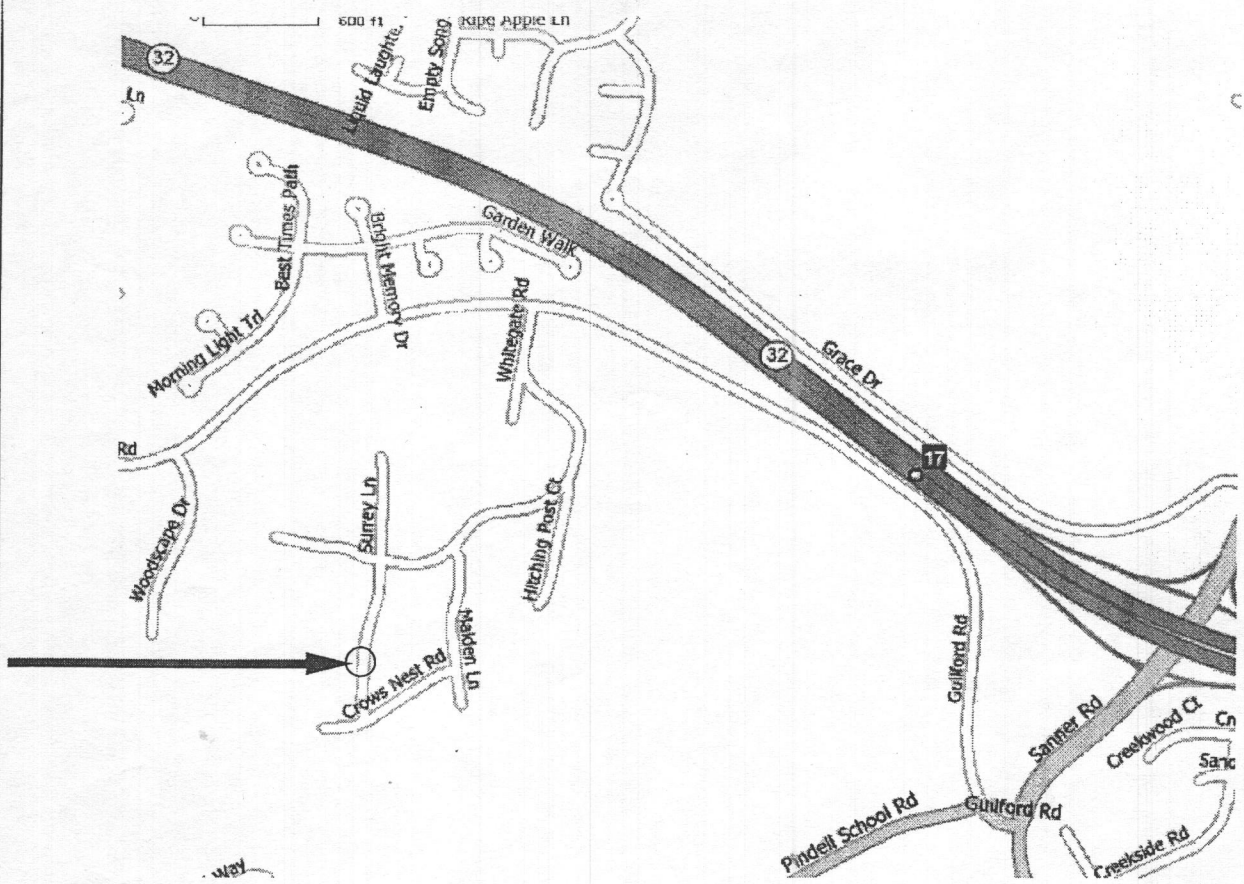


LOCATION MAP



NOTE: The preservation of the original structure of the soil in the absorption area is essential to maintaining the percolative capacity of the soil. No activity other than the construction of the system is permitted within the absorption area.

The absorption system is not to be constructed during periods of wet weather when the soil is sufficiently wet at the depth of installation to exceed its plastic limit. The plastic limit is exceeded when the soil can be rolled between the palms of the hands to produce threads 1/8 inch in diameter without breaking and crumbling.

Vegetation should be removed by hand and not by machine. All stumps are to be left intact and cut flush with the ground. Stumps are to be removed only when encountered during installation. Removal to be with a minimum of soil disturbance. Stumps should be cut out such that as much as the root system as possible is left intact.

NOTES TO CONTRACTOR:

General: This On Site Sewage Treatment and Dispersal system is to be installed according to the following specifications referencing the enclosed attachments. These plans are to be accompanied by a current valid Health Department permit prior to construction. The exact location of all utilities must be determined prior to construction and any required setbacks adhered. The contractor is responsible to be familiar with the system design and install the system in accordance with Department of Health, local County ordinances, local standard practices, and is to be properly licensed and certified as may be required by the appropriate state and local agencies.

Pre construction meeting: Experienced on site sewage disposal system installation contractors should not require a pre construction meeting unless an individual design specifically requires it. Please call with any questions or to request a pre-construction meeting. The contractor is responsible to perform a pre construction recognizance and / or stakeout prior to construction to verify the design and to plan the construction process. Get in touch if there are any questions.

Specification: All manufacturers requirements must be adhered to and materials accompanying specific components such as the outlet filter, pump, and control panel are to be retained and kept with this package for future owner reference.

SCOPE: HOUSEHOLD SEWAGE WILL FLOW BY GRAVITY an Advantex TREATMENT UNIT bio- FILTER WHERE IT IS THEN RETURNED TO THE Low Pressure Distribution DOSE TANK This chamber WILL DISPOSE OF THE EFFLUENT BY demand DOSING to the SOIL ABSORPTION AREA.

CONTENTS:

- Page 1 . . . . . Cover Sheet
- Page 2 . . . . . Site Layout Plan
- Page 3 . . . . .Hydraulic Profile
- Page 4 . . . . . Advantex Treatment
- Page 5 . . . . .Vericom Panel
- Page 6 . . . . .General Notes "A"
- Page 7 . . . . . General Notes "B"
- Page 8 . . . . .General Notes "C"
- Page 9 . . . . .LPD Specifications
- Page 10. . . . .Pump Specifications
- Page 11. . . . .LPD Details
- Page 12. . . . .Health Department Evaluation
- Page 13 . . . . .MDE Evaluation
- Page 14. . . . .MDE Letter
- Page 15. . . . .House Location Survey / TOPO
- Page 16. . . . .House Location Survey / TOPO

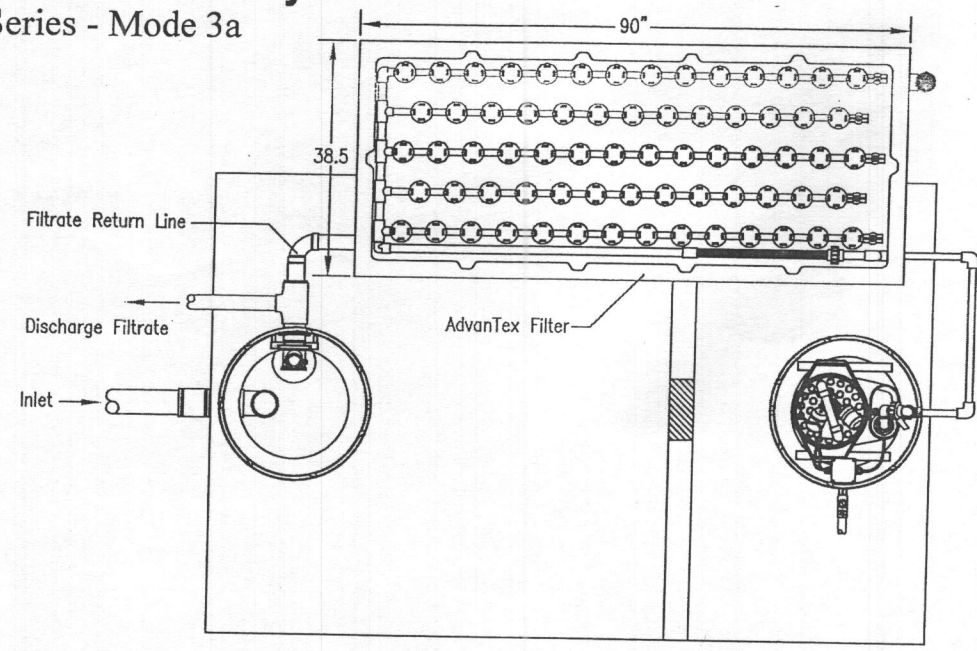
*Need ex. system*  
*Sanonol*  
*Tank & D.W.*  
*Will BRF*  
*Approved Septic System Plan*  
*Howard County Health Department*  
*pretreatment & L.P.D.*  
*Repair approved as shown, Sheets 1 to 16*  
*9/1/2009*  
*Signature*

NEHA National Identification Card Phone Number: 303-756-9090  
Credential ID Number: 83255  
Cred. Type: REPAIRS  
Thomas W. Ashton, L.P.D. Since 08/09/1985  
CPSS, REHS  
18528 Foggy Bottom Rd.  
Bluemont, Va 20136-1123 Exp. Date 08/31/2009  
HEALTH ASSOCIATION  
DESIGNED BY: Tom W. Ashton R.E.H.S.

