

Section - 5
TECHNICAL SPECIFICATION

Name of Work: SR to Rajpipla circuit house at Rajpipla, Dist. Narmada (Repairing of Office Work, Sanitary Work, Plumbing Work, C.C. Road, Window, Colour Work & Electric Work)

SPECIFICATION INDEX

Sr. No.	ITEM DESCRIPTION	Applicable Specification	Specification Booklet Attached
1	2	3	4
1	Removing dry or oil bound distemper by a washing and scraping and sand papering the wall surface smooth including necessary repairs to scratches complete.	As per separate sheet attached	As per separate sheet attached
2	Applying two coats of putty & one 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.	As per separate sheet attached	As per separate sheet attached
3	Wall painting (two coats) of plastic paint with one wall highlight in special effect (royal play) colour, shade and colour of approved brand and manufacture on undecorated wall surface to give an even shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.	As per separate sheet attached	As per separate sheet attached
4	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on ceiling and soffits of slab surface to give an even shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.	As per separate sheet attached	As per separate sheet attached
5	Wall painting two coats with weather proof acralic emulsion APEX type paint of approved brand & manufacture and of required shade on exterior wall surface to give an even shade over and including a primery coat with alkaly resistance primer of approved brand after throughly brushing surface to remove all dirt and remains of loose powdered materials etc comp. for all height.	As per separate sheet attached	As per separate sheet attached
6	Providing and fixing wash down water closet (European W.C. Pan) with integral P or S trap and PVC dual flush tank with complete fittings including cutting holes in walls and making good the same connecting the flush bend with cistern and closet etc. complete including plastic seat cover, water jet and including jointing trap with Waste pipe overall size as per the selection of the Model by E.I.C. or as approved}	As per separate sheet attached	As per separate sheet attached

Name of Work: SR to Rajpipla circuit house at Rajpipla, Dist. Narmada (Repairing of Office Work, Sanitary Work, Plumbing Work, C.C. Road, Window, Colour Work & Electric Work)

SPECIFICATION INDEX

Sr. No.	ITEM DESCRIPTION	Applicable Specification	Specification Booklet Attached
7	Providing & fixing of first quality (ii) Flat Back washbasin 550 mm x 400mm size. (i) In white colour. including with approved sanitary grade material with C.P waste coupling, waste pipe, 15mm dia Pillar & Stop Cock of approved brand with connection 15mm dia flexiable pvc pipe etc. complete	As per separate sheet attached	As per separate sheet attached
8	Providing and fixing screw down bib taps of following size.(B) Brass chromium plated screws down Bib Tap. (i) 15mm dia.	As per separate sheet attached	As per separate sheet attached
9	Providing and fixing Jet spray to connect wall mount w.c with 1.5 mtr long plc. heavy duty supply pipe with two side male female checknut etc. complete.	As per separate sheet attached	As per separate sheet attached
10	Providing and fixing C.P. brass towel rail comlete with C.P. brass brackets fixed to wooden plugs with C.P. brass scews.(B) 600mm x 20mm size.	As per separate sheet attached	As per separate sheet attached
11	Providing and fixing C.P. brass shower rose with 15mm or 20mm inlet.(A) 100mm dia. Each	As per separate sheet attached	As per separate sheet attached
12	Providing and fixing chromium plated brass half trun flush cock of approved quality including fixing in pipe line etc. complete.(i) 20mm dia.	As per separate sheet attached	As per separate sheet attached
13	Providing and fixing FRP frame size 100x50 mm and 28mm thick FRP depress panel shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filed up with injected fire retardant grade polyurethane foam done in situ alongwith embedded wooden pieces for stiffening & also taking hinges & fintures. 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 fixtures & fastenings & fastener sleeve.	As per separate sheet attached	As per separate sheet attached
14	Plantation of trees in soil including digging 45 x 45 x 45cm size pits, preparing soil, providing and mixing organic fertiliser, watering, planting and filling the pits as per direction including etc. complete	As per separate sheet attached	As per separate sheet attached

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SPECIFICATION INDEX

Sr. No.	ITEM DESCRIPTION	Applicable Specification	Specification Booklet Attached
15	Providing tree plants having minimum 1.00 mt height and healthy growth various kinds as like Peltiform, Gulmahor, kananj, Amla, Raintree, Saptaparni, Cherry Cryjeliya, Borsalli, Kadam, Buch, Champo, Asopalav and as suggested etc. complete.	As per separate sheet attached	As per separate sheet attached
16	Lawn Grass :- Filling the area upto the depth of 23 cm. with good quality of field fertile soil, breaking the clods leveling the area, free from stone, grass roots etc. and farm yard manure at the rate of 5 cu.mt. per 100 sq. mt. mixing the same with layer of soil, leveling rolling, preplanting, watering etc and planting the lawn grass of approved variety at 10 x 10 cm. distance etc. complete as per detail specification and maintenance for 3 months.	As per separate sheet attached	As per separate sheet attached

Deputy Executive Engineer
Const.(R&B) sub Division
Rajpipla

Executive Engineer
Rajpipla (R&B) Division
Rajpipla

ITEM WISE SPECIFICATION

Item No.1 Removing dry or oil bound distemper by a washing and scraping and sand papering the wall surface smooth including necessary repairs to scratches complete.

1. Materials

The following materials shall be used:

- Clean potable water for washing.
- Emery paper/sand paper of suitable grade.
- Wall putty or approved filler for minor surface repairs.
- Cement-sand mortar or crack filler compound for repairing cracks where required.
- Cleaning cloths, brushes, scrapers, and other approved tools.
- Protective sheets and masking materials to prevent damage to adjoining surfaces.

All materials shall be of approved quality and conform to relevant specifications.

2. Workmanship

Surface Preparation

1. Existing distemper, loose paint, blistered portions, dust, dirt, grease, and other contaminants shall be removed by scraping with approved scrapers.
2. The surface shall be thoroughly washed with clean water wherever necessary to remove chalking, dirt, and loose particles.
3. After drying, the surface shall be rubbed with sand paper to achieve a smooth and even finish.
4. All cracks, scratches, dents, nail holes, and minor surface defects shall be repaired with approved filler or putty.
5. Repaired areas shall be allowed to dry and shall be sanded flush with adjacent surfaces.
6. The entire surface shall be cleaned free from dust before application of any subsequent finishing treatment.

Quality Requirements

- The prepared surface shall be smooth, clean, dry, and free from loose material.
- No traces of peeling distemper or paint shall remain.
- The finished surface shall provide a suitable base for primer, paint, distemper, or other specified finishes.
- Care shall be taken not to damage plaster, masonry, electrical fittings, doors, windows, or adjoining finished surfaces.

3. Tools and Equipment

The contractor shall provide:

- Steel scrapers
- Wire brushes (where required)
- Sand paper/emery paper
- Buckets and water containers
- Putty knives
- Scaffolding, ladders, and staging
- Safety equipment for workers

4. Protection and Safety

- Furniture, flooring, doors, windows, and fixtures shall be protected from dust and debris.

