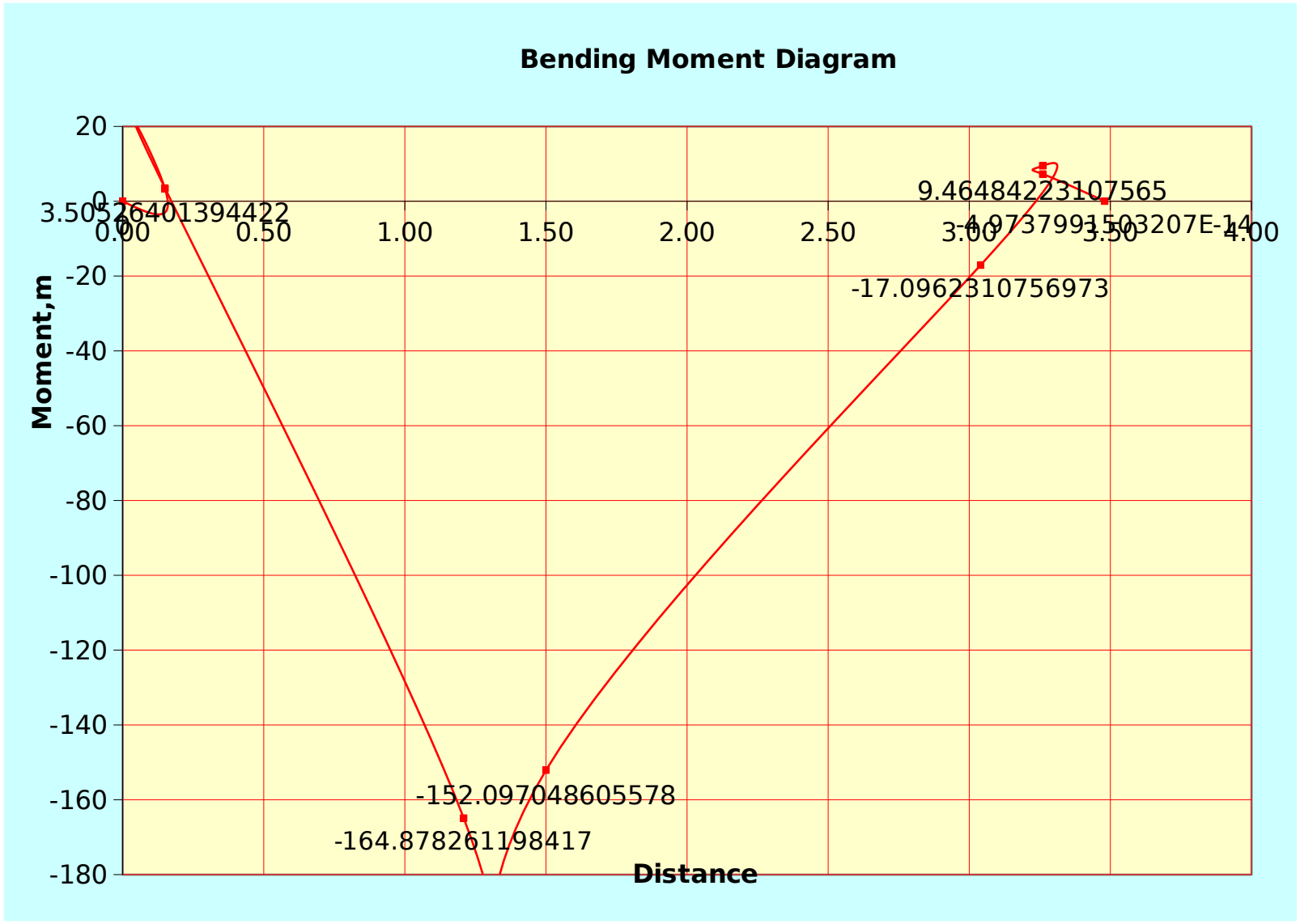
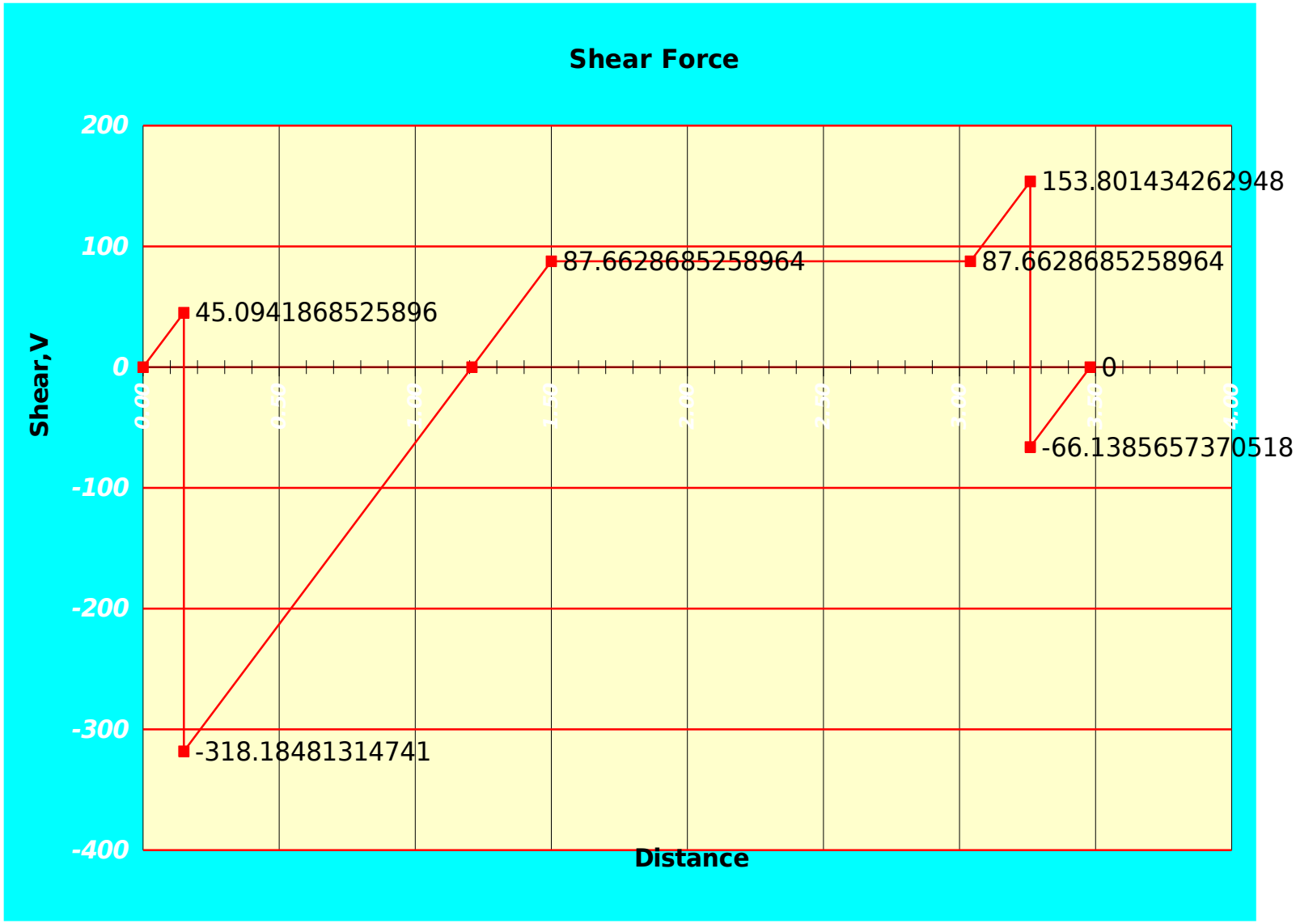
