CLEARSTREAM®

WASTEWATER SYSTEMS, INC.

P. O. Box 7568 • Beaumont, Texas 77726-7568
(409) 755-1500 • Fax: (409) 755-6500 • www.clearstreamsystems.com

OWNER'S MANUAL • PARTS LIST • OPERATING MANUAL
FLOW DIAGRAM • INSTALLATION INSTRUCTIONS
DESIGN DRAWINGS AND SPECIFICATIONS
SERVICE POLICY • LIMITED WARRANTY

MODEL G

FIBERGLASS	CONCRETE
500G	500GC
500GS	500GSC
500GT	
500GST	
600G	600GC
600GT	
800G	800GC
800GT	
1000G	1000GC
1000GTD	1000GCD
1200GTD	1200GCD
1500G	1500GC
1500GTD	1500GCD

GCT

CLASS I
NSF/ANSI 40

INTRODUCTION

The Clearstream Wastewater Treatment System converts the sewage from your residence or business into a clear, odorless liquid. This treatment is accomplished at a remarkable low operating cost per month. System design and years of refining make it inexpensive to operate and maintain. Homeowners who have lived with the nuisance of a lingering septic odor in their neighborhood will truly appreciate owning a Clearstream Treatment System.

PROCESS DESCRIPTION

The Clearstream Wastewater Treatment System operates in the extended aeration mode of the activated sludge process.

Wastewater enters the aeration chamber of the system through a 4" Sch. 40 PVC inlet pipe. The wastewater is then mixed throughout the aeration chamber by releasing compressed air near the bottom of the chamber through fine bubble diffusion. The rising bubbles transfer oxygen to the wastewater which allows aerobic organisms to thrive and ultimately decompose the incoming waste matter.

The turbulence caused by the rising bubbles also creates a mixing pattern which keeps the sludge in suspension. As incoming wastewater enters the aeration chamber, existing "mixed liquor" from the aeration chamber is displaced into the bottom of the cone shaped clarifier.

The clarifier chamber allows the water to still so that suspended solids in the "mixed liquor" can settle back into the aeration chamber for further biological breakdown.

The remaining clear water in the upper zone of the clarifier chamber is then discharged through the 4" Sch. 40 outlet pipe.

When properly loaded and maintained, the aforementioned process allows the Clearstream Treatment System to provide years of satisfactory service for the consumer.

OPERATING MANUAL

In the event you experience a problem with your Clearstream Wastewater Treatment System or if service is required, you may reference the system name plate for the name, address and phone number of a local person that can provide the service required. After the expiration of your initial two (2) year service policy provided by the system installer, you may obtain a continuing service policy on a yearly basis which will include terms comparable to the initial service policy from a local service person that is trained by Clearstream.

In order for the Clearstream System to function at optimum performance levels, the system will require periodic service. The normally expected service that is associated with the system includes:

1. Repair or replace aerator	2 to 10 years
2. Clean filters on aerator	6 mos. to 2 years
3. Break up scum in clarifier	6 mos. to 2 years
4. Pump sludge from aeration tank	2 to 5 years*
5. Check aeration diffusers	annually

*Any sludge removed from Clearstream Unit must be disposed of in compliance with all state, local and federal regulatory requirements.

To remove solids from aeration chamber, drop hose through access opening in tank all the way to the bottom of the tank. Normally it is only necessary to pump out about ½ of the aerobic tank volume. After pumping fill tank back up with water immediately.

To determine if all system components are functioning properly, look and/or listen to see if the visual/audio alarm system is illuminated or making a buzzing sound. If the alarm is activated, then either the aerator has lost air pressure or the high level float is indicating a high water condition. Verification of either condition can be made by checking air pressure from aerator with a pressure gauge and opening the access covers to the treatment plant to see if the water level inside the aeration chamber or clarifier is at alarm level. After inspection, be sure to securely fasten the access covers back in place and tighten the tamper resistant bolts firmly.

To determine if the system has the desirable "mixed liquor" and effluent characteristics, first remove the access cover. Monitor for odors coming from the tank. If the odor is a sweet or a musty smell, the system is operating in a desirable aerobic condition. If the odor is foul or smells like a rotten egg, then the system is operating in an undesirable anaerobic condition. Visually monitor the "mixed liquor" for color. If the color is a brownish color, then it is operating in a desirable aerobic condition. If it is grey or black in color, it is operating in an undesirable anaerobic condition. The system effluent should be clear with very few noticeable light brown solids suspended in the effluent. The effluent should not be dark or turbid in color or clear with great numbers of light brown suspended solids noticeable. After inspection of the system's interior, be sure to securely fasten the access covers back in place and tighten the tamper resistant bolt or bolts firmly.

In the event the visual alarm light and buzzer is activated, call your local servicing dealer whose name, address, and phone number should be affixed to the system nameplate.

To collect effluent samples on systems that have discharge pumps, samples may be collected from pump discharge line. To collect samples from gravity flow systems, a sample port should be installed.

For the first two (2) years from the date of installation, your local servicing dealer (from whom you purchased your Clearstream System) will make periodic inspections of your system to make sure it is functioning properly. The dealer will perform necessary maintenance to the system at no charge unless the required maintenance is not warranty related. Pumping of the system is not included. After the first two (2) years, the dealer can offer a continuing service policy for a nominal annual fee. The two (2) year service policy and the continuing service policy are minimum requirements of NSF/ANSI Standard 40. If local service requirements are greater than those of these NSF/ANSI Standards or if the local regulations require others to perform the service on these units, Clearstream's limited warranty may still be honored.

For the Clearstream Wastewater Treatment Unit to function properly it must be used for the treatment of domestic wastewater from residences or other waste flows with similar loading characteristics. Typical domestic wastewater consists of the flow from toilets, lavatories, sinks, bathtubs or showers and washing machines. To prevent malfunctions of your Clearstream Unit, the following guidelines should be followed:

1. Any sewage system, whether aerobic or septic, should not have inorganic materials (plastics, cigarette butts, disposable diapers, feminine napkins, condoms, etc.) that the bacteria cannot consume.

2. Large amounts of harsh chemicals, oil, grease, high sudsing detergents, discharge from water softeners, disinfectants or any other chemical or substance that kills bacteria should not be discharged into the system.

3. Excessive use of water, over the design flow of the system, or organic overloading in excess of design parameters will cause the system not to perform to its fullest capabilities.

4. The proper operation of this or any other sewage treatment system depends upon the proper organic loading and the life of the micro-organisms inside the system. Clearstream is not responsible for the in-field operation of a system, other than the mechanical and structural workings of the system itself. Field abuse and overloading of the system can only be cured by the user of the system.

Note: Although the Model G was tested and certified without a pretreatment tank, installation of one preceding any aerobic wastewater treatment system may enhance the long term performance of the system.

CLEARSTREAM INSTALLATION INSTRUCTIONS

1. Prepare an excavation having minimum dimensions of at least one (1) foot larger than the dimensions of the tank. Make sure the depth of the excavation is deep enough to allow gravity flow to the inlet of the system and that the excavation bottom is level. Never install the Clearstream tank deeper than a depth that will require more than a maximum of 18 inches of riser depth. The access cover shall always be above final grade after tank installation. In applications where more than the maximum 18 inches of riser is required, install a lift pump upstream of the Clearstream tank in order to pump effluent to the Clearstream tank at normal grade. In these special applications where a lift pump is required, contact Clearstream for more details as to pump size, maximum dosages and maximum flow rates.