- Debris generated during scraping shall be collected and disposed of at approved locations.
- Workers shall use appropriate personal protective equipment (PPE).
- All safety regulations and site requirements shall be complied with.

5. Mode of Measurement

Unit of Measurement

The work shall be measured in Square Metres (m²).

Item No.2 Applying two coats of putty & one 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.

1. Materials:

- All type of material shall be used as per approved make list and confirming to relevant IS codes and approved by EIC/Architect.

2. Workmanship:

- The whole work is to be completed as per design; sample material & any other requirement shall be as per instruction of EIC/Architect.

2.1. General : The materials required for work of painting work shall be obtained directly from approved manufactures or approved dealer and brought to the site in maker's drums, kegs. etc. with seal unbroken.

2.1.2. All materials not in actual use shall be kept properly protected, lids of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation of skin. The materials which have become state or flat due to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into small containers. While applying also, the paint shall be continuously stirred in smaller container. No left over paint shall be-put back into stock tins. When not in use the containers shall be kept properly closed.

2.1.3. If for any reasons, things is necessary, the brand of thinner recommended by the manufacturer shall be used.

2.1.4. The surface to be painted shall be thoroughly cleaned and dusted. All rust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed part of the work shall be carried out in wet, damp or otherwise unfavorable weather and all the surfaces shall be thoroughly dry before painting work is started.

2.2. Application of paint :

2.2.1. Brushing operations are to be adjusted to the spreading capacity advised by the manufacture of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite directions two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the iaying off is finished. The full process of crossing and laying off will constitute one coat.

2.2.2. Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in shade and shall be got approved from Engineer-in-charge before next coat is started.

2.2.3. Each coat the last shall be lightly rubbed down with sand paper of fine pumice stone and cleaned of dust before the next coat is applied. No hairmakrs from the brush or clogging of paint puddles in the corners of panels, angles of mouldings etc. shall be left on the work.

2.2.4. Special care shall be taken while painting over boits, nuts, rivets, overlaps etc. Approved best quality brushes shall be used.

3. Measurements:

- The rate shall be consolidated for all above items.
- The rate shall include the cost of all materials, finishing, labour,etc. to complete the whole work satisfactorily as per instruction of EIC/Architect.
- No extra payment will be given for any of the reasons.
- The rate shall be for a unit of one square meter.

Item No.3 Wall painting (two coats) of plastic paint with one wall highlight in special effect (royal play) colour, shade and colour of approved brand and manufacture on undecorated wall surface to give an even shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.

1.0. Materials.

1.1. The water shall conform to M-1. Cement water proofing paint shall conform to I.S. 5410-1969.

2.0. Workmanship

2.1. Scaffolding : Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white r-r colourwashed. A properly secured strong and well tied suspended platform (Zooia) may be used for white washing. Where ladders are used, pieces of old gunny bags shait be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings, proper stage scaffolding shall be erected where necessary.

2.2. Preparation of surface : The surface shall be thoroughly cleaned of all dust, dirt, mortar croppings and other foreign matter before white wash is to be applied. The surface shall be thoroughly wetted with clean water before cement water proofing paint is applied.

2.3. Preparation of paint : Portland cement paint shall be 'prepared by adding paint powder to water and stirring to obtain a thick paste, which shall then be diluted to a brush able consistency. Generally, equal volumes of paint powder and water make a satisfactory paint. In all cases, The manufacture's instructions shall be followed. The paint shall be mixed in such quantities as can used up within an hour of mixing as otherwise the mixture will set and thickness, affecting flowing and finish. The lids of cement paint drums shall be kept tightly when not in use.

2.4. Application of Paint:

2.4.1. No painting shall be done when the paint is likely to be exposed to a temperature of below V_c within 48 hours after application.

2.4.2. When weather conditions are such as to cause be carried out in the shadow as far as possible This helps the proper hardening of the paint film by keeping the surface moist for a longer period.

2.4.3. To maintain the uniform mixture and to prevent segregation, the paint shall be stirred frequently in the bucket.

2.4.4. For undecorated surfaces, the surface shall be treated with minimum two coats of water proof cement paint. Not less than 24 hours shall be allowed between two coats. Next coat shall not be started until the proceeding coat has become sufficiently hard to resist marking by the brush being used. In hot dry weather, the proceeding coat shall be slightly moistened before applying the subsequent coat.

2.4.5. The finished surface shall be even and uniform in sh1e, without patches, brush marks, paint drops etc.

2.4.6. The current paint shall be applied with a brush with revelry short stiff hog or fibre bristles. The paint shall be brushed in uniform thickness and shall be free from excessively heavy brush marks. The lamps shall be brushed out.

2.4.7. Water proof cement paint shall not be applied on surface already treated with white wash, colour wash, distemper dry or oi! bound varnishes, paint etc. It shall not be applied on gypsum, wood and metal surfaces.

2.5. Curing : Painted surfaces shall be sprinkled with water two or three times a day. This shall be done between coats and for at 'east two days following the final coat. The curing shall be started as soon as the point has hardened so as not be damaged by the sprinkling of water say about 12 hours after the application.

3.0. Mode of measurements and payment

3.1. All the work shall be measured in the decimal system as under:

(a) Dimensions shall be measured to the nearest 0.01 m

(b) Area in individual item shall be worked out to the nearest 0.01 sq.m. ^ All the work shall be measured in sq. mt. Deductions for jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt. each in area, for ends of joists, posts, beams, girders, steps etc. not exceeding 0,5 sq mt. each in area and for openings exceeding 0.5 sq. mt. and not exceeding 3.0. sq. mt. each in area, deductions and additions shall be made as under.

3.2. No deductions shall be made for ends of joists, beams, posis, etc. and openings not exceeding 0.5 sq. mt. each. No addition shall be made for reveals, jambs, soffits, sills etc. of these openings not for finish around ends of joints, beams, posts etc.

3.3. No deductions for openings exceeding 0.5 sq.mt. but not exceeding 3 sq. mt. each shall be made as follows and no addition will be made for reveals, jambs, soffits etc, of these openings:

(a) When both the faces of walls are provided with finish, deduction shall be made for one face only.

(b) When each face of wall is provided with different finish, deduction shall be made for that side of frame for door, windows, etc, on which width of reveals is less than that of the other side. Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from total area of finish

(c) When only one face of wall is treated and the other face is not treated, full deduction shall be made if the width of reveal on the treated side is less than that on the untreated side, but if the width of the reveal is equal or more than on the untreated side neither deductions nor additions to be made for reveals, jambs, soffits, sills etc.

3.4 In case of area of openings exceeding 3 sq. mt. each, deductions shall be made for openings but jambs, soffits, sills shall be measured.

