

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: 5/10/2018 **ONSITE SEWAGE DISPOSAL SYSTEM** P 562997-E
 APPROVAL DATE: 07/23/2018 **PERMIT: CONSTRUCTION** A _____
 PROPERTY ADDRESS: 12410 HILL CREST, FULTON, MD 20759
 SUBDIVISION: HILL PROPERTY LOT: 6 TAX ID: 05-599659
 CONTRACTOR: South Carroll Backhoe EMAIL: _____
 CONTRACTOR ADDRESS: 4410 Salem Bottom Rd, Westminster 21157 PHONE: (410) 596-3618

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER:

PROPERTY OWNER: RATI SOOD EMAIL: _____
 OWNER ADDRESS: 12006 BENJAMIN ST, BELTSVILLE, MD 20705 PHONE: (703)748-5866

BAT UNIT MODEL: NORWECO TNT 750 PUMP SIZE: 0.3 HP PUMP TANK CAPACITY: 1500 GAL

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 5/18/18 DATE RECORDED: 6/13/18

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

TRENCHES:	LINEAR FEET REQUIRED: <u>X 158 rb</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>6</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>458 10 rb</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>4</u>

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

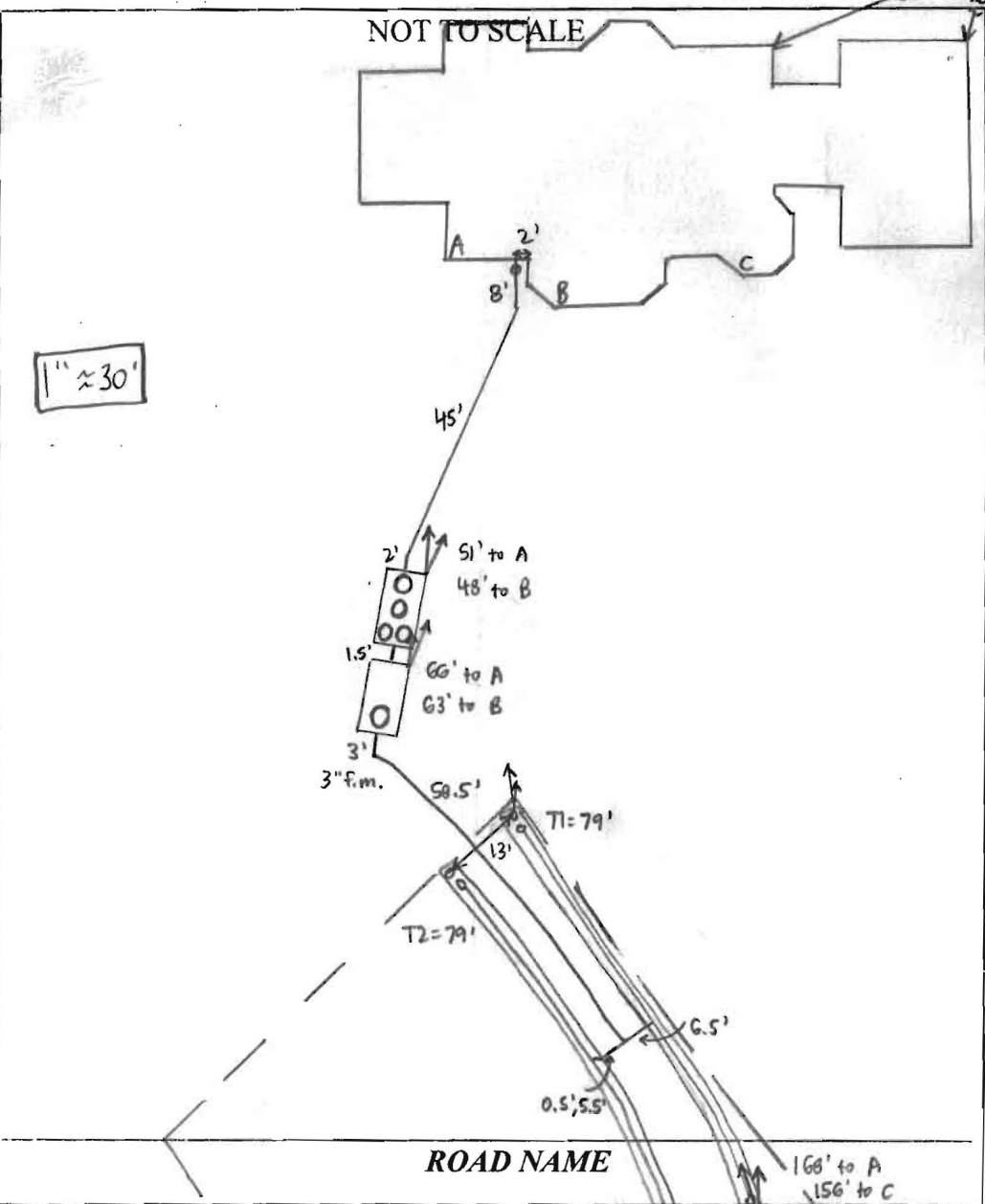
NOTES:

ISSUED BY: R BRICKER ISSUE DATE: 6/13/2018 EXPIRATION DATE: 5/10/2019

- 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 DOWNGRADIENT 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 18002513
- 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.**

W HO-15-0306



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
3'	4'	6'
NUMBER OF TRENCHES		2
TOTAL LENGTH		158'
ABSORPTION AREA		474' + SIDEWALL
DISTRIBUTION BOX LEVEL		---
DISTRIBUTION BOX BAFFLE		---
DISTRIBUTION BOX PORT		---

SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	YES
MANUFACTURER	BABYLON/NORWEG
CAPACITY	1800 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5'
BAFFLES	NO
BAFFLE FILTER	NO
MANHOLE LOC	FRONT, MID 2' REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	---

PUMP/SEPTIC TANK LEVEL	
SEPTIC TANK LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	2'
BAFFLES	NO
BAFFLE FILTER	NO
MANHOLE LOC	REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	4-14-18
Pump	1/3 hp

PRE-CONSTRUCTION:

6/27/18 Met S. Carroll on site for layout. Tanks staked, initial + replacement trenches staked. Upper SDA corner staked, no others present. Shot elevations of T2, start + finish within 3". Lengths of T1 + T2 79'-80'. Need SDA corners staked prior to trench install. (SC)
 6/28/18 SDA corners staked, OK to install trenches. (SC)

INSTALLATION: 6/28/18 House connection made, Norweco tank set, S. Carroll digging tank hole for pump tank. (SC) 6/29/18 Pump tank set, force main run from tank to center manifold. T2 partially dug + stoned, inlet 4' bottom 6'. Using laser to check depths. (SC)
 7/2/18 Trenches finished, left open with stone + lateral pipes installed + connected to manifold. Used generator to turn on pump + verified hole spacing is per plan. Need pump + alarm test. (SC) 7/17/18 Met S. Carroll on site for Norweco startup and pump + alarm test. Norweco alarm + aerator work. Checked head heights @ laterals - ~39" on top laterals, ~45" on bottom. Alarm pump-on floats switched - must be fixed by an electrician. Pump also not sitting solidly on block. [Corrective actions.] (SC)

FINAL INSPECTOR [Signature] DATE OF APPROVAL 07/23/2018

7/19/2018 Pump on solid block (confirmed on phone 7/23/18) AND ALARM FLOAT IS FUNCTIONING. (SC)



BACK RIVER PRE-CAST, LLC
 PO BOX 329
 GLYNDON, MD 21071
 PH# 410-833-3394

NORWECO CERTIFICATION

PROPERTY OWNER: RATI SOOD	INSTALLATION COMPANY: SOUTH CARROLL BACKHOE
ADDRESS: 12410 HILL CREST	CERTIFIED INSTALLER: MARK SEAL
CITY, ZIPCODE & COUNTY: FULTON, 20759, HOWARD	PERMIT#
SIZE OF SYSTEM INSTALLED: 750 CONCRETE	DATE INSTALLED: 6-28-18
NUMBER OF BEDROOMS:	START-UP DATE: 7-18-18
TYPE OF INSTALLATION: NEW	DATE OF FINAL INSPECTION:
ELECTRICAL WIRING PER ELECTRICAL INSTRUCTIONS: YES	DATE OF ELECTRICAL INSPECTION:
HT. OF CONTROL PANEL ABOVE FINAL GRADE: 53"	TANK LEVEL: YES
SYSTEM WIRED ON A 15-AMP DEDICATED CIRCUIT WITH STD. BREAKER: YES	BURIAL DEPTH OF TANK: 12"
	RISERS 4" - 6" ABOVE GRADE: YES
LENGTH(S) OF UF WIRE PAST LAST AERATION RTISER(S): 48"	VENTED LID(S) ON AERATION CHAMBER(S): YES
FEMALE PLUG(S) WIRED TO UF WIRE: YES	ANY GROUND SETTLING AROUND TANK:
CONDUIT(S) ENTERING AERATION RISER MADE WITH A WATERTIGHT CONNECTION: YES	NO
ISTHE INSIDE OF THE CONDUIT ENTERING THE CONTROL PANEL(S) AND AERATION RISER(S) SEALED WITH DUCT SEAL: YES	

ON 2ND PAGE MAKE A ROUGH SKETCH OF THE HOUSE ,WHERE THE SYSTEM IS LOCATED, WHERE THE CONTROL PANEL IS LOCATED , WHERE THE FRONT OF THE IS AND DIRECTIONS TO THE PROPERTY.

