



Howard County  
Health Department

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: 1/7/15

**ONSITE SEWAGE DISPOSAL SYSTEM**

P 555388

INSTALLATION

APPROVAL DATE: 1/22/15 SEC

# PERMIT CONSTRUCTION

A \_\_\_\_\_

PROPERTY ADDRESS: 14939 Victory Lane

SUBDIVISION: Meriwether Farm

LOT: 5 TAX ID: \_\_\_\_\_

CONTRACTOR: Fogle's Septic Clean Inc.

EMAIL: kevin@foglesinc.com

CONTRACTOR ADDRESS: 580 Obrecht Road, Sykesville, MD 21784

PHONE: 410-795-5670

PROPERTY OWNER: Toll Brothers Inc.

EMAIL: \_\_\_\_\_

OWNER ADDRESS: 14881 Meriwether Drive, Glenelg, MD 21737

PHONE: 301-418-1923

BAT UNIT MODEL: Hoot BNR 600

PUMP SIZE: \_\_\_\_\_

PUMP TANK CAPACITY: 750gpd

DISTRIBUTION SYSTEM: GRAVITY ☒

LOW PRESSURE DOSED ☐

NUMBER OF BEDROOMS: 0.6

TRENCHES:	LINEAR FEET REQUIRED: <u>SEE BAT PLAN 240'</u>	INLET DEPTH: <u>SEE BAT PLAN 4'</u>
	TRENCH WIDTH: <u>SEE BAT PLAN 3'</u>	MAXIMUM BOTTOM DEPTH: <u>5.5'</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>SEE BAT PLAN 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:	Install BAT system per plan. <u>4x60' Trenches</u>	

ISSUED BY: Jeff Williams

ISSUE DATE: 1/7/15

EXPIRATION DATE: 1/7/16

- 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**
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.**
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA**

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.**

**PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.**

**CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

NOT TO SCALE

See As-Built Drawing  
On Separate Sheet

ROAD NAME

**TRENCH/DRAINFIELD DATA**

WIDTH	INLET	BOTTOM
3'	4'	5.5'

NUMBER OF TRENCHES 4

TOTAL LENGTH 242'

ABSORPTION AREA 726' + SIDEWALL

DISTRIBUTION BOX LEVEL YES

DISTRIBUTION BOX BAFFLE NO

DISTRIBUTION BOX PORT YES

**SEPTIC TANK DATA**

SEPTIC TANK 1 LEVEL 4

MANUFACTURER HOOT

CAPACITY GAL

SEAM LOC TOP

TANK LID DEPTH 3'

BAFFLES YES

BAFFLE FILTER NO

MANHOLE LOC FRONT + REAR

6" PORT LOC

WATERTIGHT TEST NO

SLOTTED NO

DATE ON LID COVERED

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:**

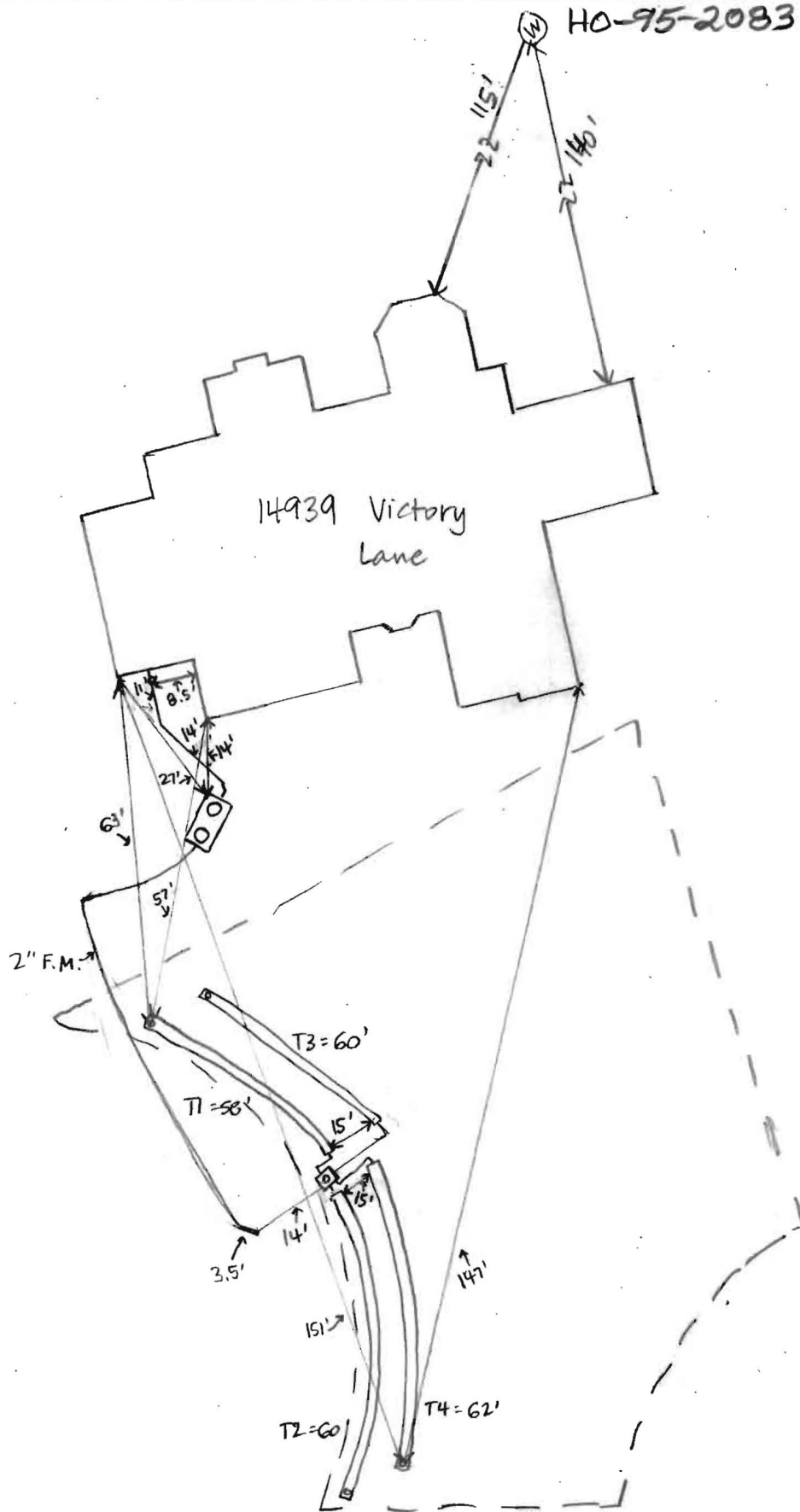
1/9/2015 Install trenches similar to plan. Builder wants to move the septic tank to the front of the house to avoid gas and electric lines. (BB)

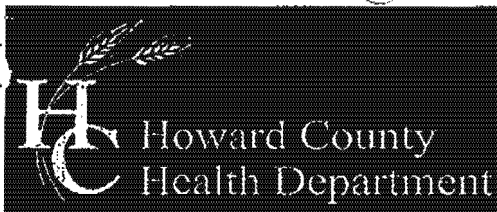
INSTALLATION: 1/15/15 Tank installed and trenches dug, no house connection made. 4" SCH 40 PVC to tank. 2" forced main to D-box. No levelers in D-box b/c it's a pump system.

Jake still had to install 90' pipe at inlet of D-box. Trenches covered mostly and left open at ends. (SC) 1/16/15 House connection made. Needs BAT startup certification. (BB) 1/21/15 Met Kevin from Eagle's and Mike Sample for Hoot startup and pump and alarm. All okay. (SC)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 1/22/15

HO-95-2083





LIBER | 5922 FOLIO 33

000169

## Bureau of Environmental Health

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Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

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

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

THIS AGREEMENT is made this 17<sup>th</sup> day of December, 2014, among Stephen M. Casey and MICHAEL MARTIN, 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 14939 Victory Lane, in the \_\_\_\_\_ Election District of Howard County, Maryland, and the deed to same is recorded or shall be recorded among the Land Records of Howard County, Maryland in Liber \_\_\_\_\_ Folio \_\_\_\_\_.

WHEREAS, The Lot is suitable for the installation of a conventional on-site sewage disposal system with an advanced pre-treatment system, utilizing best available technology to perform nitrogen reduction, in accordance with the Code of Maryland Regulations 26.04.02.07, effective January 1, 2013. The pre-treatment device being installed is Howe 600 BNR.

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.

Burt Nifon 12/11/2014  
Howard County Health Department

LR - Agreement  
Recording Fee 20.00  
Grantor/Grantee Name:  
MARTIN  
Reference/Control #:  
169  
LR - Agreement  
Surcharge 40.00  
SubTotal: 60.00

12/2/14  
Owner #1 Signature Date  
✓ MARTIN  
Owner #1 Print Name

Owner#2 Signature Date  
Total: 60.00  
12/12/2014 03:51  
#3638881 CC0503 -  
CC13-ES  
Howard Co  
Columbia/CC05.03.08 -  
Register 08

Steve CASEY 12/2/14  
Buyer #1 Signature Date  
✓ STEVE CASEY  
Buyer #1 Print Name

Buyer #2 Signature Date  
Buyer #2 Print Name

**MAYER BROS., INC.***Precast Concrete Products*

6264 Race Rd. Elkridge, MD 21075

## Letter of Satisfaction Hoot System Installation

Address of Property: 14939 Victory Ln  
Glenn, MD. 21737

Date of Final Inspection: 1/21/15

Installer: Foglia

Hoot Technician/Inspector: Mike Sample

I hereby certify that the Hoot system installed at the property listed above has been installed according to proper Hoot installation practices. I have also verified the startup of the system and it is in proper working order.

