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: 9/6/17 **ONSITE SEWAGE DISPOSAL SYSTEM** P 561513

APPROVAL DATE: 1/22/2018 **PERMIT: CONSTRUCTION** A

PROPERTY ADDRESS: 12240 Pleasant Springs Court

SUBDIVISION: Regan Property LOT: 20 TAX ID:

CONTRACTOR: Hatfield's Equipment EMAIL: ken@hatfieldsequipment.com

CONTRACTOR ADDRESS: P.O. Box 519 Annapolis Junction, MD 20701 PHONE: 301-490-4289

PROPERTY OWNER: MB Highland Reserve EMAIL:

OWNER ADDRESS: 1686 E. Gude Drive, Rockville, MD 20850 PHONE: 410-301-762-9511

SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: Mayer Bros or equivalent

PUMP MODEL: Zoeller 151 or equiv PUMP SIZE 1/3 PUMP TANK CAPACITY: 2000

DISTRIBUTION SYSTEM: ☐ GRAVITY ☒ PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: 100	INLET DEPTH: 3
	TRENCH WIDTH: 2	MAXIMUM BOTTOM DEPTH: 8
	MINIMUM SPACE BETWEEN TRENCHES: 11	EFFECTIVE AREA BEGINNING DEPTH: 3
LOCATION:	**PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.**	
NOTES:	Install ~~2 x 50'~~ 3 x 34' trenches in sw corner of SDA. Run F.M. on outer edge of SDA. Keep tanks out of 100' well ARC.	

ISSUED BY: Kevin Wolf ISSUE DATE: 9/6/17 EXPIRATION DATE: 9/6/18

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 TANKS REQUIRED

NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL

NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

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

☐ *ELECTRICAL PERMIT ISSUED* E

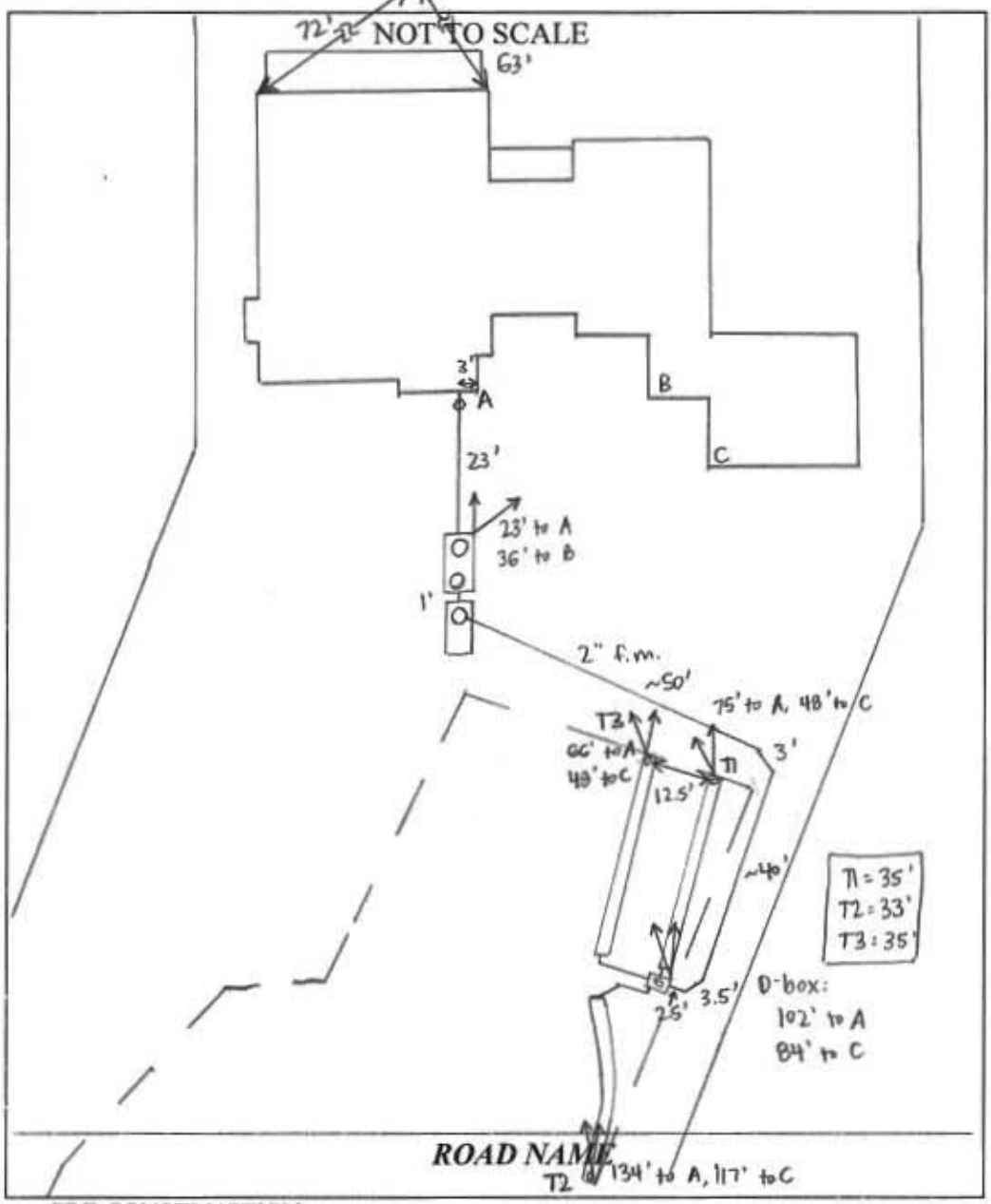
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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-14-0012



TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
2'	3'	8'

NUMBER OF TRENCHES 3
TOTAL LENGTH 103'
ABSORPTION AREA 206' + SIDEWALL
DISTRIBUTION BOX LEVEL YES
DISTRIBUTION BOX BAFFLE ELBOW
DISTRIBUTION BOX PORT YES

SEPTIC TANK DATA

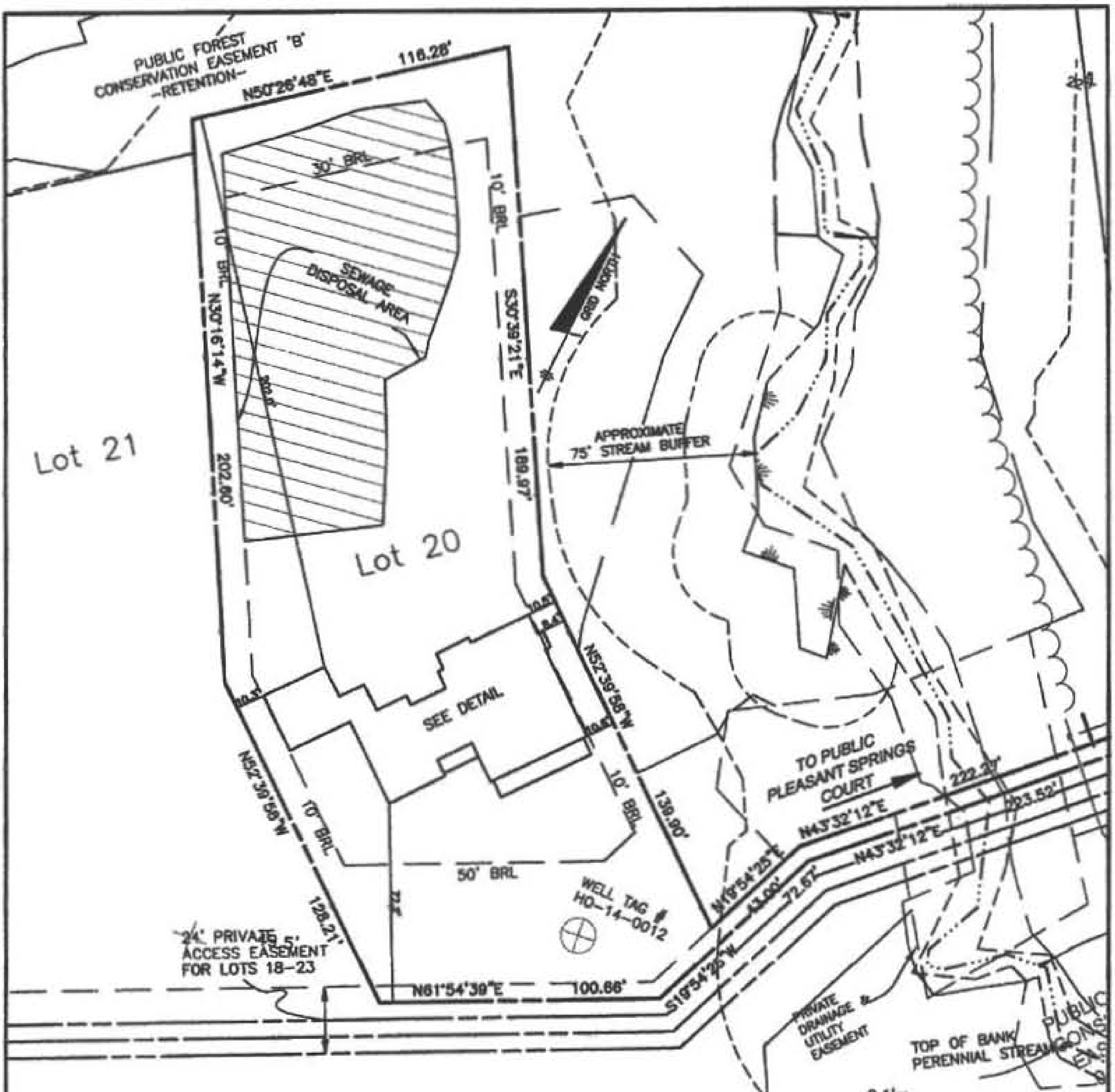
SEPTIC TANK 1 LEVEL YES
MANUFACTURER BABYLON
CAPACITY 2000 GAL
SEAM LOC TOP
TANK LID DEPTH 2.5-3'
BAFFLES YES
BAFFLE FILTER NO
MANHOLE LOC FRONT + REAR
6" PORT LOC NONE
WATERTIGHT TEST NO
SLOTTED YES
DATE ON LID 9-10-17

PUMP/SEPTIC TANK LEVEL YES
MANUFACTURER BABYLON
CAPACITY 2000 GAL
SEAM LOC TOP
TANK LID DEPTH 2.5-3'
BAFFLES NO
BAFFLE FILTER NO
MANHOLE LOC FRONT
6" PORT LOC NONE
WATERTIGHT TEST NO
SLOTTED NO
DATE ON LID 9-4-17

PRE-CONSTRUCTION:
10/11/17 Met Jeff from Hatfield's on site for layout. SPA corners and tanks staked. Shot contour + laid out 3×34' trenches on contour. Didn't pull full length of lower trench due to bees in area - Hatfield's will measure 34' length prior to trench installation. (SC)

