

**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](http://www.hchealth.org)  
 Facebook: [www.facebook.com/hocohealth](http://www.facebook.com/hocohealth)

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

RECEIPT DATE: 10/28/15 **ONSITE SEWAGE DISPOSAL SYSTEM** P 557432

APPROVAL DATE: 2/11/16 **PERMIT: CONSTRUCTION** A \_\_\_\_\_

PROPERTY ADDRESS: 7374 Guilford Road

SUBDIVISION: \_\_\_\_\_ LOT: 2 TAX ID: \_\_\_\_\_

CONTRACTOR: Sams Creek EMAIL: Sams.creek@aol.com

CONTRACTOR ADDRESS: 2810 Sams Creek Road PHONE: (443) 821-4932

CONTRACTOR CERTIFIED FOR BAT INSTALLATION:  MDE  MANUFACTURER:

PROPERTY OWNER: Sean & Jeanne Grantham Tiede EMAIL: \_\_\_\_\_

OWNER ADDRESS: 6760 Pindell School Rd. PHONE: \_\_\_\_\_

BAT UNIT MODEL: Norweco PUMP SIZE: \_\_\_\_\_ PUMP TANK CAPACITY: \_\_\_\_\_

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: \_\_\_\_\_ DATE RECORDED: \_\_\_\_\_

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 0.8

TRENCHES:	LINEAR FEET REQUIRED: <u>132 109'</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>8 2'</u>	MAXIMUM BOTTOM DEPTH: <u>8</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10 9'</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: 3 x 57' trenches

ISSUED BY: Sarah Collins ISSUE DATE: 11/2/15 EXPIRATION DATE: 11/2/16

- 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 DOWNGRADE 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 E15004556
- 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

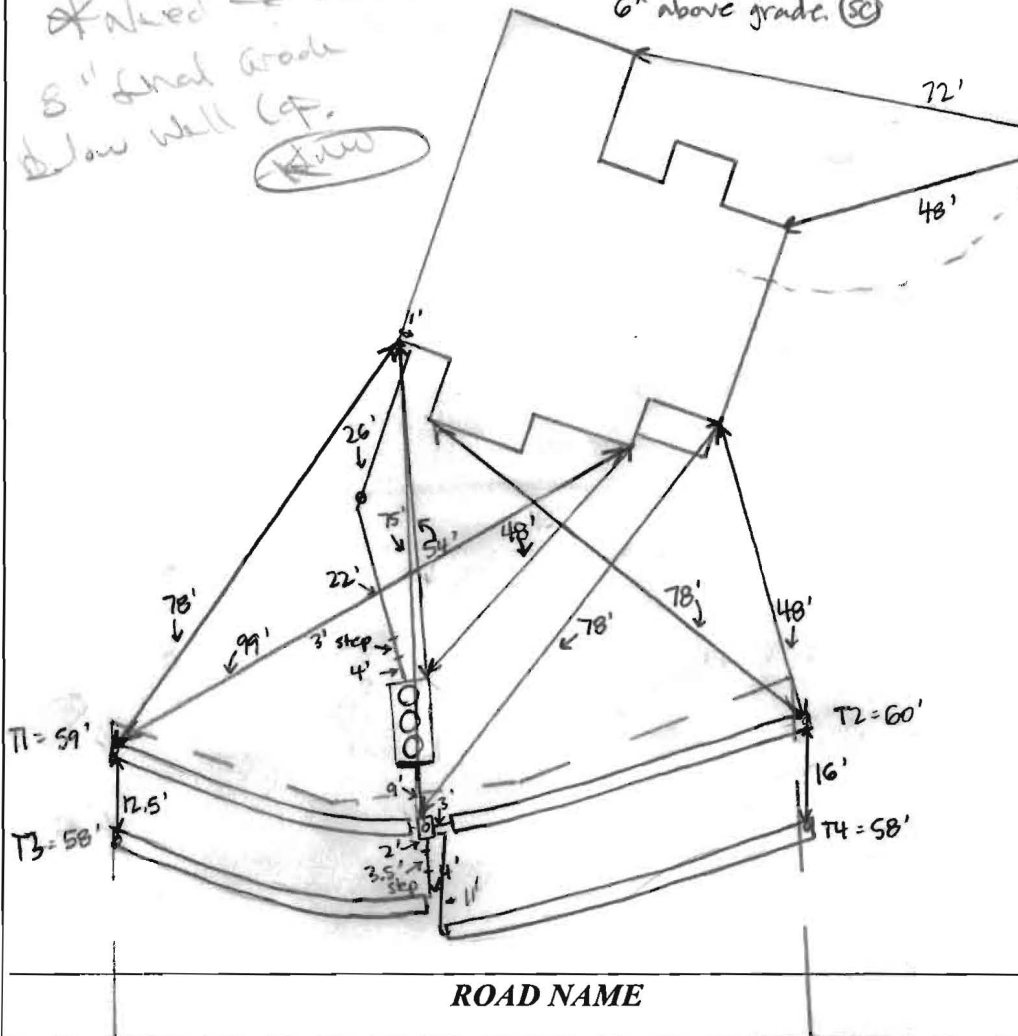
NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.  
 PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.  
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

2/11/16 BAT startup  
 Certification received. (SC)

NOT TO SCALE

2/16/16 Norweco startup - alarm sounds, aerator runs. Contractor added ricers while on site manholes now 6" above grade. (SC)

\*Need to verify  
 8" final grade  
 below well (cf. new)



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
2'	T1/T2: 2.5' T3/T4: 4'	6' 8'
NUMBER OF TRENCHES 4		
TOTAL LENGTH 235'		
ABSORPTION AREA 470' + SIDEWALL		
DISTRIBUTION BOX LEVEL YES 05/11/13		
DISTRIBUTION BOX BAFFLE YES		
DISTRIBUTION BOX PORT YES		

SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	YES
MANUFACTURER	BACKRIVER/NORWECO
CAPACITY	1300 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5-3'
BAFFLES	NO
BAFFLE FILTER	NO
MANHOLE LOC	FRONT
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	8-28-15

PUMP/SEPTIC TANK LEVEL	
MANUFACTURER	
CAPACITY	GAL
SEAM LOC	
TANK LID DEPTH	
BAFFLES	
BAFFLE FILTER	
MANHOLE LOC	
6" PORT LOC	
WATERTIGHT TEST	
SLOTTED	
DATE ON LID	

PRE-CONSTRUCTION:

11/2/15 One stake of SDA and BAT tank stake missing. Notified Dan with Viking Homes that entire area and tank must be staked before we can proceed with layout. (SC)  
 11/5/15 Met Sams Creek on site for layout. Dan from Viking Homes also on site.  
 All SDA + tank stakes present. Laid out 3 x 57' trenches on contour, 2' wide. (SC)

INSTALLATION: 11/9/15 Tank installed. Pipe run from house but house connection not yet made. D-box installed and connected to tank. (SC) 11/12/15 BAT startup certification received. (SC)

11/12/15 T1-T3 complete. T1 covered and T2-T3 filled with stone/pipe/cloth + left open. T1 + T2 are not installed per spec - inlet is 2.5' and bottoms 6'. T3 has inlet 4', bottom 8'. Need a 4th trench in order to have enough absorption area - 57' long, inlet 4', bottom 8'. Install 12' below T2 to avoid large tree. SDA will have adequate area for 2 replacement even with bedroom addition. (SC) 11/12/15 T4 dug + left open. 8' depth, soil profile correlates with perc tests. (SC) 11/12/15 Filling T4 with stone - 4' to invert depth. New D-box installed but not connected. Need to level speed levelers. (SC)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 2/11/16  
 11/13/15 Last trench installed, planked, must @ 4' bottom of trench not seen.  
 WLE inspected. OK to com system. Need BAT startups for final approval (SC)

## **Bernard, Dana**

---

**From:** Bernard, Dana  
**Sent:** Wednesday, July 15, 2015 3:51 PM  
**To:** 'Stephanie Tuite'  
**Subject:** 7374 Guildford Road and 8936 Sunset Drive

Per our conversation:

### **7374 Guildford Road**

I have listed the revisions needed for your BAT plan.

- ❖ We will need to change the number of bedrooms on your building permit to reflect the number of bedrooms shown on your BAT plan.
- ❖ Revise calculations on your BAT plan to reflect proposed number of bedrooms.
- ❖ Remove line 5 from the general notes.
- ❖ Currently your floor plans reflect 5 bedrooms with a possible 6<sup>th</sup> bedroom in the basement I recommend this statement be added to the general notes.

If a building permit is submitted any time in the future, a septic system upgrade will be required to finish the area currently identified as the basement. At that time a septic system upgrade will be required as finishing the basement could possible create a sixth bedroom per Howard County code 3.801(B).

### **8936 Sunset Drive**

The septic system and the well must be abandoned prior to signature final.

Dana

# 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 7374 Guilford Rd., Clarksville, MD 21029 November 09, 2015 was installed according to the manufacture's specifications.

Installer: Joe Wright

Property Owner: Sean Grantham

Permit #



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MATTHEW GECKLE

Vice-President

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

737 *61167012* *Rel*  
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: grantham  
Reference/Control #: 86

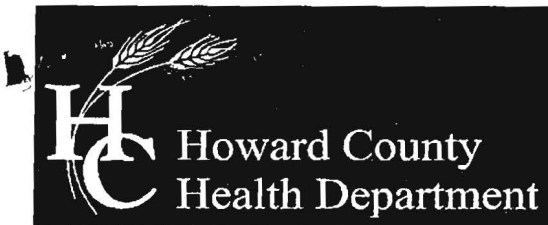
=====  
LR - Agreement Surcharge  
1x 40.00 40.00

=====  
SubTotal: 60.00  
Total: 60.00

=====  
REV-Check-BOA 60.00  
Number : 11782

10/23/2015 11:29 CC13-MH  
#5050171 /496/109

~ Thank you for visiting us today ~



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Facebook: [www.facebook.com/hocohealth](https://www.facebook.com/hocohealth)

Twitter: [HowardCoHealthDep](https://twitter.com/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 20 day of October, among Sean and Jeannine Grantham, 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 7374 Guilford Rd, in the 5 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 14909 Folio 00433

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 BAT Singulain TAT 600

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.

