



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

Facebook: www.facebook.com/hocohealth

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

RECEIPT DATE: 3/2/15 **ONSITE SEWAGE DISPOSAL SYSTEM**

P 555757

INSTALLATION
APPROVAL DATE: 6/23/15 *KW*

**PERMIT
CONSTRUCTION**

A _____

PROPERTY ADDRESS: 15233 Sweetbay Street

SUBDIVISION: Belle Haven Estates

LOT: 40

TAX ID: _____

CONTRACTOR: Ben Lewis Plumbing

EMAIL: _____

CONTRACTOR ADDRESS: 23407 Frederick Road, Clarksburg, MD 20871

PHONE: (301) 428-3900

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: _____

PUMP TANK CAPACITY: 600GPD

DISTRIBUTION SYSTEM: GRAVITY ☒ LOW PRESSURE DOSED ☐

NUMBER OF BEDROOMS: 4

TRENCHES:	LINEAR FEET REQUIRED: <u>75' 125'</u>	INLET DEPTH: <u>4' 3'</u>
	TRENCH WIDTH: <u>3' 2'</u>	MAXIMUM BOTTOM DEPTH: <u>8' 7'</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>4.5</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 system per plan. <u>[2x63' trenches]</u> <u>Specs adjusted to 2' wide 7' bottom, 3' invert trenches. Future repairs farther into SDA</u> <u>should have bottoms no deeper than 6' (caving at 10' Perc hole #230).</u>	

ISSUED BY: Jeff Williams

ISSUE DATE: 4/6/15

EXPIRATION DATE: 4/6/16

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.

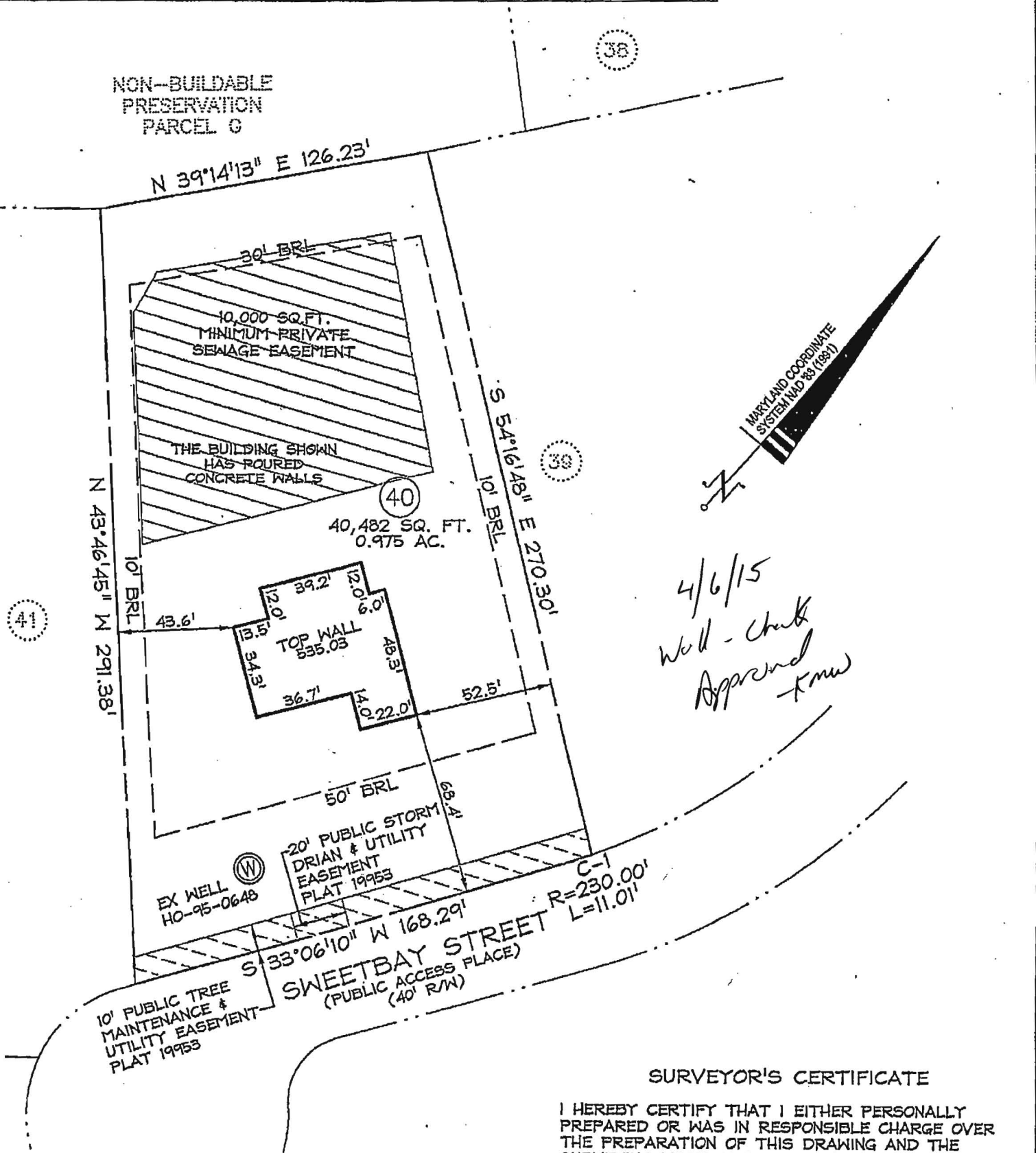
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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.

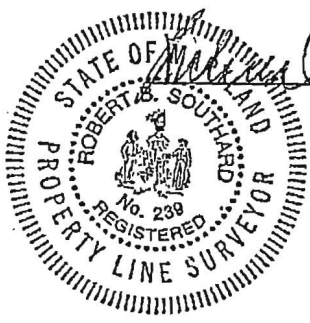
CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	TAN	CHD. BRG.
C-1	230.00'	11.01'	02°44'38"	5.51'	S 31°43'50" W
					CHD. DIST.
					11.01'



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I EITHER PERSONALLY PREPARED OR WAS IN RESPONSIBLE CHARGE OVER THE PREPARATION OF THIS DRAWING AND THE SURVEYING WORK REFLECTED IN IT, AND THAT IT IS IN COMPLIANCE WITH REQUIREMENTS SET FORTH IN REGULATION .12 OF CHAPTER 06, MINIMUM STANDARDS OF PRACTICE.

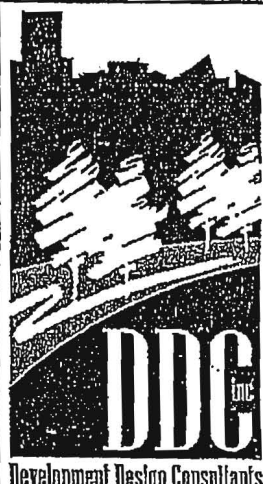
I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 239, EXPIRATION DATE 07/06/16.



Robert B. Southard 2-20-15

LOCATION DRAWING / WALL CHECK
 #15233 SWEETBAY STREET
 LOT 40
 BELLE HAVEN ESTATES
 PLAT No. 19953
 SECTION DIST. No. 4 HOWARD COUNTY, MD

DDC JOB#:	06116.5
DATE:	02-17-2015
SCALE:	1"=50'
DRN. BY:	RC
CHK. BY:	RRS

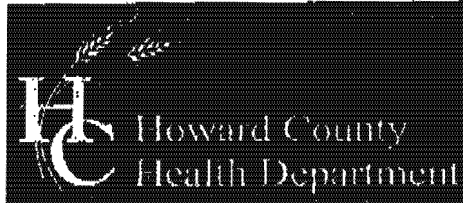


Planners
 Surveyors
 Engineers
 Landscape Architects

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

CHER | 6044 FOLD 07

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Twitter: HowardCoHealthDep

Maureen 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 ²⁰⁰⁷ 12 day of ^{MARCH 2015} February, among Shereen & Joe
(Buyer) McElroy / Khamis / Hummer
of Maryland LLC (owners), 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
15233 Sweetbay St Woodbine, MD 21797 in the 04 Election District of Howard
County, Maryland, and the deed to same is recorded or shall be recorded among the Land 04/37401
Records of Howard County, Maryland in Liber 780 Folio 00216
15970

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 750 GPD PWR SYSTEM.

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

107 (40)

[BOOK] 6044 FOLIO 08

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.

P. 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.

Bert Nufen 3/2/2015
Howard County Health Department

Steve Snyder 2/24/15
Owner #1 Signature Date

Steve Snyder VP CONSTRUCTION
Owner #1 Print Name of Maryland LLC

Joseph Melki 2/14/2015
Buyer #1 Signature Date

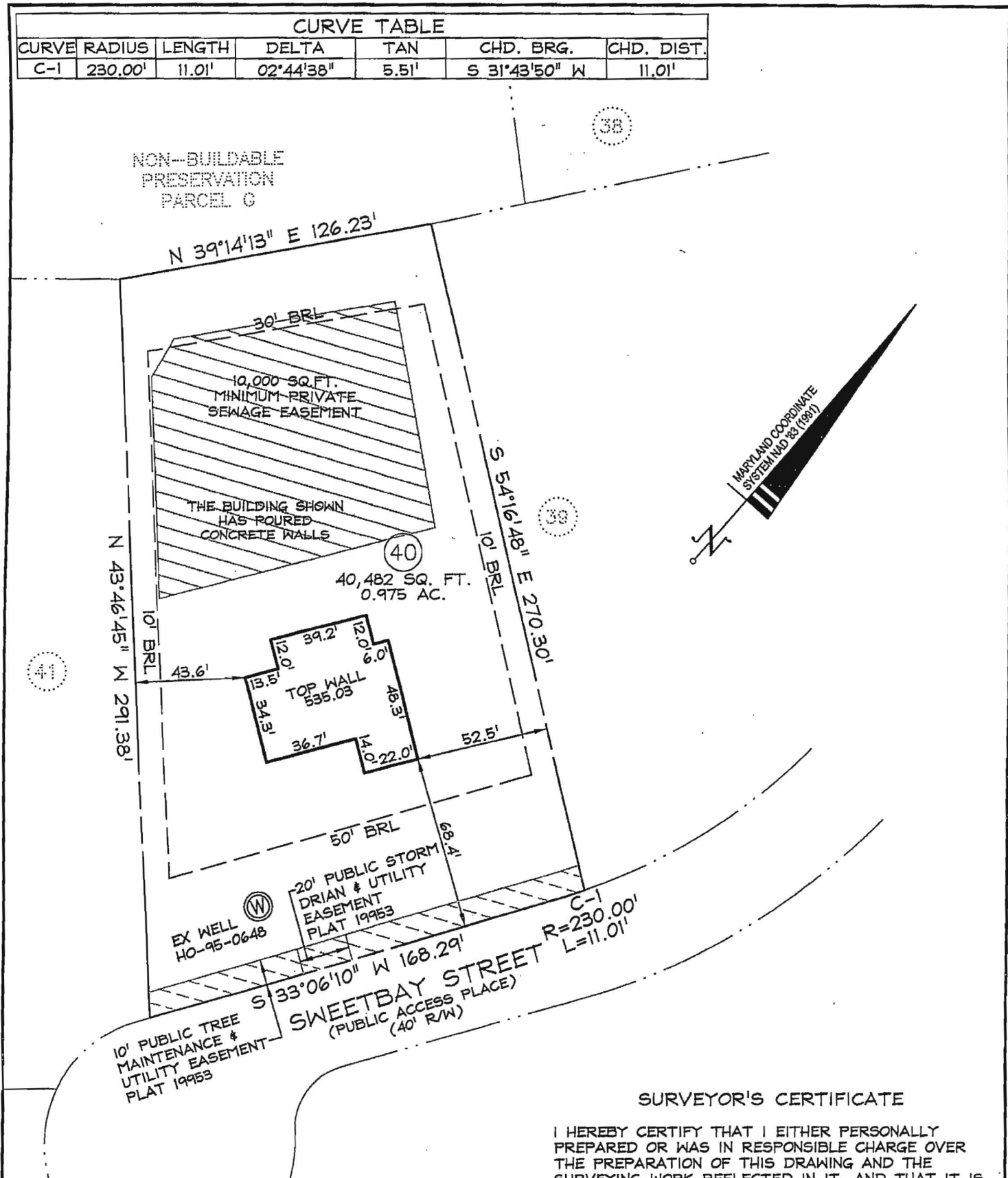
Joseph Melki
Buyer #1 Print Name

LR - Agreement	
Recording Fee	20.00
Grantor/Grantee Name:	Melki
Reference/Control #:	115
LR - Agreement	
Surcharge	40.00
SubTotal:	60.00
Total:	60.00
Date	03/02/2015 02:14
	CC13-05
Owner #2 Print Name	#3908101 CC0503 -
	Howard Co
	Columbia/CC05.03.07 -
	Register 07

Shereen Ghneim 2/14/2015
Buyer #2 Signature Date

Shereen Ghneim
Buyer #2 Print Name

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C-1	230.00'	11.01'	02°44'38"	5.51'	S 31°43'50" W	11.01'



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Robert B. Southard 2015



Planners
Surveyors
Engineers
Landscape Architects

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

LOCATION DRAWING / WALL CHECK #15233 SWEETBAY STREET LOT 40 BELLE HAVEN ESTATES PLAT No. 19953 ELECTION DIST. No. 4 HOWARD COUNTY, MD	DDC JOB#:	0616.5
	DATE:	02-17-2015
	SCALE:	1"=50'
	DRN. BY:	RC
	CHK. BY:	RBS

Letter of Satisfaction

Hoot System Installation

Address of Property: 15233 Sweetbay St.
Woodbine, MD 21797

Date of Final Inspection: 6/10/15

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,

W. Michael Dyer
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 Slabs, Curb Heads, Curb Bumpers, PermEntry Basement Entries.
Scapewel Window Wells, Custom Precast Products

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Scapewell Window Wells, Custom Precast Products



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Twitter: HowardCoHealthDep

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

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^(Buyer) Meiki / Rhanan Hume
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"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
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15990 ^{04/374061}

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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.