INSTALLATION: 10/12/17 House connection made. First tank set + pipe laid from house to tank. Bees gone - painted out 34' of lower trench. (SC) 10/12/17 Pump tank set. Force main run up to D-box, covered at first bends so measurements are approximate. (SC) 10/13/17 Trenches installed. T1 + T2 left open for inspection, T2 left open at ends. 2' wide, 2.5' to stone. Need pump + alarm test. (SC) 1/22/2018 Pump + Alarm Ok. Septic on Breaker 9 Alarm on another Breaker. (te)

FINAL INSPECTOR [signature] DATE OF APPROVAL 1/22/2018


PUBLIC FOREST CONSERVATION EASEMENT 'B' -RETENTION-
116.28'
N50°26'48"E
30' BRL
10' BRL
SEWAGE DISPOSAL AREA
N30°16'14"W
S30°39'21"E
GRID NORTH
APPROXIMATE 75' STREAM BUFFER
Lot 21
202.60'
189.97'
Lot 20
SEE DETAIL
N52°39'50"W
10' BRL
TO PUBLIC PLEASANT SPRINGS COURT
222.20'
223.52'
N43°32'12"E
N43°32'12"E
10' BRL
139.90'
50' BRL
WELL TAG # HO-14-0012
N19°54'25"E
43.00'
72.67'
128.21'
24' PRIVATE ACCESS EASEMENT FOR LOTS 18-23
N61°54'39"E
100.66'
S19°54'25"W
PRIVATE DRAINAGE & UTILITY EASEMENT
TOP OF BANK PERENNIAL STREAM

TOP OF FOUNDATION WALL = 436.0'
OFFSET DIMENSIONS TO PROPERTY LINES ARE ± 0.1'

FOUNDATION DETAIL
SCALE: 1" = 30'

SURVEYOR'S CERTIFICATE

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. 21320, EXPIRATION DATE 1-7-2019 AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF, THAT THE DIMENSIONS OF THE BUILDING WALLS SHOWN HEREON ARE CORRECT; THAT THEY ARE BASED ON A FIELD RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. ON 08/23/2017.

STATE OF MARYLAND
DONALD ALAN MASON
No. 21320
PROFESSIONAL LAND SURVEYOR

Donald A. Mason 8-24-17

DONALD A. MASON
PROFESSIONAL LAND SURVEYOR
MARYLAND REG. No. 21320

Wall check OK
9/6/17

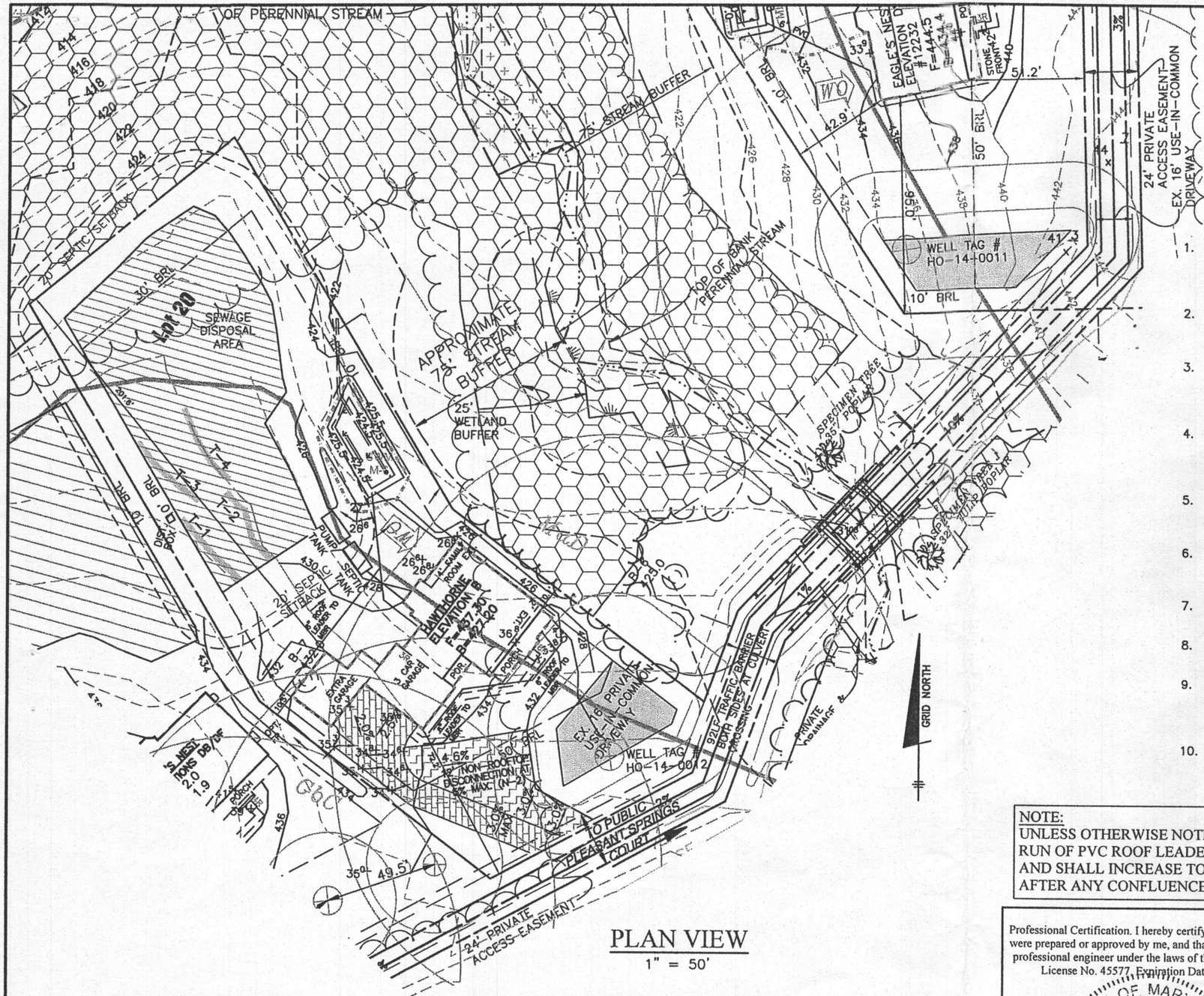
FEMA FIRM No. 24027C0140D
ZONE: X
DATED: 11/06/2013

