Presby Environmental, Inc.

Alabama AES Design Worksheet

Project: _____

Step #1: _____ bedrooms x 150 GPD = _____ GPD = _____ GPD

Step #2: _____ GPD ÷ _____ GPD/sq. ft. Bed Loading Rate (Table A) = _____ sq. ft. system sand bed area (SSBA) minimum.

Table A: System Sand Bed Area and Bed Configuration Requirements

Percolation Rate (mpi)	Soil Group & USDA Textures	Bed Loading Rate (gpd/sf)
1 - 15	Group 1	1.50
16 - 30	Group 2	1.00
31 - 60	Group 3	0.71
61 - 75	Group 4a	0.36
76 - 90		0.28
91 - 120	Group 4b	0.28
121-240	Group 5b	Not Permitted

Step #3: Residential: _____Bedrooms x 70 = _____ ft. of AES pipe minimum, or Commercial: _____ GPD ÷ 2.14 GPD/ft. = _____ ft. of AES pipe minimum (assumes residential strength).

Step #4: _____ GPD ÷ 600 GPD/section = _____ sections required. Notes: round fractions up to whole number. This step does not apply to parallel distribution systems.

Step #5: _____ ft. AES pipe (Step #3) ÷ _____ ft. row length = _____ number of rows.

Notes: number of rows must be evenly divided by number of serial sections from Step #4, add rows if necessary (does not apply to parallel distribution systems). Longer rows preferred to shorter length rows.

Step #6: _____ ft. Pipe Layout Width (PLW) from Table C (or calculated manually for larger row spacing).

Table C: Row Length and Pipe Layout Width

		Total Linear Feet of AES Pipe													
Row Length (ft)	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
	35	70	105	140	175	210	245	280	315	350	385	420	455	490	525
	40	80	120	160	200	240	280	320	360	400	440	480	520	560	600
	45	90	135	180	225	270	315	360	405	450	495	540	585	630	675
	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750
	55	110	165	220	275	330	385	440	495	550	605	660	715	770	825
	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
	65	130	190	260	325	390	455	520	585	650	715	780	845	910	975
	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
	75	150	225	300	375	450	525	600	675	750	825	900	975	1050	1125
	80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200
	85	170	255	340	425	510	595	680	765	850	935	1020	1105	1190	1275
	90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350
	95	190	285	380	475	570	665	760	855	950	1045	1140	1235	1330	1425
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
# of Rows		**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Spacing (ft)	1.50	2.50	4.00	5.50	7.00	8.50	10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00
	1.75	2.75	4.50	6.25	8.00	9.75	11.50	13.25	15.00	16.75	18.50	20.25	22.00	23.75	25.50
	2.00	3.00	5.00	7.00	9.00	11.00	13.00	15.00	17.00	19.00	21.00	23.00	25.00	27.00	29.00
	2.25	3.25	5.50	7.75	10.00	12.25	14.50	16.75	19.00	21.25	23.50	25.75	28.00	30.25	32.50
	2.50	3.50	6.00	8.50	11.00	13.50	16.00	18.50	21.00	23.50	26.00	28.50	31.00	33.50	36.00
	2.75	3.75	6.50	9.25	12.00	14.75	17.50	20.25	23.00	25.75	28.50	31.25	34.00	36.76	39.50
	3.00	4.00	7.00	10.00	13.00	16.00	19.00	22.00	25.00	28.00	31.00	34.00	37.00	40.00	43.00
		Pipe Layout Width (ft)													

Step #7: _____% system slope (cannot exceed Table B allowances).

Table B: System & Site Slope Limitations and Allowed Bed Configurations

Percolation Rate Minutes per Inch (mpi)	System Slope Max (%)	Site Slope Max (%)
15 or less	25%	33%
16-30	20%	25%
31-60	15%	20%
61-120	Level	10%

Step #8: Calculate System Sand bed width (SSBW)–

Beds sloping 10% or less, use the larger of (a) or (b) below:

a) _____ sq. ft. sand bed area (Step #2) ÷ (_____ ft. row length + 1 ft.) = _____ ft. sand bed width minimum Note: 1 ft. is added to row length to allow 6 in. of sand beyond the ends of each row.

b) _____ ft. PLW (Step #6) + 1 ft. = _____ ft. sand bed width minimum.

Beds sloping over 10%, use the larger of (c) or (d) below:

c) _____ sq. ft. SSBA (Step #2) ÷ (_____ ft. row length + 1 ft.) = _____ ft. sand bed width minimum.

d) _____ ft. PLW (Step #5) + 4.5 ft. = _____ ft. sand bed width minimum Note: 4.5 ft. is added to the PLW to allow 6 in. of sand above the first row and 3.5 ft. beyond the edge of the lower row.

Step #9: Calculate System Sand Extension(s) choose (a) or (b) below:

Level beds (System Sand Extensions (SSE) are placed on each side of AES pipes):

a) _____ ft. SSBW (Step #8) – _____ ft. PLW Step #5 + 1) ÷ 2 = _____ ft.

Sloping beds: SSE placed entirely on the down slope side of the bed.

b) _____ ft. SSBW (Step #8) – _____ ft. PLW (Step #5) + 1 = _____ ft.

Notes:_____
_____
_____
_____
_____

System Illustration (optional):