CULTEC, Inc.
P.O. Box 280
878 Federal Road
Brookfield, CT 06804

CULTEC™

www.cultec.com

Phone: (203) 775-4416
Phone: (203) 775-2969
Phone: (800) 4-CULTEC
Fax: (203) 775-1462

Thursday, April 05, 2001

Clough Toppan
State of Maine
Dept. of Human Services
Bureau of Health
Div. of Health Eng.
State House Station 10
Augusta, ME 04333-0010
USA

VIA FACSIMILE 207-287-3165
Via US Mail

Dear Clough:

I was reviewing our state septic approval letters to update my files and reviewed your 10 CMR 241 B-103.0 PLASTIC DISPOSAL DEVICES.

I noticed that you have only three of our chambers listed as being approved in your state. However, I have an approval letter dated November 20, 1995 from Kenneth L. Meyer (attached) which listed 5 of our current model sizes as approved.

Could you please tell me which listing is correct? Should we go by our 1995 letter? If so, will you be updating your 10 CMR 241 dated June 1, 2000 to the public?

Please call me at your earliest convenience to discuss this matter further at 203-775-4416 ext. 109.

Sincerely,

Gina Carolan
President

Enclosure: November 20, 1995 Approval of Cultec Products – Plastic Leaching Chambers
June 1, 2000 Appendix B Proprietary Disposal Devices and Septic Tank Filters 10 CMR 241

Done 5/2/01

Angus S. King, Jr.
Governor

Kevin W. Concannon
Commissioner

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
AUGUSTA, MAINE 04333

November 20, 1995

Mr. Robert DiTullio, Sr.
Cultec, Inc
878 Federal Road
Brookfield, CT 06804

Subject: Approval of Cultec Products - Plastic Leaching Chambers

Dear Mr. DiTullio:

This letter grants permission for the use in Maine of the Cultec line of plastic leaching chambers and supercedes any previous approval letters.

All installations must comply with the Subsurface Waste Water Disposal Rules of Maine as well as the manufacturer's recommendations. Systems must be designed by a Site Evaluator licensed by the State of Maine. A permit is required for the installation and must be obtained from the Licensed Plumbing Inspector (LPI) before beginning construction.

The Cultec chambers are rated as equivalent to stone bed as shown below (LF of chamber = SF of stone disposal area):

Device Name		Cluster Configuration	Linear (Trench like) Configuration
Contactor	75	4.4 SF/LF	5.5 SF/LF
Contactor	100	6.0 SF/LF	7.1 SF/LF
Contactor	125	4.7 SF/LF	6.9 SF/LF
Recharger	180	6.0 SF/LF	8.6 SF/LF
Recharger	330	8.7 SF/LF	13.1 SF/LF

Notes:

1. In a linear or trench-like configuration rows are to be separated by at least 36" (edge to edge).
2. All Cultec chambers must be installed using the geo-textile provided by the manufacturer.

Approvals by this office:

1. Are not recommendations for a product and must not be construed as such. This office does not represent any product as being better than, equal to, or inferior to any similar product.
2. Are based upon a desk review of a product, without field or lab testing by this office.
3. May be revised, based upon information received regarding the performance of the product, changes in the product or changes in the regulations.
4. May be reproduced only in their entirety.

Sincerely,

Kenneth L. Meyer
Wastewater & Plumbing Control Program

cc: Wallace Hinckley, P.E.
Jay Hardcastle, State Site Evaluator
Kerwin Keller, State Plumbing Inspector

APPENDIX B
PROPRIETARY DISPOSAL DEVICES AND SEPTIC TANK FILTERS

B-100.0 ALL DEVICES

B-100.1 General: Approved proprietary disposal devices may be used in lieu of a stone filled disposal field. A potential purchaser is advised to obtain information pertaining to the relative cost, availability, installation procedures, method of waste water distribution, and specific design considerations.

B-100.2 Requirements: The use of proprietary disposal devices may be approved, provided they meet the following conditions:

B-100.2.1 Condition 1: The square footage of the bottom and sidewall area of proprietary disposal devices varies from one manufacturer to another. Therefore, the required number of proprietary disposal devices from a specific manufacturer is determined by dividing its standard stone-filled square-footage equivalent into the total bottom and sidewall area, determined by multiplying the appropriate minimum hydraulic loading rate, from Table 600.1 and the design flow, from Chapter 5;

B-100.2.2 Condition 2: When proprietary disposal devices are used in a cluster configuration, only the unshielded bottom area can be used to determine its standard stone-filled disposal-field equivalent, except as referenced in note b of Table B-103.2;

B-100.2.3 Condition 3: When proprietary disposal devices are used in a trench configuration, only the sum of its unshielded bottom and sidewall area can be used to determine its standard stone-filled disposal-field equivalent;

B-100.2.4 Condition 4: The number of proprietary disposal devices shall be rounded up to the nearest whole disposal device;

B-100-2.5 Condition 5: The separation distance between groups of proprietary disposal devices is identical to the distances required for a standard stone filled disposal field;

B-100.2.6 Condition 6: Gravity, low pressure, or serial distribution may be used.

B-100.2.7 Condition 7: Proprietary disposal devices shall be installed level and shall be bedded and covered per each manufacturer's recommendations; and

B-100.2.8 Condition 8: In all other respects, each proprietary disposal device installation shall comply with this code.

B101.0 FOUR FOOT BY EIGHT FOOT AND EIGHT FOOT BY EIGHT FOOT CONCRETE DISPOSAL DEVICES

B101.1 Manufacturers:

American Concrete Industries
Downeast Concrete Products
Gagne & Son Precast Chambers
G.E. Godding & Son, Inc.
George R. Roberts, Inc.
Richard Genest Precast
Pre-Cast Concrete Products of Maine, Inc.
Superior Concrete Co., Inc.
Sandelin Pre-Cast, Topsham

B-101.2 Sizing requirements of 4 foot x 8 foot chambers:

When used in clusters, the disposal fields are sized according to bottom area only. Each 4 foot by 8 foot disposal device has an effective disposal infiltration area of 64 square feet.

When used in trenches with one foot of stones along the 4 foot sidewalls, each 4 foot by 8 foot disposal device has an effective disposal infiltration area of 77 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

When used in trenches with one foot of stone along the 8 foot sidewalls, each 4 foot by 8 foot disposal device has an effective disposal infiltration area of 90 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

B-101.3 Sizing requirements of 8 foot x 8 foot chambers:

When used in clusters, each 8 foot by 8 foot disposal device has an effective disposal infiltration area of 128 square feet.

When used in trenches with one foot of stone along two sidewalls, each 8 foot by 8 foot disposal device has an effective disposal infiltration area of 154 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

B-102.0 FOUR FOOT BY TEN FOOT CONCRETE DISPOSAL DEVICES

B-102.1 Manufacturers:

Richard Genest Precast

B-102.2 Sizing requirements: When used in clusters, each 4 foot by 10 foot disposal device has an effective disposal infiltration area of 80 square feet.

When used in trenches with one foot of stone along the 4 foot sidewalls, each 4 foot by 10 foot disposal device has an effective disposal infiltration area of 93 square

feet. When used in trenches with one foot of stone along the 10 foot sidewalls, each 4 foot by 10 foot disposal device has an effective disposal infiltration area of 113 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

B-103.0 PLASTIC DISPOSAL DEVICES

B-103.1 Trade names:

Infiltrator	EnviroChamber
Bio-Diffusor	Contactor

B-103.2 Sizing requirements: These devices have an effective disposal infiltration area in square feet per unit as shown in Tables B-103.2.

TABLE B-103.2

Sizing for "Bio-Diffusor", "Infiltrator", "EnviroChamber", and "Contactor" proprietary disposal devices

Device	Model	Height	Configuration	
			Cluster	Trench
Bio-Diffusor	Low profile	11"	36 sq ft/unit	44 sq ft/unit [a]
Bio-Diffusor	Standard	14"	36 sq ft/unit	50 sq ft/unit [a]
Infiltrator	EQ 24	11"	33.3 sq ft/unit [b]	33.3 sq ft/unit [c,d]
Infiltrator	Standard	12"	36 sq ft/unit	44 sq ft/unit [a]
Infiltrator	High Capacity	16"	36 sq ft/unit	50 sq ft/unit [a]
Enviro Chamber	Standard	16"	36 sq ft/unit	44 sq ft/unit [a]
Enviro Chamber	High Capacity	17"	36 sq ft/unit	50 sq ft/unit [a]
Contactor 75	Contactor "C"	12"	36 sq ft/unit	44 sq ft/unit [e]
Contactor 125	Contactor	18"	36 sq ft/unit	50 sq ft/unit [e]
Contactor 375	Tripdrain	30"	64 sq ft/unit	90 sq ft/unit [e]

[a] 36" from edge to edge (stone to stone, if stone is used).
[b] 12" from edge to edge on level systems (see manufacturer's installation guide).
[c] 18 " edge to edge for single row trenches.
[d] 6" edge to edge in 2 rows per trench with 36" between trenches.
[e] 6' from center to center in trench configuration.

B-104.0 USE OF GRAVEL-LESS CLOTH FABRIC DISPOSAL TUBING

B-104.1 Trade names:

GeoFlow	Eljen In-Drains
SB2	Enviro Septic

B-104.2 Configuration: Use of gravel-less fabric covered disposal field tubing (GeoFlow and SB2) is restricted to trench configurations. The use of Eljen In-Drains is restricted to the "Eljen In-Drain Leaching Design and Installation for the State of Maine" approved by the Department.

B-104.3 Sizing requirements: These devices have an effective disposal infiltration area in square feet per linear foot as shown in Tables B-104.3 and B-104.4.

TABLE B-104.3

Sizing for "GeoFlow" and "SB2" gravel-less cloth fabric disposal tubing

Device	Model	Configuration+	
		Cluster	Trench [a]
Geoflow	10"	N/A	5.0 sq ft per linear ft
Enviro-Septic	~~10~~12"	N/A	5.0 sq ft per linear ft
SB2	8"	N/A	2.0 sq ft per linear ft
SB2	10"	N/A	2.6 sq ft per linear ft

[a] 2.5' center to center

TABLE B-104.4

Sizing for "Eljen In-Drain" gravel-less cloth disposal system

Device	Model	Configuration	
		Cluster [b]	Trench [a]
In-drain	Type A	24 sq ft/ unit	24 sq ft/unit
In-drain	Type B	48 sq ft/unit	48 sq ft/unit

[a] 4' and 6', center to center, type A units and type B units, respectively.
[b] A minimum of 12" of sand must be between rows.

B-105.0 PRE-TREATMENT

B-105.1 Sand filters: Pre-treatment sand filters shall be designed, installed and maintained in conformance with the guidelines set forth in the United States Environmental Protection Agency's Design Manual On-site Wastewater Treatment and Disposal Systems, EPA-625/1-80-012.

The specific guidance Sections are:

B-105.1.1 Intermittent sand filters: EPA-625/1-80-012 Section 6.3.

B-105.1.2 Buried sand filters: EPA-625/1-80-012 Section 6.3.

B-105.1.3 Free Access sand filters (Non-recirculating): EPA-625/1-80-012 Section 6.3.

B-105.1.4 Recirculating sand filter: EPA-625/1-80-012 Section 6.3.

B-105.2 Proprietary Filters: The following proprietary filter systems are authorized:

B-106.0 SEPTIC TANK FILTERS

B-106.1 General: Septic tank outlet filters perform two primary functions; retains the solids in the tank and lowers the BOD. A potential purchaser is advised to obtain information pertaining to the recommended model, relative cost, availability, installation and maintenance procedures and flow rates from the manufacturer or distributor.

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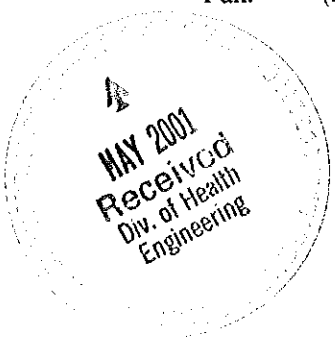

Wednesday, April 18, 2001

Clough Toppan
State of Maine
Div. of Health Eng.
State House Station 10
Augusta, ME 04333-0010
USA

Dear Clough:

I would like to first thank you for your help in researching our "missing" approvals.

Enclosed is our catalog that lists all of our current model sizes. We are interested in getting all valid sizes approved within your State. However, for the short-term, we would appreciate the letter you suggested that would state the original five models from 1995 are still approved within the State of Maine.

Thank you for your consideration on this matter. I look forward to hearing from you. Please call me at 203-775-4416 ext. 109 if you have any questions.

Sincerely,

Gina Carolan
President

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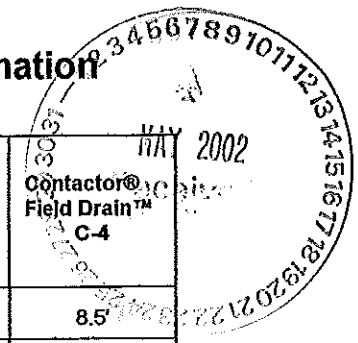
Filename: 04181top.doc

Contactor® Field Drain™ Chamber Specification Information

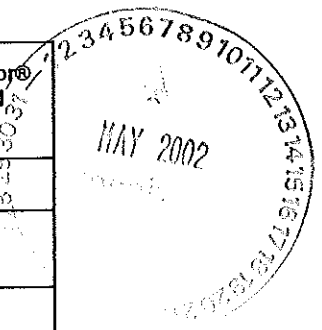


	Contactor® Field Drain™ C-1 SPECIAL ORDER	Contactor® Field Drain™ C-2 SPECIAL ORDER	Contactor® Field Drain™ C-3 SPECIAL ORDER	Contactor® Field Drain™ C-4
Length	8.5'	8.5'	8.5'	8.5'
Lay-up Length	8.0'	8.0'	8.0'	8.0'
Length adjustment	.34'	.34'	.34'	.34'
Width	1'	2'	3'	4'
Height	8.5"	8.5"	8.5"	8.5"
Invert Height	3"	3"	3"	3"
Shipping Weight	8 lbs. H-10 10 lbs. H-20	16 lbs. H-10 20 lbs. H-20	24 lbs. H-10 30 lbs. H-20	32 lbs. H-10 40 lbs. H-20
Gallon Capacity of "R" model	25.5	51	76.5	102
Gallon Capacity/ft	2.99	5.98	8.98	11.97
CF/LF storage for chamber alone	0.4	0.8	1.2	1.6
CF Storage per Chamber and Fabric Surrounded in Native Soil1	3.33 ft^3	6.66 ft^3	9.99 ft^3	13.32 ft^3
CF Storage per Chamber in Design Unit Surrounded in Stone2	5.76 ft^3	11.52 ft^3	17.28 ft^3	23.04 ft^3
Actual Effective Base Area	0.85 SF/LF	1.7 SF/LF	2.55 SF/LF	3.4 SF/LF
Open Bottom Width	10.5"	21"	31.5"	42"
Effective Sidewall Area	1.54 SF/LF	1.54 SF/LF	1.54 SF/LF	1.54 SF/LF
Perforation Diameter	¾"	¾"	¾"	¾"
Upper Effluent Transfer	4.5"	4.5"	4.5"	4.5"
Max. Inlet Opening	4.5"	4.5"	4.5"	4.5"
Lower Effluent Transfer Arc for Septic	2" x 6"	2" x 6"	2" x 6"	2" x 6"
Lower Effluent Transfer Arc for Groundwater	2" x 6"	2" x 6"	2" x 6"	2" x 6"

1 Based on lay-up length. 4% has been added to storage volumes for void areas created between ribs and filter fabric.
2 Based on lay-up length.

CULTEC, Inc. PO Box 280 Brookfield, CT 06804
800-4-CULTEC www.CULTEC.com custservice@CULTEC.com

Contactor® Chamber Specification Information



	Contactor® Model EZ-24	Contactor® Model 75	Contactor® Model 100	Contactor® Model 125
Length	8.5'	7.2'	8.0'	7.5'
Lay-up Length	8.0'	6.25'	7.5'	6.25'
Length adjustment	.34'	.75'	1.5'	1.0'
Width	16"	30"	36"	30"
Height	12.5"	12.4"	12.5"	18"
Invert Height	6"	6"	6.5"	12"
Shipping Weight	14 lbs. H-10 17 lbs. H-20	22 lbs. H-10 29 lbs. H-20	26 H-10 39 H-20	26 lbs. H-10 38 lbs. H-20
Gallon Capacity of "R" model	53.13	75	111.31	125
Gallon Capacity/ft	6.25	10.5	14.66	16.7
CF/LF storage for chamber alone	0.83	1.6	1.96	2.2
CF Storage per Chamber and Fabric Surrounded in Native Soil1	6.91 ft^3	10.40 ft^3	14.88 ft^3	14.30 ft^3
CF Storage per Chamber in Design Unit Surrounded in Stone2	12.00 ft^3	15.63 ft^3	22.28 ft^3	21.88 ft^3
Actual Effective Base Area	1.15 SF/LF	2.2 SF/LF	2.7 SF/LF	2.2 SF/LF
Open Bottom Width	13.2"	26"	28.5"	26"
Effective Sidewall Area	1.965 SF/LF	2.4 SF/LF	3.18 SF/LF	2.45 SF/LF
Perforation Diameter	¾"	¾"	¾"	¾"
Upper Effluent Transfer	4.5"	4.75"	4.75"	4.75"
Max. Inlet Opening	6"	10"	10"	12"
Lower Effluent Transfer Arc for Septic	2.75' x 6"	3.75" x 7.5"	3.75" x 7.5"	3.75" x 7.5"
Lower Effluent Transfer Arc for Groundwater	2.75" x 6"	3.75" x 7.5"	3.75" x 7.5"	3.75" x 7.5"

1 Based on lay-up length. 4% has been added to storage volumes for void areas created between ribs and filter fabric.

2 Based on lay-up length.

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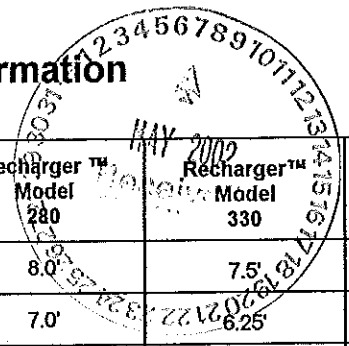
Recharger™ Chamber Specification Information



	Recharger™ Model 180	Recharger™ Model 280	Recharger™ Model 330	Recharger™ Model 400
Length	7.33'	8.0'	7.5'	7.5'
Lay-up Length	6.33'	7.0'	6.25'	6.17'
Length adjustment	1.0'	1.0'	1.17'	1.3'
Width	36"	47"	52"	52"
Height	20.5"	26.5"	30.5"	32.5"
Invert Height	14"	20.37"	24"	25"
Shipping Weight	34 lbs. H-10 43 lbs. H-20	54 lbs. H-10 67 lbs. H-20	72 lbs. H-10 87 lbs. H-20	58 lbs. H-10 73 lbs. H-20
Gallon Capacity of "R" model	183	359	416	430
Gallon Capacity/ft	25	45	55.5	58
CF/LF for chamber alone	3.33	6.0	7.4	7.7
CF Storage per Chamber and Fabric Surrounded in Native Soil1	21.93 ft^3	43.68 ft^3	48.10 ft^3	49.41 ft^3
CF Storage per Chamber in Design Unit Surrounded in Stone2	29.44 ft^3	56 ft^3	65 ft^3	66.64 ft^3
Actual Effective Base Area	2.7 SF/LF	3.62 SF/LF	3.83 SF/LF	3.83 SF/LF
Open Bottom Width	32.5"	43.25"	46"	46"
Effective Sidewall Area	3.6 SF/LF	5.37 SF/LF	6.0 SF/LF	6.17 SF/LF
Perforation Diameter	¾"	¾"	¾"	¾"
Upper Effluent Transfer	4.75"	4.75"	4.75"	4.75"
Max. Inlet Opening	15"	18"	24"	24"
Lower Effluent Transfer Arc for Septic	3.75" x 7.5"	3.75" x 7.5"	3.75" x 7.5"	3" x 6.5"
Lower Effluent Transfer Arc for Groundwater	7.5" x 23.5"	9" x 33"	11.5" x 32"	12" x 34.25"

1 Based on lay-up length. 4% has been added to storage volumes for void areas created between ribs and filter fabric.

2 Based on lay-up length.

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800-4-CULTEC www.CULTEC.com custservice@CULTEC.com

Contactor™ & Recharger™ Chamber Systems

CULTEC, INC.

For the SERIOUS MANAGEMENT & TREATMENT of Septic & Stormwater

Primarily used for Septic applications:

- CONTACTOR EZ-24
- CONTACTOR 75
- CONTACTOR 100
- CONTACTOR 125
- FIELD DRAIN® PANEL

Primarily used for Stormwater Management:

- RECHARGER 400
- RECHARGER 330
- RECHARGER 280
- RECHARGER 180
- STORMFILTER
- PAC™

Water, water everywhere...®

March 2000

I would like to take this opportunity to introduce you to our company, **CULTEC, Inc.**, having **CONTACTOR™** and **RECHARGER™** plastic leaching chambers for use in stormwater management systems and on-site wastewater treatment throughout the U.S. and Canada, as well as overseas.

A LITTLE BIT OF HISTORY:
Having had some labored training myself from my two previous generations, over 50 years hands-on experience in the drainage industry, and precasting operations, finding a better way to help Mother Nature prompted my many years of research and design of a Quality, Traffic Bearing Plastic Chamber having a large capacity and an open bottom for direct infiltration. **CULTEC, INC.** has been manufacturing their chambers since 1986/87, resultant of thorough testing. We are the producer of the FIRST and ONLY High Capacity polyethylene chamber, and our **RECHARGER,** has 400 gallons of capacity/chamber!

CONTACTOR and **RECHARGER** are the only truly traffic bearing rated chamber having NO structural failures...EVER.

We, at Cultec, are proud that our **CONTACTOR** and **RECHARGER** chambers are known as the most respected chamber system in the United States engineering community! Known for saving valuable land for use in subsurface stormwater management for parking lots, landscape areas, roof run-off, etc...

I am providing this package of information to inform you of our product line and the best way to handle storm water in a manner that can provide real *VALUE* to the property owner with the use of *QUALITY* chambers!

Find out why **CULTEC'S RECHARGER** is one of the fastest growing names in the stormwater management industry! Please visit our website at **www.cultec.com.**

We look forward to the opportunity of hearing from you soon.

Sincerely,
CULTEC, Inc.
A family owned and operated company

Bob

Mr. Robert DiTullio, Sr.
Founder and CEO

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Brookfield, CT 06804
Ph: 203-775-4416
Fax: 203-775-1462
email: cultec@aol.com
website: www.cultec.com

1-800-4CULTEC

CULTEC

Recharger™

for the *SERIOUS* Stormwater Management Systems

The ***CULTEC, Inc. RECHARGER™, CONTACTOR™,*** and ***FIELD DRAIN™ PANEL*** plastic leaching chambers are cost-effective alternative systems for subsurface ***stormwater management*** and on-site wastewater treatment. Available in eleven sizes ranging from 8.5" high to 32.5" high, having storage capacities up to 400+ gallons/chamber. ***Most Cost Effective Under-pavement Design!! Investments made in pond replacement, increasing parking space and providing MORE Retail Space!!***

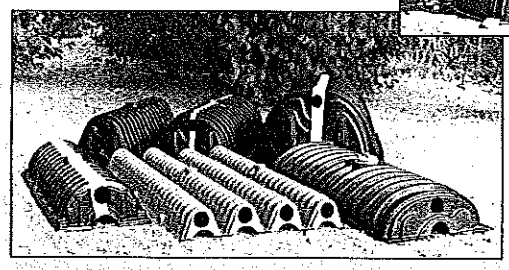
WORLDWIDE DISTRIBUTION.

CALL TODAY FOR FURTHER INFO.

FREE TECHNICAL SUPPORT PROVIDED!

AUTOCAD DISC, TECHNICAL MANUAL ON REQUEST

▼ Contactor™ & Recharger™ chambers are available in 11 sizes ranging from 8.5" high up to 32.5" high.



▲ All H-20 chambers are specifically designed for paved trafficked areas.

CULTEC, INC.

878 Federal Road Brookfield, CT 06804

203-775-4416 Phone ▪ 203-775-1462 Fax

Made with up to 75% recycled materials

#1 SAFETY, QUALITY, PERFORMANCE!