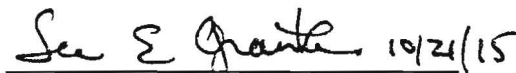
J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

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

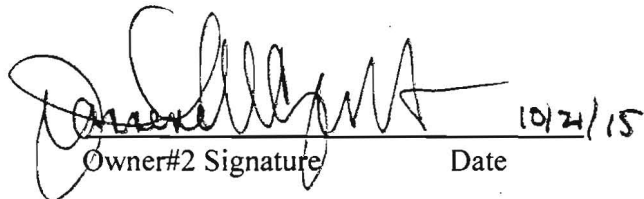
 10/23/15  
Howard County Health Department

 10/21/15  
Owner #1 Signature Date

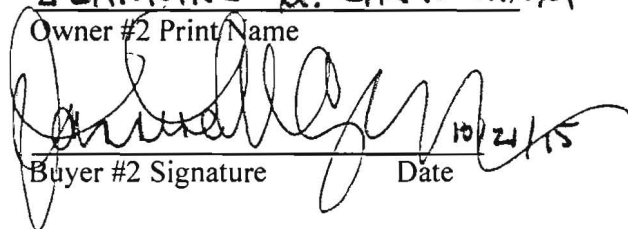
SEAN E. GRANTHAM  
Owner #1 Print Name

 10/21/15  
Buyer #1 Signature Date

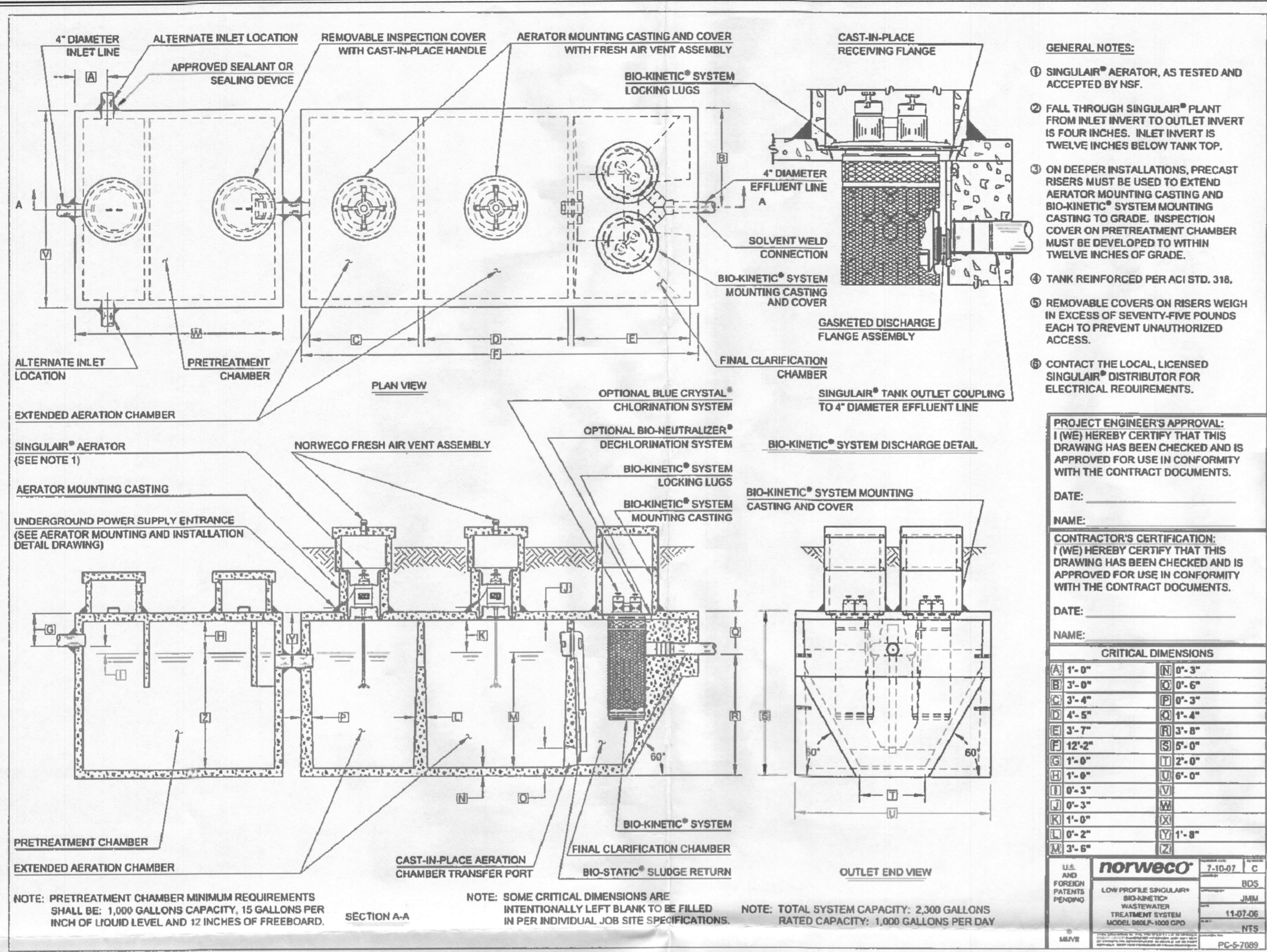
SEAN E. GRANTHAM  
Buyer #1 Print Name

 10/21/15  
Owner #2 Signature Date

JEANNINE M. GRANTHAM  
Owner #2 Print Name

 10/21/15  
Buyer #2 Signature Date

JEANNINE M. GRANTHAM  
Buyer #2 Print Name



- GENERAL NOTES:**
- SINGULAR® AERATOR, AS TESTED AND ACCEPTED BY NSF.
  - 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 PRETREATMENT 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.

**PROJECT ENGINEER'S APPROVAL:**  
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: \_\_\_\_\_  
NAME: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION:**  
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DATE: \_\_\_\_\_  
NAME: \_\_\_\_\_

**CRITICAL DIMENSIONS**

A	1'-0"	N	0'-3"
B	3'-0"	O	0'-6"
C	3'-4"	P	0'-3"
D	4'-5"	Q	1'-4"
E	3'-7"	R	3'-8"
F	12'-2"	S	5'-0"
G	1'-0"	T	2'-0"
H	1'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	1'-8"
M	2'-8"	Z	

USE AND FOREIGN PATENTS PENDING

**norweco** 7-10-07 C  
BDS  
JMM  
11-07-06  
NTS  
PC-5-2189

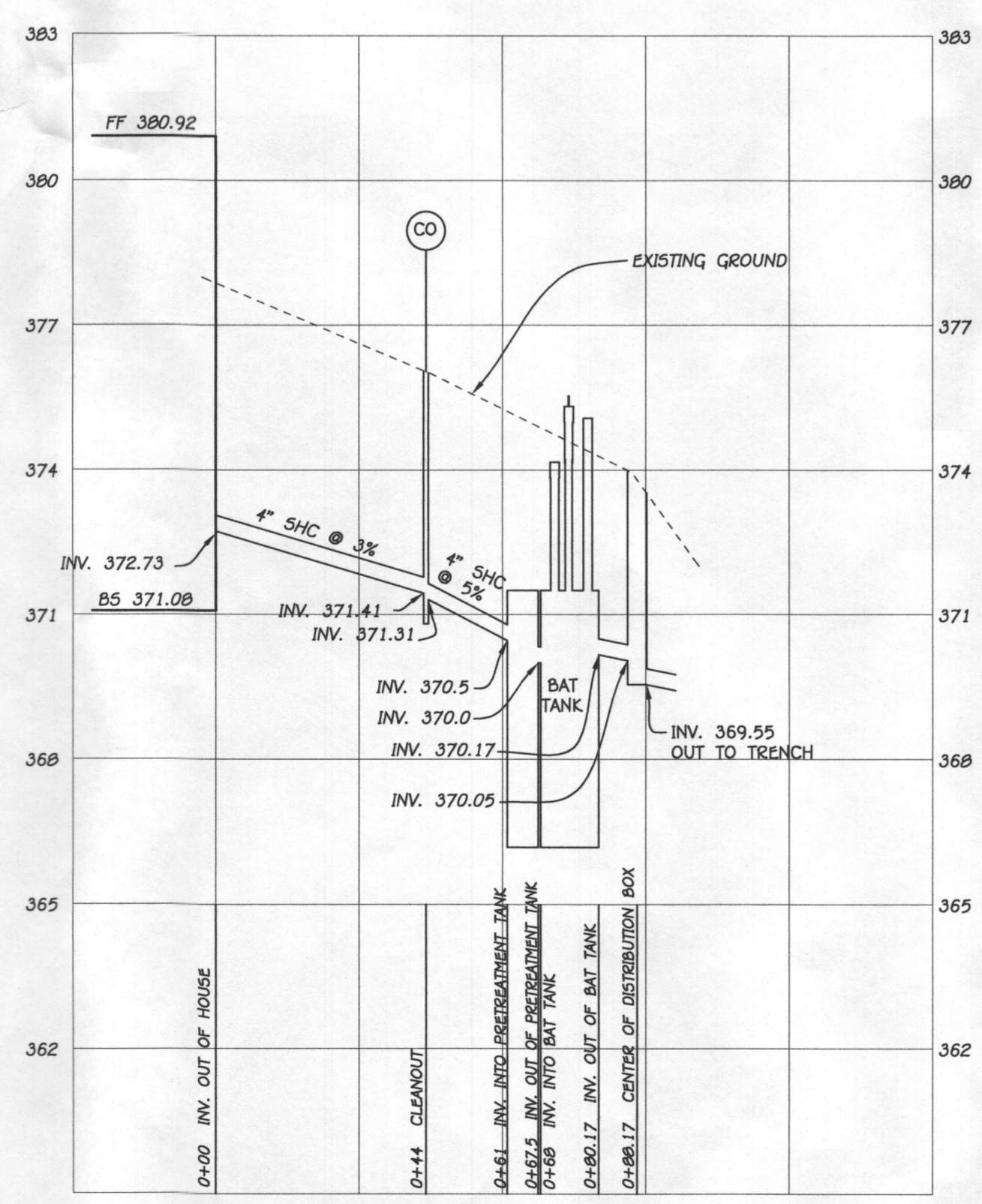
- BAT NOTES**
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
  - THE MAXIMUM COVER OVER THE BAT SHALL BE 3 FEET.
  - THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED 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 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. ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
  - AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MARYLAND.
  - THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
  - SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

