

Bureau of Environmental Health  
 7178 Gateway Drive Columbia, MD 21046  
 (410) 313-2640 Fax (410) 313-2648  
 TDD (410) 313-2323 Toll Free 1-866-313-6300  
 website: www.hchealth.org

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

RECEIPT DATE: 6/20/14 **ONSITE SEWAGE DISPOSAL SYSTEM** P 554515

INSTALLATION APPROVAL DATE: 12/23/2014 **PERMIT** A \_\_\_\_\_  
**CONSTRUCTION**

PROPERTY ADDRESS: 11560 Chapel Rise  
 SUBDIVISION: Chapel Rise LOT: 4 TAX ID: 05-594205  
 CONTRACTOR: Hatfield's Equipment EMAIL: ken@hatfieldsequipment.com  
 CONTRACTOR ADDRESS: P.O. Box 519, Annapolis Junction, MD 20701 PHONE: 301-490-4289  
 PROPERTY OWNER: Micah and Leigh Hart EMAIL: \_\_\_\_\_  
 OWNER ADDRESS: 11560 Chapel Estates Drive, Clarksville, MD 21029 PHONE: 410-935-8831

BAT UNIT MODEL: Norweco 600FEU BAT UNIT SIZE: 750GPD

PUMP CHAMBER CAPACITY (GALLONS): 1500 PUMP SIZE: 0.4hp

NUMBER OF BEDROOMS: 5 HOUSE SQ. FT. \_\_\_\_\_ APPLICATION RATE: 1.2

DISTRIBUTION SYSTEM: GRAVITY FED  LOW PRESSURE DOSED

TRENCHES:	LINEAR FEET REQUIRED: <u>70' + 72.6'</u>	INLET DEPTH: <u>2</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>5</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>2</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:	Trench 1, 2 (upper trench) is 70' Trench 3,4 (lower trench) is 72.6'	

ISSUED BY: Robert Bricker ISSUE DATE: 6/20/14 EXPIRATION DATE: 6/20/15

- 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

**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

See specs  
on Approval  
BAT site  
plan.

See As-Built Drawing  
On Separate Sheet

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
_____	_____	_____
NUMBER OF TRENCHES	_____	
TOTAL LENGTH	_____	
ABSORPTION AREA	_____	
DISTRIBUTION BOX LEVEL	_____	
DISTRIBUTION BOX BAFFLE	_____	
DISTRIBUTION BOX PORT	_____	

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL	Yes
MANUFACTURER	Norweco
CAPACITY	_____ GAL
SEAM LOC	Top
TANK LID DEPTH	3'
BAFFLES	no
BAFFLE FILTER	Yes
MANHOLE LOC	Front/Center/Back
6" PORT LOC	none
WATERTIGHT TEST	—
SLOTTED	Yes
DATE ON LID	11-3-14
<b>PUMP</b> SEPTIC TANK LEVEL	Yes
MANUFACTURER	Mid Concrete
CAPACITY	1500 GAL
SEAM LOC	Top
TANK LID DEPTH	2'
BAFFLES	no
BAFFLE FILTER	—
MANHOLE LOC	Center
6" PORT LOC	none
WATERTIGHT TEST	—
SLOTTED	no
DATE ON LID	8-9-14

PRE-CONSTRUCTION:

INSTALLATION: 11/12/14 Contractor had both tanks set, w/ Plumbing install from house to tanks. Trenches installed and stored, laterals installed, p.a. drilled and fabricated earlier (not seen). OK to cover. Need F.M. (KMD) 11/13/14 F.M. installed. Need p/A + pressure test of system + BAT start-up prior to final approval (KMD) 12/23/2014 Pump and alarm working. Two and a half to three feet of head in upper trench turn-ups. Received approval of BAT unit from Norweco inspector (BB)

FINAL INSPECTOR

B Baker

DATE OF APPROVAL

12/23/2014

11560 Chapel  
Estates Drive

HO-95-2219  
64.5'  
30.5'

14'  
3'-4'

54'

69'

105'

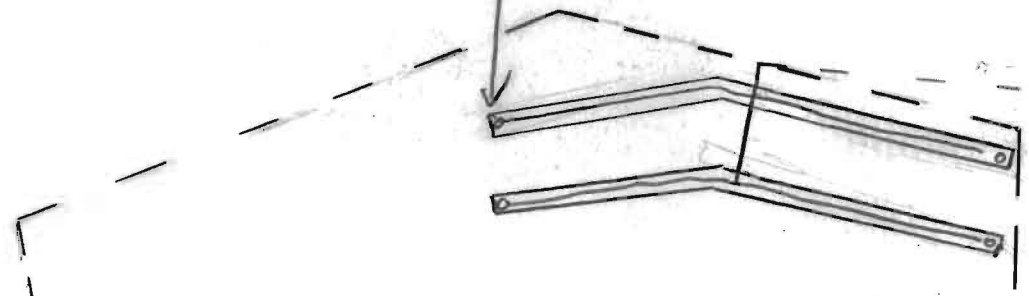
7'

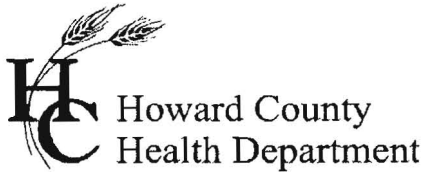
62'

~180°

180°

← CORNER  
SRA





**Bureau of Environmental Health**  
 8930 Stanford Boulevard, Columbia, MD 21045  
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Maura J. Rossman, M.D., Health Officer

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INSTALLATION APPROVAL DATE: \_\_\_\_\_ **PERMIT** A \_\_\_\_\_

**CONSTRUCTION**

PROPERTY ADDRESS: 11560 Chapel Estates Drive

SUBDIVISION: \_\_\_\_\_ LOT: \_\_\_\_\_ TAX ID: \_\_\_\_\_

CONTRACTOR: Hatfield's EMAIL: \_\_\_\_\_

CONTRACTOR ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_

PROPERTY OWNER: \_\_\_\_\_ EMAIL: \_\_\_\_\_

OWNER ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_

BAT UNIT MODEL: NORWECO 600FEK PUMP SIZE: 0.4 hp PUMP TANK CAPACITY: 1500

DISTRIBUTION SYSTEM: GRAVITY  LOW PRESSURE DOSED  NUMBER OF BEDROOMS: 5

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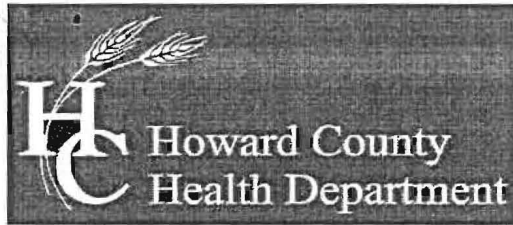
ISSUED BY: \_\_\_\_\_ ISSUE DATE: \_\_\_\_\_ EXPIRATION DATE: \_\_\_\_\_

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- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM**
- 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.**



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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 JUNE 2014 among MICAH HART and LEIGH HART, 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 11560 CHAPEL RISE (CHAPEL RISE, LOT 4), in the 5TH 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 15140 Folio 00215.

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.

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.



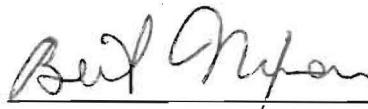
6/20/14

Owner

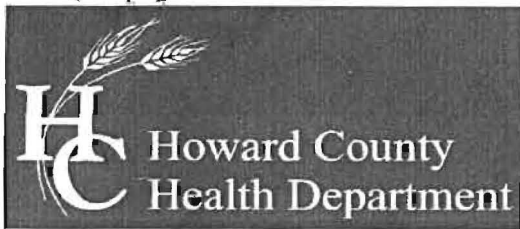
Date

Owner

Date

 6/20/2014

Howard County Health Department



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

**AGREEMENT FOR APPROVAL OF AN INDIVIDUAL DRINKING WELL WITH AN ON-SITE TREATMENT SYSTEM**

This agreement is entered into by and between the Howard County Health Department (“the Health Department”) and Micah Hart (“the Owner”).

WHEREAS, the Owner owns a tract of land at street address 11560 Chapel Rise, Clarksville, MD and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 0029, Block #     , Parcel # 0026, Deed Reference # 15140/00215 and Tax Account # 594205 (“the Property”).

WHEREAS, the Property lacks an available public drinking water source and is required to have and individual well as the source of drinking water for the residence of the property.