2. Set the Clearstream tank in a prepared excavation that has a solid, level bottom that will eliminate tank settling. The excavation bottom should have no rocks or sharp objects present.

3. When lowering a fiberglass tank into the prepared excavation, use the lifting eyes which are bolted into the tank. When lowering concrete Clearstream tanks into the prepared excavation, use a spreader bar. Only spreader bars and other lifting devices, that have been designed and tested for lifting Clearstream concrete tanks, should be used. Never lift Clearstream tanks unless they are empty of all liquids.

4. Make sure the inlet 4" Sch. 40 PVC pipe is aligned properly to incoming sewage line.

5. For the Clearstream Unit to function properly, the tank must be level. To properly level the tank, lay a three (3) foot level across the tank in several directions. Shift the tank in the hole as necessary, to make the tank level in all directions. The tank may be slightly out of level, but it should not be out of level enough to cause tank malfunctions.

6. Fill the tank with water, checking periodically to make sure the tank remains level.

7. Connect the 4" Sch. 40 PVC Clearstream inlet pipe to the incoming sewage line. Make sure the incoming sewage pipe is level with or higher than the inlet pipe to the Clearstream Unit. The Clearstream Unit should only be connected to a plumbing system from a wastewater source which has been properly trapped and vented in compliance with State and Local plumbing codes.

8. Back fill the excavation in layers with back fill material that will settle properly around the tank. Tamp the back fill material as each layer is placed around the tank. If necessary, use water to help settle the soil around the tank. Special care should be taken to either tamp soil under where inlet and outlet pipes are bridging the excavation or use some other method of supporting pipes across the excavation. Do not back fill with heavy clay or large rocks.

9. Before completing the back fill, be sure the air line (3/4" PVC) from the tank to the aerator has been laid underground.

10. For below normal grade installations a riser may be used. In no case shall more than 18" of riser depth be used on a Clearstream Unit to bring the access covers above the final grade. All risers must be sealed to prevent ground water intrusion before back fill is completed.

11. Before leaving excavation site, be sure to securely fasten the Clearstream access covers in place with the tamper resistant bolt(s). Tighten bolts firmly to keep unauthorized personne from gaining access to the inside of tank.

CLEARSTREAM AERATOR AND CONTROL PANEL INSTALLATION

1. Install Aerator Model CS-103 as close as practical to the tank, but in no case greater tha one hundred (100) feet away (50' on 1500 G.P.D. unit). Run ¾" Sch. 40 PVC air line fron aerator connector to airline connection at Clearstream tank. Be careful to back f underground airline in manner which will not cause airline to leak. Aerator must be installe in a location that is dry, non-dusty and highly ventilated.

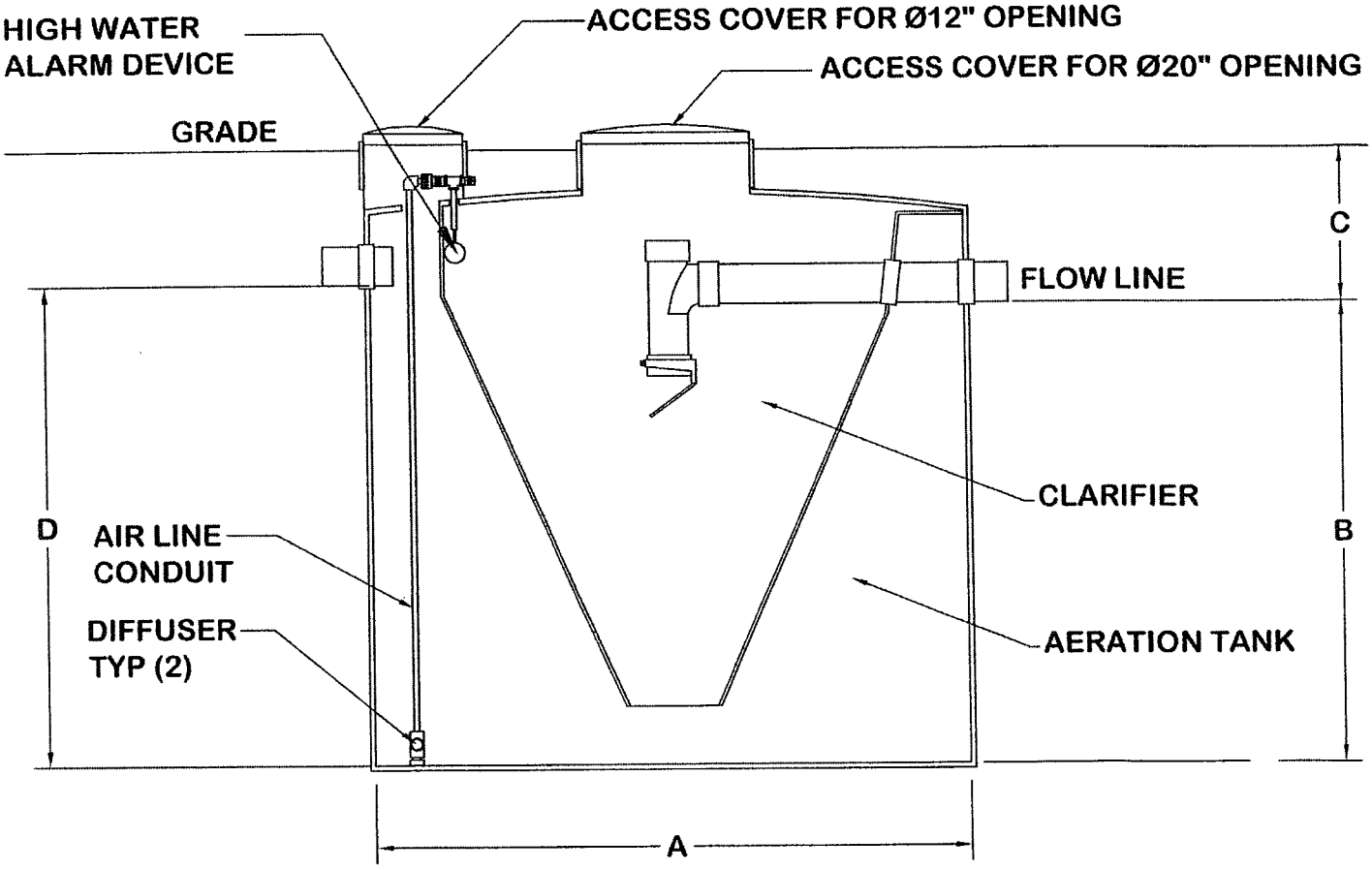
2. Wire 115 Volt, 60Hz power from an electrical disconnect to Clearstream Aerator. All electrica wiring should be installed by a qualified person in compliance with applicable section for the National Electrical Code or other more stringent local codes.

3. Turn power on at electrical disconnect and check for proper system operation.

COMPLIANCE WITH LAWS

The Clearstream Unit must never be installed without first obtaining all permits and approv from the local regulatory body. In areas that do not have local control over environment activities, all applicable State and Federal environmental codes must be adhered to as we Only properly licensed and trained individuals should install Clearstream equipment.

