April 2023

Design and Installation Manual for **Infiltrator Chambers, EZflow, Septic Tanks and Risers**

Texas



The purpose of this product manual is to provide specific design and installation information pertinent for the use of Infiltrator products. **For more detailed design information, please contact Infiltrator Water Technologies at (800) 221-4436.**

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Each revised version of this manual supersedes the previous version. Infiltrator Chambers must be used in conjunction with the standards described in the Texas Commission on Environmental Quality (TCEQ) OSSF Regulations Chapter 285.

Infiltrator™ Water Technologies
Part of ADS

Quick4 and Quick4 Plus Chambers

The Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, and Quick4 Plus Standard Low Profile chambers can be installed in a 36-inch wide trench. The Quick4 Equalizer 36 and Quick4 Plus Equalizer 36 Low Profile chambers can be installed in a 24-inch wide trench. The Quick4 Equalizer 24 and Quick4 Equalizer 24 Low Profile chambers can be installed in an 18-inch or wide trench. There are a variety of system inletting options to choose from.

Quick4 High Capacity Nominal Chamber Dimensions

Size:	34”W x 53”L x 16”H
Storage Capacity:	62 gal
Invert Elevation:	11.5”

QUICK4 HIGH CAPACITY



Size:	34”W x 53”L x 14”H
Storage Capacity:	54 gal
Invert Elevation:	8”, 12.7”

QUICK4 PLUS HIGH CAPACITY



Quick4 Standard Nominal Chamber Dimensions

Size:	34”W x 53”L x 12”H
Storage Capacity:	44 gal
Invert Elevation:	8”

QUICK4 STANDARD



Quick5 Standard Nominal Chamber Dimensions

Size:	34”W x 65”L x 12”H
Storage Capacity:	57 gal (7.6 ft^3)
Invert Elevation:	8”

QUICK5 STANDARD



Quick4 Plus Standard Nominal Chamber Dimensions

Size:	34”W x 53”L x 12”H
Storage Capacity:	45 gal
Invert Elevation:	5.3”, 8”

QUICK4 PLUS STANDARD



Quick4 Plus Standard Low Profile (LP) Nominal Chamber Dimensions

Size:	34”W x 53”L x 8”H
Storage Capacity:	32 gal
Invert Elevation:	3.3”, 8”

QUICK4 PLUS STANDARD LOW PROFILE (LP)



CHAMBER PRODUCTS

Quick4 Equalizer 36 Chamber
Nominal Specifications

Size:	22" Wx 53"L x 12"H
Storage Capacity:	32 gal
Invert Elevation:	6"

QUICK4 EQUALIZER 36



Quick4 Plus Equalizer 36 Low Profile Chamber
Nominal Specifications

Size:	22"W x 53"L x 8"H
Storage Capacity:	20.8 gal.
Invert Elevation:	6"

QUICK4 PLUS EQUALIZER 36 LOW PROFILE



Quick5 Equalizer 36 Nominal Chamber Dimensions

Size:	22"W x 65"L x 12"H
Storage Capacity:	42 gal (5.3 ft^3)
Invert Elevation:	6 "

QUICK5 EQUALIZER 36



Quick4 Equalizer 24 Chamber
Nominal Specifications

Size:	16"W x 53"L x 11"H
Storage Capacity:	20.8 gal.
Invert Elevation:	6"

QUICK4 EQUALIZER 24



Quick4 Equalizer 24 Low Profile Chamber
Nominal Specifications

Size:	16"W x 53"L x 8"H
Storage Capacity:	17 gal.
Invert Elevation:	2"

QUICK4 EQUALIZER 24 LOW PROFILE



Quick4 Plus All-in-One Periscope
Nominal Specifications

Size	5"W x 9"L x 6"H
Invert Elevation when installed on All-in-One Endcap	9"



QUICK4 PLUS ALL-IN-ONE PERISCOPE

CHAMBER SYSTEM SIZING

Sizing of Chamber Systems in Trenches Only

QUICK4 HIGH CAPACITY CHAMBER SYSTEMS



QUICK4 HIGH CAPACITY CHAMBER

Minimum number of Quick4 High Capacity Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	18	27	34
3	24	36	45
4	30	45	57
5	36	54	68
6	42	63	79
Ea. Add'l Bedroom	6	9	12

For additional information regarding excavation in 3 feet using Quick4 High Capacity Chambers with 25% reduction, see Appendix A on page 48.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies' minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 High Capacity Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 High Capacity Chambers:
L = .6 A / (W+2)
Quick4 High Capacity Chambers:
L = .6 A / (3+2)

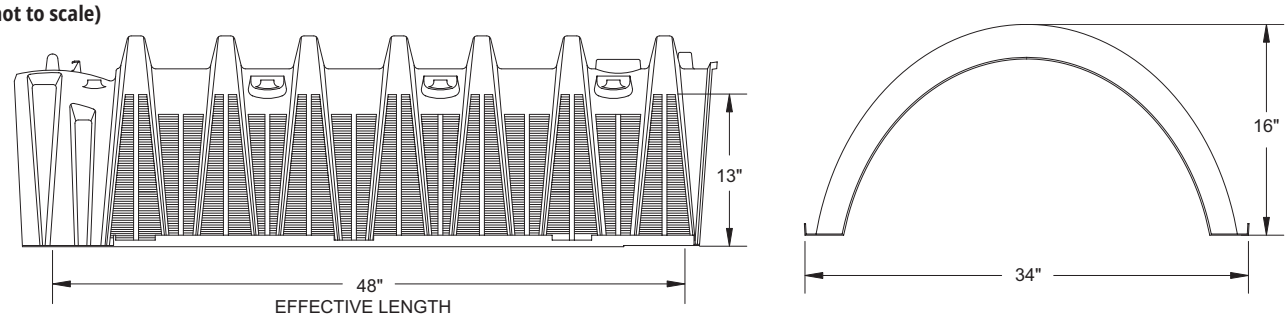
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 High Capacity Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

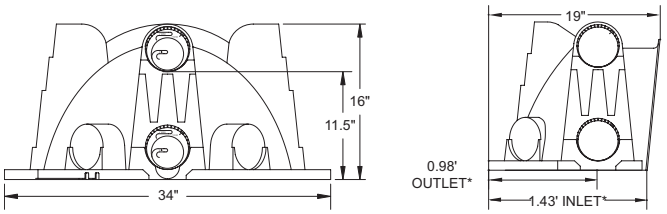
Quick4 High Capacity Chambers:
L = .75 A / (W+2)
Quick4 High Capacity Chambers:
L = .75 A / (3+2)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 HIGH CAPACITY CHAMBER SIDE AND END VIEWS (not to scale)



Q4 PLUS MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



CHAMBER SYSTEM SIZING

Sizing of Chamber Systems in Trenches Only

QUICK4 plus HIGH CAPACITY CHAMBER SYSTEMS



QUICK4 PLUS HIGH CAPACITY CHAMBER

Minimum number of Quick4 Plus High Capacity Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	18	27	34
3	24	36	45
4	30	45	57
5	36	54	68
6	42	63	79
Ea. Add'l Bedroom	6	9	12

For additional information regarding excavation in 3 feet using Quick4 Plus High Capacity Chambers with 25% reduction, see Appendix B on page 49.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies' minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus High Capacity Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus High Capacity Chambers:
L = .6 A / (W+2)
Quick4 Plus High Capacity Chambers:
L = .6 A / (3+2)

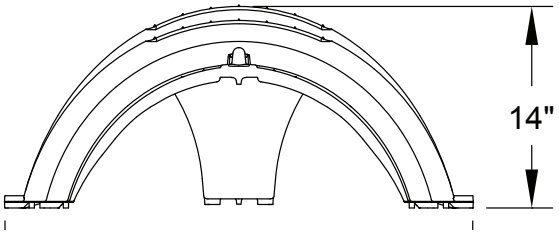
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus High Capacity Chambers.

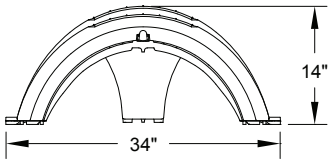
L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus High Capacity Chambers:
L = .75 A / (W+2)
Quick4 Plus High Capacity Chambers:
L = .75 A / (3+2)

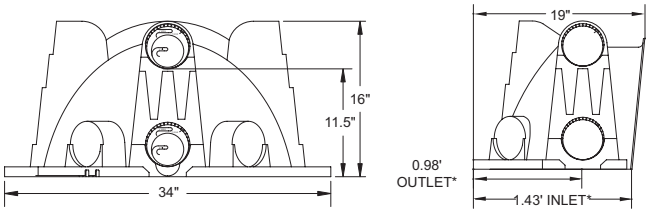
NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 PLUS HIGH CAPACITY CHAMBER SIDE AND END VIEWS (NOT TO SCALE)

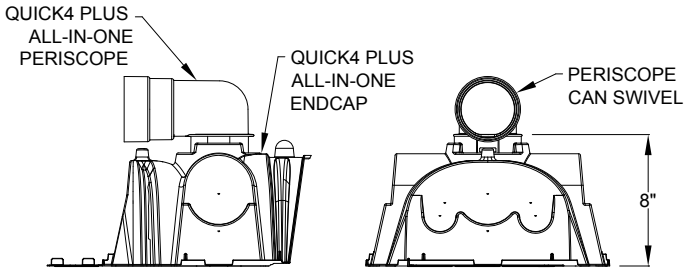




Q4 PLUS MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



Q4 PLUS ALL-IN-ONE PERISCOPE (not to scale)



Sizing of Chamber Systems in Trenches Only

QUICK4 STANDARD CHAMBER SYSTEMS



QUICK4 STANDARD CHAMBER

Minimum number of Quick4 Standard Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	18	27	34
3	24	36	45
4	30	45	57
5	36	54	68
6	42	63	79
Ea. Add'l Bedroom	6	9	12

For additional information regarding excavation in 3 feet using Quick4 Standard Chambers with 25% reduction, see Appendix A on page 48.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies' minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Standard Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Standard Chambers:
L = .6 A / (W+2)
Quick4 Standard Chambers:
L = .6 A / (3+2)

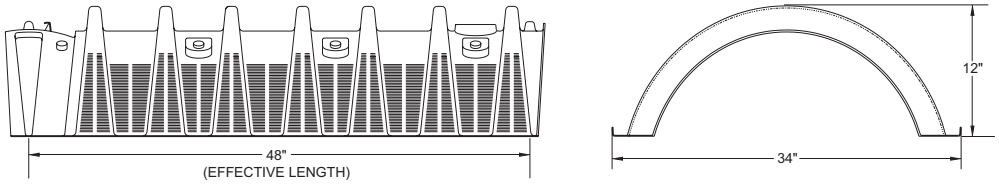
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Standard Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

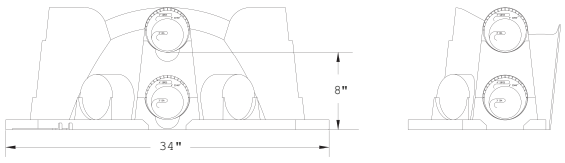
Quick4 Standard Chambers:
L = .75 A / (W+2)
Quick4 Standard Chambers:
L = .75 A / (3+2)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 STANDARD CHAMBER SIDE AND END VIEWS
(not to scale)



QUICK4 MULTIPORT ENDCAP SIDE AND END VIEWS
(NOT TO SCALE)



Sizing of Chamber Systems in Trenches Only

QUICK4 PLUS STANDARD CHAMBER SYSTEMS



QUICK4 PLUS STANDARD PROFILE

Minimum number of Quick4 Plus Standard Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	18	27	34
3	24	36	45
4	30	45	57
5	36	54	68
6	42	63	79
Ea. Add'l Bedroom	6	9	12

For additional information regarding excavation in 3 feet using Quick4 Plus Standard Chambers with 25% reduction, see Appendix B on page 49.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies' minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus Standard Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus Standard Chambers:
L = .6 A / (W+2)
Quick4 Plus Standard Chambers:
L = .6 A / (3+2)

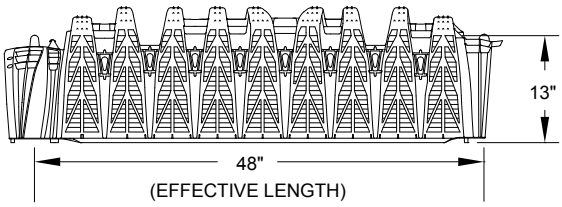
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus Standard Chambers.

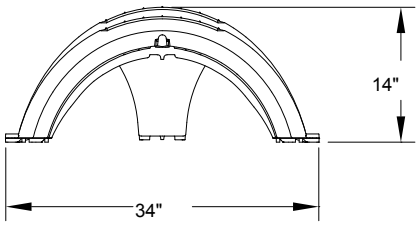
L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus Standard Chambers:
L = .75 A / (W+2)
Quick4 Plus Standard Chambers:
L = .75 A / (3+2)

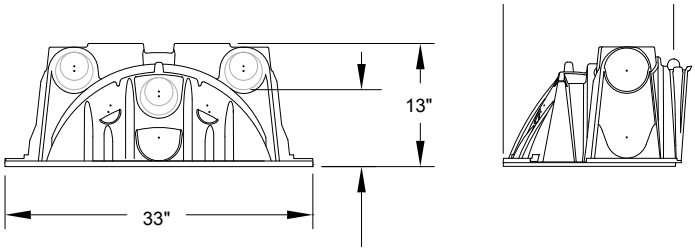
NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 PLUS STANDARD CHAMBER SIDE AND END VIEWS (NOT TO SCALE)

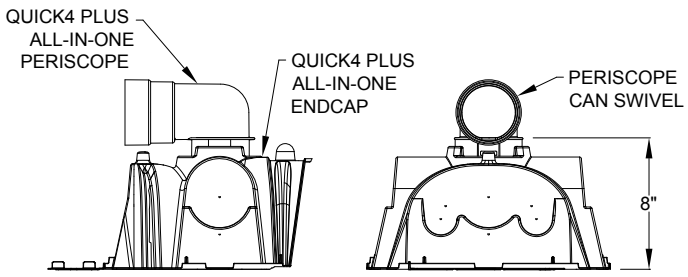




QUICK4 MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



H (not to scale)



Sizing of Chamber Systems in Trenches Only

QUICK5 STANDARD CHAMBER SYSTEMS



QUICK5 STANDARD CHAMBER

Minimum number of Quick5 Standard Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	15	22	27
3	19	29	36
4	24	36	45
5	29	44	54
6	34	51	63
Ea. Add'l Bedroom	5	8	9

For additional information regarding excavation in 3 feet using Quick5 Standard Chambers with 25% reduction, see Appendix C on page 50.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies' minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick5 Standard Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick5 Standard Chambers:
L = .6 A / (W+2)
Quick5 Standard Chambers:
L = .6 A / (3+2)

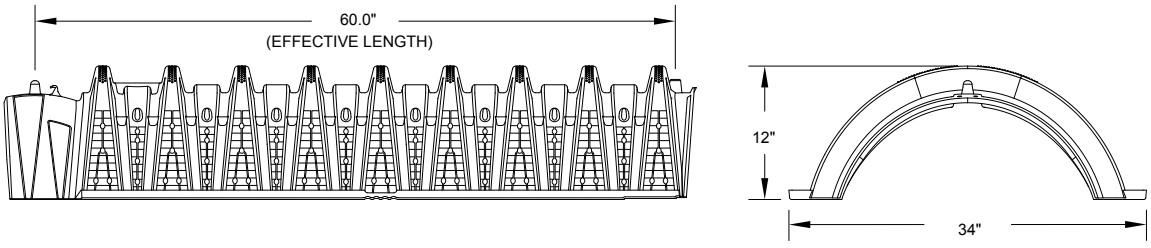
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick5 Standard Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

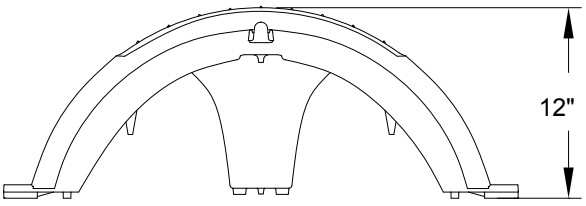
Quick5 Standard Chambers:
L = .75 A / (W+2)
Quick5 Standard Chambers:
L = .75 A / (3+2)

NOTE: All Infiltrator Quick5 leaching chambers can be installed on residential or commercial installations.

QUICK5 STANDARD CHAMBER SIDE AND END VIEWS
(not to scale)



QUICK5 MULTIPORT ENDCAP SIDE AND END VIEWS
(not to scale)



Sizing of Chamber Systems in Trenches Only

QUICK4 PLUS STANDARD LOW PROFILE CHAMBER SYSTEMS



QUICK4 PLUS STANDARD LOW CHAMBER PROFILE

Minimum number of Quick4 Plus Standard Low Profile Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	21	32	39
3	28	42	52
4	35	52	65
5	41	63	78
6	48	73	91
Ea. Add'l Bedroom	7	11	13

For additional information regarding excavation in 3 feet using Quick4 Plus Standard Chambers with 25% reduction, see Appendix D on page 51.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies' minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus Standard Low Profile Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus Standard Low Profile Chambers:
L = .6 A / (W+1.33)
Quick4 Plus Standard Low Profile Chambers:
L = .6 A / (3+1.33)

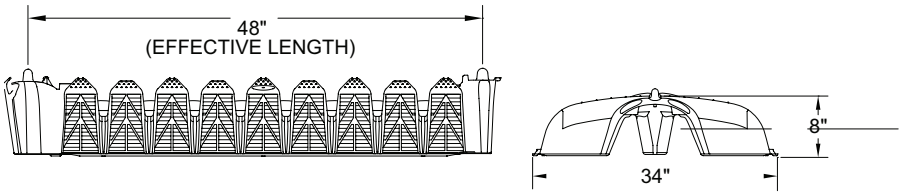
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus Standard Low Profile Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

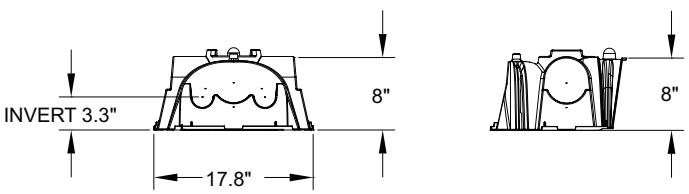
Quick4 Plus Standard Low Profile Chambers:
L = .75 A / (W+1.33)
Quick4 Plus Standard Low Profile Chambers:
L = .75 A / (3+1.33)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

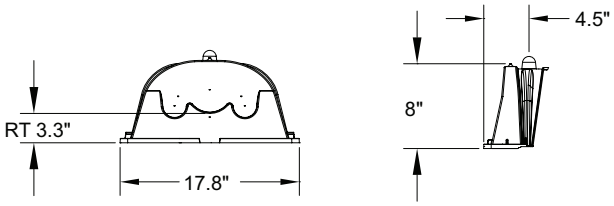
QUICK4 PLUS STANDARD LP CHAMBER SIDE AND END VIEWS
(Not to scale)



Q4 PLUS ALL-IN-ONE ENDCAP SIDE AND END VIEWS
(Not to scale)



Q4 PLUS ENDCAP SIDE AND END VIEWS
(Not to scale)



Sizing of Chamber Systems in Trenches Only

QUICK4 EQUALIZER 36 CHAMBER SYSTEMS



QUICK4 EQUALIZER 36 CHAMBER

Minimum number of Quick4 Equalizer 36 Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	23	34	43
3	30	45	57
4	37	57	71
5	43	68	85
6	52	79	99
Ea. Add'l Bedroom	8	12	14

For additional information regarding excavation in 2 feet using Quick4 Equalizer 36 Chambers with 25% reduction, see Appendix E on page 52.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the GPD flow rate, use the following formulas for the Quick4 Equalizer 36 Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 EQ36 Chamber: L = .6 A / (W + 2)
Quick4 EQ36 Chamber: L = .6 A / (2 + 2)

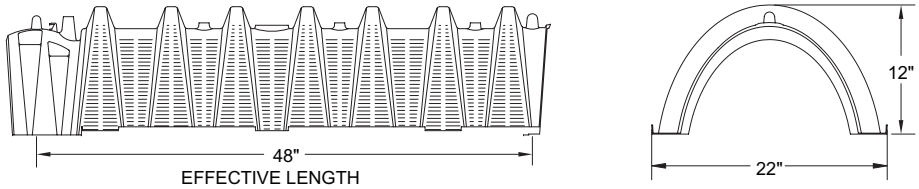
4. If you use the LOW GPD flow rate , use the following formula for the Quick4 Equalizer 36 Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

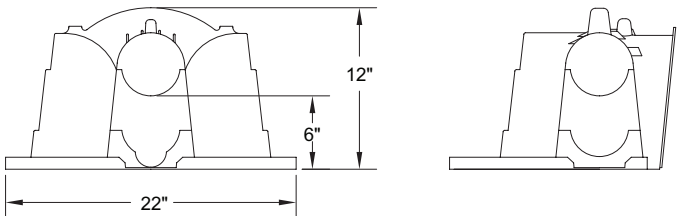
Quick4 EQ36 Chamber: L = .75 A / (W + 2)
Quick4 EQ36 Chamber: L = .75 A / (2 + 2)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 EQUALIZER 36 CHAMBER SIDE AND END VIEWS (NOT TO SCALE)



QUICK4 MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



Sizing of Chamber Systems in Trenches Only

QUICK5 EQUALIZER 36 CHAMBER SYSTEMS



QUICK5 EQUALIZER 36 CHAMBER

Minimum number of Quick5 Equalizer 36 Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	18	27	34
3	24	36	45
4	30	45	57
5	36	54	68
6	42	63	79
Ea. Add'l Bedroom	6	9	12

For additional information regarding excavation in 2 feet using Quick5 Equalizer 36 Chambers with 25% reduction, see Appendix F on page 53.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the GPD flow rate, use the following formulas for the Quick5 Equalizer 36 Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick5 EQ36 Chamber: L = .6 A / (W + 2)
Quick5 EQ36 Chamber: L = .6 A / (2 + 2)

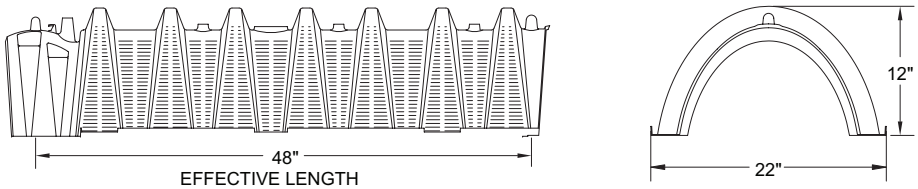
4. If you use the LOW GPD flow rate , use the following formula for the Quick5 Equalizer 36 Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

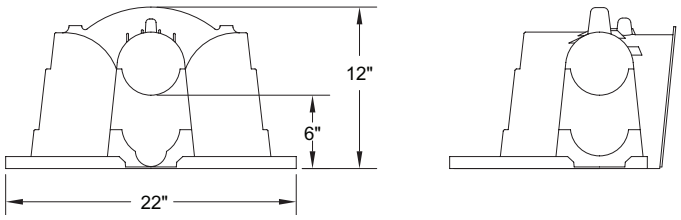
Quick5 EQ36 Chamber: L = .75 A / (W + 2)
Quick5 EQ36 Chamber: L = .75 A / (2 + 2)

NOTE: All Infiltrator Quick5 leaching chambers can be installed on residential or commercial installations.

QUICK5 EQUALIZER 36 CHAMBER SIDE AND END VIEWS (NOT TO SCALE)



QUICK5 MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



CHAMBER SYSTEM SIZING

Sizing of Chamber Systems in Trenches Only

QUICK4 PLUS EQUALIZER 36 LOW PROFILE CHAMBER SYSTEMS



QUICK4 PLUS EQUALIZER 36 LOW PROFILE CHAMBER

Minimum number of Quick4 Plus Equalizer 36 Low Profile Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	27	41	51
3	36	54	68
4	45	68	85
5	54	81	102
6	63	95	119
Ea. Add'l Bedroom	9	14	17

For additional information regarding excavation in 2 feet using Quick4 Plus Equalizer 36 Low Profile Chambers with 25% reduction, see Appendix G on page 54.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus Equalizer 36 Low Profile Chambers.

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus Equalizer 36 Low Profile Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

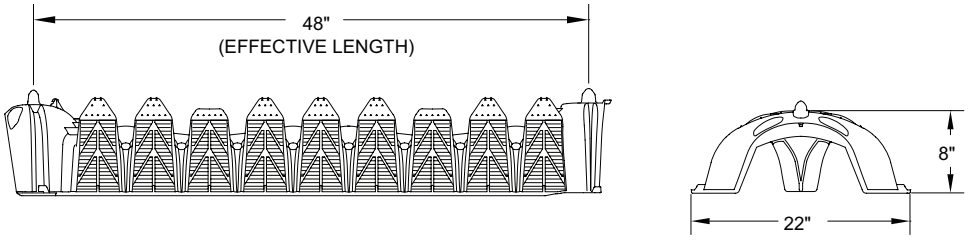
Quick4 Plus EQ36 LP Chamber: L = .6 A / (W + 1.33)
Quick4 Plus EQ36 LP Chamber: L = .6 A / (2 + 1.33)

L = excavation length in feet
A = absorptive area
W = excavation width in feet

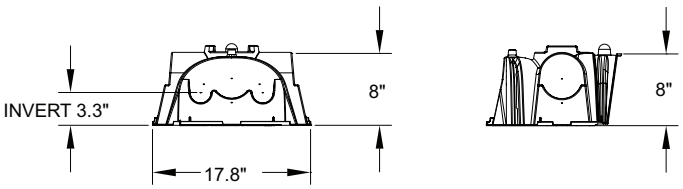
Quick4 Plus EQ36 LP Chamber: L = .75 A / (W + 1.33)
Quick4 Plus EQ36 LP Chamber: L = .75 A / (2 + 1.33)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

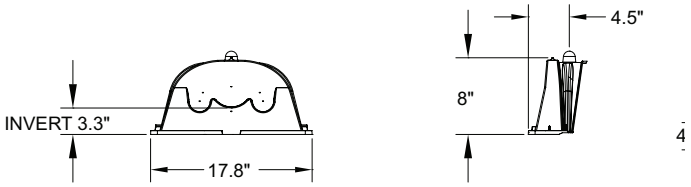
QUICK4 PLUS EQUALIZER 36 LP CHAMBER SIDE AND END VIEWS (NOT TO SCALE)



Q4 PLUS ALL-IN-ONE ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



Q4 PLUS ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



CHAMBER SYSTEM SIZING

Sizing of Chamber Systems in Trenches Only

QUICK4 EQUALIZER 24 CHAMBER SYSTEMS



QUICK4 EQUALIZER CHAMBER

Minimum number of Quick4 Equalizer 24 Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	26	39	49
3	34	52	65
4	43	65	81
5	51	78	97
6	60	90	113
Ea. Add'l Bedroom	9	15	17

For additional information regarding excavation in 1.5 feet or 18 inches using Quick4 Equalizer 24 Chambers with 25% reduction, see Appendix H
on page 55.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the GPD flow rate, use the following formulas for the Quick4 Equalizer 24 Chambers.

4. If you use the LOW GPD flow rate , use the following formula for the Quick4 Equalizer 24 Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

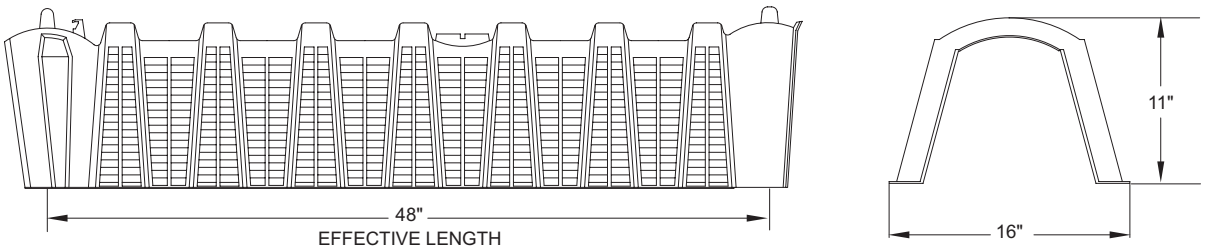
Quick4 Equalizer 24 Chamber: L = .6 A / (W + 2)
Quick4 Equalizer 24 Chamber: L = .6 A / (1.5 + 2)

L = excavation length in feet
A = absorptive area
W = excavation width in feet

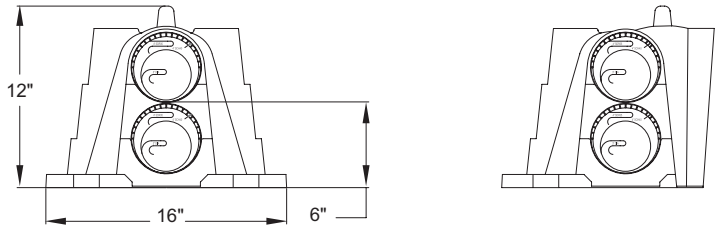
Quick4 Equalizer 24 Chamber: L = .75 A / (W + 2)
Quick4 Equalizer 24 Chamber: L = .75 A / (1.5 + 2)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 EQUALIZER 24 CHAMBER SIDE AND END VIEWS (NOT TO SCALE)



QUICK4 MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



Sizing of Chamber Systems in Trenches Only

QUICK4 EQUALIZER 24 LOW PROFILE SYSTEMS



QUICK4 EQUALIZER 24 LOW PROFILE CHAMBER

Minimum number of Quick4 Equalizer 24 LP Chambers required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1-2	32	48	60
3	42	64	80
4	53	80	100
5	63	96	120
6	74	112	140
Ea. Add'l Bedroom	11	16	20

For additional information regarding excavation in 1.5 feet or 18 inches using Quick4 Equalizer 24 LP Chambers with 25% reduction, see Appendix I on page 56.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Equalizer 24 LP Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Equalizer 24 LP Chamber: L = .75 A / (W + 1.33)
Quick4 Equalizer 24 LP Chamber: L = .75 A / (1.5 + 1.33)

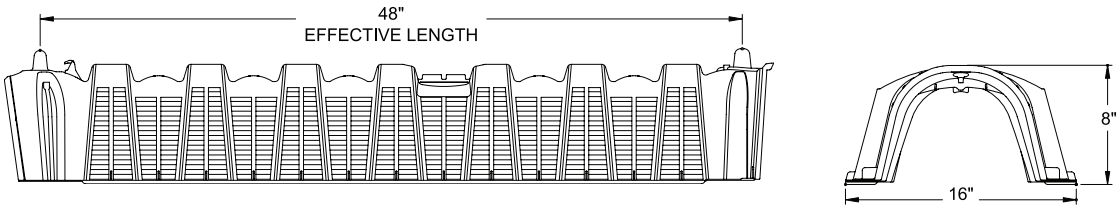
4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Equalizer 24 LP Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

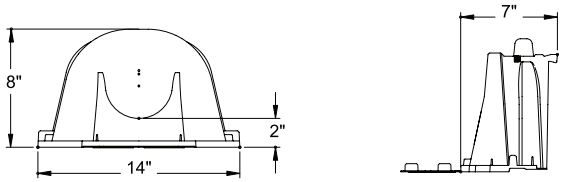
Quick4 Equalizer 24 LP Chamber: L = .75 A / (W + 1.33)
Quick4 Equalizer 24 LP Chamber: L = .75 A / (1.5 + 1.33)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

QUICK4 EQUALIZER 24 LOW PROFILE CHAMBER SIDE AND END VIEWS (NOT TO SCALE)



QUICK4 MULTIPORT ENDCAP SIDE AND END VIEWS (NOT TO SCALE)



Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 9, 2018

Steven C. Murdock
Infiltrator Water Technologies
Senior Sales Representative
2400 New Hope Spur
Cedar Park, Texas 78613

Re: Use of Leaching Chamber Panels in LPD Systems

Dear Mr. Murdock,

You recently inquired about the use of leaching chambers in low-pressure dosing (LPD) systems. Specifically, you inquired about whether the reduction is still given in these situations.

We interpret the Chapter 285 rules as follows: *if a standard system can be installed in that soil, then the chambers get a reduction, regardless of whether they use pressure distribution. Alternatively, if a standard system cannot be used in that soil, and they are using chambers instead of using gravel, then no reduction is allowed.*

The reason for our interpretation is that pressure distribution is preferable to gravity distribution, and if a designer could use gravity distribution, but chooses to go the extra mile and use pressure distribution, we do not wish to provide a disincentive to this practice.

If you have any questions, please feel free to contact me at 512-239-4777.

Sincerely,

James McCaine
On-site Wastewater Team, TCEQ

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

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Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 19, 2015

Steve Murdock, Senior Sales Representative
Infiltrator Water Technologies
4 Business Park Road
Old Saybrook, CT 06475

Subject: End Cap Bottom Area Credit

Dear Mr. Murdock,

We have completed our review of the subject matter. Basically, you are requesting bottom area credit for the different models of leaching chambers manufactured by Infiltrator Water Technologies. The table below provides the models and the requested bottom area credits for end caps and end cap pairs:

Chamber Model	Effective Endcap Open Bottom Area (ft^2)	
	Per End Cap	Per Pair
Quick4 Standard	1.64	3.28
Quick4 High Capacity	2.25	4.50
Quick4 Plus Standard (Quick4 Plus All-in-One 12 Endcap)	3.06	6.12
Quick4 Plus Standard Low Profile (Quick4 Plus All-in-One 8 Endcap)	1.39	2.78
Quick4 Plus High Capacity (Quick4 Plus All-in-One 12 Endcap)	3.06	6.12
Quick4 Equalizer 24	0.84	1.68
Quick4 Equalizer 36	1.16	2.32
Quick4 Equalizer 24 Low Profile (Quick4 Plus All-in-One 8 Endcap)	1.39	2.78
Quick4 Equalizer 36 Low Profile (Quick4 Plus All-in-One 8 Endcap)	1.39	2.78

We have no objections to giving bottom area credit to the end caps and end cap pairs in accordance with this table. The basis for approval is that the bottom area is an unobstructed surface for infiltration. If you have any questions, please either e-mail me back or call me at 512-239-4777.

Sincerely,

James McCaine
Program Support Section

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Stephanie Bergeron Perdue, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 28, 2018

Steven C. Murdock
Infiltrator Water Technologies
Senior Sales Representative
2400 New Hope Spur
Cedar Park, Texas 78613

Re: Chapter 285 Treatment of Partially Buried Leaching Chambers

Dear Mr. Murdock,

You recently asked our opinion on a specific scenario. Due to soil characteristics, the system will use leaching chambers placed at a depth where the top of the chamber (above the louvers) is above native grade. Your concern is that we have not allowed gravel systems to be installed above grade without treating them as mounds.

The reason we have not allowed gravel systems above grade without treating them as mounds is that the basal calculations and considerations covered under mound design will prevent seeps. However, we believe that as long as the louvers are below grade, seepage along the native soil surface should not be a problem and the top of the panel may be above grade without requiring the system to meet the requirements for mounds.

If you have any questions, please feel free to contact me at 512-239-4777.

