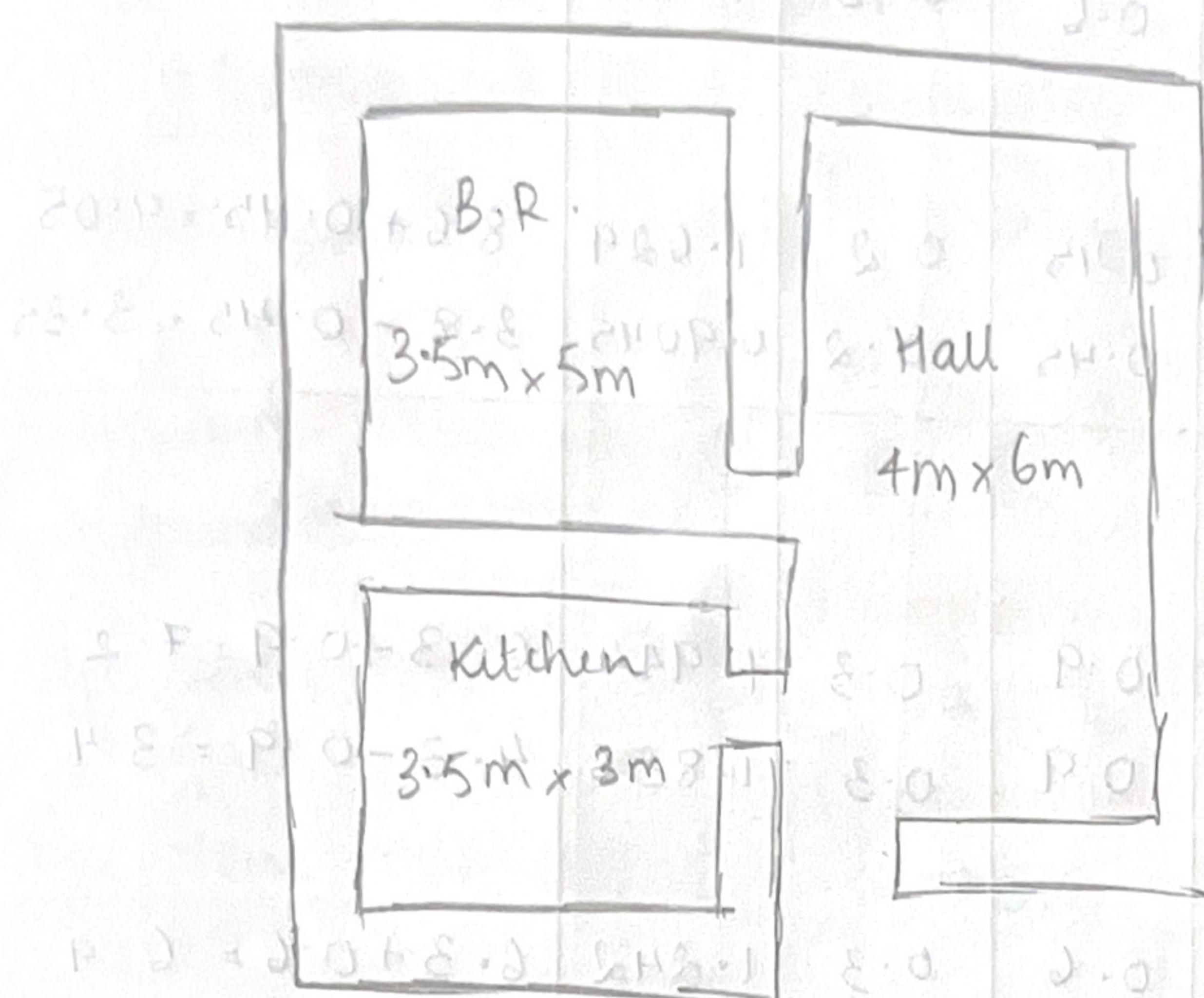


UNIT - I



* Estimation of building

→ Methode

- ① long wall & short wall method
 - ② centre line method

Sl No.	Item of work	No.	L	B	D	Q	Remarks
①	<u>Earthwork excavation</u>						(W+2D)
	(CB.R + K) L/W	2	9.6	1.0	1.0	19.2	W
	S/W	3	2.8	1.0	1.0	8.4	$8.6 + 0.5 + 0.5 = 9.6$
	Hall						$3.8 - 0.5 - 0.5 = 2.8$
	W		7.3	1	1	7.3	$6.3 + 1 = 7.3$
	S/W	2	3.3	1	1	6.6	$4.3 - 1 = 3.3$
②	<u>P.C.C. bed</u>						$41.5 \text{ m}^3 \times 0.2 = 8.3 \text{ m}^3$
③	Size stone masonry for footing and plinth						
	1 st step						
	(BR+K)	W	2	9.5	0.9	0.3	$8.6 + 0.9 = 9.5 \text{ m}$
	S/W	3	2.9	0.9	0.3	2.349	$3.8 - 0.9 = 2.9 \text{ m}$

	<u>2nd step</u>						
4/w	2	9.2	0.6	0.3	3.312	8.6 + 0.6 = 9.2	
S/w	3	3.2	0.6	0.3	1.728	3.8 - 0.6 = 3.2	
	<u>3rd step</u>						
4/w	2	9.05	0.45	0.2	1.629	8.6 + 0.45 = 9.05	
S/w	3	3.35	0.45	0.2	0.9045	3.8 - 0.45 = 3.35	

Hall

	<u>1st step</u>						
4/w	1	7.2	0.9	0.3	1.944	6.3 + 0.9 = 7.2	
S/w	2	3.4	0.9	0.3	1.836	4.3 - 0.9 = 3.4	
	<u>2nd step</u>						
4/w	1	6.9	0.6	0.3	1.242	6.3 + 0.6 = 6.9	
S/w	2	3.7	0.6	0.3	1.332	4.3 - 0.6 = 3.7	
	<u>3rd step</u>						
4/w	1	6.75	0.45	0.2	0.6075	6.3 + 0.45 = 6.75	