Sincerely,

H. Muhl  
Name of Inspector  
Mayer Bros., Inc.

PH: 410-796-1434

FX: 410-796-1438

**WBE**  
**NPCA Certified Plant**

mayerbro@connext.net  
www.mayerbrosprecast.com

Grease Interceptors, Grease Solutions, Aerobic Treatment Units, Septic Tanks, Holding Tanks, Storm Water Structures, Hydroceptors,  
Bench Barrier, Water Meter Vaults, Sectional Valve Vaults, Top Boxes, Curb Heads, Curb Bumpers, PermEntry Basement Entries,  
ScapeWall Window Walls, Custom Precast Products

## Williams, Jeffrey

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**From:** Williams, Jeffrey  
**Sent:** Friday, April 25, 2014 3:13 PM  
**To:** 'Ryan Ketner'; 'Michael Boyce'  
**Subject:** Meriwether lot 5

I've reviewed the BAT plan for Meriwether lot 5 and have some comments:

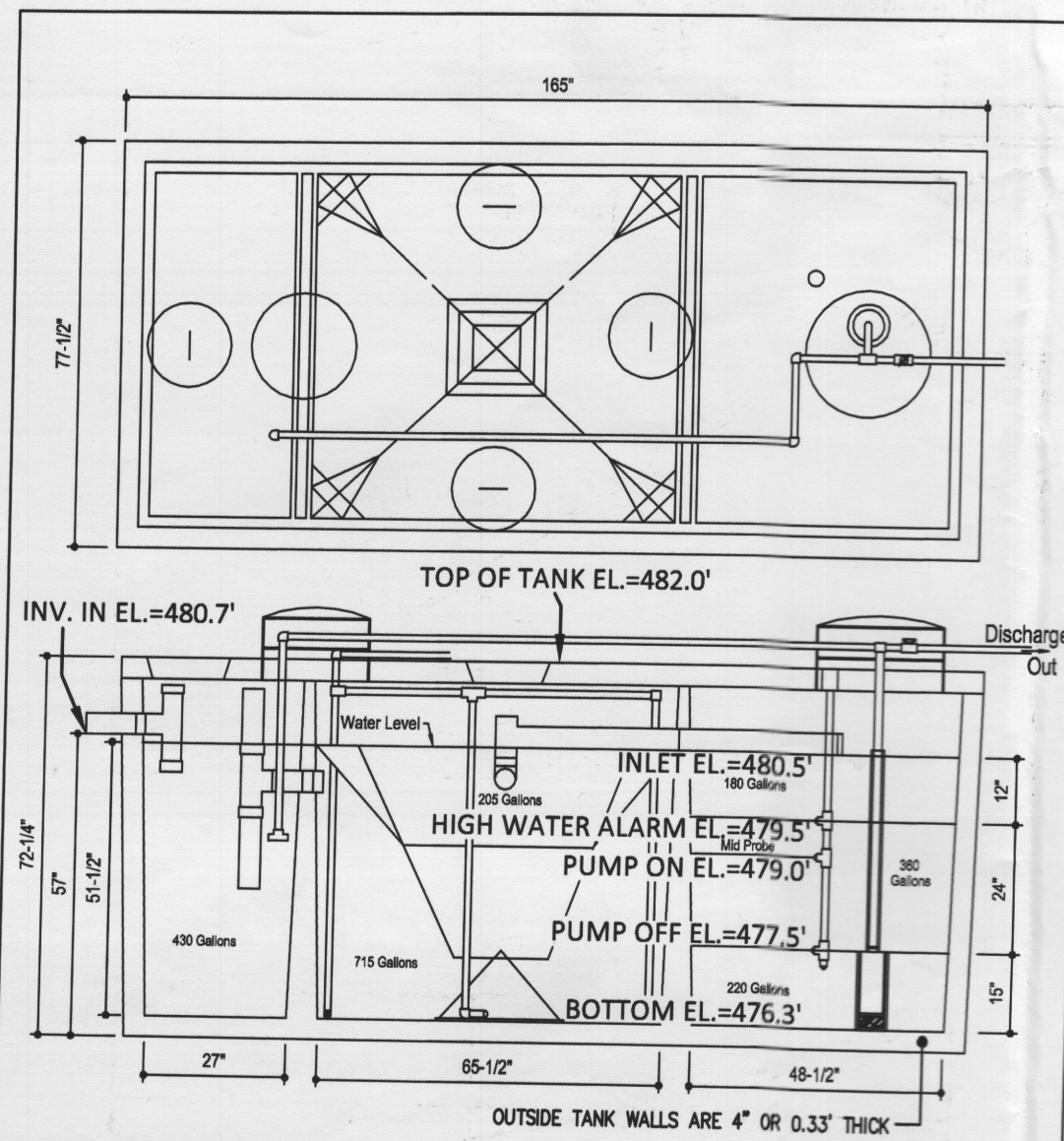
- Can we move the BAT unit further up the hill away from the level spreader? It looks like we have some fall from the house to work with that we can get it up the hill a ways. As far as you can go and still keep at least 1% fall would be preferable
- We'd prefer to see the d-box in the same spot, but split the trenches into smaller lengths so that more of the upper portion of the reserve can be utilized. It looks like we could get two 50+' trenches on each contour.
- The plan should indicate the true flow rate of the pump chosen based on the head and then the runtime modified accordingly. In this case, the pump will give you 28gpm at your head. With that flow, you could set a runtime of 2 minutes for a 56g dose, which will be fine here. We recently discovered that a dose around 50g is preferable when going to a d-box. Thanks.

Jeff Williams  
Program Supervisor, Well & Septic Program  
Bureau of Environmental Health  
Howard County Health Dept.  
410-313-4261  
[jewilliams@howardcountymd.gov](mailto:jewilliams@howardcountymd.gov)

### CONFIDENTIALITY NOTICE

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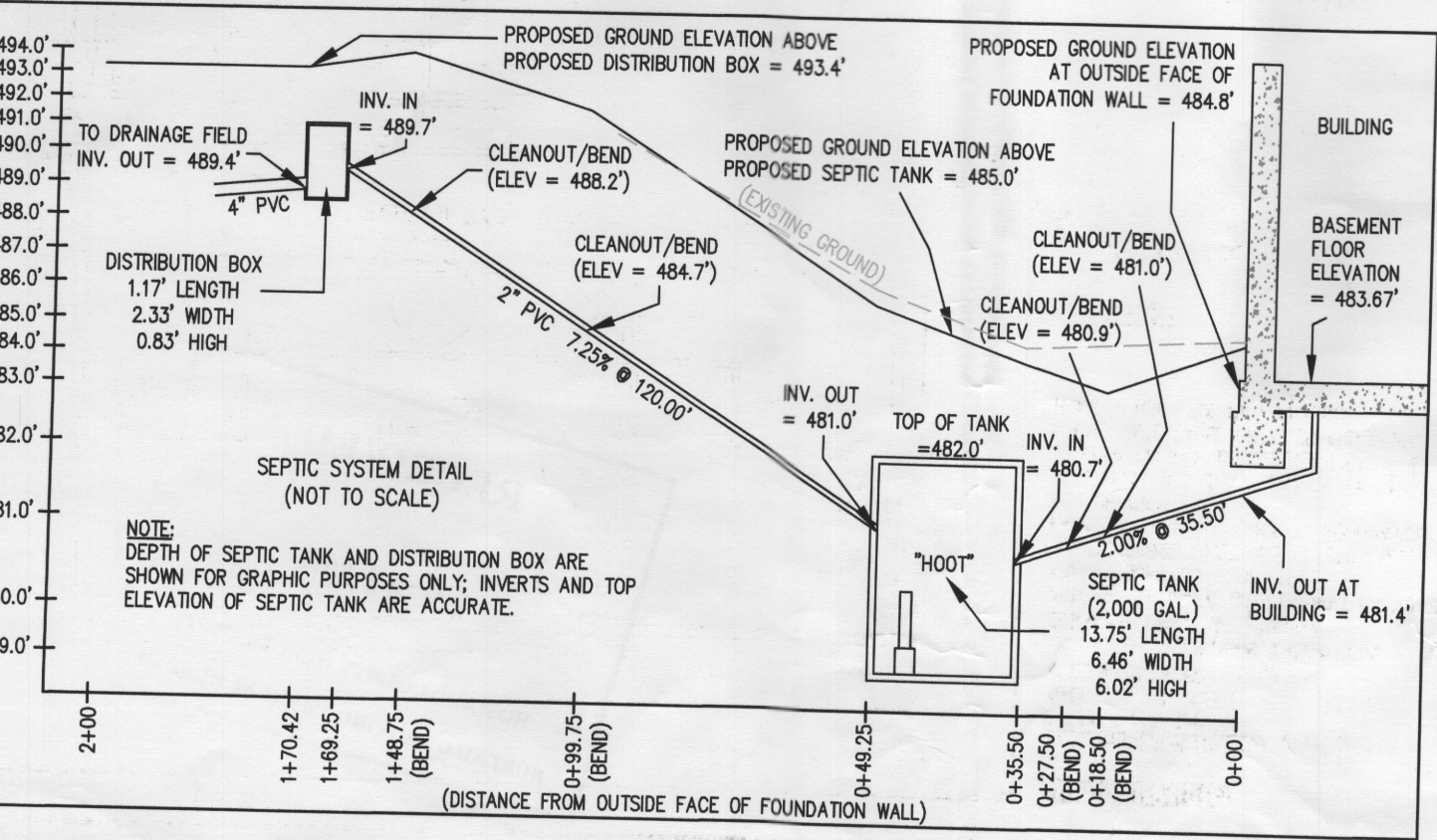
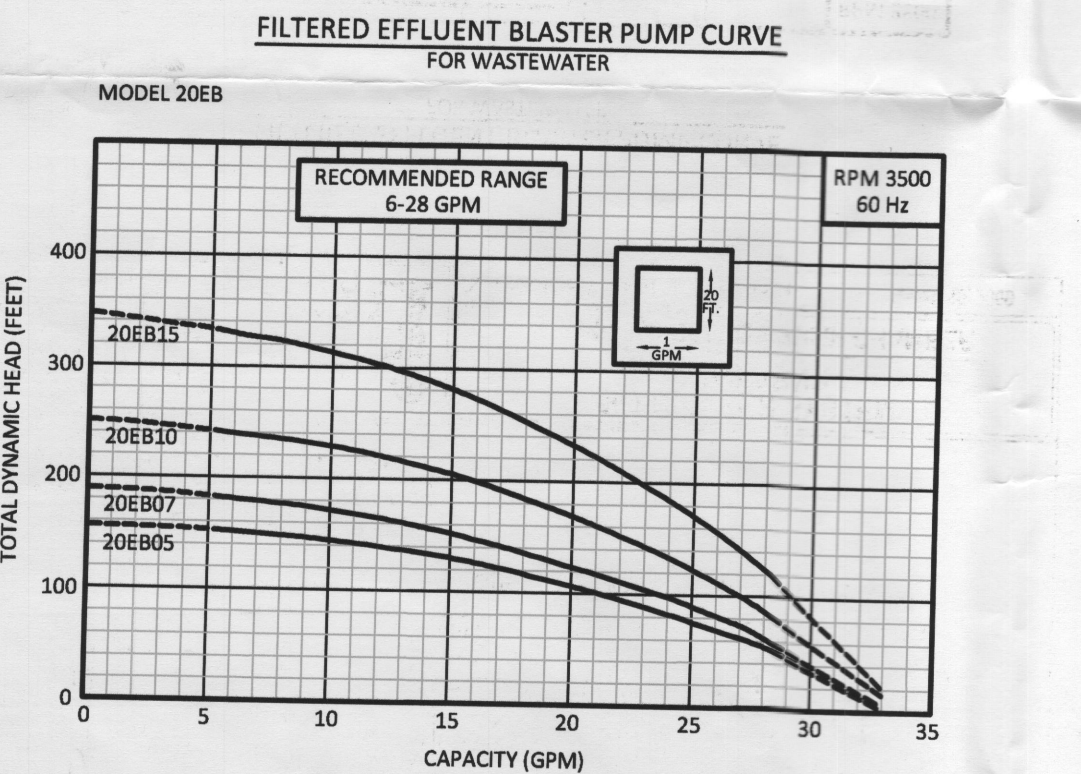
**DESIGN DATA & GENERAL NOTES**

