

Disparate cases

~~SS~~

worster →

Thought on this doing
Kanam { mobilized

→ only offered on
critical (means tested)
50%

Asked everyone to participate
Is allocating to all co.
→ would have offered
\$63,000 for 1st (5 systems)

No one stepped

JAG KUHMANN

410 537 3981

H2O Quality Financing
~~Program~~ Admin

call back

13350 Forget the Ad
Jimm ?

when updates

Note - \$1 up

(Paul for Rec + Parks

(rented by Housing Commission)

sewage order

neighbor had sewage problem

→ a branda murado

x4689

4685

Jim Hampton

13350

Freightor Rd

MDZ letter - run out of money

email - new money 413 625

next stop

410 472 1261

→
drip of
river

MDZ

Ed Peltus

301 937 7000

11601 Johns Hopkins

[Instal distribution box]

Value 1 @ mris.com

(301) 937 6678

Siddhar 0617 @yehnoe +
com

~~Werner~~ Postgell

410 709 2126 work

443 500 6191 (cell)

Jay Pooze

10 BRF fund

Spehan to John Davis

12054 Hallshop Rd

Antony look to 2004

Holding tanks 2500 gal

Stephen Walker

S37-4195? In Jags JP

access to files (Johns)

John - Beggans got pre-
letter back approved

9/15/08 - email
was still when they needed
bids - but as I²7A needed
design approval prior to
approval

because they got the letter

BRF

6/7/10

Robert Biggs

(301) 412 2434 cell

(301) 596 9670 home

the head desk w/

6726 Sunny Lane
Charville

Steve Krueger
states need for



MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

Martin O'Malley
Governor

Shari T. Wilson
Secretary

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Deputy Secretary

August 11, 2009

Mr. Bert Nixon, Director
Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, MD 21046

**RE: Plan Approval for Conventional LPD, Biggins Property, Clarksville Ridge, Lot 44
6726 Surrey Lane, Clarksville, MD 21029**

Dear Mr. Nixon:

At the request of your staff, I have assisted in the evaluation, review and approval of the design plans which are most recently dated 7/17/09 prepared by Tom Ashton, R.S./CPSS for a conventional low pressure dosed system with advanced pretreatment to serve the above referenced property.

Plan clarifications include the following: refer to sheets 3,7,8,10 & 11. Force main is 2" in diameter, 8 ft manifold is 1.5" in diameter, laterals are 1.5" in diameter with 5/16" holes with first and last holes in laterals drilled facing upward, orifice shields must be installed, trenches must have observation pipes, lateral turnups are to be sleeved, 3/4" washed gravel is to be used. Corrections to the plan to be noted include Sheet 7 (Item 4): System flow is 46.43 gpm at 22.47 ft of head as indicated on Sheet 10 and not 33 gpm. Sheet 7 and 8 (Item 6 & 8): There are no valves on the force main, manifold or laterals. Further plan clarification may occur during the preconstruction meeting with the contractor and the designer present

We look forward to continue to utilize pressure dosed systems where applicable as they have several advantages over gravity fed systems. LPD systems improve distribution through pressurized laterals that disperse the effluent uniformly throughout the entire drainfield area in conjunction with periodic dosing and resting cycles, which enhance and encourage aerobic conditions in the soil.

MDE encourages approving authorities to review conventional LPDs (2-30mpi) and even alternative LPDs (30-60 mpi) on their own to familiarize themselves with these systems. Please have your designated field inspector contact me prior to the anticipated start of system installation so that I may be present for a preconstruction meeting during which a field stakeout can be performed by the designer with the contractor present. If you have any questions or comments please call me at (410) 537-3680 or email me skrieg@mde.state.md.us.

Sincerely,

Steven R. Krieg, R.S.

Steven R. Krieg, R.S.
Regional Consultant, On-Site Systems Division

Cc: Mike Davis, Sara Sappington, Stuart Oster, Tom Ashton, John Boris

September 15, 2008

Robin & Mark Biggins
6726 Surrey Lane
Clarksville, MD 21029

RE: Tax Map 35, Grid 21, Parcel 203, Lot 4A

Dear Mrs. Biggins:

Thank you for completing an application for the Bay Restoration Fund (BRF) Onsite Sewage Disposal System (OSDS) Program. The pre-application submitted is for your property located at 6726 Surrey Lane, Clarksville and shown on Tax Map 35, Parcel 203. A review of the application indicates a high priority for funding. This letter is to notify you of preliminary approval for funding from the BRF for the installation of best available technology (BAT) for removing nitrogen as part of your on-site sewage disposal system.

This notification letter is intended to assist you through the process of obtaining proper BAT installation bids and invoicing procedures to obtain funding from the BRF. The following sections outline the requirements necessary for proceeding with the project.

Submission of Bids

The applicant must acquire bids from at least three separate manufacturers and at least 2 different installers for a minimum total of 3 bids to MDE for review. The installer can act as agent on behalf of the applicant but still must also supply a separate installer bid. A list of manufacturers is included in this letter. If you need additional participating installer information please contact your designated Project Manager or go to http://www.mde.state.md.us/Water/CBWRF/osds/bat_installers.asp for a list of installers. Bids must include the following:

- The installer, whether they are a manufacturer representative or one chosen by the property owner, must submit a separate installation quote with each manufacturer bid on a separate piece of paper from the manufacturer quote or the bid will be considered incomplete.
- Bids must be itemized. The manufacturer bid is to include the purchase cost of the unit and all other MDE requirements while the installation cost of the unit is to include the unit installation, components, and labor (including electrical connections) directly related to upgrading an onsite sewage disposal system to the best available technology for removing nitrogen are eligible for funding.

The following manufacturers have undergone MDE review and are eligible for BRF grants:

Aquapoint, Inc. (Bioclere™ Model) www.aquapoint.com

Contact: Robbie Tippet (240) 298-7572 rtipp4@aol.com
Sam Seymour (585) 473-3300 sseymour@aquapoint.com

Bio-Concepts, Inc. (ReCip® RTS) www.bioconceptsinc.com

Contact: Al Privette (252) 249-7040 alprivette@coastal.net

Bio-Microbics, Inc. (MicroFAST® & RetroFAST®) www.biomicrobics.com

Contact: Freemire & Associates (410) 768-8500 www.freemire.com

F.R. Mahony & Associates, Inc. (Amphidrome™ Model) www.frmahony.com

Contact: David Kershner (610) 351-0963 d.kershner@ketllc.com

Hoot Aerobic Systems, Inc. (H-Series Hoot and Hoot BNR) www.hootsystems.com

Contact: Nancy Mayer (410) 796-1434 mayerbro@connext.net

Lombardo Associates, Inc (Nitrex Systems) www.lombardoassociates.com

Contact: Pio Lombardo (617) 964-2924 pio@lombardoassociates.com

Norweco, Inc. (Singular Model TNT System) www.norweco.com

Contact: Eastern Shore, Randy Clark (800) 773-9128 ranjodan@yahoo.com
Western Shore, Jeff Earnshaw (301) 274-3772
superiortank@olg.com

Orenco Systems, Inc. (AdvanTex® AX) www.orenco.com

Contact: Robert Johnson 1-877-214-9283 rjohnson@septicssystems.net

SeptiTech, Inc. (SeptiTech® Model) www.septitech.com

Contact: Bruce Melton (410) 878-2952 rbmelton@progressiveseptic.com
Western MD, Scott Everhart (304) 676-3823 www.cseenterprises.net

Conditions of Financial Assistance

By reading and signing this form, you agree to the limitations and conditions set forth in this document. This form must be returned with your submission of bids. Your bid submission will be not be processed if this form does not accompany the bids when you submit them.