WHEREAS, the Owner has installed a residential drinking well under well permit 535997 that has been tested by the Health Department (or a private laboratory certified to perform testing) for radionuclide particles. The results of the tests have shown that the gross alpha particle content and/or the gross beta particle content and/or the combined radium 226/228 levels exceeds the standards of 15 picocuries per liter (pCi /L), 4 millirems per year (mrem/yr) and/or 5pCi/L respectively.

WHEREAS, The Maryland Department of the Environment (MDE) has promulgated rules and regulations under which a Certificate of Potability may be issued and has delegated the authority to issue such Certificate to the Health Department.

WHEREAS, MDE regulations permit the Health Department to issue as a special condition, a permanent deviation to the Certificate of Potability for individual wells where treatment has been installed to meet the maximum contaminate levels (MCL’s) for radionuclides.

WHEREAS, MDE has determined that radium can be effectively removed from the drinking water by the use of treatment devices (e.g., ion exchange or reverse osmosis).

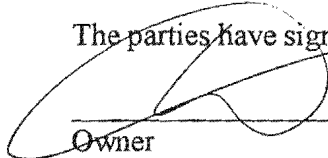
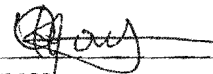
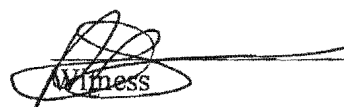
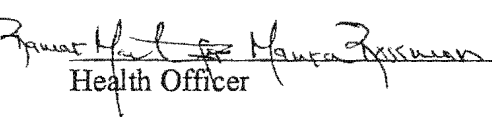
WHEREAS, the Owner is requesting that the Health Department issue a Certificate of Potability contingent upon installation and maintenance of a water treatment device to reduce radionuclides.

WHEREAS, neither the Owner nor the Health Department has knowledge of an alternative safe source of water for the Property.

NOW THEREFORE, the parties have agreed to the following terms and conditions:

1. The Owner will record this Agreement among the Land Records of Howard County, Maryland and provide confirmation to the Health Dept.
2. The Owner agrees to install and maintain a water treatment device, which effectively reduces the gross alpha, gross beta and radium levels to below their respective MCL. The Health Department shall verify that the treatment device is operating effectively and the Owner agrees to allow access to the Health Department to collect a follow-up sample(s).
3. The Health Department shall issue a Certificate of Potability for the well once follow-up sampling shows acceptable gross alpha, gross beta (short and long term) and radium 226 / 228 levels.
4. The Owner agrees that there shall be no liability on part of the Health Department for any immediate or long term impacts to health or property, under any circumstance or including, but not limited to, treatment device failure, improper maintenance or installation, or defect. The Health Department does not warranty or guarantee that the device will adequately or properly function and the Owner agrees to implement and pay for any necessary changes or corrections.
5. The Owner acknowledges and agrees that neither the Health Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system or treatment device.
6. This Agreement shall not be construed to limit any authority of the Health Department to protect the public health, safety or enjoyment of property or to issue any other orders to take any other action, which is now or may hereafter be within its authority.
7. This agreement contains the entire agreement and understanding between the Health Department 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 their authorized representatives.
8. The Agreement shall run with the land and binds the Owner, his heirs, successors, and assigns. The owner agrees to provide a copy of this agreement to any purchaser or lessee of the property.
9. The laws of the State of Maryland govern the provisions of all transactions.

The parties have signed and sealed this Agreement on the dates set forth below.

 Owner	1/8/15 Date	 Witness	1-8-15 Date
 Owner	 Date	 Witness	1-8-15 Date
 Health Officer	1/8/15 Date		

# 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 600 GPD Septic Tank installed at 11560 Chapel Rise, Clarksville, MD 21029 November 12, 2014 was installed according to the manufacture's specifications.

Installer: Jeff Reiter



---

MATTHEW GECKLE  
Vice-President

# Chapel Rise

## Lot 4

### Plot Plan Low Pressure Dosing System Report

Approved Septic System Plan  
Howard County Health Department  
NORWECO model 600 FEU  
Goulds EP04 pump  
Signature  
C.R. Semler  
LPD in Trenches  
10/9/2014  
Date

November 19, 2013  
Revised January 17, 2014  
Revised October 3, 2014

Prepared For:

Micah Hart  
2929 Chestnut Hill Drive  
Ellicott City, Maryland 21043



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, 2015

## Pressure Network Design

Design Flow: 750 gpd

The absorption beds in the Initial System are each 40' long and the distribution network an End Feed Network.

For Perforation Size, Number, and Spacing see Pressure Distribution table.

Lateral diameters = 1.5"

Spacing between laterals = see Trench Design below

Number of laterals = 4

Diameter of force main = 2.0"

Diameter of manifold = 2.0"

Material: Schedule 40 PVC

### Septic System Trench Design Specifications:

Design Flow: 750 gpd

Estimated percolation rate: 4.5 min/inch

Application rate: 1.2 gpd/sq.ft.

Sidewall credit: 3'/44%

Linear feet of trench required: 138

Minimum spacing between trenches: ~~8'~~ 10' RB

## Pumping System Design

### Dose Calculations:

Design Flow: 750 gpd

Length of force main and manifold

2.0" force main = 59.2'

2.0" manifold = 14.0'

Volume of force main:

59.2' x 17.4 gallons per 100' = 10.3 gallons

Volume of manifold:

14' x 17.4 gallons per 100' = 2.4 gallons

Length laterals: 138'

Volume of laterals:

138' x 10.6 gallons per 100' = 14.6 gallons

Minimum dose is the greater of:

Volume of force main and manifold + (5 x Volume of the laterals):  
12.7 gallons + (5 x 14.6 gallons) = 85.7 gallons

Or

1/6<sup>th</sup> the design flow:  
1/6 x 750 gallons = 125.0 gallons

Use 125 gallons for dose

Pump Design:

Pump flow required: 39 gpm (see Pressure Distribution table for initial system)

Dose amount: 125 gallons

Pump run time: 125 gallons / 39GPM = 3.21 minutes

Static head: 4.91' use 5.0'

Friction head calculation (Table 4.3):

Pipe size	2.0"
1/4 Bend (90°)	1 @ 7' = 7.0'
1/8 Bend (45°)	6 @ 4' = 24.0'
1/16 Bend (22.5°)	-
1/32 Bend (11.25°)	-
Ball Valve	1 @ 55' = 55.0'
Standard Tee	1 @ 10' = 10.0'
Run Tee	-
Cross	1 @ 12' = 12.0'
Reducer	4 @ 14.4' = 57.6'
Couplings	1 @ 2' = 2.0'
Total Equivalent Length of pipe	167.6'

Flow at 2.0" pipe = 38 gpm

Friction loss per 100' (Table 4.4) of 2.0" schedule 40 plastic pipe: 2.62

Total equivalent length of 2.0" FM, manifold and appurtenances = 59.2' + 14.0' + 167.6' = 240.8'

Friction loss in 2.0" pipe = 240.8'/100 x 2.62 = 6.3'

Total Friction Head = 6.3'

Total Dynamic Head = Static head + Distal Head + Friction head

5.0' + 2.0' + 6.3' = 13.3' use 13.3'

Pump Chamber Design:

For pump tank dimensions and detail, see plans.

