

**PROPOSED SEWER IMPROVEMENTS FOR
DEER HAVEN SUBDIVISION
AVOCA, BENTON COUNTY, ARKANSAS**



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Decentralized Sewer System With Bioclere Treatment and Gravity Collection

Deer Haven Subdivision

Avoca, Benton County, Arkansas

Engineering Report

PROJECT DESCRIPTION:

This sewer system is located west of Avoca, Arkansas in the NW ¼ of Section Fourteen (14) and the NE ¼ of Section Fifteen (15) Township Twenty (20) North, Range Twenty-Nine (29) West, approximately 1.5 miles northeast of Avoca, Arkansas. It will provide wastewater treatment and subsurface disposal for one hundred and twenty-eight (128) homes. The design flow for this project is thirty-three thousand, two hundred eighty (33,280) GPD.

The sewage will gravity flow from each house via a 4" building sewer to a sewer main which will carry it to a lift station located in the lower portion of the subdivision. The lift station will then pump all the combined sewage to the Bioclere Treatment Plant. After this, the relatively clean effluent is settled and pumped into a dripper field for final treatment and disposal.

Design Flow/Sizing Calculations:

Q design: (128 lots)(260 GPD/lot)	=	33,280 GPD
(2.6 people/home)(100 GPD/person)	=	260 GPD
Dripper Field Loading Rate (see soils report by Rebecca Corbitt)	=	0.385 GPD/ft ²
Dripper Field Area	$= \frac{33,280}{0.385}$	= 86,442ft ²
	$\frac{86,442\text{ft}^2}{43,560\text{ft}^2/\text{Ac}}$	= 1.98 Acres
Alternate Area (50% of Primary Area)	$= (86,442\text{ft}^2) (0.50)$	= 43,221ft ²
	$\frac{43,221\text{ft}^2}{43,560\text{ft}^2/\text{Ac}}$	= 0.99 Acres

Dripper lines are on two (2) foot centers, Emitters are on two (2) foot centers, therefore, each Emitter covers four (4) ft².

$$\text{Total number of Emitters} = \frac{86,442\text{ft}^2}{4\text{ft}^2/\text{Emitter}} = 21,611$$

$$\text{Total length of Dripper Line} = \frac{86,442\text{ft}^2}{2\text{ft}} = 43,221\text{ft. in the Dripper Field}$$

See treatment plant layout sheet #3/4 for more design information.

GEOFLOW WASTEFLOW P/C dripper line has a constant flow rate (0.53 GPH) at all pressures from 10 to 60 psi. The risk of root intrusion in the emitters is eliminated by the installation of GEOFLOW ROOTGUARD within the dripper lines, which protects emitters from vegetative invasion.