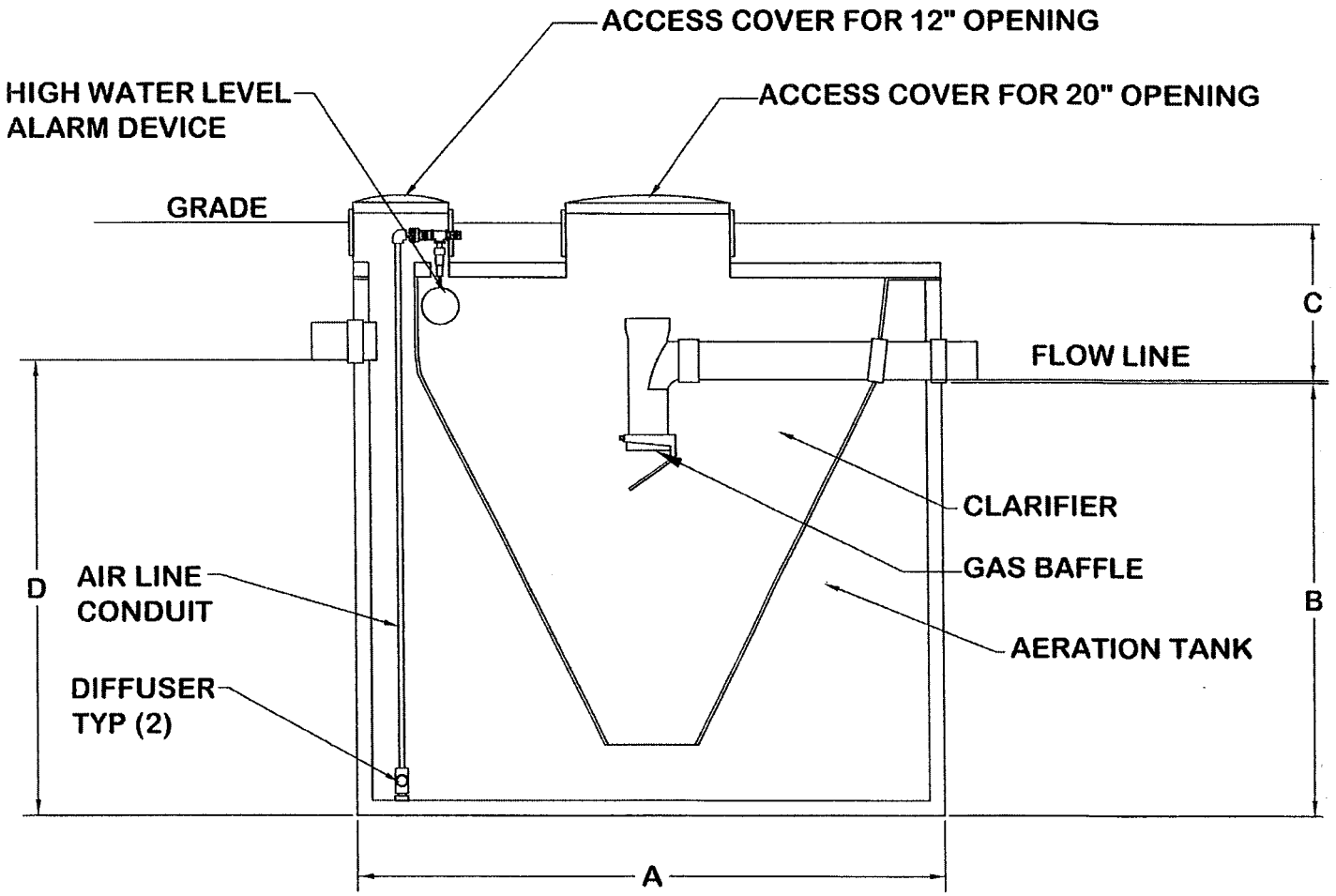
DESIGN DRAWING



DIMENSIONAL TABLE:

MODEL	A	B	C	D
500G	5'-3"	5'-3"	1'-8"	5'-5"
500GS	5'-8"	4'-7"	1'-8"	4'-9"
600G	6'-4"	4'-7"	1'-8"	4'-9"
800G	6'-4"	5'-7"	1'-6"	5'-9"
1000G	6'-4"	7'-3"	1'-8"	7'-5"
1500G	8'-0"	6'-10"	1'-8"	7'-0"