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with a private entity to operate and maintain on a regularly scheduled basis an approved
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Howard County Health Department

Steve Smyon 2/24/15
Owner #1 Signature Date
VP CONSTRUCTION
STEVE SMYON KHWANAN HUNG
Owner #1 Print Name

Owner #2 Signature Date

Owner #2 Print Name

Joseph Maki 2/14/2015
Buyer #1 Signature Date

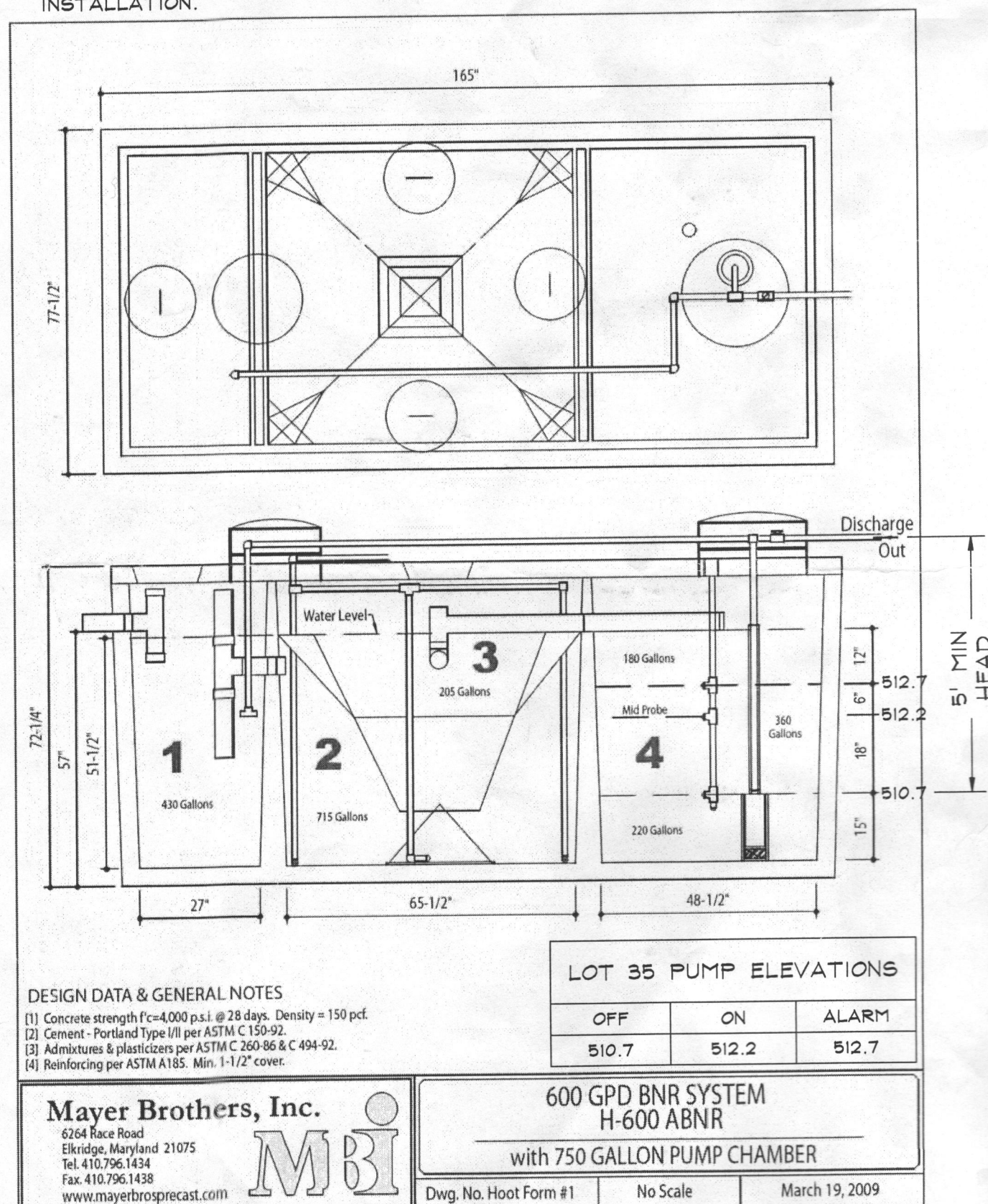
Joseph Maki
Buyer #1 Print Name

Ghneim 2/14/2015
Buyer #2 Signature Date

Shercen Ghneim
Buyer #2 Print Name

- GENERAL NOTES
1. BASE SQUARE FOOTAGE OF HOUSE: 3,593 SQ. FT.
 2. NUMBER OF BEDROOMS: 4
 3. EJECTOR PUMP REQUIRED TO SEWER BASEMENT
 4. A DRIVEWAY CULVERT HAS BEEN SHOWN PER THE APPROVED ROAD DRAWINGS, F-07-38
 5. 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
 6. PLAT REFERENCE: #19948
 7. BASE INFORMATION SHOWN ON THIS PLAN IS BASED ON PLANS PREPARED BY DMW, AND DATED 06/25/07. EXISTING TOPOGRAPHY BASED ON GRADING PLAN PREPARED BY DEMARIO DESIGN CONSULTANTS DATED 07/04/07 AND FIELD RUN TOPOGRAPHY PREPARED BY DDC INC IN JAN. 2012.
 8. 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.
 9. 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.
 10. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 11. TOTAL LIMIT OF DISTURBANCE: 12,856 SQ. FT. / 0.28 AC.
 12. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED PER THE PREVIOUSLY APPROVED FINAL PLAN (F-07-38)
 13. 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.
 14. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
 15. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
 16. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 17. 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.
 18. 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.
 19. 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.
 20. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
 21. 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.
 22. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-07-38.
 23. THE EXISTING WELL SHOWN (H0-095-0643) HAS BEEN FIELD LOCATED AND IS SHOWN ACCURATELY.

- 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 INSTALLATION.



DESIGN DATA & GENERAL NOTES

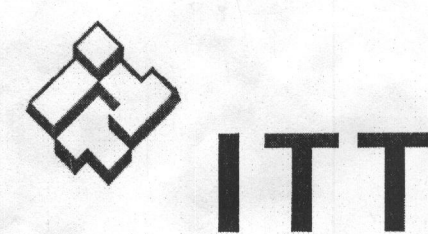
1. Concrete strength f'c=4000 psi at 28 days. Density = 150 pcf.
2. Cement - Portland Type II per ASTM C 150-92.
3. Admixtures & plasticizers per ASTM C 260-86 & C 494-92.
4. Reinforcing per ASTM A108. Min. 1/2" cover.

Mayer Brothers, Inc.

6264 Race Road
Elkridge, Maryland 21075
Tel: 410.796.1434
Fax: 410.796.1438
www.mayerbrothersinc.com

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

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

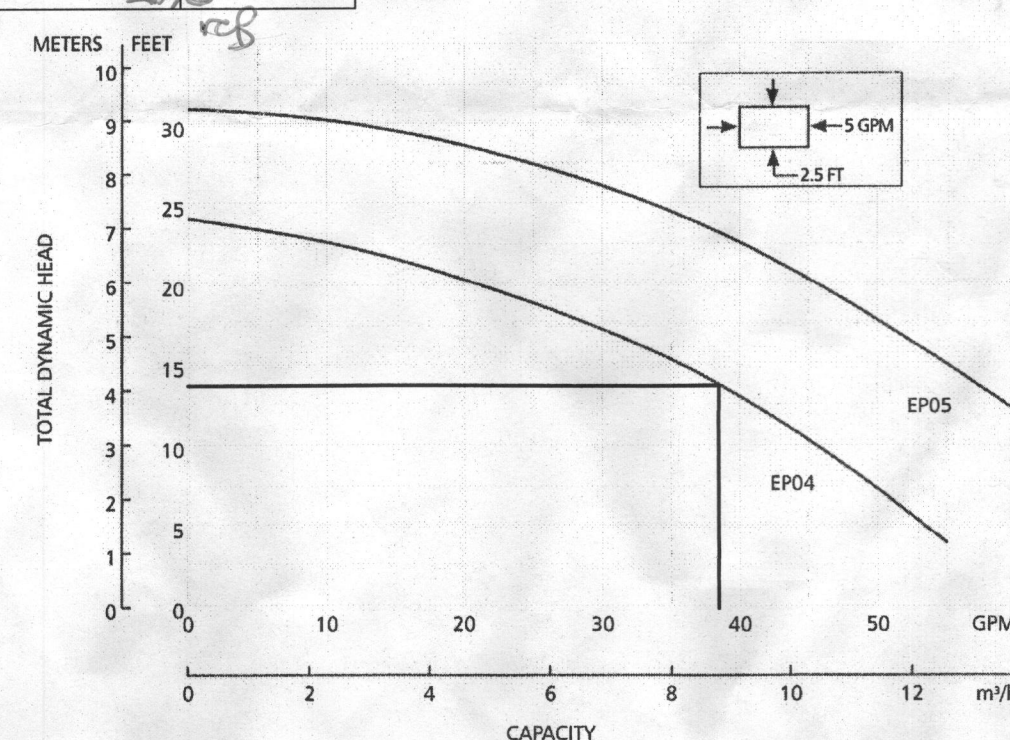


PERFORMANCE RATINGS

Total Head (ft. of water)	Gallons Per Minute
5	53
10	46
15	36
20	21
25	0
30	-

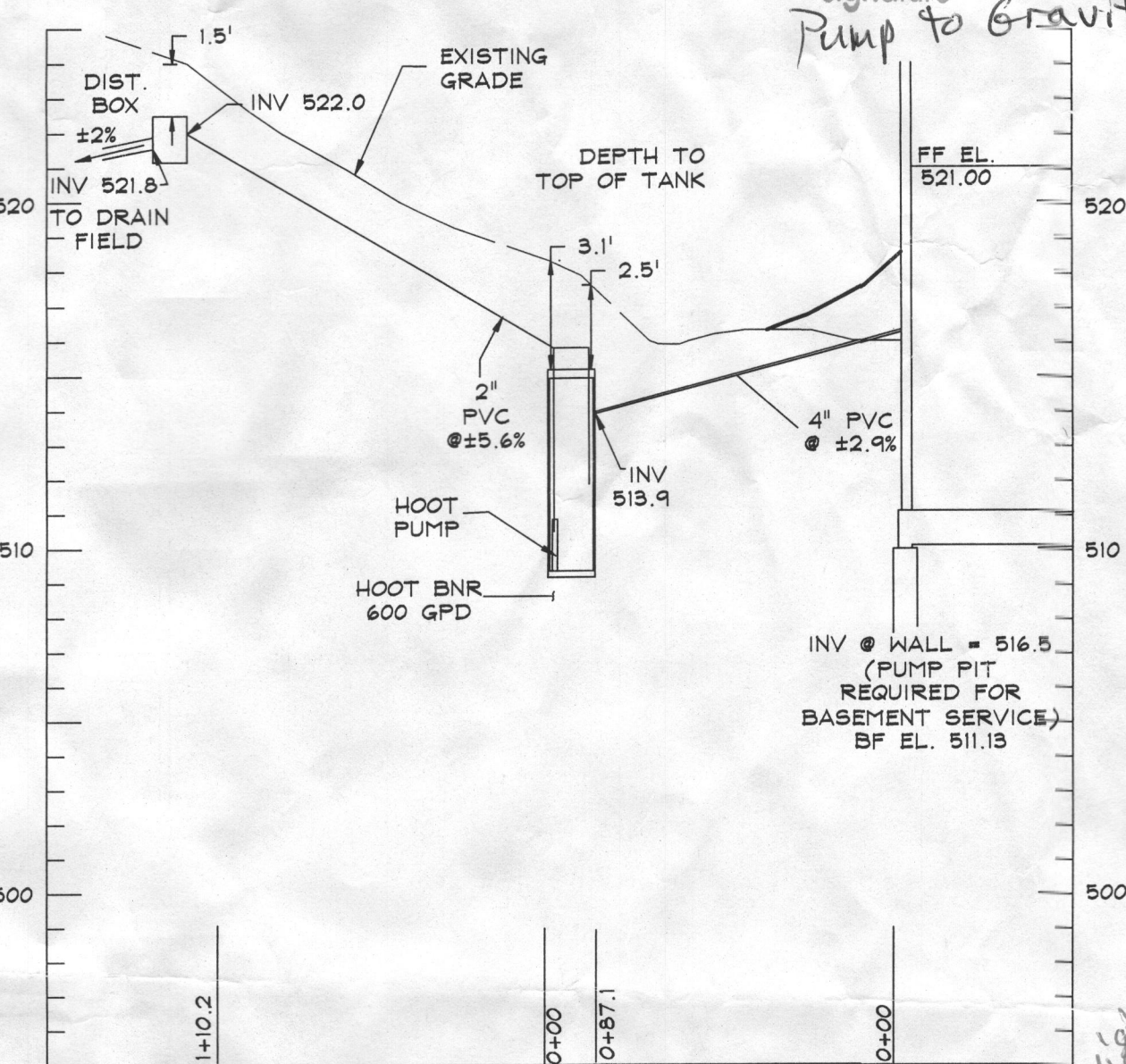
STATIC HEAD

STATIC HEAD	11.3'
FRICTION HEAD	2.3'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	13.6'
GALLONS PER MINUTE	38.0 GPM
DOSE	104.5 250 GAL
PUMP RUN TIME	2:56.8 MIN



GOULDS PUMPS
Wastewater

TOTAL DYNAMIC HEAD CALCULATIONS	
STATIC HEAD	
OFF FLOAT ELEVATION:	0.7'
HIGH POINT OF THE SYSTEM:	+ 2.0'
VERTICAL ELEVATION CHANGE:	3'
FRICTION HEAD	
FITTINGS:	3.4'
LENGTH OF PVC PIPE:	+ 0.2
TOTAL LENGTH :	3.6
$123.6' / 100 \times 1.89 = 2.34'$	TOTAL FRICTION
95	
TOTAL HEAD	
VERTICAL ELEVATION CHANGE	11.3'
TOTAL FRICTION LOSS	2.3'
SYSTEM PRESSURE REQUIREMENTS	+ 0.0'
TOTAL DYNAMIC HEAD	13.6'



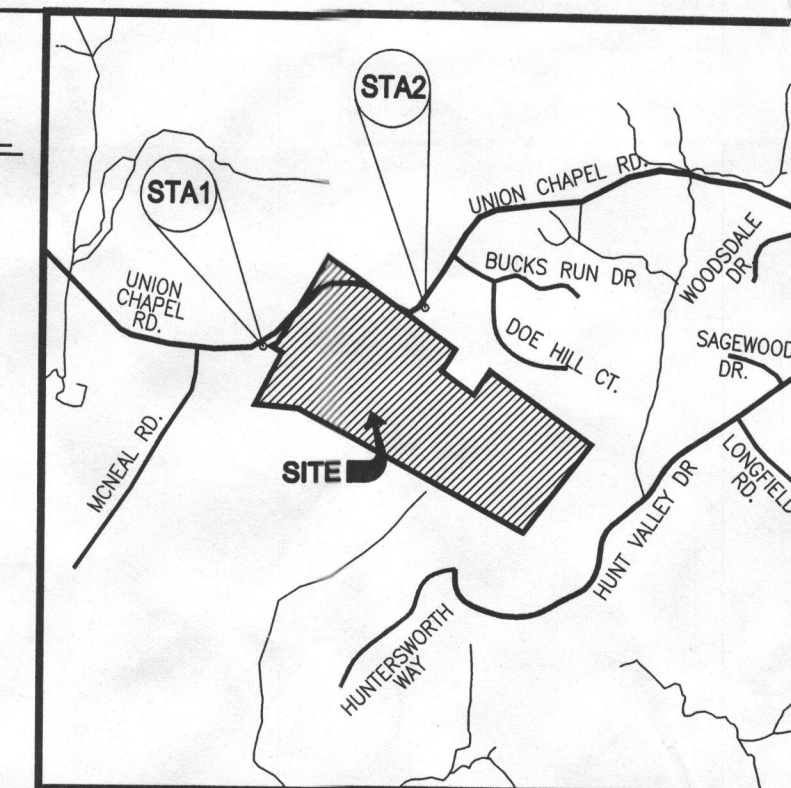
- SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):
1. INVERT @ FOUNDATION WALL: 515.0 (BASEMENT PUMP REQUIRED)
 2. 600 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER
EX. GRADE OVER TANK: 518.0
PROPOSED GRADE OVER TANK: 518.0
INVERT: 515.9
 3. DISTRIBUTION BOX
EX. GRADE OVER TANK: 524.2
INVERT: 522.0
 4. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD / 1.2 GPD/SF (APP. RATE) = 500 SF
USE 2' WIDE TRENCH W/ 48" OF GRAVEL BELOW PIPE
12' MIN SPACING BETWEEN TRENCH EDGES
500 SF / 2' WIDTH = 250 LF x 0.36 = 90 LF MIN. TRENCH
USE 2 - 45' LONG TRENCH FOR INITIAL SYSTEM
USE 2 - 45' LONG TRENCH FOR FIRST REPLACEMENT SYSTEM
USE 2 - 45' LONG TRENCH FOR SECOND REPLACEMENT SYSTEM