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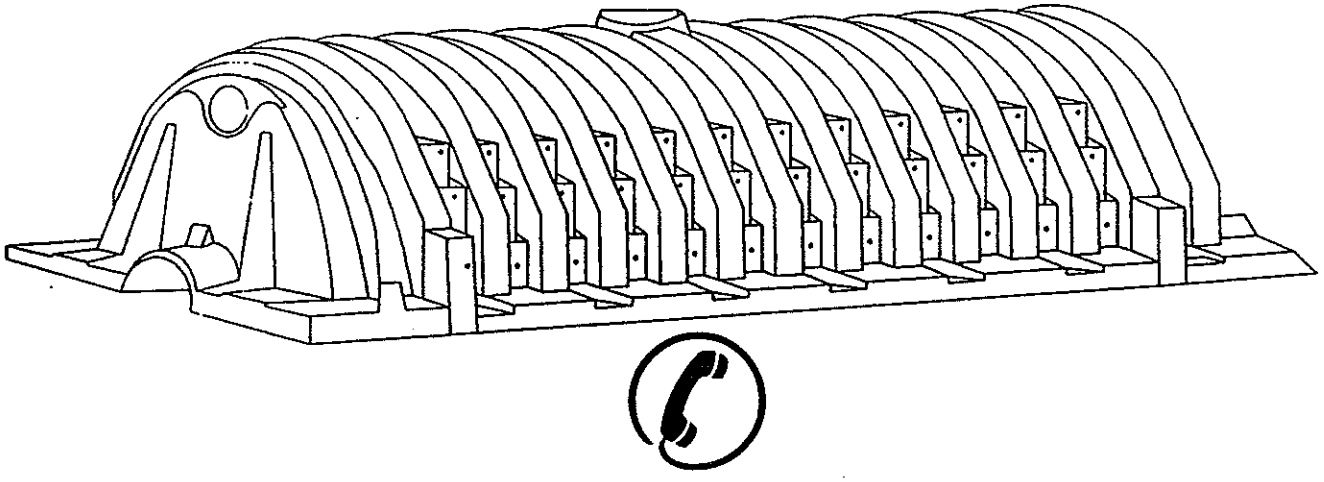
Cultec Engineering Catalog Registration Form

In order to send you technical updates to our catalog, we would like you to register your catalogue with us. Please fill out the following information and return to our offices.

Return completed form to:
Cultec, Inc.
878 Federal Road
Brookfield, CT 06804
FAX: (203) 775-1462
Attention: Catalog Registration

NAME	
COMPANY NAME	
ADDRESS	
CITY	
STATE	
ZIP	
PHONE	
FAX	
TYPE OF CATALOG HOLDER: *(IE: Engineer, Distributor, Designer)*	
DO YOU HAVE AUTOCAD? WHAT VERSION?	
DATE CATALOG RECEIVED	
E-MAIL ADDRESS	
CATALOG REGISTRATION # *(located on cover)*	
WOULD YOU LIKE TO RECEIVE CATALOG UPDATES?	

Thank you for your interest in CONTACTOR™, RECHARGER™, and FIELD DRAIN®
Plastic Leaching Chambers
used in on-site wastewater and stormwater management.



For more information, please contact us at
(800) 4-CULTEC

Free Technical Assistance, Stormwater Video and AutoCAD design diskettes available.

Visit our website at: www.cultec.com

MI98-01.WPD

Cultec Chamber Systems
1998 Engineering Manual
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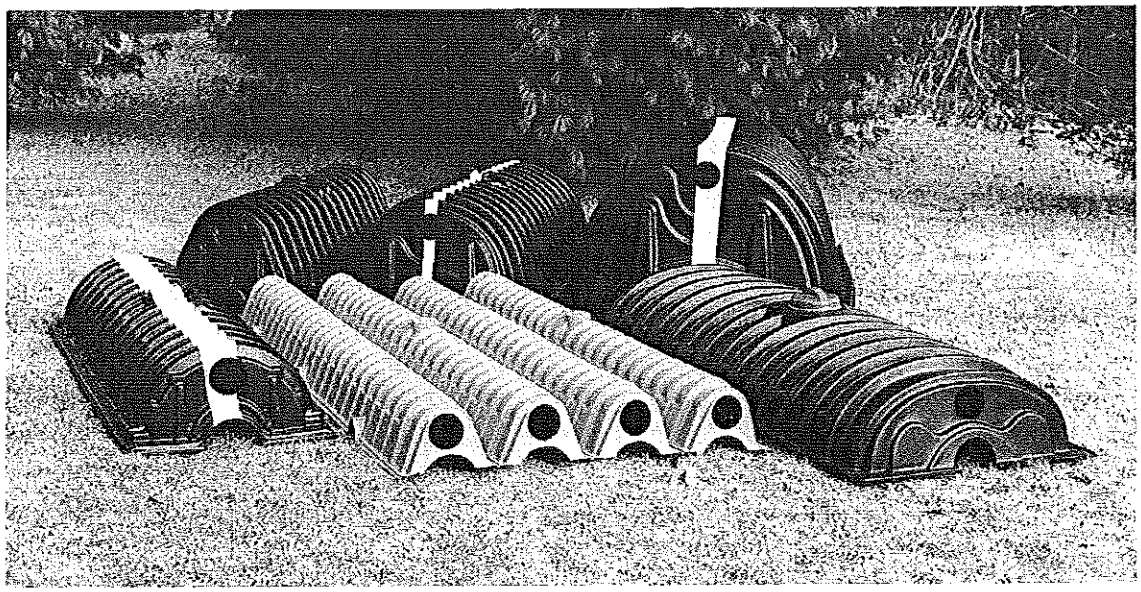
Product Information for

- FIELD DRAIN® PANEL
- CONTACTOR™ EZ-24
- CONTACTOR™ 75
- CONTACTOR™ 100
- CONTACTOR™ 125
- RECHARGER™ 180
- RECHARGER™ 330
- RECHARGER™ 400
- STORMFILTER
- CULTEC Filter Fabric
- CULTEC Inspection Cover
- CULTEC Splash Deflector



PR98-00.WPD

RECHARGER™ and CONTACTOR™
by CULTEC

For On-Site Wastewater and Stormwater Management Systems...
Provide Your Customer With High Quality, Cost Effective
CULTEC Polyethylene Chambers.
From ***Lowest Profile*** to ***Highest Storage***...**#1 IN BOTH!**

CULTEC™

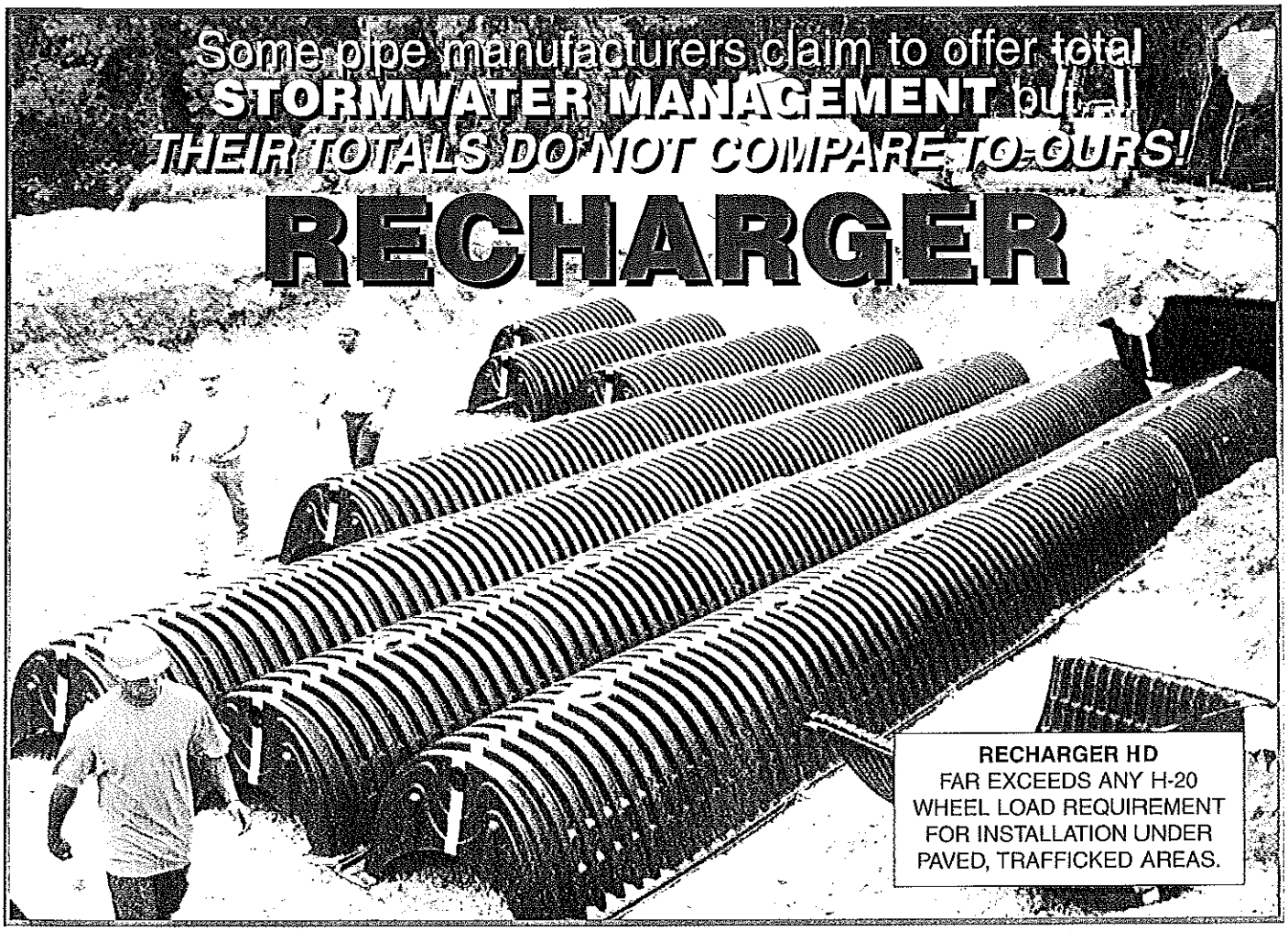
CULTEC

"Water, water everywhere..."®

1-800-4CULTEC **www.cultec.com**

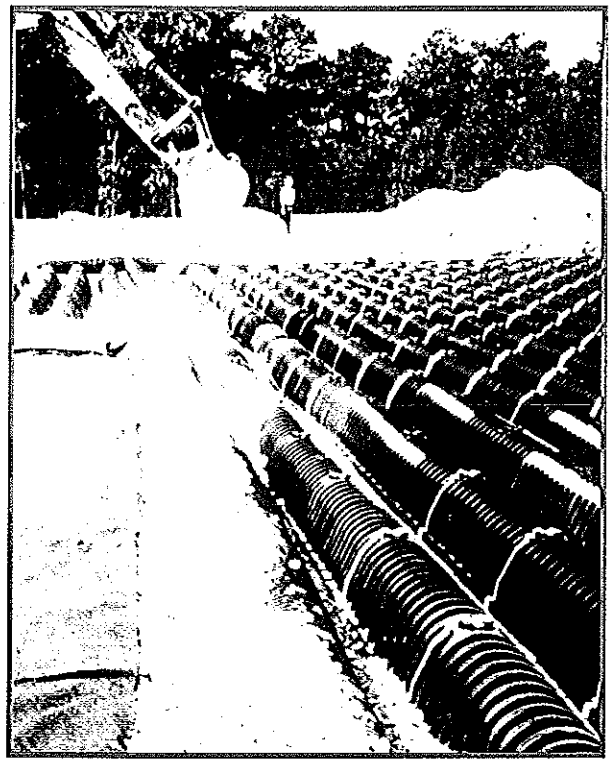
Some pipe manufacturers claim to offer total
STORMWATER MANAGEMENT but...!
THEIR TOTALS DO NOT COMPARE TO OURS!

RECHARGER



RECHARGER HD
FAR EXCEEDS ANY H-20
WHEEL LOAD REQUIREMENT
FOR INSTALLATION UNDER
PAVED, TRAFFICKED AREAS.

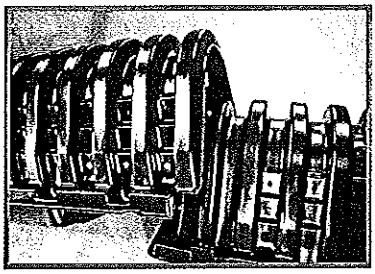
CULTEC chambers effectively serve environmentally sensitive areas while making valuable land available for parking lots, athletic fields and other applications. Open ponds may not be desirable for locations such as airports (which attract birds) or in areas where insurance and aesthetic considerations make them unfeasible. For underground stormwater management maintenance, use **CULTEC** *STORMFILTER*™

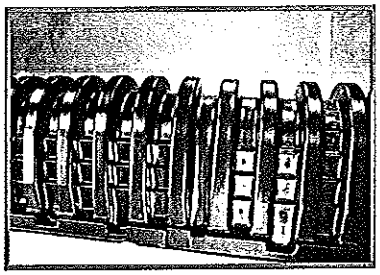


High-capacity, open bottom RECHARGER chambers provide greater storage and much higher infiltrative capability.

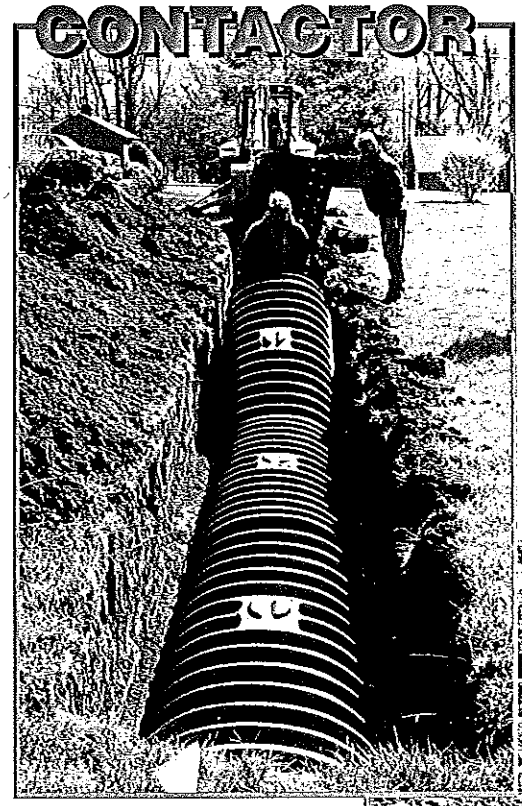
Less area and less crushed stone is required with RECHARGER stormwater management systems.

CULTEC'S patented fully shouldered connection...The Strongest Available.





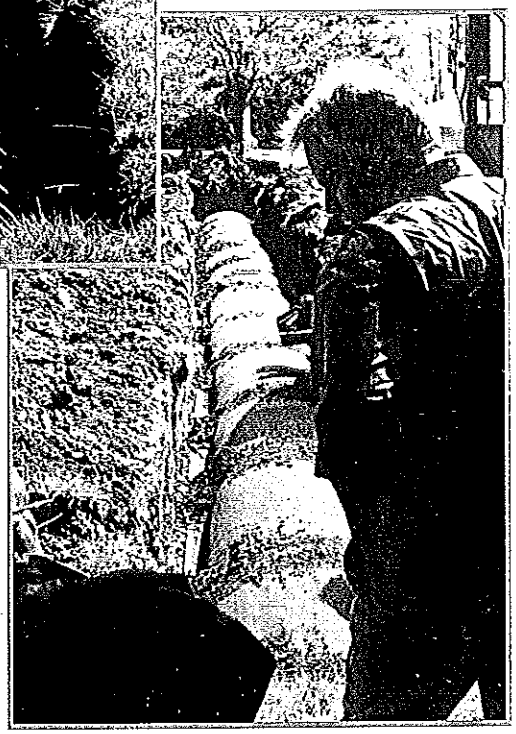
◀ *Airport Runway Stormwater Management Project.*



CULTEC CONTACTOR has the solutions to your **ON-SITE WASTEWATER TREATMENT** or stormwater management problems.

CULTEC chambers interlock simply by overlapping the larger rib of the chamber over the preceding chamber's smaller end rib.

Always specify **CULTEC 410 FILTER FABRIC** when using CONTACTOR or **RECHARGER** systems. It eliminates the use of crushed stone, prevents soil intrusion and promotes high efficiency.

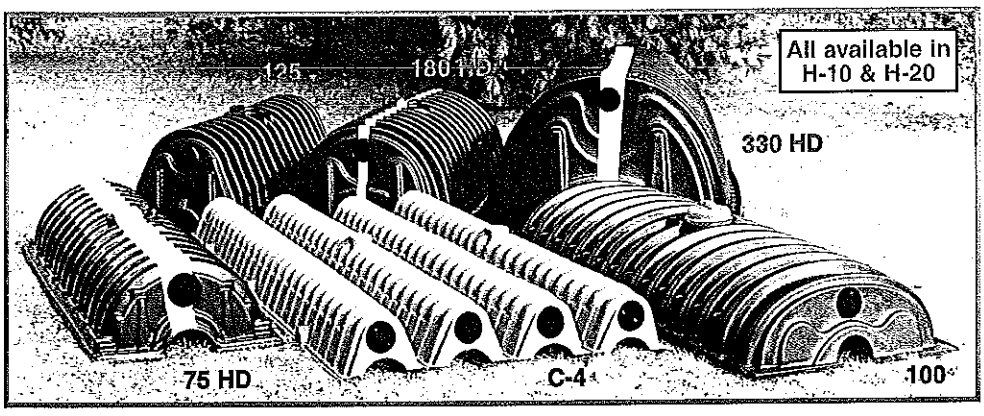


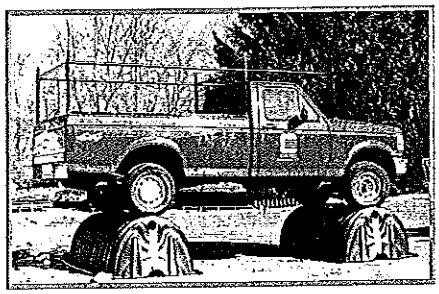
Shown at right: CULTEC 410 FILTER FABRIC covering CONTACTOR chambers.

In 1999, CULTEC introduced the industry's *first* and only *flexible* chamber:

CULTEC—YOUR WISEST CHOICE!

Whether you are limited by high groundwater or are trying to get the highest storage in a given area, CONTACTOR and **RECHARGER** chambers are now available in at least 10 sizes ranging from 8.5" - 32.5" high and having capacities from 25 up to 425 gal per unit that effectively meet the demands of realistic site conditions.





Structural Integrity!

All CULTEC H-20 chambers are specifically designed for paved, trafficked areas.

CULTEC CHAMBER SPECIFICATIONS

Model	Capacity CF/LF	Height	Invert Height	Width	Overall Length
Field Drain C-1	0.40	8.5"	3"	12"	8.5'
Field Drain C-2	0.80	8.5"	3"	24"	8.5'
Field Drain C-3	1.20	8.5"	3"	36"	8.5'
Field Drain C-4	1.60	8.5"	3"	48"	8.5'
Contactor EZ-24	0.83	12.5"	6"	16"	8.5'
Contactor 75	1.60	12.4"	6"	30"	7.2'
Contactor 100	2.20	12.5"	6"	36"	7.5'
Contactor 125	2.20	18"	12"	30"	7.5'
Recharger 180	3.33	20.5"	14"	36"	7.33'
NEW Recharger 280	6.00	26.5"	20"	47"	8.0'
Recharger 330	7.40	30.5"	24"	52"	7.5'
Recharger 400	7.70	32.5"	25"	52"	7.5'

STORMFILTER — In-line Secondary Filter System

STORMFILTER is a large capacity polyethylene chamber consisting of a combination of high quality screen and particulate filters. The filters remove both large and small particles from the stormwater entering the system that would otherwise block and eventually lower the overall ability of the stormwater management system. Its removable filters can be easily cleaned or replaced making your present system as good as when it was installed. *STORMFILTER* may be used with any existing stormwater management system, however, we guarantee it most effective when used with *CONTACTOR*™ and *RECHARGER*™ chambers.

A clean system = A more effective system

Authorized CULTEC Distributor:

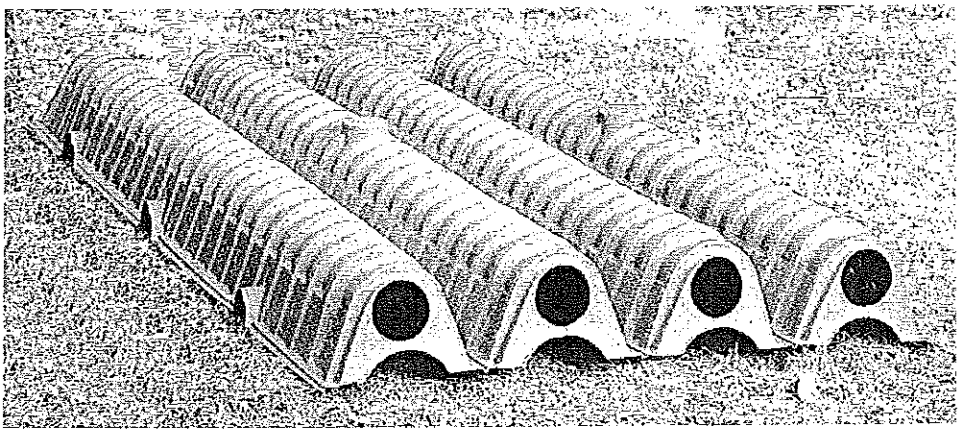
CULTEC, INC.

878 Federal Road
Brookfield, CT 06804
PH: 203-775-4416
PH: 800-4-CULTEC
FX: 203-775-1462
http://www.cultec.com
Cultec@aol.com

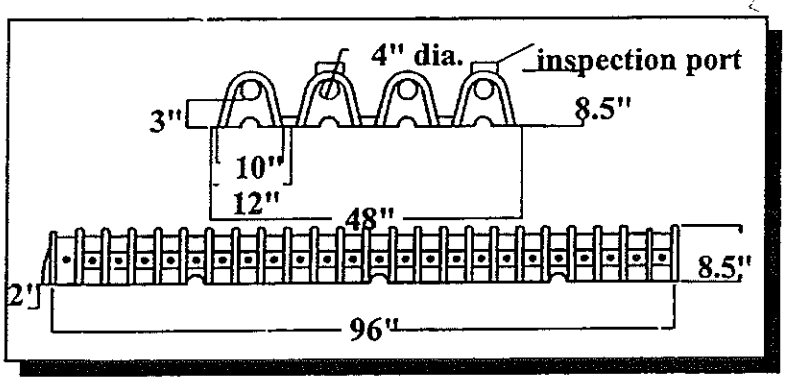
FREE technical assistance, preliminary drawings, engineering manual, stormwater video, miniature chamber models, and AutoCAD design diskettes available upon request.

CONTACTOR™
FIELD DRAIN® PANEL

by Cultec, Inc.



- *Practical*
- *Efficient*
- *Cost Effective*
- *Easily Installed*
- *Durable*
- *Chemically Resistant*



Ultra low profile, only 8.5" high.

Practical for near surface designs.

Save on fill requirements for mound systems.

Well suited for use in either a trench or bed design.

*For maximum effectiveness in a gravel-free septic system, use **CULTEC 410 Fabric.***

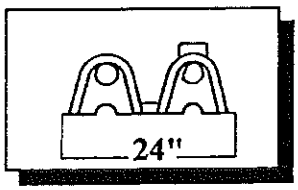
Easy to use 4' x 8' panels.

Superior flexibility in both length and width.

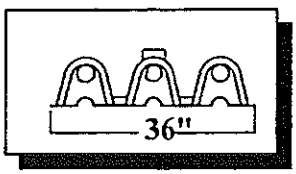
A four foot wide, four channel system which can be easily modified to:

ONE,

TWO



or THREE
foot channel (widths).



Identification of Cultec's Heavy Duty H-20 Rated Chambers

All of Cultec's chambers are available in both light duty and heavy duty models. We manufacture our chambers in two different gauge thicknesses. A lighter gauge is used for untrafficked, mostly residential use. The heavier gauge HD model is used in traffic installations such as driveways, parking lots, and athletic fields *(which may be subject to occasional vehicular use and parking, etc.)*. Cultec heavy duty (HD) model chambers are specifically designed for use under unpaved/paved trafficked areas. Currently we mark all seven Cultec HD chambers with a stripe for easy recognition.

Making the Choice between Cultec Heavy Duty vs. Standard Light Duty Chambers

When a choice is to be made between Cultec HD and Cultec Standard LD or other manufacturer's chambers, the installer must evaluate several important factors.

1.) ***Is the completed installation of chambers subject to vehicular traffic?***
If the area will be trafficked, choose Cultec HD models in your design.

2.) ***In the future, will the completed system be subject to traffic or should you consider traffic as a possibility?***
For instance, a playing field may someday be used for an extra parking area. Often when an initial design is completed an assessment of future situations has not been thorough. The result can be both unnecessary and costly. By evaluating the location of the system, particularly commercial, industrial, or institutional applications, we usually recommend the advantage of using Cultec's HD chamber.

3.) ***Why should I choose Cultec's HD models over other plastic chambers?***
We construct Cultec's heavy duty chambers from a thicker, heavier gauge polyethylene designed to be installed under realistic, onsite conditions. While other manufacturers choose to offset structural integrity with unrealistic installation requirements, we design Cultec's HD chambers to do the job with no pampering required as part of the installation.

Sometimes, manufacturers of other chambers may have little or virtually no difference between their standard vs. heavy duty chambers. Instructions to bury the standard chamber deeper to attain H-20 performance may be the only difference. Requiring an increased burial depth to attain an H-20 wheel load requirement can result in an unsatisfactory installation.

Cultec HD chambers build safety into the product and takes into account the actual burial process. To obtain an H-20 wheel load rating, the chamber has specific burial depth requirements. However, even at our recommended burial depths, every one of Cultec's HD models exceeds the H-20 specified requirements.

Important Differences between Cultec Chambers and Brand X

✔***Cultec chambers do not require end plates.***
Cultec chambers have a repeating end support panel every 7.5' that are directly attached to the product on every model. The vertical support panel increases the strength of the product and discourages spreading of the side walls. The contractor does not have to attach end plates separately with screws.