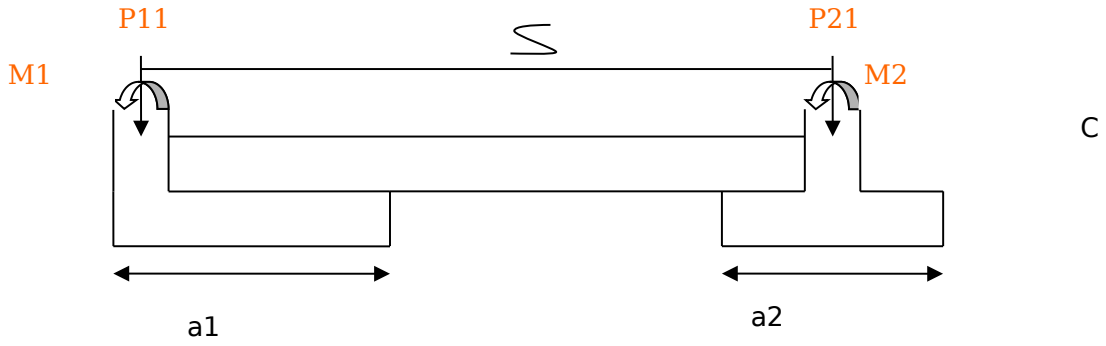

