

**WARREN COUNTY ENVIRONMENTAL HEALTH**  
**301 N. BUXTON SUITE 214 INDIANOLA IA 50125**  
**PHONE (515) 961-1065 FAX (515)961-1095**  
**E-Mail [EnvironHealth@co.warren.ia.us](mailto:EnvironHealth@co.warren.ia.us)**

Our office provides this summary of the information needed in regard to installation or repairs of private sewage disposal (septic) systems. If you have questions after reading this material, please feel free to call us anytime Monday-Friday, 8:00 a.m. to 4:30 p.m.

**FIVE BASIC STEPS TO FOLLOW**

**Site Evaluation.** The Warren County Sanitarians are available, without charge, to assist you with selecting the best possible site for placement of your septic system. Your septic contractor may assist you with this also.

**Percolation (Perc) Test.** The subsurface absorption system (lateral field) is the preferred method of wastewater treatment for private sewers because it prevents contact with people and the environment even after processing. A percolation test or soil analysis is needed to determine the soil's ability to absorb the water from a private sewer. The Warren County policy is to accept only perc tests or analyses done by or under the supervision of a registered professional engineer (see last page for possible contacts). Many property owners negotiate reductions in the engineer's fees by digging the test holes themselves. If the soil will not absorb water fast enough or absorbs the water too quickly or the soils are deemed to be unsuitable for a subsurface absorption system, an alternative system will need to be installed. Perc tests and soil analyses are valid for one year from the date of the test.

**Septic Permit.** Prior to beginning the installation of your private sewage disposal system, you (or an agent of your choice) must secure a permit from our office. This can be done once we have received and validated an engineer's report as stated above. Also, prior to obtaining the septic permit, you must have a E911 address in place for the property, which can be applied for in the Zoning Office. The permit cost is \$200.00 for any type of new system, \$50.00 for Repair Permit with a prior permit, without a prior permit \$100.00. (If building a new home or other structure, a building permit may be required from Warren County Zoning. A septic permit is required prior to applying for a building permit.)

**Inspection.** The system is to be exposed so that the Sanitarian can do a thorough inspection. Our office should be advised at least 24 hours prior to installation so that we can schedule the inspection.

**Final Approval.** Once final approval is given, we will send you a copy of the permit application along with a map of the system. A record of the system will also be on file in our office.

**\*Please Note: New Procedure**

**EXPIRATION OF SEPTIC PERMITS / PERCOLATION TESTS.** Percolation tests and septic permits are good for one year. If you are not able to install the system by the expiration date of

either document, you will need to request an extension from the Environmental Health Office. You may request the extension by letter or by calling our office.

Upon receipt of your request, we will do another site evaluation of the percolation/soil analysis site to determine if site is still adequate for septic system installation, and a \$50.00 trip fee will be charged to you.

#####

## PERCOLATION TESTS

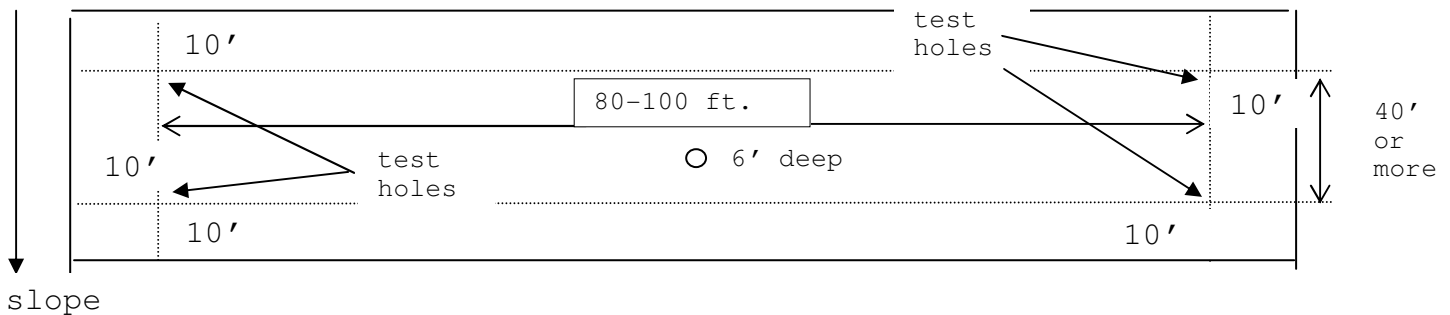
The State of Iowa and Warren County require a percolation test or soil analysis where a subsurface absorption system (lateral field) is to be installed. Please remember the test must be conducted by or under the supervision of a registered professional engineer.