S/w	2	3.85	0.45	0.2	0.693	4.3 - 0.45 = 3.85	
						$\Sigma 32.098$	

④ Burnt
Brick break
masonry for

(BR+k)							
4/w	2	8.9	0.3	3.15	16.821	8.6 + 0.3 = 8.9	
S/w	3	3.8	0.3	3.15	10.773	3.8 = 3.8	
Hall	1	6.6	0.3	3.15	6.237	6.3 + 0.3 = 6.6	
4/w	2	4.3	0.3	3.15	8.127	4.3 = 4.3	
S/w						$\Sigma 41.958$	

Reductions

① Main door	1	1.2	0.3	2.1	0.756	
② door	2	0.9	0.3	2.1	1.134	
③ w ₁	4	1.2	0.3	1.5	2.16	
④ w ₂	1	0.9	0.3	1.3	0.351	
					$\Sigma = 4.401$	
					= 37.557 (41.958 - 4.401)	

⑤ RCC for roof slab

BR+k	1	8.9	4.1	0.15	5.4735	
Hall	1	6.3	4.3	0.15	4.0635	
						$\} \Sigma = 9.537$

~~Abstract of cost
of estimate~~

particulars Unit ~~Quantity~~

Abstract of Cost Estimate

Sl. No.	Particulars	Unit	Rate/unit	Quantity	Cost
①	Earthwork excavation for foundation	m^3	(250-300) 300	41.5	12450
②	PCC bed (1:3:6)	m^3	(3000-4000) 4000	8.3	33200
③	size stone masonry (1:4)	m^3	(4500-5000) 5000	32.908	1,64,540
④	Burnt pink break masonry (1:6) clay brick	m^3	6000	37.557	2,25,342
⑤	RCC for roof (1:1.5:3)	m^3	(10K-12K) 8000-10000 10000	9.537	95370
					₹ 530902

Contingency percentage = 3%.

Contractor profit = 10%

∴ Grand total = ₹ 599919.26. (Total + total $\times 0.13$).