Award of Grant

- MDE will review the bids. The grant award will be obligated based on the lowest acceptable bid, however the applicant may pay the cost difference of a more expensive bid.
- The applicant will be notified by MDE as to the amount of the grant obligation and with further instructions as to how to pursue reimbursement of obligated funds.
- For awards greater than \$25,000 MDE must present a proposal to the Board Public Works for approval.
- No change orders will be accepted by MDE.
- The award amount is available for reimbursement within 6 months of Department signature on the Agreement and Easement document. Upon request of the applicant, the original 6-month period may be extended at the discretion of the Department.

Agreement and Easement

An Agreement and Easement must be completed, signed by all parties and recorded in the Land Records of Howard County Maryland. A draft copy of the Agreement and Easement is provided to you in this letter for your review. A completed Agreement will be provided to you after bids are submitted to MDE when you are notified of the grant approval amount. The purpose of this Agreement is to accomplish the following:

- To establish your voluntary participation in this program.
- To ensure that a minimum of five years operation and maintenance is performed by an approved provider (included in the upfront cost of the system).
- Allows access for State, County and the Manufacturer designee's to inspect and collect samples from the system.
- Establishes the amount of the grant award.

Local Permitting Requirements

- All required local permits must be obtained.
- Permit fees are not eligible for BRF funding.
- Contact Howard County Health Department for more information.

Issuance of Funds From the BRF

After review of the submitted invoice and associated documents, the Office of the Comptroller of the State of Maryland will issue a check to the property owner.

Page Four

Once again the Department thanks you for participating in this important program. If you have any questions, please feel free to contact me at 410-537-3678 or by email at jboris@mde.state.md.us.

Sincerely,

John A. Boris, Jr., R.S.
Bay Restoration Fund Project Manager

Enclosure

cc: Jay Prager
Howard County Health Department

Robin D. Biggins
6726 Surrey Lane
Clarksville, MD 21092
301-596-9670 (home)
301-412-2434 (cell)
mrbiggins5@verizon.net

June 23, 2009

Mr. Stuart Oster
Sanitarian Supervisor, Ground
Water Management
Bureau of Environmental Health
Howard County Health Department
7178 Columbia Gateway Drive
Columbia, MD 21046

Re: Septic System Repair at 6726 Surrey Lane, Clarksville, MD 21029

Dear Mr. Oster:

In connection with repair of the septic system at my home, I am writing to request a variance of 75 feet. The current design for this repair, which is under review by your office, places a low-pressure dosing trench 75 feet from the well.

I would appreciate receiving written documentation of any variance your office may grant.

If you have any questions or require additional information, please feel free to contact me.

Thank you for your assistance.

Sincerely,


Robin D. Biggins

Robbin Biggins

301-412-2434 (cell)

301-596-9670

(Fax) 301-794-8754

Sara Sappington

From: Steven Krieg [skrieg@mde.state.md.us]
Sent: Saturday, August 01, 2009 5:26 PM
To: Stuart Oster
Cc: TWA220@aol.com; Brian Baker; Kevin Wolf; Michael J.. Davis; Sara Sappington; John Boris
Subject: Biggins
Attachments: Biggins Approval.doc

Stuart:

Plan is approved. Note attached letter for details and print for your file. She will need to request a variance in writing to you for her well to septic setback to be less than 100 feet or you can request one on her behalf to me. See Brian for an example of a template variance form letter as he is drafting one for the Hobbs property. I will sign the variance letter after it is drafted. Call me before the system goes in so we can do a layout with the contractor and Tom.