Pump chamber elevations:

Proposed grade at top of tank: 397.66  
Pump chamber invert: 394.47  
High Water Alarm: 392.18  
Pump On: 391.68 ✓  
Pump Off: 391.31 ✓  
Bottom slab of tank: 389.39

Pump Chamber volumes:

Invert In to High Water Alarm: 104.92 cf or 785 gallons ✓  
Pump On to Pump Off: 16.71 cf or 125 gallons ✓

BAT Tank, Excess volume

Required excess volume: 750 gallons ✱  
High water alarm to underneath of tank lid: 139.28 cf or 1,042 gallons  
Total excess: 1,042 gallons

Design based on:

- Norweco - Hydro-Kenetic model 600 FEU
- Goulds EP04 series pump
- Sessler 1500-gallon, top-seam, single-chamber (Pump Tank)

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: Hart  
Reference/Control #: 61

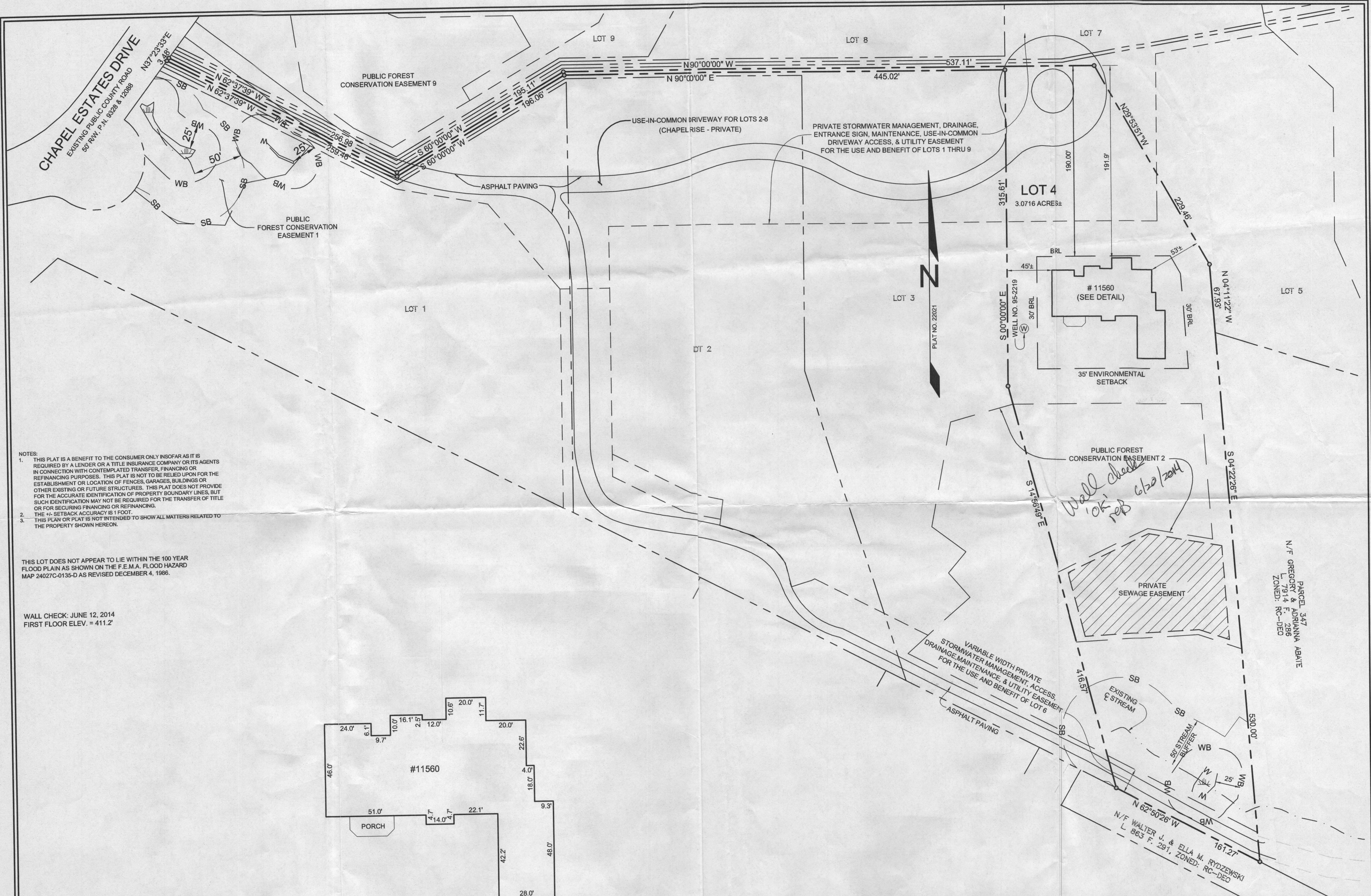
LR - Agreement Surcharge  
1x 40.00 40.00

=====  
SubTotal: 60.00  
Total: 60.00  
=====

REV-Cash 60.00

07/03/2014 09:24 CC13-VB  
#2997922 /497/109

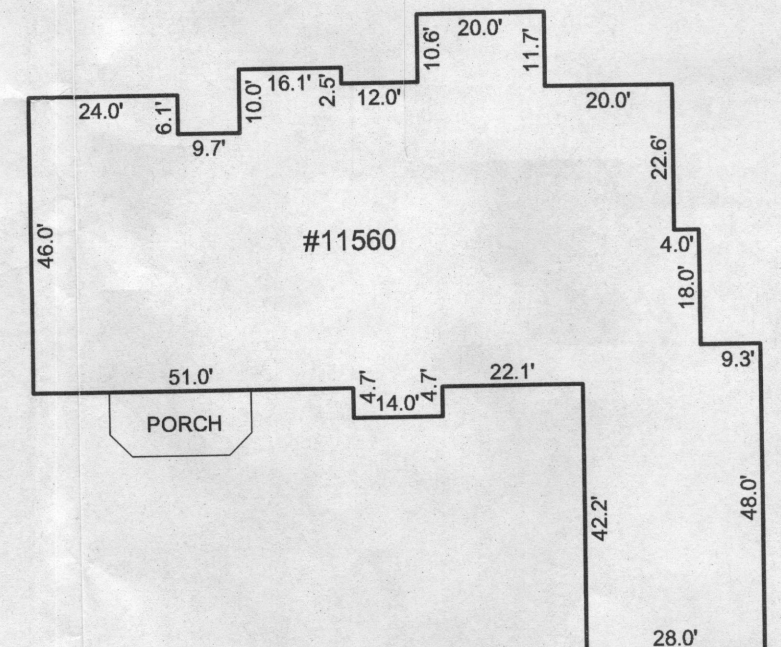
Thank you for visiting us today~



- NOTES:
1. THIS PLAT IS A BENEFIT TO THE CONSUMER ONLY INsofar AS IT IS REQUIRED BY A LENDER OR A TITLE INSURANCE COMPANY OR ITS AGENTS IN CONNECTION WITH CONTEMPLATED TRANSFER, FINANCING OR REFINANCING PURPOSES. THIS PLAT IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OR LOCATION OF FENCES, GARAGES, BUILDINGS OR OTHER EXISTING OR FUTURE STRUCTURES. THIS PLAT DOES NOT PROVIDE FOR THE ACCURATE IDENTIFICATION OF PROPERTY BOUNDARY LINES, BUT SUCH IDENTIFICATION MAY NOT BE REQUIRED FOR THE TRANSFER OF TITLE OR FOR SECURING FINANCING OR REFINANCING.
  2. THE +/- SETBACK ACCURACY IS 1 FOOT.
  3. THIS PLAN OR PLAT IS NOT INTENDED TO SHOW ALL MATTERS RELATED TO THE PROPERTY SHOWN HEREON.

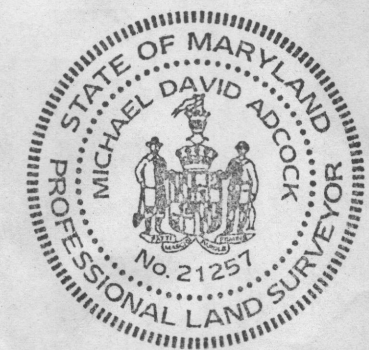
THIS LOT DOES NOT APPEAR TO LIE WITHIN THE 100 YEAR FLOOD PLAIN AS SHOWN ON THE F.E.M.A. FLOOD HAZARD MAP 24027C-0135-D AS REVISED DECEMBER 4, 1986.