Bending Moment Diagram
Moment,m
Distance
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
3.5052640139442 2
9.46484223107565
-4.97379915032 07E-14
-17.0962310756973
-152.097048605578
-164.878261198417


Shear Force
200
100
0
-100
-200
-300
-400
Shear,V
Distance
153.801434262948
87.6628685258964
87.6628685258964
45.0941868525896
0
-66.1385657370518
-318.18481314741



EDITED CELLS ARE THE ONES HIGHLIGHTED BY BLUE COLOR

column size		**0.3**			
ultimate presure		**150**		**M1=**	**-0.1232**
spacing b/n columns(S		**3.11**		**P1=**	**363.279**
asume	**a1=**	**1.5**		**M2=**	**2.1896**
	e=	0.6		**P2=**	**219.94**
	Xr =	2.51			
	R1=	450.9419			
	b1=	2	**2**		
	R2=	132.2771			
	a2=	0.44	**0.45**		
	b2=	2	**2**		
	q1=	300.6279			
	q2=	293.9492			
	bearing1=	150.314			
	bearing2=	146.9746			

Moment and shear force computation

distance	**v**	**m**
0.00	0	0
0.15	45.0941869	3.382064
0.15	-318.18481	3.505264
1.21	0	-164.8783
1.50	87.6628685	-152.097
3.04	87.6628685	-17.09623
3.26	153.801434	9.464842
3.26	-66.138566	7.275242
3.48	0	-4.97E-14

Suppport Moment In The Transverse Direction

Pad1	**112.73547**
Pad2	**33.069283**

Footing Depth Determination

Assume	**d=(m)**	**0.35**

PUNCHING SHEAR

Vcp= 283.25

Punching Perimeter

For pad1	3
For pad2	5.4

Existing Punching Shear

On Pad1	195.8668	195.8668
On Pad2	-47.92119	47.92119

Punching Shear Capacity

Of Pad 1	**297.4125 ok**
Of Pad 2	**535.3425 ok**

WIDE BEAM SHEAR

shear length

2

Existing Wide Beam Shear

On Pad1	-147.0329	147.0329
On Pad2	80.83602	80.83602

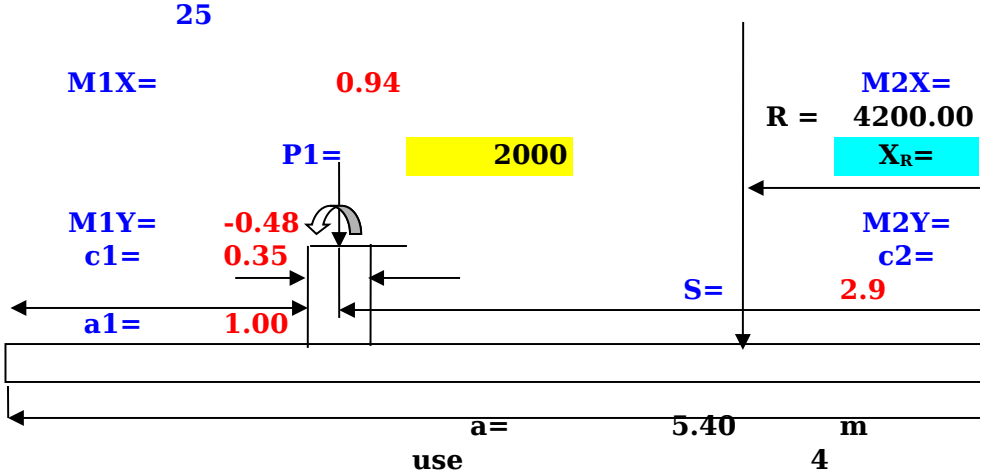
Shear capacity

198.275 Ok

	F1	F2	M3	M1	M2	F3
97	27.9309	20.619	2.6386	-47.4274	50.7633	268.5421
98	-1.6989	3.5527	6.69E-01	-3.7087	-9.8026	421.8543
100	4.91	27.692	-5.4288	-32.1661	-45.0442	256.5477
115	3.5454	-1.5758	0.0201	2.6386	3.6875	423.513