✔***Cultec H-10 and H-20 chambers are different thicknesses.***
H-20 Cultec chambers have a stripe and are made from 35% heavier gauge material. Cultec's largest chamber meets H-20 specifications at 14". Brand X needs 18" to achieve H-20. Cultec chambers are much stronger than Brand X because of their design and the material used.

✔***Cultec chambers do not require screwing together of units to prevent them from popping apart.***
Brand X recommends that the contractor screw the units together in four places to prevent separation.

For example:
800 Brand X units multiplied by 4 screws/connection = 3200 screws.

Obviously this can be quite labor intensive--*plus* the contractor must screw all end plates for Brand X on.

✔***Cultec chambers interlock by using a patented interlocking rib connection that is the strongest on the market.***
Brand X uses a tongue and groove interlock. They have experienced problems with units popping apart on both H-10 and H-20 units.

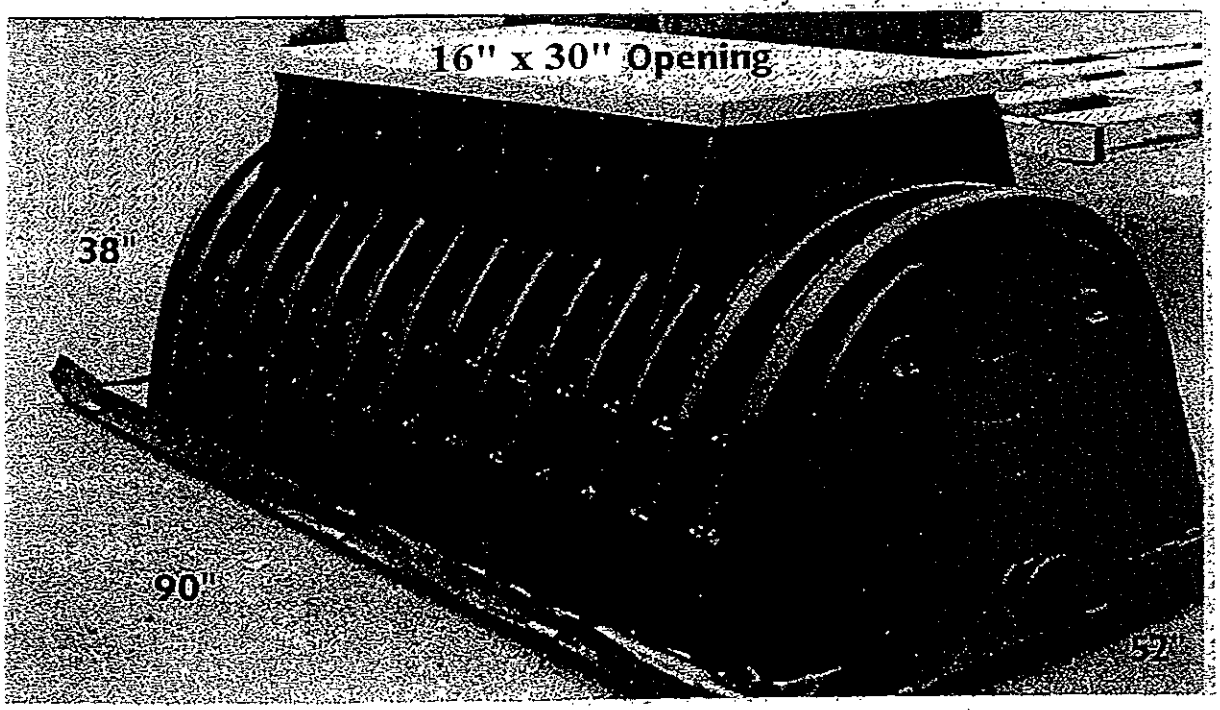
You can actually interlock two Cultec chambers more quickly than you can couple two pipes together.

✔***Cultec chambers can:***
Save on land area and excavation costs (up to 52% when using RECHARGER™ 330 & 400).
Save stone and hauling costs.
Save labor costs (No end plates or screws).
Reduce the total number of units (Because RECHARGER™ 180 and RECHARGER™ 330 & 400 are much larger than Brand X).
Offer a higher storage volume per linear foot of system.

Take care of all your stormwater management filtration needs with

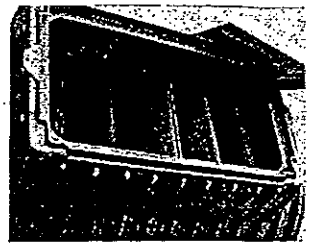
STORMFILTER

By Cultec, Inc.



DESIGNED BY EXPERTS

STORMFILTER is a patented stormwater filtration chamber designed by Cultec, Inc., manufacturers of the largest capacity polyethylene stormwater chamber available--the RECHARGER™ 330.



LENGTHEN THE EFFECTIVENESS OF YOUR SYSTEM

With *STORMFILTER*, you can maintain a consistently productive system without any long term deterioration of effectiveness.

STORMFILTER is a large capacity polyethylene chamber consisting of a combination of high quality screen and particulate filters. The filters remove both large and small particles from the stormwater entering the system that would otherwise block and eventually lower the overall ability of the stormwater management system. Its removable filters can be easily cleaned or replaced making your present system as good as when it was installed.

We may install an optional alarm on your *STORMFILTER* to notify you of periodic servicing.

WIDE RANGE OF APPLICATION

STORMFILTER may be used with any existing stormwater management system, however, we guarantee it most effective when used with CONTACTOR™ and RECHARGER™ chambers.

A clean system = A more effective system

CULTEC, INC.
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Brookfield, CT 06804

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Phone (800) 4-CULTEC
Fax (203) 775-1462

Pr98-06.wpd
1998 Cultec Engineering Manual

STORMFILTER

For any stormwater management system (SMS) whether it employs infiltra concern of particulate contamination should be an item of utmost consider

Structures such as siltation basins and catch basins having sumps to allow diversion tees in place should always be installed as effective methods to e heavier and larger particles from proceeding into the management facility. systems while they may display a high degree of efficiency are often not en particles effectively.

STORMFILTER was designed to be a final in-line filter system that is effe the smaller particles that can be transported by stormwater through the pre- siltation and catch basins.

The removal of these finer particles in the preventive maintenance mode gr infiltration bed and promotes cleaner downstream effluent flow.

STORMFILTER is a sequential baffling filter system designed to separate p silt from stormwater before its entering into a management system or a wate system may be a detention or retention type, either an underground chamber of land and other factors such as health and liability considerations are maki the design of choice.

The standard STORMFILTER is supplied with four filter plates (baffles). A polypropylene plastic fiber that can be pressure backwashed for cleaning or t removed and replaced. The first filter is a coarse screen that removes larger finer screen. The final two filters are fabric filters that separate fine particles bags that allow the hinged collapsible frames to be installed easily. The filte in the ribs of the filter chamber.

Stormwater enters the filter chamber through a feed pipe (recommended 4"-8 the top of the filter plate. The primary filter is positioned approximately 1 ½ pipe. As water descends from the feed pipe, it travels downstream through th management system.

MAINTENANCE

The main period of concern with silt and sediment intrusion in a stormwater r during its initial operation. Site stabilization measures such as silt fence and place to prevent heavy soil migration (the result of unstable site conditions) fr

Often even when the best employed preventive measures are taken to stabiliz to the SMS is unavoidable and at its highest level in a newly operational SMS pay particular attention to the system at this time.

The Effectiveness of CULTEC 410 Fabric for use in Septic and Drainage Systems

When considering the type of fabric to be used to cover directly the Cultec CONTACTOR™ and RECHARGER™ chambers as an alternative to stone backfill, several important performance characteristics must be evident.

Good Permeability
There are dozens of different geosynthetic fabrics available that are specified for use in drainage systems. However, specifically for septic application many are not suitable. Choosing the wrong fabric will seriously detract from drainage performance.

A quick test to determine good permeability is to take a one square foot piece of fabric and hold it directly under a fully open discharge of running tap water.

The proper fabric will let the water from the open tap run through with almost no build up.

The permeability of the fabric should be 160-180 G.P.M./ft2.

Choosing the improper fabric may be almost the equivalent of putting a plastic sheet over the chambers to prevent effluent from draining.

Opening Size
The opening size of Cultec 410 is 70 US Sieve. Cultec 410 fabric is a needle punch fabric having hundreds of small holes per square foot that allow smaller particles to pass through to the interfacing soil backfill.

The combination of these small openings with the woven structure of the fabric enhances the infiltrative process

During the filter process in an operating drainage system, the combination of good permeability and the bridging of the particles, the allowance of finer particles to pass through the fabric is superior to the best of soil types normally selected for optimum performance (such as clean, silt-free, coarse to medium sandy soil).

For example, if one were to take a given thickness of the best soil (IE: 1") and gain the same thickness of filter fabric by piling and compressing several layers of the Cultec 410 fabric, effluent or water would pass through the fabric layers at almost twice the rate of the soil.

The use of the proper Cultec 410 fabric does not impede the performance of the two-part chamber fabric system. The limiting factor is the soil type, not the fabric.

A commonly asked question at seminars presenting the Cultec System is: "Will the fabric block up over time?"

The answer is: Yes, it will at some point block up, as will any filter subjected to impurities. However, it will not block up as quickly as a stone/soil or soil interface.

Tear Strength
Cultec 410 fabric does not tear easily. It is a non-woven spun bound multidirectional fiber material produced with polypropylene, a strong plastic fiber. Even when Cultec 410 fabric is cut or punctured with a sharp object it is very difficult to tear.

Limited Elongation
Cultec 410 fabric has a maximum stretch of approximately 50%. The combination of a high tear strength and limited elongation provide a material that will span the voids between the ribs of the chamber, creating an effluent tunnel from the chamber base up the sides to the top of the arch of the unit.

The contact of the effluent with the fabric is directly interfaced to surrounding soil producing percentage of efficiency greater than that available with either crushed stone or that provided by open grilled chamber side walls.

An additional benefit to Cultec's two-part chamber and Cultec 410 fabric is the promotion of transevaporative capability over the installations upper surface--something not possible with solid plastic or concrete chamber top surfaces.

Burst Strength
Cultec 410 fabric has a burst strength of 190-240 psi. Using fabric with a relatively high burst strength eliminates the concern of the possibility of small stones blowing through the fabric. Cultec 410 is suitable for installation for any properly designed system including those subjected to H20 traffic loading.

When calculating with a mullen burst of 190 psi this translates to 27,360 lb/sf--far above H20 requirements. The assurance of proper fabric performance is promoted by two situations: [1] the load cone dissipation of buried loads (see fig.1) and [2] the fact that Cultec 410 fabric measures greater load bearing on the top of the ribs where it is pressed by the load to the ribs, as opposed to the reduced load the fabric is subjected to in the span between the ribs.

Barrier to Soil Intrusion
Cultec 410 effectively performs two important functions relating to the soil interface.

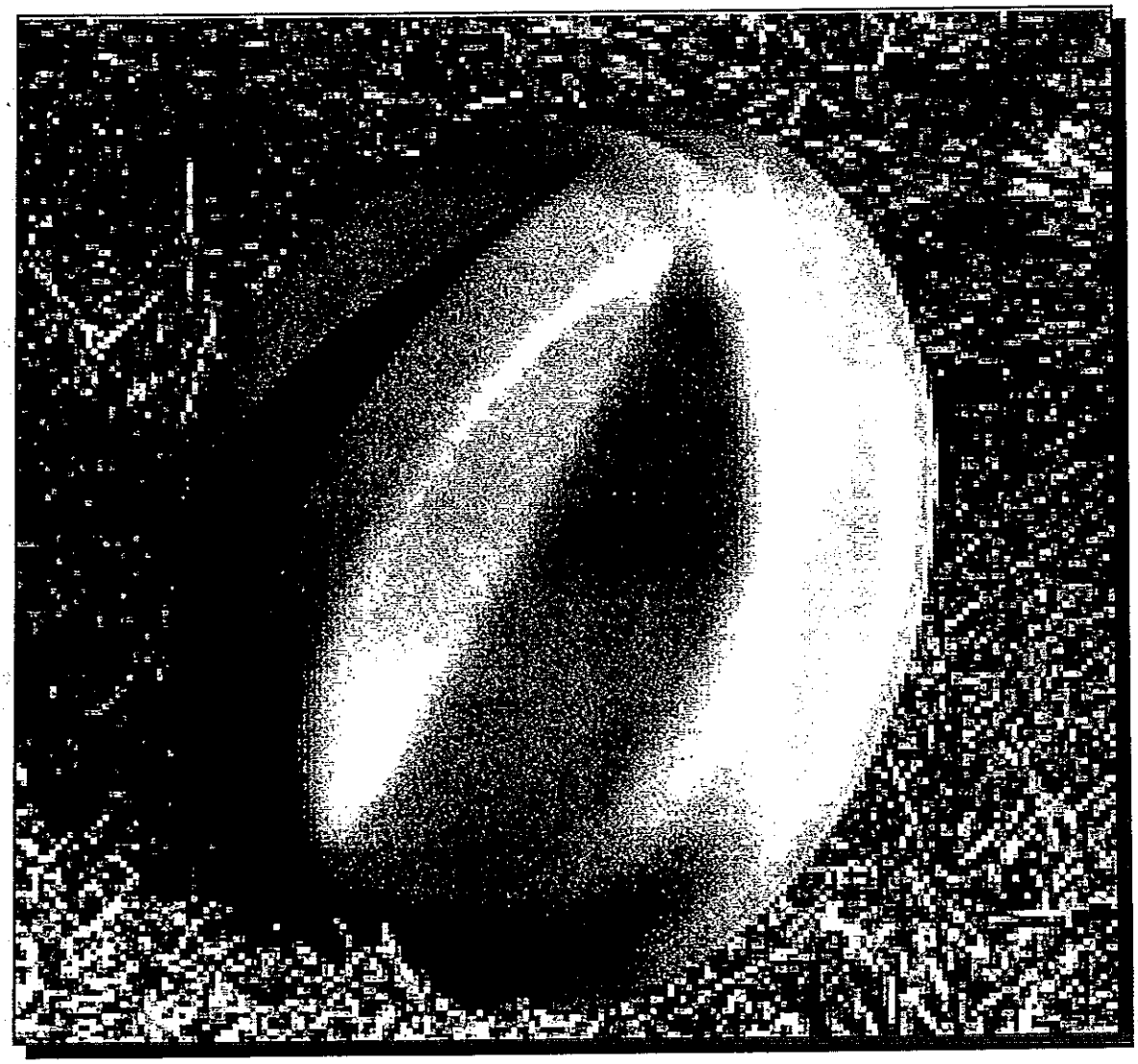
Firstly, it provides an effective barrier to soil particulate intrusion that no open grill chamber side on stone interface can offer.

Secondly, the barrier stabilizes the soil interface holding back the migration of larger soil particles that consequently keep finer particles from entering the chamber. The pulling out of finer particles during the receding "tide" of infiltration is referred to as "exfiltration." Finer particles which are permitted to gain entry back into the chamber and consequently be introduced to the open bottom primary leaching area, are the most common cause of system failure when these fine silica/mica type combine with undissolved (settling) suspended solids present in septic effluent.

When someone asks what the difference is if a little soil gets back into the grill of that type of designed product the critical issue is that little bit of soil

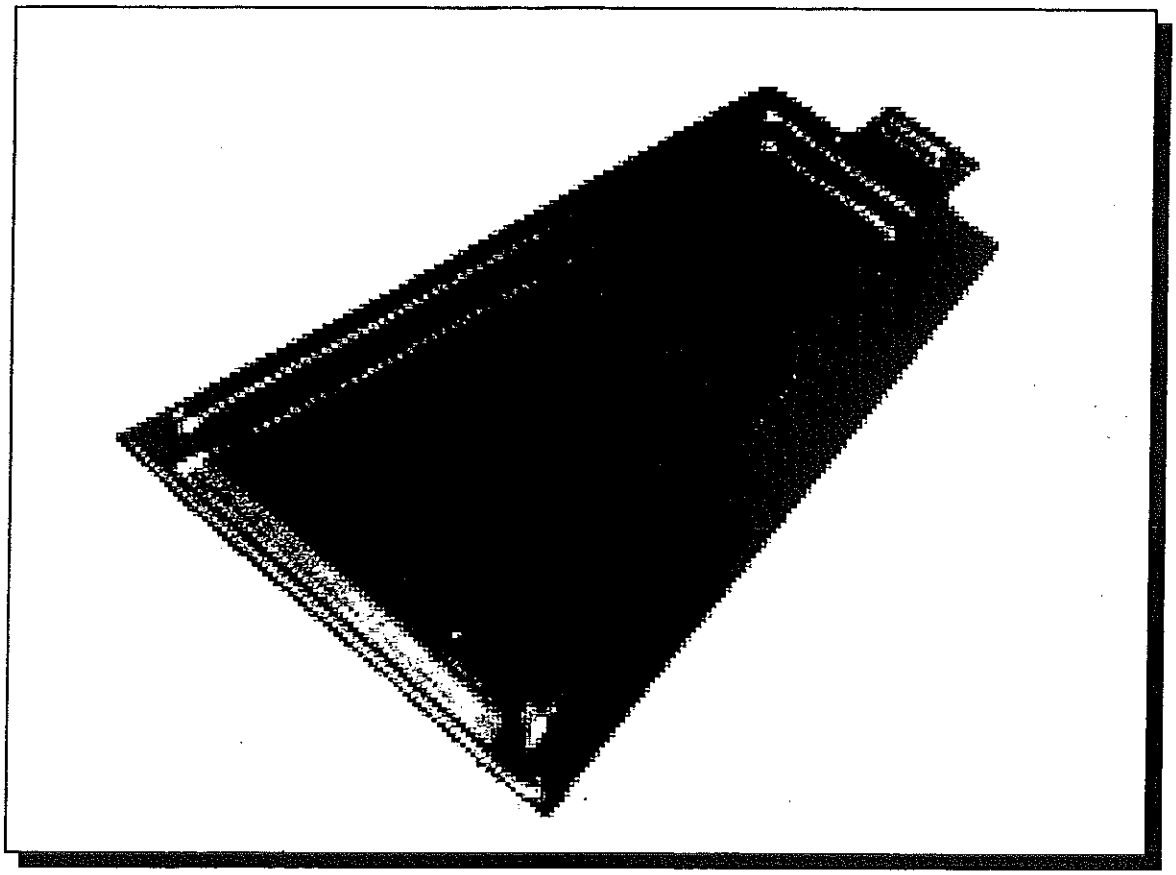
1. May not be a little bit (or)
2. The type of soil is the most harmful to the performance of drainage systems the equivalent to using dirty dusty stone.

Cultec Inspection Cover



Use Cultec Inspection Cover when using the 6" inspection port on any of Cultec's Chambers.

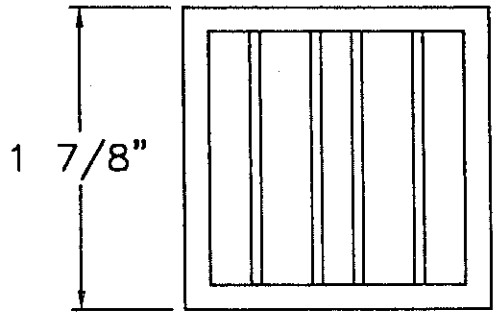
Cultec Splash Deflector

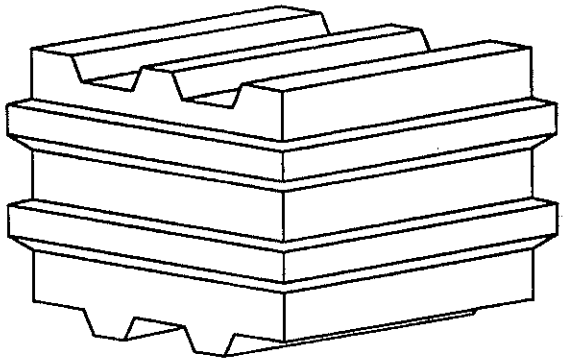


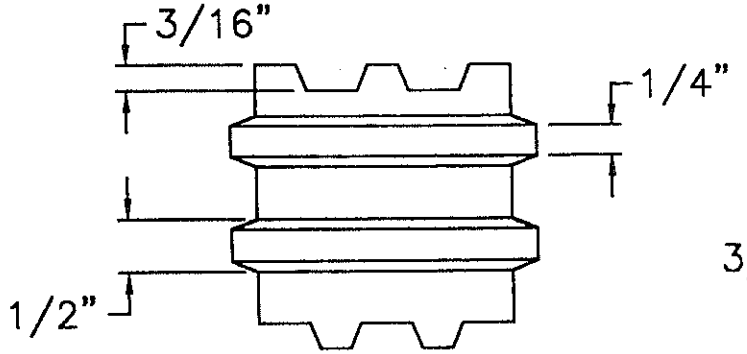
Position Cultec Splash Deflector under the feed pipe end of your Cultec chamber to prevent rutting and washout of the primary leaching area.

E.P.S. AGGREGATE

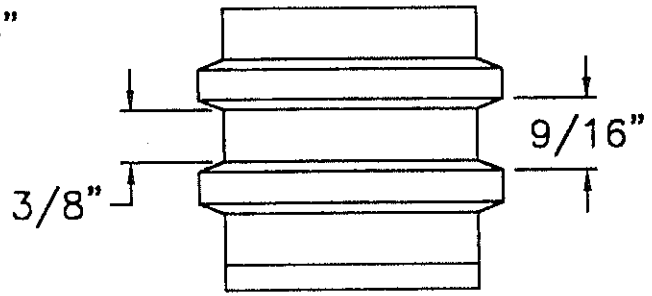
Top







Front



Side

Note: Measurements vary on each piece.
These measurements are typical.

™ CULTEC, INC.
878 FEDERAL ROAD
BROOKFIELD, CT 06804

SATISFIED CULTEC CUSTOMERS

Although too many to name them all, the following is a list of some of our customers and projects supplied by Cultec, Inc.

15900 SF Retail Facility - Maple Shade, NJ
201B Forest Street - Marlboro, MA
ABSCO Welding Building - Woodmont, CT
Applebee's, Inc. - Tewksbury, MA
Ashley National Forest - Manilla, UT
Babson College - Arthur M. Blank Center for Entrepreneurial Studies - Wellesley, MA
Banbury Subdivision - Boise, ID
Bank of Missouri - Cape Girardeau, MO
Bayer Aspirin - Morristown, NJ
Bellport Marina - Bellport, NY
Benny's Plaza - Fairhaven, MA
BJ Warehouse - Portsmouth, NH
Brookhaven Landfill - Brookhaven, NY
Brookside Bagels - Simsbury, CT
Camp Judeau Campground - Bedford, NH
Camp Como - Como, CO
Captain Parkers Restaurant - Yarmouth, MA
Catholic SS Building - Guam
Cedar Springs Terrace Nursing Home - Johnston, RI
Chestnut Point 713A - Harrisburg, PA
Cinnamon Ridge - Goffstown, NH
City of Santa Monica Parking Garage - Santa Monica, CA
Club Med San Salvador - Bahamas
College of the Sequoias - Visalia, CA
Comfort Inn on the Bay - Naples, FL
Comfort Suites Hotel - Linthicum Heights, MD
E. Granby Garage - E. Granby, CT
EMC Corp. - Hopkinton, MA
Federal Aviation Administration - Atlantic City, NJ
Fire Island National Seashore - Long Island, NY
Franklin County Hospital - Indiana
Gas Station - Springfield, MA
Georgetown Club - Georgetown, MA
Gordon College - Wenham, MA
Gravenhurst Plastics, Ltd. - Gravenhurst, Ontario
Guam Visitor's Center - Guam
Gym Kids - Cornwall, NY
Habitat for Humanity - Litchfield, CT
Johnson & Wales College - Providence, RI
Lake George Campground - Lake George, NY
Le Chambord Restaurant - Stormville, NY
Lexington Corporate Center - Lexington, MA
Masonite Corporation - Towanda, PA
Massachusetts General Hospital - Boston, MA
MCI Telecommunication - Elmsford, NY
Meadowview Nursing Home - N. Reading, MA
Motel 6 - Seekonk, MA
Movie Prop - CA
Movie Tens (10 Theaters) - Mishawaka, IN
Nantucket Memorial Airport - Nantucket, MA
Nanuet Shopping Mall - Nanuet, NJ
New Gate Shopping Center - Naples, FL
New England Motor Freight - Pennsauken, NJ
Nicholas County School Board - Summersville, WV
Oaklawn Assisted Care - Cranston, RI
Orleans Square - Orleans, MA
Overbrook & Twin Lakes Roadway - Largo, FL
P&T Containers - Lawrence, MA
Panther Creek Elementary School - Nettie, WV
PE O'Hair & Co. - San Francisco, CA
Peaslee Place - Merrimack, NH
Pembroke Hospital - Pembroke, MA
Quinn's Inn - Cornwall, Ontario
Riders Ridge Phase II - Owings Mills, MD
Rite Aid Drug Store #3909 - Lexington, KY
Robtec Corporation - Guadalajara, Mexico
Rolands Church - RI
Royal Farms Store - Salisbury, MD
Ruby Tuesdays - Rehobeth, DE
San Eli Plaza - El Paso, TX
Scott Circle Housing - Lincoln, MA
Shell Gas Station - North Hampton, MA
Showcase Cinemas - Deerfield Township, OH
Sousa Realty & Development - Hudson, NH
South Columbia Medical Center - Augusta, GA
South County Hospital - Wakefield, RI
Specialty Resources - San Pedro, CA
St. Anne's Day School - Annapolis, MD
St. Joseph's School - St. Josephs, MO
St. Paul Lutheran Church - St. Joseph, MO
Suncoast Medical Center - Cape May Courthouse, NJ
Taco Bell - Norwalk, CT
Taco Bell - Stamford, CT
Thayer Academy - Braintree, MA
Town of Emerald Island - Emerald Island, NC
Travelers Insurance Group - Armonk, NY
Trelo Corp./Harvest Church - Guam
Tuft's University - Cambridge, MA
Turtle Tunnel Project - Upton, MA
Uniroyal, Inc. - Naugatuck, CT
University Hospital - Augusta, GA
Video Street - Temple Terrace, FL
Village Four - Chesapeake Harbor - Annapolis, MD
Virgin Islands National Park - Charlotte Amalie, VI
Wal-Mart - Charles Town, WV
Walgreens - Granite City - Granite City, IL
Walgreens - Laurel Springs, NJ
Wendy's Corporation - Ormand Beach, FL
Westchester University - Westchester, PA

LIMITED WARRANTY

Cultec, Inc. guarantees the structural integrity of each CONTACTOR™ and/or RECHARGER™ unit when installed according to our instructions.

