Printing Input Parameters.....

parameters	unit	values	Unnamed: 3
Basin Area	sq mile	5.0	nan
Avg_GL	feet-PWD	5.248	nan
Highest Water Level ,RS	feet-PWD	13.956	nan
Lowest Water Level,RS	feet-PWD	-6.56	18.875999999999998
Moonsoon Lowest Water Level	feet-PWD	-4.65	nan
Embankment Crest Level	feet-PWD	18.04	nan
Embankment Top Width	feet-PWD	19.68	nan
C/S Slope (1:N)	nan	2.0	nan
R/S Slope	nan	3.0	nan
Invert Level	feet-PWD	-4.92	nan
Runoff/sq mile	cfs/sqmile	85.0	nan
No Vent	nan	2.0	nan
Vent Width	feet	5.0	nan
Vent Height	feet	6.0	nan
Pier_width	inch	27.55	nan
Abutment_width	inch	31.48	nan
flare_Angle_min	degree	8.0	nan
flare_Angle_max	degree	12.0	nan
glacis_drop_min	feet	3.0	nan
glacis_drop_max	feet	4.0	nan
Barrel Length	feet	32.8	nan
cutoff_depth_min	min	10.0	nan

cutoff_depth_max	max	13.12	nan
Laycey's Silt Factor	nan	0.4	nan
maximum head difference	feet	18.87	nan
Allowable Exit Gradient	nan	0.143	nan
maximum_floor_thickness	feet	2.62	nan
Top_slab_thickness	inch	19.68	nan
unit weight of fill soil	pcf	120.0	nan
friction Angle of fill soil	degree	30.0	nan
surcharge height	feet	15.42	nan
return wall level	fee-pwd	14.0	nan

Printing Stilling Basin Calcualtion in FPS unit.....

Q	FAngle	g_drop	Bc	q	dc	vc	B1	q1	d1	v1	B2	q2	d2	v2	Fr1	LJ	Eff	Del_E	Del_E(%)
874.36	8.0	3.0	12.3	71.11	5.395	13.18	14.826	58.976	2.508	23.512	25.691	34.033	8.111	4.196	2.616	38.657	80.5	2.161	19.5
874.36	8.0	4.0	12.3	71.11	5.395	13.18	15.669	55.802	2.212	25.225	27.494	31.801	8.309	3.827	2.989	42.071	74.5	3.083	25.5
874.36	9.0	3.0	12.3	71.11	5.395	13.18	15.147	57.726	2.446	23.597	27.408	31.902	8.056	3.96	2.659	38.707	79.8	2.239	20.2
874.36	9.0	4.0	12.3	71.11	5.395	13.18	16.097	54.318	2.146	25.309	29.394	29.746	8.23	3.615	3.045	41.975	73.6	3.187	26.4
874.36	10.0	3.0	12.3	71.11	5.395	13.18	15.47	56.52	2.387	23.678	29.131	30.014	8.001	3.751	2.701	38.739	79.1	2.316	20.9
874.36	10.0	4.0	12.3	71.11	5.395	13.18	16.528	52.902	2.084	25.389	31.291	27.942	8.151	3.428	3.099	41.864	72.8	3.288	27.2
874.36	11.0	3.0	12.3	71.11	5.395	13.18	15.795	55.358	2.33	23.755	30.862	28.332	7.947	3.565	2.742	38.756	78.4	2.392	21.6
874.36	11.0	4.0	12.3	71.11	5.395	13.18	16.961	51.551	2.025	25.464	33.188	26.346	8.074	3.263	3.154	41.74	72.0	3.386	28.0
874.36	12.0	3.0	12.3	71.11	5.395	13.18	16.122	54.234	2.276	23.828	32.599	26.822	7.893	3.398	2.783	38.759	77.8	2.466	22.2
874.36	12.0	4.0	12.3	71.11	5.395	13.18	17.397	50.258	1.968	25.535	35.084	24.922	7.998	3.116	3.207	41.605	71.2	3.482	28.8

Printing Stilling Basin Calcualtion in MKS unit.....

Q	FAngle	g_drop	Bc	q	dc	vc	B1	q1	d1	v1	B2	q2	d2	v2	Fr1	LJ	Eff	Del_E	Del_E(%)
24.77	8.0	0.91	3.75	6.61	1.64	4.02	4.52	5.48	0.76	7.17	7.83	3.16	2.47	1.28	2.616	12.0	80.5	0.66	19.5
24.77	8.0	1.22	3.75	6.61	1.64	4.02	4.78	5.19	0.67	7.69	8.38	2.96	2.53	1.17	2.989	13.0	74.5	0.94	25.5
24.77	9.0	0.91	3.75	6.61	1.64	4.02	4.62	5.36	0.75	7.19	8.36	2.96	2.46	1.21	2.659	12.0	79.8	0.68	20.2
24.77	9.0	1.22	3.75	6.61	1.64	4.02	4.91	5.05	0.65	7.72	8.96	2.76	2.51	1.1	3.045	13.0	73.6	0.97	26.4
24.77	10.0	0.91	3.75	6.61	1.64	4.02	4.72	5.25	0.73	7.22	8.88	2.79	2.44	1.14	2.701	12.0	79.1	0.71	20.9
24.77	10.0	1.22	3.75	6.61	1.64	4.02	5.04	4.92	0.64	7.74	9.54	2.6	2.49	1.05	3.099	13.0	72.8	1.0	27.2
24.77	11.0	0.91	3.75	6.61	1.64	4.02	4.82	5.14	0.71	7.24	9.41	2.63	2.42	1.09	2.742	12.0	78.4	0.73	21.6
24.77	11.0	1.22	3.75	6.61	1.64	4.02	5.17	4.79	0.62	7.76	10.12	2.45	2.46	0.99	3.154	13.0	72.0	1.03	28.0
24.77	12.0	0.91	3.75	6.61	1.64	4.02	4.92	5.04	0.69	7.26	9.94	2.49	2.41	1.04	2.783	12.0	77.8	0.75	22.2
24.77	12.0	1.22	3.75	6.61	1.64	4.02	5.3	4.67	0.6	7.79	10.7	2.32	2.44	0.95	3.207	13.0	71.2	1.06	28.8

Printing Basin Selection Data.....

