



HOWARD COUNTY HEALTH DEPARTMENT

57428

DATE
10/21/15

P5
410 635-1640

Received From

Residential CAD Design

PHONE #

For

Sophie Bennett / B535 Argo Ln.

CASH

CHECK

NO.

1512

Three Hundred Ninety-Six

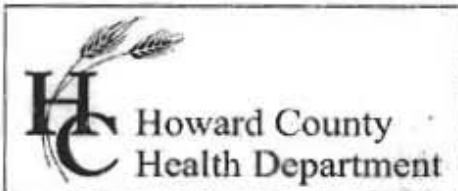
Dollars

\$

396.00

Received By

King



Bureau of Environmental Health
 8930 Stanford Boulevard, Columbia, MD 21045
 Main: 410-313-2640 | Fax: 410-313-2648
 TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
 Facebook: www.facebook.com/hocohealth

Maura J. Rossman, M.D., Health Officer

RECEIPT DATE: 10/27/15 **ONSITE SEWAGE DISPOSAL SYSTEM** P 557428

APPROVAL DATE: 12/29/2015 **PERMIT: CONSTRUCTION** A _____

PROPERTY ADDRESS: 13535 Argo Drive

SUBDIVISION: Linden Chapel Hills LOT: 18 TAX ID: _____

CONTRACTOR: WTC Contractors EMAIL: _____

CONTRACTOR ADDRESS: 3033 Salem Bottom Road, Westminster, MD 21157 PHONE: 443-458-7024

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER:

PROPERTY OWNER: Paul and Heather Green EMAIL: _____

OWNER ADDRESS: 13535 Argo Drive, Dayton, MD 21036 PHONE: 301-951-2205

BAT UNIT MODEL: Norweco TNTLP-1000 PUMP SIZE: 0.3 hp PUMP TANK CAPACITY: 1500

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 10/20/15 DATE RECORDED: 10/20/15

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 6 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>150</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>2</u>	MAXIMUM BOTTOM DEPTH: <u>8</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>4.5</u>

LOCATION: PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.

NOTES: Install observation pipes near distal ends of trenches. See approved BAT plan for system details.

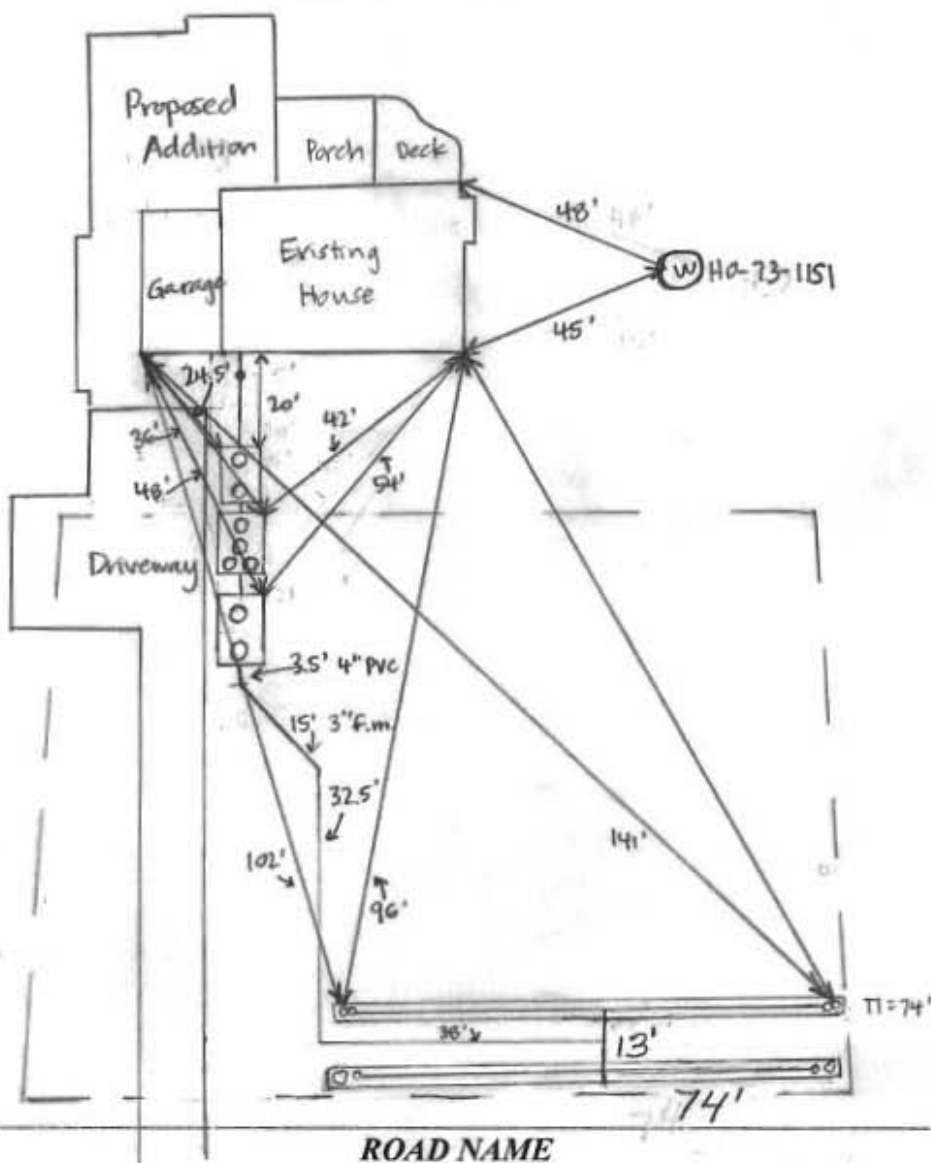
ISSUED BY: Robert Bricker ISSUE DATE: 11/13/15 EXPIRATION DATE: 10/27/16

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRAIDENT FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM
 ELECTRICAL PERMIT ISSUED E 15001058
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.
 PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

NOT TO SCALE

1" = 40'



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
2'	4'	8'
NUMBER OF TRENCHES	2	
TOTAL LENGTH	148'	
ABSORPTION AREA	518	
DISTRIBUTION BOX LEVEL	N/A	
DISTRIBUTION BOX BAFFLE	N/A	
DISTRIBUTION BOX PORT	N/A	

SEPTIC TANK DATA	
SEPTIC TANK 1 LEVEL	YES
MANUFACTURER	BACKRIVER / NORWECO
CAPACITY	1000 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	FRONT + REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	9/29/15
SEPTIC TANK 2 LEVEL	YES
MANUFACTURER	BACKRIVER / NORWECO
CAPACITY	2000 / 1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	2' / 2'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	SEE AS-BUILT
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	8-31-15 / 10-6-15

PRE-CONSTRUCTION:

12/2/15 Met WTC on site for layout. Trenches staked but only measure 71' total length (plan specifies 75'). Add on 4' to driveway end (north end). South end 6" lower than north end - set digging depth at south end. Install BAT tanks in location of existing tank or farther away from house, no closer to well than existing tanks. (SC)

INSTALLATION:

12/14/15 Old tank pumped & removed. Trash tank and BAT installed and connected to the house. Drywell uncovered. Digging hole for pump tank - okay to move closer to BAT + in line with other tanks, out of future septic repair area. (SC) 12/14/15 On site during delivery of pump tank. No visible cracks on sides or bottom. (SC) 12/15/15 WTC running 3" force main down middle between trenches; will dig trenches next. (SC) 12/15/15 Lateral #1 installed. 4' to inlet. Digging trench for lateral #2 - 8' to bottom, 2' wide. Correct hole spacing on lateral #2, holes free of birds. Trench #1 lateral #2 complete. Pump tank filled with well water for pump test. (SC) 12/16/2015 Pump tank alarm not working. Getting 5 plus feet of head in all turn-ups. No valve installed in pump tank to adjust distal head. (RB) 12/29/2015 Everything working at this time. (BB)

FINAL INSPECTOR

B. Baker

DATE OF APPROVAL

12/29/2015

Back River Pre-Cast, LLC

PO BOX 329
Glyndon, MD 21071
Phone # 410-833-3394
Fax # 410-833-4116

Letter of Certification

This is to certify that the Norweco Singulair TNT 1000 GPD Septic Tank installed at 13535 Argo Dr., Dayton, MD 21036 on December 14, 2015 was installed according to the manufacture's specifications.