This warranty applies to the original purchaser against defective materials in workmanship for 10 years from date of purchase.

Within 45 days of an apparent defect the purchaser must inform Cultec, Inc. in writing.

Cultec, Inc. will supply a replacement unit.

The cost of removal and/or installation of the units is specifically excluded from this warranty.

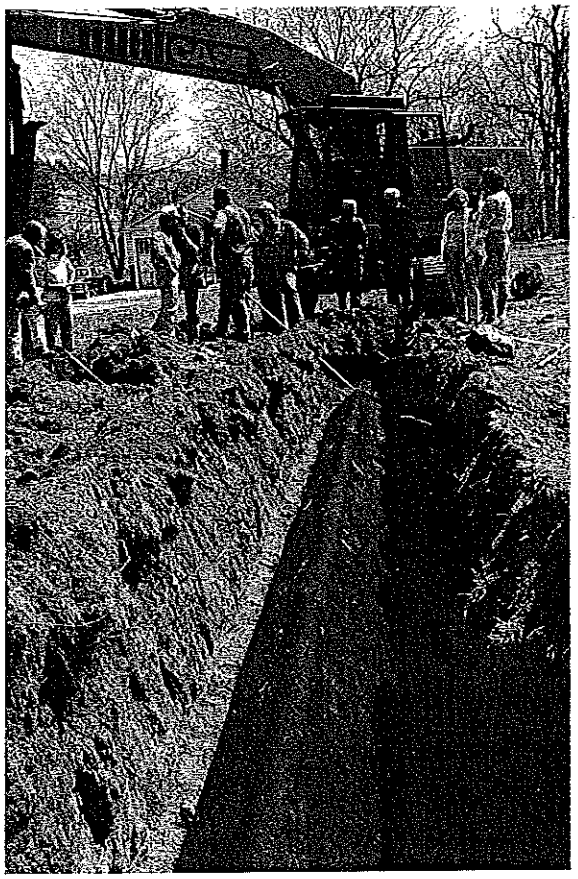
Only the terms of this warranty apply.

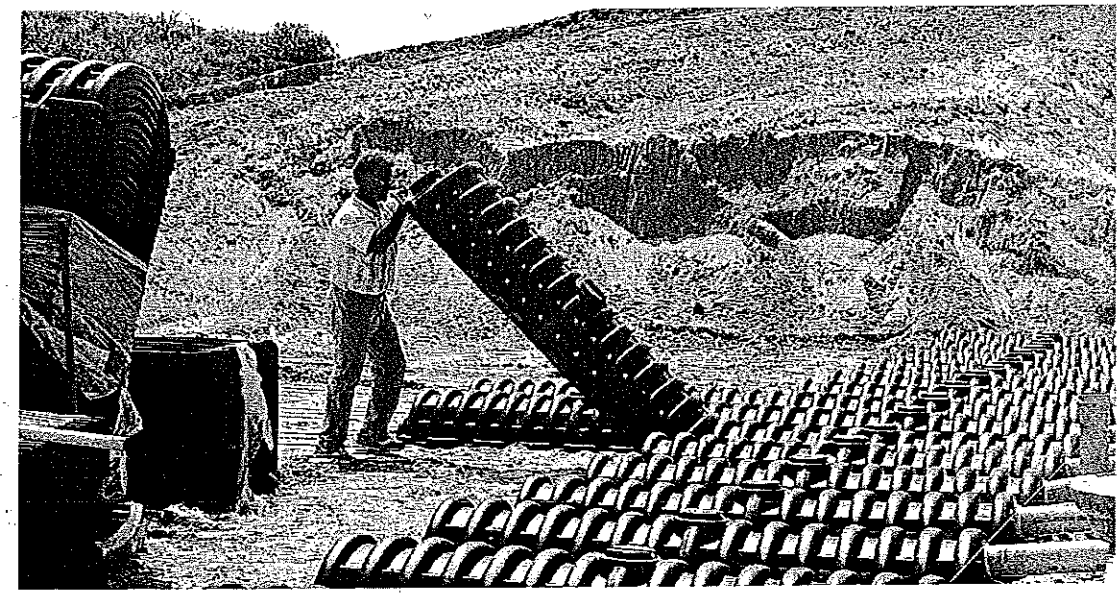
No other warranty is actual or implied.

Cultec, Inc.
878 Federal Road
Brookfield, CT 06804
800-428-5832

Installation of CULTEC CHAMBERS for Septic

- FIELD DRAIN® PANEL
- CONTACTOR™ EZ-24
- CONTACTOR™ 75
- CONTACTOR™ 100
- CONTACTOR™ 125
- RECHARGER™ 180
- RECHARGER™ 330
- RECHARGER™ 400
- CULTEC Filter Fabric
- CULTEC Inspection Cover
- CULTEC Splash Deflector





SE98-00.WPD

Septic Design for Cultec Chambers

Model	Lay-Up Length (L_{LU})
FIELD DRAIN® PANEL	8.00'
CONTACTOR™ Model EZ-24	8.00'
CONTACTOR™ Model 75	6.25'
CONTACTOR™ Model 100	6.50'
CONTACTOR™ Model 125	6.25'
RECHARGER™ Model 180	6.33'
RECHARGER™ Model 330	6.25'
RECHARGER™ Model 400	6.17'

A.) HOW TO CALCULATE NUMBER OF CHAMBERS REQUIRED

1.) Square feet of leaching required according to local or state code (A_L): _____ SF/LF (A_L)

2.) State Allowance SF/LF for the chamber you choose (SA_C): _____ SF/LF (SA_C)
(find out from your local or state health department)

3.) Lineal Feet of System Required (L_C): (A_L) ÷ (SA_C) = _____ LF system (L_C)

4.) Number of chambers (C) needed: (L_C) ÷ (L_{LU}) = _____ chambers (C)

B.) HOW TO CALCULATE FABRIC REQUIRED

1.) Lineal Feet of Fabric Required (L_f): (L_C) = (L_f) _____ LF fabric (L_f)
Use the recommended fabric width for each chamber.

Model	Fabric Width Required
FIELD DRAIN® PANEL	2.0'
CONTACTOR™ Model EZ-24	3.0'
CONTACTOR™ Model 75	3.5'
CONTACTOR™ Model 100 & 125	4.0'
RECHARGER™ Model 180	5.0'
RECHARGER™ Model 330 & 400	7.5'

Installation Instructions for Septic

PREPARATION

- Prepare the trench following state and local codes. Excavate earth to a width sufficient to fit the number of chambers. The bottom of the trench should be level.

Height and width of chambers:

Model	Height	Width
FIELD DRAIN® PANEL	8.5"	C-1 (one channel) 12" C-2 (two channels) 24" C-3 (three channels) 36" C-4 (four channels) 48"
CONTACTOR™ Model EZ-24	12.5"	16"
CONTACTOR™ Model 75	12.4"	30"
CONTACTOR™ Model 100	12.5"	36"
CONTACTOR™ Model 125	18"	30"
RECHARGER™ Model 180	20.5	36"
RECHARGER™ Model 330	30.5	52"
RECHARGER™ Model 400	32.5"	52"

Recommended minimum for trench systems:

Model	Minimum Recommended Trench Width
FIELD DRAIN® PANEL	C-1 (one channel) 16" C-2 (two channels) 28" C-3 (three channels) 40" C-4 (four channels) 52"
CONTACTOR™ Model EZ-24	20"
CONTACTOR™ Model 75	34"
CONTACTOR™ Model 100	40"
CONTACTOR™ Model 125	34"
RECHARGER™ Model 180	40"
RECHARGER™ Model 330	56"
RECHARGER™ Model 400	56"

- Set first unit (Model R with two closed ends) in the trench. Position the large rib end of the chamber toward the effluent feed pipe to start the line.

  ☞OPTIONAL (See fabric installation if not using a splash deflector):
  Place the splash deflector under the feed pipe discharge to prevent rutting of the base soil.

- Continue the line of chambers by joining the units using patented interlocking rib connection. Overlap the larger rib over the smaller rib of the preceding chamber. No screws needed.

  Continue and end the line of chambers using Model E (one open end and one closed end).

COVERING WITH FILTER FABRIC
If backfilling the system with stone, please skip the following steps and go onto BACKFILLING.

After a line of chambers is installed, cover it with Cultec Filter Fabric before backfilling. Filter fabric keeps dirt from getting back into the chambers and provides an effective drainage interface for both the sidewalls and the top of the chambers.

PLEASE NOTE:
No guarantee of performance of Cultec Chambers will be honored if any other than Cultec Filter Fabric is used.

Recommended width of fabric:

Model	**Fabric Roll Width**
FIELD DRAIN® PANEL **(only cover the outsides of the panel, you do not have to cover the center of the panel*	C-1 (one channel) 2' C-2 (two channels) 4' C-3 (three channels) 2' x 2* C-4 (four channels) 2' x 2*
CONTACTOR™ Model EZ-24	3.0'
CONTACTOR™ Model 75	3.5'
CONTACTOR™ Model 100	4'
CONTACTOR™ Model 125	4'
RECHARGER™ Model 180	5'
RECHARGER™ Model 330	7.5'
RECHARGER™ Model 330	7.5'

- Lay out the fabric to the required length for the line of chambers.

Model	Add to Fabric Length
FIELD DRAIN® PANEL	5.5'
CONTACTOR™ Model EZ-24	6'
CONTACTOR™ Model 75	6'
CONTACTOR™ Model 100	6'
CONTACTOR™ Model 125	7'
RECHARGER™ Model 180	7.5'
RECHARGER™ Model 330	9'
RECHARGER™ Model 400	9'

- Tuck the fabric 2'-3' under the beginning of the line *(skip if you placed a splash deflector at the beginning of the line)*, up the vertical end wall, across the top of the line of chambers, and down the vertical end wall of the end of the line. Pull the fabric tight. Allow an extra foot or so to continue away from the end wall.

- Throw 8-10 shovels of loose dirt over the fabric where it meets the base of the final end wall. Inspect the fabric along the entire line of chambers. Correct bends and remove roots.

- Push feed pipe 6" into top inlet opening located on endwall at the beginning of the line.

  ☞HELPFUL HINT:
  By cutting a smaller hole in the fabric than the feed pipe diameter, stretching the fabric, and pushing the pipe through, the use of pipe seals can be eliminated.

INSPECTION PORT

If you choose to provide an inspection port, all Cultec chambers supply a raised center location that can be cut with a reciprocating or properly sized hole saw.

- Locate port. Cut through covering of Cultec fabric to get to the inspection location in center of any chamber.
- Cut hole to proper size at top of chamber.
- Insert a 6" internal coupling into the inspection port opening.
- Use 6" PVC to bring the inspection port to grade.
- Place inspection cover over opening.
- Place a new piece of filter fabric over the inspection port and cap larger than the cut out piece.

BACKFILLING

- Material used to backfill the Cultec Chamber System should be clean, permeable and approved. It should also be free of large stones.

PLEASE NOTE:
Cultec chambers will out perform equally sized conventional pipe and stone trenches significantly and can be installed in the complete range of soil types. A simple way to improve the performance of CONTACTOR™, RECHARGER™ and FIELD DRAIN® gravel-free systems is to use the best soil possible when backfilling. Cultec #410 filter fabric then covers the chambers. By using a coarse, clean, silt-free, and permeable sand backfill, the effectiveness of the installation can be extended by 20%-30% or more. In soils that percolation rates are less than 1-20, the relatively small investment of using the select material is a wise investment. Use 1.5" - 2" diameter clean washed broken stone when backfilling chambers for gravel systems.

- Put backfill material on the sides and mound over the top of the chambers before traveling over the system for further grading.

When covering the system for final backfill and determination of grade it is best to use a small tract machine or backhoe bucket. If using a loader or straight blade type machine, keep loose fill in front of the blade to a height of 1' - 1 ½' above the chamber top. Traverse perpendicular to the line of chambers. After this has been done to the complete installation, you may proceed to set final grade.

For untrafficked installations:
Residential installations require a minimum of cover. Cover chambers with 6" - 9" of 85% compacted fill.

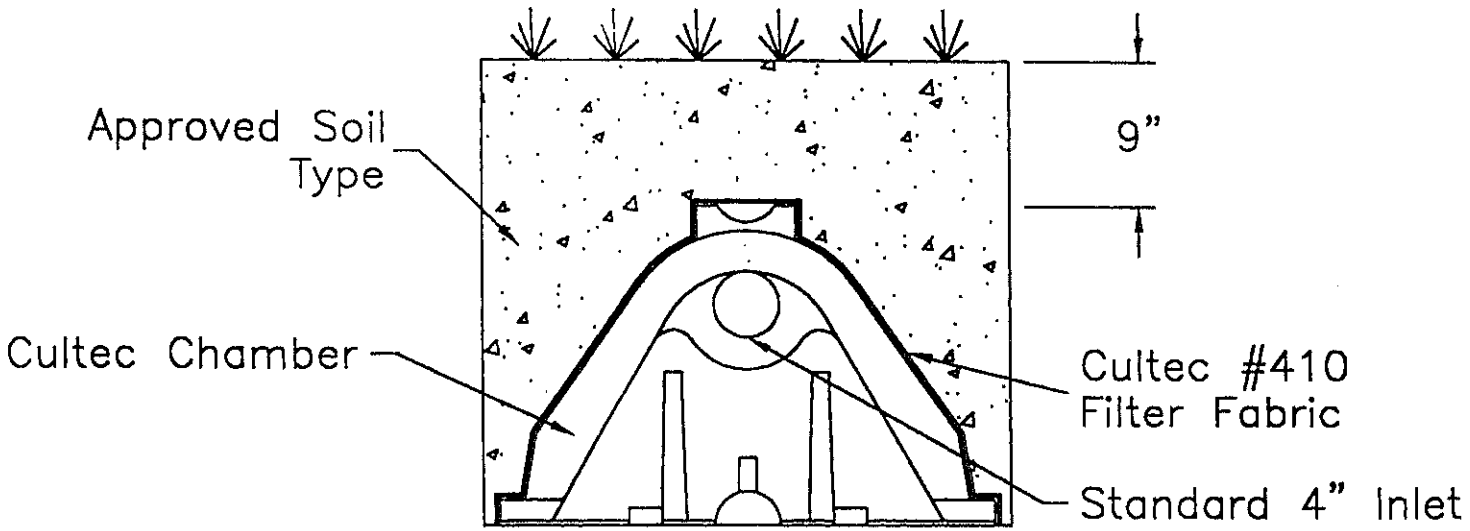
For trafficked installations under pavement:

Model	Recommended Minimum Cover
FIELD DRAIN® HD PANEL	14"
CONTACTOR™ Model EZ-24HD	14"
CONTACTOR™ Model 75HD	12"
CONTACTOR™ Model 100HD	14"
CONTACTOR™ Model 125HD	12"
RECHARGER™ Model 180HD	14"
RECHARGER™ Model 330HD	16"
RECHARGER™ Model 400HD	15"

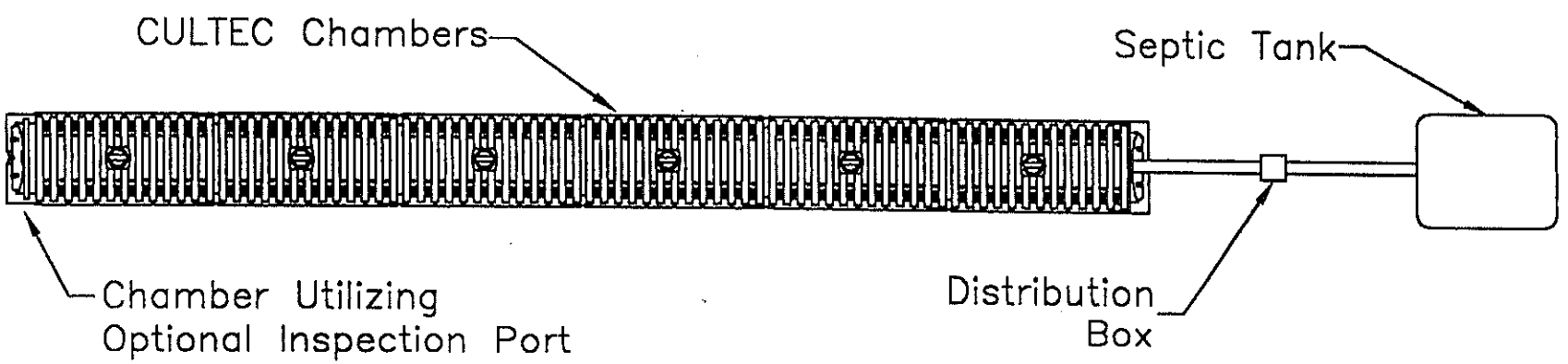
- Backfill and compact at 6-8 inch intervals for trafficked areas, areas under paved drives and parking lots.

If you backfilled your installation with stone, lay the filter fabric over the entire bed or trench area.

Typical Installation for Cultec Gravelless Septic System using Filter Fabric



Typical CULTEC
Septic Trench Design



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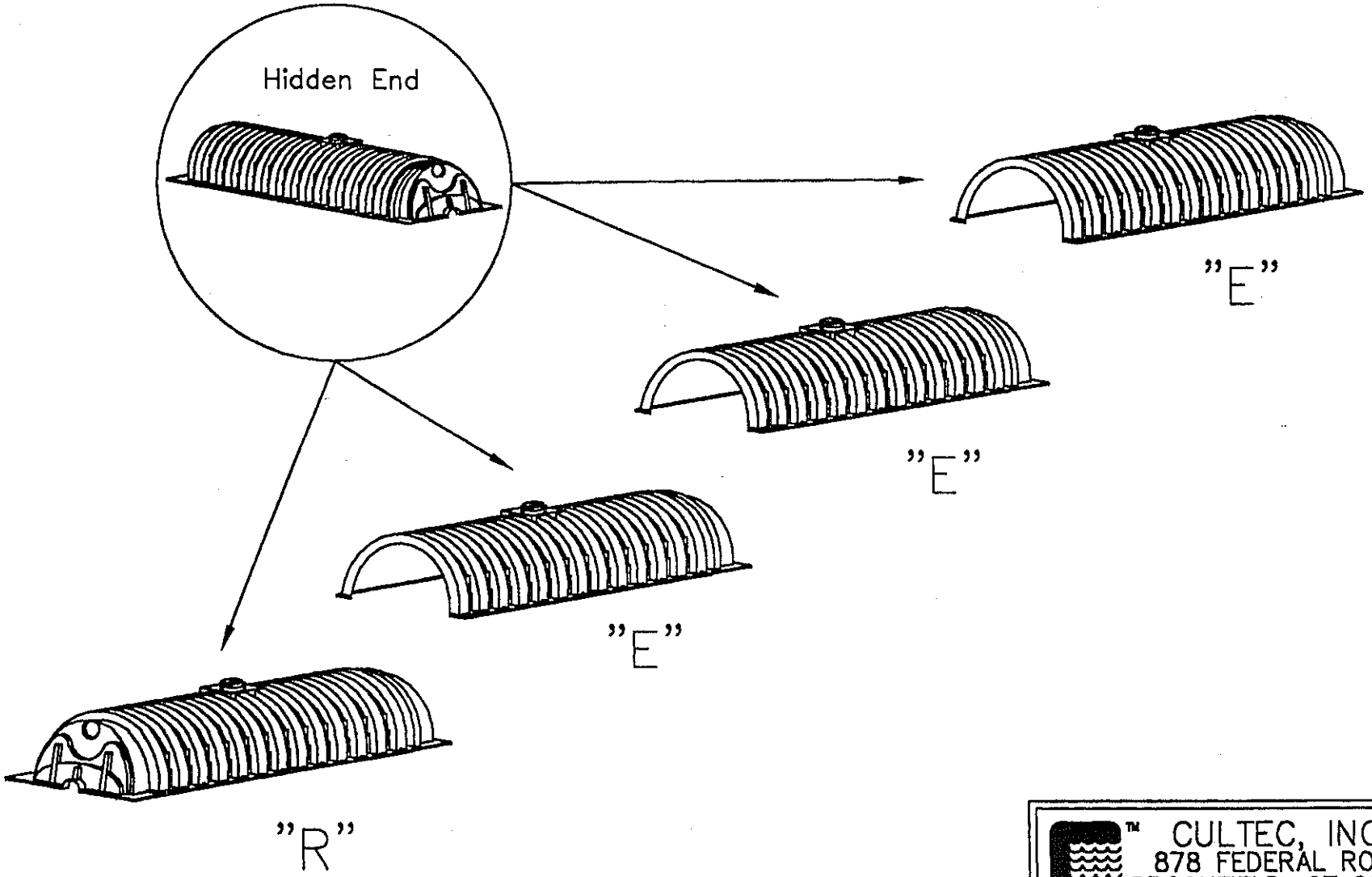
BROOKFIELD, CT 06804

Typical Cultec Installation for Septic Contactor™ & Recharger™



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878 FEDERAL ROAD
BROOKFIELD, CT 06804

Sizing of Cultec No. 410 Fabric Interface for CONTACTOR™ EZ-24, 75, 100, and 125, RECHARGER™ 180, 330 and 400 and FIELD DRAIN® PANEL for Stone-Free Systems

Width requirements for Cultec No. 410 Fabric Interface

Model	Fabric Width Required
FIELD DRAIN® PANEL	C-1 (one channel) 2.0 feet C-2 (two channels) 4.0 feet C-3 (three channels) 2.0 feet x 2 C-4 (four channels) 2.0 feet x 2
CONTACTOR™ Model EZ-24	2.0 feet
CONTACTOR™ Model 75	3.5 feet
CONTACTOR™ Model 100	4.0 feet
CONTACTOR™ Model 125	4.0 feet
RECHARGER™ Model 180	5.0 feet
RECHARGER™ Model 330 & 400	7.5 feet

Determine the length required for Cultec No. 410 Fabric Interface:

To determine the length of Cultec No. 410 filter fabric used to cover an installed line of chambers, measure the distance on the top of the CONTACTOR™ , RECHARGER™ or FIELD DRAIN® PANEL chambers and add:

Model	Fabric
FIELD DRAIN® PANEL	5.5 feet
CONTACTOR™ Model EZ-24	6 feet
CONTACTOR™ Model 75	6 feet
CONTACTOR™ Model 100	6 feet
CONTACTOR™ Model 125	7 feet
RECHARGER™ Model 180	7.5 feet
RECHARGER™ Model 330 & 400	9 feet

The addition of the amount of cloth to the top dimension total will supply what is necessary to install the fabric interface correctly.

Installation of the Fabric Interface for a Stone-Free Septic System

1) Before the starting Cultec chamber is put in place, lay approximately 1 ½ - 2 feet of the properly sized cloth on the ground at the beginning of the line.

2) Position the starting chamber on top of the 1 ½ - 2 feet of fabric.

The setting in place of the fabric in this manner allows it to be held firmly in place and also serves as a splash deflector to the effluent discharged from the feed pipe above.

3) With the fabric now being held at the starting end, you may install the total line of the chambers.

4) Pull the free end of the fabric interface to the end of the line of the chambers making sure to the center of the fabric is even with the center of the chambers, which allows the fabric to drape over evenly to the base of the units.

Approximately 1-2 feet of extra fabric will be evident if the directions for determining fabric length are followed correctly.

5) After pulling the fabric tightly over the chambers, throw 5-6 shovels full of either broken stone or soil over the cloth where it meets the base of the final end wall.

6) Inspect the fabric along the entire line of Cultec chambers. Look for slight bends in the line where some further positioning of the fabric may be necessary. Inspect also for roots that may prevent the fabric from its proper positioning to the base of the chamber.

Fabric interface is always recommended for sand or soil backfill to prevent intrusion of the particles. Fabric interface may also be chosen when backfilling the chambers with broken stone. Fabric increases the effective area for particulate filtration and intrusion. An additional benefit of using fabric interface with stone backfill is the availability of particulate settlement, which occurs after effluent leaves the chamber through the discharge openings. Much of the available discharge opening(s) may be blocked if no fabric is used. Fabric interface provides a large void between the ribs and is accessible to effluent.