3.5. No deductions shall be made for attachment such as casing, conducts, pipe, electric wiring and the like.

3.6. Corrugated surfaces shall be measured flat as fixed and not girth. The quantities so measured shall be increased by the following percentage and the resultant shall be included with the general areas:

- (a) Corrugated steel sheets.....14%
- (b) Corrugated AC. sheets..... 20%
- (c) Semi corrugated A.C. Sheets.....10%
- (d) Naintial pattern roof (Plain sheeting sheets).....10%
- (e) Naintial pattern roof (with corrugated sheets).....25%

3.7. Cornices and other wall features, when they are not picked out in a different finish/colour shall be girthed and included in the general area.

3.8. The rate shall include the cost of all materials, labour, scaffolding, protective measures etc. involved in all the operations described above.

3.9. The rate shall be for a unit of One sq. metre.

Item No.4 Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on ceiling and soffits of slab surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.

1.0. Materials.

1.1. The water shall conform to M-1. Cement water proofing paint shall conform to I.S. 5410-1969.

2.0. Workmanship

2.1. Scaffolding : Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white washed. A properly secured strong and well tied suspended platform (Zooia) may be used for white washing. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings, proper stage scaffolding shall be erected where necessary.

2.2. Preparation of surface : The surface shall be thoroughly cleaned of all dust, dirt, mortar croppings and other foreign matter before white wash is to be applied. The surface shall be thoroughly wetted with clean water before cement water proofing paint is applied.

2.3. Preparation of paint : Portland cement paint shall be 'prepared by adding paint powder to water and stirring to obtain a thick paste, which shall then be diluted to a brush able consistency. Generally, equal volumes of paint powder and water make a satisfactory paint. In all cases, The manufacture's instructions shall be followed. The paint shall be mixed in such quantities as can be used up within an hour of mixing as otherwise the mixture will set and thickness, affecting flowing and finish. The lids of cement paint drums shall be kept tightly when not in use.

2.4. Application of Paint:

2.4.1. No painting shall be done when the paint is likely to be exposed to a temperature of below 5°C within 48 hours after application.

2.4.2. When weather conditions are such as to cause be carried out in the shadow as far as possible This helps the proper hardening of the paint film by keeping the surface moist for a longer period.

2.4.3. To maintain the uniform mixture and to prevent segregation, the paint shall be stirred frequently in the bucket.

2.4.4. For undecorated surfaces, the surface shall be treated with minimum two coats of water proof cement paint. Not less than 24 hours shall be allowed between two coats. Next coat shall not be started until the proceeding coat has become sufficiently hard to resist marking by the brush being used. In hot dry weather, the proceeding coat shall be slightly moistened before applying the subsequent coat.

2.4.5. The finished surface shall be even and uniform in shade, without patches, brush marks, paint drops etc.

2.4.6. The current paint shall be applied with a brush with evenly short stiff hog or fibre bristles. The paint shall be brushed in uniform thickness and shall be free from excessively heavy brush marks. The laps shall be brushed out.

2.4.7. Water proof cement paint shall not be applied on surface already treated with white wash, colour wash, distemper dry or oil bound varnishes, paint etc. It shall not be applied on gypsum, wood and metal surfaces.

2.5. Curing : Painted surfaces shall be sprinkled with water two or three times a day. This shall be done between coats and for at least two days following the final coat. The curing shall be started as soon as the paint has hardened so as not to be damaged by the sprinkling of water say about 12 hours after the application.

3.0. Mode of measurements and payment

3.1. All the work shall be measured in the decimal system as under:

(a) Dimensions shall be measured to the nearest 0.01 m

(b) Area in individual item shall be worked out to the nearest 0.01 sq.m. ^ All the work shall be measured in sq. mt. Deductions for jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt. each in area, for ends of joists, posts, beams, girders, steps etc. not exceeding 0.5 sq mt.

each in area and for openings exceeding 0.5 sq. mt. and not exceeding 3.0. sq. mt. each in area, deductions and additions shall be made as under.

3.2. No deductions shall be made for ends of joists, beams, posis, etc. and openings not exceeding 0.5 sq. mt. each. No addition shall be made for reveals, jambs, soffits, sills etc. of these openings not for finish around ends of joints, beams, posts etc.

3.3. No deductions for openings exceeding 0.5 sq.mt. but not exceeding 3 sq. mt. each shall be made as follows and no addition will be made for reveals, jambs, soffits etc, of these openings:

(a) When both the faces of walls are provided with finish, deduction shall be made for one face only.

(b) When each face of wall is provided with different finish, deduction shall be made for that side of frame for door, windows, etc, on which width of reveals is less than that of the other side. Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from total area of finish

(c) When only one face of wall is treated and the other face is not treated, full deduction shall be made if the width of reveal on the treated side is less than that on the untreated side, but if the width of the reveal is equal or more than on the untreated side neither deductions nor additions to be made for reveals, jambs, soffits, sills etc.

3.4 In case of area of openings exceeding 3 sq. mt. each, deductions shall be made for openings but jambs, soffits, sills shall be measured.

3.5. No deductions shall be made for attachment such as casing, conducts, pipe, electric wiring and the like.

3.6. Corrugated surfaces shall be measured flat as fixed and not girth. The quantities so measured shall be increased by the following percentage and the resultant shall be included with the general areas:

- (a) Corrugated steel sheets.....14%
- (b) Corrugated AC. sheets..... 20%
- (c) Semi corrugated A.C. Sheets.....10%
- (d) Naintial pattern roof (Plain sheeting sheets).....10%
- (e) Naintial pattern roof (with corrugated sheets).....25%

3.7. Cornices and other wall features, when they are not picked out in a different finish/colour shall be girthed and included in the general area.

3.8. The rate shall include the cost of all materials, labour, scaffolding, protective measures etc. involved in all the operations described above.

3.9. The rate shall be for a unit of One sq. metre.

Item No.5 Wall painting two coats with weather proof acralic emulsion APEX type paint of approved brand & manufacture and of required shade on exterior wall surface to give an even shade over and including a primery coat with alkaly resistance primer of approved brand after thoroughly brushing surface to remove all dirt and remains of loose powdered materials etc comp. for all height.

1.0. Materials.

1.1. The water shall conform to M-1. Cement water proofing paint shall conform to I.S. 5410-1969.

2.0. Workmanship

2.1. Scaffolding : Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white washed. A properly secured strong and well tied suspended platform (Zooia) may be used for white washing. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings, proper stage scaffolding shall be erected where necessary.

2.2. Preparation of surface : The surface shall be thoroughly cleaned of all dust, dirt, mortar croppings and other foreign matter before white wash is to be applied. The surface shall be thoroughly wetted with clean water before cement water proofing paint is applied.

2.3. Preparation of paint : Portland cement paint shall be 'prepared by adding paint powder to water and stirring to obtain a thick paste, which shall then be diluted to a brush able consistency. Generally, equal volumes of paint powder and water make a satisfactory paint. In all cases, The manufacture's instructions shall be followed. The paint shall be mixed in such quantities as can be used up within an hour of mixing as otherwise the mixture will set and thicken, affecting flowing and finish. The lids of cement paint drums shall be kept tightly when not in use.