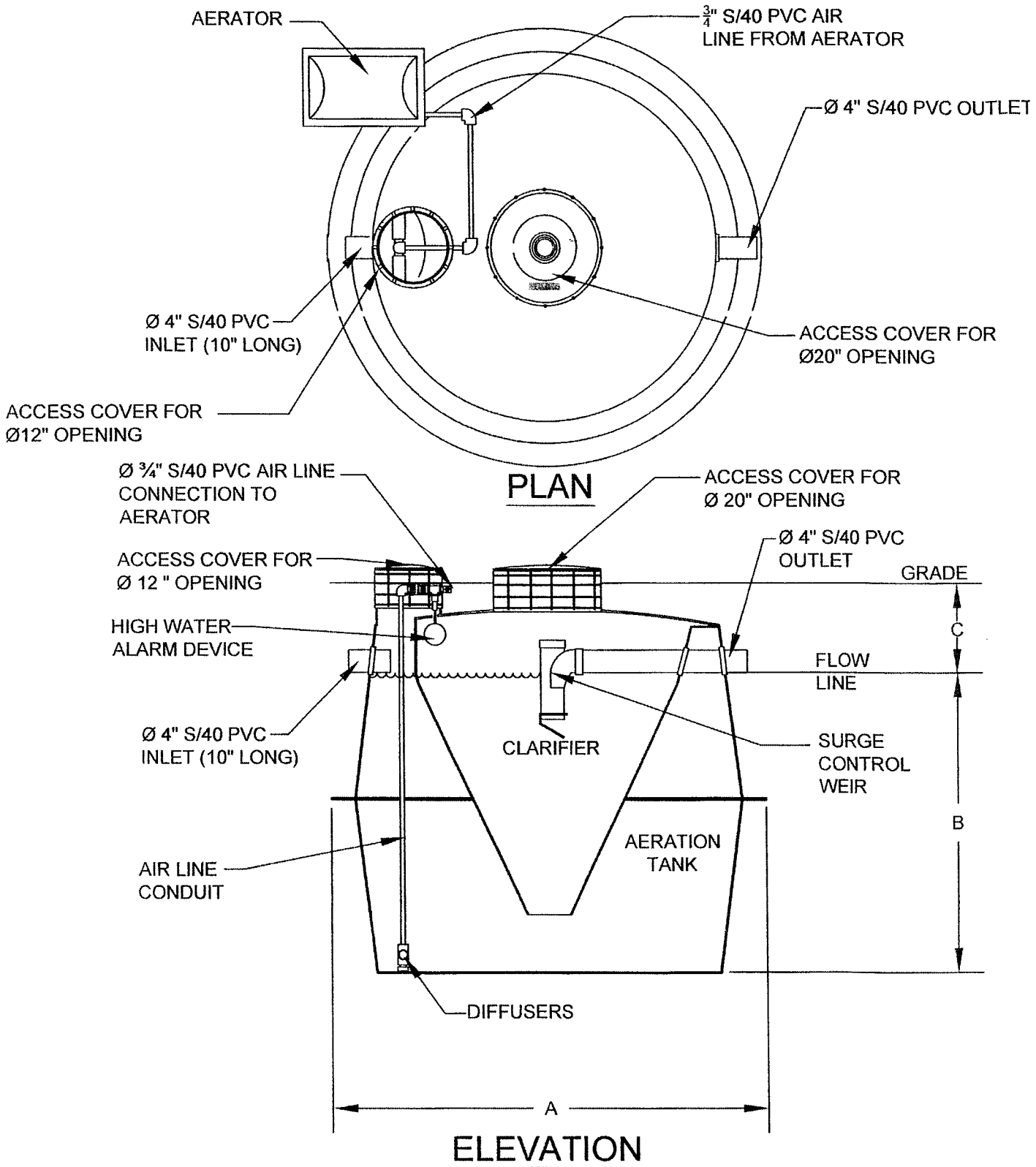
DESIGN DRAWING



DIMENSIONAL TABLE:

MODEL	A	B	C	D
500GC	5'-8"	5'-6"	1'-8"	5'-8"
500GCS	6'-1"	4'-10"	1'-8"	5'-0"
600GC	6'-9"	4'-10"	1'-8"	5'-0"
800GC	6'-9"	5'-10"	1'-6"	6'-0"
1000GC	6'-9"	7'-6"	1'-8"	7'-8"
1500GC	8'-6"	7'-1"	1'-8"	7'-3"

DESIGN DRAWING

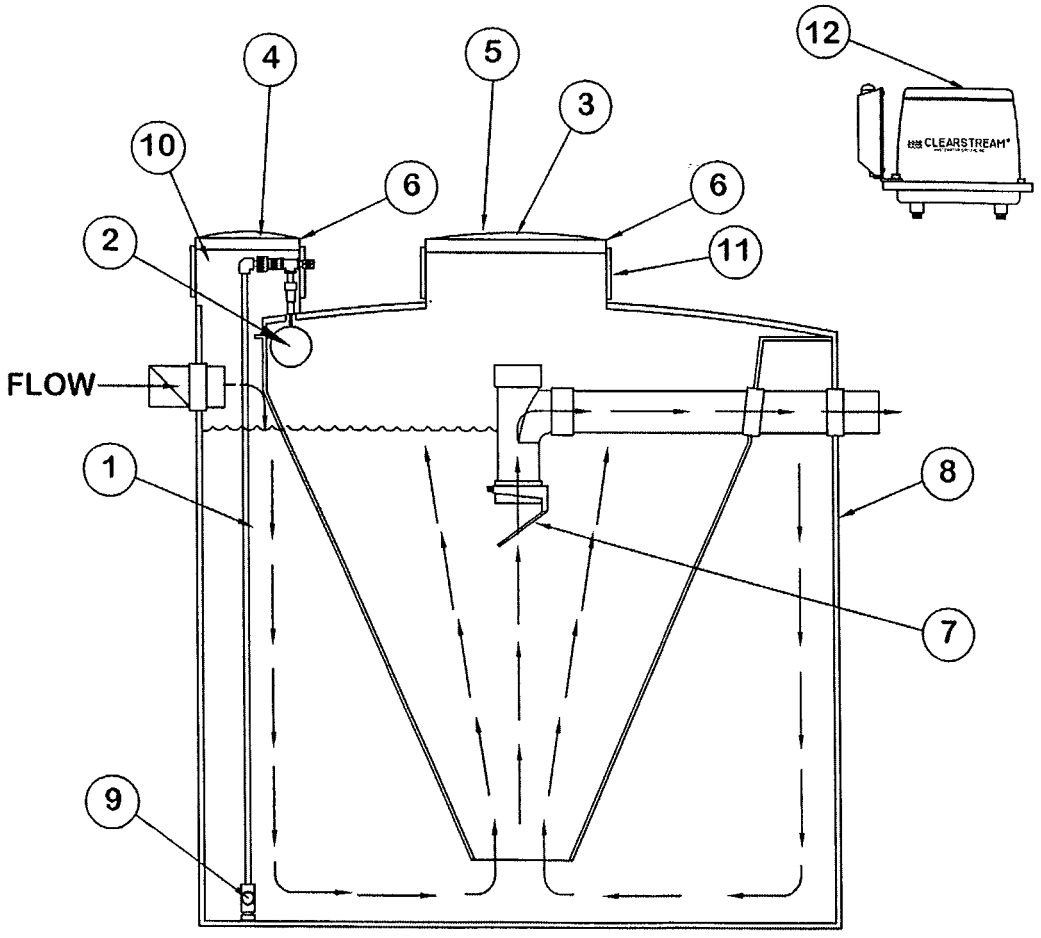


DIMENSIONAL TABLE:

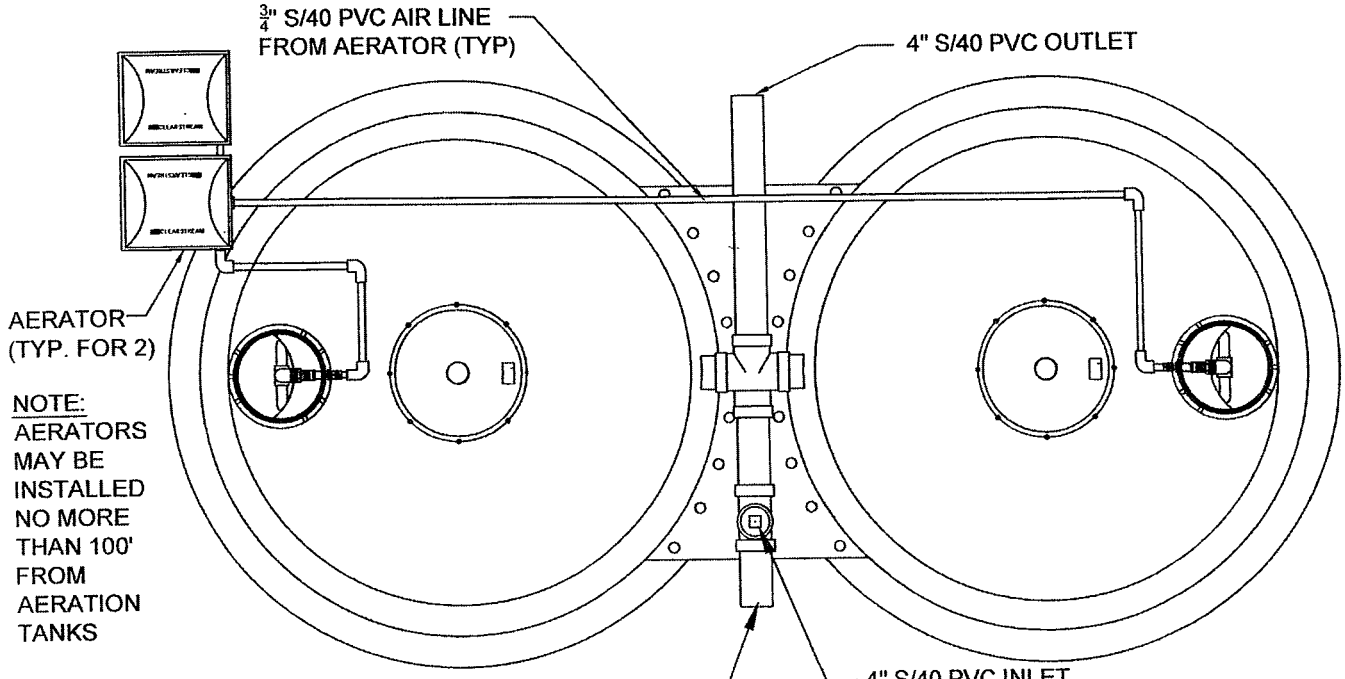
MODEL	A	B	C
500GT	6'-8"	4'-7"	1'-8"
600GT	7'-4"	5'-3"	1'-8"
800GT	7'-4"	5'-7"	1'-6"