DIRECTIONS CAN START A FEW STREETS AWAY

EXAMPLE: RT. X LEFT ONTO XX STREET RIGHT ONTO PRIVATE DRIVEWAY 5TH HOUSE OF THE LEFT.

I certify that the Norweco Singulair TNT Wastewater Treatment System was installed according to the manufacture's specifications.

Matthew Geckle

July 18, 2018

Signature of BRP Representative

Vice-President

Date

WALL CHECK EXHIBIT
 12410 HILL CREST LANE
 LOT 6
HILL PROPERTY
 CLARKSVILLE (5th) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: 1"=50'
 MD COORDINATE SYSTEM NAD 83 (2011)
 NAD088



THE SUBJECT PROPERTY LIES WITHIN FLOOD ZONE "X" - AREA OF MINIMAL FLOODING (X- AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP FOR HOWARD COUNTY, MARYLAND, COMMUNITY-PANEL No. 24031C0240D, EFFECTIVE DATE SEPTEMBER 29, 2006.



TOP of FOUNDATION WALL ELEV.: 449.81'
 FOUNDATION SURVEY: 05/01/2018

PERMIT NUMBER: B17003891

HILL CREST LANE
 (PRIVATE STREET)

SURVEYORS CERTIFICATE

I hereby certify that the position of the existing improvements shown hereon have been carefully established under my responsible charge using accepted land surveying practices. 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, easements, 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. This drawing and the survey on which it is based are in compliance with COMAR Reg. 9.13.06.06 and 9.13.06.12.

6-11-18 *R.D.B.*
 RAYMOND D. BURKE
 REG. PROPERTY LINE SURVEYOR MD.
 NO. 476 EXP. 1/09/2019

CPJ Charles P. Johnson & Associates, Inc.
 Civil and Environmental Engineers - Planners - Landscape Architects - Surveyors
 1751 Elton Rd., Ste. 300 Silver Spring, MD 20903 301-434-7000 Fax: 301-434-9394
 www.cpj.com • Silver Spring, MD • Gaithersburg, MD • Annapolis, MD • College Park, MD • Frederick, MD • Fairfax, VA

REFERENCE	Drawn by WRJ	Checked by WCR
	Date 06/11/2018	Record No.
Plot No. 24086	Scale 1" = 50'	47-216-88.06

12410 Hill Crest Lane

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

Name: sood
Ref: 35

=====
LR - Agreement Surcharge
1x 40.00 40.00

=====
SubTotal: 60.00
Total: 60.00

=====
CRD-Credit 60.00
Credit Card Confirmation : 065103

06/13/2018 09:48 CC13-SB
#10512640/496/109
***** DUPLICATE #001 *****

06/13/2018 09:48 CC13-SB
Thank you for visiting us today



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8930 Stanford Blvd | Columbia, MD 21045
410.313.2640 - Voice/Relay
410.313.2648 - Fax
1.866.313.6300 - Toll Free

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 18th day of April (04), among May, 2018
Rafi Soed, 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
12410 Hill Crest, in the 05 Election District of Howard
County, Maryland, and the deed and subdivision plat of the property is recorded among the Land
Records of Howard County, Maryland, Tax Map # 45, Block # 5, Parcel # 69, Deed
Reference # 17715-0043 and Tax Account # 05-599659 ("the Property").

WHEREAS, The Property 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 November 24, 2016. The pre-treatment device being installed is
Norweco.

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the County the right to enter upon the Property at any reasonable time with prior notice 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.
- 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 Property shall bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as long as

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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 Property that the system shall require maintenance or other attention. Upon taking title to the Property, 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 this agreement on the date indicated above.

Bert Nupen 5/18/2018
Howard County Health Department

[Signature] 04/18/2018
Owner #1 Signature Date

Rati Sead
Owner #1 Print Name

[Signature] 04/18/2018
Buyer #1 Signature Date

Rati Sead
Buyer #1 Print Name

Owner#2 Signature Date

Owner #2 Print Name

Buyer #2 Signature Date

Buyer #2 Print Name



Bureau of Environmental Health
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JAW 4/23/18

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Bert Nijm 5/18/2018
Howard County Health Department

[Signature] 04/18/2018
Owner #1 Signature Date

Rati Soad
Owner #1 Print Name

[Signature] 04/18/2018
Buyer #1 Signature Date

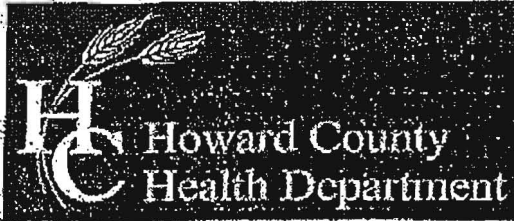
Rati Soad
Buyer #1 Print Name

Owner #2 Signature Date

Owner #2 Print Name

Buyer #2 Signature Date

Buyer #2 Print Name



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 Facebook: www.facebook.com/hocdhealth
 Twitter: HowardCoHealthDep

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

**APPLICATION FOR VARIANCE
 TO COMAR ONSITE WATER/SEWER FOR MDE APPROVAL**

Received 4/13/16

Date Submitted

12435 S. Lime Kiln Road

Property Address

Hill Property, lots 1-6 4527 45 5 59 _____
 Subdivision Lot Tax Map Grid Parcel Tax Account #

Provide a brief site history including previously submitted and active plans with the Health Department or the County (subdivision plans, perc test applications, Building Permit applications):

Hill Property is a re-subdivision of Zimmerman Prop, lots 4, 5 & 7
F-10-071, ECP-16-001, F-89-032, F-79-131, A-40477, A518016

In the area below, list the specific section of the Code of Maryland Regulations (COMAR) to which a variance is being requested and provide a brief summary of the regulation and an explanation of why the variance is being requested.

Regulation Section	Summary and Explanation
1. <u>26.04.02.05(B)</u>	<u>prohibits septic system installation up gradient of private water supply</u>
2. _____	_____
_____	_____
_____	_____
_____	_____

James P. Meyer, Esq.
 Property Owner's Signature

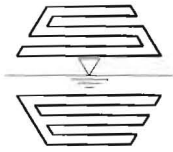
Health Department Use Only

Reviewed by: *Robert Bueker* 4/22/2016
 HCHD Staff Date

Recommendation: Recommended Not Recommended
[Signature] 4/23/16
 HCHD Supervisor Date

Comments/Conditions: - BAT unit
- low pressure dosed drain field

Approved by: *Steven R Krug, LEHS* 5/3/16
 MDE Representative Date



3300 North Ridge Road, Suite 160
Ellicott City, MD 21043
Website: www.sillengineering.com
#

Office: 443-325-7682
Fax: 443-325-7685
Email: info@sillengineering.com
Civil Engineering for Land Development

SILL ENGINEERING GROUP, LLC

Hill Property

12410 Hill Crest

BAT Plan

Low Pressure Dosing System Report

December 14, 2017
Revised: January 5, 2018

OK
RB
4/26/18

Prepared For:

RATI SOOD
PO BOX 279
FULTON, MD 20759



Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 32025, Expiration Date: June 20, 2019

Project #17-066

Hill Property
12410 Hill Crest
January 5, 2018

Pressure Network Design

- Design Flow: 900 gpd
- The absorption beds in the Initial System are each 79' long and the distribution network is a Center Feed Network.
- For Perforation Size, Number, and Spacing see Pressure Distribution table.
- Spacing between laterals = 13'
- Number of laterals = 2
- Diameter of force main = 3.0"
- Diameter of manifold = 3.0"
- Diameter of lateral = 2.0"
- Material: Schedule 40 PVC

Septic System Trench Design Specifications

Initial System:

- Application Rate: 1.2
 - Effective Area Beginning Depth: 4'
 - Bottom Maximum Depth: 6'
 - Design Flow:
 - 6 Bedrooms at 150 gpd
 - 6 x 150 gpd = 900 gpd
 - Square Footage of Drain Field Required:
 - Design Flow (900 gpd) / Application Rate (1.2) = 750 sf
 - Sidewall Reduction Credit:
 - Trench Width (W) = 3'
 - Trench Effective Depth (D) = 2'
 - $(W+2) / (W+1+2D) \times 100 = 0.625\%$
 - Linear Length of Trench Required:
 - Drain field Square Footage (750) x Sidewall Reduction Credit (0.625%) / Trench Width (3') = 156.25' use 157
- Linear Length of Trench Provided = 158
- two trenches @ 79 LF

