

INDIAN RAILWAY WELFARE ORGANISATION

TENDER DOCUMENTS

FOR

CONSTRUCTION OF 161 RESIDENTIAL DWELLING UNITS IN STILT+3 AND STILT +4 CONFIGURATION COMPRISING 54 UNITS TYPE II, 12 UNITS TYPE-IIIA, 48 UNITS TYPE III-B, 32 UNITS TYPE IVA AND 15 UNITS OF TYPE IVB AND MEDITATION HALLS INCLUDING OF ALL CIVIL, INTERNAL AND EXTERNAL WATER SUPPLY, SANITARY INSTALLATION, DRAINAGE, SEWERAGE, INTERNAL AND EXTERNAL ELECTRICAL WORKS, ROADS, PAVEMENTS, UNDER-GROUND WATER TANKS, PUMP HOUSE, SUB-STATION, BOUNDARY WALL, GATE & GUARD ROOM ETC. AT AMBATTUR VILLAGE, NEAR T.I.CYCLES FACTORY, CHENNAI-600053 (TAMILNADU).

(VOLUME II)

(Schedule of Quantities)

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INDIAN RAILWAY WELFARE ORGANISATION
PROJECT : RAIL VIHAR, PHASE-II/B, CHENNAI

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1	SECTION : 1 - CIVIL WORK				
1.1	SUB HEAD : 1 - EARTH WORK				
	Note: The item rate quoted shall be applicable to net quantity after deduction of prescribed percentage for voids mentioned in the specification.				
1.1.1	Earth work in excavation by mechanical means (Hydraulic excavator)/Manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m , including getting out the excavated soil and disposal of surplus excavated soil as directed within a lead of 50 m of all kinds of soil.	Cum	8628	120.25	1,037,517.00
1.1.2	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 M.	Cum	8628	89.45	771,774.60
1.1.3	Extra for excavating trenches for pipes, cables etc., in all kinds of soil for depth exceeding 1.5 M, but not exceeding 3 M. (Rate is over corresponding basic item for depth up to 1.5 Metre).	Metre	400	163.55	65,420.00
1.1.4	Supplying and filling in plinth with sand (Zone - IV as per IS : 383) under floors, including watering, ramming, consolidating and dressing complete.	Cum	1277	695.00	887,515.00
1.1.5	Supply Selected/Approved earth brought from out side the site and filling the same in plinths, back of retaining walls, foundations and trenches and spreading in landscaping and other location as directed by the Project Manager and shall be done in layers, not exceeding 20 cm in depth and consolidating each deposited layer by mechanical means, ramming and watering as per specifications including transportation, cost of soil, royalty, loading, unloading, carriage to dumping spot and all incidentals at all depths and levels, for all leads and lifts complete (Net consolidated area of fill, volume will be computed from the initial and final levels. Volume in slopes, embankments etc. will be computed applying appropriate formula, as per CPWD specification).	Cum	2000	618.50	1,237,000.00

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.1.6	Supplying, Providing and Injecting chemical emulsion for PRE-CONSTRUCTIONAL Anti Termite treatment and creating a chemical barrier under and all-round the column pit, wall trenches, basement excavation, top surface of plinth filling, junction of wall and floors along the external perimeter of plinth protection of building and expansion joints, surrounding of pipes and conduits etc. complete. (Plinth area of the building at ground floor only shall be measured). Holes up to 50 mm to 75 mm deep at 150 mm centre to centre both ways shall be made with 12 mm diameter steel rod on the surface to facilitate saturation of soil with the chemical emulsion. Supply chemical emulsion Chlorpyriphos/Lindane emulsifiable concentrate of 20% in sealed containers including delivery as specified, and providing and doing anti termite preconstruction treatment as per IS: 6313 (part-II) 1991.	Sqm	5550	187.55	1,040,902.50
1.1.7	Clearing Jungle including uprooting of rank vegetation, grass, bush wood, trees and saplings of girth up to 30 cm measured at a height of 1 M above ground level and removal of rubbish up to a distance of 50 M out side the periphery of the area cleared.	Sqm	23970	4.90	117,453.00
TOTAL OF SUB HEAD - 1					5,157,582.10

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.2	<u>SUB HEAD : 2 - CONCRETE WORK</u>				
	Note : The rates quoted for the item of works shall be for all places, levels and shape.				
1.2.1	Providing and laying in position cement concrete of specified grade including the cost of centering and shuttering. All work up to plinth level : 1 : 4 : 8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	Cum	1060	3284.15	3,481,199.00
1.2.2	Providing and laying damp-proof course 40 mm thick with cement concrete 1 : 2 : 4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size).	Sqm	40	196.85	7,874.00
1.2.3	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification. (IS : 2645)	Kg	1544	36.75	56,742.00
1.2.4	Applying a coat of Residual Petroleum bitumen of grade of VG - 10 of approved quality using 1.7 Kg per Sqm on Damp Proof Course/Plinth Band/Plinth Beam after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	Sqm	753	100.80	75,902.40
	TOTAL OF SUB HEAD - 2				3,621,717.40

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.3	<u>SUB HEAD : 3 - REINFORCED CEMENT CONCRETE</u>				
	Note: The rates quoted for the item of works shall be for all places, levels and shape including openings wherever required. Only steel bars for reinforcement shall be supplied free of cost by IRWO.				
1.3.1	Steel Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding with wire all complete. (For Labour Rate only) Note: Labour Rate for the Reinforcement laying including cost of binding wire, etc., complete. Thermo-Mechanically Treated bars (TMT BARS shall be issued by IRWO free of cost)	Kg	920448	8.10	7,455,628.80
1.3.2	Supplying, Providing and laying in position machine batched and machine mixed design mix M-25 grade Cement Concrete/RMC for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying and including the cost of centering, shuttering, strutting, propping & removal of form works, finishing and compacting, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability but excluding cost of reinforcement as per direction of Engineer-in-Charge. (Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).				
a)	All works up to plinth level	Cum	2535	6009.65	15,234,462.75
b)	All works above plinth level up to floor V level	Cum	5365	6695.05	35,918,943.25
1.3.3	Supplying, Providing and laying in position machine batched and machine mixed design mix M-20 grade cement concrete/RMC for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying and including the cost of centering, shuttering, strutting, propping & removal of form works, finishing and compacting, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve work ability without impairing strength and durability but excluding cost of reinforcement as per direction of Engineer-in-Charge. (Note :- Cement content considered in this item is @ 320 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).				
a)	All works up to plinth level.	Cum	267	5264.05	1,405,501.35
b)	All works above plinth level up to floor V level.	Cum	493	5503.90	2,713,422.70

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.3.4	Providing pre-cast cement concrete Jali 1 : 2 : 4 (1 Cement : 2 Coarse Sand : 4 Graded Stone aggregate 6 mm nominal size), reinforced with 1:6 mm dia mild steel wire, including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 Cement : 3 Fine sand) etc., complete, excluding plastering of the jambs, sills and soffits. - 50 mm Thick.	Sqm	50	557.35	27,867.50
TOTAL OF SUB HEAD - 3					62,755,826.35
Group A TOTAL (SH1+SH2+SH3)					71,535,125.85

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.4	<u>SUB HEAD : 4 - BRICK WORK</u>				
	Note: The rates quoted for the item of works shall be for all places and shape.				
1.4.1	Brick work with common burnt clay F.P.S. (Non Modular) bricks of class designation 5.00 / Fly Ash Bricks in foundation and plinth in cement mortar 1:6 (1 cement : 6 coarse sand).	Cum	826	3570.90	2,949,563.40
1.4.2	Brick work with common burnt clay F.P.S. (Non Modular) bricks of class designation 5.00/Fly Ash Bricks in superstructure above plinth level up to all floors & levels including of all scaffolding extra complete. In all shapes and sizes in: cement mortar 1 : 6 (1 cement : 6 coarse sand).	Cum	5084	4143.15	21,063,774.60
1.4.3	Half brick masonry with common burnt clay F.P.S. (Non Modular) brick of class designation 5.0/Fly Ash Bricks in super structure above plinth level up to all heights and levels in Cement Mortar 1 : 4 (1 Cement : 4 Coarse Sand) including supplying, providing and fixing in position one no. 8 mm dia TMT Bar or expanded Metal Sheet (XPM) 20 mm X 40 mm X 2.24 mm, 50 mm wide under laid in the centre at every third course, including scaffolding, etc. all complete. (8 mm dia TMT Bars and XPM Sheet shall be arranged by the Contractor at his own cost).	Sqm	13462	561.45	7,558,239.90
1.4.4	Providing and laying brick aggregate 40 mm graded in sunken floor including levelling and light ramming, lift up to all floors and levels.	Cum	645	1966.20	1,268,199.00
	TOTAL OF SUB HEAD - 4				32,839,776.90
	TOTAL OF GROUP B (SH 4)				32,839,776.90

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.5	<u>SUB HEAD : 5 - MARBLE & GRANITE WORK</u>				
	Note: The rates quoted for the item of works shall be for all places and shape.				
1.5.1	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1 : 4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing and rounding off the edges to give high gloss finish etc. complete at all levels as directed by the Engineer. Granite of any colour and shade. Area of slab over 0.50 sqm. (A sample of granite stone shall be approved by the Engineer and kept in his office)	Sqm	488	2983.55	1,455,972.40
1.5.2	Extra for fixing Marble/Granite stone, over and above corresponding basic item, in facia and drops of width up to 150 mm with epoxy resin based adhesive, including cleaning etc., complete.	Metre	630	188.90	119,007.00
1.5.3	Extra for providing opening of required size & shape for Wash Basin/Kitchen sink including one hole for gas pipe in kitchen platform, vanity counter and similar location in marble/Granite/ stone work, including necessary holes for pillars taps etc., including moulding, rubbing and polishing of cut edges etc., complete.	Nos.	162	295.20	47,822.40
1.5.4	Providing and fixing at all Floors 18 mm thick pre polished granite stone slab of colour and shade as approved by the IRWO in lift facia walls, including rounding of edges as shown in drawing laid over 12/15 mm thick cement mortar 1 : 3 (1 Cement : 3 Coarse Sand) for all type of face including filling of the joints with White Cement mixed with suitable pigment to match the shade of the tiles.	Sqm	190	2983.55	566,874.50
1.5.5	Providing and fixing 20 mm thick cuddappah slab for kitchen shelves and bed room shelves.	Sqm	2209	993.10	2,193,757.90
	TOTAL OF SUB HEAD - 5				4,383,434.20