Installer: Walter Coon

Property Owner: Paul Green



MATTHEW GECKLE

Vice-President

13535 Argo Drive
Dayton, MD

Clerk of the Circuit Court for
Howard County
Land Records/Licensing

The Thomas Dorsey Building
9250 Bendix Road
Columbia, MD 21045
410-313-5850

=====
LR - Agreement Recording Fee
1x 20.00 20.00

Grantor/Grantee Name: Green
Reference/Control #: 155

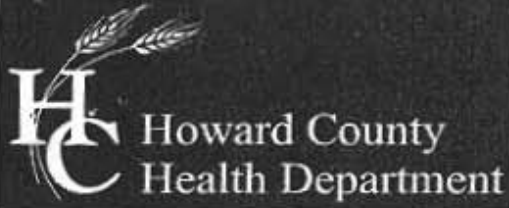
LR - Agreement Surcharge
1x 40.00 40.00

=====
SubTotal: 60.00
Total: 60.00

=====
REV-Check-BOA 60.00
Number : 1511

10/20/2015 11:39 CC13-CH
#5029572 /495/109

~ Thank you for visiting us today ~



Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-2640 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

OPERATION AND MAINTENANCE AGREEMENT FOR AN ON-SITE SEWAGE DISPOSAL SYSTEM HAVING AN ADVANCED PRE-TREATMENT SYSTEM

THIS AGREEMENT is made this 20th day of Oct 2015, among PAUL & HEATHER GREEN, hereinafter collectively referred to as "Owner", and the Howard County Health Department hereinafter referred to as the "County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at 13535 ARGO DR, DAYTON, MD 21076, in the 05 Election District of Howard County, Maryland, and the deed to same is recorded or shall be recorded among the Land Records of Howard County, Maryland in Liber _____ Folio _____.

WHEREAS, The Lot is suitable for the installation of a conventional on-site sewage disposal system with an advanced pre-treatment system, utilizing best available technology to perform nitrogen reduction, in accordance with the Code of Maryland Regulations 26.04.02.07, effective January 1, 2013. The pre-treatment device being installed is NORWECO INTLP-500

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the County the right to enter upon the Lot at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data in Owner's possession reasonably requested and needed by the County to develop accurate and thorough test results.
- B. Owner acknowledges and agrees that neither the County nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.
- C. The Owner will devote reasonable care and effort to the operation and maintenance of the system in perpetuity or until a public sewer connection is made so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.
- D. The Owner agrees to enter into a contract reasonably acceptable to the Owner and the County with a private entity to operate and maintain on a regularly scheduled basis an approved advanced pre-treatment system. The owner shall supply a copy of the contract to the County when it is renewed or altered.
- E. This agreement shall run with the land and upon Owner's taking title to the Lot shall bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as long as the property is in existence and after installation of the system. Owner further agrees that they shall inform in writing any subsequent purchaser or lessee of the Lot that the system shall require

maintenance or other attention. Upon taking title to the Lot, the Owner agrees to cause this agreement to be recorded in the Land Records of Howard County and assure that it becomes part of the Deed for the subject property in order that prospective buyers may be aware of the special conditions affecting this property.

F. This agreement shall not be construed to limit any authority of the County to protect the public health, safety or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

G. This agreement may be voided at any time at the discretion of the County.

H. This agreement contains the entire agreement and understanding between the County and the Owner. There are no additional terms other than as contained in this agreement. This agreement may not be modified, except in writing signed by each of the parties or by their authorized representatives.

I. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated above.

Paul Wilson 10/20/2015
Howard County Health Department

Paul F. Green 10/19/15
Owner #1 Signature Date

PAUL F. GREEN 10/19/15
Owner #1 Print Name

Heather Green 10/19/15
Owner#2 Signature Date

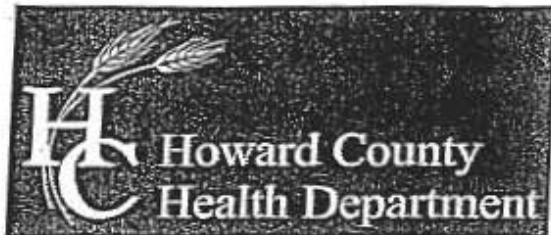
Heather Green 10/19/15
Owner #2 Print Name

Buyer #1 Signature Date

Buyer #1 Print Name

Buyer #2 Signature Date

Buyer #2 Print Name



Bureau of Environmental Health
 8930 Stanford Boulevard, Columbia, MD 21045
 Main: 410-313-2640 | Fax: 410-313-2648
 TDD 410-313-2323 | Toll Free 1-866-313-6300
 www.hchealth.org
 Facebook: www.facebook.com/hocohealth
 Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

SEWAGE DISPOSAL SYSTEM SPECIFICATIONS WORKSHEET

Address: 13535 Argo Drive

Subdivision: Linden Chapel Hills Lot: 78

Initial system: Application rate: 1.2 Effective area beginning depth: 5 Bottom maximum depth: 10
 1st Replacement: Application rate: 1.2 Effective area beginning depth: 4.5 Bottom maximum depth: 10
 2nd Replacement: Application rate: 1.2 Effective area beginning depth: 4.5 Bottom maximum depth: 10

Design Flow = 150 gallons per day per bedroom

Design flow + application rate = square footage of drainfield required

Linear length of trench required = drainfield square footage x sidewall reduction percentage + trench width

Sidewall reduction credit formula:

$$\frac{W + 2}{W + 1 + 2D} \times 100 = \text{Percent of length of standard trench where } W = \text{trench width and } D = \text{depth between effective area beginning depth and trench bottom.}$$

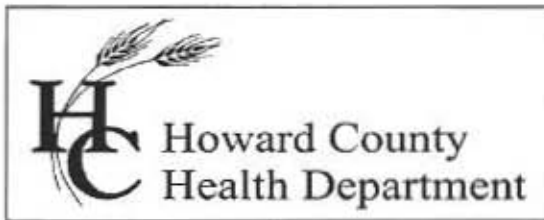
Standard design requirements:

- All trenches must be equal length unless low pressure dosed
- All trenches must be on contour
- Minimum trench spacing: 10' for all trenches utilizing sidewall reduction credit. Additional spacing may be necessary for any trench using over 3.5' of effective sidewall. In those cases, the spacing formula is 2D + W up to a maximum spacing of 18'.
- Minimum trench spacing for trenches with no sidewall credit (bottom area only) is 6' for a 2' wide trench and 9' for a 3' wide trench (spacing is measured edge to edge)
- Maximum trench length is 100'
- Maximum pipe depth is 4'

Additional requirements: BAT unit, Pump Chamber & LPD systems

Pump existing septic tank and dry well dry, and then fill voids with clean earth material.

Approved: J. Bueler Date: 8/14/2015



Bureau of Environmental Health

8930 Stanford Blvd., Columbia, MD 21045
Main: 410-313-2640 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

October 15, 2015

To: Linda A. Alexander, CLSI

RE: BAT Site Plan comments; 13535 Argo Drive

Following is a summary of two issues that need to be resolved, and descriptions of several edits I made on the submitted plan. I am requiring more information, though I am not requiring a revised plan at this time.

1. The 'Control Panel' is illustrated in a location that I think is very good, though in the short-term, the illustrated location on the side of the new addition is impractical. The septic system will be upgraded prior to Building Permit approval. Where/How will the Control Panel be installed until it can be mounted on the wall of the new addition?
2. I noticed that the dosing pump will never be fully submerged except in a situation that the pump is failed or power supply to the pump is failed. The 16-inch tall pump sits on a six-inch block, totaling 22 inches height. At Pump Off elevation, the water column will be at about 12 inches height, leaving about 10 inches of the pump housing exposed. At Pump On elevation, about 5.5 inches of the pump housing will still be exposed. The Run Time for the pump will be about 2 minutes and 20 seconds.

Provide me (re: the Bureau of Environmental Health) with a statement from Goulds that the recommended pump will operate properly under the described environmental conditions.

