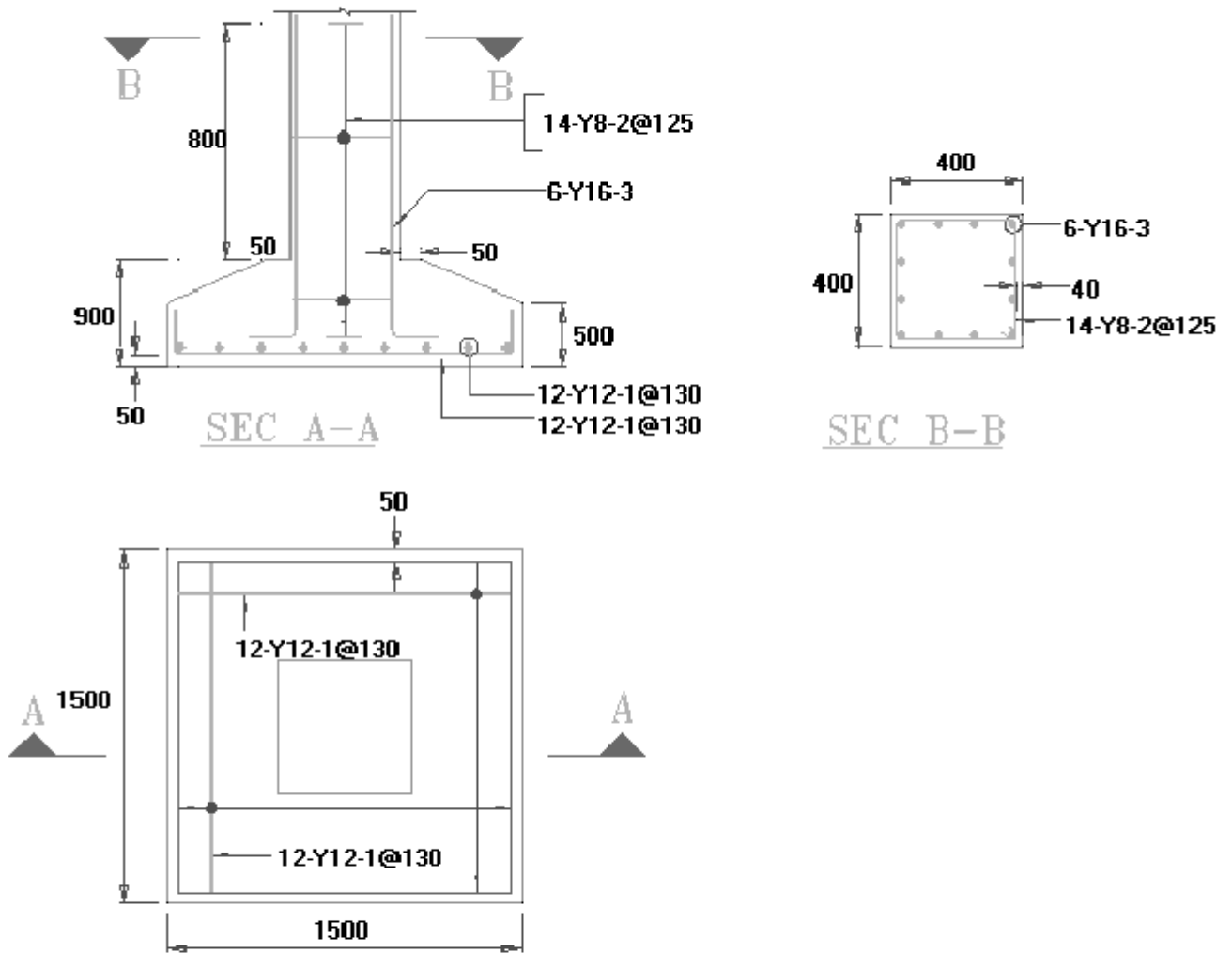


## Rebar Placement Sketch

Job Name : Residential  
 Location : Chennai  
 Element Mark : F1

Sheet Title : FOOTINGS  
 Sheet No : 001  
 Grid Ref : A1-C1



**Notes:**

1. The Picture is not to scale (NTS)
2. The Rebar shown are to indicate the positions. They may not be the actual Bend Shape.
3. To view the exact Bend Shape, Please refer the BBS / Placing list.