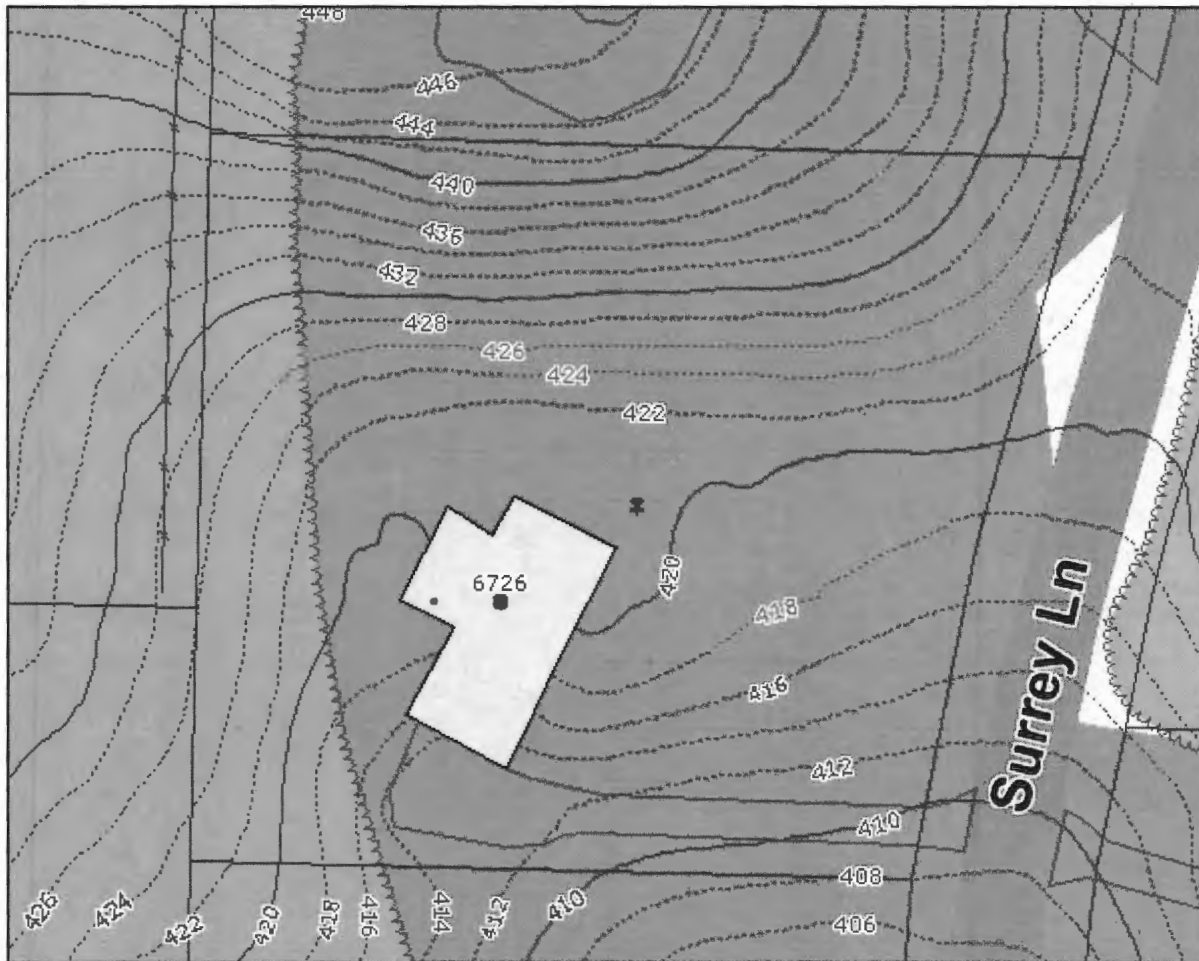
Thanks

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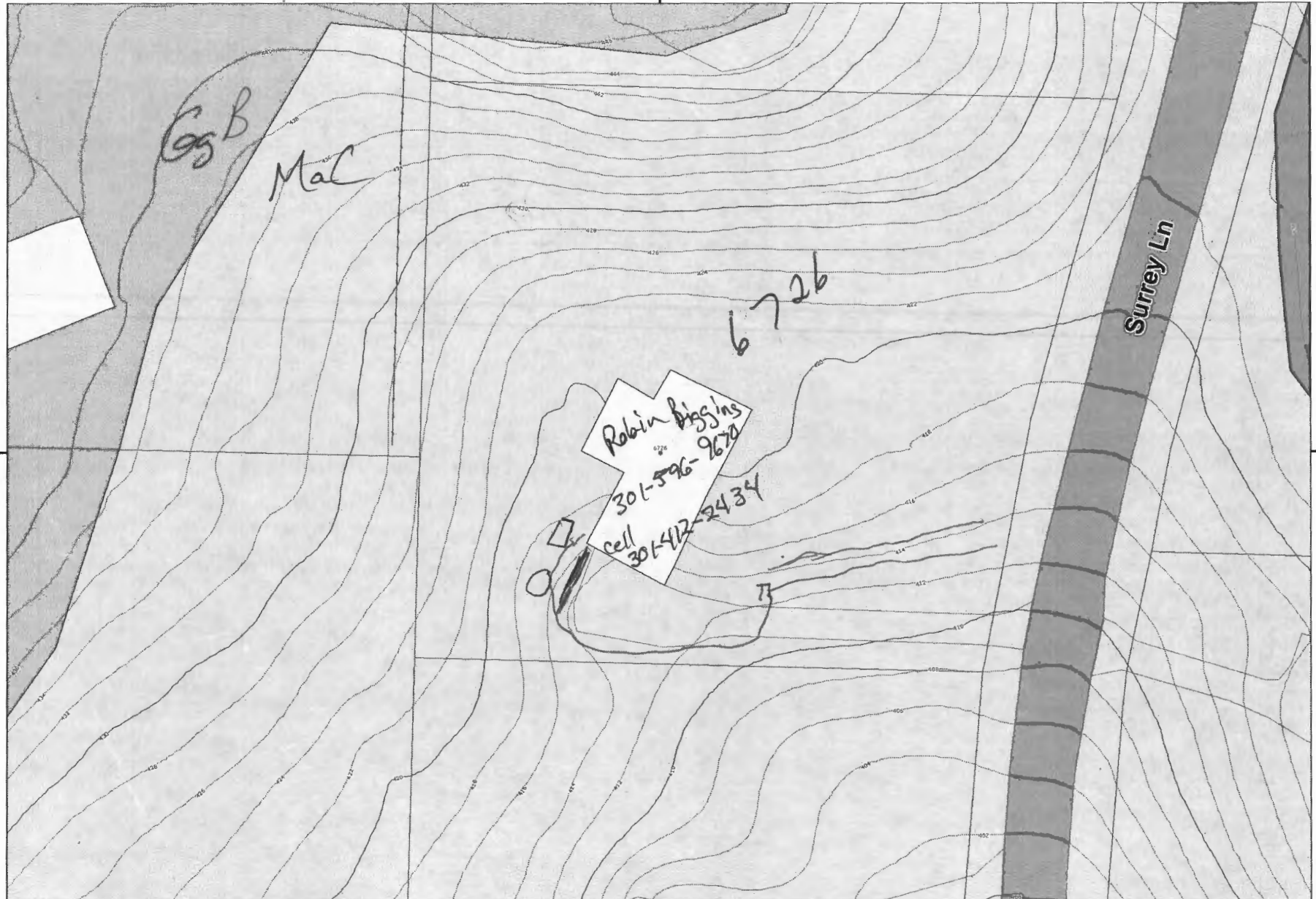
<<<<GWIASIG 0.07>>>>



-76°54'49"



39°11'84"



39°11'84"

Disclaimer: Howard County, Maryland assumes no responsibility for the accuracy of this report or the information contained herein or derived therefrom. The user assumes all risks and liabilities whatsoever resulting from or arising out of the use of this information. There are no oral agreements or warranties relating to the use of this report.

-76°54'49"

EQAS

Stuart Oster

From: Steven Krieg [SKrieg@mde.state.md.us]
Sent: Thursday, May 21, 2009 8:58 AM
To: John Boris
Cc: Stuart Oster
Subject: Dry Weather Installation Requirement

John,

Let this serve as the necessary documentation, that the system to be installed for Robbin Biggins (6726 Surrey Lane -Clarksville, MD Howard County) must be installed when the site and soil is dry enough for installation. In addition, this project will need to have a plan submitted (LPD proposed) and approved which may take a while and possibly more than 45 days. If you need additional information, please dont hesitate to let me know.

Thanks

Steven R. Krieg, R.S.
Regional Consultant
On-site Systems Division
Wastewater Permits Program
Maryland Dept. of the Environment
Montgomery Park Business Center
1800 Washington Boulevard, Suite 455
Baltimore, MD 21230-1708

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<<<<GWIASIG 0.07>>>>



MARYLAND DEPARTMENT OF THE ENVIRONMENT

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Martin O'Malley
Governor

Shari T. Wilson
Secretary

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Deputy Secretary

Mr. Bert Nixon, Director
Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

December 10, 2008

RE: **Biggins Property**
Clarksville Ridge, Lot 44
6726 Surrey Lane
Clarksville, MD 21029

Dear Mr. Nixon:

I have reviewed your site evaluation data from your file and further evaluated the site with Stuart Oster of your office on October 15, 2008. The results of our site evaluation indicate the site is suitable for an advanced pretreatment unit followed by the installation of an LPD (low pressure dosing) system. LPD systems have several advantages in that they improve distribution through pressurized laterals that disperse the effluent uniformly throughout the entire drainfield area in conjunction with periodic dosing and resting cycles, which enhance and encourage aerobic conditions in the soil. Since the proposed system location will require a variance to reduce the setback to the existing buried well, the installation of an LPD system versus pumping to a standard gravity distribution box system is recommended.

The property owner may wish to contact a qualified soils and onsite system design consultant if they feel that other options for this property should be explored or proposed. The following sections summarize requirements necessary for proceeding with the project.