No guarantee of performance of Cultec chambers will be honored if any other than Cultec specified fabric is used.

The Advantages of Cultec CONTACTOR™ & RECHARGER™ Chambers in a Stone-Free Septic System Application

✔ ***Cultec ribbed polyethylene chambers are lightweight and strong.***
CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL Chambers are structurally the strongest plastic chambers available. The application of a load to the interlocking chamber design actually reinforces the attachment of CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL connections.

For residential jobs, almost no cover is required to maintain structural integrity, however, 9" of cover may be the choice for backfill to grow grass or review local code requirements.

Cultec chambers consist of high density/high molecular weight polyethylene that remains resilient in temperatures below -100°F. Polyethylene is also resistant to breakdowns normally caused by chemicals typically found in sewage and road salts.

✔ ***The dome of the CONTACTOR™, RECHARGER™ or FIELD DRAIN® PANEL chamber protects the bottom primary leaching area.***
When the CONTACTOR™, RECHARGER™ or FIELD DRAIN® PANEL chamber system is backfilled the protected system base is unaffected.

CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL systems promote higher efficiency than conventional pipe and stone systems by providing greater contact of effluent and soil surface.

✔ ***A Cultec Chamber System can be delivered with only 15% of the service vehicles it takes to deliver material for a conventional system.***
The average residential septic system can be delivered to the job site by a half ton pick up truck. No crushed stone is needed eliminating the need for dump trucks on sites. Consequently, the disturbed area on a job site is kept to a minimum (a great advantage for repair installations with existing landscape).

✔ ***CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL Systems can be installed in 20% of the time it takes to put in a pipe and stone system with no heavy equipment required.***
No heavy equipment is required other than a backhoe to do the excavating. A worker can transport any of the six available models to the site by hand in tight situations. No screwing together of units. There are no separate end plates required. No critical alignment of chambers. Installation is as easy as overlapping our patented interlocking rib connection. Curving of the chamber line is possible such as is required on contoured slopes or other obstacles (trees, etc.).

✔ ***CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL Chambers can be easily inspected.***
Many questions associated with unknown aspects of conventional systems are eliminated. Every CONTACTOR™ , RECHARGER™ and FIELD DRAIN® PANEL may be inspected since they have an optional 6" *(4" for FIELD DRAIN PANEL)* inspection port in the center of each unit.

✔ ***Cultec chambers have an optional pipe support for use in Gravity and Pressure Distribution Systems.***

✔ ***Cultec Chambers have uniquely patented integral vertical support panels.***
Support panels provide vertical strength, sufficient effluent transfer & maintain the dimension of chamber width; keeping the chamber from spreading apart under load application. Integrally formed repeating vertical support panels produce a unitized structure. The support panels are repeated through the continuous line of chambers at a minimum of every 6.25' (8' maximum).

✔ ***More effective than conventional systems and other plastic chambers.***
Cultec Chambers have the highest infiltrative area rating of any plastic chamber system. Direct contact is possible between effluent and soil with Cultec Chambers with CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL open chamber bottoms.

Cultec Chambers are the only chamber system to offer upper surface evaporative capability. The combination of the ribbed design and the spacing between the ribs covered with our engineered filter fabric promotes effective infiltration on sidewalls and on the top of the units.

When the effluent feed pipe is positioned above the overall height of the unit (which is usually the case in the typical septic installation) this total drainage interface averages more than 60% higher than a conventional PVC pipe and stone system of comparable size and storage capacity is 100% higher. In conventional pipe and stone systems, the use of dirty crushed stone can totally seal the available bottom interface that is normally determined to be the most effective. CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL use more of the available interface. The availability of greater storage capacity provides time to allow proper infiltration in the Cultec system.

✔ ***If desired, CONTACTOR™ , RECHARGER™ and FIELD DRAIN ®PANEL Chambers may be removed from the ground and reused.***

Straight Line Deflection of Cultec's Chambers

The overlapping rib connection used by Cultec's CONTACTOR™, RECHARGER™ and FIELD DRAIN® PANEL chambers permits a curved line of installation. This is beneficial quality when following land contours or a sweep around an obstruction is necessary.

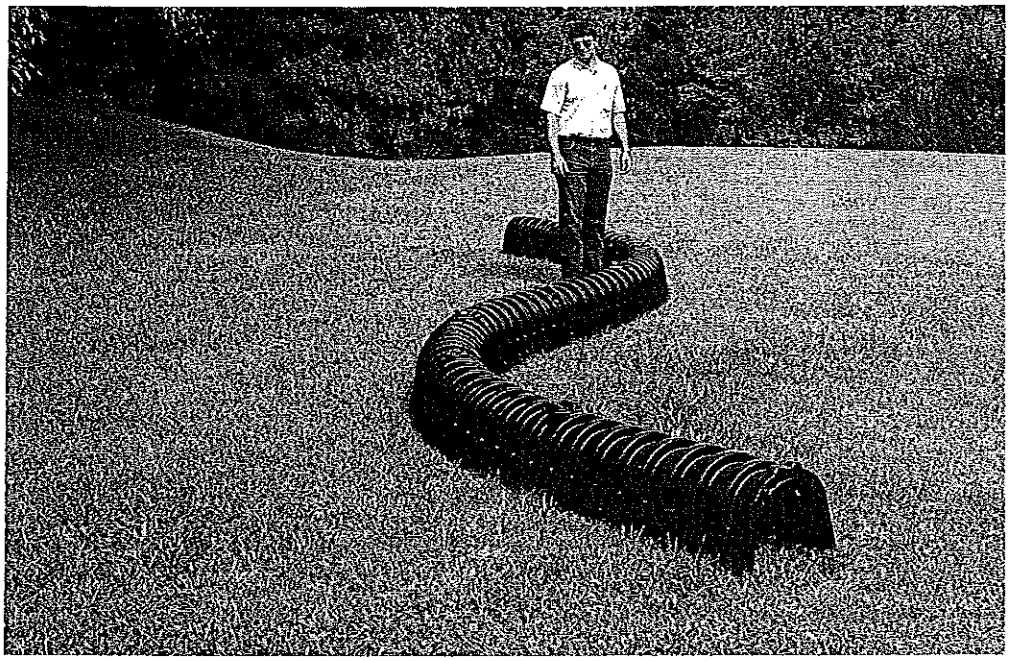


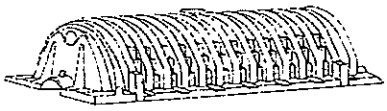
Figure shown: Model EZ-24

Model	Available Deflection (per 100')
FIELD DRAIN™ PANEL C-1	10'
FIELD DRAIN™ PANEL C-2	9'
FIELD DRAIN™ PANEL C-3	2.5'
FIELD DRAIN™ PANEL C-4	1'
CONTACTOR™ Model EZ-24	25'
CONTACTOR™ Model 75	8'
CONTACTOR™ Model 100	6'
CONTACTOR™ Model 125	8'
RECHARGER™ Model 180	6'
RECHARGER™ Model 330	5'
RECHARGER™ Model 400	6.5'

Cultec Systems can stack up against pipe and stone!

The CONTACTOR™s carried on the trailer in this picture will install 700 lineal feet of CONTACTOR™ System.

When compared to conventional pipe and stone trenches, these

110 pieces of CONTACTOR™	replace	1700' of two foot wide septic trench.
		17 eight-yard dump trucks of stone.
		Truck drivers and operators.
		A Loader.

Evaluation of Cultec Systems vs. Pipe and Stone Septic Laterals & Beds

Type of Trench System	Effective Square Feet of Leaching Area per Lineal Foot of System
FIELD DRAIN® PANEL C-1 (one channel)	2.45
FIELD DRAIN® PANEL C-2 (two channels)	3.28
FIELD DRAIN® PANEL C-3 (three channels)	4.11
FIELD DRAIN® PANEL C-4 (four channels)	4.94
CONTACTOR™ Model EZ-24	2.87
CONTACTOR™ Model 75	4.6
CONTACTOR™ Model 100	6.19
CONTACTOR™ Model 125	5.6
RECHARGER™ Model 180	7.0
RECHARGER™ Model 330	9.8
RECHARGER™ Model 400	10.0
2 ft. wide trench having pipe positioned within 12" depth of stone	2.4
2 ft. wide trench having pipe positioned within 18" depth of stone	3.0
3 ft. wide trench having pipe positioned within 12" depth of stone	3.0
3 ft. wide trench having pipe positioned within 18" depth of stone	3.6
4 ft. wide trench having pipe positioned within 12" depth of stone	3.6
4 ft. wide trench having pipe positioned within 18" depth of stone	4.2

These are actual calculations. Please refer to your state or local allowances.

Pressure Distribution System

You will notice that our recommended installation of the effluent feed pipe for pressure distribution in Cultec Chamber Systems is unique.

We recommend using 2" S-40 ASTM 1785 pipe having 3/8" diameter holes drilled one foot on center. The 3/8" holes are drilled at 90° offset. By positioning the holes 45° from vertical, the effluent discharges freely onto the top of the chamber. The Cultec #410 filter fabric cover does not interfere with the discharge.

A carrier formed on top of the chamber holds the 2" pipe and is covered with Cultec #410 filter fabric.

REASONS FOR THIS DESIGN:

1.) Cultec #410 filter fabric has a combination of characteristics and properties that combine with this design to attain optimum performance. The two most important features are:

   a.) High degree of capillary distribution of effluent and ability to discharge into the surrounding soil.

   b.) Limited elongation of fabric that prevents the fabric from interfering with effluent discharge. When effluent impinges upon the fabric, it is quickly absorbed and interfaced with a greater total soil area than a trickle down gravity distribution system.

2.) In pipe and stone pressure distribution systems effluent follows the path of least resistance. If that path remains unchanged, effluent continues to follow--constantly directed in one location.

Using the discharge onto the fabric augments the pressure distribution process by providing more total area of effluent distribution thereby decreasing the total concentration of effluent application per square foot of system. This phenomenon is key to the longevity of a system.

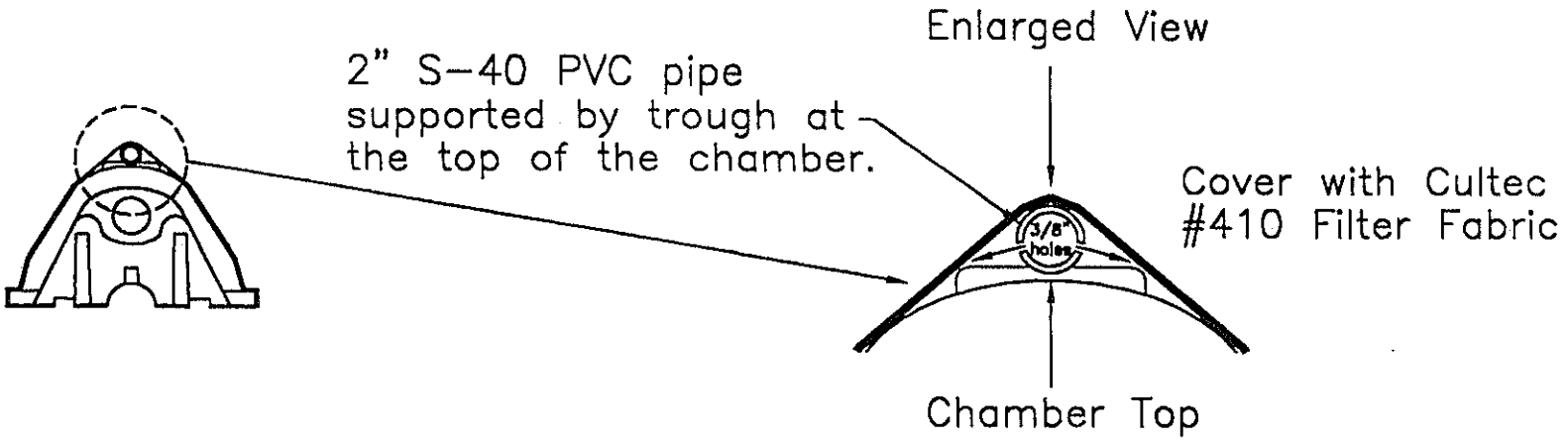
3.) Chamber systems that discharge directly onto a soil base have disadvantages.

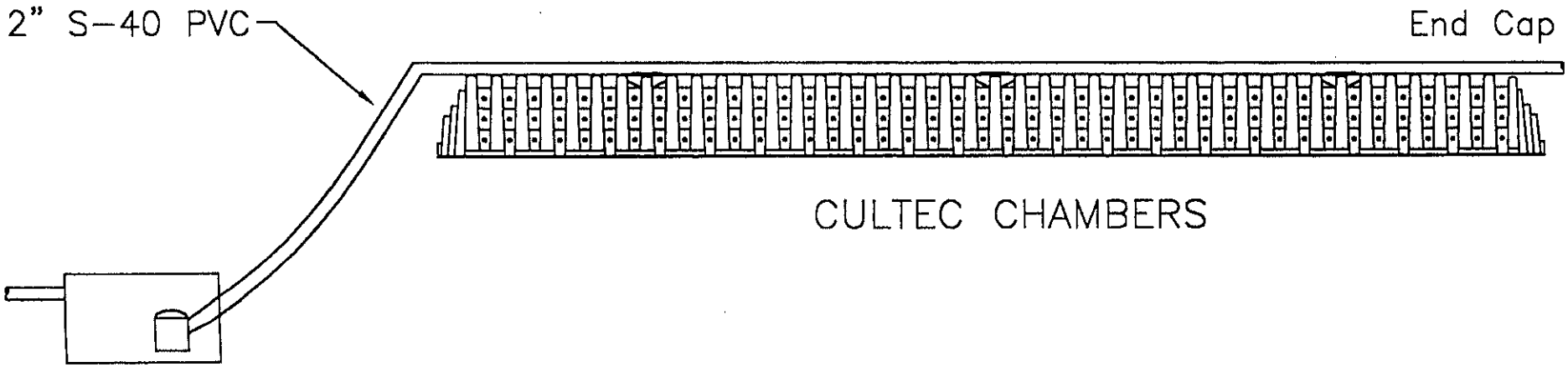
   a.) Straight line discharge from the discharge hole onto the soil limits effectiveness and causes rutting or washout resulting in silting. Silting will reduce the long term effectiveness of the system.

The effectiveness of the base of the Cultec Chamber Pressure Distribution System design that would normally be the primary leaching surface is increased. Effluent is not discharged directly onto the soil base. It finds its way to the base through the 3/4" holes on the sides of the units, voids at the base, and chamber connection points. The Cultec Pressure Distribution System design uses most of the sidewall and bottom area simultaneously in its operation.

Cultec Chambers used with Cultec #410 filter fabric promotes evaportranspiration through its upper surface.

Recommended Installation for Cultec Pressure Distribution System





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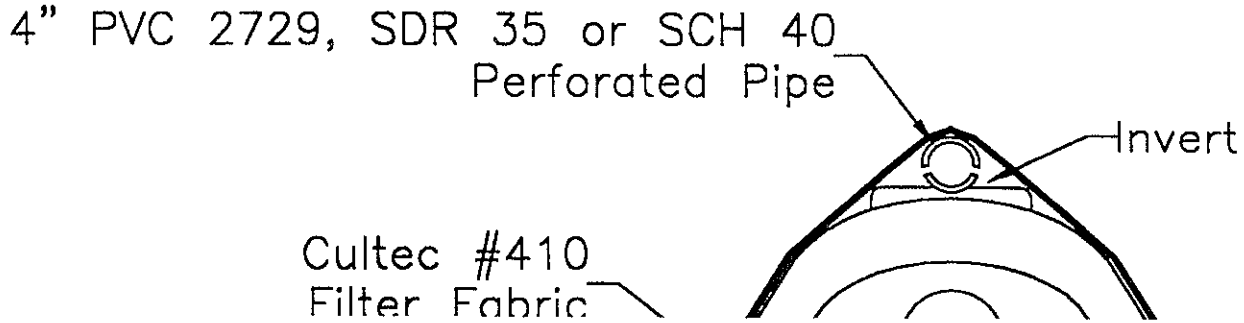
Gravity Distribution System with Pipe for Effluent Feed Positioned in Upper support Trough

1. Place chamber in trench.
2. Position pipe on top of chambers using upper support trough located in the center of each chamber.
3. Duct tape the feed pipe onto the chamber every 10–12 feet.
4. Cover chamber and pipe with filter fabric.



Title: **Chamber Leachfield Systems, An Alternative to Conventional Gravel-Filled Systems,**

Author(s): R. May.

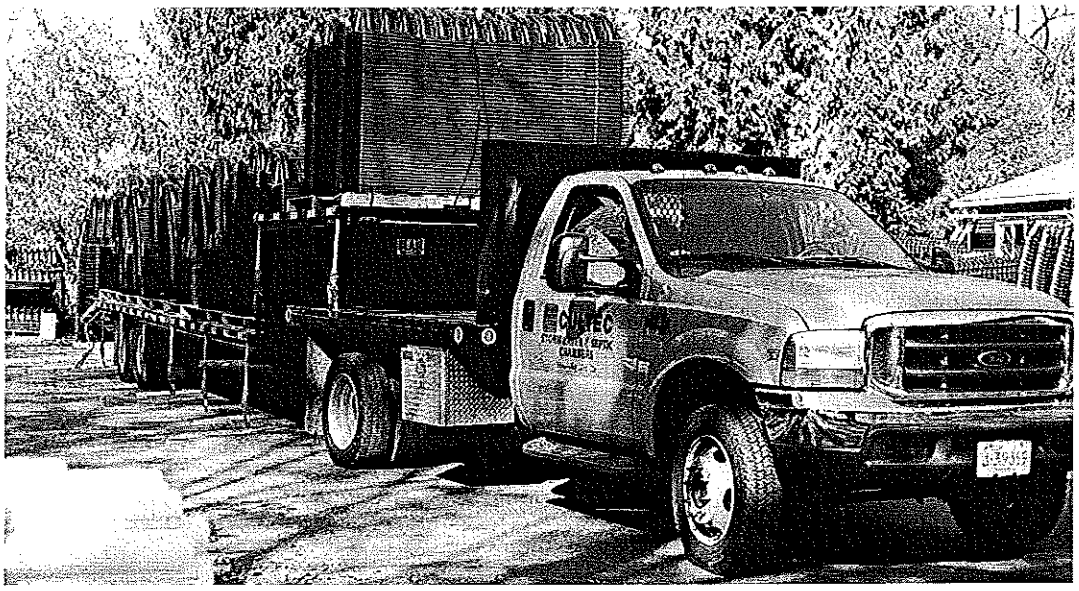
Corp Author(s):

Citation: Journal of Environmental Health
JEVHAH, Vol. 53, No. 5, p 43-44, March/April 1991. 13 ref.

Conventional septic system leachfields normally have been constructed utilizing gravel-filled trenches beds. However, gravel has potential damaging impacts: compaction of moist soil by weight and
velocity of gravel during installation, creation of a low permeability layer by fines entrained with gravel, physical obstruction of the soil interface and the potential for high BODs and SS loadings in the stone voids at the soil interface. Open-bottom chamber systems offer ease of construction and inspection, high storage volumes and eliminate the negative impacts of stone gravel. A significant body of data supports the conclusion that a leachfield system that does not cover the soil interface with gravel can outperform the comparable gravel-covered interface by a factor of more than 2 to 1. This factor has been used in several states which allow installation of chamber systems sized at 50-60% of conventional gravel systems. This practice has not resulted in any documented problems and, in one large study, has been supported as superior to conventional practice. (Author's abstract) 35 888888888

Technical Information for

- FIELD DRAIN® PANEL
- CONTACTOR™ EZ-24
- CONTACTOR™ 75
- CONTACTOR™ 100
- CONTACTOR™ 125
- RECHARGER™ 180
- RECHARGER™ 330
- RECHARGER™ 400
- STORMFILTER
- CULTEC Filter Fabric
- CULTEC Inspection Cover
- CULTEC Splash Deflector



TE98-00.WPD

CONTACTOR™, RECHARGER™ and FIELD DRAIN® Chambers
Specification Information

	Field Drain Panel	Contactor Model EZ-24	Contactor Model 75	Contactor Model 100	Contactor Model 125
Length	8.5'	8.5'	7.2'	7.5'	7.5'
Lay-up Length	8.0'	8.0'	6.25'	6.5'	6.25'
Length adjustment	.34'	.34'	.75'	1.0'	1.0'
Width	4'	16"	30"	36"	30"
Height	8.5"	12.5"	12.4"	12.5"	18"
Invert Height	3"	6"	6"	6"	12"
Weight	32 lbs. H-10 40 lbs. H-20	14 lbs. H-10 17 lbs. H-20	22 lbs. H-10 29 lbs. H-20	33 lbs. H-10 41 lbs. H-20	26 lbs. H-10 38 lbs. H-20
Gallon Capacity/ "R" model	116	53.13	75	125	125
Gallon Capacity/ft	13.65	6.25	10.5	16.7	16.7
CF Storage per Chamber and Fabric Surrounded in Native Soil	13.32 ft^3	6.91 ft^3	10.40 ft^3	14.88 ft^3	14.30 ft^3
CF Storage per Chamber in Design Unit Surrounded in Stone	23.04 ft^3	12.00 ft^3	15.63 ft^3	22.10 ft^3	21.88 ft^3
Actual Effective Base Area	3.4 SF/LF	1.1 SF/LF	2.2 SF/LF	2.83 SF/LF	2.2 SF/LF
Open Bottom Width	42"	13.2"	26"	32.5"	26"
Effective Sidewall Area	1.54 SF/LF	1.78 SF/LF	2.4 SF/LF	3.36 SF/LF	2.45 SF/LF
Perforation Diameter	3/4"	3/4"	3/4"	3/4"	3/4"
Upper Effluent Transfer	3" or 4.5"	4.5"	4.75"	4.75"	4.75"
Max. Inlet Opening	4.5"	6"	10"	10"	12"
Lower Effluent Transfer Arc for Septic	2" x 6"	2.75' x 6"	3.75" x 7.5"	3.75" x 7.5"	3.75" x 7.5"
Lower Effluent Transfer Arc for Groundwater	2" x 6"	2.75" x 6"	3.75" x 7.5"	3.75" x 7.5"	3.75" x 7.5"

TE98-01

CONTACTOR™, RECHARGER™ and FIELD DRAIN® Chambers
Specification Information

	Recharger Model 180	Recharger Model 330	Recharger Model 400
Length	7.33'	7.5'	7.5'
Lay-up Length	6.33'	6.25'	6.17'
Length adjustment	1.0'	1.17'	1.3'
Width	36"	52"	52"
Height	20.5"	30.5"	32.5"
Invert Height	14"	24"	25"
Weight	34 lbs. H-10 43 lbs. H-20	72 lbs. H-10 87 lbs. H-20	58 lbs. H-10 73 lbs. H-20
Gallon Capacity/ "R" model	183	416	425
Gallon Capacity/ft	25	55.5	58
CF Storage per Chamber and Fabric Surrounded in Native Soil	21.93 ft^3	48.10 ft^3	49.41 ft^3
CF Storage per Chamber in Design Unit Surrounded in Stone	29.44 ft^3	65 ft^3	66.64 ft^3
Actual Effective Base Area	2.67 SF/LF	3.83 SF/LF	3.83 SF/LF
Open Bottom Width	32.5"	46"	46"
Effective Sidewall Area	4.0 SF/LF	6.0 SF/LF	6.17 SF/LF
Perforation Diameter	3/4"	3/4"	7/8"
Upper Effluent Transfer	4.75"	4.75"	4.75"
Max. Inlet Opening	15"	24"	24"
Lower Effluent Transfer Arc for Septic	3.75" x 7.5"	3.75" x 7.5"	3" x 6.5"
Lower Effluent Transfer Arc for Groundwater	7.5" x 23.5"	11.5" x 32"	12" x 34.25"

Cultec No. 410 Fabric Interface Specifications

Cultec attains a highly efficient sidewall and upper surface drainage interface with its chambers by utilizing its ribbed design in combination with a covering of polypropylene filter cloth.

To determine performance standards, Cultec No. 410 fabric interface should be used.

The combination of Cultec chambers with Cultec No. 410 fabric interface is the system by which FIELD DRAIN ®, CONTACTOR™ and RECHARGER™ chambers are rated in this manual.

