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CALCULATION OFSEISMIC CO-EFFICIENT

Name of city	: Chennai
Type of Building	: Residential Building
Building Frame System	: Special RC-Moment resisting frame (SMRF)
Fundamental Natural Period (Ts)	: (0.075)h ^3/4 =0.681sec.
Soil conditions	: medium
Zone Factor (Refer Table:2) (Z)	: 0.16 (moderate)
Importance Factor (Refer Table:6) (I)	: 1
Response Reduction (Refer Table:7)	: 5.0
Average response acceleration Co-efficient (Sa/g)	: 2.35

EARTH QUAKE ANALYSIS:

Horizontal Seismic Co-efficient (Ah)	= (Z/2)(I / R)(Sa/g) = (0.16/2) (1/5.0) (2.35) = 0.038
Design value of Ah	= 0.038
Type of Foundation	: Pile foundation

1. GENERAL LOADING CONDITIONS:

(a) Imposed loads on Roof	- 1.50kN/m^2
(b) Imposed loads on Hall, Kitchen. & Bed, Residential	- 2.00kN/m^2
(d) Dead weight of R.C.C	- 25kN/m^3
(e) Dead weight of Brick Work	- 20kN/m^3

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2.LOADING ON SLABS:

2.1 Loading on Roof slab:

Roof finished with lime concrete terracing	=(0.10)(20)	=2.000kN/m^2
S/W of slab 125mm thick	=(.125)(25)	=3.125kN/m^2
Dead load	=5.125kN/m^2	
Live load	=1.50kN/m^2	
Total load on Roof	= 6.625kN/m^2	

2.2 Loading on Floor slabs:

Floor finish	= 1.00kN/m^2
S/w of slab 125mm thick	= 3.125kN/m^2
Dead load	=4.125kN/m^2
Live load	=2.00kN/m^2
Total load on Roof	= 6.125kN/m^2

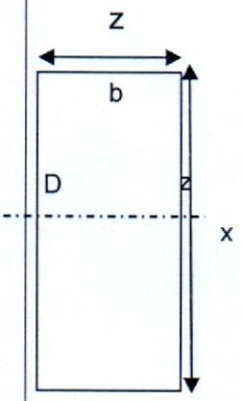
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3DESIGN:

3.1 COLUMN DESIGN

Grade of Concrete			M 30	
Characteristic Strength of Reinf.		N/mm^2	500	
Width of Column	b	mm	300	
Depth of Column	D	mm	600	
Unsupported Length of Column	l_x	mm	3000	
Unsupported Length of Column	l_y	mm	3000	
Clear Cover to Reinf.		mm	40	
Diameter of Bar		mm	20	
Load		T		
Moment	M_{xx}	T.m		
Moment	M_{zz}	T.m		
Factored Load	P_u	kN	1175.000	1
Factored Moment	M_{ux}	kN.m	101.000	1
Factored Moment	M_{uz}	kN.m	17.000	1
Effective Length of Column	l_{ex}	mm	3600	1.2
	l_{ez}	mm	3600	1.2
	l_{ex}/D		6.7924528	0
			<12- Short Column	
	l_{ey}/b		12	0
			<12- Short Column	
Additional Moment due to Slender	M_{ax}	kN.m	0	
Additional Moment due to Slender	M_{az}	kN.m	0	
Percentage of Reinf.	p	%	2.2	
Gross Area of Cross Section	A_g	mm^2	159000	
Ultimate Axial Load	P_{uz}	kN	3411.027	



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d'/D (about x-x axis)			0.095	0.1	
d'/D (about y-y axis)			0.167	0.2	
(Table 60)	k1		0.207		
	k2		0.328		
	P_{bx}	kN	1102.124		
	k1		0.184		
	k2		0.028		
	P_{bz}	kN	887.474		
	k_x		0.665		
	k_y		0.609		
Minimum Eccentricity	e_x	mm	23.666667		
	e_y	mm	16		
Moments due to min. eccentricity	M_{ex}	kN.m	44.38	< 101.000	kN.m
Moments due to min. eccentricity	M_{ez}	kN.m	30.00	> 17.000	kN.m
Total Moments for which the column is to be designed are					
	M_{ux}	kN.m	101.000		
	M_{uz}	kN.m	30.000		
The section is to be checked for biaxial bending					
	$P_u/f_{ck}bD$		0.393		
	p/f_{ck}		0.0733333		
Referring (d'/D is0.1)	$M_u/f_{ck}bD^2$		0.06		
	M_{ux1}	kN.m	151.686		
Referring to (d'/D = 0.2)	$M_u/f_{ck}bD^2$		0.045		
	M_{uy1}	kN.m	64.395		
	M_{ux}/M_{ux1}		0.666		
	M_{uy}/M_{uy1}		0.466		
	P_u/P_{uz}		0.550		
		a	1	1.5833 < 1	
Mux/Mux1 + Muy/Muy1			0.824	OK	

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Area of Reinforcement	As	mm^2	3498	
Minimum noof to be provided			6	
No of Bars to be provided	Nos.		12	
Provide 12 Nos of 20 Diameter				

3.2 FOUNDATION DESIGN

3.2.1 PILE CAP DESIGN

SLAB

Bending moment (Mu)		Req.depth (D)	Total depth (D)	Bar dia.	Clear cover	Effect. depth (d)
(kN-m/m)		(mm)	(mm)	(mm)	(mm)	(mm)
Mx (+) =	547.00	675.15	850	20	50	770
Mx (-) =	621.00	719.37	850	20	50	770
My (+) =	11.00	95.74	850	20	50	750
My (-) =	398.00	575.91	850	20	50	750

Width (b)	Mu/bd^2	$p_t$required	Ast required	S required	S provided	p_t provided	Remarks
(mm)		(%)	(mm^2/m)	mm c/c	mm c/c	(%)	
1000	0.923	0.219	1686.30	186	150	0.272	20Y @ 150 c/c
1000	1.047	0.249	1917.30	164	150	0.272	20Y @ 150 c/c
1000	0.020	0.170	1275.00	246	150	0.279	20Y @ 150 c/c
1000	0.708	0.170	1275.00	246	150	0.279	20Y @ 150 c/c

Check for Shear stresses :

Shear stress (τ_v)		p_t provided	τ_c table 19, IS:456	Remarks
(N/mm^2)		(%)	(N/mm^2)	
SQx =	0.04	0.272	0.390	safe
SQy =	0.01	0.279	0.394	safe

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3.3 BEAM DESIGN

Beam Design

Beam Data

width	230 mm
depth	600 mm
clear cover to main reinf.	30 mm
Slab Thickness	125 mm

d'	48 mm	.= cc+ sdia + mdia/2
eff depth	552 mm	.= d - d'

Material Grades

Concrete	30 MPa
Steel	500 MPa

				Span Moment	Support Moment
Span Moment	156 KN-m		Mu/bd^2	2.23	2.64
			xumax	252	252
			Mulim	280	280
Support Moment	185 KN-m	185 KN-m	$Mulim/bd^2$	3.99	3.99
		0 KN-m			

Span Reinforcement

Beam is designed as Singly Reinforced Beam

Area of Steel	Tension (Ast)	Compr (Asc)
Percentage	0.565 %	-------
Area of Steel	718 sqmm	

Refer Table 2 SP 16 pg 48

341 KN-m

Tension Reinforcement

Type	Bar dia	Nos	Area of Steel
Layer 1	20 mm	2	628 sqmm
Layer 2	20 mm	4	1257 sqmm
Layer 3	-		
	Total Steel Provided		1885 sqmm

1800 sqmm

1.485 %

Provided Steel OK

Compression Reinforcement

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Type	Bar dia	Nos	Area of Steel
Layer 1	-		
Layer 2	-		
Layer 3			
Total Steel Provided			#VALUE!