**SEPTIC SYSTEM ELEVATIONS**

FTE = 360.92  
BSE = 371.08  
INV. OUT OF HOUSE = 372.68  
\* BASEMENT SEWAGE IS TO BE PUMPED

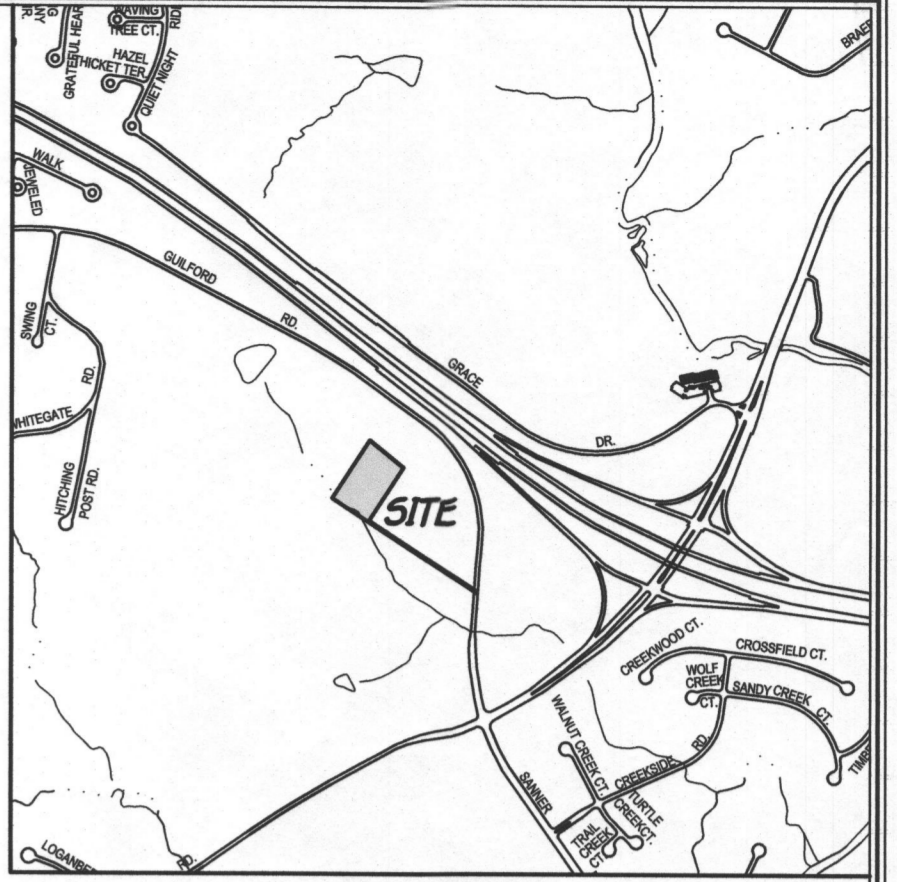
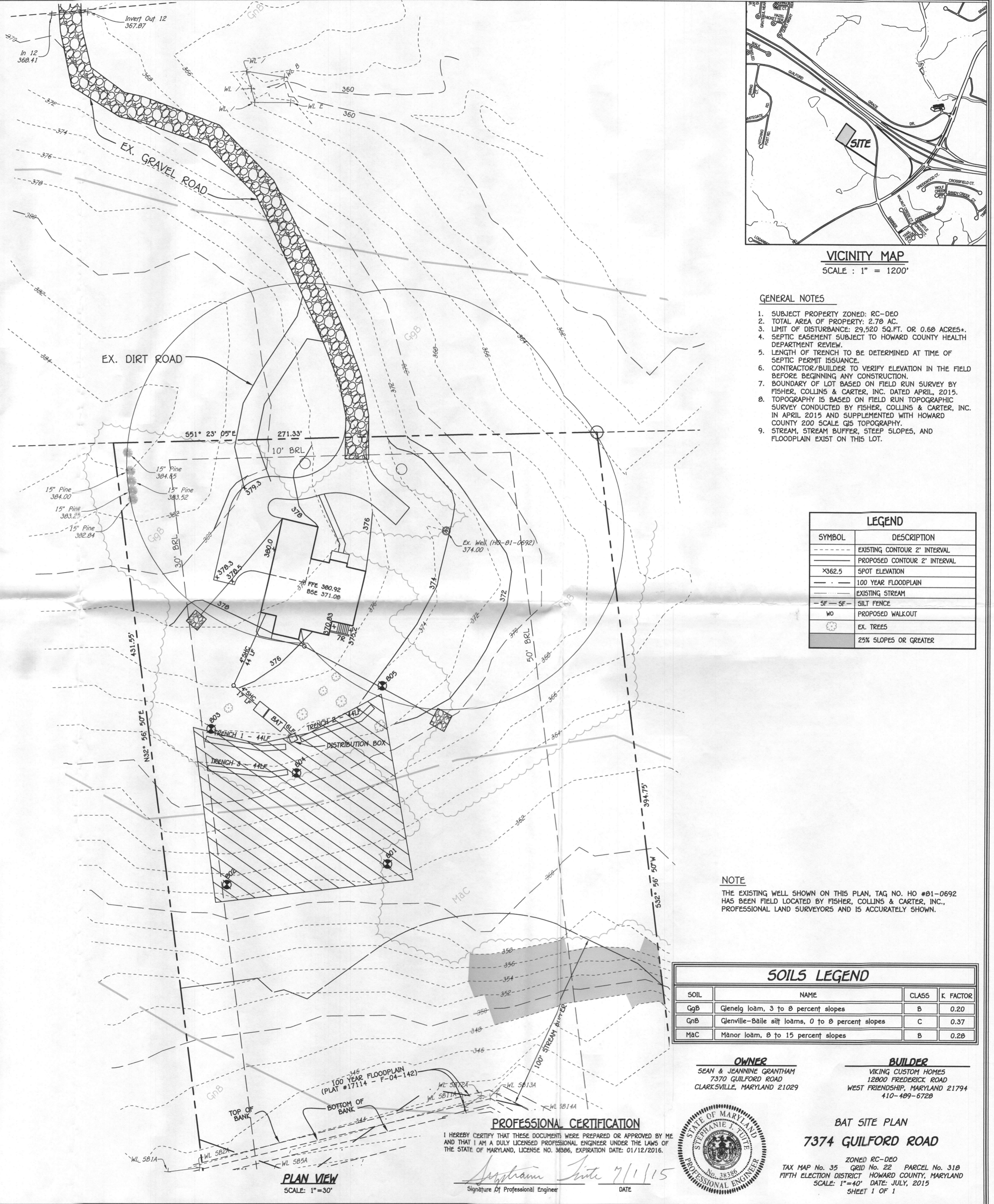
EX GROUND AT C/O = 376.1  
INV. INTO C/O = 371.80  
INV. OUT OF C/O = 371.70  
EX GROUND AT BAT TANK = 374.5  
TOP OF BAT TANK = 371.5  
COVER OVER BAT TANK = 3 FT  
INVERT INTO BAT TANK = 370.5  
INVERT OUT OF BAT TANK = 370.17  
EX. GROUND AT DISTRIBUTION BOX = 373.3  
INVERT INTO DISTRIBUTION BOX = 370.05  
INVERT OUT OF DISTRIBUTION BOX = 369.55

**SEPTIC SYSTEM DESIGN**  
6 BEDROOM HOUSE  
LOADING RATE = 750 GPD  
APPLICATION RATE = 0.8  
EFFECTIVE SIDEWALL BEGINS AT 4 FEET  
TRENCH DEPTH = 0 FEET  
TRENCH WIDTH (W) = 3 FEET  
EFFECTIVE DEPTH (D) = 4 FEET  
SF OF DRAINFIELD = 750 GPD / 0.8 = 937.5 SF  
COEFFICIENT OF REDUCTION OF TRENCH LENGTH = (W+2)/(W+1+2D) = (3+2)/(3+1+(2x4)) = 0.417  
TRENCH LENGTH = 937.5 SF x 0.417 / 3 = 130.3 FEET (USE 132 FEET)  
TRENCH SPACING = 2D+W = ((2x4) + 3) = 11'



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PARK  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2855

SCALE: 1" = 30'



**VICINITY MAP**  
SCALE: 1" = 1200'

- GENERAL NOTES**
- SUBJECT PROPERTY ZONED: RC-DEO
  - TOTAL AREA OF PROPERTY: 2.79 AC.
  - LIMIT OF DISTURBANCE: 29,500 SQ. FT. OR 0.68 ACRES.
  - SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
  - LENGTH OF TRENCH TO BE DETERMINED AT TIME OF SEPTIC PERMIT ISSUANCE.
  - CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
  - BOUNDARY OF LOT BASED ON FIELD RUN SURVEY BY FISHER, COLLINS & CARTER, INC. DATED APRIL, 2015.
  - TOPOGRAPHY IS BASED ON FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED BY FISHER, COLLINS & CARTER, INC. IN APRIL 2015 AND SUPPLEMENTED WITH HOWARD COUNTY 200 SCALE GIS TOPOGRAPHY.
  - STREAM, STREAM BUFFER, STEEP SLOPES, AND FLOODPLAIN EXIST ON THIS LOT.

**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
362.5	SPOT ELEVATION
---	100 YEAR FLOODPLAIN
---	EXISTING STREAM
-SF-SF-	SILT FENCE
WO	PROPOSED WALKOUT
⊙	EX. TREES
	25% SLOPES OR GREATER

**NOTE**  
THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO #01-0692 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

**SOILS LEGEND**

SOIL	NAME	CLASS	K FACTOR
GgB	Glennel loam, 3 to 8 percent slopes	B	0.20
GnB	Glenville-Balle silt loams, 0 to 8 percent slopes	C	0.37
MaC	Manor loam, 8 to 15 percent slopes	B	0.28

**OWNER**  
SEAN & JEANNINE GRANTHAM  
7370 GUILFORD ROAD  
CLARKSVILLE, MARYLAND 21029

**BUILDER**  
VICKING CUSTOM HOMES  
12800 FREDERICK ROAD  
WEST FRIENDSHIP, MARYLAND 21794  
410-489-6728

**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. 18886, EXPIRATION DATE: 01/12/2016.

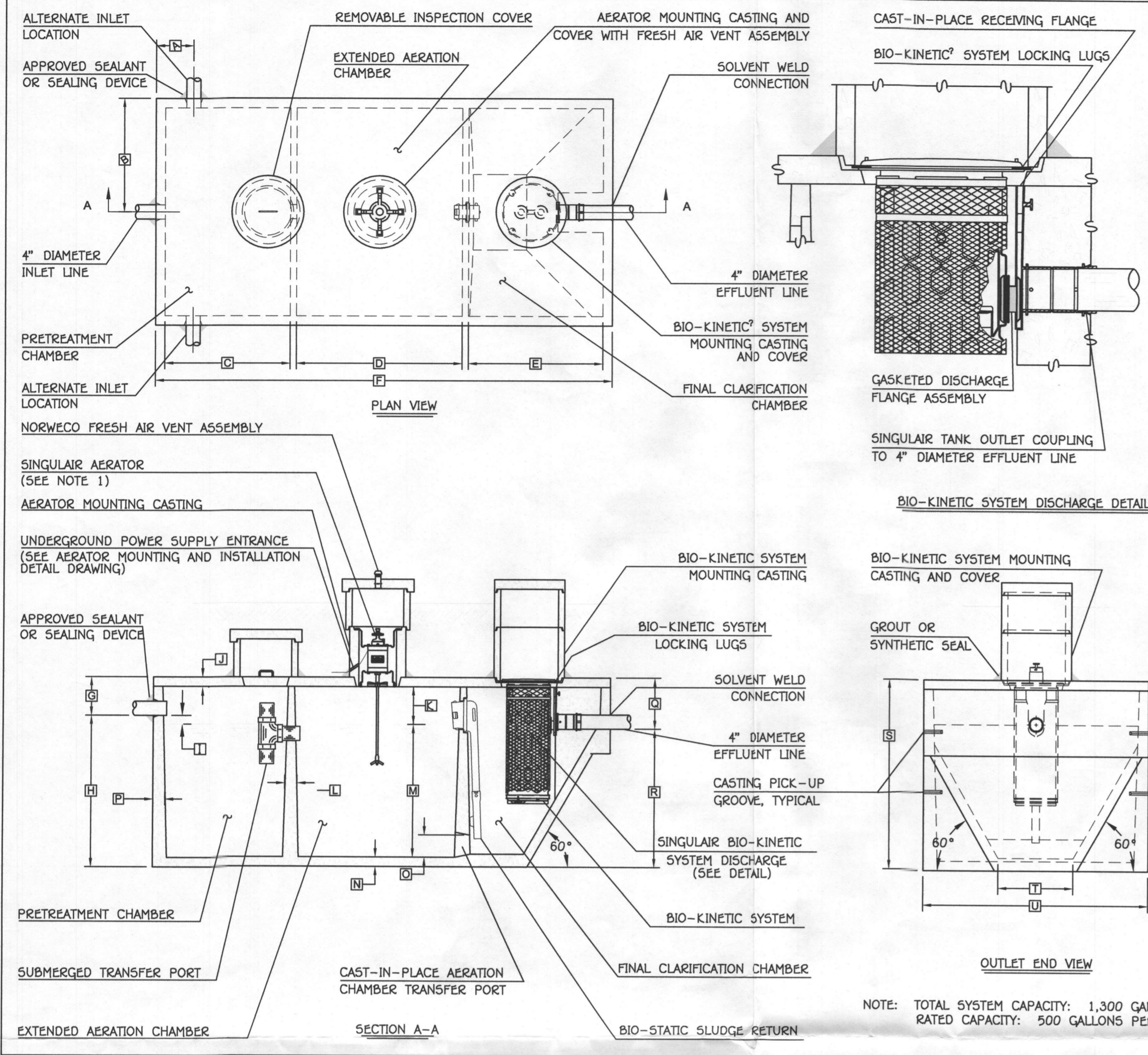
*Seaham* Date 7/1/15  
Signature of Professional Engineer DATE

