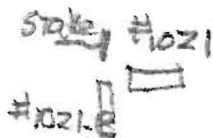
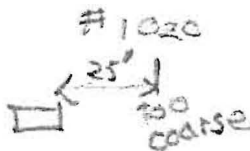


A/P

Additional Percs Lot 8
(near stakes)

1010
brn scl
& brn lean heavy
2.5'
brn s
4.5'
brn & lt. brn
ls many mica
few stones
12.5'



#1019-B
#1019 1stake

1021
brn scl
1.1'
yel-red
dense sl
2.5'
yel-red sl
3.5'
yel-red ls
5'
yel-brn
& lt. brn grls
quartzite
7.5'
brn ls
9.3'
H. brn ls
12'

1020 offset
25'
brn to yel-brn
grs sl
3.5'
grls
few stones
yel-yellow
to yel-red
5.5'
brn ls
7.5'
yel-brn
& lt. gray brn
sl - moist
10'
brn sl
12'

original staked location
for #1020 is now in SDA; that
portion of SDA should not
be used.
RJB
8/6/14

DATE	TEST #	DEPTH	START	BREAK 1" DROP	STOP 2" DROP	TIME OF 2ND INCH	P/F/H
7/20/10	1021	3.5' 12'	2:24	2:26	2:31	5	P
7/20/10	1019	12.5'	Visual		Trench Bottom at 4'		
7/20/10	1022	3.7' 12'	3:01	3:02:20	3:05:20	3	P
	1020	12'	Visual		Trench at 4'	Bottom	D
7/21/10	1021-B	6'	12:58	12:58:50	12:59:55	1.1	repair
repair	1021-B	6'	1:02:30	1:03:40	1:04:10	1.5	F
7/21/10	1019-B	7'	1:11	1:11:50	1:13:40	1.8	repair
repair	1019-B	7'	1:14	1:16	1:20	4	

REMARKS #1019-B & 1021-B are tests of heavy sand soppalites
 SANITARIAN RJB BACKHOE Mike Johnson OTHERS Mike Johnson
 TEST HOLES USED IN SDA _____ AVG. PERC TIME _____ SQ. FT/BR _____
 TRENCH WIDTH _____ INLET DEPTH _____ MAX. BOT DEPTH 4' EFFECTIVE SW _____

2024
 10" original sbk
 4' org/red brn sl
 20% chert
 7' brn fsl
 med brn micaceous fsl
 12' brn ch fsl w/ quartz

2025
 1' brn & fsl
 4' org/red brn st sl
 red brn fsl
 saprolite micaceous
 ↓
 13' yellow-med brn v fsl micaceous

2021
 1' heavy brn
 3.5' red brn gr sl/fsl
 red brn fsl micaceous saprolite
 ↓
 11' med brn v fsl micaceous

See plan for all test locations

DATE	TEST #	DEPTH	START	BREAK 1" DROP	STOP 2" DROP	TIME OF 2ND INCH	P/F/H
10-25-10	2024	4.5' / 12'	Ø	:37	2:48	2+	P
10-25-10	2025	4' / 13'	Ø	1:41	4:13	2+	P
10-25-10	2021	4' / 11'	Ø	:48	3:00	2+	P
10-25-10	2022	3.5' / 11.5'	Ø	:53	3:18	2+	P
10-25-10	2023	8'	VISUAL	AL - HB			F
10-25-10	2023A	4.5' / 10'	Ø	:35	1:02	< 2	F
		3.5' / 10'	Ø	2:40	5:38	3	P

2022
 10" brn & fsl
 org/red
 brn sl
 Saprolite
 few pieces
 ↓
 9' yellow brn sl
 11.5' 35% quartz

2023
 3' red brn vst sl
 5' yellow vst sl
 8' vbl sl
 HB

2023A
 10" brn & sbk
 org/red brn sl
 weathered quartz
 platy structure
 ↓
 10' dk brn ches
 flaggy Mn
 shale

REMARKS Lot 7 & Lot 8 2023 moved
 SANITARIAN HS BACKHOE Chuck Zepp OTHERS Zach
 TEST HOLES USED IN SDA _____ AVG. PERC TIME _____ SQ. FT/BR _____
 TRENCH WIDTH _____ INLET DEPTH _____ MAX. BOT DEPTH _____ EFFECTIVE SW _____

Design Calculations

Design Input:

Calculations:

Capacity requirements

number of lots	1
bedrooms per lot	5
use rate per bedroom	150 gpd

Max. Daily Flow	750 gpd
Average Daily Flow	375 gpd
Maximum Daily Flow	0.52 gpm
Average Daily Flow	0.26 gpm