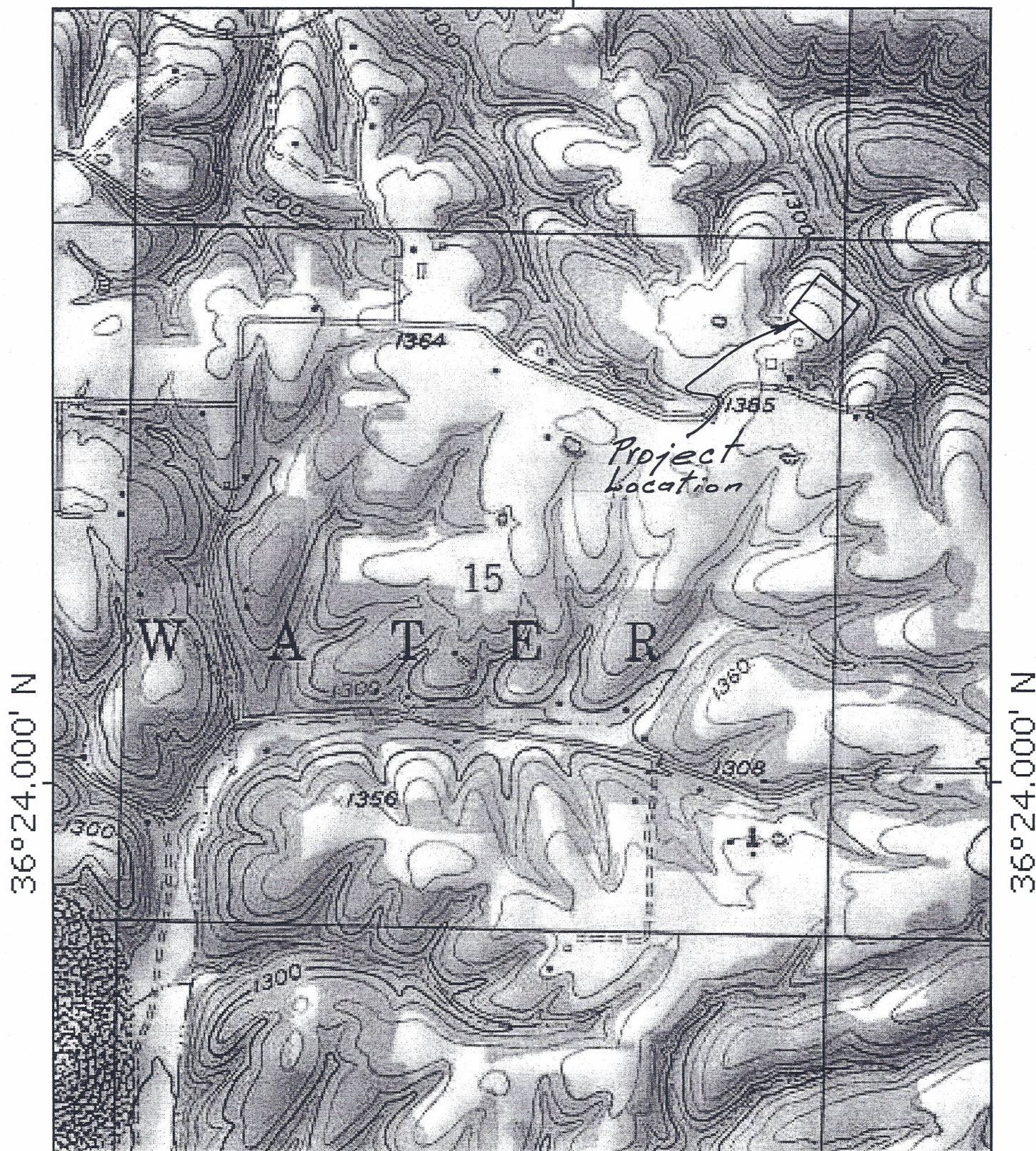
GEOFLOW uses turbulent flow "in line" emitters with large flow paths, these have proven to be the most reliable and dependable emitters because of the resistance to blocking. GEOFLOW'S WASTEFLOW has an inner lining impregnated with a bactericide, Ultra Fresh DM-50, to inhibit bacterial growth on the walls of the tube, and in the emitters.

The Benton County Water Authority, District #1, shall own and operate this sewer system. Wayne Allen, the Water District Manager, has a Class #3 operator's license.

There are no wells within one-quarter (1/4) mile of the treatment plant.

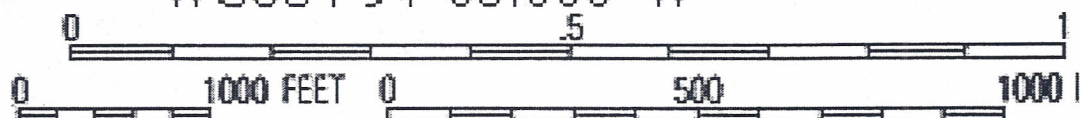
LOCATION MAP
(PEA RIDGE, ARK. – MO. QUAD MAP)

WGS84 94°03.000' W



TN * MN
2½°

WGS84 94°03.000' W



Map created with TOPO!® ©2001 National Geographic (www.nationalgeog)