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.6	<u>SUB HEAD : 6 - WOOD & PVC WORK</u>				
	Note: The rates quoted for the item of works shall be for all floors, heights, places and shape.				
1.6.1	Providing and fixing wood work in frames of main entrance doors framed and fixed in position using Teak wood of first quality well seasoned. The rate should include for providing and fixing 40 x 5 mm fast iron holdfasts 250 mm long including fixing to frame with necessary screws and embedding the holdfast in cement concrete 300 x 100 x 150mm in 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate of 20 mm nominal size). The number of holdfasts for each door should be provided as shown in drawings should be (wherever frames are kept abutting the concrete surfaces they should be fastened with the help of suitable number of anchor fasteners) The frame coming in contact with brick masonry/RCC Column shall be coal tarred. Door frames of section (125 x 75mm).				
	Teak wood of first quality	Cum	10	153420.20	1,534,202.00
1.6.2	Providing wood work in frames of doors frame and fixed in position using best quality Padauk wood well seasoned. The rate should include for providing and fixing 40 x 5 mm fast iron holdfasts 250 mm long including fixing to frame with necessary screws and embedding the holdfast in cement concrete 300 x 100 x 150mm in 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate of 20 mm nominal size). The number of holdfasts for each door should be provided as shown in drawings should be (wherever frames are kept abutting the concrete surfaces they should be fastened with the help of suitable number of anchor fasteners) The frame would be factory made from best quality Padauk wood. The frame coming in contact with brick masonry/RCC Column shall be coal tarred. Door frames of section (125 x 75mm).				
	Best quality Padauk wood	Cum	92	113357.85	10,428,922.20

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.6.3	Supplying and fixing 35 mm thick teak of second class panelled shutters for main entrance doors teak wood (100mm x 35mm size) 3 Nos. vertical styles, 125mm x 35mm top and lock rail, 200mm x 35mm bottom rail, to shape, housing 25mm thick teak planks into the frames with nails all-round mouldind of size 15 x 40 mm, with bright finished brass 4 nos of butt hinges size should be (125 mm x 25 mm x 4 mm) and screws provided as per drawing. The contact at the mortice Tenon joints shall be glued with bulk type synthetic resin.	Sqm	339	6226.85	2,110,902.15
1.6.4	Providing and fixing 35 mm thick best quality hard country wood (Padauk) window/ventilator glazed shutter side hung or top hung, with styles and rails having minimum width of 80mm using 4 mm thick approved plain float glass for windows (and frosted glass for ventilators), secured to the Styles and rails with proper wooden beading with nails etc. all around of size 15 x 15 mm (beading to be same wood as shutter) with bright finished S.S. butt hinges (100 mm) and screws with necessary aluminium anodised hook and eyes (8 mm) as required. (The contact surface at mortice and Tenon joints shall be glued with synthetic resin complete in all respects) and screws provided as per drawing. The rate is inclusive of supplying and fixing of Glass with appropriate putty and secured with wooden beadings. (wherever the size of glass is more than 0.50 sq.mts. only 5.5 mm glass shall be used) .	Sqm	3105	3225.80	10,016,109.00
1.6.5	Providing and fixing 35mm thick factory made ISI marked flush door shutters (solid core type) from conforming to IS : 2202 (Part - I) non decorative type, core of block board construction with frame of 1st class hard wood ply veneering bounded with BWP type phenol formaldehyde synthetic with well matched commercial 3 ply veneering with vertical grains or cross bands and face veneer on both faces of shutter and suitable size of internal wood block for receiving aldrops etc., including providing and fixing of internal lipping with 1st class seasoned hard wood (internal lipping batten 25 mm minimum depth on all edges of the shutter) fixed with bright finished oxidised M.S. Butt hinges size should be (125 mm x 25 mm x 4 mm) and screws provided as per drawing (for bed rooms).	Sqm	963	1458.05	1,404,102.15

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.6.6	Providing and fixing 30mm thick factory made ISI marked flush door shutters (solid core type) from conforming to IS : 2202 (Part - I) non decorative type, core of block board construction with frame of 1st class hard wood ply veneering bounded with BWP type phenol formaldehyde synthetic with well matched commercial 3 ply veneering with vertical grains or cross bands and face veneer on both faces of shutter and suitable size of internal wood block for receiving aldrops etc., including providing and fixing of internal lipping with 1st class seasoned hard wood (internal lipping batten 25 mm minimum depth on all edges of the shutter) fixed with bright finished S.S. Butt hinges size should be (125 mm x 25 mm x 4 mm) and screws including applying chloro rubber paint on one side (inside) and bottom of the shutter for all the shutters exposed to water i.e. toilets, service verandah etc.	Sqm	1268	1325.05	1,680,163.40
1.6.7	Extra for providing heavy sheet float glass panes in windows and ventilators instead of ordinary float glass. - 5.5 mm Thick Glass instead of 4 mm Thick. (Area of opening for glass panes excluding rebate shall be measured).	Sqm	100	155.20	15,520.00
1.6.8	Deduct for providing Pin Headed glass panes instead of ordinary float glass in windows and ventilators. (Area of opening for glass panes excluding rebate shall be measured).	Sqm	75	22.20	(1,665)
1.6.9	Providing and fixing M.S. Grills of required pattern in frames of windows etc., with M.S flats, square or round bars etc. including priming coat with approved Red oxide Zinc chromate steel primer all complete. Fixed to openings/wooden frames with rawl plugs screws etc.	Kg	38331	71.15	2,727,250.65
1.6.10	Providing and fixing aluminium sliding door bolts ISI marked anodised (Anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete. 250 mm X 16 mm	Nos.	1180	144.30	170,274.00
1.6.11	Providing and fixing Aluminium Tower Bolts, ISI marked, Anodised (Anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc., complete:				
a)	200 mm X 10 mm	Nos.	3231	60.50	195,475.50
b)	150 mm X 10 mm	Nos.	1996	49.90	99,600.40
c)	100 mm X 10 mm	Nos.	1681	39.95	67,155.95
1.6.12	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc., complete:				
a)	125 mm	Nos.	1783	52.55	93,696.65
b)	100 mm	Nos.	3641	42.10	153,286.10

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.6.13	Providing and fixing aluminium hanging floor door stopper, ISI marked anodised (Anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete. - Twin Rubber Stopper	Nos.	1568	64.10	100,508.80
1.6.14	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (Anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles of approved quality with necessary screws etc., complete.	Nos.	162	417.20	67,586.40
1.6.15	Providing and fixing rubber buffer of required length 40 mm dia on back side of door including necessary anodized screws etc., complete.	Nos.	1342	72.75	97,630.50
1.6.16	Providing and fixing C.P. brass Magic Eye 'Global' imported or other approved equivalent on entrance doors including cutting suitable hole for tight fixing etc., complete as per directions of Engineer-in-Charge.	Nos.	162	97.85	15,851.70
1.6.17	Providing and fixing C. P. Brass Safety Chain of approved quality with necessary Brass screws and fixtures for main entrance doors.	Nos.	162	97.85	15,851.70
1.6.18	Providing and Fixing Aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/appropriate Z sections and other sections of approved make conforming to IS : 733 and IS : 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/neoprene gasket etc., Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically, wherever required including cleat angle, Aluminium snap beading for glazing/panelling, C.P. brass/stainless steel screws, all complete as per Architectural drawings and the directions of Engineer-in-Charge. (Glazing and panelling to be paid for separately)				
(a)	For fixed portion				
(i)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	Kg	301	288.45	86,823.45
(b)	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber /neoprene gasket required (Including all Fittings such as hinges, handles, tower bolts and door spring etc.)				
(i)	Powder coated aluminium (minimum thick-ness of powder coating 50 micron)	Kg	219	332.70	72,861.30

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
(ii)	Providing and fixing 12 mm thick pre - Laminated particle board flat pressed three layer or graded wood particle board conforming to IS : 12823 Grade Type - II, in panelling fixed in aluminium doors, windows shutters and partition frames with C.P. brass/stainless steel screws etc. complete as per architectural drawings and directions of Engineer-in-Charge.				
	Pre-laminated particle board with decorative lamination on both sides	Sqm	16	727.95	11,807.35
(iii)	Providing and Fixing glazing in aluminium door, window, ventilator shutters and partitions etc., with EPDM rubber/neoprene gasket etc., complete as per the Architectural drawings and the directions of Engineer-in-Charge.				
	With float glass panes of 5.50 mm thickness.	Sqm	16	688.70	11,104.60
1.6.19	Providing and fixing bright finished brass Tower bolts (barrel Type) ISI marked, with necessary screws etc. complete.				
(a)	250 mm x 10 mm	Each	166	229.85	38,155.10
(b)	150 mm x 10 mm	Each	166	147.25	24,443.50
1.6.20	Providing and fixing bright finished brass handles ISI marked, with necessary screws etc. complete.				
	125 mm	Each	166	139.35	23,132.10
1.6.21	Providing and fixing bright finished brass sliding door bolts ISI marked, with necessary nuts and screws etc. complete. 250 mm x 16 mm.	Each	166	359.30	59,643.80
	TOTAL OF SUB HEAD-6				31,320,395.45
	TOTAL OF GROUP C (SH6)				31,320,395.45

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.7	<u>SUB HEAD : 7 - STEEL WORK</u>				
	Note: The rates quoted for the item of works shall be for all floors, heights, places and shape.				
1.7.1	Supplying & Fixing Rolling shutters of approved make, made of required size, M.S. laths inter-locked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete including the cost of providing & fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS : 4454 - Part -1 MS Top Cover of required thickness for Rolling shutters. all complete (only rolling shutter area to be measured). 80 x 1.20 mm M.S. lathe with 1.20 mm thick Top Cover	Sqm	103	1467.10	151,111.30
1.7.2	Steel work welded in built up sections/framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel Red oxide Zinc chromate primer using structural steel etc. as required In gratings, frames, guard Bar, ladders, railings, brackets, gates and similar works etc.	Kg	12276	68.80	844,588.80
1.7.3	Providing and fixing 1 mm thick MS Sheet door with frame of 40 mm x 40 mm x 6mm angle iron and 3 mm MS gusset plates at the junction and corners, all necessary fittings complete, including applying a primary coat of approved steel primer. Using flats 30 mm x 6 mm for diagonal braces and central cross piece.	Sqm	277	2219.40	614,773.80
1.7.4	Providing and fixing a set of Letter Boxes having each box of size 350 mm x 250 mm x 120 mm manufactured from 1.25 mm M.S. sheet with shutters, with round smooth edges, having opening of 230 mm x 30 mm for Letters and Glass Pane of 4 mm thick fixed with MS Clamps and Piano Hinges and Hasp 50 mm x 2 mm including a coat of Red oxide Zinc chromate primer and Two coats of synthetic enamel paint of approved shade and make.	Each Letter Box	162	450.95	73,053.90
1.7.5	Supplying and fixing stainless Steel stair railings and railing for corridors, Vertical height of railing 900 mm from the centre of the step tread, 38 mm dia vertical Balusters, 50 mm dia top rail and 3 nos. 20 mm dia horizontal pipe running continuously fixed at regular interval with base plate, cover plate, necessary bolts including all accessories for installation complete. stainless steel will be 304 grade and Balustrade will be matt finish positioned 500 mm centre to centre distance. The job will be executed as per direction of Engineering-in-Charge and the design of railing will be as per sketch attached. (The measurement will be made in running metres of 50 mm dia pipe including 50 mm dia starter pipe as and where installed).	Rmt	379	2517.95	954,303.05
	TOTAL OF SUB HEAD - 7				2,637,830.85