[1] Concrete strength  $f'_c=4000$  p.s.i. @ 28 days. Density = 150 pcf.  
 Cement - Portland Type III per ASTM C 150-92.  
 [2] Admixtures & plasticizers per ASTM C 260-96 & C 494-92.  
 [4] Reinforcing per ASTM A105. Min. 1-1/2" cover.

**Mayer Brothers, Inc.**  
 6284 Race Road  
 Ellicott City, Maryland 21075  
 Tel. 410.796.1434  
 Fax. 410.796.1438  
 www.mayerbroscast.com

**600 GPD BNR SYSTEM  
 H-600 ABNR  
 with 750 GALLON PUMP CHAMBER**

Dwg. No. Hoot Form #1 No Scale March 19, 2009



# **HOUSE OPTIONS:**

TYPE: HAMPTON (CAROLINA)  
 INTERIOR WET BAR  
 WALK-OUT BASEMENT  
 ALTERNATE LAUNDRY LOCATION  
 EXPANDED FAMILY ROOM/GREAT ROOM  
 CONSERVATORY ELITE ADDITION  
 ADD'L 1' TO HEIGHT OF BASEMENT FOUNDATION  
 NAPLES SUNROOM ADDITION  
 WOOD BURNING FIREPLACE I/O STD FAMILY ROOM  
 FIREPLACE - NEED CONCRETE FOUNDATION  
 FOR CHIMNEY  
 ADDITIONAL TWO CAR FRONT ENTRY GARAGE  
 10 FOOT CEILINGS IN BASEMENT WALLS  
 STONE WATERTABLE ON SIDES AND REAR OF  
 HOME - NEED FOUNDATION LEDGE

OPTION No. 003  
 OPTION No. 017  
 OPTION No. 022  
 OPTION No. 023  
 OPTION No. 039  
 OPTION No. 070  
 OPTION No. 529

OPTION No. 106007  
 OPTION No. 283019  
 OPTION No. 90005007  
 OPTION No. 90005008

## **LEGEND:**

● PERC TEST LOCATION  
 W WELL LOCATION  
 -LO- LIMITS OF DISTURBANCE  
 TW TOP OF WALL  
 GF GARAGE FLOOR  
 BF BASEMENT FLOOR  
 BRL BUILDING RESTRICTION LINE

## **PUMPING SYSTEM DATA:**

LENGTH OF FORCE MAIN: 120.00' @ 2" DIA. PIPE  
 STATIC HEAD = 12.20'  
 FRICTION HEAD = 0.93'  
 DYNAMIC HEAD = 13.13'  
 FLOW = 28 GPM  
 TIMED DOSE = 56 GALLONS @ 2 MINUTE INTERVALS  
 PUMP TYPE PER PUMP CURVE CHART = 20EB05, 1/2 H.P.

## **DOSE CALCULATIONS:**

PER HOWARD COUNTY HEALTH DEPARTMENT SPECIFICATIONS, A DOSE AROUND 50 GALLONS IS PREFERRED WHEN PUMPING TO A DISTRIBUTION BOX. MINIMUM DOSING FOR A 4 BEDROOM HOUSE IS 600 GPD AT 12 EVENTS PER DAY.  
 (600 GPD ÷ 12 EVENTS PER DAY) = 50 GALLON DOSE (MINIMUM)  
 PUMP MAXIMUM = 28 GPM X 2MIN. (DOSE TIME SELECTED) = 56 GALLON DOSE  
 56 GALLON DOSE MEETS MINIMUM REQUIREMENTS.

## **FRICTION HEAD CALCULATIONS:**

LENGTH OF PIPE FROM SEPTIC TANK TO DISTRIBUTION BOX = 120.00'  
 2 (45') BENDS IN 2" PVC = (ADD 4' PER BEND) = (2 X 4) = 8'  
 (LENGTH OF FORCE MAIN + LENGTH OF PIPE FOR FRICTION LOSS PER BENDS)  
 120.00' + 8' = 128.00' TOTAL PIPE PER FRICTION LOSS  
 (20 GPM OF 2" PVC = 0.74 PER 100' OF PIPE)  
 0.74 X 100 = 0.0074 X 28.00' (LEFT OVER PIPE) = 0.19 (28.00' OF PIPE PRORATED)  
 (0.74 (100' PIPE) + 0.19 (PRORATED 28.00' LEFT OVER))  
 FRICTION HEAD = 0.93'

## **DYNAMIC HEAD CALCULATIONS:**

INV. IN @ DISTRIBUTION BOX = 489.7'  
 INV. @ TANK PUMP OFF FLOAT = 477.5'  
 (INV. IN AT DISTRIBUTION BOX (-) ELEV. OF PUMP OFF SWITCH)  
 STATIC HEAD = 12.20'  
 FRICTION HEAD LOSS IN 2" DIA. PIPE = 0.93'  
 (STATIC HEAD + FRICTION HEAD)  
 TOTAL DYNAMIC HEAD = 13.13'

## **FLOW CALCULATIONS:**

STANDARD HOOT 600BNR "BLASTER EB20" PUMP:  
 THE SPECIFICATIONS SHOW IT PUMPS 28 GPM (MAXIMUM) AT A HEAD OF 100'.  
 (2 MINUTE PUMP RUN TIME X 28 GPM = 56 GALLON DOSE)  
 (56 GALLON DOSE X 12 EVENTS PER DAY = 672 GALLONS)  
 672 GALLONS MEETS MINIMUM DAILY REQUIREMENTS.

## **PUMP HORSEPOWER CALCULATIONS:**

FLOW X TOTAL DYNAMIC HEAD X SPECIFIC GRAVITY ÷ 3960 X EFFICIENCY  
 (SPECIFIC GRAVITY H<sub>2</sub>O @ 68°F IS 1)  
 (USE 0.4 FOR EFFICIENCY, AS THIS IS COMMON FOR EFFLUENT PUMPS)  
 20 X 13.13 X 1 ÷ 3960 X 0.4 = 262.6 ÷ 1,584.0 = 0.17  
 USE PUMP CHART - PUMP = 20EB05, 1/2 H.P.

## **SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (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 DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET COVER.
3. THE BLOWER MAY NOT BE LOCATED MORE THAN 100 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
4. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
5. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
6. 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.
7. ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
8. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
9. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

APPROVED: FOR HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

DIRECTOR

PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21328, EXPIRATION DATE 1/8/15.