**STATE OF MARYLAND**  
SEAHAM  
18886  
PROFESSIONAL ENGINEER

**BAT SITE PLAN**  
7374 GUILFORD ROAD

ZONED RC-DEO  
GRID No. 22 PARCEL No. 318  
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1"=40' DATE: JULY, 2015  
SHEET 1 OF 1

1:20151515003 Engineering Dwg\15003-3008 BAT Plan.dwg 7/1/2015 10:10:05 AM, 1:1



**GENERAL NOTES:**

- SINGULAIR AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
- FALL THROUGH SINGULAIR 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.
- TANK REINFORCED PER ACI STD. 318-05.
- REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
- CONTACT THE LOCAL, LICENSED SINGULAIR DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

**PROJECT ENGINEER'S APPROVAL:**  
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

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G	1'-0"	T	2'-0"
H	4'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	
M	3'-6"	Z	

**norweco** 3-29-07 B  
U.S. AND FOREIGN PATENTS PENDING  
LOW-PROFILE SINGULAIR BIO-KINETIC WASTEWATER TREATMENT SYSTEM MODEL TWPL-500 GPD  
© MMVII  
PC-5-7091

**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 COVER OVER THE BAT SHALL BE 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 HAZARDOUS WASTE DEPARTMENT (HWD) IN A MANNER ACCEPTABLE TO HWD, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, LIBER FOLIO \_\_\_\_\_.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

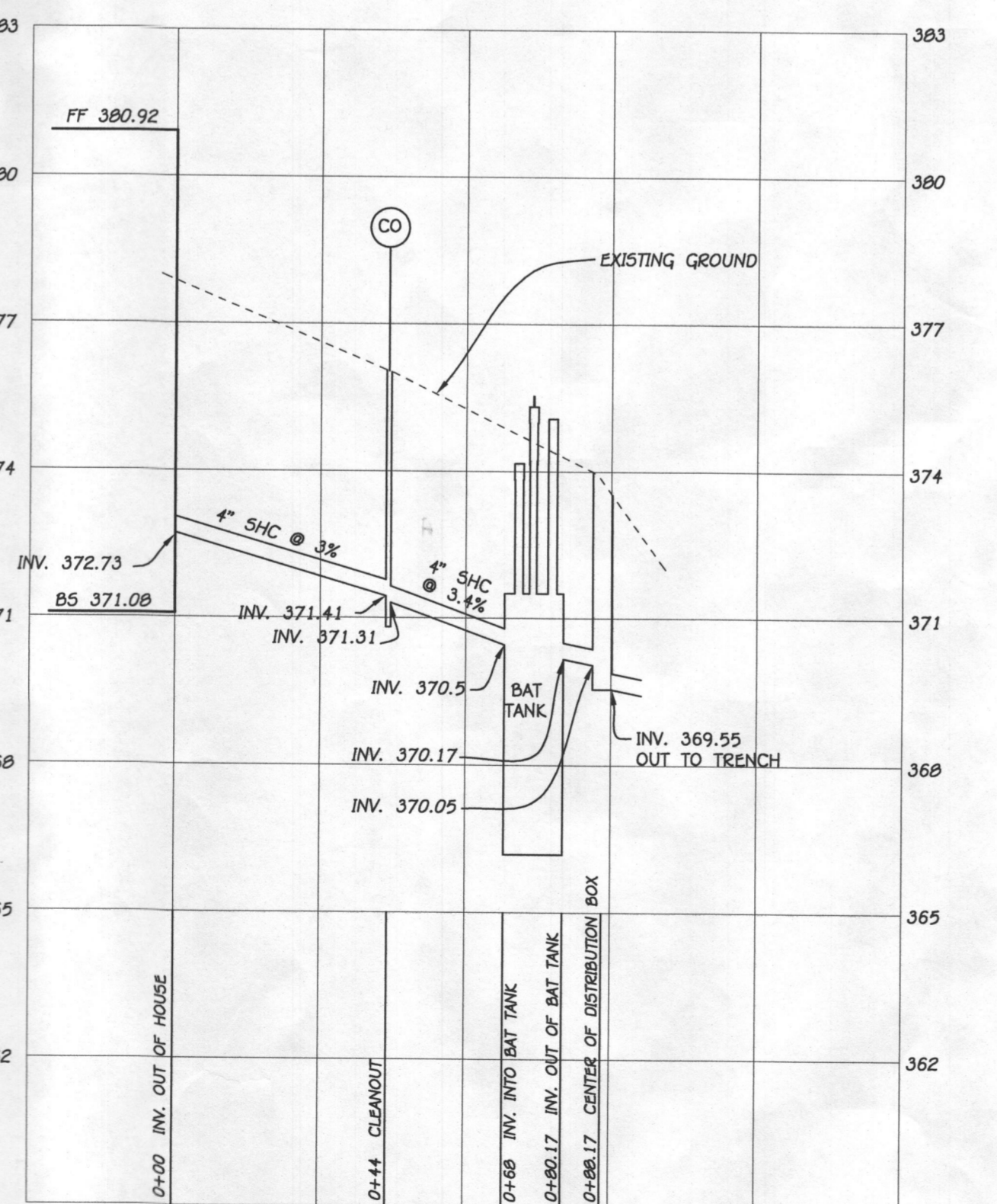
**SEPTIC SYSTEM ELEVATIONS**

FFE = 380.92  
BSE = 371.08  
INV. OUT OF HOUSE = 372.73  
\* BASEMENT SEWAGE IS TO BE PUMPED

EX GROUND AT C/O = 376.1  
INV. INTO C/O = 371.41  
INV. OUT OF C/O = 371.31  
EX GROUND AT BAT TANK = 374.5  
TOP OF BAT TANK = 371.5  
COVER OVER BAT TANK = 3 FT  
INVERT INTO BAT TANK = 370.5  
INVERT OUT OF BAT TANK = 370.17  
EX. GROUND AT DISTRIBUTION BOX = 373.3  
INVERT INTO DISTRIBUTION BOX = 370.05  
INVERT OUT OF DISTRIBUTION BOX = 369.55

**SEPTIC SYSTEM DESIGN**

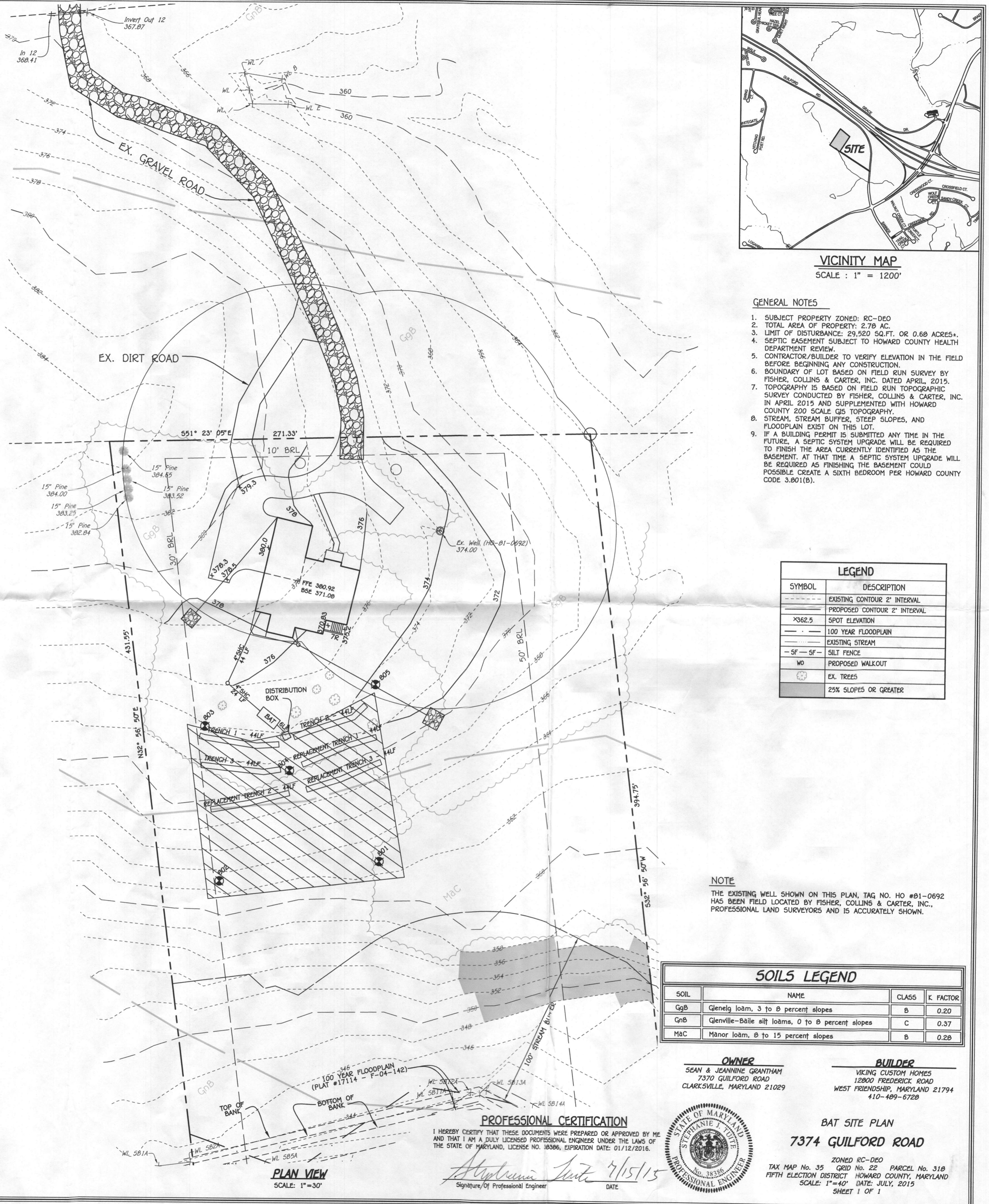
5 BEDROOM HOUSE  
LOADING RATE = 750 GPD  
APPLICATION RATE = 0.8  
EFFECTIVE SIDEWALL BEGINS AT 4 FEET  
TRENCH DEPTH = 8 FEET  
TRENCH WIDTH (W) = 3 FEET  
EFFECTIVE DEPTH (D) = 4 FEET  
SF OF DRAINFIELD = 750 GPD / 0.8 = 937.5 SF  
COEFFICIENT OF REDUCTION OF TRENCH LENGTH =  $(W+2)/(W+1+2D) = (3+2)/(3+1+2(4)) = 0.417$   
TRENCH LENGTH =  $937.5 SF \times 0.417 / 3 = 130.3$  FEET (USE 132 FEET)  
TRENCH SPACING =  $2D+W = (2(4) + 3) = 11'$



