

ADVANCED ENVIRO-SEPTIC® DESIGN WORKSHEET FOR ILLINOIS

Project: _____ **Date:** _____

Design Criteria: _____

1. Determine quantity of Presby Pipe required from Table A:

Residential: 70 ft/bedroom x _____ bedrooms = _____ ft min.

Commercial: _____ GPD ÷ 2.14 GPD/sf = _____ ft min. (normal strength wastewater)

Table A – AES Pipe Required

System Type	AES Pipe Requirement
Residential	70 linear feet per bedroom
Commercial or Large	2.14 gallons per linear foot

2. Calculate the minimum System Sand Bed Area (SSBA):

System Sand Bed Area (SSBA) from Table B = _____ ft² min.

Table B – Minimum System Sand Bed Area (SSBA) Required (ft²)

Conventional Soil Loading Rate (SLR) (gpd/ft²)	AES Soil Loading Rate (AES-SLR) (gpd/ft²)	Bedrooms / Gallons per Day (br/gpd)								
		2 300	3 450	4 600	5 750	6 900	7 1,050	8 1,200	9 1,350	10 1,500
1.20	1.800	167	250	334	417	500	584	667	750	834
0.75	1.125	267	400	534	667	800	934	1,067	1,200	1,334
0.60	0.900	334	500	667	834	1,000	1,167	1,334	1,500	1,667
0.50	0.750	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000
0.30	0.450	667	1,000	1,334	1,667	2,000	2,334	2,667	3,000	3,334
0.25	0.375	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600	4,000
		Minimum System Sand Bed Area (SSBA) (ft²)								

Note: Table B AES loading rates reflect a 33% reduction in conventional bed sizing.

3. System Sand Bed Length (SSBL):

Choose System Sand Bed Length = _____ ft – 2 ft = _____ AES Row Length ft minimum

4. Calculate the number of serial sections required (skip if using Parallel distribution):

Design Daily Flow = _____ bedrooms x 150 GPD/bedroom = _____ GPD ÷ 750 GPD/section

= _____ sections minimum (round up to nearest whole number) = _____ sections minimum

5. Number of AES rows required:

Pipe required (from Step #1) = _____ ft ÷ _____ row length ft (not less than Step #3 value)

= _____ rows (round up to nearest whole number) ÷ _____ serial sections (from Step #4)

= _____ rows (must be whole number, increase number of rows or change row length if necessary)

6. Find Pipe Layout Width (PLW):

(_____ # of rows – 1) x _____ ft center-to-center spacing + 1 ft = _____ ft

Note: the PLW is the distance from the outermost edge of the first to the outermost edge of the last row.

7. Calculate System Sand Bed Width (SSBW):

a) For beds sloping 10% or less –

SSBA (from Step #2) = _____ ft² ÷ _____ SSBL (from Step #3) = _____ ft min.

If (7a) is less than (_____ PLW + 2 ft = _____ ft) then the minimum SSBW = PLW + 2 ft = _____ ft

Note: PLW + 2 is the amount of sand needed to cover all the rows plus a one ft border.

b) For beds sloping over 10% -

SSBA (from Step #2) = _____ ft² ÷ _____ SSBL (from Step #3) = _____ ft

If this is less than (_____ PLW + 5 ft = _____ ft) then the minimum SSBW = PLW + 5 ft = _____ ft

Note: There will always be a System Sand extension for beds sloping over 10%.

8. System Sand extensions (SSE):

a) Level beds –

System Sand extension = _____ SSBW ft – _____ (PLW + 2 ft) ÷ 2 = _____ ft min. each

Final System Sand bed width = _____ SSE x 2 = _____ + _____ (PLW + 2 ft) = _____ ft

Note: the Presby pipes are centered in the middle of the sand bed area with a System Sand extension on each side. There will be no System Sand extensions if SSBW is equal to (PLW + 2 ft).

b) Sloping beds -

System Sand extension = _____ SSBW ft – _____ PLW + 2 ft = _____ ft min.

Note: the System Sand extension is always placed on down slope side of the field (pipes grouped at high side)

Notes: _____

Designed by: _____