

# INSTALLER BASICS - RULES



## **DISCLAIMER:**

**The use of trade names or images in this training presentation does not constitute an endorsement or recommendation by the Arkansas Department of Health.**

**All references to trade names or use of product images are for educational purposes only.**



# **Required Licenses**

## **Installer**

- **Install septic system\***
- **Septic tank to field**
- **House to septic tank inlet  
MUST be installed by  
licensed plumber**
- **Water and Sewer Service  
Line Installers License  
through ADH plumbing  
(501-661-2642)**

## **Designated Representative**

- **Inspect existing septic  
systems**
- **Design and submit  
permits for new or  
repair systems**

# **Act 402 of 1977**

- **Individual Sewage Disposal Permits**
- **Subdivision Review**
- **Licenses for:**
  - Installers**
  - Designated Representatives**
  - Septic Tank Manufacturers**
  - Certified Monitoring Personnel**
- **Ten Acre Exemption:**
  - 200 Foot Setback from Boundaries**
  - Does not apply to ADEQ requirements**
- **Fees**
- **Violations are a misdemeanor that may result in maximum fines of \$1,000.**

# **Rules and Regulations Pertaining to Onsite Wastewater System**

- **Found on ADH Website  
[www.healthy.arkansas.gov](http://www.healthy.arkansas.gov)**
- **Copy in Installer Study Packet**
- **Last Revision September 2024**

# **Arkansas Department of Environmental Quality (ADEQ)**

- **Individual Treatment Facilities ARG550000**
- **ADEQ permit required for all surface discharging systems**
- **Onsite Wastewater System utilizing Surface Discharge  
(i.e. ATU, PMF, Sand filter)**
- \* **ADEQ ARG550000 Permit Required  
(regardless of acreage)**
  - **National Pollutant Discharge Elimination System (NPDES)**

# **INSTALLER LICENSING REQUIREMENTS**

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**Pass Licensing Test**

**Annual Training Course**

**\$100 Annual License Fee**

**License Expires December 31**

**License Renewable January 1**

**50% Late Fee After March 1**

**Delinquent for more than one year, requires  
retesting**



# **THE APPROVED PERMIT**

- **Individual Onsite Wastewater System Application (EHP-19)**
- **Completed by Designated Representative (DR)**
- **Soil & Site Information**
- **Signed on Line 21 by Environmental Specialist**
- **Good for 1 year without Revalidation**
- **No Changes or Substitutions without DR's Authorization**
- **Installation Inspection and Permit for Operation**





**Arkansas Department of Health**  
Environmental Health Protection

Receipt Number

**Individual Onsite Wastewater System Permit Application**

Permit Type ☐ New Installation  
☐ Alteration / Repair

DR Environmental ID #

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Fee Schedule for Structures		√
Structures 1500 sq ft or less	\$ 30.00	<input type="checkbox"/>
Structures more than 1500 sq ft and up to 2000 sq ft	\$ 45.00	<input type="checkbox"/>
Structures more than 2000 sq ft and up to 3000 sq ft	\$ 90.00	<input type="checkbox"/>
Structures more than 3000 sq ft and up to 4000 sq ft	\$120.00	<input type="checkbox"/>
Structures more than 4000 sq ft	\$150.00	<input type="checkbox"/>
Alteration and Repair	\$ 30.00	<input type="checkbox"/>

**Part 1 Application**

**Treatment Type (check one)**

**Disposal Method (check one)**

- |   |   |  |  |
|---|---|--|--|
| <input type="checkbox"/> STD = Standard Septic Tank     | <input type="checkbox"/> ATU = Aerobic Treatment Plant      | <input type="checkbox"/> STD = Standard Absorption Field | <input type="checkbox"/> LPD = Low Pressure Distribution |
| <input type="checkbox"/> ISF = Intermittent Sand Filter | <input type="checkbox"/> RSF = Re-circulating Sand Filter   | <input type="checkbox"/> SUR = Surface Discharge         | <input type="checkbox"/> HLD = Holding Tank              |
| <input type="checkbox"/> PMF = Proprietary Media Filter | <input type="checkbox"/> RGF = Re-circulating Gravel Filter | <input type="checkbox"/> CPF = Capping Fill              | <input type="checkbox"/> SRL = Serial Distribution       |
| <input type="checkbox"/> OTH = Other (Describe)         | <input type="checkbox"/> HLD = Holding Tank                 | <input type="checkbox"/> OTH = Other                     | <input type="checkbox"/> DRP = Drip Irrigation           |

1. Owner's/Applicant's Name		2. Phone Number	
3. Mailing Address		4. County	
5. Address of Proposed System (If a 911 address is not available, attach detailed directions or map)			
6. Subdivision Name		7. Approval Date	8. Date Recorded
9. Lot Number			
10. Lot Dimensions		11. Total Area (Acres)	12. # Bedrooms # People
13. Daily Flow (GPD)			
14. Parcel Number or Brief Legal Description of Property (Attach a separate sheet of paper, if necessary)			
15. Water Supply (Specify supplier, if Public Water)		16. GPS Coordinates	
17. Loading Rates (gpd/ft <sup>2</sup> )			
18. System Specifications			
Primary Area	a. Size of Septic Tank	gal	f. Trench Depth
Secondary Area	b. Size of Dose Tank	gal	g. Trench Spacing
Percolation Test	c. Absorption Area	ft <sup>2</sup>	h. Trench Media (List Below)
Primary Area Avg	d. Number of Field Lines		i. Trench Width
Secondary Area	e. Length of Field Lines	ft	

**TO THE OWNER**

The permit for construction may be deemed invalid by the local Environmental Health Specialist before the start of construction, if the site and/or soil conditions have changed after approval of this permit, or if the information within this permit is inaccurate or has been found to be misrepresented. Approval for operation does not constitute a guarantee that the system will function properly. The approval states that the system was designed and installed according to the Arkansas Department of Health, Rules Pertaining to Onsite Wastewater Systems, unless there are exceptions or deviations noted in the comments. A Permit for Construction is valid for one (1) year from the date of approval. The authorized agent must revalidate a permit more than one (1) year old prior to the start of any construction.

**19. Utilization Verification**

I hereby attest that item 12, the number of bedrooms (number of persons for commercial) and square footage of the structure that will utilize the designed individual onsite wastewater system in this permit application, is accurate. I have reviewed the permit application and understand the layout, installation, maintenance, operation and expense(s) that may be associated with this system.