WALL CHECK: JUNE 12, 2014  
FIRST FLOOR ELEV. = 411.2'



**DETAIL**  
SCALE: 1"=30'

LOCATION DRAWING  
11560 CHAPEL RISE  
LOT 4  
**CHAPEL RISE**  
LOTS 1 THRU 9  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND



**CERTIFICATION**  
I HEREBY CERTIFY THAT I WAS IN RESPONSIBLE CHARGE OVER THE PREPARATION OF THIS LOCATION DRAWING AND THE SURVEY WORK REFLECTED IN IT, IS IN COMPLIANCE WITH REQUIREMENTS SET FORTH IN THE CODE OF MARYLAND TITLE 9, SUBTITLE 13, CHAPTER 06, REGULATION 12, AND THE POSITION OF EXISTING IMPROVEMENTS AS SHOWN HEREON, ARE CORRECT, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

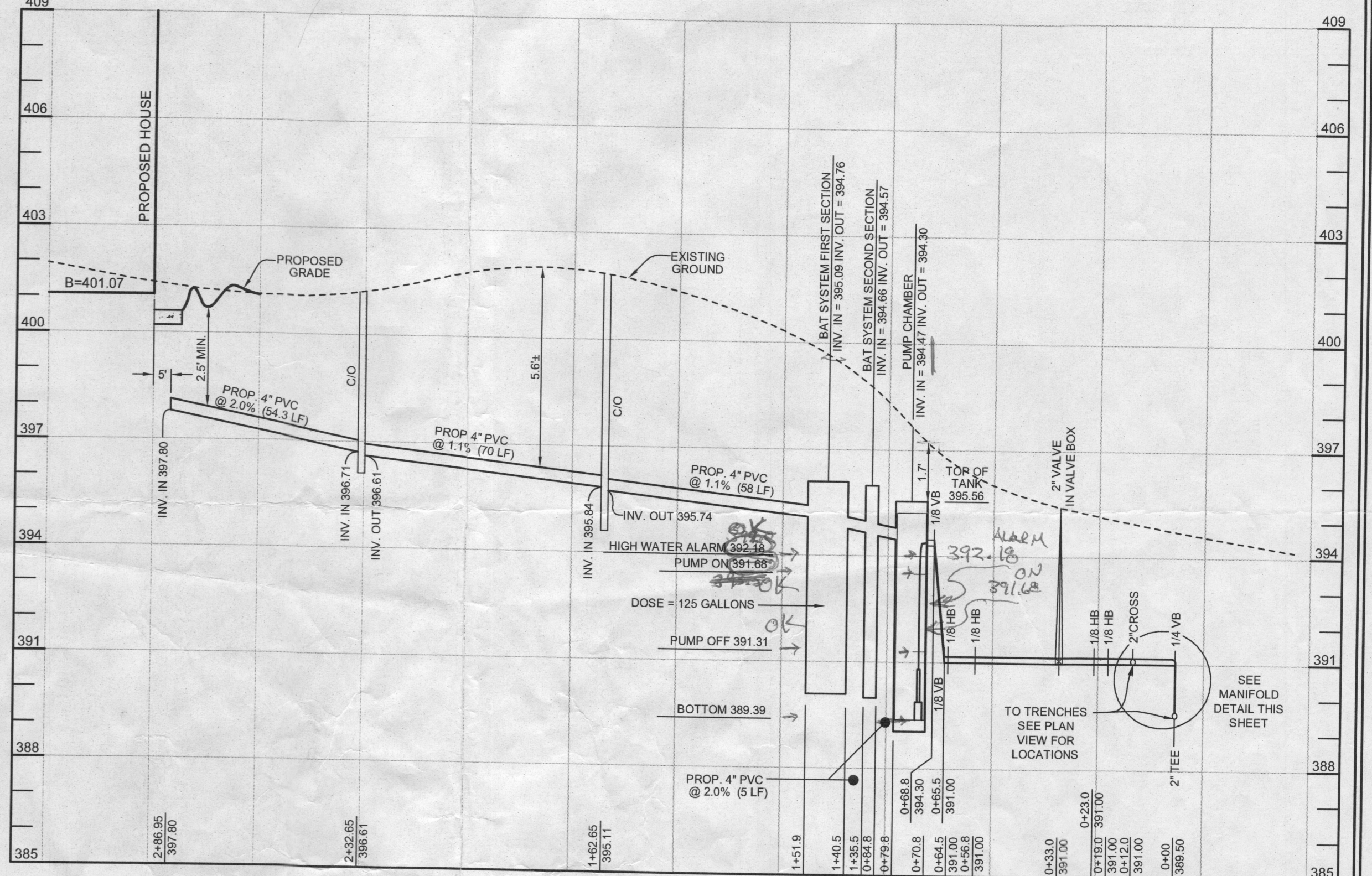
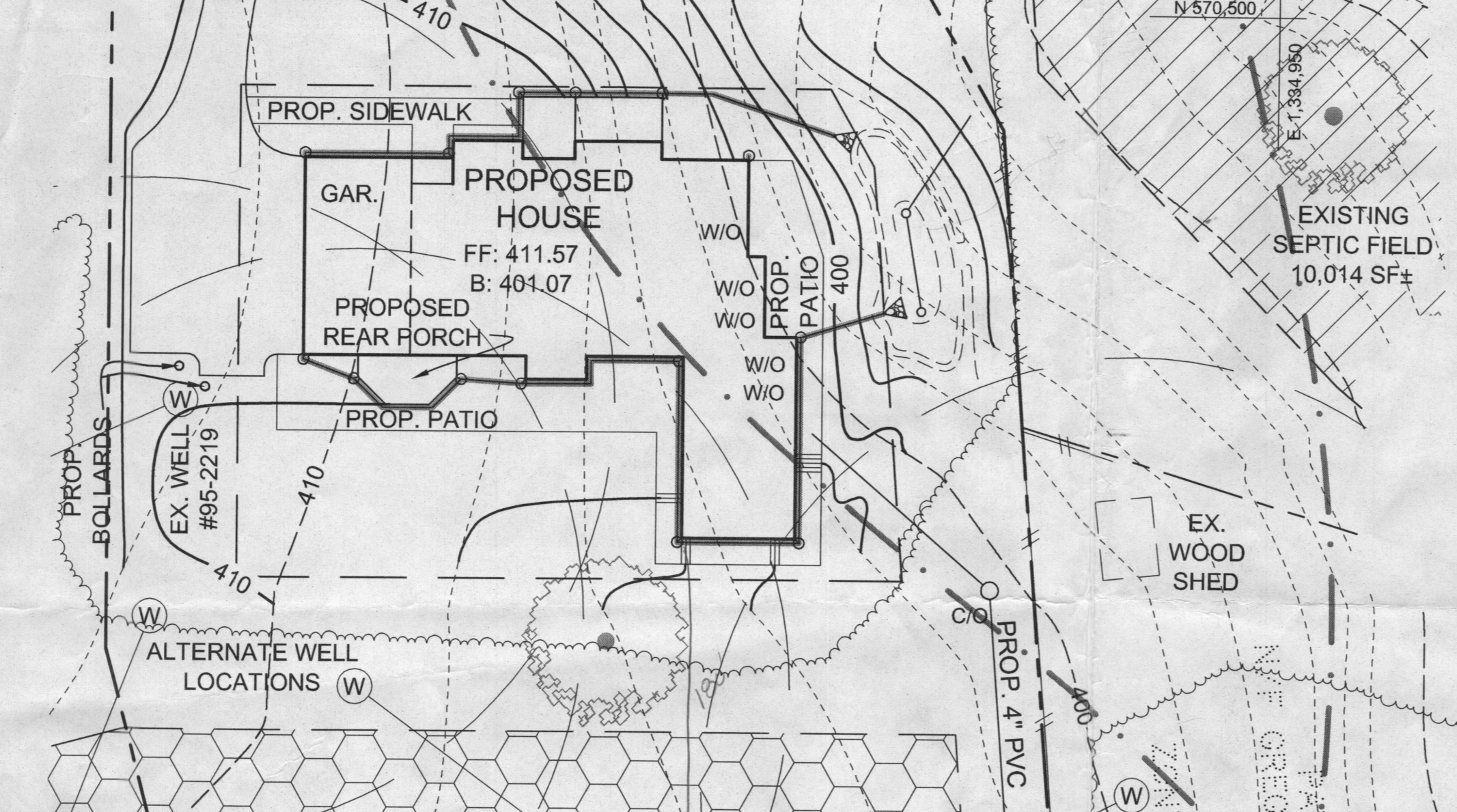
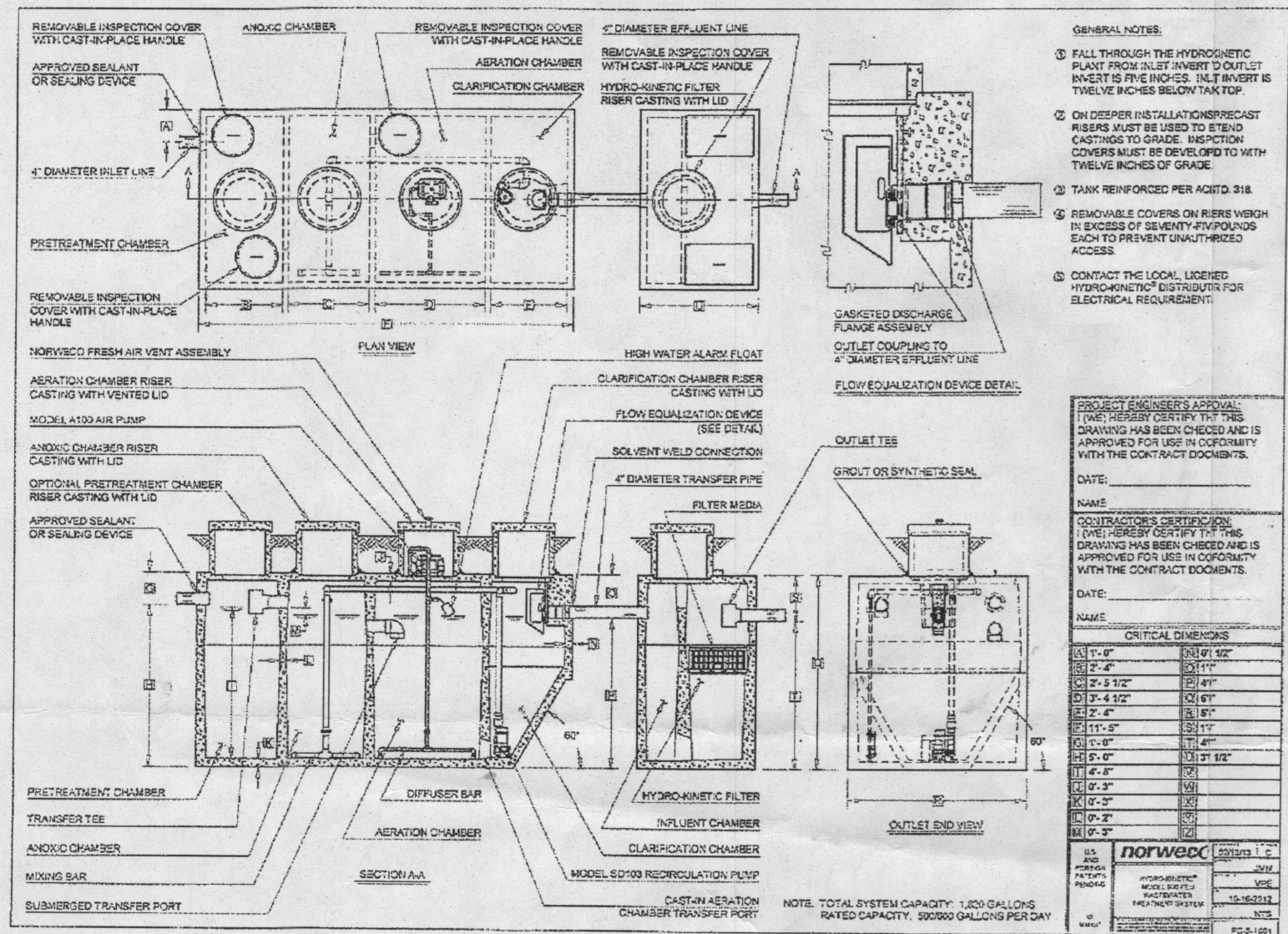
*Michael D. Adcock*  
MICHAEL D. ADCOCK  
PROFESSIONAL LAND SURVEYOR  
NO. 21257, EXPIRATION DATE: 06-16-2013