PARTS LIST AND FLOW DIAGRAM

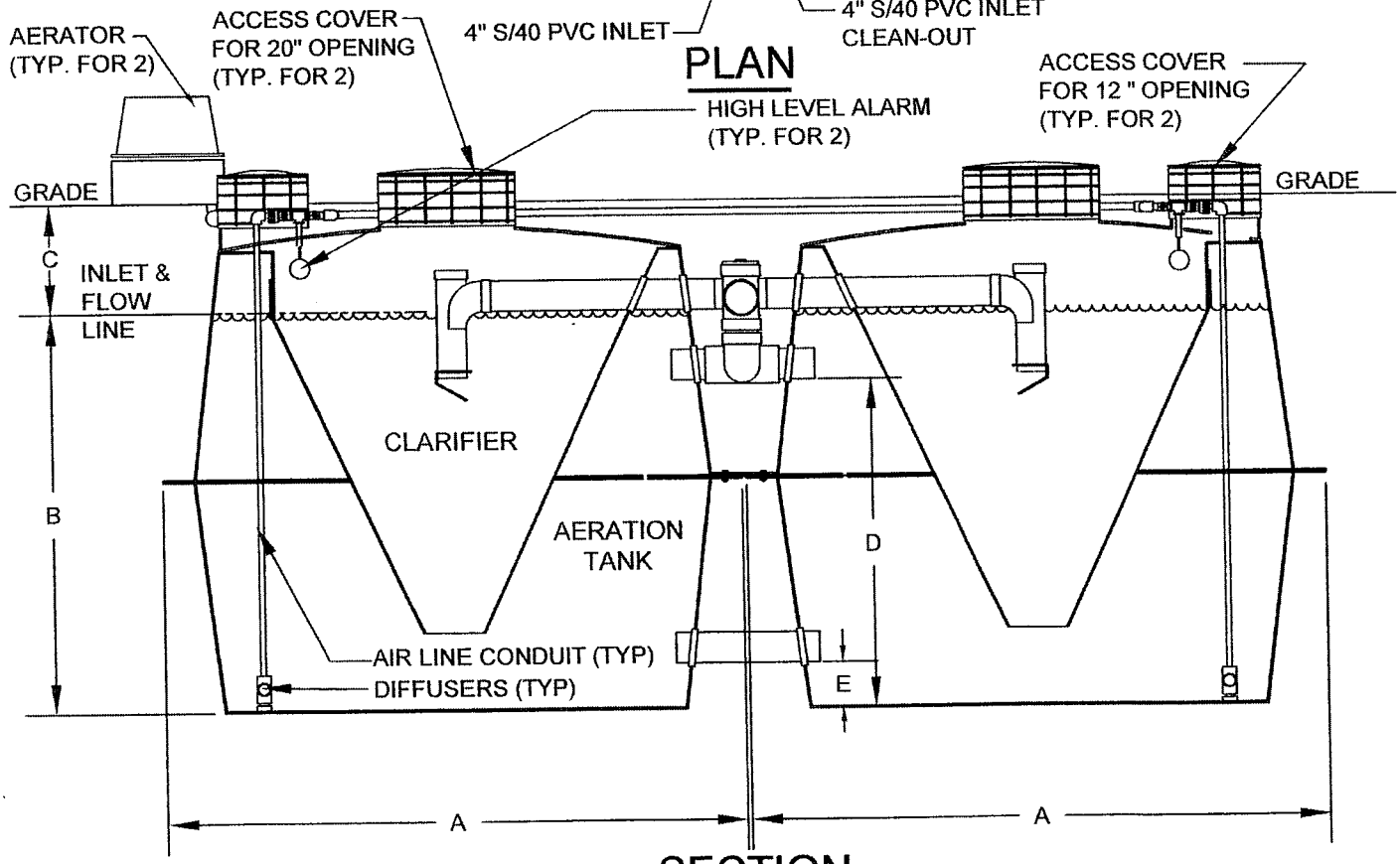
PART NAME	PART NUMBER
1. AIR SUPPLY LINE ASSEMBLY	CS-101
2. HIGH WATER ALARM DEVICE	CS-102
3. NAMEPLATE	CS-107
4. ACCESS COVER ∅12"	P1916
5. ACCESS COVER ∅ 20"	P1918
6. TAMPER RESISTANT BOLT	CS-109
7. GAS BAFFLE	CS-117
8. TANK	CS-112
9. DIFFUSER	CS-113
10. EXTENSION RISER ∅12" X 6"	P1941
11. EXTENSION RISER ∅20" X 6"	P1937
12. AERATOR W/CONTROL PANEL	CS-103ELA, 103ETA



DESIGN DRAWINGS



PLAN



SECTION

MODEL	A	B	C	D	E
1000GTD	6'-8"	4'-7"	1'-8"	4'-7"	8"
1200GTD	7'-4"	5'-3"	1'-8"	5'-3"	8"
1500GTD	7'-4"	5'-7"	1'-6"	5'-5"	8"

PARTS LIST AND FLOW DIAGRAM

	PART NAME:	PART NUMBER
1.	AIR SUPPLY LINE ASSEMBLY	CS-101
2.	HIGH WATER ALARM DEVICE	CS-102
3.	AERATOR W/CONTROL PANEL	CS-103ELA, ETA, FLA, FTA
4.	NAMEPLATE	CS-107
5.	ACCESS COVER Ø20"	P1918
6.	RISER Ø20" X 6"	P1937
7.	ACCESS COVER Ø12"	P1916
8.	RISER Ø12" X 6"	P1941
9.	TAMPER RESISTANT BOLT	CS-109
10.	TANK	CS-11
11.	DIFFUSER	CS-113
12.	ALARM PANEL	CS-118A, B, C, D, E
13.	PLASTIC 20" DIA. EXTENSION RISER	P1937
14.	FLOW INLET FITTING	CS-119
15.	FLOW EQUALIZER PIPE	CS-120