## Rebar Placement Sketch

Job Name : Residential

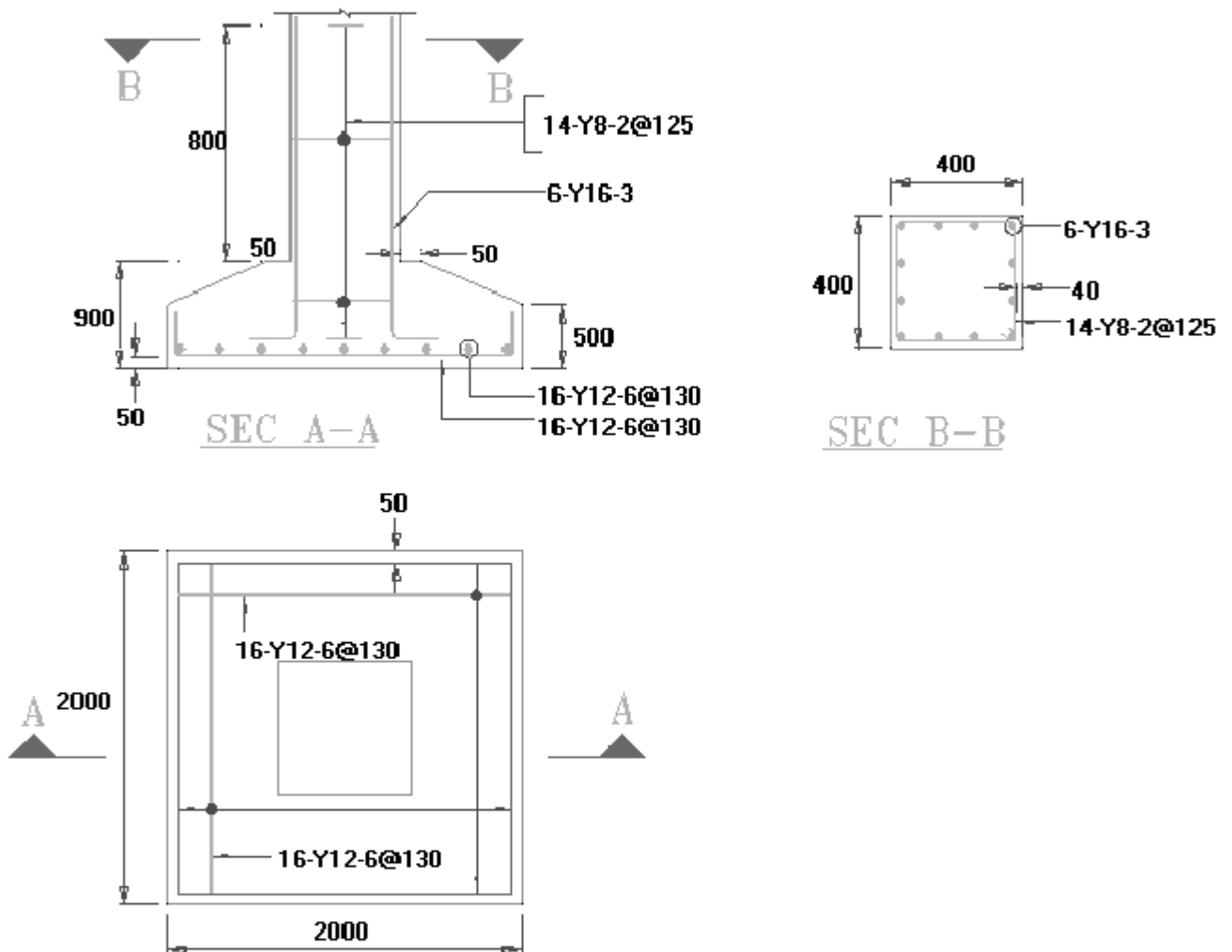
Sheet Title : FOOTINGS

Location : Chennai

Sheet No : 001

Element Mark : F3

Grid Ref : D1-C1



**Notes:**

1. The Picture is not to scale (NTS)
2. The Rebar shown are to indicate the positions. They may not be the actual Bend Shape.
3. To view the exact Bend Shape, Please refer the BBS / Placing list.

## Rebar Placement Sketch

Job Name : Residential

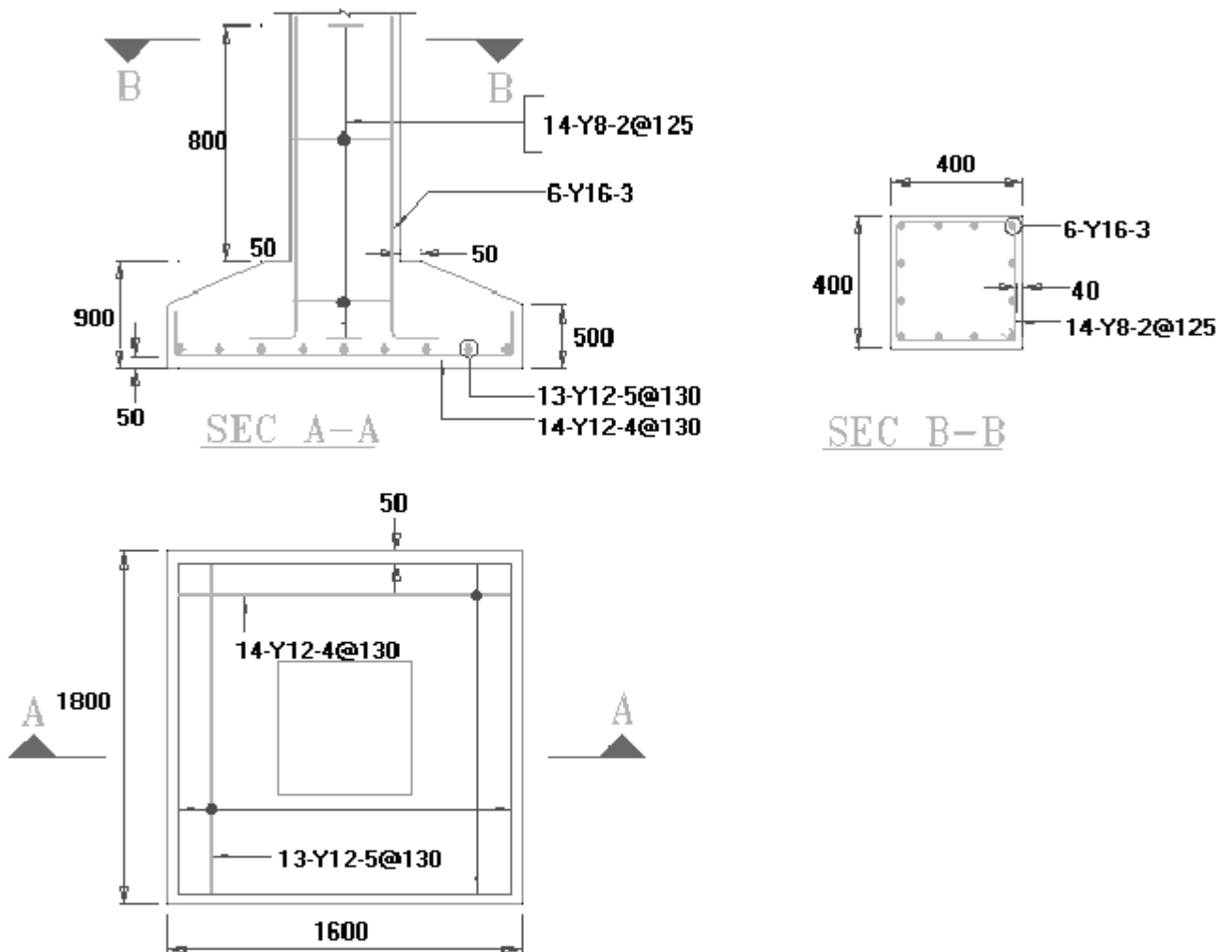
Sheet Title : FOOTINGS

Location : Chennai

Sheet No : 001

Element Mark : F2

Grid Ref : A2-B3



**Notes:**

1. The Picture is not to scale (NTS)
2. The Rebar shown are to indicate the positions. They may not be the actual Bend Shape.
3. To view the exact Bend Shape, Please refer the BBS / Placing list.

