LPP SYSTEMS WORKSHEET

ABSORPTION AREA

STEP 1.   Calculate daily waste flow.

_____BDR House = _____Gallon per day (GPD)

STEP 2.   Determine loading rate (First page of soil profile)

Loading Rate = _____GPD/Sq. Ft.

STEP 3.   Compute the total area needed for the absorption system using the equation:
Area = Flow/Loading Rate

Area = _____GPD/_____GPD/Sq. Ft. = _____Sq. Ft.

STEP 4.   Determine total length of distribution lines. Spacing between lines must be 5 Ft. or more to prevent overloading. Divide total area by 5 to obtain the total length of the distribution lines.

Total Length = _____Sq. Ft./5Ft. = _____Ft.

**Individual lines must not extend more than 70 Ft. from the manifold (supply line) due to excessive friction loss.

Length of Individual lines = _____Ft.

SEPTIC TANK

Size is the same as conventional system.

PUMPING TANK

The pumping tank shall provide one day for emergency storage, thus it shall be at least twice the volume of the daily waste flow.

Volume of Pumping Tank = _____GPD x 2 = _____Gal.

DOSING RATE

The best starting values for calculations are a 5/32 inch hole diameter, 5 ft. hole spacing and a 3 ft. pressure head.

(dosing rate cont.)

STEP 1.   Calculate the number of holes.

Number of holes   = Length of Line/Hole spacing

= _____Ft./5 Ft./Hole

= _____Holes/Line

Total Holes   = _____Holes/Line x _____Lines

= _____Holes

STEP 2.   Determine the flow rate per hole. Use TABLE 2 (Attached).

EXAMPLE: Flow rate for 3 Ft. pressure head and 5/32 inch holes = 0.50 gallon per minute (gpm).

STEP 3.   Calculate total dosing rate.

Flow Rate/Hole = _____GPM

Flow Rate/Line = _____GPM x _____Holes/Line = _____GPM

Total Flow Rate = _____GPM/Hole x _____Holes (Total) = _____GPM

Pump Required = _____GPM at _____Ft. of Head

PUMP SELECTION

STEP 1.   Compute friction head. Use TABLE 3 for pipe friction.

Friction Head = 1.2 (Pipe Friction)

Pipe Friction =

(_____Length of Supply Line/100 Ft.) x _____Ft. of Friction Loss per TABLE 3.

Pipe Friction = _____Ft.

Friction Head = 1.2 x _____Ft. (Pipe Friction) = _____Ft.

STEP 2.   Calculate Total Head

Total Head   = Elevation Head + Pressure Head + Friction Head

= _____Ft. + _____Ft. + _____Ft. = _____Ft.

System requires _____GPM against _____Ft. Head

2

STEP 3.   Select a pump of proper capacity. Consult the appropriate performance curve.

DOSING VOLUME

STEP 1.   Calculate the minimum dosing volume. Use TABLE 4 to find volume of lateral lines.

Volume Dose = Volume supply line + 5(Volume lateral lines)

A.   Supply line   = _____Ft. of _____inch pipe

Volume supply   =(_____Ft./100 Ft.) x _____Gal. (see TABLE 4)

= _____Gal.

B.   Lateral lines   = _____Ft. of _____Inch pipe

Volume lateral   = (_____ Ft./100 Ft.) x _____Gal. (see TABLE 4)

= _____Gal.

C.   Volume dosing   = __A__ Gal. + 5 (__B__ Gal.)

= _____Gal.

BE CAREFUL: DO NOT DOSE MORE THAN THE TRENCHES CAN HOLD.

EXAMPLE: 360 Ft. of 6 inch wide by 10 inch gravel depth will hold 336 gallons. 6 inches x 6 inches of gravel will hold 202 gallons.

STEP 2.   Select the dosing volume.

* Dosing two to four time per day provides adequate resting time.

STEP 3.   Compute the depth of effluent pumped - use the equation:

Dosing depth =(Volume dose/Volume tank) x liquid depth

=(_____Gal./dose/_____Gal. tank) x _____Inches

=_____Inches

CHECK VALVE CALCULATION

*Use check valves ONLY when total storage volume of pipe is greater than 1/4 of total daily waste flow.

(check valve calculation cont.)

STEP 1.   Calculate storage volume

Volume storage   = Volume supply + Volume laterals

= _____Gal. + _____Gal.

= _____Gal.

STEP 2.   Compare to 1/4 daily waste flow

_____GPD x 1/4 = _____Gal.

_____Gal. compared to _____Gal.

SAN-LPP1

DESIGN SUMMARY SHEET

Appendix 1.   Design Specifications for Example LPP

Prepare a copy of this sheet along with an accurate sketch for each LPP designed.

Daily waste flow	_____gal.
Septic tank size	_____gal.
Pumping tank size	_____gal.
Effluent loading rate	_____gal./ft./day
Absorption area	_____ft.
Total length of laterals	_____ft.
Lateral diameter	_____in.
Lateral configuration	_____ft. lines
Supply line length	_____ft.
Supply line diameter	_____in.
Manifold placement	_____
Hole size*	_____in.
Hole spacing	_____ft.
Number of holes	_____
Pressure head	_____ft.
Flow per hole	_____gpm
Total flow	_____gpm
Elevation head	_____ft.
Friction head	_____ft.
Pressure head	_____ft.
Total head	_____ft.
Pump requirements	_____gpm @ _____ft. of head
Storage volume in laterals	_____gal.
Storage volume in supply line	_____gal.
Total storage volume	_____gal.
Dosing volume	_____gal.
Dosing depth	_____in.
Check valve needed?	_____

*Data on hole size, spacing, pressure head and flow must be listed for each line for systems where lines are different (such as sloping lots).

SAN-LPP2 (6-93)

DESIGN SUMMARY SHEET

Appendix 1.   Design Specifications for Example LPP

Prepare a copy of this sheet along with an accurate sketch for each LPP designed.

Daily waste flow	_____ gal.
Septic tank size	_____ gal.
Pumping tank size	_____ gal.
Effluent loading rate	_____ gal./ft./day
Absorption area	_____ ft.
Total length of laterals	_____ ft.
Lateral diameter	_____ in.
Lateral configuration	_____ ft. lines
Supply line length	_____ ft.
Supply line diameter	_____ in.
Manifold placement	_____
Hole size*	_____ in.
Hole spacing	_____ ft.
Number of holes	_____
Pressure head	_____ ft.
Flow per hole	_____ gpm
Total flow	_____ gpm
Elevation head	_____ ft.
Friction head	_____ ft.
Pressure head	_____ ft.
Total head	_____ ft.
Pump requirements	_____ gpm @ _____ ft. of head
Storage volume in laterals	_____ gal.
Storage volume in supply line	_____ gal.
Total storage volume	_____ gal.
Dosing volume	_____ gal.
Dosing depth	_____ in.
Check valve needed?	_____

*Data on hole size, spacing, pressure head and flow must be listed for each line for systems where lines are different (such as sloping lots).

SAN-LPP2 (6-93)