Pretreatment

Employing advanced pretreatment on septic tank effluent is beneficial from the standpoint of enhancing the soil absorption component of the system's performance and extending its life. There are a variety of devices and methods for providing advanced pretreatment, including constructed wetlands, aerobic pretreatment units, fabric biofilters, single pass and recirculating sand filters, peat filters, composting toilets, and greywater re-use systems.

Advanced pretreatment units that can reduce nitrogen compounds are preferred and may be eligible for grant funding through MDE's Bay Restoration Fund. The property owner's consultant may have preferences for a pretreatment unit to complement the soil absorption system selected. A good comparison of some pretreatment units can be found at the EPA's New England's Center for Environmental Industry and Technology (CEIT) web site at:

<http://www.epa.gov/region1/assistance/ceitts/wastewater/techs.html>.



Soil Absorption Component

The soil loading rates are based on the soil morphology observed in the test pits, and percolation testing (see attachments). The loading rates indicated are in conformance with MDE's alternative systems policy and the Tyler chart included with this letter. If utilizing pretreated effluent with low pressure trenches (LPD), a 0.7 gpd/sq.ft. loading rate is recommended.

The initial system for a four bedroom house would require 143 linear ft (2-72 ft trenches if equal length) of shallow pressure dosed trenches assuming the soil evaluations indicate a design where trenches are 3 feet wide, 4 feet deep with 3 feet of effective sidewall. This will provide 857 sq. ft. of absorption area and will satisfy the recommended loading rate of 0.7 gpd/sq.ft. for a four bedroom max design flow of 600 gpd. Alternatively, a more conservative design assuming only 2 ft of effective sidewall would require 180 linear feet (3-60 ft trenches if equal length). The designer should chose the option that works best for the site, taking into consideration contour, trench spacing and room for future repair.

Septic Tank(s) and Pump Chamber

A top seam two-compartment septic tank with a total capacity of 1500 gallons should be provided. The volume of the first chamber should be 1000 gallons. Access for an effluent filter should be provided at the outlet of the second chamber. Since advanced pretreatment is required, the septic tank size may vary depending on the design of the pretreatment unit selected and may comprise only one tank of a smaller size prior to the pretreatment unit/chamber/tank. The pretreatment unit itself may incorporate the tankage required for the settling of solids usually provided by the septic tank.

A top seam pump chamber should be included that is a minimum volume of 1,000 gallons. This may allow for dosing of the effluent as well as one day's storage above a high water alarm which is required.

As always, an inspection should be conducted to evaluate all tanks for water tightness.

Plans and Specifications

It is recommended that a qualified on-site systems design consultant be retained by the property owner to provide final plans and specifications for the system. Enclosed are MDE minimum requirements for the submission of acceptable plans. Alternative system design review can be handled by the county, but I will be available to assist with this review. Initially, one set of plans must be submitted to your office and one set to MDE's Onsite System's Division.

Agreement and Easement

An Agreement and Easement needs to be signed by all parties, recorded in the land records and returned to the local Approving Authority and MDE before permits to construct can be issued. The Agreement and Easement establishes the regulatory conditions associated with the project. A combined BRF and Alternative Agreement is available and preferred if a BRF grant funded system is employed. Contact the BRF program for additional information.

I am guessing
the variance
comes to us.
Is that true -
has this already
happened?

Location of Utility Lines

The location of any utilities leading from the street to the house must be located to determine the feasibility of using the front yard for a sewage disposal system.

Upslope Drainage Diversion

Construction of a small diversion swale and berm along the right side of the property as seen when facing the house from the road, should be performed to intercept and collect surface runoff from the upslope drainage areas and divert water away from the LPD dispersal system. Diversion of roof rain drainage, and surface water from upslope areas around the back of the house should also be considered for the installation of the septic tanks or pretreatment units.

Variance

The property is currently served by a drilled well buried below grade and although up gradient of the proposed system, it will be located less than 100 feet to the proposed system location (Approximately 65 ft). A variance is required to reduce the setback distance. Please have the property owner send a request in writing to your office. Code of Maryland Regulations (COMAR 26.04.02) contains a reasonable provision for such variances to be granted by the MDE upon the recommendation of the Approving Authority.

Linked Deposit

Additional financial assistance may be available for this project through the Department of the Environment's Linked Deposit Program. Information concerning this loan program:
http://www.mde.state.md.us/Programs/WaterPrograms/Water_Quality_Finance/Link_Deposit/index.asp

Bay Restoration Fund

Information on the Bay Restoration Fund (BRF) which may provide a grant to cover the cost of a nitrogen reducing aerobic pretreatment unit, is available on MDE's website.
<http://www.mde.state.md.us/Water/CBWRF/osds/index.asp> The BRF project manager for your county may provide additional information. The BRF Hotline is (410) 537-4195.

A copy of the site evaluation data is enclosed. Please forward a copy of this letter and the attachments to the property owner. If you have questions regarding this matter please call me at (410) 537-3680 or email at skrieg@mde.state.md.us.

Sincerely,

Steven R. Krieg, R.S.

Steven R. Krieg, R.S.
Regional Consultant, On-Site Systems Division

Attachments

cc: Barry Glotfelty
John Boris

LOW PRESSURE DOSING
SEWAGE DISPOSAL SYSTEM
6726 Surrey Lane

MDE MINIMUM REQUIREMENTS FOR SUBMISSION OF PLANS & DESIGN SPECIFICATIONS

These general specifications were developed to be applicable throughout the State of Maryland. Specific site conditions or problems may not be adequately covered and modifications may be needed by the designer. The designer is responsible for review of the design criteria specifications, site verification and all calculations. It is strongly preferred that the designer has an adequate knowledge of on-site system design and general engineering practices. Qualified designers could include individuals with soils and on-site systems design experience including but not limited to Registered Professional Engineers, Private Soil Evaluators/Registered Sanitarians, or other Environmental Consultants. The appropriate criteria should be incorporated into final plans and specifications. All plans submitted shall include the following items:

- I. SITE PLAN - The plan should be appear of a professional nature and be drawn to an appropriate scale and include the following:
 - A. Property boundaries, accurate topography(2 ft contours) and acreage. Special exemptions may be granted to show only 3 corners of the property and contour over the area of the sewage disposal system on larger properties. Property lines may need to be verified by a Licensed Professional Surveyor.
 - B. House location.
 - C. Existing sewage disposal system and the existing platted 10,000 ft² sewage disposal area or if an existing 10,000 ft² area does not exist, an area designated for the installation of the new system along with additional area designated for future repair.
 - D. Any structure or proposed structure within 50 ft. of an existing or proposed sewage disposal area.
 - E. Any proposed or existing well on-site or within 100 ft. of the property line. If any wells exist within 200 feet downgradient from the proposed system, they should also be shown. Wells should be depicted with their associated 100 radius.
 - F. Locations of all components of the disposal system including monitoring wells and observation ports if applicable.
 - G. Location of all above or below ground utility lines and easements when in vicinity of the sewage disposal system/area and well.
 - H. Spot elevations which include, four corners of the sewage disposal area, pretreatment units, the pump chamber, the house where the

sewer line exits and the highest and lowest elevations within the sewage disposal area and any actual locations of test pits, auger locations or observation holes.