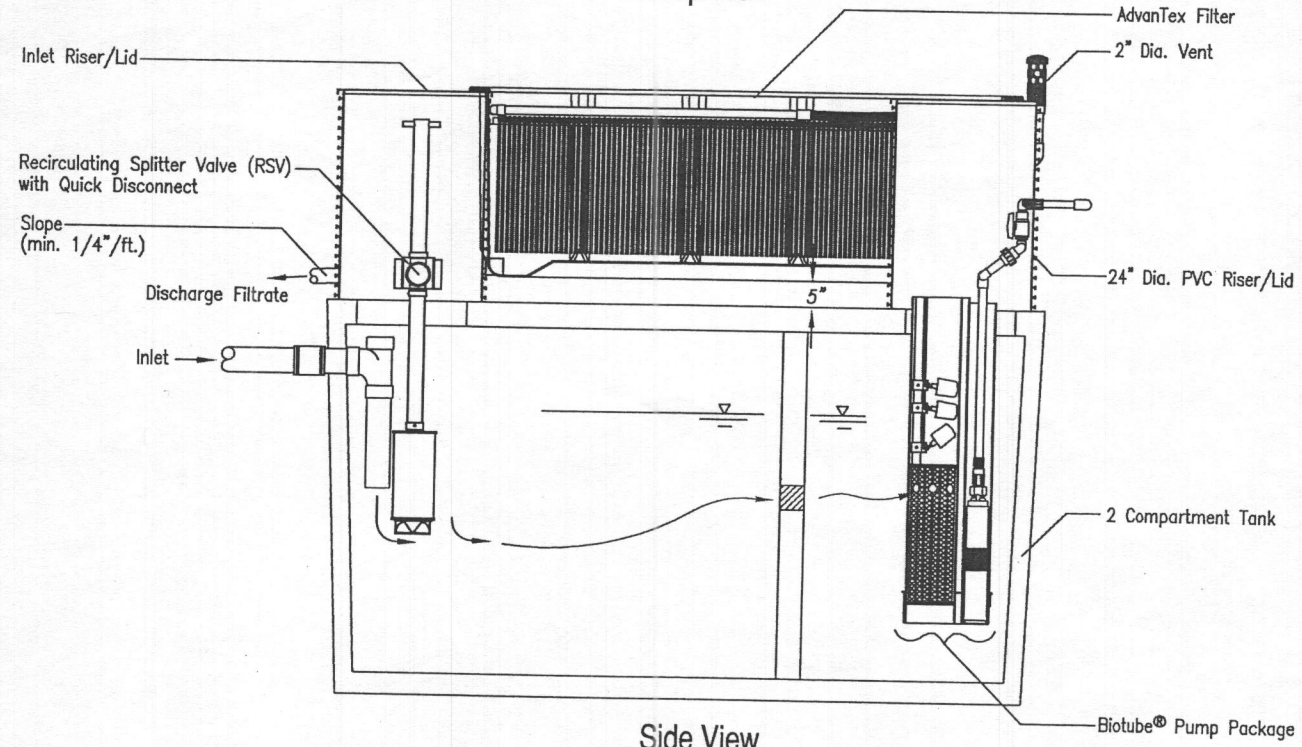
<b>Tom W. Ashton R.E.H.S</b>	
P.O. Box 220 Bluemont VA 20135 540-454-4672	
PROJECT NAME : Biggens	DATE: May 22, 2009
6726 Surrey Lane	
Clarksville, MD 21029	
Clarksville Ridge Lot 24	
COUNTY : Howard County Maryland	TITLE : COVER SHEET PERC-RITE® DRIP DESIGN
NTS	SHEET: 1 OF 16



AdvanTex™ Treatment System  
AX 20 Series - Mode 3a

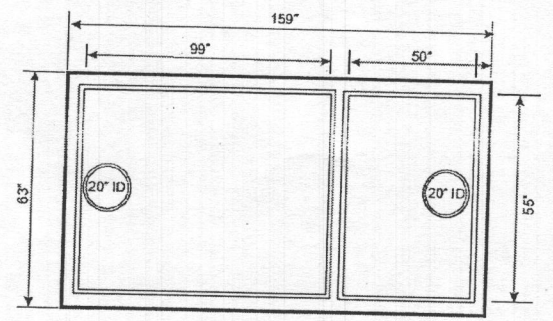


Top View

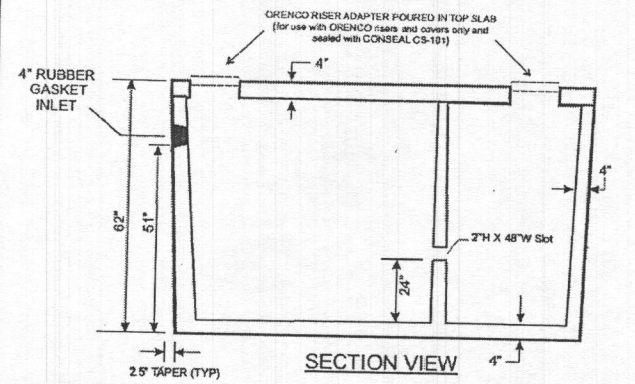


Side View

1500 GALLON 2-C TANK  
for Advantex® Treatment System



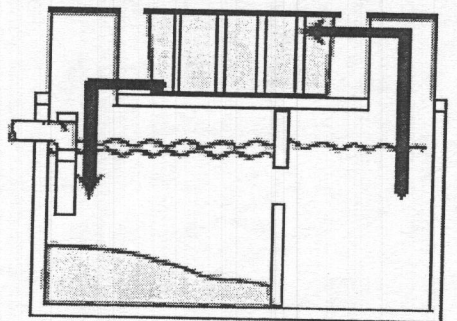
TOP VIEW



SECTION VIEW

**BAYSTAR**  
PRECAST CORPORATION  
925 Sinner Turn Road  
P.O. Box 959  
Covings, Maryland 20736-0959  
800.431.5563  
410.237.4777  
301.865.4777  
Fax: 410.237.1315  
Date Appr: 08/12/08  
1500 2C ADX STA  
rev 05/2008  
Drawing not  
to scale

1500 GALLON 2-COMPARTMENT TANK  
for Advantex® Treatment System  
GENERAL NOTES: CONCRETE STRENGTH 4000 PSI AT 28 DAYS  
REINFORCING DETAILS: 6X6 #10 GAUGE WIRE MESH INSIDE BOTTOM  
TOP HAS #3 BAR 12" O.C. SIDES AND BOTTOM HAS #3 BAR 12" O.C.



