



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: 3-3-16 **ONSITE SEWAGE DISPOSAL SYSTEM** P 558019

APPROVAL DATE: 6/9/16 **PERMIT: CONSTRUCTION** A \_\_\_\_\_

PROPERTY ADDRESS: 15217 Sweetbay Street

SUBDIVISION: Belle Haven Estates LOT: 44 TAX ID: \_\_\_\_\_

CONTRACTOR: Ben Lewis Plumbing EMAIL: \_\_\_\_\_

CONTRACTOR ADDRESS: 23407 Frederick Road, Clarksburg, MD 20871 PHONE: 301) 428-3900

CONTRACTOR CERTIFIED FOR BAT INSTALLATION:  MDE  MANUFACTURER:

PROPERTY OWNER: K Hovnanian Homes EMAIL: cwillet@khov.com

OWNER ADDRESS: 1802 Brightseat Road, Landover, MD 20785 PHONE: 301-683-6268

BAT UNIT MODEL: Hoot 600 BNR PUMP SIZE: Ep0511 PUMP TANK CAPACITY: 750gal

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

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

TRENCHES:	LINEAR FEET REQUIRED: <u>208</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>6</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>5</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:	Install BAT unit per plan.	

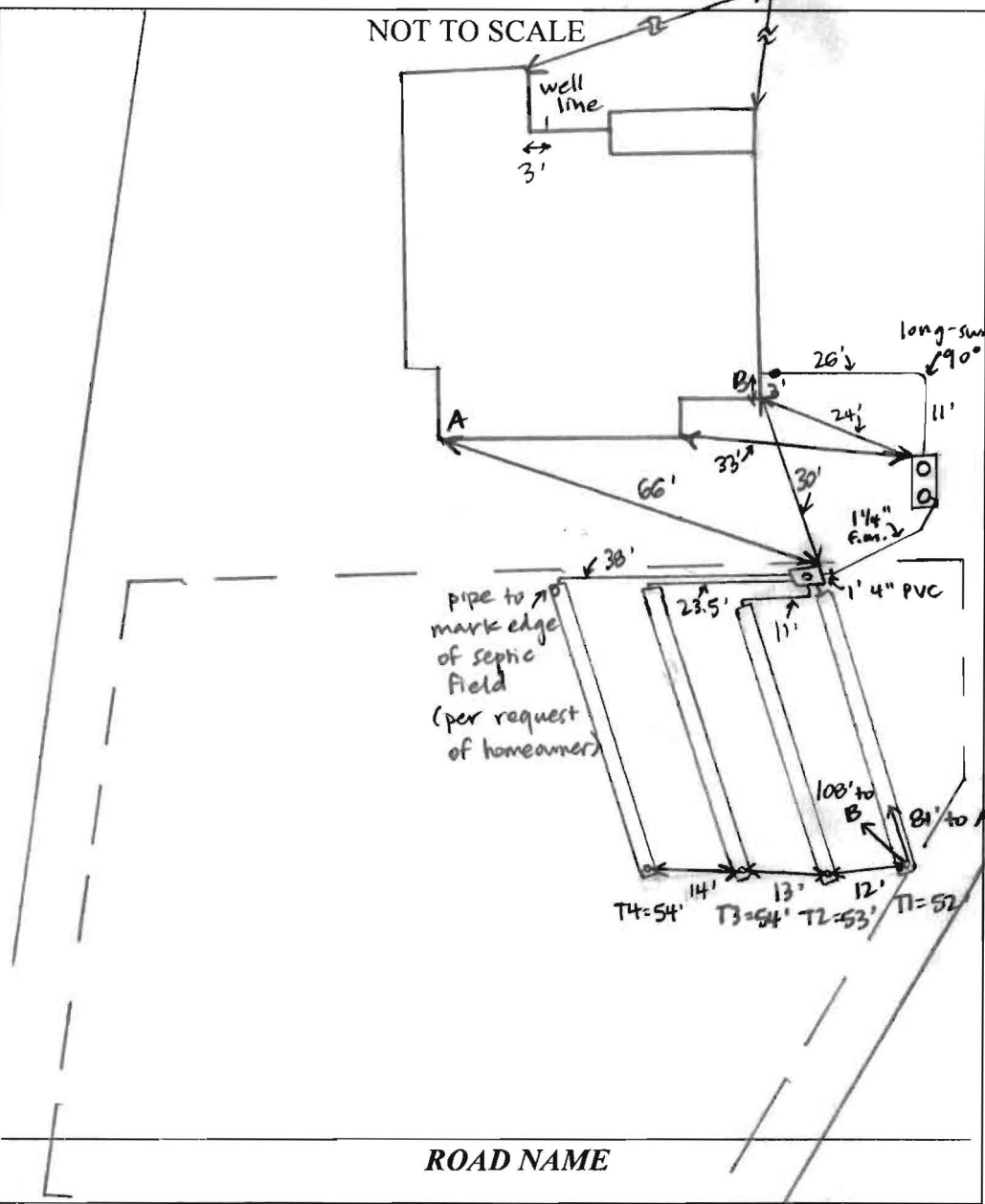
ISSUED BY: Hank Oswald ISSUE DATE: 3-7-16 EXPIRATION DATE: 3-3-17

- 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 16001146
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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

W HO-95-0652

NOT TO SCALE



**TRENCH/DRAINFIELD DATA**

WIDTH	INLET	BOTTOM
3'	4'	6'
NUMBER OF TRENCHES		4
TOTAL LENGTH		213'
ABSORPTION AREA		639' + SIDEWALL
DISTRIBUTION BOX LEVEL		YES
DISTRIBUTION BOX BAFFLE		YES
DISTRIBUTION BOX PORT		YES

**SEPTIC TANK DATA**

SEPTIC TANK I LEVEL	YES
MANUFACTURER	MAYER BROS. / HOOT
CAPACITY	1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5 - 3'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	FRONT + REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	_____

**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:**

4/1/16 Met Ben Lewis on site for layout. All SDA and tank stakes present. Tank and SE SDA corner stake had been run over but replaced using swing sheet from Engineer. Shot contour and laid out 4 x 52' trenches on contour, keeping starts on southern edge of SDA to minimize tree removal. Okay to move tank further from house in line with western edge of SDA per homeowner's request. (SC)

**INSTALLATION:**

4/4/16 T1-T3 complete, Ben Lewis about to start T4. T1+T2 left open at ends, T3 left open. 3' wide, 2.5' to stone. T1 had large rocks 2-3' deep for last 10' of trench. D-box set and connected to completed trenches. (SC) 4/8/16 Tank installed, connected to house + D-box. Rock encountered at western edge of tank hde - Ben Lewis will backfill with non-rocky dirt. Need Hoot startup. (SC) 6/7/16 On site for Hoot startup. Alarm sounds, pump pumps effluent to D-box, recirculation good. Builder will reroute downspout around aerator. (SC) 6/9/16 BAT startup received. (SC)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 6/9/16



**MAYER BROS., INC.**  
Precast Concrete Products  
6264 Race Rd. Elkridge, MD 21075

## Letter of Satisfaction Hoot System Installation

Address of Property: 15217 Sweetbay St.  
Woodbine, MD 21797

Date of Final Inspection: 6/7/16

Installer: Ben Lewis Plumbing

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. Michel Dargatzis  
Name of Inspector  
Mayer Bros., Inc.