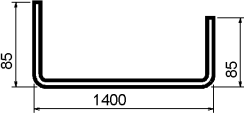
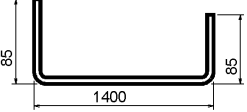
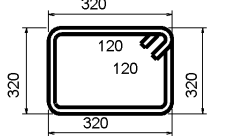

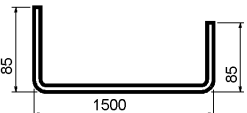
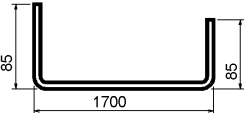
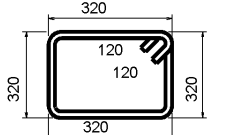



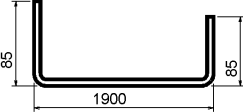
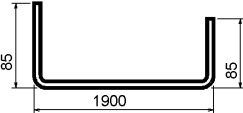
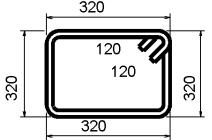
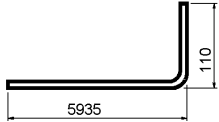
**RGS**  
**QUICK BBS**  
*we mean it*

Client:	<b>RGS</b>	Client Job No. :	<b>001</b>	Detailing Code :	<b>IS 2502_1963</b>
Job Name:	<b>Residential</b>	Prepared By :	<b>K.V</b>	Prepared Date	<b>04/26/11</b>
#272, ANKUR MANOR, P.H.ROAD. CHENNAI-10	Drawing No.:	<b>001</b>	Checked By :		Checked Date : <b>04/26/11</b>
Tel. +914442859595 Fax +914442859095	Drawing Title.:	<b>BBS</b>	Rev. No.:	<b>0</b>	Contol code : <b>FOOTING</b>

Member	Bar Mark	Type and Size	No. of Members	No. of Bars in Each	Total No. of Bars	Shape Code	Bending Dimensions					Total Length of Bar	Weight (Kg)	Bend Shape
							A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)			
F1	1	Y12	5	24	120	21	85	1400	85			1570	167.299	
	2	Y8	5	14	70	99S01	120	320	320	320	320	1520	42.028	
	3	Y16	5	6	30	11	110	5935				6045	286.533	
F2	4	Y12	10	14	140	21	85	1500	85			1670	207.614	
	5	Y12	10	13	130	21	85	1700	85			1870	215.873	
	2	Y8	10	14	140	99S01	120	320	320	320	320	1520	84.056	
	3	Y16	10	6	60	11	110	5935				6045	573.066	
F3	6	Y12	4	32	128	21	85	1900	85			2070	235.284	
	2	Y8	4	14	56	99S01	120	320	320	320	320	1520	33.622	
	3	Y16	4	6	24	11	110	5935				6045	229.226	

Placing List

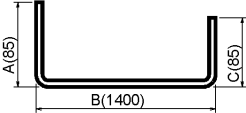
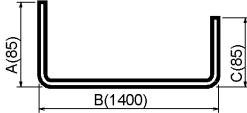
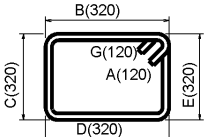

Member	Member Size	Member Location	No. of Members	Bar Location	Bar Size	Layers	Quantity	Bar Mark	Spacing	Coating	Left End Preperation	Right End Preperation	Total Length	Weight	Bend Shape	Remarks
F1			5	B1	Y12	1	12	1	130		None	None	1570	83.65		STANDARD HOOK BAR
			5	B2	Y12	1	12	1	130		None	None	1570	83.65		STANDARD HOOK BAR
			5	TIES	Y8	1	14	2	125		None	None	1520	42.028		TIES-29(FULL RANGE)
			5	CDWL	Y16	1	6	3			None	None	6045	286.533		BASED ON CUT LENGTH
F2			10	B1	Y12	1	14	4	130		None	None	1670	207.614		STANDARD HOOK BAR
			10	B2	Y12	1	13	5	130		None	None	1870	215.873		STANDARD HOOK BAR
			10	TIES	Y8	1	14	2	125		None	None	1520	84.056		TIES-29(FULL RANGE)

Member	Member Size	Member Location	No. of Members	Bar Location	Bar Size	Layers	Quantity	Bar Mark	Spacing	Coating	Left End Preperation	Right End Preperation	Total Length	Weight	Bend Shape	Remarks
			10	CDWL	Y16	1	6	3			None	None	6045	573.066		BASED ON CUT LENGTH
F3			4	B1	Y12	1	16	6	130		None	None	2070	117.642		STANDARD HOOK BAR
			4	B2	Y12	1	16	6	130		None	None	2070	117.642		STANDARD HOOK BAR
			4	TIES	Y8	1	14	2	125		None	None	1520	33.622		TIES-29(FULL RANGE)
			4	CDWL	Y16	1	6	3			None	None	6045	229.226		BASED ON CUT LENGTH

## Rebar Detailing Calculation Sheet

Element Name : RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS	Element Mark : F1	Structural Drawing :	Weight : 485 (kg)
Dimensions :	Length(LENGTH) - <b>1500</b> , Width(WIDTH) - <b>1500</b> , Depth(DEPTH) - <b>900</b> , Length of column(L) - <b>400</b> , Width of column(W) - <b>400</b> , Side cover footing(SCF) - <b>50</b> , Bottom cover footing(BCF) - <b>50</b> , Side cover column(SCC) - <b>40</b> , Bottom cover column(BCP) - <b>50</b> , Depth1(DEPTH1) - <b>500</b> , Column lap(LAP1) - <b>800</b> , Column offset projection(P) - <b>50</b>		
Grid References :	1 - A1-C1		

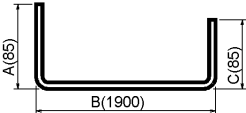
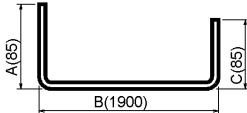
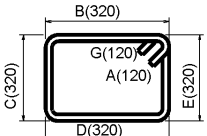
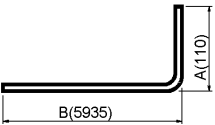
### Reinforcement Details