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.8	<u>SUB HEAD : 8 - FLOORING</u>				
	Note: The rates quoted for the item of works shall be for all floors, heights, places and shape. The rates for providing Tiles shall also be applicable for skirting inclusive of cutting and grinding edges of the tiles complete.				
1.8.1	Providing and fixing 20 mm thick Pre cast, pre polished concrete tiles (Eurocom or equivalent) of approved manufacturer, design pattern and colour for risers and treads of stair case steps and for common area and passages inside all the residential blocks laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand), filling joints with white cement slurry mixed with pigment to match the shades of tiles and finished neatly as per manufacturers specifications.	Sqm	1238	955.60	1,183,032.80
1.8.2	Providing and Fixing 1st quality ceramic glazed wall tiles of size 300 mm x 450 mm x 5.5 mm minimum thickness conforming to IS : 15622 Group 'B' - III of approved make, in all colours and shades as approved by the Engineer-in-charge, In skirting and dados over 12 mm thick bed of cement mortar 1 : 3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	Sqm	11548	638.85	7,377,439.80
1.8.3	Providing and laying Anti Skid matt finish rectified ceramic floor tiles of size 300 mm x 300 mm x 7.5 mm minimum thickness or more, of 1st quality conforming to IS : 15622 Group 'B'-II, of approved make, in all colours, shades , except white, ivory, grey, fume red brown, laid on 20 mm thick cement mortar 1 : 4 (1 cement : 4 coarse sand), including pointing the joints with white cement and matching pigments etc., complete.	Sqm	1733	599.70	1,039,280.10
1.8.4	Providing and laying Ceramic Matt Finished rectified floor tile of size 300 mm x 300 mm x 7.5 mm minimum thickness conforming to IS 15622 Group 'B'- II of approved quality colour and shades in flooring laid on 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand), filling the joints with white cement slurry with pigments etc., complete to match the shades of the tiles and finished neatly as per direction of the Engineer-in-Charge.	Sqm	2913	599.70	1,746,926.10
1.8.5	Providing and laying vitrified floor tile 600 mm x 600 mm x 9.0 mm minimum thickness confirming to IS 15622 Group 'B' - i (a) of approved make in all colours and shades as approved by the Engineer-in-Charge, laid on average thickness of 20 mm cement mortar 1 : 4 (1 cement : 4 coarse sand), including filling of the joints with white cement slurry mixed with pigment of matching shade of tiles and finished neatly as per engineers instructions complete.	Sqm	11815	1073.50	12,683,402.50

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.8.6	Chequered precast cement concrete tiles 22 mm thick in footpath and courtyard, joined with neat cement slurry mixed with pigment to match the shade oh tiles, including rubbing and cleaning etc. complete on 20 mm (Average) thick bed of cement mortar 1:4 (1 cement : 4 coarse sand).				
(a)	Light shade pigment using white cement	Sqm	240	849.45	203,868.00
(b)	Dark shade pigment using ordinary cement. For car parking	Sqm	4114	531.40	2,186,179.60
1.8.7	Extra for laying 12 mm thick cement plaster 1:3 (1 cement : 3 fine sand) over flooring concrete duly finishing the surface neatly etc., with all lead and lift complete as directed by Engineer In charge.	Sqm	466	165.80	77,262.80
	TOTAL OF SUB HEAD - 8				26,497,391.70

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.9	<u>SUB HEAD : 9 - ROOFING AND WATER PROOFING WORKS</u>				
	Note: The rates quoted for the item of works shall be for all floors, heights, places and shape.				
1.9.1	Making khurras 45 cm X 45 cm with average minimum thickness of 5 cm cement concrete 1 : 2 : 4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1m x 1m x 400 micron, finished with 12 mm cement plaster 1 : 3 (1 cement : 3 coarse sand) and a coat of neat cement rounding the edges and making and finishing the outlet complete.	Nos.	70	128.05	8,963.50
1.9.2	Supplying, providing and laying integral acrylic based waterproofing treatment including the following treatment of wet sunken areas (after fixing all UPVC/PPR pipes, fittings and spout) by approved expert agency with 10 years guarantee on stamp paper, consisting of the following processes and procedures necessary for the completion of works.		70	102.65	7,185.50
a)	Providing and laying 12 mm thick layer of CM 1 : 4 (1 Cement : 4 coarse sand) mixed with water proofing compound of approved brand conforming to IS - 2645 - 1975 and IS - 9103 -1999 in proportion approved by Engineer and recommended by the manufacturer laid to required slope on the horizontal surface of sunken portion and treating similarly adjacent vertical surface wall, up to full height of sunken portion including rounding off junctions and providing 25 mm dia drainage stout to a gentle slope of 1 in 50 projecting about 75 mm out side external face of wall, while the inner face shall be to flushed with final				
b)	Providing and applying two coats of acrylic based water proofing coating using approved brand of water proofing compound conforming to IS - 2645 - 1975 (re-affirm 1999) and IS - 9103 - 1999 mixed in proportion specified by the manufacturer with cement or otherwise and applied in a manner prescribed by them to horizontal and vertical surface of sunken portion. The second coat shall be applied at least 4 hours of the application of the 1st coat and the thickness of each coat shall be minimum 1 mm. The water proofing compound being used shall be of approved brand.				
c)	Final coat P/L 12 mm thick layer of CM 1 : 4 (1 Cement : 4 Coarse sand) mixed with water proofing compound of approved brand conforming to IS - 2645 - 1975 and IS - 9103 - 1999 in proportion approved by the Engineer and recommended by the manufacturer laid to required slope on the horizontal surface portion of sunken portion including rounding off junctions. The water proofing compound being used shall be of approved brand.				

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
d)	Opening around UPVC/PPR and spout pipes shall be grouted in cement concrete mixed with water proofing compound as shown in drawing and junctions of all UPVC/PPR pipes shall be sealed with approved brand of sealant namely Acqua coat. S & F of M/s Pidilite as shown in the drawing.				
e)	The whole sunken area shall be flooded with water for a minimum period of two weeks for final test (Whole water proofing should be carried out by an expert agency)	Sqm	2743	671.85	1,842,884.55
1.9.3	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 operation:				
a-	Applying a slurry coat of neat cement using 2.75 kg/sqm of cement) admixed with water proofing compound conferring to IS : 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls up to 300 mm height including cleaning the surface before treatment.				
b-	Laying Brick bats with mortar using broken bricks/brick bat 25 mm to 115 mm size with 50% of cement mortar 1 : 5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by the Engineer-in-Charge over 20 mm thick layer of cement mortar mix 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by the Engineer-in-Charge over 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 Engineer-in-Charge to required slope and treating similarly the adjoining walls up to 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 joint less 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 300 mm x 300 mm square 3 mm deep .				
d-	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 order and as directed and specified by the Engineer-in-Charge.				
	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	Sqm	9400	778.10	7,314,140.00
	TOTAL OF SUB HEAD - 9				9,173,173.55

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.10	SUB HEAD : 10 - FINISHING				
	Note: The rates quoted for the item of works shall be for all floors, places and shape.				
1.10.1	12 mm cement plaster on plain sides of single or half brick wall including all type of uniform groove like around door/window frames as per approved pattern and size and above glazed tiles and beam/ column and brick wall junctions of approved pattern and size. Sand to be used of fineness modules 1.25 In 1 : 6 (1 cement : 6 fine sand)	Sqm	46151	114.10	5,265,829.10
1.10.2	15 mm cement plaster on the rough side of single or half brick wall of mix including all type of uniform groove like around door/window frames and above glazed tiles and beam/column and brick wall junctions of approved pattern and size. and to be used of fineness modulus 1.25.				
	1 : 6 (1 cement : 6 fine sand)	Sqm	25545	131.95	3,370,662.75
1.10.3	6 mm cement plaster to ceiling, RCC works of mix 1 : 3 (1 cement : 3 fine sand) with 6 mm X 12 mm thick groove between wall and beam/ceiling junctions including matching pergola on chajjas. 1 : 3 (1 Cement : 3 Fine sand)	Sqm	24453	102.85	2,514,991.05
1.10.4	Finishing walls with textured exterior paint of required shade :				
	New work (Two or more coats applied @ 3.28 Litre/10 Sqm) over and including priming coat of exterior primer applied @ 2.20 Kg/10 Sqm.	Sqm	13656	111.85	1,527,423.60
1.10.5	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers Specifications :				
a)	Painting wood work with Deluxe Multi Surface Paint of required shade. Two or more coat applied @ 0.90 Litre/10 sqm over an under coat of primer applied @ 0.75 Litre/10 Sqm of approved brand and manufacture.	Sqm	10674	67.35	718,893.90
b)	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 Litre/10 sqm over an under coat of primer applied @ 0.80 litre/10 sqm of approved brand and manufacture.	Sqm	3172	68.70	217,916.40
1.10.6	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade for two or more coats on new work applied @ 1.67 Litre. Per 10 Sqm over and including priming coat of primer applied @ 2.20 Kg Per 10 Sqm.	Sqm	48495	61.45	2,980,017.75
1.10.7	Distemping with dry distemper of approved brand and manufacture (Two or More coats) of required shade on new work, over and including water thinnable, priming coat to give an even shade.	Sqm	7842	52.35	410,528.70
1.10.8	Providing and applying 3 coats or more of white wash with lime on ceiling to give an even shade.	Sqm	24453	12.35	301,994.55
1.10.9	French spirit polishing of two or more coats on new works including a coat of wood filler.	Sqm	878	148.10	130,031.80

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.10.10	Providing and applying white cement based (Birla white & J.K. wall putty) putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	Sqm	48495	68.45	3,319,482.75
1.10.11	Finishing walls with acrylic smooth exterior paint of required shade: New work (Two or more coat applied @ 1.67 litre/10 sqm over and including priming coat of exterior primer applied @ 2.2 kg/10 sqm)	Sqm	21507	68.70	1,477,530.90
1.10.12	6 mm thick Cement plaster 1 : 3 (1 cement : 3 Fine sand) finished with a floating coat of neat cement to exposed surfaces of RCC works.	Sqm	28553	102.85	2,936,676.05
1.10.13	Providing and fixing 24 SWG Chicken wire mesh of size 12 mm fixed with nails with neat cement plaster at junctions of Brick work and Concrete work.	Sqm	1705	84.45	143,987.25
	TOTAL OF SUB HEAD - 10				25,315,966.55
	TOTAL OF GROUP D				25,315,966.55