Mode 3 with  
processing tank  
(Optimized for denitrification)

**Tom W. Ashton R.E.H.S**

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME : Biggens  
6726 Surrey Lane  
Clarksville, MD 21029  
Clarksville Ridge Lot 24

DATE: May 22, 2009

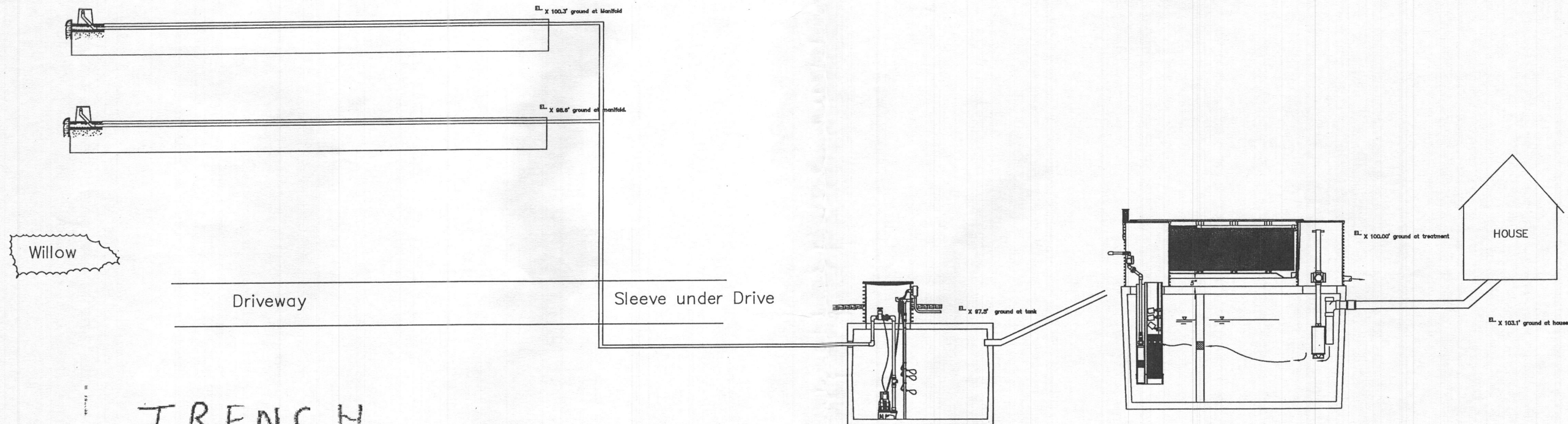
TITLE :  
Advantex Treatment

COUNTY : Howard County  
Maryland



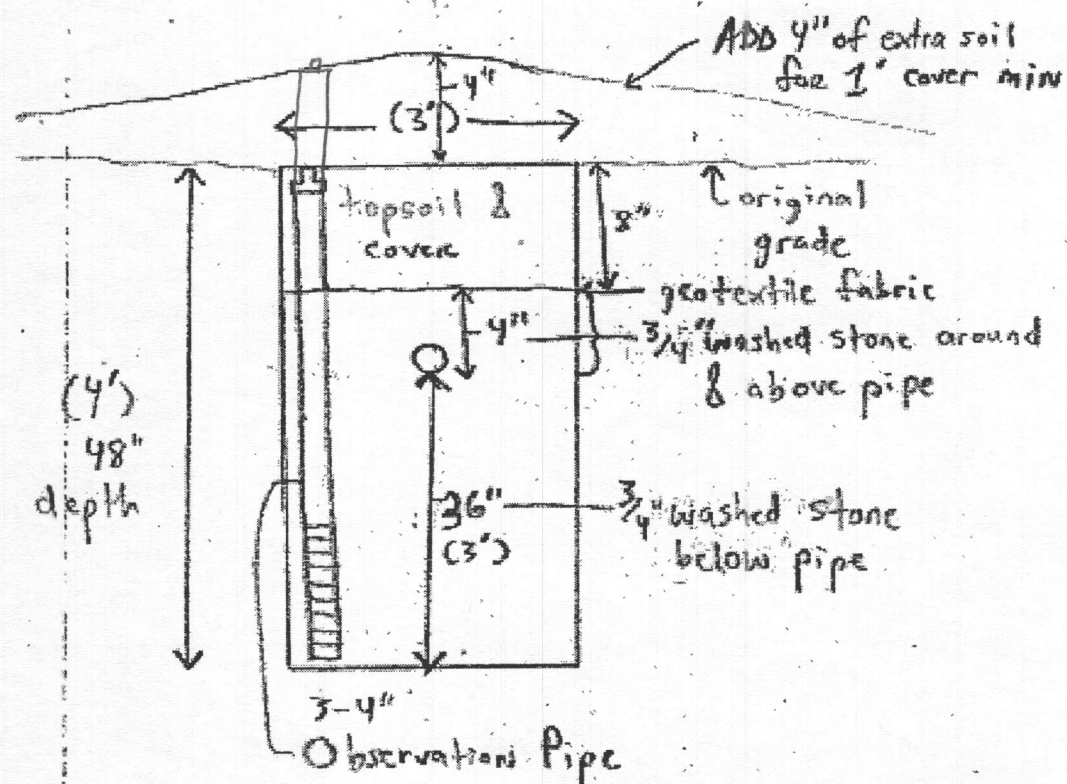






# TRENCH PROFILE

width 36" (3')



**Tom W. Ashton R.E.H.S**

P.O. Box 220 Bluemont VA 20135

540-454-4672

PROJECT NAME : Biggens  
6726 Surrey Lane  
Clarksville, MD 21029  
Clarksville Ridge Lot 24  
COUNTY : Howard County  
Maryland

DATE: May 22, 2009

TITLE :  
**HYDRAULIC  
PROFILE**

DESIGNED BY: Tom W. Ashton R.E.H.S



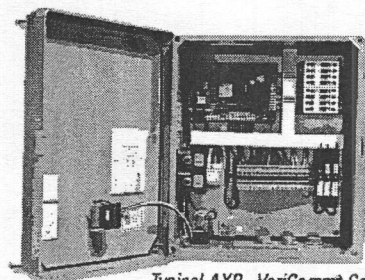
# VeriComm® AXB Control Panels

## Technical Data Sheet

### For AdvanTex® Treatment Systems

#### Applications

VeriComm® AXB1 and AXB2 remote telemetry control panels are used with two-pump operations — recirculation and discharge (on-demand or timed) — for AdvanTex® Treatment Systems. Interlocked controls prevent the recirculation pump from running if there is a high level alarm on the discharge side. Coupled with the VeriComm Web-based Monitoring System, these affordable control panels give water/wastewater system operators and maintenance organizations the ability to monitor and control each individual system's operation remotely, with real-time efficiency, while remaining invisible to the homeowner. VeriComm AXB panels allow remote operators to change system parameters, including timer settings, from the Web interface.



Typical AXB VeriComm® Control Panel  
Standard Models: VCOM AXB1, VCOM AXB2

#### To Specify...

To specify this panel for your installation, require the following:

##### Basic Control Logic: Three Operating Modes

- A "Start-up Mode" for the initial 30 days, during which the system collects trend data to establish operating standards for future reference.
- A "Normal Mode" that manages day-to-day functions.
- A "Test Mode" that suspends data collection and alarm reporting during installation and service.

##### Data Collection and Utilization

- Data logs of system conditions and events, such as pump run times, pump cycles, and alarm conditions.

##### Troubleshooting and Diagnostic Logic

- Troubleshooting capabilities that can report suspected failed components, which then trigger Alarms.

##### Advanced Control Logic

- Advanced control logic that activates during float malfunctions to diagnose the situation and keep the system operating normally until servicing.

#### Communication and Alarm Management

- Remote telemetry capabilities coupled with a Web-based monitoring application (see *VeriComm Monitoring System, ATD-WEB-VCOM-1*) for communication and alarm management. Updating of point values (including timer settings) and receipt of queued changes during each communication session with host. Communication sessions that occur monthly, at a minimum, and more frequently during alarm conditions.

- Multiple methods of communication, as follows:

##### Call-In to VeriComm® Host

- Automatic notification to host of "Alarms," which signal fault conditions that need to be addressed immediately (e.g., pump failure).
- Automatic notification to host of "Alerts," which signal less critical fault conditions and which trigger the panel's troubleshooting logic and alternative operating mode (e.g., stuck float switch).
- Automatic notification to host of "Updates," which include alarm updates or all-clear notifications following Alarms/Alerts, as well as normally scheduled monthly panel reports.
- Manual, forced communication from panel to host to effect an updating of point values and receipt of queued changes.