- II. PROFILE PLAN - A properly scaled profile plan showing all invert elevations at major turning points starting from the house sewer to the distribution lateral or drain pipe should be included. These turning points may include house sewer pipe at the foundation, inlet and outlet of the septic tank and pump chamber, manifold at the lateral, junction or distribution box, and the highest elevation of the force mains. A profile of artificial drainage trenches should be included when applicable.
- III. TYPICAL DETAIL DRAWINGS - The plans should include typical details of the major units proposed in the treatment and disposal system including the following units:

A. SEPTIC TANK(S)

1. A two compartment tank or two tanks in series is required. At a minimum the first compartment should be sized for 2/3 of the required volume. Details should include locations and sizes of all manholes, normal liquid depth in the tank, baffles, interior and exterior dimensions and location of seams.
2. The total minimum capacity of the septic tank(s) must be 1,500 gallons.
3. All tanks must be watertight and meet all horizontal separation distances specified in State and County regulations.
4. Tanks that are constructed with seams and joints above the high water table are required.
5. A 24-hour leakage test may be conducted to demonstrate watertightness prior to final construction approval.

B. PUMPING SYSTEM AND CONTROLS

1. The pump chamber must provide sufficient capacity to allow for storage of the dose and one day design flow between the high water alarm and the inlet of the first septic tank. It is also recommended that sufficient capacity be provided so that the pump can be set on a block and remain submerged at all times. Details should include pump control and alarm levels, pump location, locations of gate valves and check valves if applicable, dimensions of pump chamber and locations of seams.

2. The pump chamber must be watertight, protected against buoyant forces and meet all horizontal separation distances in State and County regulations.
3. Pump Chambers that are constructed with seams and joints above the high water table are required.
4. A 24-hour leakage test may be conducted to demonstrate watertightness prior to final construction approval.
5. The pump shall be capable of delivering the necessary gpm at the design head. Design head includes two feet of head at the distal end of the laterals.
6. The use of a three float system to control pump on, pump off and the high water alarm is recommended. The float system must be capable of delivering the specified dose.
7. The control box or panel should be located outside the chamber either on a pole elevated near the pump chamber in a waterproof enclosure or located outside on the house or in the house. All electrical connections should be located outside the chamber. A licensed electrician should perform the work subject to all State and County codes.
8. The high water alarm must be wired on a separate electrical circuit than the pump.
9. A flow meter or an event counter and an elapsed time meter (minutes) are required to determine gallons pumped to the system.
10. A pressure test of the pumping system and distribution network will be required prior to covering the system. The force main can be partially covered as long as all joints, elbows, tees, etc. are visible. The test will require sufficient water onsite to activate the pump through several pumping cycles. Provisions to protect the pumping system and distribution network from erosion and sedimentation should be made by the contractor.

C. DISPOSAL SYSTEM

1. Design Criteria

- a) Design Flow = 600 gpd

Water saving fixtures and low flush toilets are _____ recommended to reduce wastewater to the system.

- b) Hydraulic Loading Rates

Soil = .7 gpd/sq ft

Linear loading rate = 8.6 gpd/ft

c) Required Absorption Area

Design flow / soil loading rate = 857 sq ft.

d) Effective Absorption Area Per 1ft Length of Trench = 3 sq ft

e) Total Length of Trench

Required absorption area / effective absorption area
(Including credit for effective sidewall) = 143 linear feet of trench.

f) Depth of Trench

1. Total = 4 feet

2. Depth of stone below pipe = 3 feet

g) Width of Trench = 3 feet

h) Individual Trench Length = 72 feet

i) Trench Spacing = 8 ft center to center

j) Approximate Slope of sewage disposal area = 17%

All trenches are to be installed on contour. The bottom of each trench must be level. A minimum of 12 inches of fill is required over the geotextile fabric.

Option 1 preferred!

2. Distribution System - Using the above criteria, the Option 1 preferred distribution system would be designed as follows:

a) Manifold system = End feed

b) Number of laterals = 2 → 69.43 Lateral 1, 68.73 Lateral 2 = Option 1

c) Length of laterals = 68.4' (Lateral 1), 67.5' (Lateral 2) = Option 2

d) Diameter of laterals = 1.5"

e) Diameter of perforations = 5/16"

f) Space between perforations = 7.2' (Lateral 1), 9' (Lateral 2) = Option 2, 6.55 Option 2

g) Perforations per lateral = 10 (Lateral 1), 14 (Lateral 2) = Option 2

h) Discharge rate per perforation = 1.63 (Lateral 1), 2.11 (Lateral 2) = Option 2 Option 1 = 1.63 = 2.11

i) Discharge rate per lateral = 16.3 (Lateral 1), 16.9 (Lateral 2) = Option 2 Option 1 = 16.3

j) Total discharge rate = 30-33 gpm Option 2, Option 1 = 50 gpm

k) A pump must be selected that can deliver 36.74 gpm at 12-13 ft the design head.

13.12

22.80 L1
17.91 L2

- n) Dose = (5 x volume of laterals) + volume of the manifold + volume of the force main. Or the design flow divided by six. Use the method yielding the larger dose. ~~(135.14)~~ 156.19
- o) Diameter of the force main = 3"
- p) Diameter of the manifold = 3"

Note - The length and diameter of laterals and perforation spacing and discharge rate may vary between trenches. This is to compensate for slope and other site factors.

Details should show layout detail of the lateral or drain pipe, such as manifold and lateral or drain pipe elevations in the trench, depths of bedding and fill materials, size of perforations and spacing between perforations, and spacing between laterals. Turn-ups are required as shown in the attachments. The last perforation in all other laterals should be placed as shown in the attachments.