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.11	<u>SUB HEAD : 11 - ROAD WORK</u>				
	Note: The quoted items rates to be for all places and shapes.				
1.11.1	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc., and re - rolling the sub grade and disposal of surplus earth with lead up to 50 meters.	Sqm	1098	62.05	68,130.90
1.11.2	Providing and laying water bound macadam soling sub-base with stone aggregate 90 mm to 45 mm size stone, screening of size 12.5 mm and binding material including screening, sorting, spreading, to template and consolidation with road roller 8 to 10 Tonnes capacity 150 mm thick.	Sqm	1098	260.35	285,864.30
1.11.3	Supply and laying water bound macadam base coarse with stone aggregate 63 mm to 45 mm size stone, screening of size 12.5 mm and watering with binding material including screening, sorting, spreading to template and consolidation with road roller 8 to 10 Tonnes capacity complete 100 mm thick.	Sqm	1098	260.35	285,864.30
1.11.4	Surface dressing in two coats with bitumen A-90/S-90 of approved quality using 1.8 kg of bitumen per Sqm with 1.5 Cum of stone chipping 13.2 mm nominal size per 100 Sqm. With 1 Cum of stone chipping 11.2 mm nominal size per 100 Sqm of road surface for 2nd coat including consolidation of each coat separately with paver roller of 6-8 tones capacity etc., complete.	Sqm	1098	198.65	218,117.70
1.11.5	2.5 cm Premix carpet surfacing with 2.25 Cum and 1.12 Cum of stone chipping of 13.2 mm and 11.2 mm size respectively per 100 Sqm and 52 Kg and 56 Kg of hot bitumen per Cum of stone chipping of 13.2 mm and 11.2 mm size respectively, including a tack coat with hot straight run bitumen, including consolidation with road roller of 6 to 9 Tonne capacity etc. complete, with paving asphalt grade VG-10 heated and then mixed with solvent at the rate of 70 Grams per Kg of asphalt.	Sqm	1098	161.55	177,381.90
1.11.6	Providing and laying 60 mm thick factory made cement concrete inter - locking paver block of M-30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-Charge.	Sqm	5335	459.80	2,453,033.00

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.11.7	Providing and laying at or near ground level factory made Kerb stone (450 mm x 450 mm x 150 mm) of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1 : 3 (1 cement : 3 coarse sand), including making joints with or without grooves (Thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening, wherever required complete etc., as per direction of Engineer-in-Charge. (Length of finished Kerb edging shall be measured for payment). (Pre-cast C.C. kerb stone shall be approved by Engineer-in-Charge).	Cum	8	4043.70	32,349.60
1.11.8	SITE LEVELLING AND FILLING Providing and consolidating approved quality Earth bought from outside for raising the existing Site level for as per the levels required the attain the formation of levels as indicated in the drawing and/as instructed by the Engineer In charge filling up to done in layer not more than 200 mm thick and well compacted after due to watering and rolling with road roller of 6-8 tonne capacity. The finished top surface shall be rammed on the top to create a uniform surface free from lumps or loose fill . Note 1: Compaction is required to be done till the 98% of soil density is attained. Note2: Compaction testing to be done at every 3rd layer and top layer as per I.S.I.	Cum	367	430.10	157,846.70
1.11.9	Earth work in excavation by mechanical means (Hydraulic excavator)/Manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m , including getting out the excavated soil and disposal of surplus excavated soil as directed within a lead of 50 m of all kinds of soil.	Cum	854	120.25	102,693.50
1.11.10	Supplying and filling in foundations with River sand under floors, including watering, ramming, consolidating and dressing complete.	Cum	49	695.00	34,055.00
1.11.11	Providing and Laying in position Cement Concrete 1 : 4 : 8 (1 Cement : 4 Coarse Sand : 8 Coarse Aggregate 40 mm nominal size) for drains and trenches.	Cum	62	3284.15	203,617.30
1.11.12	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m.	Cum	218	89.45	19,500.10
1.11.13	Reinforced Cement Concrete work 1 : 2 : 4 (1 Cement : 2 Coarse sand : 4 graded stone aggregate 20 mm nominal size) in base and walls of drains including the cost of centering and shuttering and finishing.	Cum	202	5246.45	1,059,782.90
1.11.14	Steel Reinforcement for R.C.C. work in drains/ trenches including straightening, cutting, bending, placing in position and binding with wire all complete. (For Labour Rate only) Note: Labour Rate for the Reinforcement laying including cost of binding wire etc. complete. Thermo-Mechanically Treated bars (TMT BARS shall be issued by IRWO free of cost)	Kg	20748		

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	Rate	Amount
1.11.15	Providing, hoisting and fixing at or near ground level factory made Pre cast reinforced cement concrete drain cover slabs in Cement Concrete M-20 grade over the drains inclusive of cost of reinforcement with binding wire as per direction of Engineer.	Cum	57	5928.80	337,941.60
	TOTAL OF SUB HEAD - 11				5,604,237.60
	TOTAL OF GROUP E (SH 5 +SH 7 + SH 8 +SH 9 + SH 11)				48,296,067.90
	GRAND TOTAL OF GROUP A+B+C+D+E				209,307,332.65

INDIAN RAILWAY WELFARE ORGANISATION
PROJECT : RAIL VIHAR, PHASE-II/B, CHENNAI

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
	SECTION : 2-INTERNAL SANITARY INSTALLATIONS,WATER SUPPLY & DRAINAGE				
	SUB HEAD : 2.1-SANITARY INSTALLATIONS				
	Note : The rates quoted for the items of works shall be for all floors,heights,places and shapes. Only Electric groove, hammer drilling and core cutting shall be allowed for cutting and drilling etc.				
2.1.1	Providing and fixing white vitreous china wash basin, with C.I brackets including painting of fittings and brackets,cutting and making good the wall wherever required. Size 550 mm x 400 mm.				
	including accessories :				
	32 mm dia C.P brass waste with C.P brass chain and rubber plug.				
	32 mm dia C.P brass Bottle trap with tail piece and wall flange.				
	One 15 mm dia C.P brass Angle valves with wall flange & necessary 15 mmPVC connection pipes 45 cm long,nuts etc. Complete.(C.P brass Angle valve with wall flange will be paid separately)	Each	496	2425.40	1,202,998.40
2.1.2	Providing and fixing Stainless Steel A ISI 304 (18/8) Kitchen Sink as per IS : 13983 with C.I brackets and stainless steel plug 40 mm and 40 mm Semi rigid PVC waste pipe of required coupling, including painting of fitting and brackets, cutting and making good the walls wherever required.				
	Kitchen Sink with drain board				
a)	510 mm x 1040 mm bowl depth 250 mm	Each	163	5289.85	862,245.55
2.1.3	Providing and fixing 600 mm x 450 mm Bevelled edge mirror of superior glass (of approved quality)complete with 6 mm thick hard board ground fixed to wooden cleats with C.P brass screws and washers complete.	Each	496	606.20	300,675.20

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
2.1.4	Providing and fixing of 600 mm x 20 mm C.P brass towel rail of approved quality complete with brackets fixed with C.P brass screws and washers with rawl plug.	Each	496	347.65	172,434.40
2.1.5	Providing and fixing white vitreous china pedestal type water closet (European type) with heavy duty PVC seat with lid with C.P. brass hinges and rubber buffers with 10 liters capacity low level engineering plastic dual flush cistern with 20mm overflow pipe with specials of standard make. 32mm flush pipe with fillings including clamps of approved make and mosquito proof coupling of approved municipal design, 15mm dia C.P. brass angle valve with wall flange & PVC connection pipe with nuts complete including painting wherever required & including cutting and making good the wall and floors wherever required including 2nos. extra angle supports grouted in wall for cistern, including painting of supports. (C.P brass Angle valve shall be paid separately)				
a)	W.C pan with ISI marked white solid plastic seat and lid	Each	487	2532.95	1,233,546.65
2.1.6	Providing and fixing for approved makes 70 mm dia C.P brass shower with C.P brass wall flange and extension pipe as required with swivel ball joint and arm.	Each	487	234.45	114,177.15
2.1.7	Providing and fixing for approved make 15 mm dia C.P brass kitchen sink swan type Swivel pillar taps with wall flange and extension pipe as required. Weight not less than 690 grams.	Each	163	1122.90	183,032.70
2.1.8	Providing and fixing of the approved makes 15 mm dia C.P brass two in one wall mixer with bend pipe and wall flange.	Each	487	1886.45	918,701.15
2.1.9	Providing and fixing Anti cockroach S.S grating 100 mm dia in toilet, kitchen etc.,	Each	1305	92.55	120,777.75
2.1.10	providing and fixing 15 mm dia C.P Brass Angle Valve with wall flange.	Each	1795	387.65	695,831.75
2.1.11	Providing and fixing white vitreous china water closet squatting pan (Orissa pattern W.C. of size 580 x 440 mm) with 100mm UPVC - WC connector and UPVC "P/S" trap, low level 10 litres PVC flushing engineering plastic dual flush cistern (of approved make) with ISI marked internal PVC fittings and 15 mm dia C.P. brass angle valve with wall flange & PVC flexible hose connection pipe with appropriate end caps etc. complete, 20mm overflow pipe with specials including cutting and making good the wall and floors wherever required. The Scope covers and includes all the necessary facilities and provisions required for the effective functioning and use of the installation. The rate for fixing only of the CP fittings and fixtures like angle valve etc.; shall be paid for separately as all necessary fittings.	Each	10	2587.10	25,871.00
	TOTAL OF SUB HEAD 2.1				5,830,291.70

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
	SUB HEAD :2.2- WATER SUPPLY				
	(The concealed piping lines, the lines running in ducts/ on walls and under ceiling, the lines running on terrace shall be considered under internal water supply works) All CPVC pipes which are the laid on roof/terrace or fixed on the external walls, exposed to Ultra violet rays of sun are to be given two coats of ready mixed paint (green colour) over a primer coat and is deemed to be included in the quoted rates.				
2.2.1	Supplying providing and fixing of CPVC (chlorinated poly vinyl chloride) pipes conforming to IS 15778 having thermal stability for hot and cold water supply including all CPVC plain & brass threaded fittings such as tees, elbows, checknuts, unions, bushes, flanges etc., including fixing the pipes with clamps at 1.00 Mt spacing (APPROVED BRAND) including threading, cutting and fixing in (concealed) / on walls under ceiling on terrace etc., The quoted rate shall be include jointing of pipes and fittings with CPVC solvent cement and testing of joints and also for making necessary chasing, making bores in foundations, walls slabs, etc., and making good the chased surfaces and bores in cement mortar. The work to be carried out as per direction of Engineer in charge.				
	INTERNAL WORKS				
a)	15mm NB (tap provision for kitchen & toilet)	Rmt	597	206.15	123,071.55
b)	20mm NB (toilet & kitchen main lines)	Rmt	3395	262.25	890,338.75
c)	25mm NB (outer vertical)	Rmt	413	176.60	72,935.80
d)	32mm NB (outer vertical)	Rmt	733	226.55	166,061.15
e)	40mm NB (From O.H. Tank)	Rmt	1373	311.45	427,620.85
2.2.2	Supply and fixing of C.P Brass stop cock as per IS:1703-1977 of approved brand of manufacture including companion flanges, unions, checknuts, bolts, nuts and rubber gasket etc. complete. (Toilets, kitchen)				
	20 mm dia (Screwed ends). (stop cock for toilet and kitchen)	Each	648	263.30	170,618.40
2.2.3	Supply and fixing of gun metal gate valve with with C.I wheel approved quality (screwed end) manufacture including unions, checknuts, bolts, nuts etc. Complete. (terrace)				
a)	32 mm dia (Screwed ends).	Each			
b)	40 mm dia (Screwed ends).	Each	124	447.00	55,428.00
2.2.4	Providing and fixing Brass Ball valve with of approved quality, high or low pressure, with plastic floats complete :				
	25 mm dia (Screwed ends)	Each	10	343.55	3,435.50
2.2.5	Providing & Fixing of approved make 15mm dia C.P. brass short body bib cock with C.P. brass wall flange and C.P. brass extension pipe if required.				