Date \_\_\_\_\_

Owner/Applicant/Developer/Designated Representative Signature

20. I certify that I have conducted the above tests and that the above listed information is in accordance with the latest requirements of the Arkansas Department of Health Rules and Regulations Pertaining to Onsite Wastewater Systems.

Soil Certified ☐ Yes ☐ No

Designated Representative Signature

Title

Print Name

Date

Phone Number

**21. Approval of Health Authority**

The information and specifications in this application have been reviewed and found to meet the requirements of the Arkansas Department of Health Rules Pertaining To Onsite Wastewater Systems. A PERMIT FOR CONSTRUCTION is hereby issued.

Environmental Specialist Signature

EHS Number

Date

Line 21 →

**Individual Onsite Wastewater System Permit Application**

Receipt Number

22. Soil Criteria (Primary Area)				Indicate the depth to items a-f, if observed in the soil (designate in inches)			
a. Bedrock	b. BSWT	c. MSWT	d. LSWT	e. Adj. MSWT	f. Adj. LSWT	g. H.C./Depth	h. Loading Rate (gpd/ft <sup>2</sup> )
23. Soil Criteria (Secondary Area)				Indicate the depth to items a-f, if observed in the soil (designate inches)			
a. Bedrock	b. BSWT	c. MSWT	d. LSWT	e. Adj. MSWT	f. Adj. LSWT	g. H.C./Depth	h. Loading Rate (gpd/ft <sup>2</sup> )
24. Seasonal Water Table (SWT) Classes Detail							
Primary Area		List Redoximorphic Features and/or Clay Content Restrictions					
Brief	in						
Moderate	in						
Long	in						
Secondary Area		List Redoximorphic Features and/or Clay Content Restrictions					
Brief	in						
Moderate	in						
Long	in						
Comments							

**Part 2 Installation Inspection**

Septic tank manufacturer	Pump information
Septic tank material	Trench media and width
Dose tank manufacturer	Depth of interceptor drain
Dose tank material	Depth of settled fill
Name of Installer	License Number
Installation Inspected by <input type="checkbox"/> Environmental Health Specialist <input type="checkbox"/> Designated Representative (original submitter) (check one or installer signs System Installation Verification below)	
Signature	EHS / License Number Date
System Installation Verification I have installed this system as designed and in compliance with all Rules and Regulations Pertaining to Onsite Wastewater Systems.	
Installer Signature	License Number Date

**Part 3 Permit for Operation**

The information contained in Part 1 and 2 of this form has been reviewed and found to meet the requirements of the Arkansas Department of Health. THE PERMIT FOR OPERATION of this system is hereby issued.			
Environmental Health Specialist	Signature	EHS Number	Date
Comments			
Site Revalidation conducted by <input type="checkbox"/> Environmental Health Specialist <input type="checkbox"/> Designated Representative (original submitter) (check one)			
Signature EHS / License Number Date			

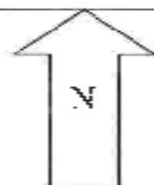
# **THE PLAT DRAWING**

## **Plan(s) Attached to the Permit Form**

### **Drawing Shows:**

- **House, Property Lines, & Setbacks**
- **Septic Tank Location**
- **Pump Tank Locations (if any)**
- **Solid Pipes, Cleanouts, & Distribution Box**
- **Absorption Trenches on Contour**
- **Other Important Details**

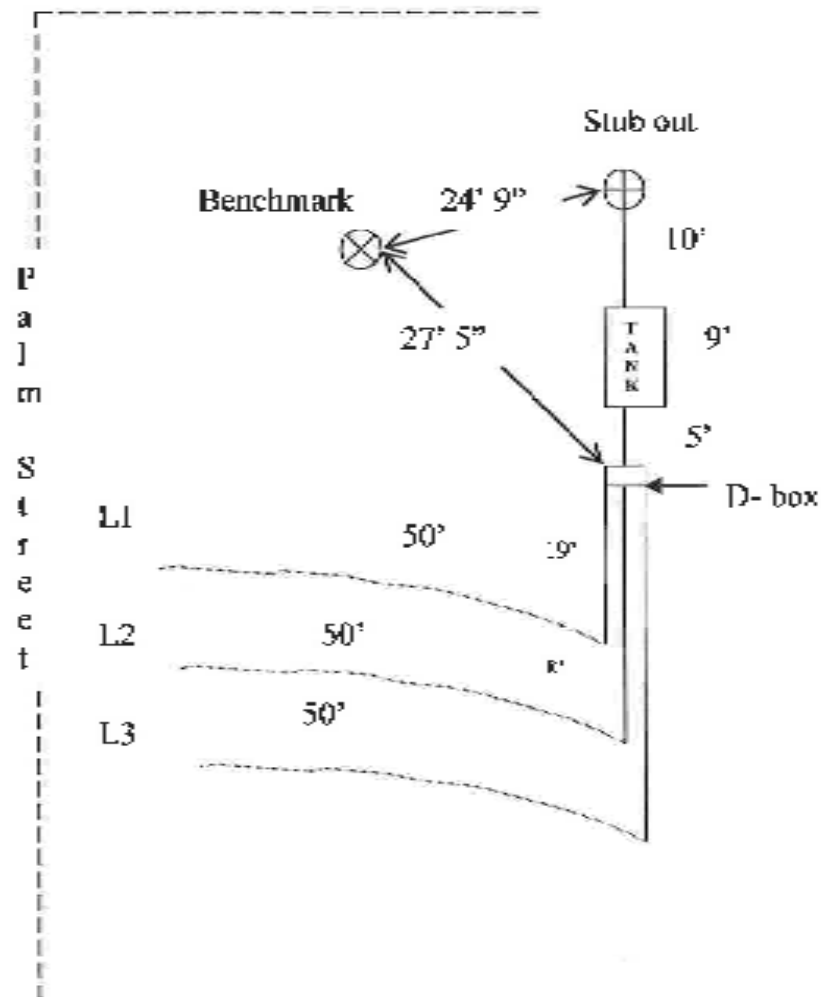




# Lot #1

Scale 1:20

Markham Street



## Ground Shots

Benchmark	2.06
Stub out:	1.30
In Tank	2.00
Out Tank	2.46
D-Box	2.66

	Top	Middle	End
L1	3.62	3.62	3.62
L2	4.16	4.16	4.16
L3	4.76	4.76	4.76

1. Trenches to be 1.5' (18") deep
2. Top of pipe at stub out to be even with natural ground
3. Top of tank at inlet to be even with natural ground
4. Top of D-box even with natural ground

# **OTHER DOCUMENTS**

- **Pump Curves & Specification Sheets**
- **Memorandum of Agreement**
- **Vicinity Map**
- **Installation Instructions**