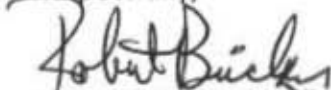
Plan edits. See attached photocopy showing how I've implemented the described edits:

- A. I have edited the 'PRESSURE DISTRIBUTION CHART' as follows:
 - i. I have renamed the column "Trench Flow Rate" as 'Lateral Flow Rate'.
 - ii. I have added a column for 'Trench Flow Rate', and completed the data entry for that column.

- B. There are two small tables on the plan listing elevations relevant to Trench design.
- i. I have listed the correct Lateral Invert elevations according to labels in other places on the plan, and
 - ii. I have listed the Trench Bottom elevations according to SEPTIC SYSTEM TRENCH DESIGN calculations.
- C. In TYPICAL TURN-UP & OBSERVATION PIPE DETAIL, there are several items that I edited:
- i. The value for depth of 'Backfill' to top of gravel (3.67 ft),
 - ii. The value for 'Gravel' depth (4.33 ft), and
 - iii. The height of the turn-up at lateral end (2 ft).

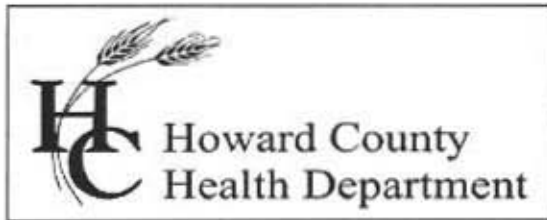
You may submit the requested information to me in writing, via email. You may contact me at 410-313-2691, or by email, if you have questions about these requirements.

Respectfully,



Robert Bricker, REHS/R.S., L.E.H.S.
Environmental Health Specialist
Well and Septic Program

Copy: Greg Leffler, Leffler Construction, Inc.
file



Bureau of Environmental Health

8930 Stanford Blvd., Columbia, MD 21045
Main: 410-313-2640 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

September 25, 2015

To: Linda A. Alexander, CLSI

RE: BAT Site Plan comments; 13535 Argo Drive

The BAT plan submitted for the subject property requires revision. See attached guidance document for LPD design on sloping land and a table (Table A) you should be using to list data for system design.

1. In "PLAN", illustrate the actual width of trenches, and label the spacing between the trench edges.
2. In "PLAN", include the location of the Existing Septic Tank and label the Existing Septic Tank and the Dry Well 'TBR' (to be removed).
3. The trench inverts are too deep. The invert for the Distribution Pipe cannot be deeper than 4 feet from the soil surface. Correct all references for Lateral Invert or Depth.
4. Use a LPD design with variable Lateral Inverts rather than variable Trench Bottom elevations. In essence the Invert for each lateral will be 4 feet below grade. See guidance document for calculating variable head and discharge for each perforation and lateral.
5. Correct the depth of the Pipe Invert in TYPICAL TURN-UP & OBSERVATION PIPE DETAIL.
6. Use a table to list the elevations for Grade (over trenches), Lateral Invert and Trench Bottom.
7. Use 'Table A' design to list data for LPD design.
8. The Pump Chamber is too deep and the location is too near to proposed trenches.
 - a. Locate Pump Chamber near the BAT unit and about 5 feet inside the 100-foot 'well-arc'.
 - b. Limit depth of Top of Pump Chamber to 3 feet from soil surface. If deeper, a tank constructed as 'Traffic-Bearing' design must be installed, and the top of that tank may not be deeper than 5 feet. (Please be advised that a tank installed at depths greater than 3 feet requires that a waiver for depth of the tank be granted. The waiver request must be submitted by the property owner.)

9. In your Pump Chamber design, illustrate the Force Main as entering into the Manhole Riser where there will be two 'ells' and a quick disconnect union forming an inverted 'U'. The Force Main then continues back into the tank where there is another 'ell' directing the pipe toward the OUT port. This design allows for the Force Main to be separated, and the pump or float tree lifted out for servicing, without a person having to enter the tank, whether standing in solution or head down in a potentially toxic atmosphere.
10. In the MANIFOLD DETAIL diagram, the Manifold should be above the Laterals, with 'ell' fittings turning down to the Laterals' 'tee' fittings at the centers of the respective trenches. The Force Main is joined to the Manifold by a 'tee' fitting between the trenches. (The Weep Hole in the Force Main inside the tank will break the siphon when the pump shuts off, and the 20-some gallons of effluent in the Force Main and Manifold will drain through the Laterals.)
11. In both the TRENCHES DETAIL and the LATERAL DETAIL the laterals' ends are incorrectly labeled as "LATERAL END OB. PIPE". Replace these labels with 'LATERAL END TURN-UP'. The Observation Pipe is separate from the Lateral and correctly illustrated in another detail drawing.
12. Present the Total Dynamic Head calculations, including the static head, friction head, and design head (i.e. head created by the turn-up, 2 feet from lateral invert-to-cap).

The following comments have been submitted to you for previous plans. These issues must be corrected as indicated. If the required edits are not implemented, more revisions will be required.

13. You have not indicated a location for the Control Panels on the Plan. Please be advised that Control Panels for septic system components are never located inside the house. These controls must be located outside where they are accessible for maintenance and emergency situations. **A location for the Control Panel(s) must be illustrated on the BAT Plan. The selected location must be outside and accessible, e.g., not under a deck.**

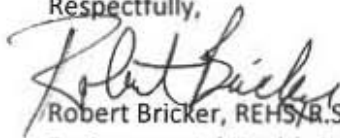
Similarly, while an ALARM may be located in the house, **an ALARM must also be located outside the house.** Typically the Alarm outside the house is on the Control Panel.

14. For the detail illustration of the '1500 Gallon Pump Chamber', present the illustration of the tank that will actually be utilized. Include the dimension labels for the specified tank, and illustrate float elevations accurately in relation to the calculated volumes.
15. There is a label associated with the pump chamber detail that states that the control panel may be 'in house'. This is incorrect. Edit the statement, deleting "OR INSIDE THE HOUSE" as the Control Panel is never located inside the house.
16. Under 'Specifications' section,
 - a. correct the first statement to indicate ONE specific manufacturer for the 1500-gallon tank to be ordered,

- b. correct the third statement according to the calculated TDH and the discharge capacity of the pump selected, and
- c. edit the fourth statement, as there will also be an alarm outside the house on a circuit separate from the pump.

Submit at least two copies of the revised BAT Plan (more if wish to have a signed copy) to my attention at the Bureau of Environmental Health. You may contact me at 410-313-2691, or by email, if you have questions about these requirements.

Respectfully,



Robert Bricker, REHS, B.S., L.E.H.S.
Environmental Health Specialist
Well and Septic Program

Copy: file

439 East Main Street
Westminster, MD 21157-5539



(410) 848-1790 • (301) 662-1799
Fax (410) 848-1791

September 15, 2015

Howard County Health Department
8930 Stanford Blvd
Columbia, MD 21045

Attn: Mr. Robert Bricker
Environmental Sanitarian II

RE: Building Permit No.: 15001385
13535 Argo Drive, Linden Chapel Hills, Lot 18
CLSI Job No.: 2015074

Dear Mr. Bricker,

We are requesting on behalf of the owners of this property the replacement system approved under this building permit be the system shown on the enclosed BAT plan as the initial system. This system is not under the existing driveway nor does it require the relocation of the electric line into the house. The owner understands the requirement for the upgrade of the septic tank to the new BAT tank. However, had the existing well on this property as well as the adjoining well not been approved significantly encroaching onto the septic area easement on Lot 18, the actual septic system may have been adequate or with a small modification to the system adequate for the addition to the house. But that is not the case so now the entire system must be replaced adding significantly to the cost of the addition. According to your email dated September 1, 2015, you stated that the system that needed to be installed was the one under the existing driveway. This is according to Howard Health Department policy. Constructing the system/trenches in the location of the driveway will double the cost of the installation due to the excavation and replacement of the driveway material. Plus, the relocation by BGE of the electric running to the house.

Therefore on behalf of our client we request consideration of a modification to the policy which would allow the system shown as the initial system to be constructed. Based on the previous meeting we meet the intent which was to prove an initial and replacement system area is available. Please keep in mind that the required well test was clean and there is no evidence that the current system (original system) is failing. The current system has been in place for 39 years and is still functioning. There is not reason to believe that the new system will not last just as long or longer. The financial cost due to replacing the driveway and electric is a significant hardship for the replacement of the system. It may lead to the owner not being able to continue with the project.