No.	Particulars	No.	A	B	C	D	E	Remarks
①	<u>Earthwork Excavation</u>							
	Hall + toilet + utility	1	0.3	1	1.025	11.37		
	L ₁	1	0.1	1	2.25	2.5 + 0.3 + 0.3 + 0.3 = 9.1		
	L ₂	1	0.8	1	1.25	2.5 + 0.3 + 1 = 6.8		
	S ₁	3	6.88	3.5	4.2	6.8 + 0.3 + 1 = 8.5		
	Kitchen + BR + SR	2	12.4	1	1.25	11.37		
	L ₃	2	0.8	1	1.25	11.37		
	S ₂	4						
②	<u>PCC bed</u>							
	size stone masonry for							
	footing & plinth							
	(H + T + U)							
	1 st step	L ₁	1	8.9	0.8	8.75		
	L ₂	3	2	0.8	0.8	0.8		
	S ₁	1	3.4	1	0.8	3.4		
③	<u>1nd step</u>							
	size stone masonry for							
	footing & plinth							
	(H + T + U)							
	L ₁	1	8.15	0.65	0.5	8.15		
	S ₁	1	2.15	0.65	0.5	2.15		
	L ₂	1	0.423	0.4	0.4	0.423		
	1 nd step.							

✓ foundation

8 8 8
0 0 0

9 : 8 3 : 4

- 8
- 5

2nd P.D. 3rd P.D. 4th P.D.

3.56	0.8	1.48
4.5	0.1	0.8
1.1	0.8	11
8.0	0.8	8
2.9	0.8	2.7

8.1	10.65	8.75	8.15	3.85	8.05
8.1	10.65	8.75	8.15	3.85	8.05
8.1	10.65	8.75	8.15	3.85	8.05
8.1	10.65	8.75	8.15	3.85	8.05
8.1	10.65	8.75	8.15	3.85	8.05

Küthen + RD

185
139

78

520

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82

L1

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Buont
Break Maronwy

$$L_1 \cup L_2$$

L_3 + $BQ + SR$)

Amelia Borch

Deductions

D

D₁

w₁

w₂

V

3

4

1

3
1
1

0.9

1.1
1.1
1.05

0.9

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0.3
0.3

2.01
1.05
1.02
1.05
0.6
2

1.89
2.08
0.45
1.08
0.675
0.62
6.525

RCC for roof slab
(H+T+U).

K+B+S

0.561
= 55.1561

5.859
6.93
3.95
0.15
8.4
11.7

13.66 m³

$$L = 0.3 + 5 + 0.3 + 0.5 + 0.3 \\ B = 4 \cdot 2 + 0 \cdot 3 + 0.15 \\ L = 0.3 + 4 + 0 \cdot 3 + 4 + 0 \cdot 3 + 2 \cdot 5 \\ B = 3.5 + 0.15 + 0 \cdot 3$$