**Sill · Adcock & Associates · LLC**  
Engineers · Surveyors · Planners  
3300 North Ridge Road, Suite 160  
Ellicott City, Maryland 21043  
Phone: 443.325.7682 Fax: 443.325.7685  
Email: mike@saaland.com

REFERENCE:	PLAT NO. 22021
DATE:	JUNE 13, 2014
SCALE:	1"=60'
FILE NO.:	13-082

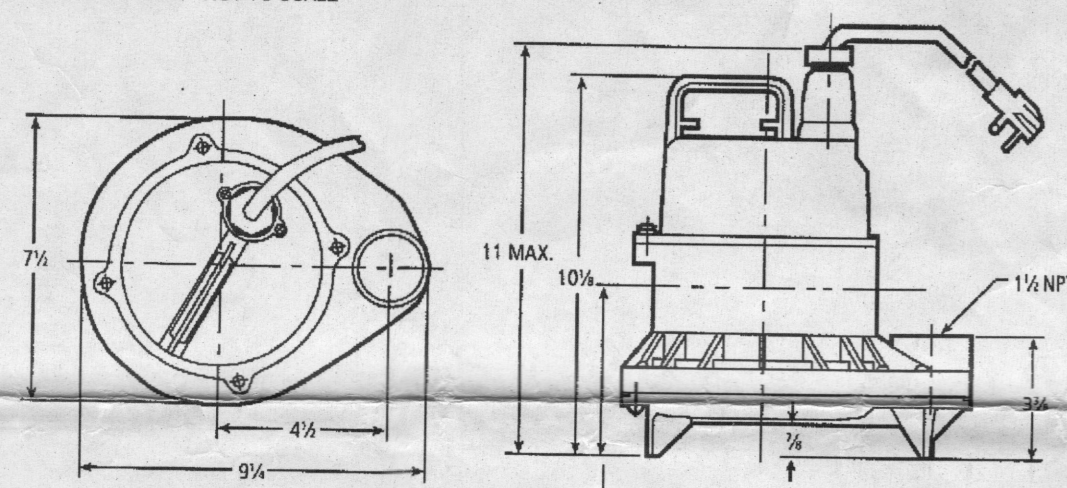
PARCEL 347  
N/F GREGORY & ADRIANNA ABATIE  
L 7914 F 286  
ZONED: RC-DEC

*Wall check OK! res 6/20/2014*



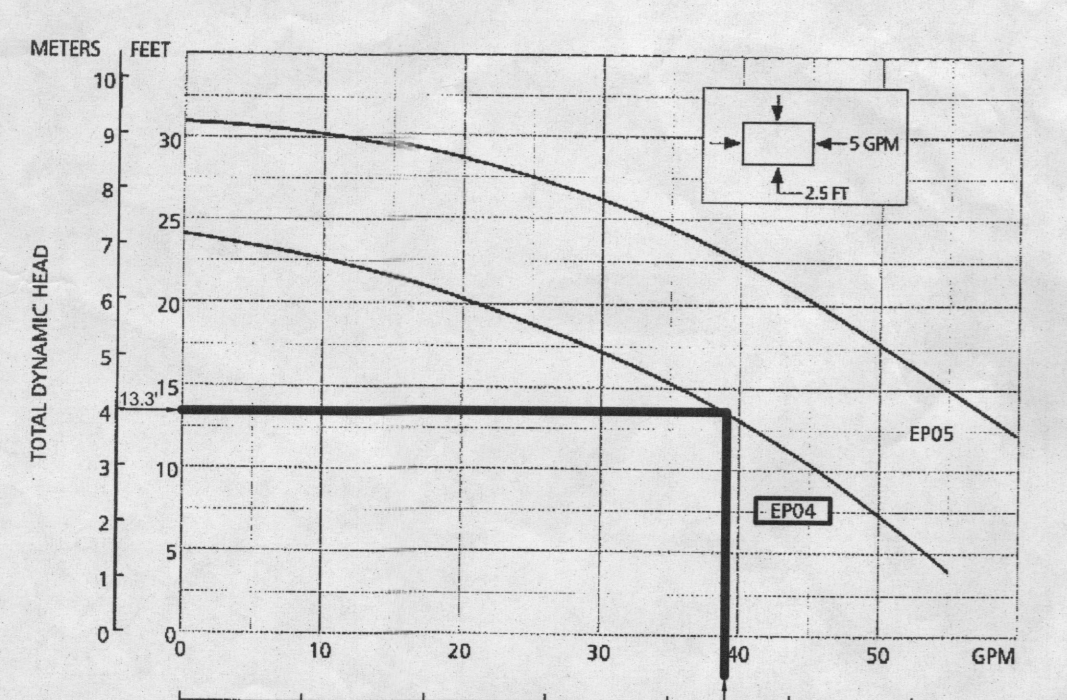
# Goulds Pumps

EP04 & EP05 Series Model 3871  
Submersible Effluent Pumps



**PUMP NOTES**

- FORCE MAIN MATERIAL: 2" SCH 40 PVC LENGTH: 99.2 LF VOLUME: 17.4 GAL PER 100' (10) GAL MANIFOLD: 2" SCH 40 PVC LENGTH: 14.0 LF VOLUME: 17.4 GAL PER 100' = 2.4 GAL
- HEAD CALCULATIONS: STATIC HEAD=4.5' DISTAL HEAD=2.0' FRICTION HEAD=6.3' TOTAL DYNAMIC HEAD = 12.8' USE 13'
- PUMP FLOAT ELEVATIONS: PUMP ON: 391.31 PUMP OFF: 393.50 HIGH WATER ALARM: 394.00
- PUMP TYPE: GOULDS PUMP EP04, MODEL 3871 OR EQUIVALENT SEE WWW.GOULDSPUMPS.COM FOR MORE INFORMATION
- THE MINIMUM EMERGENCY CAPACITY EQUAL TO, OR GREATER THAN DESIGN FLOW (750 GALLONS PER DAY) IS CALCULATED TO INCLUDE THE ENTIRE VOLUME OF THE BAT UNIT ABOVE THE ELEVATION OF THE HIGH WATER ALARM. THEREFORE, THE BAT UNIT IS LOCATED SO THAT THE ELEVATION OF THE BOTTOM OF THE LD IS LOWER THAN THE ELEVATION OF THE SEWER OUT INVERT AT THE RESIDENCE.