F-1(comb.-1)

f_{yd}	347.83
the allowable stress	230.00
f_{cd}	11.33
f_{ctd}	1031.53
K1	1.1
K2	0.9
Fc	25



use 4

	kN/m2	kN/m	
acting stress (S_{act})	228.76	777.78	safe

wide beam shear resistance

Vwr= 607.62 kN

Mshort(positive)

wide beam shear acting

Max.Shear 1286.11

Short bars

Vw= 605.56 safe

punching shear resistance

Vrd= 255.30 kN/m2

acting punching shear force

Vact= 496.11 kN

208.45 kN/m2 safe

M(fop top reinf.)	-526.34	Negative(bars)	-1940.56
M(bottom reinf.)	538.76	posetive bars	2.16075

LONG-DIRECTION (TOP REINF.)

Maximum Moment =

Mtop = 526.34 KNm/m

ρ = (f_{cd} / f_{yd})[1-SQRT(1-(2M_u/ f **b= 1000**

= 0.0043 **d= 700**

fyd= 260.87 Mpa

f_{cd}= 11.33 Mpa

ρ_{min}= 0.002

M_{y-y} = 526.34 KNm/m

ρ = 0.004

A_s= ρbd 3033.64 mm²

Using Ø 20 bars a_s= 314.00 mm²

There fore No. of bars = 11.00 (Per unit width(per 1m wid

Hence use Ø 20 c/c

LONG-DIRECTION (BOTTOM REINF.)

Maximum Moment =

Mbottom = 538.76 KNm/m

ρ = (f_{cd} / f_{yd})[1-SQRT(1-(2M_u/ f **b= 1000**

= 0.0044 **d= 700**

fyd= 260.87 Mpa

f_{cd}= 11.33 Mpa

ρ_{min}= 0.002

M_{y-y} = 538.76 KNm/m

ρ = 0.004

A_s= ρbd 3109.30 mm²

Using Ø 20 bars a_s= 314.00 mm²

There fore No. of bars = 11.00 (Per unit width(per 1m wid

Hence use Ø 20 c/c

SHORT-DIRECTION (TOP REINF.)

Maximum Moment =

Mtop = 0.85 KNm/m

ρ = (f_{cd} / f_{yd})[1-SQRT(1-(2M_u/ f **b= 1000**

= 0.0000 **d= 700**

fyd= 260.87 Mpa

f_{cd}= 11.33 Mpa

ρ_{min}= 0.002

M_{y-y} = 0.85 KNm/m

ρ = 0.002

A_s= ρbd 1400.00 mm²

Using Ø 16 bars a_s= 200.96 mm²

There fore No. of bars = 8.00 (Per unit width(per 1m wid

Hence use Ø 16 c/c

SHORT-DIRECTION (BOTTOM REINF.)

Maximum Moment =

Mbottom = 486.65 KNm/m

ρ = (f_{cd} / f_{yd})[1-SQRT(1-(2M_u/ f b= 1000

= 0.0040 d= 700

fyd= 260.87 Mpa

f_{cd}= 11.33 Mpa

ρ_{min}= 0.002

M_{y-y} = 486.65 KNm/m

ρ = 0.004

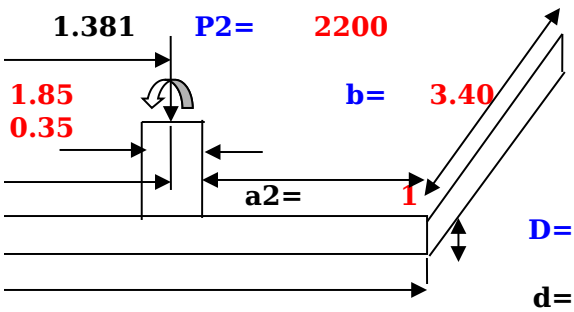
A_s= ρbd 2793.30 mm²

Using Ø 20 bars a_s= 314.00 mm²

There fore No. of bars = 10.00 (Per unit width(per 1m wid

Hence use Ø 20 c/c

a2



				Moment and shear force c
588.235	684.01		distance	shear
647.059	752.41		0.000	0.00
			1.175	913.89
		At P2	1.175	-1286.11
		X_{max}=	2.829	0.00
			4.075	969.44
		At P1	4.075	-1030.56
			5.250	-116.67

(EBCS-2 7.2.2.2)

lth)

100 mm (long-direction TOP bars)