# **NEW PRODUCTS**

**Reviewed & Authorized by  
Onsite Wastewater Product  
Review Committee**

**Listed On:**

**Authorized Onsite Wastewater Products List**

**Agency Website**

**[www.healthy.arkansas.gov/programs-services/topics/onsite-wastewater](http://www.healthy.arkansas.gov/programs-services/topics/onsite-wastewater)**

**Grouped by Categories**



# **IMPORTANT POINTS**

**! 24 Hour Notice to EHS Required  
Before Installation Begins**

**Sec. 4.7**

**! Licensed Installer Must Be On Site  
During Entire Installation**

**Sec. 14.1**

# **SYSTEM INSPECTIONS**

**EHS May Authorize Designated Representative To Make Final Inspection**

**Final Inspections May Be Conducted by:**

- **Environmental Health Specialist**
- **Designated Representative (original submitter)**

**If no final inspection, installer completes Part 2 of the EHP-19 and signs the System Installation Verification Section.**

**In addition, installer must sign and submit the Installation Specification Sheet (EHP-6) to the local health unit within 5 working days!**



Arkansas Department of Health  
Environmental Health Protection

Receipt No.

Individual Onsite Wastewater System Installation Specifications

(Must be signed and returned to ADH Authorized Agent within five working days.)

Name of Applicant		TB = Trench Bottom Elevation PE = Top of Pipe Elevation GE = Ground Elevation FL = Flow Line Elevation (Top of Pipe Elev. + 4") TE = Tank Lid Elevation
Location of System		
Name of Installer	License #	

Septic Tank Size	Gal	Dose Tank Size	Gal	Drawdown Inches	Benchmark
Type of System				Number and Length of Lines	at ft
Orifice Head	ft	Pump Run	min	sec	Pump Rest min sec

Trench Media		Trench Width
Stub-out	FL	GE

Tank Inlet	FL	GE	TE	Dose Tank Inlet	FL	GE	TE
Tank Outlet	FL	GE	TE	Dose Tank Outlet	FL	GE	TE

D-box Inlet	FL	GE	D-box Outlet	FL	GE	Other Devices	GE	PE
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Line 1

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 2

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 3

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 4

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE



Receipt No.

Line 5			
Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line 6			
Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Line Length	Beginning	Middle	End
	TB	TB	TB
	GE	GE	GE

Environmental Health Specialist \_\_\_\_\_ Date \_\_\_\_\_

I have installed this system as designed and in compliance with all Rules and Regulations Pertaining to Onsite Wastewater Systems.

Installer Signature

License Number

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Date \_\_\_\_\_

## Sign and submit in 5 days

# **MINIMUM SET BACKS**

## **HORIZONTAL DISTANCES FROM ALL SEWAGE SYSTEM COMPONENTS**

- **300** Feet From High Water Mark of Lakes **If** Within One Quarter ( $\frac{1}{4}$ ) Mile of Water a Supply Intake Structure
- **300** Feet From Any Spring Used as a Source of Domestic Water
- **100** Feet From a Domestic Water Well
- **100** Feet From High Water Mark of Streams & Lakes
- **100** Feet from Ponds on Other Property **or** 50 feet from Ponds on the Same Property
- **10** Feet From Dwellings
- **10** Feet From Property Lines
- **10** Feet From Water Service Lines

# **Recommendations Before Final Bid on an Installation**

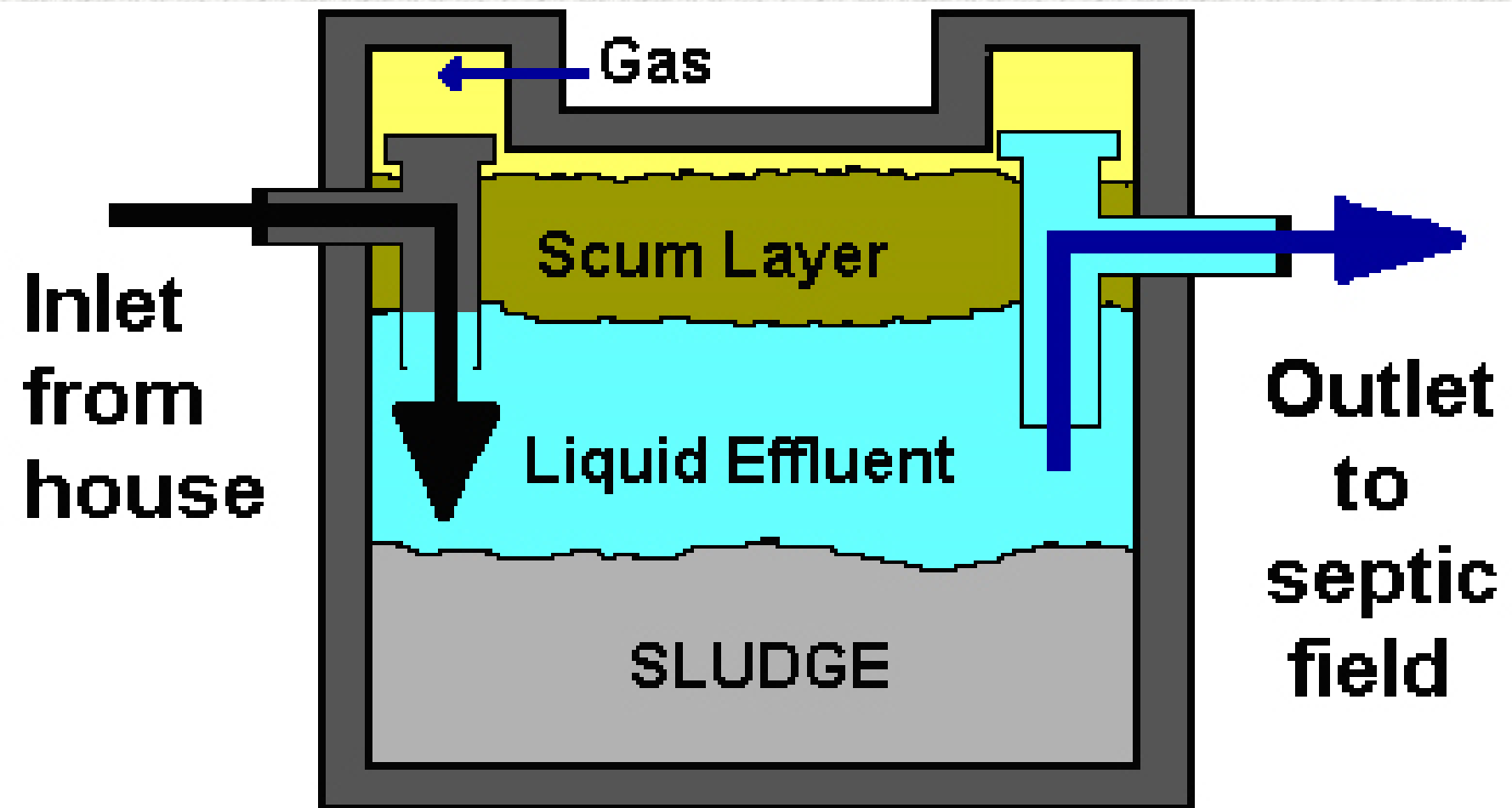
- **Review permit completely for all construction details**
- **Site Visit and Review**
- **Locate Stub Out (if applicable)**
- **Take elevations (if concerned)**
- **Locate required supplies and suppliers**
- **When in doubt, ask for assistance!**
- **Signed Contracts with homeowner (optional)**