**FISHER, COLLINS & CARTER, INC.**  
CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
CLLESTON CITY, MARYLAND 21142  
(410) 461-2955

**SEPTIC PROFILE**  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

SCALE: 1" = 30'



**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - - -	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
x362.5	100 YEAR FLOODPLAIN
---	EXISTING STREAM
-SF-SF-	SILT FENCE
ND	PROPOSED WALKOUT
⊙	EX. TREES
25%	25% SLOPES OR GREATER

**SOILS LEGEND**

SOIL	NAME	CLASS	K FACTOR
GgB	Glenelg loam, 3 to 8 percent slopes	B	0.20
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	C	0.37
MAC	Manor loam, 8 to 15 percent slopes	B	0.28

**OWNER**  
SEAN & JEANNINE GRANTHAM  
7370 GUILFORD ROAD  
CLARKSVILLE, MARYLAND 21029

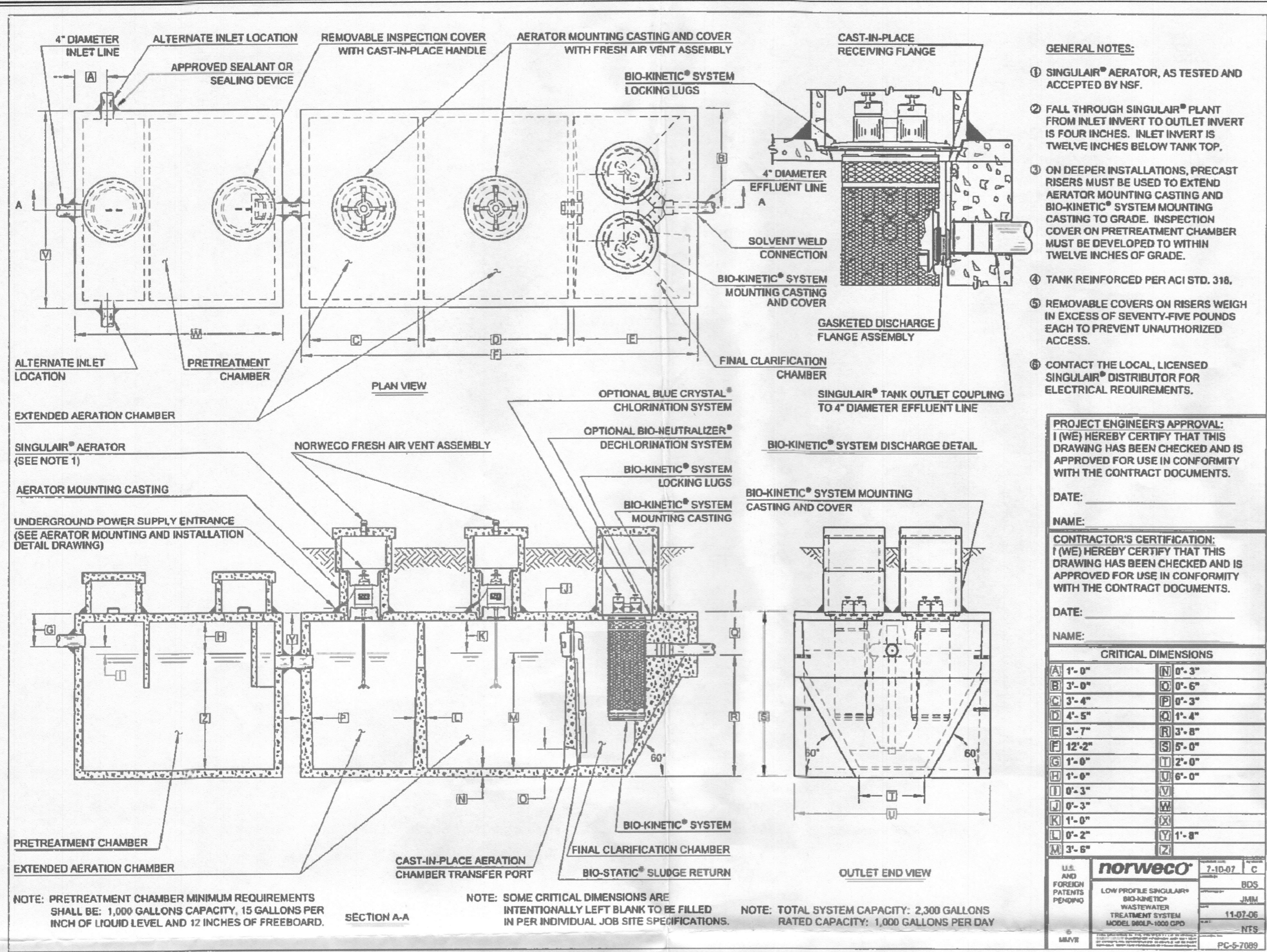
**BUILDER**  
VIKING CUSTOM HOMES  
12800 FREDERICK ROAD  
WEST FRIENDSHIP, MARYLAND 21794  
410-489-6728

**BAT SITE PLAN**  
7374 GUILFORD ROAD

**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. 18396, EXPIRATION DATE: 01/12/2016.  
Stephen J. Lutz 7/15/15  
Signature of Professional Engineer DATE

**ZONED RC-DEO**  
GRID No. 22 PARCEL No. 318  
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1"=40' DATE: JULY, 2015  
SHEET 1 OF 1

X:\2015\15003\Engineering\Drawings\5003-3008 BAT Plan.dwg, 7/15/2015 5:01:08 PM, 11



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

**PROJECT ENGINEER'S APPROVAL:**  
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
 DATE: \_\_\_\_\_  
 NAME: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION:**  
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
 DATE: \_\_\_\_\_  
 NAME: \_\_\_\_\_

**CRITICAL DIMENSIONS**

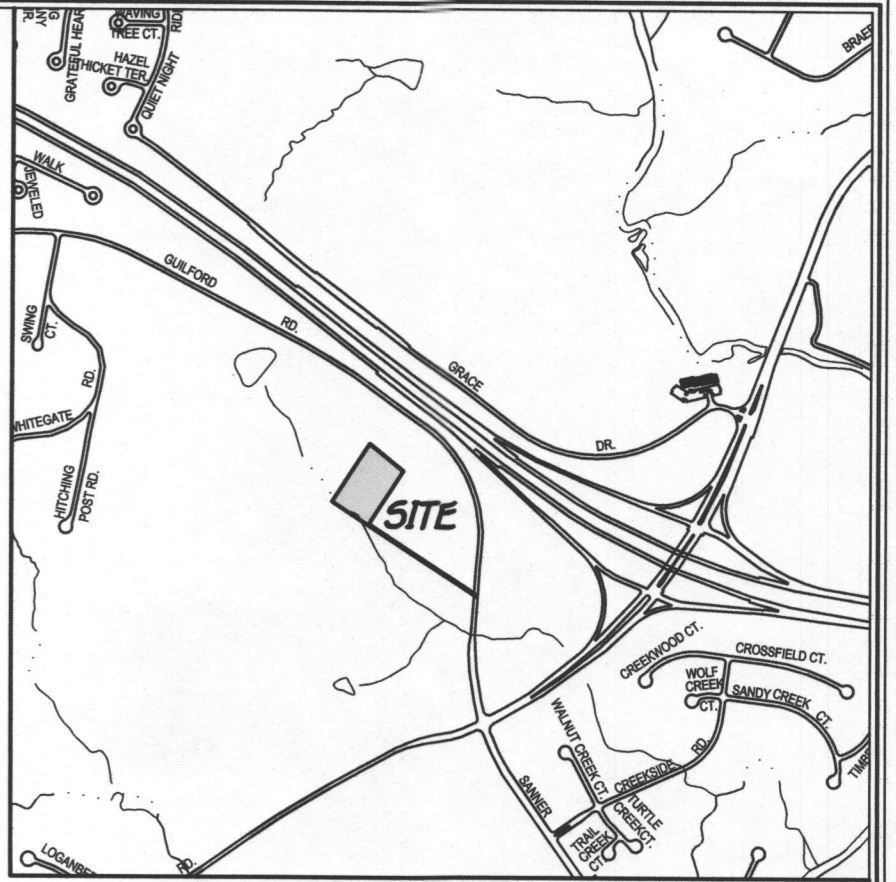
A	1'-0"	N	0'-3"
B	3'-0"	O	0'-5"
C	3'-4"	P	0'-3"
D	4'-5"	Q	1'-4"
E	3'-7"	R	3'-8"
F	12'-2"	S	5'-0"
G	1'-0"	T	2'-0"
H	1'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	1'-8"
M	3'-5"	Z	

USE AND FOREIGN PATENTED 7-10-07 C  
 LOW PROFILE SINGULAR® BIO-KINETIC® WASTEWATER TREATMENT SYSTEM MODEL 800-100-000  
 NTS  
 PC-2-2189

**NOTE:** PRETREATMENT CHAMBER MINIMUM REQUIREMENTS SHALL BE: 1,000 GALLONS CAPACITY, 15 GALLONS PER INCH OF LIQUID LEVEL AND 12 INCHES OF FREEBOARD.