We are willing to meet to discuss in more detail with owner present. If you have any questions, please do not hesitate to contact me.

I:\DOC\JOB\2015\2015074\DOC\HCHD_Bricker_Building Permit Ltr_091515.doc

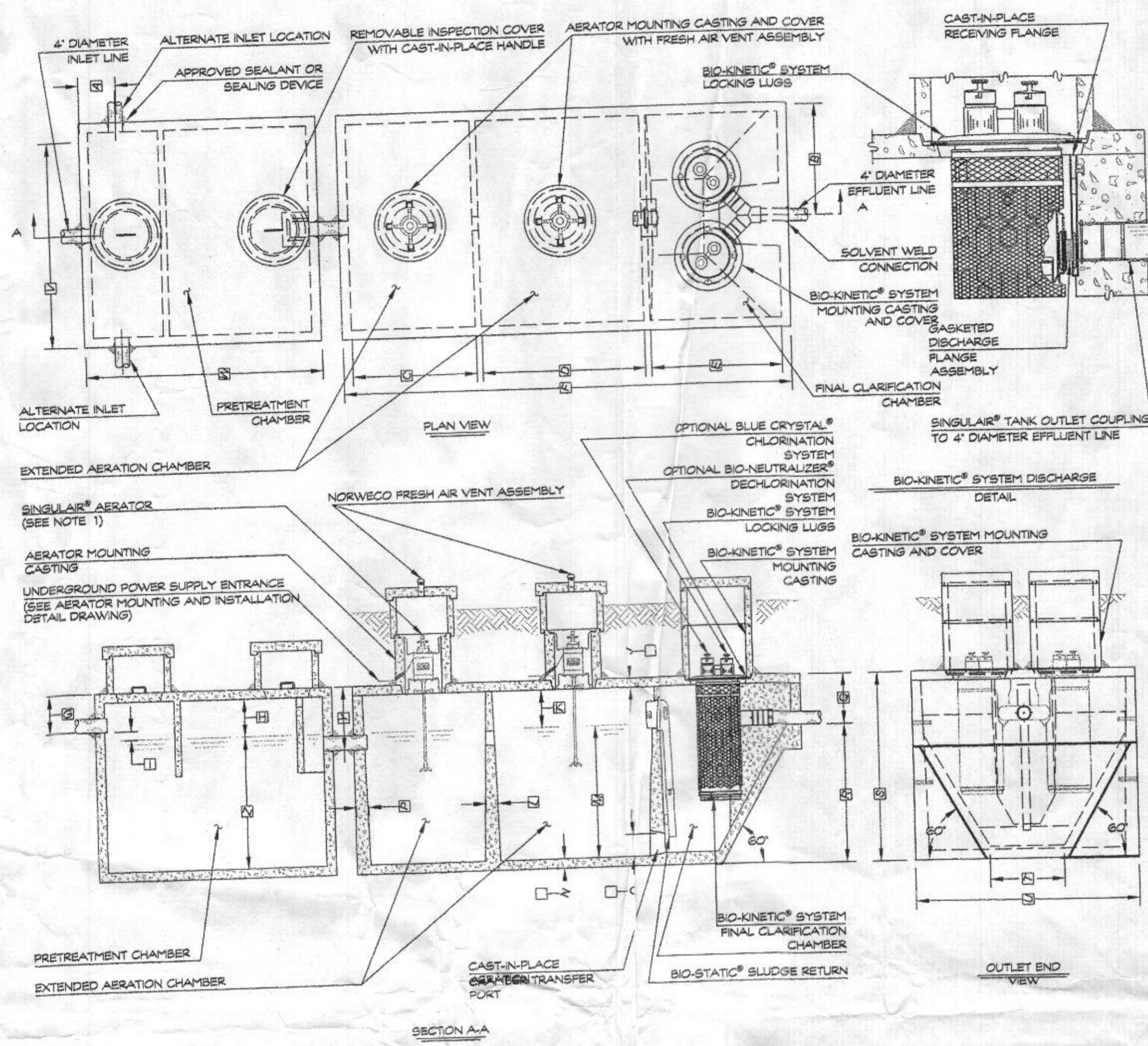
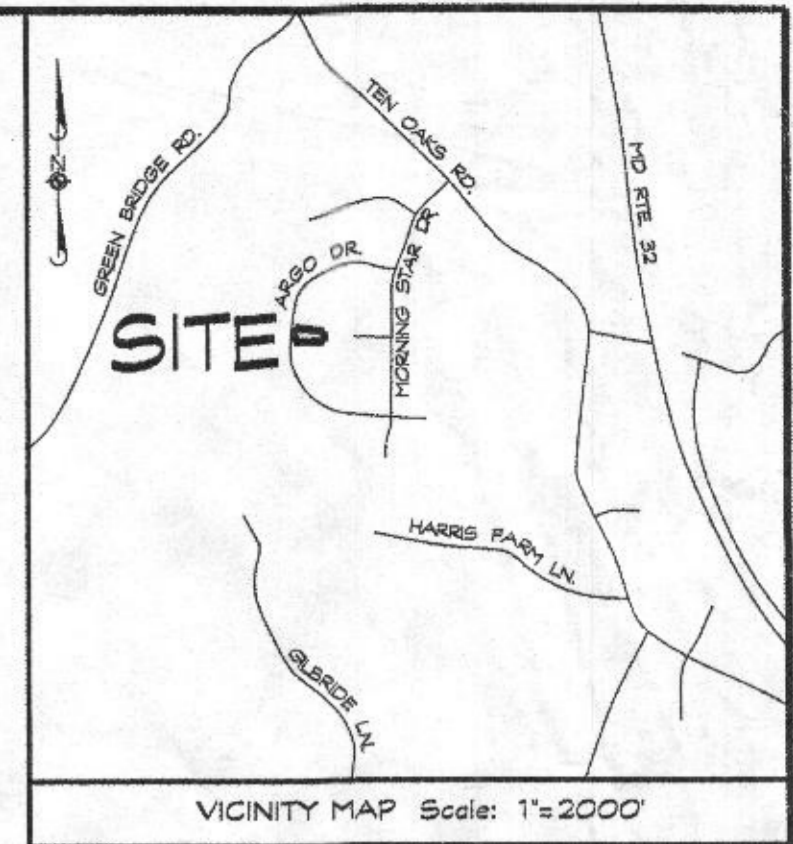
'OK'
per HSD
reB 9/23/15



Sincerely,

Vinda Alexander
Vinda Alexander
Associate/ Project Manager

Cc: File



GENERAL NOTES:

- SINGULAR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
- FALL THROUGH SINGULAR® PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
- ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC® SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRE-TREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
- TANK REINFORCED PER ACI STD. 318.
- REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
- CONTACT THE LOCAL, LICENSED SINGULAR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

CRITICAL DIMENSIONS

A	11'-0"	B	9'-0"
B	9'-0"	C	6'-0"
C	6'-0"	D	3'-0"
D	3'-0"	E	1'-4"
E	1'-4"	F	3'-6"
F	3'-6"	G	3'-0"
G	3'-0"	H	2'-0"
H	2'-0"	I	2'-0"
I	2'-0"	J	8'-0"
J	8'-0"	K	1'-0"
K	1'-0"	L	1'-8"
L	1'-8"	M	2'-0"

NOTE: TOTAL SYSTEM CAPACITY: 2,300 GALLONS
 RATED CAPACITY: 1,000 GALLONS PER DAY
 NOTE: SOME CRITICAL DIMENSIONS ARE INTENTIONAL
 LEFT BLANK TO BE FILLED IN PER INDIVIDUAL
 SITE SPECIFICATIONS

**NORWECO LOW PROFILE
 SINGULAR® BIO-KINETIC®
 WASTEWATER TREATMENT
 SYSTEM MODEL TNTLP-1000 GPD**



GOULDS PUMPS
Wastewater



Wastewater

APPLICATIONS
 Specifically designed for the following uses:
 • Homes, Farms, Trailer Courts, Mails, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: 1/2" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 140 GPD.
- Total heads: up to 128 feet TDH.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1-1/2 HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- STOW or STOR saves duty oil and water resistant power cords.