Properties of Cultec No. 410 Fabric Interface

PHYSICAL

	Test Method	Test Results
Grab Tensile Strength	ASTM-D-4632	90 lbs.
Grab Tensile Elongation	ASTM-D-4632	50%
Mullen Burst	ASTM-D-3786	225 psi
Puncture	ASTM-D-4833	65 lbs.
Trapezoid Tear	ASTM-D-4533	45 lbs.
UV Resistance	ASTM-D-4355	70%

HYDRAULIC

	Test Method	Test Results
Apparent Opening Size	ASTM-D-4751	70 US Sieve
Permitivity	ASTM-D-4491	2.5 Sec. -1
Flow Rate	ASTM-D-4491	175 gal/min/ft2

Burial Depth of Cultec Chambers for Various Backfilling and Soil Conditions

	Non-Trafficked Installations H-10 Wheel load	Under Pavement for Traffic and H-20 Wheel load Backfilled with Stone	Unpaved for Traffic and H-20 Wheel load Backfilled with Stone or 85% Compacted Fill
Field Drain	6" - 9"	Not Recommended	Not Recommended
Field Drain HD	6" - 9"	14"	18"
Contactor™ EZ-24	6" - 9"	Not Recommended	Not Recommended
Contactor™ EZ-24HD	6" - 9"	14"	18"
Contactor™ 75	6" - 9"	14"	18"
Contactor™ 75HD	6" - 9"	12"	14"
Contactor™ 100	6" - 9"	Not Recommended	Not Recommended
Contactor™ 100HD	6" - 9"	14"	16"
Contactor™ 125	6" - 9"	16"	20"
Contactor™ 125HD	6" - 9"	12"	14"
Recharger™ 180	6" - 9"	18"	22"
Recharger™ 180HD	6" - 9"	14"	16"
Recharger™ 330	6" - 9"	20"	24"
Recharger™ 330HD	6" - 9"	16"	18"
Recharger™ 400	6" - 9"	19"	23"
Recharger™ 400HD	6" - 9"	15"	17"

Lay-Up Length Calculation Worksheet

Model	Number of Chambers *(must be more than one)*	Multiply by Lay-Up Length	Subtotal	Add lay-up length adjustment	Total LF
Field Drain C-1		8.0'		.34'	
Field Drain C-2		8.0'		.34'	
Field Drain C-3		8.0'		.34'	
Field Drain C-4		8.0'		.34'	
Contactor™ EZ-24		8.0'		.34'	
Contactor™ 75		6.25'		.75'	
Contactor™ 100		6.5'		1.0'	
Contactor™ 125		6.25'		1.0'	
Recharger™ 180		6.33'		1.0'	
Recharger™330		6.25'		1.17'	
Recharger™ 400		6.17'		1.3'	

Commonly Asked Questions

What is the maximum cover I can place over the units?
We recommend the following cover restraints:

Model	H-10 version	H-20 version
Field Drain Panel	5'	15'
Contactor™ EZ-24	5'	15'
Contactor™ 75	6'	15'
Contactor™ 100	4'	14'
Contactor™ 125	8'	15'
Recharger™ 180	6'	14'
Recharger™ 330	5'	12'
Recharger™ 330	5'	12'

How deep do you recommend burying the Cultec Chambers in order to meet H-10 or H-20 wheel load?

	Non-Trafficked Installations H-10 Wheel load	Under Pavement for Traffic and H-20 Wheel load Backfilled with Stone	Unpaved for Traffic and H-20 Wheel load Backfilled with Stone or 85% Compacted Fill
Field Drain	6" - 9"	Not Recommended	Not Recommended
Field Drain HD	6" - 9"	14"	18"
Contactor™ EZ-24	6" - 9"	Not Recommended	Not Recommended
Contactor™ EZ-24HD	6" - 9"	14"	18"
Contactor™ 75	6" - 9"	14"	18"
Contactor™ 75HD	6" - 9"	12"	14"
Contactor™ 100	6" - 9"	Not Recommended	Not Recommended
Contactor™ 100HD	6" - 9"	14"	16"

Contactor™ 125	6" - 9"	16"	20"
Contactor™ 125HD	6" - 9"	12"	14"
Recharger™ 180	6" - 9"	18"	22"
Recharger™ 180HD	6" - 9"	14"	16"
Recharger™ 330	6" - 9"	20"	24"
Recharger™ 330HD	6" - 9"	16"	18"
Recharger™ 400	6" - 9"	19"	23"
Recharger™ 400HD	6" - 9"	15"	17"

What is the type of fill that should be used to surround the chamber and fill over the top of a Cultec Stormwater System?
1.5" - 2" clean washed broken stone should be used to surround the chambers in a Cultec Stormwater System.

Where do you recommend the placement of filter fabric for a stormwater managment system?
Cultec 410 Filter Fabric should be directly placed over the top of each chamber row and then over the entire bed before backfilling to grade.

How do I manifold the system?
We recommend that you use a header pipe and manifold the system every other row of chambers. In a detention system, you would outflow alternating rows on the same or opposite side of the bed.

How do you control the water outflow in a detention system?
This is controlled by the size of the outflow pipe and its outlet height.

Can I put inflow and outflow pipes on the same side of the detention system?
Yes. This would require a plumbing detail of specific inlet and outlet heights.

What type of maintenance is required on the Cultec stormwater system?
The maintenance of the system would be required of the preliminary collection systems prior to feeding the bed. You must stabilize the site and make sure silt traps, sedimentation chambers and catch basins with diversion tees are in place prior to feeding the Cultec Chambers. Cultec also manufactures STORMFILTER, a secondary in-line filter, to further cut down on the silt and fines which may enter the system.

Do I have to worry about the system freezing?
For an operating on-site wastewater septic system that is properly infiltrating, freezing should not be a problem. In a stormwater management system where water that enters the system is above freezing combined with the temperature of the base of the system does not pose a problem in regards to freezing. In a detention system where longer terms of stagnant storage should occur, special attention should be paid to outflow capability.

How long does the system take to install?
The largest chambers, Recharger 180, 330 and 400, can be installed 20 pieces an hour per person. The smaller chambers can be installed at a much faster rate (approximately 40 pieces or more per hour per person)depending on model size.

What are the Cultec Chambers made of?
Cultec manufactures its chambers from high density/ high molecular weight polyethylene plastic.

How do I increase the inlet/outlet opening?
You may increase the standard 4" opening on any chamber from the top or bottom of the chamber. Please refer to the technical specification sheet for maximum sizing parameters.

Can I plant trees and bushes over the stormwater management system?
We do not recommend that you plant trees or large bushes over the top of the Cultec stormwater management system or up to 10-15 feet away from the bed perimeter.. The tree and plant roots may interfere with the systems efficiency.

I can't get exactly 6" separation on the chambers . What should I do?
You may install the Recharger 330 or 330HD with 58" on center or 6" stone separation between rows.

CONTACTOR™ & RECHARGER™
End Detail and Installation Information

The following information has been compiled to help identify the various endwall details of the CONTACTOR™ and RECHARGER™ chambers.

CONTACTOR™ EZ-24, 75, 100 & 125 are available in Models R & E.

RECHARGER™ 180, 330 & 400 are available in Models R, S, I & E.

Model R — is a **starter** unit, may be used as a single chamber, or can be used in series connections by feed pipes. Use when feed pipe is less than 8" diameter.

Model S — is a **starter** unit. Use when feed pipe is greater than 8" diameter.

Model I — is an **intermediate**. Use when feed pipe is greater than 8" diameter. May be replaced by Model E when desired.

Model E — is an **end** unit but may be used as an intermediate when desired.

CONTACTOR™ EZ-24, 75, 100 & 125 can be connected in two ways:

1) Riblock Model R to Model E using the patented overlapping rib connection (recommended method of installation.)
   Start each line with a Model R.
   Use Model E to continue the length of your line.
   End your line by using Model E.

2) Connect Model R to Model R by using a feed pipe in the upper invert opening.
   ☞Always use the interlocking rib connection whenever possible for a more secure installation.

RECHARGER™ 180, 330 & 400 can be connected in several ways:

1) Riblock Model R to Model E using the patented overlapping rib connection.
   Start each line with a Model R.
   Use Model E to continue the length of your line.
   End your line by using Model E.

2) Riblock Model R to Model I, finish line with Model E.
   Use Model I to continue the length of your line.

3) Riblock Model S to Model E using the patented overlapping rib connection.
Start each line with a Model S.
Use Model E to continue the length of your line.
End your line by using Model E.

4) Riblock Model S to Model I, finish line with Model E.

5) Connect Model R to Model R using a feed pipe in the upper invert opening.
☞Always use the interlocking rib connection whenever possible for a more secure installation.

S, I, E configuration vs. R, E, E -- A question of volume

For Models 180, 330 & 400 it is recommended that if the feed pipe is larger than 8" diameter that Model S be chosen as a starter for each row and that all Model Is are used for intermediates. Otherwise, Model Rs for starters and Model Es for intermediates can be used exclusively for the entire line of chambers.

The reason for the choice of S & I over R & E is in consideration of larger volumes introduced to the chamber system with larger feed pipe (8" diameter and over). Model S and Model I have larger transfer openings.

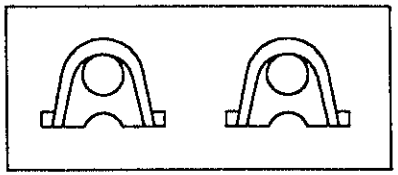
CONTACTOR™ EZ-24, 75, 100, & 125 and RECHARGER™ 180, 330 and 400 Single Model R Installation

In single chamber installations, Model R can be used as independent drywells. The 4" standard opening may be increased to almost any size (refer to Specification Sheet-Technical Section).

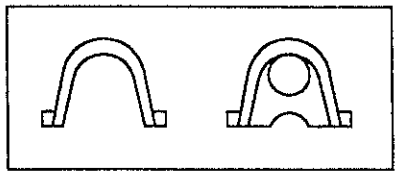
Model R to Model R Connections

CONTACTOR™ & RECHARGER™ Chambers may be connected in series using Model R connected to Model R. For feed pipe sizes up to 6". Model EZ-24, 75, 100, and 125 may be a practical selection; the standard hole size of 4" may be increased. For effluent feed pipe sizes above 6", Model 180 & 330 and Recharger 400 should be considered.

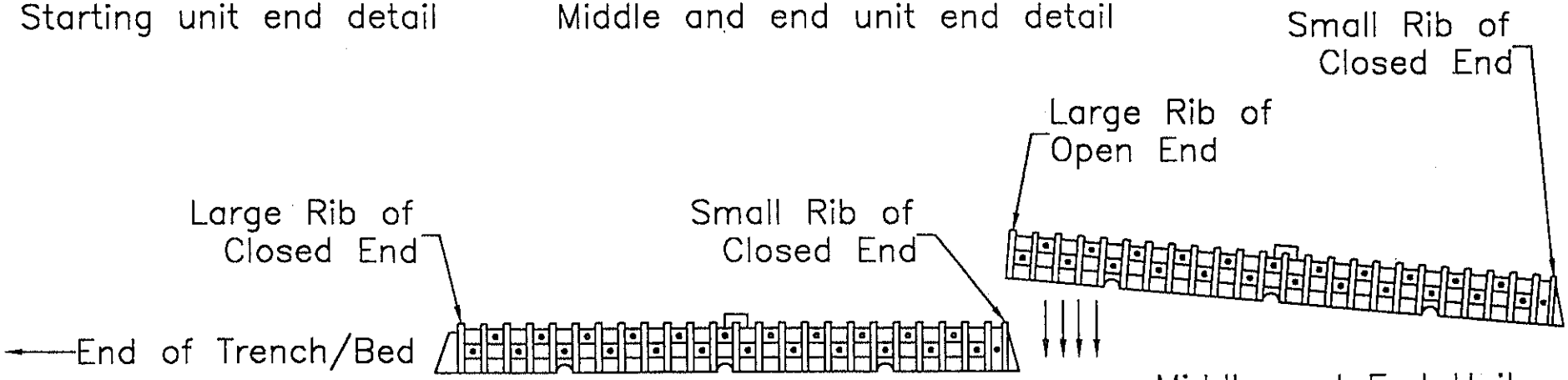
The Patented Interlocking Rib Connection of Cultec FIELD DRAIN® Chambers



Starting unit end detail

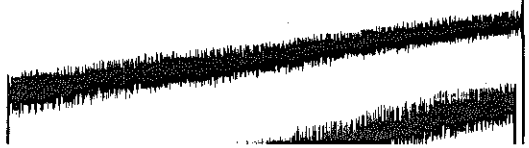


Middle and end unit end detail



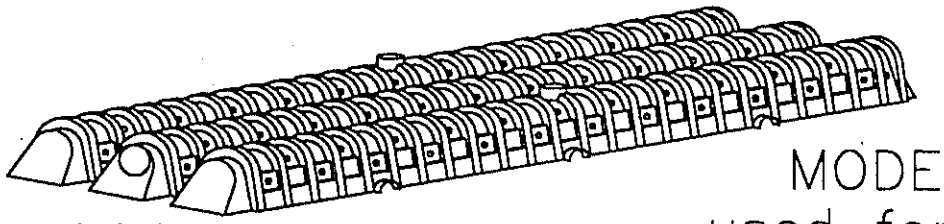
Starter Unit: Place small rib toward length of line you wish to extend.

Middle and End Units: Overlap large rib of open end over small rib of closed end of preceding unit.



Field Drain Panel
End Detail -- C3

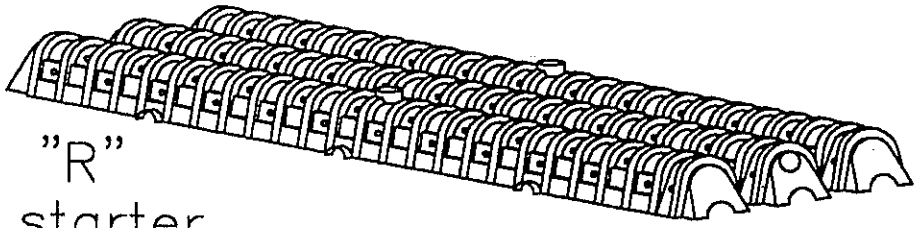
Front Large Rib



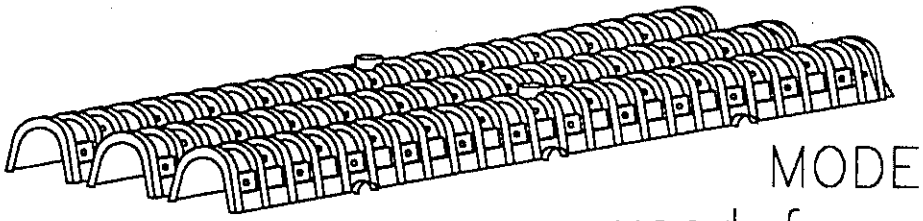
Inlet

MODEL "R"
used for starter

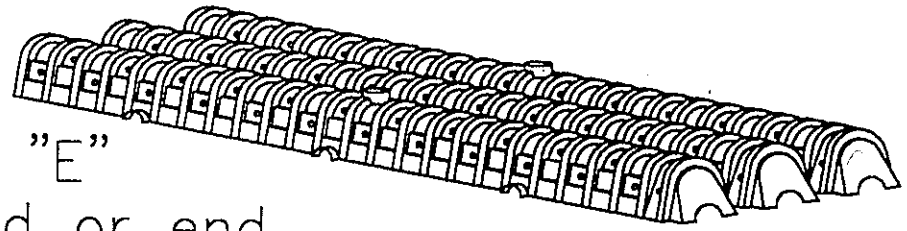
Back Small Rib



Downstream



MODEL "E"
used for mid or end



Downstream

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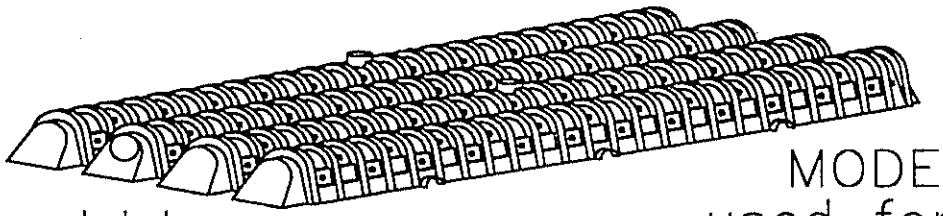
Field Drain Panel
End Detail

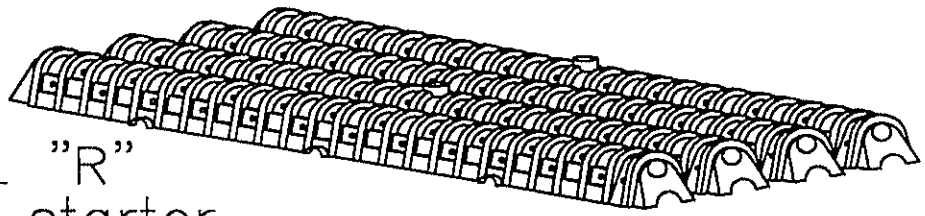
Front Large Rib



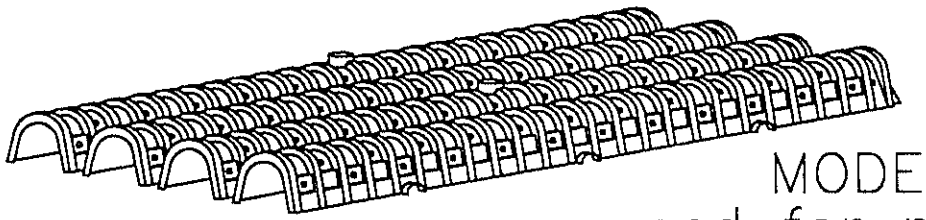
Inlet

MODEL "R"
used for starter

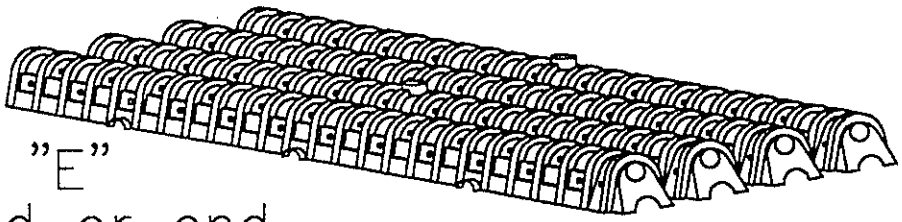
Back Small Rib



Downstream



MODEL "E"
used for mid or end



Downstream

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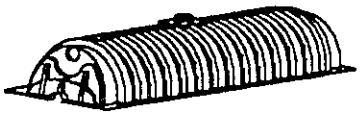
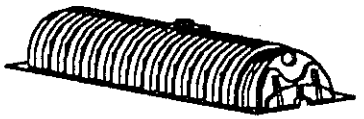
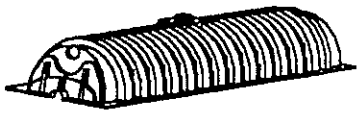
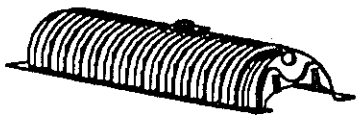
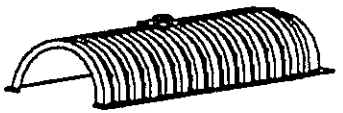
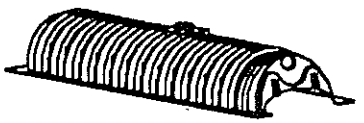
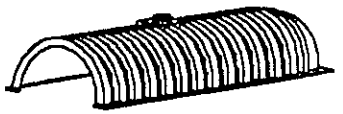
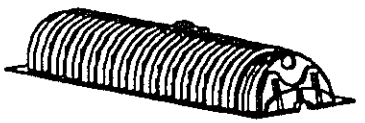
Recharger™ & Contactor™ End Detail Information

	Large Rib end detail		Small Rib end detail
"R" units are used to start lines with feed pipes of 8" dia. or less, or can be used singly.		"R" Unit	
* "S" units are used to start lines with feed pipes of 8" dia. or larger. Recharger only.		"S" Unit	
* "I" units are used to continue a line with a feed pipe of 8" dia. or larger. Recharger only.		"I" Unit	
"E" units are used to continue lines with feed pipes of 8" dia. or less and also used to end a line.		"E" Unit	

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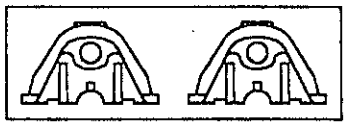
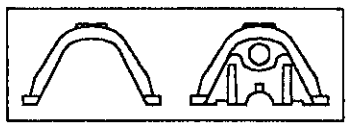
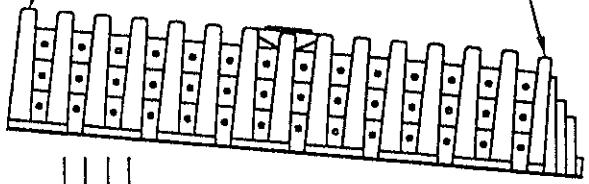
The Patented Interlocking Rib Connection of Cultec CONTACTOR™ Chambers



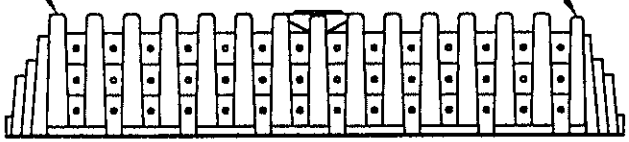
Starting unit end detail



Middle and end unit end detail



End of Trench/Bed



Middle and End Units: Overlap large rib of open end over small rib of closed end of preceding unit.

Starter unit: Place small rib toward length of line you wish to extend.

Length of line →

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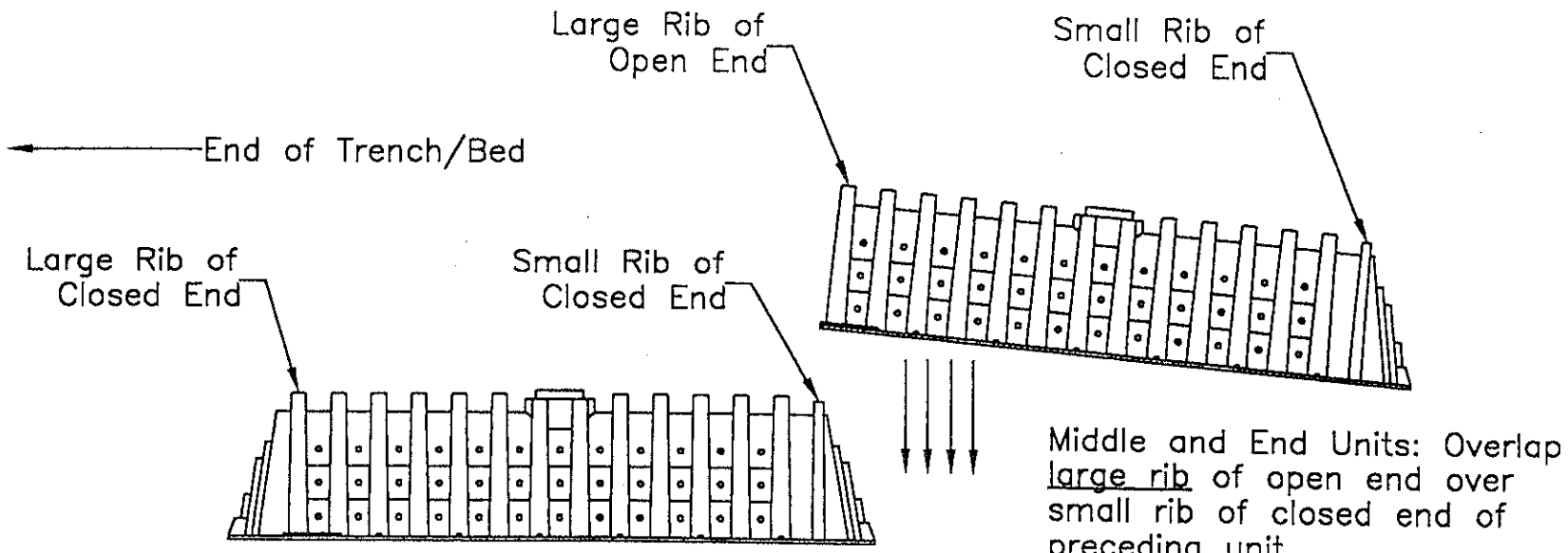
The Patented Interlocking Rib Connection of Cultec RECHARGER™ Chamber

MODEL TYPE			
R	S	I	E
			

R unit to start line.
S unit to start line (for larger volumes).
I unit to continue line.
E unit to continue or end line.



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Why Cultec Chamber End Support Panels Do Not Restrict Flow

Each of Cultec's chambers have an integrally formed, repeating end support panel for structural integrity and added strength.

The lower effluent transfer hole on the end support panel of any model is minimally sized at half the diameter of 6" pipe. This sized opening has a larger volume capability than 4" pipe (the standard feed pipe opening size).

Each chamber also has an upper effluent transfer hole the size of 4" pipe.

The combination of the upper and lower transfer openings have the volume capacity of greater than 2 ½ times the capacity of 4" pipe.

Frequently, the feed pipe transfers less than 25% of the total pipe capability. The upper and lower transfer openings will more than accommodate such a volume.

In extreme cases where inflow is at maximum capacity, it will not exceed the capacity of the feed pipe.

When large volumes will be transferred into the system, we recommend the use of Models S & I available on Recharger 180, Recharger 330 and Recharger 400 that have a larger half-moon transfer opening
(Please refer to Specification Sheet-Technical Section).

Recharger 180 Model S and Model I transfer openings have a greater volume capacity than 15" diameter pipe.

Recharger 330 and Recharger 400 Model S and Model I transfer openings have a greater volume capacity than 18" diameter pipe.

While already exceeding the required volume transfer capability using the standard sized upper and lower transfer openings, all Cultec Chambers also have 3/4" holes bored into the side walls and open bottoms that can accommodate side and bottom leaching.

Engineering Specifications for Cultec Chambers

DESCRIPTION

Cultec CONTACTOR™ and RECHARGER™ polyethylene chambers are designed for underground stormwater and/or on-site wastewater management. The chambers may be used for retention, recharging, detention, or controlling the flow of on-site stormwater runoff.

UNIT SPECIFICATIONS AND MATERIALS

Units are manufactured from high molecular weight high density polyethylene.