##### Real-Time Direct Connection to Panel

- Manual, direct connection at the site via RS-232 serial port, to allow a local operator real-time access to detailed logged data and the ability to change point values from a laptop.
- Manual, forced communication by local operator/homeowner at the site to initiate an auto-answer mode, allowing a remote operator real-time access to detailed logged data and the ability to change point values.

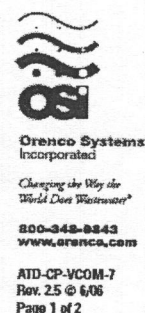
During real-time, manual connections, software with open architecture (and password security) is used; no proprietary software is required. VT100 protocol allows access and control from any computer modem (Mac or PC) with a simple communication program (e.g., Windows® HyperTerminal); multilevel password protection in panel ensures that only qualified personnel can access the panel's data.

#### Additional Features

- Status light indicators on the board, including ...
  - Flashing green LED for normal operation
  - Yellow LEDs for status of digital inputs
  - Red LEDs for status of digital outputs and modem activity

- UL-recognized and FCC-approved

For more information, try our online demo at [www.vericomm.net](http://www.vericomm.net) (no password required).



Orenco Systems  
Incorporated

Changing the Way the  
World Does Wastewater®

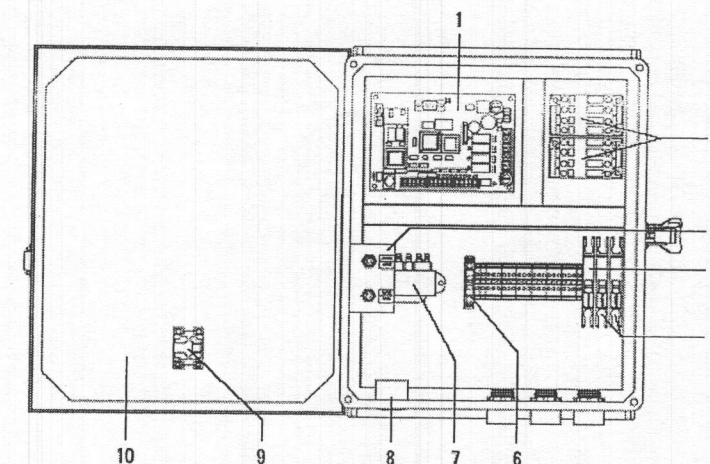
800-348-8843  
[www.orenco.com](http://www.orenco.com)

ATD-CP-VCOM-7  
Rev. 2.5 © 6/06  
Page 1 of 2

## VeriComm® AXB Control Panels

## Technical Data Sheet

1. VeriComm® Remote Telemetry Board
2. Motor-Start Contactors
3. Toggle Switches
4. Control Circuit Breaker
5. Pump Circuit Breakers
6. Fuse
7. Transformer
8. Audio Alarm
9. Visual Alarm
10. Panel Enclosure



#### Standard Components

Feature	Specifications
1. VeriComm® Remote Telemetry Unit*	ATRTU-100: 36/18 VAC (center tap transformer), 8 digital inputs, 4 analog inputs, 4 digital outputs, 0 analog outputs, on-board modem (2400 baud), LED input and output indicators, 1-year battery backup of data and program settings.
2. Motor-Start Contactors	120 VAC: 16 FLA, 1 hp, 60 Hz; 2.5 million cycles at FLA (10 million at 50% of FLA). 240 VAC: 16 FLA, 3 hp, 60 Hz; 2.5 million cycles at FLA (10 million at 50% of FLA).
3. Toggle Switches	Single-pole switch, automatic On, with spring-loaded, momentary, manual On. 20 A, 1 hp.
4. Control Circuit Breaker	10 A, OFF/ON switch. Single-pole 120 VAC, double-pole 240 VAC. DIN rail mounting with thermal magnetic tripping characteristics.
5. Pump Circuit Breakers	20 A, OFF/ON switch. Single-pole 120 VAC, double-pole 240 VAC. DIN rail mounting with thermal magnetic tripping characteristics.
6. Fuse	120 VAC Primary, 36 VCT @ 0.85 A Secondary.
7. Transformer	250 VAC, 1 A.
8. Audio Alarm	95 dB at 24 in. (610 mm), warble-tone sound.
9. Visual Alarm	7/8 in. (22 mm) diameter red lens, "Push-to-silence." NEMA 4, 1 W bulb, 120 VAC.
10. Panel Enclosure	Measures 15.5 in. high x 13.3 in. wide x 6.7 in. deep (384 mm x 338 mm x 170 mm). NEMA 4X rated. Constructed of UV-resistant fiberglass; hinges and latch are stainless steel. Conduit couplings provided.
VCOM-AXB1	120 VAC, 3/4 hp, 14 A, single-phase, 60 Hz.
VCOM-AXB2	240 VAC, 2 hp, 14 A, single-phase, 60 Hz.

#### Optional Components

Feature	Specifications	Product Code Adder
Pump Run Light	7/8 in. (22 mm) diameter green lens. NEMA 4, 1 W bulb, 120 VAC.	PRL
Anticondensation Heater	Self-adjusting; radiates additional wattage as temperature drops.	HT
Programmable Timer	Discharge side timed dosing.	PT
UV Disinfection Compatibility	UV grounded power circuit and alarm contacts. Pump disable upon UV failure.	UV

\* See VeriComm® Remote Telemetry Unit (ATD-CP-VCOM-1) and VeriComm® Monitoring System (ATD-WEB-VCOM-1) for more detail.

ATD-CP-VCOM-7  
Rev. 2.5 © 6/06  
Page 2 of 2

**Tom W. Ashton R.E.H.S**

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME : Biggens  
6726 Surrey Lane  
Clarksville, MD 21029  
Clarksville Ridge Lot 24

DATE: May 22, 2009

TITLE :

Vericom Panel

COUNTY : Howard County  
Maryland

DESIGNED BY: Tom W. Ashton R.E.H.S

SHEET: 5 OF 16



SPECIFICATIONS

ITEM 1: Building Sewer

Materials

The building sewer is to be constructed with 4" Schedule 40 PVC pipe. is to be greater than 1.25" in 10'. The minimum depth is 18". To be constructed in accordance with manufactures specifications regarding preparation (sanding and primer) and gluing (chemical fusion) requirements.

Joining of pipes of different sizes and or material shall be accomplished by the use of a manufactured adapter specifically designed for that purpose. Maintain the run as straight as possible. Ells (if absolutely necessary) are not to exceed 45 degrees.

Cleanouts

A cleanout is to be installed a minimum of 5' from the structure with additional cleanouts every 50' as necessary. The cleanouts are to be installed in the direction of the sewage flow.

Bedding and support

The entire length of the sewer line (as well as the conveyance and forced main) is to be bedded uniformly on natural, in place soil or on gravel packed over in place soil to provide uniform support along the length. Where the line crosses filled areas, the line is to be supported by an angle iron, or other suitable method, firmly place on solid, natural ground for 2 feet at either end.

Where the sewer line crosses the angular open space around the septic tank hole, the space is to be bridged by use of an angle iron, or other suitable method, for support. The iron would rest on the lower portion of the inlet punch out and 2 feet onto solid ground in the trench.

Backfilling

The trench is to be backfilled with suitable material free of large stones and clumps of earth. The fill is to be firmly tamped during the backfilling process to prevent movement of the sewer. Sewer lines passing within 50' of a nonpublic water supply source are to meet special construction requirements as required by the Health Department.

ITEM 2: Pretreatment Systems

Treatment Tank (Advantex AX 20 Mode 3)

All tanks to be installed as shallow as possible, out of low areas, isolated from surface drainage sources including drive, road, and gutters, and by methods to minimize and preferably eliminate water infiltration. Parge the inside and outside of the tank seam. Additional tarring and plastic wrapping of the outside may be indicated for additional protection. "Top Seam" tanks are required.