Support Reinforcement

Beam is designed as Singly Reinforced Beam

Area of Steel	Tension (Ast)	Compr (Asc)	
Percentage	0.686 %	-------	*Refer Table 2 SP 16 pg 48*
Area of Steel	870 sqmm		

3.80450433592809
-
1.75458953676033
0
-
0.12033881877989
5

Tension Reinforcement

Type	Bar dia	Nos	Area of Steel
Layer 1	25 mm	3	1473 sqmm
Layer 2	25 mm	3	1473 sqmm
Layer 3	-		
Total Steel Provided			2945 sqmm
Provided Steel OK			2.320 %

1590 sqmm
1231 sqmm

2272 sqmm

Compression Reinforcement

Type	Bar dia	Nos	Area of Steel
Layer 1	-		
Layer 2	-		
Layer 3			
Total Steel Provided			#VALUE!

Shear Force (Vu)	**90 KN**	
ζv	0.709	*.=Vu / (b * d)*
ζc	0.760	*Refer Table 61 SP 16 pg 179* *or =(0.85*√(0.8*fck)*√(1+5β)-1)) /*

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(6β)

ζcmax	3.5	*Refer Table J SP 16 pg 175*

Type	Bar Dia	Nos	Area of Steel
Layer 1	12 mm	0	0 sqmm
Layer 2	25 mm	0	0 sqmm
Layer 3	20 mm	0	0 sqmm
			0 sqmm

0.000 %

Sectional Dimensions OK
Shear Check OK

Provide Nominal Shear Reinforcement

Steel	**415 MPa**	Vus/d	-0.117 kN/cm	1.458
Type of stirrup	**2 legged**			
Stirrup diameter	**8 mm**			
Spacing	300 c/c	Safe		

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3.4 TWO WAY SLAB DESIGN

Slab Design

Slab thickness	t	125 mm
Concrete	fck	30 MPa
Steel	fy	500 MPa

Sunken Depth: 0 mm

Loading

Slab Load

Dead Load	DL	3.125 KN/m
Live Load	LL	2.000 KN/m
Finishes Load	WL	1.000 KN/m
Total Load	Ws	6.125 KN/m
Factored Load	Wsu	9 KN/m

Sunken Slab Load

Dead Load	DL	3.125 KN/m
Filler Load	FL	0 KN/m
Live Load	LL	3.0 KN/m
Finishes Load	WL	1.0 KN/m
Total Load	Wsk	7.13 KN/m
Factored Load	Wsku	11 KN/m

Slab Data

Slab Type	Regular
Load	9 KN/m
Longer Span (ly)	5.50 m
Shorter Span (lx)	3.40 m

ly/lx ratio	1.62
Slab type	+

Loading on edges		one way	two way
W_{longer}	**14 KN/m**	.=w*lx/2	.=(w*lx/2) + (1-(1/3)*(lx/ly)^2)
$W_{shorter}$	**10 KN/m**		.=w*lx/3

Moments		one way	two way
Mx	9 KN-m	.=w*lx^2/ 8	.=αx * w*lx^2

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My	6 KN-m	.=αy * $w*lx^2$

Thickness Check	OK	.=Mulim > Mux or Muy
Deflection	25 mm	.= $5*W*l^4/(384EI)$

Area of Steel	Astx	Asty	
	214 sqmm	**133 sqmm**	*Refer Chart 4 SP 16 pg 21* / *Refer Table 5-44 SP 16 pg 51-80*

or

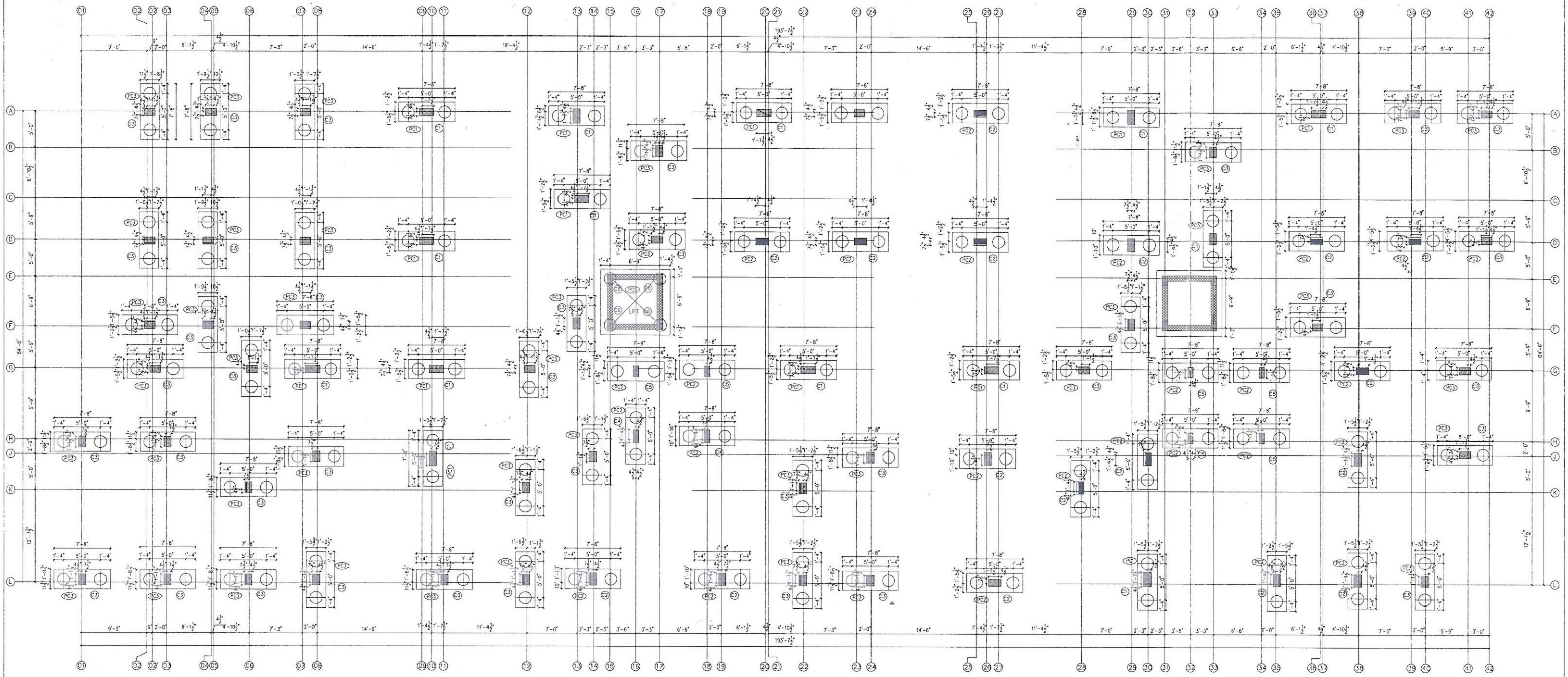
Spacing required in mm

8#		10#		12#		16#	
x	y	x	y	x	y	x	x
235 c/c	**378 c/c**	**367 c/c**	**590 c/c**	**528 c/c**	**850 c/c**	**938 c/c**	**1511 c/c**

