

PROJECT: Allen Solar - Dry Fire System  
 DATE: 1/10/2024

Force Main Size	4
Force Main Length	1400
Force Main C Value	130
Static Head	5

Insert Diameter of Force Main in inches  
 Insert Length of Force Main in Feet  
 Insert Hazen-William Friction Factor (100 to 140)  
 Insert Static Head in Feet

Flow GPM	Flow MGD	C Value	Pipe Diameter INCHES	Pipe Length FEET	Frictional Head FEET	Static Head FEET	Velocity FT/SEC	Velocity Head FEET	Total Head FEET	Dynamic Head Loss Feet	Water Hp Hp	
0	0	130	4	1400	0	5.00	0.00	0.00	5.00	0.00	0.00	
10	14,400	130	4	1400	0.15	5.00	0.26	0.00	5.15	0.15	0.01	
20	28,800	130	4	1400	0.54	5.00	0.51	0.00	5.55	0.55	0.03	
30	43,200	130	4	1400	1.15	5.00	0.77	0.01	6.16	1.16	0.05	
38	54,720	130	4	1400	1.78	5.00	0.97	0.01	6.79	1.79	0.07	
50	72,000	130	4	1400	2.96	5.00	1.28	0.03	7.98	2.98	0.10	
60	86,400	130	4	1400	4.14	5.00	1.53	0.04	9.18	4.18	0.14	
70	100,800	130	4	1400	5.51	5.00	1.79	0.05	10.56	5.56	0.19	
80	115,200	130	4	1400	7.05	5.00	2.04	0.06	12.11	7.11	0.25	
90	129,600	130	4	1400	8.77	5.00	2.30	0.08	13.85	8.85	0.32	
100	144,000	130	4	1400	10.65	5.00	2.55	0.10	15.75	10.75	0.40	
110	158,400	130	4	1400	12.71	5.00	2.81	0.12	17.83	12.83	0.50	
120	172,800	130	4	1400	14.93	5.00	3.07	0.15	20.07	15.07	0.61	
130	187,200	130	4	1400	17.31	5.00	3.32	0.17	22.48	17.48	0.74	
140	201,600	130	4	1400	19.85	5.00	3.58	0.20	25.05	20.05	0.89	
150	216,000	130	4	1400	22.56	5.00	3.83	0.23	27.78	22.78	1.05	
200	288,000	130	4	1400	38.40	5.00	5.11	0.41	43.81	38.81	2.21	
250	360,000	130	4	1400	58.03	5.00	6.39	0.63	63.67	58.67	4.02	
300	432,000	130	4	1400	81.31	5.00	7.66	0.91	87.22	82.22	6.61	35.6
350	504,000	130	4	1400	108.14	5.00	8.94	1.24	114.39	109.39	10.12	47.4
400	576,000	130	4	1400	138.45	5.00	10.22	1.62	145.07	140.07	14.67	60.6
450	648,000	130	4	1400	172.16	5.00	11.50	2.05	179.21	174.21	20.39	75.4
500	720,000	130	4	1400	209.20	5.00	12.77	2.53	216.74	211.74	27.40	91.7 Total Head loss PSI
550	792,000	130	4	1400	249.54	5.00	14.05	3.07	257.61	252.61	35.82	109.4
600	864,000	130	4	1400	293.13	5.00	15.33	3.65	301.78	296.78	45.77	128.5
650	936,000	130	4	1400	339.91	5.00	16.60	4.28	349.19	344.19	57.38	149.0
700	1,008,000	130	4	1400	389.86	5.00	17.88	4.97	399.82	394.82	70.75	170.9
750	1,080,000	130	4	1400	442.94	5.00	19.16	5.70	453.64	448.64	86.01	194.2
800	1,152,000	130	4	1400	499.11	5.00	20.44	6.49	510.59	505.59	103.26	218.9
850	1,224,000	130	4	1400	558.34	5.00	21.71	7.32	570.67	565.67	122.62	244.9
900	1,296,000	130	4	1400	620.62	5.00	22.99	8.21	633.83	628.83	144.21	272.2
950	1,368,000	130	4	1400	685.91	5.00	24.27	9.15	700.05	695.05	168.12	300.9
1000	1,440,000	130	4	1400	754.18	5.00	25.55	10.13	769.32	764.32	194.48	330.9
1500	2,160,000	130	4	1400	1596.78	5.00	38.32	22.80	1624.58	1619.58	616.03	701.1
2000	2,880,000	130	4	1400	2718.83	5.00	51.09	40.53	2764.36	2759.36	1397.64	
2500	3,600,000	130	4	1400	4108.33	5.00	63.86	63.33	4176.67	4171.67	2639.61	
3000	4,320,000	130	4	1400	5756.40	5.00	76.64	91.20	5852.60	5847.60	4438.53	
4000	5,760,000	130	4	1400	9801.39	5.00	102.18	162.13	9968.52	9963.52	10079.99	
5000	7,200,000	130	4	1400	14810.55	5.00	127.73	253.33	15068.89	15063.89	19046.72	
6000	8,640,000	130	4	1400	20751.84	5.00	153.27	364.80	21121.64	21116.64	32036.71	
7000	10,080,000	130	4	1400	27599.94	5.00	178.82	496.54	28101.47	28096.47	49727.45	
8000	11,520,000	130	4	1400	35334.03	5.00	204.37	648.54	35987.57	35982.57	72779.91	
9000	12,960,000	130	4	1400	43936.49	5.00	229.91	820.80	44762.29	44757.29	101841.29	
10000	14,400,000	130	4	1400	53392.06	5.00	255.46	1013.34	54410.40	54405.40	137546.96	

Force Main Volume (gal) 913.39