Placement

The tank is to be installed level onto a minimum of 6" of sand or fine gravel. The top of the tank is to be as close to the ground surface as possible to prevent infiltration. No more than 6-8" cover is advised.

Backfilling

Backfilling is to be performed in layers with sufficient tamping to avoid settling. Backfill material is to be free of large stones and debris.

ITEM 3 Conveyance to Pump Chamber.

The conveyance system from the treatment tank is to be constructed of Schedule 40 PVC pipe. The line is to be constructed, bedded, supported (as necessary), and back filled as outlined under Item 1, Building Sewer above.

Tom W. Ashton R.E.H.S

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME : Biggens  
6726 Surrey Lane  
Clarksville, MD 21029  
Clarksville Ridge Lot 24

DATE: May 22, 2009

TITLE :  
General Notes "A"

COUNTY : Howard County  
Maryland

DESIGNED BY: Tom W. Ashton R.E.H.S

SHEET: 6 OF 16



ITEM 8: Distribution System

The distribution system is to be constructed of pressure rated Schedule 40 PVC pipe and fittings (PW).  
*Manifold* The manifold lines are watertight lines that convey effluent from the valve to the pressure percolation lines (laterals). They are analogous to the "header" lines in a conventional drainfield. From the valve, the manifold diameter telescopes smaller uphill away from the valve. Where required an appropriate reducer is to be utilized.

The system is to be installed as to disturb as little of the area as possible. Do not bed manifolds on gravel. Use clean, tamped soil.

The manifold lengths and diameters are as specified in Attachment.

The manifold is identified in the field by stakes set at the top and bottom line.

*Manifold/Lateral connection* The manifold is best to be installed above the laterals and connect by way of a riser with the use of two tees (or 90's). This configuration will allow the manifold to drain down into the laterals when the pump turns off. In shallow installations, the manifold may be located at the ground surface and will require additional cover (>18").

Donot install with the manifold under the laterals or intersecting with one tee unless absolutely necessary.

Where the laterals leave the graveled adsorption trench, towards the manifold, they should be placed firm on undisturbed earth. See attachment.

*Pressure percolation lines* The absorption system consists of TWO lines, 3' wide, 72' long, with 8' centers at/and flowing from a side manifold. The installation depth is 48". The trench bottoms are to be installed flat and on contour.

All laterals are to be 1.5" in diameter. The laterals are to be installed flat in the horizontal center of the trench and maintain a straight alignment on contour. Grade boards and/or stakes are to be placed on <10' centers to maintain the gravel level for the placement of the laterals.

All laterals are to be fitted with a vertical riser and threaded cap extending to the ground surface. The 90 degree turn is to be accomplished by the use of two 45 degree fittings enabling ease of use as a cleanout. House in a minimum 6" meter housing with snap lid at surface. The lateral turnup is to be bedded within the housing with gravel, extending 2 inches above the gravel surface.

The hole size is 5/16". The lateral is to be placed in a straight line along the longitudinal axis of the pipe with the holes facing vertically down. Note that the first, middle, and last holes are to be pointed vertically up, and housed in a small section of standard 4" drainfield pipe to act as a splash plate (utilization of orrifice shields on all hole as an alternative is acceptable). These holes will act as a vent allowing the laterals to charge quickly and drain freely when the pump turns off. The number and spacing of the holes, and distance to the first hole for each lateral are specified in Attachment. Holes to be drilled burr free.

From the manifold, there is 1' allowed for the manifold or "header" ditch, from there the lateral is to be bedded for 1'on natural, in place soil. See Attachment. This area is to be backfilled and tamped with the clayiest material available on site to prevent infiltration into the manifold ditch area. From that point the graveled absorption trench ( ) will begin. **The total length of the 1.5" pipe will be 74'.** The distance from the first hole to the manifold side soil plug and from the last hole to the end of the lateral will vary and should be approximately equal. See Attachments.

*Gravel* The gravel is to be clean, as utilized for conventional leach lines and recommended to be between .5 to .75" in size. The minimum amount of gravel under a lateral is 36". The lateral has a minimum of 2" gravel cover. Untreated building paper or other suitable material is to be placed over the gravel to prevent the migration of fines into the absorption trench during backfilling. See Attachment.

*Relative lateral elevations* Each lateral is to be placed at a specific elevation as specified in Attachment. The top lateral in each valve group is to be installed with the minimum 36" gravel underneath. The top lateral elevation represents a bench mark of zero. The following laterals will be installed at the specified lower elevation relative to the top lateral of the valve group. Additional gravel may be necessary to maintain the relative elevations.

The manifold is identified in the field by stakes set at the top and bottom line.

*Lateral ends* All lateral ends are to be fitted with a threaded end cap and brought to the surface as described above.

*Inspection risers* A vertical riser is to be provided at the end of the top and bottom lateral of each valve group. See Attachment. With the system pressurized, the valves will be adjusted until the water level is at the specified head elevation (pressure).

Once adjusted and prior to back filling, the risers are to be removed and the lateral fitted with a threaded cap to the ground surface, housed as described above.

*Cover and backfilling* The entire distribution system is to be backfilled and graded to provide a minimum of 12" cover over the gravel laterals. To build up cover over the area, additional material maybe required. The manifold area is to be firmly tamped during backfilling. All backfill material is to be free of large stones and debris. Final grade to be slightly mounded (turtle back) to divert surface runoff off and away from the site. Establish a lawn cover as soon as possible.

Tom W. Ashton R.E.H.S

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME : Biggens 6726 Surrey Lane Clarksville, MD 21029 Clarksville Ridge Lot 24	DATE: May 22, 2009
	TITLE :
COUNTY : Howard County Maryland	General Notes "C"

DESIGNED BY: Tom W. Ashton R.E.H.S

SHEET: 8 OF 16

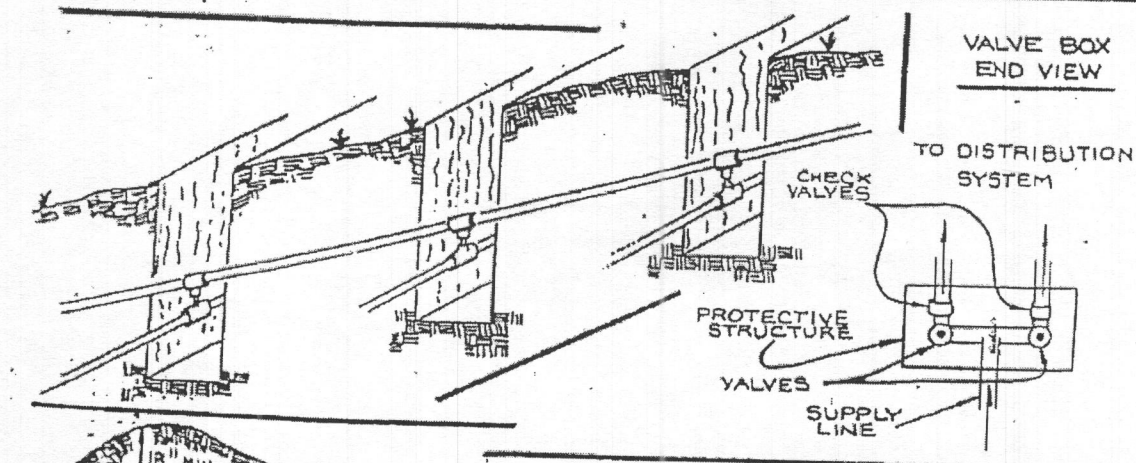
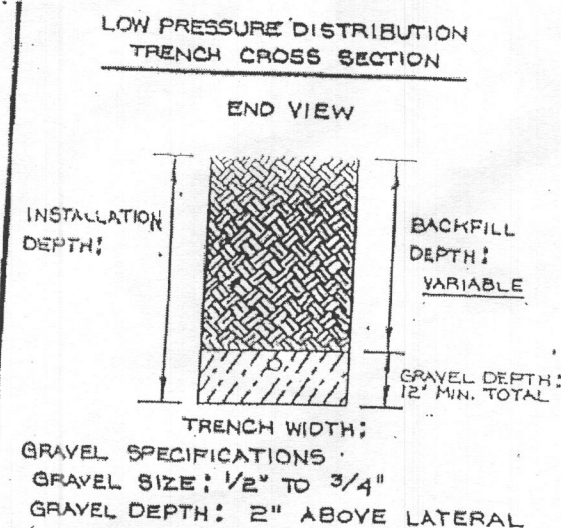
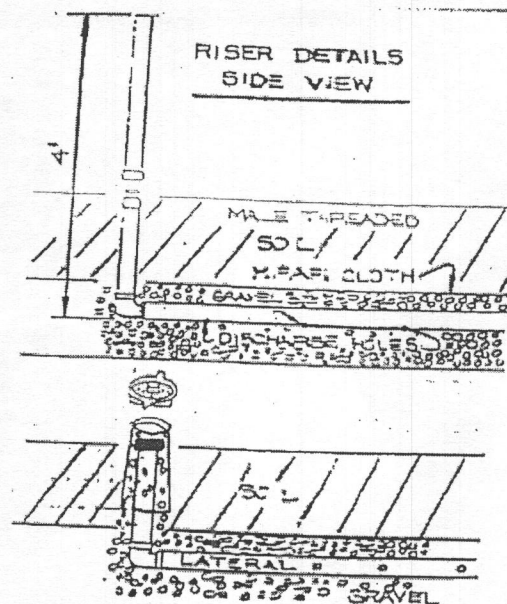