# SEPTIC TANK

## Primary Wastewater Treatment

- **Separates Solids From Liquids**
  - Scum Layer:** Floats to surface and may contain  
**Fats, Oils & Grease**
  - Sludge Layer:** Solids sink to the bottom and may contain  
**Heavier Organic & Inorganic Materials**
- **Start of Biological Process Using Anaerobic Bacteria**
- **Stores Solids For Future Removal**



Profile of a typical septic tank

# **SEPTIC TANKS**

**Size Specified on Application Form (EHP-19 line 20a)**

**Concrete, Fiberglass, or Plastic**

**Minimum Size 1000 Gallons**

**Designated Representative Specifies:**

**Tank Manufacturer**

**Size (Gallons)**

**Material**

**Location on Lot**

**Outlet Flow-line**

**NO CHANGES WITHOUT DR's OK!**



# Concrete Septic Tank







# Plastic & Fiberglass Septic Tanks



# SEPTIC TANK SIZE

## Residential

**1, 2, & 3 Bedrooms      1000 Gallons**

**4 Bedrooms      1250 Gallons**

**250 Gallons for Each Additional Bedroom**

## Commercial Establishments

**Capacity Equal to 48 Hour Flow min.**

# **SEPTIC TANK DETAILS**

**Minimum of 10 Feet From House**

**Inlet Baffle Extends 6 Inches Below Liquid Level**

**Outlet Baffle Must Extend 35%-45%  
of Liquid Depth**

**Risers Required Over Both Inlets & Outlets**

**DR May Specify Effluent Filter**

# **ALL SEPTIC TANKS MUST BE WATERTIGHT**

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## **Potential Problems During a Significant Rain Event and/or Wet Season**

### **Ground Water Infiltration:**

- **Hydraulic Overload of the Absorption Field**
- **Excessive Pump Run Time**
- **Groundwater Contamination**



# **SITE PREPARATION**

**Find Primary Absorption Field Area**

**Look For DR's Flags**

**Locate Benchmark**

**Check Soil Moisture**

**Avoid Soil Compaction**

**Avoid Smearing Trench Walls**

**Keep Heavy Equipment Off of Both Primary &  
Secondary Absorption Field Sites**

**Use Low Impact Tracked Equipment When Possible**

**Minimize Vehicle Traffic**

# Septic Tank Inlet & Outlet Seal



**Follow manufacturers directions for proper fit of pipe into seal.**

# **SEPTIC & PUMP TANK INSTALLATION**

**DR Selects:**

**All Tank Locations**

**Tank Depths**

- **Tank Holes Must Be Large Enough for Backfilling**
- **Tanks May Need to be Bedded on Sand or Gravel**
- **Fill Tanks With Water To Prevent Floating**
- **All Tanks Must Be Watertight**
- **Lines under roadways or driveways shall be SCH 40, cast iron or use a steel sleeve**

# **ABSORPTION TRENCHES**

**Minimum Number of Trenches is 2**

**Maximum Length 150 Feet if Mechanically Dosed**

**Maximum Length 100 Feet w/o dosing**

**Min. 8 ft. center to center**

**Bottom of Trench Level & On Contour**

(Level is preferred but tolerant slope on perforated pipe 0-2 Inches/100 Feet)