*.=ast of bar*1000/ast req*

Final Ast provided	x	y
	10# @ 125c/c	**10# @ 125c/c**

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FOUNDATION LAYOUT FOR BLOCK-A

NOTES:

1. ALL DIMENSIONS SHALL BE CHECKED & VERIFIED BEFORE EXECUTION OF WORK.
2. COLUMNS ARE SHOWN THUS ——▭
   PILES ARE SHOWN THUS ——○
3. CONCRETE FOR PILES : M30 MINIMUM WITH CEMENT CONTENT 350KG/CUM OF CONCRETE :SLUMP MINIMUM-4" MAX-7".
4. CLEAR COVER FOR COLUMNS -1½" PLINTH BEAM -1" PILE -3",COLUMN-1½" PILE CAP-3",RC WALL-1"
5. CONCRETE MIX FOR :-
   MINIMUM CEMENT CONTENT FOR PILES-360KG/M3. PILE CAP,COLUMNS AND BEAMS
6. USE CLEAN WATER FREE FROM ACIDS AND OTHER IMPURITIES
7. PILE SHOULD NOT DEVIATE MORE THAN 3" (DIA OF PILE) WHICHEVER IS MOREIN THE CASE OF SINGLE PILE IN A COLUMN POSITIONAL TOLERANCE SHOULD NOT BE MORE THAN 2"
8. ANY DEVIATION FROM THE DESIGNED LOCATION OR ALIGNMENT LOAD CAPACITY OF ANY PILE SHALL BE NOTED AND ADEQUATE LOAD CAPACITY OF ANY PILE SHALL BE NOTED AND ADEQUATE MEASURES SHALL BE TAKEN BEFORE CONCRETING OF PILE CAP.
9. USE PLASTICIZER IN RECOMMENDED PROPORTIONS
10. PILES ARE DESIGNED FOR LOADS FROM STLT'S/SLEDURS
11. PILE SHOULD PROJECT 3" INTO THE PILE CAP CONCRETE.
12. USE 18 GAUGE BINDING WIRE FOR BINDING TIES IN % VERTICAL BARS BINDING SHALL BE PERFECT

NO.	AMENDMENTS	BY	DATE

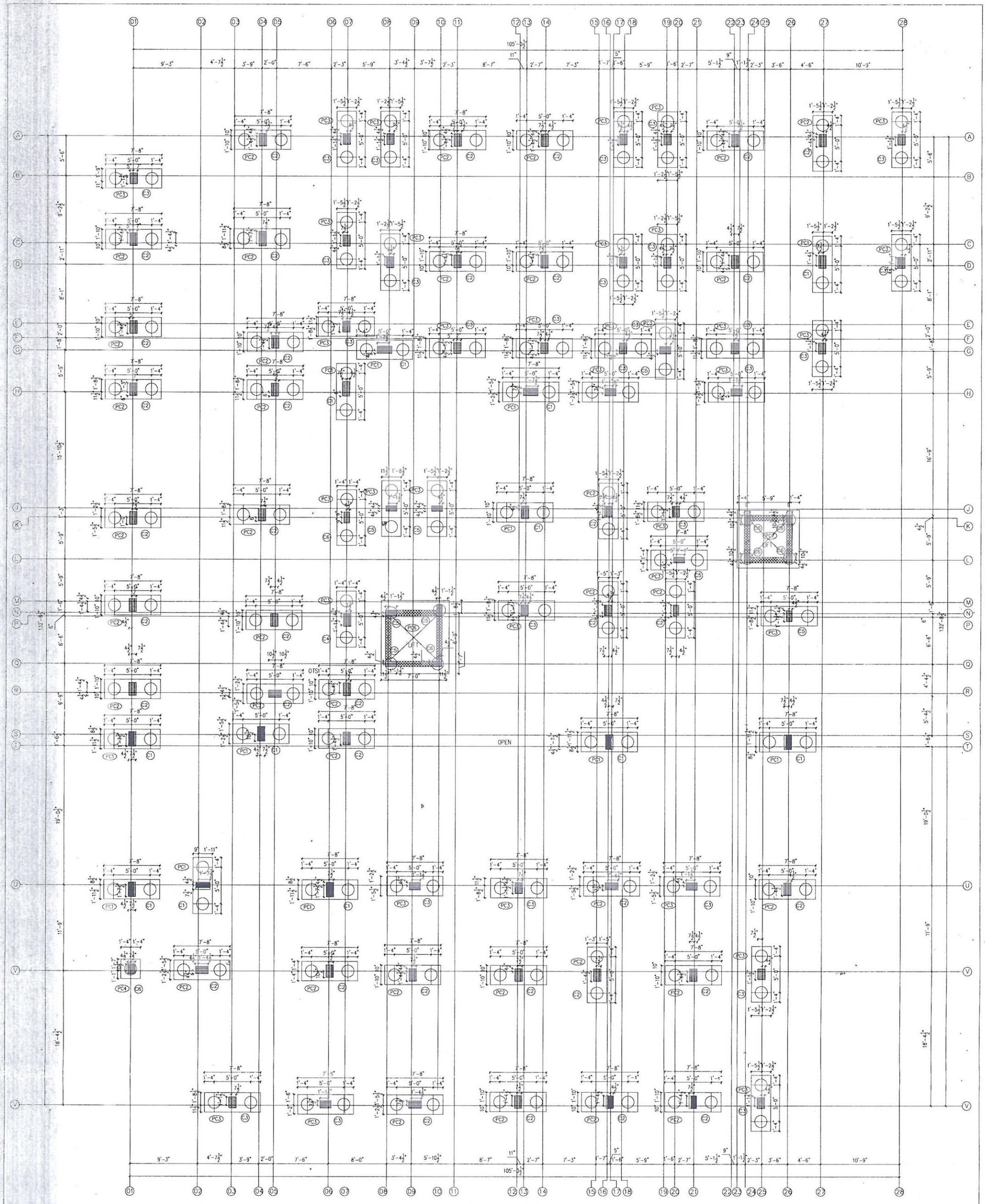
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JOB NO	001	DRAWN BY	–
DRG NO	S1	DATE	

DRAWING TITLE:
PILE FOUNDATION LAYOUT – (BLOCK-A)

PROJECT TITLE :
SITE PLAN SHOWING THE PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE, THIRUPORUR TALUK, CHENGALPATTU DISTRICT. PROPOSED – CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO. 40/2B & 54/2 AT MUTTUKADU VILLAGE, THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

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FOUNDATION LAYOUT FOR BLOCK-B

NOTES:

1. ALL DIMENSIONS SHALL BE CHECKED & VERIFIED BEFORE EXCUTION OF WORK.
2. COLUMNS ARE SHOWN THUS ——▭
   PILES ARE SHOWN THUS ——○
3. CONCRETE FOR PILES : M30 MINIMUM WITH CEMENT CONTENT 360KG/CUM OF CONCRETE : SLUMP MINIMUM-4" MAX-7"
4. CLEAR COVER FOR COLUMNS -1¼" PLINTH BEAM -1" ,PILE -2",COLUMN-1½" PILE CAP-3",RC WALL-1",
5. CONCRETE MIX FOR :-
   MINIMUM CEMENT CONTENT FOR PILE-360KG/M3
   PILE CAP,COLUMS AND BEAMS
6. USE CLEAN WATER FREE FROM ACIDS AND OTHER IMPURITIES
7. PILE SHOULD NOT DEVIATE MORE THAN 3" (DIA OF PILE) WHICHEVER IS MORE.IN THE CASE OF SINGLE PILE IN A COLUMN POSITIONAL TOLERANCE SHOULD NOT BE MORE THAN 2"
8. ANY DEVIATION FROM THE DESIGNED LOCATION OR ALIGNMENT LOAD CAPACITY OF ANY PILE SHALL BE NOTED AND ADEQUATE LOAD CAPACITY OF ANY PILE SHALL BE NOTED AND ADEQUATE MEASURES SHALL BE TAKEN BEFORE CONCRETING OF PILE CAP.
9. USE PLASTISIZER IN RECOMMENDED PROPORTIONS.
10. PILES ARE DESIGNED FOR LOADS FROM STILT+5FLOORS
11. PILE SHOULD PROJECT 3" INTO THE PILE CAP CONCRETE.
12. USE 18 GAUGE BINDING WIRE FOR BINDING TIES WITH VERTICAL BARS BINDING SHALL BE PERFECT.

NO.	AMENDMENTS	BY	DATE

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DRAWING TITLE:
PILE FOUNDATION LAYOUT. (BLOCK-B)

PROJECT TITLE :

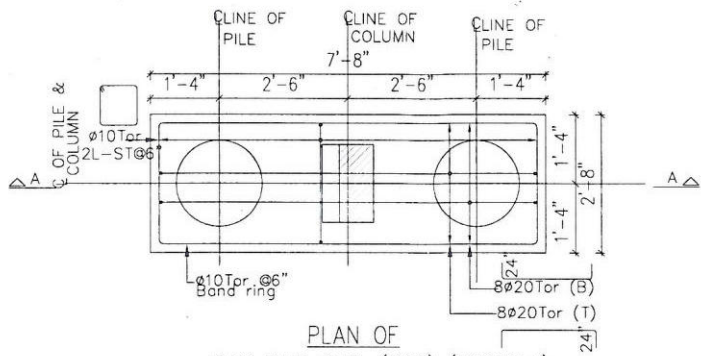
SITE PLAN SHOWING THE PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT. PROPOSED ~ CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

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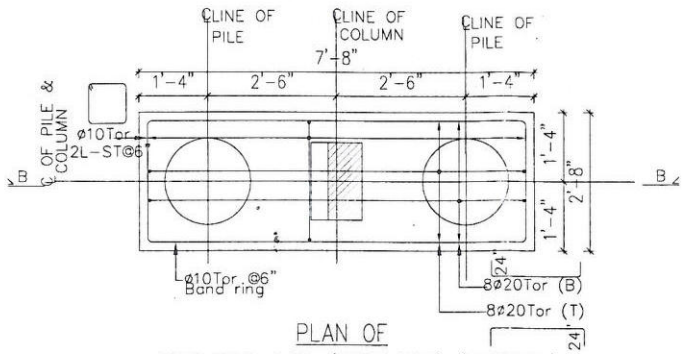
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SCHEDULE OF COLUMNS (MIX: 30)

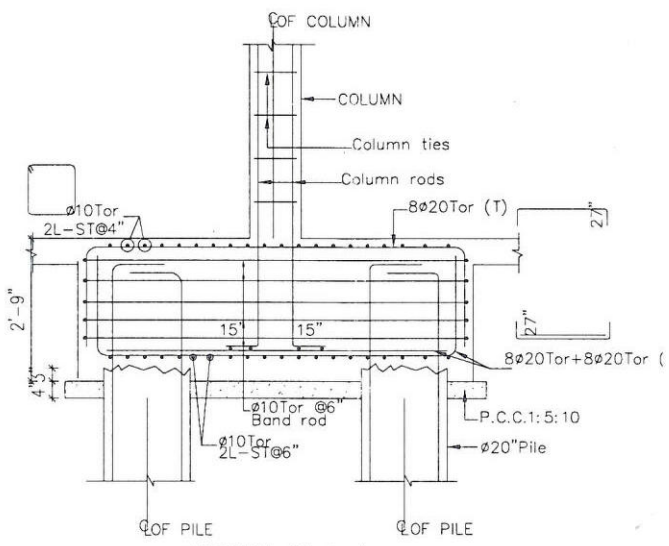
TYPE	GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR	FIFTH FLOOR	STIRRUPS
C1	12-ø20 (24" × 12")	8-ø20+4-ø16 (24" × 8")	8-ø20+4-ø16 (24" × 8")	12-ø16 (24" × 8")	12-ø16 (24" × 8")	12-ø16 (24" × 8")	ø8Tor
C2	10-ø20 (21" × 12")	10-ø20 (21" × 8")	8-ø20+2-ø16 (21" × 8")	10-ø16 (21" × 8")	10-ø16 (21" × 8")	10-ø16 (21" × 8")	ø8Tor
C3	8-ø20+2-ø16 (18" × 12")	8-ø20+2-ø16 (18")	10-ø16 (18")	10-ø16 (18")	10-ø16 (18")	10-ø16 (18")	ø8Tor
C4	10-ø20 (21" × 8")	8-ø20+2-ø16 (21" × 8")	10-ø16 (21" × 8")	10-ø16 (21" × 8")	10-ø16 (21" × 8")	10-ø16 (21" × 8")	ø8Tor
C5	8-ø20+2-ø16 (18")	10-ø16 (18")	10-ø16 (18")	10-ø16 (18")	10-ø16 (18")	10-ø16 (18")	ø8Tor
C6	4-ø16+2-ø12 (15" × 8")	4-ø16+2-ø12 (15" × 8")	4-ø16+2-ø12 (15" × 8")	4-ø16+2-ø12 (15" × 8")	4-ø16+2-ø12 (15" × 8")	4-ø16+2-ø12 (15" × 8")	ø8Tor



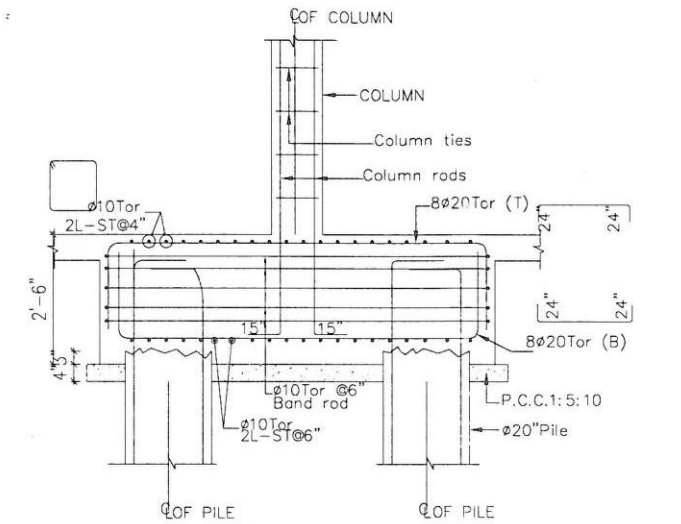
PLAN OF
TWO PILE CAP-(PC1) (TYPICAL)