Three phase (60 Hz):

- 1/2-1 HP models have AFDMA three prong grounding plug.
- 1 1/2 HP and larger units have lead cord ends.
- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have lead cord ends.

Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.

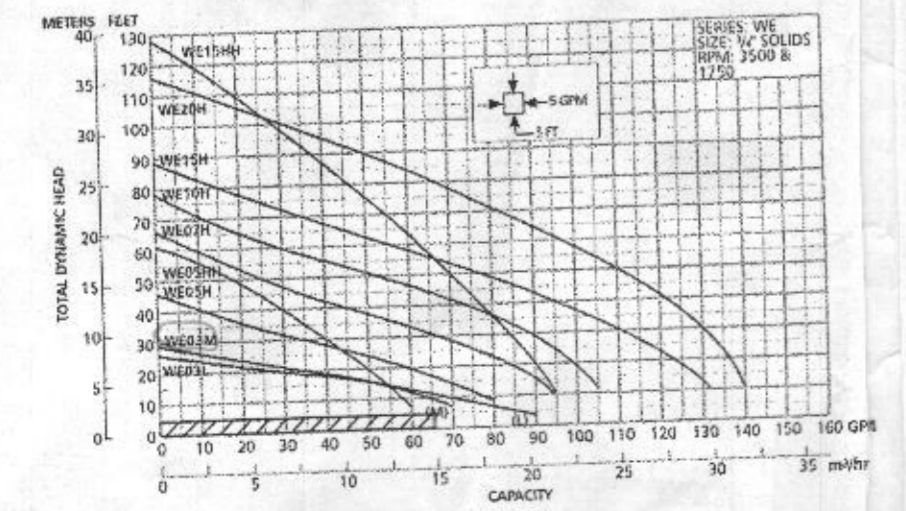
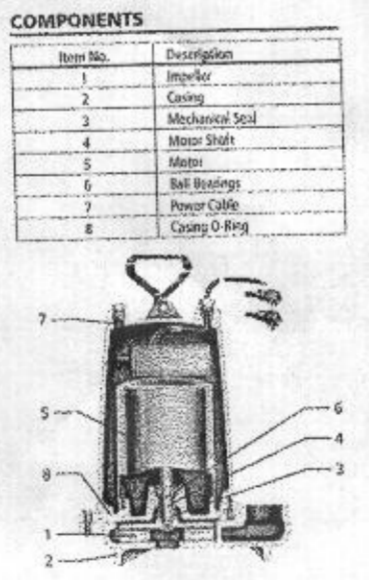
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Seven duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage, and to prevent oil leaking. Standard cord is PVC. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Approved by the U.S. EPA and the U.S. Environmental Protection Agency (EPA) as a Class B Insulation for use in the U.S. EPA's 1990 Clean Air Act Amendments. Goulds Pumps is ISO 9001 Registered.

PERFORMANCE RATINGS (system per model)

Model	1/2 HP	3/4 HP	1 HP	1 1/2 HP	2 HP	3 HP	4 HP	5 HP	7 1/2 HP	10 HP
Flow (GPD)	100	150	200	300	400	500	600	700	1000	1500
Head (feet)	10	15	20	30	40	50	60	70	100	150



GOULDS PUMPS

Goulds Pumps and the ITT Engineered Biotech Symbol are registered trademarks and trademarks of ITT Corporation. Specifications are subject to change without notice.

©1995 June, 2000
 © 2008 ITT Corporation

Engineered for life

Approved Septic System Plan
 Howard County Health Department
 NORWECO TNTLP-1000
 w/ Mayer Bros. 1500-gal Pump Tank
 w/ Goulds 3885-03E-03M pump or equiv.
 J. Buckner 11/4/2015
 13535 Argo Drive
 B15201385

PERCOLATION TEST RESULTS, AP - 556668

**BAT SITE PLAN
 LOT 18
 BUILDING PERMIT NoB15001385
 LINDEN CHAPEL HILLS**

ALSO KNOWN AS 13535 ARGO DRIVE
 PREVIOUSLY RECORDED IN PLAT #3330
 TAX MAP: 28 * BLOCK: 14 * PARCEL: 289
 5th ELECTION DISTRICT * HOWARD COUNTY, MD

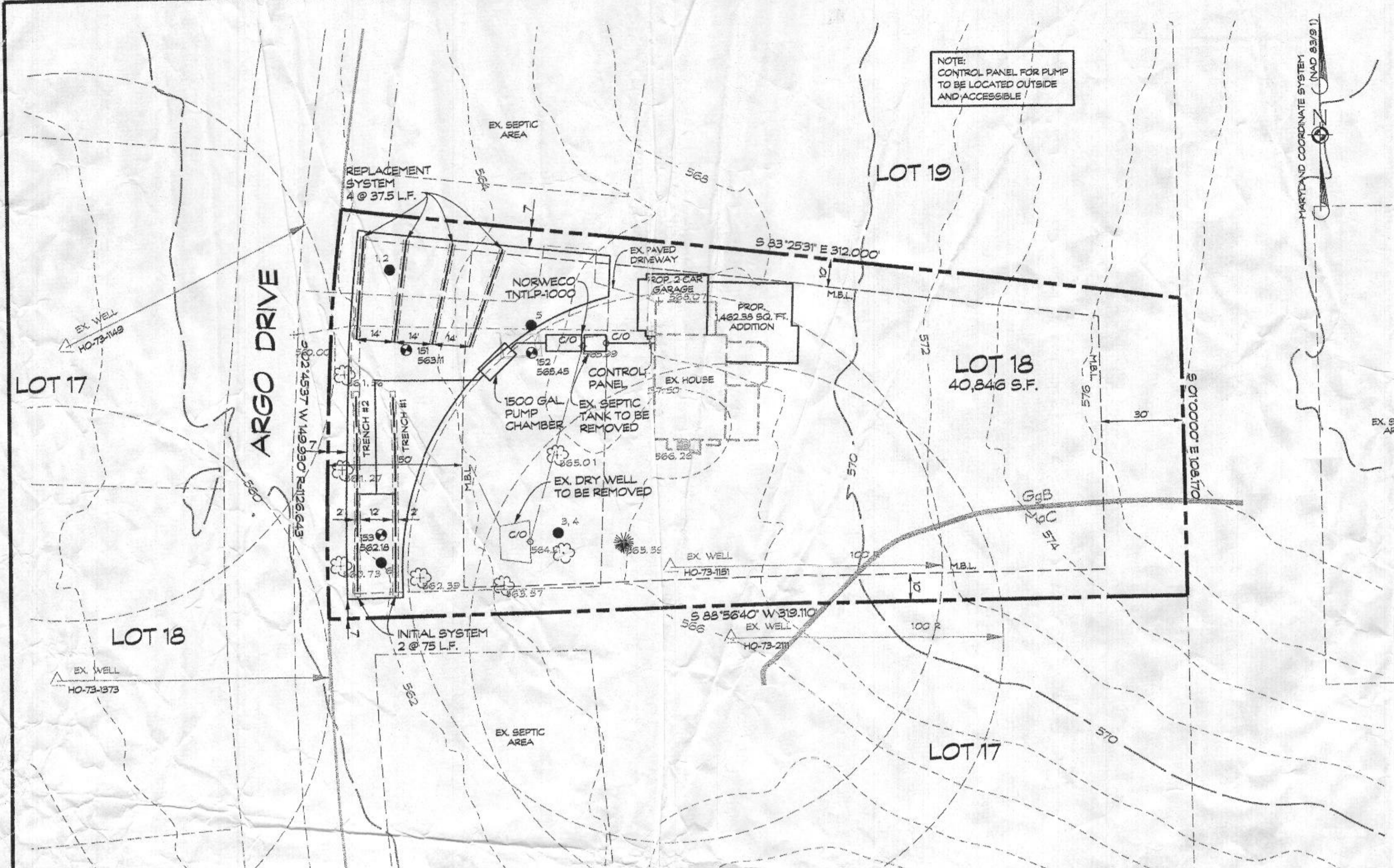
Linda D. Alexander
 10/27/15



439 East Main Street Westminster, MD 21157-5539
 (410) 848-1790 FAX (410) 848-1791

Date	Revisions	Drawn By:
10/27/15	Revised per Com letter dated 10/15/15	VP
		Designed By: LDA
		Reviewed By: LDA
		Date: AUGUST 20 15
		Scale: AS SHOWN
		Job No: 2113074
		Sheet: 2 OF 2