OK
reb
1/25/18

Pumping System Design

- Dose Calculations:
 - Design Flow: 900 gpd
 - Length of force main and manifold
 - 3.0" force main = 60.00'
 - 3.0" manifold = 13'
 - Volume of force main:
 - 60.00 x 38.4 gallons per 100' = 23.04 gallons
 - Volume of manifolds:
 - 13 x 38.4 gallons per 100' = 4.99 gallons
 - Length of 2.0" laterals:
 - 74.6 + 74.1 = 148.7'
 - Volume of laterals:

Hill Property
 12410 Hill Crest
 January 5, 2018

- $148.7' \times 17.4 \text{ gallons per } 100' = 25.87$ use 25.9 gallons
- Minimum dose is the greater of:
 - Volume of force main, manifolds and leaders + (5 x Volume of the laterals):
 $23.04 + 4.99 + (5 \times 57 \text{ gallons}) = 157.53$ gallons use 158
 - Or
 - $1/6^{\text{th}}$ the design flow:
 - $1/6 \times 900 \text{ gallons} = 150.0$ gallons

Use 158.00 gallons for dose

- Pump Design:
 - Pump flow required: **59 gpm** (see Pressure Distribution table for initial system)
 - Dose amount: 158 gallons
 - Pump run time: 2.7 minutes
 - Static head (see profile for detail): 4.10'
 - Friction head calculation (Table 4.3):

Pipe size	3.0" Force Main	3" FM Manifold
1/4 Bend (90°)	1 @ 10.0' = 10.0'	-
1/8 Bend (45°)	1 @ 6 = 6	-
1/16 Bend (22.5°)	-	-
1/32 Bend (11.25°)	-	-
Gate Valve	-	-
Standard Tee	1 @ 3.0' = 3.0'	2 @ 3.0' = 6.0'
Run Tee	-	-
Cross	-	-
Reducer	-	2 @ 1.5' = 3.0'
Couplings	4 @ 3.0' = 12.0'	-
Total Equivalent Length of pipe	31.0'	9.0'

OK!
 reb 1/26/18

- Flow at 3.0" pipe = 59 gpm
 - Friction loss per 100' (Table 4.4) of 3.0" schedule 40 plastic pipe: 0.764
 - Total equivalent length of 3.0" FM, manifold and appurtenances = $60.0' + 31' + 13' + 9.0' = 113'$
 - Friction loss in 3.0" pipe = $113'/100 \times 0.764 = 0.86'$
- Total Friction head **0.86'**
- Total Dynamic Head = Static head + Distal Head + Friction head + Lateral Friction Head Safety Factor
 - $4.10 + 2.0 + 0.86' + 1.5 = 8.5$ use **9.0'**

Hill Property
12410 Hill Crest
January 5, 2018

- Pump Chamber Design:
 - For pump tank dimensions and detail, see plans.
 - Pump chamber elevations:
 - Proposed grade at top of tank (at inlet): 440.20'
 - Top of pump tank (interior): 436.66'
 - Pump chamber invert in: 435.91'
 - High Water Alarm: 433.36'
 - Pump On: 432.86'
 - Pump Off: 432.40'
 - Bottom inside slab of tank: 430.82'
 - Pump Chamber volumes:
 - Invert In to Pump On: 139.7 cf or 1,045 gallons
 - Pump On to Pump Off: 21.08 cf or 158 gallons
 - Design based on:
 - Norweco TNT750 GPD or equivalent
 - Meyers ME3F series pump or equivalent

45.8 ft

116.79 ft to Alarm, 873 gal (97%) OK

OK MB
1/26/18

SEE Next page for Replacement System Calculations.

Hill Property
12410 Hill Crest
January 5, 2018

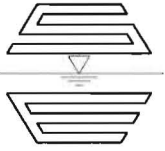
Replacement System 1:

- Application Rate: 1.2
- Effective Area Beginning Depth: 3.5'
- Bottom Maximum Depth: 6'
- Design Flow:
 - 6 Bedrooms at 150 gpd
 - $6 \times 150 \text{ gpd} = 900 \text{ gpd}$
- Square Footage of Drain field Required:
 - Design Flow (900 gpd) / Application Rate (1.2) = 750 sf
- Sidewall Reduction Credit:
 - Trench Width (W) = 3'
 - Trench Effective Depth (D) = 2.5'
 - $(W+2) / (W+1+2D) \times 100 = 0.56\%$
- Linear Length of Trench Required:
 - Drain field Square Footage (750) x Sidewall Reduction Credit (0.56%) / Trench Width (3') = 140
- Linear Length of Trench Provided = 140
 - Two @ 70 LF

'OK' RB 1/26/18

Replacement System 2:

- Application Rate: 1.2
- Effective Area Beginning Depth: 3.5'
- Bottom Maximum Depth: 6'
- Design Flow:
 - 6 Bedrooms at 150 gpd
 - $6 \times 150 \text{ gpd} = 900 \text{ gpd}$
- Square Footage of Drain field Required:
 - Design Flow (900 gpd) / Application Rate (1.2) = 750 sf
- Sidewall Reduction Credit:
 - Trench Width (W) = 3'
 - Trench Effective Depth (D) = 2.5'
 - $(W+2) / (W+1+2D) \times 100 = 0.56\%$
- Linear Length of Trench Required:
 - Drain field Square Footage (750) x Sidewall Reduction Credit (0.56%) / Trench Width (3') = 140'
- Linear Length of Trench Provided = 141
 - Three trenches @ 47 LF



11130 Dovedale Court, Suite 200
Marriottsville, MD 21104
Website: www.sillengineering.com

Office: 443-325-5076
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

#

SILL ENGINEERING GROUP, LLC

January 5, 2018

Howard County Health Department
Bureau of Environmental Health
8390 Stanford Boulevard
Columbia, Maryland 21045

Attn: Mr. Robert Bricker

Re: Hill Crest
Hill Property
BAT Plan

Dear Mr. Bricker:

Please find a point by point response to your comments dated December 26, 2017 below:

1. The design has been changed to a center feed design.
 - a. The elevated manifold, for anti-siphon has been removed.
 - i. The "anti-siphon detail has been removed from Sheet 2.
 - ii. Understood. Please see ell turnout on plans.
 - iii. The manifold is designed to slope parallel to the ground surface.
 - iv. The gate valves have been removed from the design.
 - b. The pump tank has been lowered to allow for the force main to slope back to the tank from the manifold at 0.5%
2. The perforation spacing has been revised to be closer together. Please see revised plan and computations.
3. I've revised the plan to use the Norewco 750 that is designed for 6 bedroom residential use.
4. The control panel location has been revised and is now located at the pump tank.
5. On sheet 1 of 2 and under the Septic System Trench Design Specification, Initial System: the value for the trench effective depth has been corrected to read 2'.
6. In the report
 - a. Under Pressure Network Design: the value for the length of the absorption beds has been corrected to state 79'
 - b. Under 'Pumping System Design': the statement has been updated to state "Use 158 gallons for dose.

Please find attached three copies of the revised plan and the report. Should you have any questions or comments regarding this matter, please do not hesitate to contact this office.