**NOTE:** SOME CRITICAL DIMENSIONS ARE INTENTIONALLY LEFT BLANK TO BE FILLED IN PER INDIVIDUAL JOB SITE SPECIFICATIONS.

**NOTE:** TOTAL SYSTEM CAPACITY: 2,300 GALLONS RATED CAPACITY: 1,000 GALLONS PER DAY



**VICINITY MAP**  
 SCALE: 1" = 1200'

- GENERAL NOTES**
1. SUBJECT PROPERTY ZONED: RC-DEO
  2. TOTAL AREA OF PROPERTY: 2.78 AC.
  3. LIMIT OF DISTURBANCE: 23,500 SQ.FT. OR 0.68 ACRES.
  4. SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
  5. LENGTH OF TRENCH TO BE DETERMINED AT TIME OF SEPTIC PERMIT ISSUANCE.
  6. CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
  7. BOUNDARY OF LOT BASED ON FIELD RUN SURVEY BY FISHER, COLLINS & CARTER, INC. DATED APRIL, 2015.
  8. TOPOGRAPHY IS BASED ON FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED BY FISHER, COLLINS & CARTER, INC. IN APRIL 2015 AND SUPPLEMENTED WITH HOWARD COUNTY 200 SCALE GIS TOPOGRAPHY.
  9. STREAM, STREAM BUFFER, STEEP SLOPES, AND FLOODPLAIN EXIST ON THIS LOT.

**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
362.5	SPOT ELEVATION
---	100 YEAR FLOODPLAIN
---	EXISTING STREAM
-SF-SF-	SILT FENCE
WO	PROPOSED WALKOUT
⊙	EX. TREES
---	25% SLOPES OR GREATER

- BAT NOTES**
1. 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.
  2. THE MAXIMUM COVER OVER THE BAT SHALL BE 3 FEET.
  3. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
  4. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
  5. 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. ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
  6. AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, LIBES.
  7. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
  8. SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

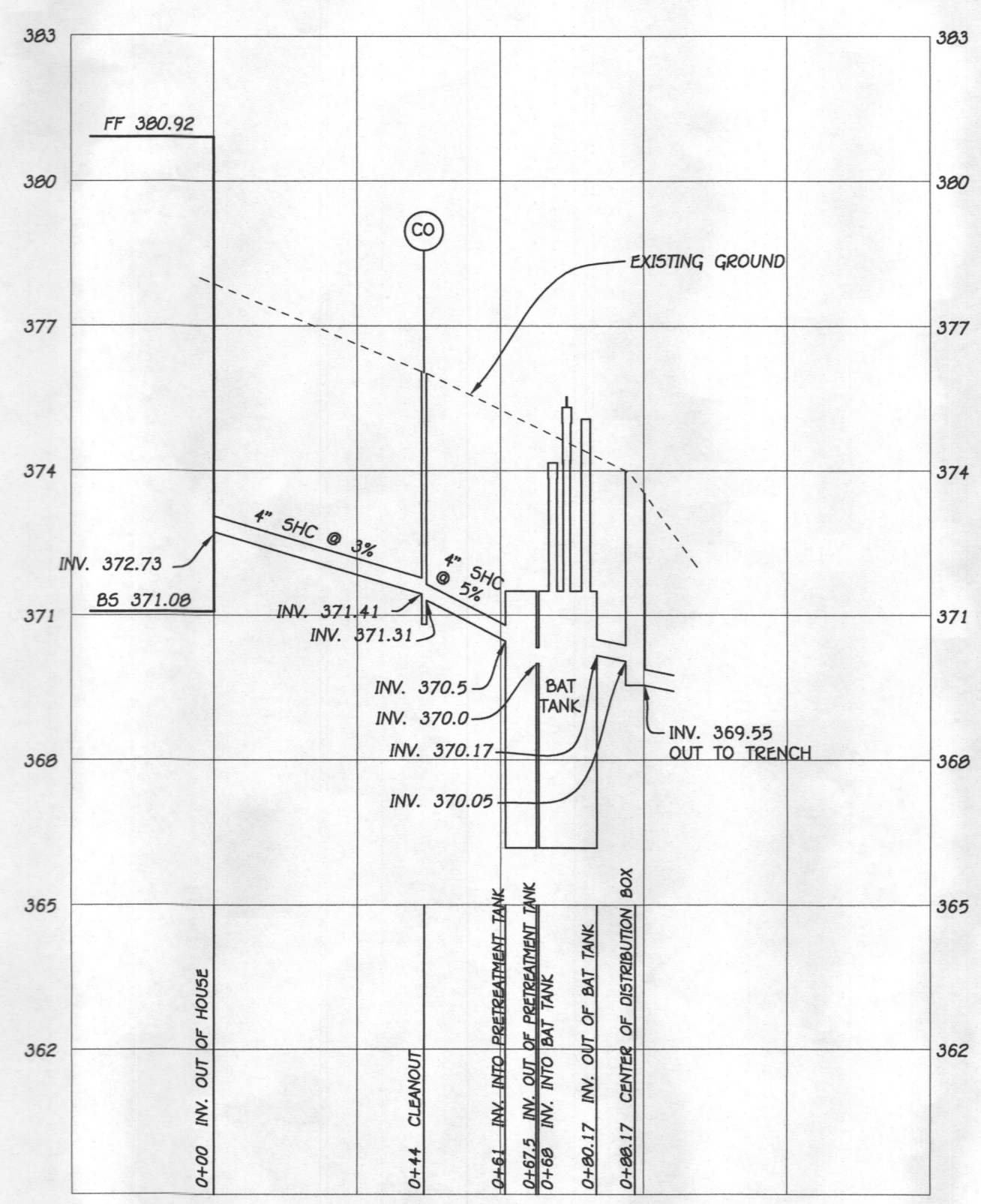
**SEPTIC SYSTEM ELEVATIONS**

FFE = 360.92  
 BSE = 371.08  
 INV. OUT OF HOUSE = 372.68  
 \* BASEMENT SEWAGE IS TO BE PUMPED

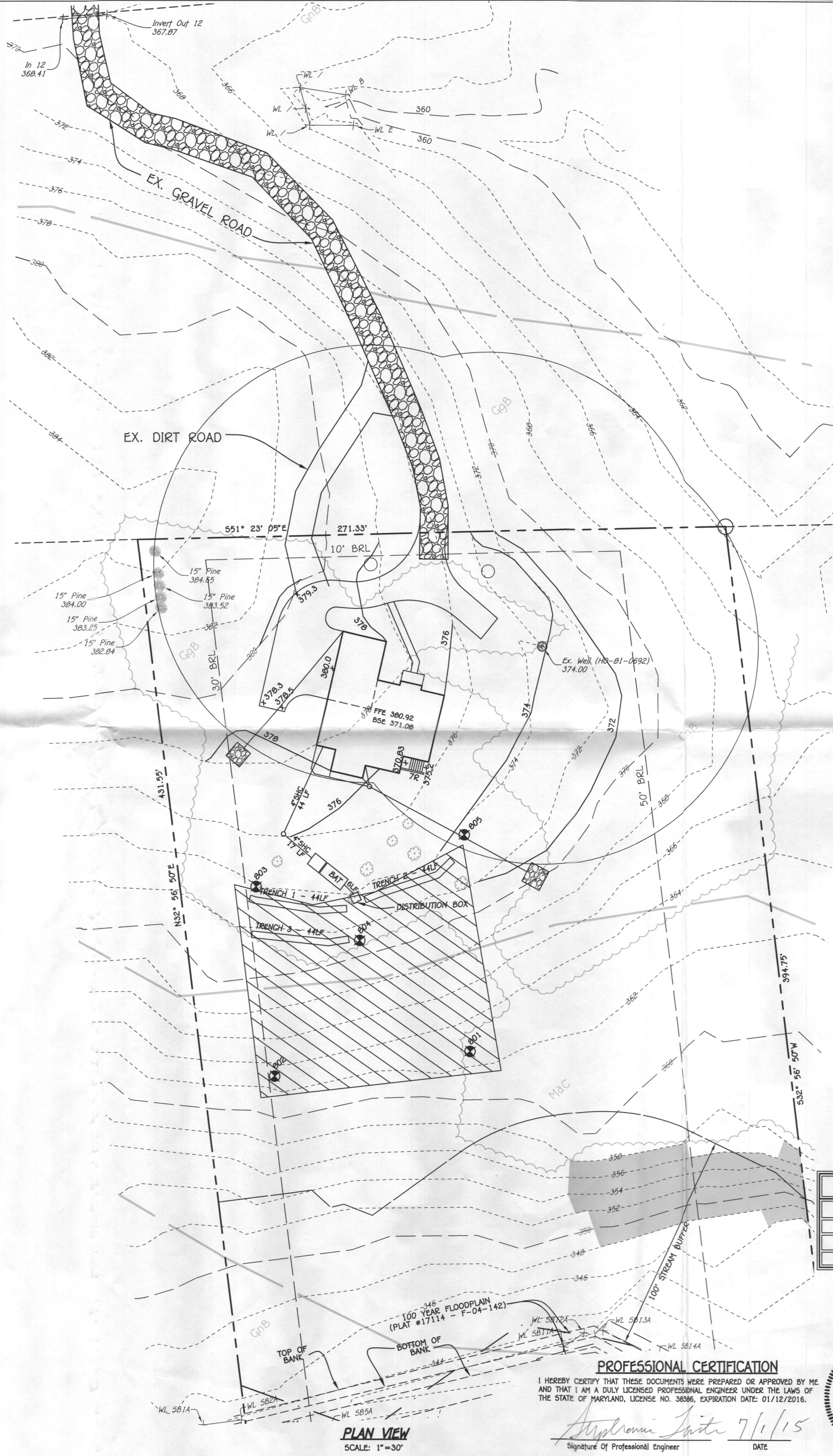
EX GROUND AT C/O = 376.1  
 INV. INTO C/O = 371.80  
 INV. OUT OF C/O = 371.70  
 EX GROUND AT BAT TANK = 374.5  
 TOP OF BAT TANK = 371.5  
 COVER OVER BAT TANK = 3 FT  
 INVERT INTO BAT TANK = 370.5  
 INVERT OUT OF BAT TANK = 370.17  
 EX. GROUND AT DISTRIBUTION BOX = 373.3  
 INVERT INTO DISTRIBUTION BOX = 370.05  
 INVERT OUT OF DISTRIBUTION BOX = 369.95

**SEPTIC SYSTEM DESIGN**  
 8 BEDROOM HOUSE  
 LOADING RATE = 750 GPD  
 APPLICATION RATE = 0.8  
 EFFECTIVE SIDEWALL BEGINS AT 4 FEET  
 TRENCH DEPTH = 8 FEET  
 TRENCH WIDTH (W) = 3 FEET  
 EFFECTIVE DEPTH (D) = 4 FEET  
 SF OF DRAINFIELD = 750 GPD / 0.8 = 937.5 SF  
 COEFFICIENT OF REDUCTION OF TRENCH LENGTH = (W+2)/(W+1+2D) = (3+2)/(3+1+(2x4)) = 0.417  
 TRENCH LENGTH = 937.5 SF x 0.417 / 3 = 130.3 FEET (USE 132 FEET)  
 TRENCH SPACING = 2D+W = ((2x4) + 3) = 11'