2.4. Application of Paint:

2.4.1. No painting shall be done when the paint is likely to be exposed to a temperature of below 5°C within 48 hours after application.

2.4.2. When weather conditions are such as to cause be carried out in the shadow as far as possible This helps the proper hardening of the paint film by keeping the surface moist for a longer period.

2.4.3. To maintain the uniform mixture and to prevent segregation, the paint shall be stirred frequently in the bucket.

2.4.4. For undecorated surfaces, the surface shall be treated with minimum two coats of water proof cement paint. Not less than 24 hours shall be allowed between two coats. Next coat shall not be started until the proceeding coat has become sufficiently hard to resist marking by the brush being used. In hot dry weather, the proceeding coat shall be slightly moistened before applying the subsequent coat.

2.4.5. The finished surface shall be even and uniform in shade, without patches, brush marks, paint drops etc.

2.4.6. The current paint shall be applied with a brush with evenly short stiff hog or fibre bristles. The paint shall be brushed in uniform thickness and shall be free from excessively heavy brush marks. The lamps shall be brushed out.

2.4.7. Water proof cement paint shall not be applied on surface already treated with white wash, colour wash, distemper dry or oil bound varnishes, paint etc. It shall not be applied on gypsum, wood and metal surfaces.

2.5. Curing : Painted surfaces shall be sprinkled with water two or three times a day. This shall be done between coats and for at least two days following the final coat. The curing shall be started as soon as the paint has hardened so as not to be damaged by the sprinkling of water say about 12 hours after the application.

3.0. Mode of measurements and payment

3.1. All the work shall be measured in the decimal system as under:

(a) Dimensions shall be measured to the nearest 0.01 m

(b) Area in individual item shall be worked out to the nearest 0.01 sq.m. ^ All the work shall be measured in sq. mt. Deductions for jambs, soffits, sills etc. for openings not exceeding 0.5 sq. mt. each in area, for ends of joists, posts, beams, girders, steps etc. not exceeding 0.5 sq. mt. each in area and for openings exceeding 0.5 sq. mt. and not exceeding 3.0 sq. mt. each in area, deductions and additions shall be made as under.

3.2. No deductions shall be made for ends of joists, beams, posts, etc. and openings not exceeding 0.5 sq. mt. each. No addition shall be made for reveals, jambs, soffits, sills etc. of these openings not for finish around ends of joists, beams, posts etc.

3.3. No deductions for openings exceeding 0.5 sq.mt. but not exceeding 3 sq. mt. each shall be made as follows and no addition will be made for reveals, jambs, soffits etc, of these openings:

(a) When both the faces of walls are provided with finish, deduction shall be made for one face only.

(b) When each face of wall is provided with different finish, deduction shall be made for that side of frame for door, windows, etc, on which width of reveals is less than that of the other side. Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from total area of finish

(c) When only one face of wall is treated and the other face is not treated, full deduction shall be made if the width of reveal on the treated side is less than that on the untreated side, but if the width of the reveal is equal or more than on the untreated side neither deductions nor additions to be made for reveals, jambs, soffits, sills etc.

3.4 In case of area of openings exceeding 3 sq. mt. each, deductions shall be made for openings but jambs, soffits, sills shall be measured.

3.5. No deductions shall be made for attachment such as casing, conduits, pipe, electric wiring and the like.

3.6. Corrugated surfaces shall be measured flat as fixed and not girth. The quantities so measured shall be increased by the following percentage and the resultant shall be included with the general areas:

(a) Corrugated steel sheets.....14%

(b) Corrugated A.C. sheets..... 20%

(c) Semi corrugated A.C. Sheets.....10%

(d) Naintial pattern roof (Plain sheeting sheets).....10%

(e) Naintial pattern roof (with corrugated sheets).....25%

3.7. Cornices and other wall features, when they are not picked out in a different finish/colour shall be girthed and included in the general area.

3.8. The rate shall include the cost of all materials, labour, scaffolding, protective measures etc. involved in all the operations described above.

3.9. The rate shall be for a unit of One sq. metre.

Item No.6 Providing and fixing wash down water closet (European W.C. Pan) with integral P or S trap and PVC dual flush tank with complete fittings including cutting holes in walls and making good the same connecting the flush bend with cistern and closet etc. complete including plastic seat cover, water jet and including jointing trap with Waste pipe overall size as per the selection of the Model by E.I.C. or as approved}

1. Material:

- Wash down water closet (European type, W.C. Pan) with integral P or S trap as per approved make and sample by EIC/Architect.
- Metro pole flush valve as per approved make and sample by EIC/Architect.
- All type of material shall be used as per approved make list and confirming to relevant IS codes and approved by EIC/Architect.

2. Workmanship:

- Jointing the trap with soil pipe in Cement Mortar 1:1 (1-Cement: 1-fine sand) (Seal and cover to be measured and paid for separately)
- Work completes as per above specification.
- Work complete including all type of tools, tackles, scaffolding etc complete at any level and height
- The whole work is to be completed as per design; sample material & any other requirement shall be as per instruction of EIC/Architect.

3. Measurements:

- The rate shall be consolidated for all above items.
- The rate shall include the cost of all materials, labour, scaffolding etc. to complete the whole work satisfactorily as per instruction of EIC/Architect.
- No extra payment will be given for any of the reasons.
- Rate to be inclusive of all material, wastage, necessary tools tackles etc for fixing at all heights and for all floors.
- The work done shall be measured in square meter for area of work done. The rate shall be for a unit of one number.

Item No.7 Providing & fixing of first quality (ii) Flat Back washbasin 550 mm x 400mm size. (i) In white colour. including with approved sanitary grade material with C.P waste coupling, waste pipe, 15mm dia Pillar & Stop Cock of approved brand with connection 15mm dia flexiable pvc pipe etc. complete

1. Materials:

- All type of material shall be used as per approved make list and confirming to relevant IS codes and approved by EIC/Architect.

- The white glazed vitreous wash basin round over-counter shall be of best quality.
- The white glazed vitreous wash basin round over-counter shall be above description.
- Wash Basin Table Top - 420x420x155 mm

2. Workmanship:

- The White glazed vitreous Wash Basin Round Over-Counter, size 450 mm dia. shall be fixed as per drawing or as directed.
- The whole work is to be completed as per design; sample material & any other requirement shall be as per instruction of EIC/Architect.

3. Measurements:

- The rate shall be consolidated for all above items.
- The rate shall include the cost of all materials, finishing, labour, etc. to complete the whole work satisfactorily as per instruction of EIC/Architect.
- No extra payment will be given for any of the reasons.
- The work done shall be measured in number for visible area of work done.