## **SEWAGE DISPOSAL SYSTEM DATA (4 BDRM):**

1. PROPOSED INVERT AT FOUNDATION WALL: 481.4'  
 600 GPD ÷ 0.6 APP. RATE = 1,000 SF  
 EX. GRADE OVER TANK: 485.5'  
 PROPOSED GRADE OVER TANK: 485.0'  
 INVERT IN: 480.7' INVERT OUT: 481.0'
2. DISTRIBUTION BOX  
 EXISTING GRADE OVER TANK: 493.4'  
 PROPOSED GRADE OVER TANK: 493.4'  
 INVERT IN: 489.7' INVERT OUT: 489.4'
3. TRENCH DESIGN (4 BDRM X 150 GPD/BDRM = 600 GPD)  
 600 GPD ÷ 0.6 APP. RATE = 1,000 SF  
 USE 3' WIDE TRENCH WITH 18" GRAVEL BELOW PIPE  
 9' MIN. SPACING BETWEEN TRENCH EDGES  
 1,000 SF ÷ 3' WIDTH = 333.33 LF X 0.71 = 236.67 LF MIN. TRENCH  
 USE 4' 60" LONG TRENCHES = 240 LF

## **TRENCH DATA:**

- BOTTOM MAX. DEPTH (5.5')
- TRENCH 1 (T1):**  
 GROUND ABOVE = 492.0'  
 INV. IN = 488.0'  
 BOTTOM TRENCH = 486.5'
- TRENCH 2 (T2):**  
 GROUND ABOVE = 492.0'  
 INV. IN = 488.0'  
 BOTTOM TRENCH = 486.5'
- TRENCH 3 (T3):**  
 GROUND ABOVE = 490.9'  
 INV. IN = 486.9'  
 BOTTOM TRENCH = 485.4'
- TRENCH 4 (T4):**  
 GROUND ABOVE = 489.1'  
 INV. IN = 485.1'  
 BOTTOM TRENCH = 483.6'

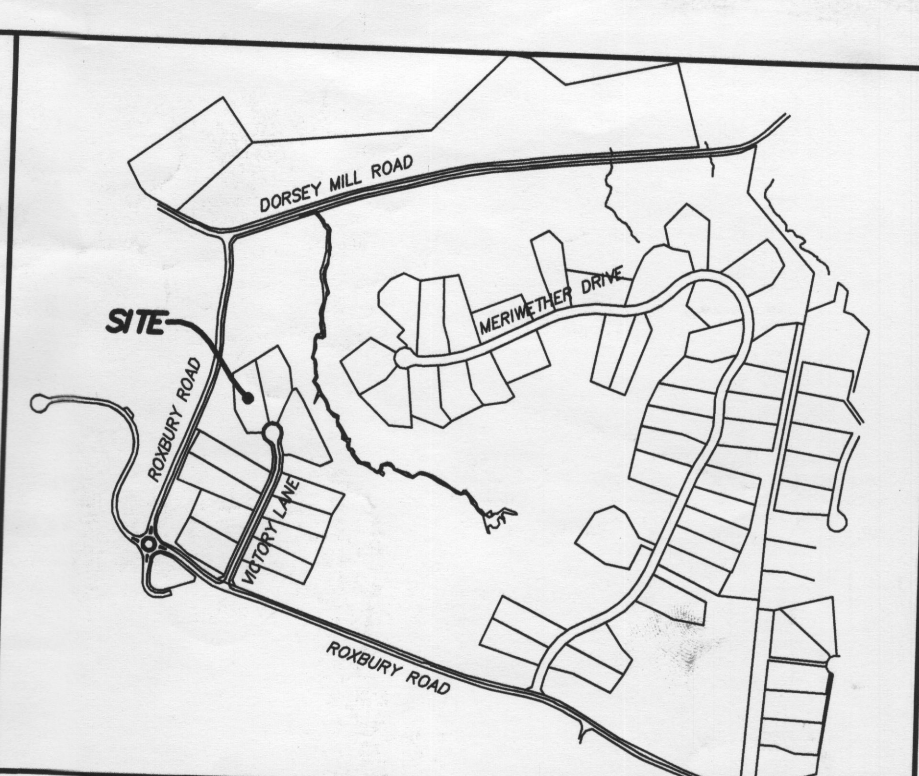
Approved Septic System Plan  
 Howard County Health Department  
 5/9/14

PLOT PLAN FOR BAT INSTALLATION  
 LOT 5  
**MERIWETHER FARMS**  
 LIBER 13779, FOLIO 473  
 PLAT No. 21751  
 TAX No. 04-593614  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 14939 VICTORY LANE  
 GLENELG, MARYLAND

**ESE** Land Planning  
 Engineering  
 Land Surveying

ESE Consultants Inc.  
 7164 Columbia Gateway Dr.  
 Suite 203  
 Columbia, MD 21046  
 TEL: 410-872-9105  
 FAX: 410-872-4870

DATE: 05/06/14 SCALE: 1"=40' FILE: PP LOT 5\_rev 1  
 CHK'D: M.J.B. JOB NO: 3184 DRAWN: R.C.K.

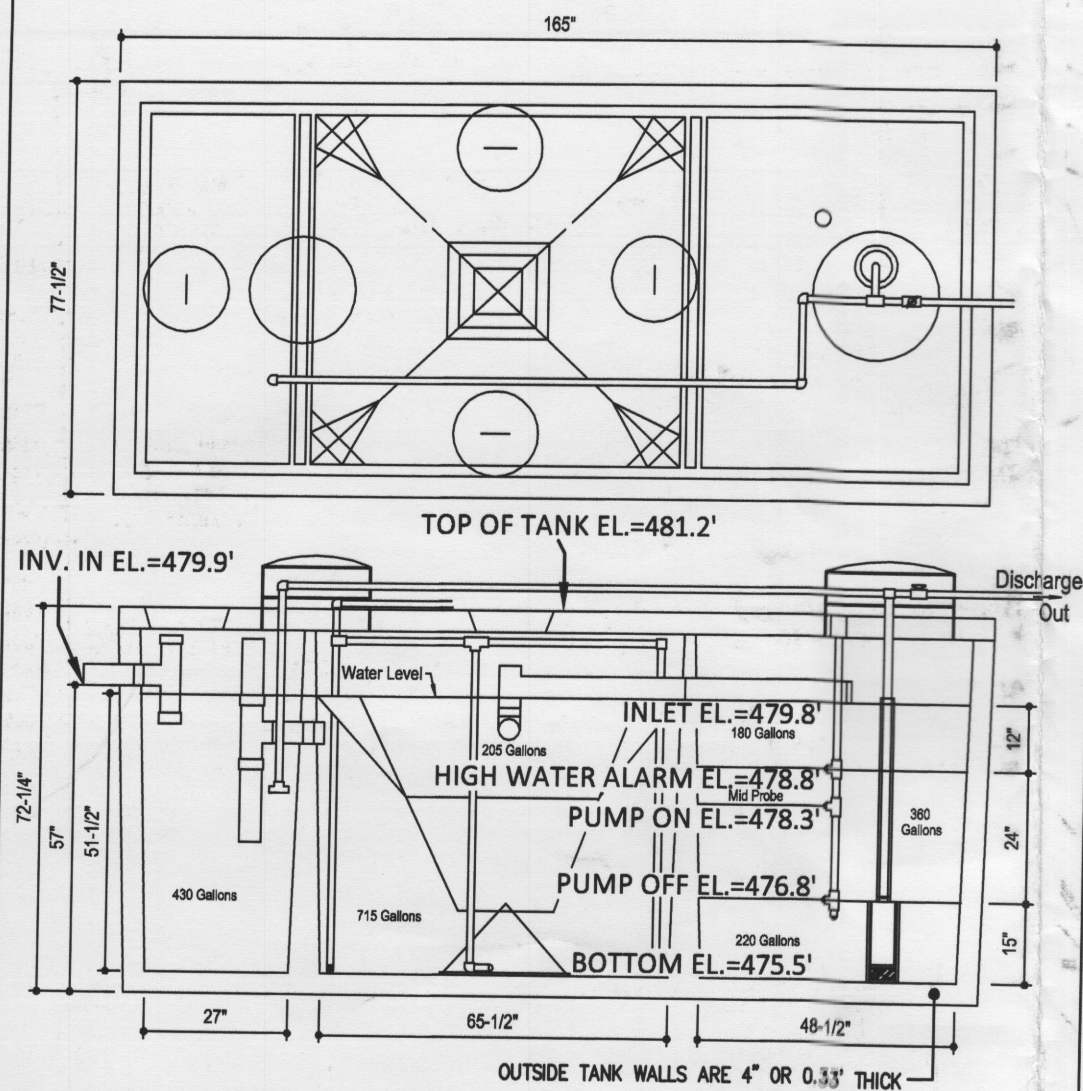


**VICINITY MAP**  
 1" = 1000'

## **GENERAL NOTES:**

1. THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COMP-LITE ZONING REGULATIONS DATED 7/28/06.
2. PLAT REFERENCE: PLAT No. 21751.
3. THE EXISTING TOPOGRAPHY WITHIN THE AREA OF PROPOSED WORK IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY ESE, DATED 4/20/11.
4. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE ESE CONSULTANTS INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
5. THE CONTRACTOR OR DEVELOPER SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410-313-1881) AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
6. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
7. TOTAL LIMIT OF DISTURBANCE: 38,254 SQ. FT. / 0.88 AC.±
8. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED BY PREVIOUSLY APPROVED PLAN F-08-199
9. ANY DAMAGE TO PUBLIC "RIGHT-OF-WAYS" OR PAVED PUBLIC ROADS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE IN ACCORDANCE WITH THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
10. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (ESE) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
11. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
12. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
13. THESE AREAS DESIGNATE A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS UNTO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
14. EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
15. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
16. UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS FOR ALL PROPOSED STRUCTURES AND/OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
17. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-08-199.
18. A STANDARD SEDIMENT CONTROL PLAN MAY BE USED FOR DEVELOPMENT OF THIS LOT. REFERENCE GRADING PLAN DATED 12/18/13.
19. THE EXISTING WELL(S) SHOWN ON THIS PLAN (IDENTIFIED WITH THE ATTACHED WELL TAG NUMBER HO-95-2083 HAS BEEN FIELD LOCATED BY ESE CONSULTANTS - PROFESSIONAL LAND SURVEYOR(S), AND IS ACCURATELY SHOWN.
20. BUILDING SETBACKS (B.R.L.'s) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.
21. CULVERT FOR DRIVEWAY PER F-08-199.