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
		Each	496	350.85	174,021.60
2.2.6	Providing & Fixing of approved make 15mm dia C.P. brass long body bib cock with C.P. brass wall flange and C.P. brass extension pipe, if required. (Utility) .				
		Each	324	466.25	151,065.00
2.2.7	Providing & Fixing of approved make 15mm dia C.P. brass PILLAR COCK with C.P. brass wall flange and C.P. brass extension pipe, if required. (Wash basin) .				
		Each	496	350.85	174,021.60
	TOTAL OF SUB HEAD 2.2				2,408,618.20
	SUB HEAD :2.3-DRAINAGE				
2.3.1	Supply, fixing and testing of rigid PVC pressure pipes (6 kg/sqm) conforming to IS: 4985 self fit type. The pipe shall be laid from wash basin to floor trap, kitchen sink to floor trap, with anti-siphonage and cross vent connections. The scope of supply includes all fittings, specials, strong solvent cement and all other items required to complete the installation. The scope of installation includes wall chasing, making holes in slab, walls, beams and making good the chased surfaces etc., complete as per specifications.				
a)	40mm OD SWR PVC	Rmt	816	169.80	138,556.80
b)	50mm OD SWR PVC	Rmt	1582	186.75	295,438.50

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
2.3.2	Providing and fixing UV stabilized/PVC pressure pipes (6 kg/sqm) conforming to IS: 13592-1992 Type-B with minimum thickness of 3.2 mm . soil, waste and vent pipe with one end plain and other end socket joining complete with rubber lubricant including fixing with clips as required and making good wall and flooring whenever necessary UV stabilized UPVC injection molded /fabricated coupler and assorted special such as tees, bends, Y-junction reducer etc. All UPVC assorted specials such as tees, bends, Y-junction shall confirm to ISO 3633-1991 with minimum thickness of 3.2mm.				
	The rate shall include cost of excavation and back filling in all kinds of soil, embedding the pipes laid under floor/ground/embedding in 1:4:8 cement concrete (1 cement : 4 coarse sand :8 20mm size blue metal) 50mm all-round, including costs of scaffolding as necessary, suitable MS Clamps for aligning the Pipes 50mm away from the plastered wall surface complete in all respects including cost of solvent cement & lubricant. (The External plumbing lines shall be fixed minimum 50 mm away from the wall with appropriate MS Clamps embedded to the wall surface.)				
a)	75 mm OD SWR PVC	Rmt	2109	312.60	659,273.40
b)	110 mm OD SWR PVC	Rmt	2277	421.20	959,072.40
2.3.3	Supply and laying (pre fabricated, ready made) PVC floor Trap / multi floor traps out of 110mm dia 6kg. Class PVC pipes with inlet and outlets from 40mm dia to Up to 90mm, including providing water seal, fixing to a perfect level, laying cement concrete in 1:3:6 mix using 20mm size coarse graded aggregate, providing 150 x 150mm, PVC symmetrical colour grating with frame all-round, at 4mm below finished floor level making holes in masonry or concrete cutting surfaces, conveying all dismantled materials and clearing the site, making leak proof joints and testing etc., complete and as directed specifications.				
		Nos	1311	393.75	516,206.25
2.3.4	Providing and fixing UPVC rain water down take pipes 4kgs/sq.cm and pipes for connecting between the collection chambers to the rain harvesting pits as shown in the drawing, conforming to IS-13592 (TYPE A). having minimum thickness of 1.8mm , with one end plain and the other end socketed and the jointing to be completed with rubber lubricant and fixed with pipe clamps at 1.6 m interval as required to secure pipes at 100mm or otherwise away from the wall surface.				
	110 mm OD	Rmt	1112	250.65	278,722.80

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
2.3.5	Providing and fixing PVC floor trap EXTENTION PIECE formed out of 110 mm pipe with multiple side inlets formed with branch saddle pieces, suitable for 40, 50 and 63 mm dia side connections as per standard detail.	Nos	468	161.70	75,675.60

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
	TOTAL OF SUB HEAD 2.3				2,922,945.75
	GRAND TOTAL OF GROUP F- SH-2.1,SH-2.2,SH-2.3				11,161,855.65
					1,23,41,245

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
SECTION : 3 EXTERNAL WATER SUPPLY AND DRAINAGE AND RAINWATER HARVESTING					
SCHEDULE OF DRAINAGE AND SEWERAGE WORKS					
S.NO	Description of Work	Unit	Total		AMOUNT
SUB HEAD 3.1 - WATERSUPPLY (EXTERNAL WORKS)					
	The rates quoted for the all the items hereunder shall include the earth work in excavation for trenches up to a maximum depth of 1.0 meters in all types of soil (width of trench shall be as shown in the detailed drawing) including soft rock and disintegrated rock for laying water supply pipes. The soil shall be deposited on banks (with all lead lift) including necessary wooden / steel form work wherever required and dressing of sides and ramming of bottoms and getting out the excavated soil, Then refilling the soil as required in layers not exceeding 20 cms in depth including consolidating each deposited layer by ramming with watering etc. and depositing of surplus excavated soil as directed within a lead of 50 mts.and as per the the direction of EIC. Including thrust block in CC 1:2:4 as per direction of Engineer.				
3.1.1	Construction of brick masonry valve chambers (600 x 600 mm and depth up to to 900 mm) for sluice /Ball valve with 230 mm thick best quality moulded bricks of class designation 50 in cement mortar 1:4 (1 cement : 4 coarse sand) over a bed of 150 mm thick pcc 1:4:8 internal walls plastered smooth in CM 1:3 (1 cement : 3 coarse sand) with pre cast RC COVER SLAB 1:2:4 (1 CEMENT :2 COARSE SAND : 4 GRADED STONE AGGREGATE) including curing back filling of the chamber sides with the excavated soil, disposing of the surplus earth after back filling with an initial lead of 50 meters as directed by EIC.	Each	####	6137.20	61,372.00
3.1.2	Supplying providing and laying of CPVC (chlorinated poly vinyl chloride) pipes conforming to IS 15778 (only approved brand) having thermal stability for hot and cold water supply including all CPVC plain & brass threaded fittings such as tees,elbows,checknuts,unions, bushes, flanges etc., including jointing of pipes and fittings with CPVC solvent cement or any other approved solvent including refilling and testing of joints Pipe line to the required pressure etc., complete as per direction of Engineer In Charge.				
a)	40 mm Nominal outer dia pipe	Rmt	430	267.60	115,068.00
b)	62.5mm Nominal inner dia pipe	Rmt	301	1116.60	336,096.60
3.1.3	Supply and fixing of gun metal gate valve with C.I wheel approved quality (screwed end) manufacture including unions,checknuts, bolts,nuts etc.,. Complete. (terrace)				
a)	40 mm dia (Screwed ends)	Each	10	447.05	4,470.50
b)	65 mm dia (Screwed ends).	Each	2	983.30	1,966.60
TOTAL OF SUB HEAD 3.1					518,973.70

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
	SUB HEAD 3.2 DRAINAGE, Sewerage (External works)				

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
	The rates quoted for the undermentioned works is inclusive of Excavating for construction of masonry CHAMBER of required width and depth for external underground pvc Sewerage pipes, hume pipes, water supply pipes,etc in all kinds of soil excluding soft rock and hard rock including excavation for sockets and dressing of sides, ramming of bottoms & getting out the excavated soil & then refilling the trench with soil as required in layers not exceeding 40cm in depth including consolidating each deposited layer by ramming, watering etc. including disposal of excess soil to all leads or as instructed by the site Engineer.				
3.2.1	Providing and laying non-pressure NP2 class (light duty) R.C.C pipes with collars jointed with stiff mixture mixture of cement mortar in the preparation of 1:2 (1 cement : 2 fine sand) including excavation, backfilling ,PCC, haunching and disposal of surplus earth, testing of joints etc. Complete. 300 mm dia (below ground level) RCC hume pipes under road crossing.				
	300 mm dia R.C.C pipe	Rmt	30	386.65	11,599.50
3.2.2	Construction of brick masonry inspection chambers / manholes of internal clear dimension as mentioned below by using conventional Country made bricks of class designation 50 in cement mortar joints in 1:4(1 cement : 4coarse sand), over Cement concrete 1:4:8 (1 cement :4 coarse sand : 8 stone aggregate) bed 150 mm thick including providing top cover slab of precast cover with frame (as per standard make or SRFC /southern concrete company) of required standard dimensions as to suit the openings, complete as per the standard design and as per drawing and specifications. The rate shall include necessary earthwork in excavation in all types of soil excluding soft and hard rock, back filling including ramming, consolidation with water disposing the excess earth within a lead of 50 mts. and disposal of unserviceable outside IRWO site.				
a)	Inside size of 450 x 450mm & depth not exceeding 600mm including providing and fixing 450 x 450mm medium duty SFRC man hole cover with frame.	Each	61	5809.05	354,352.05
b)	Inside size of 600 x 600mm & depth not exceeding 900mm including providing and fixing 600 x 600mm medium duty SFRC man hole cover with frame.	Each	50	7410.05	370,502.50
c)	Inside size of 600 x 600mm & depth not exceeding 1200 mm including providing and fixing 600 x 600mm SFRC man hole cover with frame. (Heavy duty)	Each	44	7643.70	336,322.80
d)	1200mm dia circular manhole with 560 mm dia RCC cover with frame heavy duty for depth above 1500.	Each	3	15802.80	47,408.40

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
3.2.3	Supplying, fixing and testing salt glazed stoneware gully trap of size 300mm x 300mm with rebated top square bodies 150mm x 150mm, CI grating 150mm dia outlet set in 75mm thick PCC 1:4:8 bed, 115mm thick masonry chamber in CM 1:4 internal, supply and fixing 300mm x 300mm size CI frame and cover, (weight of frame and cover not less than 3 kgs.) jointing to drain in CM 1:1, excavating, refilling and ramming etc., complete.	Each	130	1199.75	155,967.50
3.2.4	Supply and fixing UV stabilized/PVC pressure pipes (6 kg/sqm) conforming to IS: 13592 -1992 TYPE- B with minimum thickness 3.2 mm . soil, waste and vent pipe with one end plain and other end socket joining complete with rubber lubricant including fixing and making good flooring whenever necessary UV stabilized UPVC injection molded /fabricated coupler and assorted special such as tees, bends, reducer etc. All UPVC assorted specials such as tees, bends, Y-junction shall confirm to ISO 3633-1991 with minimum thickness of 3.2mm. Including haunching/covering only the joints with CC in 1:3:6. The rate shall include cost of excavation and back filling in all kinds of soil. All complete.				
a)	160 mm dia (below ground level)	Rmt	1055	726.00	765,930.00
b)	200 mm dia (below ground level)	Rmt	125	1202.20	150,275.00
	TOTAL OF SUB HEAD 3.2				2,192,357.75
	SUB HEAD : 3.3 -RAIN WATER HARVESTING TRENCH				
3.3.1	Earth work in excavation by mechanical means (hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth ,1.5 m width as well as 10 sqm m on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed for all kinds of soil.	Cum	3304	120.25	397,306.00
3.3.2	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m.	Cum	1164	85.85	99,929.40
3.3.3	Supplying and filling in plinth with sand (Zone - IV as per IS : 383) under floors, including watering, ramming, consolidating and dressing complete.	Cum	183	695.00	127,185.00
3.3.4	providing and laying in position cement concrete of specified grade including the cost of centring and shuttering. All works in 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	Cum	114	3284.15	374,393.10
3.3.5	Brick work with common burnt clay F.P.S. (Non Modular) bricks of class designation 5.00 / Fly Ash Bricks in foundation and plinth in cement mortar 1:6 (1 cement : 6 coarse sand).	Cum	767	3571.35	2,739,225.45