Item No.8 Providing and fixing screw down bib taps of following size.(B) Brass chromium plated screws down Bib Tap. (i) 15mm dia.

1. Materials

- 15 m. dia. brass screw down with bright polished finished shall conform to I.S. 781-1977. The bib cock shall be best Indian make and quality.

2. Workmanship

- The screw down bib cock 15 mm. as specified above shall be fixed as directed. The threaded portion shall be smeared with white or red lead and around with a few turns of fine spun yarn round the screwed end of the pipe. The bib cock shall be then screwed and fixed to water tight position.

3. Mode of measurements and payment

- The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this n item.
- The rate shall be for a unit of One Number

Item No.9 Providing and fixing Jet spray to connect wall mount w.c with 1.5 mtr long plc. heavy duty supply pipe with two side male female checknut etc. complete.

1.0. Materials

Wash down water closet (Wall hung W. C. pan) with integral "P" or "S" trap including jointing the trap with soil pipe shall conform to M60. Cement mortar shall conform to M-11.

2.0. Workmanship

2.1. The closet shall be fixed to the floor by means of 75 mm. long 6.5 mm. diameter counter sunk bolts and nuts embedded in the floor concrete using rubber or before washers so as not to allow any lateral displacement. The joint between the trap of W.C. and soil pipe shall be

made with C M. 1:1 (1 cement : 1 fine sand) including cutting holes in walls and making good the same connecting the flush bend with cistern and closet vitreous china.

3.0. Mode of measurements and payment

3.1. The rate shall includes the cost of all materials and labour involved in all the operations described under workmanship.

3.2. The rate includes cost of all labour for fixing pans and sent and cover, inlet, connections etc. complete including testing the same. The payment of seat and cover shall be made separately.

3.3. The rate shall be for a unit of One number.

Item No.10 Providing and fixing C.P. brass towel rail complete with C.P. brass brackets fixed to wooden plugs with C.P. brass screws.(B) 600mm x 20mm size.

1.0. Materials

1.1. The C.P. brass towel rail shall be 600 x 20 mm. of best quality as approved by the Engineer-in-charge The brackets shall be of C.P. brass. The rail shall conform to I.S. 1068-1958.

2.0. Workmanship

2.1. The brackets of the towel rail shall be fixed by means of C.P. brass screws to wooden firmly embedded in the wall with C.M. 1:3 (1 cement : 3 coarse sand). The towel rail shall be fixed as and where directed.

3.0. Mode of measurements and payment

3.1. The rate includes cost of all labour and materials, tools and plant etc. required for satisfactory completion of this item.

3.2. The rate shall be for a unit of One number.

Item No.11 Providing and fixing C.P. brass shower rose with 15mm or 20mm inlet.(A) 100mm dia. Each

1. Materials

Shower Rose

- Shower rose shall be manufactured from high-quality brass conforming to relevant IS specifications.
- It shall be heavy-duty, corrosion-resistant, and provided with a superior chrome-plated finish.
- Diameter of shower rose shall be 100 mm.
- Inlet connection shall be 15 mm or 20 mm BSP threaded type as specified.
- The shower face shall have uniformly distributed spray holes capable of providing smooth and even water discharge.
- Chrome plating shall be of approved quality, free from defects, pitting, peeling, cracks, or discoloration.

Accessories

- Brass connection nipple, socket, reducers, washers, PTFE tape, and other accessories as required.

- Shower arm, if specified separately, shall conform to approved standards.
- All fittings shall be compatible with the plumbing system and approved by the Engineer-in-Charge.

2. Workmanship

1. The shower rose shall be fixed firmly to the water supply line through the specified inlet connection.
2. Threads shall be properly sealed using approved PTFE tape or suitable jointing material to prevent leakage.
3. The shower rose shall be installed in the correct position and alignment to ensure proper water flow and coverage.
4. Care shall be taken to avoid damage to the chrome-plated finish during handling and installation.
5. The installation shall be tested under operating water pressure to ensure leak-proof performance.
6. Any defective component shall be replaced at the contractor's cost.
7. The fixture shall be cleaned and polished after installation.

3. Quality Control

- The shower rose shall be free from manufacturing defects.
- Chrome plating shall be smooth, uniform, and highly polished.
- Water discharge shall be uniform through all spray nozzles.
- The assembly shall remain leak-proof during testing and operation.
- Installation shall be true, level, and aesthetically aligned.

4. Testing

- The complete assembly shall be tested under normal operating pressure.
- All threaded joints shall be checked for leakage.
- Water flow and spray pattern shall be inspected and approved by the Engineer-in-Charge.

5. Mode of Measurement

Unit of Measurement

The item shall be measured in Numbers (Nos.).

Item No.12 Providing and fixing chromium plated brass half trun flush cock of approved quality including fixing in pipe line etc. complete.(i) 20mm dia.

1. Materials

Flush Cock

- The flush cock shall be manufactured from high-quality brass conforming to relevant IS specifications.
- It shall be of half-turn type with ceramic disc/cartridge mechanism or approved equivalent, ensuring smooth operation and leak-proof performance.
- The flush cock shall be 20 mm nominal bore (NB) unless otherwise specified.
- The body shall be heavy-duty brass with high-quality chromium plating.
- Chrome plating shall be uniform, smooth, and free from pits, cracks, peeling, or other defects.
- Threads shall be accurately machined and compatible with standard plumbing fittings.

Accessories

- Brass nipples, sockets, reducers, unions, washers, PTFE tape, and other fittings as required.
- Fasteners and supporting arrangements necessary for proper installation.
- All accessories shall be of approved quality and compatible with the plumbing system.

2. Workmanship

Installation

1. The flush cock shall be installed at the locations shown on the drawings or as directed by the Engineer-in-Charge.
2. The water supply line shall be checked and cleaned before fixing the fixture.
3. The flush cock shall be fixed securely in position with proper alignment and orientation.
4. Threaded joints shall be sealed using approved PTFE tape or suitable jointing compound to ensure leak-proof connections.
5. The fixture shall be installed without causing damage to the chrome-plated surface.
6. After installation, the valve shall operate smoothly with a quarter/half-turn movement and provide proper water discharge.
7. Any scratches or damages occurring during installation shall be rectified or the fitting replaced at no extra cost.

Quality Requirements

- The flush cock shall operate smoothly without sticking.
- All joints shall remain watertight under operating pressure.
- The chrome finish shall remain intact and free from visible defects.
- The installation shall be neat, true to line, and aesthetically finished.

3. Testing

1. The installed flush cock shall be tested under normal operating water pressure.
2. All threaded connections shall be checked for leakage.
3. The valve opening and closing mechanism shall be tested for smooth operation.
4. Any leakage, malfunction, or defect observed during testing shall be rectified immediately.

4. Protection and Cleaning

- The fitting shall be protected from damage during construction activities.
- After installation and testing, the fixture shall be cleaned and polished.
- All debris and waste material generated during installation shall be removed from the site.