BENCHMARK

GEODETIC SURVEY CONTROL #1
N. 581450.42
E. 1297571.25
AA. 14GA
ELEV. 536.43

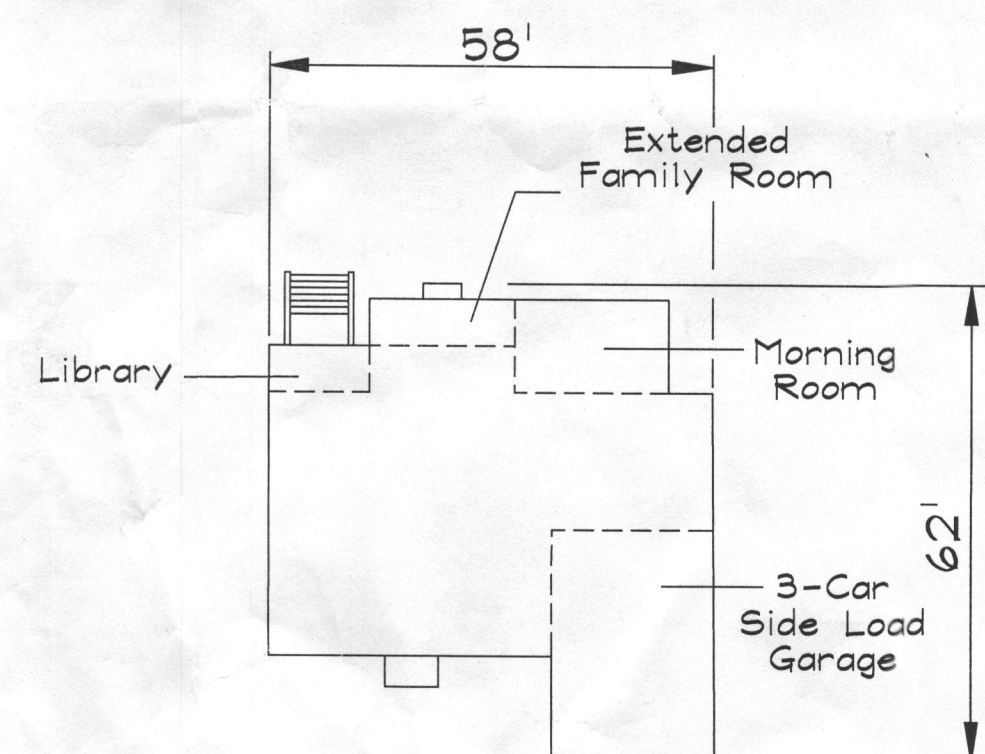
GEODETIC SURVEY CONTROL #2
N. 581653.08
E. 1298121.60
B.M. 14GB
ELEV. 542.23

ADD MAP COORDINATES
4812C4



VICINITY MAP

SCALE: 1" = 2000'



COLORADO
COUNTRY ELEVATION, BRICK FRONT, 3 CAR SIDE
LOAD GARAGE, EXTENDED FAMILY, MORNING ROOM,
EXTENDED LIBRARY, FIRST FLOOR SUITE,
WALKOUT

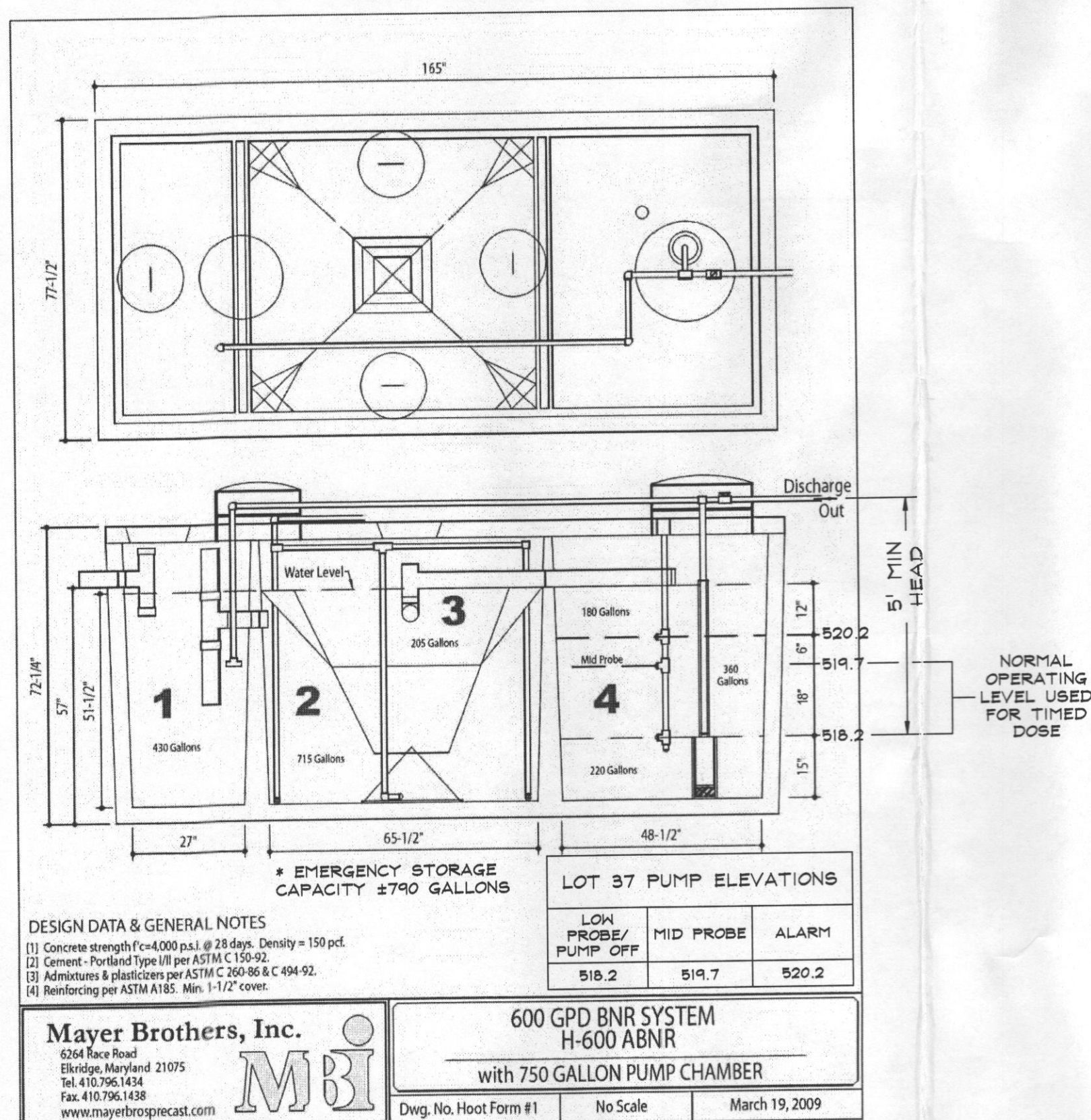
DATA SOURCES:

DRAWING LEGEND

500	PROPOSED GRADE
502	PROPOSED LIMIT OF DISTURBANCE
+	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
●	PASSED PERCOLATION TEST
○	FAILED PERCOLATION TEST

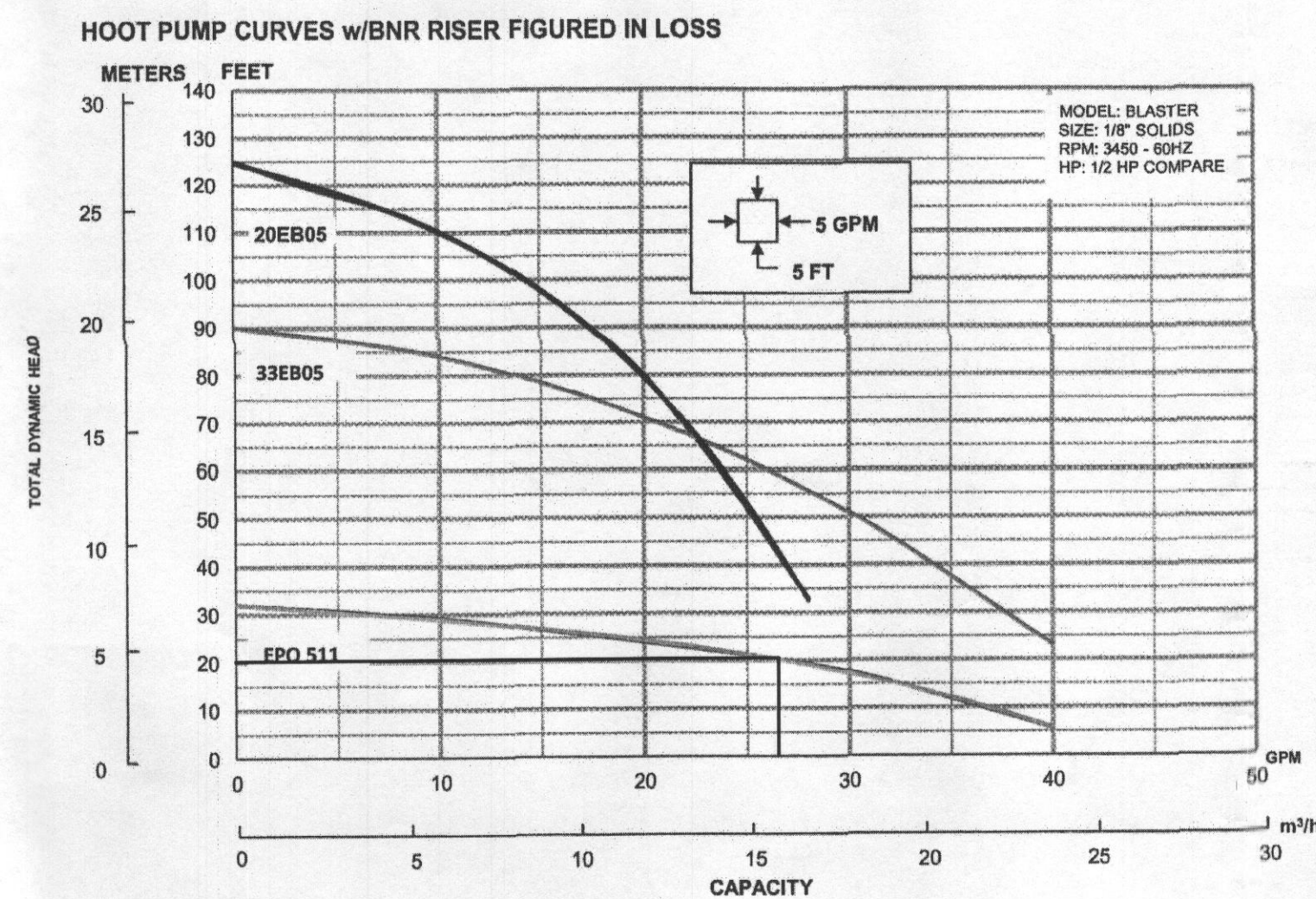
- GENERAL NOTES
1. BASE SQUARE FOOTAGE OF HOUSE: 3,486 SQ. FT.
 2. NUMBER OF BEDROOMS: 4
 3. EJECTOR PUMP NOT REQUIRED TO SEWER BASEMENT
 4. A DRIVEWAY CULVERT HAS BEEN SHOWN PER THE APPROVED ROAD DRAWINGS, F-07-38.
 5. THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COM-LITE ZONING REGULATIONS DATED 7/28/06.
 6. PLAT REFERENCE: #19948
 7. BASE INFORMATION SHOWN ON THIS PLAN IS BASED ON PLANS PREPARED BY DMW, 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.
 8. 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.
 9. 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.
 10. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 11. TOTAL LIMIT OF DISTURBANCE: 16,456 SQ. FT. / 0.38 AC.
 12. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED PER THE PREVIOUSLY APPROVED FINAL PLAN (F-07-38).
 13. ANY DAMAGE TO PUBLIC "RIGHT-OF-WAY" OR PAVED PUBLIC ROADS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE IN ACCORDANCE WITH THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
 14. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
 15. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
 16. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 17. 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.
 18. 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.
 19. 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.
 20. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
 21. 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.
 22. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-07-38.

- 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.
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 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 INSTALLATION.