**PERFORMANCE RATINGS**

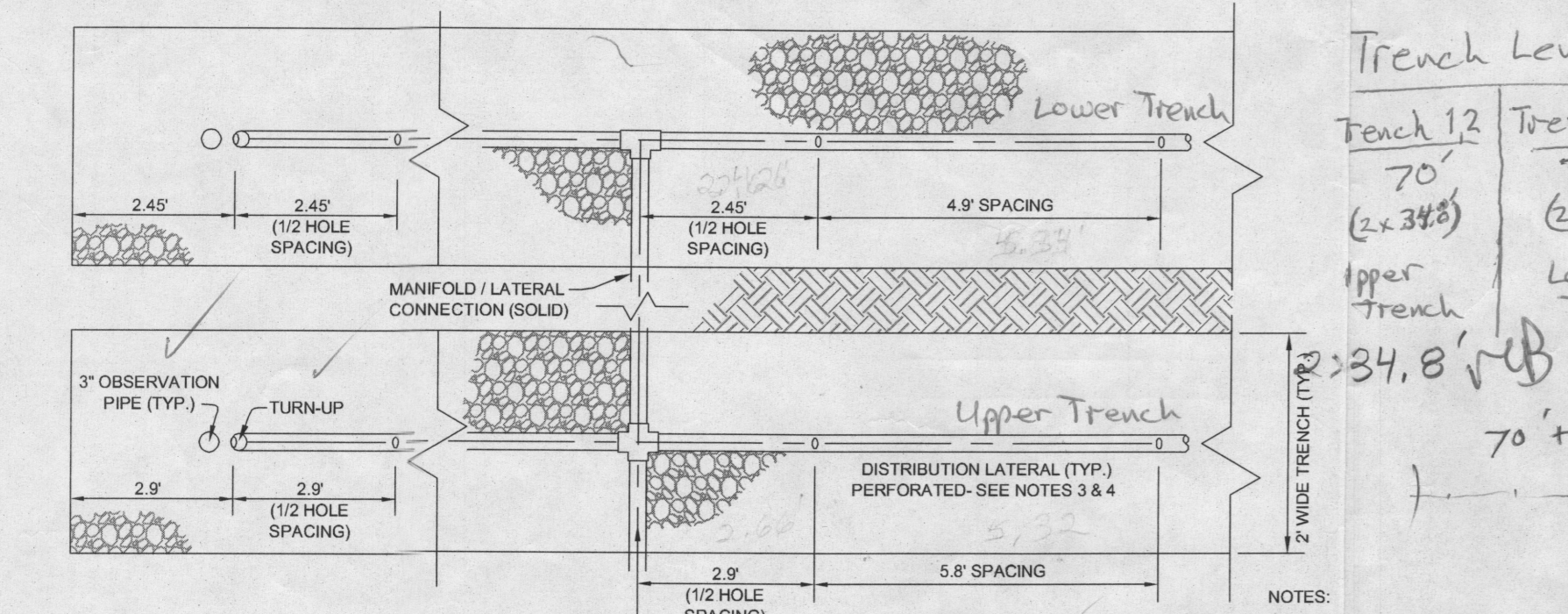
Total Head (ft. of water)	Gallons Per Minute	EP04	EP05
5	53	-	-
10	46	62	-
15	36	55	-
20	21	46	-
25	0	33	-
30	-	11	-

