Virginia

The Virginia Department of Health (VDH) authorized the use of EZflow by Infiltrator drainfields per VDH Sewage Handling and Disposal Regulations (12VAC5-610, as amended January 2, 2014) in both gravity and pressure-dosed effluent dispersal trench systems.

The configurations presented in this document are common designs and are provided for illustrative purposes. They are not intended to restrict the use of other configurations, which may be utilized provided the design conforms with the Sewage Handling and Disposal Regulations (12VAC5-610) and/or Alternative Onsite Sewage System Regulations (12VAC5-613), as applicable.

Prior to installation, Infiltrator Water Technologies must certify installers in writing as having passed EZflow Certification Training.

Materials and Equipment Needed

- EZflow Bundles
- EZflow Internal Pipe Couplers
- Pipe for Header, Inlet and Inspection Ports
- End Caps (if needed)
- Backhoe
- Laser, Transit, or Level
- Shovel and Rake

EZflow® by INFILTRATOR

Installation Instructions for EZflow Systems in Virginia



Installation Instructions

EZflow bundles are 12 inches in diameter by 5 or 10 feet long. The polyethylene net bundles may contain perforated pipe surrounded by EPS aggregate or agregate only. One pipe-containing bundle is required in each trench.

In cases where linear footage required is not in multiples of 5 or 10, the installer must use an additional 5 or 10 feet of product to meet the minimum required trench length.

All sites shall meet the applicable site, soil, and construction criteria in accordance with 12VAC5-610.

1. Excavate and level trenches or slope per applicable state and local codes using a level, transit or laser.
2. EZflow bundles are flexible and can fit in curved trenches as may be necessary to install on contour.
3. If smearing or glazing of the trench sidewalls and bottom has occurred, these soil surfaces must be raked or scarified.
4. The plastic shipping wrap shall be removed before the bundles are placed in the trench. Remove all plastic shipping wrap in trench.
5. Place first bundle in the trench in the selected EZflow configuration. The top of each 1202H-GEO or 1203H-GEO bundle contains a pre-manufactured filter fabric between the netting and aggregate. The fabric is inserted to prevent soil intrusion. The installer shall make sure that the fabric is on top and is in contact with the fabric contained in the adjacent bundle before backfilling.
6. The top or center-most bundles containing pipe are joined end to end with approved internal pipe couplings.
7. Connect and place additional bundles with pipe in trenches until the required linear footage has been achieved.
8. Effluent lines from the distribution box shall be connected to the top or center-most pipe bundle in each trench with approved internal pipe connectors.
9. Obtain any required health department inspections prior to covering trenches.
10. Backfill with native soil. The trench top shall be shaped or mounded to ensure surface water runoff. Minimum cover over the bundles shall conform to 12VAC5-610 requirements.
11. Sod or seed drainfield area, as may be required, to control erosion. Roof and surface drainage should be diverted away from the trench area.

    Repeat steps for additional required trenches.

The top of configurations with the suffix **"GEO"** contain a filter fabric pre-manufactured in between the netting and aggregate. The fabric is inserted to prevent soil intrusion. The installer shall make sure that the fabric is on top and is in contact with the fabric contained in the adjacent bundle before backfilling.

Obtain any required inspections by the health department before covering system. After the system has been completely covered, only drive across the trenches when necessary. Never drive along the trench lines. To avoid additional soil compaction, prevent any heavy equipment from driving across or along the trench lines. Sod or seed the drainfield area to control erosion, as may be required by permit or local policy.

SYSTEM SIZING – GENERAL

Table 1 below represents Table 5.4 of 12VAC5-610. This table establishes minimum area requirements for absorption trenches, including gravelless materials such as EZflow. Table 1 provides regulation sizing for gravity and low-pressure distribution applications.