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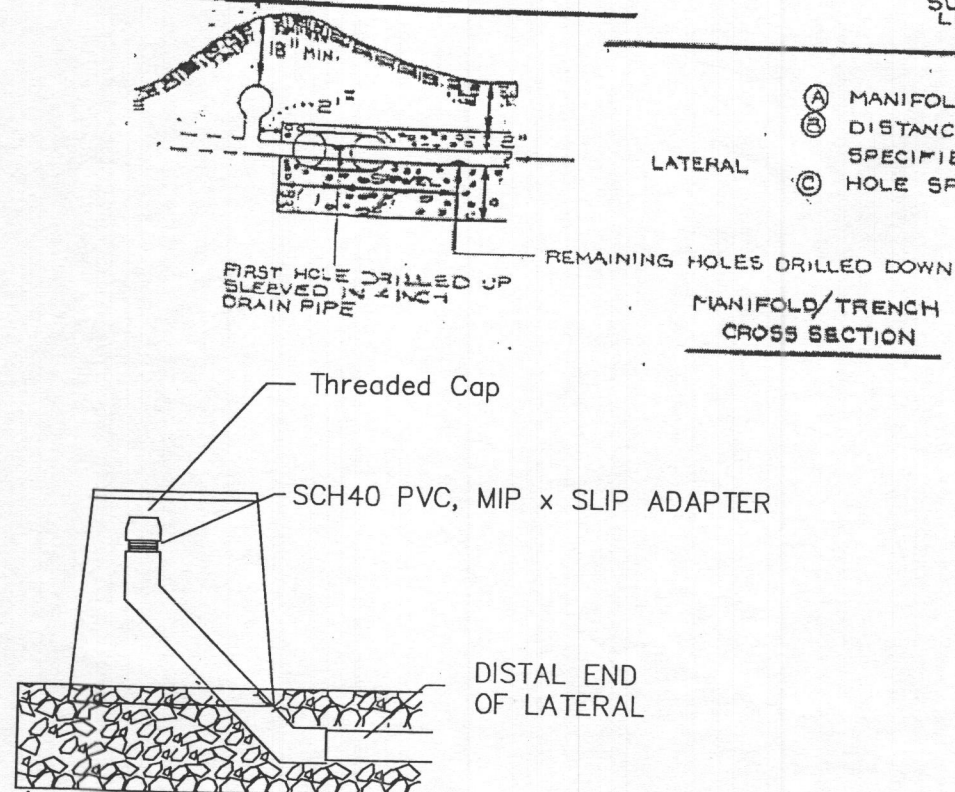
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<b>Tom W. Ashton R.E.H.S</b>	
P.O. Box 220 Bluemont VA 20135 540-454-4672	
PROJECT NAME : Biggens 6726 Surrey Lane Clarksville, MD 21029 Clarksville Ridge Lot 24	DATE: May 22, 2009
COUNTY : Howard County Maryland	TITLE :  General Notes "C"
DESIGNED BY: Tom W. Ashton R.E.H.S	SHEET: 8 OF 16

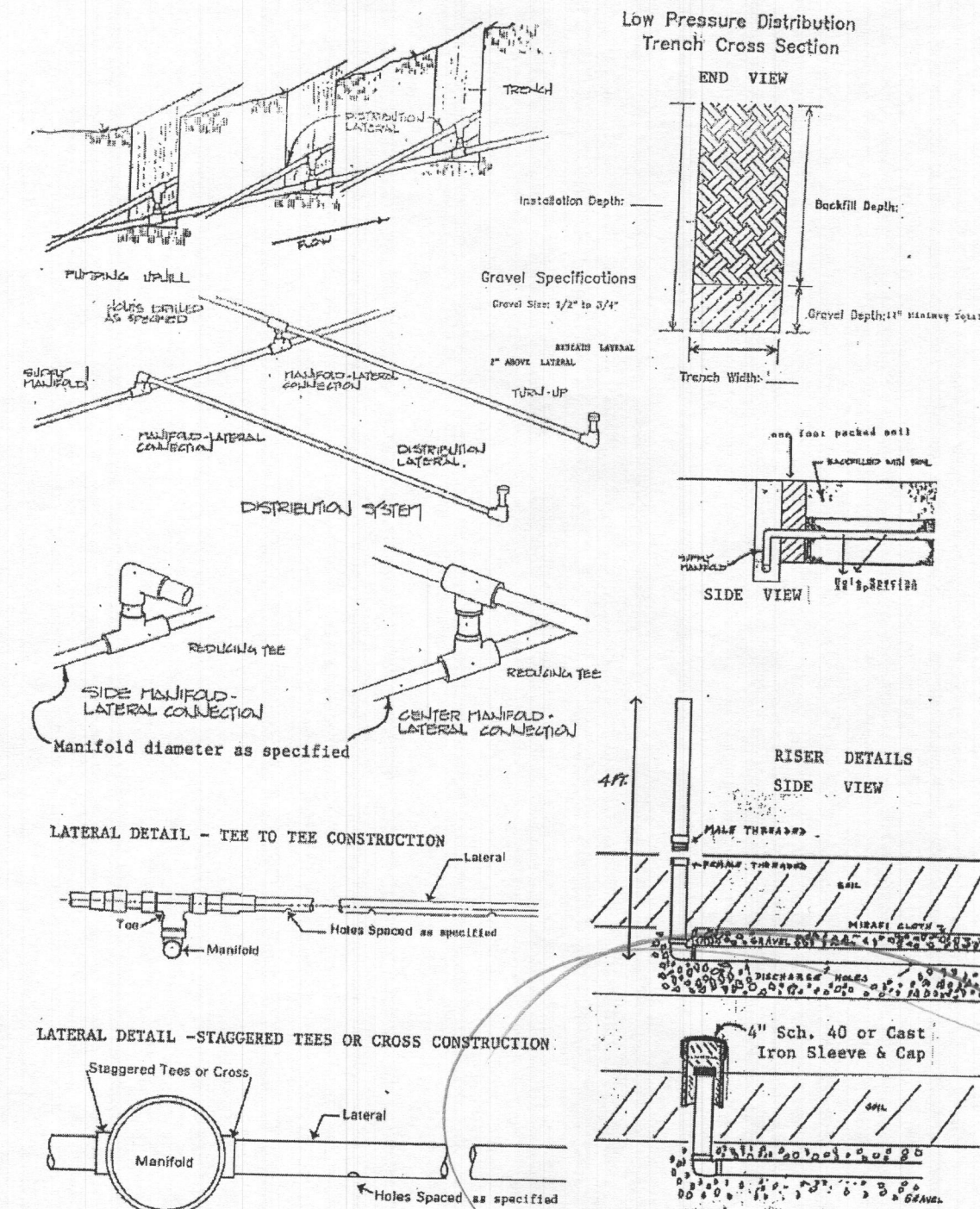




- (A) MANIFOLD DIAMETERS SPECIFIED
- (B) DISTANCE TO FIRST HOLE AS SPECIFIED.
- (C) HOLE SPACING AS SPECIFIED.