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
3.3.6	Supplying and filling coarse river sand in layers.	Cum	228	695.00	158,460.00
3.3.7	Supplying and filling coarse aggregate 40 mm of approved quality.	Cum	228	989.55	225,617.40
3.3.8	Supplying and filling pebbles of size 75 mm of approved quality	Cum	228	989.55	225,617.40
3.3.9	Providing, hoisting and fixing at or near ground level pre-cast reinforced cement concrete M15 drain cover slabs 1000 mmx 1200 mmx100 mm over the drain walls including pointing with cement mortar 1:3 (1 cement:3 fine sand) to give a smooth and even surfaces with all lead and lift etc. Complete as directed by the Engineer In charge.	Cum	123	5928.80	729,242.40
3.3.10	Steel Reinforcement for R.C.C. work in drains/ trenches including straightening, cutting, bending, placing in position and binding with wire all complete. (For Labour Rate only) Note: Labour Rate for the Reinforcement laying including cost of binding wire, etc., complete. Thermo-Mechanically Treated bars (TMT BARS shall be issued by IRWO free of cost)	Kg	9840	8.10	79,704.00
3.3.11	Providing and fixing UPVC rain water down take pipes 4kgs/sq.cm and pipes for connecting between the collection chambers to the rain harvesting pits as shown in the drawing, conforming to IS-13592 (TYPE A) having minimum thickness of 1.8mm , with one end plain and the other end socketed and the jointing to be completed with rubber lubricant and fixed with pipe clamps at 1.6 m interval as required to secure pipes at 100mm or otherwise away from the wall surface. 150 mm dia pipe	Rmt	507	250.65	127,079.55
	FILTER CHAMBER				
3.3.12	Construction of brick masonry inspection chambers / manholes of internal clear dimension as mentioned below by using conventional Country made bricks of class designation 50 in cement mortar joints in 1:4(1 cement : 4coarse sand), over Cement concrete 1:4:8 (1 cement :4 coarse sand : 8 stone aggregate) bed 150 mm thick including providing top cover slab of precast cover with frame (as per standard make or SRFC /southern concrete company) of required standard dimensions as to suit the openings, complete as per the standard design and as per drawing and specifications. The rate shall include necessary earthwork in excavation in all types of soil excluding soft and hard rock, back filling including ramming, consolidation with water disposing the excess earth within a lead of 50 mts. and disposal of unserviceable outside IRWO site.				
	Inside size of 450 x 450mm & depth not exceeding 600mm including providing 450 x 450mm SFRC man hole cover with frame.	Each	74	5821.65	430,802.10

Item No.	DESCRIPTION OF ITEM	UNIT	Qty.	RATE	Amount in Rs
3.3.13	Supply and filling filter media containing a coarse river sand, pebbles (40 mm and down) and charcoal of approved quality in the required proportion and filling the same in filter chamber to provide as filter bed for rain water with all lead lift etc.	Cum	10	5436.95	54,369.50
	TOTAL OF SUB HEAD 3.3				5,768,931.30
	TOTAL OF GROUP G - SH 3.1+ SH 3.2 + SH 3.3				8,480,262.75
	Grand total of SEC 1+SEC 2 + SEC 3				244,578,912.91

**INDIAN RAILWAY WELFARE ORGANISATION
PROJECT : RAIL VIHAR, CHENNAI PH: II-B
SECTION- 4 INTERNAL ELECTRICAL WORKS**

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
4.1	SUB HEAD :1 - POINT WIRING (LIGHTING)				
4.1.1	Point wiring for Ceiling light, Bracket light, mirror light, tube light Ceiling fan, Exhaust fan and 6A-5 pin socket with switch etc. inclusive of circuit wiring with 3 nos. 2.5 sqmm FR copper wire from sub-distribution board to switch board and 3 nos 1.5 sqmm FR copper wires for all the point wiring (one each for Phase, Neutral and Earth) in medium duty PVC concealed conduit of size 25 / 20 mm dia. as required, with supply, storage, handling, rehandling, recessed in wall, testing & commissioning along with all allied material such as bends, sockets, junction box, junction box cover of 3mm thick hylam sheet, connector, brass screws etc. All switch boxes, J.B, and fan boxes will have earth studs welded with boxes with nuts & washers as per drawings and specifications attached. All switches, sockets, regulators to be installed in 2 mm thick G.I. boxes suitable for modular switches for following category of points:				
a)	One light point controlled by individual 6A Modular switch.	Nos.	4292	427.60	1,835,259.20
b)	Ceiling fan point including recessed fan hook in hexagonal M.S.Box 2 mm thick ,steel rod 450 mm long 12 mm dia fitted in a grid plate and 3 mm thick hylam sheet covering the box , controlled by 6A Modular switch and 5 steps electronic 2 modular regulator with ON / OFF provision.	Nos.	1075	651.25	700,093.75
c)	Exhaust fan point : 6 A modular socket near window controlled by 6A Modular switch on the switch board	Nos.	646	427.60	276,229.60
d)	6A - 5 pin Modular switch & socket mounted on common switch board.	Nos.	2761	179.65	496,013.65
e)	6A - 5 pin Modular switch & socket mounted on separate switch board (stand alone).	Nos.	483	395.25	190,905.75
f)	Call-bell point controlled by 6 A Modular bell push button.	No.	161	427.60	68,843.60
g)	Light point controlled by two way 6 amp modular switch	No.	546	510.25	278,596.50
h)	6 A modular switch and 2 nos. 6 amps 5 pin modular socket on separate switch board (for TV)	No.	1113	547.95	609,868.35
i)	Chandelier point including recessed fan hook in hexagonal M.S.Box 2 mm thick ,steel rod 450 mm long 12 mm dia fitted in a grid plate and 3 mm thick hylam sheet covering the box , controlled by 6A Modular switch .	No	161	583.90	94,007.90

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
4.1.2	Wiring for Power Points with 16A - 6 pin, Modular switch & socket with 1.1 KV grade PVC insulated, FR, multi strand copper wires, in medium duty concealed PVC conduit of size 25 mm dia. with supply, storage, handling, rehandling, laying, recessed in wall ,testing & commissioning along with all allied material such as bends, sockets, junction box, junction box cover of 3mm thick hylam sheet , connector, brass screws etc.in 2 mm thick GI boxes, as per drawings and specifications attached for following :				
a)	Power point 16 Amps 6 Pin direct from DB with 3 Nos. wires each of size 4.0 sqmm one each for Phase, Neutral and Earth.	No.	821	1293.55	1,062,004.55
b)	Power point 16 A - 6 pin direct from DB or Looped from first Power Point with 3 Nos. wires each of size 2.5 sqmm one each for Phase, Neutral and Earth.	Nos.	492	808.45	397,757.40
4.1.3	Wiring for AC Points complete with sheet steel enclosure recessed in wall along with 25 amps 240 volts "C" curve DP MCB and 20 amp 6 pin socket near ventilator complete with connections, testing and commissioning etc. as required with 1.1 KV grade PVC insulated, FR, multi strand copper wires, in medium duty concealed PVC conduit of size 25 mm dia. with supply, storage, handling, rehandling, laying, recessed in wall, testing & commissioning along with all allied material such as bends, junction box, connector, brass screws etc. as per drawings and specifications attached for following :				
	Power point direct from DB with 3 Nos. wires each of size 4.0 sqmm one each for Phase, Neutral and Earth.	Nos.	744	1868.45	1,390,126.80
	TOTAL OF SUB - HEAD - 1				7,399,707.05
4.2	SUB HEAD : 2 - CONDUITS AND SUB MAINS				
4.2.1	Supply, Handling, Re handling, Storage and Laying of medium duty PVC Conduit recessed in wall, 25 mm dia. without Cable but with 18 SWG fish wire, concealed for TV points within unit, with supply of all required materials such as PVC conduits, junction boxes, brass screw, bends, connector, and providing 2 Modular type T.V Socket in 2 mm thick GI Box at each location, with cover plates etc.	RM	14725	98.80	1,454,830.00

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
4.2.2	Supply, Handling, Re handling, Storage and Laying of medium duty PVC Conduit recessed in wall, 25 mm dia. without wire but with 18 SWG fish wire concealed for Telephone points within dwelling unit, with supply of all allied materials such as PVC conduits, junction boxes, brass screw, bends, connector, 2 Nos. modular type telephone jacks in 2 mm thick GI Box at each location, with cover plates etc.	RM	7170	89.85	644,224.50
SUB MAINS					
4.2.3	Supply, Handling, Re-handling, Laying, Testing and Commissioning of 1.1 KV grade PVC insulated, FRLS, multi stranded copper wires 4 Runs. of size 6.0 sqmm (R, Y, B & N) along with 2 Runs of size 4 Sqmm (Earth), in separate heavy duty PVC conduit of size 32 mm dia. from D.U.) Meter Board to Gr. Floor Distribution Board and Ground to first floor DB.	RM	2965	269.50	799,067.50
4.2.4	Supply, Handling, Re-handling, Laying, Testing and Commissioning of 1.1 KV grade PVC insulated, FRLS, multi stranded copper wires 4 Runs. of size 10.0 sqmm (R, Y, B & N) along with 2 Runs of size 6 Sqmm (Earth), in separate heavy duty PVC conduit of size 40 mm dia. from D.U.) Meter Board to Gr. Floor Distribution Board	RM	3600	338.65	1,219,140.00
4.2.5	Supply, Handling, Re-handling, Laying, Testing and Commissioning of 1.1 KV grade PVC insulated, FRLS, multi stranded copper wires 2 x 6 sq mm +1x4 sq.mm earth wire in separate heavy duty PVC conduit of size 25 mm dia. from D.U .Gr. Floor Distribution Board to First Floor Distribution Board.	RM	705	152.70	107,653.50
4.2.6	Supply & Fixing of M.S.box of following sizes recessed in wall with suitable size of phenolic laminated sheet cover.				
a)	100 x 100 x100 mm (For Telephone)	Nos.	130	70.05	9,106.50
b)	150 x150 x100 mm (For T.V.)	Nos.	128	88.05	11,270.40
4.2.7	Supplying, laying, testing and commissioning of 1.1 KV grade PVC insulated FRLS multi stranded copper wire 2 nos of size 2.5 sqmm in separate heavy duty PVC conduit of size 25 /20 mm dia recessed in wall from DB to meter board (for DG back up).	RM	6565	125.75	825,548.75
4.2.8	Supplying, laying, testing and commissioning of 1.1 KV grade PVC insulated FRLS multi stranded copper wire 1 nos of size 2.5 sqmm in separate heavy duty PVC conduit recessed in wall of size 25 /20 mm dia from DB to nearest balcony (for invertor).	RM	4020	80.85	325,017.00
TOTAL OF SUB - HEAD - 2					5,395,858.15