Table 1. 12VAC5-610-950 Table 5.4 - Regulation Sizing for Absorption Trenches

Percolation Rate (minutes/inch)	Area Required (ft^2/100 gals)			Area Required (ft^2/bedroom)		
	Gravity Gravel and Pipe	Gravity Gravelless EZflow	Low Pressure Distribution[1]	Gravity Gravel and Pipe	Gravity Gravelless EZflow	Low Pressure Distribution[1]
5	110	83	110	165	124	165
10	120	90	120	180	135	180
15	132	99	132	198	149	198
20	146	110	146	218	164	218
25	158	119	158	237	178	237
30	174	131	164	260	195	255
35	191	143	170	286	215	260
40	209	157	176	314	236	264
45	229	172	185	344	258	279
50	251	188	193	376	282	293
55	275	206	206	412	309	309
60	302	227	217	452	339	325
65	331	248	228	496	372	342
70	363	272	240	544	408	359
75	398	299	251	596	447	375
80	437	328	262	656	492	394
85	479	359	273	718	539	409
90	525	394	284	786	590	424
95	575	489	288	862	733	431
100	631	536	316	946	804	473
105	692	588	346	1,038	882	519
110	759	645	379	1,138	967	569
115	832	707	416	1,248	1,061	624
120	912	775	456	1,368	1,163	684

NOTES:
1. Low-pressure distribution applicable to EZflow and gravel and pipe.
2. The minimum absorption area required for any system is 400 sf.

SYSTEM SIZING METHODOLOGY:
1. Determine the minimum trench length required by dividing the minimum area required in Table 1 by 3 feet for the 1203H/1203H-GEO configuration and 2 feet for the 1202H/1202H-GEO configuration.
2. Determine the total trench length required by multiplying the trench length per bedroom by the total number of bedrooms and rounding up to the nearest multiple of 5. EZflow bundles are available in 5- and 10-foot lengths.

SYSTEM SIZING – GRAVITY

Regulation sizing may be utilized on any site that meets VDH requirements for conventional systems in accordance with Table 2.

Table 2. Regulation Sizing

Perc rate (mpi)	Ksat (cm/d)	Soil Texture Group	Gravity Gravelless Trench Bottom Area Required per Bedroom (sf)	Minimum Requirement Per Bedroom	
				1203H and 1203H-GEO (36"Wx12"H)	1202H and 1202H-GEO (24"Wx12"H)
				Trench Length (lf)	Trench Length (lf)
Up to 16	>17.4	I	149	50	75
20	15.9 - 17.4	IIa	164	55	82
25	14.6 - 15.9	IIa	178	60	89
30	13.3 - 14.6	IIa	195	65	98
35	12.0 - 13.3	IIb	215	72	108
40	11.0 - 12.0	IIb	236	79	118
45	10.0 - 11.0	IIb	258	86	129
50	9.1 - 10.0	III	282	94	141
55	8.3 - 9.1	III	309	103	155
60	7.6 - 8.3	III	339	113	170
65	6.9 - 7.6	III	372	124	186
70	6.4 - 6.9	III	408	136	204
75	5.8 - 6.4	III	447	149	224
80	5.2 - 5.8	III	492	164	246
85	4.8 - 5.2	III	539	180	270
90	4.4 - 4.8	III	590	197	295
95	4.0 - 4.4	IV	733	245	367
100	3.6 - 4.0	IV	804	269	403
105	3.3 - 3.6	IV	882	295	442
110	3.0 - 3.3	IV	967	323	484
115	2.6 - 3.0	IV	1,061	354	531
120	2.2 - 2.6	IV	1,163	388	582

NOTES:
1. The minimum absorption area required for any system is 400 sf.
2. The total trench length of a system must be rounded up to the nearest multiple of 5 feet. EZflow bundles are available in 5- and 10-foot lengths.