(EBCS-2 7.2.2.2)

lth)

100 mm (long-direction BOTTOM bars)

(EBCS-2 7.2.2.2)

lth)

140 mm (long-direction TOP bars)

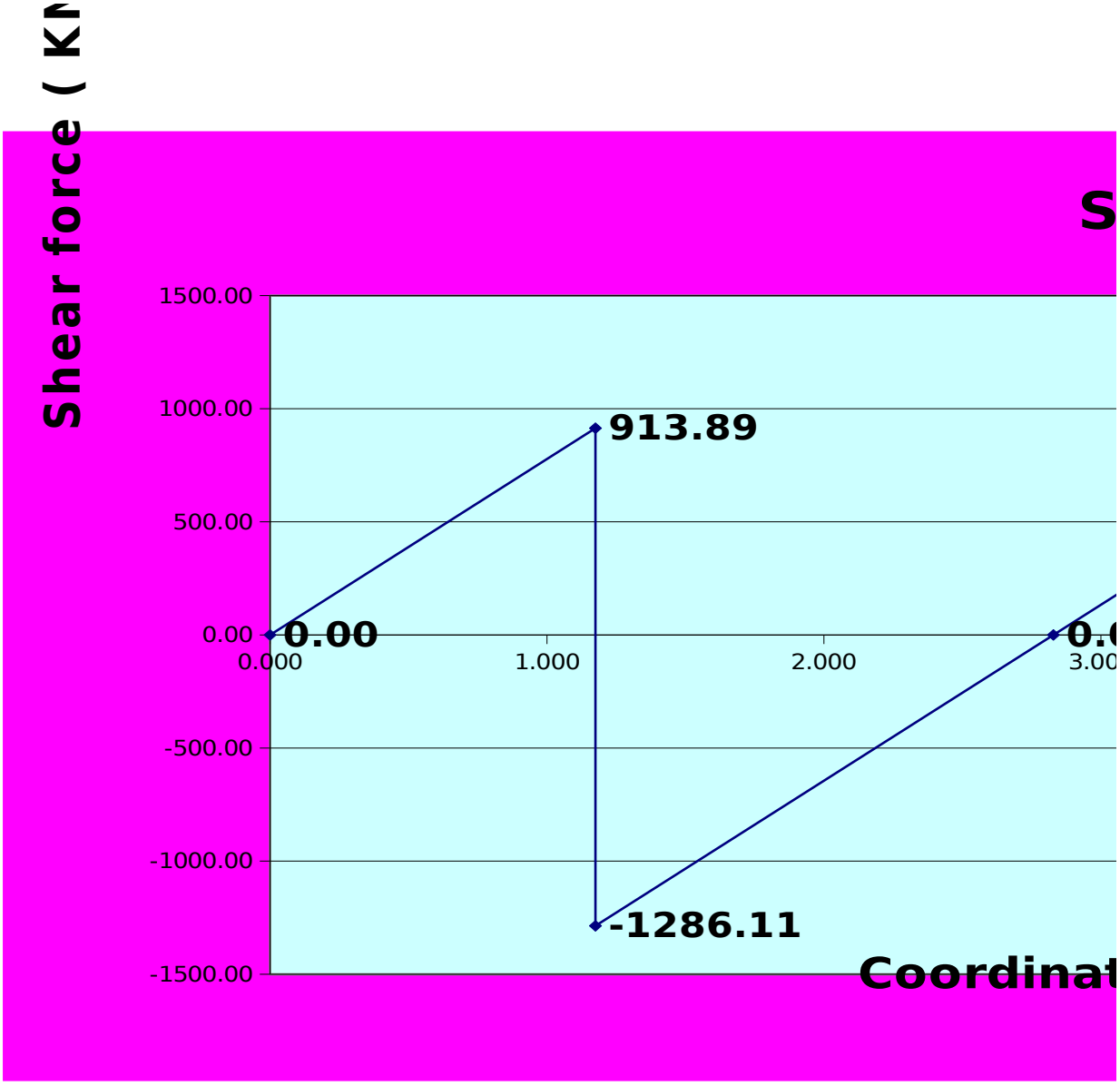
(EBCS-2 7.2.2.2)