Parmeter Name	Unit	Values
Discharge/ft	cfs/ft	71.11
Flare Angle	Degree	11.0
Glasis_Drop	Feet	4.0
Exit Velocity	Feet/sec	3.26
Fr1		3.15
Jump_Length	Feet	41.74
Energy Loss(%)	%	28.0
Floor Length	Feet	147.0
Point_1	Feet	0.0
Point_2	Feet	57.0
Point_3	Feet	90.0
Point_4	Feet	147.0

Printing Seepage Calcualtion Data.....

locations	uncorrected	mc_corr	t_corrr	corrected
Phi_E	35.33	-2.108350131429455	1.2	36.23
Phi_C1	64.67	2.108350131429455	1.2	67.99

Printing thickness calcualtion data.....

location	p(%)	p(feet)	th_min(feet)
1.0	67.99	12.83	0.0
2.0	55.67	10.5	0.0
3.0	48.55	9.16	6.54
4.0	36.23	6.84	4.89

Printing Detiled thickness calcualtion data.....

dist	P%	Hw	Bi	-WwL	Net(Hw)	t_req
0.0	36.23	6.84	23.0	2.91	3.93	2.81
3.0	36.87816326530612	6.96	22.44	2.98	3.98	2.84
6.0	37.526326530612245	7.08	21.87	3.06	4.02	2.87
9.0	38.17448979591836	7.2	21.31	3.14	4.06	2.9
12.0	38.822653061224486	7.33	20.75	3.23	4.1	2.93
15.0	39.47081632653061	7.45	20.18	3.32	4.13	2.95
18.0	40.118979591836734	7.57	19.62	3.41	4.16	2.97
21.0	40.76714285714286	7.69	19.06	3.51	4.18	2.99
24.0	41.415306122448975	7.82	18.49	3.62	4.2	3.0
27.0	42.0634693877551	7.94	17.93	3.73	4.21	3.01
30.0	42.71163265306122	8.06	17.37	3.85	4.21	3.01
33.0	43.35979591836735	8.18	16.8	3.98	4.2	3.0
36.0	44.007959183673464	8.3	16.24	4.12	4.18	2.99
39.0	44.65612244897959	8.43	15.68	4.27	4.16	2.97
42.0	45.30428571428571	8.55	15.11	4.43	4.12	2.94
45.0	45.952448979591836	8.67	14.55	4.6	4.07	2.91
48.0	46.60061224489796	8.79	13.99	4.79	4.0	2.86
51.0	47.24877551020408	8.92	13.42	4.99	3.93	2.81
54.0	47.8969387755102	9.04	12.86	5.2	3.84	2.74
57.0	48.545102040816325	9.16	12.3	5.44	3.72	2.66

Printing Input Data for Load Calcualtions.....

Parameter Name	Unit	Parameter Value	Detail Name
VW	feet	5.0	Vent Inner Span/width
VH	feet	6.0	Vent Height
NV	nos	2.0	No of Vents
Tt	inch	19.68	Top Slab thicjness
Ts	inch	31.48	Abutmet Thicknes
Tb	inch	36.12	Bottom Slab Thicknes
Tp	inch	27.55	Pier Thicknes
gamma_s	pcf	120.0	Soil Fill Unit Wieght
phi	degree	30.0	friction angle of back fill soil
H	feet	15.42	Height of srcharge above pier
MPF	unitless	1.2	Multiple Presnce Factor
IM	unitless	1.3	Impact factor for Dynamic Loading
INVERT_LEVEL	ft-pwd	-4.92	Invert Level of Regulator
EMBANKMENT_CREST_LEVEL	ft-pwd	18.04	Emnakment Crest Level
h_prime	ft	3.0	Additional Surcharge load above Embankemt

Printing Barrel Load.....

Notations	LoadName	LoadUnits	LoadType	Load_Value_Maximum	Load_Value_Minimum
TSL	Load on Top Slab	klf	UDL	-2.127	-2.127
BSL	Load on Bottom Slab	klf	UDL	2.514	2.514
SWL+	Load on Left Side Wall	klf	Trapizoidal	1.1592	1.6587
SWL(-)	Load on Right Side Wall	klf	Trapizoidal	-1.1592	-1.6587

Wrtitng Node Info.....

JointNo	Marker	Xcoordiante	Ycoordinate	R_x	R_y	R_rotation
1	A	0.0	99.9	1	1	0
2	B	89.515	99.9	1	1	0
3	C	179.03	99.9	1	1	0
4	D	0.0	0.0	1	1	0
5	E	89.515	0.0	1	1	0
6	F	179.03	0.0	1	1	0

Writing Member Info.....

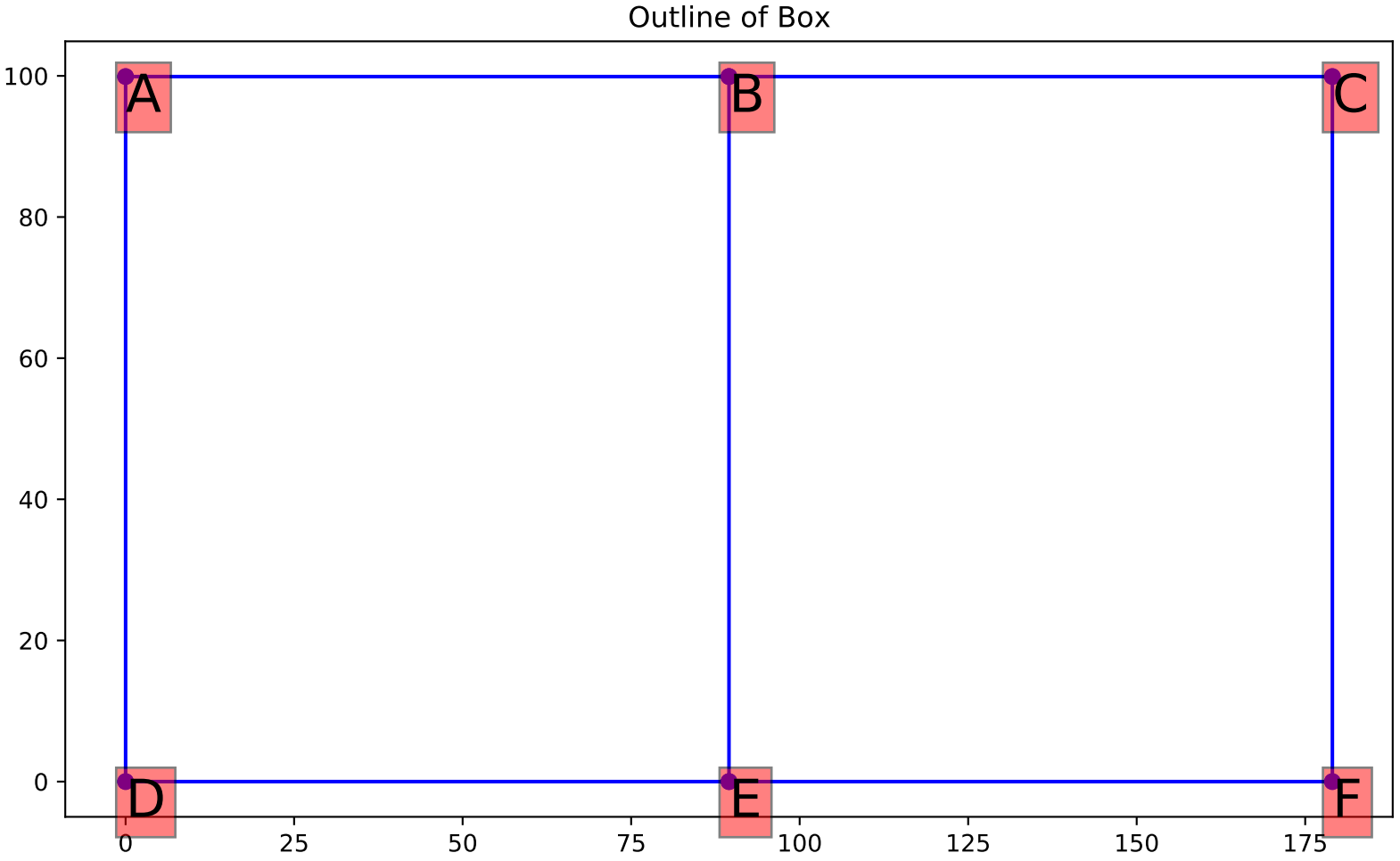
MemberNo	joint_i	joint_k	Area	I	E
1.0	1.0	2.0	236.16	7622.111231999999	3122.0
2.0	2.0	3.0	236.16	7622.111231999999	3122.0
3.0	4.0	5.0	433.43999999999994	47124.11692799998	3122.0
4.0	5.0	6.0	433.43999999999994	47124.11692799998	3122.0
5.0	1.0	4.0	2.623333333333333	31196.377792000003	3122.0
6.0	2.0	5.0	330.6	20910.518875	3122.0
7.0	3.0	6.0	2.623333333333333	31196.377792000003	3122.0