*Calculations are for 50k Building in Accellor States 4th*



**SEPTIC PROFILE**  
 HORIZONTAL SCALE: 1" = 30'  
 VERTICAL SCALE: 1" = 3'



**PLAN VIEW**  
 SCALE: 1" = 30'

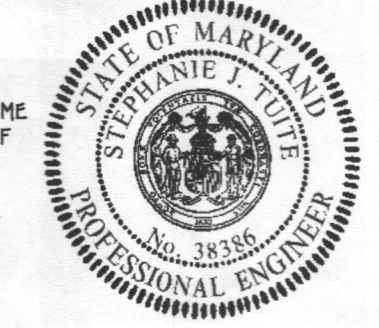
**NOTE**  
 THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO #01-0692 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

**SOILS LEGEND**

SOIL	NAME	CLASS	K FACTOR
GgB	Glenelg loam, 3 to 8 percent slopes	B	0.20
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	C	0.37
MaC	Manor loam, 8 to 15 percent slopes	B	0.28

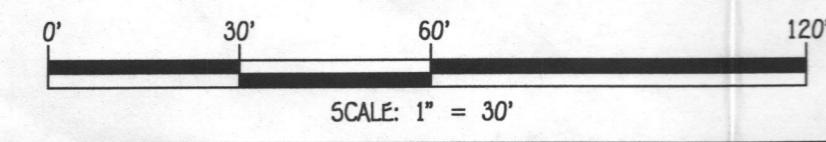
**OWNER**  
 SEAN & JEANNINE GRANTHAM  
 7370 GUILFORD ROAD  
 CLARKSVILLE, MARYLAND 21029

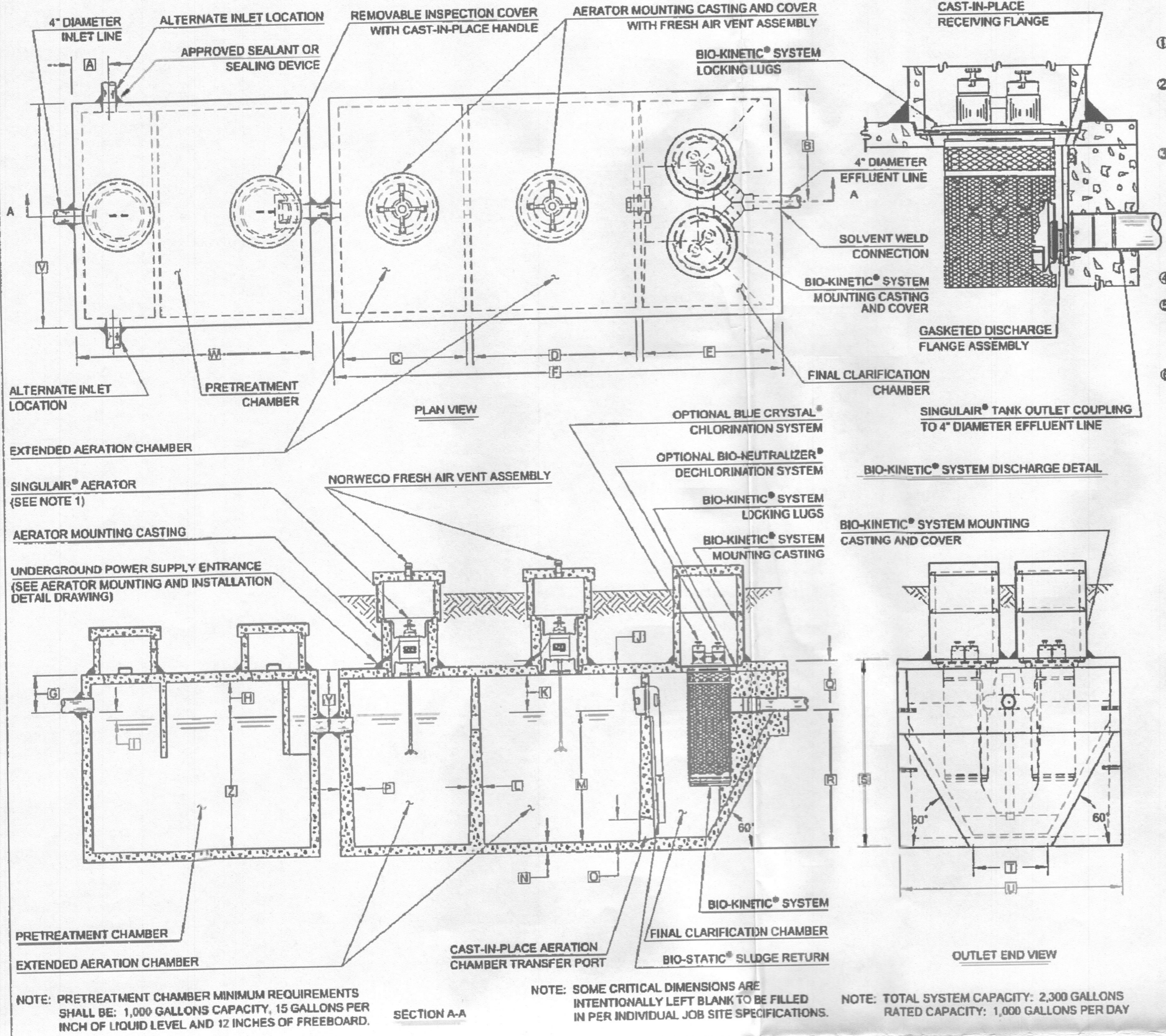
**BUILDER**  
 VIKING CUSTOM HOMES  
 12800 FREDERICK ROAD  
 WEST FRIENDSHIP, MARYLAND 21794  
 410-489-6728



**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. 36386, EXPIRATION DATE: 01/12/2016.  
 Signature of Professional Engineer: *Stephen Jurek* Date: 7/1/15

**BAT SITE PLAN**  
**7374 GUILFORD ROAD**  
 ZONED RC-DEO  
 GRID No. 22 PARCEL No. 318  
 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: JULY, 2015  
 SHEET 1 OF 1





**GENERAL NOTES:**

- SINGULAR<sup>®</sup> AERATOR, AS TESTED AND ACCEPTED BY NSF.
- FALL THROUGH SINGULAR<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

**PROJECT ENGINEER'S APPROVAL:**  
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
DATE: \_\_\_\_\_  
NAME: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION:**  
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
DATE: \_\_\_\_\_  
NAME: \_\_\_\_\_

**CRITICAL DIMENSIONS**

A	1'-0"	N	0'-3"
B	3'-0"	O	0'-6"
C	3'-4"	P	0'-2"
D	4'-5"	Q	1'-4"
E	3'-7"	R	3'-8"
F	12'-2"	S	5'-0"
G	1'-0"	T	2'-0"
H	1'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	1'-8"
M	3'-6"	Z	

**U.S. AND FOREIGN PATENTS PENDING**

**norweco** 7-10-07 C  
LOW PROFILE SINGULAR<sup>®</sup> BIO-KINETIC<sup>®</sup> WASTEWATER TREATMENT SYSTEM MODEL WSP-1000 GPD NTS  
PC-5-7009

**NOTE:** PRE-TREATMENT CHAMBER MINIMUM REQUIREMENTS SHALL BE: 1,000 GALLONS CAPACITY, 15 GALLONS PER INCH OF LIQUID LEVEL AND 12 INCHES OF FREEBOARD.

**NOTE:** SOME CRITICAL DIMENSIONS ARE INTENTIONALLY LEFT BLANK TO BE FILLED IN PER INDIVIDUAL JOB SITE SPECIFICATIONS.

**NOTE:** TOTAL SYSTEM CAPACITY: 2,300 GALLONS  
RATED CAPACITY: 1,000 GALLONS PER DAY

**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 COVER OVER THE BAT SHALL BE 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.
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- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