Sincerely,
Sill Engineering Group, LLC

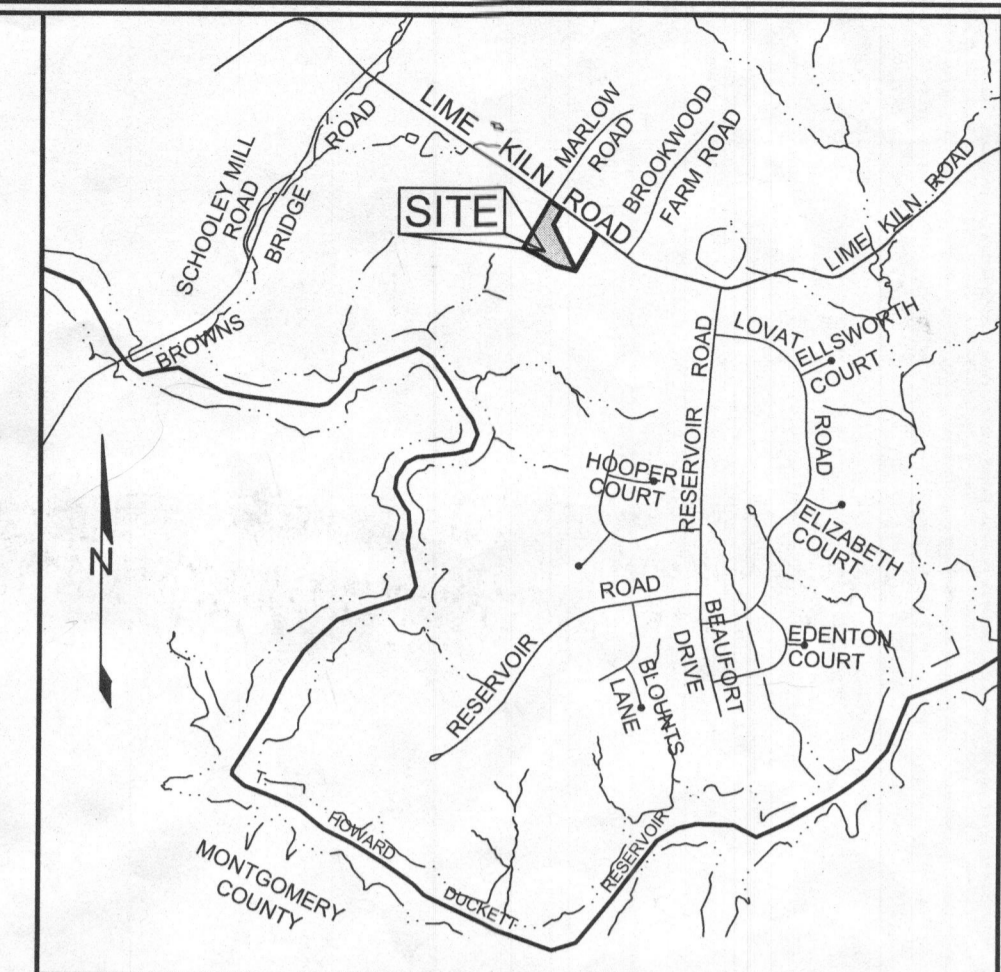
Anita Allen

SEPTIC SYSTEM TRENCH DESIGN SPECIFICATIONS

- INITIAL SYSTEM:**
 - APPLICATION RATE: 1.2
 - EFFECTIVE AREA BEGINNING DEPTH: 4'
 - BOTTOM MAXIMUM DEPTH: 6'
- REPLACEMENT SYSTEM 1 & 2:**
 - APPLICATION RATE: 1.2
 - EFFECTIVE AREA BEGINNING DEPTH: 3.5'
 - BOTTOM MAXIMUM DEPTH: 6'
- REPLACEMENT SYSTEM 1 & 2:**
 - APPLICATION RATE: 1.2
 - EFFECTIVE AREA BEGINNING DEPTH: 3.5'
 - BOTTOM MAXIMUM DEPTH: 6'

LEGEND

- EXISTING CONTOUR
- EXISTING TIE LINE
- PROPOSED TIE LINE
- PROPOSED 'S'OT ELEVATION
- EX. APPROXIMATE WELL LOCATION
- PROPOSED 'M'LL LOCATION
- SOIL BOUNDARY
- HYDROLOGIC IOL GROUP 'B'
- HYDROLOGIC IOL GROUP 'C'
- PROPOSED WALL LOCATION
- PROPOSED D-Y-WELL
- PASSED PERCOLATION TEST LOCATION



VICINITY MAP
SCALE: 1"=2000'

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
BeB	WILTSHIRE SILT LOAM, 3-8% SLOPES	C	0.43
	GLENELG LOAM, 3-8% SLOPES	B	0.24
	BAILE SILT LOAM, 0-3% SLOPES	C	0.20

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY, SOIL GRID 7, SUB-GRID 292.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 6 PERCENT.

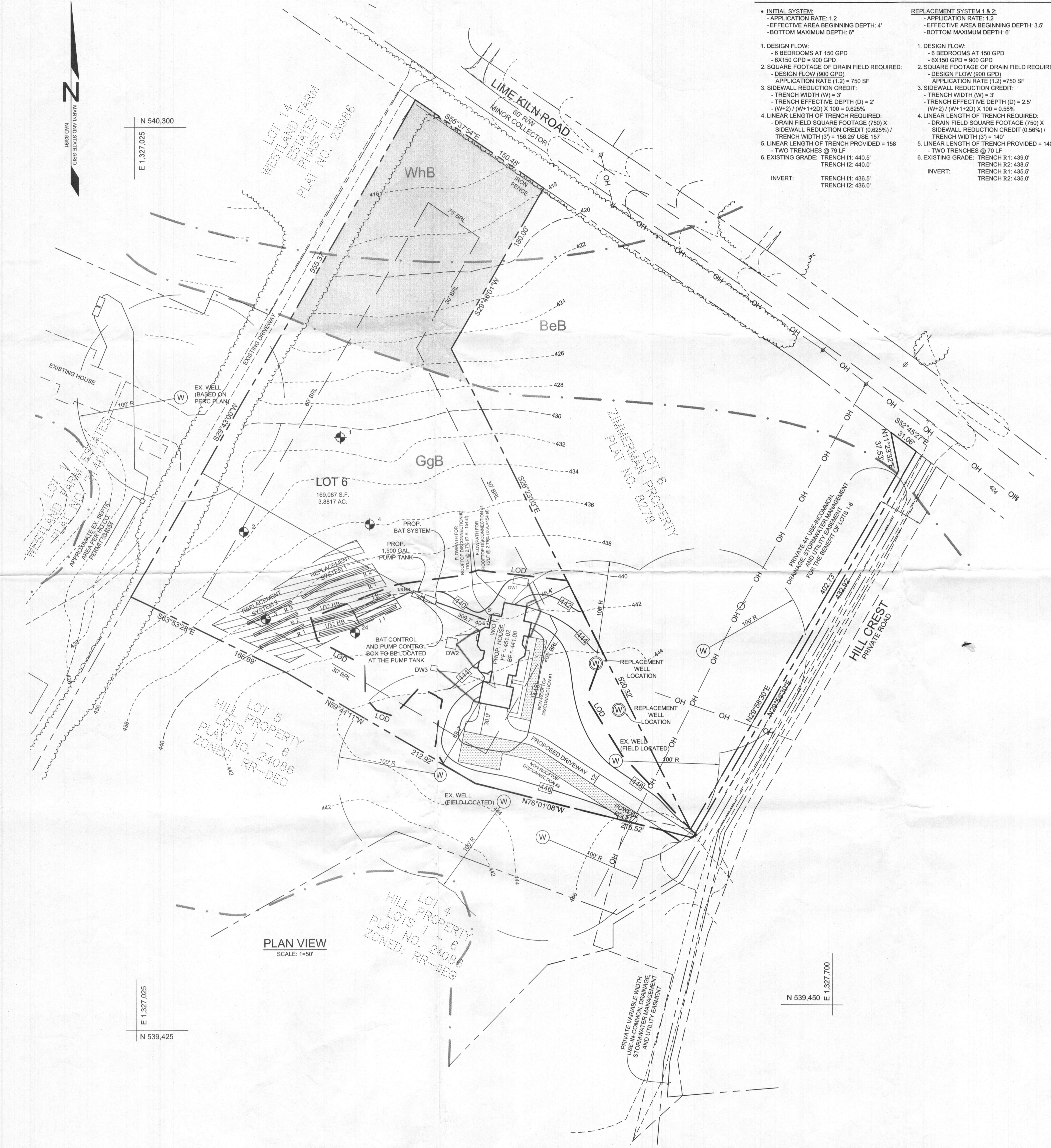
GENERAL NOTES

- SUBJECT PROPERTY ZONED RR-DEO PER 02/02/04 COMPREHENSIVE ZONING PLAN.
- TOTAL AREA OF PROPERTY = 3.87 AC.
- PRIVATE WATER AND PRIVATE SEWER WILL BE USED WITHIN THIS SITE.
- THIS AREA DESIGNATES A PRIVATE SEWERAGE AREA, AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWERAGE AREA. RECORDATION OF A MODIFIED SEWERAGE AREA SHALL NOT BE NECESSARY.
- TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHY BY WINGS AERIAL MAPPING COMPANY, INC. DATED NOVEMBER 12, 2012 PROVIDED BY BUILDERS TO CPI AND FIELD VERIFIED BY CHARLES P. JOHNSON & ASSOCIATES, INC. ON JUNE 26, 2017. CONTOURS ARE AT TWO FOOT INTERVALS.
- PROPERTY ADDRESS: 12410 HILL CREST, FULTON, MARYLAND 20759
- REFERENCES: PLAT NUMBER 24086 LIBER 17715, FOLD 437
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
- ANY CHANGES TO A PRIVATE SEWERAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- ALL EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS WITHIN 100 FEET OF THE PROPERTY BOUNDARIES AND ALL EXISTING AND PROPOSED WELLS THAT ARE LOCATED WITHIN 200 FEET DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS HAVE BEEN LOCATED USING AVAILABLE RECORD DRAWINGS OR HAVE BEEN FIELD LOCATED.