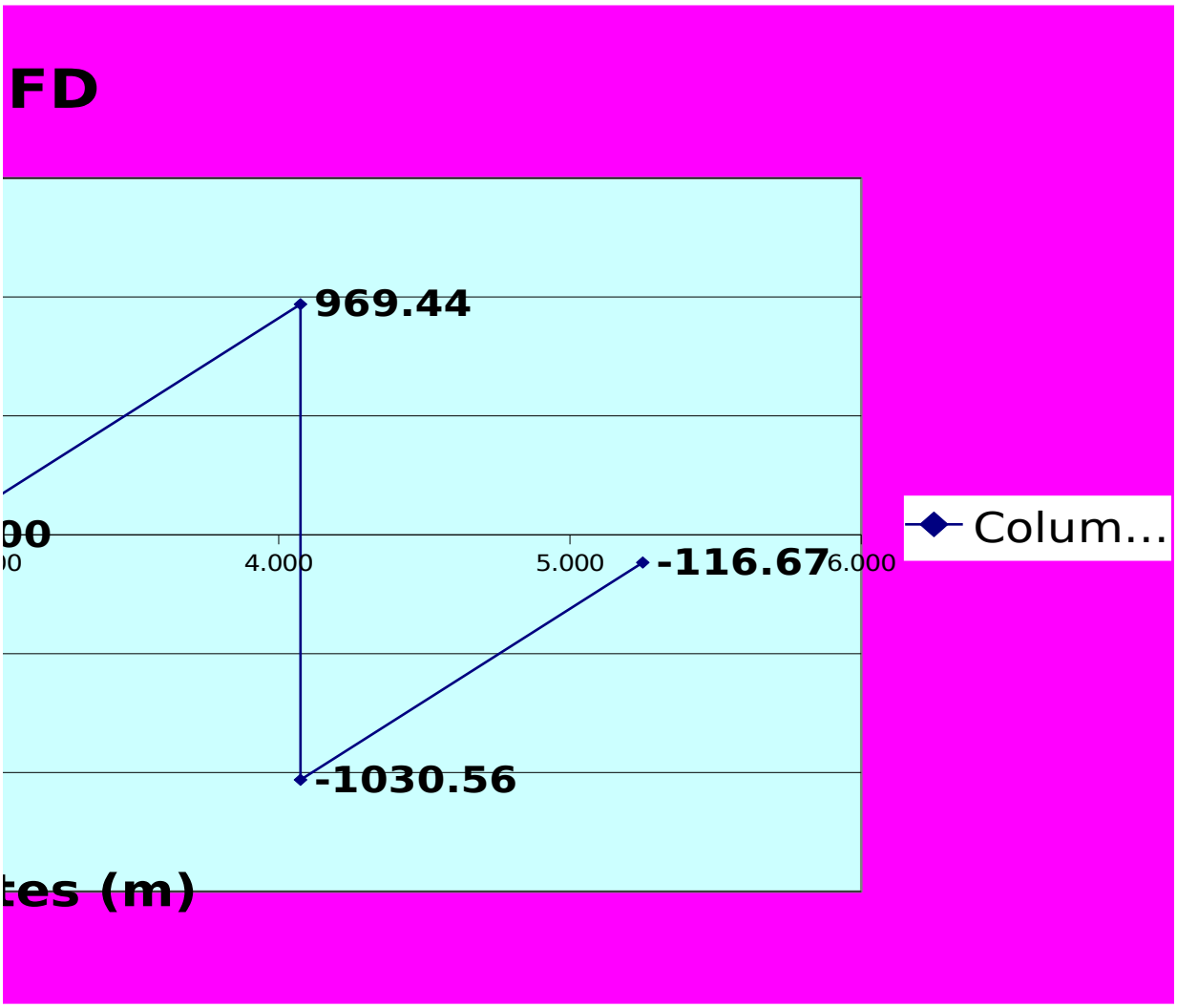
lth)

110 mm (long-direction BOTTOM bars)