PH: 410-796-1434

**WBE**

FX: 410-796-1438

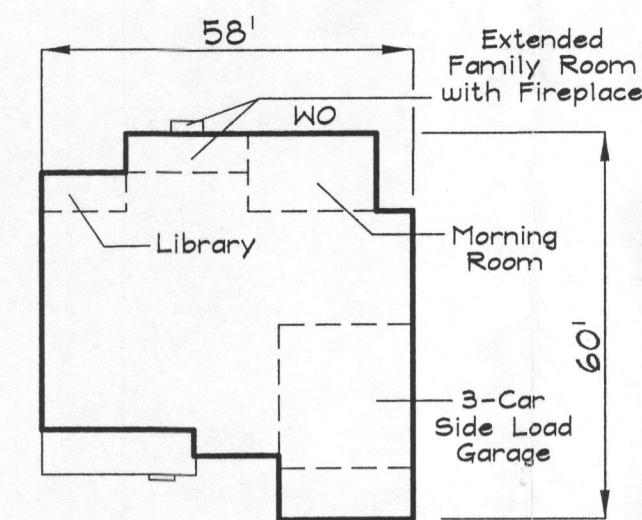
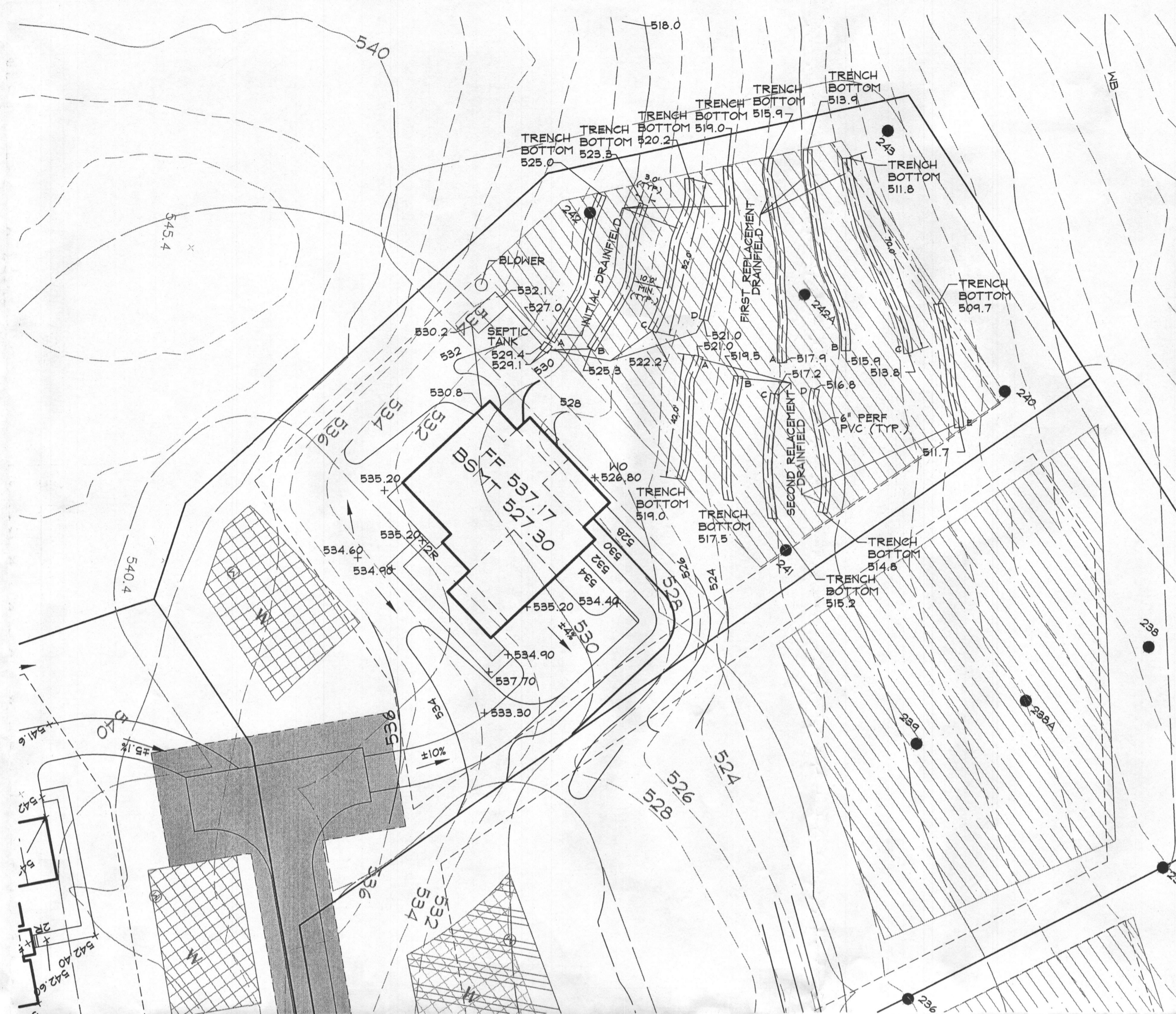
[www.mayerbrosprecast.com](http://www.mayerbrosprecast.com)

Grease Interceptors, Grease Solutions, Aerobic Treatment Units, Septic Tanks, Holding Tanks, Storm Water Structures, Hydroceptors,  
Bench Barrier, Water Meter Vaults, Sectional Valve Vaults, Top Slabs, Curb Heads, Curb Bumpers,  
Custom Precast Products



- GENERAL NOTES**
1. BASE SQUARE FOOTAGE OF HOUSE: 3,542 SQ. FT.  
NUMBER OF BEDROOMS: 4
  2. EJECTOR PUMP REQUIRED TO SEWER BASEMENT
  3. PER THE APPROVED ROAD DRAWINGS, F-07-36, A DRIVEWAY CULVERT IS NOT REQUIRED
  4. THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COMP-LITE ZONING REGULATIONS DATED 7/26/06.
  5. PLAT REFERENCE: #19448
  6. BASE INFORMATION SHOWN ON THIS PLAN IS BASED ON PLANS PREPARED BY DMV, AND DATED 06/25/07. EXISTING TOPOGRAPHY BASED ON GRADING PLAN PREPARED BY DEMARIO DESIGN CONSULTANTS DATED 07/09/07 AND FIELD RUN TOPOGRAPHY PREPARED BY DDC INC IN JAN. 2012.
  7. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE DDC, INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
  8. 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.
  9. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
  10. TOTAL LIMIT OF DISTURBANCE: 17,479 SQ. FT. / 0.40 AC.
  11. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED PER THE PREVIOUSLY APPROVED FINAL PLAN (F-07-36).
  12. 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.
  13. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
  14. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
  15. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
  16. THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQ. FT. AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A REVISED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
  17. 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.
  18. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  19. UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS OF ALL PROPOSED STRUCTURES AND OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
  20. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-07-36.
  21. THE EXISTING WELL SHOWN (H0-095-0652) HAS BEEN FIELD LOCATED AND IS SHOWN ACCURATELY.
  22. AT ANY TIME IN THE FUTURE THAT A BUILDING PERMIT IS SUBMITTED TO FINISH THE AREA CURRENTLY IDENTIFIED AS OPTIONAL DEN, THEN A SEPTIC SYSTEM UPGRADE WILL BE REQUIRED AS FINISHING THE OPTIONAL DEN CREATES A FIFTH BEDROOM PER HOWARD COUNTY CODE 3.80(B).