5. Mode of Measurement

Unit of Measurement

The item shall be measured in Number (No.).

Item No.13 Providing and fixing FRP frame size 100x50 mm and 28mm thick FRP depress panel shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filled up with injected fire retardant grade polyurethane foam done in situ alongwith embedded wooden pieces for stiffening & also taking hinges & finures. 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 fixtures & fastenings & fastener sleeve.

1. Materials

FRP Door Frame

- Door frame shall be made from high-quality Fibre Reinforced Plastic (FRP) using polyester resin reinforced with glass fibre.
- Frame size shall be 100 mm × 50 mm or as specified.
- Frame shall be factory moulded with smooth gel coat finish.
- The frame shall be adequately reinforced to withstand operational loads and environmental conditions.
- The frame shall be waterproof, weatherproof, termite-proof, corrosion-resistant, and resistant to mild acids and alkalis.

FRP Door Shutter

- Shutter shall be 28 mm thick FRP depressed panel type.
- Shutter shall be moulded in one or more pieces with additional reinforcement at edges and corners.
- Both faces shall have smooth gel coat finish of approved shade and texture.
- The shutter shall be free from cracks, pinholes, warping, dents, or surface imperfections.

Core Filling

- The hollow space within the shutter and frame shall be filled with fire-retardant grade injected polyurethane foam (PUF) done in situ.
- Foam shall be uniformly injected to ensure complete filling without voids.
- The foam shall provide thermal insulation, rigidity, and dimensional stability.

Embedded Wooden Reinforcement

- Approved seasoned hardwood or treated wooden blocks/stiffeners shall be embedded within the shutter and frame during manufacture.
- Reinforcement shall be provided at locations intended for hinges, locks, handles, tower bolts, and other hardware fittings.

Hardware and Fixtures

- Stainless steel hinges of approved make and quality.
- Aluminium fixtures and fastenings including handles, tower bolts, stoppers, screws, anchor fasteners, sleeves, and accessories as specified.
- All hardware shall be corrosion-resistant and suitable for wet and humid conditions.

2. Workmanship

Installation of Frame

1. The FRP frame shall be fixed true to line, level, and plumb in the opening.
2. The frame shall be secured using approved anchor fasteners, sleeves, screws, or holdfast arrangements.
3. Gaps between frame and masonry shall be filled with cement mortar, polymer mortar, or approved sealant as directed.
4. The frame shall be rigidly fixed to prevent movement during operation.

Installation of Shutter

1. The shutter shall be hung on stainless steel hinges securely fixed to the embedded wooden reinforcement.
2. Necessary clearances shall be maintained to ensure smooth opening and closing.
3. All fixtures and fastenings shall be installed neatly and securely.
4. Care shall be taken to avoid damage to the gel coat finish during transportation and installation.

Quality Requirements

- Door shall operate smoothly without binding, rattling, or distortion.

- Frame and shutter shall be square, rigid, and properly aligned.
- Surface finish shall be uniform and free from defects.
- The completed assembly shall be waterproof, weatherproof, termite-proof, and resistant to corrosion and mild chemical attack.

3. Performance Requirements

The FRP door assembly shall possess:

- Waterproof properties.
- Weather resistance.
- Termite and borer resistance.
- Resistance to fungal and bacterial attack.
- Resistance to mild acids and alkalis.
- Fire-retardant properties due to polyurethane foam filling.
- Dimensional stability under varying climatic conditions.
- Low maintenance and long service life.

4. Mode of Measurement

Unit of Measurement

The item shall be measured in Square Metres (m²).

Item No.14 Plantation of trees in soil including digging 45 x 45 x 45cm size pits, preparing soil, providing and mixing organic fertiliser, watering, planting and filling the pits as per direction including etc. complete

The plantation of trees involves the complete process of planting trees or shrubs in the ground, ensuring their proper growth by preparing the soil, adding nutrients, and providing adequate water and care. This work is typically part of landscaping, environmental restoration, or greenbelt development projects.

In your case, the process includes the following tasks:

- Digging the pits of 45 x 45 x 45 cm size.
- Preparing the soil to support healthy plant growth.
- Providing and mixing organic fertilizers to enrich the soil.
- Planting the trees in the prepared pits.
- Watering the plants immediately after planting and ensuring they are well-nourished.
- Filling the pits around the planted tree to stabilize the root system and prevent shifting.

Below is a detailed breakdown of the steps involved in the plantation of trees.

1. Preparation for Tree Plantation:

- A. Site Selection:
- Choosing the Right Location: Ensure that the location for planting is appropriate for the type of trees or plants being used, considering factors like sunlight, space, drainage, and proximity to existing plants or structures.
- Spacing Between Trees: Provide adequate spacing between each tree based on the species being planted. The spacing is crucial for allowing the trees to grow and develop properly.

2. Digging the Pits (45 x 45 x 45 cm):

- Excavation:
 - The pit size to be dug is 45 cm x 45 cm x 45 cm. This size is suitable for most tree saplings and ensures that the roots have enough space to expand.

- Use a spade or mechanical digger to excavate the soil to the required depth. The soil removed from the pit can be stored for mixing with compost and fertilizers.
- Check the pit for any obstructions such as rocks or roots that could impede root growth, and remove them.
- Pit Placement:
 - Ensure the pits are spaced at a proper distance from each other based on the type of trees and their expected growth. Typically, spacing can range from 1.5 to 2 meters, depending on tree size and species.

3. Soil Preparation:

- Loosening the Soil:
 - After digging, the soil at the bottom of the pit should be loosened to allow for better root penetration.
 - Break up compacted soil and mix it with the surrounding earth to create a well-draining yet nutrient-rich environment for the tree roots.
- Soil Amendment:
 - To improve soil quality, mix in organic matter such as compost, manure, or well-rotted farmyard manure. This enriches the soil with nutrients and improves its texture.
 - Depending on soil conditions, you may also need to add materials like sand (for better drainage) or peat moss (to increase water retention). However, avoid using too much heavy material as this can affect root growth.

4. Adding Organic Fertilizer:

- Organic Fertilizer:
 - Organic fertilizers (such as compost, vermicompost, or organic manure) should be mixed into the soil before planting the trees. This will ensure that the young roots get the nutrients they need as they establish themselves.
 - The typical quantity of organic fertilizer will vary based on soil condition but generally ranges from 1 to 2 kg of organic compost per pit.
 - Mix the fertilizer well with the soil to create a homogenous blend.

5. Planting the Trees:

- Selecting Healthy Plants:
 - Choose healthy, well-grown saplings with good root systems for planting. The trees should be free from disease or damage.
 - Check that the sapling is not root-bound (where the roots are tangled or confined in the pot) before planting.
- Planting Process:
 - Place the tree sapling carefully in the center of the pit, ensuring that the root ball is level with the surrounding soil. The top of the root ball should be slightly above the soil surface to avoid waterlogging around the stem.
 - Spread the roots out gently if the sapling is root-bound. This helps encourage outward growth.
 - Backfill the pit with the prepared soil mixture, ensuring that the tree is held securely and upright.
 - Tamp down the soil lightly to remove air pockets and provide stability to the roots.