~~13.203
6.675
3.15
4.95~~

~~3.15
2.5
0.5~~

plastering

concrete

$$L = 4 \cdot 2, B = 5 \\ L = 4 \cdot 2 + 5 \\ L = 11 \cdot 2 + 5 = 16 \cdot 4$$

Abstract of cost estimate

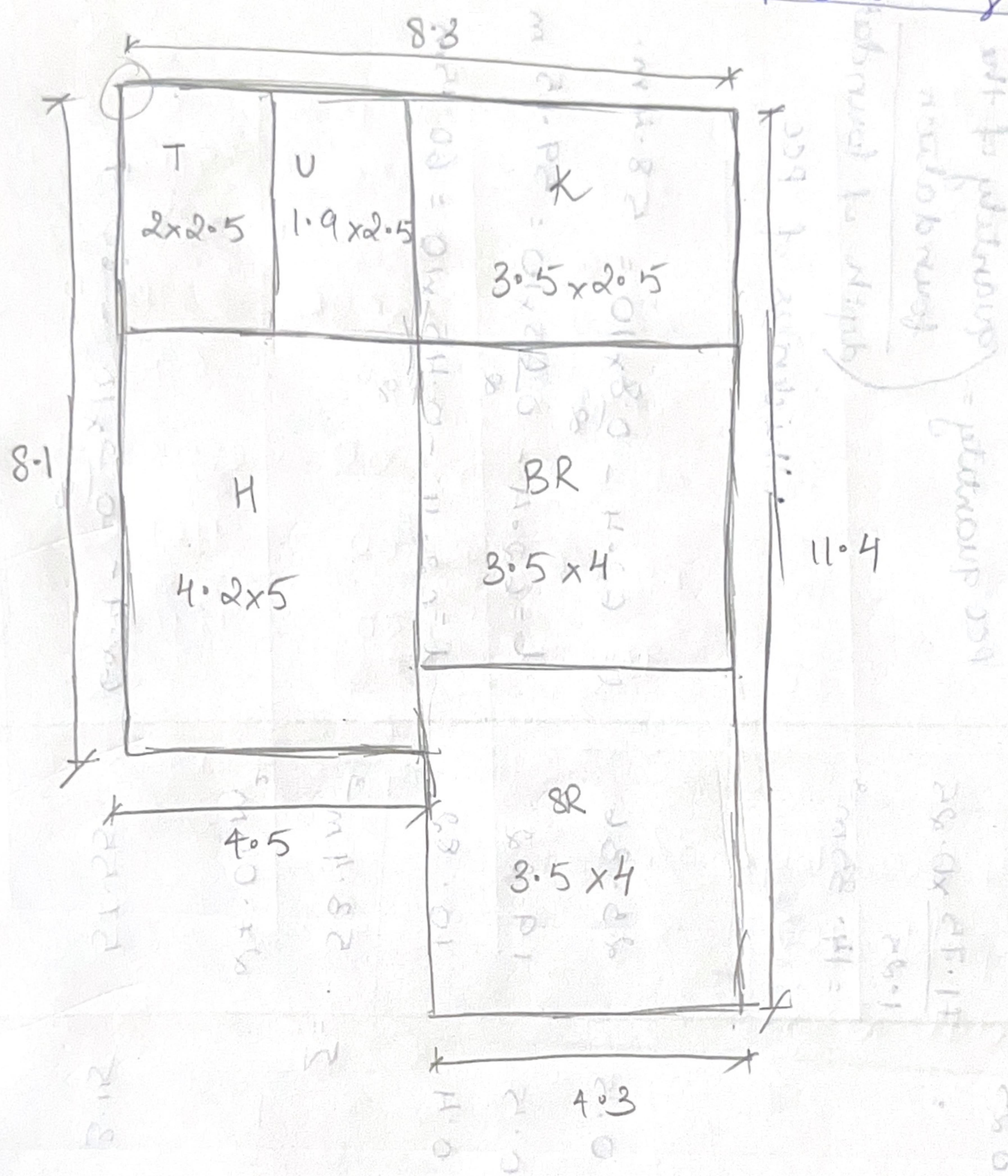
Sl. No.	Particulars	Unit	Rate/unit	Quantity	Cost
①	Earthwork	m ³	300	72.24 74.448	21672
②	PCC	m ³	4000	14.448	57792
③	SSM	m ³	5000	50.413	252065
④	BBM	m ³	6000	55.561	333366
⑤	RCC for roof slab	m ³	10,000	13.66	136600
⑥	Internal plastering	m ²	120	93	11160
					£ 812655

Contingency percentage = 3%

Contractor profit = 10%.

∴ Grand total = £ 918300.15.

* Centre Line Method of Estimation of Buildings



$$\text{Total centre line length, } L = 8.1 + (3 \times 8.3) + (2 \times 11.4) + 3.8 + 2.8 \\ = 62.4 \text{ m.}$$

Total no. of junctions = 10

$$L \rightarrow 0 \quad \underline{L} = 1$$

Sl. no.	Particular	D	B	L	Remarks
①	Earthwork	1.025	71.75 m ³	57.4	
②	PCC bed	0.25	$\frac{71.75 \times 0.25}{1.025} = 14.35 \text{ m}^3$	57.4	
③	size stone masonry	58.4 59.15 60.15 60.15 60.15	0.8 0.65 0.45 0.45 0.45	1 1 1 1 1	1st step 2nd step plinth
④	DPC	3.15	$62.4 - \frac{0.3 \times 10}{2} = 60.9$	57.55	damp proof course
⑤	BPM	0.9	$62.4 - \frac{0.3 \times 10}{2} = 60.9$	57.55	Brick masonry
		51.025 m ³	57.96		