- 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.
  3. THE BLOWER MAY NOT BE LOCATED MORE THAN 10 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 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 SEPTIC SYSTEM.



COLORADO COUNTRY ELEVATION BRICK/STONE FRONT WALKOUT

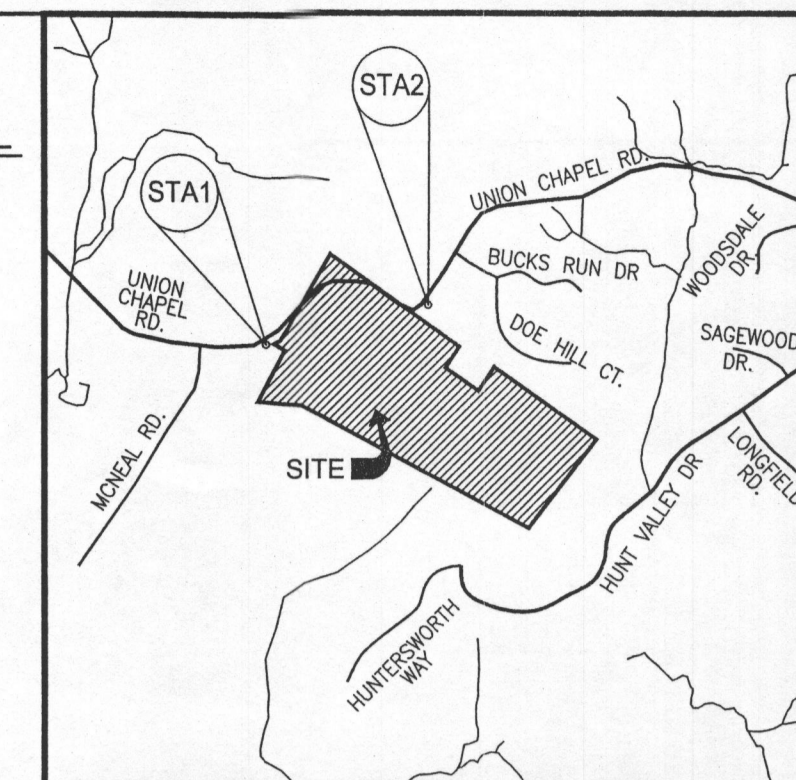
	GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION
INITIAL SYSTEM TRENCH (A)	531.0	527.0	525.0
INITIAL SYSTEM TRENCH (B)	529.3	525.3	523.3
INITIAL SYSTEM TRENCH (C)	526.2	522.2	520.2
INITIAL SYSTEM TRENCH (D)	525.0	521.0	519.0
FIRST REPLACEMENT TRENCH (A)	521.9	517.9	515.9
FIRST REPLACEMENT TRENCH (B)	519.9	515.9	513.9
FIRST REPLACEMENT TRENCH (C)	517.8	513.8	511.8
SECOND REPLACEMENT TRENCH (A)	525.0	521.0	519.0
SECOND REPLACEMENT TRENCH (B)	523.5	519.5	517.5
SECOND REPLACEMENT TRENCH (C)	521.2	517.2	515.2
SECOND REPLACEMENT TRENCH (D)	520.8	516.8	514.8
SECOND REPLACEMENT TRENCH (E)	515.7	511.7	509.7

**BENCHMARK**

GEODETTIC SURVEY CONTROL #1  
 N. 591450.42  
 E. 1297571.25  
 MGA  
 ELEV. 535.43

GEODETTIC SURVEY CONTROL #2  
 N. 591693.88  
 E. 1299121.60  
 B.M.  
 ELEV. 542.23

ADIC MAP COORDINATES  
 4812/C4



**VICINITY MAP**

SCALE: 1" = 2000'

**DRAWING LEGEND**

- 500 PROPOSED GRADE
- 502 PROPOSED LIMIT OF DISTURBANCE
- + 665.5 PROP. SPOT ELEV./FLOW ARROW
- 20' SEPTIC RESERVE
- EXISTING 30' WELL BUFFER
- EXISTING 100' WELL BUFFER
- BUILDING RESTRICTION LINE
- SEPTIC RESERVE AREA
- WELL AREA
- 174 PASSED PERCOLATION TEST
- 127 FAILED PERCOLATION TEST

DATA SOURCES:

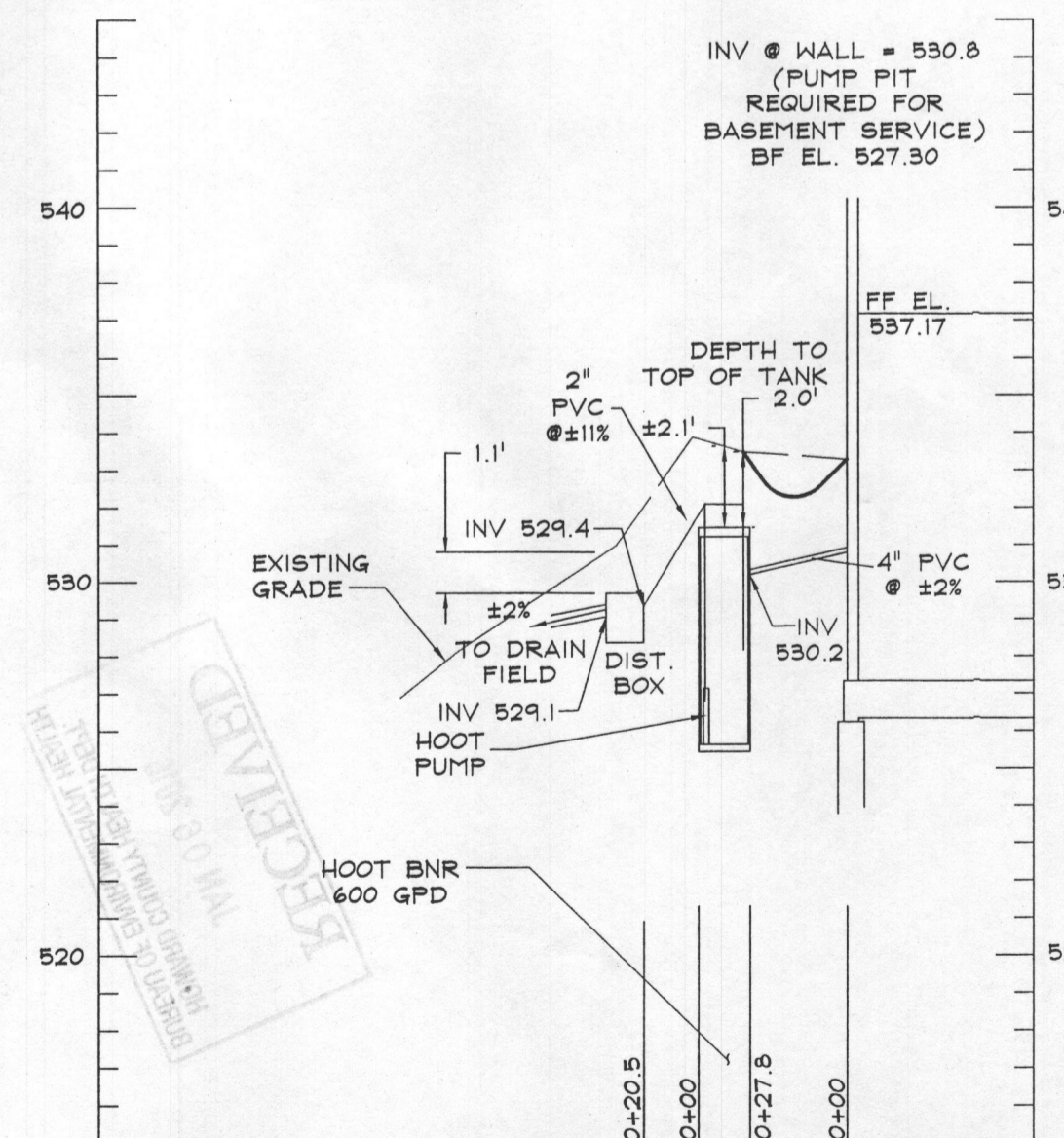
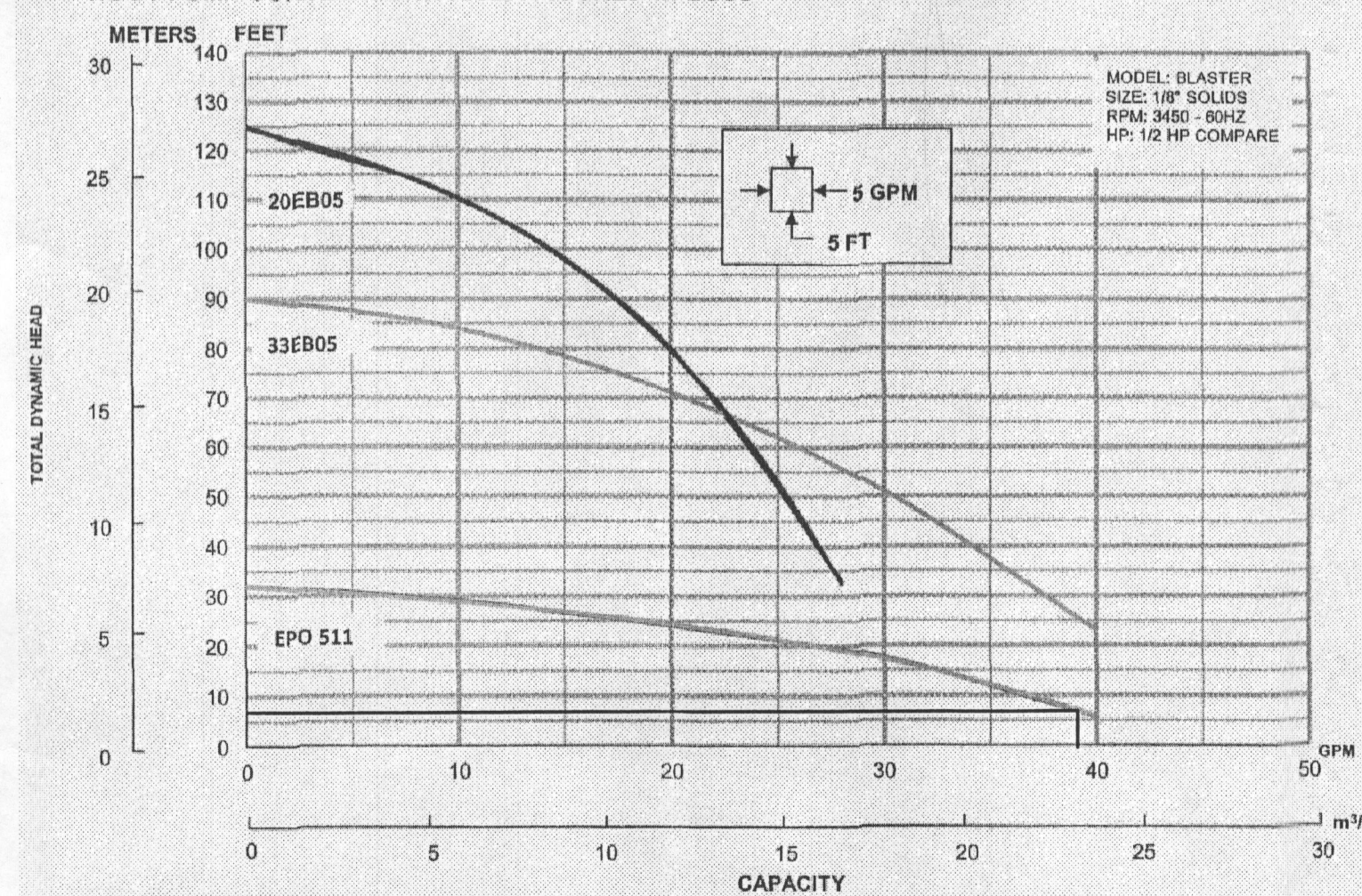
SCALE = 1"=30'

**TOTAL DYNAMIC HEAD CALCULATIONS**

STATIC HEAD	5.0'
OFF FLOAT ELEVATION	527.1'
HIGH POINT OF THE SYSTEM	+ 532.1'
VERTICAL ELEVATION CHANGE	5.0'
ERUCTION HEAD	
FITTINGS	19.7'
LENGTH OF PVC PIPE	+ 20.5'
TOTAL LENGTH	40.2'
40.2'/100 x 3.1" = 1.3' TOTAL FRICTION LOSS	
TOTAL HEAD	
VERTICAL ELEVATION CHANGE	5.0'
TOTAL FRICTION LOSS	1.3'
SYSTEM PRESSURE REQUIREMENTS	+ 0.0'
TOTAL DYNAMIC HEAD	6.3'

\* PER AMERICAN MANUFACTURING COMPANY, INC. FRICTION HEAD LOSS TABLE.