STATIC HEAD	8.2'
FRICTION HEAD	12.7'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	20.9'
GALLONS PER MINUTE	27 GPM
DOSE	54.0
PUMP RUN TIME	2.0 MIN

TOTAL DYNAMIC HEAD CALCULATIONS	
STATIC HEAD	
OFF FLOAT ELEVATION	518.2'
HIGH POINT OF THE SYSTEM	+ 526.4'
VERTICAL ELEVATION CHANGE	8.2'
FRICTION HEAD	
FITTINGS	13.8'
LENGTH OF PVC PIPE	+ 79.4'
TOTAL LENGTH	93.2'
$93.2' / 100 \times 13.62 = 12.7'$ TOTAL FRICTION LOSS	
TOTAL HEAD	
VERTICAL ELEVATION CHANGE	8.2'
TOTAL FRICTION LOSS	12.7'
SYSTEM PRESSURE REQUIREMENTS	+ 0.0'
TOTAL DYNAMIC HEAD	20.9'



- SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):
1. INVERT @ FOUNDATION WALL: 523.6 (BASEMENT PUMP NOT REQUIRED)
 2. 750 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER (EPO5)
EX. GRADE OVER TANK: 525.3
PROPOSED GRADE OVER TANK: 525.3
INVERT: 521.3
 3. DISTRIBUTION BOX
EX. GRADE OVER TANK: 526.4
INVERT: 526.4
 4. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)

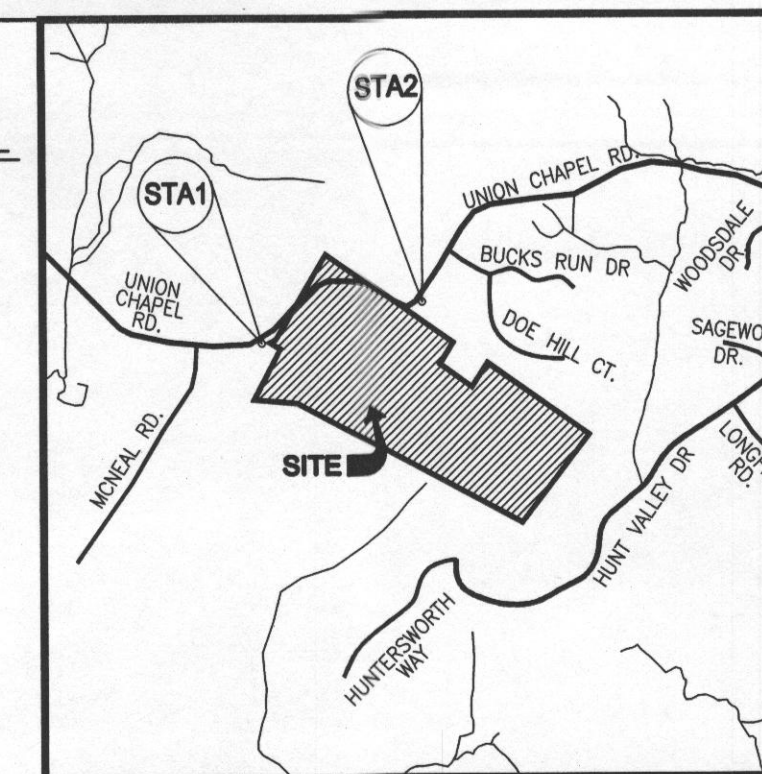
INITIAL SYSTEM
600 GPD / 1.2 GPD/SF (APP. RATE) = 500 SF
USE 3' WIDE TRENCH W/ 42\"/>

BENCHMARK

GEODETIC SURVEY CONTROL #1
N. 891450.42
E. 1297571.25
A.A. 140A
ELEV. 555.43

GEODETIC SURVEY CONTROL #2
N. 891893.88
E. 1299121.00
A.A. 140B
ELEV. 542.23

ADC MAP COORDINATES
4812/C4

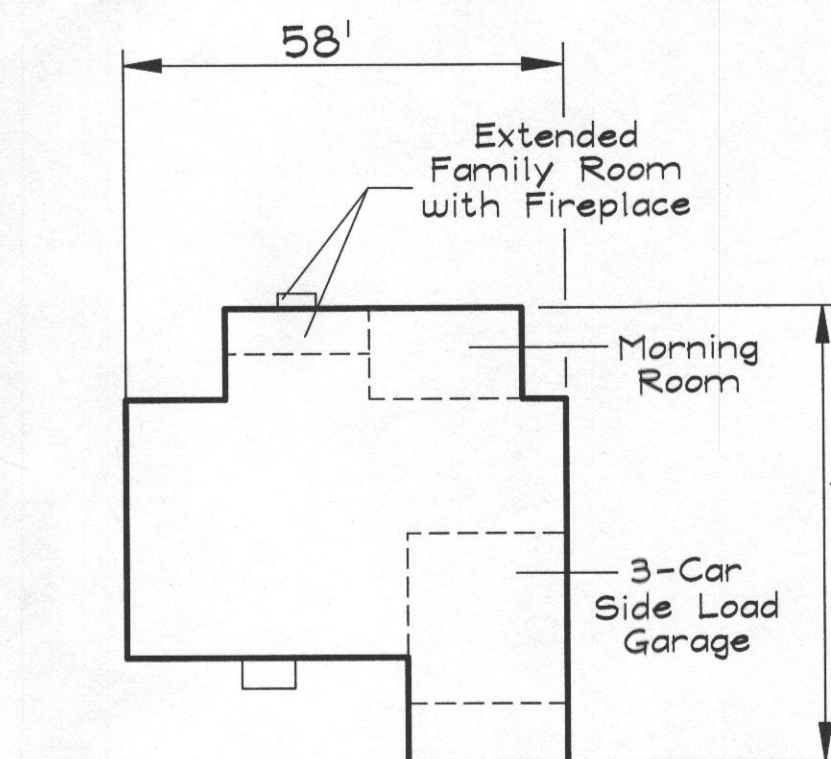


VICINITY MAP

SCALE: 1" = 200'

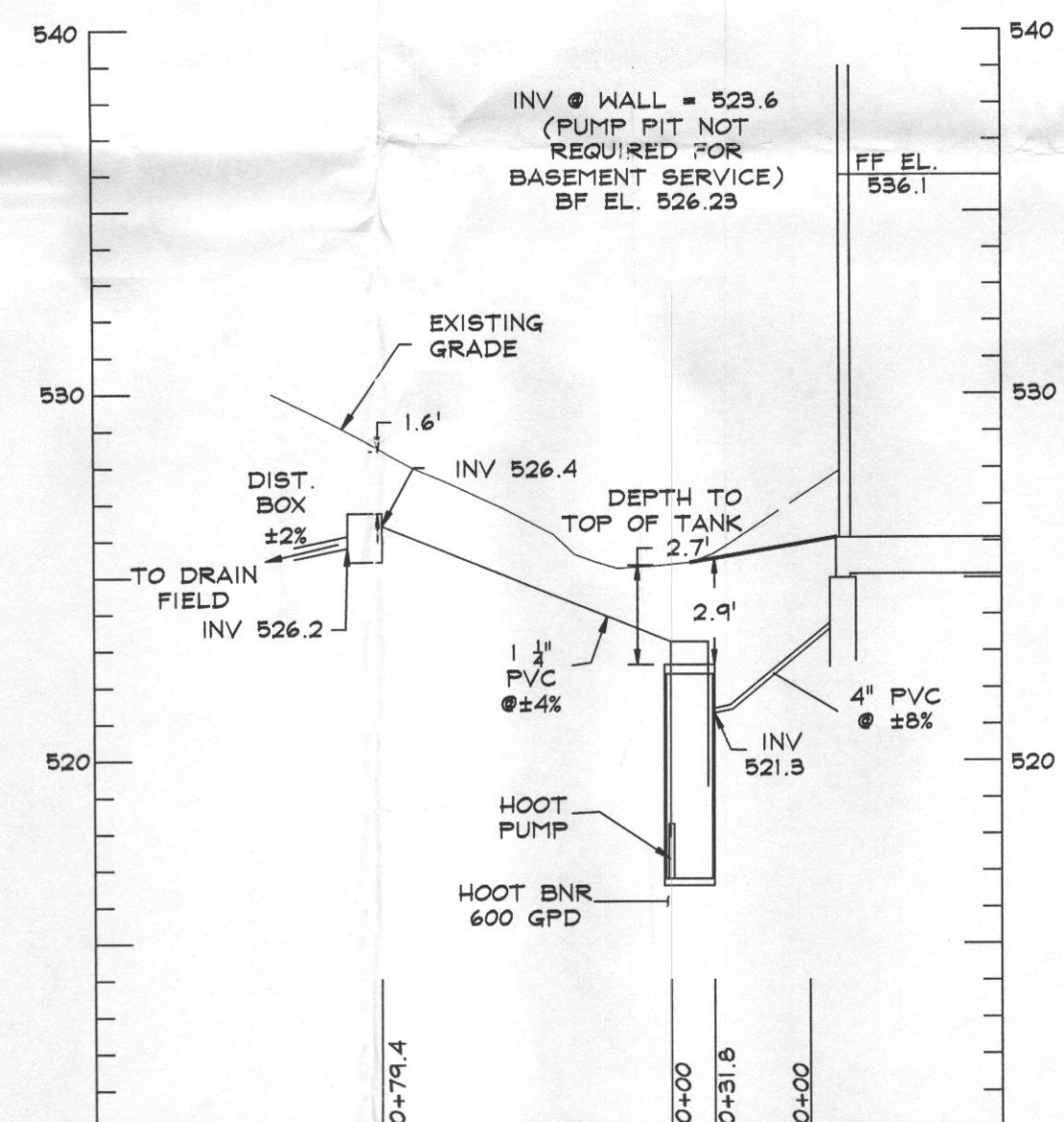
DRAWING LEGEND

- | | |
|---------|------------------------------------|
| 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 |
| ● | PASSED PERCOLATION TEST |
| ○ | FAILED PERCOLATION TEST |



COLORADO
TRADITIONAL ELEVATION
BRICK FRONT, WALKOUT

DATA SOURCES:



SEPTIC SYSTEM PROFILE

LOT 40
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

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 26, 2016

11/11/2014
DATE

PAUL G. CAVANAUGH
PROFESSIONAL ENGINEER

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

DDC
Development Design Consultants

OWNER:
K. HOVNIAN HOMES
1802 Brightwell Road
Lundown, Maryland 20785
(301) 953-8285

DEVELOPER:

SITE ADDRESS:
LOT 40
15233 Sweetbay Street
Woodbine, Maryland 21787

BELLE HAVEN ESTATES
LOT 40

SITE PLAN FOR BAT INSTALLATION

3rd ELECTION DISTRICT HOWARD COUNTY

REVISIONS

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
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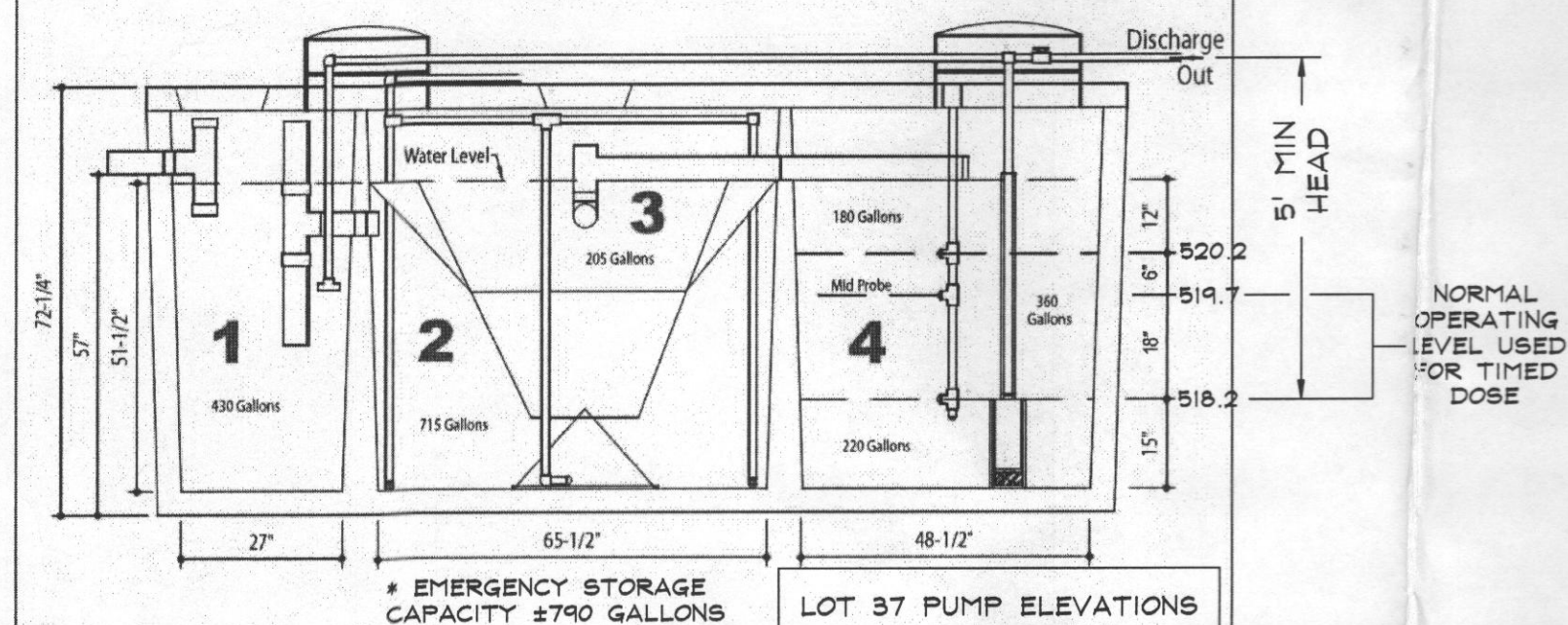
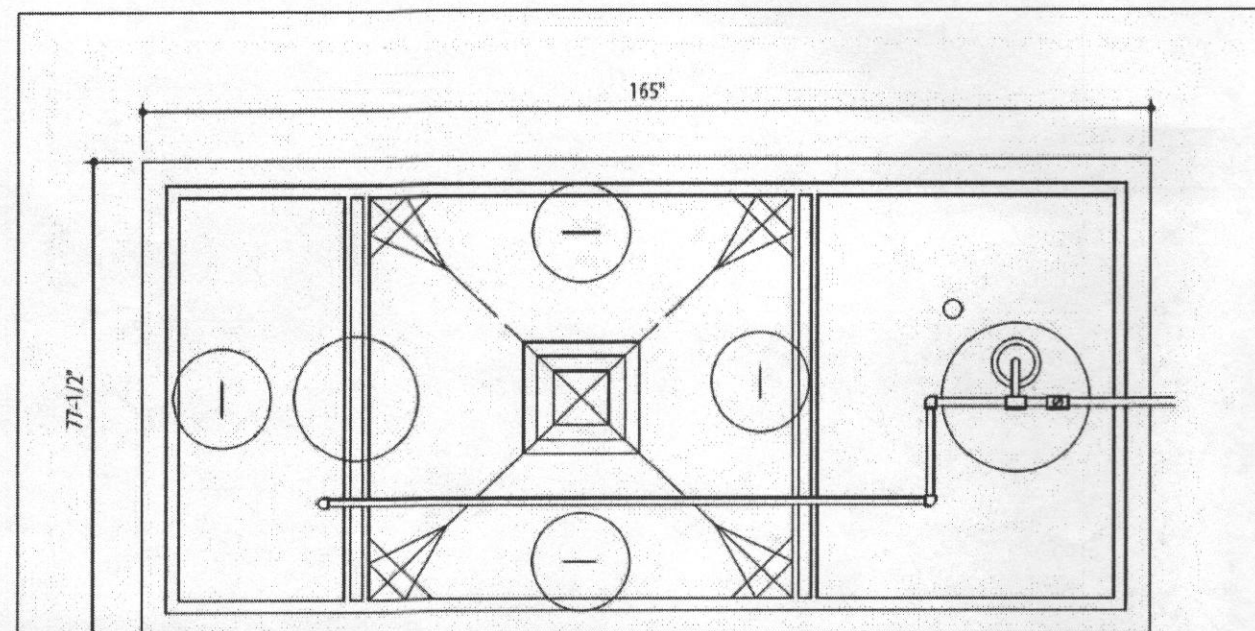
CO. FILE #:	DES. BY: BKC
TAX ACC. #:	DRN. BY: BKC
TAX MAP: 14	CHK. BY: PGC
BLOCK / GRID:	DATE: 11/11/14
PARCEL #: 08	DDC JOB#: 06118.5
ZONE / USE: RC-DEO	SHEET NUMBER:
DWG. SCALE: 1" = 30'	1 of 1

GENERAL NOTES

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4. A DRIVEWAY CULVERT HAS BEEN SHOWN PER THE APPROVED ROAD DRAWINGS, F-07-38.
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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.