BAT 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 5 FEET.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 50 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- 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 MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, 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 OF HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- DOSE TO BE 158 GALLONS ON A PUMP RUN TIME OF 2.7 MINUTES.
- PUMP TO BE A MYERS ME3F SERIES OR EQUIVALENT MODEL.
- BAT SYSTEM TO BE A NORWECO SINGULAR MODEL 750 OR EQUIVALENT.

Handwritten notes:
 Approved Septic System Plan
 Howard County Health Department
 NORWECO TNP 750
 w/ Sailer 1500 gal Pump Tank
 by Myers ME3F Pump or equiv.
 Date 1/26/18
 Signature
 #7003891
 Bedroom capacity



PLAN VIEW
SCALE: 1"=50'

SITE PLAN FOR BAT INSTALLATION
HILL PROPERTY
 LOT 6
 12410 HILL CREST

TAX MAP 45 GRID 5
 5TH ELECTION DISTRICT
 PARCEL 64
 HOWARD COUNTY, MARYLAND

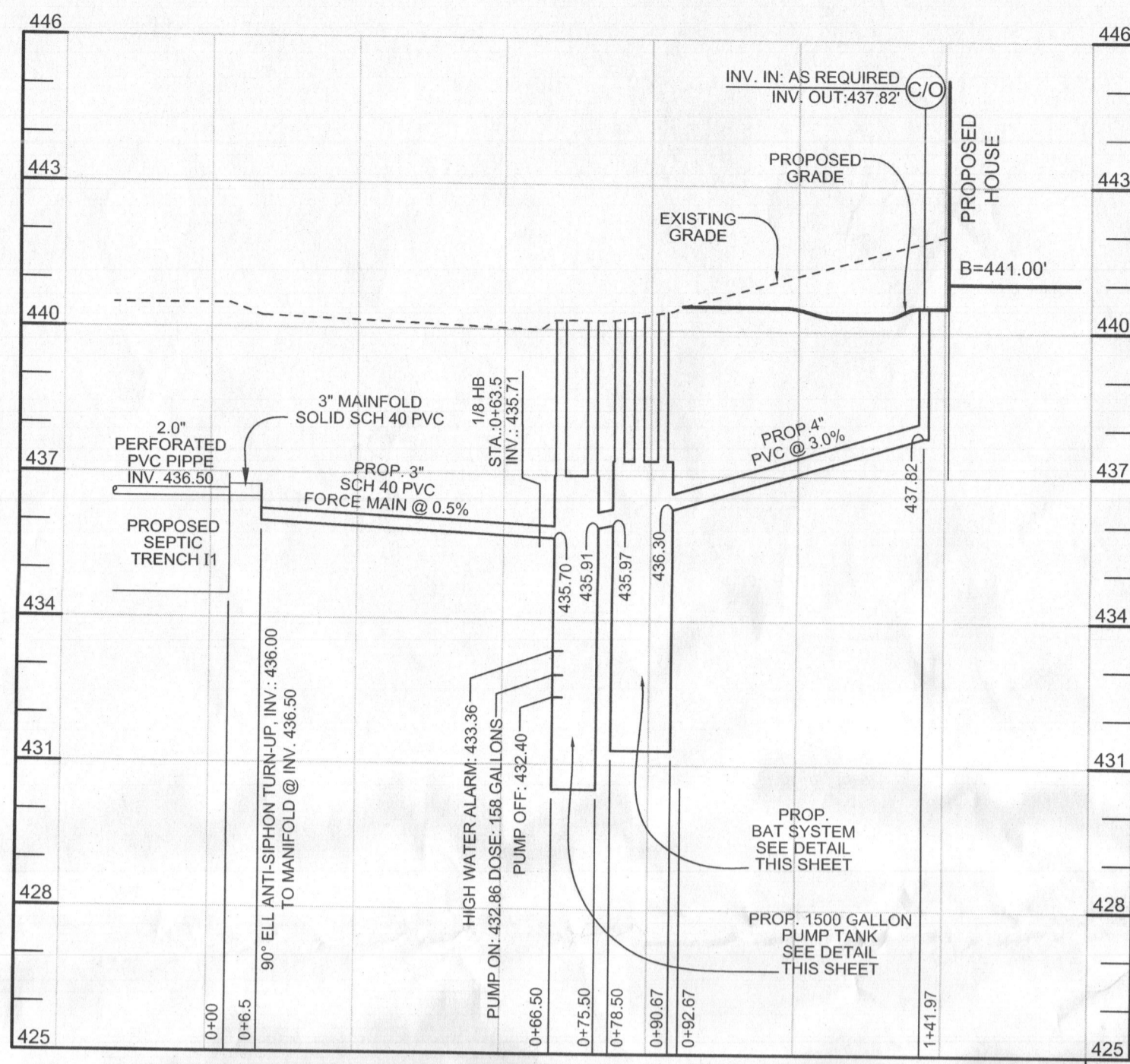
DESIGN BY: AEA
 DRAWN BY: AEA
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: JANUARY 17, 2018
 PROJECT #: 17-066
 SHEET #: 1 of 2

SILL ENGINEERING GROUP, LLC
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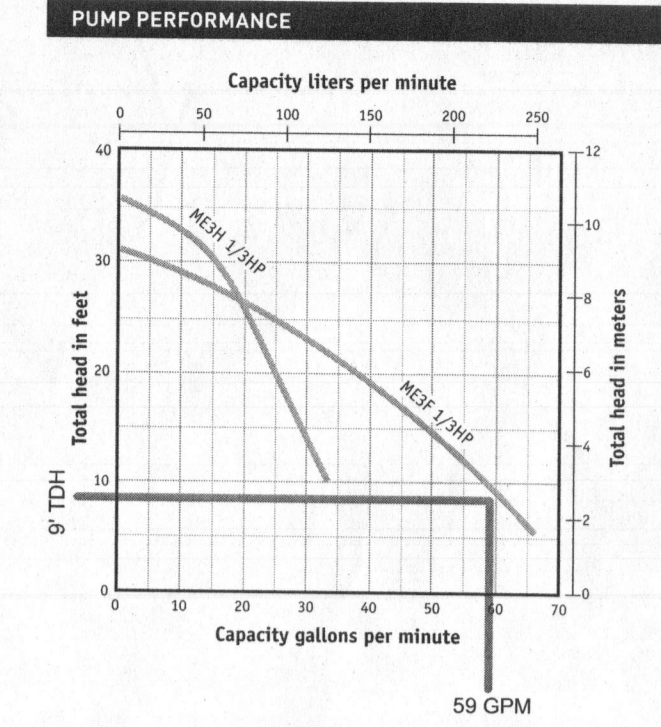
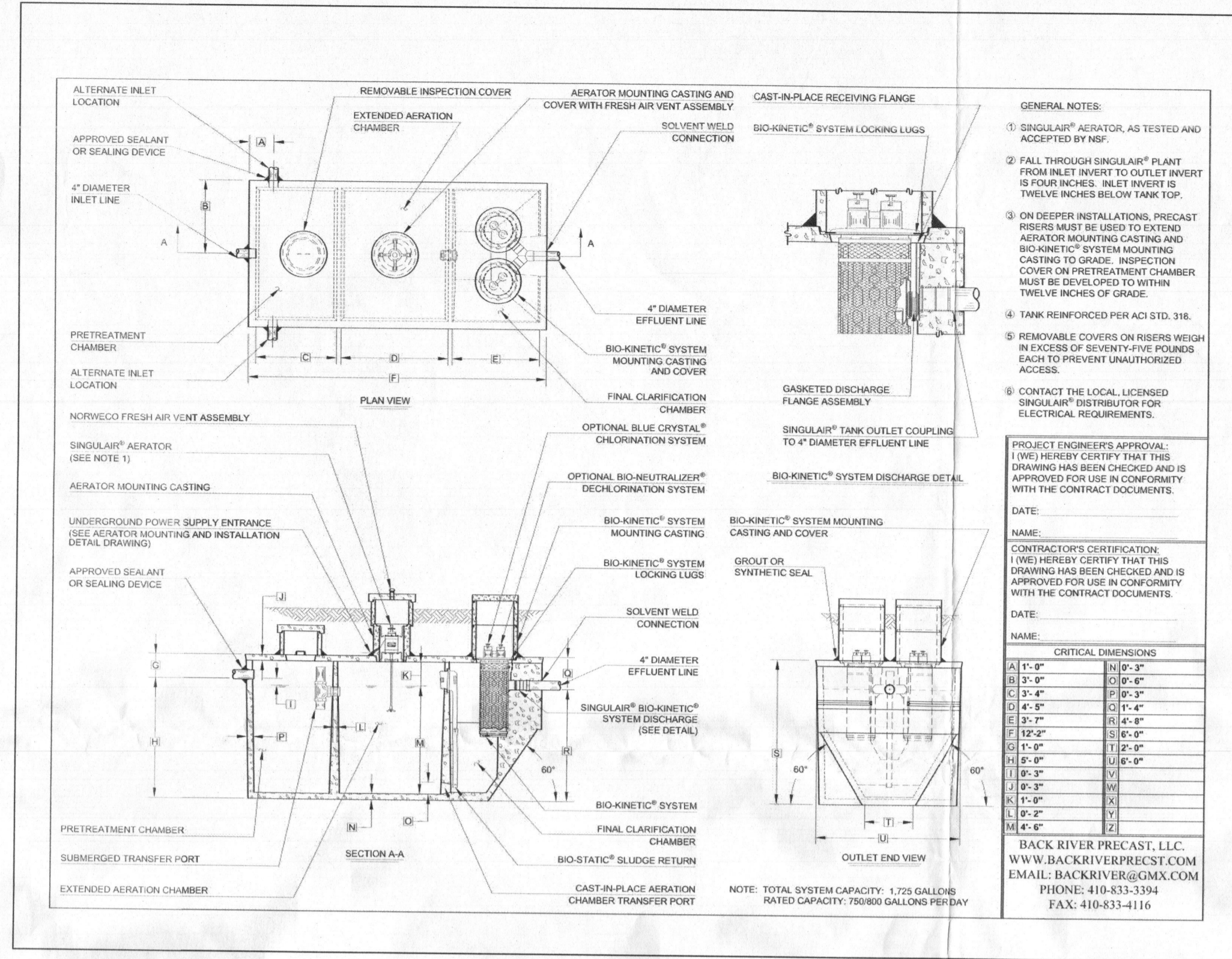
OWNER: RATI SOOD
 PO BOX 276
 FULTON, MD 20759