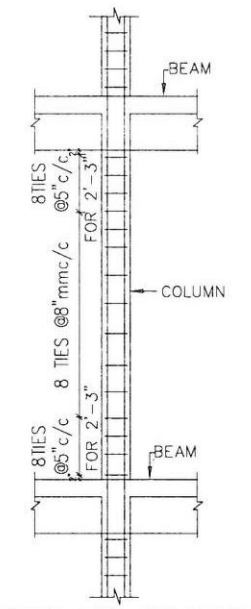
PLAN OF
TWO PILE CAP-(PC2&PC3) (TYPICAL)



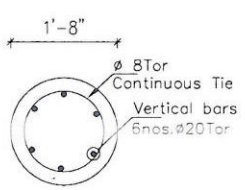
SECTION AT A-A



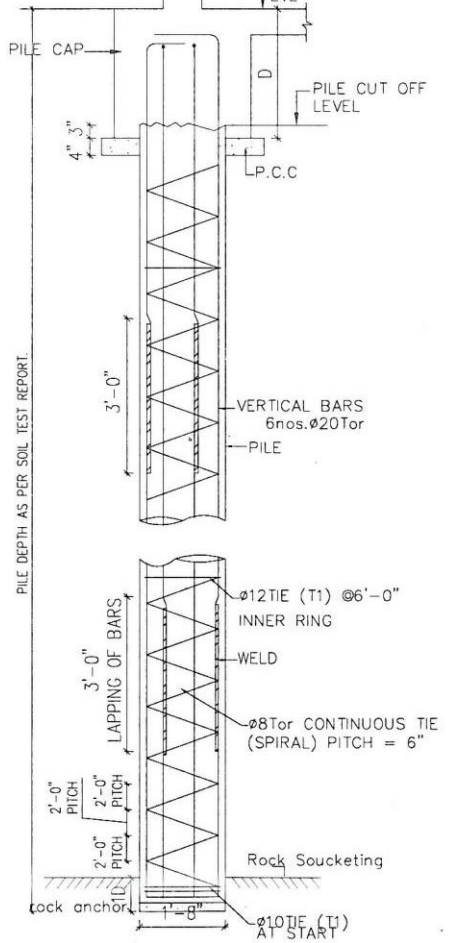
SECTION AT B-B



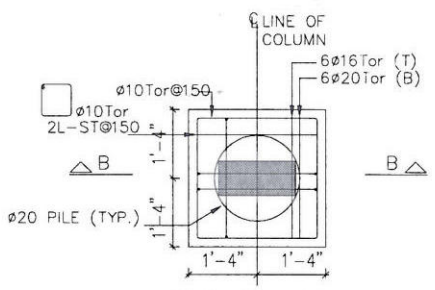
TYPICAL TIES ARRANGEMENT
IN COLUMN



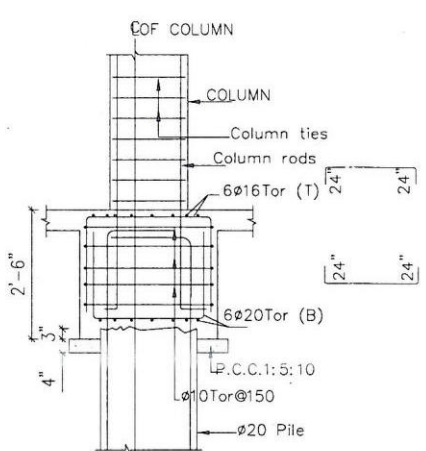
C.S. OF PILE - PC1&PC2



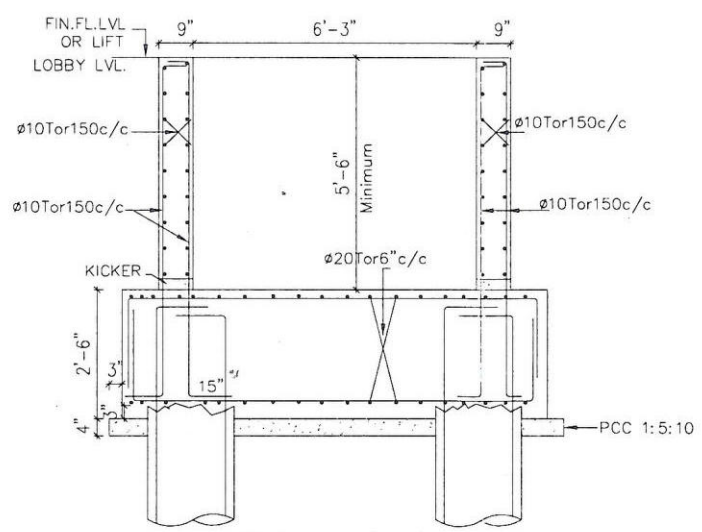
DETAIL OF PILE
DRIVEN CAST IN SITU PILE(20"ø)



PLAN OF -PC4
FOUR PILE CAP (TYPICAL)



SECTION AT C-C OF PC4



SECTION AT 'Y-Y'
(LIFT PIT PILE GROUPS)-PC4
(SAME STEEL FOLLOW FOR PC5&PC6))

NOTES:

1. ALL DIMENSIONS SHALL BE CHECKED & VERIFIED BEFORE EXCUTION OF WORK.
2. COLUMNS ARE SHOWN THUS ▭
   PILES ARE SHOWN THUS ○
3. CONCRETE FOR PILES : M30 MINIMUM WITH CEMENT CONTENT 360KG/CU.M OF CONCRETE ,SLUMP MINIMUM-4" MAX-7".
4. CLEAR COVER FOR COLUMNS -1½" PLINTH BEAM -1" ,PILE -2",COLUMN-1½", PILE CAP-3",RC WALL-1",
5. CONCRETE MIX FOR :-
   MINI-CEMENT CONTENT FOR PILE-360KG/M3
   PILE CAP,COLUMS AND BEAMS
6. USE CLEAN WATER FREE FROM ACIDS AND OTHER IMPURITIES
7. PILE SHOULD NOT DEVIATE MORE THAN 3" (DIA OF PILE) WHICHEVER IS MORE.IN THE CASE OF SINGLE PILE IN A COLUMN POSITIONAL TOLERANCE SHOULD NOT BE MORE THAN 2"
8. ANY DEVIATION FROM THE DESIGNED LOCATION OR ALIGNMENT LOAD CAPACITY OF ANY PILE SHALL BE NOTED AND ADEQUATE LOAD CAPACITY OF ANY PILE SHALL BE NOTED AND ADEQUATE MEASURES SHALL BE TAKEN BEFORE CONCRETING OF PILE CAP.
9. USE PLASTISIZER IN RECOMMENDED PROPORTIONS.
10. PILES ARE DESIGNED FOR LOADS FROM STILT+5FLOORS
11. PILE SHOULD PROJECT 3" INTO THE PILE CAP CONCRETE.
12. USE 18 GAUGE BINDING WIRE FOR BINDING TIES WITH VERTICAL BARS BINDING SHALL BE PERFECT.