COMPONENT PARTS MAY BE OBTAINED FROM YOUR LOCAL SERVICING DEALER

OR

_____

_____

_____

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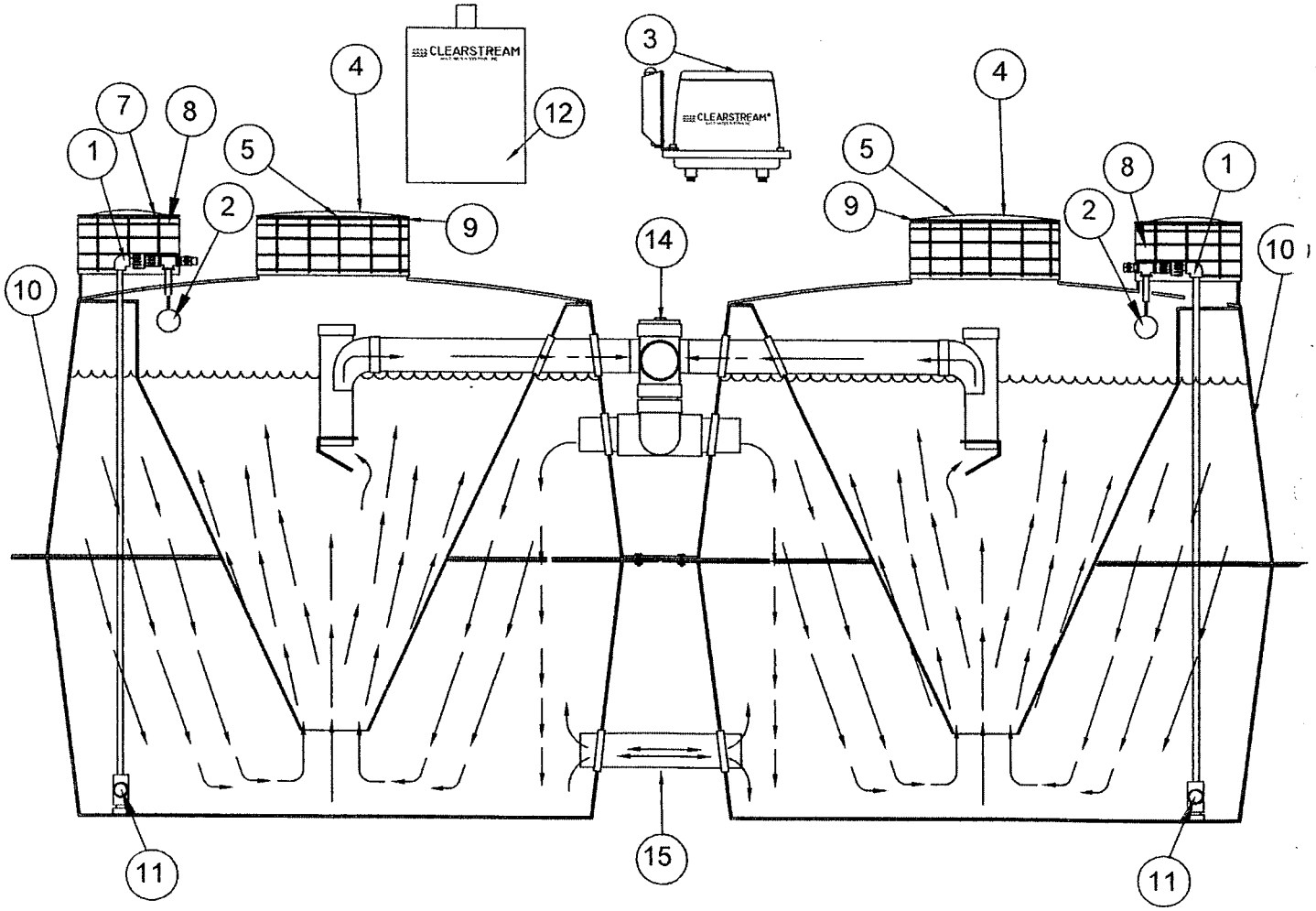
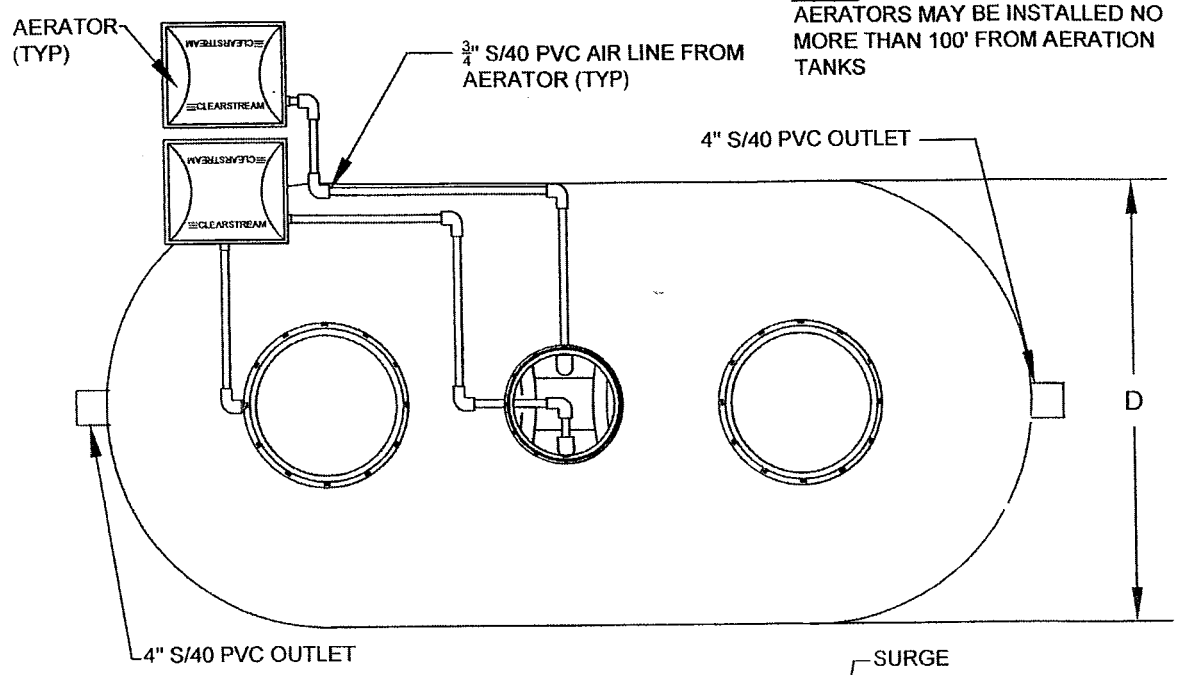