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
4.3	SUB HEAD : 3 - DISTRIBUTION BOARDS				
4.3.1	Supply, installation, testing and commissioning of pre wired 8 Way SPN distribution boards with ELCB, MCBs as per details below. manufactured out of 18 SWG CRCA sheet, double door, complete with copper bus bars / shorting links, neutral link, Earth bridge .The item includes fixing of M.S. Box of size 450 mm (Length of DB) x 150 mm (height) x 100 mm (depth of DB) to accommodate loose wires, covered with 3 mm thick hylem sheet above the Distribution Board. (For COMMON AREA)	No	14	2155.95	30,183.30
	8 way SPN DB for LIFTS				
	I/C 32 amps DP MCB 10 KA(C) - 1 No..				
	I/c ELCB (Sensitivity 30 mA) - 1 No..				
	O/G - 6 A SP MCB10 KA (C) -2 Nos.				
	O/G - 16 A SP MCB10 KA (C)-1 Nos.				
	O/G - 25 A SP MCB10 KA (C) - 1 Nos.				
4.3.2	Supply, installation, testing and commissioning of pre wired 8 Way TPN distribution boards (8 +12 +24)with PPI (Per Phase Isolation) facility and with ELCBs, MCBs as per details below. manufactured out of 18 SWG CRCA sheet, double door, complete with copper bus bars / shorting links, neutral link, Earth bridge, I/C & O/G MCB's etc. The item also includes fixing of M.S. Box of size 450 mm (length of DB) x 150 mm (height) x 100 mm (depth of DB) to accomodate loose wires, covered with 3 mm thick hylem sheet above the Distribution Board.(for , Type - III &IV)	No.	107	10061.00	1,076,527.00
	I/C - 63 A 4P ISOLATOR				
	PPI - 40 A, DP ELCB (Sensitivity 30 mA) - 3 Nos.				
	PPI - 40 A, DP MCB (10 KA C -CURVE) - 3 Nos.				
	O/G - 6 A SP MCB 10 KA- 8 Nos.				
	O/G - 16 A SP MCB 10KA- 8 Nos.				
	O/G - 25 A SP MCB10 KA 6 Nos.				
	O/G - 32 A SP MCB10 KA 2 Nos.				
4.3.3	Supply, installation, testing and commissioning of pre wired 6 Way TPN distribution boards (8 +12 +18)with PPI (Per Phase Isolation) facility and with ELCBs, All MCBs C - Curve as per details below. manufactured out of 18 SWG CRCA sheet, double door, complete with copper bus bars / shorting links, neutral link, Earth bridge, I/C & O/G MCB's etc. The item also includes fixing of M.S. Box of size 450 mm (length of DB) x 150 mm (height) x 100 mm (depth of DB) to accomodate loose wires, covered with 3 mm thick hylem sheet above the Distribution Board. (For Type- II & Stilt lighting)	No	63	9198.65	579,514.95
	I/C - 40 A 4P ISOLATOR				

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	O/G - 32 A, DP MCB 10 KA- 3Nos.				

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	PPI - 25 A, DP ELCB (Sensitivity 30 mA) - 3 Nos.				
	O/G - 6 A SP MCB 10 KA- 6 Nos.				
	O/G - 16 A SP MCB 10KA- 8 Nos.				
	O/G - 25 A SP MCB10 KA 4 Nos.				
	TOTAL OF SUB - HEAD - 3				1,686,225.25
4.4	SUB HEAD : 4 - METER BOX				
4.4.1	Fabricating and erecting of wall & floor mounted meter board fabricated out of 14SWG CRCA sheet Cubical Compartment,BUS BAR chamber,MCB with 12 mm thick hylam sheet or slotted angle and should be big enough to accommodate three phase electronic meter ,internal link copper wire 10 Sq mm &both side earth studs etc as required. One TPN MCB in separate housing compartment for each flat with lockable door housed in transparent acrylic sheet shall be provided. The panel shall be mounted on brick wall with neat plastered constructed on the two ends of panel for a height 450 mm & width 230 mm from FFL .The design of the board shall be got approved by the contractor from TANGEDCO /State Electricity Authority.				
A	METER BOARD FOR TYPE -III & IV	No.	12	76355.95	916,271.40
a)	Incomer F.P MCCB - 250amps 35KA(ICU =ICS)				
b)	Copper Bus Bar -600 amp (TPN)				
c)	8 nos meter box with 63 amp FP MCB (C- CURVE) in separate box including inter connction.				
B	METER BOARD FOR TYPE -III A	No.	2	67372.90	134,745.80
a)	Incomer F.P MCCB - 250amps 35KA(ICU =ICS)				
b)	Copper Bus Bar -600 amp (TPN)				
c)	6 nos meter box with 63 amp FP MCB (C- CURVE) in separate box including inter connction.				
C	METER BOARD FOR TYPE -II	No.	9	62881.35	565,932.15
a)	Incomer F.P MCCB - 160amps 35KA(ICU=ICS)				
b)	Copper Bus Bar -400 amp (TPN)				
c)	6 nos meter box with 40 amp FP MCB (C- CURVE) in separate box including inter connction.				
4.4.2	Supplying and laying of medium duty PVC conduit with out cable but with fish wire concealed for sub main cable from pole to meter board, including supply of all required materials such as PVC conduits, junction boxes, bends etc. complete.				
a)	40 mm dia.	RM	30	76.35	2,290.50
b)	32 mm dia	RM	30	60.20	1,806.00
c)	25mm dia - for T.V & TELE IN Stair case from stilt to top floor (J.B TO J.B)	RM	1350	49.40	66,690.00
	TOTAL OF SUB - HEAD - 4				1,687,735.85

S. No.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
4.5	SUB HEAD : 5 - EARTHING				
4.5.1	Earthing with G.I earth plate 600 x 600 x 6 mm & 32 x5 mm G.I strip with 40 mm G.I pipe for earth electroded protction upto earth electroded to meter board and 20 mm G.I pipe for water arrengement with mesonery encloser, SFRC heavy duty cover and frame of suitable size ,salt and charcoal etc as per IS : 3043 .	No.	37	4042.35	149,566.95
4.5.1	Earthing with GI earth pipe 4.5 meter long and 40 mm dia.with masonry encloser, watering arrenget, SFRC cover and frame of suitable size, salt and charcoal etc. as per IS: 3043.	No.	2	2694.90	5,389.80
4.5.2	Supplying and laying GI tape 32x 5 mm from earth electrode directly in ground as required	RM	200	143.75	28,750.00
4.5.2	Supplying and laying GI tape 25 x 3 mm from earth electrode directly in ground as required	RM	40	98.80	3,952.00
	TOTAL OF SUB - HEAD - 5				187,658.75
4.6	SUB HEAD : 6 - LIGHT FIXTURES WITH LAMP, CEILING FAN, EXHAUST FAN				
	Supply, handling, re-handling, testing & commissionuing of following category of light fixtures, ceiling fans, exhaust fans (recessed / surface mounting in ceiling / wall)				
4.6.1	15 Watt LED surface mounted / ceiling light fixture with lamp, driver and all allied accessories (of make, as approved by IRWO)	No.	23	1796.60	41,321.80
4.6.2	9 Watt LED surface mounted / ceiling light fixture with lamp, driver and all allied accessories (of make, as approved by IRWO)	No.	71	1347.45	95,668.95
4.6.3	28 Watt LED surface mounted / ceiling light fixture with lamp, driver and all allied accessories (of make, as approved by IRWO)	No.	30	3593.20	107,796.00
4.6.4	Ceiling fan of size 1200 mm having fan rod of required length as per location, including all fixing accessories. Controlled by 6Amp modular type 5- steps electronic regu;lator with On- Off position (Of make, as approved by IRWO)	No.	18	2245.75	40,423.50
4.6.5	Exhaust fan of size 300 mm (900 RPM) including metallic louvers, 6 Amp Top Plug and all allied accessories. (Of make, as approved by IRWO)	No.	9	3144.05	28,296.45
4.6.6	Exhaust fan of size 450 mm (900 RPM) including metallic louvers, 6 Amp Top Plug and all allied accessories. (Of make, as approved by IRWO)	No.	12	4491.55	53,898.60
4.6.7	10 Watt LED Bulk head fitting with all allied accessories (of make as approved by IRWO)	No.	65	898.30	58,389.50
	TOTAL OF SUB - HEAD - 6				425,794.80
	TOTAL OF GROUP H				16,782,979.85

PROJECT :RAIL VIHAR CHENNI PH - II B

SECTION - 4 EXTERNAL ELECTRICAL WORKS (PART -2)

S.NO	DESCRIPTION OF WORKS	UNIT	QTY	RATE	AMOUNT
5.1	SUB HEAD :-1 - POWER CABLES				
	Supply ,erection ,testing &commissioning of XLPE insulated 1.1 kv grade Armoured conductor cables of following sizes. The cable have to be buried at a depth of not lesas then 600 mm at both road and parking area .All cables have to be laid in the drive way only and not along the road. However road crossings at required places (minimum) are allowed. PVC Conduit have to be provided for the entire length of the cable.As the cable are to be laid in the drive way, proper markings are to be provided in the near by wall using good quialty paints.				
5.1.1	3.5 C X 185 Sq mm AL armoured cable run in 4" PVC Pipe (metering panel incomer)	RM	900	1122.90	1,010,610.00
5.1.2	3.5 C X 150 Sq mm AL armoured cable run in 4" PVC Pipe (D.G to AMF to D.G Panel)	RM	50	696.20	34,810.00
5.1.3	4 C X 35 Sq mm AL armoured cable run in 2" PVC Pipe (D.G Panel to ATS)	RM	1650	314.40	518,760.00
5.1.4	4 C X 2.5 Sq mm Copper armoured cable run in 1.5" PVC Pipe (D.G power supply Sensing)	RM	110	462.65	50,891.50
5.1.5	6C X 2.5 Sq mm Copper armoured cable (D.G Control Cable)	RM	20	561.45	11,229.00
5.1.6	4 C X 6 Sq mm Copper armoured cable (pump 1 & 2 5 H.P ,Sewage Pump - 7.5 H.P)	RM	60	570.40	34,224.00
5.1.7	supply and Laying of 6 " RCC hume pipe at road crossining for pulling of power cable.	RM	110	853.40	93,874.00
5.2	Circuit Main /Sub Mains				
	Supply & Laying of FR Insulated Copper Flexible wire in 25 mm PVC Conduit along with all accessories clamped to wall/ ceiling/ partitions or concealed as per site conditions				
5.2.1	4 R 6 Sq mm & 2 R 4 Sq mm (Metering panel to lift)	RM	515	274.00	141,110.00
5.2.2	4 R 6 Sq mm & 2 R 2.5 Sq mm (Metering panel totype 2 A & 2 B DB)	RM	2450	265.00	649,250.00
5.2.3	4 R 10 Sq mm & 2 R 4 Sq mm (Metering panel to TYPE -3 A & 3 B DB) in 32 mm PVC Conduit till shaft and there after 2 runs 25 mm PVC Conduit till D.B .	RM	1950	390.75	761,962.50
5.2.4	4 R 16 Sq mm & 2 R 4 Sq mm (Metering panel to TYPE -4 A & 4 B DB) in 32 mm PVC Conduit till shaft and there after 2 runs 25 mm PVC Conduit till D.B .	RM	1650	525.50	867,075.00
	TOTAL OF SUB HEAD -1				4,173,796.00