B1 - Bottom Bar Layer 1	B2 - Bottom Bar Layer 2
<p>Barsize : Y12    Grade : DEFORMED Fe415    EP :    Barkmark : 1</p> <div style="text-align: center;">  </div> <p>                     A = 90° Standard Hook = 85 (mm)                      B = LENGTH-2*SCF = 1500-2*50 = 1400 (mm)                      C = 90° Standard Hook = 85 (mm)                      Total = A+B+C-0.4*PD-2.4*DIA = 85+1400+85-0.4*96-                      Length 2.4*12 = 1505 (mm)                      Range = WIDTH-2*SCF = 1500-2*50 = 1400 (mm)                      Length                      Quantity = ((1400)/SPACING)+1 = ((1400)/130)+1 = 12                      Weight = 80.186 (kg)                 </p>	<p>Barsize : Y12    Grade : DEFORMED Fe415    EP :    Barkmark : 1</p> <div style="text-align: center;">  </div> <p>                     A = 90° Standard Hook = 85 (mm)                      B = WIDTH-2*SCF = 1500-2*50 = 1400 (mm)                      C = 90° Standard Hook = 85 (mm)                      Total = A+B+C-0.4*PD-2.4*DIA = 85+1400+85-0.4*96-                      Length 2.4*12 = 1505 (mm)                      Range = LENGTH-2*SCF = 1500-2*50 = 1400 (mm)                      Length                      Quantity = ((1400)/SPACING)+1 = ((1400)/130)+1 = 12                      Weight = 80.186 (kg)                 </p>
TIES - TIES	CDWL - COL DWL
<p>Barsize : Y8    Grade : DEFORMED Fe415    EP :    Barkmark : 2</p> <div style="text-align: center;">  </div> <p>                     A = HK(135) = 120 (mm)                      B = L-2*SCC = 400-2*40 = 320 (mm)                      C = W-2*SCC = 400-2*40 = 320 (mm)                      D = L-2*SCC = 400-2*40 = 320 (mm)                      E = W-2*SCC = 400-2*40 = 320 (mm)                      G = HK(135) = 120 (mm)                      Total = A+B+C+D+E+G-0.6*PD -3.6*DIA =                      Length 120+320+320+320+320+120-0.6*64-3.6*8 = 1455                      (mm)                      Range = LAP1+BCP+DEPTH-BCF-BCP-DIA(B1)-DIA(B2)-DIA                      Length (CDWL) = 800+50+900-50-50-12-12-16 = 1610 (mm)                      Quantity = ((1610)/SPACING)+1 = ((1610)/125)+1 = 14                      Weight = 40.231 (kg)                 </p>	<p>Barsize : Y16    Grade : DEFORMED Fe415    EP :    Barkmark : 3</p> <div style="text-align: center;">  </div> <p>                     A = 90° Standard Hook = 110 (mm)                      B = CL-LEG.A+0.2*PD+1.2*DIA(CDWL) = 6000-                      110+0.2*128+1.2*16 = 5935 (mm)                      Total = A+B-0.2*PD-1.2*DIA = 110+5935-0.2*128-1.2*16                      Length = 6000 (mm)                      Range = Quantity Given. Not Applicable.                      Length                      Quantity = 6                      Weight = 284.400 (kg)                 </p>




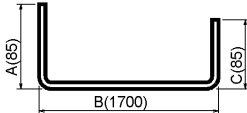
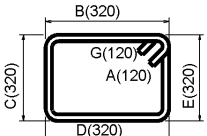
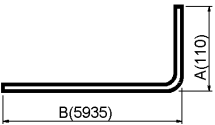
Element Name : RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS	Element Mark : F3	Structural Drawing :	Weight : 487.6 (kg)
Dimensions :	Length(LENGTH) - <b>2000</b> , Width(WIDTH) - <b>2000</b> , Depth(DEPTH) - <b>900</b> , Length of column(L) - <b>400</b> , Width of column(W) - <b>400</b> , Side cover footing(SCF) - <b>50</b> , Bottom cover footing(BCF) - <b>50</b> , Side cover column(SCC) - <b>40</b> , Bottom cover column(BCP) - <b>50</b> , Depth1(DEPTH1) - <b>500</b> , Column lap(LAP1) - <b>800</b> , Column offset projection(P) - <b>50</b>		
Grid References :	1 - D1-C1		

### Reinforcement Details

B1 - Bottom Bar Layer 1		B2 - Bottom Bar Layer 2	
Barsize : Y12	Grade : DEFORMED Fe415 EP : Barmark : 6	Barsize : Y12	Grade : DEFORMED Fe415 EP : Barmark : 6
			
<p>A = 90° Standard Hook = 85 (mm)            B = LENGTH-2*SCF = 2000-2*50 = 1900 (mm)            C = 90° Standard Hook = 85 (mm)            Total = A+B+C-0.4*PD-2.4*DIA = 85+1900+85-0.4*96-            Length 2.4*12 = 2005 (mm)            Range = WIDTH-2*SCF = 2000-2*50 = 1900 (mm)            Length            Quantity = ((1900)/SPACING)+1 = ((1900)/130)+1 = 16            Weight = 113.948 (kg)</p>		<p>A = 90° Standard Hook = 85 (mm)            B = WIDTH-2*SCF = 2000-2*50 = 1900 (mm)            C = 90° Standard Hook = 85 (mm)            Total = A+B+C-0.4*PD-2.4*DIA = 85+1900+85-0.4*96-            Length 2.4*12 = 2005 (mm)            Range = LENGTH-2*SCF = 2000-2*50 = 1900 (mm)            Length            Quantity = ((1900)/SPACING)+1 = ((1900)/130)+1 = 16            Weight = 113.948 (kg)</p>	
TIES - TIES		CDWL - COL DWL	
Barsize : Y8	Grade : DEFORMED Fe415 EP : Barmark : 2	Barsize : Y16	Grade : DEFORMED Fe415 EP : Barmark : 3
			