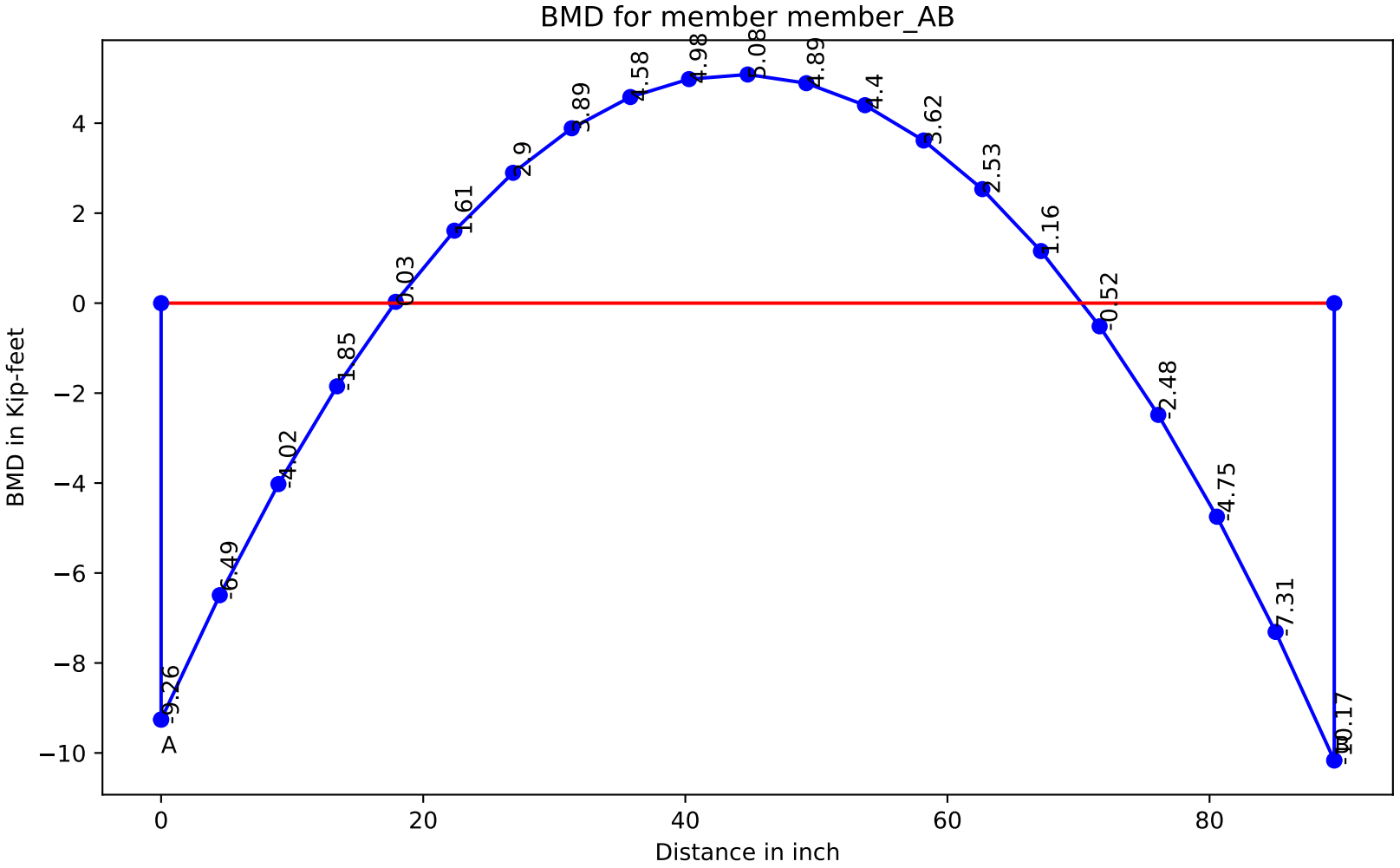
Writing Member Load Info.....