Soil Texture Description
I - Sand and loamy sand
II - Sandy loam, loam, and sandy clay loam
  IIa - Sandy loam, perc rate < 31 mpi only
  IIb - Remainder of soils in Group II
III - Silt loam, clay loam, silty clay loam
IV - Sandy clay, silty clay, clay

NOTE: *EZflow 1203T and 1402H configurations are also approved for use by VDH. Sizing for these models is available by calling Infiltrator Water Technologies' Technical Services Department.*

SYSTEM SIZING – LOW-PRESSURE DISTRIBUTION

Regulation sizing may be utilized on any site that meets VDH requirements for low-pressure distribution systems in accordance with Table 3.

Table 3. Regulation Sizing

Perc rate (mpi)	Ksat (cm/d)	Soil Texture Group	Low Pressure Trench Bottom Area Required per Bedroom (sf)	Minimum Requirement Per Bedroom	
				1203H and 1203H-GEO (36"Wx12"H)	1202H and 1202H-GEO (24"Wx12"H)
				Trench Length (lf)	Trench Length (lf)
Up to 16	>17.4	I	198	66	99
20	15.9 - 17.4	IIa	218	73	109
25	14.6 - 15.9	IIa	237	79	119
30	13.3 - 14.6	IIa	255	85	128
35	12.0 - 13.3	IIb	260	87	130
40	11.0 - 12.0	IIb	264	88	132
45	10.0 - 11.0	IIb	279	93	140
50	9.1 - 10.0	III	293	98	147
55	8.3 - 9.1	III	309	103	155
60	7.6 - 8.3	III	325	109	163
65	6.9 - 7.6	III	342	114	171
70	6.4 - 6.9	III	359	120	180
75	5.8 - 6.4	III	375	125	188
80	5.2 - 5.8	III	394	132	197
85	4.8 - 5.2	III	409	137	205
90	4.4 - 4.8	III	424	142	212
95	4.0 - 4.4	IV	431	144	216
100	3.6 - 4.0	IV	473	158	237
105	3.3 - 3.6	IV	519	173	260
110	3.0 - 3.3	IV	569	190	285
115	2.6 - 3.0	IV	624	208	312
120	2.2 - 2.6	IV	684	228	342

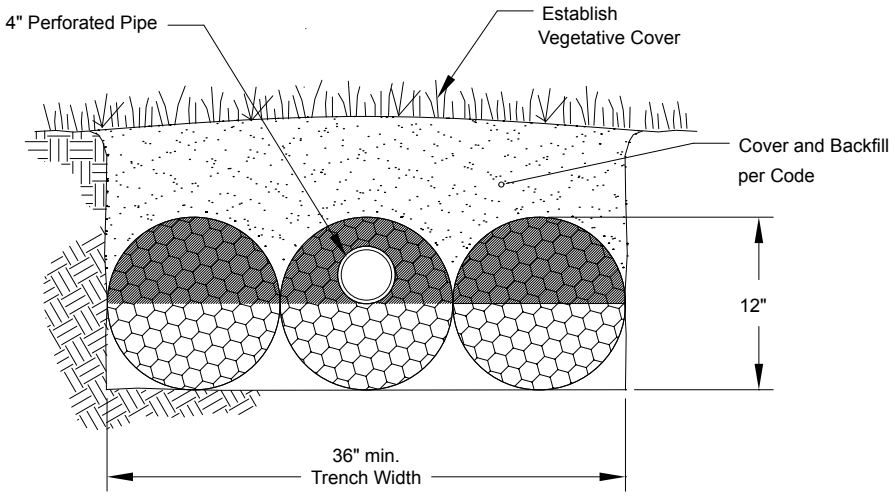
NOTES:
1. The minimum absorption area required for any system is 400 sf.
2. The total trench length of a system must be rounded up to the nearest multiple of 5 feet. EZflow bundles are available in 5- and 10-foot lengths.