Sincerely,

James McCaine
On-site Wastewater Team, TCEQ

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 5, 2023

Dick Bachelder
Infiltrator Water Technologies
PO Box 768
Old Saybrook, CT 06475

RE: Approval of the Infiltrator Quick5 Standard and Quick5 Equalizer 36 Chambers

Dear Mr. Bachelder:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the Infiltrator Quick5 Standard and Quick5 Equalizer 36 leaching chambers. The request letter and the supporting documentation were received by email on April 14, 2022, and included

- An April 14, 2022, cover letter that includes:
    - demonstration of compliance with 30 Texas Administrative Code Chapter 285 Section 285.33(c)(2),
    - design summary
    - product development timeline
    - summary of dimensional design
    - structural design and cover requirements
    - end cap credit description and information on former analysis and approval;
- A copy of the September 30, 2003, TCEQ approval letter for the Infiltrator "Quick 4" Standard Chamber;
- A copy of the January 5, 2005, TCEQ approval letter for the Infiltrator Quick 4 Equalizer36 Chamber;
- A copy of the October 19, 2015, TCEQ letter regarding 'End Cap Bottom Area Credits;'
- The plans and specifications for the Quick5 Standard and Quick5 Equalizer 36 products; and
- Two April 11, 2022, PE-stamped letters from Mr. Charles Brown, P.E., and Ms. Zoe Laird, E.I.T., of GNCB Consulting Engineers, P.C., that states that the product, Quick5 Standard leaching chamber, and the Quick5 Equalizer 36 Chamber, meet or exceed the structural capacity structural loading required by IAPMO PS 63-2019, and are capable of supporting an American Association of State Highway Transportation Officials (AASHTO) H-10 load (16,000 pounds per axel) with 12 inches of soil cover without collapsing, fracturing, or breaking.

Based on the information presented on April 14, 2022, the Infiltrator Quick5 Standard leaching chamber and the Infiltrator Quick5 Equalizer 36 Chamber are now approved

for use in the state of Texas in conformance with all applicable rules contained in 30 Texas Administrative Code Chapter §285. This letter serves as proof of approval for the above-listed product until it is listed on the TCEQ website. If you have any questions or require clarification or additional information, please contact Donna Cosper, P.E. by email at donna.cosper@tceq.texas.gov.

Sincerely,

Andy Gardner

Andy Gardner, Deputy Director
Program Support and Environmental Assessment Division
TCEQ

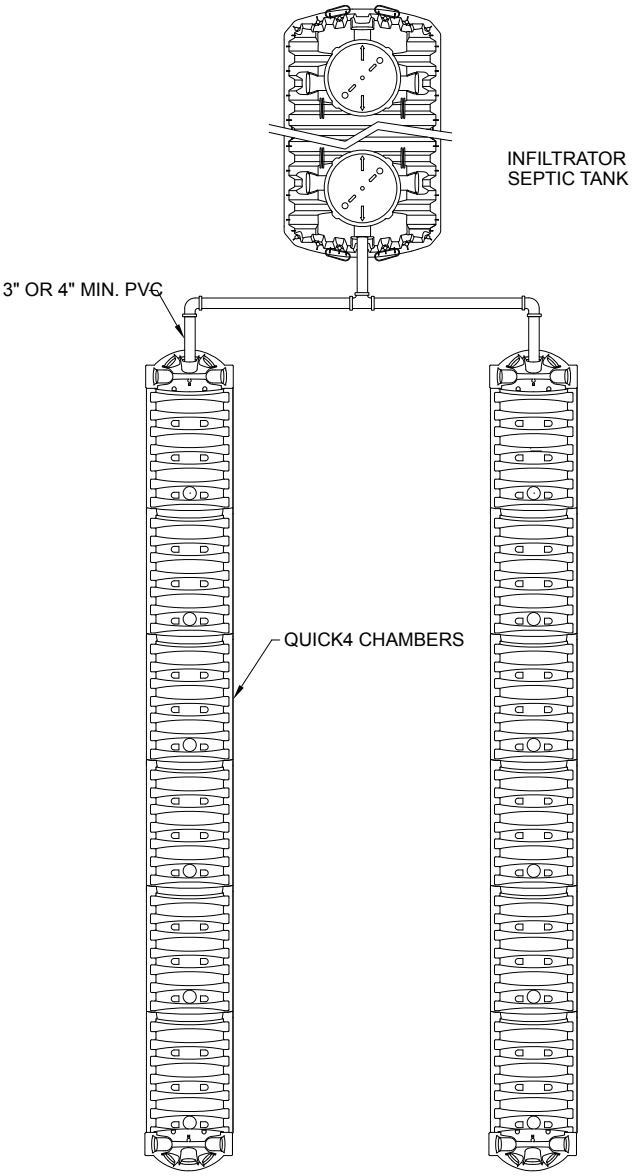
System Layout

After the system is sized the system layout can be determined. This includes identifying the septic tank location, leachfield location, vertical alignment of all components, and the designation of a repair area.

System location is determined based upon the site evaluation. On undeveloped lots, the location of the system should take precedence over the location of the house, well, and driveway in order to ensure safe and effective siting.

FIGURE 1: STANDARD TRENCH SYSTEM

NOTE: Length of trench varies, based upon system sizing.

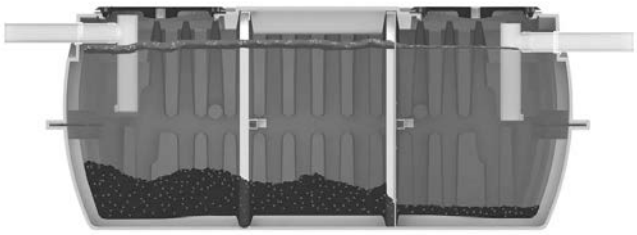


SEPTIC TANK DESIGN

Septic tanks must meet the TCEQ design criteria (see Figure 2).

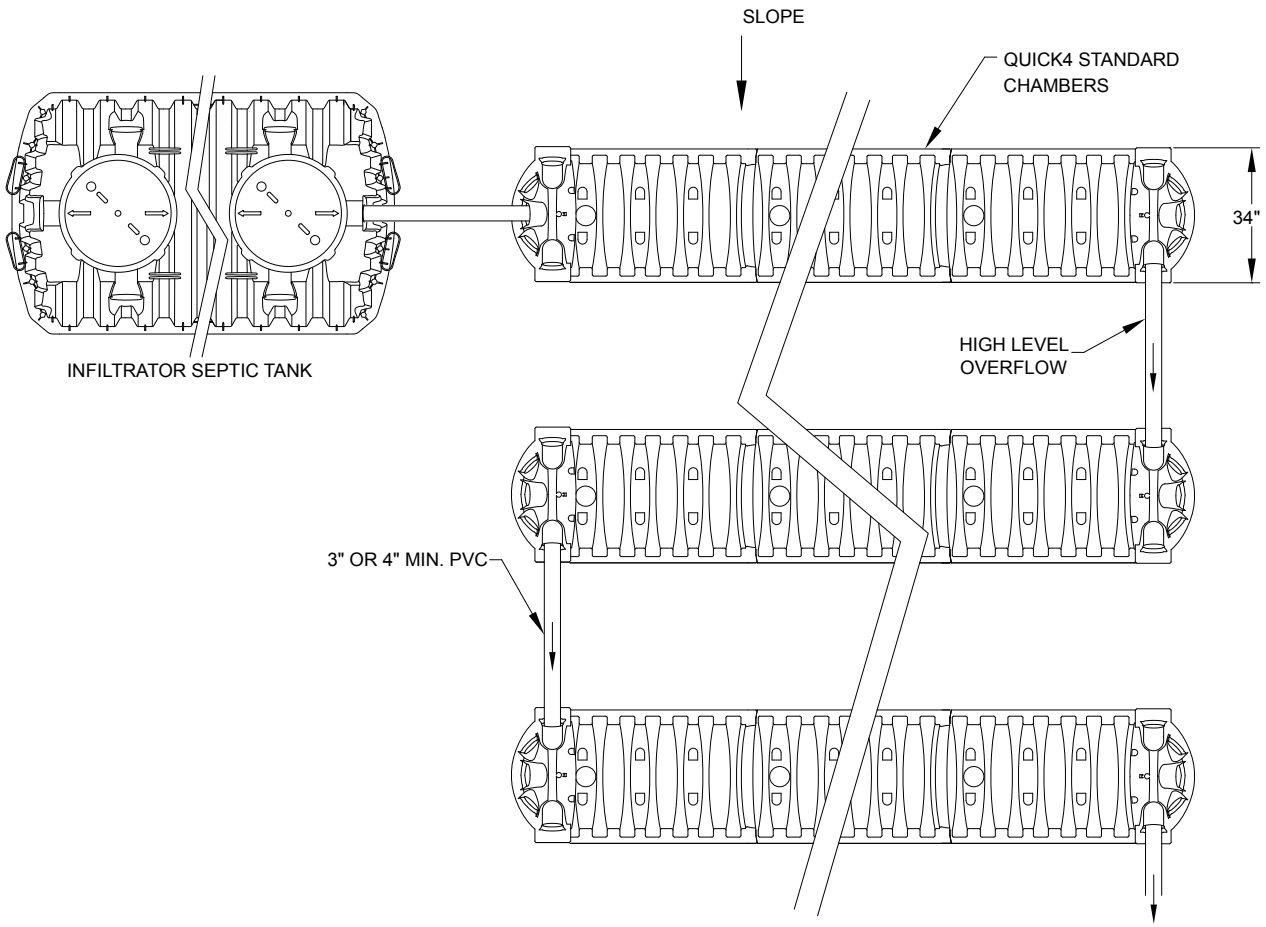
Connection of the distribution pipe to the chamber should be the highest elevation possible on the endcap.

FIGURE 2: TWO COMPARTMENT SEPTIC TANK

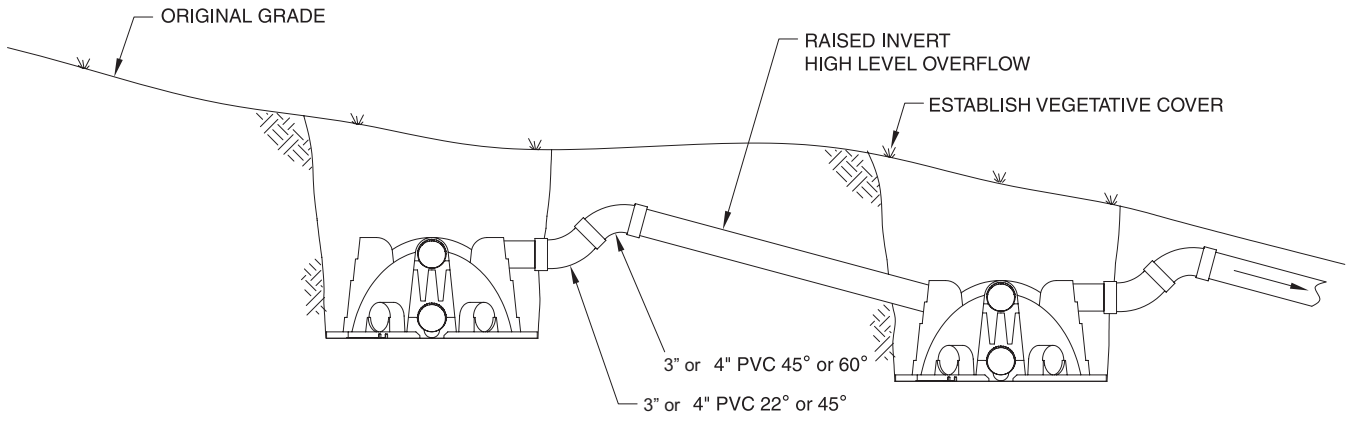


Quick4 or Quick5 Chambers Serial Distribution Configurations

SERIAL DISTRIBUTION SYSTEM
PLAN VIEW (TYP.)

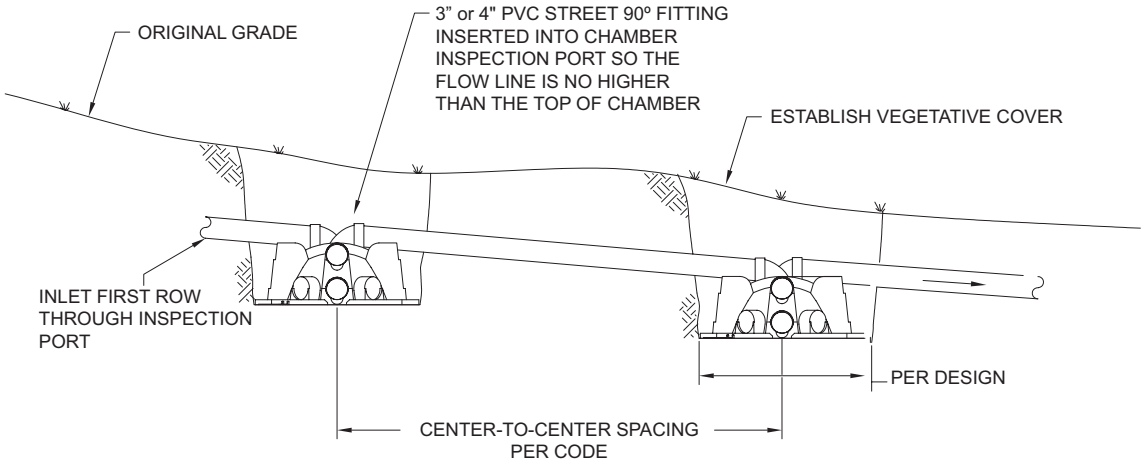


SERIAL DISTRIBUTION SYSTEM ON
SLOPING TERRAIN

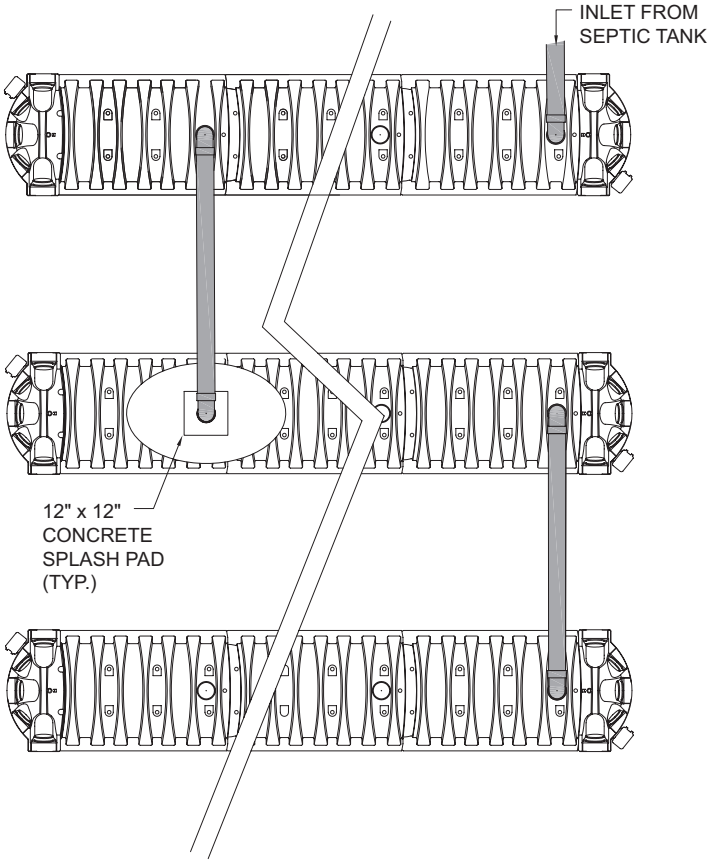


Quick4 or Quick5 Chambers Serial Distribution Configurations

INSPECTION PORT STEP DOWN SYSTEM CROSS SECTION (TYP.)



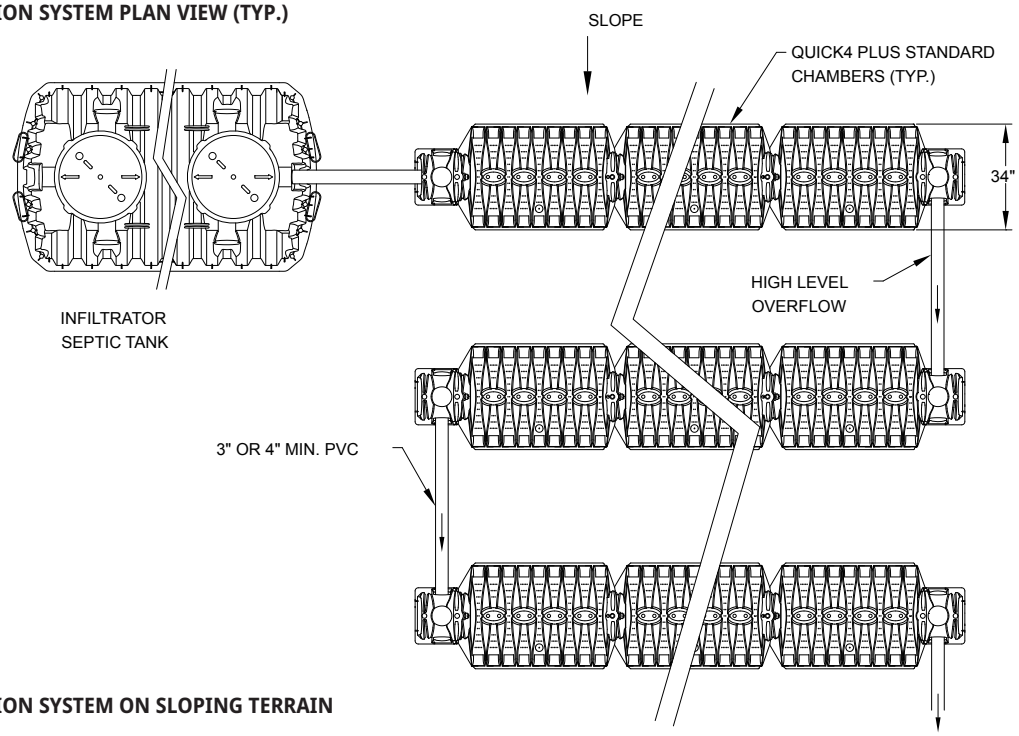
INSPECTION PORT STEP DOWN SYSTEM PLAN VIEW (TYP.)



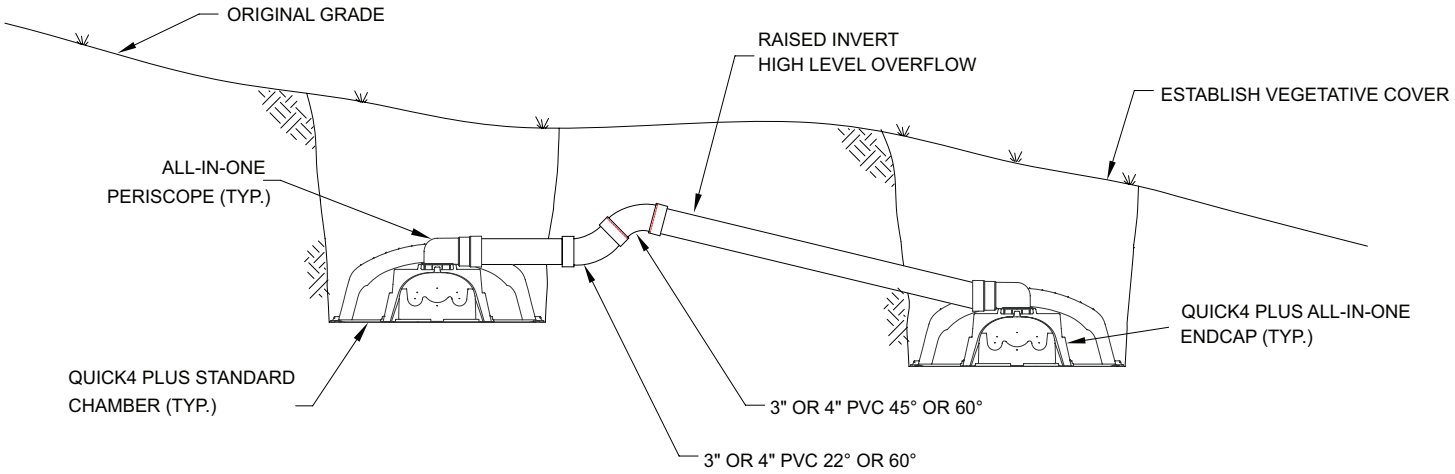
CHAMBER CONFIGURATIONS

Quick4 Plus Chambers Serial Distribution Configurations

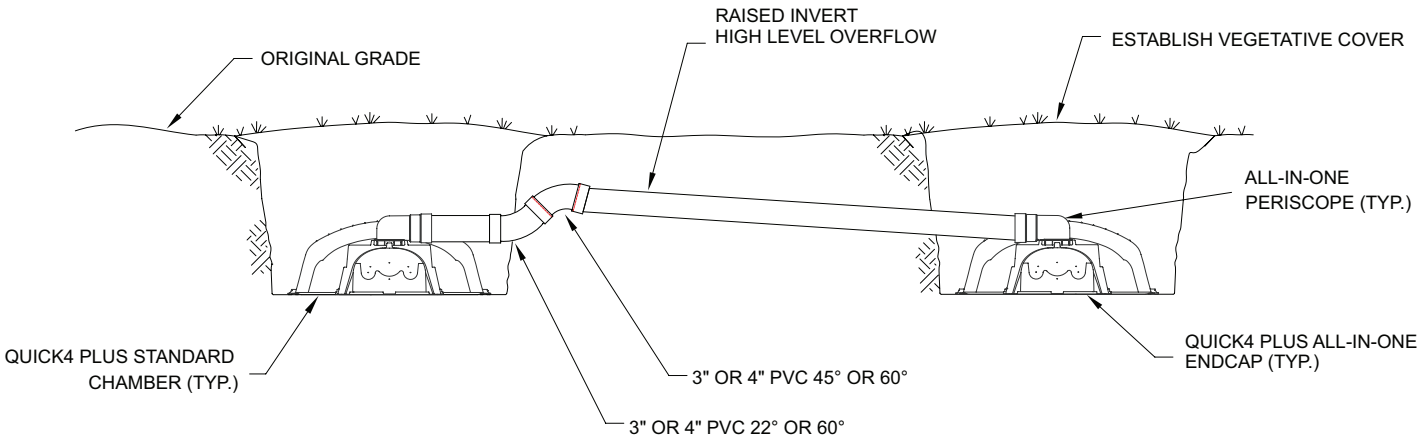
SERIAL DISTRIBUTION SYSTEM PLAN VIEW (TYP.)



SERIAL DISTRIBUTION SYSTEM ON SLOPING TERRAIN



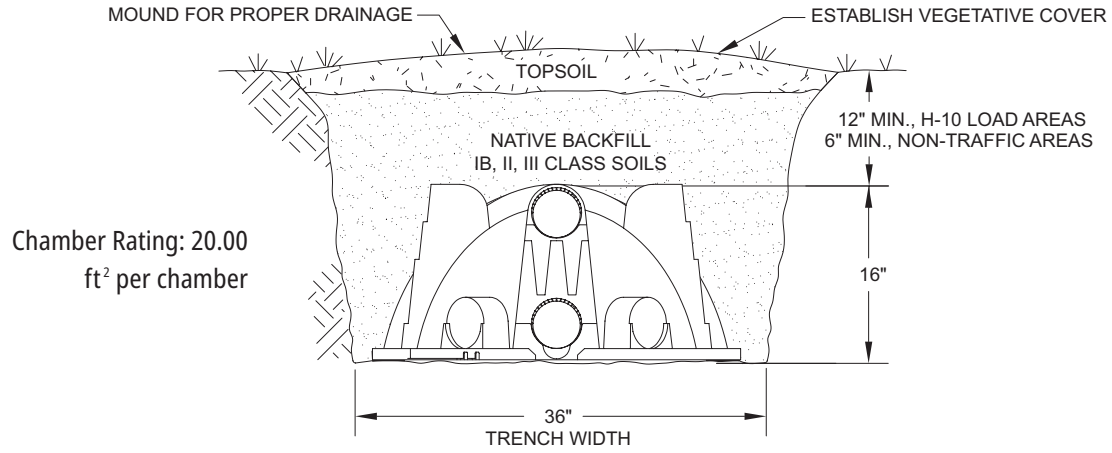
SERIAL DISTRIBUTION SYSTEM ON LEVEL TERRAIN



CHAMBER CONFIGURATIONS

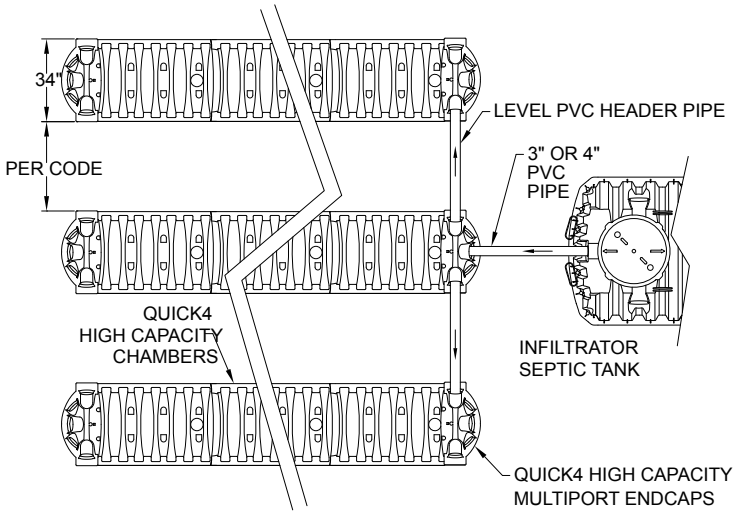
Quick4 High Capacity Chamber Trench Configurations

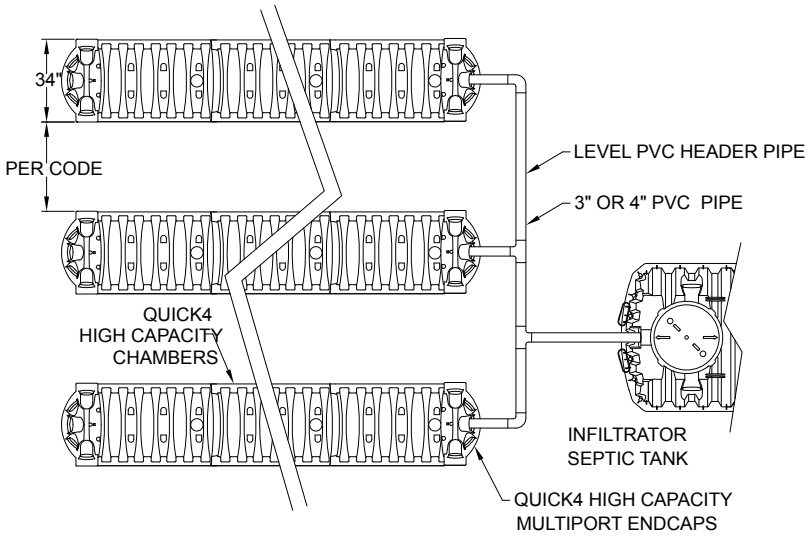
CROSS SECTION



Chamber Rating: 20.00 ft^2 per chamber

PLAN VIEW

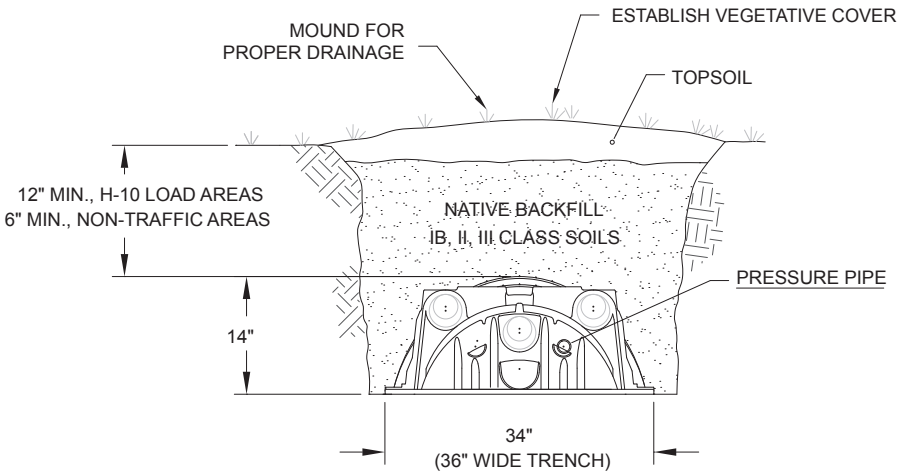




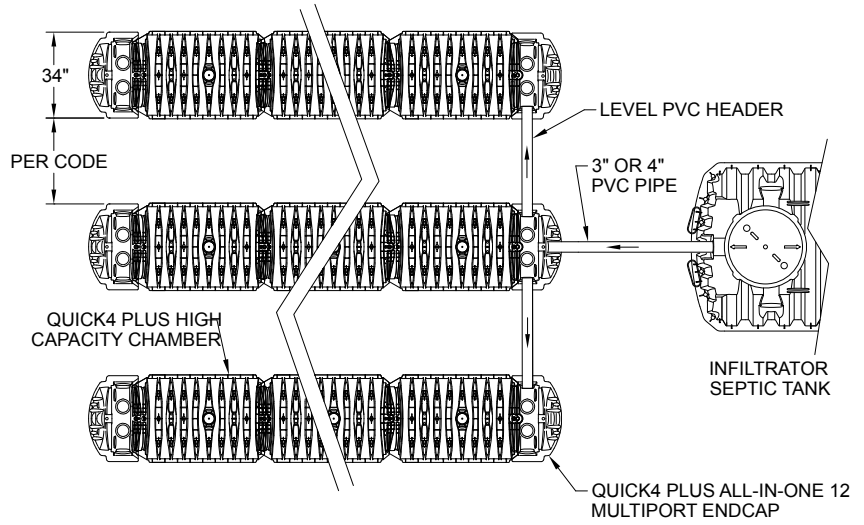
CHAMBER CONFIGURATIONS

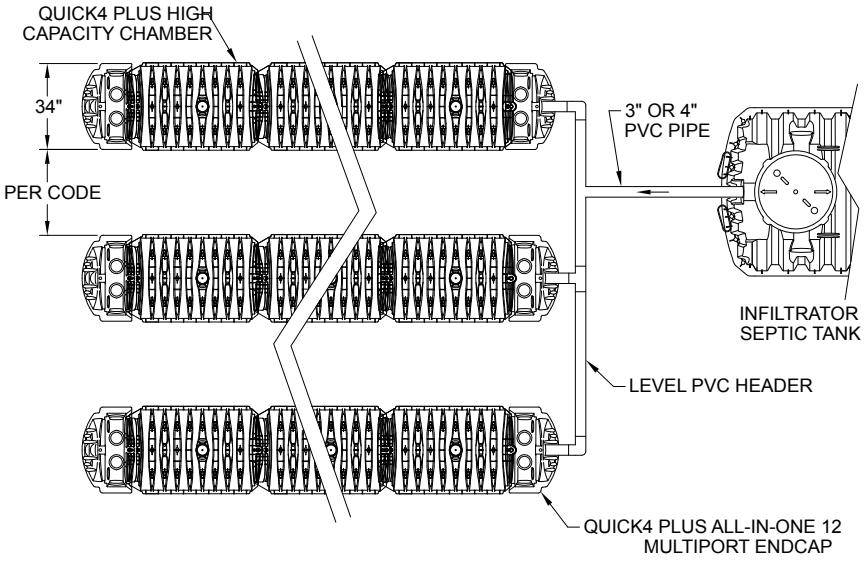
Quick4 Plus High Capacity Chamber Trench Configurations

CROSS SECTION



PLAN VIEW





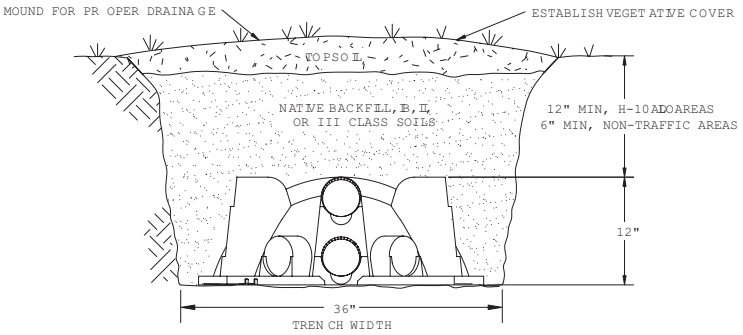
CHAMBER CONFIGURATIONS

Quick4 Standard or Quick5 Standard Chamber Trench Configurations

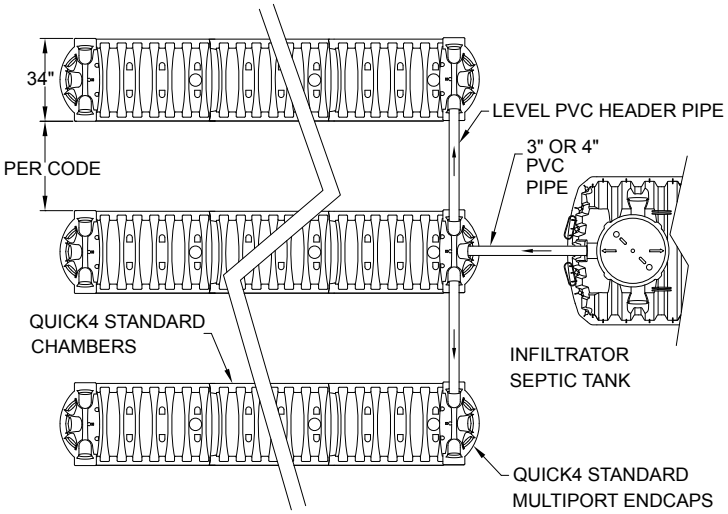
Quick4 Standard Chamber Rating: 20.00 ft² per chamber

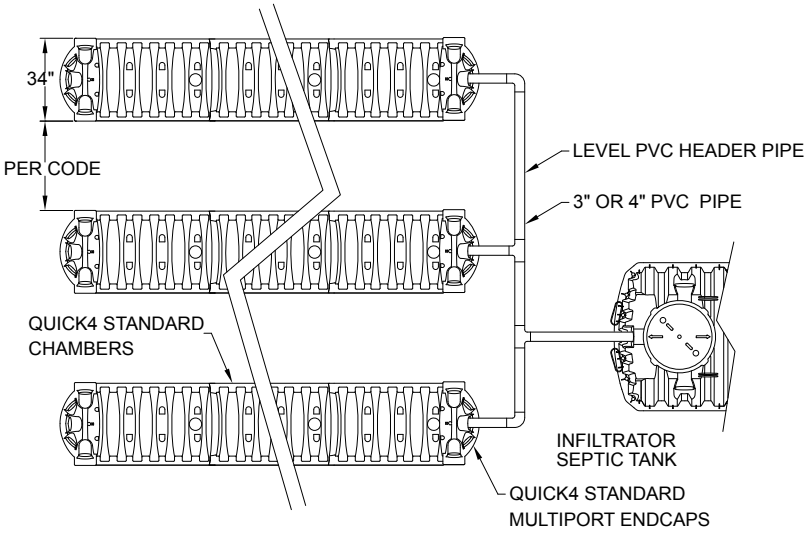
Quick5 Standard Chamber Rating: 25.00 ft² per chamber