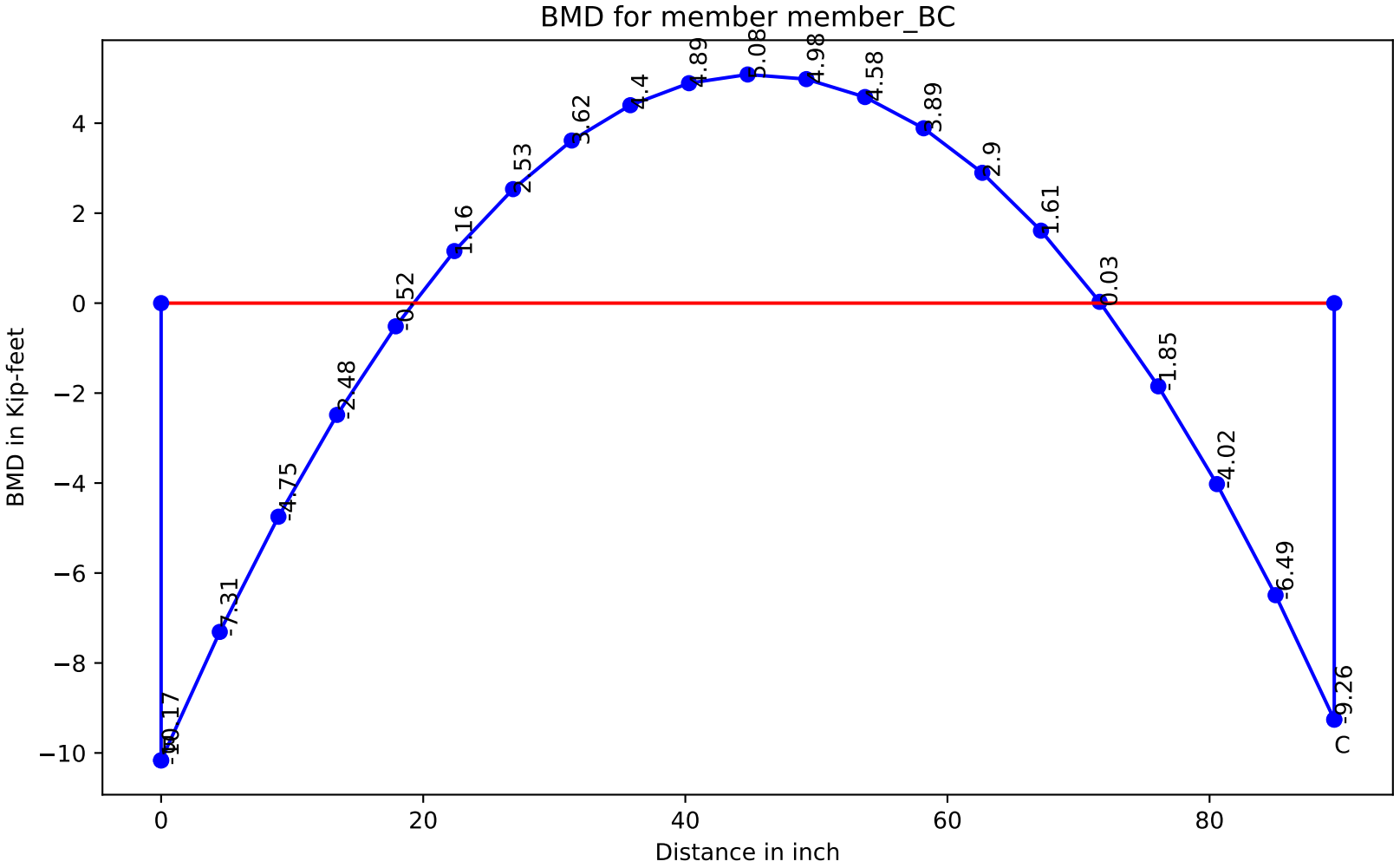
load_value	application_point	Type	memberNo	w2
-0.17725	0.0	3.0	1.0	-0.17725
-0.17725	0.0	3.0	2.0	-0.17725
0.2095	0.0	3.0	3.0	0.2095
0.2095	0.0	3.0	4.0	0.2095
0.0966	0.0	7.0	5.0	0.13822500000000001
-0.0966	0.0	7.0	7.0	-0.13822500000000001

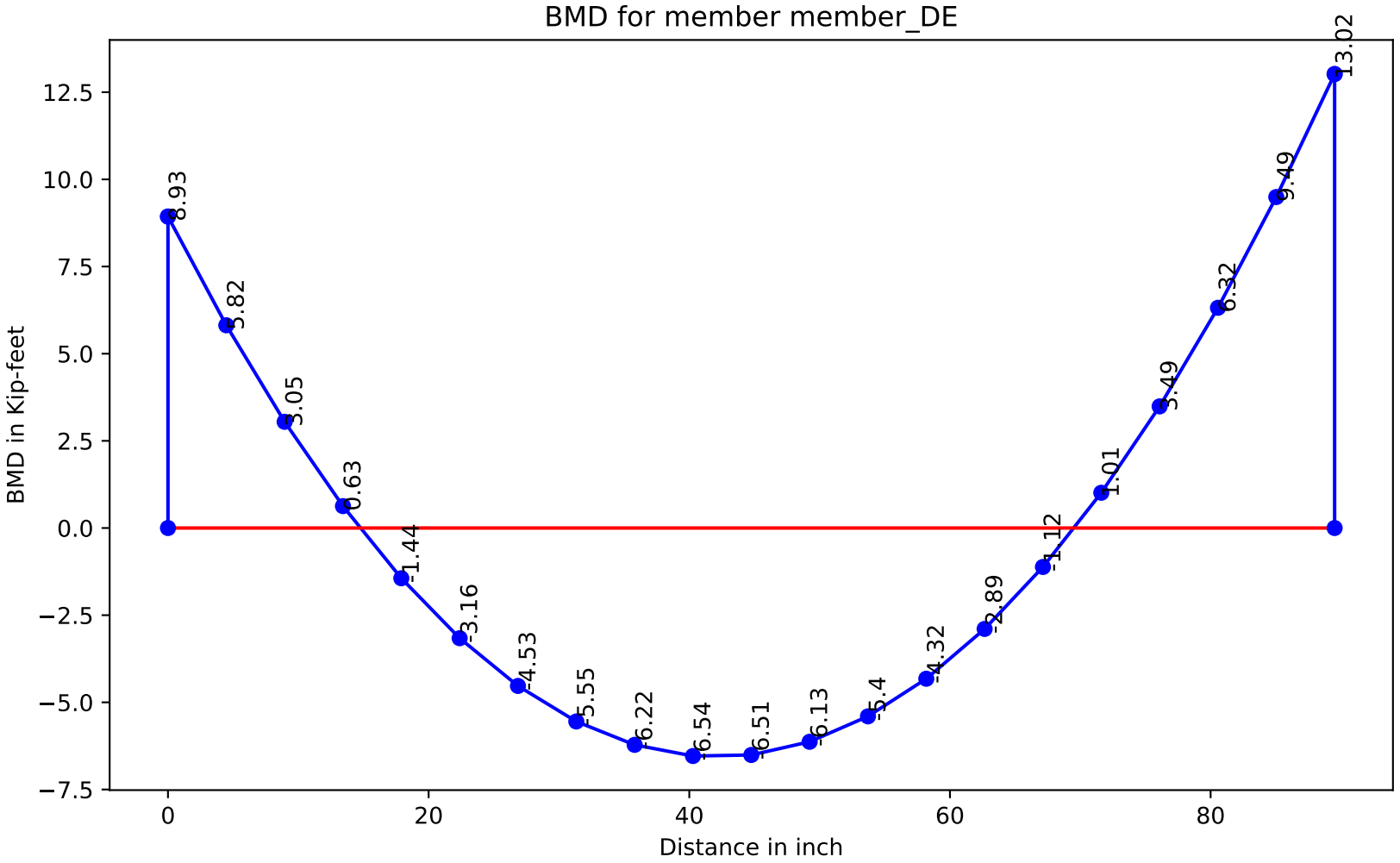
Wrting Joint Load Info.....