S.NO	DESCRIPTION OF WORKS	UNIT	QTY	RATE	AMOUNT
5.3	SUB HEAD :2 - D.G SET				
5.3.1	Supply,erection, testing and commissioning of 125 KVA/100 KW Diesel Engine Generating Set complete with water cooled radiator, instrumentation, residential type silencer, alarm and accessories and sound proof acoustic enclosure along with maintenance free starting batteries as called for in specification suitable for driving D.G. Sets/alternator. The DG Set shall be completed with acoustical canopy installed on common base frame resting on dunlop anti vibration mountings of suitable rating complete as per specifications and comprising of the following microprocessor based engine protection & indications etc. as detailed below				
A	Engine Protection				
	i) Low lube oil Pressure				
	ii) High water temperature				
	iii) Battery Charging				
	iv) Engine overspeed				
	v) Engine Hour run totalizer				
B	Diesel engine (directly coupled) to run alternator of 125KVA / 100 KW capacity as per approved makes --1 No.				
C	Alternator of capacity 125KVA/100KW , 3phase 415 V as per approved makes-1 No.				
D	Casting of cement concrete foundation as per recommendations of OEM and erection of D.G.Set				
		NOS	1	808474.60	808,474.60
5.3.2	Supply erection testing & commissining of Generator AMF panel for the D.G Set as detailed against item no.1 above duly interlocked with Auto/ Manual test mode consisting of the items as per logic and specification (Schematic diagram enclosed) as detailed below				
		No.	1	179661.00	179,661.00
	Power Distribution Panel for both the AMF panels shall be as				
A	Contactors				
	2 Nos. 320 amps, 3 pole, heavy duty contactors with overload Relay & neutral contactor AC 3 A duty cycle backed up with DIN type HRC fuses and thermal operated relay for each panel or 320A 4 Pole heavy duty contactor with overload relay contactor with back up DIN Type HRC fuses as per specification Bus coupler and pole contactor of same size of main contactor of each of the AMF panels as per drawing				
B	Incoming				
	i) MCCB 320Amps 4 Pole 36 KA microprocessed based variable setting with ROH - 1 Nos.				
	ii) Bus -Bar				

S.NO	DESCRIPTION OF WORKS	UNIT	QTY	RATE	AMOUNT
	600 Amps 4 pole copper Bus Bar--1 Set				

S.NO	DESCRIPTION OF WORKS	UNIT	QTY	RATE	AMOUNT
C	Outgoings				
	i) 125Amps 4 Pole25KA MCCB with ROH- 1Nos				
	ii) 100Amps 4 Pole25KA MCCB with ROH- 11 Nos				
	All MCCBs shall be with spread terminal .Relay setting as required and Icu=Ics=100%				
D	AMF change over Logic as per drg. & specification				
	A Set of operating relays and timers for achieving automatic opration.				
	i) 2 sets of Voltage monitoring relays 3 Phase/4Wire				
	ii) 2 Nos multifunction meters to display V, A, F, PF & KW/KVA, KVAR with corresponding CTs.				
	iii)12 V 180 AH Laid acid low mantinace free Battery with Battery Charger as per Spedification, Trickle, Boost, ammeter, Volt - meter, Indicator lights etc. - 1nos.				
	iv) Electronic Hooter -2 nos				
	v) Annunciator Window at AMF panel- 2 Nos.				
	a) D.G.Set On				
	b)D.G Set fails to start.				
	c) Load on set				
	d) Load on main supply				
	e) spare- 2 nos.				
	TOTAL SUB HEAD 2				988,135.60
5.4	SUB HEAD : 3 - EARTHING ARRAGEMENTS AND SAFETY ITEMS				
5.4.1	Providing and erection of earthing station as required including providing 600 x 600 x 6 mm Copper Plate elctrode with salt and charcoal G.I. Pipe 65 mm dia enclosed Copper Strip 50 mm x 6mm upto plinth level of D.G. room, watering pipe with funnel,wiremesh and other accessreis as per specification.	Set	2	8983.05	17,966.10
5.4.2	Providing and erection earthing sets as required including provding 600 x 600 x 6 mm G.I. Plate electrode with salt and charcoal G.I. Pipe 65 mm dia enclosed G.I. Strip 50mm x 6mm up to plinth leve of D.G. room watering pipe with funnel, wiremesh and other acceessoreis as per specification.	Set	4	4671.20	18,684.80
5.4.3	Providing and fixing in position the following bare G.I./ Copper tapes on surface including providing all fixing accessories an effecting connections.				
	a) G.I. Tape 50mm x 6mm	RM	40	408.75	16,350.00
	b) G.I. Tape 32mm x 5mm	RM	30	282.95	8,488.50
	c) Copper Tape 32m x 5mm	RM	40	682.70	27,308.00

S.NO	DESCRIPTION OF WORKS	UNIT	QTY	RATE	AMOUNT
5.4.4	Providing & Fixing of suitable size of M.S.Pipe for exhaust system including lagging with rock wool insulation with aluminium cladding as per manufacturer recommendation	RM	15	898.30	13,474.50
5.4.5	Supply and laying of 50 mm dia G.I. Pipe with all accessories complete as required.	RM	50	359.30	17,965.00
5.4.6	Supply and fixing in position of 16 litres capacity fire buckets 5 nos duly filled with sand and fixed on an angle iron frame as per the local authorities.	Set	2	4042.35	8,084.70
5.4.7	Providing and fixing in position of portable fire extinguishers foam type 9 litres capacity as per IS.	Nos.	2	4940.70	9,881.40
5.4.8	Providing and fixing of the MS danger boards of 9" X 9" size as per the requirement of local Electrical Authorities.	Nos.	2	269.50	539.00
5.4.9	Providing and fixing of 1000 mm wide 15 mm thick rubber floor mat for the length of panel boards.	RM	4	1077.95	4,311.80
(A)	Shock treatment Chart	No.	2	898.30	1,796.60
(B)	First Aid Box	No.	2	1347.45	2,694.90
	TOTAL SUB HEAD 3				147,545.30
5.5.0	SUB HEAD : 4 - LIGHTENING Arrestor				
	Supply, Erection, Testing & Commissioning of lightning Arrestor capable of protecting up to 75 m radius. This unit has to be installed at a height of minimum 5 m from the surface the rate shall include the cost of all accessories and associated work (like down conductor, earth electrode, mounting structure, electromechanical counter, earth pit etc	No	1	191339.00	191,339.00
	TOTAL SUB HEAD 4				191,339.00
	TOTAL (FOR EXTERNAL ELE & D.G SET)				5,500,815.90

ABSTRACT CUM BID SHEET

S.No.	DESCRIPTION OF ITEMS	Amount	
	SECTION : 1 - CIVIL WORKS	[I]	
1	Group A		
	SUB HEAD :1 - EARTH WORK	5,157,582.10	
	SUB HEAD :2 - CONCRETE WORK	3,621,717.40	
	SUB HEAD :3 -REINFORCED CEMENT CONCRETE	62,755,826.35	
	Total of Group A	71,535,125.85	(A)
	Quote your rates in % below or above this		
	Total amount of group A after applying the % age quoted		
2	Group B		
	SUB HEAD : 4- BRICK WORK	32,839,776.90	
	Total of Group B	32,839,776.90	(B)
	Quote your rates in % below or above this		
	Total amount of group B after applying the % age quoted		
3	Group C		
	SUB HEAD : 6- WOOD AND PVC WORKS	31,320,395.45	
	Total of Group C	31,320,395.45	(C)
	Quote your rates in % below or above this		
	Total amount of group C after applying the % age quoted		
4	Group D		
	SUB HEAD : 10-FINISHING	25,315,966.55	
	Total of Group D	25,315,966.55	(D)
	Quote your rates in % below or above this		
	Total amount of group D after applying the % age quoted		
5	Group E		
	SUB HEAD :5- MARBLE & GRANITE WORK	4,383,434.20	
	SUB HEAD :7- STEEL WORK	2,637,830.85	
	SUB HEAD : 8- FLOORING	26,497,391.70	
	SUB HEAD :9- ROOFING AND WATER PROOFING WORKS	9,173,173.55	
	SUB HEAD :11- ROAD WORK	5,604,237.60	
	Total of Group E	48,296,067.90	(E)
	Quote your rates in % below or above this		
	Total amount of group E after applying the % age quoted		
6	SECTION :2- INTERNAL SANITARY INSTALLATIONS,WATER SUPPLY & DRAINAGE		
	Group F		
	SUB HEAD : 2.1 - SANITARY INSTALLATIONS	5,830,291.70	
	SUB HEAD : 2.2 - WATER SUPPLY	2,408,618.20	
	SUB HEAD : 2.3 - DRAINAGE	2,922,945.75	
	Total of Group F	11,161,855.65	(F)
	Quote your rates in % below or above this		
	Total amount of group F after applying the % age quoted		
7	SECTION : 3 - EXTERNAL WATER SUPPLY,DRAINAGE & RAIN WATER HARVESTING		
	Group G		
	SUB HEAD : 3.1 - EXTERNAL WATER SUPPLY	518,973.70	
	SUB HEAD : 3.2 - DRAINAGE	2,192,357.75	
	SUB HEAD : 3.3 - RAIN WATER HARVESTING	5,768,931.30	
	Total of GROUP G	8,480,262.75	(G)
	Quote your rates in % below or above this		
	Total amount of group G after applying the % age quoted		

S.No.	DESCRIPTION OF ITEMS	Amount	
8	SECTION :4 - INTERNAL AND EXTERNAL ELECTRICAL WORKS		
	Group H - INTERNAL ELECTRICAL WORKS		
	SUB HEAD : 1- POINT WIRING	7,399,707.05	
	SUB HEAD : 2- CONDUITS AND SUB MAINS	5,395,858.15	
	SUB HEAD : 3- DBs & MCBs	1,686,225.25	
	SUB HEAD : 4- METER BOX	1,687,735.85	
	SUB HEAD : 5- EARTHING	187,658.75	
	SUB HEAD : 6- LIGHT FIXTURES WITH LAMP,CEILING FAN,EXHAUXT FAN	425,794.80	
	TOTAL OF GROUP H	16,782,979.85	(H)
	Quote your rates in % below or above this		
	GROUP I - EXTERNAL ELECTRICAL WORKS		
	SUB HEAD : 1-POWER CABLES	4,173,796.00	
	SUB HEAD : 2- STANDBY SUPPLY (DG SET) with AMF Panel	988,135.60	
	SUB HEAD : 3- EARTHING ARRANGEMENT AND SAFETY ITEMS	147,545.30	
	SUB HEAD : 4- LIGHTENING ARRESTOR	191,339.00	
	TOTAL OF GROUP I	5,500,815.90	(I)
	Quote your rates in % below or above this		
	Grand total of A+B+C+D+E+F+G+H+I	251,233,246.80	
	Say	251,233,247.00	