## VALVE BOX DETAIL



## AMERICAN MANUFACTURING CO.

5517 WELLINGTON ROAD, GAINESVILLE VA22065 PHONE : 703-754-0077

PROJECT NAME : Biggens  
6726 Surrey Lane  
Clarksville, MD 21029  
Clarksville Ridge Lot 24  
COUNTY : Howard County  
Maryland

DATE: May 22, 2009

TITLE :  
LPD Drainfield  
DETAILS

DESIGNED BY: Tom W. Ashton R.E.H.S

SCALE : NTS

SHEET 9 OF 16

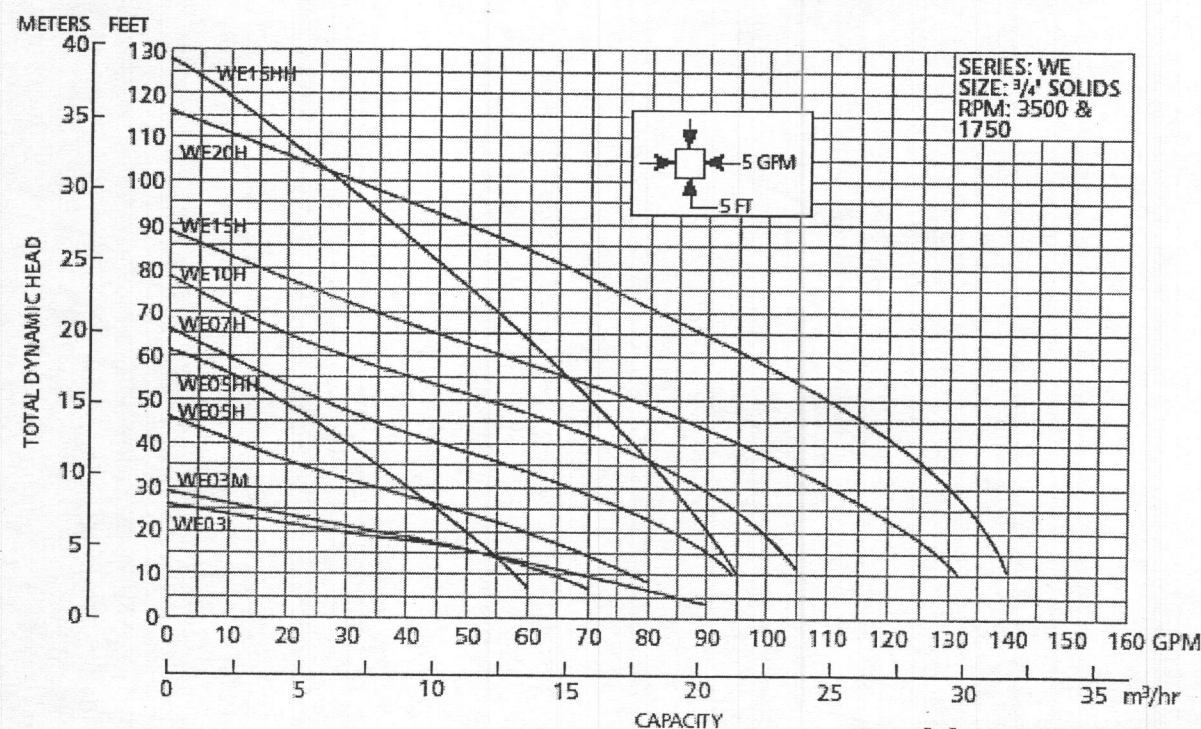


**Biggens**  
**DESIGN INFORMATION**

PUMP SIZING				
TOTAL DYNAMIC HEAD OF ABSORPTION SYSTEM @ lowest lateral (does not include valves)				
(A)	Elevation Across Field (ft.)		1.70	* This value (A) represents the total fall as field measured.
(B) +	Manifold Friction Loss Valve Group #	+	0.21	* These values (B-D) are the total friction loss in all the manifold segments per valve group.
(C) +				
(D) +				
(E) +	Lowest Distal Head (ft.)	+	2.00	* This (E) is the lowest distal head in the system.
(F) +	Total Lateral Friction Loss (ft.)	+	1.08	* Single lateral friction loss is 0.54 feet per 72.00 ft. line @ 8.27 GPM, (one half maximum lateral flow)
(G)	Total Dynamic Head at Valves (ft.)		5.00	16.54 GPM. The total lateral friction loss is 1.08 ft. The number of lines is 2.00
		X 1.2	5.93	
(H)	T D Head at bottom of system		5.93	* 20% is added to account for fittings within the system.
		@	32.53	* This value represents the head requirements of the lateral and manifold distribution system. Does not include supply line and valves.
(I)	Total System Flow Gallons per Minute		32.53 GPM	

TOTAL DYNAMIC HEAD FROM PUMP (Pump Sizing)			Biggens	
(J)	Friction Loss of Valves	0.99	* The number of valves is 1.00. The valve size is 2.00 inches. The friction loss per valve is 55.00 ft. equivalent length per valve at GPM. The total friction loss is 0.99 feet.	
(K)	Supply Line Friction Loss	2.26	* The supply line length= 100.00 feet. Equivalent length (length X 1.2 to account for fittings) is 120.00 feet. The supply line diameter is 2.00 inches. The friction loss per 100' @ 32.53 GPM is 1.88 feet. The friction loss for 120.00 feet of 2.00 inch pipe = 2.26 feet.	
(L)	Pump Station Friction Loss	1.41	* The pump chamber piping is constructed of 2" diameter materials. The equivalent length of a typical standard configuration (gate valve, check valve etc.) is 75 feet. At a system flow of 32.53 GPM with a friction loss of 1.88 feet per 100', the pump station friction loss = 1.41 feet.	
(M)	Total elevation from pump	8.00	* Elevation from pump to LPD system bottom includes pump at 6' below ground surface.	
(N)	Friction loss for LPD system.	5.96	* This value is "H" above.	