Soil Texture Description
I - Sand and loamy sand
II - Sandy loam, loam, and sandy clay loam
IIa - Sandy loam, perc rate < 31 mpi only
IIb - Remainder of soils in Group II
III - Silt loam, clay loam, silty clay loam
IV - Sandy clay, silty clay, clay

NOTE: *EZflow 1203T and 1402H configurations are also approved for use by VDH. Sizing for these configurations is available by calling Infiltrator Water Technologies' Technical Services Department.*

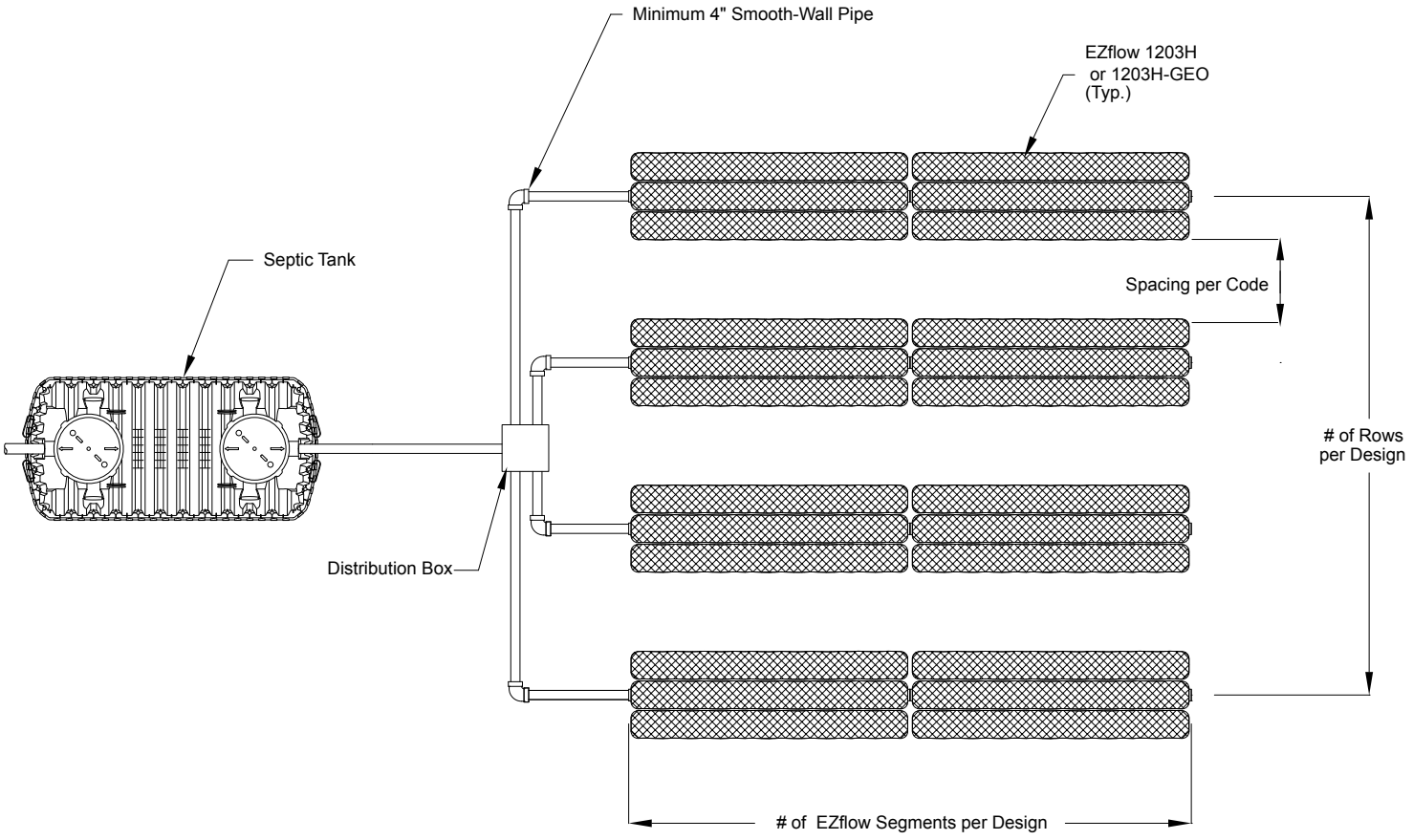
EZflow 1203H-GEO Trench Configuration Cross-Section