**DR Design May Include:**

**Diversion Device**

**Serial Distribution**

**Over Fill To Allow For Settling**



# **ABSORPTION TRENCH MEDIA**

**Gravel Trench**

**Washed Gravel**

**(no fines)**

**$\frac{1}{4}$  -  $1\frac{1}{2}$  Inch Diameter**

**2 Feet Wide & 1 Foot Deep**

**! 4-Inch ASTM-2729 or F-810 Perforated !**  
**Pipe 6 Inches Above Bottom**

**Authorized Gravel Substitute**

**Listed On Authorized Products List & Website**

**Installed As Specified By Manufacturer**

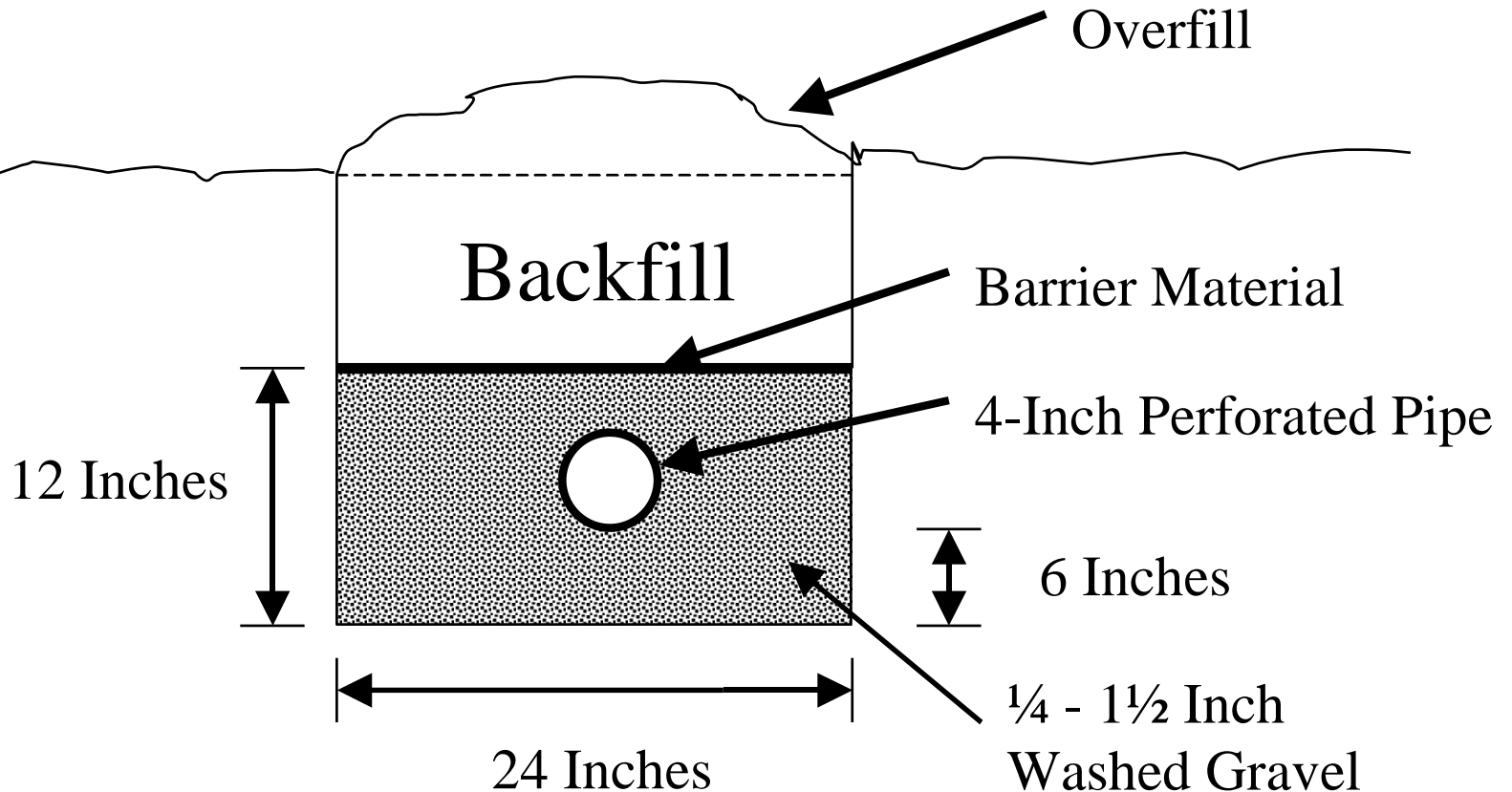
**Designated Representative Specifies Media**

# ABSORPTION TRENCHES

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- **Installed On Contour**
- **Minimum spacing between the trenches shall be 6 feet between the trenches and 8 feet center to center**
- **18 Inches Deep Unless Otherwise Specified by the Designated Representative**
- **Horizontal separation of 5 feet between the absorption area and tight line trench**
- **Barrier Material Over Media**
  - **Geo-Textile**
  - **Building Paper (*Not Roofing Felt*)**
- **Authorized Media (*Follow Manufactures Instructions*)**

# ABSORPTION TRENCH CROSS-SECTION





# **Absorption Trench**

**Installed on Contour  
With Barrier  
Material In Place  
( Geo-Textile )**

**Note: Contour line.**







**System  
installed  
off  
contour  
and  
WAY  
TOO  
DEEP!!**

**6+ feet  
deep in  
middle**





# **MAXIMUM STORAGE** **INSTALLATION AND CONSTRUCTION**

**Construction technique where the placement of the distribution box or septic tank flowline allows for maximum storage within a trench as well as the surrounding soil.**