**HOOT PUMP CURVES w/BNR RISER FIGURED IN LOSS**



SEPTIC SYSTEM PROFILE LOT 44 SCALE: HORIZ. 1"=50'

**SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):**

1. INVERT @ FOUNDATION WALL: 530.8 (BASEMENT PUMP REQUIRED)
  2. 600 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER  
EX. GRADE OVER TANK: 534.0  
PROPOSED GRADE OVER TANK: 534.0  
INVERT: 530.2
  3. DISTRIBUTION BOX  
EX @ PROPOSED GRADE OVER TANK: 531.0  
INVERT: 524.4
  4. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)  
INITIAL SYSTEM  
600 GPD / 0.8 GPD/SF (APP. RATE) = 750 SF  
USE 3' WIDE TRENCH W/ 12" OF GRAVEL BELOW PIPE  
750 SF / 3' WIDTH = 250 LF x 0.83 = 208 LF MIN. TRENCH
  - 1ST/2ND REPLACEMENT SYSTEM  
600 GPD / 0.8 GPD/SF (APP. RATE) = 750 SF  
USE 3' WIDE TRENCH W/ 12" OF GRAVEL BELOW PIPE  
750 SF / 3' WIDTH = 250 LF x 0.83 = 208 LF MIN. TRENCH
- 10' MIN SPACING BETWEEN TRENCH EDGES
- USE 4 - 52' LONG TRENCH FOR INITIAL SYSTEM  
 USE 3 - 70' LONG TRENCH FOR FIRST REPLACEMENT SYSTEM  
 USE 5 - 42' LONG TRENCH FOR SECOND REPLACEMENT SYSTEM

Approved Septic System Plan  
 Howard County Health Department

Mark Oswald 1/11/16  
 Signature Date

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. 27020 EXPIRATION DATE: JANUARY 25, 2016

12/16/2015  
 DATE

PAUL G. CAVANAUGH  
 PROFESSIONAL ENGINEER

**DDC Inc.**  
 Development Design Consultants

Planners  
 Surveyors  
 Engineers  
 Landscape Architects

192 East Main Street  
 Westminster, MD 21157  
 410.386.0560  
 410.386.0564 (Fax)  
 DDC@DDCinc.us  
 www.DDCinc.us

OWNER:  
 K. HOVNANIAN HOMES  
 1802 Brightseat Road  
 Landover, Maryland 20785  
 (301) 953-6288

DEVELOPER:  
 BELLE HAVEN ESTATES  
 LOT 44

SITE ADDRESS:  
 LOT 44  
 15217 Sweetbay Street  
 Woodbine, Maryland 21797

**SITE PLAN FOR BAT INSTALLATION**

3rd ELECTION DISTRICT HOWARD COUNTY

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
CO. FILE #:	DES. BY: BKC			
TAX ACC. #:	DRN. BY: BKC			
TAX MAP: 14	CHK. BY: PGC			
BLOCK / GRID:	DATE: 12/16/15			
PARCEL #: 66	DDC JOB#: 06116.5			
ZONE / USE: RC-DEO	SHEET NUMBER:			
DWG. SCALE: 1"=30'	1 of 1			

**DESIGN DATA & GENERAL NOTES**

1) Concrete strength 4000 PSI (30 MPa) unless noted otherwise = 150 psi  
 2) Correct Portland Type III per ASTM C 150-92  
 3) Admixtures & plasticizers per ASTM C 260-90 & C 494-90  
 4) Reinforcing per ASTM A 618, Min. 1/16" cover.

**LOT 36 PUMP ELEVATIONS**

LOW PROBE / PUMP OFF	MID PROBE	ALARM
527.1	528.6	529.1

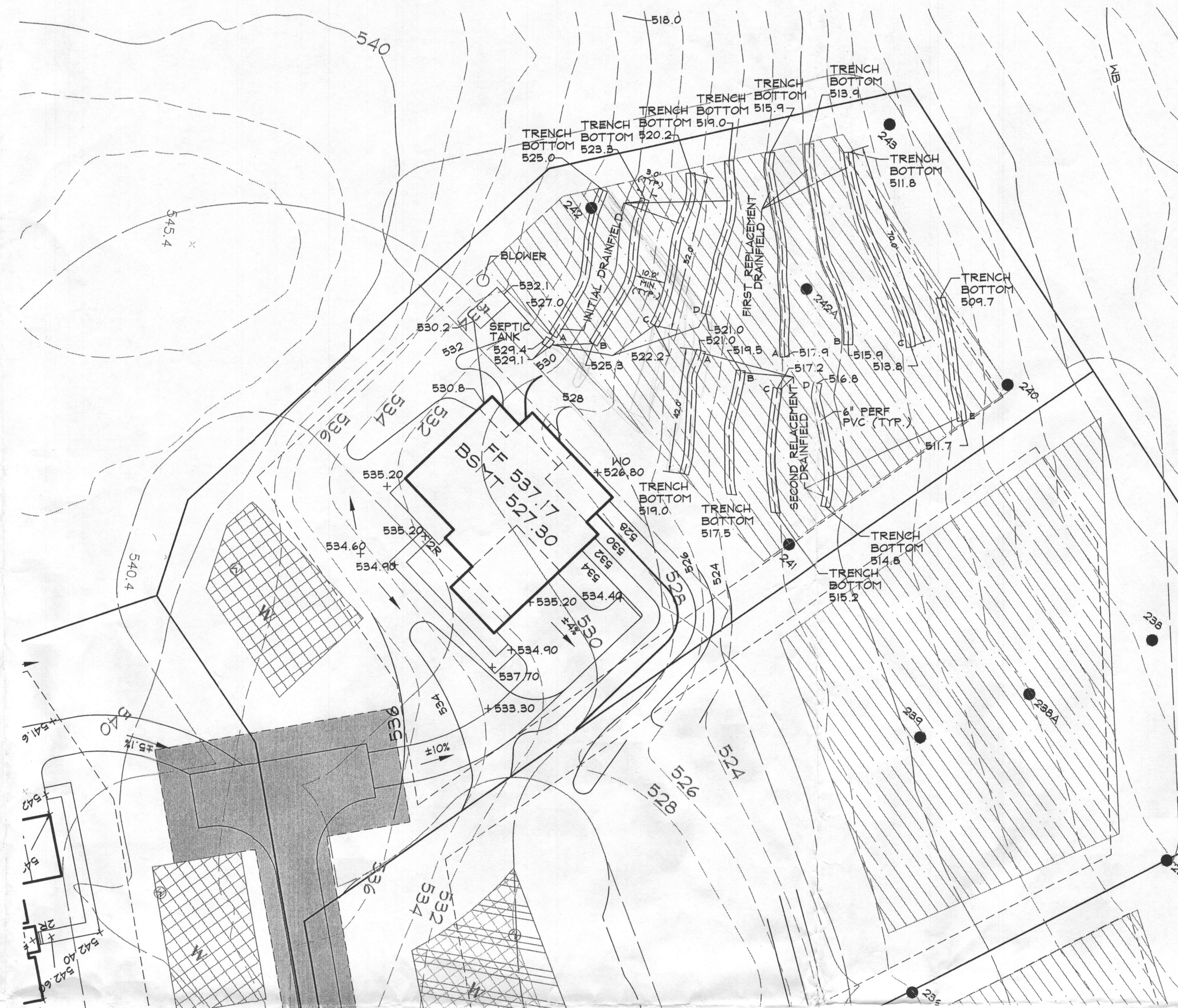
600 GPD BNR SYSTEM  
 H-600 ABNR  
 with 750 GALLON PUMP CHAMBER

Mayer Brothers, Inc.  
 6308 River Road  
 Elkridge, Maryland 21075  
 Tel: 410.766.1433  
 Fax: 410.766.1438  
 www.mayerbroscorp.com