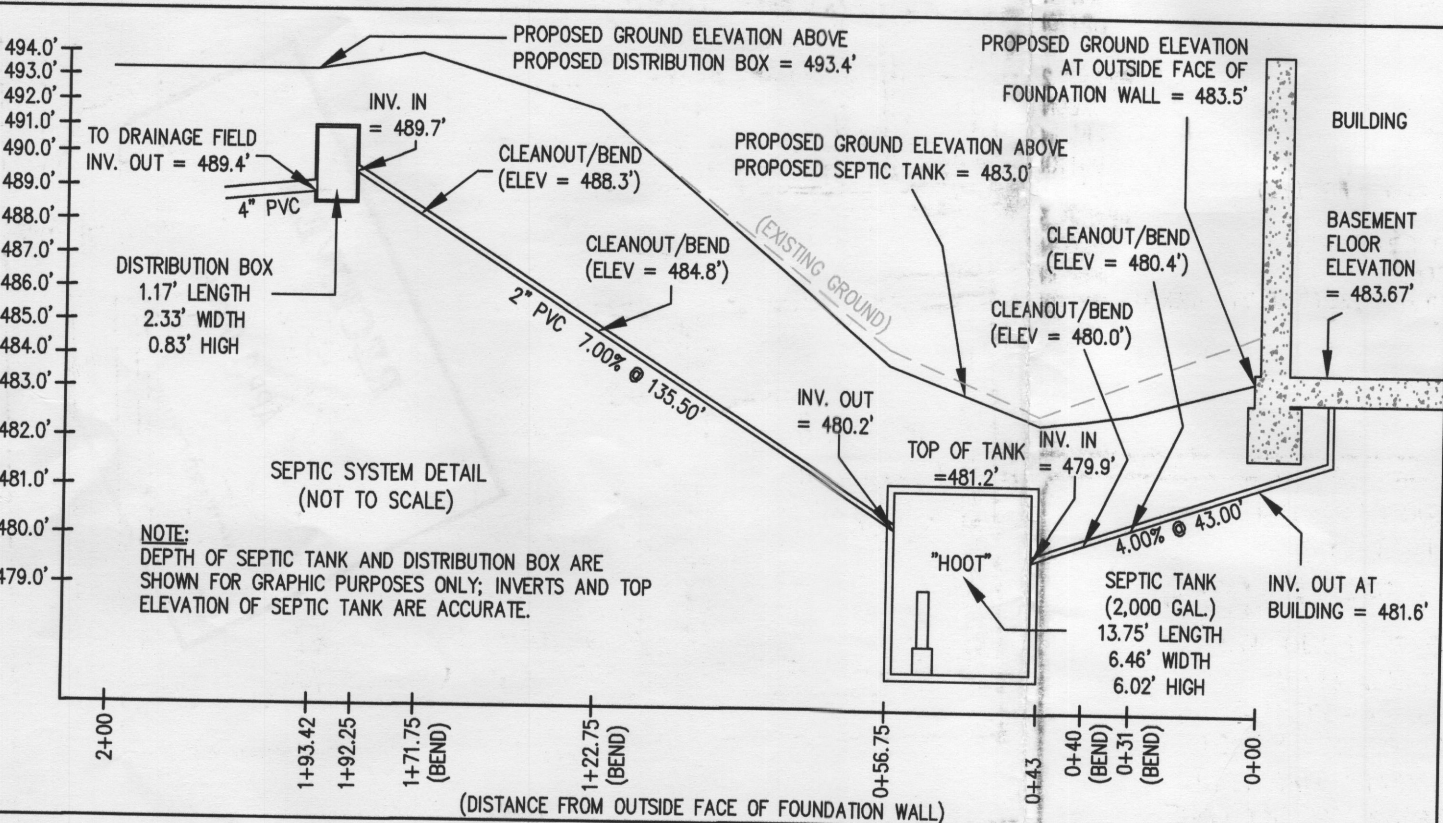
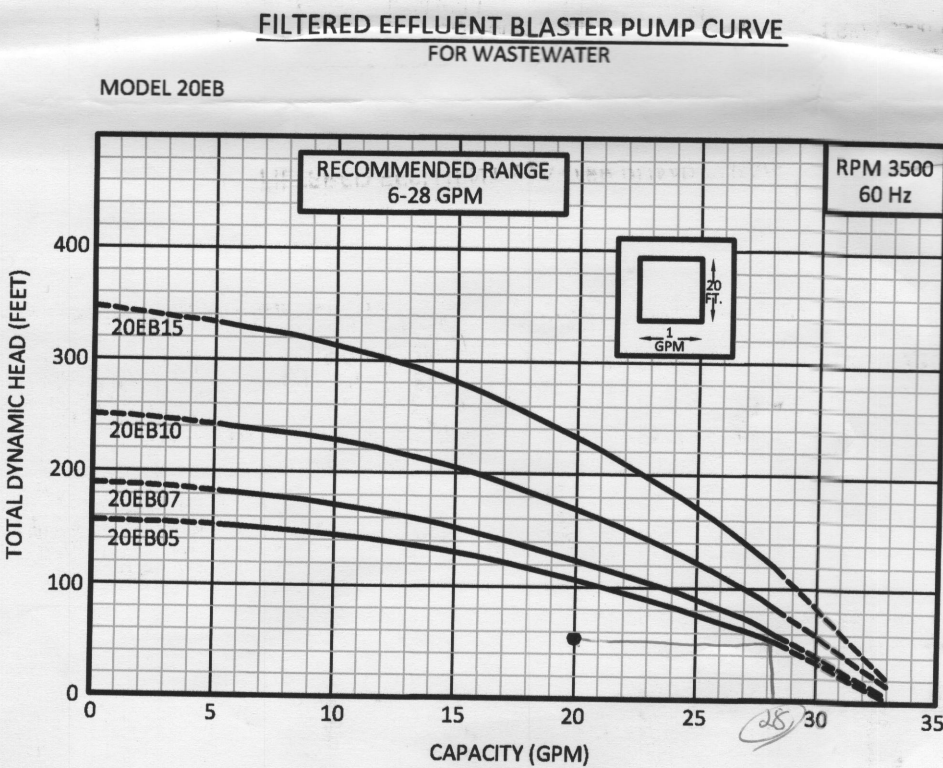


**DESIGN DATA & GENERAL NOTES**  
 [1] Concrete strength  $f'_c=4,000$  p.s.i. @ 28 days. Density = 150 pcf.  
 Cement - Portland Type III per ASTM C 150-92.  
 [2] Admixtures & plasticizers per ASTM C 260-86 & C 484-92.  
 [3] Reinforcing per ASTM A185. Min. 1-1/2" cover.

**Mayer Brothers, Inc.**  
 8264 Race Road  
 Elbridge, Maryland 21075  
 Tel. 410.796.1434  
 Fax. 410.796.1438  
 www.mayerbroscast.com

**600 GPD BNR SYSTEM  
 H-600 ABNR  
 with 750 GALLON PUMP CHAMBER**

Dwg. No. Hoot Form #1 No Scale March 19, 2009



# HOUSE OPTIONS:

TYPE: HAMPTON (CAROLINA)  
 INTERIOR WET BAR  
 WALK-OUT BASEMENT  
 ALTERNATE LAUNDRY LOCATION  
 EXPANDED FAMILY ROOM/GREAT ROOM  
 CONSERVATORY ELITE ADDITION  
 ADD'L 1' TO HEIGHT OF BASEMENT FOUNDATION  
 NAPLES SUNROOM ADDITION  
 WOOD BURNING FIREPLACE 1LO STD FAMILY ROOM  
 FIREPLACE - NEED CONCRETE FOUNDATION  
 FOR CHIMNEY  
 ADDITIONAL TWO CAR FRONT ENTRY GARAGE  
 10 FOOT CEILINGS IN BASEMENT WALLS  
 STONE WATERBABLE ON SIDES AND REAR OF  
 HOUSE - NEED FOUNDATION LEDGE

OPTION No. 003  
 OPTION No. 017  
 OPTION No. 022  
 OPTION No. 023  
 OPTION No. 039  
 OPTION No. 070  
 OPTION No. 529

OPTION No. 106007  
 OPTION No. 263019  
 OPTION No. 90005007

OPTION No. 90005008

## LEGEND:

● PERC TEST LOCATION  
 (W) WELL LOCATION  
 -LOD- LIMITS OF DISTURBANCE  
 TW TOP OF WALL  
 GF GROUND FLOOR/FIRST FLOOR  
 BF BASEMENT FLOOR  
 BRL BUILDING RESTRICTION LINE

## PUMPING SYSTEM DATA:

LENGTH OF FORCE MAIN: 135.50' @ 2" DIA. PIPE  
 STATIC HEAD = 12.90'  
 FRICTION HEAD = 1.05'  
 DYNAMIC HEAD = 13.95'  
 FLOW = 20 GPM  
 DOSE = 100 GALLONS (MINIMUM)  
 PUMP TYPE PER PUMP CURVE CHART = 20EB05, 1/2 H.P.