**PERCOLATION TEST DIRECTIONS** The approved method of conducting a percolation test is contained in Appendix B of IAC Chapter 69. Your engineer is expected to follow this procedure. A copy of the entire Chapter 69 is available in our office.

#####

### TEST HOLE PATTERN

Be sure to place the test hole pattern with regard to the minimum distances appearing later in this document. Said test hole pattern shall consist of a minimum of four (4) holes in a somewhat rectangular or parallelogram pattern. The distance between the holes should be 80 to 100 feet across the slope and 30 to 40 feet up and down the slope; i.e. the test area should encompass the area where the lateral lines will be installed. An example of how a test may be laid out is shown below.



**Test holes** may be between 4 - 12" in diameter with a maximum depth of 36". (Holes less than 34" will restrict the allowable depth of trenches.)

**Each test hole** must be pre-soaked a minimum of 15 hours and no more than 30 hours before a test is conducted.

**A six (6) foot test hole** is required in the approximate center to check for bedrock and/or high ground water. All five test holes must be flagged. The four corner test holes must be connected by yellow caution tape or roped off as to prevent traffic compaction or damage by earth moving equipment.

#####

All tests and analyses must be taken by, or under the direct supervision of a registered professional engineer who shall certify said test. An **original or notarized copy** of the test or analysis shall be filed with this office. There will be a delay of as much as three days from the time we receive a percolation test or analysis before the permit can be issued. Personnel from this office prior to issuance of a permit must inspect each site.

#####

If the percolation test or soil analysis fails, there are other sewage disposal systems that may be used. These different types of systems, may include the following:

1. Subsurface Soil Absorption System
2. Intermittent (Subsurface) Sand Filter
3. Mound
4. Constructed Wetland (Only where soil percolation rates exceed 120 minutes per inch.)
5. Mechanical Aerobic (An owner-signed maintenance agreement must be submitted prior to permit issuance.)
6. Other alternatives as stated in Iowa Administrative Code Section 567, Chapter 69. Such as a Bio-Peat Filter.

Each type of system has its advantages and disadvantages dependent upon the site, the amount and type of use it will receive, and the amount of maintenance the owner of the system is willing to commit to. These are all things that should be thoroughly discussed with our office as soon as possible in the installation stage. In fact, in the best scenario, the potential owner should contact us prior to purchase so they will have a better idea of needed financing, timing, etc.

#####

## SEPTIC TANKS

If poured concrete septic tanks are used, the minimum thickness of the walls and bottom shall be six (6) inches. If reinforced poured concrete septic tanks are used, the minimum thickness shall be four (4) inches. Pre-cast special concrete mix, vibrated and reinforced may be two (2) inches. Plastic or fiberglass tanks are also acceptable.

The tank may be placed at any depth below the ground surface. However, the top of the tank must be located between 6 and 24 inches from the original surface of the ground or a manhole riser shall be installed within 6" of the surface of the ground. Construction of the pipe from the house to the septic tank(s) is to remain watertight and root-proof. The septic tank(s) shall be located in accordance with the clearances shown below. The distances quoted are considered minimum and should be increased where possible to provide better protection.

From any private water supply	50 feet
From any public water supply	200 feet *
From any lake, reservoir, or pond ( <b>1 acre or more in size</b> )	50 feet
From any stream or pond ( <b>under 1 acre in size</b> )	25 feet
From edge of any drainage ditch	10 feet
From any dwelling or other structure	10 feet
From property lines	10 feet
From other type subsurface sewage treatment systems	5 feet
From any ground water heat pump bore holes	50 feet
From water lines under pressure	10 feet
From suction water lines	50 feet
From foundation drains or subsurface tile	10 feet

\* (Septic lines should not cross water lines and if at all possible, the two should be separated by a minimum of 10 feet laterally.)

### **Construction**

There are a number of commercial septic tanks on the market which, if of the proper size and construction, will give satisfactory service. The prospective user is cautioned, however, against installing too small a tank.

### **Liquid capacity of tank**

The minimum size septic tank allowed for a home with one (1) to three (3) bedrooms is 1,250 gallons. For each additional bedroom, 250 gallons shall be added to the capacity. Each tank shall be a two-compartment septic tank. Sand filter systems and mound systems can have two septic tanks installed in a series or one tank sized per number of bedrooms, and an effluent filter meeting NSF Standard 46.