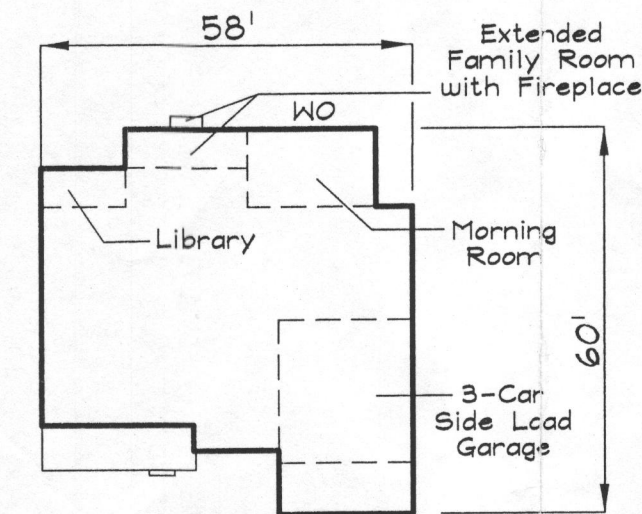
Dwg No. 11007 Form #1 No Scale March 19, 2009

- GENERAL NOTES**
- BASE SQUARE FOOTAGE OF HOUSE: 3,592 SQ.FT. NUMBER OF BEDROOMS: 4
  - EJECTOR PUMP REQUIRED TO SEWER BASEMENT
  - PER THE APPROVED ROAD DRAWINGS, F-07-38, A DRIVEWAY CULVERT IS NOT REQUIRED
  - 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: #19948
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  - THE EXISTING WELL SHOWN (HO-048-0652) HAS BEEN FIELD LOCATED AND IS SHOWN ACCURATELY.
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  - 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.



SCALE = 1"=30'



COLORADO COUNTRY ELEVATION BRICK/STONE FRONT WALKOUT

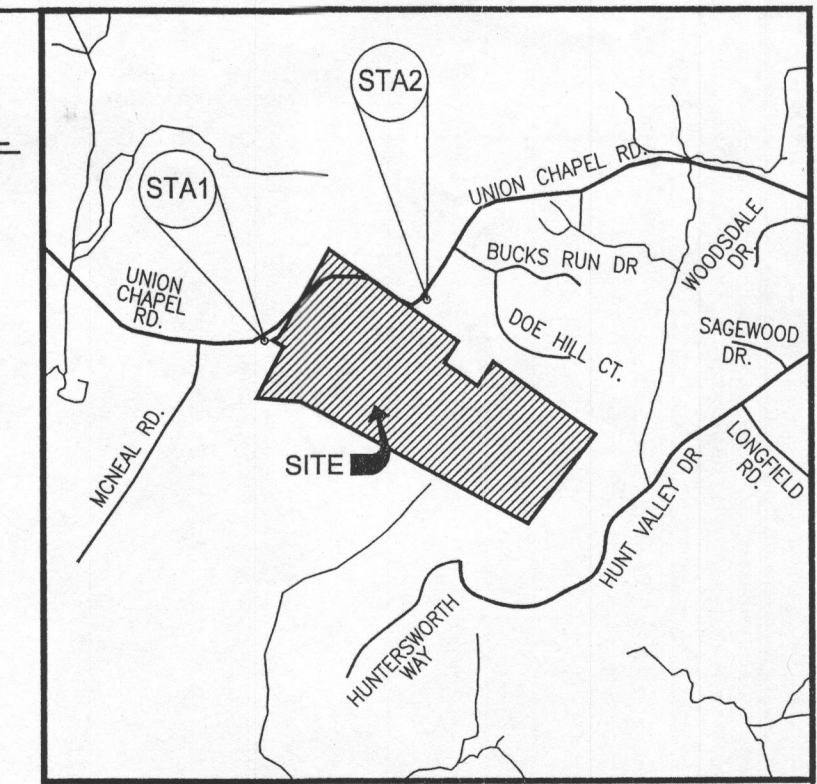
	GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION
INITIAL SYSTEM TRENCH (A)	531.0	527.0	525.0
INITIAL SYSTEM TRENCH (B)	529.3	525.3	523.3
INITIAL SYSTEM TRENCH (C)	526.2	522.2	520.2
INITIAL SYSTEM TRENCH (D)	525.0	521.0	519.0
FIRST REPLACEMENT TRENCH (A)	521.9	517.9	515.9
FIRST REPLACEMENT TRENCH (B)	519.9	515.9	513.9
FIRST REPLACEMENT TRENCH (C)	517.8	513.8	511.8
SECOND REPLACEMENT TRENCH (A)	525.0	521.0	519.0
SECOND REPLACEMENT TRENCH (B)	523.5	519.5	517.5
SECOND REPLACEMENT TRENCH (C)	521.2	517.2	515.2
SECOND REPLACEMENT TRENCH (D)	520.8	516.8	514.8
SECOND REPLACEMENT TRENCH (E)	515.7	511.7	509.7

**BENCHMARK**

GEODEIC SURVEY CONTROL #1  
 N. 591450.42  
 E. 1297571.25  
 A.A. 146A  
 ELEV. 535.43

GEODEIC SURVEY CONTROL #2  
 N. 591893.88  
 E. 1299121.80  
 B.M. 146B  
 ELEV. 542.23

ADIC MAP COORDINATES  
 4812/C4



**VICINITY MAP**

SCALE: 1" = 2000'

**DRAWING LEGEND**

- 500 PROPOSED GRADE
- 502 PROPOSED LIMIT OF DISTURBANCE
- + 665.5 PROP. SPOT ELEV./FLOW ARROW
- PROPOSED 20' SEPTIC RESERVE BUFFER
- EXISTING 30' WELL BUFFER
- EXISTING 100' WELL BUFFER
- BUILDING RESTRICTION LINE
- SEPTIC RESERVE AREA
- WELL AREA
- 174 PASSED PERCOLATION TEST
- 127 FAILED PERCOLATION TEST

DATA SOURCES:

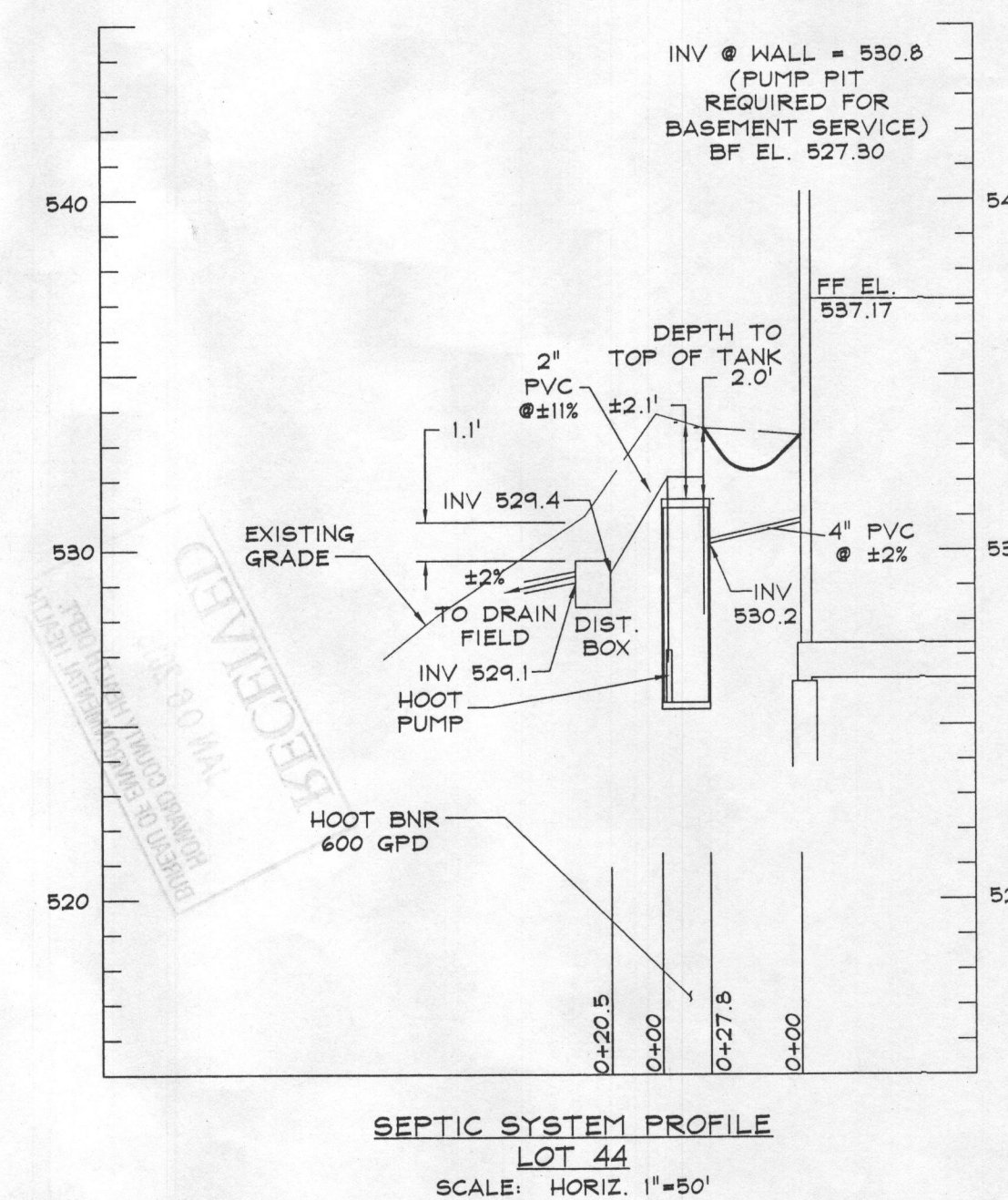
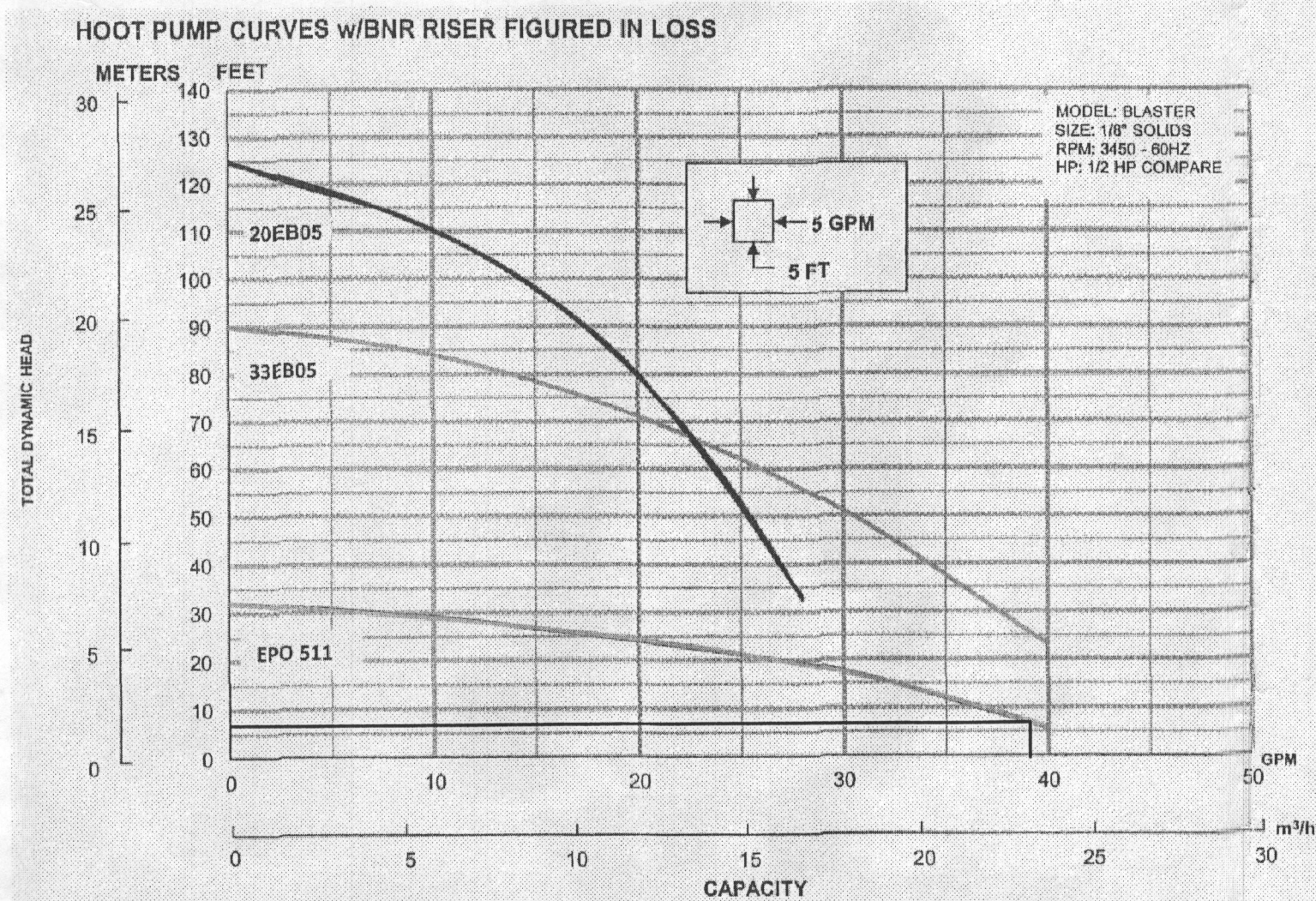
**TOTAL DYNAMIC HEAD CALCULATIONS**

STATIC HEAD	5.0'
OFF FLOAT ELEVATION	527.1'
HIGH POINT OF THE SYSTEM	+ 532.1'
VERTICAL ELEVATION CHANGE	5.0'
FRICITION HEAD	
FITTINGS	19.7'
LENGTH OF PVC PIPE	+ 20.5'
TOTAL LENGTH	40.2'
40.2'/100 x 3.1' = 1.3' TOTAL FRICTION LOSS	
TOTAL HEAD	
VERTICAL ELEVATION CHANGE	5.0'
TOTAL FRICTION LOSS	1.3'
SYSTEM PRESSURE REQUIREMENTS	+ 0.0'
TOTAL DYNAMIC HEAD	6.3'