CROSS SECTION



PLAN VIEW

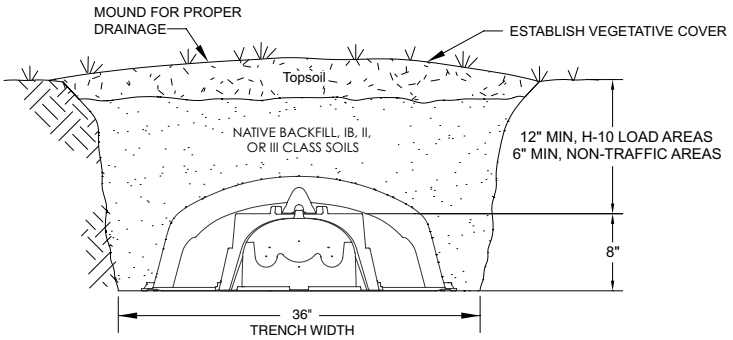




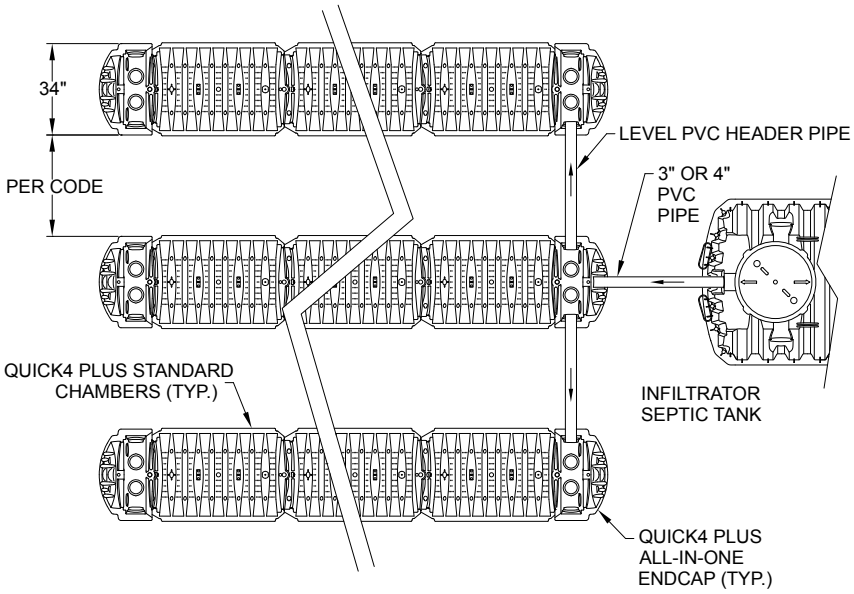
Quick4 Plus Standard Chamber Trench Configurations

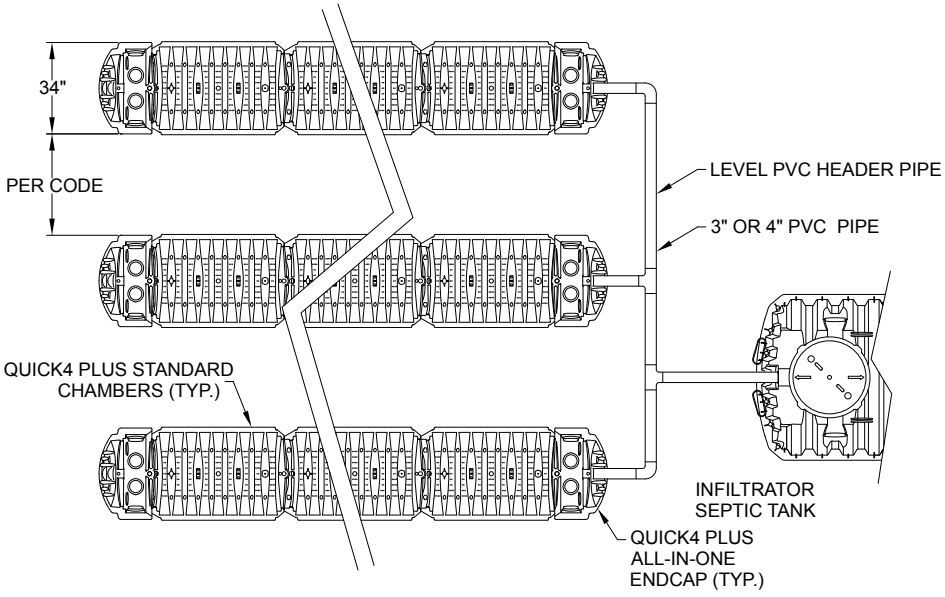
Chamber Rating: 20.00 ft^2 per chamber

CROSS SECTION



PLAN VIEW

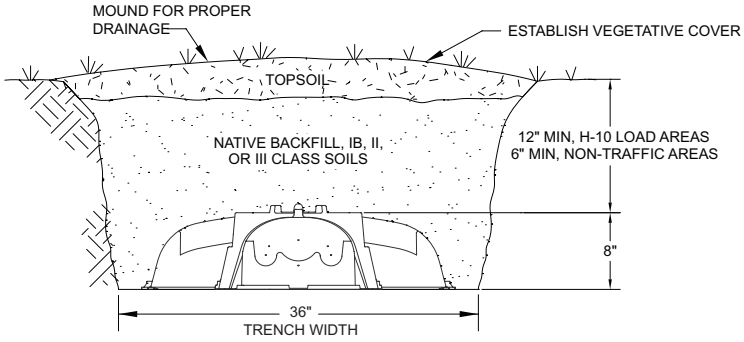




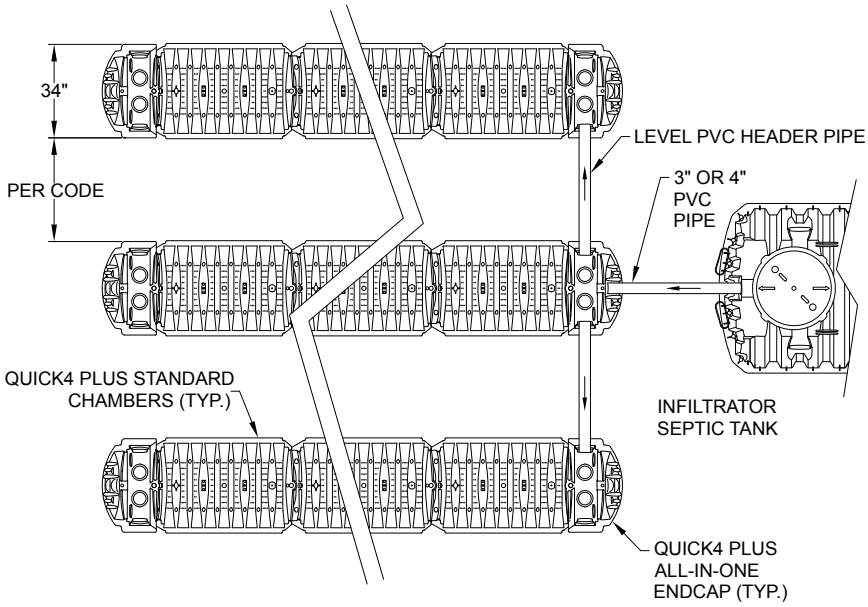
Quick4 Plus Standard Low Profile Chamber Trench Configurations

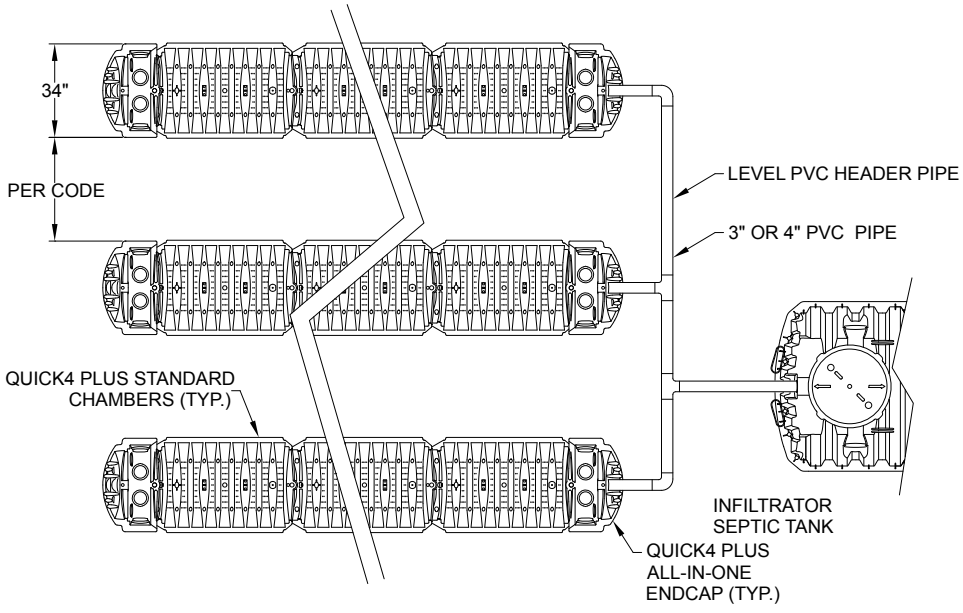
CROSS SECTION (TYP.)

Chamber Rating: 17.60 ft^2 per chamber



PLAN VIEW



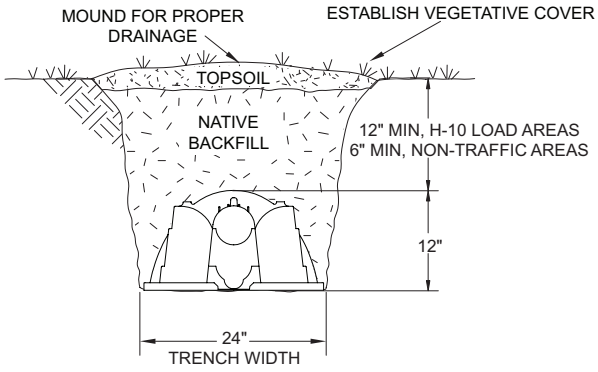


Quick4 Equalizer 36 or Quick5 Equalizer 36 Chamber Trench Configurations

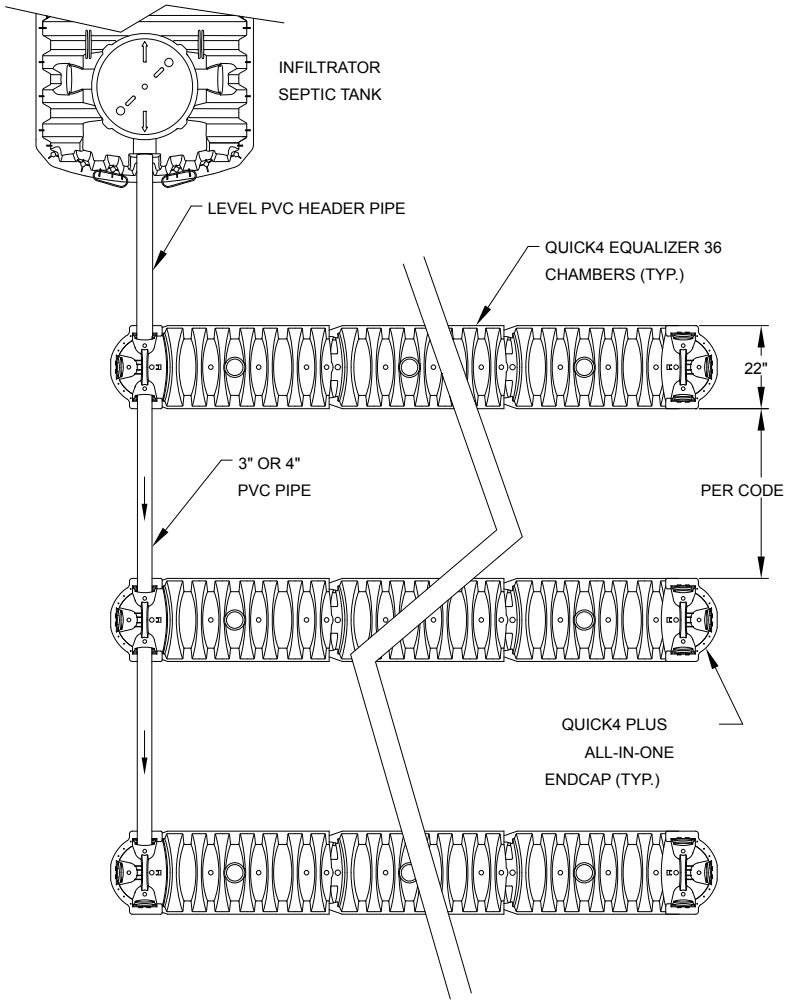
CROSS SECTION

Quick4 Equalizer 36 Chamber Rating: 16 ft^2 per chamber

Quick5 Equalizer 36 Chamber Rating: 20 ft^2 per chamber



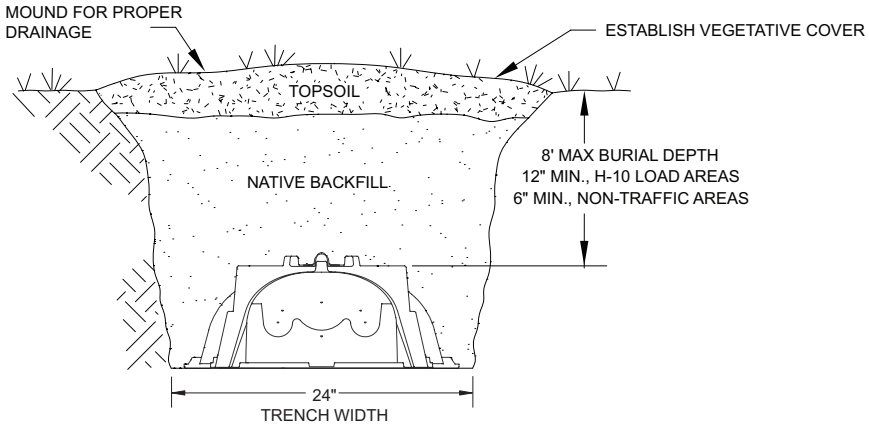
PLAN VIEW (TYP.)



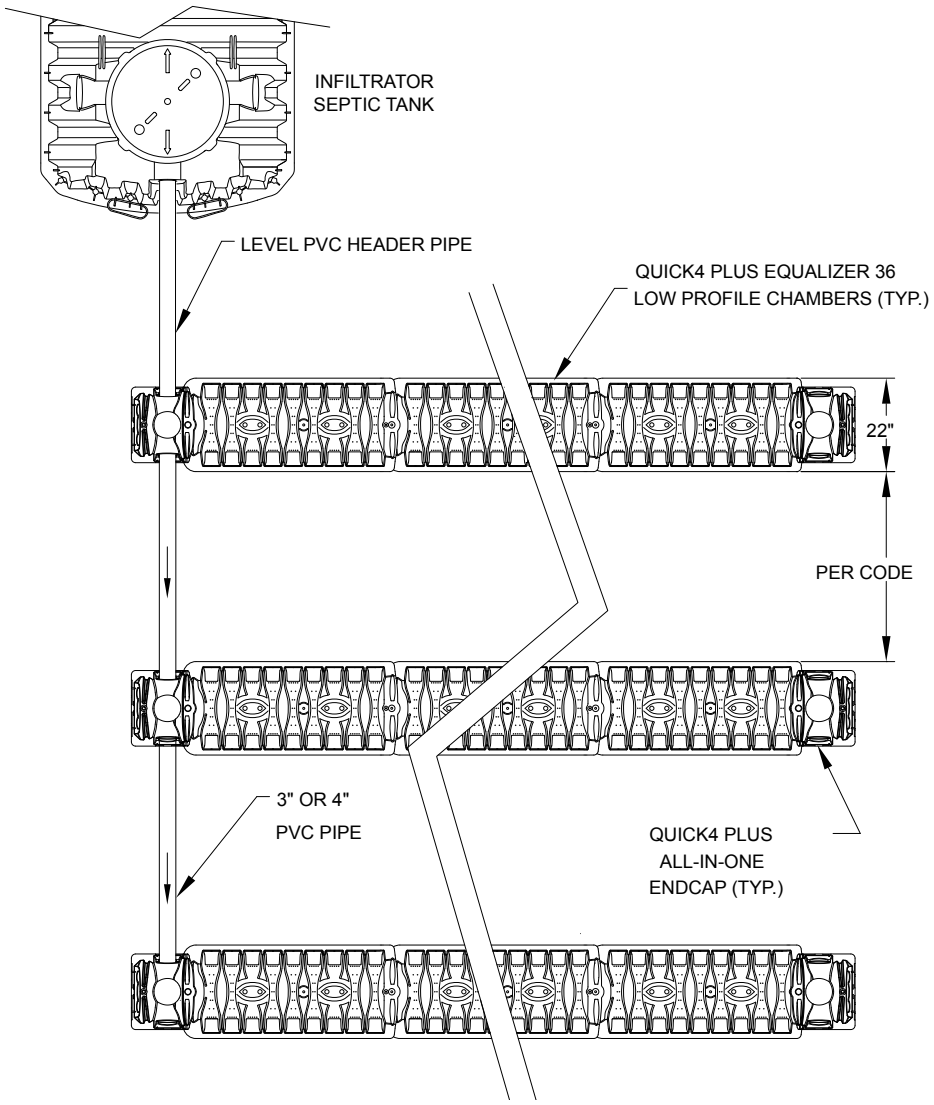
Quick4 Plus Equalizer 36 Low Profile Chamber Trench Configurations

CROSS SECTION

Chamber Rating: 13.6 ft^2 per chamber



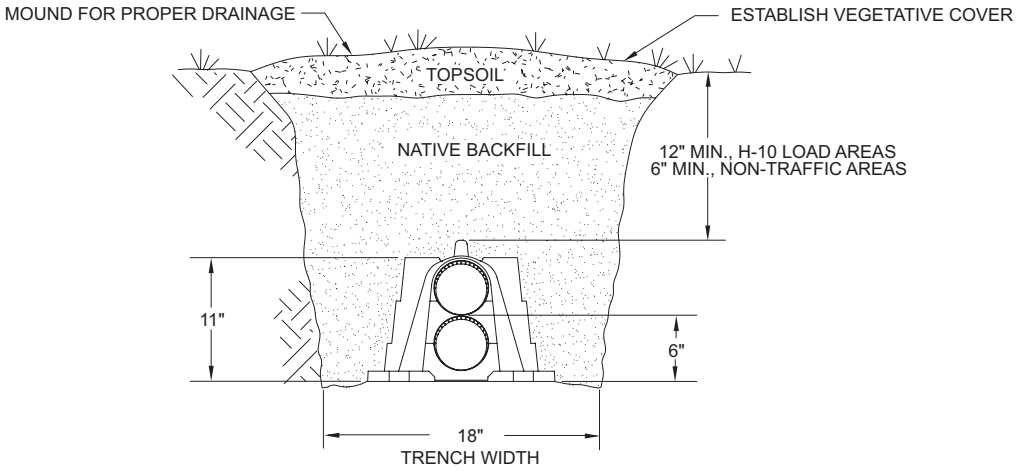
PLAN VIEW



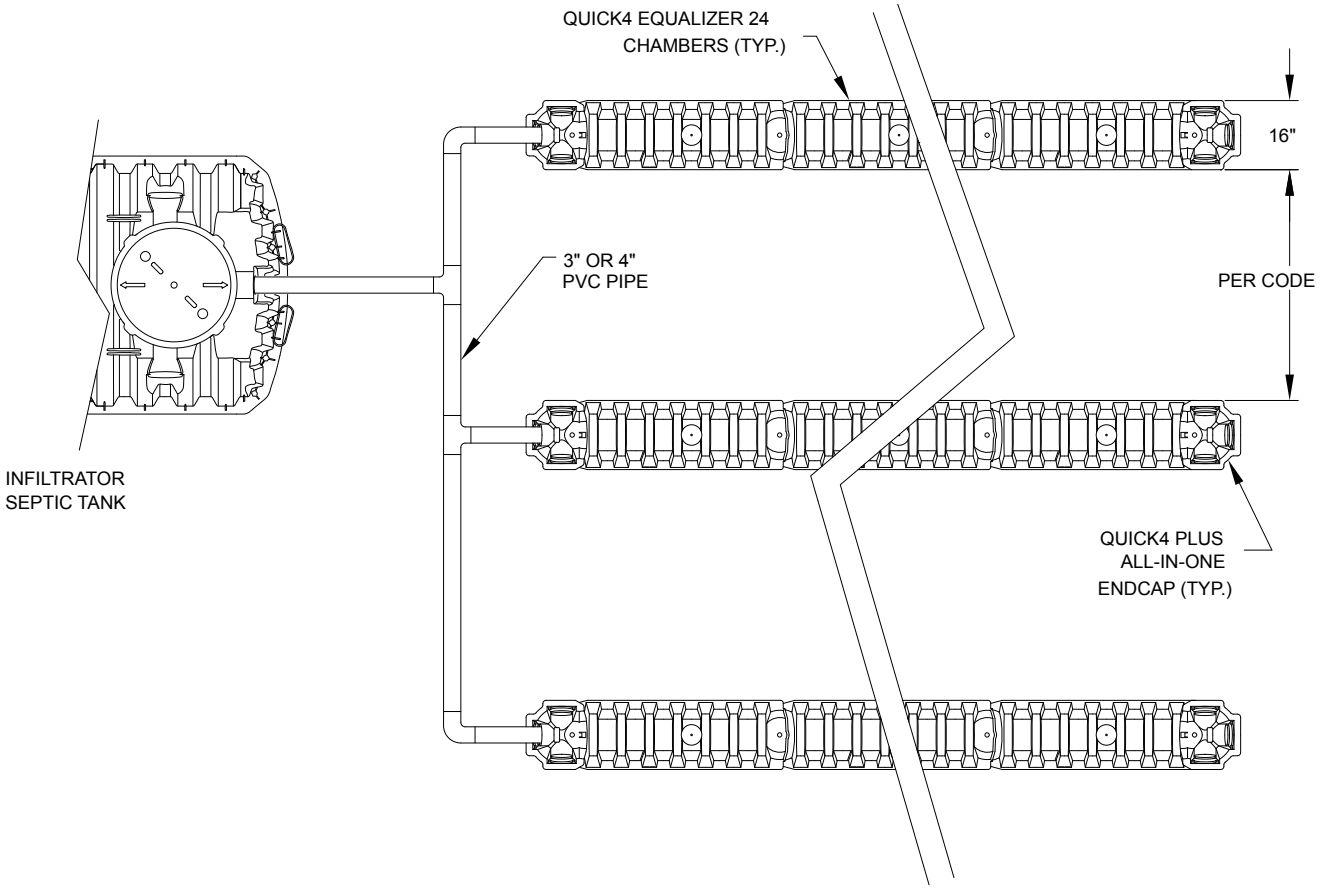
Quick4 Equalizer 24 Chamber Trench Configurations

CROSS SECTION (TYP.)

Chamber Rating: 14 ft^2 per chamber



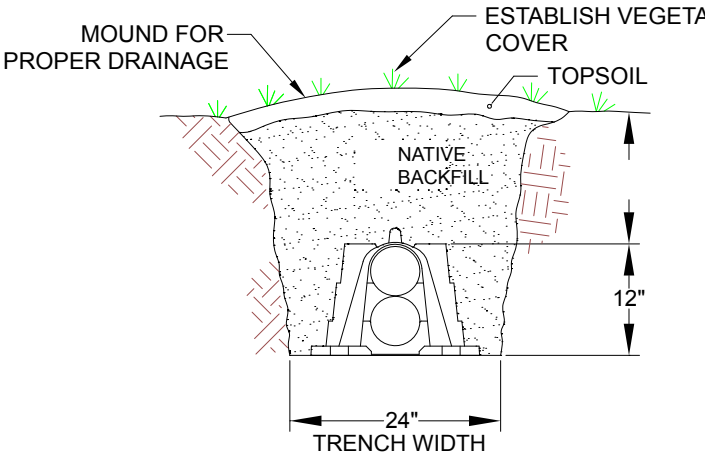
PLAN VIEW (TYP.)



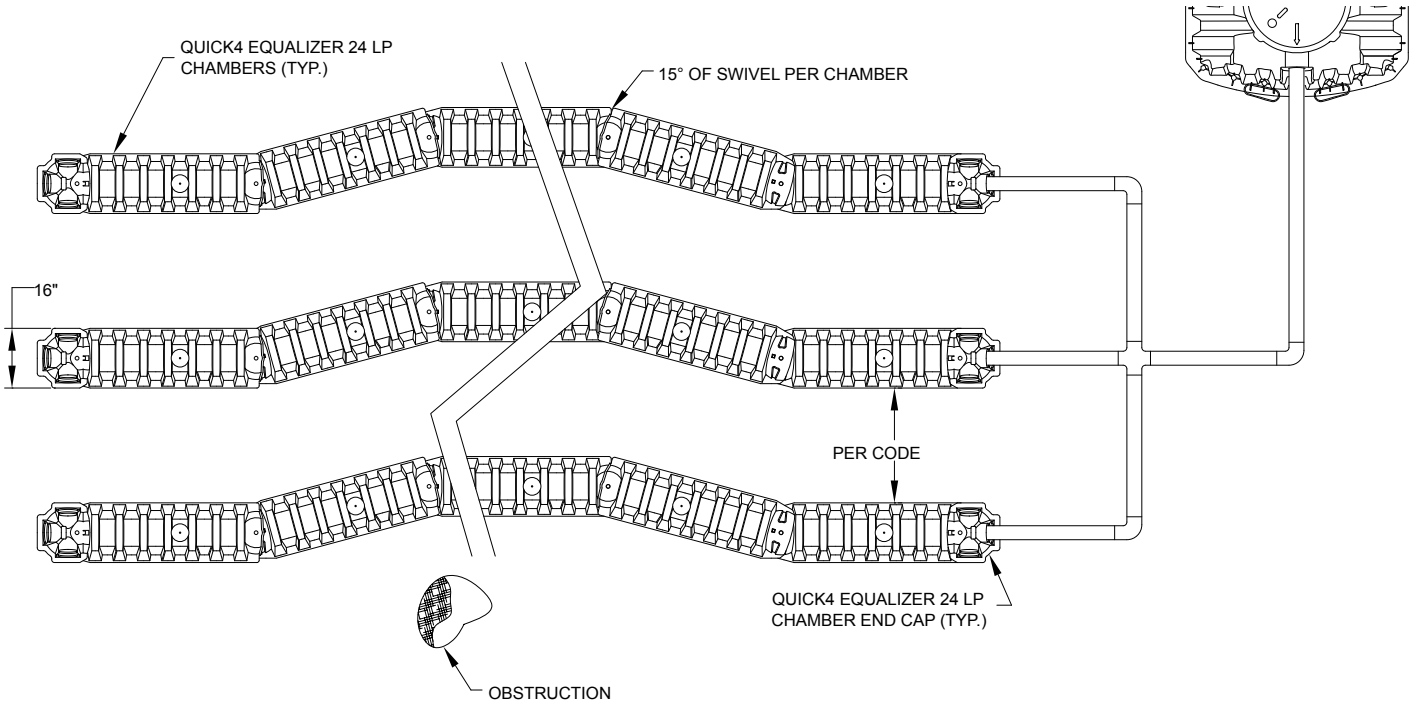
Quick4 Equalizer 24 Low Profile Chamber Trench Configurations

CROSS SECTION (TYP.)

Chamber Rating: 11.32 ft² per chamber



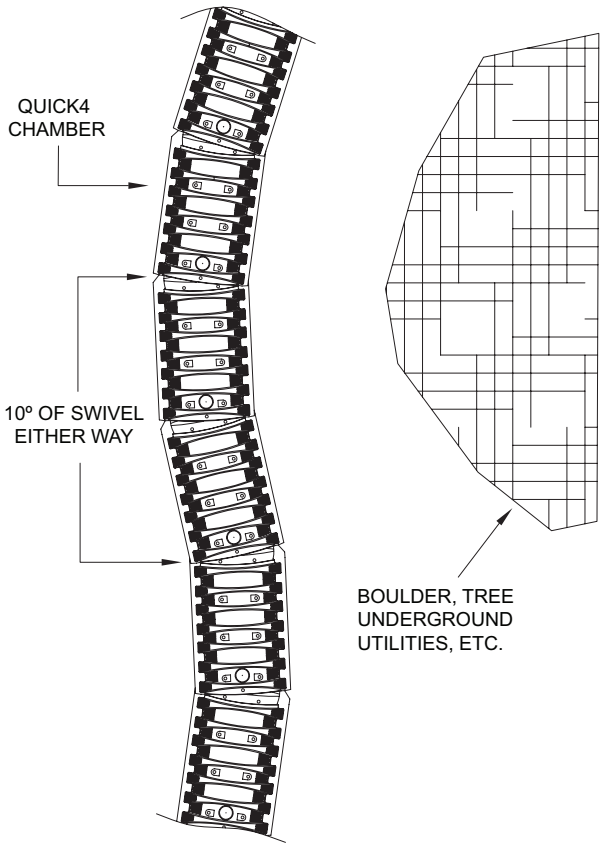
PLAN VIEW (TYP.)



Turn Design Configurations

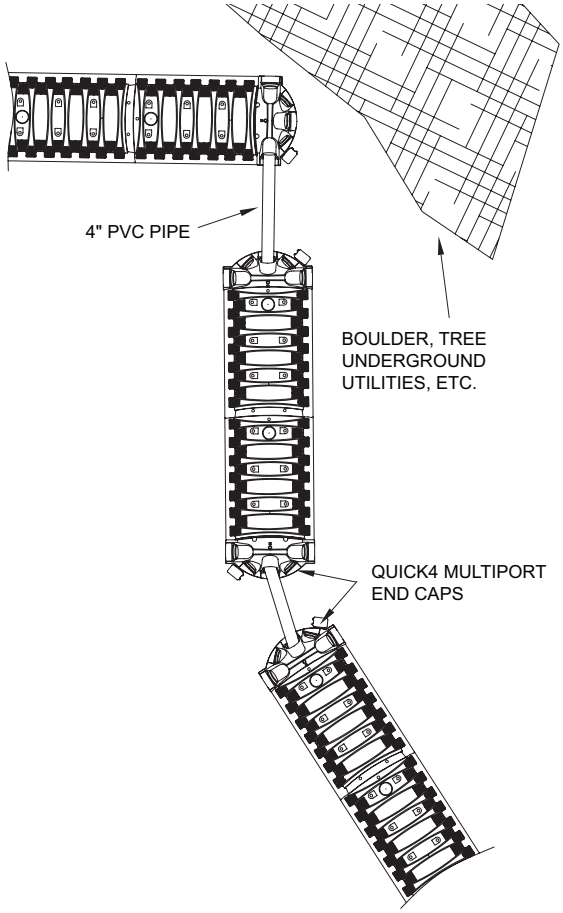
Contour Swivel Connection™

The Quick4 and Quick5 Chamber's Contour Swivel Connection allows systems to be constructed on sloped sites and avoid obstructions without additional parts or accessories. The chamber easily follows contours or an "S" curve and avoids obstacles without additional parts or accessories. Chamber connections swivel 10 or 15-degrees,
(see drawing below).



PVC Pipe with MultiPort Endcaps

The Quick4 and Quick5 MultiPort Endcap's universal multi-port design offers unlimited piping and design options. The molded-in inlets/outlets allow you to pipe from multiple directions and eliminate pipe fittings (see drawing below).



INSPECTOR CHECKLIST FOR CHAMBER SYSTEM INSTALLATIONS

1. SIZE REDUCTION: 40% WITHOUT WATER SAVING DEVICES
   A 40% maximum size reduction in system square footage has been approved by the TCEQ, when the Infiltrator® Leaching Chamber System is installed in Type Ib, II or III soils without water saving devices. (See Sizing Charts on pages 5-8). Infiltrator Chambers can be installed in Class IV soil with no size reduction of system.

NOTE: The maximum reduction allowed for all standard leaching chamber system installations is 40%. There is no additional reduction for water saving devices.

2. SIZE REDUCTION: 25% WITH WATER SAVING DEVICES
   A 25% maximum size reduction in system square footage has been approved by the TCEQ, when the Infiltrator® Leaching Chamber System is installed in Type Ib, II or III soils with water saving devices. (See Sizing Charts on pages 5-8). Infiltrator Chambers can be installed in Class IV soil with no size reduction of system.

NOTE: The maximum reduction allowed for all standard leaching chamber system installations is 25% when using water saving devices.

3. CLASS IV SOILS
   Infiltrator Leaching Chambers may be used instead of media in ET systems, low-pressure dosed drainfields, and Soil Substitution drainfields, but the size of drainfield shall not be reduced from septic drainfield area.

4. DESIGN
   The Infiltrator Water Technologies may be designed using serial or parallel distribution. The flowline of the crossover tightline on serial distribution systems shall be at the top of the chamber on the discharge end.

5. LINE LENGTH
   When installing Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, Quick4 Plus Standard Low Profile, Quick4 Equalizer 36, Quick4 Plus Equalizer 36 Low Profile, Quick4 Equalizer 24 or Quick4 Equalizer 24 LP Chambers no line shall be longer than 150 feet or more than 37 chambers in length.

6. HEADER OR MANIFOLD PIPE
   The header or manifold pipe shall be connected to each inlet chamber opening with a 1 1/2-inch screw to prevent possible line separation during installation and backfilling.

7. ENDCAPS
   MultiPort endcaps shall be backfilled by hand to ensure the endcaps are not dislodged during final backfill.

8. TOP LOADING
   In the case that the chambers cannot be loaded from the end plate, the chambers may be loaded from the inspection port. However, a concrete block must be placed below the inspection port.

9. LEVELING
   All chambers should be as level as possible per TCEQ regulations. The bottom of the excavation shall be level to within one inch over each 25 feet of excavation or within three inches over the entire excavation, whichever is less. The elevation of all chambers should be based on the inspection port disc in the center of each chamber.

10. INSPECTION PORT (OPTIONAL)
    If you are installing an inspection port, use 3" or 4" PVC to ground surface with a threaded plug or cap. An inspection port may be placed on any chamber in the drainfield and the location should be noted on the septic system drawing.

11. INITIAL BACKFILL
    IMPORTANT: The sides of the chambers shall be shovel filled with select backfill material (Type 1b, II or III soils) and walked down (compacted) once chambers are latched and leveled. This is to provide chamber support, prevent movement during the final backfill process and prevent loose soil migration into the chamber.

12. BACKFILL MATERIAL
    The backfill material shall be soil Types Ib, II and III soils only. (No Class IV soils.) Infiltrator Water Technologies requires native soil backfill (Type 1b, II or III) to prevent infiltration of rain or surface water run-off, similar to the french drain effect. All backfill material shall be free of rocks larger than one inch (1"). Be cautious in areas where silty soils are being classified as sandy loam.

13. FINAL BACKFILL
    No vehicle or construction equipment shall be allowed to enter the disposal area during or after the backfill process. There should be a minimum of 12 inches (12") of cover over all chambers in the systems. A minimum of 6” of cover can be used in non-vehicular traffic areas.

14. LOW MOISTURE CONTENT
    When working in fine and very fine sands (loamy sand and sandy loam soils with LOW MOISTURE CONTENT) it is at the contractors’ discretion to cover the chambers with a very fine filter cloth (0.040 mil.) (ASTM D 4571) prior to backfilling the system. A thicker filter fabric over the chambers may develop a biomat in the cloth, which prevents the exfiltration of effluent from the chambers into the soil. Any other filter fabric used will VOID this warranty.

Quick4 High Capacity, Quick4 Standard, Quick5 Standard, Quick4 Equalizer 36, Quick5 Equalizer 36, and Quick4 Equalizer 24 Chambers

Before You Begin

Chambers may only be installed according to State and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department.

Like conventional systems, the soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine the proper sizing and siting of the system before installation.

Materials and Equipment Needed

- ☐ Chambers
- ☐ MultiPort Endcaps
- ☐ PVC Pipe and Couplings
- ☐ Backhoe
- ☐ Laser, Transit or Level
- ☐ Shovel and Rake
- ☐ Tape Measure
- ☐ Utility Knife
- ☐ Hole Saw*
- ☐ 1½-inch Drywall Screws*
- ☐ Screw Gun*
- ☐ Small Valve-Cover Box*
- ☐ 3 or 4-inch Threaded Plug for Inspection Port*

*Optional

These guidelines for construction machinery must be followed during installation:

- ☐ Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- ☐ Only drive across the trenches when necessary. Never drive down the length of the trenches.
- ☐ To avoid additional soil compaction, never drive heavy vehicles over the completed system.