## DOSE CALCULATIONS:

THE MINIMUM DOSE MUST BE NO LESS THAN ONE SIXTH (1/6) THE DESIGN FLOW  
 DESIGN FLOW = 600 GPD  
 (1/6) X (600 GPD) = 100 GALLONS  
 MINIMUM DOSE = 100 GALLONS

## FRICTION HEAD CALCULATIONS:

LENGTH OF PIPE FROM SEPTIC TO DISTRIBUTION BOX = 135.50'  
 2 (45') BENDS IN 2" PVC = (ADD 4' PER BEND) = (2 X 4) = 6'  
 (LENGTH OF FORCE MAIN + LENGTH OF PIPE FOR FRICTION LOSS PER BENDS)  
 135.50' + 6' = 141.50' TOTAL PIPE PER FRICTION LOSS  
 (20 GPM OF 2" PVC = 0.74 PER 100' OF PIPE)  
 0.74 X 141.50' = 104.77' (LEFT OVER PIPE) = 0.31 (41.50' OF PIPE PRORATED)  
 (0.74 (100' PIPE) + 0.31 (PRORATED 41.50' LEFT OVER))  
 FRICTION HEAD = 1.05'

## DYNAMIC HEAD CALCULATIONS:

INV. IN @ DISTRIBUTION BOX = 489.7'  
 INV. @ TANK PUMP OFF FLOAT = 476.8'  
 (INV. IN AT DISTRIBUTION BOX (-) ELEV. OF PUMP OFF SWITCH)  
 STATIC HEAD = 12.90'  
 FRICTION HEAD LOSS IN 2" DIA. PIPE = 1.05'  
 (STATIC HEAD + FRICTION HEAD)  
 TOTAL DYNAMIC HEAD = 13.95'

## FLOW CALCULATIONS:

PER STANDARD HOOT 600BNR "BLASTER EB20" PUMP:  
 THE SPECIFICATIONS SHOW IT PUMPS 20 GPM AT A HEAD OF 100'.  
 100 GALLONS (MIN. DOSE) @ 20 GPM = 5 MINUTE PUMP TIME  
 PUMP HORSEPOWER CALCULATIONS:  
 FLOW X TOTAL DYNAMIC HEAD X SPECIFIC GRAVITY ÷ 3960 X EFFICIENCY  
 (SPECIFIC GRAVITY H2O @ 68°F IS 1)  
 (USE 0.4 FOR EFFICIENCY, AS THIS IS COMMON FOR EFFLUENT PUMPS)  
 20 X 13.95 X 1 ÷ 3960 X 0.4 = 279 ÷ 1,584.0 = 0.18  
 USE PUMP CHART - PUMP = 20EB05, 1/2 H.P.

## SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (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 3 FEET COVER.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 100 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 THE 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.

APPROVED: FOR HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE

DIRECTOR

DATE

PROFESSIONAL ENGINEER

DATE

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21328, EXPIRATION DATE 1/8/15.



## SEWAGE DISPOSAL SYSTEM DATA (4 BDRM)

PROPOSED INVERT AT FOUNDATION WALL: 481.6'

- HOOT BNR600 SYSTEM  
 EX. GRADE OVER TANK: 483.5'  
 PROPOSED GRADE OVER TANK: 483.0'  
 INVERT IN: 479.9' INVERT OUT: 480.2'
- DISTRIBUTION BOX  
 EXISTING GRADE OVER TANK: 493.4'  
 PROPOSED GRADE OVER TANK: 493.4'  
 INVERT IN: 489.7' INVERT OUT: 489.4'
- TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)  
 600 GPD ÷ 0.6 APP. RATE = 1,000 SF  
 USE 3' WIDE TRENCH WITH 18" GRAVEL BELOW PIPE  
 9' MIN. SPACING BETWEEN TRENCH EDGES  
 1,000 SF ÷ 3' WIDTH = 333.33 LF x 0.71 = 236.67 LF MIN. TRENCH  
 USE 3 79' LONG TRENCHES = 237 LF

## TRENCH DATA:

BOTTOM MAX. DEPTH (5.5')

TRENCH 1 (T1):

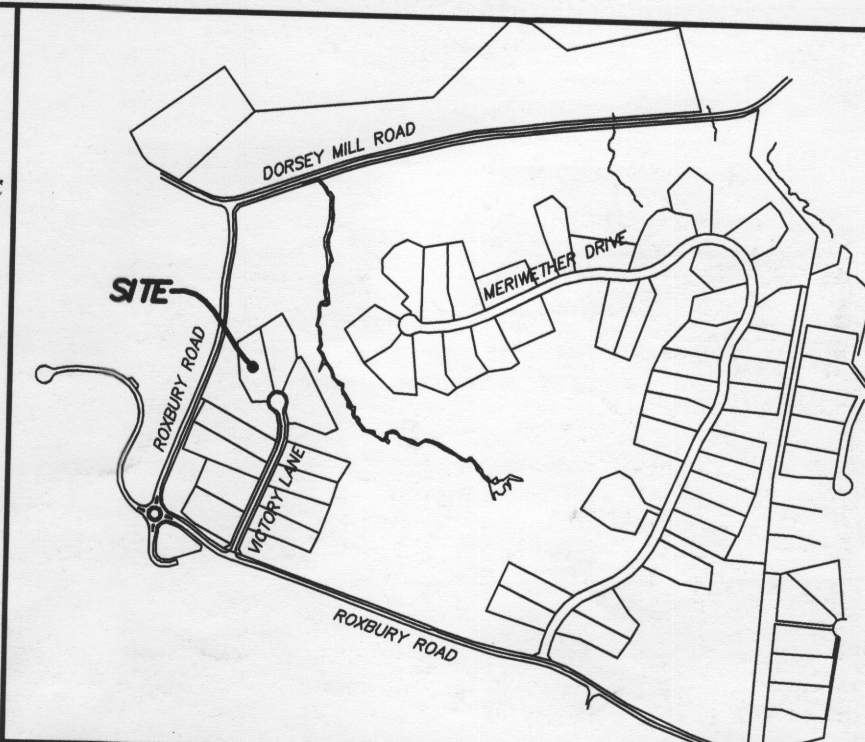
GROUND ABOVE = 492.7'  
 INV. IN = 488.7'  
 BOTTOM TRENCH = 487.2'

TRENCH 2 (T2):

GROUND ABOVE = 491.2'  
 INV. IN = 487.2'  
 BOTTOM TRENCH = 485.7'

TRENCH 3 (T3):

GROUND ABOVE = 490.2'  
 INV. IN = 486.2'  
 BOTTOM TRENCH = 484.7'



## VICINITY MAP

1" = 1000'

## GENERAL NOTES:

- THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COMP-LITE ZONING REGULATIONS DATED 7/28/06.
- PLAT REFERENCE: PLAT No. 21751.
- THE EXISTING TOPOGRAPHY WITHIN THE AREA OF PROPOSED WORK IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY ESE. DATED 4/20/11.
- SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE ESE CONSULTANTS INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
- THE CONTRACTOR OR DEVELOPER SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410-313-1881) AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TOTAL LIMIT OF DISTURBANCE: 38,254 SQ. FT. / 0.88 AC.±
- STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED BY PREVIOUSLY APPROVED PLAN F-08-199
- ANY DAMAGE TO PUBLIC "RIGHT-OF-WAYS" OR PAVED PUBLIC ROADS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE IN ACCORDANCE WITH THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
- DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (ESE) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
- THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
- THESE AREAS DESIGNATE A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS INTO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
- EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
- ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS FOR ALL PROPOSED STRUCTURES AND/OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
- THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-08-199.
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- BUILDING SETBACKS (B.R.L.'s) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.
- CULVERT FOR DRIVEWAY PER F-08-199.

PLOT PLAN FOR BAT INSTALLATION  
 LOT 5  
**MERIWETHER FARMS**  
 LIBER 13779, FOLIO 473  
 PLAT No. 21751  
 TAX No. 04-593614  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 14939 VICTORY LANE  
 GLENELG, MARYLAND

**ESE** Land Planning  
 Engineering  
 Land Surveying

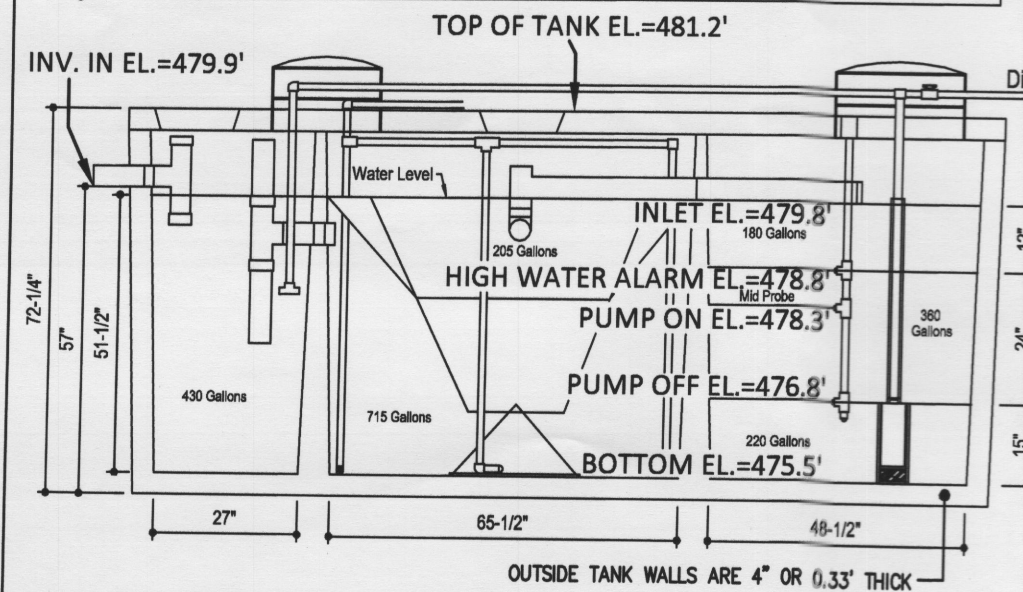
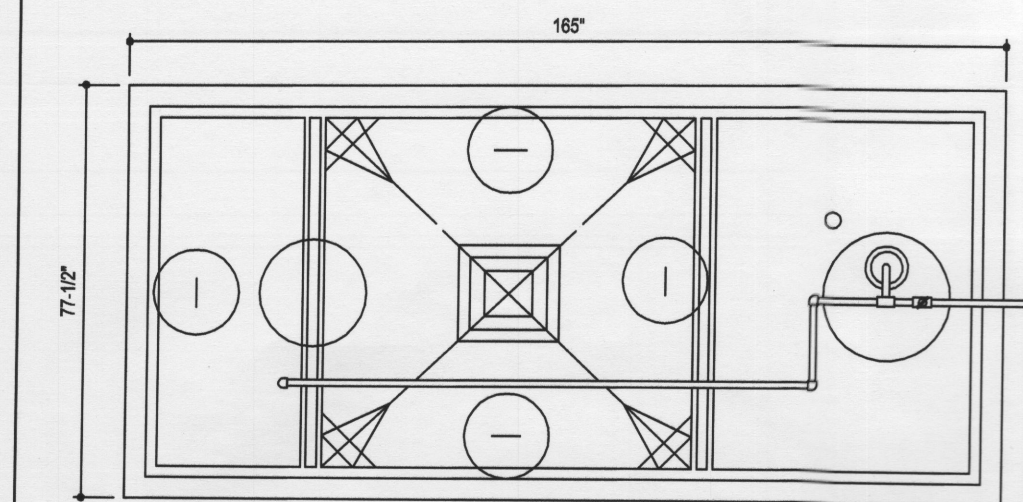
ESE Consultants Inc.  
 7164 Columbia Gateway Dr.  
 Suite 203  
 Columbia, MD 21046  
 TEL: 410-872-9105  
 FAX: 410-872-4870