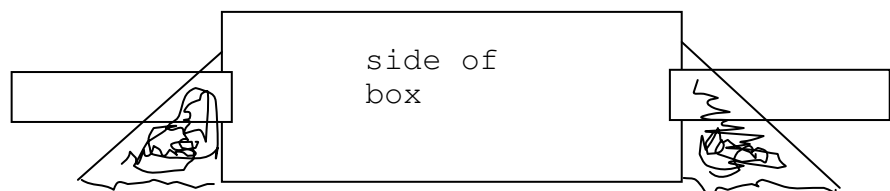
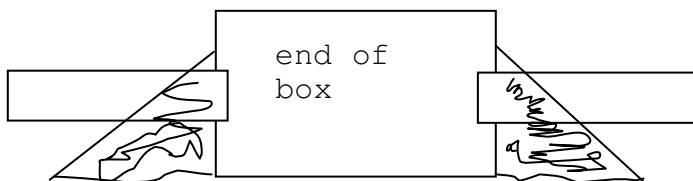
## SUBSURFACE ABSORPTION SYSTEMS (LATERALS)

The subsurface absorption system shall be located in accordance with the percolation test pattern of holes and with the clearances as follows:

From any private water supply	100 feet
From any public water supply	200 feet
From any lake or reservoir ( <b>1 acre or more in size</b> )	100 feet
From any stream or pond ( <b>under 1 acre in size</b> )	25 feet
From edge of any drainage ditch	10 feet
From any dwelling or other structure	10 feet
From property lines	10 feet
From other type subsurface sewage treatment systems	10 feet
From any ground water heat pump bore holes	100 feet
From water lines under pressure	10 feet
From suction water lines	100 feet
From foundation drains or subsurface tile	10 feet

### **Distribution box**

A distribution box shall be located at the head of the absorption field or subsurface sand filter for controlling the flow of sewage to each individual line. It is very important that the flow be equalized to all of the different lines. A satisfactory method of obtaining this flow is with speed levelers. After the levelers are in place, the box should be filled with water to be sure that the flow into each lateral pipe is equal. Concrete should be placed around the outside of the box to ensure stability.



## Construction

The lateral lines shall be located in accordance with clearances shown on page #4. The distances specified are to be considered minimum and increased when possible to provide for a greater margin of safety.

A covering of untreated paper, such as building paper, or similar material is to be placed over the gravel in the trench before backfilling. This will keep the backfilled material out of the gravel until normal settling occurs in the trench.

The following design features shall be followed when constructing lateral lines:

<u>Item</u>	<u>Unit</u>	<u>Maximum</u>	<u>Minimum</u>
Number of lateral trenches	----	----	3
Length of trenches	feet	100'	----
Width of trenches	inches	36"	18"
Distance between parallel trenches (wall to wall)	feet	----	6'
Depth of trench bottom	inches	36"	18"
Slope of 4" rigid distribution pipe	inches/100'	6"	2"
Depth of septic rock: under pipe	inches	24"	6"
over pipe	inches	----	2"
Size of septic rock	inches	2.5"	3/4"
Depth of earth fill	inches	see trench depth	6"

Note: for SB2 plastic laterals, the above items apply except SB2 laterals are to be installed with no slope in the lines and no septic rock material is to be used.

Adjustments to the total footage may be given for the following type of pipe:  
36" leaching chamber = a reduction of 25%.

Information concerning alternative systems is available from our office.

## Warren County Environmental Health

**(515)-961-1065 Fax: (515)-961-1095**

Revised 10-1-09

Order of these names does not indicate preference. You may find other names in the phone directory.

### **Professional Engineers for Percolation test or Soil Analysis**

Abaci Consulting, Inc., Mark McMurphy (Soil)	10540 Hickman Rd., Clive 50325	515-986-5048
Associated Engineering Company of Iowa - Vince Piagentini	2917 Martin Luther King Jr. Pkwy, Des Moines 50310	515-255-3156
Boeckman, Louis Boeckman Services (Soil)	1990 Clover Ave., Creston 50801	641-782-4595
Brown, Curtis	15631 Johnson, Indianola 50125	515-961-7379
CMT, Doug Clement (Soil)	1717 NE 58 <sup>th</sup> Ave., Des Moines 50313	515-263-0794
Carroll, James (Soil)	1549 NW 92 <sup>nd</sup> St., Clive 50325	515-225-3846
Choquette, Ken PE	1410 Pennsylvania Ave., Des Moines 50316	515-306-0019
Claman, Dave	610 Meadow Pl., Ames 50010	515-292-9512
Lee Engineers & Surveyors, Wally Greenlees (Soil)	3031 NW 86 <sup>th</sup> St., Urbandale 50322	515-252-7457
May, Jeff	310 S. 7 <sup>th</sup> St., Knoxville, 50138	641-891-2308
Neilson/Garden & Associates	1907 17 <sup>th</sup> Ave., East, PO Box 451, Oskaloosa 52577	641-672-2526
Russ Hochstetler (Soil)	110 Green, Winterset, IA 50273	Cell: 515-468-0419 or 515-462-3995
Vance & Hochstetler	110 Green, Winterset 50273	515-462-3995