Excavating and Preparing the Site

NOTE: As is the case with conventional systems, do not install the systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Stake out the location of all trenches and lines. Set the elevations of the tank, pipe, and trench bottom.

2. Install sedimentation and erosion control measures. Permanent drainage swales/berms may be installed to protect the site during rainfall events.

3. Excavate and level trenches with proper center-to-center separation. Verify that the trenches are level or have the prescribed slope.

NOTE: Over excavate the trench width in areas where you are planning to swivel the chambers.

4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use the bucket teeth to rake the trench bottom.

Note: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (silts and clays), avoid walking in the trench to prevent compaction and loss of soil structure.

5. Verify that each trench is level using a level, transit or laser.

Preparing the Endcap

1. With a utility knife start the tear-out seal at the appropriate diameter for the inlet pipe. The seal allows for a tight fit for 3-inch, 4-inch SDR35, and 4-inch SCH40 pipe.



Start tear-out seal.

2. Pull the tab on the tear-out seal to create an opening on the endcap.



Pull tab on tear-out seal.

3. Snap off the molded splash plate located on the bottom front of the endcap.

4. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

5. Insert the inlet pipe into the endcap at the beginning of the trench. The pipe will go in several inches before reaching a stop. Screws are recommended to prevent the header pipe from pulling out during backfill.



Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.

2. Set invert to appropriate height from the bottom of the trench.

3. Place the inlet end of the first chamber over the back edge of the endcap.



Place first chamber onto endcap.

4. Lift and place the end of the next chamber onto the previous chamber by holding it at a 90-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower it to the ground to connect the chambers.



NOTE: When the chamber end is placed between the connector hook and locking pin at a 90-degree angle, the pin will be visible from the back side of the chamber.

Note: The connector hook serves as a guide to insure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure nor void the warranty.

5. Swivel the chamber on the pin to the proper direction for the trench layout.

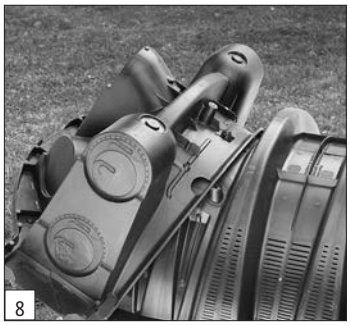
NOTE: Quick4 chambers allow for 10º swivel in either direction at each joint.

6. Where the system design requires straight runs, use the StraightLock™ Tabs to ensure straight connections. To activate the tabs, pop the tabs up with your thumb to lock into place.

7. Continue connecting the chambers until trench is completed.

Note: As chambers are installed, verify they are level or have the prescribed slope to meet local code.

8. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and insert the connector hook through the opening on the top of the endcap. Applying firm pressure, lower endcap to the ground to snap it into place. Do not remove tear-out seal.



Attach endcap to chamber.

9. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

10. Pack down the fill by walking along the edges of the trench and chambers. This is an important step in assuring structural support.

11. Proceed to the next trench and begin with Step 1.

Installing Optional Inspection Ports

1. With a hole saw drill the pre-marked area in the top of the chamber to create a 4-inch opening.

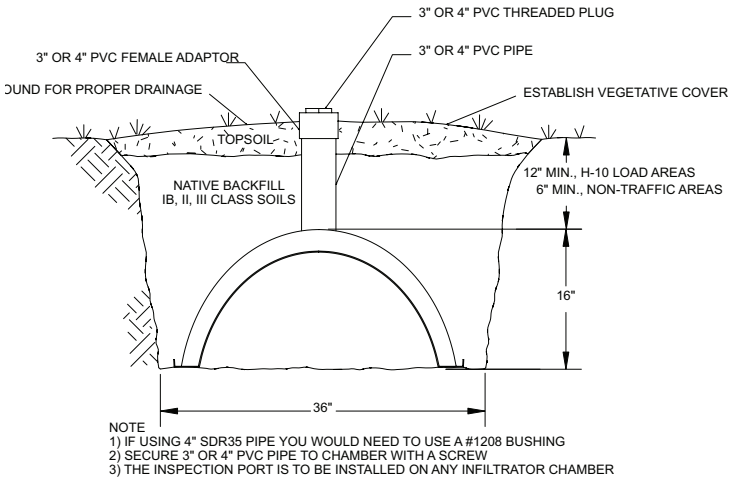
2. Set a cut piece of pipe of the appropriate length into the corresponding chamber's inspection port sleeve.

Note: The sleeve will accommodate a 4-inch SCH 40 pipe.

3. Use 2 screws to fasten pipe to the sleeve around inspection port.

4. Attach a threaded cap or cleanout assembly onto the protruding pipe at the appropriate height.

5. A small valve cover box may be used if inspection port is below the desired grade.



Covering the System

Before backfilling, the system must be inspected by a health officer or other official as required by State and local codes. Create an as-built drawing at this time for future records.

1. Backfill the trench by pushing fill material over the chambers with a backhoe. Keep a minimum of 12 inches of compacted cover over the chambers before driving over the system.

Note: Do not drive over system while backfilling in sand.

2. It is best to mound several inches of soil over the finish grade to allow for settling. This ensures that runoff water is diverted away from the system.

3. After system is covered, Infiltrator recommends, but doesn't require, that the site be seeded or sodded to prevent erosion.

NOTE: If the system is for new home construction it is important to leave marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.

Quick4 Plus Standard, Quick4 Plus High Capacity, Quick4 Plus Standard Low Profile and Quick4 Plus Equalizer 36 Low Profile Chamber Systems

Before You Begin

This document addresses the installation of Quick4 PLus High Capacity Quick4 Plus Standard Low Profile (LP) and Quick4 Plus Equalizer 36 Low Profile (LP) chambers. The Quick4 Plus Standard LP and Quick4 Plus Equalizer 36 LP chambers are designed for shallow placement applications. All chambers may only be installed according to state and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department. Like conventional systems, soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine proper sizing and siting of system before installation.

Materials and Equipment Needed

- ☐ Q4 Plus Chambers
- ☐ Q4 Plus EndCaps
- ☐ Q4 Plus All-in-One
- ☐ Endcaps
- ☐ PVC Pipe and Couplings
- ☐ Backhoe
- ☐ Laser, Transit or Level
- ☐ Shovel and Rake
- ☐ Tape Measure
- ☐ Utility Knife
- ☐ Hole Saw*
- ☐ 1 1/2-inch Drywall Screws*
- ☐ Screw Gun*
- ☐ Small Valve-Cover Box*
- ☐ 3 or 4-inch Threaded Plug for Inspection Port*

*Optional

- ☐ Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- ☐ When installing in sandy soil conditions, wheeled construction equipment is prohibited over top of system. Tracked equipment can be used over top of system with a minimum of 6” of soil cover.
- ☐ Avoid stones larger than 3 inches in diameter in backfill Remove stones this size or larger.

Excavating and Preparing the Site

NOTE: As is the case with conventional systems, do not install systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Stake out location of all trenches and lines. Set elevations of tank, pipe, and trench bottom.
2. Install sedimentation and erosion control measures. Temporary drainage swales/berms may be installed to protect site during rainfall.
3. Excavate and level trenches with proper width and center-to-center separation. Verify that trenches are level or have the prescribed slope.

NOTE: Over excavate n areas where you are planning to contour.

4. Rake bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use bucket teeth to rake trench bottom.

NOTE: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (silts and clays), avoid walking in the trench to prevent compaction and loss of soil structure.

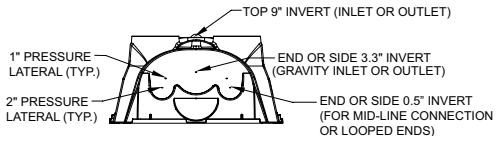
Preparing the Endcap

Note: Quick4 Plus and Quick4 Plus All-in-One Endcaps are available for use with the Quick4 Plus chambers on either end of the trench, depending upon the installer’s preference and configuration requirements.

1. With a hole saw drill an opening appropriate for pipe diameter being used (normally 3 - 4 inches) on front or side of endcap using center point marking (see illustration) as a guide.



Drill endcap.



2. Snap off the molded splash plate located on the bottom front of the endcap.
3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

Installing the Quick4 Plus Periscope

NOTE: Available for use with Quick4 Plus All-in-One Endcap only. Invert options based on system design.

1. With a 4" hole saw drill the pre-marked area on top of the Quick4 Plus All-in-One Endcap.



2. Insert the Quick4 Plus Periscope into top of the Quick4 Plus All-in-One Endcap. Insert the Quick4 Plus Periscope until it snaps into place.



Insert Quick4 Plus Periscope.

3. Insert a 4" Schedule 40 PVC pipe into the Quick4 Plus Periscope at the appropriate locations for the system design.
4. Rotate Quick4 Plus Periscope to desired angle.



Connect inlet pipe.

Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.

2. Set the invert height as specified in the design from the bottom of the inlet.

3. Place the first chamber in the trench.

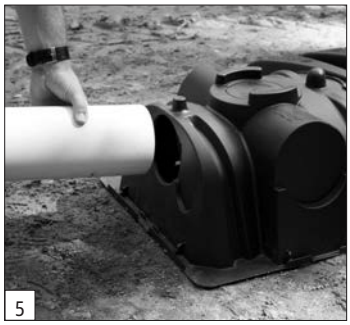
4. Place the back edge of the endcap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and endcap.

Optional: Fasten the endcap to the chamber with a screw at the top of the endcap.



Place endcap inlet end.

5. Insert the inlet pipe 2.5 inches into the opening on the front of the endcap. Insert fully to the internal pipe stop.



6. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower the chamber to the ground to connect the chambers.

NOTE: The connector hook serves as a guide to ensure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure or void the warranty.

7. Swivel the chamber on the pin to achieve the proper direction for the trench layout.

NOTE: The chamber allows up to 10-degree swivel in either direction at each joint.

8. Continue connecting chambers until the trench is completed.

NOTE: As chambers are installed, verify they are level or have the prescribed slope.

9. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and align the connector hook on the top of the chamber with the raised slot on the top of the endcap. Lower the endcap to the ground and into place.

NOTE: Place a few shovels of soil around the endcap to secure it during backfill.

10. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

11. Pack down fill by walking along the edges of trench and chambers.

NOTE: In wet or clay soils, do not walk in the sidewalls.

12. Proceed to the next trench and begin with Step 1.



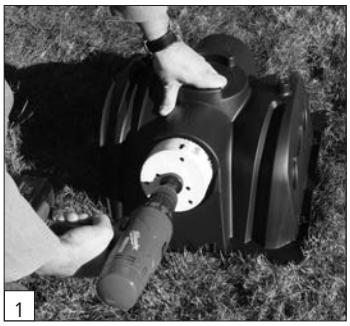
Place endcap outlet end.

Installing Quick4 Plus All-in-One Endcap as a Mid-line Connection

NOTE: See mid-line piping options on the back of this document.

1. With a hole saw drill an opening appropriate for the pipe diameter being used on the side (3.3" invert) or on top (9.0" invert) of the Quick4 Plus All-in-One Endcap.

NOTE: Piping configurations are determined by the preference of the installer or designer.



Drill endcap on side or top.

2. With a hole saw, drill an opening on the end of the Quick4 Plus All-in-One Endcap to create an invert at 0.5 inches. This will allow effluent to fill both sides of the chamber line.


Drill endcap on end.

2. Snap off the molded splash plate located on the bottom front of the endcap.

3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

4. Place the back edge of the endcap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and endcap.

Optional: Fasten endcap to chamber with a screw at the top of endcap.

5. Insert the connection pipe 2.5 inches into the opening on endcap.

6. Repeat Steps 1 through 5 for additional trenches.



Covering the System

Before backfilling, the system must be inspected by a health officer or other official as required by state and local codes. Create an as-built drawing at this time for future records.

1. Backfill the system by pushing fill material over the chambers. Keep a minimum of 12 inches of compacted cover over the chambers before driving over the system with wheeled construction equipment.

NOTE: Do not drive over the system while backfilling in sandy soil.

2. It is best to mound several inches of soil over the finished grade to allow for settling. A slight crown also ensures that runoff water is diverted away from the system trench.

NOTE: For shallow cover, sand fill, and sandy soil applications, tracked construction equipment must be used. You must mound 12 inches of soil over the system before driving over it with wheeled construction equipment, then grade it back a minimum 6 inches upon completion.

3. After the system is covered, the site should be seeded or sodded to prevent erosion.

NOTE: If system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the system location so they will not cross it with equipment or vehicles.

CHAMBER INSTALLATION INSTRUCTIONS

Quick4 Equalizer 24 LP Chamber Systems

Before You Begin

Quick4 Equalizer 24 LP Chambers are designed for shallow placement applications and may only be installed according to State and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department.

Like conventional systems, the soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine the proper sizing and siting of the system before installation.

Materials and Equipment Needed

- ☐ Quick4 Equalizer 24 LP Chambers
- ☐ Endcaps
- ☐ PVC Pipe and Couplings
- ☐ Backhoe
- ☐ Laser, Transit or Level
- ☐ Shovel and Rake
- ☐ Tape Measure
- ☐ Utility Knife
- ☐ 1½-inch Drywall Screws
- ☐ Screw Gun
- ☐ Hole Saw*
- ☐ Small Valve-Cover Box*
- ☐ 4-inch Cap for Inspection Port*
- ☐ Invert Adapter*

*Optional

These guidelines for construction machinery must be followed during installation:

- ☐ Avoid direct contact with chambers when using construction equipment.
- ☐ Only drive across the trenches when necessary. Never drive down the length of the trenches.
- ☐ To avoid additional soil compaction, never drive heavy vehicles over the completed system.

Excavating and Preparing the Site

NOTE: As is the case with conventional systems, do not install the systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Stake out the location of all trenches and lines. Set the elevations of the tank, pipe, and trench bottom.

2. Install sedimentation and erosion control measures. Permanent drainage swales/berms may be installed to protect the site during rainfall events.

3. Excavate and level 18” wide trenches with proper center-to-center separation. Verify that the trenches are level or have the prescribed slope.

Note: Over excavate the trench width in areas where you are planning to swivel the chambers.

4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use the bucket teeth to rake the trench bottom.

Note: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (silts and clays), avoid walking in the trench to prevent compaction and loss of soil structure.

5. Verify that each trench is level using a level, transit or laser.

Preparing the Endcap

1. With a hole saw drill a opening appropriate to the pipe diameter being used (normally 3 to 4 inches) on the front of the endcap.

2. Snap off the molded splash plate located on the bottom front of the endcap.

3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.

2. Set the invert height as specified in the design from the bottom of the inlet.


4

3. Place the first chamber in the trench.

4. Place the back edge of the endcap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and endcap.

5. Insert the header pipe into the opening on the front of the endcap.

6. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower the chamber to the ground to connect the chambers.

7. Swivel the chamber on the pin to achieve the proper direction for the trench layout.

8. The last chamber in the trench requires a endcap. Lift the MultiPort endcap at a 45-degree angle and insert the connector hook through the opening on the top of the MultiPort endcap. Applying firm pressure, lower the MultiPort endcap to the ground to snap it into place. Do not remove tear-out seal.

9. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

10. Pack down fill by walking along the edges of trench and chambers.

8. Continue connecting the chambers until the trench is completed.

9. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and align the connector hook on the top of the chamber with the raised slot on the top of the endcap. Lower the endcap to the ground and into place.

10. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

11. Pack fill by walking along the edges of trench and chambers.

12. Proceed to next trench and begin with Step 1.


8

Connect chambers.


9

Attach endcap to last chamber.


10

Installing Optional Inspection Ports

1. With a 4" hole saw, drill the pre-marked area in the top of the chamber to create a 4-inch opening.

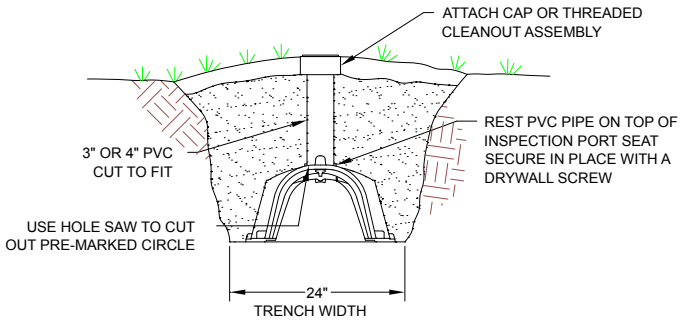
2. Set a cut piece of pipe of the appropriate length into the corresponding chamber's inspection port sleeve.

NOTE: The sleeve will accommodate up to a 4-inch SCH40 pipe.

3. Use two screws to fasten the pipe to the sleeve around the inspection port.

4. Attach a threaded cap or cleanout assembly onto the protruding pipe at the appropriate height.

5. A small valve cover box may be used if inspection port is below the desired grade.



Covering the System

Before backfilling, the system must be inspected by a health officer or other official as required by State and local codes. Create an as-built drawing at this time for future records.

1. Backfill the trench by pushing fill material over the chambers with a backhoe. Keep a minimum of 12 inches of compacted cover over the chambers before driving over the system.

NOTE: Do not drive over system while backfilling in sand.

NOTE: For shallow cover applications, it is recommended that tracked construction equipment be used. You must mound 12 inches of soil over the system before driving over it, and then grade it back a minimum of 4 inches upon completion.

2. It is best to mound several inches of soil over the finish grade to allow for settling. This also ensures that runoff water is diverted away from the system.

3. After the system is covered, the site should be seeded or sodded to prevent erosion.

NOTE: If the system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.

Wide Excavation Systems (No Reduction)

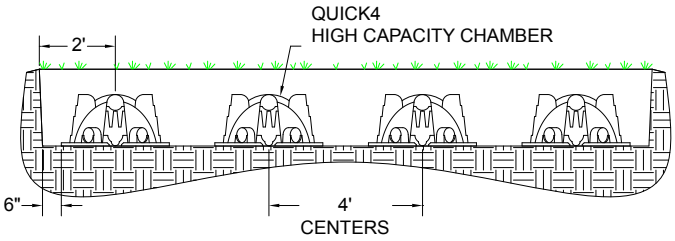
Excavating and Preparing the Site

1. Per the TCEQ regulations there is no reduction in drainfield sizing in any soil class when installing Quick4 High Capacity or Quick4 Standard Chambers in a wide excavation (wider than three feet) on four-foot centers.

2. Excavate the desired depth of the bottom of the system. Make sure that you have a level bottom area for the chambers to set on.

3. Install the Quick4 High Capacity or Quick4 Standard Chambers at four-foot centers. (See drawing below.)

4. Apply the desired backfill material along the sides of the chambers and walk the soil in. Continue backfilling the soil to the top of chambers.



Installing the Chambers

NOTE: When installing chambers in a wide excavation make sure you follow these procedures.

1. Secure the endcaps to the proper ends of the chambers.

2. Check the level of your trench or wide excavation area to make sure the depth is correct.

3. Check your header pipe to make sure that you have the proper fall coming from the septic tank.

4. Place the Quick4 High Capacity, Quick4 Standard or Quick4 Plus Standard Chamber with the endcap at the beginning at the trench or row. Insert the header pipe into the endcap.

5. Place the next chamber onto the previous chamber at a 90° angle and lower to the bottom of the excavation to connect the chambers.

6. Make sure the maximum distance between the chambers are four-foot center to center.

7. Backfill the chambers using a dozer, small box blade or a tracked Bobcat machine. Make sure you apply the soil above the top of the sidewall and walk the sidewall in. Now you are ready for inspection.

NOTE: Never drive a wheeled vehicle (backhoe) over the trench or wide excavation area, due to the lack of compacted soil above the chambers.

For additional information regarding wide excavation in 3 feet or greater using Quick4 High Capacity or Quick4 Standard Chambers with no reduction, see Appendix I on page 58.

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

Wide Excavation Systems (25% Reduction)

Excavating and Preparing the Site

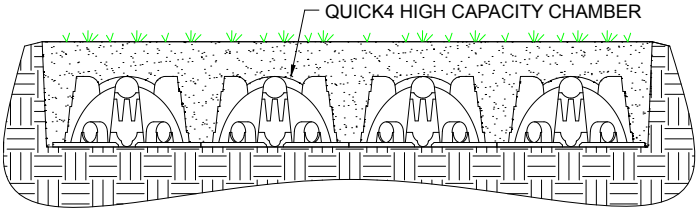
1. To obtain the reduction in drainfield size you must install the Infiltrator chambers per TCEQ regulations.

2. Excavate the desired depth of the bottom of the system. Make sure that you have a level bottom area for the chambers to set on.

3. Install the desired Infiltrator chambers. Chambers must be installed edge to edge. (See drawing below.)

4. Apply the desired backfill material along the sides of the chambers and walk the soil in. Continue backfilling the soil to the top of chambers.

QUICK4 HIGH CAPACITY, QUICK4 PLUS HIGH CAPACITY, QUICK4 STANDARD OR QUICK4 PLUS STANDARD CHAMBERS – 25% REDUCTION



Installing the Chambers

NOTE: When installing chambers in a wide excavation make sure you follow these procedures.

1. Secure the endcaps to the proper ends of the chambers.

2. Check the level of your trench or wide excavation area to make sure the depth is correct.

3. Check your header pipe to make sure that you have the proper fall coming from the septic tank.

4. Place the Infiltrator chambers with the endcap at the beginning of the trench or row. Insert the header pipe into the endcap.

5. Place the next chamber onto the previous chamber at a 90° angle and lower to the bottom of the excavation to connect the chambers.

6. Make sure the chambers are placed edge to edge.

7. Backfill the chambers using a dozer, small box blade or a tracked Bobcat machine. Make sure you apply the soil above the top of the sidewall and walk the sidewall in. Now you are ready for inspection.

Note: Never drive a wheeled vehicle (backhoe) over the trench or wide excavation area, due to the lack of compacted soil above the chambers.

For additional information regarding wide excavation in 3 feet or greater using any Infiltrator chambers with 25% reduction, see Appendix J on page 57.

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

CHAMBER INSTALLATION INSTRUCTIONS

Wide Excavation Systems with No Reduction (Soil Substitutions)

Excavating and Preparing the Site

1. When installing Quick4 High Capacity, Quick4 Standard, Quick5 Standard, Quick4 Equalizer 36, or Quick5 Equalizer 36 chambers in soil substitution systems follow the TCEQ regulations.

2. Excavate at least 2 ft below the desired depth of the bottom of the chamber for both trench and wide excavations.

3. Install the Quick4 High Capacity, Quick4 Standard or Quick4 Equalizer 36 Chambers. (See drawing below.)

4. Apply the desired backfill material along the sides of the chambers and walk the soil in. Continue backfilling the soil to the top of the chambers.

5. Place the soil in six inch to one-foot lifts, and compact the soil with a walk behind plate compactor, such as the Wacker, Model VPR134OW or equivalent.

6. Proceed to compact the soil with one pass north to south then east to west. Apply the soil in six inch to one-foot lifts and compact until you have reached the elevation to natural grade.

Installing the Chambers

1. Secure the endcaps to the proper ends of the chambers.

2. Check the level of your trench or wide excavated area to make sure the depth is correct.

3. Check your header pipe to make sure that you have the proper fall coming out of the septic tank.

4. Place the chamber with the endcap at the beginning of the trench or row. Insert the header pipe into the endcap.

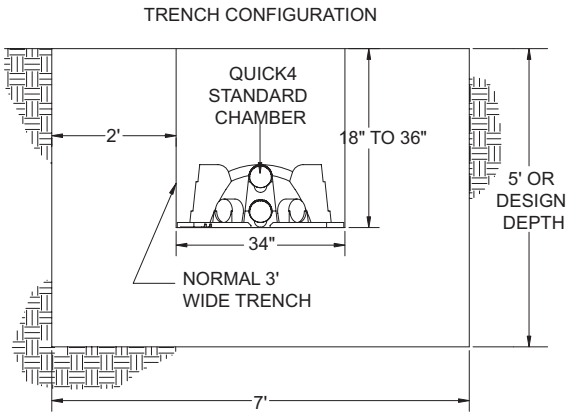
5. Place the next chamber onto the previous chamber at a 90° angle and lower it into the bottom of the trench to connect the chambers.

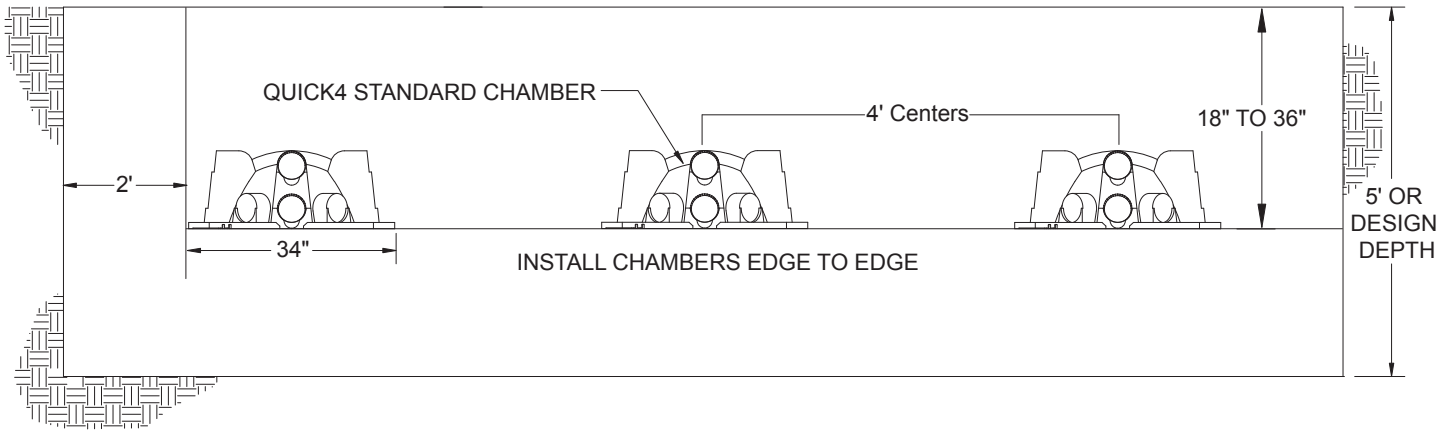
6. Make sure the maximum distance between the chambers is four-foot center to center.

7. When backfilling the chambers use a dozer, small box blade or a tracked Bobcat machine. Be sure to apply the soil above the top of the sidewall area and walk the sidewall in. Now you are ready for inspection.

NOTE: Never drive a backhoe or wheeled vehicle over the trench or wide excavated area due to the lack of compacted soil above the chambers.

For additional information regarding wide excavation in 3 feet or greater using Infiltrator chambers with soil substitution, see Appendix K on page 56.



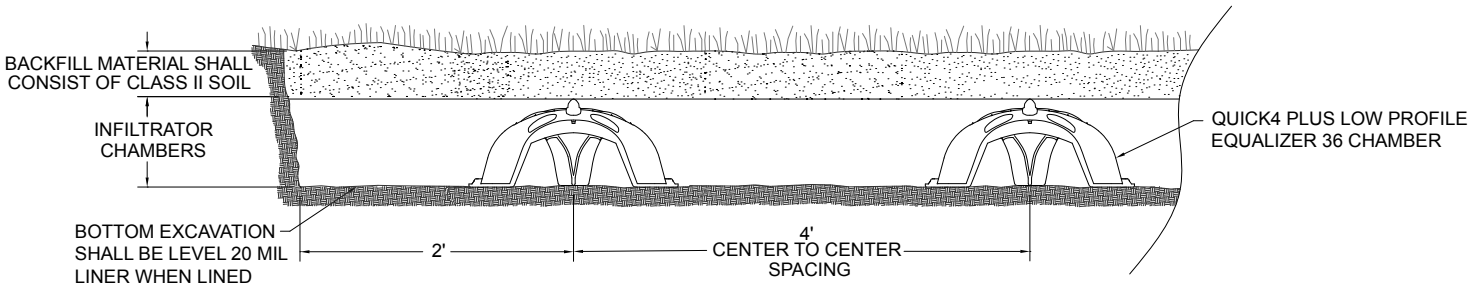


NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

CHAMBER INSTALLATION INSTRUCTIONS

For additional information regarding evapotranspirative (ET) systems using Quick4 Plus Equalizer 36 Low Profile Chambers with no reduction, see Appendix M on page 60.

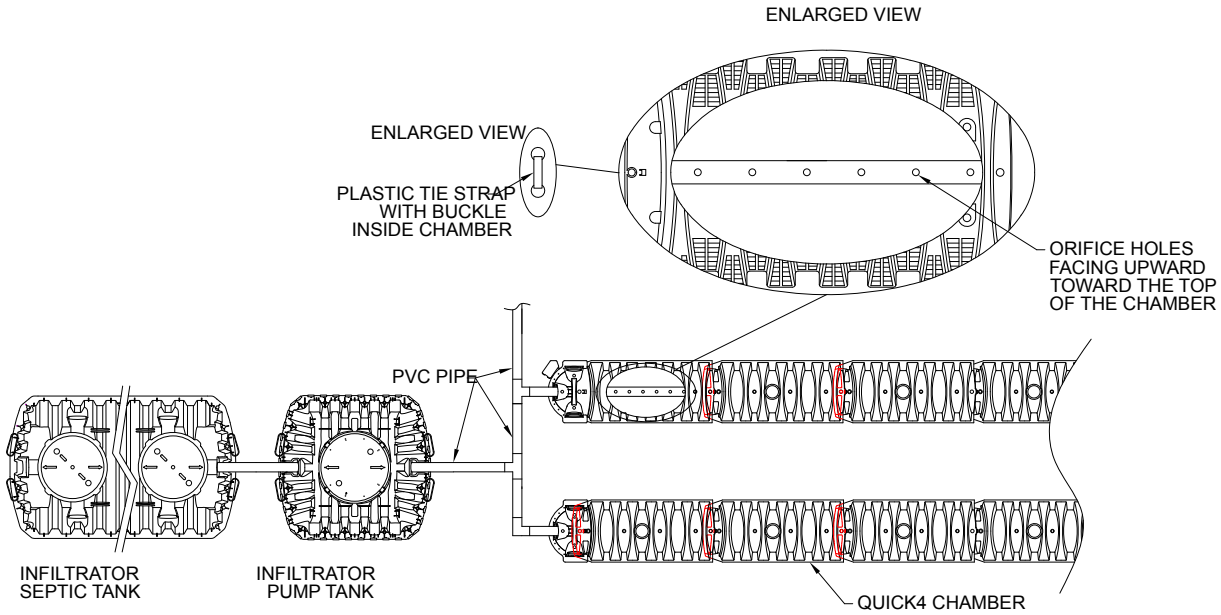
CROSS SECTION (TYP.)
(NOT TO SCALE)



NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

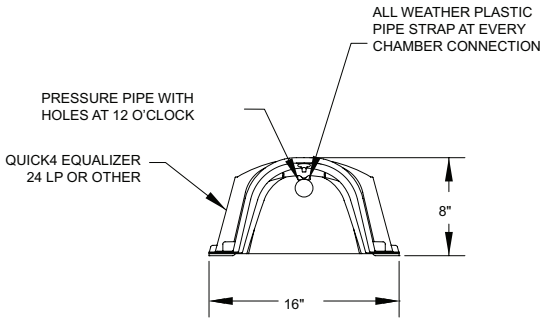
CHAMBER INSTALLATION INSTRUCTIONS

For additional information regarding low pressure dosing systems into chambers, **see Appendix N on page 61.**

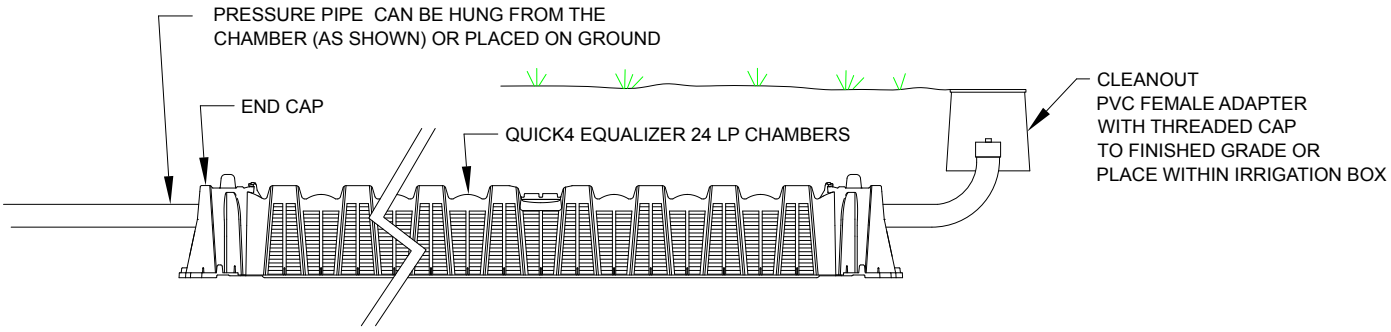


NOTE: All Infiltrator Quick4 and Quick5 chambers can be installed on residential or commercial installations.

PRESSURE DOSING CROSS SECTION
(EXAMPLE A) (NOT TO SCALE)

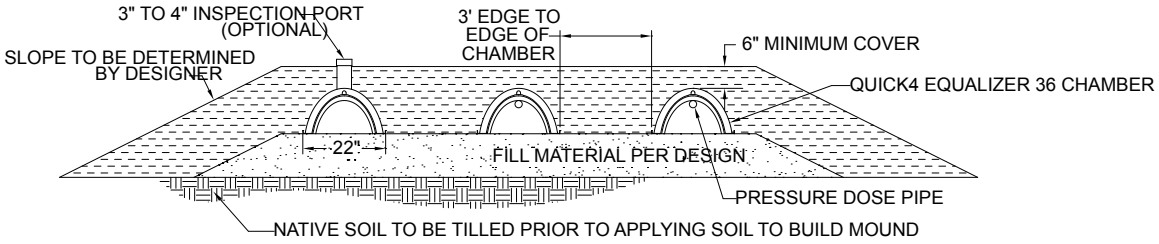


ACCESS FOR DRAINFIELD MAINTENANCE AND FLUSHING SIDE VIEW



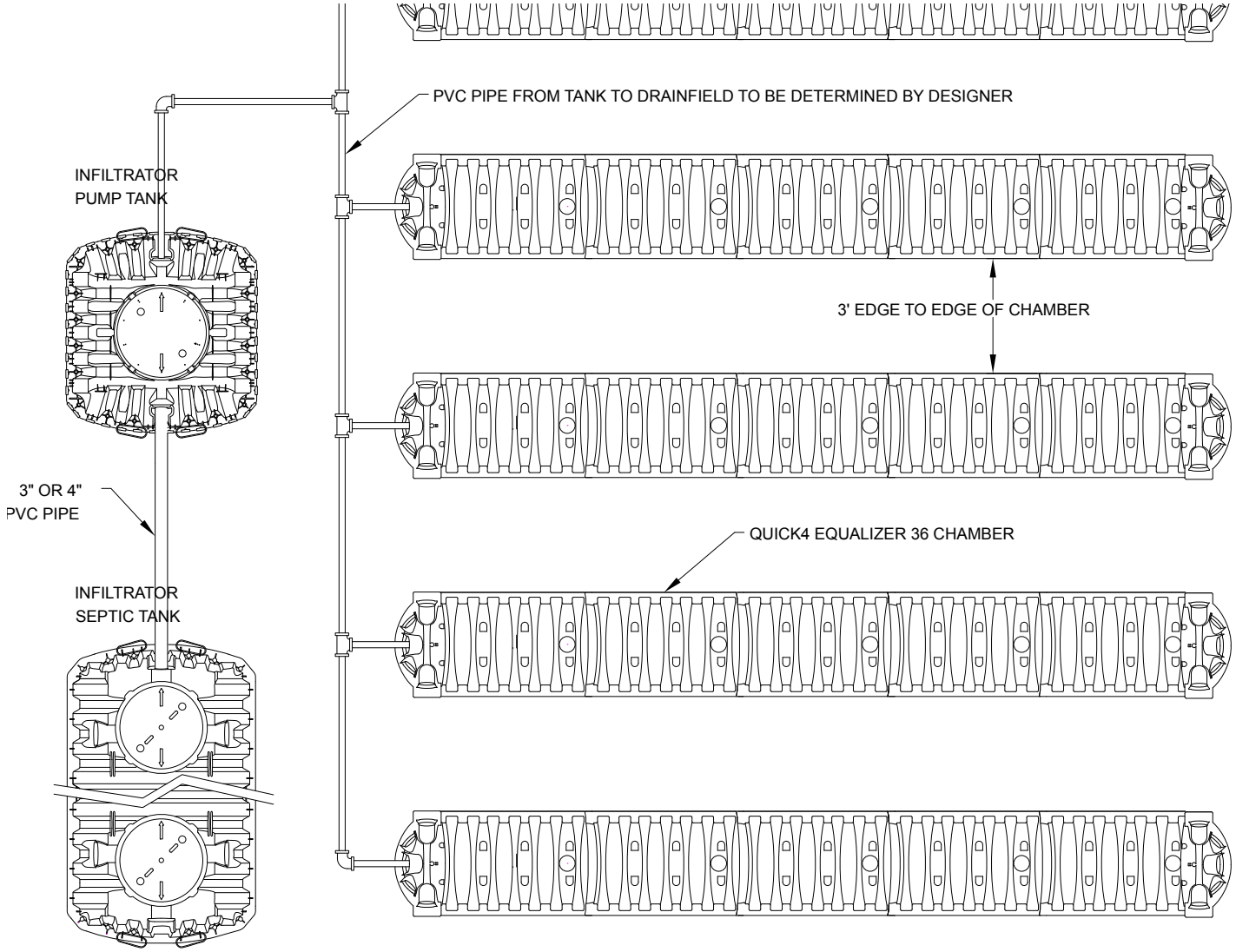
Quick4 EQ36 or Quick5 EQ36 Mound System with Low Pressure Dosing with No Reduction

CROSS SECTION (TYP.)
(NOT TO SCALE)



NOTE: All Infiltrator chambers may be used in mound application with no reduction.