Typical (not to scale)



EZflow 1203H-GEO Trench Configuration Plan View

Typical (not to scale)



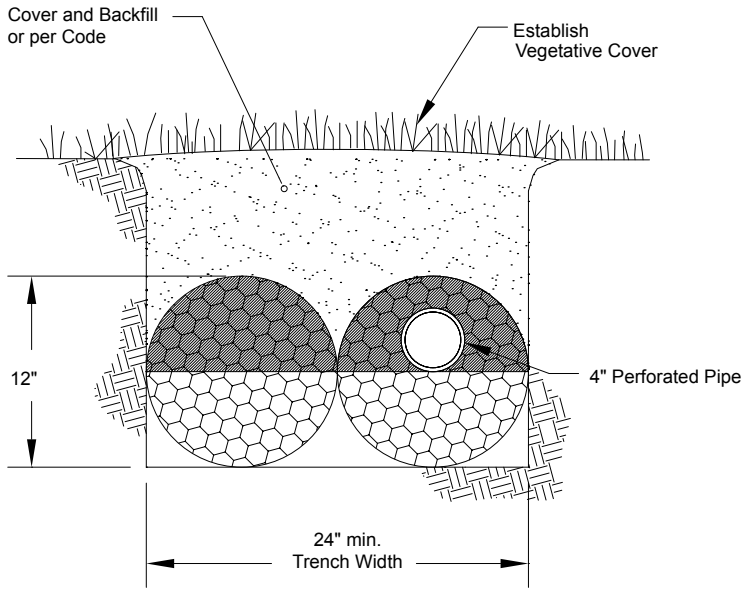
NOTES:

1. Infiltrator recommends the use of standard flow systems rather than enhanced flow systems.
2. Minimum cover is 6 inches, maximum cover is 8 feet (trench applications).
3. For trench depths exceeding 9 feet, gravel or crushed stone having a size range from 1/2 inch to 1-1/2 inches may be placed under the bundles.
4. System configurations applies to other VDH-approved EZflow models.
5. EZflow approved configurations are for non-traffic applications, but are capable of withstanding AASHTO H-10 loadings.