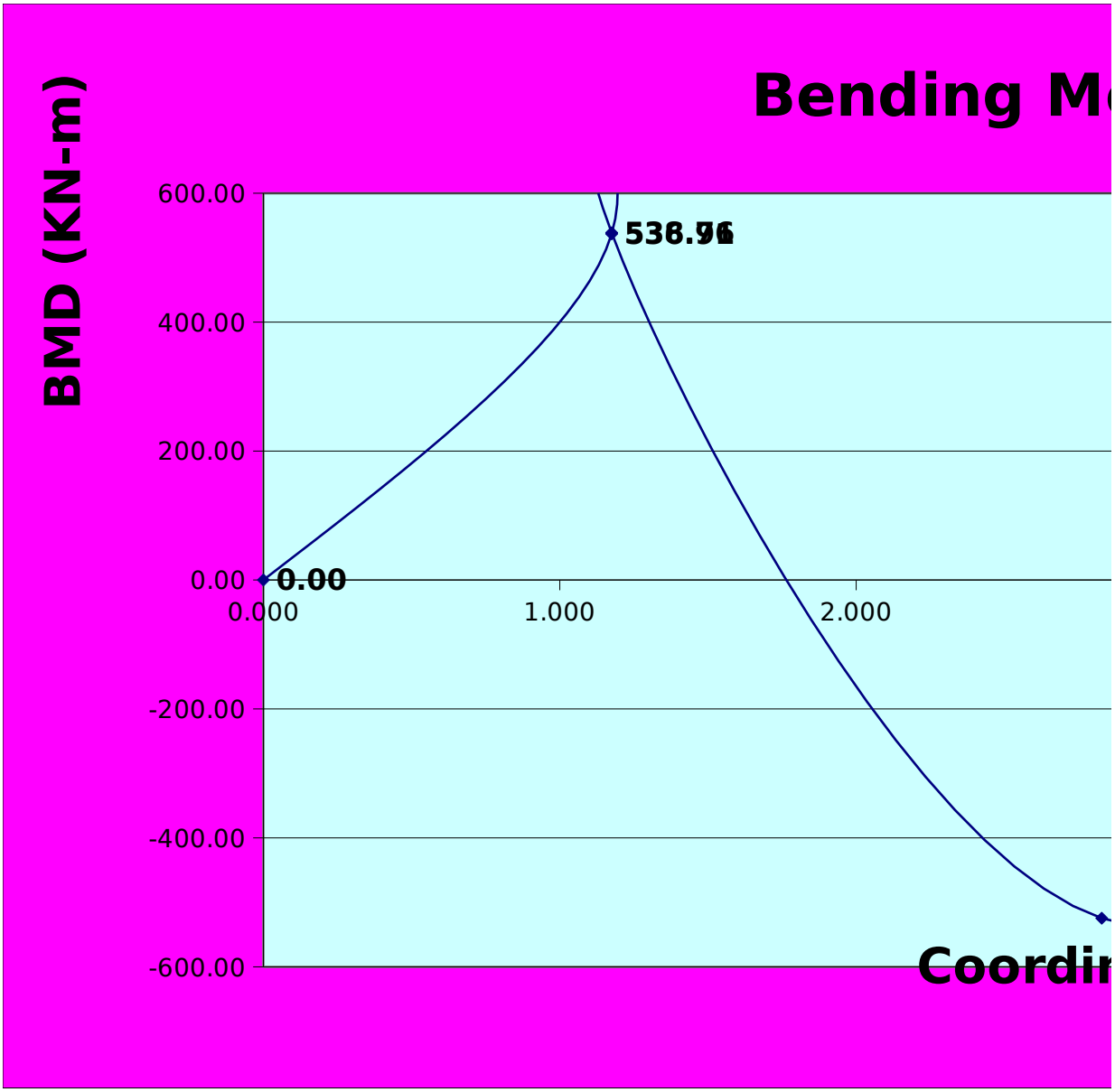
omputation

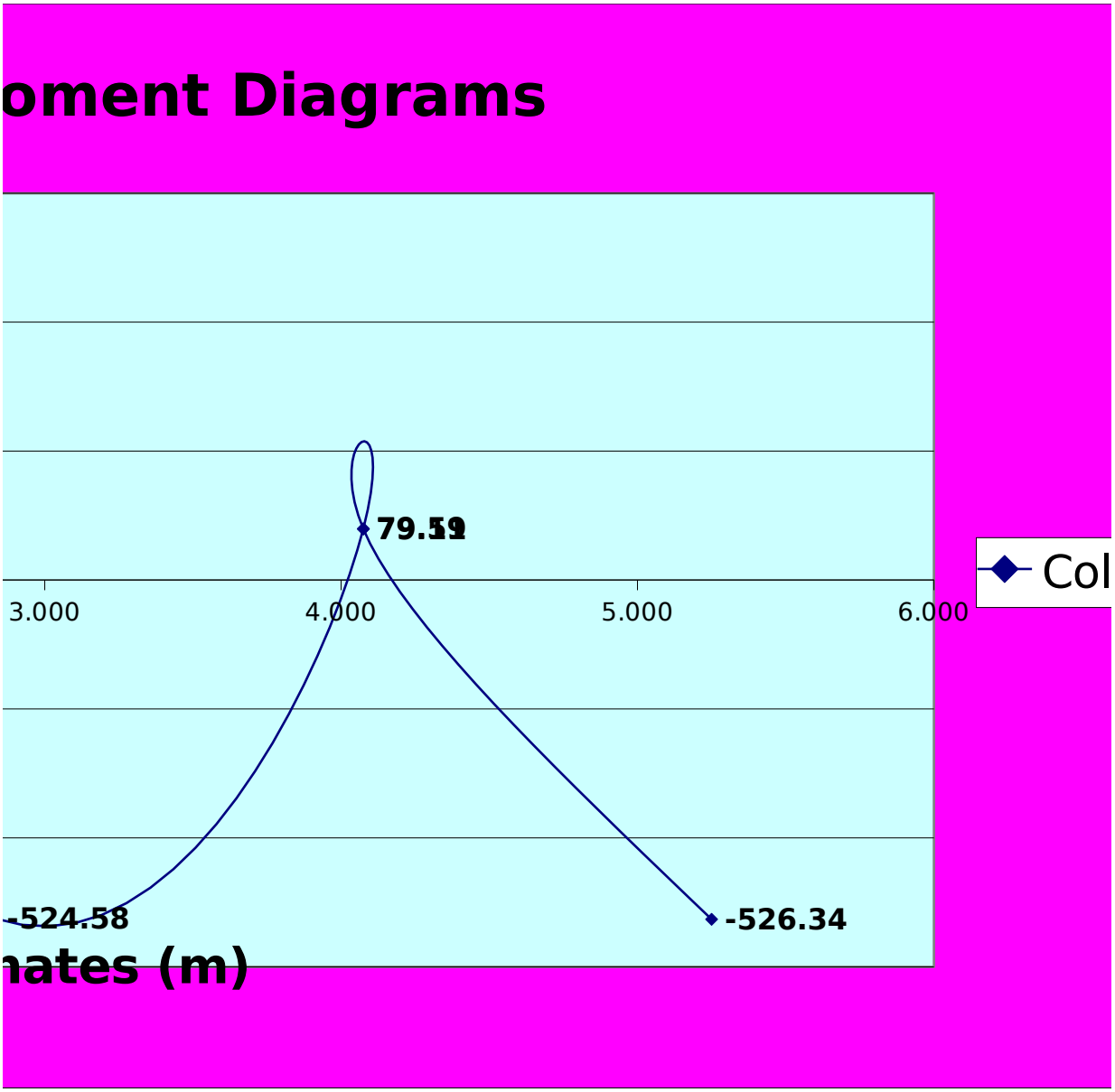
mom.	
0.00	
536.91	
538.76	
-524.58	(for Top Reinf.)
79.59	
79.11	
-526.34	

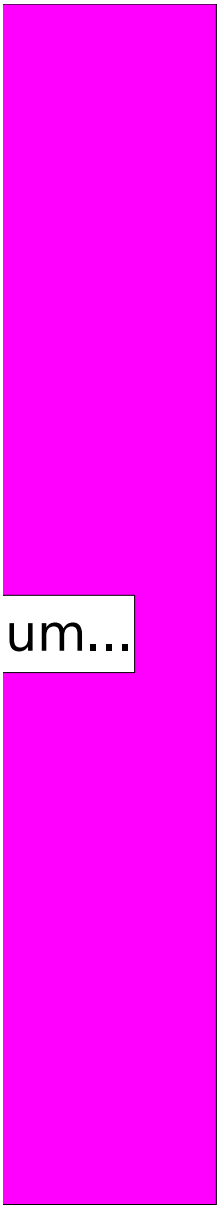

Shear force (KN
S
1500.00
1000.00
500.00
0.00
-500.00
-1000.00
-1500.00
913.89
0.00
-1286.11
0.000
1.000
2.000
3.00
Coordinat


FD
969.44
00
4.000
5.000
-116.67
6.000
-1030.56
Colum...
tes (m)




Bending M
BMD (KN-m)
600.00
400.00
200.00
0.00
-200.00
-400.00
-600.00
0.00
0.000
1.000
2.000
Coordi


oment Diagrams
3.000
4.000
5.000
6.000
79.51
-524.58
-526.34
Col
nates (m)


um...