PLAN VIEW (TYP.)
(NOT TO SCALE)



For additional information regarding mound system design using Quick4 Equalizer 36 or Quick5 Equalizer 36 chambers with no reduction, **see Appendix O on page 62.**

APPENDICES

Appendix A

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick4 High Capacity or Quick4 Standard Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 3 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 3 Feet (Lineal Feet = LF)
L = 1200 ft / (3 + 2) = 1200 ft / 5 = 240 LF of 3 ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2) (with water savings devices)
Example: Where A = 1200 square feet and W = 3 feet (chamber width)

Use Quick4 High Capacity or Quick4 Standard Leaching Chambers:
Length = 4 feet and Width = 3 feet
L = 0.75 X (1200 ft) / (3 + 2) = 900 ft / 5 = 180 lineal feet of 3 feet wide leaching chambers
Total chambers for excavation: LF = 180 ft / 4 ft per chamber = 45 Quick4 High Capacity or Quick4 Standard Chambers required in Class III soil for 240 gallons per day septic system

Use Quick5 Standard Leaching Chambers:
Length = 5 feet and Width = 3 feet
L = 0.75 X (1200 ft) / (3 + 2) = 900 ft / 5 = 180 lineal feet of 3 feet wide leaching chambers
Total chambers for excavation: LF = 180 ft / 5 ft per chamber = 36 Quick5 Standard Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix B

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick4 Plus High Capacity, Quick4 Plus Standard Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 3 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 3 Feet (Lineal Feet = LF)
L = 1200 ft / (3 + 2) = 1200 ft / 5 = 240 LF of 3 ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2) (with water savings devices)
Example: Where A = 1200 square feet and W = 3 feet (chamber width)

Use Quick4 Plus High Capacity, Quick4 Plus Standard Leaching Chambers:
Length = 4 feet and Width = 3 feet
L = 0.75 X (1200 ft) / (3 + 2) = 900 ft / 5 = 180 lineal feet of 3 feet wide leaching chambers
Total chambers for excavation: LF = 180 ft / 4 ft per chamber = 45 Quick4 Plus Standard Chambers
required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix C

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick5 Standard Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 3 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 3 Feet (Lineal Feet = LF)
L = 1200 ft / (3 + 2) = 1200 ft / 5 = 240 LF of 3 ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2) (with water savings devices)
Example: Where A = 1200 square feet and W = 3 feet (chamber width)

Use Quick5 Standard Leaching Chambers:
Length = 5 feet and Width = 3 feet
L = 0.75 X (1200 ft) / (3 + 2) = 900 ft / 5 = 180 lineal feet of 3 feet wide leaching chambers
Total chambers for excavation: LF = 180 ft / 5 ft per chamber = 36 Quick5 Standard Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix D

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick4 Plus Standard Low Profile Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 3 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 3 Feet (Lineal Feet = LF)
L = 1200 ft / (3 + 2) = 1200 ft / 5 = 240 LF of 3 ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 1.33) (with water savings devices)
Example: Where A = 1200 square feet and W = 3 feet (chamber width)

Use Quick4 Plus Standard Low Profile Leaching Chambers:
Length = 4 feet and Width = 3 feet
L = 0.75 X (1200 ft) / (3 + 1.33) = 900 ft / 4.4 = 204.5 lineal feet of 3 feet wide leaching chambers
Total chambers for excavation: LF = 204.5 ft / 4 ft per chamber = 52 Quick4 Plus Standard Low Profile Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix E

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 2 feet using Quick4 Equalizer 36 Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 2 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 2 feet (Lineal Feet = LF.)
L = 1200 Ft / (2 + 2) = 1200 Ft / 4 = 300 LF of 2 Ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2)
Example: Where A = 1200 square feet and W = 2 feet (chamber width)

Use Quick4 Equalizer 36 Leaching Chambers:
Length = 4 feet and Width = 2 feet
Formula: L = 0.75 A / (W + 2)
L = 0.75 X (1200 SF) / (2 ft + 2) = 900 ft / 4 ft = 225 lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 225 ft / 4 ft (chamber length) = 56.25 or 57 Quick4 Equalizer 36 Chambers required in Class III soil for 240 gallons per day septic system

Use Quick5 Equalizer 36 Leaching Chambers:
Length = 5 feet and Width = 2 feet
L = 0.75 X (1200 ft) / (2 + 2) = 900 ft / 4 ft = 225 lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 225 ft / 5 ft per chamber = 45 Quick5 Equalizer 36 Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix F

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 2 feet using Quick4 Plus Equalizer 36 Low Profile Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 2 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 2 feet (Lineal Feet = LF.)
L = 1200 Ft / (2 + 2) = 1200 Ft / 4 = 300 LF of 2 Ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 1.33)
Example: Where A = 1200 square feet and W = 2 feet (chamber width)

Use Quick4 Plus Equalizer 36 Low Profile Leaching Chambers:
Length = 4 feet and Width = 2 feet
Formula: L = 0.75 A / (W + 1.33)
L = 0.75 X (1200 SF) / (2 ft + 1.33) = 900 ft / 3.33 ft = 225 lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 270 ft / 4 ft (chamber length) = 67.5 or 68 Quick4 Plus Equalizer 36 Low Profile Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix G

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 1.5 feet or 18 inches using Quick4 Equalizer 24 Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard gravel and pipe system
For width of trench or excavations 1.5 feet or 18 inches wide Use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 1.5 feet or 18 inches (Lineal Feet = LF)
L = 1200 ft / (1.5 + 2) = 1200 ft / 3.5 = 343 LF of 1.5 ft or 18 inch wide trench excavations for standard system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2)
Example: Where A = 1200 square feet and W = 1.5 ft or 18 inches (chamber width)

Use Quick4 Equalizer 24 Leaching Chambers:
Length = 4 feet and Width = 1.5 ft or 18 inches
Formula: L = 0.75 A / (W + 2)
L = 0.75 X (1200 SF.) / (1.5 ft + 2) = 900 ft / 3.5 ft = 257 lineal feet of 18 inch wide leaching chambers
Total chambers for excavation: LF = 257 ft / 4 ft (chamber length) = 64.25 Quick4 Equalizer 24 Chambers or
65 Quick4 Equalizer 24 Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix H

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 1.5 feet or 18 inches using Quick4 Equalizer 24 LP Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard gravel and pipe system
For width of trench or excavations 1 feet or 12 inches wide Use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 1 feet or 12 inches (Lineal Feet = LF)
L = 1200 ft / (1 + 2) = 1200 ft / 3 = 400 LF of 1 ft or 12 inch wide trench excavations for standard system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 1.33)
Example: Where A = 1200 square feet and W = 1.5 ft or 18 inches (chamber width)

Use Quick4 Equalizer 24 LP Leaching Chambers:
Length = 4 feet and Width = 1.5 ft or 18 inches
Formula: L = 0.75 A / (W + 1.33)
L = 0.75 X (1200 SF.) / (1.5 ft + 1.33) = 900 ft / 2.83 ft = 318 lineal feet of 18 inch wide leaching chambers
Total chambers for excavation: LF = 318 ft / 4 ft (chamber length) = 79.5 Quick4 Equalizer 24 LP Chambers or
80 Quick4 Equalizer 24 LP Chambers required in Class III soil for 240 gallons per day septic system

APPENDICES

Appendix I

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Wide excavation greater than 3 feet using Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard or Quick4 Plus Standard Chambers with NO REDUCTION installed on 4' centers:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard gravel and pipe system

Wide Excavation Drainfield Absorptive Area:
Formula: Absorptive Area = A = (L x W) + 2 (L+W) x 1.0 ft (A = Square Feet = SF)
Where: L = excavation length in feet
W = excavation width in feet

Example: In this example the width is 20 ft. wide
Where A = 1200 SF and use variable W = 20 ft
1200 SF = (20ft) L + (40 ft + 2 L) x 1.0 ft
1200 SF = (L x 20 ft) + 2 (L + 20 ft) x 1.0 ft
1200 ft = 20 L + 2 L + 40 ft
52.72 or 53 feet = L

Example: Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers:
Length = 4 feet Width = 3 feet

See TAC Chapter 285: Figure 4. Typical Drainfields – Sectional View
Chambers spaced on maximum of 4 feet centers and 2 feet from sidewall of excavation to center of chamber
L = length of excavation / 4 ft = total number of chambers
L = 56 feet / 4 feet (chamber length) = 13.25 or 14 chambers per lateral line
L = 14 (Quick4 High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers) x 4 = 56 ft
W = Width of excavation / 4 feet per row of chambers
W = 20 ft / 4 ft = 5 rows of chambers required
L = 56 ft
W = 20 ft
Total Bottom Area: L x W = 56 ft. x 20 ft. = 1,125 SF

Sidewall Area = (2L + 2W) x 1.0 ft = [(2 x 56.25) + (2 x 20 ft)] x 1.0 ft
= (112.5 ft + 40 ft) x 1.0 ft
= 152.5 SF

Total Wide Excavation Area provided in this Example with total Bottom Area and Sidewall Area: 1080 SF + 148 SF = 1,228 SF

Total chambers for excavation: 5 rows x 13 chambers per lateral line = 65 chambers for excavation for 240 GPD septic system in Class III soil.

NOTE: The Quick4 High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers can be installed as long as the chambers are installed on 4 foot centers.

APPENDICES

Appendix J

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Wide excavation greater than 3 feet using any Infiltrator chamber with 25% reduction installed edge to edge: Chambers spaced.

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area. Q = average daily sewage flow in gallons per day. Ra = soil application rate in gallons per square foot per day. Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Example: Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers:
Chambers placed edge to edge
Length of chamber = 4 feet
Width of chamber = 2.83 feet or 34 inches

Formula: A = Q / Ra
A = Absorptive Area
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Wide Excavation Drainfield Absorptive Area With 25% Reduction using Infiltrator Chambers:
(25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices)
Formula: Absorptive Area = A = 0.75A = (L x W) + 2 (L + W) x 1.0 ft
Where: A = (0.75 x 1200 sf) = 900 sf = A1 + A2 (2 drainfield areas needed)
Formula: L = (0.75A - 2W) / (W + 2)
L = excavation length in feet
W = excavation width in feet
Use: Infiltrator Quick4 Standard Chambers (4 ft x 2.85 ft x 1 ft)
Formula: A1 = (L x W) + 2 (L + W) x 1.0 ft
Use variable W = 22.8 ft and L = 26 ft for wide excavation with 75% reduction
A1 = (26 ft x 22.8 ft) + 2 (26 ft + 22.8 ft) x 1.0 ft
A1 = (592.8 sf) + 2 (48.8 ft) ft = 592.8 sf + 97.6 sf = 690.4 sf
Where: A1 + A2 = 900 sf, then A1 = 900 sf - A2
A2 = 900 sf - 690.4 sf = 209.6 sf needed for second drainfield area
Formula: L2 = A2 / (W2 + 2)
Use variable W2 = 8.55 ft
L2 = 209.6 sf / (8.55 + 2) x 1.0 ft
L2 = (209.6 sf) / (10.55) ft = 19.87 ft
A = A1 + A2 = 690.4 sf + 209.6 sf = 900 sf
Total Area: A = (L x W) + (L2 x W2) + [2 (L +L2) + 2 (W)] x 1.0 ft
A = (26 ft x 22.8 ft) + (19.87 ft x 8.55 ft) + [2 (26 ft + 19.87 ft) + 2 (22.8 ft)] x 1.0 ft
A = (592.8 sf + 169.89 sf) + [2 (45.87 ft) + 45.6 ft] x 1.0 ft
A = 762.69 sf + [91.74 ft + 45.6 ft] ft = 762.69 sf + 137.34 sf = 900.03 sf
(minimum required for 3 bedroom house. Class III soil)

Total chambers for excavation: 6 rows x 11 chambers per lateral line = 66 chambers for excavation for 240 GPD septic system in Class III soil.

Bed Area = 46 ft x 17 ft = 782 square feet
Perimeter = (46 ft x 2) + (17 ft x 2) = 126 square feet
Total Area = (782 square feet) + (126 square feet) = 908 square feet

APPENDICES

Appendix K

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Wide excavation greater than 3 feet using Quick4 High Capacity, Quick4 PlusHigh Capacity, Quick4 Standard, or Quick4 Equalizer 36 Chambers with Soil Substitution with NO REDUCTION:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
Soil substitution drainfields may be constructed in Class Ia soils, fractured rock, fissured rock, or other areas of high permeability where septic tank effluent could rapidly reach groundwater without undergoing adequate treatment through soil contact.
A = absorptive area. Q = average daily sewage flow in gallons per day. Ra = soil application rate in gallons per square foot per day. Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam (Class III soil buffer shall be placed 2 feet below and 2 feet outside of the drainfield absorption excavation)
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Wide Excavation Drainfield Absorptive Area For Soil Substitution:
Formula: Absorptive Area = A = (L x W) + 2 (L+W) x 1.0 ft (A = Square Feet = SF)
Where: L = excavation length in feet
W = excavation width in feet

Example:
Where A = 1200 SF use variable W = 20 ft
1200 SF = (L x 20 ft) + 2 (L + 20 ft) x 1.0 ft
1200 SF / 1.0 ft = (L x 20 ft) / 1.0 ft + 2 (L + 20ft)
1200 FT = 20 L + 2 L + 40 ft
1200 FT – 40 ft = 22 L
1160 FT = 22 L
52.72 or 53 feet = L

Example: Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard Chambers:
Length = 4 feet
Width = 3 feet

See TAC Chapter 285: Figure 4. Typical Drainfields – Sectional View
Chambers spaced on maximum of 4 feet centers and 2 feet from sidewall of excavation to outside edge of chamber
L = length of excavation / 4 ft = total number of chambers
L = 56 feet / 4 feet (chamber length) = 14 chambers per lateral line
W = Width of excavation / 4 feet per row of chambers
W = 20 ft / 4 ft = 5 rows of chambers required
Total chambers for excavation: 6 rows X 14 chambers per lateral line = 70 chambers for excavation for 240 GPD septic system in Class III soil

Total Excavated Area for Soil Substitution:
Formula: A = (L + 4ft) X (W + 4ft)
Where L = 53 ft and W = 20 ft, the
A = (56ft + 4ft) x (20ft + 4ft) = (60ft) x (27ft)
Total excavated area: L = 60 feet and W = 27 feet

NOTE: The Quick4 High Capacity, Quick4 Standard, or Quick4 Equalizer 36 Chambers can be installed as long as the chambers are installed on 4 foot centers.

APPENDICES

Appendix L

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Evapotranspirative (ET) System using Quick4 Plus Equalizer 36 Low Profile Chambers with NO REDUCTION:
Note: Any Infiltrator chamber can be used for (ET) systems with NO REDUCTION.

Chambers spaced on maximum of 4-foot centers and 1 foot from the sidewall of excavation.

Site Evaluation: Class IV - Clay
See TAC Chapter 285: Table VII. Ret = Net local evaporation rate – (Yearly Average Net Evaporation Rate)
Example: Annual Average Net Evaporation: Ret = 0.14 Inches / Day (Austin)
Water Usage Rate: Q = Estimated daily water usage in gallons/day
Example: Q = 240 gallons per day (3-bedroom house - water usage rate based on facility with water saving devices)

Evaporation – Transpiration Drainfield Area (ET):
Area = A = Total top surface area of the excavations in square feet = SF
Formula: A = 1.6 Q / Ret
A = 1.6 x (240 GPD) / 0.14 Inches/Day/Square Feet
A = 384 / 0.14 = 2742.9 SF or 2743 SF of ET drainfield area (Minimum required)
(2) - Drainfields: Area / 2 = A / 2 = 2743 SF / 2 = 1372 SF = A2 per drainfield (Minimum required)
Minimum areas required for a 3-bedroom home in Class IV soil.

Drainfield area must be separated into two drainfields using a 4-inch PVC bull-run valve required to alternate drainfield effluent flows on a monthly basis or as system requires to prevent overloading or surfacing of effluent.

Excavation Sizing
Formula: A2 = L x W where A2 = 1372 SF
Use: A2 = 1372 SF and use variable W = 20 feet where
L = Drainfield length in feet & W = Drainfield width in feet (Ft)
1372 ft. = L x 20 ft. therefore L = 1372 ft / 20 ft
L = 70 ft

Infiltrator Quick4 Plus Equalizer 36 Low Profile Leaching Chambers:
Length of chamber = 4 Feet Width = 22 Inches Height = 8 Inches
Leaching chambers should be spaced on maximum of 4-foot centers and 1 foot from the sidewall of excavation
See TAC Chapter 285: Figure 4. Typical Drainfields - Sectional View
L = Length of excavation / 4 ft = Total number of chambers required
L = 70 feet / 4 feet (chamber length) = 17.5 or 17 leaching chambers
W = Width of excavation / 4 feet per row of chambers
W = 20 feet / 4 feet = 5 rows of chambers required

Total number of chambers per bed: 5 rows x 17 chambers per lateral line = 85 chambers per bed excavation
(2) excavations x 85 chambers/excavation = 170 Quick4 Plus Equalizer 36 Low Profile Chambers for ET system for 240 GPD

APPENDICES

Appendix M

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet or less using Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, Quick4 Equalizer 36, Quick4 Equalizer 24 or Quick4 Equalizer 24 LP Chambers with Low Pressure Dosing:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 Gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)
Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for low pressure dosing system

Drainfield Absorptive Area for Low Pressure Dosing Using Infiltrator Chambers or Pipe and Gravel:
Formula: A = Q / Ra (A = square feet = SF); (LF = lineal feet)
Where: A = minimum absorptive area
W = leaching chamber panel width
H = Height of chamber
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 3 feet wide or less Use: L = A / (W + 2H), where
H = depth of media in feet = 1 foot; L = drainfield length in feet; and
W = drainfield width in feet; use variable W = 3 feet
L = (1200 SF) / 3 ft + 2 (1 ft) = 1200 SF / (3 ft + 2 ft) = 1200 SF / 5 ft = 240 LF of 3 ft wide trench excavations for gravel system or chambers

Leaching Chamber Systems:
Where: A = minimum absorptive area
W = leaching chamber panel width
H = Height of chamber
Example: Where A = 1200 square feet and W = 3 feet (chamber width)

Use Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers:
Height = 1.0 foot; Length = 4 feet and Width = 3.0 feet
Formula: L = A / (W + 2H)
L = 1200 SF / 3ft + 2 = 240
Total number of chambers for excavation: LF: 240 LF/4 ft chamber = 60 Quick4 High Capacity, Quick4 Standard, or Quick4 Plus Standard chambers required in a Class III soil for a 240 gallon per day septic system.

Use Quick4 Equalizer 36 Infiltrator Chambers:
Height = 1.0 foot; Length = 4 feet and Width = 2.0 feet
Formula: L = A / (W + 2H)
L = 1200 SF / 2ft + 2 = 300
Total number of chambers for excavation: LF: 300 LF/4 ft chamber = 75 Quick4 Equalizer 36 chambers required in a Class III soil for a 240 gallon per day septic system.

Use Quick4 Equalizer 24 Infiltrator Chambers:
Height = 1.0 foot; Length = 4 feet and Width = 1.5 feet
Formula: L = A / (W + 2H)
L = 1200 SF / 1.5ft + 2 = 343
Total number of chambers for excavation: LF: 343 LF/4 ft chamber = 85.75 or 86 Quick4 Equalizer 24 chambers required in a Class III soil for a 240 gallon per day septic system.

Use Quick4 Equalizer 24 Low Profile Infiltrator Chambers:
Height = .666 foot; Length = 4 feet and Width = 1.5 feet
Formula: L = A / (W + 1.33 H)
L = 1200 SF / 1.5ft + 1.33 = 424
Total number of chambers for excavation: LF: 424 LF/4 ft chamber = 106 Quick4 Equalizer 24 LP chambers required in a Class III soil for a 240 gallon per day septic system.
NOTE: Pump sizing. Lateral pipe sizing and the septic system designer shall determine orifice hole diameter.

APPENDICES

Appendix N

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Mound System using Quick4 Equalizer 36 Chambers in trenches on 4' centers with Low Pressure Dosing with NO REDUCTION:

Figure: 30 TAC Chapter 285.33 (d)(3)
A mound drainfield is an absorptive drainfield constructed above the native soil surface. The mound consists of a distribution area installed within fill material placed on the native soil surface. The required area of the fill material is a function of the texture of the native soil surface, the depth of the native soil, basal area sizing considerations, and side slope requirements.
A description of mound construction can be found in the North Carolina State University Sea Grant College publication UNC-SG-82-04 (1982). A mound drainfield shall only be installed at a site where there is at least one foot of native soil, however, approval for installation on sites with less than one foot of native soil may be granted by the permitting authority on a case by case basis.

A = minimum required distribution absorptive area in square feet
Q = design wastewater usage rate in gallons per day
Ra = most restrictive application rate between fill material or the soil surface if the soil surface is within four inches of the bottom of the distribution media. The application rate is in gallons per square foot per day.

Formula: A = Q / Ra

Example: Soil Analysis: Class III Soil
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house – water usage rate based on facilities with water saving devices)

Formula for a Quick4 Equalizer 36 (Q4EQ36) Chamber system example: A = Q / Ra
Q = 360 GPD / 0.2 GPSFPD
A = 1800 square feet of absorptive are required for mound system with low pressure dosing

L=1800 / width of chamber + 2 = 450 LF
450 LF / 4' Chambers Length = 112.5 or 113 Q4EQ36 Chambers needed
Bed width and Length
40' wide x 48 length
7 rows with 11 Q4EQ36 Chambers
3 rows with 12 Q4EQ36 Chambers
113 – Q4EQ36 Chambers = A = 113 x 4 (chamber length x = 2 = 1808 SF for 40' x 48' distribution area

1800 square feet / 37.5 = 48 feet length of mound, not including slope

The space between the rows of chambers must meet the TCEQ Regulations.

Notes for Installation:
- The pump size is to be determined by the design.
- The orifice hole size and separation to be determined by designer.
- There must be at least 6 inches of backfill over the chambers and the mound shall be crowned to shed water.
- Place the backfill material in 6-inch to 12-inch lifts and compact the soil with a walk behind plate compactor, such as the Wacker model VPR134OW or equivalent.
- Proceed to compact the soil with one pass north and one pass south, then east to west. Apply soil in 6-inch to 12 inch lifts and compact until you have reached the elevation required by the designer. After reaching desired bottom area of drainfield, you must drill out the endcaps to accommodate the proper size of pipe prior to installing the system.
- Place the low pressure dosing pipe inside of the chambers with the orifice holes facing upward toward the top of the chambers. Strap the low pressure dosing pipe at the end of each chamber. At the end of each row, use a 90-degree elbow upward with a female adapter with male cap to ground surface. Then cover fitting valve box for easy access for yearly maintenance.
- It is recommended to sod the mound completely after the system is completed to prevent erosion.
- The side slopes must be no steeper than 3 to 1 on a site with less than a 2% slope.Note:

NOTE: Any Infiltrator chamber can be used in a mound system as long as you have 3-feet edge to edge between rows of chambers.

APPENDICES

Appendix O

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 2 feet using Quick5 Equalizer 36 Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 2 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 2 feet (Lineal Feet = LF.)
L = 1200 Ft / (2 + 2) = 1200 Ft / 4 = 300 LF of 2 Ft wide trench excavations for standard gravel and pipe system

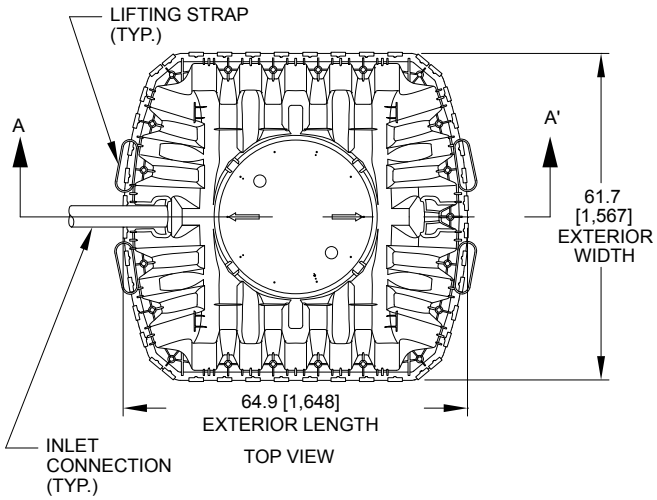
Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2)
Example: Where A = 1200 square feet and W = 2 feet (chamber width)

Use Quick4 Equalizer 36 Leaching Chambers:
Length = 4 feet and Width = 2 feet
Formula: L = 0.75 A / (W + 2)
L = 0.75 X (1200 SF) / (2 ft + 2) = 900 ft / 4 ft = 225 lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 225 ft / 4 ft (chamber length) = 56.25 or 57 Quick4 Equalizer 36 Chambers required in Class III soil for 240 gallons per day septic system

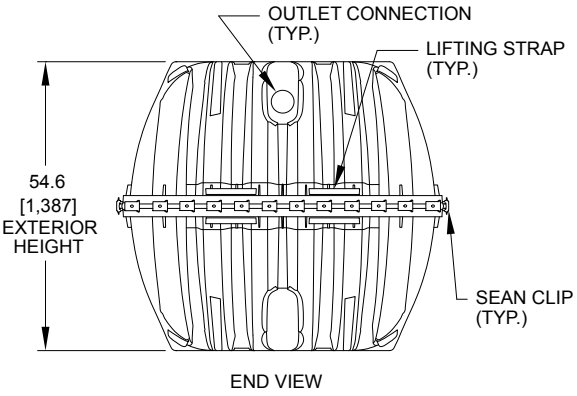
Use Quick5 Equalizer 36 Leaching Chambers:
Length = 5 feet and Width = 2 feet
L = 0.75 X (1200 ft) / (2 + 2) = 900 ft / 4 ft = 225 lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 225 ft / 5 ft per chamber = 45 Quick5 Equalizer 36 Chambers required in Class III soil for 240 gallons per day septic system

IM-540 TANK

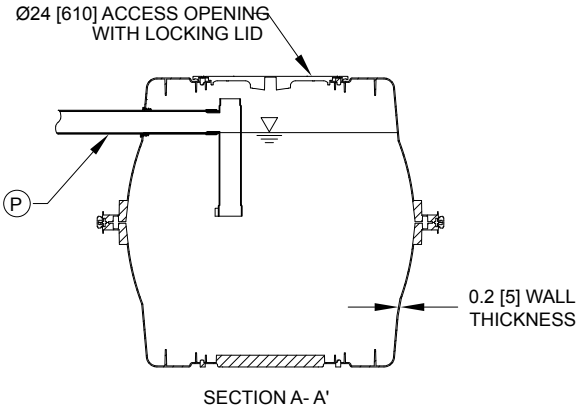


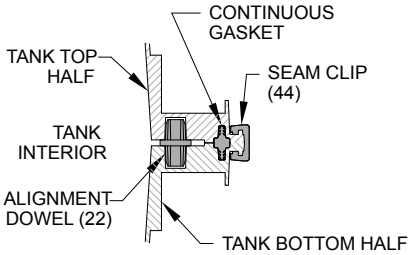


The IM-540 is an injection molded two piece mid-seam plastic tank. The IM-540 injection molded plastic design allows for a mid-seam joint that has precise dimensions for accepting an engineered EPDM gasket. Infiltrator's gasket design utilizes technology from the sanitary sewer pipe industry to deliver proven means of maintaining a watertight seal. The two-piece design is permanently fastened using a series of non-corrosive plastic alignment dowels and locking seam clips. The IM-540 will be assembled and sold through a network of certified Infiltrator distributors.



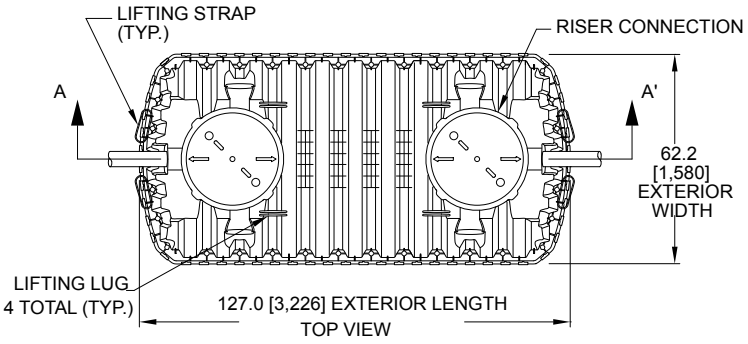
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Total capacity	552 gal / 2089 L
Nominal wall thickness	0.2 in / 5.1 mm
Length	64.9 in / 1648 mm
Width	61.7 in / 1567 mm
Height	54.6 in / 1387 mm
Alignment dowels	22
Locking clips	44
Maximum burial depth	4 ft / 1.2 m
Minimum burial depth	0.5 ft / 0.2 m
Maximum pipe diameter	4 in / 100 mm
Weight	169 lbs / 77 kg

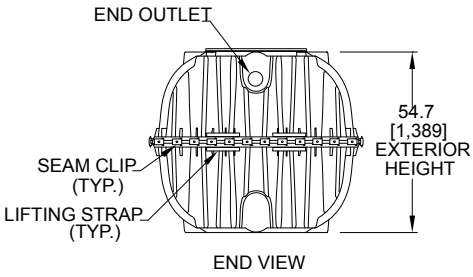




IM-1060 SEPTIC TANK

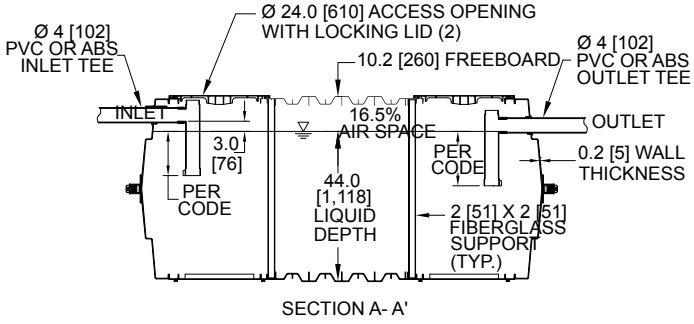


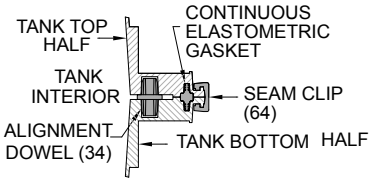




The IM-1060 Septic Tank by Infiltrator Water Technologies comes in one size and may be used as a septic or pump tank. The IM-1060 can be a single or dual compartment septic tank and includes access port lids and 4" diameter pipe grommets that accommodate SDR 35 or SCH 40 pipe. Inlet and outlet tees are optional.

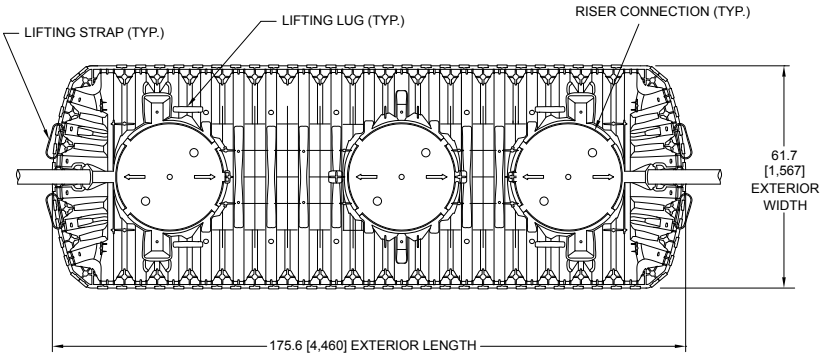
Parameter	Value
Working capacity	1,094 gal (4,141 L)
Total capacity	1,287 gal (4,872 L)
Airspace	17.6%
Nominal wall thickness	0.2 in (5.1 mm)
Length	127.0 in (3,226 mm)
Width	62.2 in (1,580 mm)
Length-to-width ratio	2.3 to 1
Height	54.7 in (1,389 mm)
Liquid level	44.0 in (1,118 mm)
Invert drop	3 in (76 mm)
Fiberglass supports	2
Alignment dowels	34
Locking clips	68
Compartments	1 or 2
Maximum burial depth	4 ft (1.2 m)
Minimum burial depth	0.5 ft (0.2 m)
Maximum pipe diameter	4 in (100 mm)
Weight	315 lbs (143 kg)

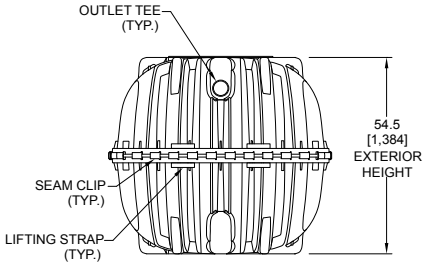




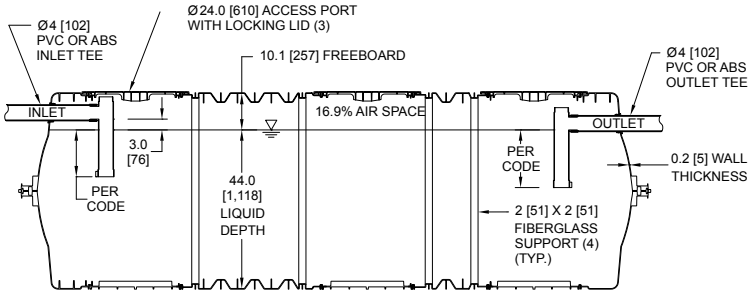
IM-1530 SEPTIC TANK



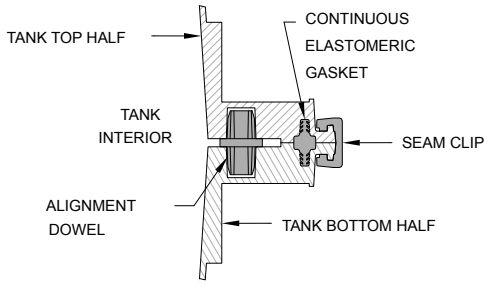




The IM-1530 Septic Tank by Infiltrator Water Technologies comes in one size and may be used as a septic or pump tank. The IM-1530 can be a single or dual compartment septic tank and includes access port lids and 4" diameter pipe grommets that accommodate SDR 35 or SCH 40 pipe. Inlet and outlet tees are optional.