DESIGN DATA & GENERAL NOTES

- 1) Concrete strength (f'c=4000 p.s.i. @ 28 days. Density = 150 pcf.
- 2) Cement - Portland Type III per ASTM C 150-02.
- 3) Admixtures & plasticizers per ASTM C 266.6 & C 494-02.
- 4) Reinforcing per ASTM A185. Min. 1-1/2" cover.

Mayer Brothers, Inc.
6264 Race Road
Bowie, Maryland 21075
Tel. 410.766.1434
Fax. 410.766.1438
www.mayerbrothersinc.com

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

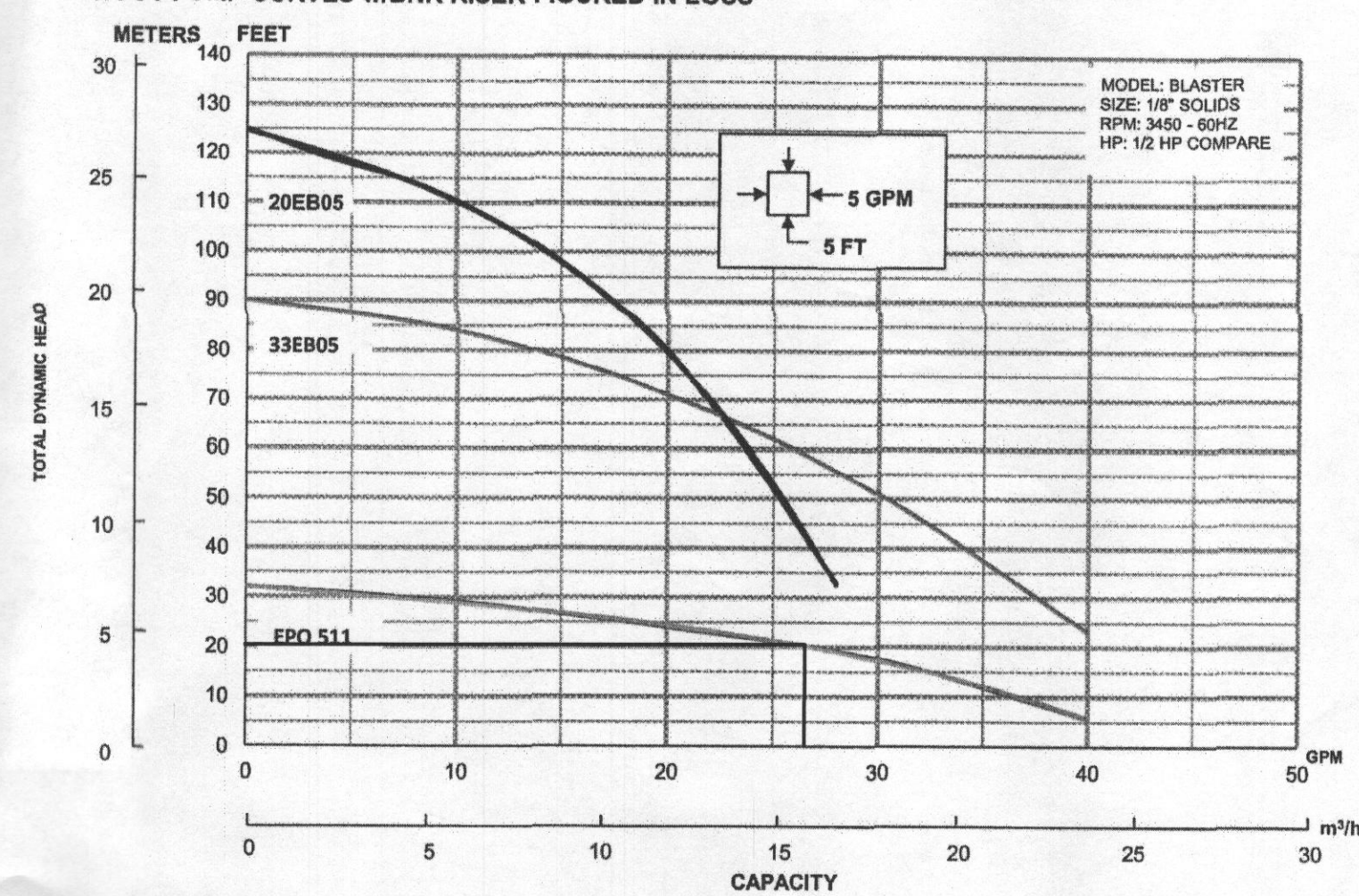
Dwg. No. Hoot Form #1 No Scale March 19, 2009

STATIC HEAD	8.2'
FRICTION HEAD	12.7'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	20.9'
GALLONS PER MINUTE	27 GPM
DOSE	54.0
PUMP RUN TIME	2.0 MIN

TOTAL DYNAMIC HEAD CALCULATIONS

STATIC HEAD	8.2'
OFF FLOAT ELEVATION:	518.2'
HIGH POINT OF THE SYSTEM:	+ 526.4'
VERTICAL ELEVATION CHANGE:	8.2'
FRICTION HEAD	12.7'
FITTINGS:	13.9'
LENGTH OF PVC PIPE:	+ 79.4'
TOTAL LENGTH	93.2'
93.2'/100 x 13.62 = 12.7' TOTAL FRICTION LOSS	
TOTAL HEAD	20.9'
VERTICAL ELEVATION CHANGE	8.2'
TOTAL FRICTION LOSS	12.7'
SYSTEM PRESSURE REQUIREMENTS	+ 0.0'
TOTAL DYNAMIC HEAD	20.9'

HOOT PUMP CURVES w/BNR RISER FIGURED IN LOSS



DATE: 06/23/2014

LOT 40 INITIAL SYSTEM TRENCH SPECIFICATIONS

	GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION
INITIAL SYSTEM TRENCH (A)	529.0	525.0	521.0
INITIAL SYSTEM TRENCH (B)	528.0	524.0	520.0
FIRST REPLACEMENT TRENCH (A)	526.6	522.6	518.6
SECOND REPLACEMENT TRENCH (A)	525.7	521.7	517.7

SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):

1. INVERT @ FOUNDATION WALL: 523.6 (BASEMENT PUMP NOT REQUIRED)
2. 750 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER (EP05)
EX. GRADE OVER TANK: 525.3
PROPOSED GRADE OVER TANK: 525.3
INVERT: 521.3
3. DISTRIBUTION BOX
EX & PROPOSED GRADE OVER TANK: 526.4
INVERT: 526.4
4. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)

INITIAL SYSTEM
600 GPD / 1.2 GPD/SF (APP. RATE) = 500 SF
USE 3' WIDE TRENCH W/ 42" OF GRAVEL BELOW PIPE
500 SF / 3' WIDTH = 166.7 LF x 0.45 = 75 LF MIN. TRENCH

1ST/2ND REPLACEMENT SYSTEM
600 GPD / 1.2 GPD/SF (APP. RATE) = 500 SF
USE 3' WIDE TRENCH W/ 36" OF GRAVEL BELOW PIPE
500 SF / 3' WIDTH = 166.7 LF x 0.50 = 84 LF MIN. TRENCH

10' MIN SPACING BETWEEN TRENCH EDGES

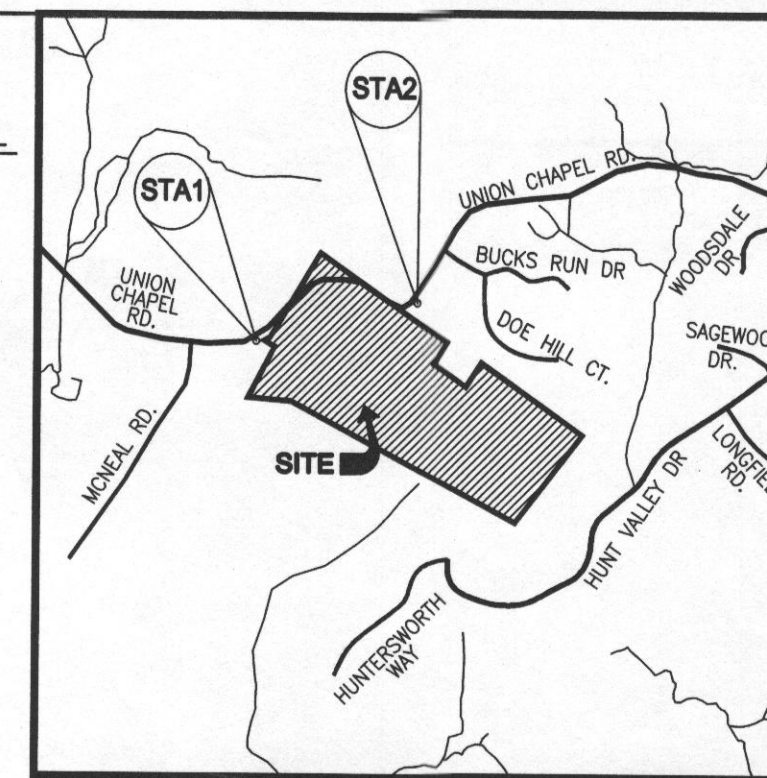
USE 2 - 40' LONG TRENCHES FOR INITIAL SYSTEM
USE 2 - 42' LONG TRENCH FOR FIRST REPLACEMENT SYSTEM
USE 2 - 42' LONG TRENCH FOR SECOND REPLACEMENT SYSTEM

BENCHMARK

GEODETIC SURVEY CONTROL #1	
N.	601450.42
E.	1207671.26
U.A.	140A
ELEV.	535.43
GEODETIC SURVEY CONTROL #2	
N.	601863.86
E.	1209121.80
U.A.	140B
ELEV.	542.23
ADC MAP COORDINATES	4812/C4

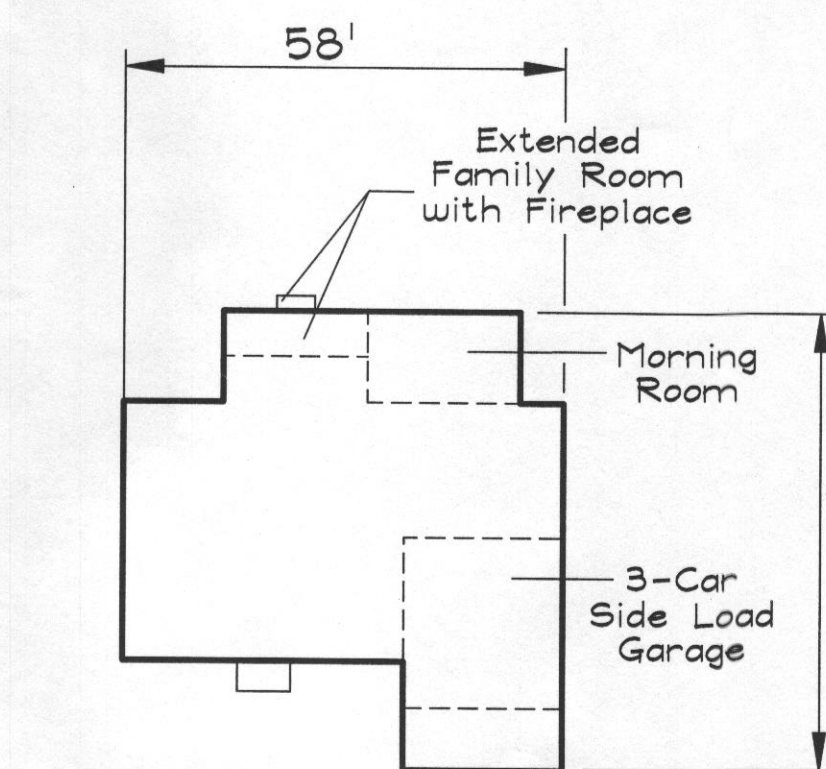
DRAWING LEGEND

- 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



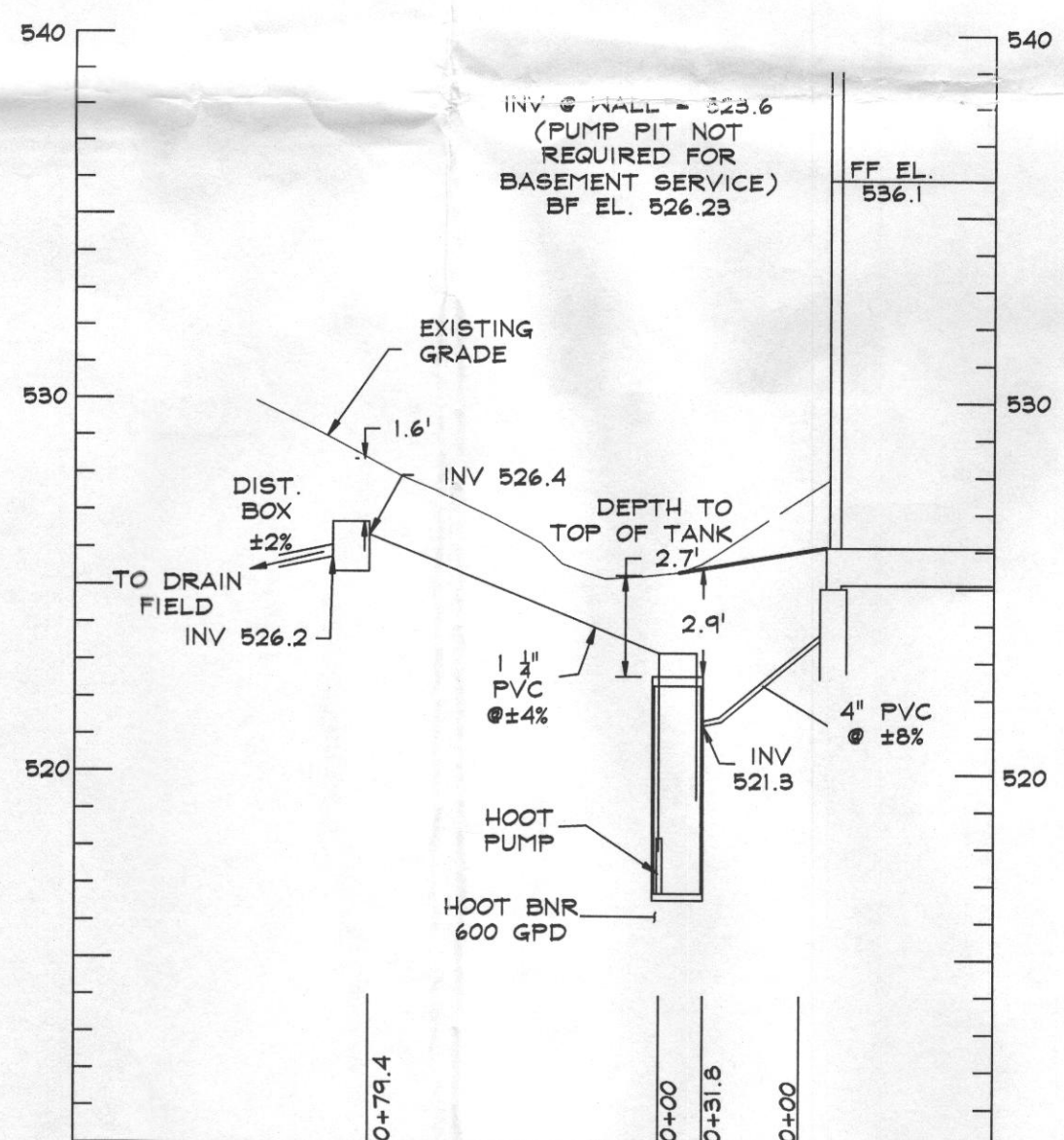
VICINITY MAP

SCALE: 1" = 200'