6. Watering the Plants:

- Initial Watering:

- Water the sapling immediately after planting. Use a gentle watering can or hose to ensure the soil settles around the roots without disturbing the newly planted tree.
- Water deeply to soak the root zone, which helps the roots establish contact with the surrounding soil.
- Ongoing Watering:
 - Trees should be watered regularly during their establishment phase (the first 6–12 months after planting). The frequency will depend on the local climate and weather conditions. In general:
 - Water the trees once or twice a week during dry periods.
 - Ensure that the soil stays moist but not waterlogged.

7. Filling the Pits and Final Touches:

- Filling the Pit:
 - Once the tree is planted and properly watered, fill the pit with any remaining soil. Ensure that there are no gaps around the root ball.
 - The soil should be leveled and slightly raised above the surrounding ground to prevent water from collecting around the trunk.
- Mulching:
 - Apply a layer of mulch (such as wood chips, straw, or dry grass clippings) around the base of the tree to retain moisture, suppress weeds, and regulate soil temperature.
 - Keep the mulch at least 2-3 inches away from the trunk to prevent rot.
- Tree Guard (if necessary):
 - If required, install a tree guard or protective fencing around the young tree to prevent damage from animals, people, or equipment. This is especially useful in areas with high foot traffic or where animals may browse on young trees.

8. Maintenance and Monitoring:

- Regular Watering: During the initial growth phase, trees require consistent watering, especially in dry weather. Regularly check for signs of dehydration and water accordingly.
- Pruning: Once the tree has settled in, you may need to prune away dead or damaged branches, as well as shape the tree to encourage healthy growth.
- Weeding: Regularly remove any weeds around the base of the tree to prevent competition for nutrients and water.
- Fertilization: Over time, the tree may need additional feeding. Follow the guidance of an arborist or landscaper for when and how to add more fertilizer as the tree matures.

9. Safety and Environmental Considerations:

- Safety: Ensure that all workers wear appropriate PPE, including gloves, safety boots, and protective eyewear during the planting process.
- Environmental Impact: Use native species where possible, as these will be more adapted to the local climate and ecosystem. Additionally, make sure to choose species that will not become invasive and disrupt the local ecosystem.
- Soil Conservation: When digging the pits, ensure that soil erosion does not occur, especially on sloped land. Consider adding terracing or mulching techniques to retain moisture.

10. Measurements:

- The rate shall be consolidated for all above items.
- The rate shall include the cost of all labour, etc. to complete the whole work satisfactorily as per instruction of EIC/Architect.
- No extra payment will be given for any of the reasons.

- The rate shall be for a unit of Nos.

Item No.15 Providing tree plants having minimum 1.00 mt height and healthy growth various kinds as like Peltiform, Gulmahor, Kananj, Amla, Raintree, Saptaparni, Cherry Cryjeliya, Borsalli, Kadam, Buch, Champo, Asopalav and as suggested etc. complete.

The scope includes:

- Supplying healthy tree saplings of the specified species.
- Ensuring that each sapling is at least 1.00 meter tall and has good root development.
- Planting the trees in prepared pits with proper soil preparation, watering, and care.
- Ensuring proper growth by providing post-plantation care, such as regular watering, mulching, and maintenance.

1. Selection of Tree Species:

The following types of trees will be provided, as mentioned in your specifications:

1. Peltiform (*Chorisia Speciosa*)
 - Type: Deciduous
 - Attributes: Known for its beautiful flowers and large, spreading canopy. Ideal for ornamental planting.
2. Gulmahor (*Delonix Regia*)
 - Type: Deciduous
 - Attributes: Famous for its vibrant orange-red flowers. A fast-growing tree that provides excellent shade.
3. Kananj (*Polyalthia Longifolia*)
 - Type: Evergreen
 - Attributes: Known for its tall, columnar shape and dark green leaves. It is a popular tree for avenues and parks.
4. Amla (Indian Gooseberry, *Phyllanthus Emblica*)
 - Type: Deciduous
 - Attributes: Known for its medicinal properties, Amla trees produce edible fruits rich in Vitamin C. A hardy and drought-tolerant tree.
5. Raintree (*Samanea Saman*)
 - Type: Deciduous
 - Attributes: A large tree with a broad canopy, providing excellent shade. Known for its bright pink flowers and fast growth.
6. Saptaparni (*Alstonia Scholaris*)
 - Type: Evergreen
 - Attributes: Known for its medicinal uses and high growth rate. The tree has glossy, dark green leaves and fragrant flowers.
7. Cherry Cryjeliya (*Prunus cerasus* or any suitable cherry species)
 - Type: Deciduous
 - Attributes: Cherry trees provide beautiful blossoms and can be a source of edible fruit. Typically planted for aesthetic purposes.
8. Borsalli (*Bougainvillea spectabilis*)
 - Type: Semi-evergreen
 - Attributes: Known for its vibrant, colorful bracts. While usually a shrub or vine, it can be trained into a small tree.
9. Kadam (*Neolamarckia cadamba*)
 - Type: Evergreen
 - Attributes: A large tree known for its fragrant flowers. Kadam trees are commonly planted along roadsides for their shade and aesthetic value.

10. Buch (Ficus Benjamina or any species from the Ficus family)
 - Type: Evergreen
 - Attributes: Ficus trees have large, glossy leaves and are excellent for creating shaded areas.
11. Champo (Champak, Michelia Champaca)
 - Type: Evergreen
 - Attributes: Known for its fragrant, yellow flowers. Champak trees are ornamental and can grow well in tropical and subtropical climates.
12. Asopalav (Casuarina Equisetifolia)
 - Type: Evergreen
 - Attributes: A fast-growing tree often used for afforestation and soil erosion control. It has needle-like leaves and a tall, slender form.
13. And other species as suggested by the engineer
 - These could be additional species suitable for the local climate, aesthetic goals, or environmental considerations.