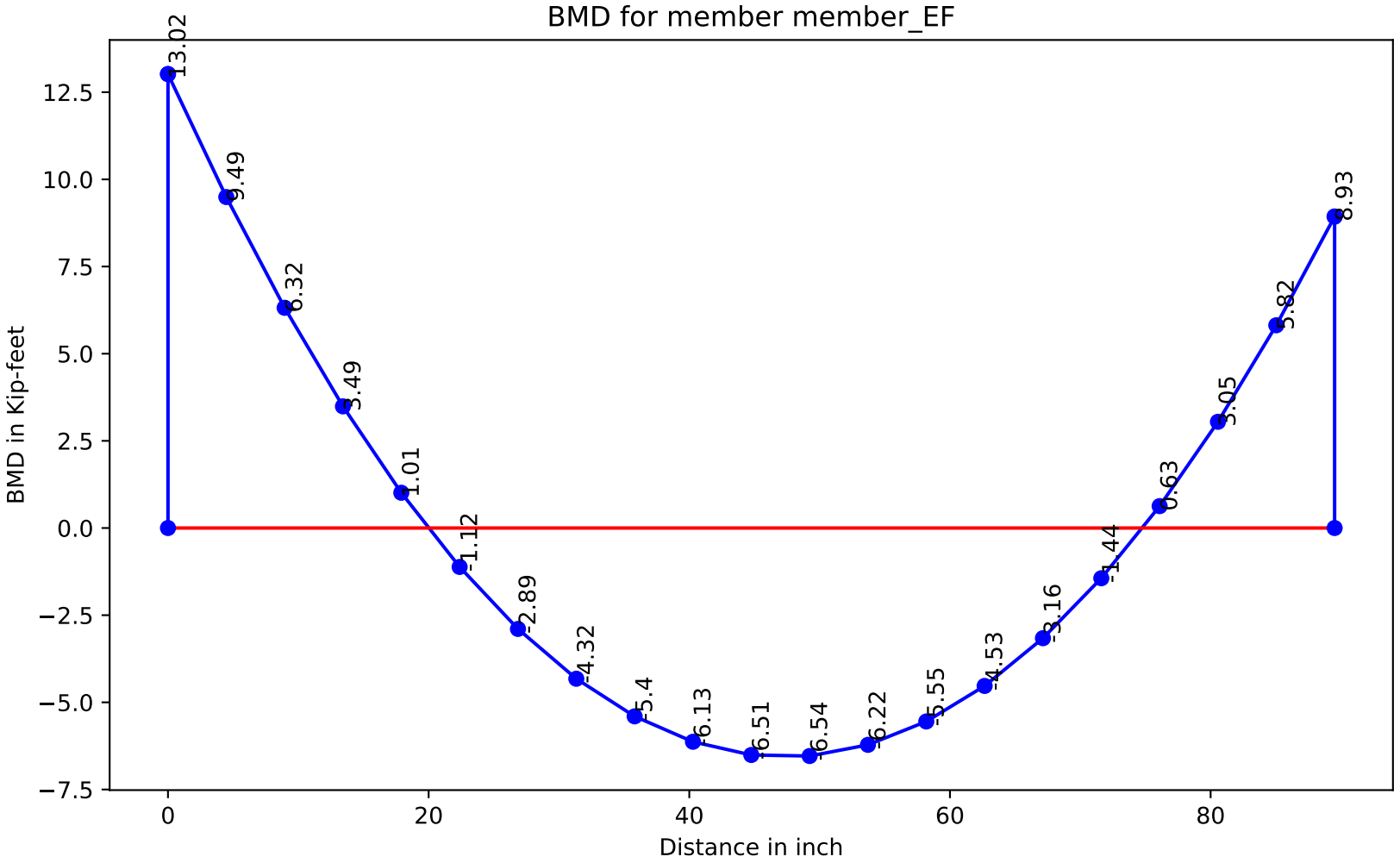
JointNo	xvalue	yvalue	mvalue
0	0	0	0

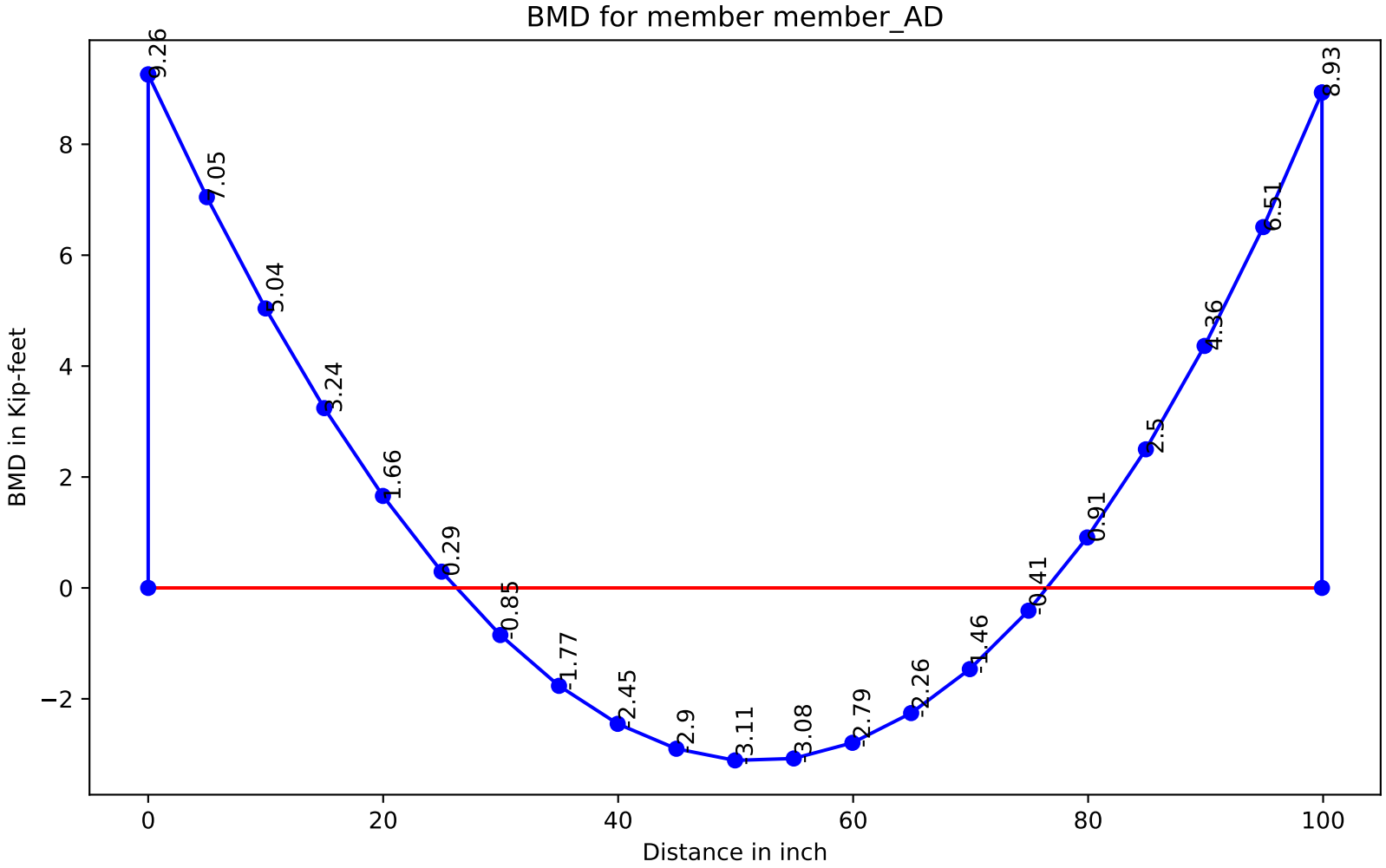

Outline of Box
A
B
C
D
E
F
100
80
60
40
20
0
0
25
50
75
100
125
150
175

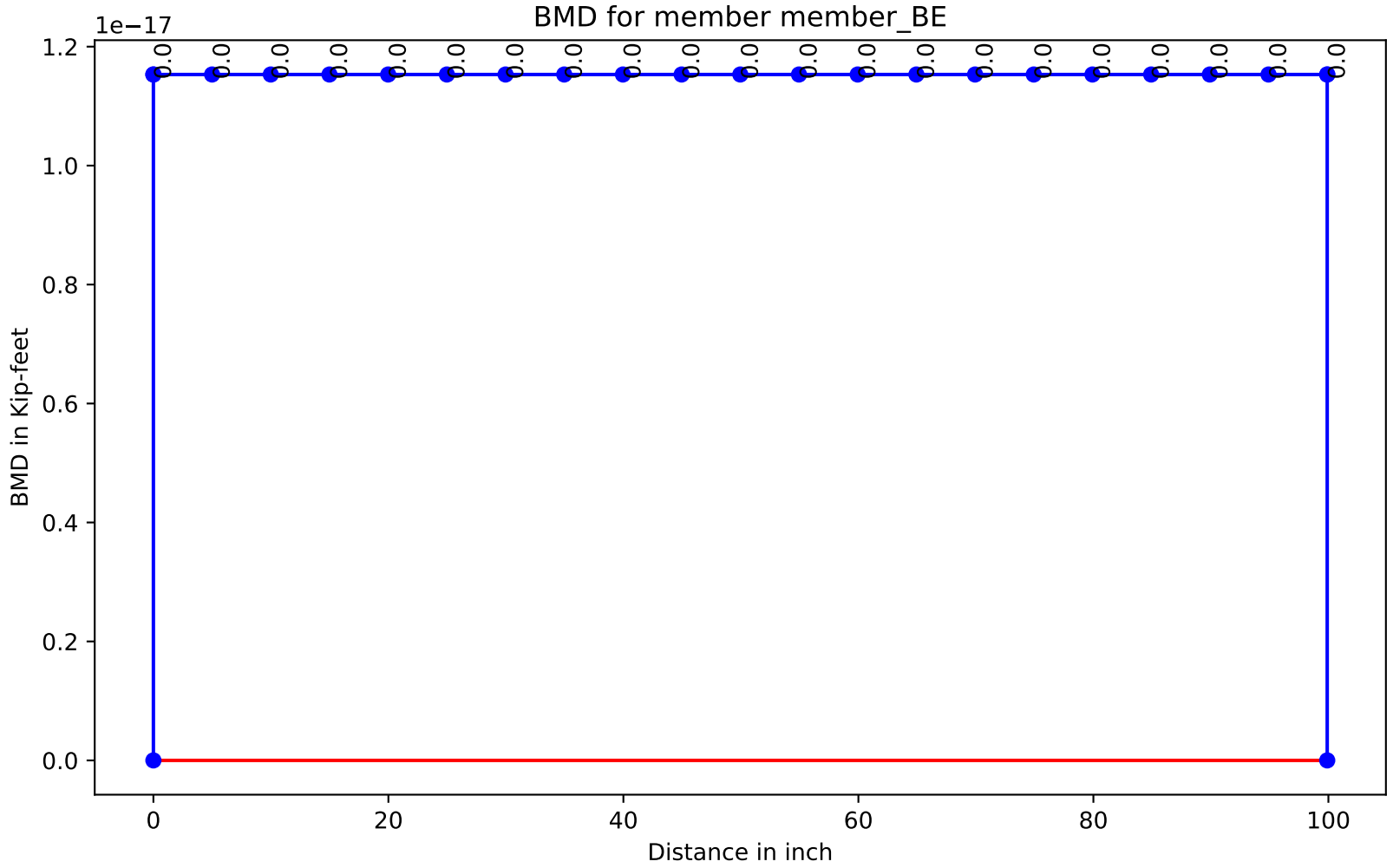

BMD for member member_AB
BMD in Kip-feet
Distance in inch
A
-9.26
-6.49
-4.02
-1.85
0.03
1.61
2.9
3.89
4.58
4.98
5.08
4.89
4.4
3.62
2.53
1.16
-0.52
-2.48
-4.75
-7.31
-10.17
4
2
0
−2
−4
−6
−8
−10
0
20
40
60
80