COLORADO
TRADITIONAL ELEVATION
BRICK FRONT, WALKOUT

DATA SOURCES:



SEPTIC SYSTEM PROFILE

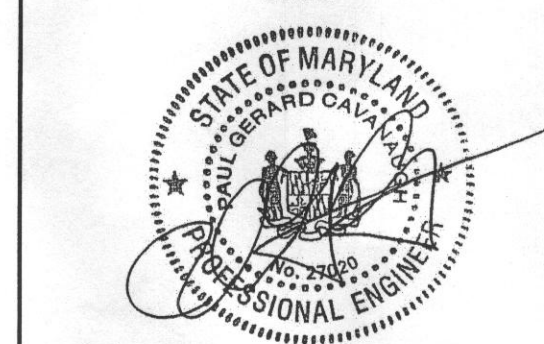
LOT 40
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 27020 EXPIRATION DATE: JANUARY 28, 2018

11/11/2014

DATE



PAUL G. CAVANAUGH



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. HOVANIAN HOMES
1802 Brightwell Road
Lanover, Maryland 20786
(301) 653-6268

DEVELOPER:

SITE ADDRESS:
LOT 40
1623 Sweetbay Street
Woodbine, Maryland 21797

BELLE HAVEN ESTATES
LOT 40

SITE PLAN FOR BAT INSTALLATION

3rd ELECTION DISTRICT

HOWARD COUNTY

REVISIONS

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: 11/11/14

PARCEL #: 66 DDC JOB#: 08116.5

ZONE / USE: RC-DEO SHEET NUMBER:

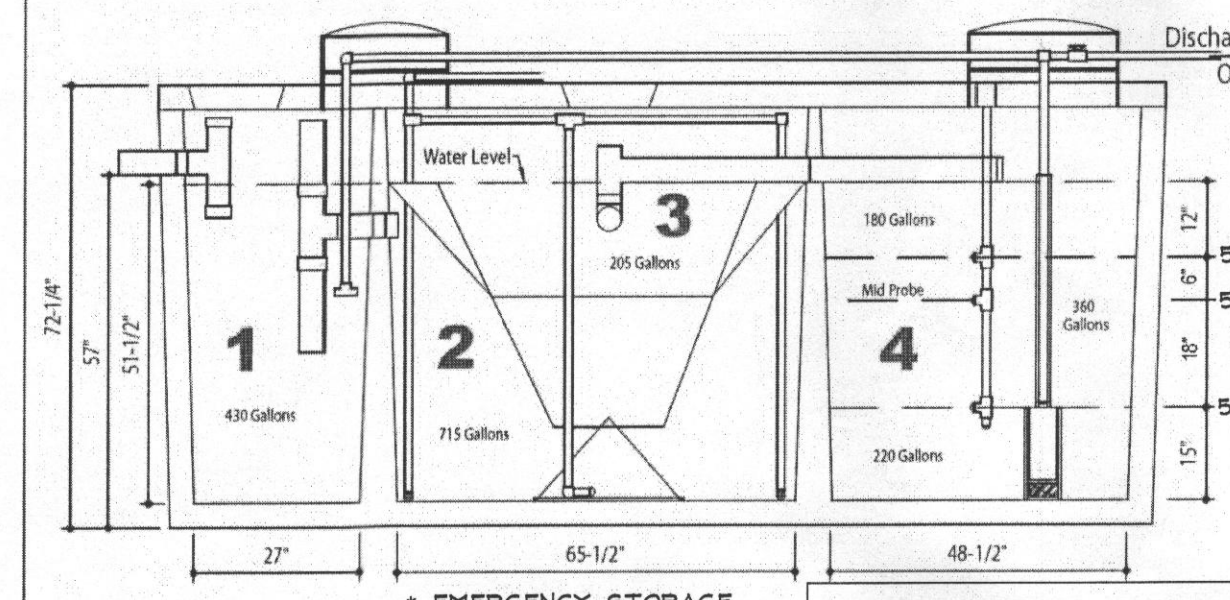
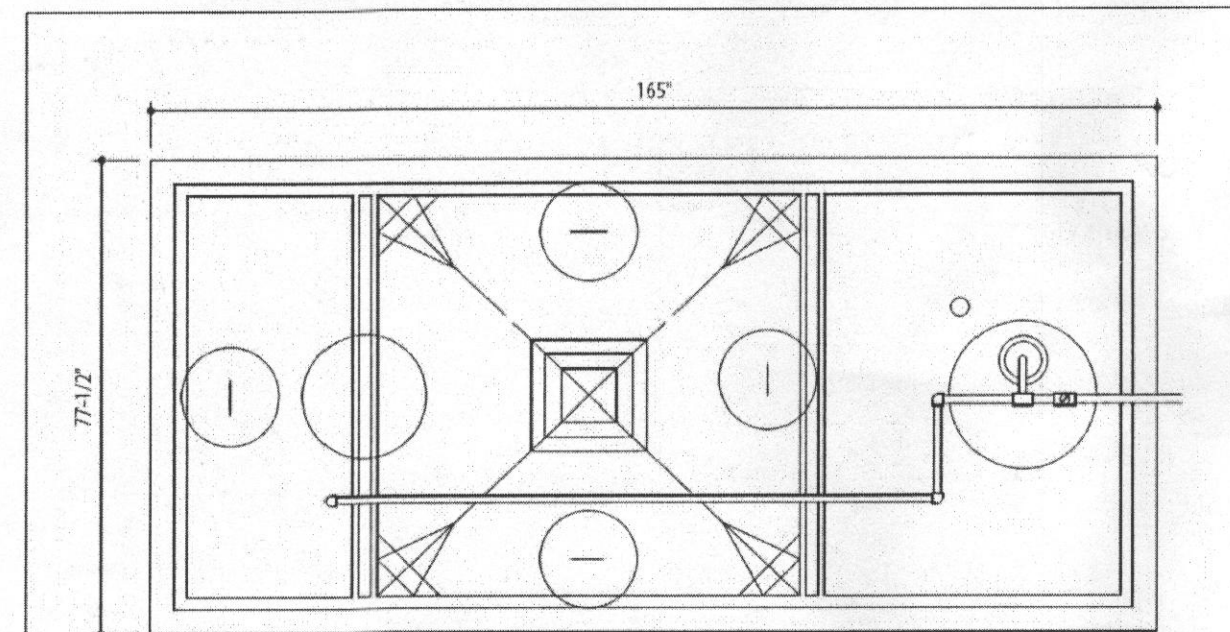
DWG. SCALE: 1"=30' 1 of 1

GENERAL NOTES

1. BASE SQUARE FOOTAGE OF HOUSE: 3,486 SQ. FT.
2. NUMBER OF BEDROOMS: 4
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4. A DRIVEWAY CULVERT HAS BEEN SHOWN PER THE APPROVED ROAD DRAWINGS, F-07-38.
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10. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
11. TOTAL LIMIT OF DISTURBANCE: 16,456 SQ. FT. / 0.38 AC.
12. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED PER THE PREVIOUSLY APPROVED FINAL PLAN (F-07-38).
13. 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.
14. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
15. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
16. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
17. 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.
18. 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.
19. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
20. 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.
21. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-07-38.

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 MANUFACTURE'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 INSTALLATION.



DESIGN DATA & GENERAL NOTES

(1) Concrete strength f'c=4000 psi @ 28 days. Density = 150 pcf.
 (2) Cement - Portland Type I/II per ASTM C 150-92.
 (3) Admixtures & plasticizers per ASTM C 260-98 & C 494-92.
 (4) Reinforcing per ASTM A 618, Min. 1/2" cover.

Mayer Brothers, Inc.
 6264 Race Road
 Beltsville, Maryland 21035
 Tel. 410.796.1434
 Fax 410.796.1438
 www.mayerbrothersinc.com

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

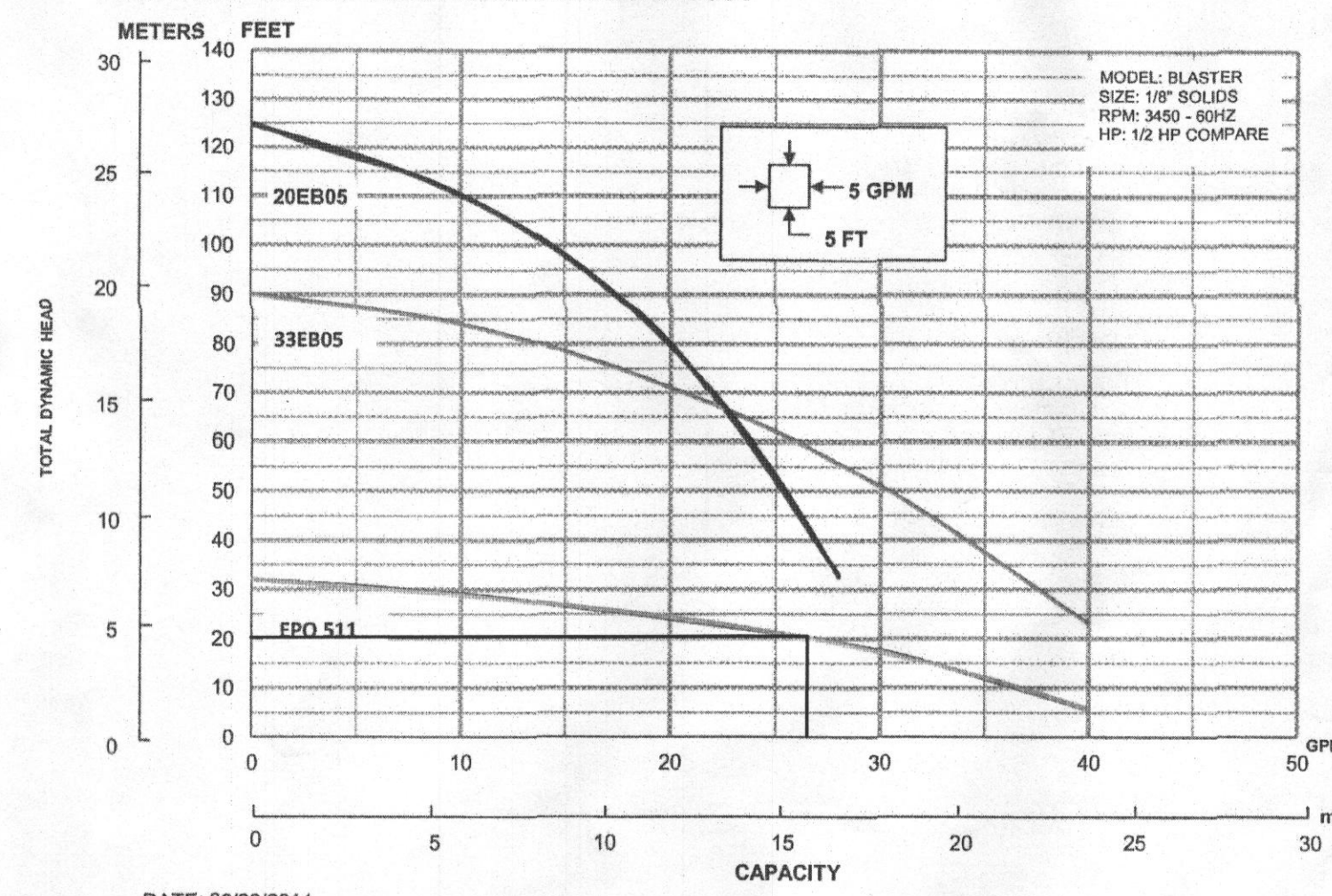
Dwg. No. Hoot Form #1 No Scale March 19, 2009

STATIC HEAD	8.2'
FRICTION HEAD	12.7'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	20.9'
GALLONS PER MINUTE	27 GPM
DOSE	54.0
PUMP RUN TIME	2.0 MIN

TOTAL DYNAMIC HEAD CALCULATIONS

STATIC HEAD	8.2'
OFF FLOAT ELEVATION:	518.2'
HIGH POINT OF THE SYSTEM:	+ 526.4'
VERTICAL ELEVATION CHANGE:	8.2'
FRICTION HEAD	13.8'
FITTINGS:	0'
LENGTH OF PVC PIPE:	+ 79.4'
TOTAL LENGTH:	83.2'
93.2'/100 x 13.62 = 12.7' TOTAL FRICTION LOSS	
TOTAL HEAD	20.9'
VERTICAL ELEVATION CHANGE	8.2'
TOTAL FRICTION LOSS	12.7'
SYSTEM PRESSURE REQUIREMENTS	+ 0.0'
TOTAL DYNAMIC HEAD	20.9'

HOOT PUMP CURVES w/BNR RISER FIGURED IN LOSS



LOT 40 INITIAL SYSTEM TRENCH SPECIFICATIONS

	GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION
INITIAL SYSTEM TRENCH (A)	529.0	525.0	521.0
INITIAL SYSTEM TRENCH (B)	528.0	524.0	520.0
FIRST REPLACEMENT TRENCH (A)	526.6	522.6	518.6
SECOND REPLACEMENT TRENCH (A)	525.7	521.7	517.7

SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):

1. INVERT @ FOUNDATION WALL: 523.6 (BASEMENT PUMP NOT REQUIRED)
2. 750 GPD BNR SYSTEM w/ 750 GALLON PUMP CHAMBER (EPO5)
 EX. GRADE OVER TANK: 525.3
 PROPOSED GRADE OVER TANK: 525.3
 INVERT: 521.3
3. DISTRIBUTION BOX
 EX. 4' PROPOSED GRADE OVER TANK: 526.4
 INVERT: 526.4
4. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
 INITIAL SYSTEM
 600 GPD / 1.2 GPD/SF (APP. RATE) = 500 SF
 USE 3' WIDE TRENCH W/ 42" OF GRAVEL BELOW PIPE
 500 SF / 3' WIDTH = 166.7 LF x 0.45 = 75 LF MIN. TRENCH
 1ST/2ND REPLACEMENT SYSTEM
 600 GPD / 1.2 GPD/SF (APP. RATE) = 500 SF
 USE 3' WIDE TRENCH W/ 36" OF GRAVEL BELOW PIPE
 500 SF / 3' WIDTH = 166.7 LF x 0.50 = 84 LF MIN. TRENCH
 10' MIN SPACING BETWEEN TRENCH EDGES
 USE 2 - 40' LONG TRENCHES FOR INITIAL SYSTEM
 USE 2 - 42' LONG TRENCH FOR FIRST REPLACEMENT SYSTEM
 USE 2 - 42' LONG TRENCH FOR SECOND REPLACEMENT SYSTEM