<p>A = HK(135) = 120 (mm)            B = L-2*SCC = 400-2*40 = 320 (mm)            C = W-2*SCC = 400-2*40 = 320 (mm)            D = L-2*SCC = 400-2*40 = 320 (mm)            E = W-2*SCC = 400-2*40 = 320 (mm)            G = HK(135) = 120 (mm)            Total = A+B+C+D+E+G-0.6*PD -3.6*DIA =            Length 120+320+320+320+320+120-0.6*64-3.6*8 = 1455            (mm)            Range = LAP1+BCP+DEPTH-BCF-BCP-DIA(B1)-DIA(B2)-DIA            Length (CDWL) = 800+50+900-50-50-12-12-16 = 1610 (mm)            Quantity = ((1610)/SPACING)+1 = ((1610)/125)+1 = 14            Weight = 32.185 (kg)</p>		<p>A = 90° Standard Hook = 110 (mm)            B = CL-LEG.A+0.2*PD+1.2*DIA(CDWL) = 6000-            110+0.2*128+1.2*16 = 5935 (mm)            Total = A+B-0.2*PD-1.2*DIA = 110+5935-0.2*128-1.2*16            Length = 6000 (mm)            Range = Quantity Given. Not Applicable.            Length            Quantity = 6            Weight = 227.520 (kg)</p>	

Element Name : RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS	Element Mark : F2	Structural Drawing :	Weight : 1057.16 (kg)
Dimensions :	Length(LENGTH) - <b>1600</b> , Width(WIDTH) - <b>1800</b> , Depth(DEPTH) - <b>900</b> , Length of column(L) - <b>400</b> , Width of column(W) - <b>400</b> , Side cover footing(SCF) - <b>50</b> , Bottom cover footing(BCF) - <b>50</b> , Side cover column(SCC) - <b>40</b> , Bottom cover column(BCP) - <b>50</b> , Depth1(DEPTH1) - <b>500</b> , Column lap(LAP1) - <b>800</b> , Column offset projection(P) - <b>50</b>		
Grid References :	1 - A2-B3		

### Reinforcement Details

B1 - Bottom Bar Layer 1		B2 - Bottom Bar Layer 2	
Barsize : Y12	Grade : DEFORMED Fe415 EP : Barmark : 4	Barsize : Y12	Grade : DEFORMED Fe415 EP : Barmark : 5
			
<p>A = 90° Standard Hook = 85 (mm)            B = LENGTH-2*SCF = 1600-2*50 = 1500 (mm)            C = 90° Standard Hook = 85 (mm)            Total = A+B+C-0.4*PD-2.4*DIA = 85+1500+85-0.4*96-            Length 2.4*12 = 1605 (mm)            Range = WIDTH-2*SCF = 1800-2*50 = 1700 (mm)            Length            Quantity = ((1700)/SPACING)+1 = ((1700)/130)+1 = 14            Weight = 199.534 (kg)</p>		<p>A = 90° Standard Hook = 85 (mm)            B = WIDTH-2*SCF = 1800-2*50 = 1700 (mm)            C = 90° Standard Hook = 85 (mm)            Total = A+B+C-0.4*PD-2.4*DIA = 85+1700+85-0.4*96-            Length 2.4*12 = 1805 (mm)            Range = LENGTH-2*SCF = 1600-2*50 = 1500 (mm)            Length            Quantity = ((1500)/SPACING)+1 = ((1500)/130)+1 = 13            Weight = 208.369 (kg)</p>	
TIES - TIES		CDWL - COL DWL	
Barsize : Y8	Grade : DEFORMED Fe415 EP : Barmark : 2	Barsize : Y16	Grade : DEFORMED Fe415 EP : Barmark : 3
			
<p>A = HK(135) = 120 (mm)            B = L-2*SCC = 400-2*40 = 320 (mm)            C = W-2*SCC = 400-2*40 = 320 (mm)            D = L-2*SCC = 400-2*40 = 320 (mm)            E = W-2*SCC = 400-2*40 = 320 (mm)            G = HK(135) = 120 (mm)            Total = A+B+C+D+E+G-0.6*PD -3.6*DIA =            Length 120+320+320+320+320+120-0.6*64-3.6*8 = 1455            (mm)            Range = LAP1+BCP+DEPTH-BCF-BCP-DIA(B1)-DIA(B2)-DIA            Length (CDWL) = 800+50+900-50-50-12-12-16 = 1610 (mm)            Quantity = ((1610)/SPACING)+1 = ((1610)/125)+1 = 14            Weight = 80.462 (kg)</p>		<p>A = 90° Standard Hook = 110 (mm)            B = CL-LEG.A+0.2*PD+1.2*DIA(CDWL) = 6000-            110+0.2*128+1.2*16 = 5935 (mm)            Total = A+B-0.2*PD-1.2*DIA = 110+5935-0.2*128-1.2*16            Length = 6000 (mm)            Range = Quantity Given. Not Applicable.            Length            Quantity = 6            Weight = 568.800 (kg)</p>	

# Optimization Report

Drawing No. :001

Revision No. :0

Drawing Title :BBS

Grade	Barsize	Detailed Weight (kg)	Stock Bar Weight (kg)	Offcut Weight (kg)	Scrap Weight (kg)
DEFORMED Fe415	Y12	796.17	809.86	6.35	7.33
DEFORMED Fe415	Y16	1080.72	1080.72	0	0
DEFORMED Fe415	Y8	152.88	161.16	3.59	4.69
<b>Total</b>		2029.77	2051.74	9.94	12.02
				0.48%	0.59%

Grade :DEFORMED Fe415 Stock Bar Weight :809.86 kg Offcut Weight :6.35 kg Scrap Weight :7.33 kg

**Barsize :Y12** Detailed Weight :796.17 kg Offcut % :0.78% Scrap % :0.91%

Stock Length (mm)	Quantity	Cutting Length(mm)						
12000	1	F3/6 2005	F3/6 2005	F3/6 2005	F2/5 1805	F2/5 1805	F2/5 1805	OFFCUT 570
12000	1	F2/5 1805	F2/5 1805	F2/5 1805	OFFCUT 6585			
12000	9	F3/6 2005	F3/6 2005	F3/6 2005	F3/6 2005	F3/6 2005	F2/5 1805	SCRAP 170
12000	25	F2/5 1805	F2/5 1805	F2/5 1805	F2/4 1605	F2/4 1605	F2/4 1605	F2/4 1605
		...	F2/4 1605			SCRAP 165		
12000	40	F3/6 2005	F3/6 2005	F2/5 1805	F2/4 1605	F1/1 1505	F1/1 1505	F1/1 1505
		...	F1/1 1505			SCRAP 65		

Grade :DEFORMED Fe415 Stock Bar Weight :1080.72 kg Offcut Weight :0 kg Scrap Weight :0 kg