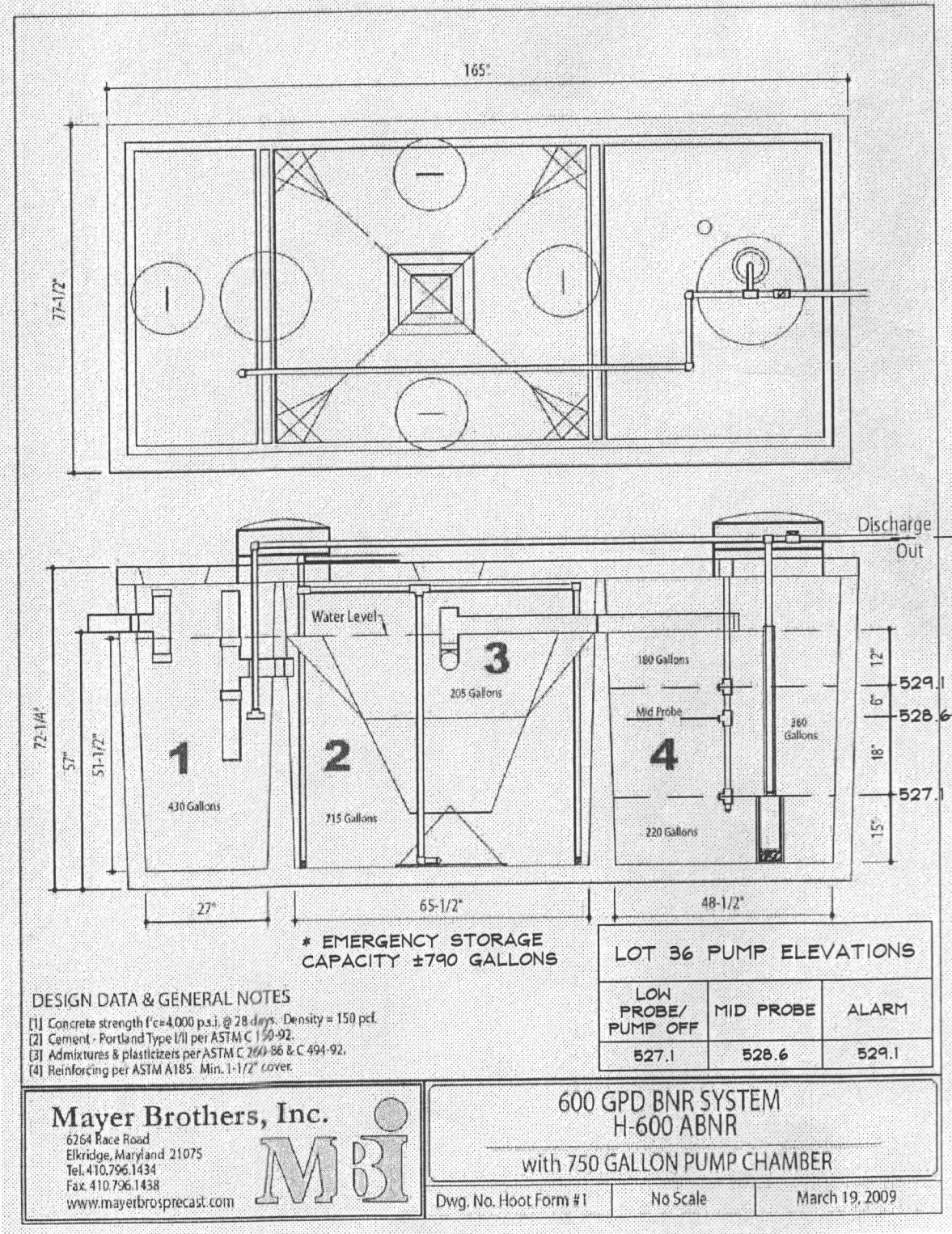
\* PER AMERICAN MANUFACTURING COMPANY, INC. FRICTION HEAD LOSS TABLE.

**SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):**

- INVERT @ FOUNDATION WALL: 530.8 (BASEMENT PUMP REQUIRED)
  - 600 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER  
 EX. GRADE OVER TANK: 534.0  
 PROPOSED GRADE OVER TANK: 534.0  
 INVERT: 530.2
  - DISTRIBUTION BOX  
 EX. PROPOSED GRADE OVER TANK: 531.0  
 INVERT: 529.4
  - TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
- INITIAL SYSTEM**  
 600 GPD / 0.8 GPD/SF (APP. RATE) = 750 SF  
 USE 3' WIDE TRENCH W/ 12" OF GRAVEL BELOW PIPE  
 750 SF / 3' WIDTH = 250 LF x 0.83 = 208 LF MIN. TRENCH
- 1ST/2ND REPLACEMENT SYSTEM**  
 600 GPD / 0.8 GPD/SF (APP. RATE) = 750 SF  
 USE 3' WIDE TRENCH W/ 12" OF GRAVEL BELOW PIPE  
 750 SF / 3' WIDTH = 250 LF x 0.83 = 208 LF MIN. TRENCH
- 10' MIN SPACING BETWEEN TRENCH EDGES
- USE 4 - 52' LONG TRENCH FOR INITIAL SYSTEM  
 USE 3 - 70' LONG TRENCH FOR FIRST REPLACEMENT SYSTEM  
 USE 5 - 42' LONG TRENCH FOR SECOND REPLACEMENT SYSTEM



SEPTIC SYSTEM PROFILE  
 LOT 44  
 SCALE: HORIZ. 1"=50'



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

Mayer Brothers, Inc.  
 6344 Roe Road  
 Ellicott City, MD 21115  
 Tel: 410.796.1434  
 Fax: 410.796.1434  
 www.mayerbrothers.com

DESIGN DATA & GENERAL NOTES  
 1) Concrete strength Fc=4000 psi, @ 28 days, Density = 150 pcf.  
 2) Concrete Reinforcing Steel per ASTM C 616 & C 619.  
 3) Admixtures & plasticizers per ASTM C 896 & C 899-92.  
 4) Reinforcing per ASTM A 615, Min. 1-1/2" cover.

**DDC inc.**  
 Development Design Consultants

Planners  
 Surveyors  
 Engineers  
 Landscape Architects

192 East Main Street  
 Westminster, MD 21157  
 410.386.0560  
 410.386.0564 (Fax)  
 DDC@DDCinc.us  
 www.DDCinc.us

OWNER:  
 K. HOVNANIAN HOMES  
 1802 Brightseat Road  
 Landover, Maryland 20785  
 (301) 883-6283

DEVELOPER:  
 BELLE HAVEN ESTATES  
 LOT 44  
 15217 Sweetbay Street  
 Woodbine, Maryland 21797

**SITE PLAN FOR BAT INSTALLATION**

3rd ELECTION DISTRICT HOWARD COUNTY

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE

CO. FILE #: DES. BY: BKC  
 TAX MAP #: DRN. BY: BKC  
 BLOCK / GRID: CHK. BY: PGC  
 PARCEL #: 66 DATE: 12/16/15  
 ZONE / USE: RC-DEO DDC JOB#: 06116.5  
 DWG. SCALE: 1"=30' SHEET NUMBER: 1 of 1

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. 27020, EXPIRATION DATE: JANUARY 25, 2016

12/16/2015  
 DATE

PAUL G. CAVANAUGH  
 PROFESSIONAL ENGINEER