DATE: 04/08/14  
 CHK'D: M.J.B.

SCALE: 1"=40'  
 JOB NO: 3184

FILE: PP LOT 5  
 DRAWN: R.C.K.





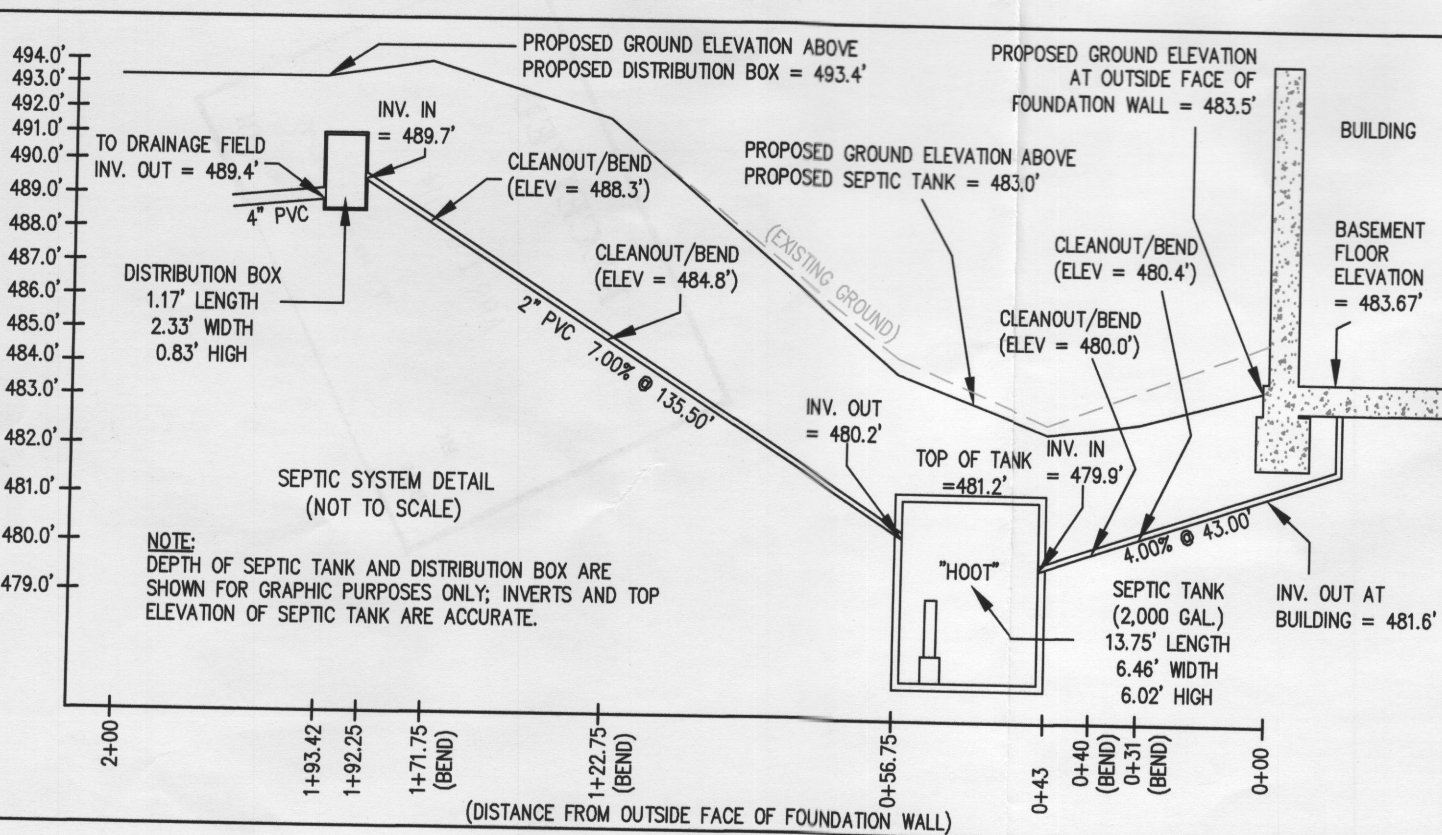
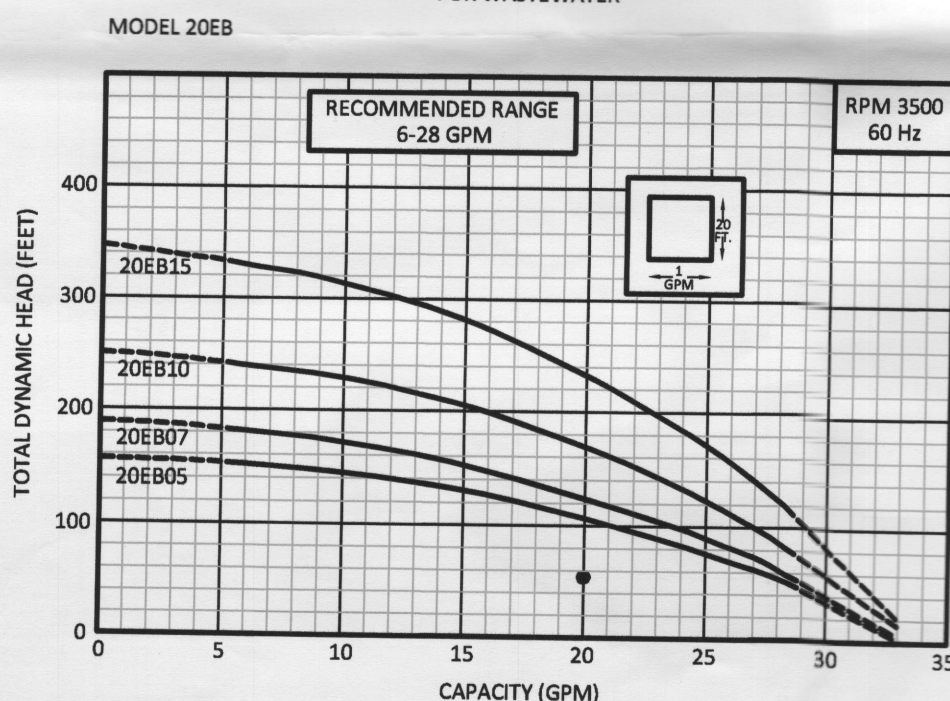
#### DESIGN DATA & GENERAL NOTES

- [1] Concrete strength  $f_c=4,000$  p.s.i. @ 28 days, Density = 150 pcf.
- [2] Cement - Portland Type III per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-96 & C 494-92.
- [4] Reinforcing per ASTM A165. Min. 1-1/2" cover.