Drainfield Requirements

Application Rate	1.2 gpd/sq ft
Trench width	3 ft
trench gravel depth	2 ft
number of trenches	4
min. trench spacing c-c	10 ft

Standard Trench Length	208.33 ft
Deep Trench Conversion Factor	62.50 %
Deep Trench Length for MDF	130.21 ft
total trench length for 100% capacity	130.21 ft
individual trench length	33 ft
Approx. Lateral Length	28.00 ft

Tanks and Capacities

BAT tank	1,500	gallons
2nd settling tank	NA	gallons
Equalization Tank	NA	gallons
pump tank size	2,000	gallons

minimum req. area	1562.5 sf
req. capacity (1125+(0.75*MDF))	1687.5 gal.
design settling capacity NA	gal.
min. pump tank capacity (ADF)	427 gal.

Distribution system

number of cells	1
trenches first system	4
lateral length per pump	132 ft
ID 1.0" SDR 26 PVC	1.175 inches
Max. Manifold length	68 ft
ID 2.0" SDR 26 PVC	2.173 inches

Total Number of Pumps	1
laterals served by pump	4
Vol./100 ft 1.0" SDR 26	5.8 gal.
Vol. of laterals served	7.7 gal.
Vol./100 ft 2.0" SDR 26	19.6 gal.
Max. Main volume	13.3 gal.

Static Hydraulic Profile

Ground Elev. At BAT tank	417.10 ft	
Tank #1 invert in	413.00 ft	
Cover	2.83 ft	
Tank #1 top	414.27 ft	okay
Fall in tank	0.13 ft	
Pump Block Height	0.00 ft	
Height of Intake	0.79 ft	
Highest lateral	415.50 ft	Cell 1

Tank #1 effluent elev	412.87 ft	
Pump Tank effluent elev	0.00 ft	
Invert of pump tank	408.58 ft	30.5
Pump Elevation	408.58 ft	
pump intake elev.	409.37 ft	

Perforation Design:

Size of Perforation	1/4 inches
Design Separation	5.00 ft (see figure 4.4)
Use Perforations	7
Perforations per field	28

Distal Pressure =	3.0 ft
Flow	1.28 gpm
Perforations per Lateral	6.60
Perforation Actual Spacing	4.71 ft
Flow rate	35.74 gpm

Dosing volume, flow rates and Pressures

lateral flow rate	35.74 gpm
Friction (C) for PVC	150
Miscellaneous Losses	0 ft
Estimated Run Time	3.00 Min.
Cells in simultaneous use	1
Pump tank Volume	47.21 Gal/in

Static Head	5.67 ft Cell 1	
Friction Head	3.53 ft Cell 1	
Distal Head	3 ft	
Max. Total Dynamic Head	12.20 ft	
Estimated Dose (5xLateral+1xMain) Vol.	51.57 gal.	
Min. Runtime	1.44 min.	
Minimum Dose Volume	51.57 gal.	
Design Dose	100 gal.	Okay
Average Doses	3.75 per day	

Tank and Float Design:

Ground over Tank =	417.10 ft
Top of Tank =	414.27 ft
Invert of Tank =	408.58 ft
Support and Pump=	0.79 ft
low probe =	1.25 ft

Inside Tank Dimenions	
Height =	5.35 ft
Width =	5.79 ft
Length =	13.08 ft
Number of Tanks =	1

per Mayer Brothers Precast

minimum Pump off = 409.83 ft
Low Probe Elev = 409.83 ft 1.25 ft. above bottom

Dose = 13.37 cf
Area of Pit 75.73 sf Use H-600 BNR with 750 gallon pump chamber
Distance Invert to low probe 1.25 feet
Min. Pump on dist. = 0.18 ft Distance low probe to mid probe 1.5 feet
Min. Pump on Elev. = 410.01 ft Distance mid probe to Alarm 0.5 feet
Mid Probe Elev = 411.33 Okay

Distance between Pump on and Highwater Alarm = 0.5 ft
Highwater Alarm Elevation = 411.83 ft
Alarm Probe Elevation = 411.83 Okay

Vol. Above Alarm to water elev. = 24.06 cf or 180.00 gallons
Vol water elev. to bottom of top = 80.15 cf or 599.53 gallons
Volume available for emergency = 104.22 cf or 779.53 gallons
One Day Flow = 750.00 gallons Okay

Pump Requirements:

Performance = 35.74 gpm
Head of Water = 12.20 feet of head

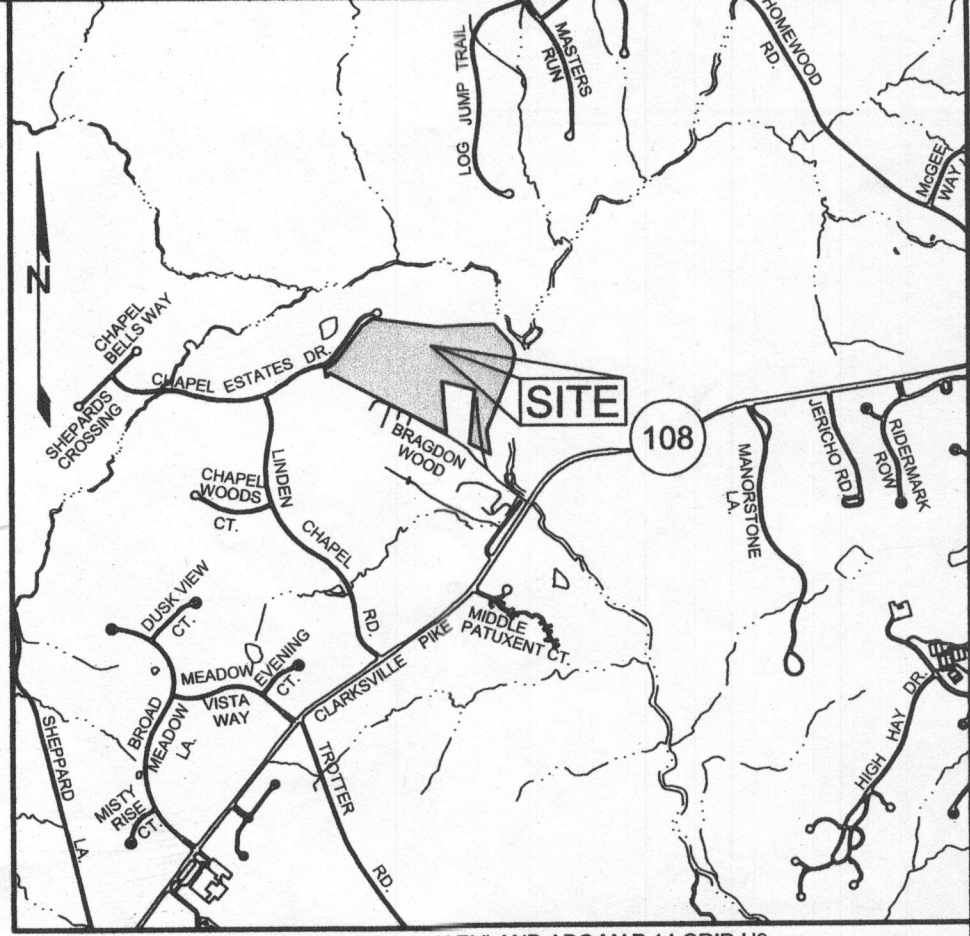
Pump Selection: Blaster filtered effluent pump - 33EB05
1/2 horse power 230 Volts Single Phase

95-2208 OK
95-2209 OK

SYMBOL	NAME / DESCRIPTION	GROUP
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C
Ha	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	D
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED PERCOLATION TEST HOLE, PASSED
- PROPOSED PERCOLATION TEST HOLE, FAILED
- PROPOSED PERCOLATION TEST HOLE
- SOIL BOUNDARY
- APPROXIMATE FOREST CONSERVATION EASEMENT