$\text{PCC quantity} = \frac{\text{quantity of the foundation}}{\text{depth of foundation}}$

thickness of PCC

$\lambda = 62.4 - \frac{0.8 \times 10}{2} = 58.4 \text{ m}$

$\lambda = 62.4 - \frac{0.65 \times 10}{2} = 59.15 \text{ m}$

$\lambda = 62.4 - \frac{0.45 \times 10}{2} = 60.15 \text{ m}$

$62.4 - \frac{0.3 \times 10}{2} = 60.9$

$L = (4.2 + 5) \times 2 = 18.4$

57.96

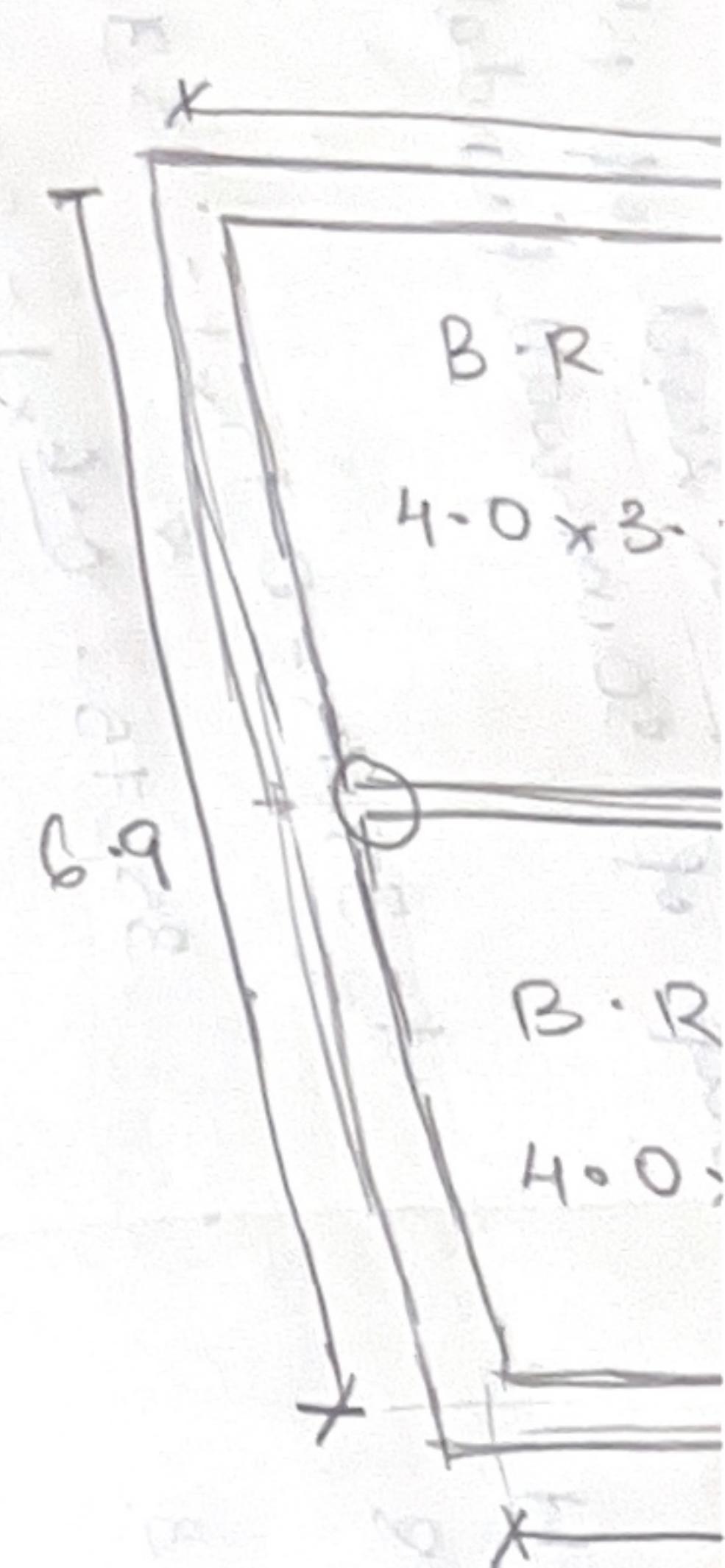