WALL CHECK

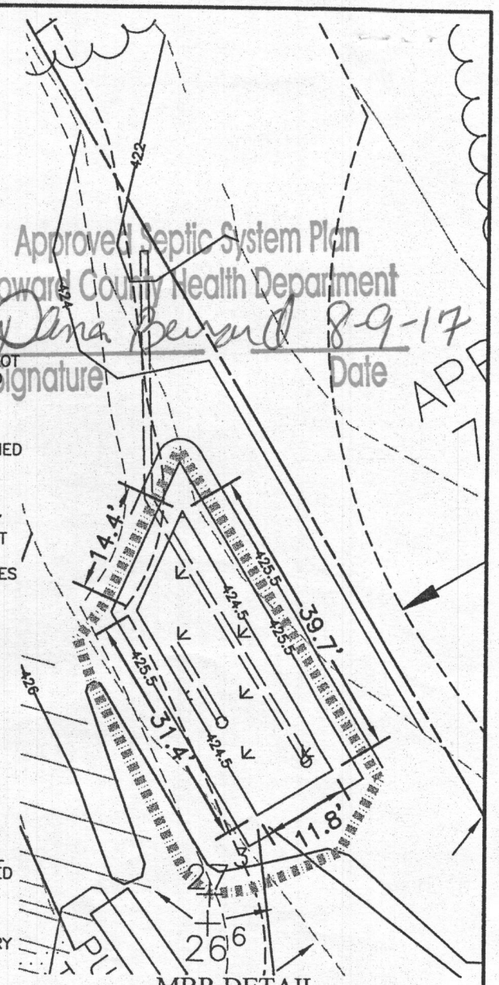
REGAN PROPERTY
LOTS 2 THRU 23
PLAT No. 23067
LOT No. 20
12240 PLEASANT SPRINGS COURT
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 ▲ (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

FIELD OBS. BY PJ
COMP. BY DAM
DRAWN BY EWF SCALE: 1" = 50' DATE: 08/23/2017



PLAN VIEW
1" = 50'



Approved Septic System Plan
Howard County Health Department
Dana Bernard 8-9-17
Signature Date

APP

BUILDING PERMIT PLAN NOTES:

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR REGAN PROPERTY, PLAT Nos. 23063–23074. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JANUARY, 2012.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO–14–0012, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO–BIORETENTION FACILITY (MDE M–6), DRY WELL FACILITY (MDE M–5) AND ONE NON–ROOFTOP DISCONNECTION (MDE N–2).
10. MICRO–BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF–TOP AREA.

NOTE:
UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.

ESD STORMWATER MANAGEMENT SUMMARY TABLE

Pe=	1.60	inches	Qe=	0.39	inches	ESDv=	894	cf	Rv=	0.25		
		DA to	Imp Area	Af (s.f.)			ESDv			REv		
Practice	#	practice	to practice	Required	Provided	2% DA?	Required	Provided	Pe Provided	Required	Provided	Ownership
(M-6) MicroBioretenion	#6	5,102	3,860	102	420	PASS	497	767	1.6			Private
(N-2) Disc. of Non-Rooftop Runoff	#1	3,566	1,830					137	1.0		137	Private
Total Treated →		8,668	5,690	102	420		894	905	1.6	145	137	
Site Total →		27,349	5,932									

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. 45577, Expiration Date: 06-08-2018.

STATE OF MARYLAND · JOHN M. CARNEY · No. 45577 · PROFESSIONAL ENGINEER

6/28/17

OWNER/BUILDER:

MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301–762–9511

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410–465–6105 ▲ (F) 410–465–6644
WWW.BEI–CIVILENGINEERING.COM

PROJECT: REGAN PROPERTY
LOT 20

LOCATION: 12240 PLEASANT SPRINGS COURT
HIGHLAND, MD 20777
TAX MAP No. 34 – BLOCK No. 24 – PARCEL No. 200
5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597453

TITLE: BUILDING PERMIT PLAN

HOUSE TYPE: HAWTHORNE - ELEVATION 'B'

DATE: JUNE, 2017 – PROJECT NO. 2171

SCALE: AS SHOWN DRAWING 1 OF 2

J:\2171 Regan Property\dwg\8072v2.dwg, BP20, 6/28/2017 9:21:47 AM, \\beicentral\Kyocera CS 3051ci KX

PLAN VIEW

1" = 50'

BUILDING PERMIT PLAN NOTES:

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR REGAN PROPERTY, PLAT Nos. 23063–23074. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JANUARY, 2012.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO–14–0012, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO–BIORETENTION FACILITY (MDE M–6), DRY WELL FACILITY (MDE M–5) AND ONE NON–ROOFTOP DISCONNECTION (MDE N–2).
10. MICRO–BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF–TOP AREA.