### **Contractors for Sewage Disposal Systems**

A.G.E. LLC	P.O. Box 146, Earlham 50072	515-834-2350
A-1 Complete Septic Service	5900 SE 6 <sup>th</sup> Ave., Des Moines 50317	515-265-3986
Aker's Construction Service	1737 Summerhill Dr., Prole 50229	515-462-6803
Andrew construction	209 E. McKinley St., Osceola 50213	641-342-4869
Anytime Septic Services	2495 NE 53 <sup>rd</sup> Court, Des Moines 50317	515-262-8294
Becker, Chris	3312 68 <sup>th</sup> St., Urbandale 50322	515-278-6985
Bedwell Builders	2924 Quaker St, St. Charles 50240	641-396-2462
Bennett Backhoe	1960 Lexington Rd, Minburn 50167	515-677-2173
Beyer Backhoe, Vance Beyer	1774 Co. Line Rd., Otley 50214	515-627-5205 or cell 515-780-2525
Brown's Dirtwork	4396 NW 6 <sup>th</sup> Dr., Des Moines 50313	515-282-0203
C Briley Plumbing Inc.	1429 250 <sup>th</sup> Ave., Leighton 50143	641-626-3111 or cell 641-229-6554
C&L Construction Co.	1962 Hwy 92, Winterset 50273	515-462-4782
City Rule Plumbing & Heating	804 N. Main St., Grimes 50111	515-243-7152
CMK Plumbing, Inc.	1850 NW 110 <sup>th</sup> St., Grimes 50111	515-277-9940
County Line Construction	1813 A. Ave, Yale, 50277	641-757-0045
D.P.S. Trenching & Backhoe	1685 Upland Trail, Prole 50229	515-462-1903
Dave's Backhoe Service	5130 NW 126 <sup>th</sup> Ave., Polk City 50226	515-984-6858
Davidson Trenching & Backhoe	5591 Pierce St., St. Charles 50240	641-297-2103
Don's Drain & Septic Service	327 6 <sup>th</sup> St., Boone 50036-2604	515-432-5855
Forest Septic Tank Service	P.O. Box 197, Ankeny 50021	515-964-1443
Franzen Plumbing	P.O. Box 413 Altoona, IA 50009	515-266-1221
Golightly Construction	3556 H. Ave., Earlham 50072	515-758-3926
Gottchalk & Son	1867 170 <sup>th</sup> St., Perry 50220	515-229-0910
H & H Plumbing, Inc.	3223 170 <sup>th</sup> St., Granger 50109	515-277-5755
Halbrook Excavating	6784 NE 14 <sup>th</sup> St., Ankeny 50021	515-289-2506
Hagen, Steve	733 290 <sup>th</sup> St., Ogden 50212	515-275-4337
Hansen Services	P.O. Box 421, Granger 50109	515-202-5005
Harkin, Mike	3311 140 <sup>th</sup> St., Cumming 50061	515-981-9465
Harleen Trenching	2066 X. Ave., Madrid 50156	515-685-4441
Harmann Excavating	P.O. Box 307, Panora 50216	641-757-0907
Herr Plumbing, Inc.	10200 Dennis Dr., Ste. 4, Urbandale 50322	515-223-9643
Huff & Son Well Boring	1996 295 <sup>th</sup> Ln., Winterset 50273	515-462-3569
Hulgan, Inc.	801 First St., Perry 50220	515-465-3030
J & S Construction	2302 Rustic Ave., Winterset 50273	515-360-5322
Jirak Plumbing	303 E. Front St., Stuart 50250	515-523-1335
Johnson Excavating	802 SW Irvindale Dr., Ankeny 50021	515-208-1810