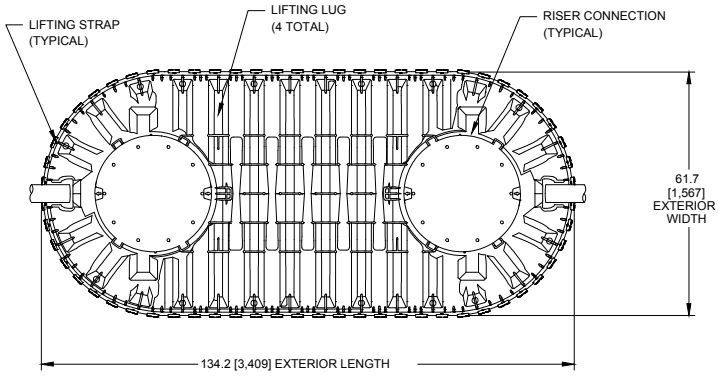


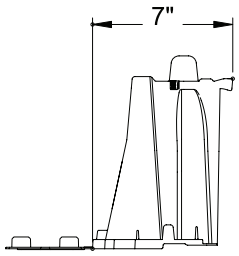
Parameter	Value
Working capacity	1,537 gal (5818 L)
Total capacity	1787 gal (6765 L)
Airspace	16.9%
Length	176″ (4460 mm)
Width	62″ (1567 mm)
Length-to-width ratio	2.8 to 1
Height	55″ (1384 mm)
Liquid level	44″ (1118 mm)
Invert drop	3 in (76 mm)
Fiberglass supports	4
Alignment dowels	46
Locking clips	86
Compartments	1 or 2
Maximum burial depth	48″ (1219 mm)
Minimum burial depth	6″ (152 mm)
Maximum pipe diameter	4″ (100 mm)
Weight	501 lbs (228 kg)



CM-1060 SEPTIC TANK

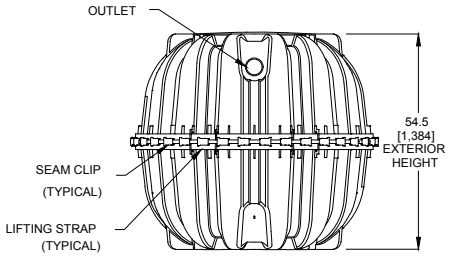


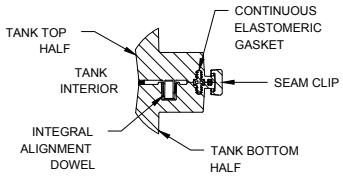




The CM-1060 Septic Tank by Infiltrator Water Technologies comes in one size and may be used as a septic or pump tank. The CM-1060 can be a single or dual compartment septic tank and includes access port lids and 4" diameter pipe grommets that accommodate SDR 35 or SCH 40 pipe. Inlet and outlet tees are optional.

Parameter	Value
Working capacity	
Total capacity	
Airspace	
Nominal wall thickness	
Length	
Width	
Length-to-width ratio	54.5" (1,384 mm)
Height	
Liquid level	
Invert drop	
Fiberglass supports	
Alignment dowels	
Locking clips	
Compartments	
Maximum burial depth	
Minimum burial depth	0.5 ft (0.2 m)
Maximum pipe diameter	4 in (100 mm)
Weight	315 lbs (143 kg)





Infiltrator IM- and CM-Series Septic Tank General Installation Instructions

BEFORE YOU BEGIN

Infiltrator Water Technologies' tanks must be installed according to state and/or local regulations and approvals, which supersede the manufacturer's installation instructions. If unsure of the installation requirements for a specific site, contact the health department or permitting authority. The IM- and CM-Series models referred to in this document include the IM-540, IM-1060, CM-1060, and IM-1530.

WARNING: IMPLOSIONS MAY CAUSE SERIOUS INJURY
Follow Infiltrator Water Technologies' vacuum test instructions

MATERIALS AND EQUIPMENT NEEDED

- ☐ IM- or CM-Series tank
- ☐ Access port lid(s)*
- ☐ 10 screws per lid*
- ☐ 2 inlet/outlet gaskets (included)
- ☐ Inlet/outlet tees*
- ☐ Tape measure
- ☐ Pipe, risers, etc.
- ☐ Socket wrench
- ☐ Excavator
- ☐ Shovel
- ☐ Level
- ☐ 5-inch-diameter (125 mm) hole saw
- ☐ Utility knife
- ☐ PVC pipe glue with primer

*tee and lid inclusion varies by state/province

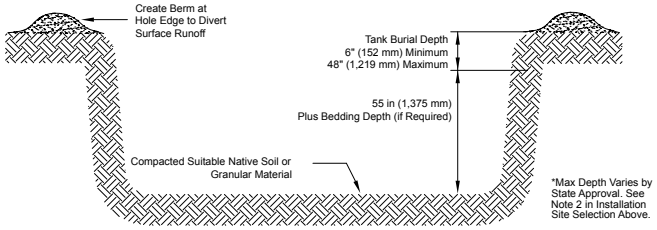
INSTALLATION SITE SELECTION

1. Do not install the tank in vehicular traffic areas. The tank is designed for non-traffic applications.
2. The allowable soil cover depth is 6 to 48* inches (150 to 1,200 mm). *18-inch (450 mm) max. in Florida for Cat. 3 tanks; 48-inch (1,200 mm) max. in Florida for Cat. 4 tanks; and 36-inch (900 mm) max. in Massachusetts, New Hampshire, North Carolina, and Oregon.
3. The tank shall not be installed where the subsurface water level outside the tank exceeds the height of the outlet pipe saddle. See page 4 illustration. See installation terminology on page 4 for Indiana installations.

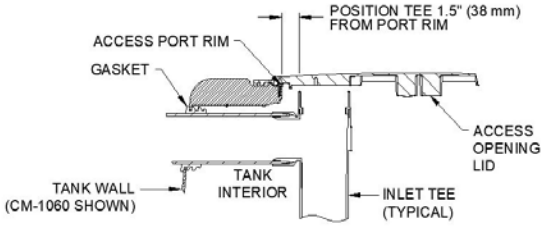
EXCAVATING AND PREPARING THE SITE

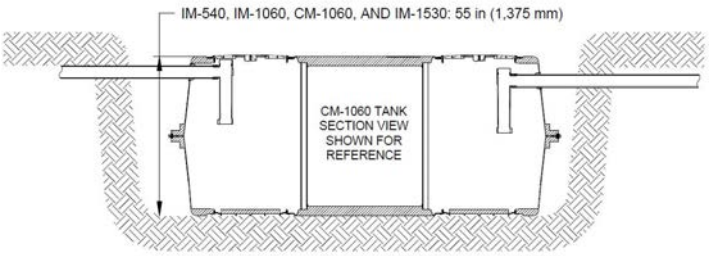
1. Unless buoyancy control measures are required, the excavation width and length should be 18 to 36 inches (450 to 900 mm) larger than the tank on each side or sized as necessary to ensure proper backfill compaction, as outlined in Steps 5-10 of "Backfilling the Tank" in this document. See Infiltrator IM- and CM-Series Tank Buoyancy Control Guidance document, available online at www.infiltratorwater.com, for specific excavation requirements when installing with buoyancy control measures.
2. Excavation depth shall account for the 55-inch (1,375 mm) tank height. Also account for 4 inches (100 mm) of bedding (if required) and cover depth (permissible cover depth is 0.5 to 4 feet (150 to 1,200 mm) of soil).
   Note: If the water level outside the tank exceeds the height of the outlet pipe saddle, tank structural integrity may be compromised. See page 4 for maximum allowable subsurface water elevation guidelines. See page 4 note. Indiana Installations: If the depth of the uninterrupted saturated soil conditions cannot be determined from the site soil evaluation report or other site-related data and other information indicates the possible presence of a perched ground water table, tank installation is permissible. See installation terminology on page 4.
3. Inspect bottom of excavation to verify suitability of native soil for tank installation. Soils with large, protruding, or sharp stones or other similar objects that may damage the tank are not suitable.
4. The tank may be installed either in suitable native soil (see Backfilling the Tank section) or a minimum 4-inch (100 mm) layer of well-graded granular soil having particles less than 3 inches (75 mm) in diameter, or maximum 0.5-inch (13 mm) diameter crushed stone.
5. Create a uniform, compacted, level surface to ensure that the bottom of the tank is evenly supported. Verify that the installation surface is flat.

INSTALLING THE TANK



1. Inspect the tank for damage before installation.
2. If the tank inlet and outlet penetrations are not drilled, drill holes using the drill points provided at each of the inlet and outlet ports according to Table 3 in the Inlet and Outlet Hole Locations section. The inlet and outlet may be drilled on either the sides or ends of the tank, as required based on applicable codes and site conditions.*
   * Kentucky and West Virginia tanks are factory-drilled. Florida and Oregon tanks must be factory- or distributor-drilled.
3. The gaskets supplied with the tank are compatible with Schedule 40 and SDR 35 pipe using a 5-inch-diameter (125 mm) hole saw.
4. Install the rubber gaskets at the inlet and outlet.
5. Using all four of the tank's integral lifting lugs, lower tank into excavation.
6. Slide the inlet and outlet pipes* through the gaskets. Soapy lubricant may be used to slide the pipe in.
   *For North Carolina, the inlet pipe shall be a straight pipe with no tee.
7. Horizontally position the tee 1½ inches (38 mm) from the access port rim, allowing the tee to fit into the recess in the access port lid (see detail).
8. Install lids and risers (see Installing Risers section) as necessary. Rotate lid over access opening until it indexes to tank and drops into position.

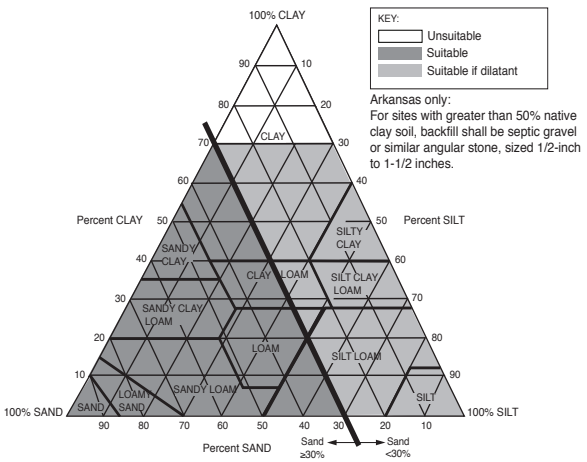




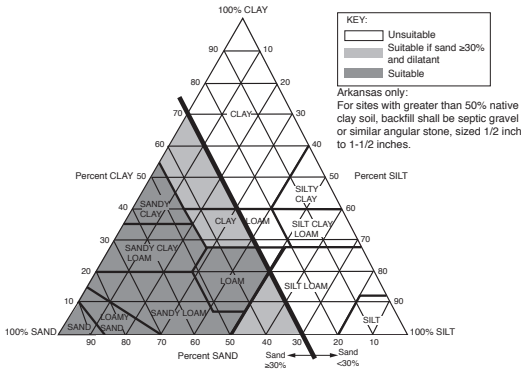
BACKFILLING THE TANK

Note: Infiltrator tanks do not require filling with water prior to backfill placement. Water filling and backfilling to the tank mid-height is required if the tank is left in either an open or backfilled excavation that may fill with water from rain or other sources.

1. Backfill with suitable native soil (max. 3-inch (75-mm) stone diameter). If native soil is unsuitable, replace unsuitable fraction with suitable soil. If suitable soil is not locally available, contact Infiltrator for assistance.
2. Suitable soil shall include soil textural classes defined in the United States Department of Agriculture soil triangle.
   a) For a tank soil cover depth of 0.5 to 2.0 feet (150 to 600 mm), suitable soil textures include:



) For a tank soil cover depth that is greater than 2.0 feet and up to 4.0 feet (600 to 1,200 mm), suitable soil textures include:



Backfill should not have stones greater than 3 inches (75 mm) in diameter or excessive clods that do not break apart during placement and compaction. Backfill must be capable of occupying the spaces between the tank ribs and beneath the haunches.

Note: Rounded screened aggregate (e.g., pea gravel) is not a suitable backfill.

Standard field soil classification methods shall be used to determine the soil textural class.

Note: Under most circumstances, the determination of soil dilatancy will not be required. Dilatancy shall be determined in the field using a test that does not require specialized equipment, per ASTM D2488, Section 14.3.

Place and compact soil by walking-in beneath the haunches of the tank.

Note: Compacting soil beneath the haunches is critical for tank structural integrity.

Place backfill around the four sidewalls in an alternating manner, so that the backfill height along the four sidewalls is maintained within a 12-inch (300-mm) tolerance.

Do not backfill top of tank before sidewalls are completely backfilled.

Continue to place backfill along the sidewalls in 12-inch (300-mm) lifts. Place backfill between the ribs on the sidewalls such that the space between the ribs is completely filled with soil.

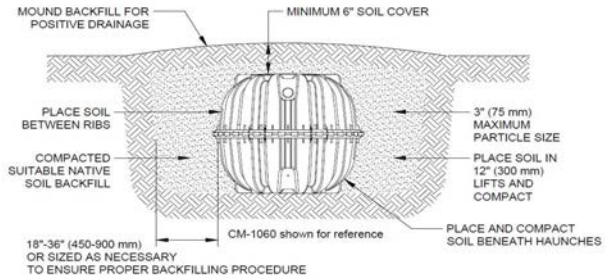
Compact backfill material either by walking-in, hand tamping or mechanical compaction (includes backhoe bucket). If mechanical compaction is used, such as a walk-behind tamper or backhoe bucket, a single pass is recommended. Compact each lift prior to placement of next lift. Compact backfill from tank walls to excavation sidewalls.

Complete backfilling and grade the area.

A minimum 6-inch (150-mm) depth of suitable soil must be placed over the top of the tank. The balance of backfill placed to finish grade above the tank may be either suitable or unsuitable soil.

Establish a strong stand of erosion-resistant vegetation.

Grade to prevent the backfilled excavation from filling with surface runoff. If the subsurface water level in the backfilled excavation exceeds the height of the outlet pipe saddle, tank structural integrity may be compromised. See page 4 for illustration.



ORT AND LONG-TERM GROUNDWATER CONTROL

ay be necessary to implement groundwater control measures during tank allation. Maintain dry conditions by expanding the excavation to create a rt-term groundwater collection sump for temporary placement of a dewatering ıp if needed. Long-term groundwater control measures such as underdrains interceptor trenches may be sensible if the site is amenable to construction control system and such systems are not prohibited by regulation or law, the tank location is not subject to flooding. Underdrains and groundwater

INSTALLING UNDER SHALLOW GROUNDWATER CONDITIONS

Buoyancy control measures may be required if the tank is to be installed with less than 12 inches (300 mm) of soil backfill cover, and where the water level outside the tank (See Table 1, Note 4) has the potential to rise 30 inches (750 mm) or more above the elevation of the tank bottom. Otherwise, no control measures are required (see Table 1). The need for buoyancy control measures must be determined based on backfill cover depth and height of water outside of tank above the tank bottom according to Table 1. Refer to Infiltrator IM- and CM-Series Tank Buoyancy Control Guidance document for more information.

Table 1: Tank models[1] and conditions requiring buoyancy control[2]

Subsurface water height above tank bottom[4]	Soil cover depth above tank[3]	
	6 in (150 mm) to 12 in (300 mm)	12 in (300 mm) or greater
Above outlet pipe saddle	Do not install tank	Do not install tank
36 in (900 mm) to outlet pipe saddle	All models	None
30 in (750 mm) to 36 in (900 mm)	IM-1530	None
Less than 30 in (750 mm)	None	None

1. IM-540, IM-1060, CM-1060 and IM-1530.
2. See Infiltrator IM- and CM-Series Tank Buoyancy Control Guidance document for detailed information on the use of controls.
3. No controls are required for soil cover depths exceeding 12 in (300 mm).
4. The tank shall not be installed where uninterrupted saturated soil conditions could be present from the tank bottom to a height above that of the outlet pipe saddle. See page 4 illustration. For Indiana installations, if the depth of the uninterrupted saturated soil conditions cannot be determined from the site soil evaluation report or other site-related data and other information indicates the possible presence of a perched ground water table, no buoyancy controls are required. See installation terminology on page 4.

INSTALLING RISERS

1. Compatible risers include 24-inch (600 mm) diameter products such as the Infiltrator EZsnap, TW-Riser, and EZset by Infiltrator, PolyLok®, Inc., and Tuf-Tite® Corporation, in addition to 24-inch (600 mm) diameter corrugated HDPE and IPEX Ultra Rib® PVC pipe. Follow Infiltrator's IM- and CM-Series Tank Riser Connection Guidance Document.

2. In Oregon only, watertightness testing shall include filling with water at least 2 inches above riser connection, with no more than 1 gallon leakage per 24 hours, per OAR 340-073-0025(3).

INSTALLING PUMPS AND RELATED EQUIPMENT

Pumps may be supported on a stable, level 16x16-inch (400x400-mm) platform positioned on the bottom of the tank. One 16x16-inch block or two 8x16-inch (200 -mm x 400-mm) side-by-side blocks may be used. Limit block height to account for pump height and liquid levels during pump cycles. Block(s) should be placed below an access opening and level upon the tank bottom. For two blocks, orient them perpendicular to ribs on the tank bottom, if present, for stability.

Installation of products such as electrical conduit and wiring, pumps, water level control equipment, valves, siphon equipment, etc. shall be in accordance with the product manufacturer's instructions and compliant with applicable state or local rules and regulations. Appurtenances shall be fastened to the tank riser system and not the tank body or access opening rim. Where possible, appurtenances shall be installed to facilitate maintenance and repair access via the tank access openings.

Note: Prefabricated pump vaults may be installed.

GENERAL SPECIFICATIONS

- Failure to comply with installation instructions will void warranty.
- Prior to ground disturbance, check for subsurface obstructions and utilities in conformance with applicable requirements.
- Operating water temperature shall be less than 100° F (40° C).
- In cold conditions, handle and backfill tank with care to prevent impact damage.
- Tanks are not fire resistant. Store away from ignition sources.
- Removal of structural bulkheads is prohibited; removal of locking clips on the tank mid-seam connection is also prohibited.
- Only suitable for potable applications if the tank bears the NSF/ANSI 61 certification mark. Otherwise, tank is recommended for use in septic, rainwater/ stormwater storage, holding, and pump applications, or other non-potable uses.
- In application when using lower inlet and outlet ports, a bulkhead fitting is required. Space constraints at inlet and outlet ports can limit the size of the bulkhead fitting. Typically, 2 or 3" bulkhead fittings is the maximum allowable size that will fit. The designer or contractor should verify a specific bulkhead fit on the Infiltrator tank prior to installation.
- Infiltrator tanks shall not be installed above ground. Contact Infiltrator if the 6-inch (150-mm) minimum soil cover depth cannot be met.

Table 2: Nominal Volume Chart

Liquid height above tank bottom[1]		Liquid volume in tank at indicated height (measured from tank bottom to liquid surface)[1]							
		IM-540		IM-1060		CM-1060		IM-1530	
in	cm	U.S. Gal	Liters	U.S. Gal	Liters	U.S. Gal	Liters	U.S. Gal	Liters
1	3	3	11	3	11	5	21	17	64
2	5	8	30	13	49	17	64	34	128
3	8	14	53	28	106	31	119	51	192
4	10	21	80	46	174	50	188	68	256
5	13	29	109	65	246	70	263	94	357
6	15	37	141	86	326	91	344	122	463
7	18	46	173	107	405	113	429	152	573
8	20	55	207	129	488	137	517	180	681
9	23	64	243	152	575	160	608	212	802
10	25	74	279	176	666	185	700	245	928
11	28	84	317	200	757	210	795	280	1,061
12	30	94	356	225	852	236	892	312	1,182
13	33	105	396	251	950	262	991	351	1,328
14	36	116	437	277	1,049	288	1,091	387	1,463
15	38	127	480	303	1,147	315	1,192	422	1,597
16	41	138	523	330	1,249	342	1,293	464	1,756
17	43	150	566	357	1,351	369	1,396	500	1,892
18	46	161	611	384	1,454	396	1,499	537	2,034
19	48	173	656	411	1,556	423	1,602	575	2,177
20	51	186	702	438	1,658	451	1,706	614	2,322
21	53	198	749	465	1,760	478	1,811	652	2,468
22	56	210	796	493	1,866	506	1,916	690	2,612
23	58	223	843	521	1,972	534	2,022	729	2,758
24	61	235	891	549	2,078	562	2,129	770	2,914
25	64	248	940	577	2,184	591	2,236	808	3,058
26	66	261	988	605	2,290	619	2,344	847	3,208
27	69	274	1,038	633	2,396	648	2,453	887	3,356
28	71	287	1,088	662	2,506	677	2,563	928	3,513
29	74	300	1,137	691	2,616	706	2,671	968	3,665
30	76	313	1,185	719	2,722	734	2,778	1,007	3,814
31	79	326	1,233	747	2,828	762	2,885	1,048	3,966
32	81	338	1,281	775	2,934	790	2,991	1,087	4,113
33	84	351	1,328	802	3,036	818	3,096	1,126	4,262
34	86	363	1,375	830	3,142	846	3,201	1,165	4,410
35	89	375	1,421	857	3,244	873	3,305	1,204	4,557
36	91	387	1,466	884	3,346	901	3,409	1,242	4,701
37	94	399	1,511	911	3,449	928	3,512	1,280	4,846
38	97	411	1,555	938	3,551	955	3,614	1,318	4,988
39	99	422	1,598	965	3,653	982	3,716	1,355	5,131
40	102	433	1,640	992	3,755	1,008	3,817	1,393	5,272
41	104	444	1,681	1,018	3,854	1,035	3,917	1,430	5,412
42	107	455	1,722	1,044	3,952	1,061	4,016	1,466	5,550
43	109	465	1,761	1,069	4,047	1,087	4,113	1,502	5,685
44	112	475	1,799	1,094	4,141	1,111	4,207	1,537	5,817
45	114	485	1,836	1,118	4,232	1,136	4,302	1,572	5,950
46	117	494	1,871	1,142	4,323	1,160	4,393	1,604	6,070
47	119	503	1,905	1,165	4,410	1,184	4,481	1,638	6,201
48	122	512	1,938	1,187	4,493	1,206	4,566	1,667	6,310
49	124	520	1,970	1,208	4,573	1,228	4,648	1,697	6,422
50	127	528	1,999	1,228	4,648	1,248	4,724	1,724	6,527
51	130	535	2,027	1,247	4,720	1,267	4,794	1,749	6,621
52	132	542	2,050	1,265	4,789	1,282	4,851	1,766	6,684
53	135	547	2,071	1,278	4,838	1,293	4,896	1,777	6,726
54	137	551[2]	2,087	1,287	4,872	1,300[2]	4,922	1,785[2]	6,758

1. Liquid height measured from lowermost inside surface at bottom of corrugation in tank to the liquid surface elevation.
2. The total capacity of the IM-540 tank is 552 gallons; the total capacity of the CM-1060 is 1,309, the total capacity of the IM-1530 tank is 1,787 gallons.
3. To determine liquid volume between liquid heights, subract the Table 2 volume indicated for the upper and lower heights. Example: CM-1060 volume between 50 in (127 cm) and 40 in (102 cm) = 1,248 gal (4,724 L) - 1,008 gal (3,817 L) = 240 gal (907 L).

INLET AND OUTLET HOLE LOCATIONS

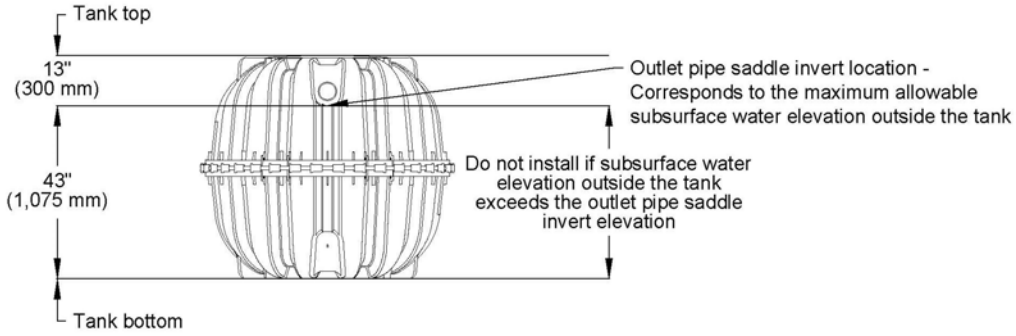
Drill height marks are provided on all Infiltrator tank models to guide inlet and outlet hole drilling. A single drill height mark is provided at each end or side port on tanks (example illustrated below). Holes may be drilled at the end or side inlet and outlet locations, as allowed by state and/or local regulations. The drill height mark indicates the center point location for the hole saw. The pilot drill bit on the hole saw should be positioned at the center of the drill height mark to align the hole saw properly. Table 3 provides drilling and invert information by regulatory jurisdiction for the installation of 4-inch-diameter (100 mm) pipe.

Table 3: Inlet and Outlet Hole Locations[1]

Jurisdiction[2]	Inlet Drill Location	Outlet Drill Location	Invert Drop (in) [mm]	Inlet Invert Height (in) [mm]		Outlet Invert Height[3] and Liquid Level (in) [mm]
				Above Inside Bottom of Tank[3]	Above Excavation Base[4]	
IM-540 and IM-1530						
All	All	All	3.00 [76]	47.00 [1,194]	47.20 [1,199]	44.00 [1,118]
CM-1060						
All Except Florida	All	All	3.00 [76]	47.00 [1,194]	47.20 [1,199]	44.00 [1,118]
Florida	End	End	2.00 [51]	46.00 [1,168]	46.20 [1,174]	44.00 [1,118]
IM-1060						
All	End	End	3.00 [76]	47.00 [1,194]	47.20 [1,199]	44.00 [1,118]
	Side	Side	3.00 [76]	47.50 [1,207]	47.70 [1,212]	44.50 [1,130]
	Side	End	3.50 [89]	47.50 [1,207]	47.70 [1,212]	44.00 [1,118]
	End	Side	2.50 [64]	47.00 [1,194]	47.20 [1,199]	44.50 [1,130]

1. State, provincial, and local regulatory requirements supersede Table 3 information.
2. Kentucky and West Virginia tanks are factory-drilled. Florida and Oregon tanks must be factory- or distributor-drilled.
3. Invert heights are measured from the lowest interior surface at the bottom of the tank to the invert.
4. Invert heights are measured from the base of the excavation to the invert.

Limitations When Subsurface Water is Present Above the Tank Bottom



Installation Terminology

1. "Subsurface water" refers to a water-saturated zone of soil. Do not install if subsurface water is continuous from the tank bottom elevation to any point above the outlet pipe saddle elevation.
2. "Uninterrupted saturated soil" refers to water-saturated soil with no gaps in the saturated condition. An example of a gap in the saturated condition is a perched water table, when two water-saturated soil zones are interrupted by an unsaturated soil zone. Do not install if uninterrupted saturated soil is present from the tank bottom elevation to any point above the outlet pipe saddle elevation.
3. A perched water table is allowable above the outlet pipe saddle elevation only if unsaturated soil is present between the perched water table and tank bottom elevation.

Infiltrator IM- and CM-Series Tank Buoyancy Control Guidance

JUNE 2022

Before you Begin

This guidance document presents a method for assessing buoyancy control needs for Infiltrator Water Technologies (Infiltrator) IM- and CM-Series tanks. Tank buoyancy control measures must be implemented according to state and/or local regulations and approvals, which may supersede these guidelines. If unsure of the requirements for a particular site, contact the state or local health department or permitting authority.

If tank buoyancy control measures are implemented, refer to Infiltrator IM- and CM-Series Tank General Installation Instructions and Riser Connection Guidance documents, as applicable, for completing the installation. This guidance document is not a tank installation instruction document.

How to Use this Document

1. Using Step 1, Table 1, and Figures 1 and 2, verify that the level of subsurface water is below the height of the outlet pipe saddle and determine if buoyancy control is required. See page 2 notes on terminology.
2. Use the appropriate row in Step 2, Table 2 to determine the minimum buoyancy control methods for the site conditions.
3. Once the preferred buoyancy control method is selected, follow the implementation procedures provided in Step 3.

Step 1 – Determine Need for Buoyancy Control

Required information: (1) maximum height of subsurface water above the tank bottom; and (2) the depth of soil cover above the tank top. Tank buoyancy control may be required if:

- the level of subsurface water outside the tank has the potential to rise 30 inches (750 mm) or more above the bottom of the tank; and
- less than 12 inches (300 mm) of soil cover is to be placed as backfill over the tank top.

NO BUOYANCY CONTROL IS REQUIRED IF THERE ARE AT LEAST 12 INCHES (300 MM) OF SOIL COVER ABOVE THE TANK TOP.

Table 1 Instructions

1. In the left-hand column of Table 1, locate the row corresponding to the height of the subsurface water elevation outside the tank and above the tank bottom (Parameter I) for the site conditions. See Figure 2.
2. Follow that row to the right until reaching the column corresponding to the depth of soil cover above the tank top (Parameter II). See Figure 2.
3. If the tank model is listed in that cell, then buoyancy control is required, proceed to Step 2. If the tank model is not listed in that cell, then no buoyancy control is required.
4. IM- and CM-Series tanks shall not be installed where the subsurface water level outside the tank exceeds the height of the outlet pipe saddle. See Figure 1.

Table 1: Infiltrator Tank Models1 and Conditions Requiring Buoyancy Control

	Parameter I: Subsurface water height above tank bottom	Parameter II: Soil cover depth above tank top2	
		A	B
		6 in (150 mm) up to 12 in (300 mm)	12 in (300 mm) or greater
1	Above outlet pipe saddle3 (greater than 43" [1,075 mm])	Do not install tank	Do not install tank
2	36" (900 mm) to 43" (1,075 mm) (to outlet pipe saddle)	All models	Not Required
3	30" (750 mm) to 36" (900 mm)	IM-1530	Not Required
4	Less than 30" (750 mm)	Not Required	Not Required

Notes:
1. Infiltrator tank models include: IM-540, IM-1060, CM-1060, and IM-1530.
2. Minimum 6 inches (150 mm) soil cover backfill is required.
3. IM- and CM-Series tanks shall not be installed where the subsurface water level outside the tank exceeds the height of the outlet pipe saddle. See Figure 1.
4. For Indiana installations, if the depth of uninterrupted saturated soil conditions cannot be determined from the site soil evaluation report or other site-related data and other information indicates the possible presence of a perched ground water table, no buoyancy controls are required. See page 2 note on terminology.

Figure 1: Limitations When Subsurface Water is Present Above Tank Bottom

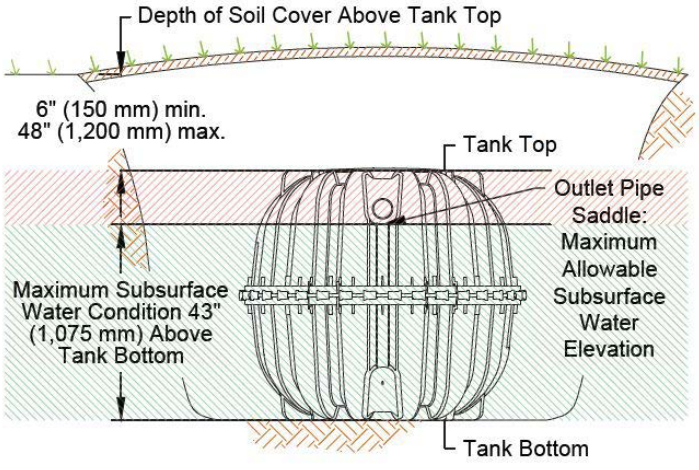
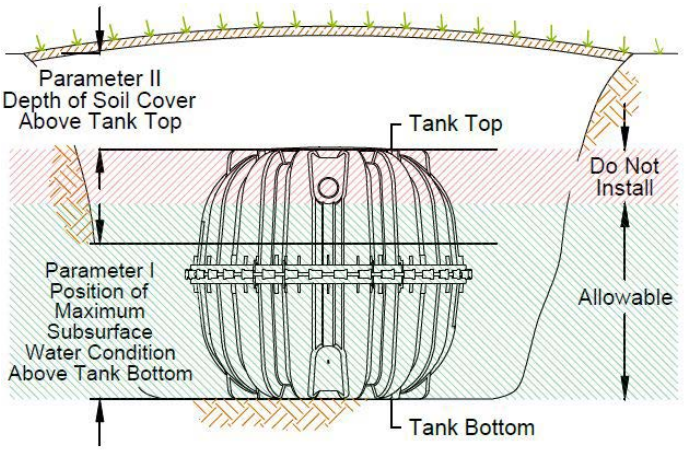


Figure 2: Buoyancy Control Parameters for Table 1



Installation Terminology Notes:

1. "Subsurface water" refers to a water-saturated zone of soil. Do not install if subsurface water is continuous from the tank bottom elevation to any point above the outlet pipe saddle elevation.
2. "Uninterrupted saturated soil" refers to water-saturated soil with no gaps in the saturated condition. An example of a gap in the saturated condition is a perched water table, when two water-saturated soil zones are interrupted by an unsaturated soil zone. Do not install if uninterrupted saturated soil is present from the tank bottom elevation to any point above the outlet pipe saddle elevation.
3. A perched water table is allowable above the outlet pipe saddle elevation only if unsaturated soil is present between the perched water table zone and tank bottom elevation.

Step 2 – Determine Buoyancy Control Method

Step 2 is used if the Step 1 analysis shows that buoyancy control is required for the tank model and installation conditions. The site-specific maximum height of subsurface water outside of the tank and above the tank bottom and the depth of soil cover above the tank top must be known to complete Step 2.

Table 2 Instructions

For the appropriate tank model, select the desired buoyancy control method under each method description column. Refer to Step 3 – Implementation and Supplemental Technical Guidance sections of this document for additional information on the buoyancy control methods shown in Table 2.