DESIGN DRAWING

NOTE:
AERATORS MAY BE INSTALLED NO MORE THAN 100' FROM AERATION TANKS



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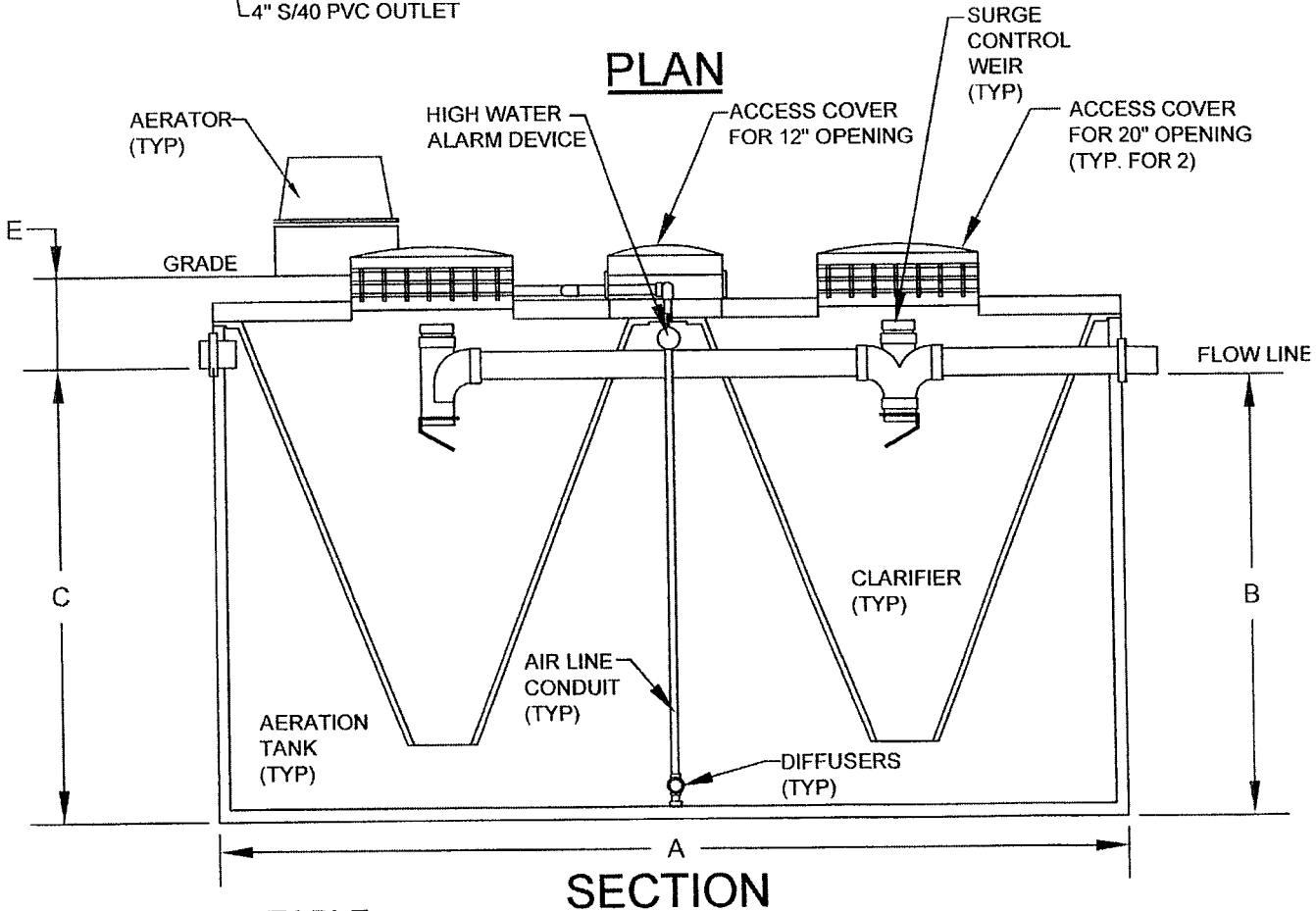

SECTION

DIMENSIONAL TABLE:

MODEL	A	B	C	D	E
1000GDC	11'-0"	4'-10"	5'-0"	6'-2"	1'-4"
1200GDC	12'-10"	4'-10"	5'-0"	6'-10"	1'-4"
1500GDC	12'-10"	5'-8"	5'-7"	6'-10"	1'-4"

PARTS LIST AND FLOW DIAGRAM

	PART NAME:	PART NUMBER
1.	AIR SUPPLY LINE ASSEMBLY	CS-101
2.	HIGH WATER ALARM DEVICE	CS-102
3.	AERATOR W/CONTROL PANEL	CS-103ELA, FLA, ETA, FTA
4.	NAMEPLATE	CS-107
5.	ACCESS COVER Ø20"	P1918
6.	RISER Ø20" X 6"	P1937
7.	ACCESS COVER Ø12"	P1916
8.	RISER Ø12" X 6"	P1941
9.	TAMPER RESISTANT BOLT	CS-109
10.	TANK	CS-11
11.	DIFFUSER	CS-113
12.	ALARM PANEL	CS-118A, B, C, D, E
13.	PLASTIC 20" DIA. EXTENSION RISER	P1937

COMPONENT PARTS MAY BE OBTAINED FROM YOUR LOCAL SERVICING DEALER

OR

_____

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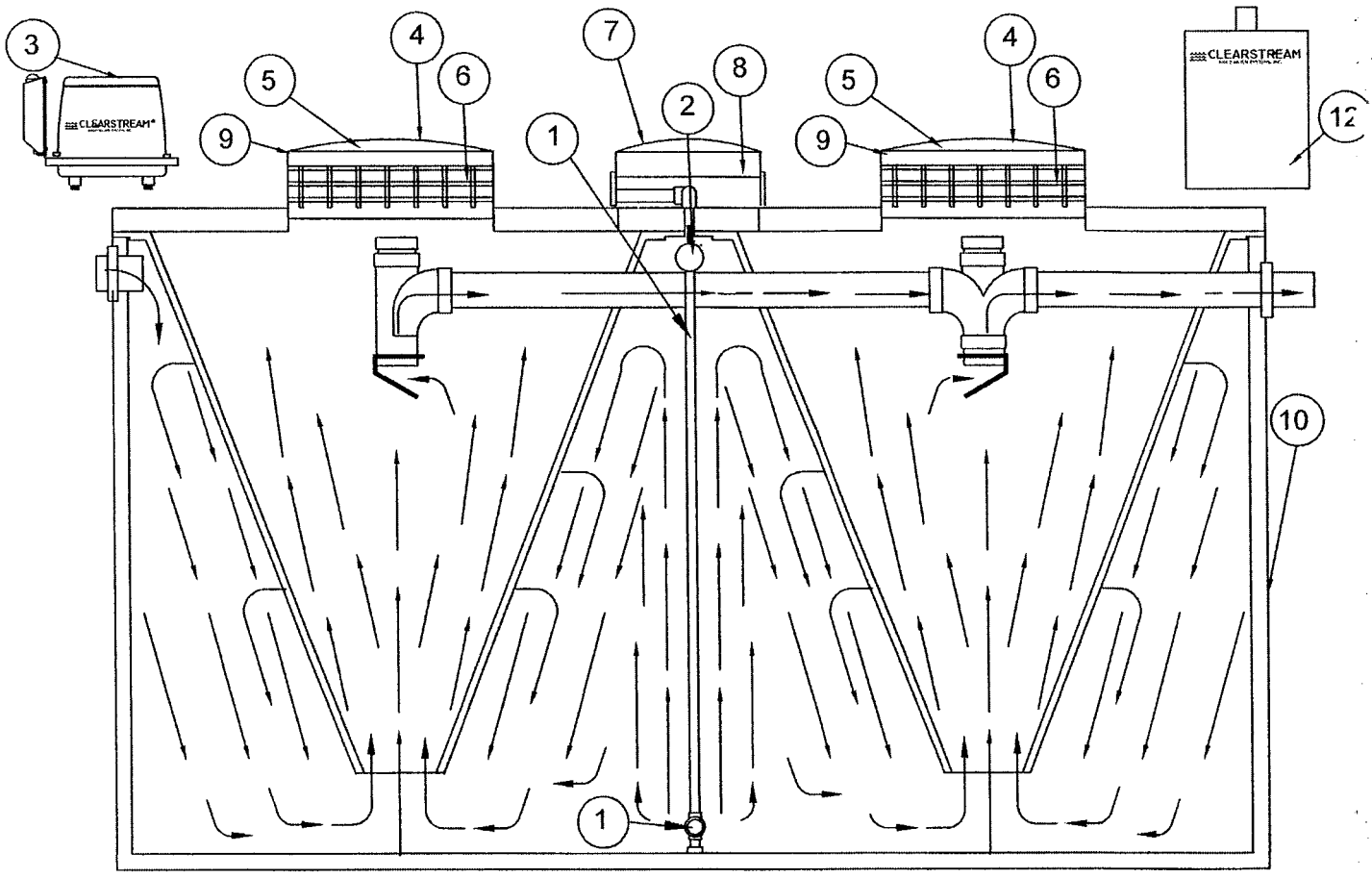