Abstract of estimated quantity

S.I.No	Particulars	Unit	Quantity	Rate per unit	Cost
①	Earthwork	m ³	71.75	350	25112.5
②	PCC bed	m ³	14.35	400 350	50422.5
③	SSM	m ³	53.4	4200	224280
④	DPC	m ³	57.55	1200	69060
⑤	BBM	m ³	51.025	5500	280637.5
⑥	Roof slab	m ³	13.66	8500	116110
⑦	Internal Plastering	m ²	93	120	11160
					₹ 731382.5

Contingency percentage = 3%

Contractor profit = 10%

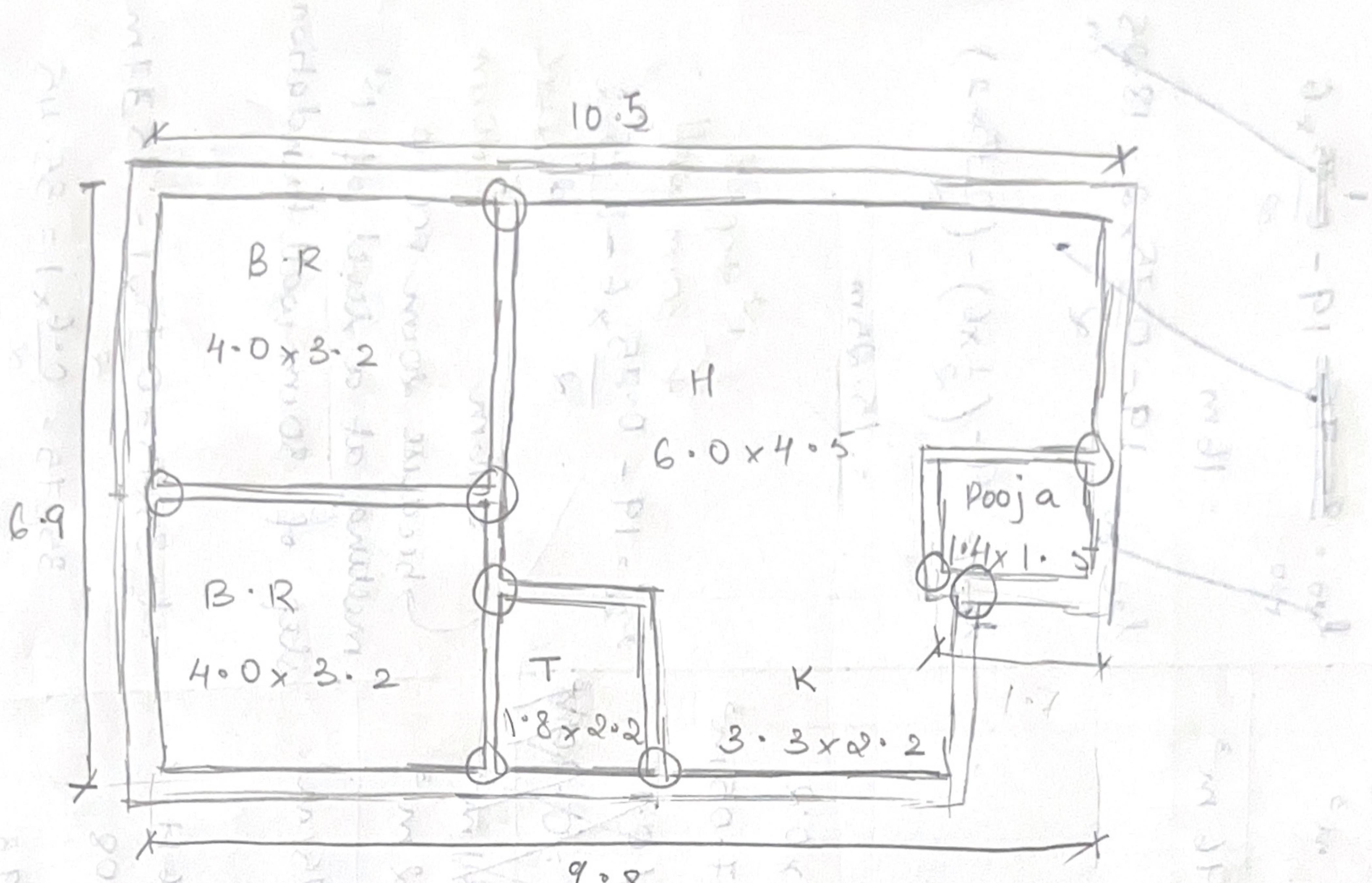
∴ Grand total = ₹ 826263.