CONTACTOR™ and RECHARGER™ chambers will be joined using an interlocking overlapping rib method.

The chamber's end wall will be an integral part of the continuously formed unit.

The chambers will be manufactured by Cultec, Inc. of Brookfield, CT.

All chambers will be arched in shape and have 3/4" round discharge holes bored into the sides of each unit for water infiltration or exfiltration.

All chambers will have an open bottom and integrally formed end walls designed for vertical support and structural integrity.

Polyethylene chambers are manufactured in two models: H-10 and H-20.

- H-10 units are designed according to AASHTO (American Association of State Highway and Traffic Officials) load rating of 16,000 lbs./axle with 6" of compacted cover.

- H-20 units are designed according to AASHTO load rating of 32,000 lbs./axle with 12"-14" of compacted cover under the pavement when using CONTACTOR™ HD chambers and 14"-16" of compacted cover when using RECHARGER™ HD chambers.

HD Units must meet load testing to 20,000 lbs./sq. ft. beneath one foot of 85% compacted fill, which exceeds AASHTO H-20 rating.

Polyethylene chambers must have the ability to accept and carry up to 4" pipe through its integrally formed vertical support wall.

Separate inlet or end plates cannot be used with this unit.

Vertical support walls will repeat every 7.5 feet as part of the continuously formed unit.

H-20 units will be formed with a colored stripe so they can be easily identified as an H-20 unit.

Units will have an optional 6" inspection port at the top of the arch in the center of each unit.

CHAMBER INSTALLATION
Each polyethylene chamber must be covered with Cultec Filter Fabric to provide maximum infiltration capability, add to overall storage capacity, and prevent soil intrusion.

Optional, surround with stone:
Use 1.5" - 2" diameter stone when not putting filter fabric directly over units.

Units will be connected by overlapping interlocking ribs.

MANUFACTURING PROCESS
Chambers will be manufactured using vacuum thermoforming.

Engineering Details for FIELD DRAIN® C-1, C-2, C-3 & C-4

Each unit will be 8.5 inches high and 8.5 feet long. C-1 is 12 inches wide, C-2 is 24 inches wide, C-3 is 36 inches wide, C-4 is 48 inches wide. Lay-up length is 8.0 feet.

Every polyethylene chamber will have a minimum wall thickness at the top of the arch of .25" formed from high molecular weight/high density polyethylene.

Each unit will have 1.31 square feet of sidewall interface per linear foot. Use of filter cloth is mandatory to prevent intrusion of soil or silt into the system.

Overall height of each chamber will be 8.5 inches. Add 1.5" for overall height to top of clean out for 8.5 inches overall height.

The raised center inspection port has a recessed trough to enable support and locating assistance for up to 4" diameter PVC pressure distribution or gravity feed pipe.

Open footprint to drainage will be .83 SF/LF for C-1, 1.66 SF/LF for C-2, 2.49 SF/LF for c-3, and 3.32 SF/LF for C-4.

The upper outside perimeter for each unit is 1.75' for C-1, 3.5' for C-2, 5.25' for C-3, and 7.0' for C-4.

Each chamber has 25 ribs of (approximately 1" in height, 1.13" wide at the top and tapering to 1.13" at the bottom. Spacing at the top of the rib is approximately 2.88") and one smaller rib sized dimensionally to allow the larger rib to effectively drop over and interlock to connect units. The smaller rib's dimensions being: .75" high, .88" wide at the top of the rib, .88" wide at the base.

Overall height from the base of the structure to the inside rib is 7.5". Overall height from the base of the structure to the outside rib is 8.5".

Invert height for 4" PVC pipe is 3".

Each unit has the ability to accept up to 4.5" HDPE culvert pipe through the unit's end wall.

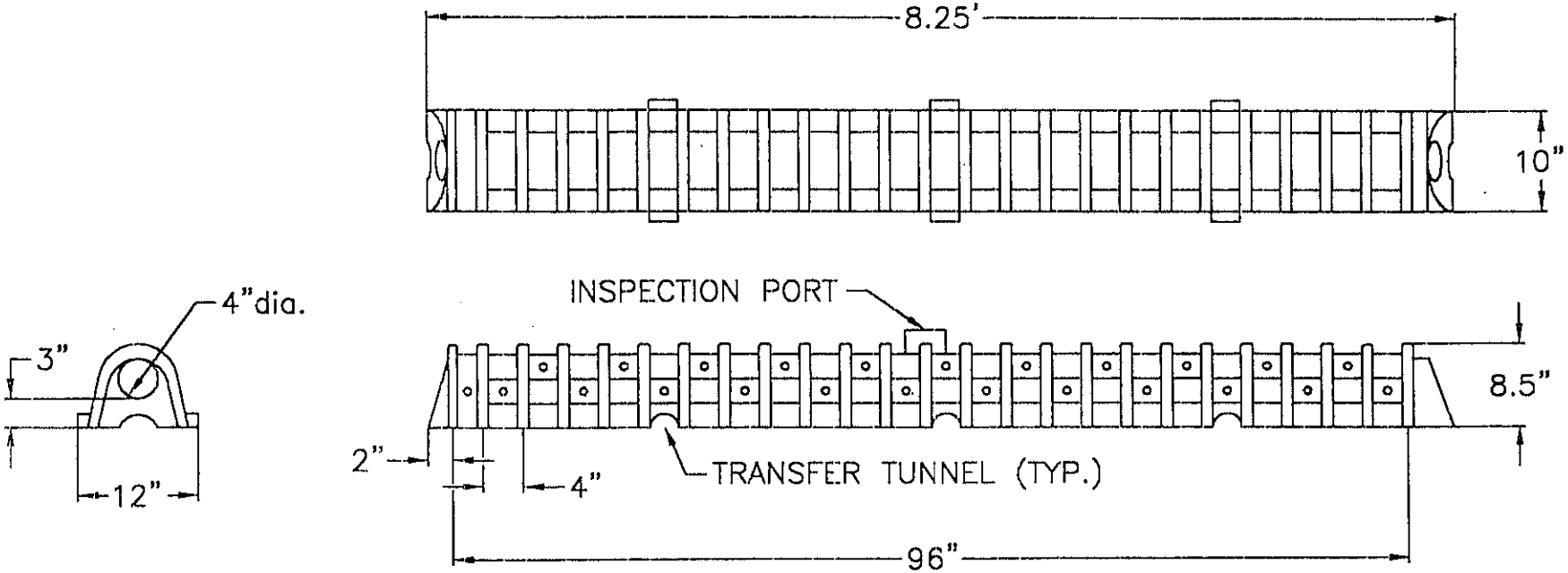
Each polyethylene unit's average footprint is 1 SF/LF for C-1, 2 SF/LF for C-2, 3 SF/LF for C-3 and 4 SF/LF for C-4.

Each polyethylene unit is designed to handle .42 CF/LF for C-1, .84 CF/LF for C-2, 1.26 CF/LF for C-3 and 1.68 CF/LF for C-4.

Stone diameter will be 1.5" to 2".

Length	8.25'
Lay Up Length	96"
Width	12"
Height	8.5"
Capacity	25 gal.
Weight	
H-10:	9 lbs.
H-20:	N/A

FIELD DRAIN
C-1 CHAMBER



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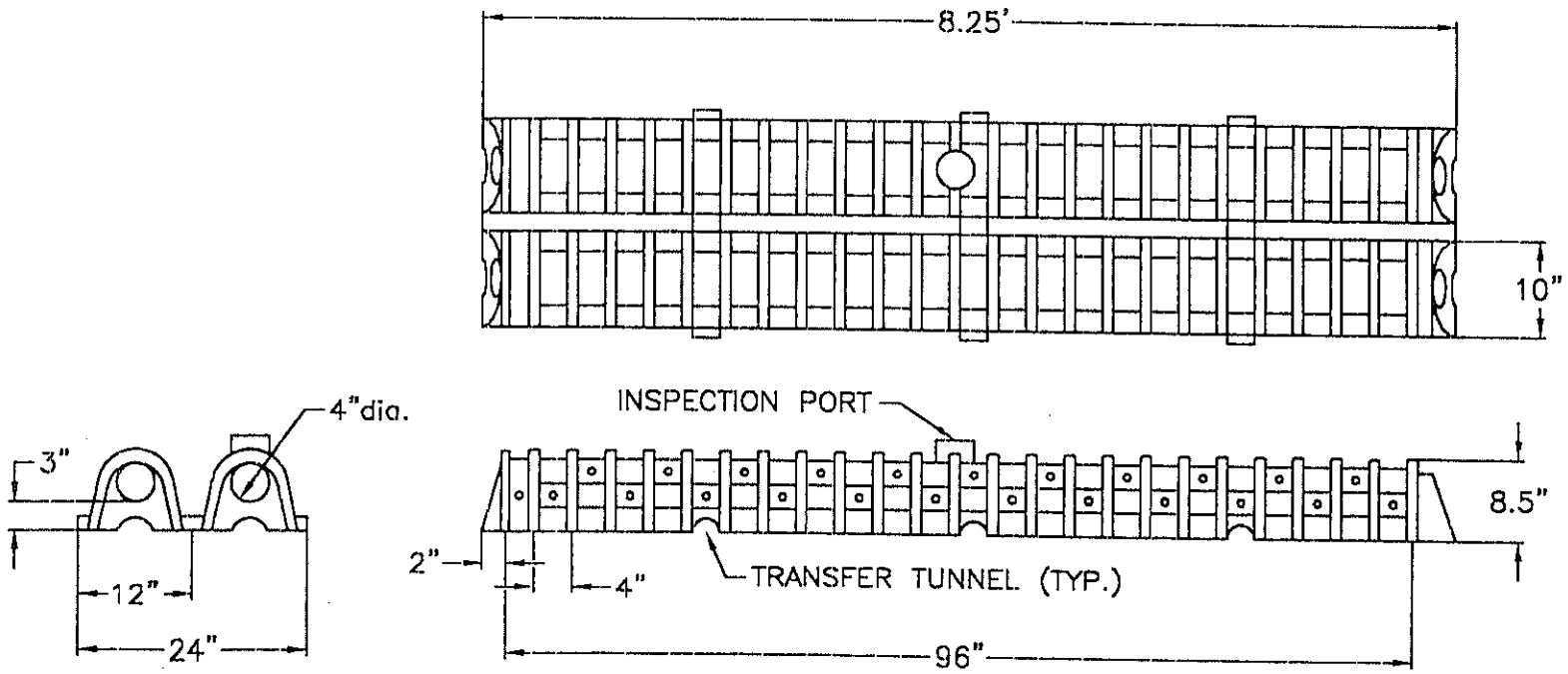
Length	8.25'
Lay Up Length	96"
Width	24"
Height	8.5"
Capacity	50 gal.
Weight	
H-10:	18 lbs.
H-20:	N/A

FIELD DRAIN
C-2 CHAMBER



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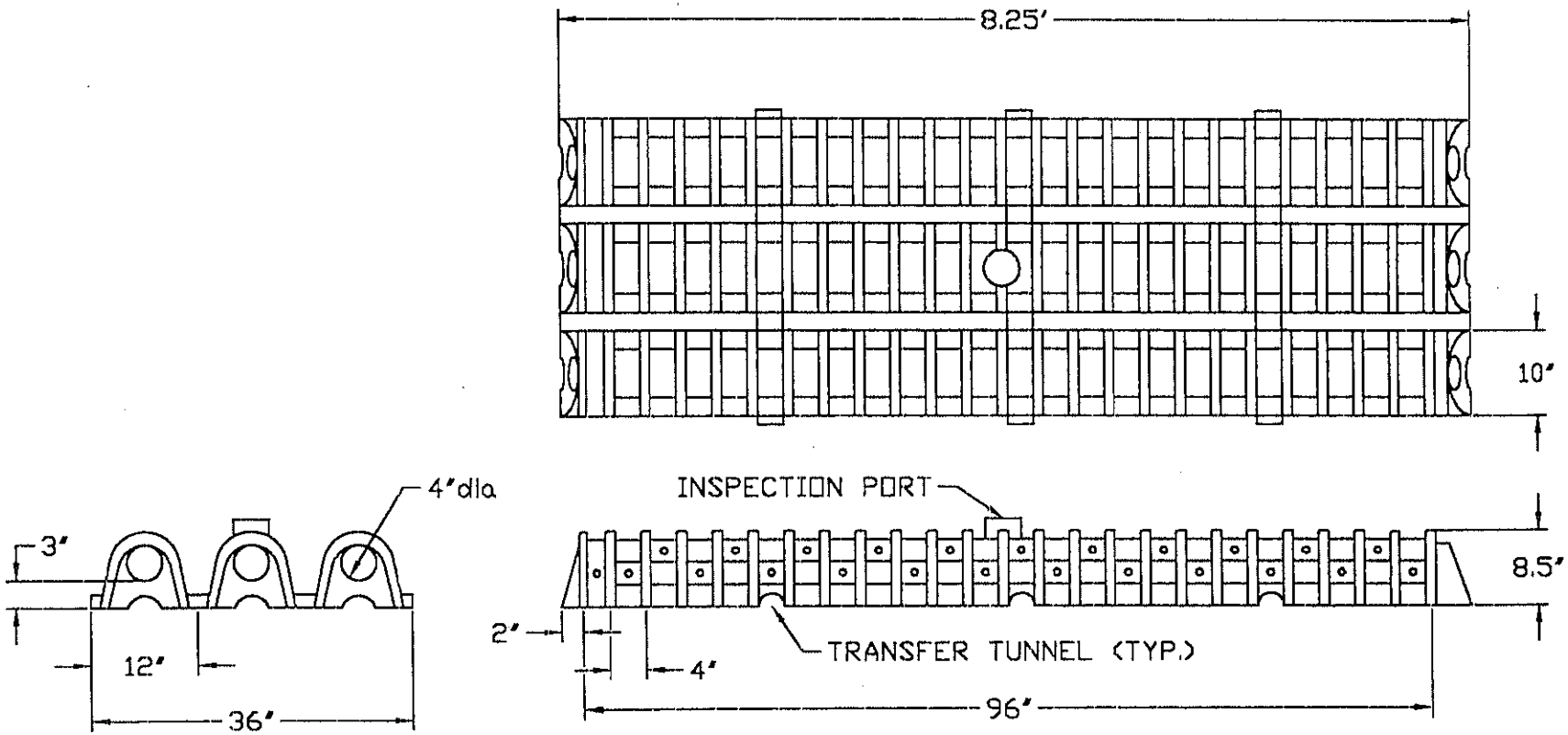
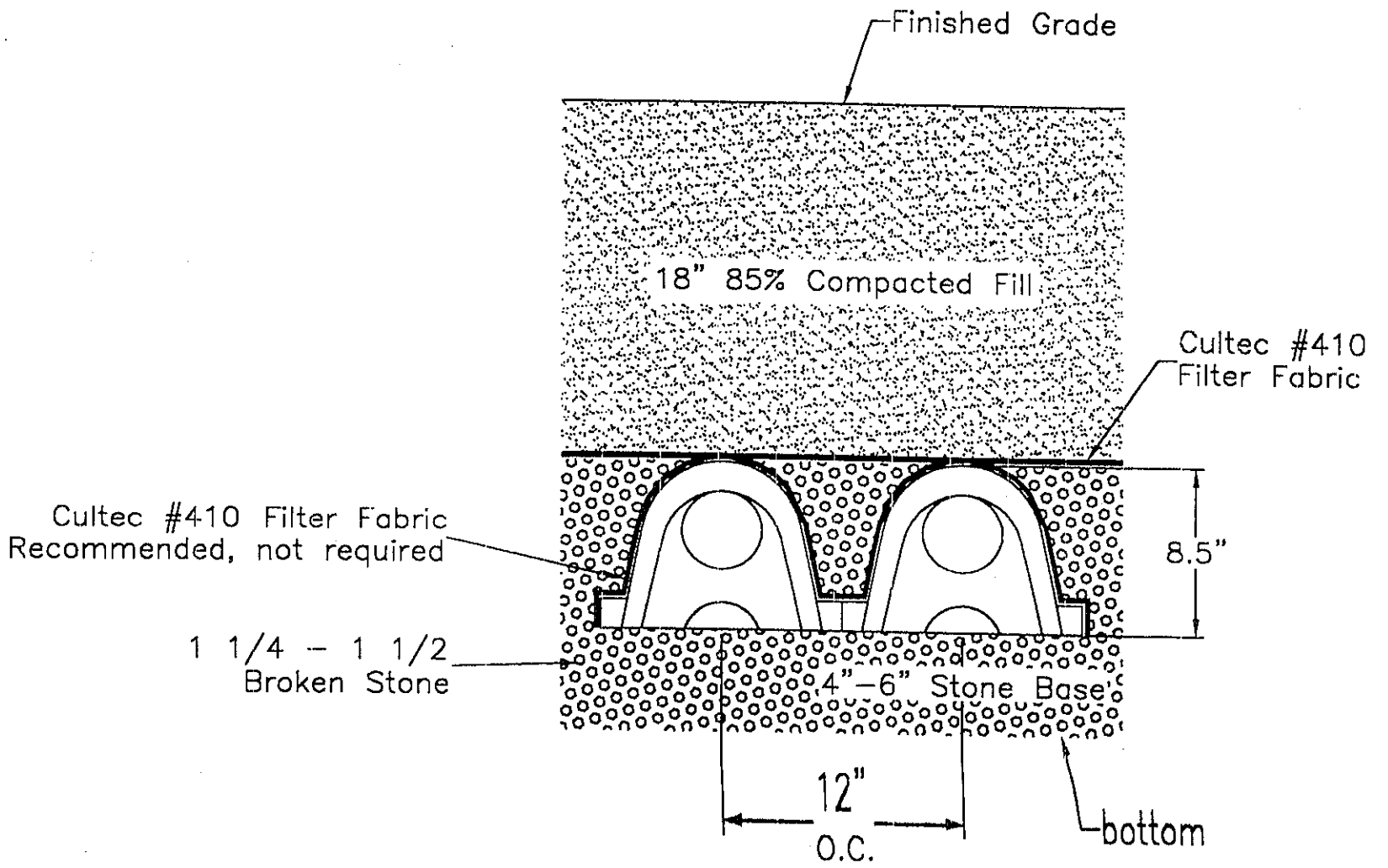
Length	8.25'
Lay Up Length	96"
Width	36"
Height	8.5"
Capacity	75 gal.
Weight	
H-10:	27 lbs.
H-20:	N/A

FIELD DRAIN
C-3 CHAMBER



ADS

Typical section thru
Field Drain C–2 Bed
1.44 CF Design Unit
Unpaved for H–20 Traffic



Calculations based on
40% void.

* Each channel = 7.2 CF/LF

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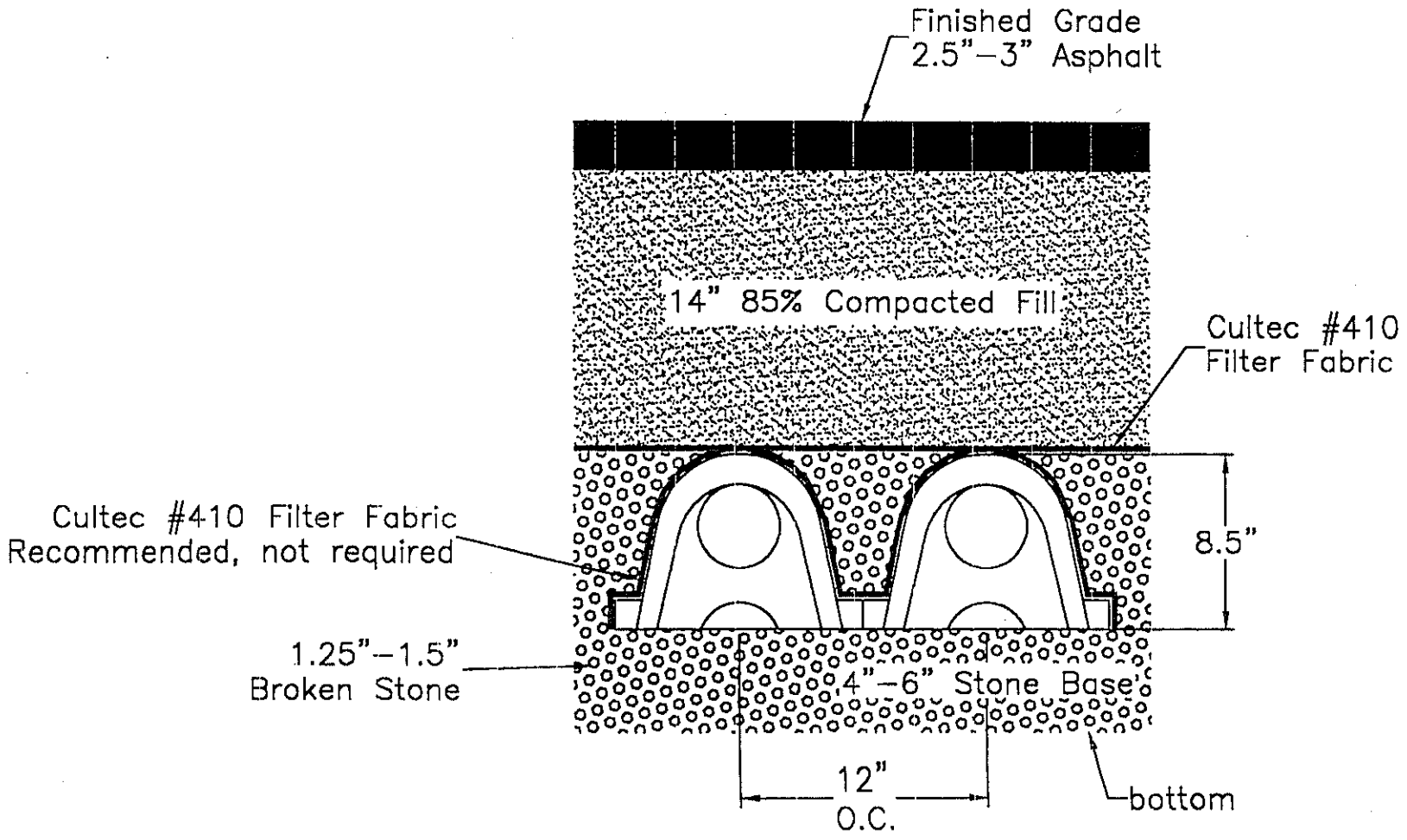
Typical section thru
Field Drain C–2 Bed
1.44 CF Design Unit
Paved for H–20 Traffic



Calculations based on
40% void.

* Each channel = .72 CF/LF

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Engineering Details for CONTACTOR™ EZ-24

Each unit will be 12.5 inches high, 16 inches wide and 8.5 feet long.

Lay-up length is 8.0 feet.

Every polyethylene chamber will have a minimum wall thickness at the top of the arch of .14" formed from high molecular weight/high density polyethylene.

Each unit will have 1.66 square feet of sidewall interface per linear foot. Use of filter cloth is mandatory to prevent intrusion of soil or silt into the system.

Overall height of each chamber will be 12.5 inches. Add .75 inches for overall height to top of clean out.

The raised center inspection port has a recessed trough to enable support and locating assistance for up to 4" diameter PVC pressure distribution or gravity feed pipe.

Open footprint to drainage will be 1.1 square feet per lineal foot.

The upper outside perimeter for each unit is 3.0 feet.

Each chamber has 19 ribs of (approximately 1.63" in height, 1.5" wide at the top and tapering to 2.5" at the bottom. Spacing at the top of the rib is approximately 3.5") and one smaller rib sized dimensionally to allow the larger rib to effectively drop over and interlock to connect units. The smaller rib's dimensions being: 1.25" high, 1.38" wide at the top of the rib, 1.38" wide at the base.

Overall height from the base of the structure to the inside rib is 10.5". Overall height from the base of the structure to the outside rib is 12".

Invert height for 4" PVC pipe is 6".

Each unit has the ability to accept up to 6" HDPE culvert pipe through the unit's end wall.

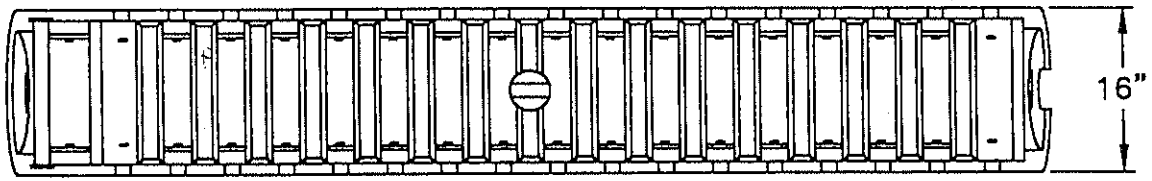
Each polyethylene unit's average footprint is 1.1 square feet per lineal foot.