D. SITE DRAINAGE

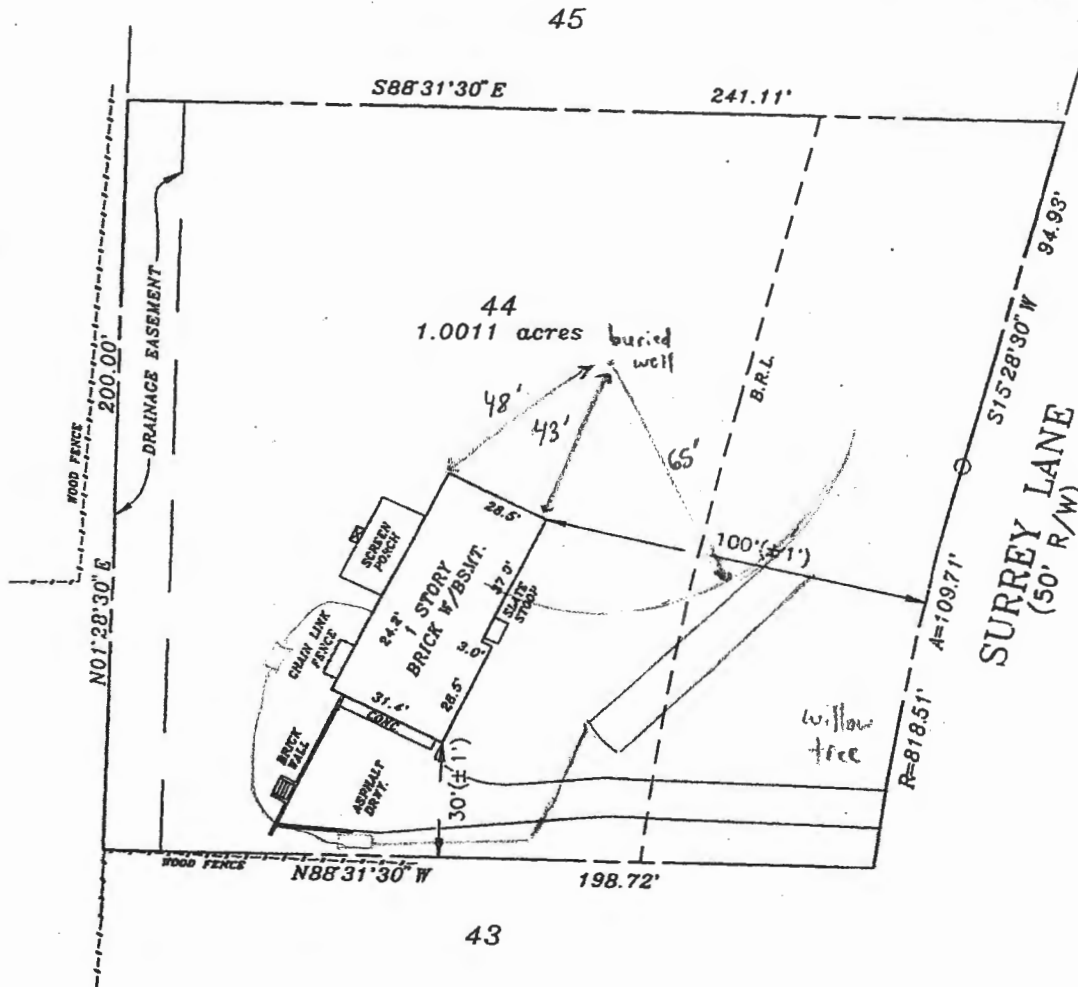
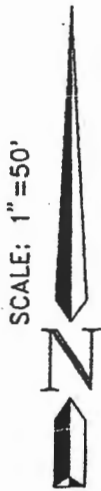
All surface water should be directed away from the tanks and system. This includes all water coming from down spouts and sump pumps.

E. MONITORING REQUIREMENTS

Observation ports are required in each trench as shown in the attachments and shall be accessible from finished grade.

- IV. SPECIFICATIONS AND ENGINEERING REPORT - Specifications for the materials and hardware to be used in the system can be included on the plan or prepared as a separate document. This should include specifications for the pump, pump curves, and pump controls if applicable. Specific procedures for site preparation and construction of the on-site system should also be included. Any calculations for designing the on-site system should be submitted along with the plans and specifications to facilitate the review process.

LOCATION DRAWING
6726 SURREY LANE
LOT 44
CLARKSVILLE RIDGE
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



"THE SUBJECT DWELLING DOES NOT LIE WITHIN A FLOOD HAZARD ZONE AS SHOWN ON HUD FLOOD INSURANCE STUDIES"

HOUSE LOCATION SURVEY: 5/19/95

SURVEYORS CERTIFICATE

I hereby certify that the position of the existing improvements shown hereon have been carefully established by accepted land surveying practices and that, unless shown, there are no visible encroachments either way across the property lines. The plan is of benefit to a consumer only insofar as it is required by a lender or a title insurance company or its agent in connection with contemplated transfer, financing or refinancing. The plan is not to be relied upon for the establishment or location of fences, garages, buildings, or other existing or future improvements. The plan does not provide for the accurate identification of property boundary lines, but such identification may not be required for the transfer of title or securing financing or refinancing. This drawing was prepared w/o the benefit of a title report.

5-19-95

RONALD L. COLLIER
REG. PROPERTY LINE SURVEYOR
MD. NO. 307



Charles P. Johnson & Associates, Inc.

PLANNERS • ENGINEERS • LANDSCAPE ARCHITECTS • SURVEYORS

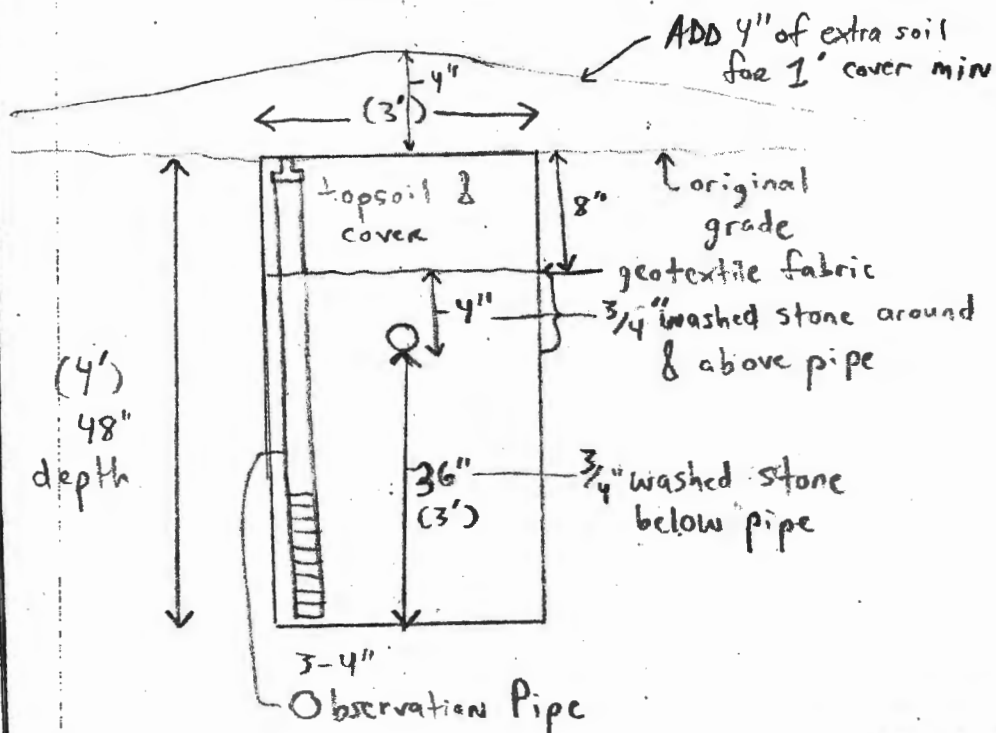
1751 ELTON ROAD SILVER SPRING, MARYLAND 20903
(301)434-7000 Fax(301)434-7010 FREDERICK, MD - FAIRFAX, VA

REFERENCE	Drawn by	Checked by
Plot Book 7	BLT	RLC
Plot No. 29	Date 5/23/95	Record No.
	Scale 1"=50'	23-078-91.03

POSSIBLE

TRENCH PROFILE

width 36" (3')



Preliminary Specs for 6726 Surrey Lane
Clarksville Ridge Lot 4.4

SCALE N.T.S.