**Barsize :Y16** Detailed Weight :1080.72 kg Offcut % :0% Scrap % :0%

Stock Length (mm)	Quantity	Cutting Length(mm)	
12000	24	F2/3 6000	F3/3 6000
12000	3	F2/3 6000	F2/3 6000
12000	30	F1/3 6000	F2/3 6000

Grade :DEFORMED Fe415 Stock Bar Weight :161.16 kg Offcut Weight :3.59 kg Scrap Weight :4.69 kg

**Barsize :Y8**

Detailed Weight :152.88 kg

Offcut % :2.23%

Scrap % :2.91%

Stock Length (mm)	Quantity	Cutting Length(mm)						
12000	1	F2/2 1455	F2/2 1455	OFFCUT 9090				
12000	4	F2/2 1455	F2/2 1455	F2/2 1455	F1/2 1455	F1/2 1455	F1/2 1455	...
		...	F2/2 1455	F3/2 1455			SCRAP 360	
12000	6	F2/2 1455	F2/2 1455	F2/2 1455	F2/2 1455	F1/2 1455	F1/2 1455	...
		...	F2/2 1455	F3/2 1455			SCRAP 360	
12000	23	F2/2 1455	F2/2 1455	F2/2 1455	F2/2 1455	F1/2 1455	F1/2 1455	...
		...	F3/2 1455	F3/2 1455			SCRAP 360	

## Rebar Weight Projection

Job No:001

Job Name:Residential

**Grade : DEFORMED Fe415**

**Weight in Kg**

Sheet No	Element Name	Element Mark	Places	Y4	Y5	Y6	Y7	Y8	Y10	Y12	Y16	Y18	Y20	Y22	Y25	Y28	Y32	Y36	Y40	Y45	Y50	Total			
001	RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS	F1	5					40.23		160.37	284.40											485.00			
		F2	10					80.46		407.90	568.80											1057.16			
		F3	4					32.18		227.90	227.52											487.60			
Subtotal								<b>152.88</b>	<b>796.17</b>	<b>1080.72</b>													<b>2029.77</b>		
Sheet Total								<b>152.88</b>	<b>796.17</b>	<b>1080.72</b>															<b>2029.77</b>
GrandTotal								<b>152.88</b>	<b>796.17</b>	<b>1080.72</b>															<b>2029.77</b>

## Material Projection

Job No:001

Job Name:Residential

Residential GRAND TOTAL							
Details	Area (M <sup>2</sup> )	Volume (M <sup>3</sup> )	Cement (Kg)	Sand (Cft)	Aggregate Size	Aggregate (Cft)	Brick / Block (Nos)
RCC 1:1:2		36.15	20430.79	501.05	20mm	1002.09	
Earth Work		94.11					
Sand Bed	62.74	6.27		221.56			
PCC 1:1.5:3		6.27	2578.96	94.87	20mm	189.74	
<b>Grand Total</b>			<b>23009.75</b>	<b>817.48</b>		<b>1191.83</b>	<b>0</b>

## Material Projection

Job No:001

Job Name:Residential

Plan Ref	Element Name	Element Mark	Places	Details	Area (M <sup>2</sup> )	Volume (M <sup>3</sup> )	Cement (Kg)	Sand (Cft)	Aggregate Size	Aggregate (Cft)	Brick / Block (Nos)
FOOTINGS (001)	RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS	F1	5	RCC 1:1:2		7.30	4123.37	101.12	20mm	202.24	
				Earth Work		19.20					
				Sand Bed	12.80	1.28		45.20			
				PCC 1:1.5:3		1.28	526.15	19.36	20mm	38.71	
				<b>F1 Total</b>					<b>4649.52</b>	<b>165.68</b>	
		F2	10	RCC 1:1:2		18.58	10502.44	257.56	20mm	515.13	
				Earth Work		48.45					
				Sand Bed	32.30	3.23		114.07			
				PCC 1:1.5:3		3.23	1327.71	48.84	20mm	97.68	
				<b>F2 Total</b>					<b>11830.15</b>	<b>420.47</b>	
		F3	4	RCC 1:1:2		10.27	5804.98	142.36	20mm	284.72	
				Earth Work		26.46					
				Sand Bed	17.64	1.76		62.30			
				PCC 1:1.5:3		1.76	725.10	26.67	20mm	53.35	
				<b>F3 Total</b>					<b>6530.08</b>	<b>231.33</b>	
<b>RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS Total</b>				RCC 1:1:2		36.15	20430.79	501.05	20mm	1002.09	
				Earth Work		94.11					
				Sand Bed	62.74	6.27		221.56			
				PCC 1:1.5:3		6.27	2578.96	94.87	20mm	189.74	
<b>RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS Total</b>							<b>23009.75</b>	<b>817.48</b>		<b>1191.83</b>	<b>0</b>
<b>FOOTINGS (001) Total</b>							<b>23009.75</b>	<b>817.48</b>		<b>1191.83</b>	<b>0</b>