<b>Mayer Brothers, Inc.</b> 6384 Rose Road Ellicott City, Maryland 21075 Tel. 410.796.1434 Fax. 410.796.1438 www.mayerbrosprecast.com	<b>600 GPD BNR SYSTEM H-600 ABNR</b> with 750 GALLON PUMP CHAMBER	
	Dwg. No. Hoot Form #1	No Scale

March 19, 2009

#### FILTERED EFFLUENT BLASTER PUMP CURVE FOR WASTEWATER



#### HOUSE OPTIONS:

TYPE: HAMPTON (CAROLINA)  
 INTERIOR WET BAR  
 WALK-OUT BASEMENT  
 ALTERNATE LAUNDRY LOCATION  
 EXPANDED FAMILY ROOM/GREAT ROOM  
 CONSERVATORY ELITE ADDITION  
 ADD'L 1' TO HEIGHT OF BASEMENT FOUNDATION  
 NAPLES SUNROOM ADDITION  
 WOOD BURNING FIREPLACE ILO STD FAMILY ROOM  
 FIREPLACE - NEED CONCRETE FOUNDATION  
 FOR CHIMNEY  
 ADDITIONAL TWO CAR FRONT ENTRY GARAGE  
 10 FOOT CEILINGS IN BASEMENT WALLS  
 STONE WATERABLE ON SIDES AND REAR OF HOME - NEED FOUNDATION LEDGE

OPTION No. 003  
 OPTION No. 017  
 OPTION No. 022  
 OPTION No. 023  
 OPTION No. 039  
 OPTION No. 070  
 OPTION No. 529  
  
 OPTION No. 106007  
 OPTION No. 263019  
 OPTION No. 90005007  
  
 OPTION No. 90005008

#### LEGEND:

- PERC TEST LOCATION
- W WELL LOCATION
- LOD- LIMITS OF DISTURBANCE
- TW TOP OF WALL
- GF GROUND FLOOR/FIRST FLOOR
- BF BASEMENT FLOOR
- BRL BUILDING RESTRICTION LINE

#### PUMPING SYSTEM DATA:

LENGTH OF FORCE MAIN: 135.50' @ 2" DIA. PIPE  
 STATIC HEAD = 12.90'  
 FRICTION HEAD = 1.05'  
 DYNAMIC HEAD = 13.95'  
 FLOW = 20 GPM  
 DOSE = 100 GALLONS (MINIMUM)  
 PUMP TYPE PER PUMP CURVE CHART = 20EB05, 1/2 H.P.

#### DOSE CALCULATIONS:

THE MINIMUM DOSE MUST BE NO LESS THAN ONE SIXTH (1/6) THE DESIGN FLOW  
 DESIGN FLOW = 600 GPD  
 (1/6) X (600 GPD) = 100 GALLONS  
 MINIMUM DOSE = 100 GALLONS

#### FRICTION HEAD CALCULATIONS:

LENGTH OF PIPE FROM SEPTIC TO DISTRIBUTION BOX = 135.50'  
 2 (45') BENDS IN 2" PVC = (ADD 4' PER BEND) = (2 X 4) = 6'  
 (LENGTH OF FORCE MAIN + LENGTH OF PIPE FOR FRICTION LOSS PER BENDS)  
 135.50' + 6' = 141.50' TOTAL PIPE PER FRICTION LOSS  
 (20 GPM OF 2" PVC = 0.74 PER 100' OF PIPE)  
 0.74 + 100 = 0.0074 X 41.50' (LEFT OVER PIPE) = 0.31 (41.50' OF PIPE PRORATED)  
 (0.74 (100' PIPE) + 0.31 (PRORATED 41.50' LEFT OVER))  
 FRICTION HEAD = 1.05'

#### DYNAMIC HEAD CALCULATIONS:

INV. IN @ DISTRIBUTION BOX = 489.7'  
 INV. @ TANK PUMP OFF FLOAT = 476.8'  
 (INV. IN AT DISTRIBUTION BOX (-) ELEV. OF PUMP OFF SWITCH)  
 STATIC HEAD = 12.90'  
 FRICTION HEAD LOSS IN 2" DIA. PIPE = 1.05'  
 (STATIC HEAD + FRICTION HEAD)  
 TOTAL DYNAMIC HEAD = 13.95'

#### FLOW CALCULATIONS:

PER STANDARD HOOT 600BNR "BLASTER EB20" PUMP:  
 THE SPECIFICATIONS SHOW IT PUMPS 20 GPM AT A HEAD OF 100'.  
 100 GALLONS (MIN. DOSE) ÷ 20 GPM = 5 MINUTE PUMP TIME

#### PUMP HORSEPOWER CALCULATIONS:

FLOW X TOTAL DYNAMIC HEAD X SPECIFIC GRAVITY ÷ 3960 X EFFICIENCY  
 (SPECIFIC GRAVITY H2O @ 68°F IS 1)  
 (USE 0.4 FOR EFFICIENCY, AS THIS IS COMMON FOR EFFLUENT PUMPS)  
 20 X 13.95 X 1 ÷ 3960 X 0.4 = 279 ÷ 1,584.0 = 0.18  
 USE PUMP CHART - PUMP = 20EB05, 1/2 H.P.

#### SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (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.
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9. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

APPROVED: FOR HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

DIRECTOR

PROFESSIONAL ENGINEER

DATE

DATE

DATE



#### SEWAGE DISPOSAL SYSTEM DATA (4 BDRM):

PROPOSED INVERT AT FOUNDATION WALL: 481.6'

1. HOOT BNR600 SYSTEM  
 EX. GRADE OVER TANK: 483.5'  
 PROPOSED GRADE OVER TANK: 483.0'  
 INVERT IN: 479.9' INVERT OUT: 480.2'

2. DISTRIBUTION BOX  
 EXISTING GRADE OVER TANK: 493.4'  
 PROPOSED GRADE OVER TANK: 493.4'  
 INVERT IN: 489.7' INVERT OUT: 489.4'

3. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)  
 600 GPD ÷ 0.6 APP. RATE = 1,000 SF  
 USE 3' WIDE TRENCH WITH 18" GRAVEL BELOW PIPE  
 9' MIN. SPACING BETWEEN TRENCH EDGES  
 1,000 SF ÷ 3' WIDTH = 333.33 LF X 0.71 = 236.67 LF MIN. TRENCH  
 USE 3 79' LONG TRENCHES = 237 LF

#### TRENCH DATA:

BOTTOM MAX. DEPTH (5.5')

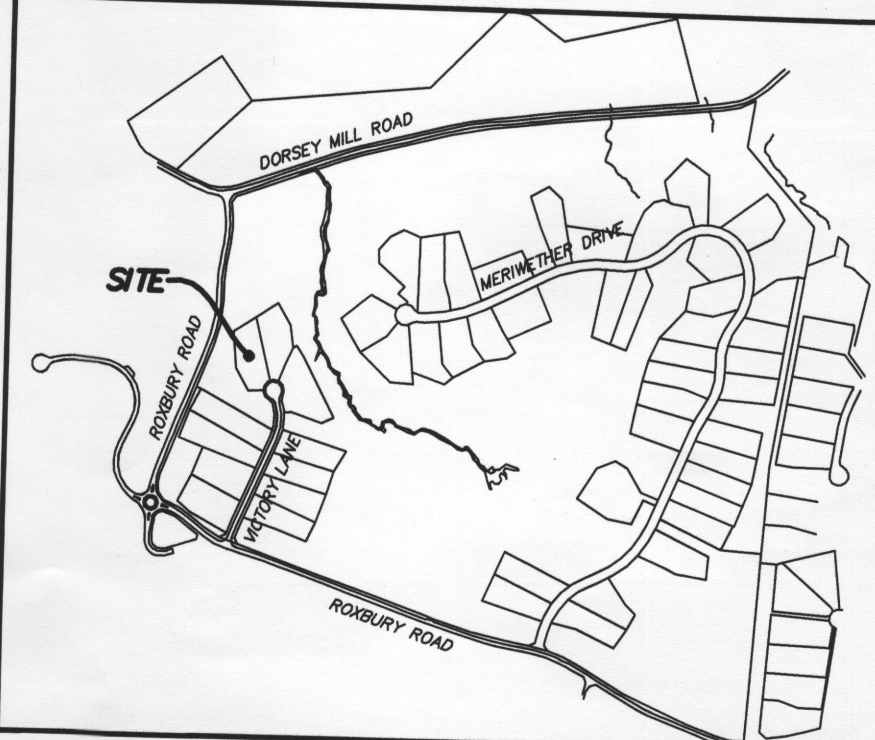
TRENCH 1 (T1):  
 GROUND ABOVE = 492.7'  
 INV. IN = 488.7'  
 BOTTOM TRENCH = 487.2'

TRENCH 2 (T2):  
 GROUND ABOVE = 491.2'  
 INV. IN = 487.2'  
 BOTTOM TRENCH = 485.7'

TRENCH 3 (T3):  
 GROUND ABOVE = 490.2'  
 INV. IN = 486.2'  
 BOTTOM TRENCH = 484.7'

#### GENERAL NOTES:

1. THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COMP-LITE ZONING REGULATIONS DATED 7/28/06.
2. PLAT REFERENCE: PLAT No. 21751.
3. THE EXISTING TOPOGRAPHY WITHIN THE AREA OF PROPOSED WORK IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY ESE. DATED 4/20/11.
4. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE ESE CONSULTANTS INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
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17. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-08-199.
18. A STANDARD SEDIMENT CONTROL PLAN MAY BE USED FOR DEVELOPMENT OF THIS LOT. REFERENCE GRADING PLAN DATED 12/18/13.
19. THE EXISTING WELL(S) SHOWN ON THIS PLAN (IDENTIFIED WITH THE ATTACHED WELL TAG NUMBER HO-95-2083) HAS BEEN FIELD LOCATED BY ESE CONSULTANTS - PROFESSIONAL LAND SURVEYOR(S), AND IS ACCURATELY SHOWN.
20. BUILDING SETBACKS (B.R.L.'s) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.
21. CULVERT FOR DRIVEWAY PER F-08-199.



#### VICINITY MAP

1" = 1000'

PLOT PLAN FOR BAT INSTALLATION  
 LOT 5  
**MERIWETHER FARMS**  
 LIBER 13779, FOLIO 473  
 PLAT No. 21751  
 TAX No. 04-593614  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 14939 VICTORY LANE  
 GLENELG, MARYLAND

**ESE** Land Planning  
 Engineering  
 Land Surveying

ESE Consultants Inc.  
 7164 Columbia Gateway Dr.  
 Suite 203  
 Columbia, MD 21046  
 TEL: 410-872-9105  
 FAX: 410-872-4870

DATE: 04/08/14  
 CHK'D: M.J.B

SCALE: 1"=40'  
 JOB NO: 3184

FILE: PP LOT 5  
 DRAWN: R.C.K