Pump Run Time: 3.2 min

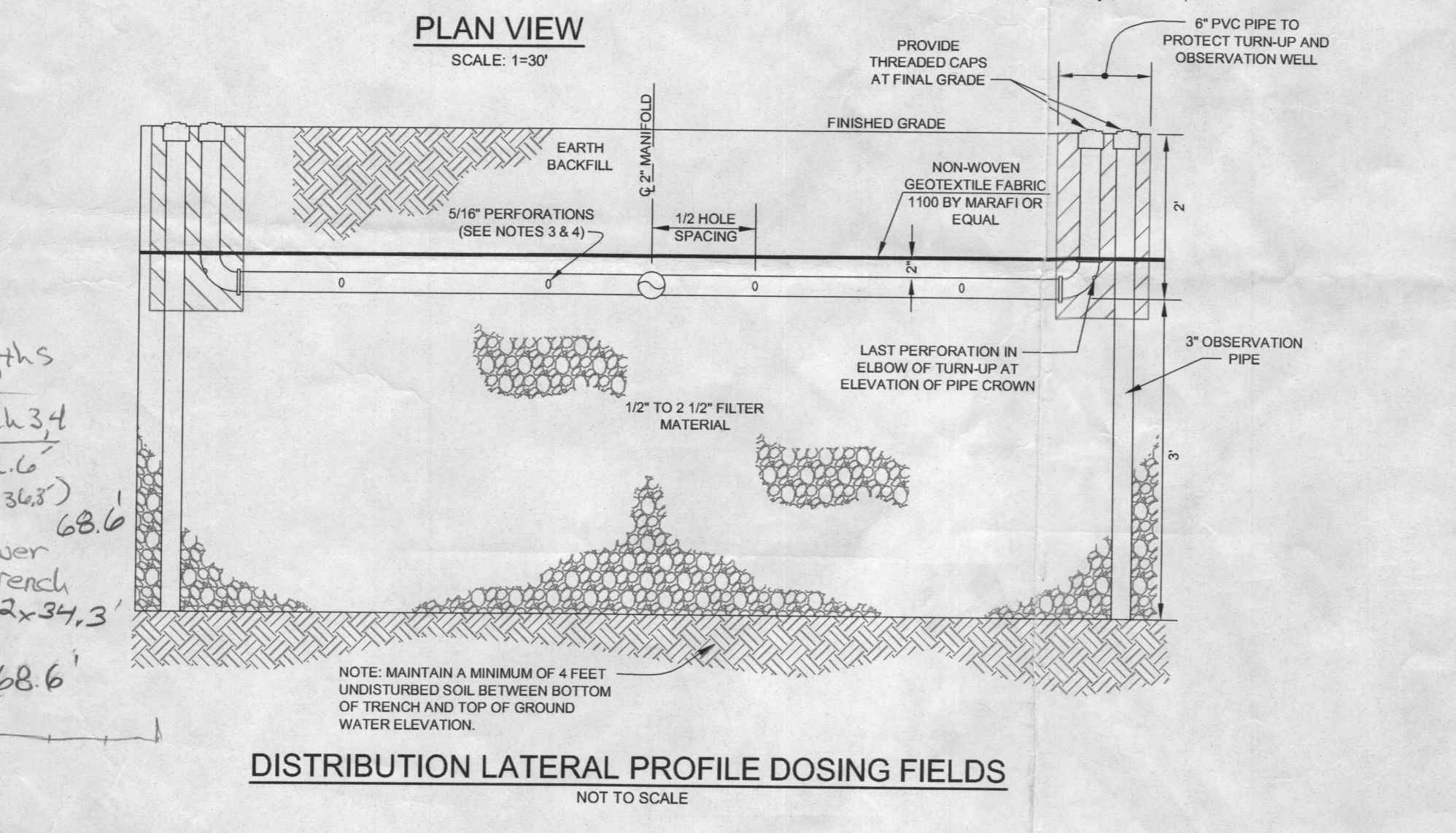
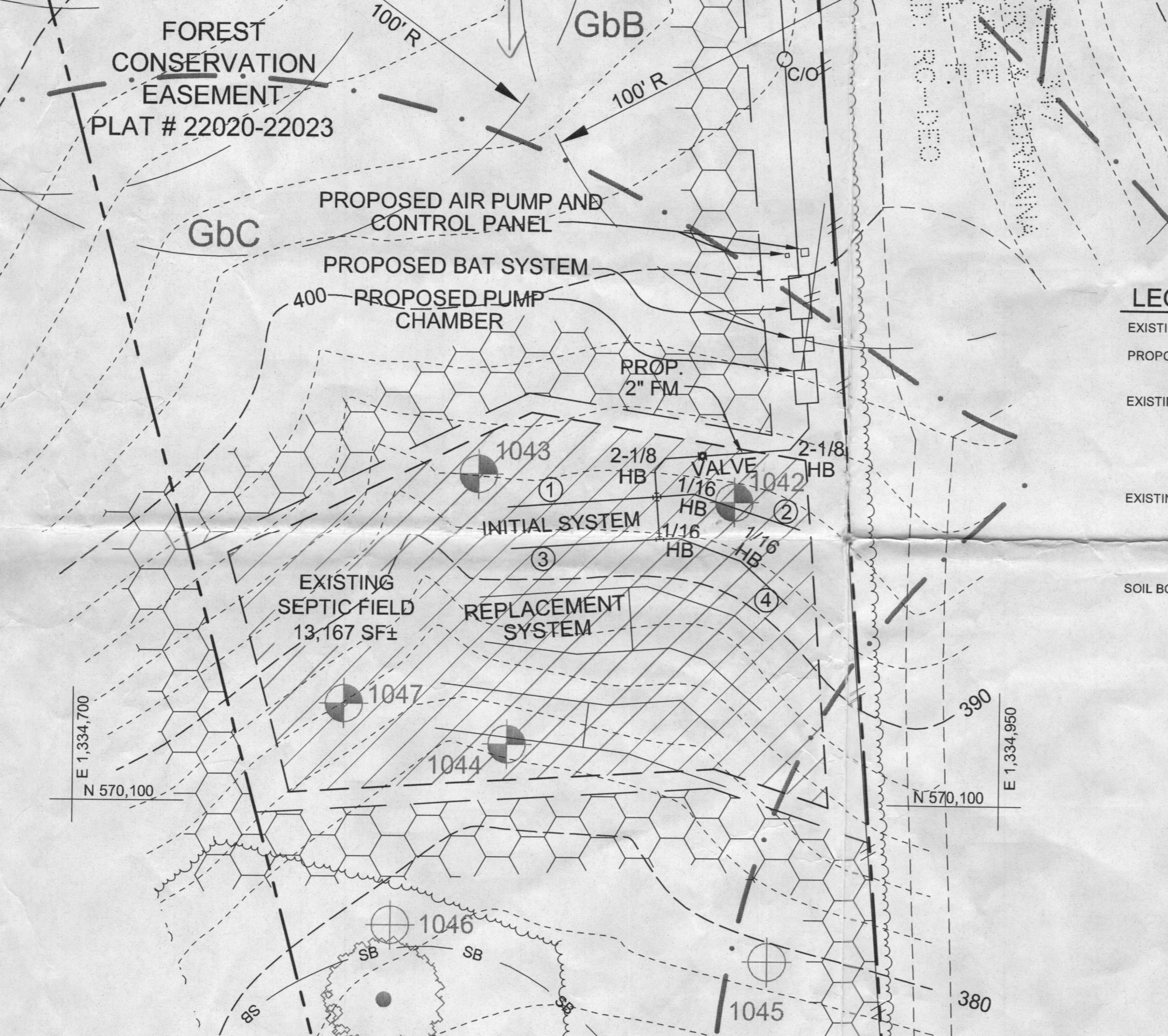
**SEWAGE DISPOSAL AREA LATERAL / TRENCH SIZING SUMMARY**

FIELD	LATERAL TRENCH NO.	EX. GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION	LATERAL LENGTH	HEAD	ORIFICE DIAMETER	ORIFICE FLOW RATE	ORIFICE SPACING	NUMBER OF TRENCH FLOW RATES (GPM)
INITIAL	1	393.0'	391.0'	388.0'	31.9'	2.0'	5/16"	1.63	5.8'	9.78
	2	393.0'	391.0'	388.0'	31.9'	2.0'	5/16"	1.63	5.8'	9.78
	3	391.5'	389.5'	386.5'	33.85'	3.5'	1/4"	1.38	4.9'	9.66
	4	391.5'	389.5'	386.5'	33.85'	3.5'	1/4"	1.38	4.9'	9.66

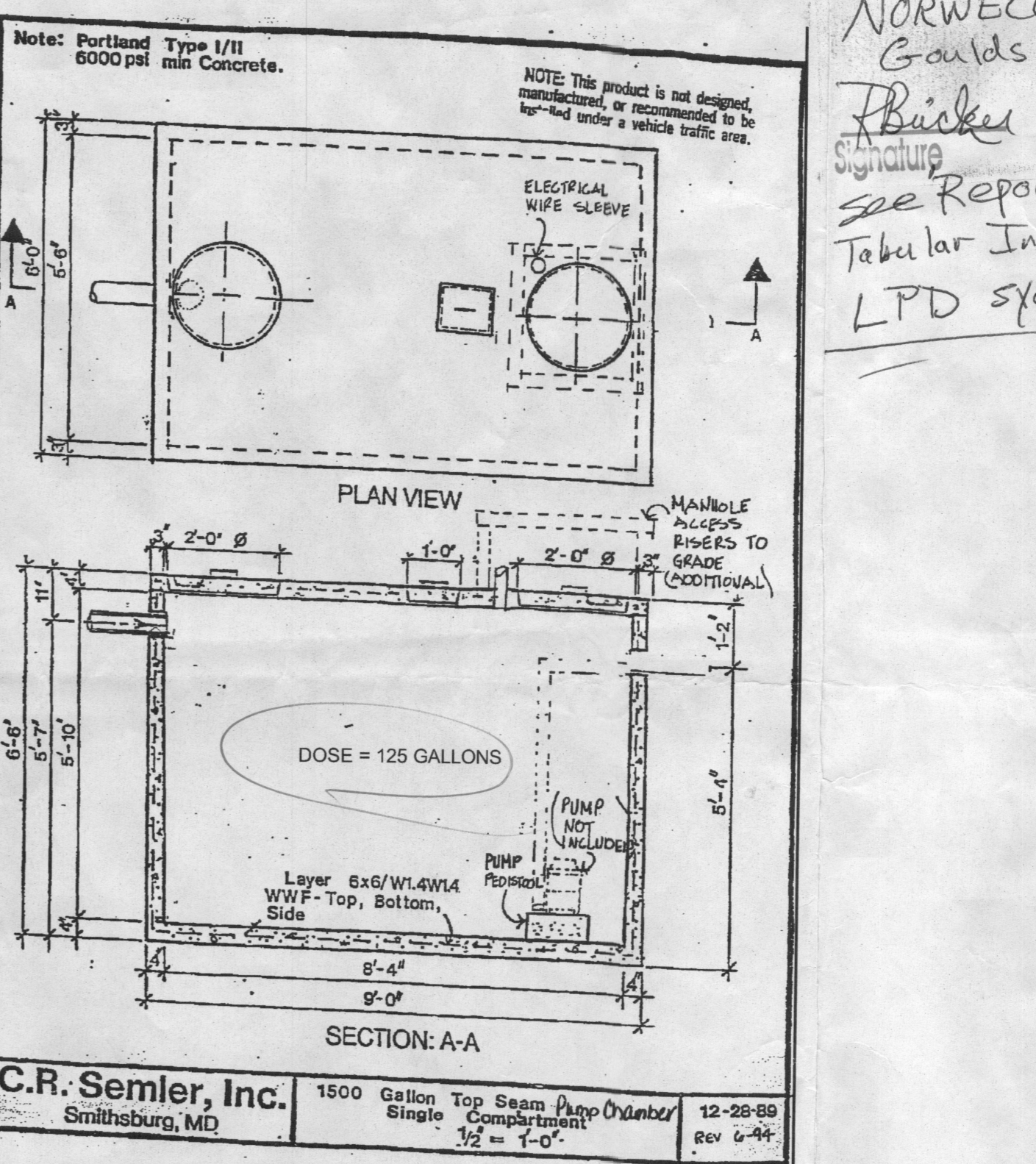
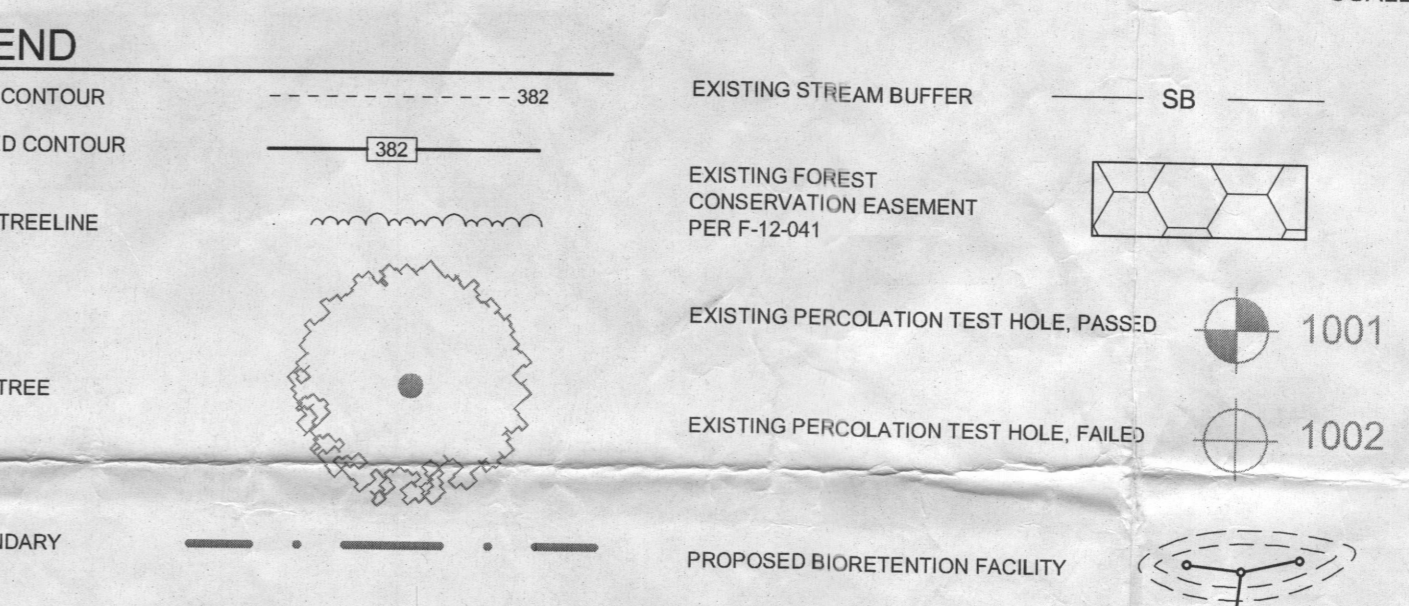
TOTAL DISCHARGE OF DISTRIBUTION NETWORK EQUALS 38.88 GPM