**The two types of maximum storage installations are:**

**Flat or Sloping**

# **HOUSE SEWER LINE**

**Septic Tank Inlet & Outlet Pipes Must Be  
Schedule 40 PVC**

**Slope On “Inlet” Pipe  $\frac{1}{8}$  –  $\frac{1}{4}$  Inch Per Foot**

**4 Inch Cleanout Required**

**Before Entering Tank**

**Every 100 Feet**

**Changes In Direction  $> 45^{\circ}$**

# Typical single-compartment septic tank with ground-level inspection risers and screen

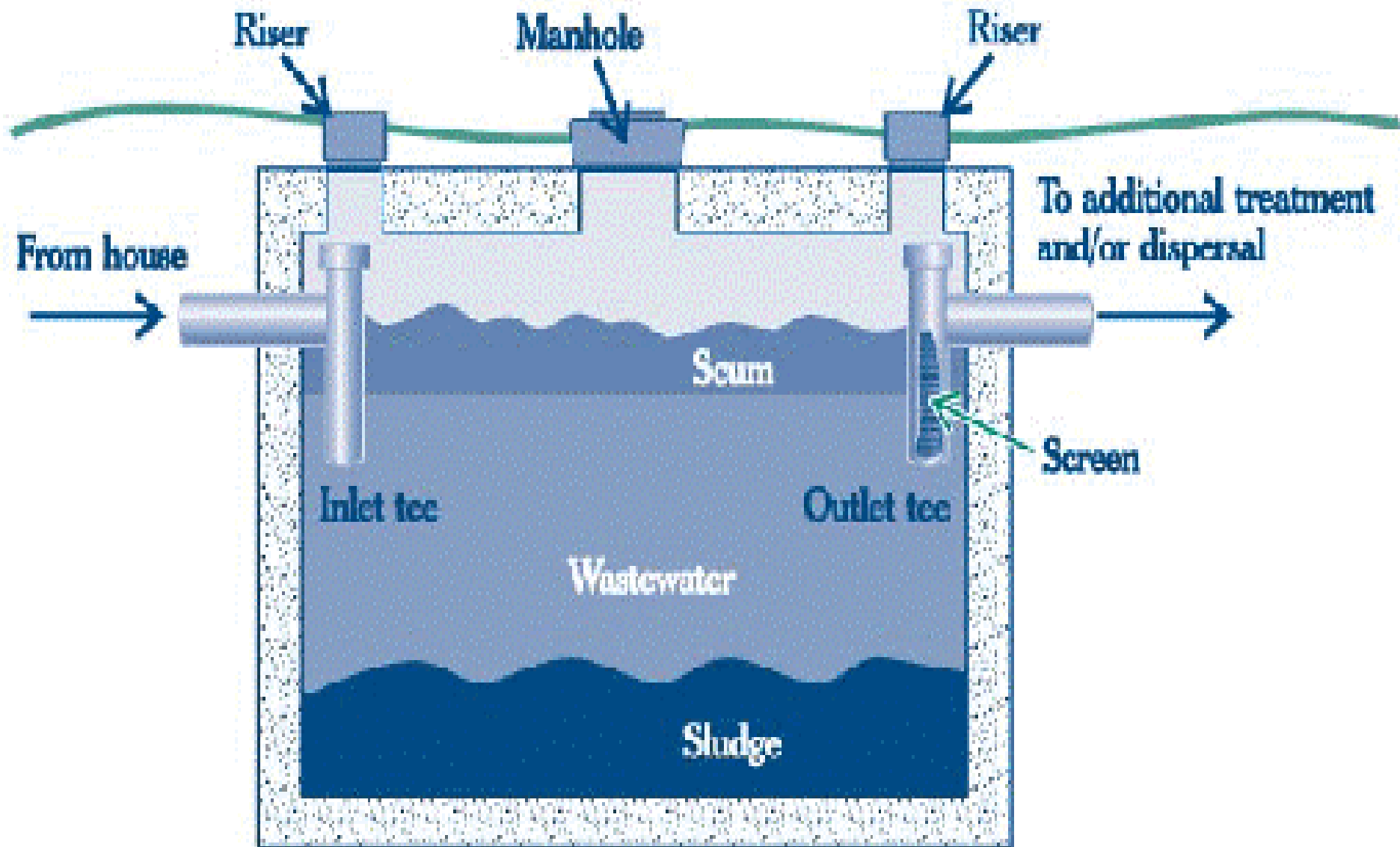
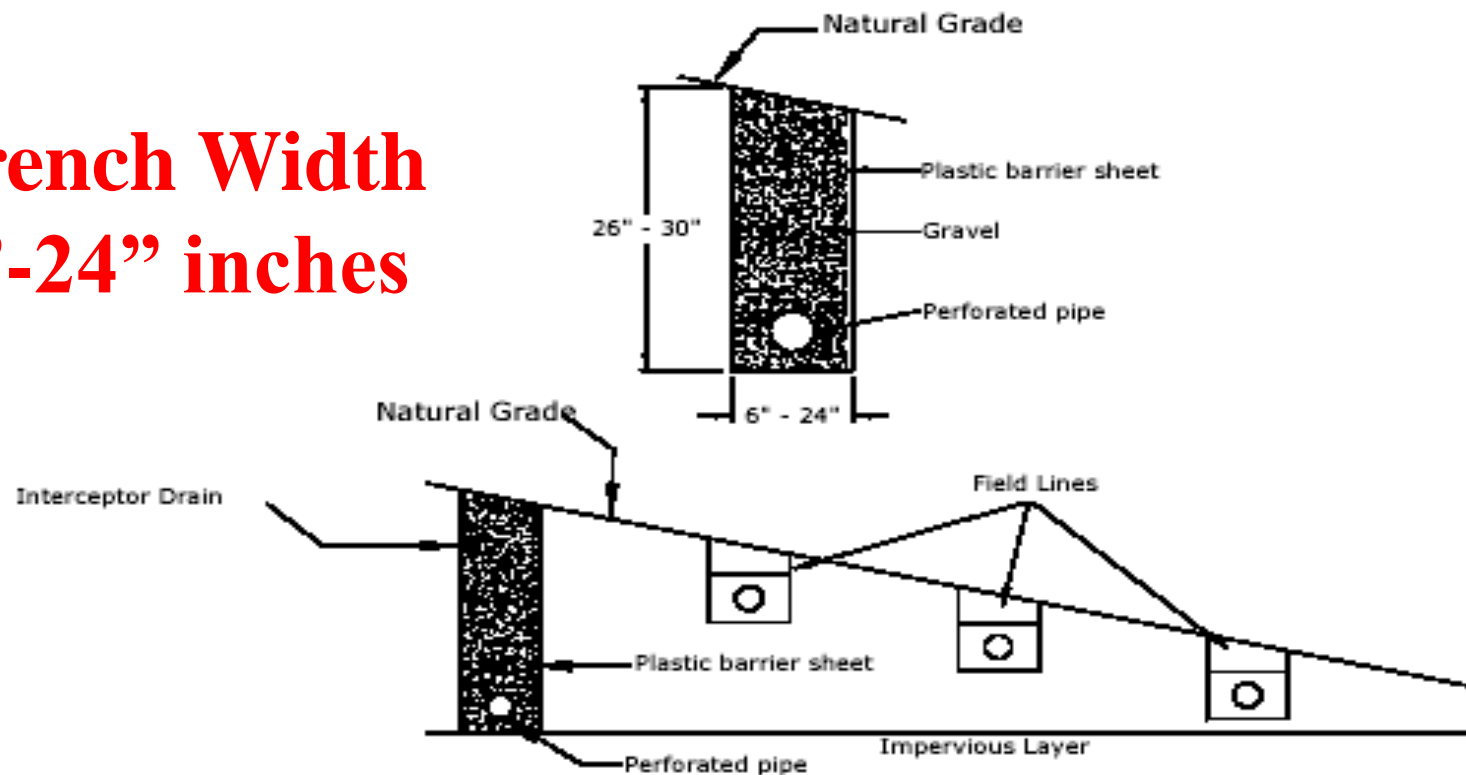




fig.8

## Interceptor Drain (3% or greater slope)

- Trench Width  
6"-24" inches



# Soil Smearing

**Smearing of sidewalls and bottoms reduces the absorption rate**

**Two critical factors: How wet is the soil?**

**What is the soil's clay content?**

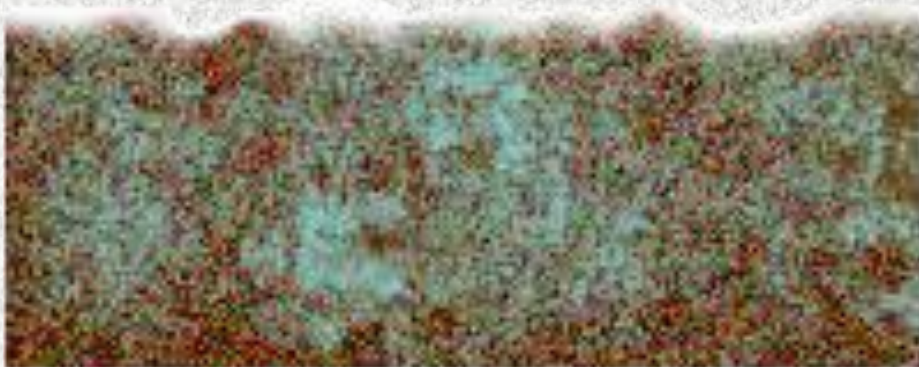
**Roll the soil between your thumb and index finger. If the soil forms a ribbon, it is too wet to install the lateral field**



# Soil Compaction

**When soil particles are compressed, the void spaces in the soil are eliminated. This also damages the soil structure. The result is less storage in the soil and reduced hydraulic conductivity.**