DEVELOPER: CRAFTIRK HOMES
 1355 BEVERROAD, SUITE 330
 MEL, VA 22101
 742-2012

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32023, EXPIRATION DATE: JUNE 20, 2019



BAT SYSTEM PROFILE
HORIZONTAL SCALE: 1"=3'
VERTICAL SCALE: 1"=3'



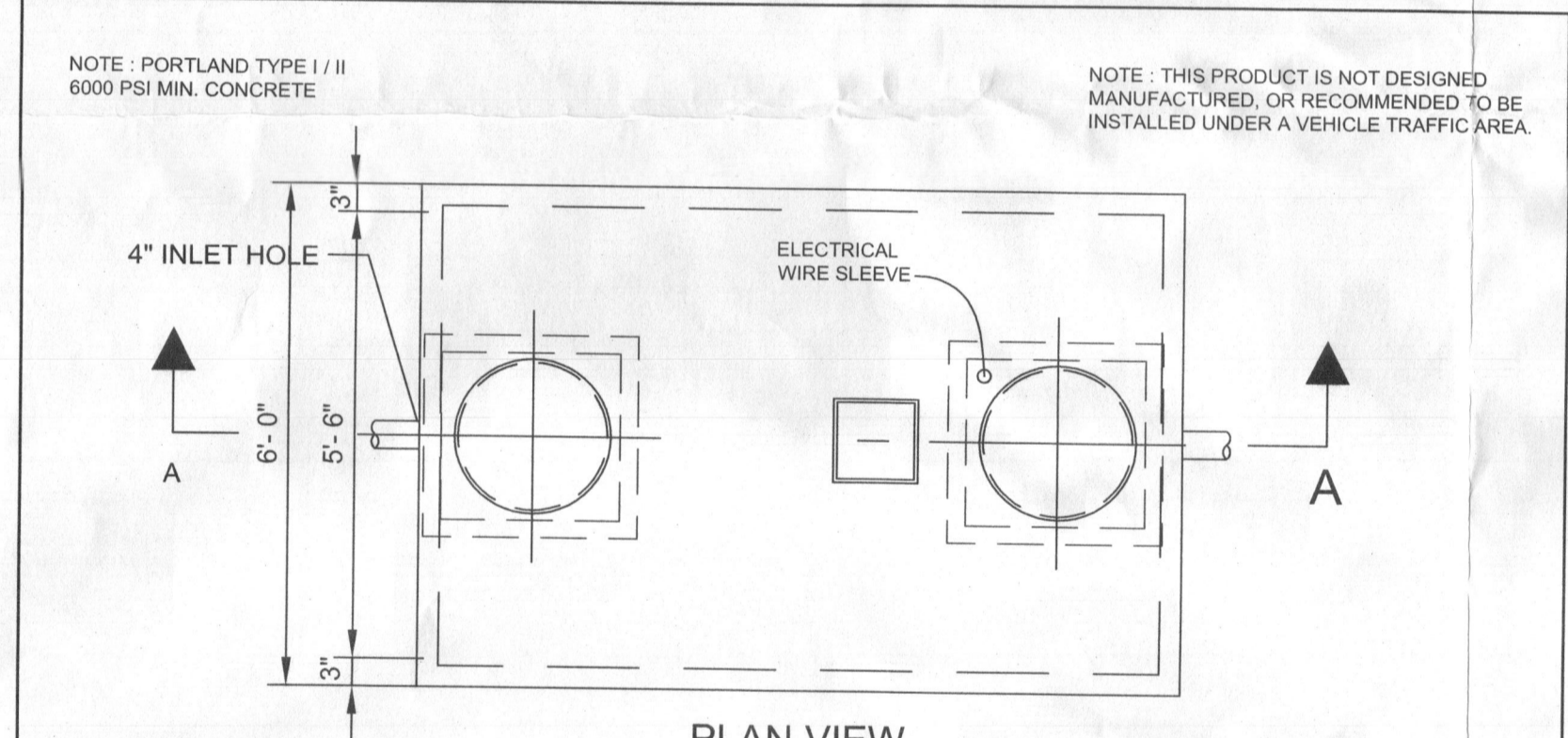
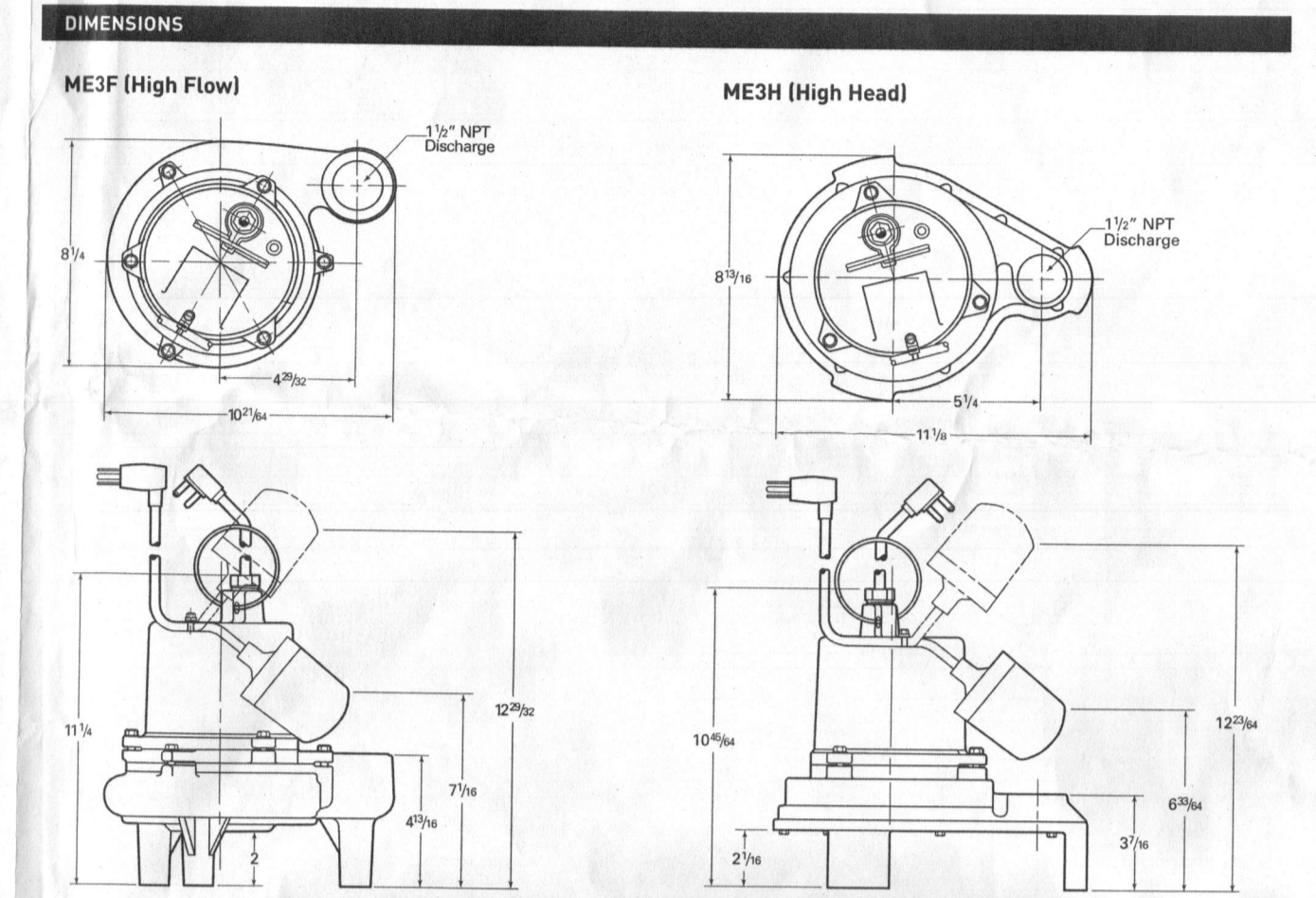
EFFLUENT PUMPS