OWNER/DEVELOPER
 PAUL & HEATHER GREEN
 13535 ARGO DRIVE
 DAYTON, MD 21036



SEPTIC SYSTEM TRENCH DESIGN:

PROPOSED NUMBER OF BEDROOMS = 6
 AVERAGE PERCOLATION TEST TIME = 5 MINS.
 (4-556666)
 APPLICATION RATE = 12 GPD/SQ. FT.
 EFFECTIVE DEPTH IS 42" FOR 2 FEET = 0.40
 180 GALS x 6 BEDROOM = 900 GAL/DAY
 900 GAL/DAY / 12 GAL/DAY/SQ. FT. = 750 SQ. FT.
 750 SQ. FT. / 2 FT. = 375 L.F. OF TRENCH
 375 L.F. x 0.4 = 150 L.F. OF TRENCH
 USE 2 x 75' OF TRENCH FOR THE SYSTEM
 LATERAL LENGTH: 142' - 1 1/2' PVC
 USE 5/16" DIA. HOLES
 USE 3" DIA. PVC MANIFOLD

PUMP DESIGN:

- DESIGN FLOW: 900 GPD
- DESIGN HEAD:
 STATIC HEAD: 559.3 - 560.9 = 1.6'
 OPERATING HEAD: 2'
 FRICTION HEAD:
 3" PVC = .84'
 2 x 90' ELL. = .20'
 3 x TEE = .45'
 15 x COUPL. = .9'
 84' x 20' x 45' = .9' = 1.58'
 158' x 2.10 / 100 = 3.3'
 TOTAL HEAD = 1.6' + 2' + 3.3' = 6.9'
- MINIMUM DOSE CALCULATION:
 1/6 DESIGN FLOW = 150 GAL.
 142.1 OF 1/2" LATERALS
 142.1 x 10.6/100 = 15.06 GAL.
 14' OF 3" MANIFOLD = 5.83 GAL.
 14 x 38.4/100 = 5.38 GAL.
 84' OF 3" FORCEMAIN = 32.26 GAL.
 (5 x 15.06) + 5.38 + 32.26 = 112.84 GAL.
 USE 150 GAL. DOSE
- MINIMUM SYSTEM DISCHARGE RATE:
 2 LATERALS x 10 HOLES x 1.63 = 32.60 GPM
 2 LATERALS x 9 HOLES x 1.63 = 32.76 GPM
 USE 32.6 GPM
- PUMP CHAMBER CAPACITY:
 ONE DAY STORAGE = 900 GAL
 DOSE = 150 GAL
 TOTAL STORAGE = 1050 GAL

BAT SITE PLAN NOTES

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE HEALTH AND DEPARTMENT OF THE ENVIRONMENT (HDE) IN A MANNER ACCEPTABLE TO HDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OR HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

NOTE:
 PUMP CHAMBER SIZE AND FLOATS BASED ON GOULDS WE SERIES SUBMERSIBLE PUMP. IF A PUMP SUBSTITUTION OCCURS, CHAMBER SIZE AND FLOATS WILL NEED TO BE RECALCULATED TO ENSURE THAT PUMP IS COVERED.

SPECIFICATIONS

- Tank measurements and elevations are based on septic tanks and pump chambers as manufactured by Mayer Bros., Elkridge, Maryland (4-10) 798-1434
- All piping to be schedule 40 PVC of sizes shown.
- A submersible pump to remove 65.4 GPM against 3.7 TDH to be provided. Pump to be a Goulds Model 3885-WE-03M, or equal.
- Alarm to be located outside the house on circuit separate from the pump.

NOTE:
 FOR NORWECO TREATMENT SYSTEM & PUMP SPECIFICATIONS SEE SHEET 2

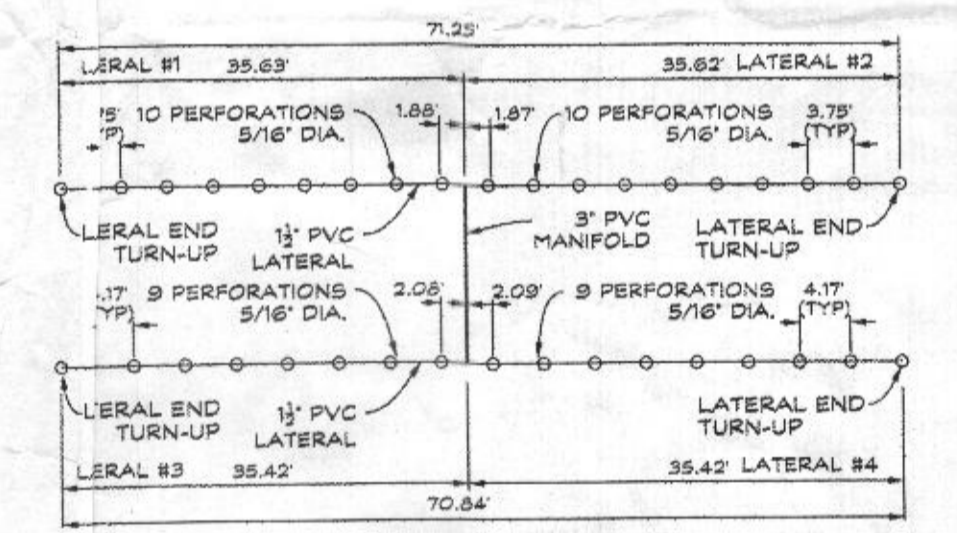
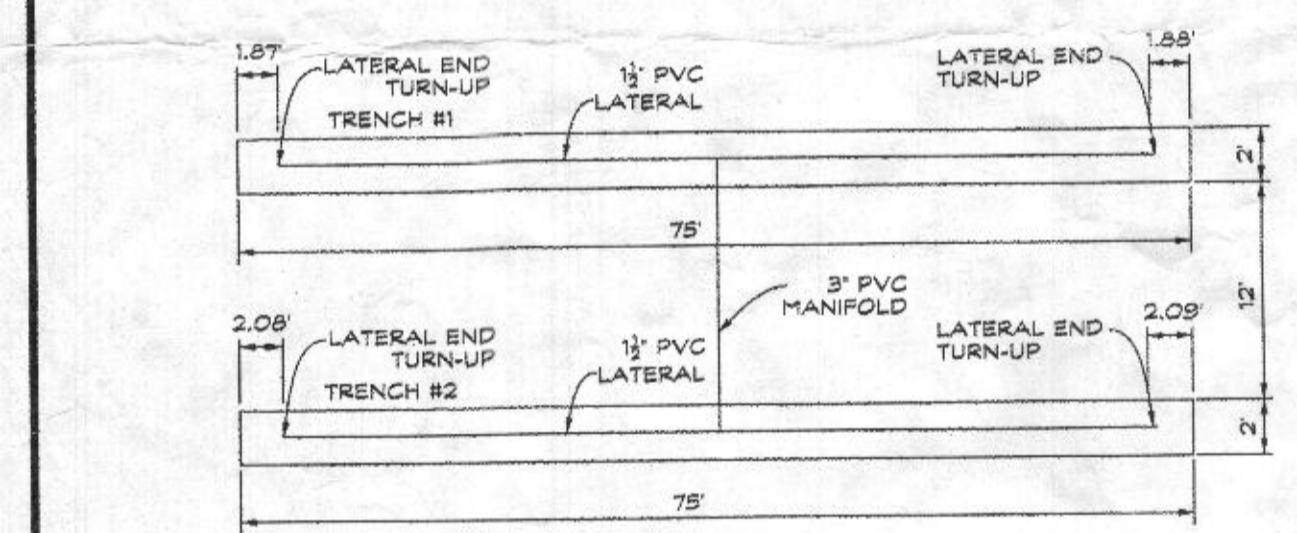
TRENCH #1