## Material Projection

Job No:001

Job Name:Residential

Calculation Sheet	
Plan - Sheet : FOOTINGS (001)	Element : RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS
Element Mark :F1	Places :5
<b>Dimensions :</b>	LENGTH(LENGTH) - <b>1500</b> , WIDTH(WIDTH) - <b>1500</b> , DEPTH(DEPTH) - <b>900</b> , Length of Column(L) - <b>400</b> , Width of Column(W) - <b>400</b> , DEPTH1(DEPTH1) - <b>500</b> , COLUMN OFFSET PROJECTION(P) - <b>50</b>
<b>RCC Volume</b>	= (LENGTH*WIDTH*DEPTH1)+(((DEPTH-DEPTH1)/3)*((LENGTH*WIDTH)+((L+2*P)*(W+2*P)))+SQRT(((LENGTH*WIDTH)*((L+2*P)*(W+2*P)))) = (1500*1500*500)+(((900-500)/3)*((1500*1500)+((400+2*50)*(400+2*50)))+sqrt(((1500*1500)*((400+2*50)*(400+2*50)))) = 1459083333.33 = 1.46 (M <sup>3</sup> ) 5 Place(s) => = 7.30 (M <sup>3</sup> )
<b>RCC Ratio 1:1:2 =&gt;</b>	Cement = 7.29541666666667 * 1 / 4, Sand = 7.29541666666667 * 1 / 4, Aggregate = 7.29541666666667 * 2 / 4 Cement = 1.82 * 1.57 (M <sup>3</sup> ), Sand = 1.82 * 1.57 (M <sup>3</sup> ), Aggregate = 3.65 * 1.57 (M <sup>3</sup> ) Cement = 2.86 * 1440 (kg), Sand = 2.86 * 35.3147 (Cft), Aggregate = 5.73 * 35.3147 (Cft) Cement = 4123.37 (kg), Sand = 101.12 (Cft), Aggregate = 202.24 (Cft)
<b>Earth Work Area</b>	=(LENGTH+2*EARTHWORK_SIDECLEARANCE)*(WIDTH+2*EARTHWORK_SIDECLEARANCE) = (1500+2*50)*(1500+2*50) = 2560000.00 EARTHWORK_DEPTH = 1500
<b>Earth Work Volume</b>	= AREA * EARTHWORK_DEPTH = 2560000.00 * 1500 = 3840000000.00 = 3.84 (M <sup>3</sup> ) 5 Place(s) => = 19.20 (M <sup>3</sup> )
<b>Sand Bed Area</b>	= (LENGTH+2*SANDBED_SIDEEXTRA)*(WIDTH+2*SANDBED_SIDEEXTRA) = (1500+2*50)*(1500+2*50) = 2560000.00 SANDBED_SIDEEXTRA = 50 SANDBED_THICKNESS = 100
<b>Sand Bed Volume</b>	= AREA * SANDBED_THICKNESS = 2560000.00 * 100 = 256000000.00 = 0.26 (M <sup>3</sup> ) 5 Place(s) => = 1.28 (M <sup>3</sup> )
<b>PCC Area</b>	= (LENGTH+2*PCC_SIDEEXTRA)*(WIDTH+2*PCC_SIDEEXTRA) = (1500+2*50)*(1500+2*50) = 2560000.00 PCC_SIDEEXTRA = 50 PCC_THICKNESS = 100
<b>PCC Volume</b>	= AREA * PCC_THICKNESS = 2560000.00 * 100.00 = 256000000.00 = 0.26 (M <sup>3</sup> ) 5 Place(s) => = 1.28 (M <sup>3</sup> )
<b>PCC Ratio 1:1.5:3 (20mm) =&gt;</b>	Cement = 1.28 * 1 / 5.5, Sand = 1.28 * 1.5 / 5.5, Aggregate = 1.28 * 3 / 5.5 Cement = 0.23 * 1.57 (M <sup>3</sup> ), Sand = 0.35 * 1.57 (M <sup>3</sup> ), Aggregate = 0.70 * 1.57 (M <sup>3</sup> ) Cement = 0.37 * 1440 (kg), Sand = 0.55 * 35.3147 (Cft), Aggregate = 1.10 * 35.3147 (Cft) Cement = 526.15 (kg), Sand = 19.36 (Cft), Aggregate = 38.71 (Cft)



## Material Projection

Job No:001

Job Name:Residential

Calculation Sheet	
Plan - Sheet : FOOTINGS (001)	Element : RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS
Element Mark :F2	Places :10
<b>Dimensions :</b>	LENGTH(LENGTH) - <b>1600</b> , WIDTH(WIDTH) - <b>1800</b> , DEPTH(DEPTH) - <b>900</b> , Length of Column(L) - <b>400</b> , Width of Column(W) - <b>400</b> , DEPTH1(DEPTH1) - <b>500</b> , COLUMN OFFSET PROJECTION(P) - <b>50</b>
<b>RCC Volume</b>	$= (\text{LENGTH} \times \text{WIDTH} \times \text{DEPTH1}) + \left( \frac{(\text{DEPTH} - \text{DEPTH1})}{3} \times ((\text{LENGTH} \times \text{WIDTH}) + ((\text{L} + 2 \times \text{P}) \times (\text{W} + 2 \times \text{P}))) + \text{SQRT}(((\text{LENGTH} \times \text{WIDTH}) \times ((\text{L} + 2 \times \text{P}) \times (\text{W} + 2 \times \text{P})))) \right)$ $= (1600 \times 1800 \times 500) + \left( \frac{(900 - 500)}{3} \times ((1600 \times 1800) + ((400 + 2 \times 50) \times (400 + 2 \times 50))) + \text{sqrt}(((1600 \times 1800) \times ((400 + 2 \times 50) \times (400 + 2 \times 50)))) \right) = 1858181861.47 = 1.86 \text{ (M}^3\text{)}$
10 Place(s) =>	= 18.58 (M <sup>3</sup> )
<b>RCC Ratio 1:1:2 =&gt;</b>	Cement = 18.5818186147076 * 1 / 4, Sand = 18.5818186147076 * 1 / 4, Aggregate = 18.5818186147076 * 2 / 4 Cement = 4.65 * 1.57 (M <sup>3</sup> ), Sand = 4.65 * 1.57 (M <sup>3</sup> ), Aggregate = 9.29 * 1.57 (M <sup>3</sup> ) Cement = 7.29 * 1440 (kg), Sand = 7.29 * 35.3147 (Cft), Aggregate = 14.59 * 35.3147 (Cft) Cement = 10502.44 (kg), Sand = 257.56 (Cft), Aggregate = 515.13 (Cft)
<b>Earth Work Area</b>	$= (\text{LENGTH} + 2 \times \text{EARTHWORK\_SIDE\_CLEARANCE}) \times (\text{WIDTH} + 2 \times \text{EARTHWORK\_SIDE\_CLEARANCE})$ $= (1600 + 2 \times 50) \times (1800 + 2 \times 50) = 3230000.00$ EARTHWORK_DEPTH = 1500
<b>Earth Work Volume</b>	$= \text{AREA} \times \text{EARTHWORK\_DEPTH}$ $= 3230000.00 \times 1500 = 4845000000.00 = 4.85 \text{ (M}^3\text{)}$
10 Place(s) =>	= 48.45 (M <sup>3</sup> )
<b>Sand Bed Area</b>	$= (\text{LENGTH} + 2 \times \text{SANDBED\_SIDE\_EXTRA}) \times (\text{WIDTH} + 2 \times \text{SANDBED\_SIDE\_EXTRA})$ $= (1600 + 2 \times 50) \times (1800 + 2 \times 50) = 3230000.00$ SANDBED_SIDE_EXTRA = 50 SANDBED_THICKNESS = 100
<b>Sand Bed Volume</b>	$= \text{AREA} \times \text{SANDBED\_THICKNESS}$ $= 3230000.00 \times 100 = 323000000.00 = 0.32 \text{ (M}^3\text{)}$
10 Place(s) =>	= 3.23 (M <sup>3</sup> )
<b>PCC Area</b>	$= (\text{LENGTH} + 2 \times \text{PCC\_SIDE\_EXTRA}) \times (\text{WIDTH} + 2 \times \text{PCC\_SIDE\_EXTRA})$ $= (1600 + 2 \times 50) \times (1800 + 2 \times 50) = 3230000.00$ PCC_SIDE_EXTRA = 50 PCC_THICKNESS = 100
<b>PCC Volume</b>	$= \text{AREA} \times \text{PCC\_THICKNESS}$ $= 3230000.00 \times 100.00 = 323000000.00 = 0.32 \text{ (M}^3\text{)}$
10 Place(s) =>	= 3.23 (M <sup>3</sup> )
<b>PCC Ratio 1:1.5:3 (20mm) =&gt;</b>	Cement = 3.23 * 1 / 5.5, Sand = 3.23 * 1.5 / 5.5, Aggregate = 3.23 * 3 / 5.5 Cement = 0.59 * 1.57 (M <sup>3</sup> ), Sand = 0.88 * 1.57 (M <sup>3</sup> ), Aggregate = 1.76 * 1.57 (M <sup>3</sup> ) Cement = 0.92 * 1440 (kg), Sand = 1.38 * 35.3147 (Cft), Aggregate = 2.77 * 35.3147 (Cft) Cement = 1327.71 (kg), Sand = 48.84 (Cft), Aggregate = 97.68 (Cft)