Jolly, Rod	529 Johnson St., Pleasantville 50225	515-848-3508
Kephart Construction	310 W. Clinton St., St. Charles 50240	641-396-2239
Killen Construction	1679 140 <sup>th</sup> Ave., Carlisle 50047	515-989-9013
Kirkpatrick Plumbing	1891 Rose Rd., Madrid 50156	515-250-1233
L & D Trenching (Bob Lee)	2932 SE 14 <sup>th</sup> St., Runnells 50237	515-966-2456
L & H (Luhrs & Heston)	11686 Dakota St., Norwalk 50211	515-961-6984
<b>*Leon's Complete Septic Service</b>	<b>1335 118<sup>th</sup> Pl., Knoxville 50138</b>	<b>641-842-7358</b>
Luellen Brothers Inc.	1403 Sugar Grove Ave., Dallas Center 50063	515-992-3222
M.C. Lint, Inc.	P.O. Box 158/201 N. 3 <sup>rd</sup> , Polk City 50226	515-984-6456
McDaniel, Al	P.O. Box 108, St. Mary's 50241	515-981-2252 or/cell 515-229-0527
McNair Backhoe Service	545 E. First St., Earlham 50072	515-758-2559
Meese, Mark	3189 Truro Rd., Truro 50257	641-414-2700
Meland, Joe (Meland Co.)	1311 7 <sup>th</sup> Ave. East, Oskaloosa 52577	641-660-3464
Mobile Clean, Inc.	510 Prairie St., Adel 50003	515-993-2162
Moffitt, Damen	15569 Kennedy St., Indianola 50125	515-480-7139
Morrell Company	P.O. Box 908, Waukee 50263	515-987-1515
<b>*Nash Well Company</b>	<b>19974 McKinley St., Milo 50166</b>	<b>641-942-7748</b>
<b>*Onsite Wastewater Technologies</b>	<b>1541 NE 66<sup>th</sup> Ave., DSM 50313</b>	<b>515-244-4646</b>
Oxford Construction	10976 County Line Rd., Des Moines 50320	515-285-4780
Palmer Plumbing LLC	8980 Hickman Rd., Ste. 102, Clive 50325	515-331-2232
<b>*Pella PreCast Products, Inc.</b>	<b>912 West 11<sup>th</sup> St., Pella 50219</b>	<b>641-628-1357</b>
Pleva Plumbing & Heating	1350 Bittersweet Rd., Woodward 50276	515-249-5512
Rhiner Bros Plumbing Co.	111 S. 11 <sup>th</sup> St., W Des Moines 50265	515-225-7373
Rhiner's Plumbing	15201 Hickman Rd., Des Moines 50325	515-987-1800
Rick Hayes Construction	P.O. Box 126, Panora 50216	641-755-3906
*River to River Septic	P.O. Box 460, Waukee 50263	515-987-3913
Ro-Banks, Inc.	1595 G50 Hwy, St. Charles 50240	515-961-7511
<b>*Roger's Electric &amp; Plumbing</b>	<b>6887 NE 22<sup>nd</sup> St., Ankeny 50021</b>	<b>515-289-2496</b>
Ron's Electric	6985 NE 14 <sup>th</sup> St., Ankeny 50021	515-289-2381
Rose Construction	50574 215 <sup>th</sup> Ave., Chariton 50049	641-774-7449 or 641-203-2108
RTC Excavating	5693 NW 26 <sup>th</sup> St., Des Moines 50313	515-243-1958
<b>*Shilling Excavating Inc.</b>	<b>1095 Story Dr., Knoxville 50138</b>	<b>641-842-7191</b>
Son's Construction	Box 161, St. Charles 50240	641-396-2681
Spellman Backhoe Service	1725 P. Ave., Bouton 50039	515-677-2423
Staude Trenching (Rudy Staude)	600 E. Euclid Ave., Indianola	515-961-7752
<b>*Steenhoek Septics</b>	<b>2340 Keokuk Dr., Pella 50219</b>	<b>641-628-9505</b>
Stewart, Dick	7909 143 <sup>rd</sup> Ave., Indianola 50125	515-961-7278
<b>*TSP Dirt Worx – Trenton Pohl</b>	<b>P.O. Box 184, Madrid 50156</b>	<b>515-490-4188</b>
Ted's Backhoe	1104 Paul St., Perry 50220	515-465-4808
Thomas Bros. Septic Service	5591 SE Sixth Ave., Pleasant Hill 50317	515-265-5077
Trunnel (Aaron) Digging & Plumbing	106 W. South St., Prairie City, 50228	515-994-3367
Vanderpool Construction	1100 N. 14 <sup>th</sup> St., Indianola 50125	515-961-4682
Varied Construction	4280 NW 11 <sup>th</sup> St., Des Moines 50313	515-284-0552
Wadle, Gene	121 E. Main St., Lacona 50139	641-534-4551
West Central Services	1020 130 <sup>th</sup> St., Dexter 50070	515-789-4209
Wiedmann, Gary	2750 Hamilton St., Norwalk 50211	515-981-4744/360-3517
Wilson & Baker – Bruce Baker	4525 120 <sup>th</sup> Ave., Norwalk 50211	515-720-3087

**\*Denotes mechanical system distributor & Or Maintenance Contractor**