GRADE: 562.60
 LATERAL INVERT: 559.60
 TRENCH BOTTOM: 554.60

TRENCH #2

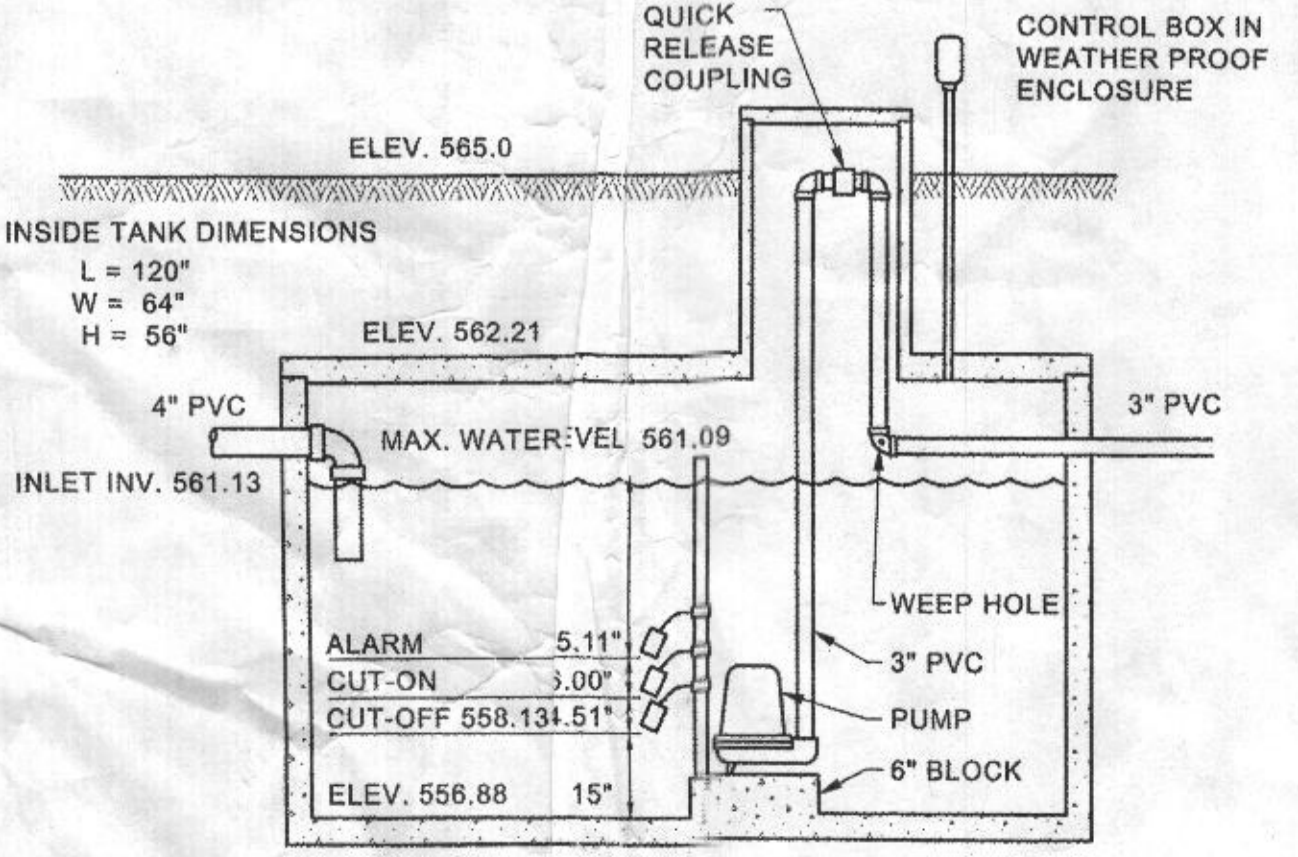
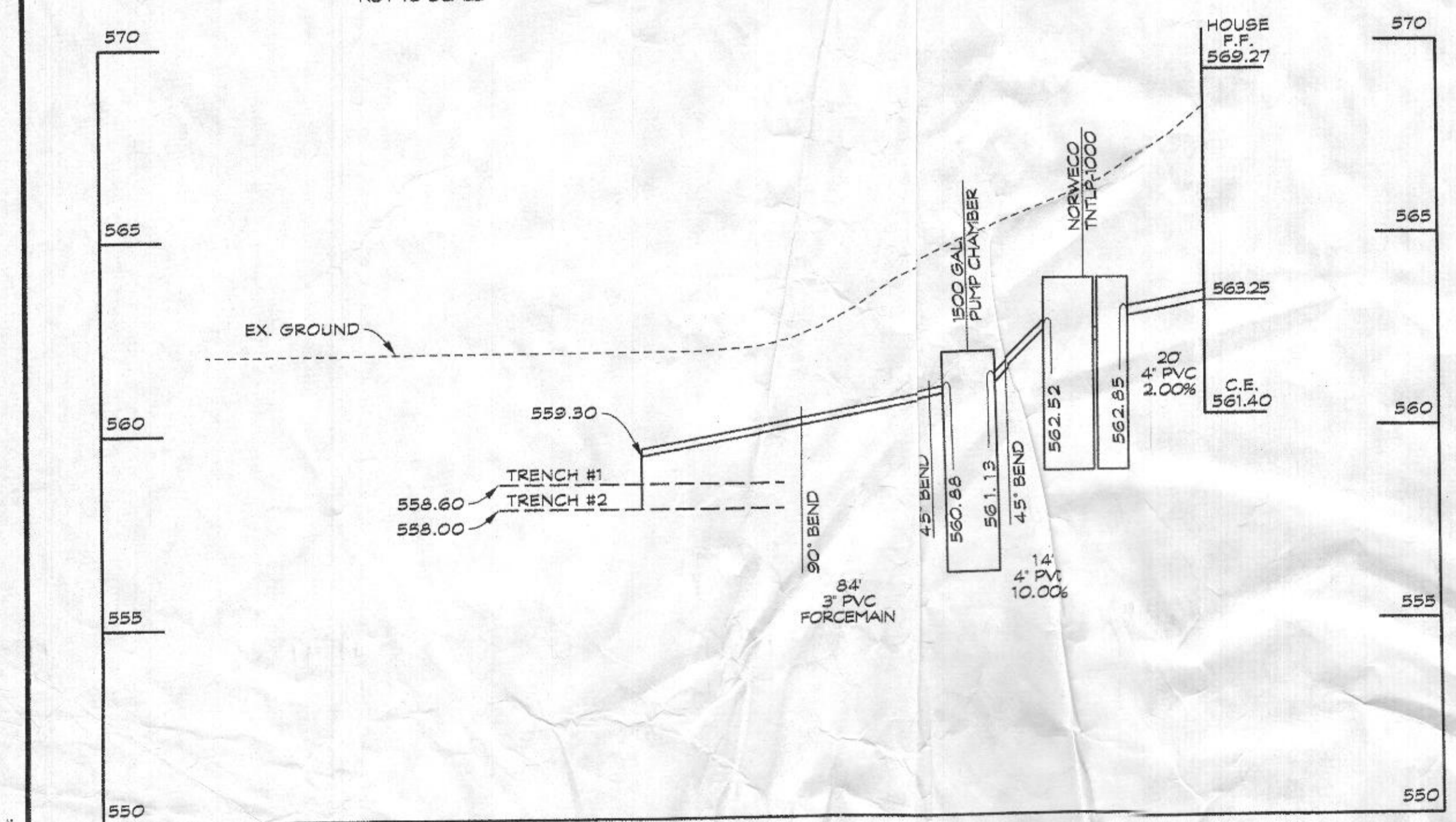
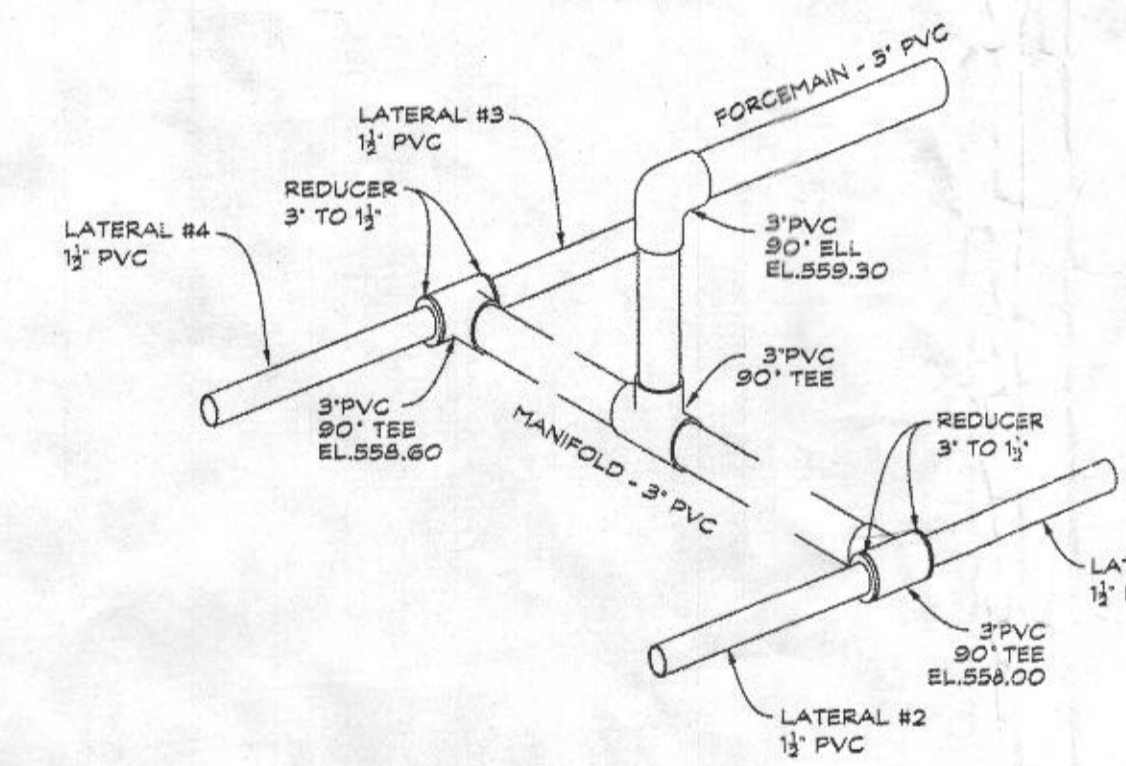
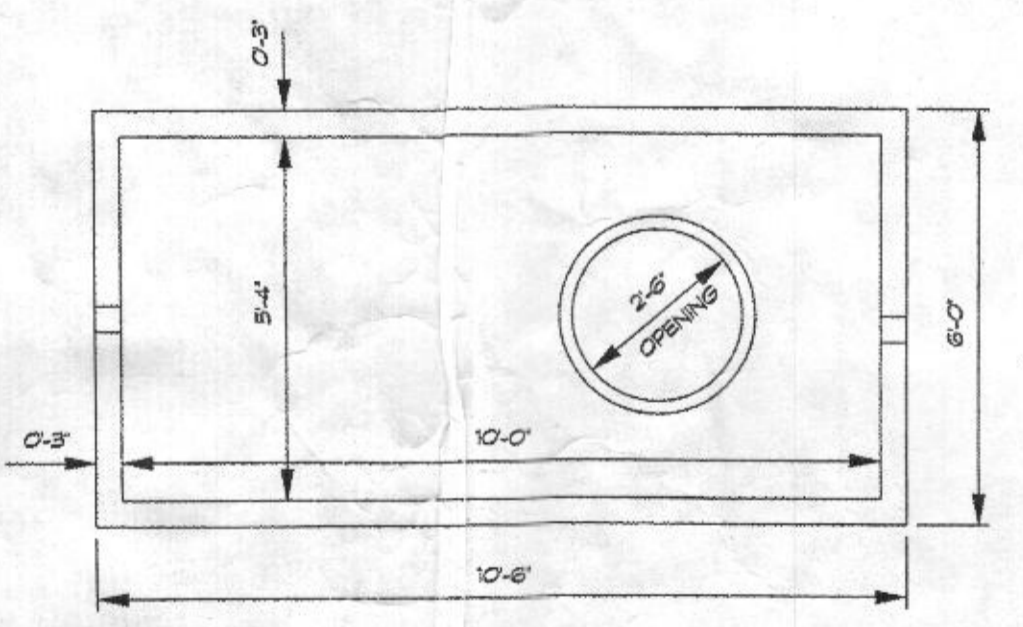
GRADE: 562.00
 LATERAL INVERT: 553.00
 TRENCH BOTTOM: 554.00