NO.	AMENDMENTS	BY	DATE

SCALE	1:100	DESIGN BY	-
JOB NO	001	DRAWN BY	-
DRG NO	S3	DATE	-

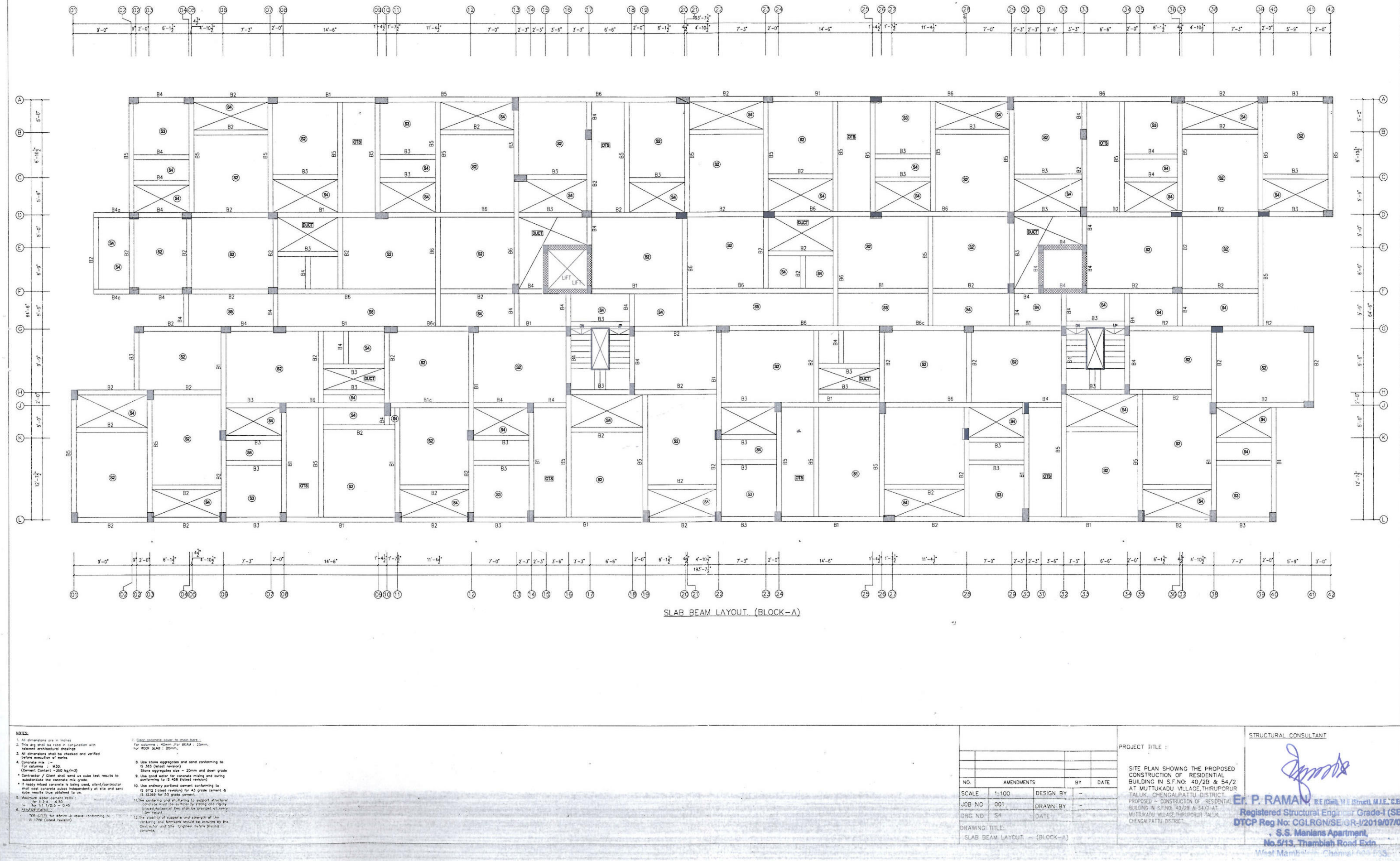
DRAWING TITLE:
COLUMN SCHEDULE AND PILE CAP DETAILS.

PROJECT TITLE :

SITE PLAN SHOWING THE PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.
PROPOSED ~ CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

STRUCTURAL CONSULTANT

Er. P. RAMAN, B.E.(Civil), M.E.(Struct), M.I.S., C.Engg.,
Registered Structural Engineer Grade-I (SE)
DTCP Reg No: CGLRGN/SE/SR-I/2019/07/022
, S.S. Manians Apartment,
No.5/13, Thambiah Road Extn.,
West Mambalam, Chennai-600 033.



SLAB BEAM LAYOUT. (BLOCK-A)

NOTES:

1. All dimensions are in inches
2. This drg shall be read in conjunction with relevant architectural drawings
3. All dimensions shall be checked and verified before execution of works.
4. Concrete mix :-
   For columns : M30.
   (Cement Content - 360 kg/m3)
   - Contractor / Client shall send us cube test results to substantiate the concrete mix grade.
   - If ready mixed concrete is being used, client/contractor shall cast concrete cubes independently at site and send cube results thus obtained to us.
5. Maximum water cement ratio :
   for 1:2:4 - 0.50
   - for 1:1 1/2:3 - 0.45
6. REINFORCEMENT :
   TOR-STEEL for 8mm & above confirming to IS 1786 (latest revision)
7. Clear concrete cover to main bars :
   For columns : 40mm ,For BEAM : 25mm,
   For ROOF SLAB : 20mm,
8. Use stone aggregates and sand conforming to IS 383 (latest revision)
   Stone aggregates size - 20mm and down grade
9. Use good water for concrete mixing and curing conforming to IS 456 (latest revision)
10. Use ordinary portland cement conforming to IS 8112 (latest revision) for 43 grade cement & IS 12269 for 53 grade cement.
11. The centering and shuttering to support structural concrete must be sufficiently strong and rigidly braced.Horizontal ties shall be provided at every 2m height.
12. The stability of supports and strength of the centering and formwork should be ensured by the Contractor and Site Engineer before placing concrete.

NO.	AMENDMENTS	BY	DATE

SCALE	1:100	DESIGN BY	-
JOB NO	001	DRAWN BY	-
DRG NO	S4	DATE	-

DRAWING TITLE:
SLAB BEAM LAYOUT - (BLOCK-A)