NOTE:
UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.

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. 45577, Expiration Date: 06-08-2018.

STATE OF MARYLAND · JOHN M. CARNEY · No. 45577 · PROFESSIONAL ENGINEER

6/28/17

OWNER/BUILDER:

MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301–762–9511

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410–465–6105 ▲ (F) 410–465–6644
WWW.BEI–CIVILENGINEERING.COM

PROJECT: REGAN PROPERTY
LOT 20

LOCATION: 12240 PLEASANT SPRINGS COURT
HIGHLAND, MD 20777
TAX MAP No. 34 – BLOCK No. 24 – PARCEL No. 200
5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597453

TITLE: SEPTIC PERMIT PLAN

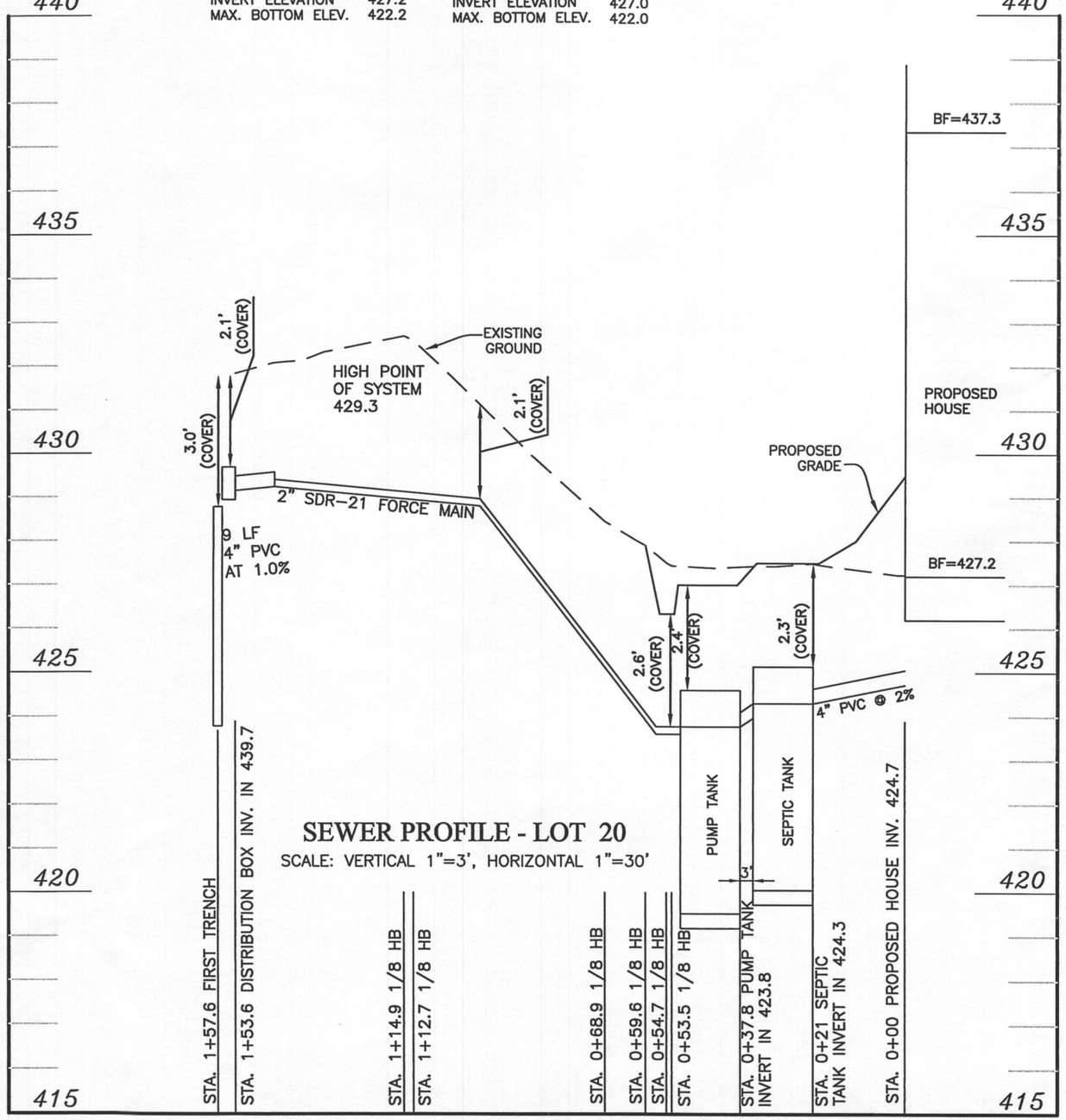
HOUSE TYPE: HAWTHORNE - ELEVATION 'B'

DATE:	JUNE, 2017 –	PROJECT NO. 2171
SCALE:	AS SHOWN	DRAWING 1 OF 4

J:\2171 Regan Property\dwg\8072v2.dwg, BP20, 6/28/2017 9:11:54 AM, \\beicentral\Kyocera CS 3051ci KX