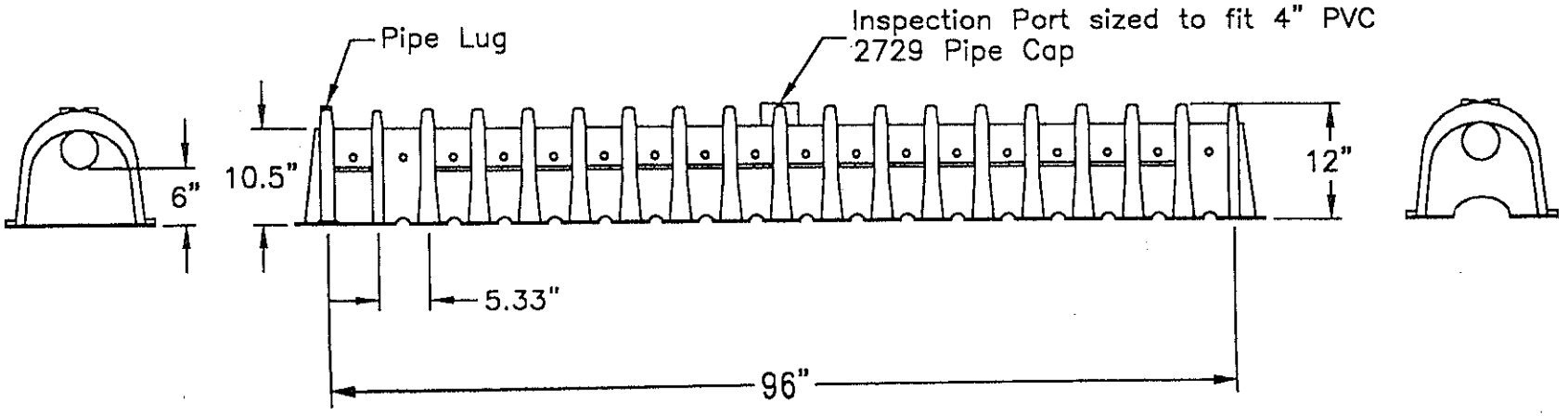
Each polyethylene unit is designed to handle .83 cubic feet of storage per lineal foot.

Stone diameter will be 1.25" - 1.5".

Contactor EZ-24

Length	102"
Lay Up Length	96"
Width	16"
Height	12"
Capacity	47 gal.
Weight	
H-10:	14 lbs.
H-20:	17 lbs.





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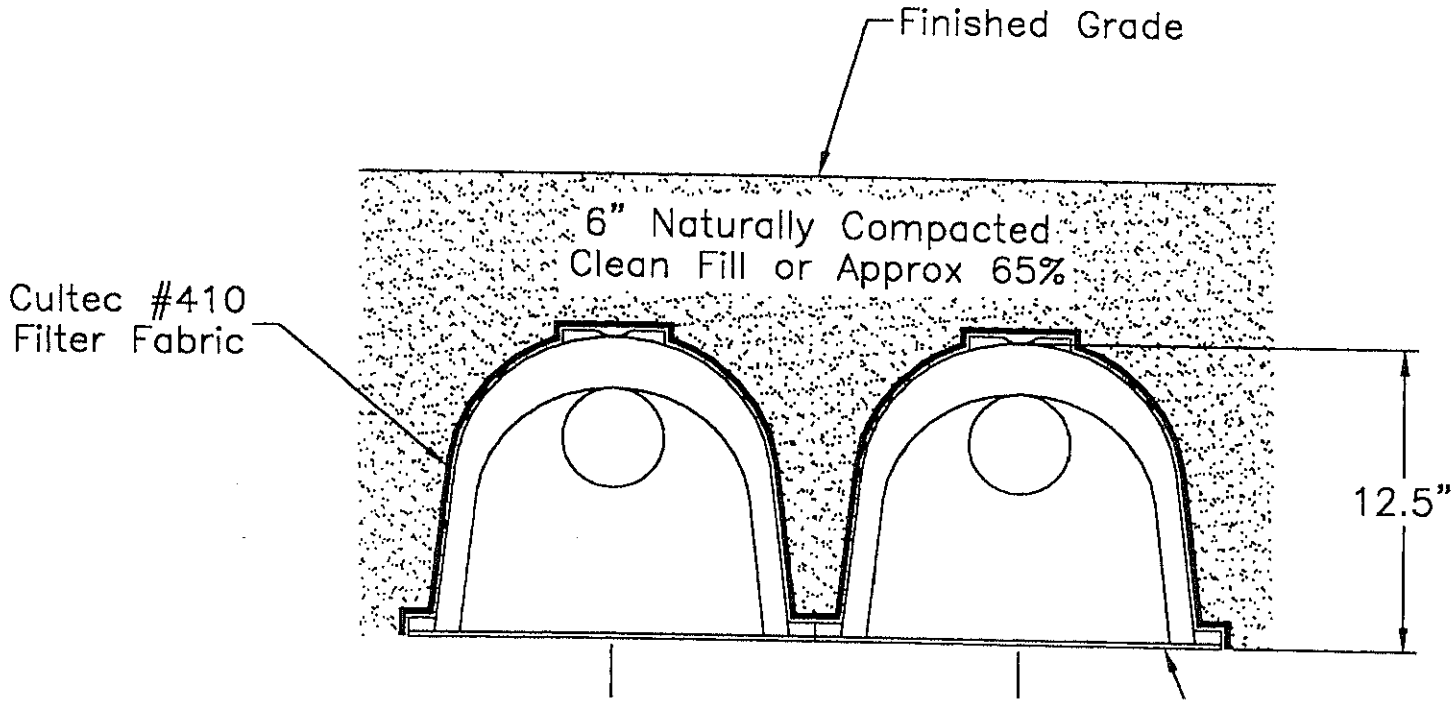
Typical section thru Contactor EZ-24 Bed .83 CF Design Unit Untrafficked H-10



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Septic and Stormwater Chambers :

Contactor Models Recharger Models

Field Drain - Contactor Field Drain C-1, C-2, C-3 and C-4
8.5'L x 8.5" H. Up to 116 gallon capacity. Great for low profile installations. 1', 2', 3' or 4' wide versions available.

Model 75 - Contactor Model 75
Length: 7.2' Lay-up Length: 6.25' Width: 30" Height: 12.4" Invert Height: 6" Weight: 22 lbs. (H-10), 29 lbs. (H-20) Capacity: 75 gal.

Model 100 - Contactor Model 100
Length: 7.5' Lay-up Length: 6.5' Width: 36" Height: 12.5" Invert Height: 6" Weight: 33 lbs. (H-10), 41 lbs. (H-20) Capacity: 125 gal.

Model 125 - Contactor Model 125
Length: 7.5' Lay-up Length: 6.25' Width: 30" Height: 18" Invert Height: 12" Weight: 26 lbs. (H-10), 38 lbs. (H-20)

Model 180 - Recharger Model 180
Length: 7.33' Lay-up Length: 6.33' Width: 36" Height: 20.5" Invert Height: 14" Weight: 34 lbs. (H-10), 43 lbs. (H-20)

Model 330 - Recharger Model 330
Our most popular model - Recharger 330 - is one of our largest plastic chambers available in today's market. (Also see Recharger 400 for slightly larger volumes.)It can store up to three times more stormwater than the largest competitor chamber. It has proven itself as an efficient and cost effective alternative.

Model EZ24 - Contactor Model EZ24
8.5' L x 16" W x 12.5" H. 53.13 gallon capacity. Excellent deflection capabilities! Great for curvy septic installations.

Model 400 - Recharger Model 400
Currently our largest chamber, the Recharger 400 has a 425 gallon capacity. 32.5" H x 52" W x 7.5' L. Able to store 66.64 CF per chamber when installed in stone. No other chamber can compare to these capacities!

U.S. Patent #s: 5,087,151 - 5,419,838 - 5,773,756 - other foreign patents, & other U.S. Patents pending. U.S. Trademark Registrations 1,610,507 for CONTACTOR and 1,611,507 for TRIPDRAIN & RECHARGER.

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Model 180 - Recharger Model 180

Length: 7.33'

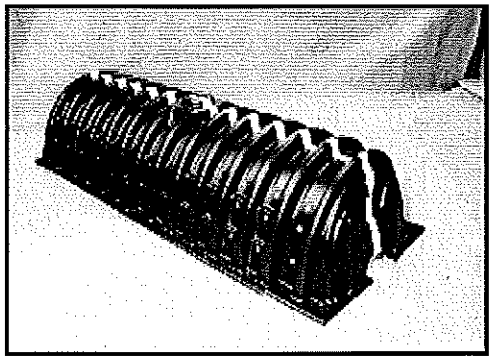
Lay-up Length: 6.33'

Width: 36"

Height: 20.5"

Invert Height: 14"

Weight: 34 lbs. (H-10), 43 lbs. (H-20)



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Recharger 180 Drawing

Three-view drawing of Recharger 180 Chamber. 20.5" H x 36" W x 7.33'L. Supported by AutoCAD.

Model 180 Cross Sections for Stormwater

This zipped file contains 3 cross section drawings for Recharger 180: Unpaved for H10 Traffic, Unpaved for H20 Traffic, Paved for H20 Traffic. File must be unzipped and then viewed in AutoCAD. Estimated download time: 10 minutes. File size:

U.S. Patent #s: 5,087,151 - 5,419,838 - 5,773,756 - other foreign patents, & other U.S. Patents pending. U.S. Trademark Registrations 1,610,507 for CONTACTOR and 1,611,507 for TRIPDRAIN & RECHARGER.

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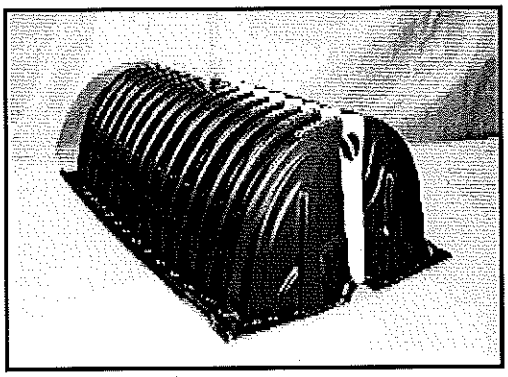
Model 330 - Recharger Model 330

Our most popular model - Recharger 330 - is one of our largest plastic chambers available in today's market. (Also see Recharger 400 for slightly larger volumes.)It can store up to three times more stormwater than the largest competitor chamber.
It has proven itself as an efficient and cost effective alternative.



Downloads

Recharger 330 Drawing
Three-view drawing of Recharger 330 Chamber. 30.5" H x 52" W x 7.5' L. Supported by AutoCAD.

Model 330 Cross Sections for Stormwater
This zipped file contains 3 cross section drawings for Recharger 330: Unpaved for H10 Traffic, Unpaved for H20 Traffic, Paved for H20 Traffic. File must be unzipped and then viewed in AutoCAD. Estimated download time: 7 minutes. File size:

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
10 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0010

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

April 19, 2001

Gina Carolan
Cultec, Inc.
878 Federal Road
Brookfield, Connecticut 06804

Subject: Product Approval, Cultec Contactor Chambers

Dear Ms. Carolan:

Thank you for your letter dated April 5, 2001, in which you were inquiring why the current Maine Subsurface Waste Water Disposal Rules (June 2000) did not list all 5 products as shown in our earlier letter. As you are aware, the rules never listed the Recharger 180 and 330; but did list the Contactor 75, 100, and 125. I am at a loss as to why that would be. In any case, during a subsequent telephone conversation with me on 4/18/01, I reconfirmed our earlier approval of November 20, 1995, by Mr. Ken Meyer, Manager of the Wastewater and Plumbing Control Program. Mr. Meyer has retired, but his approval is still effective for all five products. However, I will ask Mr. Jacobsen in the Wastewater and Plumbing Control Program to look over the material you will be sending to us to reconfirm the equivalent loading in Mr. Meyer's letter, restated below.

Under provisions of Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules any manufacturer or distributor submitting a new product for code registration needs to demonstrate that:

1. The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by Department for use in this code, and

2. The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code.

The rules indicate that such demonstration may be achieved by submitting a letter to the Division of Health Engineering from: a) a certifying organization, such as the International Association of Plumbing and Mechanical Officials (IAPMO), Building Officials and Code Administrators (BOCA), or other suitable organization stating their approval of the product, or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code) or equal.

As indicated above, the Division has previously determined that Contactor 75, 100, and 125; and Recharger 180 and 330 are approved and rated as equivalent to a stone bed as follows:

Device Name	Cluster Configuration	Linear Configuration
Contactor 75	4.4 Sq. feet per linear foot	5.5 Sq. feet per linear foot
Contactor 100	6.0 Sq. feet per linear foot	7.1 Sq. feet per linear foot
Contactor 125	4.7 Sq. feet per linear foot	6.9 Sq. feet per linear foot
Recharger 180	6.0 Sq. feet per linear foot	8.6 Sq. feet per linear foot
Recharger 330	8.7 Sq. feet per linear foot	13.1 Sq. feet per linear foot

Note: In a linear or trench configuration the rows are to be separated by at least 36" edge-to-edge.

All Cultec chambers must be installed using the geo-textile fabric provided by the manufacturer.

The aforementioned products are acceptable for use in the State of Maine, provided that they are installed and maintained in conformance with the manufacturer's directions. Since this approval is a restatement of an existing product approval, the Division is satisfied that the criteria for registration are met.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of the Contacter and Recharger models stated above. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact James Jacobsen at (207) 287-5695.

Sincerely,

W. Clough Toppan, P.E.
Director
Division of Health Engineering
Bureau of Health
Department of Human Services
clough.toppan@state.me.us

WCT

cc: James Jacobsen, Wastewater and Plumbing Control Program

Cultec, Inc.
P.O. Box 280
878 Federal Road
Brookfield, CT 06804

CULTEC

Manufacturer & Distributor of
CONTACTOR™ & RECHARGER™
Plastic Chambers for Septic and Stormwater

Date: 4/5/01

To: State of Maine
Clough Toppan
Phone: 207-287-5689
Fax:

From: Cultec, Inc.
Gina Carolan
Phone: 203-775-4416 Ext. 109
Fax: 203-775-5887
www.cultec.com
gcarolan@cultec.com

Pages: 6

Subject: Questions on Approved Disposal Devices

Dear Clough:

Attached is a letter with some questions I have on your 10 CMR 241.

Could you please contact me at your earliest convenience.

Thank you,
Gina

2 pm

CULTEC, Inc.
P.O. Box 280
878 Federal Road
Brookfield, CT 06804

CULTEC
www.cultec.com

Phone: (203) 775-4416
Phone: (203) 775-2969
Phone: (800) 4-CULTEC
Fax: (203) 775-1462

Thursday, April 05, 2001

Clough Toppan
State of Maine
Dept. of Human Services
Bureau of Health
Div. of Health Eng.
State House Station 10
Augusta, ME 04333-0010
USA

VIA FACSIMILE 207-287-3165
Via US Mail

Dear Clough:

I was reviewing our state septic approval letters to update my files and reviewed your 10 CMR 241 B-103.0 PLASTIC DISPOSAL DEVICES.

I noticed that you have only three of our chambers listed as being approved in your state. However, I have an approval letter dated November 20, 1995 from Kenneth L. Meyer (attached) which listed 5 of our current model sizes as approved.

Could you please tell me which listing is correct? Should we go by our 1995 letter? If so, will you be updating your 10 CMR 241 dated June 1, 2000 to the public?

Please call me at your earliest convenience to discuss this matter further at 203-775-4416 ext. 109.

Sincerely,

Gina Carolan
President

Enclosure: November 20, 1995 Approval of Cultec Products – Plastic Leaching Chambers
June 1, 2000 Appendix B Proprietary Disposal Devices and Septic Tank Filters 10 CMR 241

APPENDIX B
PROPRIETARY DISPOSAL DEVICES AND SEPTIC TANK FILTERS

B-100.0 ALL DEVICES

B-100.1 General: Approved proprietary disposal devices may be used in lieu of a stone filled disposal field. A potential purchaser is advised to obtain information pertaining to the relative cost, availability, installation procedures, method of waste water distribution, and specific design considerations.

B-100.2 Requirements: The use of proprietary disposal devices may be approved, provided they meet the following conditions:

B-100.2.1 Condition 1: The square footage of the bottom and sidewall area of proprietary disposal devices varies from one manufacturer to another. Therefore, the required number of proprietary disposal devices from a specific manufacturer is determined by dividing its standard stone-filled square-footage equivalent into the total bottom and sidewall area, determined by multiplying the appropriate minimum hydraulic loading rate, from Table 600.1 and the design flow, from Chapter 5;

B-100.2.2 Condition 2: When proprietary disposal devices are used in a cluster configuration, only the unshielded bottom area can be used to determine its standard stone-filled disposal-field equivalent, except as referenced in note b of Table B-103.2;

B-100.2.3 Condition 3: When proprietary disposal devices are used in a trench configuration, only the sum of its unshielded bottom and sidewall area can be used to determine its standard stone-filled disposal-field equivalent;

B-100.2.4 Condition 4: The number of proprietary disposal devices shall be rounded up to the nearest whole disposal device;

B-100-2.5 Condition 5: The separation distance between groups of proprietary disposal devices is identical to the distances required for a standard stone filled disposal field;

B-100.2.6 Condition 6: Gravity, low pressure, or serial distribution may be used.

B-100.2.7 Condition 7: Proprietary disposal devices shall be installed level and shall be bedded and covered per each manufacturer's recommendations; and

B-100.2.8 Condition 8: In all other respects, each proprietary disposal device installation shall comply with this code.

B101.0 FOUR FOOT BY EIGHT FOOT AND EIGHT FOOT BY EIGHT FOOT CONCRETE DISPOSAL DEVICES

B101.1 Manufacturers:

American Concrete Industries
Downeast Concrete Products
Gagne & Son Precast Chambers
G.E. Godding & Son, Inc.
George R. Roberts, Inc.
Richard Genest Precast
Pre-Cast Concrete Products of Maine, Inc.
Superior Concrete Co., Inc.
Sandelin Pre-Cast, Topsham

B-101.2 Sizing requirements of 4 foot x 8 foot chambers:

When used in clusters, the disposal fields are sized according to bottom area only. Each 4 foot by 8 foot disposal device has an effective disposal infiltration area of 64 square feet.

When used in trenches with one foot of stones along the 4 foot sidewalls, each 4 foot by 8 foot disposal device has an effective disposal infiltration area of 77 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

When used in trenches with one foot of stone along the 8 foot sidewalls, each 4 foot by 8 foot disposal device has an effective disposal infiltration area of 90 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

B-101.3 Sizing requirements of 8 foot x 8 foot chambers:

When used in clusters, each 8 foot by 8 foot disposal device has an effective disposal infiltration area of 128 square feet.

When used in trenches with one foot of stone along two sidewalls, each 8 foot by 8 foot disposal device has an effective disposal infiltration area of 154 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

B-102.0 FOUR FOOT BY TEN FOOT CONCRETE DISPOSAL DEVICES

B-102.1 Manufacturers:

Richard Genest Precast

B-102.2 Sizing requirements: When used in clusters, each 4 foot by 10 foot disposal device has an effective disposal infiltration area of 80 square feet.

When used in trenches with one foot of stone along the 4 foot sidewalls, each 4 foot by 10 foot disposal device has an effective disposal infiltration area of 93 square

feet. When used in trenches with one foot of stone along the 10 foot sidewalls, each 4 foot by 10 foot disposal device has an effective disposal infiltration area of 113 square feet. A separation distance of 3 feet from edge of stone to edge of stone is required when used in trench configuration.

B-103.0 PLASTIC DISPOSAL DEVICES

B-103.1 Trade names:

Infiltrator	EnviroChamber
Bio-Diffusor	Contactor

B-103.2 Sizing requirements: These devices have an effective disposal infiltration area in square feet per unit as shown in Tables B-103.2.

TABLE B-103.2

Sizing for "Bio-Diffusor", "Infiltrator", "EnviroChamber", and "Contactor" proprietary disposal devices

Device	Model	Height	Configuration	
			Cluster	Trench
Bio-Diffusor	Low profile	11"	36 sq ft/unit	44 sq ft/unit [a]
Bio-Diffusor	Standard	14"	36 sq ft/unit	50 sq ft/unit [a]
Infiltrator	EQ 24	11"	33.3 sq ft/unit [b]	33.3 sq ft/unit [c,d]
Infiltrator	Standard	12"	36 sq ft/unit	44 sq ft/unit [a]
Infiltrator	High Capacity	16"	36 sq ft/unit	50 sq ft/unit [a]
Enviro Chamber	Standard	16"	36 sq ft/unit	44 sq ft/unit [a]
Enviro Chamber	High Capacity	17"	36 sq ft/unit	50 sq ft/unit [a]
Contactor 75	Contactor "C"	12"	36 sq ft/unit	44 sq ft/unit [e]
Contactor 125	Contactor	16"	36 sq ft/unit	50 sq ft/unit [e]
Contactor 375	Tripdrain	30"	64 sq ft/unit	90 sq ft/unit [e]

[a] 36" from edge to edge (stone to stone, if stone is used).
[b] 12" from edge to edge on level systems (see manufacturer's installation guide).
[c] 18 " edge to edge for single row trenches.
[d] 6" edge to edge in 2 rows per trench with 36" between trenches.
[e] 8' from center to center in trench configuration.

B-104.0 USE OF GRAVEL-LESS CLOTH FABRIC DISPOSAL TUBING

B-104.1 Trade names:

GeoFlow	Eljen In-Drains
SB2	Enviro Septic

B-104.2 Configuration: Use of gravel-less fabric covered disposal field tubing (GeoFlow and SB2) is restricted to trench configurations. The use of Eljen In-Drains is restricted to the "Eljen In-Drain Leaching Design and Installation for the State of Maine" approved by the Department.

B-104.3 Sizing requirements: These devices have an effective disposal infiltration area in square feet per linear foot as shown in Tables B-104.3 and B-104.4.

TABLE B-104.3

Sizing for "GeoFlow" and "SB2" gravel-less cloth fabric disposal tubing

Device	Model	Configuration	
		Cluster	Trench [a]
Geoflow	10"	N/A	5.0 sq ft per linear ft
Enviro-Septic	1012"	N/A	5.0 sq ft per linear ft
SB2	8"	N/A	2.0 sq ft per linear ft
SB2	10"	N/A	2.5 sq ft per linear ft

[a] 2.5' center to center

TABLE B-104.4

Sizing for "Eljen In-Drain" gravel-less cloth disposal system

Device	Model	Configuration	
		Cluster [b]	Trench [a]
In-drain	Type A	24 sq ft/ unit	24 sq ft/unit
In-drain	Type B	48 sq ft/unit	48 sq ft/unit

[a] 4' and 6', center to center, type A units and type B units, respectively.
[b] A minimum of 12" of sand must be between rows.

B-105.0 PRE-TREATMENT

B-105.1 Sand filters: Pre-treatment sand filters shall be designed, installed and maintained in conformance with the guidelines set forth in the United States Environmental Protection Agency's Design Manual On-site Wastewater Treatment and Disposal Systems, EPA-625/1-80-012.

The specific guidance Sections are:

B-105.1.1 Intermittent sand filters: EPA-625/1-80-012 Section 6.3.

B-105.1.2 Buried sand filters: EPA-625/1-80-012 Section 6.3.

B-105.1.3 Free Access sand filters (Non-recirculating): EPA-625/1-80-012 Section 6.3.

B-105.1.4 Recirculating sand filter: EPA-625/1-80-012 Section 6.3.

B-105.2 Proprietary Filters: The following proprietary filter systems are authorized:

B-106.0 SEPTIC TANK FILTERS

B-106.1 General: Septic tank outlet filters perform two primary functions; retains the solids in the tank and lowers the BOD. A potential purchaser is advised to obtain information pertaining to the recommended model, relative cost, availability, installation and maintenance procedures and flow rates from the manufacturer or distributor.

Angus S. King, Jr.
Governor

Kevin W. Concannon
Commissioner

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
AUGUSTA, MAINE 04333

November 20, 1995

Mr. Robert DiTullio, Sr.
Cultec, Inc
878 Federal Road
Brookfield, CT 06804

Subject: Approval of Cultec Products - Plastic Leaching Chambers

Dear Mr. DiTullio:

This letter grants permission for the use in Maine of the Cultec line of plastic leaching chambers and supercedes any previous approval letters.

All installations must comply with the Subsurface Waste Water Disposal Rules of Maine as well as the manufacturer's recommendations. Systems must be designed by a Site Evaluator licensed by the State of Maine. A permit is required for the installation and must be obtained from the Licensed Plumbing Inspector (LPI) before beginning construction.

The Cultec chambers are rated as equivalent to stone bed as shown below (LF of chamber = SF of stone disposal area):

Device Name		Cluster Configuration	Linear (Trench like) Configuration
Contactor	75	4.4 SF/LF	5.5 SF/LF
Contactor	100	6.0 SF/LF	7.1 SF/LF
Contactor	125	4.7 SF/LF	6.9 SF/LF
Recharger	180	6.0 SF/LF	8.6 SF/LF
Recharger	330	8.7 SF/LF	13.1 SF/LF

Notes:

1. In a linear or trench-like configuration rows are to be separated by at least 36" (edge to edge).
2. All Cultec chambers must be installed using the geo-textile provided by the manufacturer.

Approvals by this office:

1. Are not recommendations for a product and must not be construed as such. This office does not represent any product as being better than, equal to, or inferior to any similar product.
2. Are based upon a desk review of a product, without field or lab testing by this office.
3. May be revised, based upon information received regarding the performance of the product, changes in the product or changes in the regulations.
4. May be reproduced only in their entirety.

Sincerely,

Kenneth L. Meyer
Wastewater & Plumbing Control Program

cc: Wallace Hinckley, P.E.
Jay Hardcastle, State Site Evaluator
Kerwin Keller, State Plumbing Inspector