**Use low impact track equipment whenever possible. All traffic on the absorption site should be avoided during wet conditions.**





# **SITE CLEARING & GRUBBING**

**Have A Specific Plan For Each Site**

**Leave Topsoil**

**Cut Trees Flush To Ground**

**Only Remove Roots That Interfere With Trenches**

**Remaining Roots Will Rot**

**Use Stump Grinder On Stumps**

**Rake Smeared Sidewalls to Depth of 1 Inch**



PIPE ASTM-D-2729 3000-CRUSH







PE ASTM-D-2729 3000-CRUSH







BRYANT PLASTICS PVC 1120 4IN SEWER P

187N-D-2/28 3000-CH-14H

BRYANT PLASTICS PVC 1120 4IN SEWER PINE

BRYANT PLASTICS PVC 1120 4IN SEWER PINE 187N-D-2/28 3000-CH-14H

BRYANT PLASTICS PVC 1120 4IN SEWER PINE 187N-D-2/28 3000-CH-14H

BRYANT PLASTICS PVC 1120 4IN SEWER PINE 187N-D-2/28 3000-CH-14H







# **EFFLUENT DISTRIBUTION**

- **Gravity Distribution**
- **Pumped Distribution**

# GRAVITY DISTRIBUTION

- Distribution Box  
(*Key: equal distribution*)
- Serial Distribution

# DISTRIBUTION BOXES



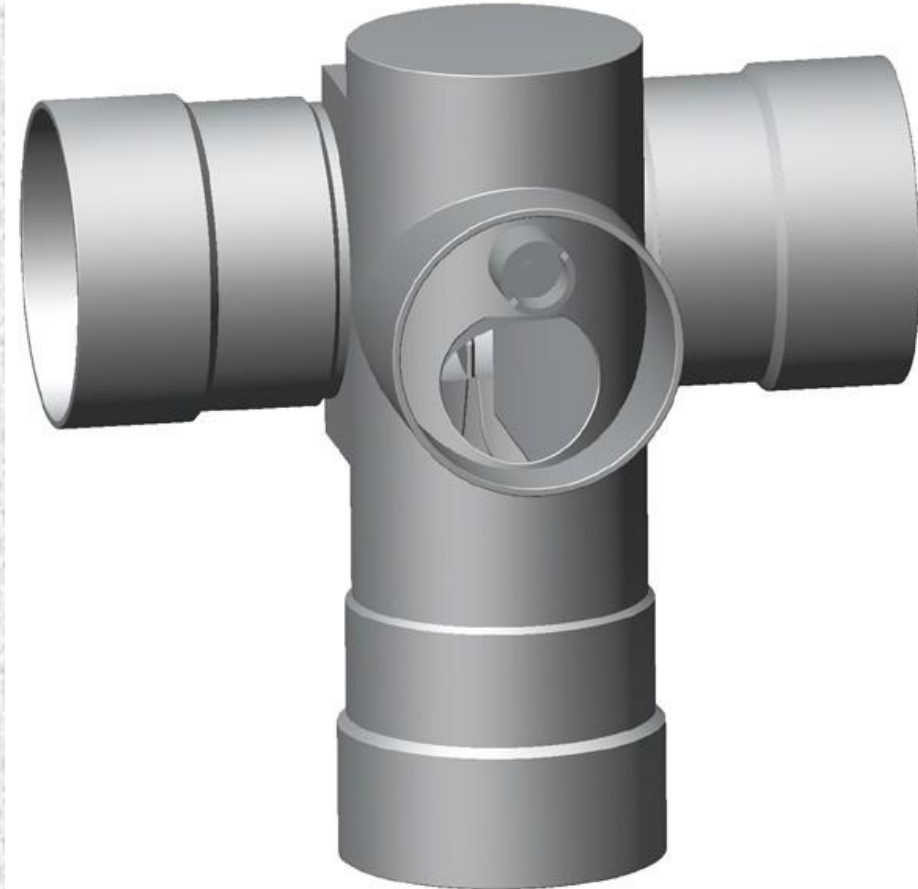






# **EFFLUENT FLOW CONTROL DEVICES**

**AKA: Diversion Devices**



# **DISTRIBUTION BOX**

**Materials**

**Concrete**

**Plastic**

**Bedded on Undisturbed Earth, Gravel, or Concrete**

**Must Be Level**

**All Lines Feed the Same**

**Use Flow Control Devices**

**4 Inch PVC Solid Pipe In & Out**

**Schedule 40 PVC**

**SDR-35 PVC**

**NO PERFORATED PIPE FOR 5 FEET**

# PUMPED DISPERSAL

- Distribution Box
- Pressure Manifold
- Low Pressure Distribution (LPD)  
*(Key: equal distribution in small doses)*
- DR Designs Distribution System