Table 2: Buoyancy Control Method Selection

Tank Model	Parameter 1: Position of subsurface water above tank bottom	Parameter 2: Soil cover depth above tank top	Buoyancy Control Methods[1]										Minimum supplemental downward force required[4] (total, both tank sides)
			Wood Beam Anchor Ballast Options (min. length/side)			Concrete Beam Anchor Ballast Options (min. length/side)			Precast concrete plates (min. no./ side)	Helical anchors2 (min. no./ side)	Anchor-lock system2 (min. no./ side)	Concrete collar (min. width x min. height)	
			1 6"x6" beam	2 6"x6" beam with cross-	3 6"x6" beam side-by-side	1 6" wide	2 8" wide	3 12" wide					
IM-540	36 in (900 mm) to outlet pipe saddle3	6 in (150 mm) to 12 in (300 mm)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	2	2	2	6 in (150 mm) x 9 in (225 mm)	1,000 lbs (450 kg)
IM-1060	36 in (900 mm) to outlet pipe saddle3	6 in (150 mm) to 12 in (300 mm)	7.5 ft (2.3 m)	6.0 ft (1.8 m)	5.5 ft (1.7 m)	7.5 ft (2.3 m)	6.5 ft (2.0 m)	5.0 ft (1.5 m)	2	2	2	6 in (150 mm) x 9 in (225 mm)	3,550 lbs (1,620 kg)
CM-1060	36 in (900 mm) to outlet pipe saddle3	6 in (150 mm) to 12 in (300 mm)	4.8 ft (1.5 m)	4.8 ft (1.5 m)	4.8 ft (1.5 m)	6.3 ft (1.9 m)	5.5 ft (1.7 m)	4.8 ft (1.5 m)	2	2	2	6 in (150 mm) x 9 in (225 mm)	2,200 lbs (1,000 kg)
IM-1530	30 in (750 mm) to outlet pipe saddle3	6 in (150 mm) to 12 in (300 mm)	Use alternate method	10.0 ft (3.0 m)	9.5 ft (2.9 m)	Use alternate method	Use alternate method	Use alternate method	2	2	2	9 in (225 mm) x 9 in (225 mm)	6,200 lbs (2,820 kg)

Notes:

1. See method-specific technical specifications and installation instructions below.
2. See manufacturer-specific information below.
3. IM- and CM-Series outlet pipe saddle height is 43 inches (1,075 mm) above tank bottom (see Figure 1).
4. Supplemental downward force is provided for custom-designed anchor ballast systems. See discussion below.

Step 3 – Implementation

Effective buoyancy control requires careful preparation, proper excavation, precise placement, secure strapping and proper backfilling, as described and illustrated in Step 3 below and the Infiltrator IM- and CM-Series Tank Installation Instructions. Step 3 includes specifications and system installation guidance for five buoyancy control system categories.

- 3-1: Beam Anchor Ballast
- 3-2: Precast Concrete Plate Anchor Ballast
- 3-3: Helical Anchors and Anchor-Lock Assemblies
- 3-4: Concrete Collar Anchor Ballast
- 3-5: Custom-Designed Buoyancy Controls

Following Step 3, supplemental technical guidance is provided for use with these buoyancy control methods. See the Supplemental Technical Guidance section for strap information as well. Straps meeting the appropriate are available from IWT (TANK-BCS-KIT). This guidance document is not a tank installation instruction document. Refer to the Infiltrator IM- and CM-Series Tank Installation Instructions for complete information on tank installation requirements.

Step 3-1: Beam Anchor Ballast

The beam anchor ballast options shown in Table 2 include the installation of wood or concrete beams adjacent to the tank, connected with two straps positioned across the top of the tank. The beam anchor ballast option allows the installer to select either beam construction material. The beam options resist tank buoyant forces using the weight of the soil column over the beam anchor ballast to counteract uplift. Therefore, it is critical that the widest dimension of the beam be placed horizontally on the base of the tank excavation, running parallel with the length of the tank. Beam construction materials shall meet the following specifications:

- Pressure-treated lumber shall be American Wood Protection Association (AWPA) Use Category UC4B, UC4C, UC5B, or UC5C.
- Concrete parking bumpers (also referred to as wheel stops) shall be steel-reinforced concrete with dimensions of 6-, 8-, or 12-inches wide by 6 inches high (150 mm, 200 mm, or 300 mm wide x 150 mm high).
- Fasteners shall be hot-dipped galvanized steel or stainless steel.

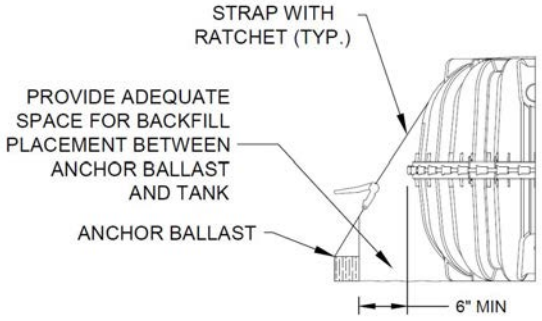
⚠ WARNING: Infiltrator does not recommend the use of beams fabricated using thermoplastics, including, but not limited to, chambers, pipe, decking, and parking bumpers.

Wood Beams

The wood beam anchor ballast can be configured three ways, depending on material and space availability:

• Wood Beam Option 1: Pressure-treated 6” x 6” – This option includes a single 6” x 6” beam connected to straps on each side of the tank (Figure 3).

Figure 3: Wood Beam Option 1



• Wood Beam Option 2: Pressure-treated 6” x 6” with cross-members – This option includes a single 6” x 6” beam on each side of the tank equipped with a series of pressure-treated wood cross-members to increase the surface area of the beam, connected to straps (Figure 4). Cross-members shall be 2” x 8” x 18” connected to the beam with four screws per member and distributed uniformly along the long axis of the beam. Cross member placement must not interfere with the strap locations.

Figure 4: Wood Beam Option 2

• Wood Beam Option 3: Pressure-treated 6” x 6” members placed side-by-side – This option includes two 6”x6” beams placed side by side and connected to looped straps on each side of the tank (Figure 5). The beams shall be connected using two 2” x 6” members screwed to the top and bottom of the side-by-side beams in two locations near the ends of the beams. Fasteners shall be 3.5-in screws with washers.

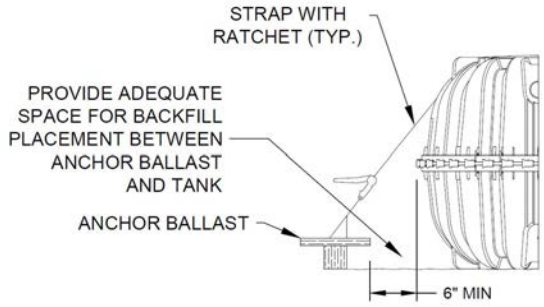
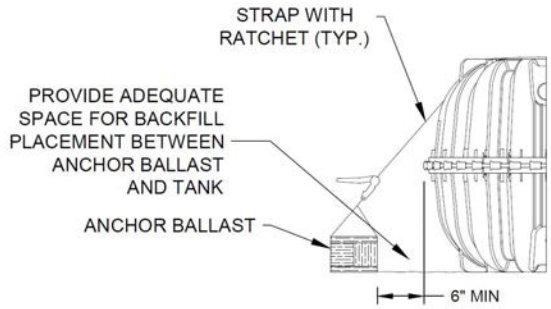


Figure 5: Wood Beam Option 3



Concrete Beams

The concrete beam can be configured three ways, depending on material and space availability, using parking bumpers (also referred to as wheel stops). This option includes a single concrete beam connected to straps on each side of the tank (Figures 6 and 7). Three concrete beam anchor ballast options are available, depending upon the parking bumper width as follows:

- *Option 1:* 6-in-wide precast concrete parking bumper
- *Option 2:* 8-in-wide precast concrete parking bumper
- *Option 3:* 12-in-wide precast concrete parking bumper

Note that the Concrete Beam Option is not recommended for use with the IM-1530 tank due to limitations in availability of parking bumpers that would be long enough to provide adequate resisting force. Use an alternative buoyancy control method for the IM-1530.

Figure 6: Concrete Beam Parking Bumpers

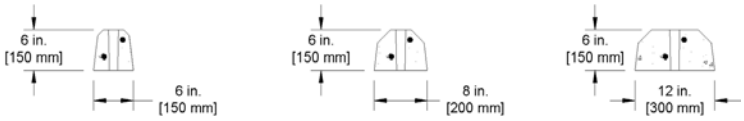


Figure 7: Concrete Beam

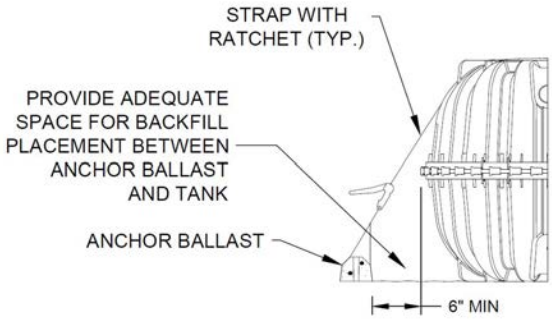


Table 2 provides the minimum length of beam required for the tank model and installation conditions. A minimum 1.5 factor of safety has been applied to determine the minimum required beam length.

Wood and concrete beam installation should be as described below. See Ratchet Strap Material Specifications section below for additional information.

1. Determine the minimum beam length from Table 2.
2. Place beams on the excavation bottom, such that the beam and tank bottoms are at the same elevation. The beam must be oriented with the widest dimension placed horizontally.
3. Position beams parallel to the long axis of the tank.
4. Position beams to be centered between strap locations and extend at least 6 in beyond the strap locations.
5. Position the beam a minimum of 6 in (150 mm) from the outermost footprint of the tank to allow connection of the strap system and placement and compaction of soil backfill below the tank haunches.



Position beam and tank.



Position strap on beam.

⚠ **WARNING: Never place any portion of the anchor ballasts beneath the outermost footprint of the tank, including beneath the haunches.**

⚠ WARNING: Do Not Use Cable Tie-Downs: The use of cables to connect anchor ballasts in lieu of strapping is prohibited. Cables concentrate the load exerted by the buoyancy control system within a small area on the tank surface, resulting in the potential to damage the tank.



Position straps on tank.



Connect straps to beam.



Remove strap slack.

6. Position the 14-ft-long (4.3 m) strap across the top of the tank at the locations embossed for strap placement (Figure 10).
7. At each beam connection point, wrap the 5-ft-long (1.5 m) looped-end strap to the beam at points aligning with the straps placed across the top of the tank. If the beam includes cross-members, position to prevent interference between looped-end straps and cross-members.
8. Connect the hooked end of the 14-ft-long (4.3 m) strap to the two looped ends of the 5-ft-long (1.5 m) looped-end strap.
9. Connect the non-hooked end of the 14-ft-long (4.3 m) strap to the ratchet.
10. Connect the hooked end of the ratchet strap to the 5-ft-long (1.5 m) looped-end straps, such that the ratchet is positioned below the mid-seam elevation of the tank. Do not allow the ratchet to be in contact with the tank.
11. Remove slack in the straps through a combination of beam positioning and the ratchet, such that the ratchet is positioned below the mid-seam elevation of the tank and not contacting the tank. Maintain the minimum 6-in (150 mm) spacing between the edge of tank and beam.
12. Place and compact backfill beneath the tank haunches and around and above the beams to an elevation 6 inches (150 mm) above the top of the beams. Place and compact backfill as described in the Infiltrator IM- and CM-Series Tank Installation Instructions.
13. With the anchor ballasts stabilized by 6 inches (150 mm) of compacted backfill, tension the strap to eliminate all slack using the ratchet. The tension should make the strap tight, without displacing the beams or damaging the tank.
14. Do not over tighten the straps.
15. Complete backfilling the tank as described in the Infiltrator IM- and CM-Series Tank Installation Instructions.

Step 3-2: Precast Concrete Plate Anchor Ballast

The precast concrete plate anchor ballast option shown in Table 2 includes the installation of four individual concrete anchor ballasts, connected with straps positioned across the top of the tank. Historically, precast concrete plate anchors have been spare concrete septic tank lids repurposed as anchor ballasts, but they can be fabricated specifically as anchor ballasts as well. The precast concrete plate anchor ballast option allows the installer to select plate size and shape, provided that each plate provides a minimum 4 ft2 (0.37 m2) of horizontal area and minimum 3-in thickness (75 mm). The precast concrete plate anchor ballast options resist tank buoyancy forces using the weight of the soil column over the plate anchor ballast to counteract uplift. Therefore, it is critical that the widest dimension of the plate anchor ballast be placed horizontally on the base of the tank excavation.

Plate construction material shall be precast concrete having a minimum 3,500 psi (24.1 MPa) compressive strength at 28 days and minimum 6% air entrainment. Connectors protruding from the anchor plate and used for strap connection shall be steel reinforcing bar, galvanized steel, or stainless steel capable of supporting a 2,500-lb (1,134 kg) tensile force. Do not use plastic connectors.

⚠ WARNING: Infiltrator does not recommend the use of plate anchor ballasts fabricated using materials other than concrete.

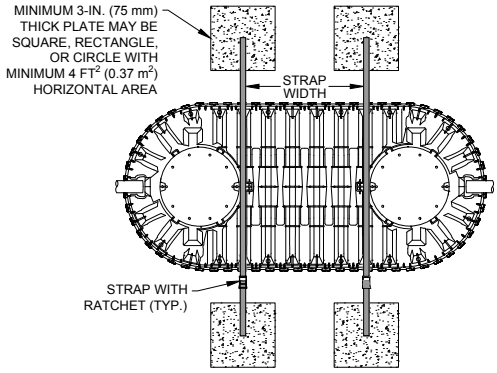
The precast concrete plate anchor ballast can be configured using a square, rectangular, or circular shape. For rectangular-shaped anchor ballasts, the long axis of the plate shall be placed parallel with the long axis of the tank. Precast concrete plate anchor ballast sizing and configuration options are shown in Table 3 and Figure 8.

Table 3: Precast Concrete Plate Anchor Ballast

Precast concrete plate anchor ballast shape	Minimum horizontal dimensions (minimum 3-in (75 mm) thickness)
Square	2 ft x 2 ft (0.61 m x 0.61 m)
Rectangular	Maintain a 1 ft (0.31 m) minimum width, with length to provide a minimum 4 ft2 (0.37 m2) horizontal plate area per anchor ballast
Circular	2.3 ft diameter (0.70 m diameter)

As shown in Table 2 and Figure 8, four precast concrete plate anchor ballasts are required for all tank models. The minimum horizontal plate area specifications are the same for all tank models. A minimum 1.5 factor of safety has been applied to determine the minimum horizontal plate area.

Figure 8: Precast Concrete Plate Anchor Ballast Options



Precast concrete plate anchor ballast installation should be as described below. See Ratchet Strap Material Specifications section below for additional information.

1. Use 4 precast concrete plate anchor ballasts per installed tank.
2. Place anchor ballasts on the excavation bottom, such that the anchor ballast and tank bottoms are at the same elevation. The precast concrete plate anchor ballast must be oriented with the widest dimension placed horizontally.
3. Position anchor ballasts to align with the locations on the tank embossed for strap placement (Figure 10).
4. Position the anchor ballasts a minimum of 6 in (150 mm) from the outermost footprint of the tank to allow connection of the strap system and placement and compaction of soil backfill below the tank haunches.



Position plate and tank.

⚠ WARNING: Never place any portion of the anchor ballasts beneath the outermost footprint of the tank, including beneath the haunches.

⚠ WARNING: Do Not Use Cable Tie-Downs: The use of cables to connect anchor ballasts in lieu of strapping is prohibited. Cables concentrate the load exerted by the buoyancy control system within a small area on the tank surface, resulting in the potential to damage the tank. Cable may damage the tank.

5. Position the 14-ft-long (4.3 m) straps across the top of the tank at the locations embossed for strap placement (Figure 10).
6. Connect the hooked end of the 14-ft-long (4.3 m) strap to the concrete anchor ballast hardware. Looped-end straps are not required to connect to the anchor ballast hardware.
7. Connect the non-hooked end of the 14-ft-long (4.3 m) strap to the ratchet.
8. Connect the hooked end of the ratchet strap to the concrete anchor ballast hardware. Looped-end straps are not required to connect to the anchor ballast hardware.
9. Position the ratchet below the mid-seam elevation of the tank. Do not allow the ratchet to be in contact with the tank.
10. Remove slack in the straps through a combination of anchor ballast positioning and the ratchet.



Position straps on tank.



Connect strap to plate.



Remove strap slack.

11. Place and compact backfill beneath the tank haunches and around and above the anchor ballasts to a height of 6 in (150 mm) above to top of the anchor ballast. Place and compact backfill as described in the Infiltrator IM- and CM-Series Tank Installation Instructions.
12. With the anchor ballasts stabilized by 6 inches (150 mm) of compacted backfill, tension the strap to eliminate all slack using the ratchet. The tension should make the strap tight, without displacing the precast concrete plate anchor ballasts or damaging the tank.
13. Do not over tighten the straps.
14. Complete backfilling the tank as described in the Infiltrator IM- and CM-Series Tank Installation Instructions.

Step 3-3: Helical Anchors and Anchor-Lock Assemblies

Helical anchors and anchor-lock assemblies may be installed as buoyancy control systems. For both types of system described below, refer to the equipment manufacturer's installation instructions for details on how to use and install the specified products. For helical and anchor-lock systems other than those described below, use Step 3-5: Custom-Designed Buoyancy Controls and Table 2 to determine the required pullout force per anchor and the manufacturer's literature to determine the required product model and installation requirements.



• Chance™ No-Wrench Screw Anchors – The Chance helical anchor shall have a 6-inch (150 mm) diameter helix, Class 7, or equal. These anchors rely on the shear strength of the soil combined with the weight of the soil above the anchor helix to provide holding strength. Proper installation is to 4 ft (1.2 m) below the bottom of the tank excavation and to within 5° of alignment with the strap alignment. Helical anchors should be installed so that the eye loop is level with the bottom of the tank excavation. Determine the proper locations for anchor installation to ensure that tie-down straps will be aligned properly for each tank model (Figure 10). Never place helical anchors beneath the outermost footprint of the tank, including beneath the tank haunches. Follow the anchor manufacturer installation and testing instructions.

• *DuckBill*® Anchor-Lock Assembly – DuckBill models are shown for each tank model in Table 4 below. These anchors rely on the shear strength of the soil combined with the weight of the soil above the anchor to provide holding strength. Determine the proper locations for anchor installation to ensure that tie-down straps will be aligned properly for each tank model (Figure 10). The system installer shall determine the DuckBill assembly materials of manufacture for the specified model. Polyester straps shall be connected to the DuckBill anchor wire assembly such that the wire assembly is not in contact with the tank body. Never place anchor-lock assemblies beneath the outermost footprint of the tank, including beneath the tank haunches. Follow the anchor manufacturer installation and testing instructions.

Table 4: Anchor-lock Assembly Specifications

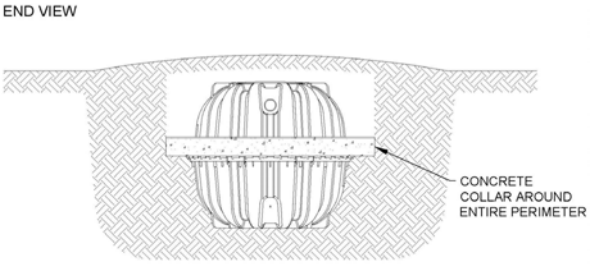
Tank Model	DuckBill Assembly
IM-540	Model 40
IM-1060	Model 68
CM-1060	Model 68
IM-1530	Model 88

⚠ WARNING: Do Not Use Cable Tie-Downs: The use of cables to connect anchor ballasts in lieu of strapping is prohibited. Cables concentrate the load exerted by the buoyancy control system within a small area on the tank surface, resulting in the potential to damage the tank. Cable may damage the tank.

Step 3-4: Concrete Collar Anchor Ballast

The concrete-collar anchor ballast option includes a cast-in-place concrete ring along the perimeter of the mid-height seam (Figure 9). Cast-in-place concrete shall be a minimum 3,000 psi (20.7 MPa) compressive strength at 28 days and minimum 6% air entrainment. Concrete shall be cast in contact with the exterior surface of the tank to allow interlock with sidewall ribs and the mid-height seam. Reinforcing steel is not required, but may be added if desired. The concrete collar shall be continuous around the entire tank perimeter.

Figure 9: Concrete Collar Anchor Ballast



Concrete collar anchor ballast installation should be as follows:

1. Backfill the tank to the mid-seam area in accordance with the Infiltrator IM- and CM-Series Tank Installation Instructions.
2. If reinforcing steel is being used, place reinforcing bars in the desired location.
3. Pour concrete in contact with the exterior surface of the tank to create an interlocking connection with tank sidewall ribs and the mid-height flange.
4. Pour concrete such that the bottom of the collar is located at the top of the mid-seam flange of the tank.
5. Pour concrete such that the collar width and height conform with Table 2 minimum dimensional specifications.
6. Allow sufficient curing of the concrete to prevent damage to the concrete collar before completing the tank backfilling process.
7. Backfill in accordance with the Infiltrator IM- and CM-Series Tank Installation Instructions.

Step 3-5: Custom-Designed Buoyancy Controls

Table 2 includes a column listing minimum supplemental downward forces to allow custom-designed buoyancy controls not described in this guidance document. Possible custom-designed anchor ballasts include, but are not limited to, precast and cast-in-place concrete blocks, traffic barriers, concrete-filled half pipe, and a concrete slab. Note that the Table 2 values include a suggested 1.5 factor of safety applied to the calculated minimum downward force required to restrain the tank and assumes the subsurface water level is positioned 44 inches above the tank bottom.

Custom-designed buoyancy control methods must consider the effect of saturated soil conditions on the tank and custom-designed buoyancy control mechanism. As long as buoyancy control is provided that supplies the minimum downward force listed in Table 2, the tank is calculated to be stable for the subsurface water level outside the tank and above the tank bottom and corresponding soil cover conditions.

All Infiltrator strapping, fastening, and anchor ballast positioning recommendations and the Infiltrator IM- and CM-Series Tank Installation Instructions apply for custom-designed buoyancy control methods. Since custom-designed buoyancy controls may rely on the weight of the anchor ballast, the weight of soil column over the anchor ballast, a combination of anchor ballast and soil weight, or anchor pullout resistance, anchor placement and installation must account for its functional design. Never place any portion of the anchor ballasts beneath the outermost footprint of the tank, including beneath the tank haunches. Design and installation methods shall be determined by the installer.

Contact Infiltrator's Technical Services Department with any questions regarding supplemental downward force requirements.

⚠ WARNING: Do Not Use Geogrid-Based Buoyancy Controls
Some tank manufacturers endorse the use of buoyancy control systems incorporating geogrid draped across the tank connected to an anchor ballast system or anchored within soil around the tank. Infiltrator has determined that the use of geogrid buoyancy control systems is unacceptable with IM- and CM-Series tanks. Infiltrator advises against the use of geogrid-based tank restraint systems for IM- and CM-Series tanks. The presence of the geogrid across the tank top and sides prevents the proper placement and compaction of soil between the tank-body corrugations and beneath the tank haunches, as required per the Infiltrator IM- and CM-Series Tank Installation Instructions.

Supplemental Technical Guidance

Supplemental technical guidance is provided below for use with the five buoyancy control methods described in Step 3.

Excavation Requirements

The excavation width should provide a minimum of 36 inches (900 mm) clearance beyond the tank on all sides when utilizing buoyancy control. This will allow sufficient space within the excavation to place anchoring equipment and fasten strapping. The excavation should provide a minimum 48-inch (1,200 mm) clearance beyond the tank when using helical- and anchor-lock-type anchors to allow for sufficient space to properly install the anchoring system. The actual excavation size shall be determined by the installer. Refer to Infiltrator IM- and CM-Series Tank Installation Instructions for additional excavation procedures.

⚠ WARNING: Never place any portion of the anchor ballasts beneath the outermost footprint of the tank, including beneath the haunches.

Short And Long-Term Groundwater Control

It may be necessary to implement groundwater control measures during tank installation. Maintain dry conditions by expanding the excavation to create a short-term groundwater collection sump for temporary placement of a dewatering pump if needed. Long-term groundwater control measures such as underdrains and interceptor trenches may be sensible if the site is amenable to construction of a control system and such systems are not prohibited by regulation or law, and the tank location is not subject to flooding. Underdrains and groundwater interceptor trenches may prevent the need for tank buoyancy control measures.

Ratchet Strap Material Specifications



The configuration and capacity of the four-strap Infiltrator Tank Buoyancy Control Strap Assembly (TANK-BCS-KIT) is designed to be compatible with both the beam and precast concrete plate buoyancy control options shown in Table 2. If using a beam anchor ballast, all four straps are required to complete the installation. If using a precast concrete plate anchor ballast, only the 14-ft-long (4.3 m) strap with hooked end and ratchet strap with hooked end are required, with connection directly to the precast concrete plate hardware, thereby eliminating the need for the 5-ft-long (1.5 m) looped-end straps.

Off-the-shelf, commercially available strap systems can also be used for beam and precast concrete plate buoyancy control options shown in Table 2. For the beam anchor ballasts, a commercially available four-strap system (two hooked-end straps, two looped-end straps) is recommended for connecting the anchor ballasts to the tank. For the precast concrete plate anchor ballast, a commercially available two-strap system (two hooked-end straps) is recommended for connecting the anchor ballasts to the tank. The suggested strap configuration is as follows:

- Two 5-ft-long (1.5 m) straps with sewn, looped ends (applies to beam only)
- One 14-ft-long (4.3 m) strap with a hooked end
- One ratchet strap with hooked end

For commercially available strap systems, the recommended method of strap tightening is a ratchet, which is used to remove all slack and slightly pre-load the system. All connections, fittings, and hardware must be corrosion resistant (stainless steel or galvanized) or coated with epoxy or other corrosion-resistant materials to inhibit deterioration in the subsurface environment. If not using stainless steel or galvanized components, apply a corrosion-resistant coating prior to burial. The recommended strap and ratchet specifications for commercially available strap system components are as follows:

- Strap width: 2 in (5 cm)
- Strap material: Polyester
- Strap minimum working load limit: 3,300 lbs (1,500 kg)
- Strap assembly break strength: 10,000 lbs (4,538 kg)
- Strap hooks: Stainless steel
- Strap tightening mechanism: Stainless steel ratchet
- Ratchet working capacity: 10,000 lbs (4,538 kg)

Strap materials and capacity are the same for helical anchors and anchor-lock assemblies. The strap length and connection configuration and hardware may differ depending upon the type of anchor ballast system being used.

⚠ WARNING: Do Not Use Cable Tie-Downs: The use of cables to connect anchor ballasts in lieu of strapping is prohibited. Cables concentrate the load exerted by the buoyancy control system within a small area on the tank surface, resulting in the potential to damage to the tank.

Ratchet Strap Placement

Proper installation of straps over the tank is critical for tank stability under changing conditions both inside and outside the tank. Straps must be placed at the specified strapping locations for each tank model, as illustrated in Figure 10. Strapping locations are embossed on the exterior surface of the tank. Strapping locations correspond to structurally reinforced areas of the tank body. Straps must never be placed over access openings, lids, or inlet/outlet piping. The ratchet must be positioned below the tank midseam so it is not in contact with the tank body. Straps must be tightened with a ratchet to remove slack and slightly pre-load the system, without displacing the connected anchor ballasts or damaging the tank.

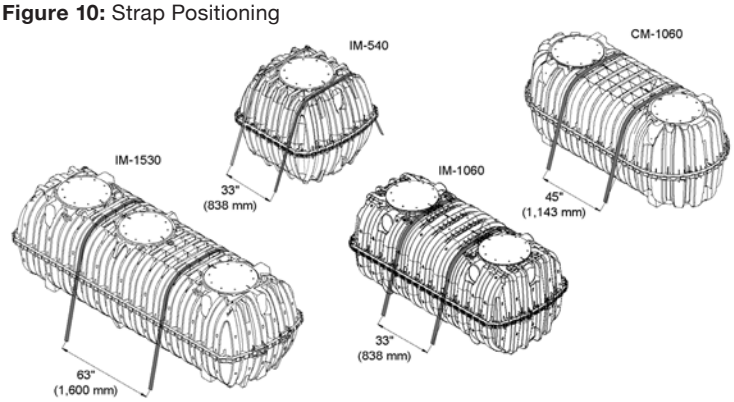
Strapping Notes:

1. Beam anchor ballasts shall be centered across the straps. Concrete plate and helical anchor and anchor-lock ballasts shall be aligned with the strap installation location embossed on the tank exterior.

2. Beam anchor ballasts shall extend a minimum of 6 inches (150 mm) beyond the maximum strap width.

3. When applicable in Table 2, the minimum beam anchor ballast length corresponds to the tank model-specific strap width plus 12 inches (300 mm).

Figure 10: Strap Positioning

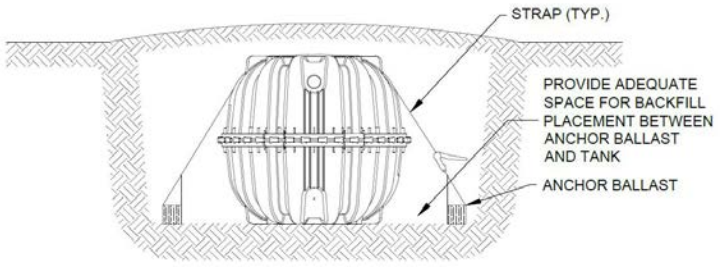


⚠ WARNING: Do Not Use Cable Tie-Downs: The use of cables to connect anchor ballasts in lieu of strapping is prohibited. Cables concentrate the load exerted by the buoyancy control system within a small area on the tank surface, resulting in the potential to damage to the tank.

Backfilling

A critical aspect of tank installation is proper backfilling. At a minimum, compacted soil must be present: 1) between the tank-body corrugations; 2) beneath the tank haunches; and 3) around and above the anchor ballasts (Figure 11). Backfill shall consist of compacted, suitable soil placed in lifts no greater than 12 inches (300 mm), as described in the Infiltrator IM- and CM-Series Tank Installation Instructions.

Figure 11: Backfill Placement



⚠ WARNING: Use of Tank Installation Instructions: This guidance document provides general statements on backfilling and tank installation only. Refer to the Infiltrator IM- and CM-Series Tank Installation Instructions for complete tank installation requirements.

Note: Infiltrator tanks do not require filling with water prior to backfill placement. Water filling and backfilling to the tank mid-height is required if the tank is left in either an open or backfilled excavation that may fill with water from precipitation or other sources.

Parts and Supplies

The parts and supplies necessary are to be purchased separately from the tank. All parts and supplies are either commercially available or available through Infiltrator's network of tank distributors. Some parts may require fabrication on site using common construction practices.

General Information

- Refer to the Infiltrator IM- and CM-Series Tank Installation Instructions for complete information on tank installation requirements. Failure to comply with installation instructions will void the warranty.
- Prior to ground disturbance, check for subsurface obstructions and utilities in conformance with applicable regulatory requirements.
- Excavation safety provisions shall conform to applicable government regulations.
- Follow manufacturer instructions for all products and devices used for Infiltrator tank buoyancy control.
- Buoyancy control methods described herein do not account for unanticipated conditions such as surface flooding, temporary inundation or other natural occurrences, unintended removal of cover fill over tank, etc.
- Buoyancy control methods described herein are recommendations only; consult a professional engineer for customized designs, if desired.

Infiltrator Water Technologies, LLC ("Infiltrator")
INFILTRATOR® SEPTIC TANK LIMITED WARRANTY FIVE (5) YEAR
MATERIALS AND WORKMANSHIP LIMITED WARRANTY

(a) This limited warranty is extended to the end user of an Infiltrator Tank. A Tank manufactured by Infiltrator, when installed and operated in accordance with Infiltrator's installation instructions and local regulation by a person or company that is properly qualified to install the Infiltrator tank in accordance with applicable state and/or local requirements, is warranted to you: (i) against defective materials and workmanship for five (5) years after installation. Infiltrator will, at its option, (i) repair the defective product or (ii) replace the defective materials. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Tank.

(b) In order to exercise its warranty rights, you must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect.

(c) YOUR EXCLUSIVE REMEDY WITH RESPECT TO ANY AND ALL LOSSES OR DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER SHALL BE SPECIFIED IN SUBPARAGRAPH (a) ABOVE. INFILTRATOR SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, HOWEVER OCCASIONED, WHETHER BY NEGLIGENCE OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS LIMITA TION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

(d) THIS LIMITED WARRANTY IS THE EXCLUSIVE WARRANTY GIVEN BY INFILTRATOR AND SUPERSEDES ANY PRIOR, CONTRARY, ADDITIONAL, OR SUBSEQUENT REPRESENTATIONS, WHETHER ORAL OR WRITTEN. INFILTRATOR DISCLAIMS AND EXCLUDES TO THE GREATEST EXTENT ALLOWED BY LAW ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FINESSE FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. NO PERSON (INCLUDING ANY EMPLOYEE, AGENT, DEALER, OR REPRESENTATIVE) IS AUTHORIZED TO MAKE ANY REPRESENTATION OR WARRANTY CONCERNING THIS PRODUCT, EXCEPT TO REFER YOU TO THIS LIMITED WARRANTY. EXCEPT AS EXPRESSLY SET FORTH HEREIN, THIS WARRANTY IS NOT A WARRANTY OF FUTURE PERFORMANCE, BUT ONLY A WARRANTY TO REPAIR OR REPLACE.

(e) YOU MAY ASSIGN THIS LIMITED WARRANTY TO A SUBSEQUENT PURCHASER OF YOUR HOME.

(f) NO REPRESENTATIVE OF INFILTRATOR HAS THE AUTHORITY TO CHANGE THIS LIMITED WARRANTY IN ANY MANNER WHATSOEVER, OR TO EXTEND THIS LIMITED WARRANTY.

(g) NO WARRANTY OF ANY KIND IS MADE WITH REGARD TO ANY PRODUCT, COMPONENTS, DEVICES, MEDIA OR TREATMENT UNITS WHICH ARE MANUFACTURED BY OTHERS AND ARE INSTALLED IN AN INFILTRATOR TANK. USE OF THESE PRODUCTS ARE AT YOUR OWN RISK.

(h) THE INFILTRATOR TANK IS DESIGNED TO BE BURIED UNDERGROUND. NO WARRANTY OF ANY KIND IS MADE IF YOUR TANK IS NOT BURIED UNDERGROUND AS SPECIFIED IN THE PRODUCT'S INSTALLATION INSTRUCTIONS.

CONDITIONS AND EXCLUSIONS

There are certain conditions or applications over which Infiltrator has no control. Defects or problems as a result of such conditions or applications are not the responsibility of Infiltrator and are NOT covered under this warranty. They include failure to install the Tank in accordance with instructions or applicable regulatory requirements or guidance, altering the Tank contrary to the installation instructions and disposing of chemicals or other materials contrary to normal tank usage.

The above represents the Standard Limited Warranty offered by Infiltrator. A limited number of regulatory jurisdictions have different warranty requirements. Any purchaser of a Tank 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 a Tank.

Infiltrator Water Technologies
Part of ADS

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Contact Infiltrator Water Technologies' Technical Services Department for assistance at 1-800-221-4436

EZSNAP risers

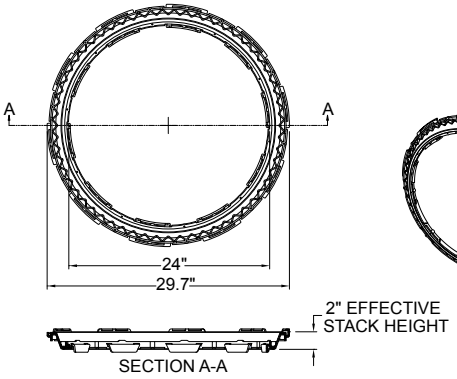
Click And Lock Riser Technology

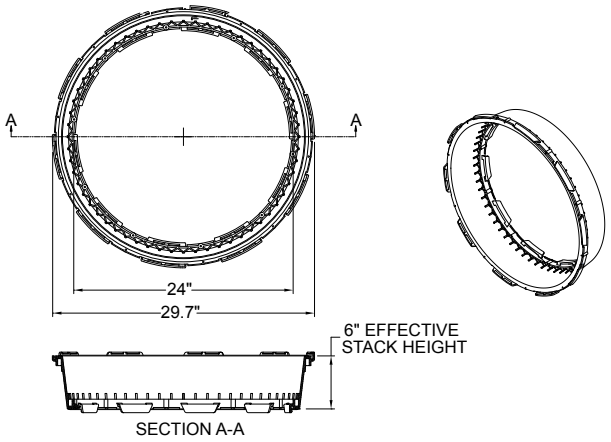
The EZsnap riser is designed to create an easy-to-assemble watertight riser system for septic tanks, pump tanks, and cisterns.