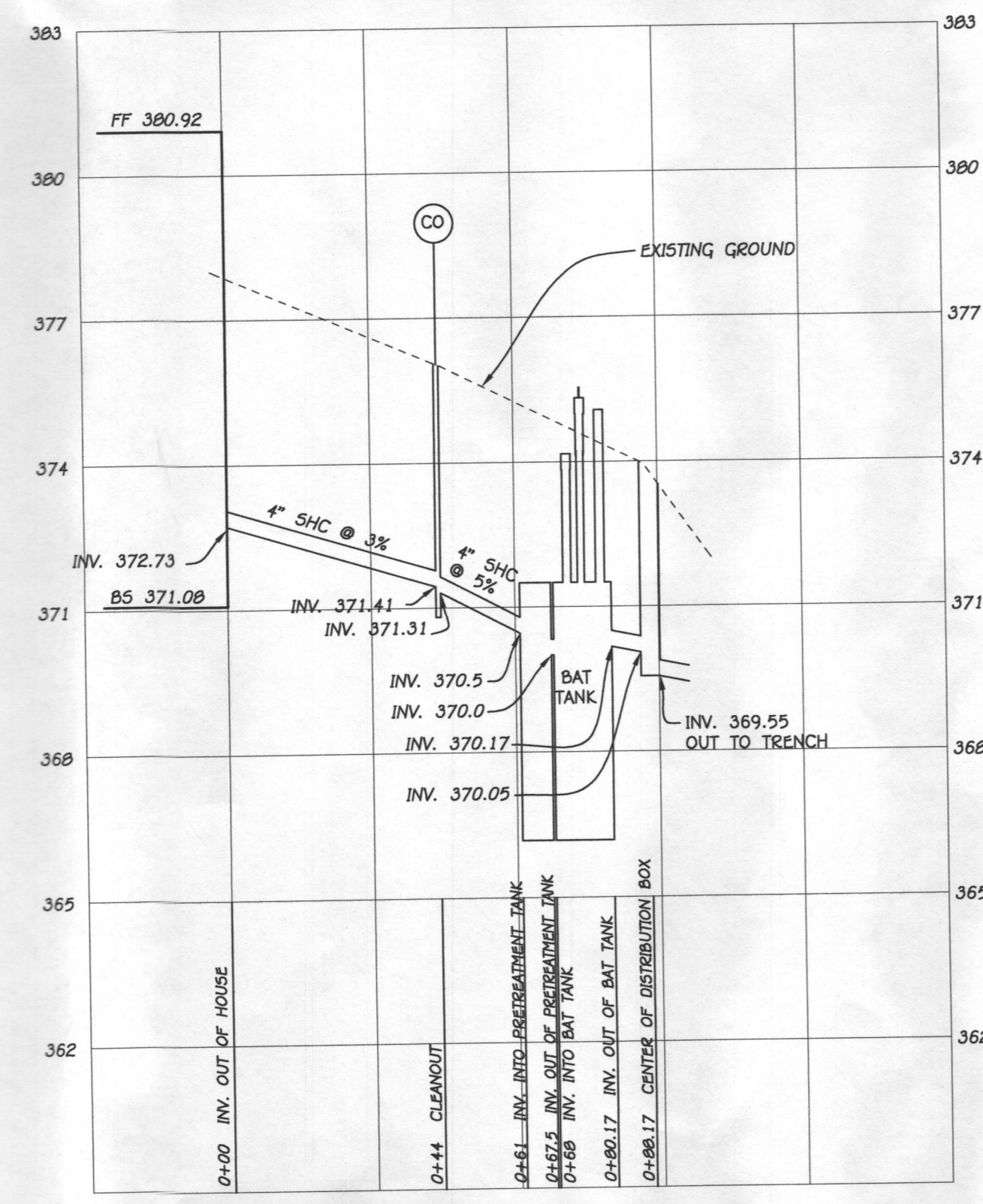
**SEPTIC SYSTEM ELEVATIONS**

FFE = 380.92  
BSE = 371.08  
INV. OUT OF HOUSE = 372.68  
\* BASEMENT SEWAGE IS TO BE PUMPED

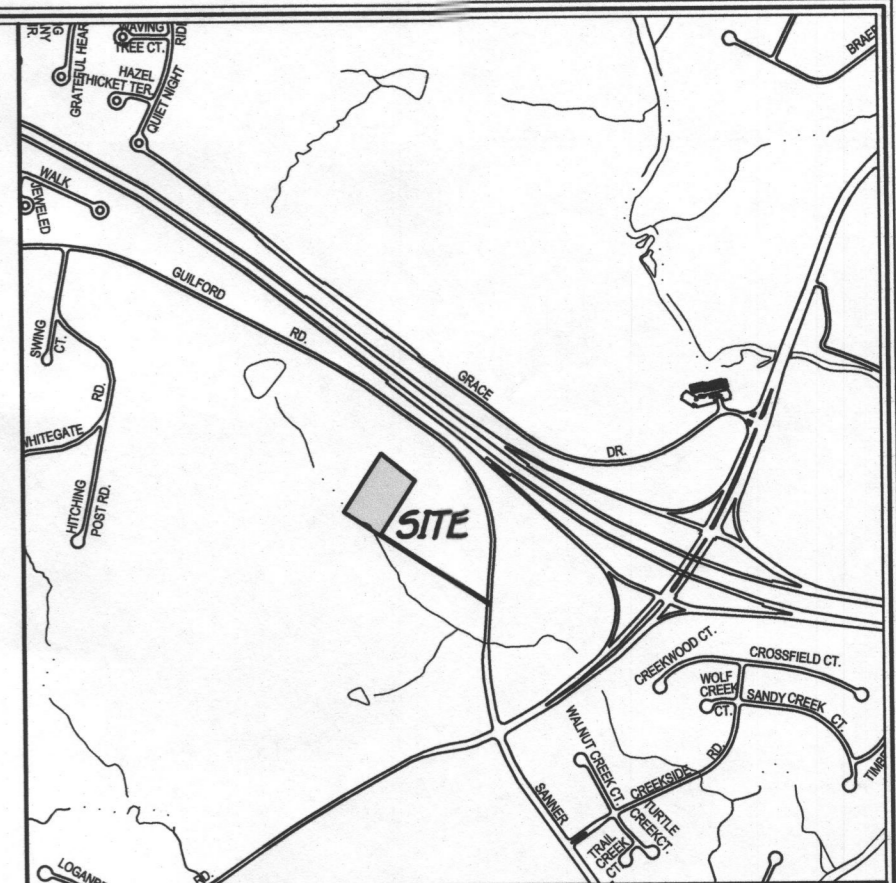
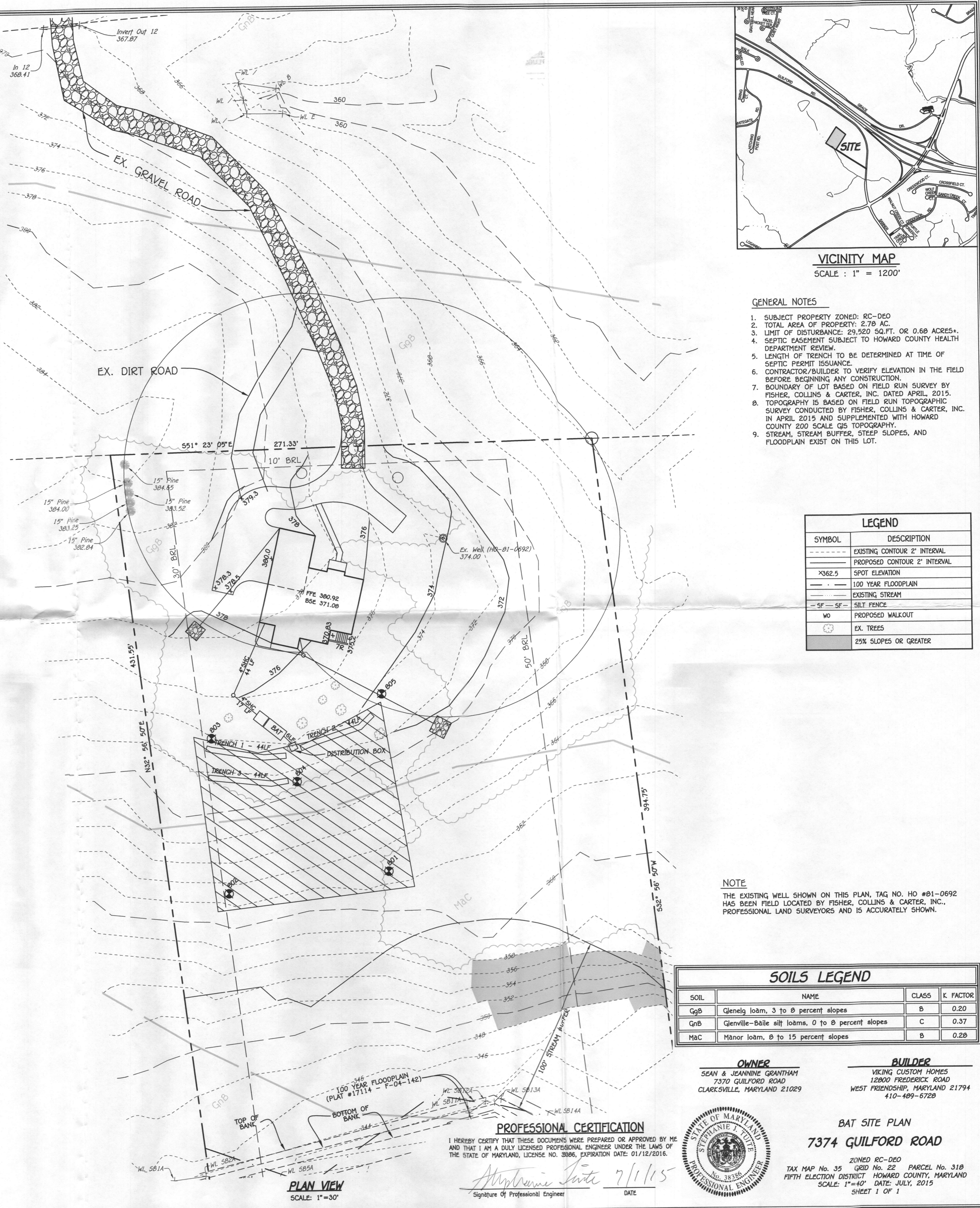
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INV. INTO C/O = 371.80  
INV. OUT OF C/O = 371.70  
EX GROUND AT BAT TANK = 374.5  
TOP OF BAT TANK = 371.5  
COVER OVER BAT TANK = 3 FT  
INVERT INTO BAT TANK = 370.5  
INVERT OUT OF BAT TANK = 370.17  
EX GROUND AT DISTRIBUTION BOX = 373.3  
INVERT INTO DISTRIBUTION BOX = 370.05  
INVERT OUT OF DISTRIBUTION BOX = 369.55

**SEPTIC SYSTEM DESIGN**

6 BEDROOM HOUSE  
LOADING RATE = 750 GPD  
APPLICATION RATE = 0.8  
EFFECTIVE SIDEWALL BEGINS AT 4 FEET  
TRENCH DEPTH = 8 FEET  
TRENCH WIDTH (W) = 3 FEET  
EFFECTIVE DEPTH (D) = 4 FEET  
SF OF DRAINFIELD = 750 GPD / 0.8 = 937.5 SF  
COEFFICIENT OF REDUCTION OF TRENCH LENGTH = (W+2)/(W+1+2D) = (3+2)/(3+1+(2x4)) = 0.417  
TRENCH LENGTH = 937.5 SF x 0.417 / 3 = 130.3 FEET (USE 132 FEET)  
TRENCH SPACING = 2D+W = (2x4) + 3 = 11'



**SEPTIC PROFILE**  
HORIZONTAL SCALE: 1" = 30'  
VERTICAL SCALE: 1" = 2'



**VICINITY MAP**  
SCALE: 1" = 1200'

**GENERAL NOTES**

- SUBJECT PROPERTY ZONED: RC-DEO
- TOTAL AREA OF PROPERTY: 2.78 AC.
- LIMIT OF DISTURBANCE: 29,920 SQ.FT. OR 0.68 ACRES+.
- SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
- LENGTH OF TRENCH TO BE DETERMINED AT TIME OF SEPTIC PERMIT ISSUANCE.
- CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
- BOUNDARY OF LOT BASED ON FIELD RUN SURVEY BY FISHER, COLLINS & CARTER, INC. DATED APRIL, 2015.
- TOPOGRAPHY IS BASED ON FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED BY FISHER, COLLINS & CARTER, INC. IN APRIL 2015 AND SUPPLEMENTED WITH HOWARD COUNTY 200 SCALE GIS TOPOGRAPHY.
- STREAM, STREAM BUFFER, STEEP SLOPES, AND FLOODPLAIN EXIST ON THIS LOT.

**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - - -	PROPOSED CONTOUR 2' INTERVAL
382.5	SPOT ELEVATION
---	100 YEAR FLOODPLAIN
---	EXISTING STREAM
-SF -SF-	SILT FENCE
WO	PROPOSED WALKOUT
*	EX. TREES
	25% SLOPES OR GREATER

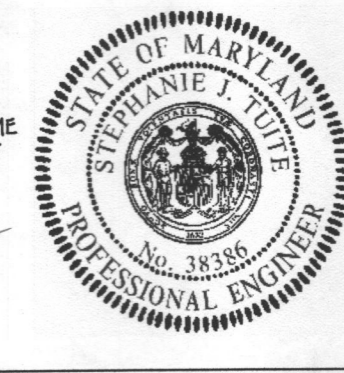
**NOTE**  
THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO #01-0692 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

**SOILS LEGEND**

SOIL	NAME	CLASS	K FACTOR
GgB	Glenelg loam, 3 to 8 percent slopes	B	0.20
GnB	Glenview-Balle silt loams, 0 to 8 percent slopes	C	0.37
MaC	Manor loam, 8 to 15 percent slopes	B	0.28

**OWNER**  
SEAN & JEANNIE GRANTHAM  
12800 FREDERICK ROAD  
CLARKSVILLE, MARYLAND 21029

**BUILDER**  
VICKING CUSTOM HOMES  
12800 FREDERICK ROAD  
WEST FRIENDSHIP, MARYLAND 21794  
410-489-6728



**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. 23856, EXPIRATION DATE: 01/12/2016.  
Signature of Professional Engineer: Stephen J. Tuite 7/1/15  
DATE: \_\_\_\_\_