## Material Projection

Job No:001

Job Name:Residential

Calculation Sheet	
Plan - Sheet : FOOTINGS (001)	Element : RECTANGULAR ISOLATED SLOPED FOOTING WITH COL DWLS
Element Mark :F3 Places :4	
<b>Dimensions :</b>	LENGTH(LENGTH) - <b>2000</b> , WIDTH(WIDTH) - <b>2000</b> , DEPTH(DEPTH) - <b>900</b> , Length of Column(L) - <b>400</b> , Width of Column(W) - <b>400</b> , DEPTH1(DEPTH1) - <b>500</b> , COLUMN OFFSET PROJECTION(P) - <b>50</b>
<b>RCC Volume</b>	= (LENGTH*WIDTH*DEPTH1)+(((DEPTH-DEPTH1)/3)*((LENGTH*WIDTH)+((L+2*P)*(W+2*P)))+SQRT(((LENGTH*WIDTH)*((L+2*P)*(W+2*P)))) = (2000*2000*500)+(((900-500)/3)*((2000*2000)+((400+2*50)*(400+2*50)))+sqrt(((2000*2000)*((400+2*50)*(400+2*50)))) = 2567666666.67 = 2.57 (M <sup>3</sup> )
4 Place(s) =>	= 10.27 (M <sup>3</sup> )
<b>RCC Ratio 1:1:2 =&gt;</b>	Cement = 10.2706666666667 * 1 / 4, Sand = 10.2706666666667 * 1 / 4, Aggregate = 10.2706666666667 * 2 / 4 Cement = 2.57 * 1.57 (M <sup>3</sup> ), Sand = 2.57 * 1.57 (M <sup>3</sup> ), Aggregate = 5.14 * 1.57 (M <sup>3</sup> ) Cement = 4.03 * 1440 (kg), Sand = 4.03 * 35.3147 (Cft), Aggregate = 8.06 * 35.3147 (Cft) Cement = 5804.98 (kg), Sand = 142.36 (Cft), Aggregate = 284.72 (Cft)
<b>Earth Work Area</b>	=(LENGTH+2*EARTHWORK_SIDECLEARANCE)*(WIDTH+2*EARTHWORK_SIDECLEARANCE) = (2000+2*50)*(2000+2*50) = 4410000.00 EARTHWORK_DEPTH = 1500
<b>Earth Work Volume</b>	= AREA * EARTHWORK_DEPTH = 4410000.00 * 1500 = 6615000000.00 = 6.62 (M <sup>3</sup> )
4 Place(s) =>	= 26.46 (M <sup>3</sup> )
<b>Sand Bed Area</b>	= (LENGTH+2*SANDBED_SIDEEXTRA)*(WIDTH+2*SANDBED_SIDEEXTRA) = (2000+2*50)*(2000+2*50) = 4410000.00 SANDBED_SIDEEXTRA = 50 SANDBED_THICKNESS = 100
<b>Sand Bed Volume</b>	= AREA * SANDBED_THICKNESS = 4410000.00 * 100 = 441000000.00 = 0.44 (M <sup>3</sup> )
4 Place(s) =>	= 1.76 (M <sup>3</sup> )
<b>PCC Area</b>	= (LENGTH+2*PCC_SIDEEXTRA)*(WIDTH+2*PCC_SIDEEXTRA) = (2000+2*50)*(2000+2*50) = 4410000.00 PCC_SIDEEXTRA = 50 PCC_THICKNESS = 100
<b>PCC Volume</b>	= AREA * PCC_THICKNESS = 4410000.00 * 100.00 = 441000000.00 = 0.44 (M <sup>3</sup> )
4 Place(s) =>	= 1.76 (M <sup>3</sup> )
<b>PCC Ratio 1:1.5:3 (20mm) =&gt;</b>	Cement = 1.764 * 1 / 5.5, Sand = 1.764 * 1.5 / 5.5, Aggregate = 1.764 * 3 / 5.5 Cement = 0.32 * 1.57 (M <sup>3</sup> ), Sand = 0.48 * 1.57 (M <sup>3</sup> ), Aggregate = 0.96 * 1.57 (M <sup>3</sup> ) Cement = 0.50 * 1440 (kg), Sand = 0.76 * 35.3147 (Cft), Aggregate = 1.51 * 35.3147 (Cft) Cement = 725.10 (kg), Sand = 26.67 (Cft), Aggregate = 53.35 (Cft)