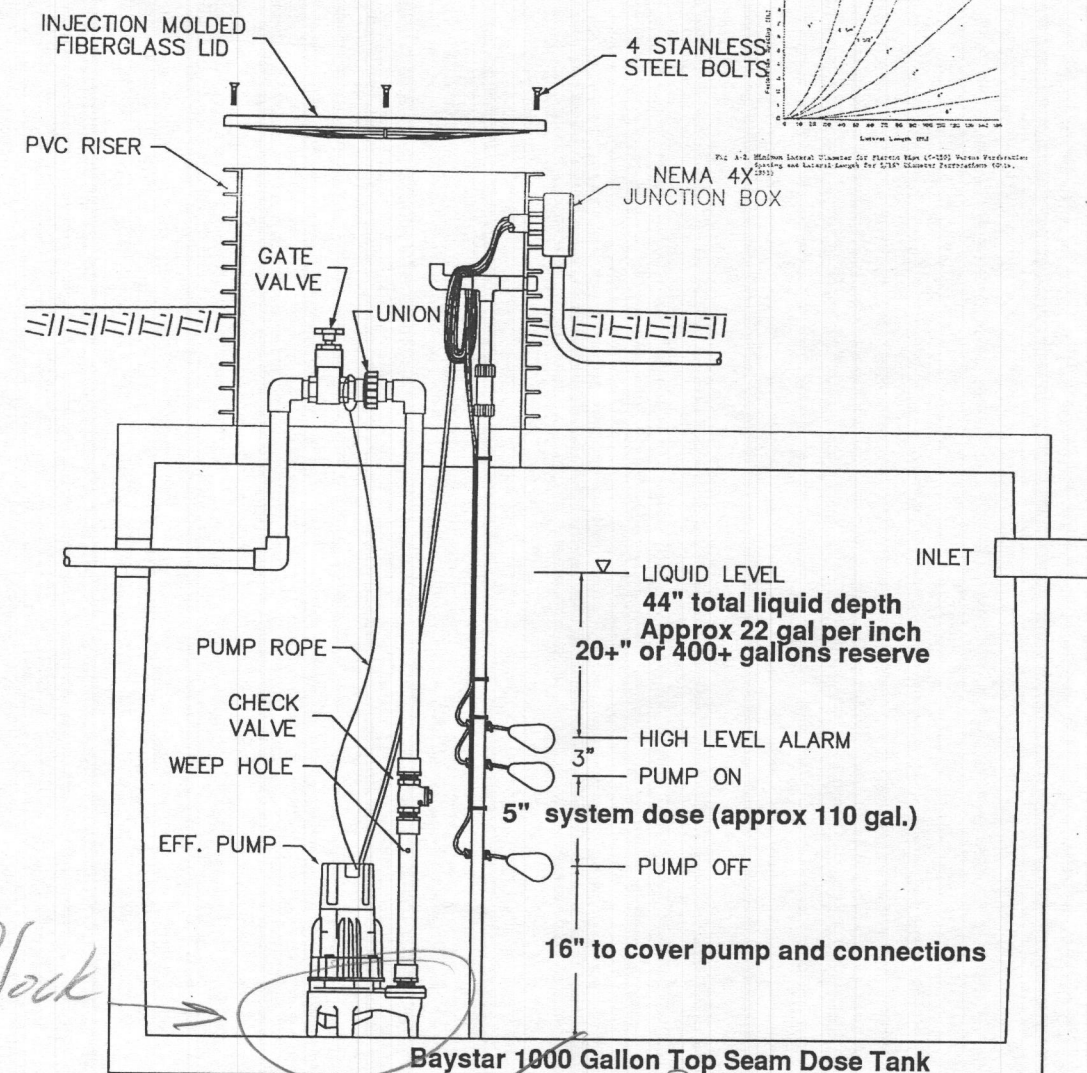
(O) Total Dynamic Head Required 18.64 \* See attached pump curve for recommended pump.  
@ 32.53 GPM



Goulds Pumps



www.goulds.com



### PERFORMANCE RATINGS (gallons per minute)

Order No.	WE03L	WE03M	WE05H	WE07H	WE10H	WE15H
HP	1/4	1/4	1/2	3/4	1	1 1/2
RPM	1750	1750	3500	3500	3500	3500
5	86	-	-	-	-	-
10	70	63	78	94	-	-
15	52	52	70	90	103	128
20	27	35	60	83	98	123
25	-	-	48	76	94	117
30	-	-	35	67	88	110
35	-	-	22	57	82	103
40	-	-	-	45	74	95
45	-	-	-	35	64	86
50	-	-	-	25	53	77
55	-	-	-	-	40	67
60	-	-	-	-	30	56
65	-	-	-	-	20	45

SYSTEM DOSE (Simplex)			
Seven X Dose		Ten X Dose	
Lateral Volume (gal.)	11.19 X 7	Lateral Volume (gal.)	11.19 X 10
Total Plus Manifold Vol. (gal.) +	78.32 1.37	Total Plus Manifold Vol. (gal.) +	111.89 1.37
Total "Seven X Dose" (Gallons)	79.70	Total "Ten X Dose" (gallons)	113.30

Goulds WE03M or Equivalent

**Tom W. Ashton R.E.H.S**

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME : Biggens  
6726 Surrey Lane  
Clarksville, MD 21029  
Clarksville Ridge Lot 24

DATE: May 22, 2009

TITLE :  
Pump Information

COUNTY : Howard County  
Maryland

DESIGNED BY: Tom W. Ashton R.E.H.S

SHEET: 10 OF 16



Minimum 12" cover

VALVE BOX WITH LID  
SCH40 PVC, THREADED FIP CAP

10, 5/16" holes. First and last hole to be up, remainder down, all with orrifice shields

MINIMUM 36" GRAVEL DEPTH BELOW DISTRIBUTION LATERAL

Trench Bottom 48"

8' Centers

Two 72' trenches, 3' wide.

7, 5/16" holes per Lateral. First and last hole to be up, remainder down, all with orrifice shields

2" Bronze Globe Valve In Grade access Valve Box

2" Pump Supply

CONFIGURATION OF ABSORPTION AREA							
Line Number GROUP #1	Line Length	Head Pressure	Hole Size	Hole Space	Number of Holes	Manifold Diameter	Relative Elev. in.
Line #1	72	2.00	0.3125	54 / 84	10	1.50	0
Line #2	72	3.81	0.3125	72 / 120	7	2.00	20

NOTE: Under "Hole Space" the first number is the distance to the first hole, the second number is the hole spacing.  
The elevation from the pump intake to bottom of the system is assumed to be 8'.  
The distance from the pump to the bottom of the system is assumed to be 100' spacing.

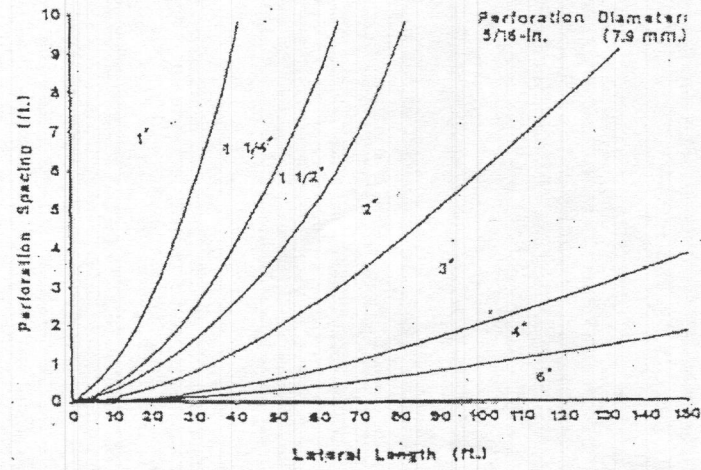
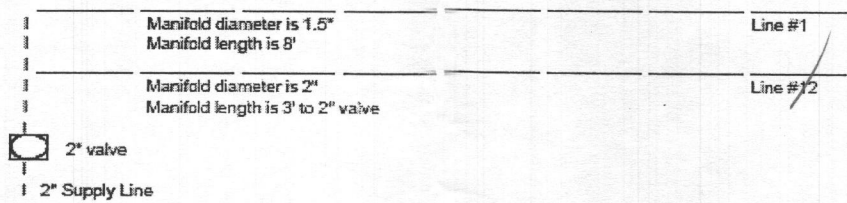


Fig. A-2. Minimum Lateral Diameter for Plastic Pipe (C-150) Versus Perforation Spacing and Lateral Length for 5/16" Diameter Perforations (Ocis, 1981)

(A) Line(s) Number	(B) Distal Head Pressure (ft.)	(C) Hole Size (in.)	(D) Number of Holes per Line	(E) Flow per Hole (GPM)	(F) Lateral Flow (GPM)	(G)	(H) Manifold Flow (Side) (GPM)	(I)	(J) Line(s) Length (ft.)	(K) Hole Space (in.)	(L) Manifold Diameter (in.)	(M) Biggens Manifold Velocity (ft/sec)	(N) Manifold Length (ft.)
GROUP #1													
Line #1	2.00	0.3125	10	1.650	16.54		16.54		72	54 / 84	1.50	5.21	8
Line #2	3.81	0.3125	7	2.280	15.99		32.53		72	72 / 120	2.00	6.22	3

ADDITIONAL INFORMATION  
Exact slope of site(%) = (Fall of site / Length of site) X 100  
( 1.70 ft / 8.00 ft ) X 100 = 21.30 %  
% Flow Variation of laterals (during pump run) = ((Maximum flow-Minimum flow)/Minimum flow) X 100  
(( 0.23 - 0.22 ) / 0.22 ) X 100 = 4.55 %  
Installation depth is 48.00 inches (minimum if variable).

**Tom W. Ashton R.E.H.S**  
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