MYERS® ME3 SERIES

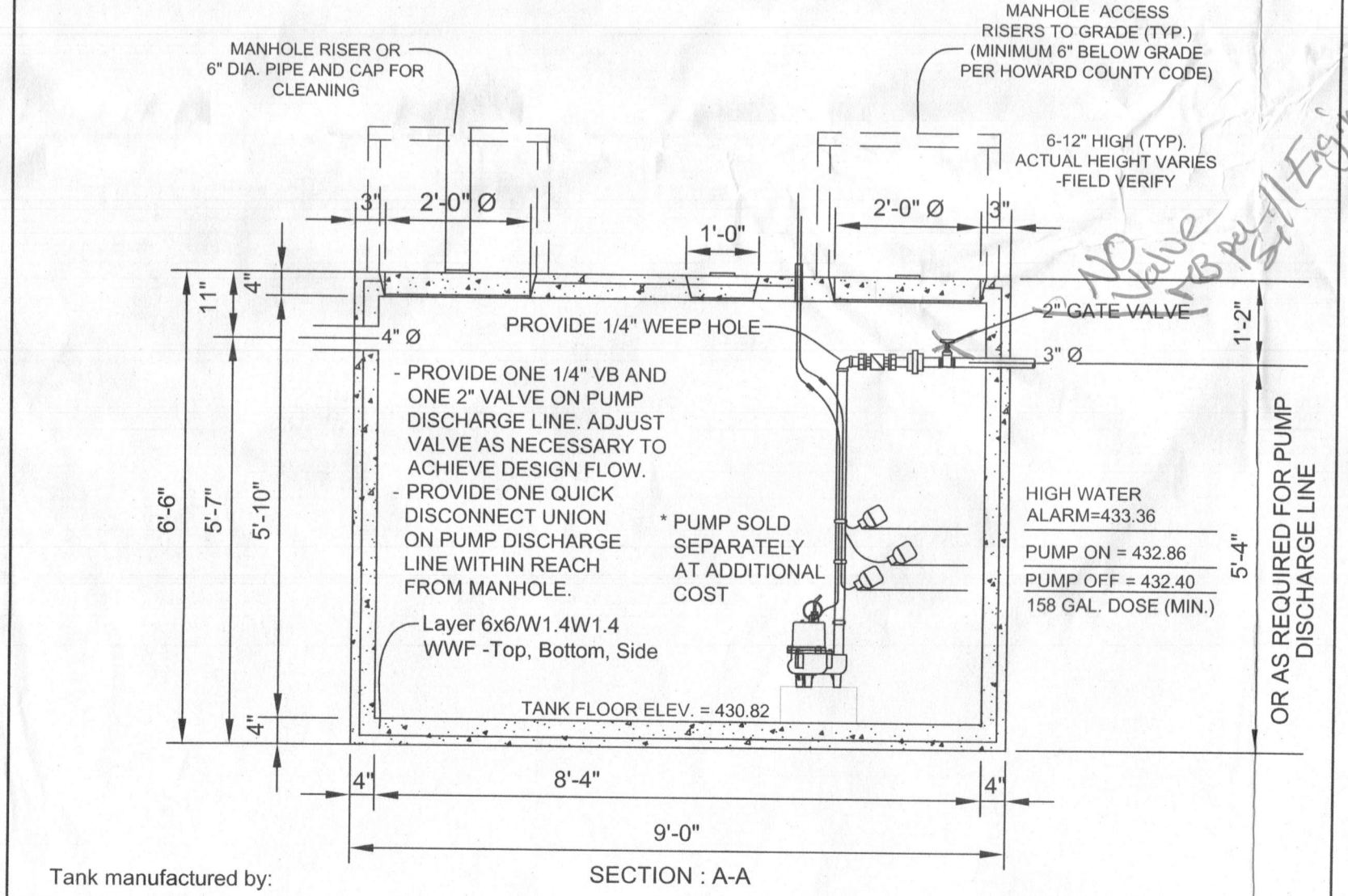
ORDERING INFORMATION

Catalog Number	HP	Volts	Phase/Cycles	Amps	Discharge Size	Switch Type	Cord Length	Approx. Wt. Lbs.
ME3H-11	1/3	115	1/60	12	1-1/2"	Manual	20'	37
ME3H-11P	1/3	115	1/60	12	1-1/2"	Automatic*	20'	38
ME3H-21	1/3	230	1/60	6	1-1/2"	Manual	20'	37
ME3H-21P	1/3	230	1/60	6	1-1/2"	Automatic*	20'	38
ME3F-11	1/3	115	1/60	12	1-1/2"	Manual	20'	37
ME3F-11P	1/3	115	1/60	12	1-1/2"	Automatic*	20'	38
ME3F-21	1/3	230	1/60	6	1-1/2"	Manual	20'	37
ME3F-21P	1/3	230	1/60	6	1-1/2"	Automatic*	20'	38