BENCHMARK

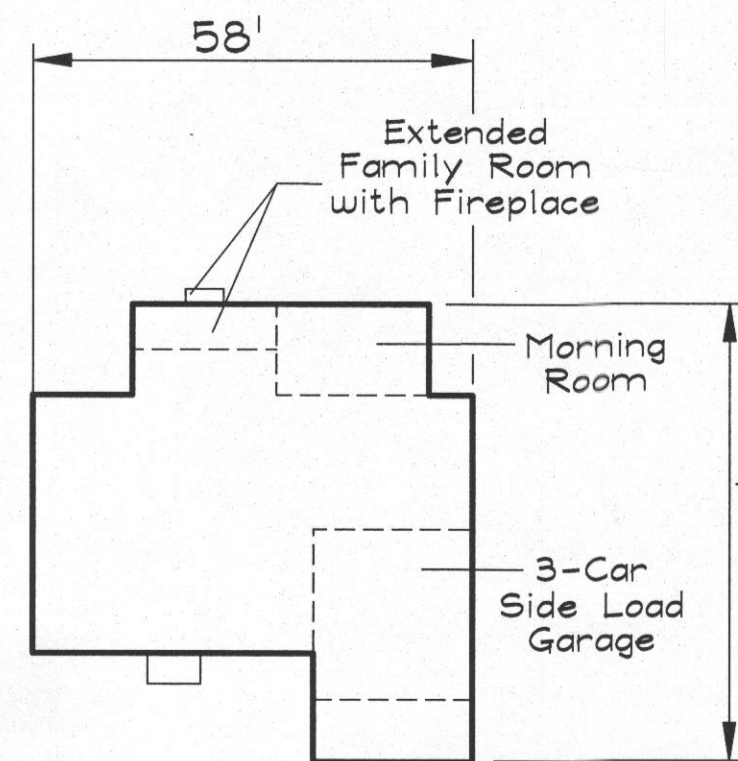
GEODETIC SURVEY CONTROL #1	
N.	861480.42
E.	120751.25
A.A.	146A
ELEV.	635.43
GEODETIC SURVEY CONTROL #2	
N.	861863.36
E.	1206121.80
B.M.	146B
ELEV.	642.23
ADC MAP COORDINATES	4612/04

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

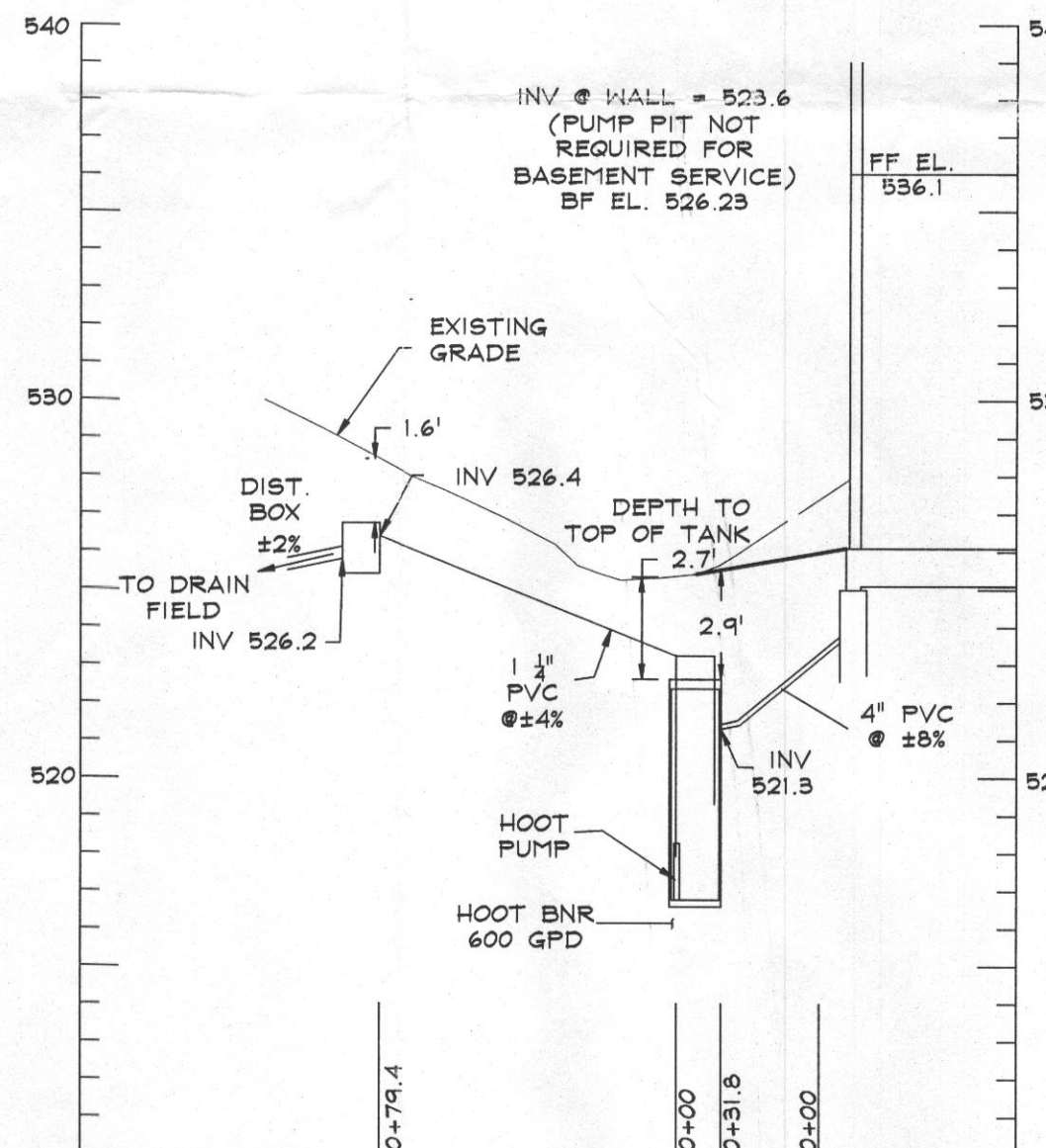
VICINITY MAP

SCALE: 1" = 200'



COLORADO
 TRADITIONAL ELEVATION
 BRICK FRONT, WALKOUT

DATA SOURCES:



SEPTIC SYSTEM PROFILE

LOT 40
 SCALE: HORIZ. 1"=50'
 VERT. 1"=5'

DDC
 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. HOVHANIAN HOMES
 1802 Brightwood Road
 Landover, Maryland 20785
 (301) 683-6288

DEVELOPER:
 Approved Septic System Plan
 Howard County Health Department

SITE ADDRESS:
 LOT 40
 16283 Strawberry Street
 Woodbine, Maryland 21797

Signature: _____ Date: 3/19/15

BELLE HAVEN ESTATES
 LOT 40

SITE PLAN FOR BAT INSTALLATION

3rd ELECTION DISTRICT		HOWARD COUNTY		
REVISIONS				
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: 11/11/14		
PARCEL #: 06		DDC JOB#: 06116.5		
ZONE / USE: RC-DEO		SHEET NUMBER:		
DWG. SCALE: 1"=30'		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.

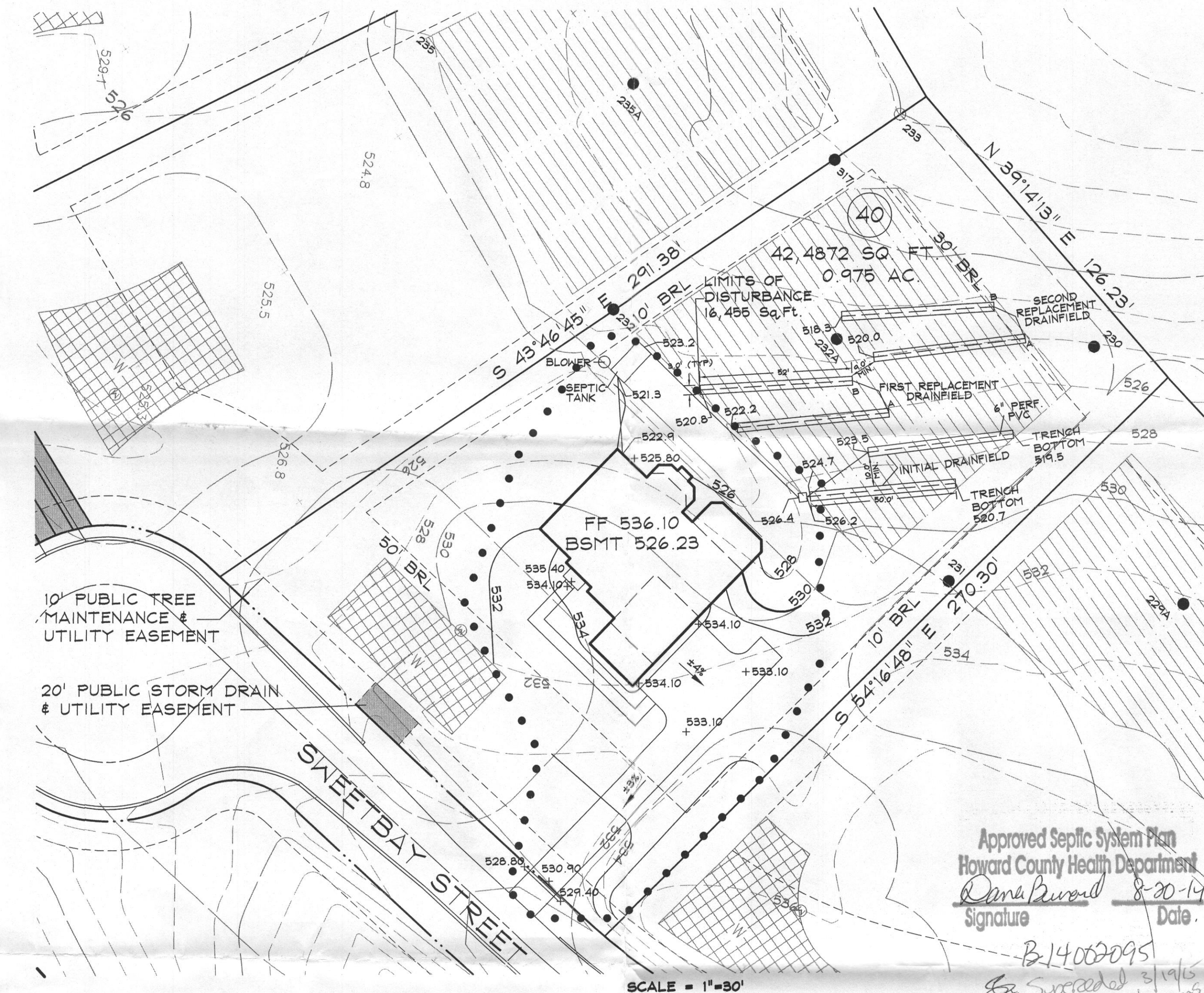
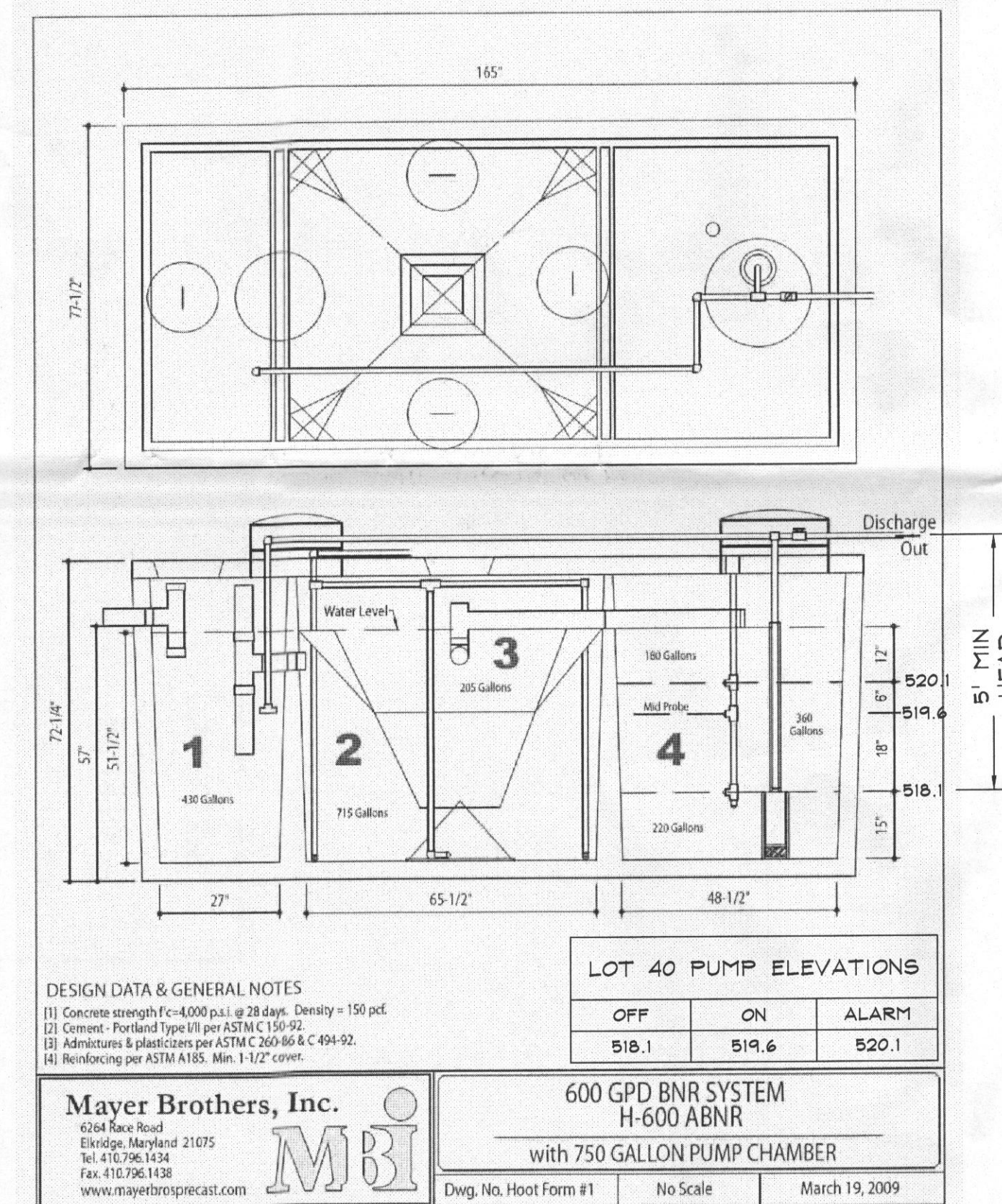
LICENSE NO. 27020 EXPIRATION DATE: JANUARY 26, 2016

11/11/2014
 DATE

PAUL G. CAVANAUGH

- GENERAL NOTES
1. BASE SQUARE FOOTAGE OF HOUSE: 4,184 SQ. FT.
 2. NUMBER OF BEDROOMS: 5
 3. EJECTOR PUMP NOT REQUIRED TO SEWER BASEMENT
 4. A DRIVEWAY CULVERT HAS BEEN SHOWN PER THE APPROVED ROAD DRAWINGS, F-07-38.
 5. 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.
 6. PLAT REFERENCE: #19948
 7. BASE INFORMATION SHOWN ON THIS PLAN IS BASED ON PLANS PREPARED BY DMW, AND DATED 06/25/07. EXISTING TOPOGRAPHY BASED ON GRADING PLAN PREPARED BY DENARIO DESIGN CONSULTANTS IN DATED 07/09/07 AND FIELD RUN TOPOGRAPHY PREPARED BY DDC INC IN JAN. 2012.
 8. 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.
 9. 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.
 10. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
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 14. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
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 22. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-07-38.

- SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (BAT) NOTES:
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 5. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
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GOULDS PUMPS Wastewater

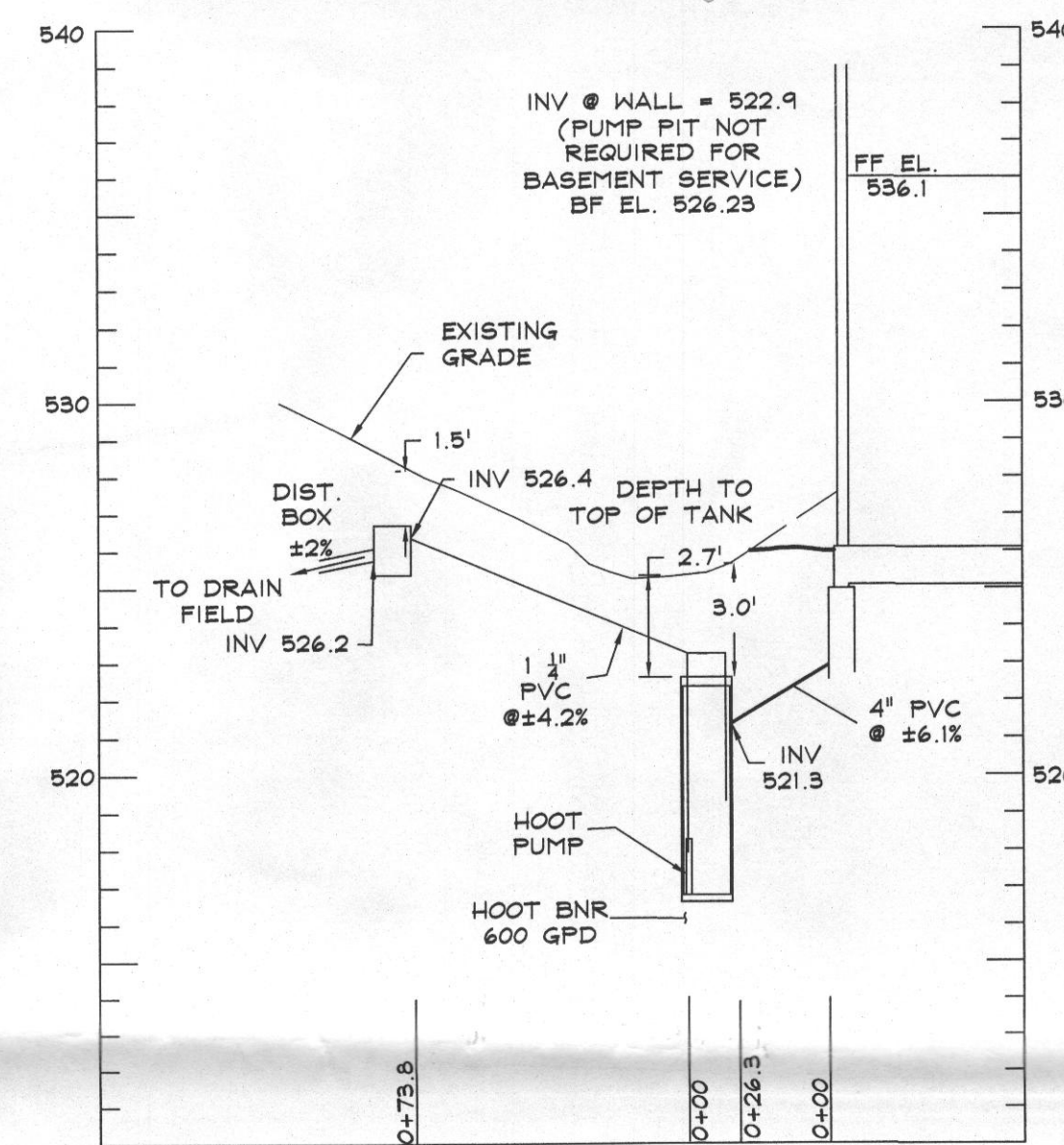
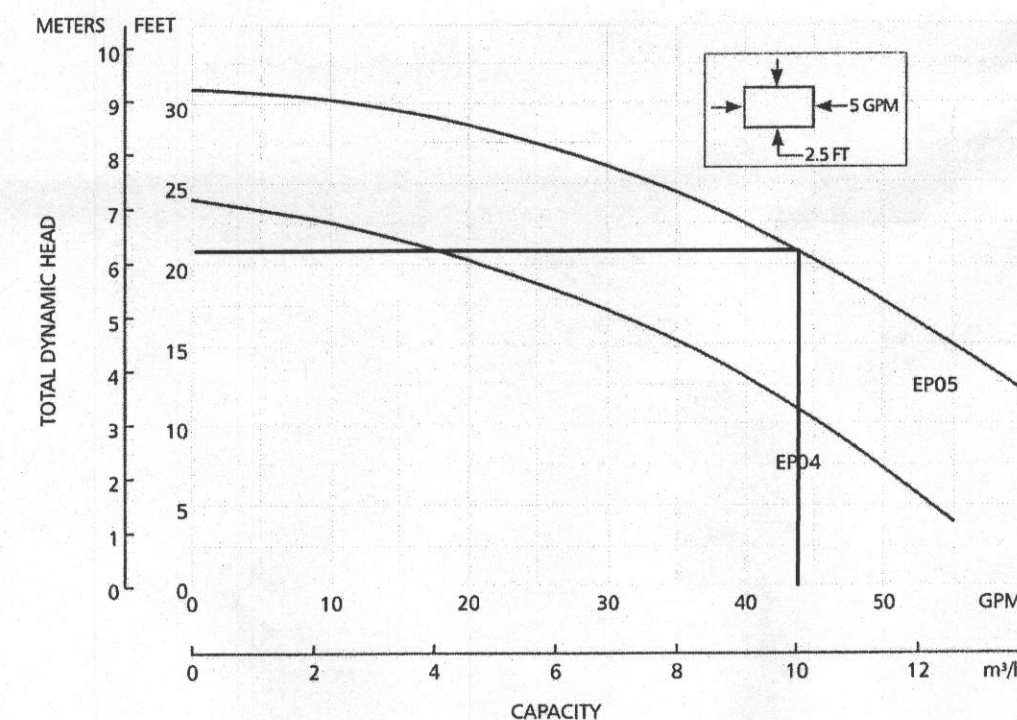
PERFORMANCE RATINGS

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

STATIC HEAD	8.3'
FRICTION HEAD	12.9'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	21.2'
GALLONS PER MINUTE	44 GPM
DOSE	101.2
PUMP RUN TIME	2.3 MIN

TOTAL DYNAMIC HEAD CALCULATIONS

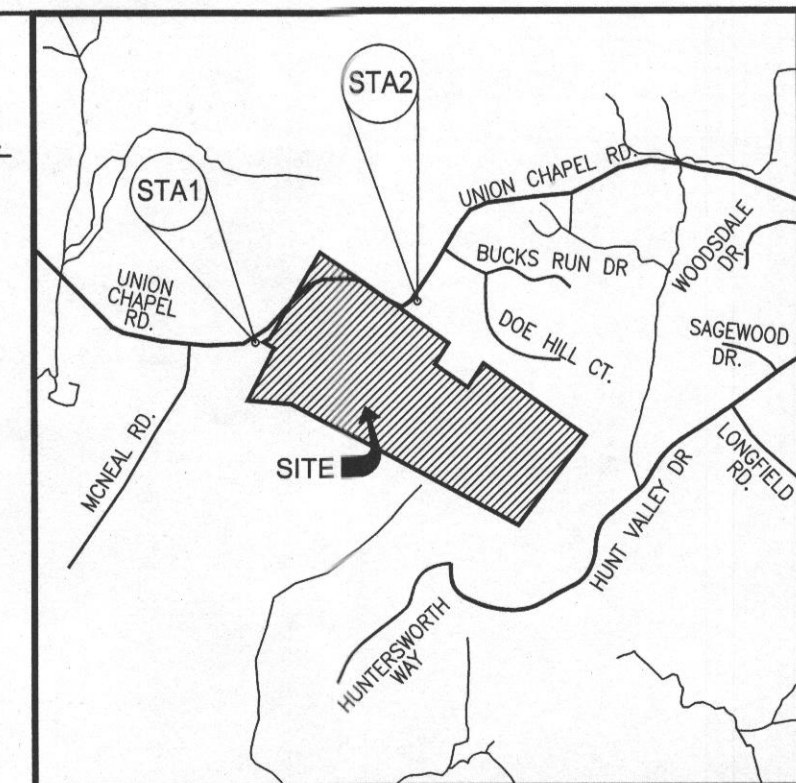
STATIC HEAD	8.3'
OFF FLOAT ELEVATION:	518.1'
HIGH POINT OF THE SYSTEM:	+ 526.4'
VERTICAL ELEVATION CHANGE:	8.3'
FRICTION HEAD	13.8'
FITTINGS	+ 81.0'
LENGTH OF PVC PIPE:	94.8'
TOTAL LENGTH	94.8'
94.8'/100 x 13.62 = 12.9' TOTAL FRICTION LOSS	
TOTAL HEAD	8.3'
VERTICAL ELEVATION CHANGE	12.9'
TOTAL FRICTION LOSS	0.0'
SYSTEM PRESSURE REQUIREMENTS	21.2'
TOTAL DYNAMIC HEAD	21.2'



- SEWAGE DISPOSAL SYSTEM DATA (5 BEDROOM):
1. INVERT @ FOUNDATION WALL: 522.9 (BASEMENT PUMP NOT REQUIRED)
 2. 750 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER (EP05)
EX. GRADE OVER TANK: 525.8
PROPOSED GRADE OVER TANK: 525.8
INVERT: 521.3
 3. DISTRIBUTION BOX
EX & PROPOSED GRADE OVER TANK: 528.5
INVERT: 526.4
 4. TRENCH DESIGN (5 BDRM x 150 GPD/BDRM = 750 GPD)
750 GPD / 1.2 GPD/SF (APP. RATE) = 625 SF
USE 3' WIDE TRENCH W/ 48" OF GRAVEL BELOW PIPE
INITIAL SYSTEM: 625 SF / 3' WIDTH = 208.3 LF x 0.45 = 94 LF MIN. TRENCH
USE 2 - 50' LONG TRENCHES FOR INITIAL SYSTEM
10' MIN SPACING BETWEEN TRENCH EDGES
FIRST REPLACEMENT: 625 SF / 3' WIDTH = 208.3 LF x 0.50 = 104 LF MIN. TRENCH
USE 2 - 52' LONG TRENCHES FOR FIRST REPLACEMENT SYSTEM
SECOND REPLACEMENT: 625 SF / 3' WIDTH = 208.3 LF x 0.50 = 104 LF MIN. TRENCH
USE 2 - 52' LONG TRENCHES FOR SECOND REPLACEMENT SYSTEM
9' MIN SPACING BETWEEN FIRST AND SECOND REPLACEMENT TRENCH EDGES

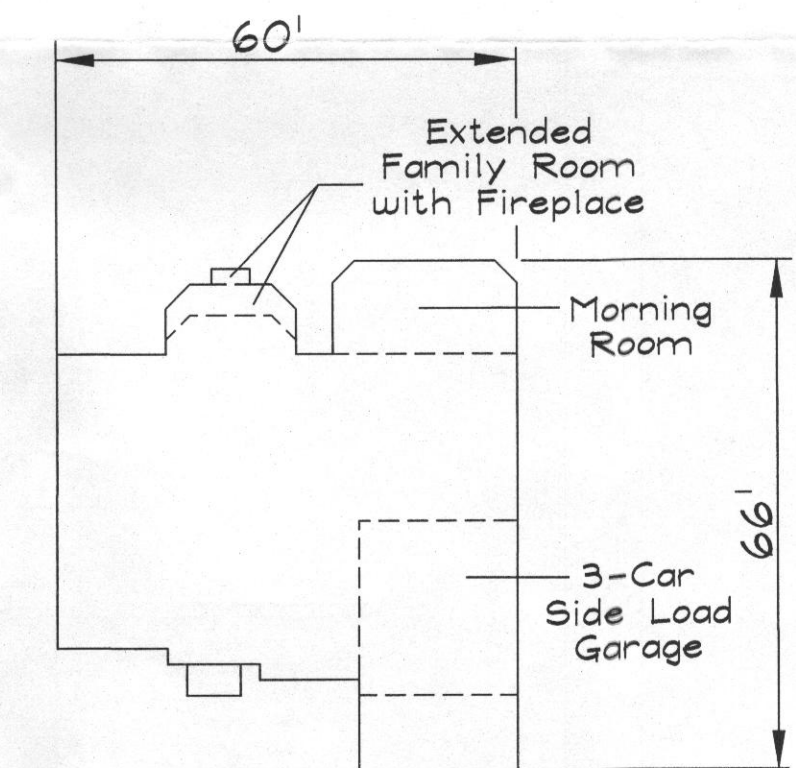
BENCHMARK

GEODETIC SURVEY CONTROL #1	
N	591450.42
E	1297571.25
A.A.	145A
ELEV.	535.43
GEODETIC SURVEY CONTROL #2	
N	591693.88
E	1299121.60
B.M.	14GB
ELEV.	542.23
ADC MAP COORDINATES	4812/C4



VICINITY MAP

SCALE: 1" = 2000'



MANHATTAN
ELEVATION 'D', MORNING ROOM, EXT. FAMILY ROOM
BRICK/STONE FRONT
WALKOUT

DATA SOURCES:

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. HOVNIANIAN HOMES
1802 Brightseat Road
Landover, Maryland 20785
(301) 683-6268

DEVELOPER:
LOT 40
15233 Sweetbay Street
Woodbine, Maryland 21797

BELLE HAVEN ESTATES LOT 40 SITE PLAN FOR BAT INSTALLATION

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, 2018

08/05/2014
DATE

PAUL G. CAVANAUGH
PROFESSIONAL ENGINEER

3rd ELECTION DISTRICT		HOWARD COUNTY	
REVISIONS			
NO.	DESCRIPTION OF CHANGES	DRN.	REV. DATE
CO. FILE #:	DES. BY: JMM		
TAX ACC. #:	DRN. BY: JMM		
TAX MAP: 14	CHK. BY: PGC		
BLOCK / GRID:	DATE: 08/05/14		
PARCEL #: 66	DDC JOB#: 06116.5		
ZONE / USE: RC-DEO	SHEET NUMBER:		
DWG. SCALE: 1"=30'	1 of 1		