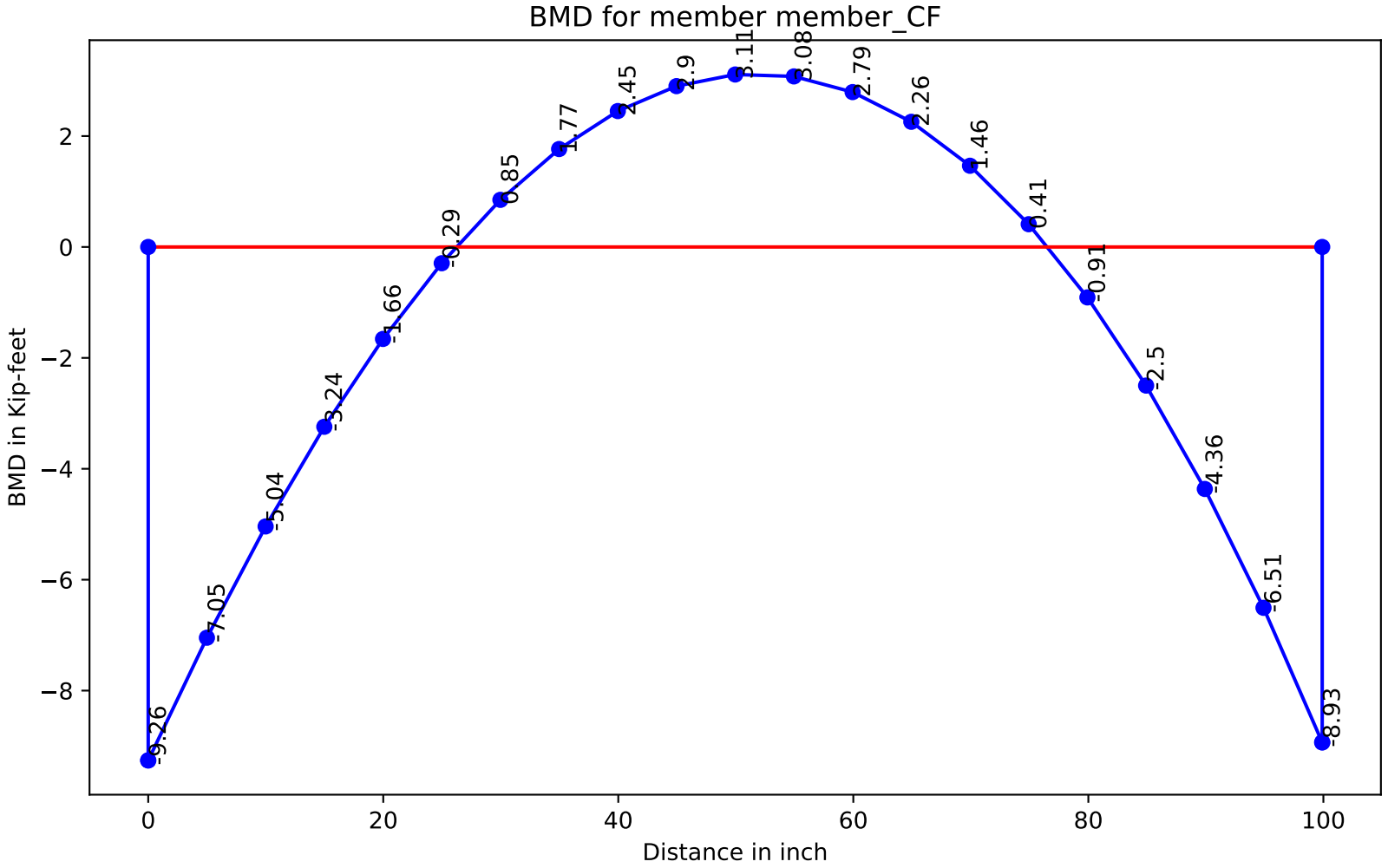

BMD for member member_BC
BMD in Kip-feet
Distance in inch
0
20
40
60
80
4
2
0
−2
−4
−6
−8
−10
-10.17
-7.31
-4.75
-2.48
-0.52
1.16
2.53
3.62
4.4
4.89
5.08
4.98
4.58
3.89
2.9
1.61
0.03
-1.85
-4.02
-6.49
-9.26
C

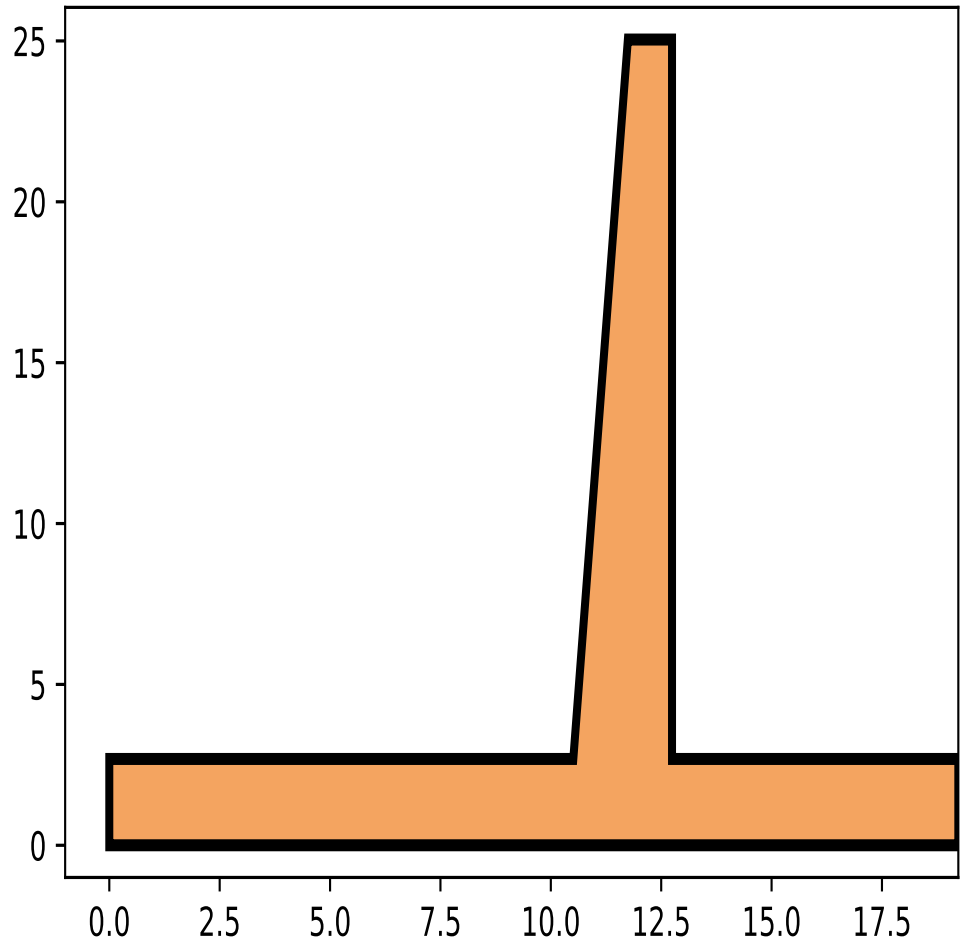

BMD for member member_DE
BMD in Kip-feet
Distance in inch
12.5
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
20
40
60
80
8.93
5.82
3.05
0.63
-1.44
-3.16
-4.53
-5.55
-6.22
-6.54
-6.51
-6.13
-5.4
-4.32
-2.89
-1.12
1.01
3.49
6.32
9.49
13.02


BMD for member member_EF
BMD in Kip-feet
Distance in inch
13.02
9.49
6.32
3.49
1.01
-1.12
-2.89
-4.32
-5.4
-6.13
-6.51
-6.54
-6.22
-5.55
-4.53
-3.16
-1.44
0.63
3.05
5.82
8.93
12.5
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
20
40
60
80


BMD for member member_AD
BMD in Kip-feet
Distance in inch
9.26
7.05
5.04
3.24
1.66
0.29
-0.85
-1.77
-2.45
-2.9
-3.11
-3.08
-2.79
-2.26
-1.46
-0.41
0.91
2.5
4.36
6.51
8.93
8
6
4
2
0
−2
0
20
40
60
80
100


BMD for member member_BE
1e−17
1.2
1.0
0.8
0.6
0.4
0.2
0.0
BMD in Kip-feet
0.0
0
20
40
60
80
100
Distance in inch


BMD for member member_CF
BMD in Kip-feet
Distance in inch
-9.26
-7.05
-5.04
-3.24
-1.66
-0.29
0.85
1.77
2.45
2.9
3.11
3.08
2.79
2.26
1.46
0.41
-0.91
-2.5
-4.36
-6.51
-8.93
2
0
−2
−4
−6
−8
0
20
40
60
80
100


