1.3. Pump guard sets shall be of approved make and design suitable for protecting the pump assembly during operation.

1.4. Starter pipes shall be of approved quality, size and dimensions compatible with the submersible pump installation.

1.5. Rubber rings shall be of approved quality, resilient, durable and suitable for watertight joints in submersible pumping systems.

1.6. All accessories shall be compatible with 50 mm diameter uPVC column pipes and shall be capable of withstanding operating pressures and service conditions.

1.7. All materials shall be new, free from defects and approved by the Engineer-in-Charge.

1.8. Manufacturer's test certificates and product literature shall be submitted whenever required by the Engineer-in-Charge.

2.0. Workmanship

2.1. The work shall consist of supplying top and bottom accessories including adaptor set (C.I.) long type, pump guard set, starter pipe, rubber rings and associated fittings required for installation of submersible pumps with 50 mm diameter uPVC column pipes.

2.2. All accessories shall be of approved make and shall conform to the approved specifications and manufacturer's recommendations.

2.3. Materials shall be properly packed, handled and transported to prevent damage during loading, unloading and storage.

2.4. All threaded portions, sealing surfaces and machined parts shall be adequately protected during transportation and storage.

2.5. The contractor shall ensure compatibility of all supplied accessories with the specified pump, uPVC column pipe and associated installation system.

2.6. Necessary plumbing accessories, connectors, fasteners and jointing components required for complete installation shall be supplied as directed by the Engineer-in-Charge.

2.7. Defective, damaged or non-conforming materials shall be removed and replaced by the contractor at no additional cost.

2.8. The materials shall be delivered to the designated store or site location complete and ready for installation.

3.0. Mode of Measurements and Payment

3.1. The accessories shall be measured and paid as one complete set supplied and accepted by the Engineer-in-Charge.

3.2. A set shall comprise adaptor set (C.I.) long type, pump guard set, starter pipe, rubber rings and all necessary accessories required for connection with 50 mm diameter uPVC column pipe.

3.3. The rate shall include supply, loading, unloading, transportation, freight, handling, stacking, taxes, duties, insurance and all incidental charges required for complete supply of the materials.

3.4. No separate payment shall be made for packing, handling, testing certificates, replacement of damaged materials, plumbing accessories, fasteners or incidental items required for satisfactory completion of the work.

3.5. The rate shall be for one complete set of top and bottom accessories suitable for 50 mm diameter uPVC column pipe and submersible pump installation complete.

Item No 293. Providing and fixing of planter/pots of frp or plastic with Natural indoor plants as per selection and complete the work satisfactorily, etc. complete as per drawings and design supplied by architect and instruction given by authority and E.I.C.

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 294. Providing and Supplying Book Server Premium Service. (As Directed and Instruction of Director Librerion)

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 295. Supplying heavy duty hand car Dustbins having standard different colour of size litters 250 of any brand or its equivalent brand as directed by engineer-in-charge etc. complete.

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 296. Supplying & Fixing of Photo frame of up to Size 12" x 18" with Slogen Sticker or Any Photo (up to Size 225 Sqinch)

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 297. Supplying of Wall Clock (Size Up to 15") or Table Clock (Size Upto 12" Digital Clock)

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 298. Supplying of Office Table Top Artificial or Indoor Pot (Ht Up to 12")

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 299. Supplying Small Size Door matt (Size Up to 15" x 24")

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 300. Supplying Big Size Door matt (Size : 60" X 24")

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 301. Providing and Supplying of Tripoi (Size : 30" x 18")

“As Per Detailed item description and directed by Engineer in Charge.”

**Item No 302. Notice Board / Pin Board
Supplying of Notice Board of 3'x 3' (or as specified) with all Fixing Arrangement complete as per drawing and Directed by Engineer In Charge etc complete.**

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 303. Providing and Fixing Library Name in Gujarati Letter SS304 1mm thick letter 1.5" depth 10" Height with Duco color & fitting as per direction of Architect & EIC.

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 304. Providing, assembling, transporting & placing/fixing of kid's chair of size: 375W x 375D x 495mmH. Made of polypropylene material with strong legs. Complete with all necessary hardware and accessories As per design and drawing provided and finishing as per approval of architect and material as approved by engineer in charge.

“As Per Detailed item description and directed by Engineer in Charge.”

Item No 305. Reading Chair-02 : Providing and Placing Reding Chair - The seat and back are made up of 1.2cm.thick hot pressed plywood upholstered with leather and moulded Polyurethane foam.MID BACK SIZE: 53.0cm. (W) X 73cm. (H)SEAT SIZE: 54.6cm. (W) X 49.0cm. (D)The HR Polyurethane foam is moulded with density=45+/-2 kg/m cube and hardness load 16+/-2 kgf as per IS:7888 for 25% compression. The fixed type mechanism is made with a 0.8 cm thk HR Steel spine-welded to it and black powder coated(D- FT 40-60 microns-).The Understructure is made up of M.S.E.R.W. Elliptical tube of size 4.5 x 1.9 cm x 0.25 cm welded to M.S.E.R.W Tube of dia 1.6 cm x 0.2 cm thick.The understructure is powder coated (DFT 40-60 microns) in Silver metallic gray.

1. Material:

- An MS pipe 12 mm rod frame shall be used as per the approved make and sample by the EIC/Architect.
- All types of materials shall be used as per the approved make list, conforming to relevant IS codes, and approved by the EIC/Architect.

2. Workmanship:

- Work shall be completed as per the above manufacturer's specification.
- Work shall be completed including all types of tools, tackles, labour, etc., complete at any level and height.
- The entire work is to be completed as per the design; sample materials and any other requirements shall be as per the instructions of the EIC/Architect.

3. Measurements:

- The rate shall be consolidated for all the above items.
- The rate shall include the cost of all materials, labour, scaffolding, etc., to complete the entire work satisfactorily as per the instructions of the EIC/Architect.
- No extra payment will be given for any reason.
- The rate shall be inclusive of all materials, loading, unloading, all taxes, transportation, placing at all floors and for all leads, polishing, and all accessories as described in the item description.
- The work done shall be measured in numbers for the area of work completed. The rate shall be for a unit of one number.