*Piggyback



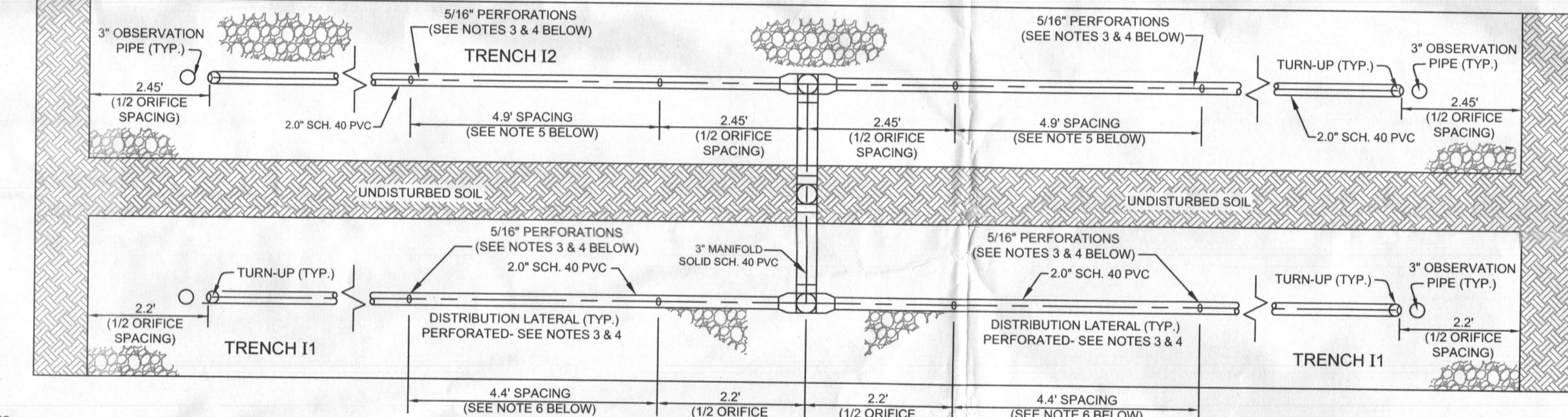
PLAN VIEW



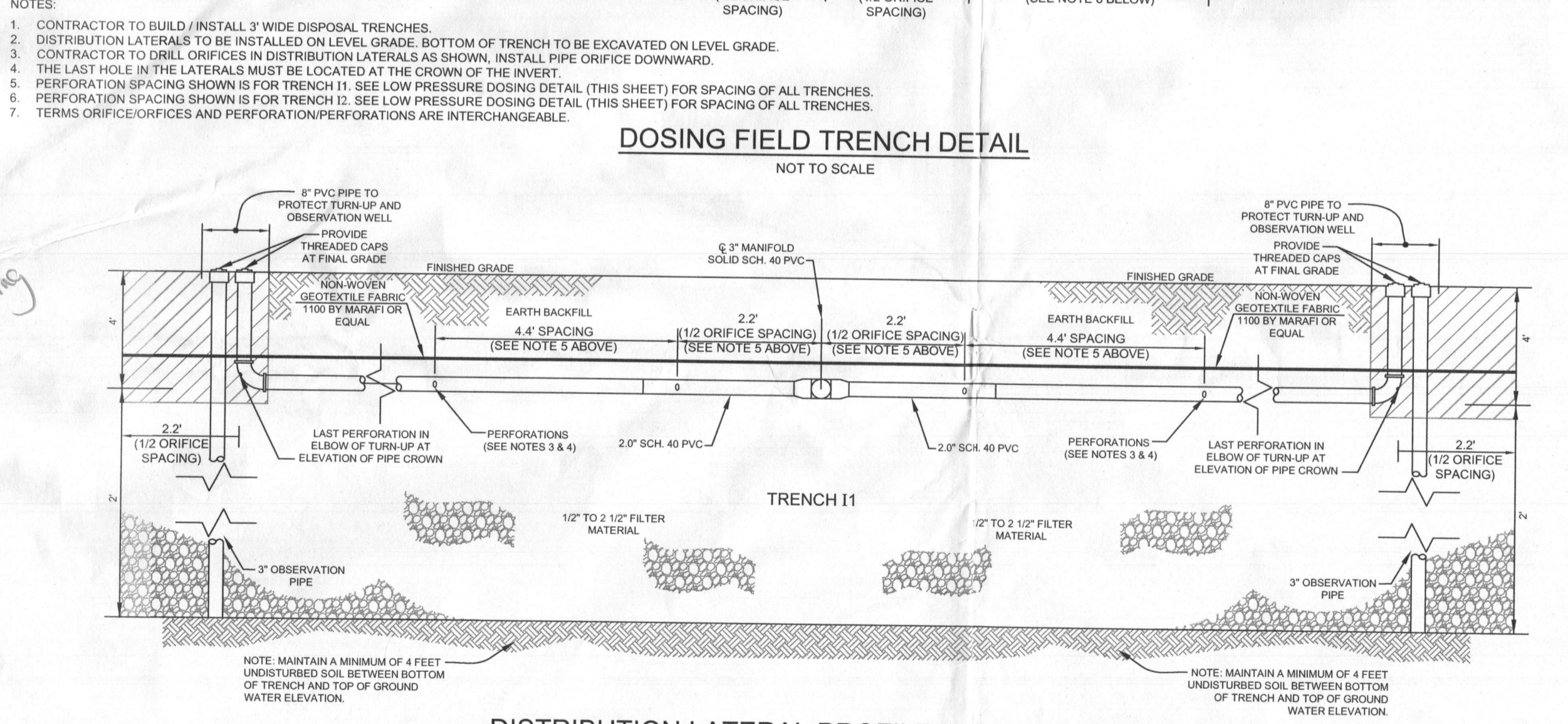
Tank manufactured by:
C. R. Semler, Inc.
Smithsburg, MD.
1-301-824-2780.

1500 GALLON TOP SEAM PUMP CHAMBER SINGLE COMPARTMENT

12-28-89
REV. 6:94



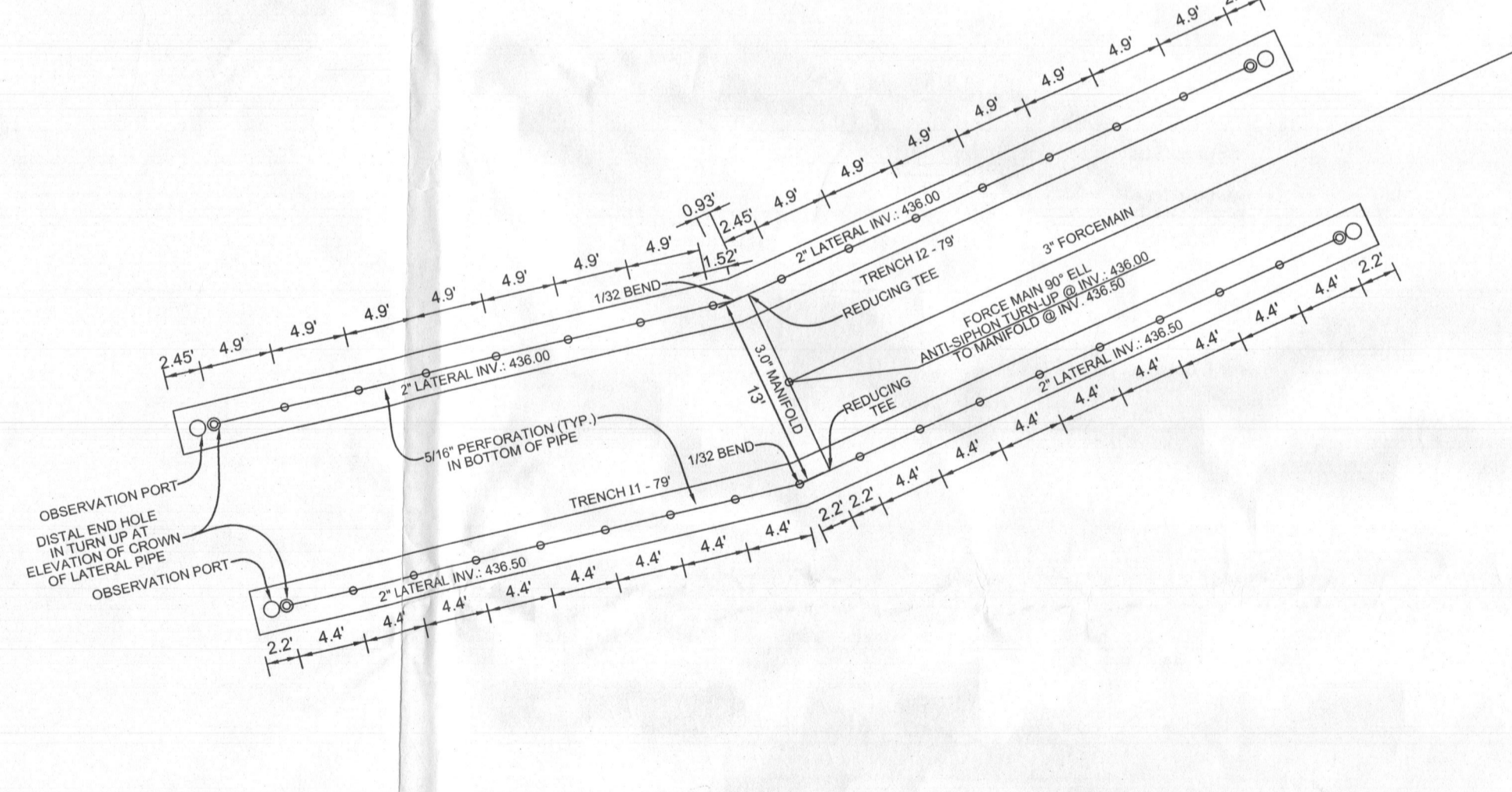
DOSING FIELD TRENCH DETAIL
NOT TO SCALE



DISTRIBUTION LATERAL PROFILE DOSING FIELDS

SEWAGE DISPOSAL AREA LATERAL / TRENCH SIZING SUMMARY

FIELD	LATERAL TRENCH NO.	EX. GROUND ELEVATION	INVERT ELEV.	BOTTOM ELEVATION	LATERAL LENGTH	HEAD	ORIFICE DIAMETER	ORIFICE FLOW RATE	ORIFICE SPACING	NUMBER OF ORIFICES	TRENCH FLOW RATE (GPM)	ZONE
ZONE 1	11	440.5'	436.5'	434.5'	74.6'	2.0'	5/16"	1.03	4.4'	16	29.34	1
	12	440.0'	436.0'	434.0'	74.1'	2.5'	5/16"	1.82	4.9'	16	29.12	



LOW PRESSURE DOSING SYSTEM DETAIL
NOT TO SCALE

Approved Septic System
Howard County Health Department
NORWECO TANK 150
w/ Senter 1500 gal. Pump Tank
3 Myers ME3F Pump or equiv.
Signature: [Signature] 4/26/18 Date
B17003891
Co-Responsible capacity

SITE PLAN FOR BAT INSTALLATION
HILL PROPERTY
LOT 6
12410 HILL CREST

TAX MAP 45 GRID 5
5TH ELECTION DISTRICT

PARCEL 64
HOWARD COUNTY, MARYLAND

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Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: AEA
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: JANUARY 17, 2018
PROJECT #: 17-066
SHEET #: 2 of 2

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30325, EXPIRATION DATE: JUNE 30, 2019.

OWNER
RATI SOOD
PO BOX 276
FULTON, MD 20759

DEVELOPER
CRAFTMARK HOMES
1355 BEVERLY ROAD, SUITE 330
McLEAN, VA 22101
703-342-2012