$$L_{30} = (6.9)$$

$$L_{20} = (4)$$

No. .



$$\begin{aligned}
 L_{30} &= (6.9) + (10.5) + (6.9) + (1.4 + 0.15 + 0.1) + (4 + 0.2 + 1.8 + 0.2 \\
 &\quad + 3.3 + 0.3) \\
 &= 35 \text{ m.}
 \end{aligned}$$

$$\begin{aligned}
 L_{20} &= (4 + 0.15 + 0.1) + 6.9 + (1.8 + 0.2) + (2.2 + 0.1 + 0.15) \\
 &\quad + (1.4 + 0.1 + 0.15) + (1.5 + 0.1 + 0.15) \\
 &= 19 \text{ m}
 \end{aligned}$$

$$\text{No. of junctions : } 30 \times 30 = 1$$

$$30 \times 20 = 6$$

$$20 \times 20 = 2$$

35.525
abs

80 cm wau
1st stop

Pink

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H
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$$= 805.8 \text{ N} \cdot \text{m}$$

step of 80 cm wall foundation.

Σ ΒΒΙ
ΕΠΙΦΑΝΙΟΥ
ΙΩΑΝΝΙΝΩΝ

20 cm
30 cm
30 cm
30 cm

Deductions

(a) Lungs above
ducks, ground &
ventilates

(3) MD

D¹

(iii) D

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3 (13)

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Abstract of cost estimate

SL No.	Particulars
①	Earthwork excavation
②	PCC (1:4:8)
③	SSM (CM 1:6)
④	BBMC (CM 1:4)
⑤	RCC for roof
⑥	Internal plastering

Contingency
Contractor
∴ Grand

RCC for 8000ft slab

(BR + BR)

(T + E)

(H + P)

7.2

4.4

5.7

0.15

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11.764 m³

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Abstract of cost estimate

SL No.	Particulars	Unit	Rate/ unit	Quantity	Cost
①	Earthwork excavation	m ³	350	40.96	14336
②	PCC (1:4:8)	m ³	350	8.25	2887.5
③	SSM (CM 1:6)	m ³	4200	44.919 33.799	141871.8
④	BB MC (CM 1:4)	m ³	5500	44.919	247054.5
⑤	RCC for roof slab	m ³	8500	11.764	99994
⑥	Internal plastering	m ²	120	197.945	23753.4
					₹ 529897.2

contingency % = 8%

Contractor profit = 10%

∴ Grand total = ₹ 598784.

$$= 21.0 + (2.8 + 21.0 + 21.0) + 5 \times (21.0 + 21.0) = 1$$

$$= 42.8 + 2.8 + 1.0 + (21.0 \times 2.8 + 8.0 + 2.8 + 1.0) = 5.0$$

1) House walls plan, brick wall

$$(10 \times 10 \times 1.0 + 2.8 \times 1.0 + 1.0) + 5 \times (1.0 + 0.8 + 0.8) = 20$$

$$1 = 0.8 \times 0.8 \text{ window } 10 - 0.4$$

$$0 = 0.8 \times 0.8$$

$$0.8 \times 0.8$$

$$\text{Total } S = 21.0 + 10.8 + 1.0 = 32.8$$