25
20
15
10
5
0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5

Printing Earth Pressure Calcualtion for CASE(B) After Construction

component	area	PV	PH	Arm_V	Arm_H	M
C1	22.36	-3354.0	0.0	-6.984399999999997	0.0	23425.67759999999
C2	13.818480000000003	-2072.7720000000004	0.0	-7.896399999999998	0.0	16367.4368208
C3	51.59686271999999	-7739.5294079999985	0.0	-9.614799999999999	0.0	74414.02735203838
S1	13.818480000000003	-1520.0328000000004	0.0	-7.896399999999998	0.0	12002.78700192
S2	234.98571199999998	-25848.42832	0.0	-13.974999999999998	0.0	361231.7857719999
SH	0.0	0.0	11382.987872256	0.0	10.136533333333333	-115384.03600005202

Printing Earth Pressure Calcualtion for CASE(C) During Operation

component	area	PV	PH	Arm_V	Arm_H	M
C1	22.36	-3354.0	0.0	-6.984399999999997	0.0	23425.67759999999
C2	13.818480000000003	-2072.7720000000004	0.0	-7.896399999999998	0.0	16367.4368208
C3	51.59686271999999	-7739.5294079999985	0.0	-9.614799999999999	0.0	74414.02735203838
S1	0.0	-0.0	0.0	-13.356999999999998	0.0	0.0
S2	0.0	-0.0	0.0	-7.484399999999999	0.0	0.0
S3	234.98571199999998	-28198.285439999996	0.0	-13.974999999999998	0.0	394071.0390239999
S4	13.818480000000003	-1658.2176000000004	0.0	-8.308399999999999	0.0	13777.135107840002
W	0.0	-0.0	0.0	-3.2421999999999995	0.0	0.0
U	481.57071871999995	30050.012848127997	0.0	-9.614799999999999	0.0	-288924.863532181
P1	0.0	0.0	0.0	0.0	25.0432	0.0
P2	0.0	0.0	0.0	0.0	12.5216	0.0
P3	0.0	0.0	25527.99660343296	0.0	8.347733333333332	-213100.9081796974
P4	0.0	0.0	277.6638458879999	0.0	0.8944	-248.3425437622271

Printing Earth Pressure Calcualtion for CASE(B) After Construction

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	40534.76	19.23	2107.89	592.59	-9.62	-61.6	17835.0	-289.53	1818.36
10.51	40534.76	19.23	2107.89	592.59	0.89	665.83	17835.0	26.79	2134.68
11.75	40534.76	19.23	2107.89	592.59	2.13	278.21	17835.0	64.11	2172.0
12.75	40534.76	19.23	2107.89	592.59	3.13	189.33	17835.0	94.2	2202.09
19.23	40534.76	19.23	2107.89	592.59	9.62	61.6	17835.0	289.53	2397.42

Printing Earth Pressure Calcualtion for CASE(C) During Operation

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	12972.79	19.23	674.63	592.56	-9.61	-61.63	104949.6	-1702.91	-1028.28
10.51	12972.79	19.23	674.63	592.56	0.89	662.52	104949.6	158.41	833.04
11.75	12972.79	19.23	674.63	592.56	2.13	278.14	104949.6	377.32	1051.95
12.75	12972.79	19.23	674.63	592.56	3.13	189.29	104949.6	554.44	1229.06
19.23	12972.79	19.23	674.63	592.56	9.61	61.63	104949.6	1702.91	2377.54

Stem Design Force.....

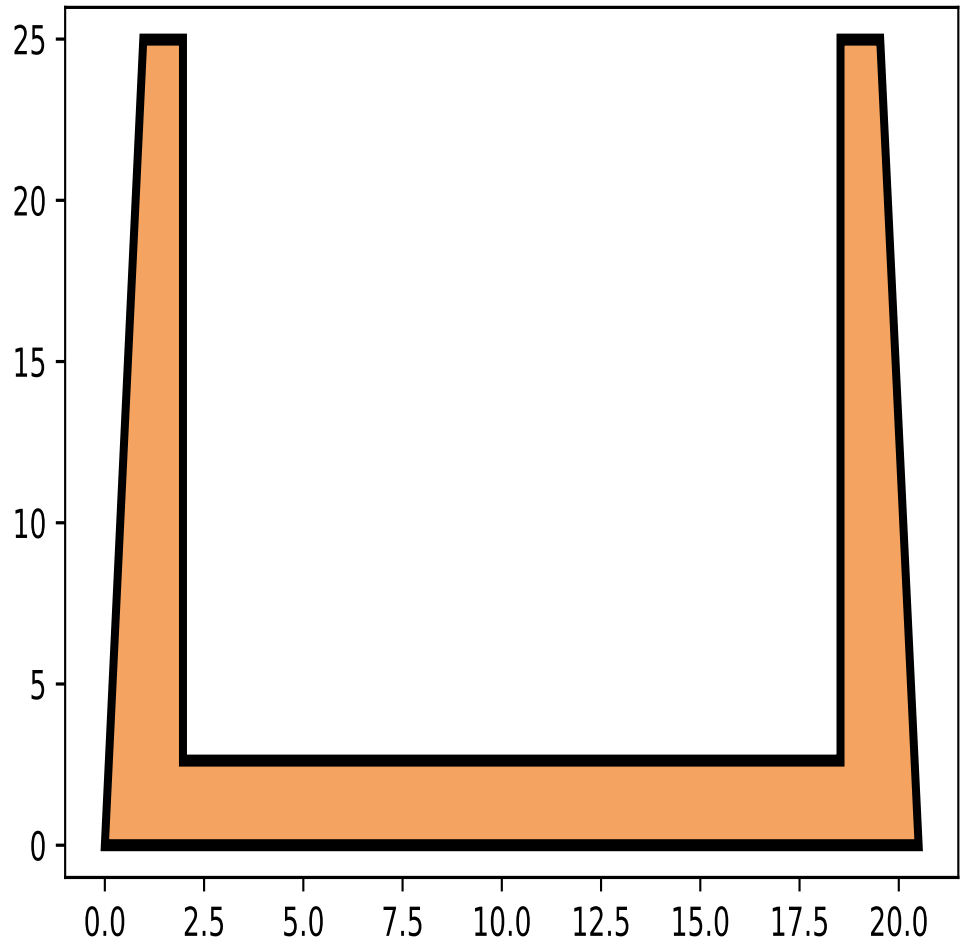
Case	Desc	V	M
Case B	After Construction	9074.44824	67634.88754879999
Case C	During Operation	20350.762598399997	151681.01723340797

Toe Design Force.....

Case	Desc	V	M
Case B	After Construction	12294.342	40517.16681600001
Case C	During Operation	19203.5816064	66238.36562073599

Heel Design Force.....

Case	Desc	V	M
Case B	After Construction	-9307.235599999996	-51821.25131399998
Case C	During Operation	-1860.6449968000015	-106639.52373481599


25
20
15
10
5
0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

Design Load Effects on Utype wing wall.....

Description	Load Case	F	P	Mend	Mcl
During Construction	A	9011.74	0.0	0.0	20611.15
After Construction	B	9635.1	9074.45	67634.89	-44442.4
During Operation	C	-4666.36	20350.76	151681.02	-128488.53
During Maintenance	D	-4666.36	20350.76	151681.02	-128488.53