DATE 10/15/08

APPROVED BY:

DRAWN BY SRK

REVISED

DEPARTMENT OF THE ENVIRONMENT

DRAWING NUMBER

TEST DATA

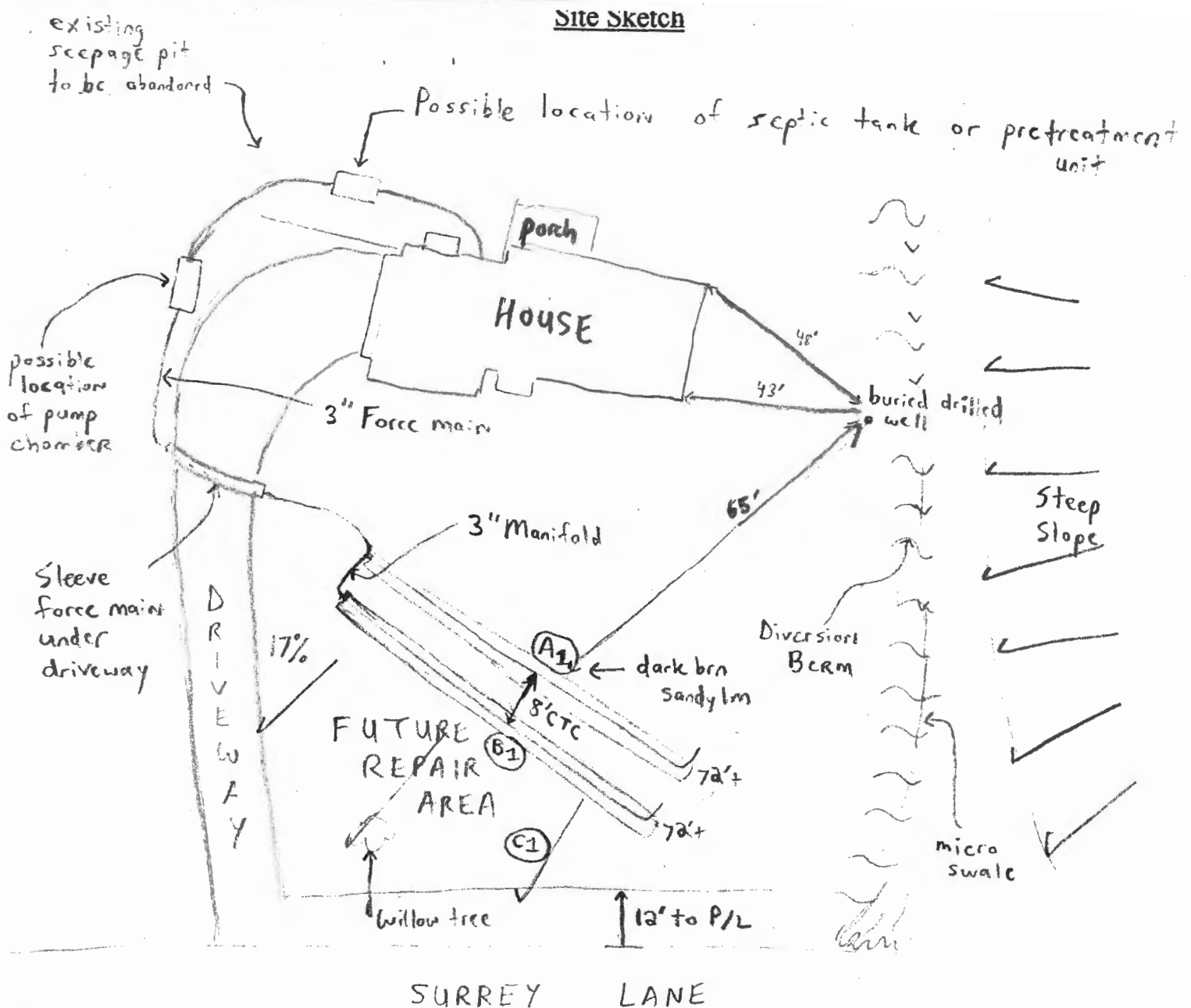
NAME <u>Robins Biggins</u>	FILE NO _____
LOCATION <u>Clarksville Ridge Lot 44</u>	COUNTY <u>Howard</u>
<u>6726 Surrey Lane</u>	DATE <u>10/15/08</u>
<u>Clarksville, MD 21029</u>	GRID _____ E
RECORDED BY <u>Steven R. Krieg / Stuart Oster</u>	N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
A1	A1	6" below grade	12:16 12:18 12:22	— 2min 4min	5" 4"	STD. PERC HOLE 1' X 1' w / PERC STICK 4 mpi
B1	B1	1' below grade	12:38 12:48 1:03	— 10min 15min	5" 4"	STD. PERC HOLE 1' X 1' w / PERC STICK 15 mpi
C1	C1	18" below grade	1:45 1:50 1:55 2:00 2:05	— 5min 5min 5min 5min	18" 17 1/16" 16 1/16" 16 1/16" 16"	6.6 mpi 8.8 mpi 16 mpi 13 mpi Open hole Test w / hook guage 15 mpi ±

Table 1. Infiltration rates in gal/da/ft² for wastewater of >30 mg L⁻¹ or wastewater of <30 mg L⁻¹ and hydraulic linear loading rates in gal/da/ft for soil characteristics of texture and structure and site conditions of slope and infiltration distance. Values assume wastewater volume of >150 gal/da/bedroom. If horizon consistence is stronger than firm or any cemented class or the clay mineralogy is smectitic, the horizon is limiting regardless of other soil characteristics