**DOSING FIELD TRENCH DETAIL**  
NOT TO SCALE

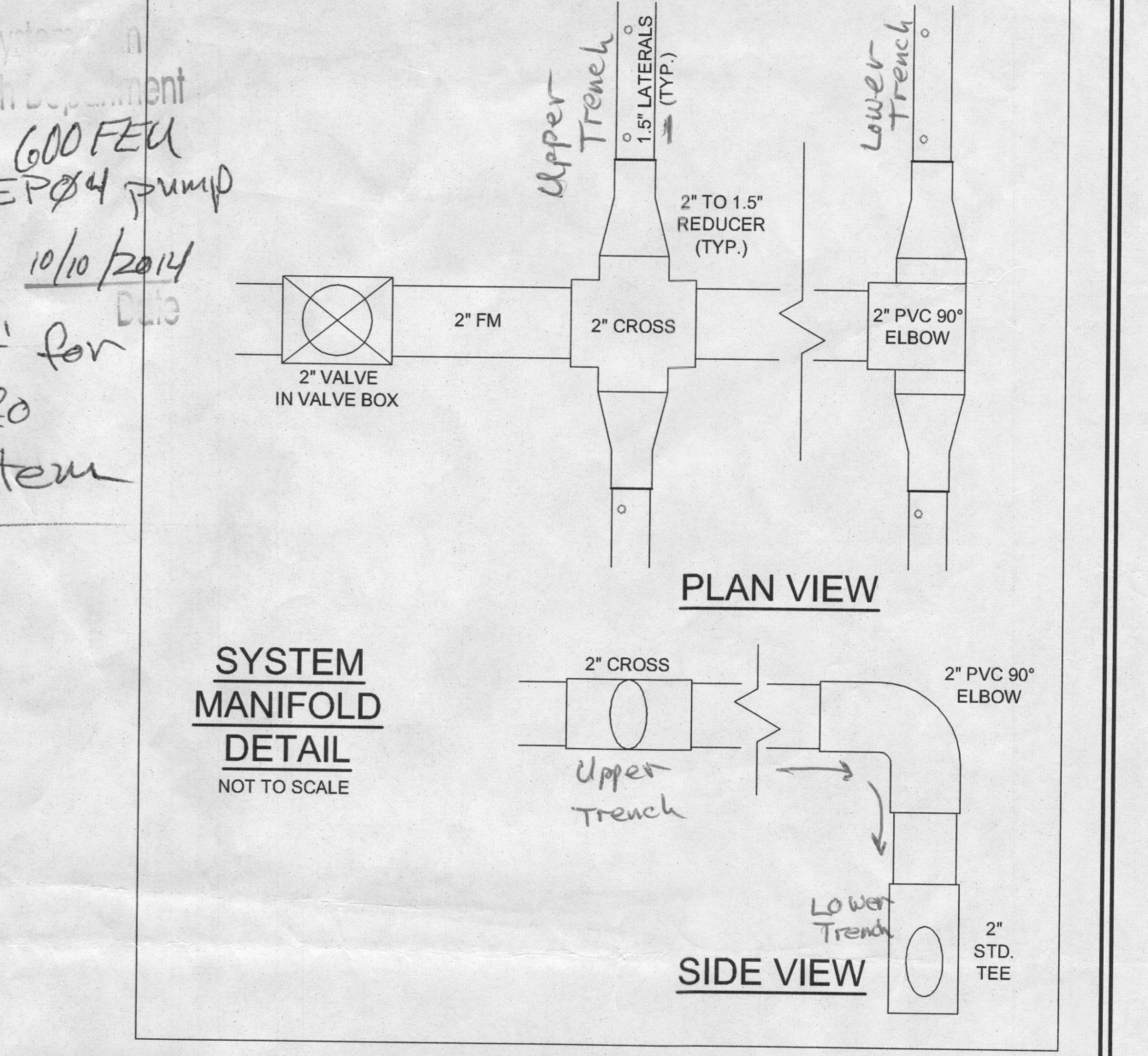


**DISTRIBUTION LATERAL PROFILE DOSING FIELDS**  
NOT TO SCALE



**C.R. Semler, Inc.**  
Smithsburg, MD  
1500 Gallon Top Seam Pump Chamber  
Single Compartment  
1/2" = 1'-0"  
12-28-89  
Rev 6-99

- 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 (6.5 FEET).
  - THE BLOWER MAY NOT BE LOCATED MORE THAN 90 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.



**SITE PLAN FOR BAT INSTALLATION**  
**CHAPEL RISE**  
LOT 4  
11560 CHAPEL RISE  
SINGLE FAMILY DETACHED  
TAX MAP 29 GRID 8  
5TH ELECTION DISTRICT  
PARCEL 26  
TAX ACCOUNT # 594205  
HOWARD COUNTY, MARYLAND

**Sill · Adcock & Associates · LLC**  
Engineers · Surveyors · Planners  
3300 North Ridge Road, Suite 160  
Ellicott City, Maryland 21043  
Phone: 443.325.7682 Fax: 443.325.7685  
Email: info@silladcock.com

DESIGN BY: PS  
DRAWN BY: BK  
CHECKED BY: PS  
SCALE: AS SHOWN  
DATE: OCTOBER 6, 2014  
PROJECT #: 13-082  
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. 32023, EXPIRATION DATE: JUNE 20, 2015