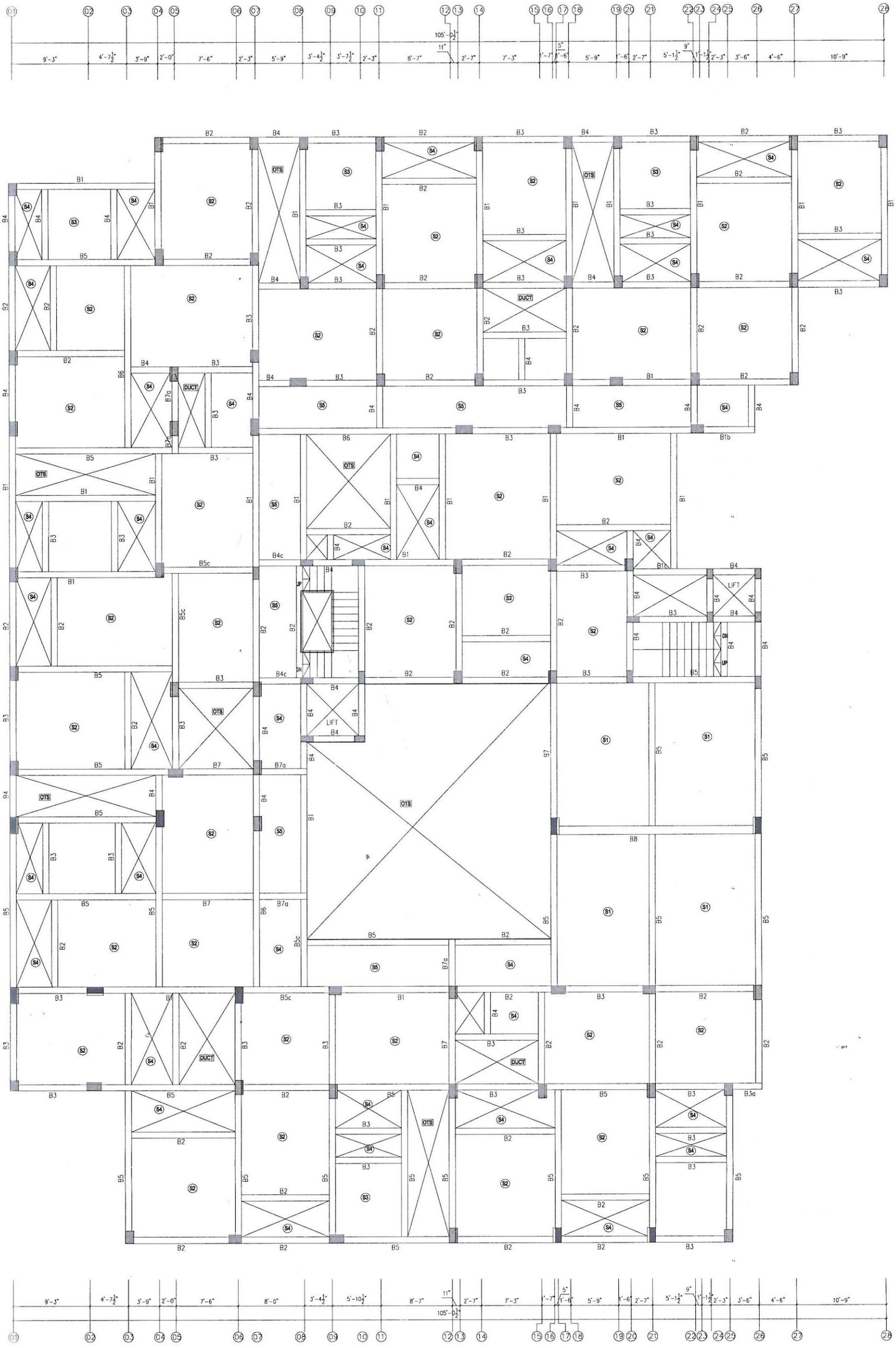
PROJECT TITLE :

SITE PLAN SHOWING THE PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

PROPOSED :- CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

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DTCP Reg No: CGLRGN/SE/GR-I/2019/07/022
S.S. Manians Apartment,
No.5/13, Thambiah Road Extn,
West Mambalam, Chennai 600 033.



SLAB BEAM LAYOUT. (BLOCK–B)

NOTES:

1. All dimensions are in inches
2. This drg shall be read in conjunction with relevant architectural drawings
3. All dimensions shall be checked and verified before execution of works.
4. Concrete mix :–
   For columns : M30
   (Cement Content –360 kg/m3)
   * Contractor / Client shall send us cube test results to substantiate the concrete mix grade.
   * If ready mixed concrete is being used, client/contractor shall cast concrete cubes independently at site and send cube results thus obtained to us.
5. Maximum water cement ratio :
   for 1:2:4 – 0.50
   for 1:1 1/2:3 – 0.45
6. REINFORCEMENT :
   TOR STEEL for 8mm & above conforming to IS 1786 (latest revision)
7. Clear concrete cover to main bars :
   For columns : 40mm ,For BEAM : 25mm,
   For ROOF SLAB : 20mm,
8. Use stone aggregates and sand conforming to IS 383 (latest revision)
   Stone aggregates size – 20mm and down grade
9. Use good water for concrete mixing and curing conforming to IS 456 (latest revision)
10. Use ordinary portland cement conforming to IS 8112 (latest revision) for 43 grade cement & IS 12269 for 53 grade cement.
11. The centering and shuttering to support structural concrete must be sufficiently strong and rigidly braced.Horizontal ties shall be provided at every 1.5m height.
12. The stability of supports and strength of the centering and formwork should be ensured by the Contractor and Site Engineer before placing concrete.

NO.	AMENDMENTS	BY	DATE

SCALE	1:100	DESIGN BY	–
JOB NO	001	DRAWN BY	–
DRG NO	S5	DATE	–

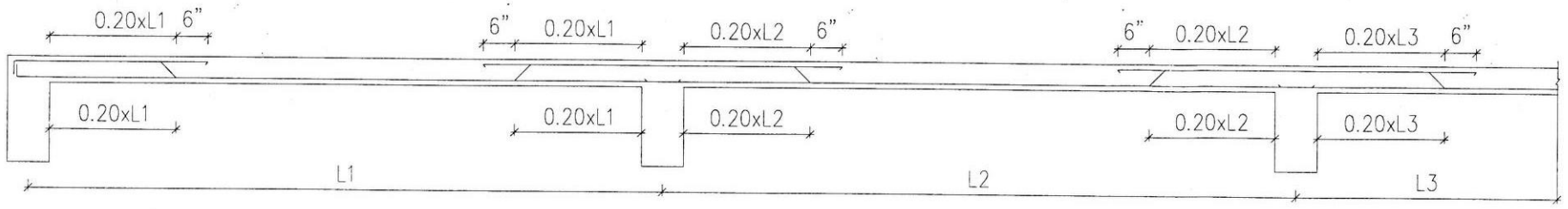
DRAWING TITLE:
SLAB BEAM LAYOUT. (BLOCK–B)

PROJECT TITLE :

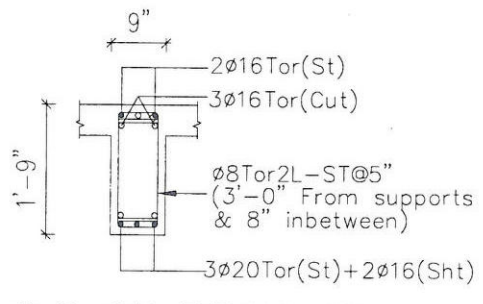
SITE PLAN SHOWING THE PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT. PROPOSED ~ CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

STRUCTURAL CONSULTANT

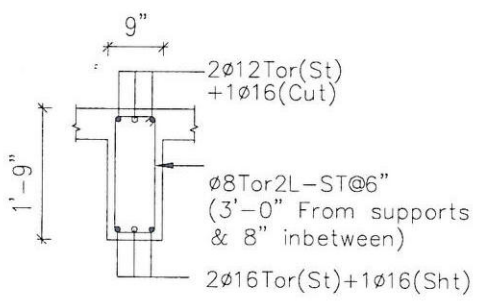
Er. P. RAMAN, B.E (Civil), M.E (Struct), M.I.E., C.Engg.,
Registered Structural Engineer Grade-I (SE)
DTCP Reg No: CGLRGN/SE/GR-I/2019/07/822.
S.S. Manians Apartment,
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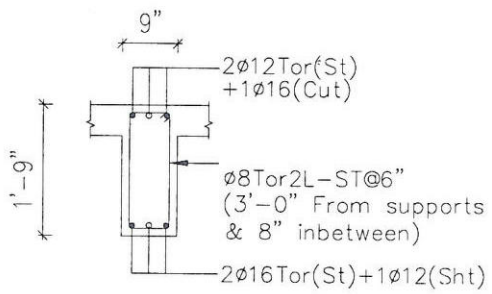
TYPICAL SLAB ROD BENDING DETAILS.