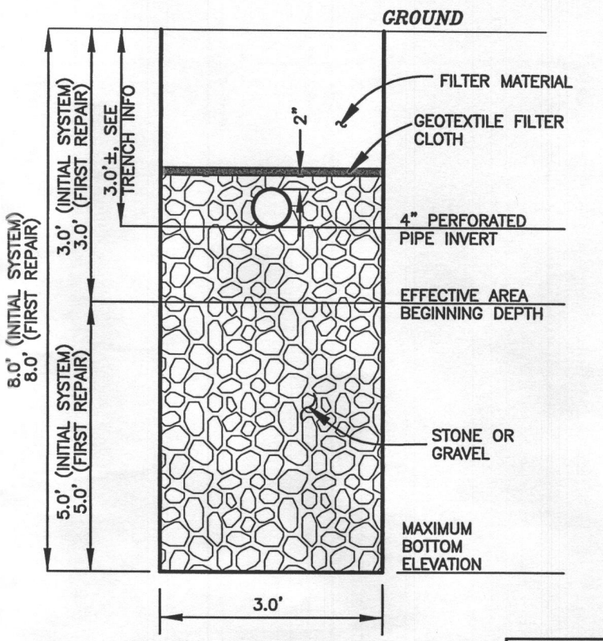
TRENCH INFORMATION

INITIAL SYSTEM		FIRST REPLACEMENT SYSTEM	
TRENCH T–1		**TRENCH T–3**	
TRENCH LENGTH	38 LF	TRENCH LENGTH	38 LF
GROUND ELEVATION	431.8	GROUND ELEVATION	431.0
INVERT ELEVATION	428.8	INVERT ELEVATION	428.0
MAX. BOTTOM ELEV.	423.8	MAX. BOTTOM ELEV.	423.0
TRENCH T–2		**TRENCH T–4**	
TRENCH LENGTH	38 LF	TRENCH LENGTH	38 LF
GROUND ELEVATION	430.2	GROUND ELEVATION	430.0
INVERT ELEVATION	427.2	INVERT ELEVATION	427.0
MAX. BOTTOM ELEV.	422.2	MAX. BOTTOM ELEV.	422.0



SEWER PROFILE - LOT 20

SCALE: VERTICAL 1"=3', HORIZONTAL 1"=30'



TYPICAL TRENCH DETAIL

NOT TO SCALE

INITIAL SYSTEM		
Number of Bedrooms	5	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	3	ft
Bottom Max Depth	8	ft
Design Flow	750	gpd
Drainage Field square footage	625	sf
Sidewall reduction credit	0.36	
Trench width	3	
Effective Area Depth	5	
Linear Length of trench Required	**74**	lf

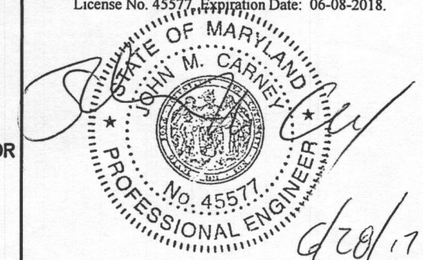
1st REPLACEMENT SYSTEM		
Number of Bedrooms	5	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	3	ft
Bottom Max Depth	8	ft
Design Flow	750	gpd
Drainage Field square footage	625	sf
Sidewall reduction credit	0.36	
Trench width	3	
Effective Area Depth	5	
Linear Length of trench Required	**74**	lf

THIS PLAN IS FOR SEPTIC DESIGN ONLY

SEE MANUFACTURES SPECIFICATIONS FOR DETAILS. WWW.MAYERPRECAST.COM EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER:

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. 45577, Expiration Date: 06-08-2018.



OWNER/BUILDER:

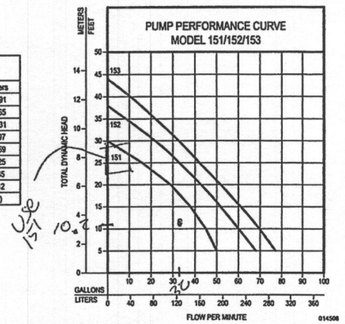
MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301–762–9511

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410–465–6105 ▲ (F) 410–465–6644
WWW.BEI–CIVILENGINEERING.COM

PROJECT:	REGAN PROPERTY LOT 20
LOCATION:	12240 PLEASANT SPRINGS COURT HIGHLAND, MD 20777 TAX MAP No. 34 – BLOCK No. 24 – PARCEL No. 200 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597453
TITLE:	SEPTIC PERMIT PLAN
HOUSE TYPE:	HAWTHORNE - ELEVATION 'B'
DATE:	JUNE, 2017 –
PROJECT NO.	2171
SCALE:	AS SHOWN
DRAWING	2 OF 4

TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		151		152		153	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.6	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.5	16	61	34	129	42	159
30	9.1	--	--	23	87	33	125
35	10.7	--	--	--	--	22	85
40	12.2	--	--	--	--	11	42
Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	



USE Model 151

Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	1/3	60	32	15	1	2 or 3
E151	Single	Non	230	1	3.2	1/3	60	32	15	1	2 or 3
BN151	Single	Auto	115	1	6.0	1/3	60	33	15	*	2 or 3
BE151	Single	Auto	230	1	3.2	1/3	60	33	15	*	2 or 3
N152	Single	Non	115	1	8.5	4/10	60	37	17	1	2 or 3
E152	Single	Non	230	1	4.3	4/10	60	37	17	1	2 or 3
BN152	Single	Auto	115	1	8.5	4/10	60	39	18	*	2 or 3
BE152	Single	Non	230	1	4.3	4/10	60	39	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17		
BN153	Single	Auto	115	1	10.5	1/2	60	39	18	*	2 or 3
E153	Single	Non	230	1	5.3	1/2	60	37	17	1	2 or 3
BE153	Single	Non	230	1	5.3	1/2	60	39	18	*	2 or 3

*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m). 50' (15 m) cords are available for 230 V units only.

NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

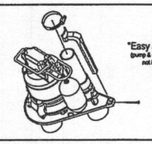
SELECTION GUIDE

1. For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
2. See FM1228 for correct model of simplex control panel.
3. See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

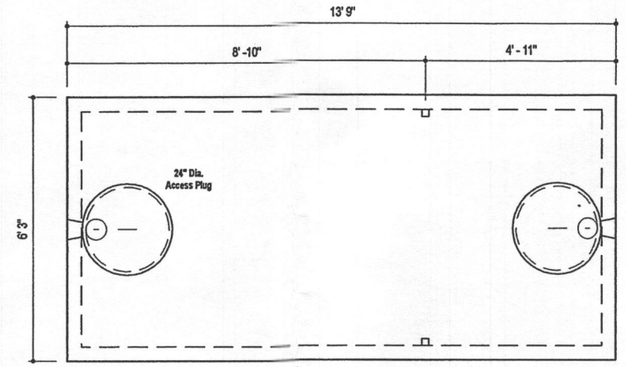
- Reduces potential clogging by debris
- Replaces rocks or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1½" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.

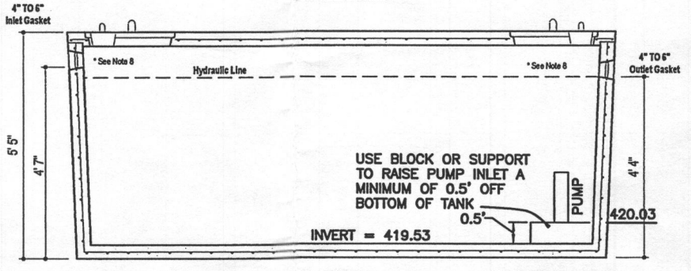


⚠ CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | www.zoeller.com



PLAN VIEW



SECTION A-A

INV. IN PUMP TANK 398.28
INV. OUT PUMP TANK 398.01
TOP OF PUMP TANK 399.10
GR. OVER PUMP TANK 401.30

DESIGN DATA & GENERAL NOTES

[1] Concrete strength f'c=4,000 p.s.i. @ 28 days. Density = 150 pcf.
[2] Cement - Portland Type I/II per ASTM C 150-92.
[3] Admixtures & plasticizers per ASTM C 260-86 & C 494-92.
[4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
[5] Top slab sealed with butyl rope mastic.
[6] 4" wall, 4" base, & 6" top thickness.
[7] Max 3' of cover
*[8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

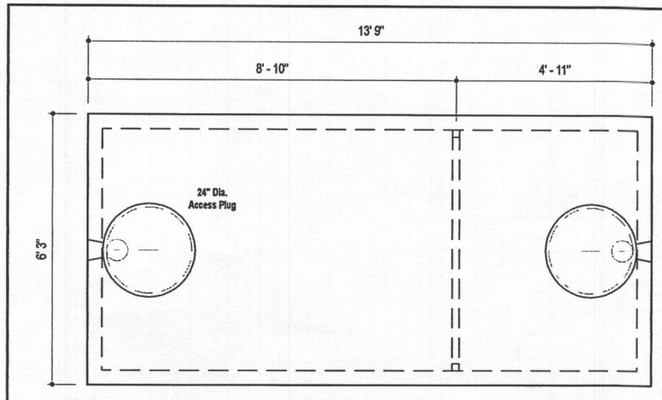
FLOAT TREE:	ELEV.	RELATIVE TO BOTTOM
BOTTOM OF TANK	419.53	
TOP OF PUMP	421.13	1'-7 1/4"
PUMP OFF	421.20	1'-8"
PUMP ON	421.49	1'-11 1/2"
HIGH ALARM	421.99	2'-5 1/2"

WEIGHT = 19,000 lbs.

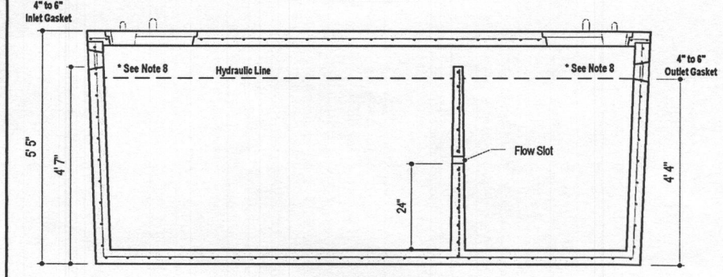
MBI Mayer Bros., Inc.
6264 Race Road
Elkridge, Maryland 21075
Tel. 410.796.1434
Fax. 410.796.1438
www.mayerbrosprecast.com

2,000 GALLON SEPTIC TANK
1-Compartment
LOT 20
Stock Item [Approx. 19,000 lbs]

Dwg. No. 2000-1C	No Scale	Aug. 11, 2008



PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

[1] Concrete strength f'c=4,000 p.s.i. @ 28 days. Density = 150 pcf.
[2] Cement - Portland Type I/II per ASTM C 150-92.
[3] Admixtures & plasticizers per ASTM C 260-86 & C 494-92.
[4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
[5] Top slab sealed with butyl rope mastic.
[6] 4" wall, 4" base, & 6" top thickness.
[7] Max 3' of cover
*[8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

MBI Mayer Bros., Inc.
6264 Race Road
Elkridge, Maryland 21075
Tel. 410.796.1434
Fax. 410.796.1438
www.mayerbrosprecast.com

2,000 GALLON SEPTIC TANK
2-Compartment
Stock Item [Approx. 19,900 lbs]

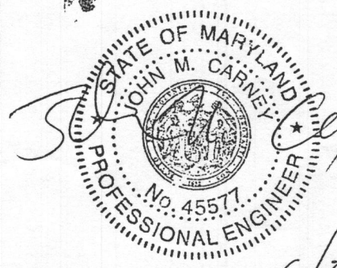
Dwg. No. 2000-2C	No Scale	Aug 11, 2008

THIS PLAN IS FOR SEPTIC DESIGN ONLY

SEE MANUFACTURES SPECIFICATIONS FOR DETAILS.
EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK, PUMP, AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER.