2. Requirements for Healthy Tree Plants:

- Height and Size: The trees supplied must be at least 1.00 meter tall, which ensures that the saplings have passed their juvenile stage and are capable of withstanding early environmental stress.
- Healthy Growth: Each plant should have:
 - Well-developed roots (not pot-bound).
 - A healthy trunk with no visible disease or damage.
 - Lush, green foliage indicating proper growth.
- 3. Tree Plantation Process:
- A. Preparation of Planting Pits:
- Pit Dimensions: The planting pits should be large enough to accommodate the root ball of each sapling. Typically, pits should be at least 45cm x 45cm x 45cm deep to allow for proper root expansion.
- Soil Preparation: Before planting, the soil should be enriched with organic compost or manure to ensure nutrient availability and improve soil texture.
- B. Planting the Trees:
- 1. Pit Preparation:
 - Dig the pits as per the required size, ensuring there are no large stones or obstructions.
 - Loosen the soil at the bottom of the pit to allow roots to penetrate easily.
- 2. Planting:
 - Carefully remove the sapling from the container, ensuring not to damage the roots.
 - Place the tree in the center of the pit, ensuring that the root collar (the point where the roots meet the stem) is at ground level. If the sapling is placed too deep, it may suffocate the roots, while planting too shallow may expose the roots.
 - Backfill the pit with the prepared soil and gently compact it around the roots to avoid air pockets.
- 3. Watering:
 - Water the tree immediately after planting to settle the soil around the roots and help the tree establish. Use a watering can or hose with a gentle spray to avoid disturbing the soil.
- 4. Mulching:

- Apply a layer of organic mulch (such as dried leaves, grass clippings, or wood chips) around the base of the tree to retain moisture, suppress weeds, and maintain a stable soil temperature.
- C. Post-Plantation Care:
 1. Watering:
 - Ensure the trees are regularly watered for the first few weeks to establish the roots. Water deeply to encourage deep root growth, but avoid over-watering which can lead to root rot.
 2. Stake or Support:
 - If necessary, provide support stakes to protect young trees from wind and physical damage. The support should not touch the trunk and should be removed once the tree is sufficiently stable.
 3. Pruning:
 - Prune any dead, damaged, or excessively long branches to promote strong, healthy growth. Remove any competing leaders to allow the tree to grow in a single, straight trunk.
 4. Fertilization:
 - After a few months, consider adding more organic compost or a balanced slow-release fertilizer to provide additional nutrients, especially if the tree's growth appears slow or stunted.
- 4. Ongoing Maintenance and Care:
 - Weeding: Remove weeds around the base of the tree regularly to prevent competition for nutrients and water.
 - Pest Control: Monitor for common pests like aphids, scale insects, and termites. Use organic pesticides if necessary.
 - Pruning: Continue to prune for shape and remove dead wood as the tree matures.
 - Growth Monitoring: Regularly assess the health of the tree, checking for any signs of poor growth or disease.
- 5. Conclusion and Summary:

The plantation of trees with a minimum height of 1 meter will involve the following steps:

 - Supplying healthy saplings of species like Gulmohar, Amla, Raintree, Saptaparni, Kadam, Asopalav, and others, as specified.
 - Planting them in properly prepared pits with enriched soil and organic fertilizers.
 - Ensuring regular watering, mulching, and maintenance to promote healthy growth and establishment.
 - Post-planting care such as pruning, staking, and pest management will ensure the trees thrive and reach their full potential.
 - The rate shall be for a unit of one Nos.

Item No.16 Lawn Grass :- Filling the area upto the depth of 23 cm. with good quality of field fertile soil, breaking the clods leveling the area, free from stone, grass roots etc. and farm yard manure at the rate of 5 cu.mt. per 100 sq. mt. mixing the same with layer of soil, leveling rolling, preplanting, watering etc and planting the lawn grass of approved variety at 10 x 10 cm. distance etc. complete as per detail specification and maintenance for 3 months.

1. Scope of Work

The work shall consist of preparing the ground for lawn development by filling with fertile soil to the specified depth, incorporating farm yard manure, leveling, rolling, watering,

planting approved lawn grass, and maintaining the lawn for a period of three months after planting, complete in all respects as directed by the Engineer-in-Charge.

2. Materials

(a) Fertile Soil

- Good quality agricultural/top fertile soil free from stones, gravel, brickbats, weeds, roots, rubbish, and other deleterious materials.
- Soil shall be friable, well-drained, and suitable for healthy grass growth.
- Soil shall be approved by the Engineer-in-Charge before use.

(b) Farm Yard Manure (FYM)

- Well-decomposed farm yard manure free from weeds, roots, and harmful substances.
- FYM shall be applied at the rate of 5.00 cubic metres per 100 square metres of lawn area.
- Manure shall be thoroughly mixed with the top layer of soil.

(c) Lawn Grass

- Healthy lawn grass of approved variety such as Doob Grass (*Cynodon dactylon*) or other approved species.
- Grass shall be free from pests, diseases, weeds, and foreign vegetation.
- Planting shall be carried out at 10 cm × 10 cm spacing or as directed.

(d) Water

- Clean water suitable for irrigation purposes.

3. Site Preparation

1. The designated area shall be cleared of all rubbish, weeds, roots, stones, debris, and unwanted vegetation.
2. Fertile soil shall be spread uniformly to a finished depth of 23 cm.
3. Large clods shall be broken into fine particles.
4. The area shall be brought to required levels, gradients, and contours as shown on drawings or directed by the Engineer-in-Charge.
5. Proper drainage shall be ensured to prevent water stagnation.

4. Application of Farm Yard Manure

1. Farm yard manure shall be spread uniformly over the prepared surface at the specified rate of 5 cu.m per 100 sq.m.
2. The manure shall be thoroughly mixed with the upper layer of soil to a depth sufficient to promote root growth.
3. The surface shall then be fine-dressed and leveled.

5. Leveling and Rolling

1. The prepared area shall be carefully leveled to remove depressions and undulations.
2. Light rolling shall be carried out using an approved roller to achieve a firm and even surface.
3. Any depressions formed after rolling shall be filled and re-leveled.
4. Final surface shall be smooth and suitable for lawn establishment.

6. Pre-Planting Watering

1. The prepared soil shall be watered adequately before planting.
2. Moisture content shall be sufficient to support healthy establishment of grass.
3. Watering shall not result in waterlogging.

7. Planting of Lawn Grass

1. Grass slips, root divisions, or turf pieces shall be planted at 10 cm × 10 cm spacing in both directions.
2. Planting shall be carried out uniformly over the entire area.
3. Grass shall be firmly pressed into the soil to ensure proper root contact.
4. Immediately after planting, light watering shall be carried out.

8. Maintenance for Three Months

The contractor shall maintain the lawn for a period of three months from the date of planting and shall include:

- Regular watering as required.
- Weeding and removal of unwanted vegetation.
- Gap filling and replacement of dead grass.
- Protection from pests and diseases.
- Trimming and mowing when necessary.
- Maintenance of healthy green appearance.
- Keeping the lawn free from litter and debris.
- Application of manure/fertilizer if directed by the Engineer-in-Charge.

At the end of the maintenance period, the lawn shall exhibit uniform growth, complete coverage, and a healthy green appearance.

9. Quality Requirements

- Lawn shall be uniformly established without bare patches.
- Surface shall be smooth, level, and free from depressions.
- Grass shall be healthy, dense, and free from weeds.
- Soil and manure shall be thoroughly mixed.
- Water stagnation shall not occur anywhere within the lawn area.

10. Mode of Measurement

Unit of Measurement

The work shall be measured in Square Metres (m²).