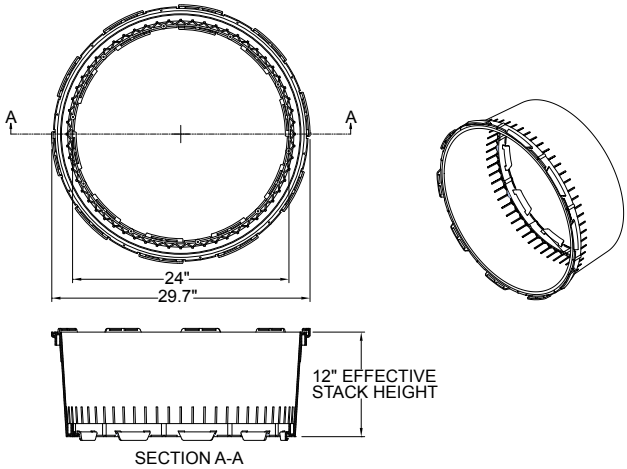
The EZsnap Riser features click and lock technology eliminating the need for assembly tools, sealant/caulk and hardware. The 24" diameter EZsnap Riser is available in 2", 6" and 12" tall sections that nest together making for efficient storage and shipping.



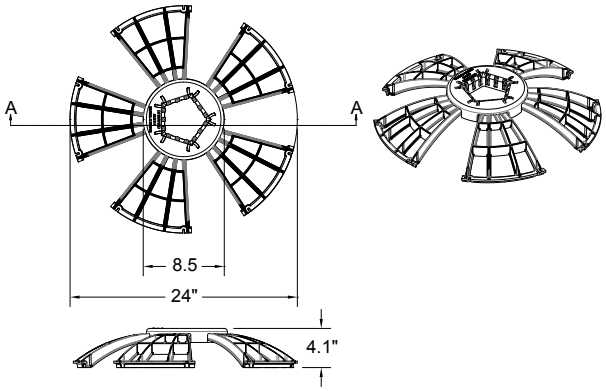
EZsnap Riser Specifications



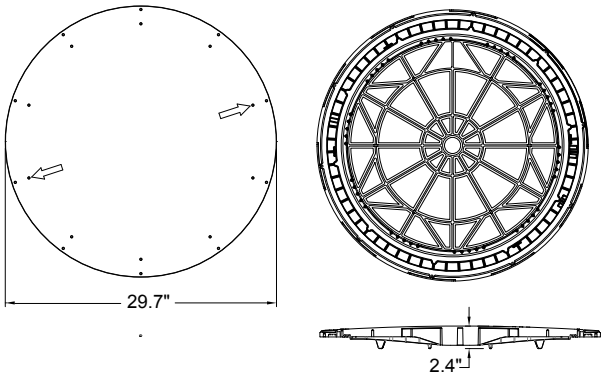




EZsnap Safety Star Specifications



EZsnap 24" Lid Specifications



Infiltrator IM- and CM-Series Tank Riser Connection Guidance Document for EZsnap Risers

Before You Begin

This document provides recommended procedures for the connection of EZsnap Riser products to Infiltrator Water Technologies (Infiltrator's) IM- and CM-Series tanks.
The intent of this document is to provide procedures for making the connection between the riser and tank. Risers must be installed according to state and/or local regulations, which supersede the guidelines in this document. If unsure of the requirements for a particular site, contact the local health department or permitting authority.
Note: The method of PVC and HDPE riser construction shown in this document is not allowed under Florida regulations.

Parts and Supplies

The parts and supplies necessary for installation of a riser system on Infiltrator IM- and CM-Series tanks must be purchased separately from the tank. All parts and supplies are commercially available. Contact Infiltrator or the riser manufacturer for assistance obtaining any of the following parts and supplies.

IM- and CM-Series Riser Products	
Item	**Item Number**
EZsnap Tank Pipe Adapter Ring	SNAPPAR-2400
EZsnap 24" x 2" Riser (Green)	SNAPIS-2402
EZsnap 24" x 6" Riser (Green)	SNAPIS-2406
EZSnap 24" x 12" Riser (Green)	SNAPIS-2412
EZsnap 24" Safety Lid System	SNAPSAFT-2400
24" Riser Lid (Green)	IMLID-2400
Adheasive Sealant	ISI-1500 (or E6100 as equivalent)
Infiltrator Safety Star	SNAPSAFT-2400


Risers nest together for efficient shipping.

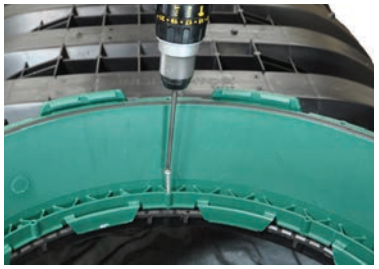
Materials and Equipment Needed for EZsnap Riser Installation

- Rubber mallet
- Screw gun
- Ten #14 x 2" stainless steel tank-to-riser screws (supplied with EZsnap Riser)
- Ten #14 x 2" stainless steel lid screws with washers (supplied with IM and CM-Series tanks)
- 7/16" hex nut driver screw gun bit
- #3 square head Robertson driver bit, 6" (150 mm) length
- #2 Phillips driver bit, 6" (150 mm) length
- 3/8" hex nut driver screw gun bit
- Rags

Note: Install riser assembly prior to backfilling tank.
Note: The EZsnap Riser segment includes factory-installed gaskets on both ends of the riser segment, so the application of a sealant or mastic on the connection surface is not required. Proper care must be taken to ensure the gasket surface is clean and free of debris. It is recommended that all gaskets and connection surfaces be wiped clean. Each riser section is tapered to have a narrow end and a wide end. When shipped, the EZsnap Risers are stacked wide end down and nested together. When making riser connections, the narrow ends are designed to connect to the narrow end and the wide end is designed to connect to the wide end. It is a recommended best practice that the taller sections be installed at the deepest points of the installation.


Engage one set of tabs into proper position.


Use mallet to engage the rest of the tabs.


Screws required for riser to tank connection only.

Riser-to-Tank Connection

Insert the EZsnap Riser narrow end down into the tank opening. Rotate the riser until the riser connection tabs align with the tank indexing tabs on the tank opening. Screw pilot holes will be in alignment on the riser and tank when in proper position. On one side of the tank, insert the riser connection tabs into the tank indexing tabs and engage into the proper position. Using a rubber mallet pound downward on the top of the riser to engage the remaining tabs. It is helpful to move around the circumference of the tank opening while engaging tabs. **A screwed connection is only required for the tank-to-riser interface, created using the ten #14 x 2" stainless steel tank-to-riser screws supplied with the EZsnap Riser.** Tighten screws in a star pattern, alternately tightening screws on opposite sides of the EZsnap Riser.


Risers are available in 2", 6" and 12" height for desired finished height.

Riser-to-Riser Connection

The EZsnap Risers come in multiple heights to align with the desired finished grade. Each riser is tapered to have a large end and small end align with like-diameter ends of riser segments. Rotate until the tabs on the upper riser segment drop into alignment on the lower riser segment. With tabs in alignment, push directly down on the top rim of the upper riser segment until the connection tab engages into the lower riser segment. A rubber mallet may be necessary to engage the tabs by striking the top surface of the riser if manual pressure is not adequate.

Infiltrator Safety Star Installation

The Infiltrator Safety Star is designed to be mounted to the screw pilot holes at a narrow-end riser connection. One arm on the Safety Star folds down 15 degrees, allowing it to collapse and fit through a 24" (600 mm) opening.



1. Install the Safety Star at the EZsnap narrow riser-to-riser connection closest to the ground surface. A minimum of a 6" (150 mm) riser is required to accommodate the Safety Star and attach the lid properly.

2. Fasten the Safety Star in place using #14 x 2" stainless steel screws (supplied with the EZsnap Risers).



Infiltrator's five arm Safety Star system is equipped with a folding arm for easy installation.

Lid-to-Riser Connection

The EZsnap Lid will accommodate both the narrow and the wide end of the riser. To install, set the lid on top of the uppermost riser segment and rotate until the riser tabs recess into the receiving pockets on the lid. The lid will drop downward approximately 1/2" (13 mm) and stop rotating when seated properly. With the lid properly seated, the screw pilot holes are in alignment.



Set lid on uppermost riser segment and rotate to receiving pocket on riser.

Use the ten #14 x 2" stainless steel lid screws with washers provided with the tank to fasten the lid to the riser. There are nine hexagonal head stainless steel bolts and one #3 pan-head Robertson screw, which is used as a tamper-resistant fastener. Depending upon which end of a riser segment is being used for the lid connection, use the outer-diameter screw pilot holes on the lid for the larger-diameter end of the riser and the inner-diameter screw holes for the smaller-diameter end of the riser. Call-outs on the lids clearly define the proper screw pilot holes to use for the different bolt patterns. Adjust the screw gun settings to prevent stripping-out the pilot holes. Do not over-tighten screws.



Prior to backfilling, fasten the lid to the riser with screws provided.

Materials and Equipment Needed for Riser Pipe Installation

- Screw gun
- Caulk gun and ISI-1500 sealant or equivalent
- Marker or marking pencil
- Brush
- Rags
- Infiltrator Pipe Adapter Ring (SNAPPAR-2400)
- Adhesive-backed gasket (supplied with SNAPPAR-2400)
- Ten #14 x 2" stainless steel lid screws with washers (supplied with lid)
- Ten #14 x 2" stainless steel SNAPPAR-2400-to-tank screws (supplied with SNAPPAR-2400)
- Four #12 x 1/2" (for IPEX, Ultra-Rib™ PVC pipe) or #12 x 1¼ (for HDPE pipe) stainless steel screws (not provided)
- 7/16" hex nut driver screw gun bit
- #3 square head Robertson driver bit, 6" (150 mm) length
- #2 Phillips driver bit, 6" (150 mm) length
- 3/8" hex nut driver screw gun bit

24" (600-mm) IPEX, Ultra-Rib™ PVC Pipe

Note: Method not allowed in Florida

Note: 24" (600-mm) IPEX pipe must be installed using the Infiltrator Pipe Adapter Ring.

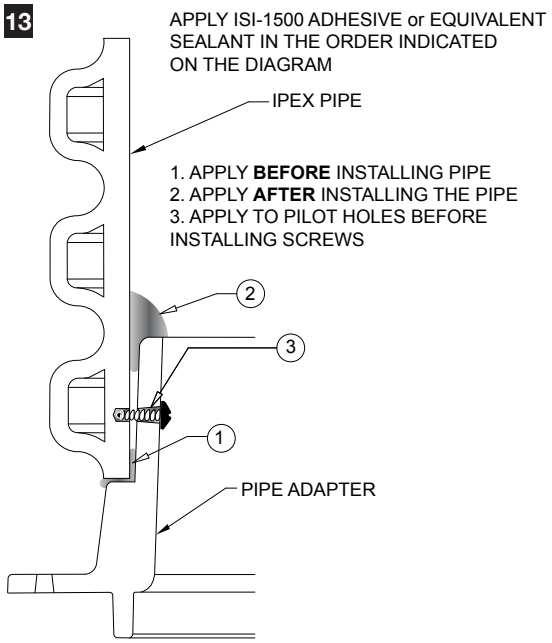
1. Install riser assembly prior to backfilling tank.

2. Cut IPEX pipe along an inner corrugation to allow lid to fit properly, taking care that the cut is smooth and even.









3. Apply two continuous 3/8" (10 mm) beads of adhesive sealant to the smaller of the two standing ribs closest to the screw pilot holes on the top surface of the tank opening. Add an extra dab of sealant in each screw hole. Sealant thickness must fill gap beneath Infiltrator Pipe Adapter Ring.

4. Align the Infiltrator Pipe Adapter Ring with the tank opening by lining up the arrows on the Infiltrator Pipe Adapter Ring with the arrow on the tank inlet or outlet. The ring will seat on the tank tightly when properly aligned. Center and press to create an even distribution of the sealant.

5. Fasten Infiltrator Pipe Adapter Ring to the tank opening using ten #14 x 2" stainless steel SNAPPAR-2400-to-tank screws. Tighten in a star pattern. Repeat the star pattern at least twice, without over-tightening screws.

6. Mark four evenly distributed locations on the inside of the Infiltrator Pipe Adapter Ring for pilot holes to accept screws. The pilot holes should be at a height half way up the interior flange of the Infiltrator Pipe Adapter Ring.

7. Drill four 1/8" (3.5-mm) pilot holes at marked locations on the Infiltrator Pipe Adapter Ring.

8. Apply one bead of adhesive sealant to the first taper on the Infiltrator Pipe Adapter Ring.

9. Place the IPEX pipe over the Infiltrator Pipe Adapter Ring until it is seated at the base of the flange.

10. Insert adhesive sealant into the four pre-drilled pilot holes.

11. Fasten IPEX pipe to Infiltrator Pipe Adapter Ring using four #12 x 1/2" stainless steel screws from the inside of pipe.

12. Tighten screws in a star pattern, tightening screws alternately on opposite sides of the Infiltrator Pipe Adapter Ring. Repeat the star pattern at least twice, without over-tightening screws.

13. Apply a generous bead of sealant into the groove at the top of the pipe adapter and then smear the sealant into the groove between the pipe and Infiltrator Pipe Adapter Ring.

14. Use the Infiltrator lid or equivalent product as a lid for the riser pipe. The lid will require the installation of the factory-supplied, adhesive-backed gasket to the bottom side of the lid to ensure a snug fit. Set and center the lid onto the riser pipe. Pre-drill 1/8" (3.5-mm) pilot holes on the inner set of templated locations on the lid. Fasten using the ten factory-supplied #14 x 2" stainless steel lid screws with washers.



Note: When using the Infiltrator lid, apply the factory-supplied, adhesive-backed gasket to the bottom side of the lid to ensure a snug fit.

15. Backfill tank in accordance with Infiltrator's tank installation instructions.

16. Following tank backfilling, visually examine the riser-to-Infiltrator Pipe Adapter Ring connection for damage resulting from backfill placement. Repair or replace if damaged. Allow 24-hour sealant cure time before testing or putting into service.

24” (600-mm) HDPE Pipe

Note: Method not allowed in Florida
Note: The 24” (600-mm) HDPE pipe must be installed using the Infiltrator Pipe Adapter Ring.
1. Install riser assembly prior to backfilling tank.
2. Cut IPEX pipe along an inner corrugation to allow lid to fit properly, taking care that the cut is smooth and even.
3. Apply two continuous 3/8” (10 mm) beads of adhesive sealant to the smaller of the two standing ribs closest to the screw pilot holes on the top surface of the tank opening. Add an extra dab of sealant in each screw hole. Sealant thickness must fill gap beneath Infiltrator Pipe Adapter Ring.
4. Align the Infiltrator Pipe Adapter Ring with the tank opening by lining up the arrows on the Infiltrator Pipe Adapter Ring with the arrow on the tank inlet or outlet. The ring will seat on the tank tightly when properly aligned. Center and press to create an even distribution of the sealant.
5. Fasten Infiltrator Pipe Adapter Ring to the tank opening using ten #14 x 2” stainless steel SNAPPAR-2400-to-tank screws. Tighten in a star pattern. Repeat the star pattern at least twice, without over-tightening screws.
6. Mark four evenly distributed locations on inside of the the Infiltrator Pipe Adapter Ring for pilot holes to accept screws. The pilot holes should be at a height half way up the interior flange of the Infiltrator Pipe Adapter Ring.
7. Drill four 1/8” (3.5-mm) pilot holes at marked locations on the Infiltrator Pipe Adapter Ring.
8. Center the HDPE pipe over the Infiltrator Pipe Adapter Ring.
9. Fasten the HDPE pipe to the Infiltrator Pipe Adapter Ring using four #12 x 1¼” stainless steel screws from inside the pipe.
10. Tighten screws in a star pattern, tightening screws on opposite sides of the Infiltrator Pipe Adapter Ring. Repeat the star pattern at least twice, without over-tightening screws.
11. Apply adhesive sealant in the space between the pipe and Infiltrator Pipe Adapter Ring to seal the gap between the pipe and adapter ring.
12. Use the Infiltrator lid or equivalent product as a lid for the riser pipe. The lid will require the installation of the factory-supplied, adhesive-backed gasket to the bottom side of the lid to ensure a snug fit. Set and center the lid onto the riser pipe. Pre-drill 1/8” (3.5-mm) pilot holes on the inner set of templated locations on the lid. Fasten using the ten factory-supplied #14 x 2” stainless steel lid screws with washers.
Note: When using the Infiltrator lid, apply the factory-supplied, adhesive-backed gasket to the bottom side of the lid to ensure a snug fit.
13. Backfill tank in accordance with Infiltrator’s tank installation instructions.
14. Following tank backfilling, visually examine the riser-to-Infiltrator Pipe Adapter Ring connection for damage resulting from backfill placement. Repair or replace if damaged. Allow 24-hour sealant cure time before testing or putting into service.

Backfilling Tank and Risers

Backfill tank and risers in lifts in accordance with Infiltrator IM- and CM-Series Septic Tank General Installation Instructions, supporting all sides of the risers as the backfill height increases.
Note: Always install and secure lids prior to backfill placement.

Disclaimer: These recommended procedures have been developed to identify best practices for achieving a watertight connection between the tank and riser under typical tank installation conditions. These procedures have been shown to result in a watertight connection between the riser assemblies identified in this document and the Infiltrator IM- and CM-Series tank. Infiltrator does not guarantee a watertight connection between tank and riser because achieving a watertight connection is dependent upon a combination of installer practices and procedures, and field conditions. Please contact Infiltrator’s Technical Services Department at 800-221-4436 if difficulty is encountered during riser installation. Please contact the appropriate riser manufacturer for concerns associated with anything that does not involve the tank-to-riser connection.

Infiltrator Water Technologies
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TANK02 0422

EZFLOW SYSTEMS IN TEXAS

This product has been approved for use as a substitute for conventional pipe and gravel in absorption trenches. The approval of the 1003T indicates that the product meets the Rules and Regulations Pertaining to Sewage Disposal Systems,

The absorption field product should be installed in 24 inch-wide-trenches with shallow trench bottom depths of 18 inches recommended. The most suitable backfill material available should be used. Clay backfill is not recommended. The backfill should be mounded over the trench to allow for settling and ensure a minimum of six inches of cover as specified by the manufacturer.

Materials and Equipment Needed

☐ EZflow 1003T bundles

☐ EZflow internal pipe couplers

☐ Endcaps, if needed

☐ Backhoe

☐ Laser, Transit or Level

Installation Instructions

1. The EZflow assemblies are 10 inches in diameter by 10 feet long. The polyethylene net bundles contain a four inch perforated pipe surrounded by EPS aggregate.

In cases where linear footage required is not in multiples of 10, the installer may (a) reduce the product to the needed length and refasten the netting to the pipe or, (b) use an additional 10 feet of product to exceed the required trench length.

Note: The required length of drainfield is that required for a two foot wide stone trench.

2. The plastic stretch wrap is removed before the ten foot long bundles are placed in the trench(es).

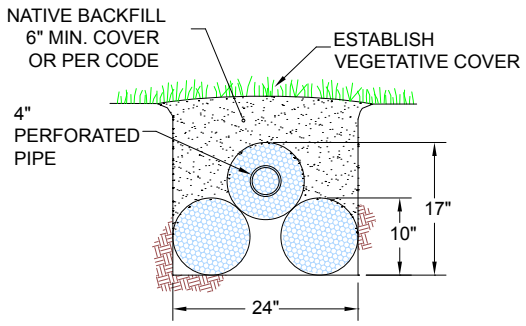
3. The bundles containing 4-inch perforated pipe are joined end to end with an internal coupling available from EZflow. The same internal coupler is used to start the trench, as it will slide inside the 4-inch PVC pipe.

4. The trench top shall be shaped to ensure surface runoff. Minimum cover over the pipe and aggregate assembly shall be 6 inches. Mounding of backfill may be necessary to ensure the required 6 inches of cover.

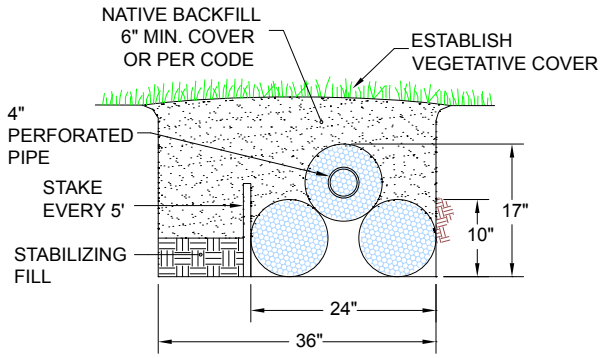
5. Repeat steps 1 through 4 for each required trench.

Products 1003T

Two-foot Wide Trench



Three-foot Wide Trench



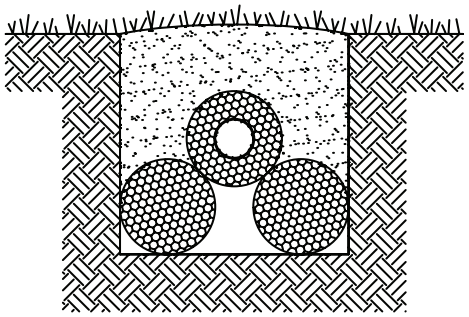
NOTE: All Infiltrator EZflow bundles can be installed on residential or commercial installations.

NOTE: No length of EZflow bundles are to be cut.

NOTE: If installing the EZflow 1003T system in a 3 foot wide trench, the products must be staked every 5 feet prior to backfilling the system.

Sizing of EZflow Systems in Trenches Only

EZFLOW 1003T SYSTEMS



Minimum number of EZflow bundles required based on bedrooms and soils class.

NUMBER OF BEDROOMS	SOIL CLASS 1B	SOIL CLASS II	SOIL CLASS III
1 or 2	8	12	15
3	11	16	20
4	13	20	25
5	16	24	30
6	19	28	35
Ea. Add'l Bedroom	3	4	5

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the EZflow 1003T system when installed in a 2 foot wide trench.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

EZflow 1003T System: L = .53 A / (W + 2)
EZflow 1003T System: L = .53 A / (2 + 2)

4. If you use the LOW GPD flow rate use the following formulas for the EZflow system when installed in a 2 foot wide trench.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

EZflow 1003T System: L = .66 A / (W + 2)
EZflow 1003T System: L = .66 A / (2 + 2)

5. If you use the HIGH GPD flow rate use the following formulas for the EZflow system when installed in a 3 foot wide trench.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

EZflow 1003T System: L = .66 A / (W + 2)
EZflow 1003T System: L = .66 A / (3 + 2)

Note: All Infiltrator EZflow bundles can be installed on residential or commercial installations.

Note: No length of EZflow bundles are to be cut.

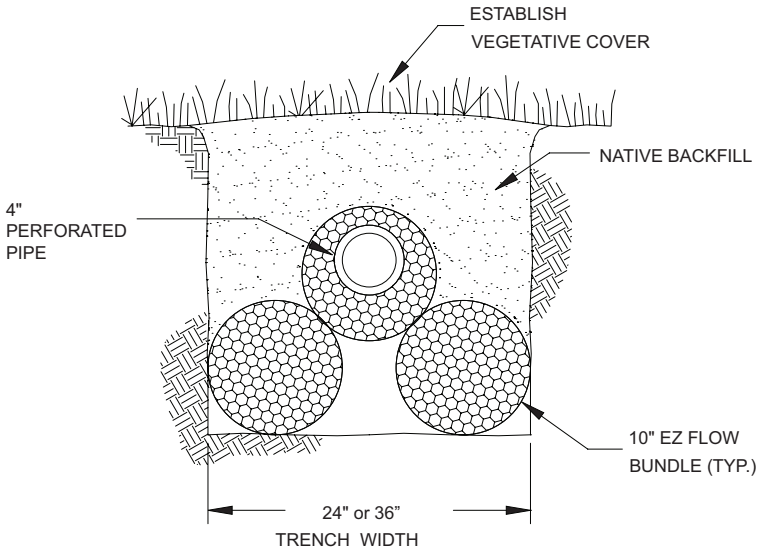
Note: If installing the EZflow 1003T system in a 3 foot wide trench, the products must be staked every 5 feet prior to backfilling the system.

6. If you use the LOW GPD flow rate use the following formulas for the EZflow system when installed in a 3 foot wide trench.

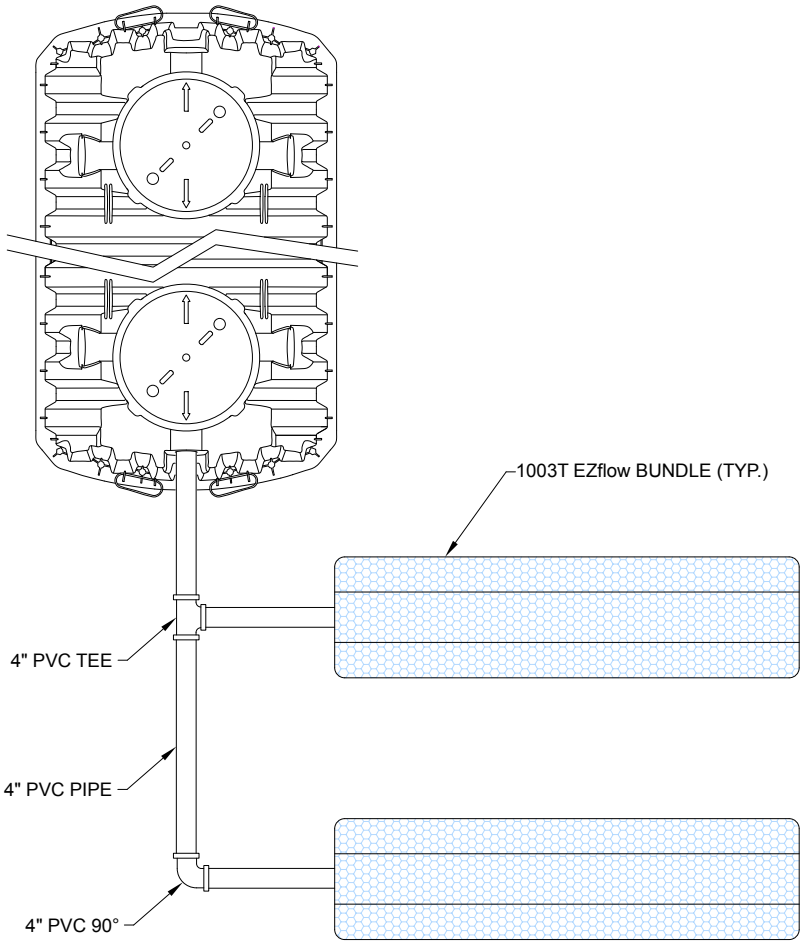
L = excavation length in feet
A = absorptive area
W = excavation width in feet

EZflow 1003T System: L = .83 A / (W + 2)
EZflow 1003T System: L = .83 A / (3 + 2)

CROSS SECTION (TYP.)



PLAN VIEW (TYP.)



INFILTRATOR WATER TECHNOLOGIES STANDARD LIMITED WARRANTY

(a) The structural integrity of each chamber, endcap and other accessory manufactured by Infiltrator (collectively referred to as "Units"), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator's installation instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date upon which a septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order 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 those Units determined by Infiltrator to be defective and covered by this Limited Warranty. 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 chamber system (chamber, endcap or other accessory) is manufactured by anyone other than 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 this Limited Warranty in any manner whatsoever, or to 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.

TEXAS LIMITED SEPTIC WARRANTY FOR INFILTRATOR CHAMBERS

a. The structural integrity of each Infiltrator Chamber and end cap, when installed in accordance with manufacturer's instructions, is warranted to the original purchaser against defective materials and workmanship for two years from the date of purchase. Should a defect appear within the warranty period, purchaser must inform Infiltrator Water Technologies of the defect within fifteen (15) days. Infiltrator Water Technologies will supply a replacement chamber and/or end cap. Infiltrator Water Technologies' liability specifically excludes the cost of removal and/or installation of units.

b. THE WARRANTY IN SUBPARAGRAPH (a) IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE CHAMBERS AND END CAPS, INCLUDING NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES. THE COMPANY SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS, LABOR AND MATERIALS, OVERHEAD COSTS, OR OTHER LOSS OR EXPENSE INCURRED BY PURCHASER. SPECIFICALLY EXCLUDED FROM 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 STRESSES GREATER THAN THOSE PRESCRIBED IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT BY PURCHASER OF IMPROPER MATERIALS INTO THE PURCHASER'S SYSTEM; OR ANY OTHER EVENT NOT CAUSED BY THE COMPANY. FURTHERMORE, IN NO EVENT SHALL THE COMPANY BE RESPONSIBLE FOR ANY LOSS OR DAMAGE TO THE PURCHASER, THE UNITS, OR ANY THIRD PARTY RESULTING FROM ITS INSTALLATION OR SHIPMENT. PURCHASER SHALL BE SOLELY RESPONSIBLE FOR ENSURING THAT THE INSTALLATION OF THE SYSTEM IS COMPLETED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, RULES, AND REGULATIONS.

c. NO REPRESENTATIVE OF THE COMPANY HAS THE AUTHORITY TO CHANGE THIS WARRANTY IN ANY MANNER WHATSOEVER, OR TO EXTEND THIS WARRANTY. NO WARRANTY APPLIES TO ANY PARTY OTHER THAN TO THE ORIGINAL PURCHASER.

d. All types of chamber systems must be installed in full compliance with the latest version of the product installation requirements. The system must be in full compliance with all aspects of the state regulations and codes.

e. WHEN WORKING IN FINE AND VERY FINE SANDS (LOAMY SAND AND SANDY LOAM SOILS WITH LOW MOISTURE CONTENT) IT IS AT THE CONTRACTORS' DISCRETION TO COVER THE CHAMBERS WITH A VERY FINE FILTER CLOTH (0.040 MIL) (ASTM D 4571) PRIOR TO BACKFILLING THE SYSTEM. A THICKER FILTER FABRIC OVER THE CHAMBERS MAY DEVELOP A BIOMAT IN THE CLOTH, WHICH PREVENTS THE EXFILTRATION OF EFFLUENT FROM THE CHAMBERS INTO THE SOIL. ANY OTHER FILTER FABRIC USED WILL VOID THIS WARRANTY.

NOTE: Any chamber systems constructed with less than our minimum sizing requirements will not be covered by any product warranties.

NOTE: When installing Infiltrator chambers in sandy conditions, do not over excavate the trench.

f. IF YOU ARE IN A GOPHER-PRONE AREA IT IS RECOMMEND THAT THE INSTALLER PLACES WIRE MESH (CHICKEN WIRE) ON THE BOTTOM OF EACH TRENCH BEFORE INSTALLING ANY INFILTRATOR CHAMBERS.

NOTE: It is at the contractors' discretion to cover the chambers with a very fine Infiltrator filter fabric (0.040 MIL) (ASTM D 4571) prior to backfilling the system when working in fine and very fine sands (loamy sand and sandy loam soils with low moisture content). A thicker filter fabric over the chambers may develop a biomat in the cloth, which may prevent the exfiltration of effluent from the chambers into the soil. Infiltrator filter fabric may be purchased from any Infiltrator Water Technologies distributor. ANY OTHER FILTER FABRIC USED WILL VOID THE WARRANTY

WARRANTY

INFILTRATOR WATER TECHNOLOGIES STANDARD LIMITED WARRANTY

EZflow, L.P. ("EZflow") hereby extends the following LIMITED WARRANTY to the original purchaser of a new EZflow drainfield system installed by an authorized installer. The EZflow drainfield system is warranted to be free from defects in material and workmanship under normal use, subject to the terms and conditions herein.

WARRANTY ELIGIBILITY:
This Limited Warranty shall extend to the original homeowner and to each subsequent owner of the home during the term of this Limited Warranty. This Limited Warranty covers the performance of the EZflow drainfield system only when properly installed in accordance with EZflow, L.P.'s design specifications, installation instructions, and any applicable state rules or regulations by an authorized installer for use with domestic strength effluent.

OWNER'S OBLIGATIONS AND MAINTENANCE
1. The homeowner must retain proof that septic tank solids (digested sludge) have been properly removed once every thirty-six (36) months.
2. The homeowner must not landscape over the EZflow drainfield system with trees or shrubbery nor erect any structures or place heavy items over the drainfield.
3. Homeowner must retain this Limited Warranty signed by an authorized drainfield system installer and a properly issued Operation Permit.

WHAT IS WARRANTED AND FOR HOW LONG:
The EZflow prefabricated drainfield system is warranted for ONE (1) YEAR from the date of installation to be free from defects in material or workmanship.
During the warranty period, EZflow, L.P. shall, at its option, repair or replace any defective system components at no charge for labor or materials. REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT IS THE EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY. Any replacement or repair parts are warranted for the remainder of the warranty period or ninety (90) days, whichever is longer. Under this Limited Warranty, EZflow, L.P. will provide only for
replacement and installation of defective EZflow drainfield system parts. The homeowner shall be responsible for any other costs, including but not limited to, re-sodding and any permits required for installation.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY:
1. The septic tank, filters, effluent distribution box(es) or other system components.
2. Improper design or installation, including but not limited to repairs/ replacements necessitated due to improper or inaccurate soils analysis, the use of incorrect application rates or inadequate sizing criteria.
3. Landscaping or re-sodding costs.
4. Repair work performed without EZflow, L.P.authorization.
5. Damage caused by unauthorized or improper attachment, alterations or modifications, including but not limited to use of geotextiles or plastic pipe.
6. Damage caused by flood, earthquake or other natural disaster.
7. Damage or failure due to improper maintenance or inadequate maintenance.
8. Failure due to excessive water usage, improper grease disposal or other excessive or improper use.
9. Failure caused by placing structures or plant material over the drainfield or by stresses or vehicular traffic greater than that prescribed in the installation or operation instructions.

NOTICE OF WARRANTY CLAIM:
To obtain warranty service under this Limited Warranty, the homeowner must notify EZflow, L.P. within ninety (90) days after discovery of any defect. Upon notification, EZflow, L.P. will issue an authorization number for investigation, repair, or replacement service. Notify EZflow, L.P., 6 Business Park Road, Old Saybrook, CT 06475 or call Toll Free 1-800-221-4436. EZflow, L.P. will not pay for any costs, repairs, or replacements without prior authorization.

DISCLAIMER OF AND LIMITATION ON WARRANTIES:
OTHER THAN THE EXCLUSIVE WARRANTY SPECIFICALLY SET FORTH HEREIN, NO OTHER EXPRESS OR IMPLIED WARRANTIES HAVE BEEN MADE OR WILL BE MADE BY OR ON BEHALF OF EZFLOW, L.P. EZFLOW, L.P. HEREBY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND DO NOT INCLUDE INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, LOSS OF USE, INCONVENIENCE, OR LOSS OR DAMAGE TO PERSONAL PROPERTY, WHETHER DIRECT OR INDIRECT, WHETHER ARISING IN CONTRACT OR IN TORT. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. FEDERAL OR STATE LAW MAY GIVE YOU CERTAIN OTHER RIGHTS THAT ARE NOT CONTAINED HEREIN. SEE ADDENDUM

NOTE: When installing EZflow by Infiltrator in sandy conditions, do not over excavate the trench.

Contact Infiltrator's Technical Services Department for assistance at 1-800-221-4436 or info@infiltratorwater.com

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