PLAN
 SCALE: 1" = 30'

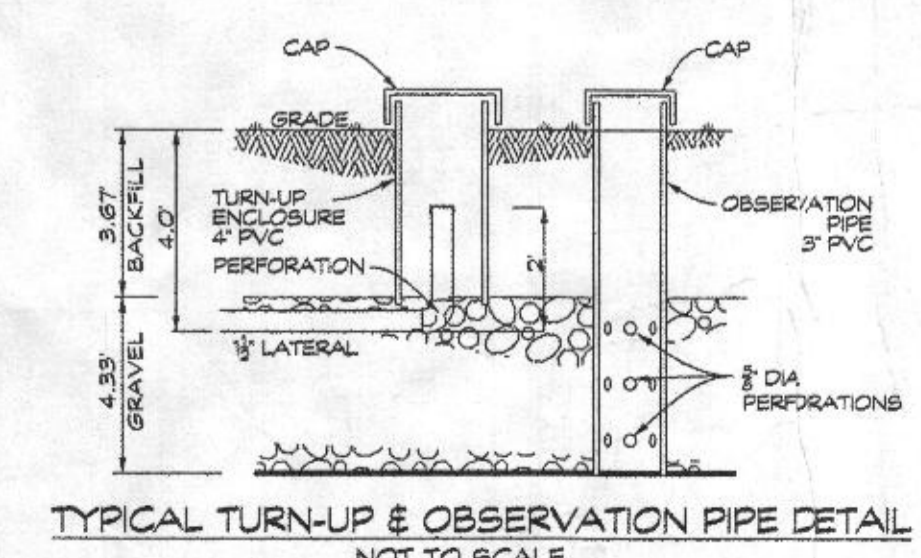


PRESSURE DISTRIBUTION CHART

Trench	Relative Elevation (ft)	Trench Length (ft)	Head (ft)	Orific. Diameter (in)	Orific. Flow rate (gpm)	Orific. Spacing (ft)	Number of Orifices	Lateral Flow rate (gpm)	Trench Flow rate (gpm)
# 1	559.0	75	2.0	5/16	1.63	3.75	10	16.30	32.60
# 2	558.6	75	2.6	5/16	1.62	4.17	9	16.38	32.76



MANIFOLD DETAIL
 NOT TO SCALE



1500 GAL. PUMP CHAMBER
 NOT TO SCALE

OWNER/DEVELOPER
 PAUL & HEATHER GREEN
 13535 ARGO DRIVE
 DAYTON, MD 21036

Approved Septic System Plan
 Howard County Health Department
 NORWECO TNTLP-1000
 w/ Goulds 3885 WE-03M pump or equivalent
 Signature: [Signature] 11/4/2015
 Date
 13535 Argo Drive
 B15001385

PERCOLATION TEST RESULTS, AP - 556668

BAT SITE PLAN
 LOT 18
 BUILDING PERMIT NoB15001385
 LINDEN CHAPEL HILLS
 ALSO KNOWN AS 13535 ARGO DRIVE
 PREVIOUSLY RECORDED IN PLAT #2930
 TAX MAP 28 * BLOCK 14 * PARCELS 229
 5th ELECTION DISTRICT * HOWARD COUNTY, MD

Engineers - Surveyors
CLSI
 Land Planning & Environmental Consultants
 www.clsi-civileng.com
 Linda D. Alexander
 Qualified Professional
 439 East Main Street Westminster, MD 21157-5539
 (410) 848-1790 FAX (410) 848-1791

Date	Revisions	Drawn By
10/27/15	Rev'd per H. Dept com Hrd dated 10/15/15	VP
		Designed By: LDA
		Reviewed By: LDA
		Date: AUGUST 2015
		Scale: 1" = 30'
		Job No.: 2015074
		Sheet: 1 OF 2