EZFLOW TRENCH CONFIGURATION – GRAVITY

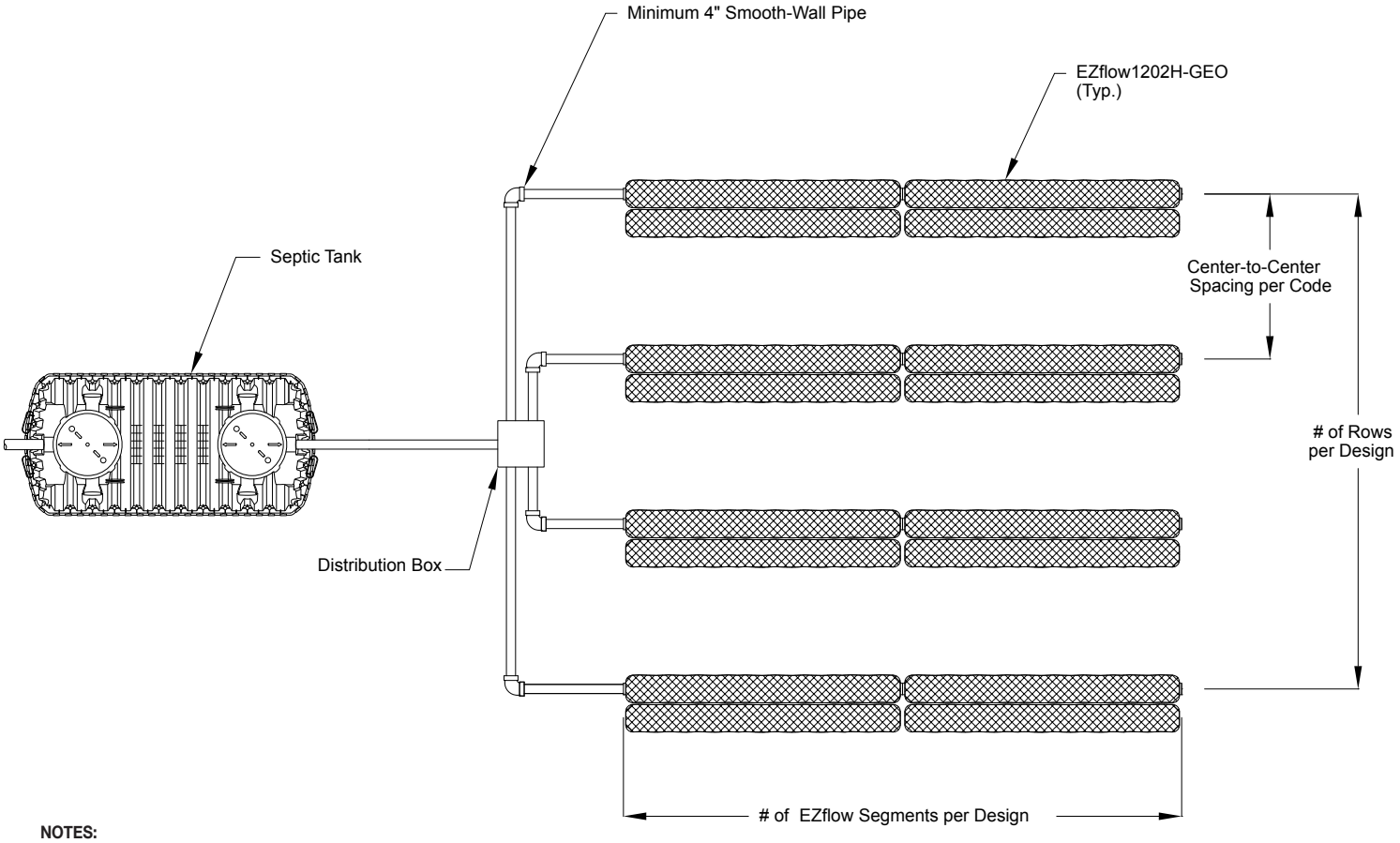
EZflow 1202H-GEO Trench Configuration Cross-Section

Typical (not to scale)



EZflow 1202H-GEO Trench Configuration Plan View

Typical (not to scale)