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. 45577, Expiration Date: 06-08-2018.



6/28/17

OWNER/BUILDER:

MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301-762-9511

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 ▲ (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

PROJECT: REGAN PROPERTY
LOT 20

LOCATION: 12240 PLEASANT SPRINGS COURT
HIGHLAND, MD 20777
TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200
5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597453

TITLE: SEPTIC PERMIT PLAN

HOUSE TYPE: HAWTHORNE - ELEVATION 'B'

DATE: JUNE, 2017
-

PROJECT NO. 2171

SCALE: AS SHOWN

DRAWING 3 OF 4

J:\2171 Regan Property\dwg\8072v2.dwg, BP20, 6/28/2017 9:12:49 AM, \\beicentral\Kyocera CS 3051ci KX

Pumping Station

Diameter of Force Main and Manifold = 2 " of SDR 21 pipe
Length of Force Main = 93 feet SDR 21 gallons/100 feet = 18.8 Table 4.2

Volume of Main = 17.5 gallons ID = 2.149
length = 100 gallon/sq fi 7.480519
Total Volume = 17.5 gallons volume = 18.84222 gal/100 lf

Minimum Dose must be greater than 1/6 of the design flow 125 gallons

Minimum Dose must be greater than the volume of the main 18 gallons

Use minimum dose of 160 gallons okay Doses per Day = 4.6875

Size Pump Chamber

Pump chamber must be able to hold one dose and one days design flow

One day Capacity = 750 gallons
Dose = 160 gallons
Totals = 910 gallons

Use 2,000 gallon pump tank

Tank Dimensions:	Exterior		Interior			
	Length:	13.75 feet	Length:	13.08 feet	Walls:	0.33 feet
	Width:	6.25 feet	Width:	5.58 feet	Bottom:	0.33 feet
	Height:	5.42 feet	Height:	4.67 feet	Top:	0.42 feet
			Area:	73.05 sf	Bottom to	
			Volume:	341.14 cf	Inlet:	4.58 feet

Sizing the Pump

Flow: runtime = 5 minutes
rate = 32.00 gallons/minute

Design Head: Design Head = Static Head + Friction Head
Static Head = highest elevation of main - pump off elevation
Highest component of system = 429.3 Main HP
Pump off elevation = 421.20
Static Head = 8.10 feet
Friction Head = Head loss due to pipe friction
2.0" pipe = 93 feet
45° bends 6 loss for bend 24 feet per table 4.3
Gate Valve 1 loss for tee 1.3 feet per table 4.3

Friction loss per table 4.4 = 1.74 (ft/100 ft)

Equivalent Length = 118.3 Friction loss 2.06 feet

Total Friction Head = 2.06

Design Head = 10.16 feet

Pump Requirements:

Performance = 32.00 gpm
Head of Water = 10.16 feet of head

Pump Selection: Zoeller Pump Company Effluent Series, Model 151
1/3 horse power

Pump Flow Rate = 44.00 gallons/minute per rating curve 3.64 Minutes
TDH analysis 11.81 ft
Between design and curve? Yes

Design Pump Chamber

Ground over Tank = 427.00 Cover 2.38 ft
Top of Tank = 424.62
Invert of Tank = 419.53
6" Riser = 0.50 feet
Pump Height= 1.10 feet

Min. Pump off = 421.13
Selected Pump off = 421.20

Dose = 21.4 cf
Area of Pit = 73.05 sf

Pump on dist. = 0.29
Pump on Elev. = 421.49

Distance between Pump on and Highwater Alarm = 0.5 feet
Highwater Alarm Elevation = 421.99

Dist. for a dose above alarm = 1.37
Minimum Inlet Elev. = 423.37
Tank Inlet = 423.78 Okay
Dist. Alarm to Inlet = 1.79 Okay

THIS PLAN IS FOR SEPTIC DESIGN ONLY

SEE MANUFACTURES SPECIFICATIONS FOR DETAILS. EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK, PUMP AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER:

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. 45577, Expiration Date: 06-08-2018.

STATE OF MARYLAND · JOHN M. CARNEY · No. 45577 · PROFESSIONAL ENGINEER

6/28/17

OWNER/BUILDER:

MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301–762–9511

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410–465–6105 ▲ (F) 410–465–6644
WWW.BEI–CIVILENGINEERING.COM

PROJECT: REGAN PROPERTY
LOT 20

LOCATION: 12240 PLEASANT SPRINGS COURT
HIGHLAND, MD 20777
TAX MAP No. 34 – BLOCK No. 24 – PARCEL No. 200
5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597453

TITLE: SEPTIC PERMIT PLAN

HOUSE TYPE: HAWTHORNE - ELEVATION 'B'

DATE: JUNE, 2017 PROJECT NO. 2171

SCALE: AS SHOWN DRAWING 4 OF 4