Soil Characteristics					Hydraulic Linear Loading Rate, gal/da/ft										
					Slope										Row
					0-4%			5-9%			>10%				
Texture		Structure		Infiltration Loading Rate, gal/da/ft ²		Infiltration Distance, in.			Infiltration Distance, in.			Infiltration Distance, in.			Row
		Shape	Grade	>30 mg/L	<30 mg/L	8-12	12-24	24-48	8-12	12-24	24-48	8-12	12-24	24-48	
COS, S, LCOS, LS		--	OSG	0.8	1.6	4.0	5.0	6.0	5.0	6.0	7.0	6.0	7.0	8.0	1
FS, VFS,LFS,LVFS		--	OSG	0.4	1.0	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	2
CSL, SL		--	OM	0.2	0.6	3.0	3.5	4.0	3.6	4.1	4.6	5.0	6.0	7.0	3
		PL	1	0.2	0.5	3.0	3.5	4.0	3.6	4.1	4.6	4.0	5.0	6.0	4
			2, 3	0.0	0.0	-	-	-	-	-	-	-	-	-	5
		PR/BK /GR	1	0.4	0.7	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	6
			2,3	0.6	1.0	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	7
FSL, VFSL		--	OM	0.2	0.5	2.0	2.3	2.6	2.4	2.7	3.0	2.7	3.2	3.7	8
		PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	9
			1	0.2	0.6	3.0	3.5	4.0	3.3	3.8	4.3	3.6	4.1	4.6	10
		PR/BK /GR	2,3	0.4	0.8	3.3	3.8	4.3	3.6	4.1	4.6	3.9	4.4	4.9	11
L		--	OM	0.2	0.5	2.0	2.3	2.6	2.4	2.7	3.0	2.7	3.2	3.7	12
		PL	1,2, 3	0.0	0.0	-	-	-	-	-	-	-	-	-	13
			1	0.4	0.6	3.0	3.5	4.0	3.3	3.8	4.3	3.6	4.1	4.6	14
		PR/BK /GR	2, 3	0.6	0.8	3.3	3.8	4.3	3.6	4.1	4.6	3.9	4.4	4.9	15
SIL		--	OM	0.0	0.2	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	16
		PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	17
			1	0.4	0.6	2.4	2.7	3.0	2.7	3.0	3.3	3.0	3.5	4.0	18
		PR/BK /GR	2,3	0.6	0.8	2.7	3.0	3.3	3.0	3.5	4.0	3.3	3.8	4.3	19
SCL,CL SICL		--	OM	0.0	0.0	-	-	-	-	-	-	-	-	-	20
		PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	21
			1	0.2	0.3	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	22
		PR/BK /GR	2,3	0.4	0.6	2.4	2.9	3.4	2.7	3.0	3.3	3.0	3.5	4.0	23
SC, C, SIC		--	OM	0.0	0.0	-	-	-	-	-	-	-	-	-	24
		PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	25
			1	0.0	0.0	-	-	-	-	-	-	-	-	-	26
		PR/BK /GR	2,3	0.2	0.3	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	27
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	

Site Sketch



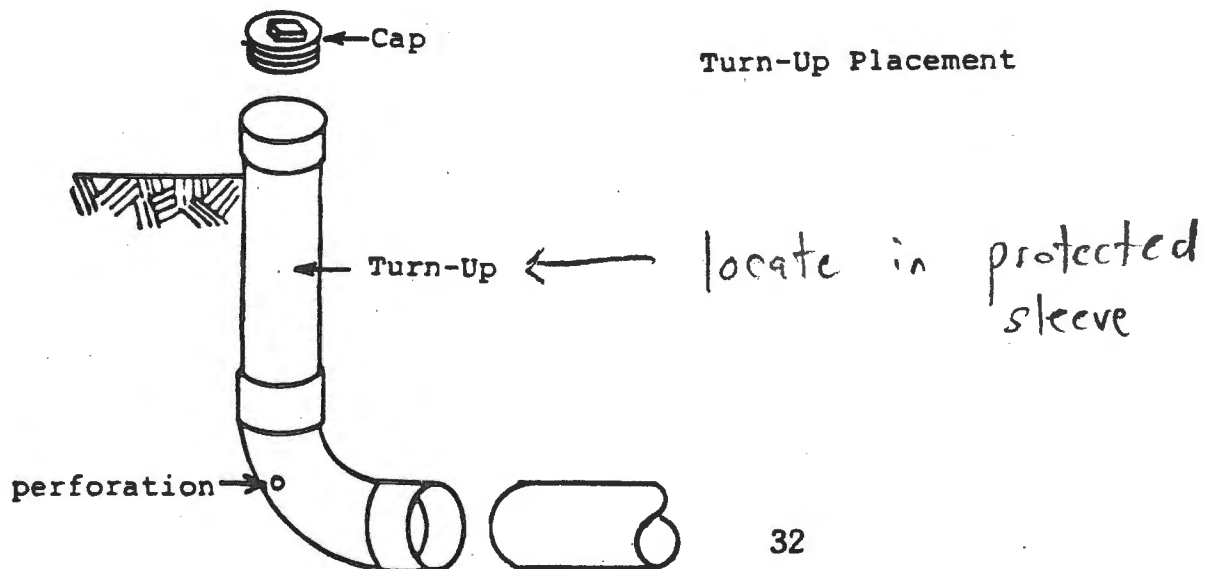
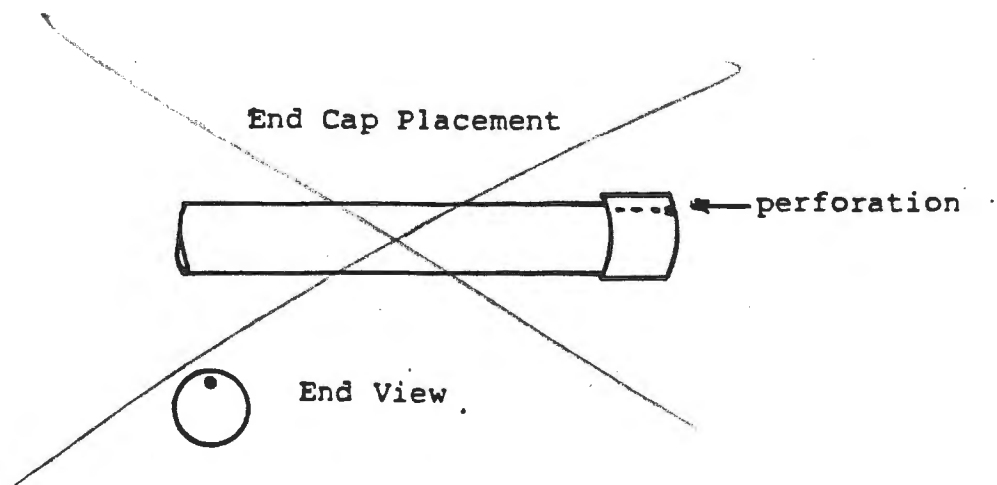
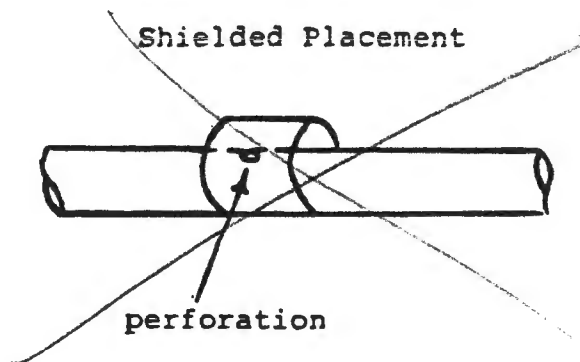
NAME: Steven R. Krieg COUNTY: Howard DATE: 10/15/08

Notes: Show the following items:

1. Property boundaries and dimensions.
2. Hand auger holes (AH), castpits (CP), boring (B) and tests (T).
3. Slope percent and direction.
4. Existing and proposed buildings, driveway, swimming pool, easements and right of ways on property.
5. Existing and proposed wells, septic systems, sewage disposal areas, ditches, water bodies and permanent stormwater control structures on property and within 150 feet of property lines.

NOT TO SCALE

FIGURE 4.5 - ALTERNATIVES FOR PLACEMENT OF THE END PERFORATION IN A DISTRIBUTION LATERAL



PRESSURE DISTRIBUTION ON SLOPING SITES

[illegible]

NOTE: CHART DOES NOT INCLUDE COLUMN TO ACCOUNT FOR FRICTION LOSSES IN THE MANIFOLD