# Pressure Manifolds

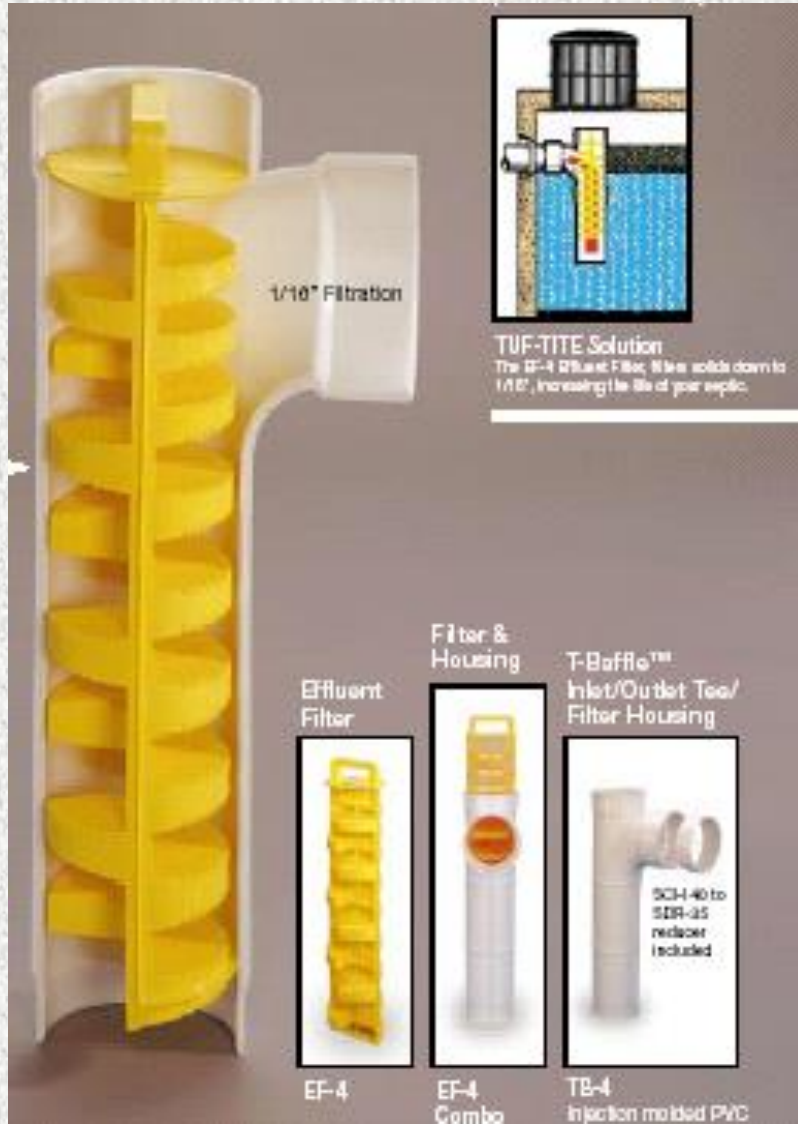


**Orifice Disk must be sized according to the specification found in the permit. Accurate drill size is important when the manifold is used with uneven length lines.**



# Effluent Filters

- Required for reduced orifices
- Recommended for all systems





# **PUMP TANKS**

**Large Enough For:**

**Dose Volume Specified by DR**

**Ballast (to prevent floating) 1/4**

**Reserve (surge capacity) 1/3 daily usage**

**Electrical Connections Protected  
From Corrosive Gasses**



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# Filtered Pump Vaults

# **FILTERED PUMP VAULTS**

- **250** Gallon Larger Septic Tank Required
- Maximum drawdown per Dose Cycle is **3** Inches
- Pump Vault Inlets Between 35% - 45% of the Liquid Depth of Tank
- Pumped Effluent Line Goes Out Through Septic Tank Outlet Riser



# **DOSED DISTRIBUTION BOX**

**Inlet Pipe 1½ or larger Schedule 40 PVC**

**Outlet Pipes 4 Inch**

**Schedule 40 PVC**

**OR**

**SDR-35 PVC**

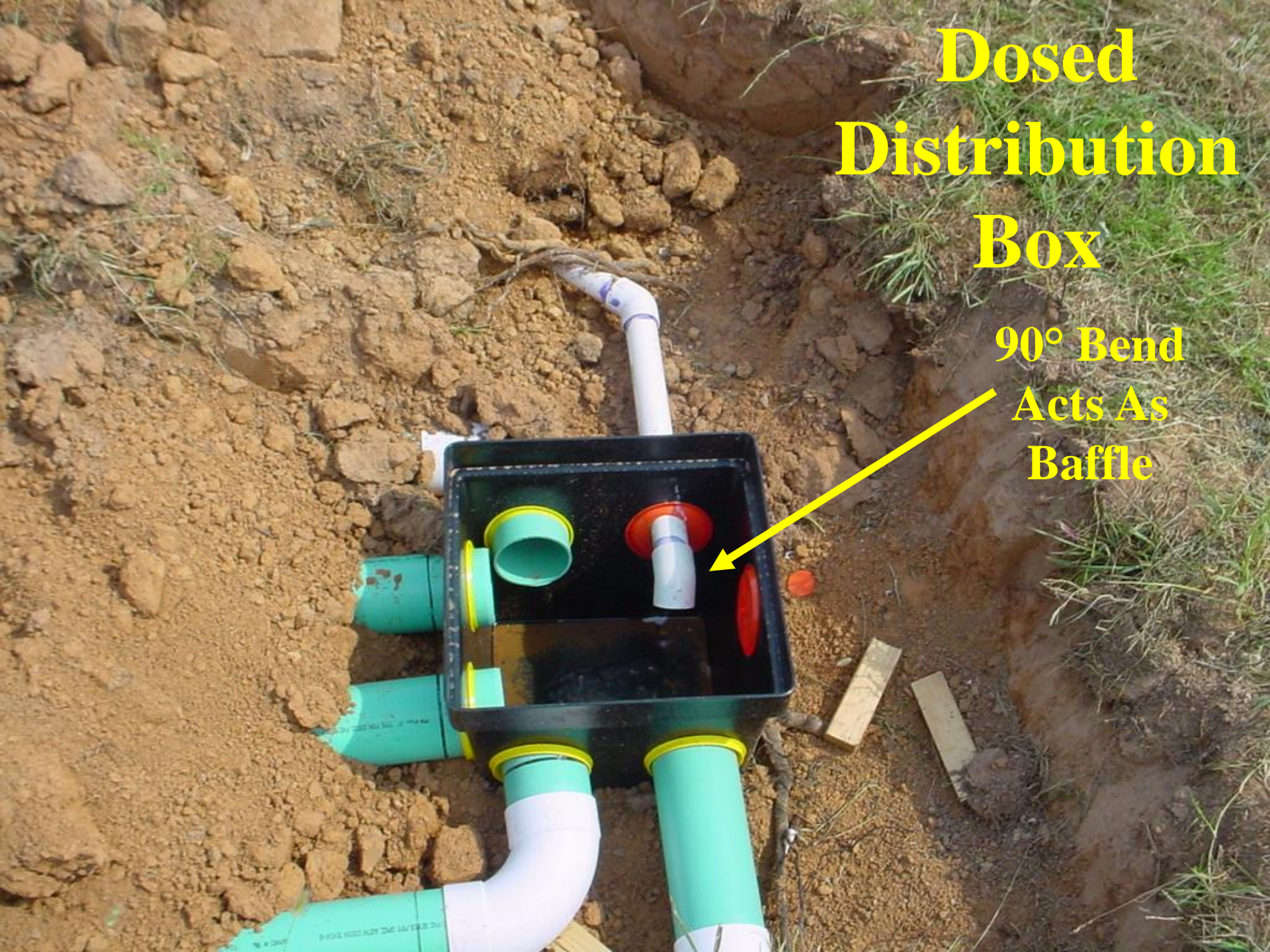
**Baffled For Even Flow To All Lines**

**DR Specifies Construction & All Components**



# Dosed Distribution Box

90° Bend  
Acts As  
Baffle





# **PUMPING DOWN HILL**

**When the soil absorption field is located below the elevation of the pump tank, measures must be taken to prevent the effluent from being siphoned into the absorption field.**

**HOW CAN THIS BE PREVENTED?**

**1/8 inch hole at head works**