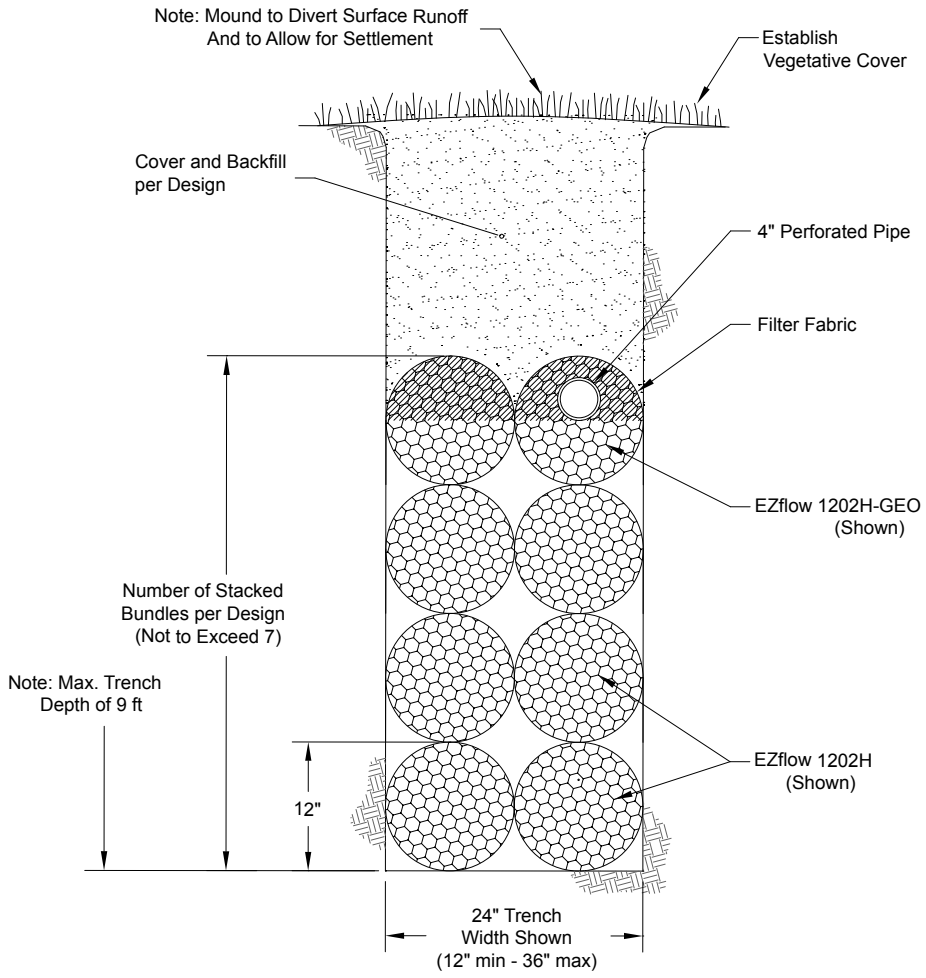


NOTES:

1. Infiltrator recommends the use of standard flow systems rather than enhanced flow systems.
2. Minimum cover is 6 inches, maximum cover is 8 feet (trench applications).
3. For trench depths exceeding 9 feet, gravel or crushed stone having a size range from 1/2 inch to 1-1/2 inches may be placed under the bundles.
4. System configurations applies to other VDH-approved EZflow models.
5. EZflow approved configurations are for non-traffic applications, but are capable of withstanding AASHTO H-10 loadings.

EZflow Deep Trench Configuration Cross-Section

Typical (not to scale)



Note: EZflow System May be Installed in Bundle Widths From 1 to 3 Bundles (1201, 1202 and 1203 Configurations)

NOTES:

1. Infiltrator recommends the use of standard flow systems rather than enhanced flow systems.
2. Minimum cover is 6 inches, maximum cover is 8 feet (trench applications).
3. For trench depths exceeding 9 feet, gravel or crushed stone having a size range from 1/2 inch to 1-1/2 inches may be placed under the bundles.
4. System configurations applies to other VDH-approved EZflow models.
5. EZflow approved configurations are for non-traffic applications, but are capable of withstanding AASHTO H-10 loadings.

WARRANTY

INFILTRATOR WATER TECHNOLOGIES STANDARD LIMITED WARRANTY

(a) The structural integrity of each EZflow by Infiltrator expanded polystyrene drainfield system and other accessories manufactured by EZflow by Infiltrator ("Units"), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator's instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date that the septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required by applicable law, the warranty period will begin upon the date that installation of the septic system commences. To exercise its warranty rights, Holder must notify Infiltrator in writing at its Corporate Headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for Units determined by EZflow by Infiltrator to be covered by this Limited Warranty. EZflow by Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE

(c) This Limited Warranty shall be void if any part of the EZflow system is manufactured by anyone other than EZflow by Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty. Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator's installation instructions.

(d) No representative of Infiltrator has the authority to change or extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the Standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator's Corporate Headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.

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U.S. Patents: 4,759,661; 5,017,041; 5,156,488; 5,336,017; 5,401,116; 5,401,459; 5,511,903; 5,716,163; 5,588,778; 5,839,844 Canadian Patents: 1,329,959; 2,004,564 Other patents pending. Infiltrator, Equalizer, Quick4, and SideWinder are registered trademarks of Infiltrator Water Technologies. Infiltrator is a registered trademark in France. Infiltrator Water Technologies is a registered trademark in Mexico.
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