SPECIFICATIONS

Model 500G/GS/GT/GC/GCS	
Treatment Capacity	**500 G.P.D.**
BOD Loading	1.25 lbs. BOD
Aerator CS-103ELA, ETA	2.4 scfm
Electrical	115v/60Hz/.75 amps/82 watts
Model 600G/GT/GC	
Treatment Capacity	**600 G.P.D.**
BOD Loading	1.5 lbs. BOD
Aerator CS-103ELA, ETA	2.8 scfm
Electrical	115v/60Hz/.75 amps/82 watts
Model 800G/GT/GC	
Treatment Capacity	**800 G.P.D.**
BOD Loading	1.96 lbs. BOD
Aerator CS-103FLA, FTA	3.6 scfm
Electrical	115v/60Hz/1.05 amps/120 watts
Model 1000G/GTD/GC/GCD	
Treatment Capacity	**1000 G.P.D.**
BOD Loading	2.5 lbs. BOD
Double Aerator CS-103ELA, ETA	4.8 scfm
Electrical	115v/60Hz/1.50 amps/164 watts
Model 1200GTD/GCD	
Treatment Capacity	**1200 G.P.D.**
BOD Loading	3.0 lbs. BOD
Double Aerator CS-103ELA, ETA	5.6 scfm
Electrical	115v/60Hz/2.10 amps/240 watts
Model 1500G/GTD/GC/GCD	
Treatment Capacity	**1500 G.P.D.**
BOD Loading	3.75 lbs. BOD
Double Aerator CS-103FLA, FTA	7.2 scfm
Electrical	115v/60Hz/2.10 amps/240 watts

LIMITED WARRANTY

Clearstream Wastewater Systems, Inc. warrants each Clearstream Aerobic Wastewater Treatment System to be free from defects in material and workmanship for a period of two (2) years from the date of sale to the original retail consumer when properly registered with Clearstream. Clearstream's sole obligation under this warranty is as follows: Clearstream shall fulfill this warranty by repairing or exchanging any component part, F.O.B. Factory, which shows evidence of defects, provided said component part has been paid for warrantee has notified Clearstream of the defect complained of and the component is returned through an authorized Purchaser, transportation prepaid. There is no informal dispute settlement available under this LIMITED WARRANTY.

No warranty is made as to the field performance of any system. This LIMITED WARRANTY applies only to the parts manufactured by Clearstream and does not include any portion of the plumbing, drainage, disposal system or installation of the systems. Site specific designs of treatment and disposal systems, including treatment plant and disposal system sizing is not the responsibility of Clearstream and is not covered by this LIMITED WARRANTY. Accessories supplied by Clearstream, but manufactured by others, are warranted only to the extent of and by the terms and conditions of the original manufacturer's warranty. In no event shall Clearstream be responsible for delay or damages of any kind or character resulting from, or caused directly or indirectly by, defective component or material manufactured by others.

Recommendations for special applications will be based on the best available expertise of Clearstream and published industry information. Such recommendations do not constitute a warranty of satisfactory performance.

The LIMITED WARRANTY extends to the original retail consumer of the product. As herein, original retail consumer is defined as the purchaser who first has the plant installed, or in the case of a system designed for non-permanent installation, the purchaser who first uses the system. It is the purchaser's, or any sub-vendee's, obligation to make known to any other consumer the terms and conditions of this warranty.

This warranty is a LIMITED WARRANTY and no claim of any nature shall be made against Clearstream unless and until the original retail consumer, or his legal representative, notifies Clearstream in writing of the defect complained of and delivers the product and/or defective part(s), freight prepaid, to Clearstream or an authorized service station.

Clearstream reserves the right to revise, change, or modify the construction and design of the Clearstream Aerobic Treatment System or any component part or parts thereof, without incurring any obligation to make such changes or modifications in equipment previously sold. Clearstream also reserves the right, in making replacements of component parts under this warranty, to furnish a component which, in its judgment is equivalent to the part replaced.

To the extent that the LIMITED WARRANTY statements herein are inconsistent with the locality where Purchaser used the Clearstream system, the warranties shall be deemed to be modified consistent with such local law. Under such local law, certain limitations may not apply. For example, some states in the United States and some jurisdictions outside the United States may: (i) preclude the disclaimers and limitations of these warranties from limiting the rights of a consumer; (ii) otherwise restrict the ability of a manufacturer to make such disclaimers or to impose such limitations; or (iii) grant the consumer additional legal rights, specify the duration of implied warranties +
+which the manufacturer cannot disclaim, or prohibit limitations on how long an implied warranty lasts.

In no event and under no legal theory, including without limitation, tort, contract, or strict product liability, shall Clearstream or any of its suppliers be liable to the other party for any indirect, special, incidental, or consequential damages of any kind, including without limitation, damages for loss of goodwill, or any other kind of commercial damage, even if the other party has advised Clearstream of the possibility of such damages.

TWO YEAR INITIAL SERVICE POLICY

Date_____

Our firm, _____, will inspect and service your Clearstream System for the first two years from the date of installation. There will be _____ inspections made each year for this initial two period. Effluent quality inspection will include a visual inspection for color, turbidity, sludge build up, scum overflow, and odor. Mechanical and electrical inspection and service include inspecting aerator, air filter, and alarm panel and replacing or repairing any component not found to be functioning correctly.

Upon expiration of this policy, our firm will offer a continuing service policy on a yearly basis to cover labor for normal maintenance and repairs on a year by year basis.

Violations of warranty include: shutting off the electric current to the system for more than 24 hours, disconnecting the alarm system, restricting ventilation to the aerator, overloading the system above its rated capacity, or introducing excessive amounts of harmful matter into the system, or any other form of unusual abuse.

THIS POLICY DOES NOT INCLUDE PUMPING
SLUDGE FROM UNIT IF NECESSARY.

Service Dealer: Owner:

_____ _____

_____ _____

_____ _____

CLEARSTREAM WASTEWATER SYSTEMS, INC.

P. O. Box 7568 • Beaumont, Texas 77726-7568

Phone: (409) 755-1500 • Fax: (409) 755-6500 • www.clearstreamsystems.com

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