HOWARD COUNTY, MARYLAND ADC MAP 14 GRID H3
VICINITY MAP
SCALE: 1=2000

GENERAL NOTES

1. SUBJECT PROPERTY ZONED RC-DEO PER 02/02/04 COMPREHENSIVE ZONING PLAN.
2. TOTAL AREA OF PROPERTY = 33.55 AC.
3. PRIVATE WATER AND PRIVATE SEWER WILL BE USED WITHIN THIS SITE.
4. THIS AREA DESIGNATES A PRIVATE SEWAGE EASEMENT, OF AT LEAST 10,000 SF AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. REORDINATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
5. BOUNDARY SHOWN HEREON IS BASED ON HOWARD COUNTY TAX MAP INFORMATION.
6. THE TOPOGRAPHY SHOWN ON LOT 7 HAS BEEN FIELD RUN BY SILL, ADCOCK & ASSOCIATES, LLC, IN APRIL, 2010. THE REMAINING EXISTING TOPOGRAPHY IS BASED ON HOWARD COUNTY AERIAL TOPOGRAPHY FLOWN IN 1983 AND WAS FIELD VERIFIED IN JANUARY 2, 2011.
7. PROPERTY ADDRESS: 11795 BRAGDON WOOD
8. DEED REFERENCE: LIBER 3503, FOLIO 615, LIBER 3503 FOLIO 620, PLAT 8328
9. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
10. ANY CHANGES TO A PRIVATE SEWAGE EASEMENT SHALL REQUIRE A REVISED PERC CERTIFICATION PLAN.
11. ALL EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS WITHIN 100 FEET OF THE PROPERTY BOUNDARIES AND ALL EXISTING OR PROPOSED SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS HAVE BEEN FIELD LOCATED.
12. THE HOUSE ON EXISTING LOT 6, CHAPEL WOODS II, AND ITS SEPTIC SYSTEM ARE TO BE ABANDONED ACCORDING TO THE HOWARD COUNTY HEALTH DEPARTMENT REGULATIONS. THE WELL LOCATED ON EXISTING LOT 6 WILL REMAIN TO BE USED FOR PROPOSED LOT 3. THE EXISTING HOUSE LOCATED ON PARCEL 353 IS TO REMAIN. THE SEPTIC SYSTEM SERVING THIS HOUSE IS TO REMAIN AND HAS A 10,000 SQUARE FOOT SEPTIC EASEMENT APPROVED IN 1987. THE WELL SERVING PARCEL 353 WILL BE PROPERLY ABANDONED AND A NEW ONE CONSTRUCTED IN THE LOCATION SHOWN.
13. MARYLAND DEPARTMENT OF THE ENVIRONMENT HAS APPROVED A VARIANCE TO ALLOW SEWAGE DISPOSAL SYSTEMS LOCATED ON LOTS 1, 2, 3, 4, 7 & 8 TO BE LOCATED UPGRADIENT FROM THE PRIVATE WATER SUPPLY ON LOT 1 AND NEIGHBORING PARCELS 30, 31, 37, 45 & 47. THIS IS SUBJECT TO THE FOLLOWING CONDITIONS: AN ADVANCED PRE-TREATMENT SYSTEM, WHICH UTILIZES BEST AVAILABLE TECHNOLOGY TO PERFORM NITROGEN REDUCTION, MUST BE INSTALLED ON THE SEWAGE DISPOSAL SYSTEMS ON LOTS 1, 2, 3, 4, 7 & 8. THE WELLS ON LOT 1, 5 & 8 MUST BE CONSTRUCTED USING A STEEL WELL CASING, WHICH MUST BE INSTALLED AT A MINIMUM DEPTH OF 50' BELOW GROUND SURFACE OR 10' INTO THE COMPETENT BEDROCK. A LOW PRESSURE DOSING SYSTEM WILL BE REQUIRED FOR THE SEWAGE DISPOSAL SYSTEMS ON LOTS 1, 2, 3, 4, 7 & 8.
14. THE PURPOSE OF THIS PLAN IS TO ESTABLISH A MINIMUM 10,000 SQUARE FOOT SEPTIC EASEMENT FOR THE LOTS SHOWN.
15. ALL WELLS MUST BE DRILLED PRIOR TO FINAL RECORDED PLAT REORDINATION.



N 571,300
E 1,333,800

N 569,900
E 1,333,800

PLAN VIEW
SCALE: 1=100'

superceded 11/4/11

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS IN ACCORDANCE WITH THE MASTER PLAN OF HOWARD COUNTY

for Peter Beiderson
COUNTY HEALTH OFFICER
DATE: 3/18/2011
HOWARD COUNTY HEALTH DEPARTMENT

PERCOLATION CERTIFICATION PLAN
CHAPEL RISE
LOTS 1 THRU 8 AND PARCEL 282
A SUBDIVISION OF PARCEL 353 AND A RESUBDIVISION OF LOT 6,
CHAPEL WOODS II, PLAT #9328
TAX MAP 29 GRID 13
5TH ELECTION DISTRICT
PARCEL 26, 66, 282 & 353
HOWARD COUNTY, MARYLAND



Sill · Adcock & Associates · LLC
Engineers · Surveyors · Planners
3300 North Ridge Road, Suite 160
Ellicott City, Maryland 21043
Phone: 443.325.7682 Fax: 443.325.7685
Email: info@saand.com

DESIGN BY: PS
DRAWN BY: PS
CHECKED BY: PS
SCALE: AS SHOWN
DATE: MARCH 10, 2011
PROJECT #: 09-073
SHEET #: 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. 32025, EXPIRATION DATE: JUNE 20, 2011