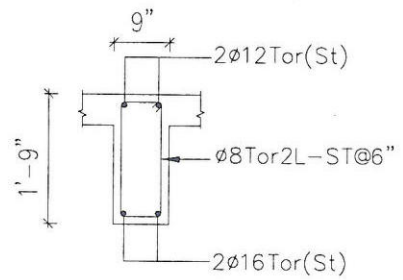
C.S OF BEAM-B1



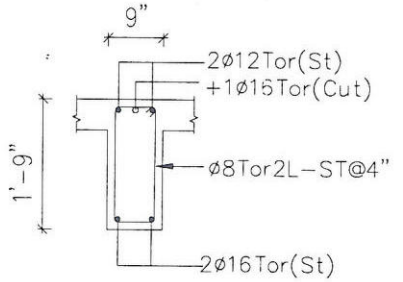
C.S OF BEAM- B2



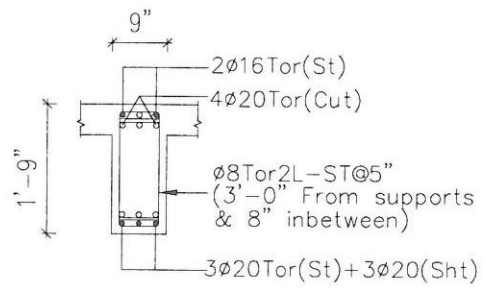
C.S OF BEAM-B3



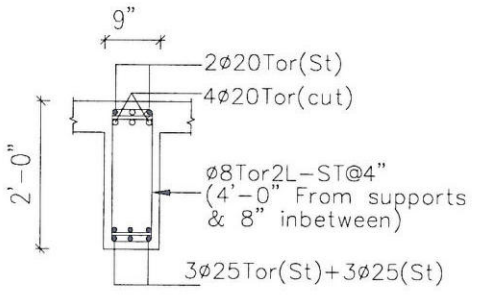
C.S OF BEAM-B4



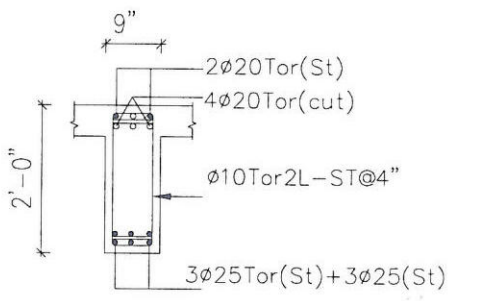
C.S OF BEAM-B2a



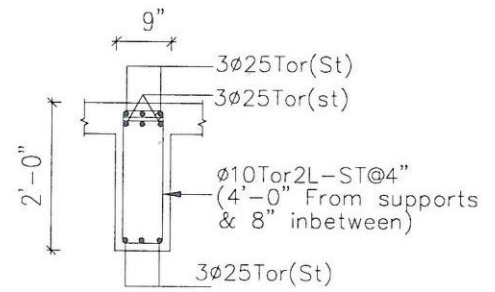
C.S OF BEAM-B5



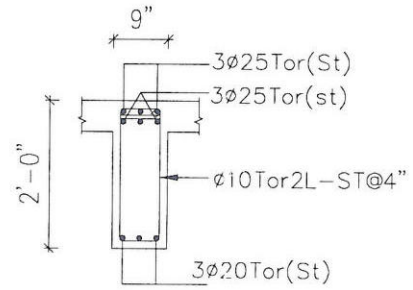
C.S OF BEAM-B6



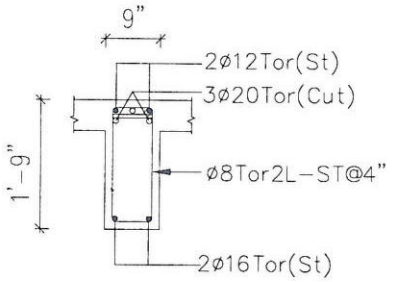
C.S OF BEAM-B6c



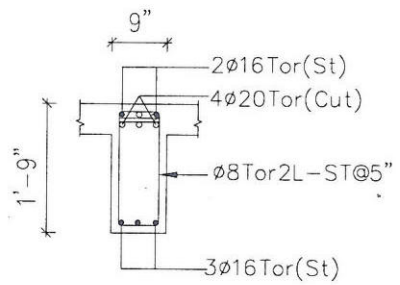
C.S OF BEAM-B7



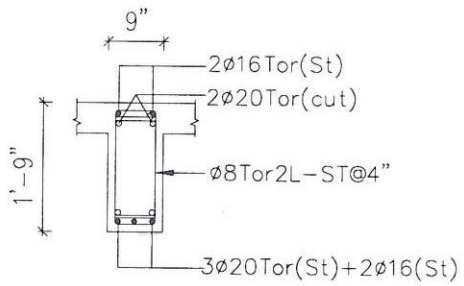
C.S OF BEAM-B7a



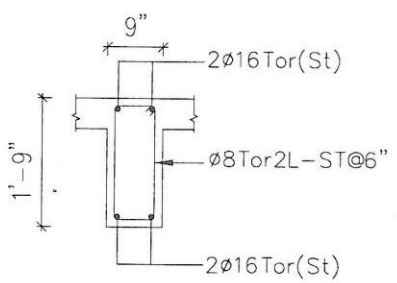
C.S OF BEAM-B3a



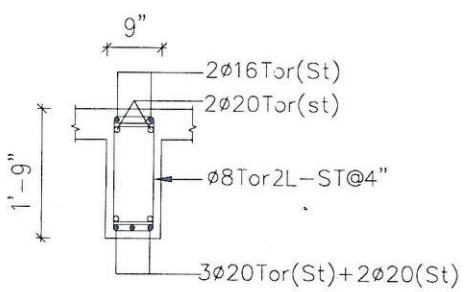
C.S OF BEAM-B1b



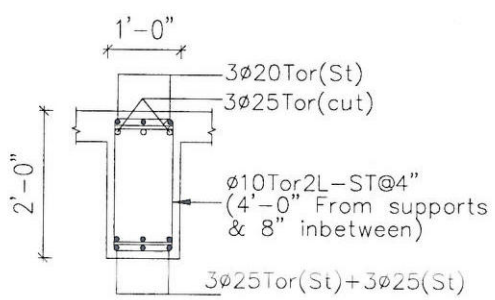
C.S OF BEAM-B1c



C.S OF BEAM-B4c



C.S OF BEAM-B5c



C.S OF BEAM-B8

NOTES:

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4. Concrete mix :-
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   for 1:1 1/2:3 - 0.45
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NO.	AMENDMENTS	BY	DATE

SCALE	1:100	DESIGN BY	-
JOB NO	001	DRAWN BY	-
DRG NO	S6	DATE	-

DRAWING TITLE:
RCC DETAILS OF BEAM CS

PROJECT TITLE :

SITE PLAN SHOWING THE PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT. PROPOSED - CONSTRUCTION OF RESIDENTIAL BUILDING IN S.F.NO: 40/2B & 54/2 AT MUTTUKADU VILLAGE,THIRUPORUR TALUK, CHENGALPATTU DISTRICT.

STRUCTURAL CONSULTANT
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S.S. Marians Apartment,
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West Mambalam, Chennai-600 033.



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