



APPLICATION

FOR PERCOLATION TESTING AND SITE EVALUATION

TEST DATE(S) _____ TEST TIME _____ AP 5 20847

AGENCY REVIEW: _____ DATE 8/26/2004

DO NOT WRITE ABOVE THIS LINE

I HEREBY APPLY FOR THE NECESSARY TESTING/EVALUATION PRIOR TO ISSUANCE OF SEWAGE DISPOSAL SYSTEM PERMIT(S) TO:

CHECK AS NEEDED:

- CONSTRUCT NEW SEPTIC SYSTEM(S)
- REPAIR/ADD TO AN EXISTING SEPTIC SYSTEM
- REPLACE AN EXISTING SEPTIC SYSTEM

CHECK AS NEEDED:

- NEW STRUCTURE(S)
- ADDITION TO AN EXISTING STRUCTURE
- REPLACE AN EXISTING STRUCTURE

CHECK ONE:

- CREATE NEW LOT(S)
- BUILD ON AN EXISTING LOT IN A SUBDIVISION
- BUILD ON AN EXISTING PARCEL OF RECORD

IS THE PROPERTY WITHIN 2500' OF ANY RESERVOIR?

- YES
- NO

THE TYPE OF STRUCTURE IS:

- RESIDENTIAL WITH 4 PROPOSED BEDROOMS IN THE COMPLETED STRUCTURE (NOTE **UNKNOWN** IF APPROPRIATE)
- COMMERCIAL (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/ CUSTOMERS ON ACCOMPANYING PLAN)
- INSTITUTIONAL/GOVERNMENT (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/USERS ON ACCOMPANYING PLAN)

PROPERTY OWNER(S) KDDC Land Co.

DAYTIME PHONE 410-781-3400 CELL 443-277-3137 FAX 410-781-3475

MAILING ADDRESS 946-A Morningstar Ct Eldersburg MD 21784
STREET CITY/TOWN STATE ZIP

APPLICANT Rachuba Home Builders, LLC

DAYTIME PHONE _____ CELL _____ FAX _____

MAILING ADDRESS SAGE
STREET CITY/TOWN STATE ZIP

APPLICANT'S ROLE: DEVELOPER BUILDER BUYER RELATIVE/FRIEND REALTOR CONSULTANT

PROPERTY LOCATION
SUBDIVISION/PROPERTY NAME ~~THE~~ Morningstar Property LOT NO. Ex House

PROPERTY ADDRESS 16780 A.E. Mullinex Rd Woodbine 21797
STREET TOWN/POST OFFICE

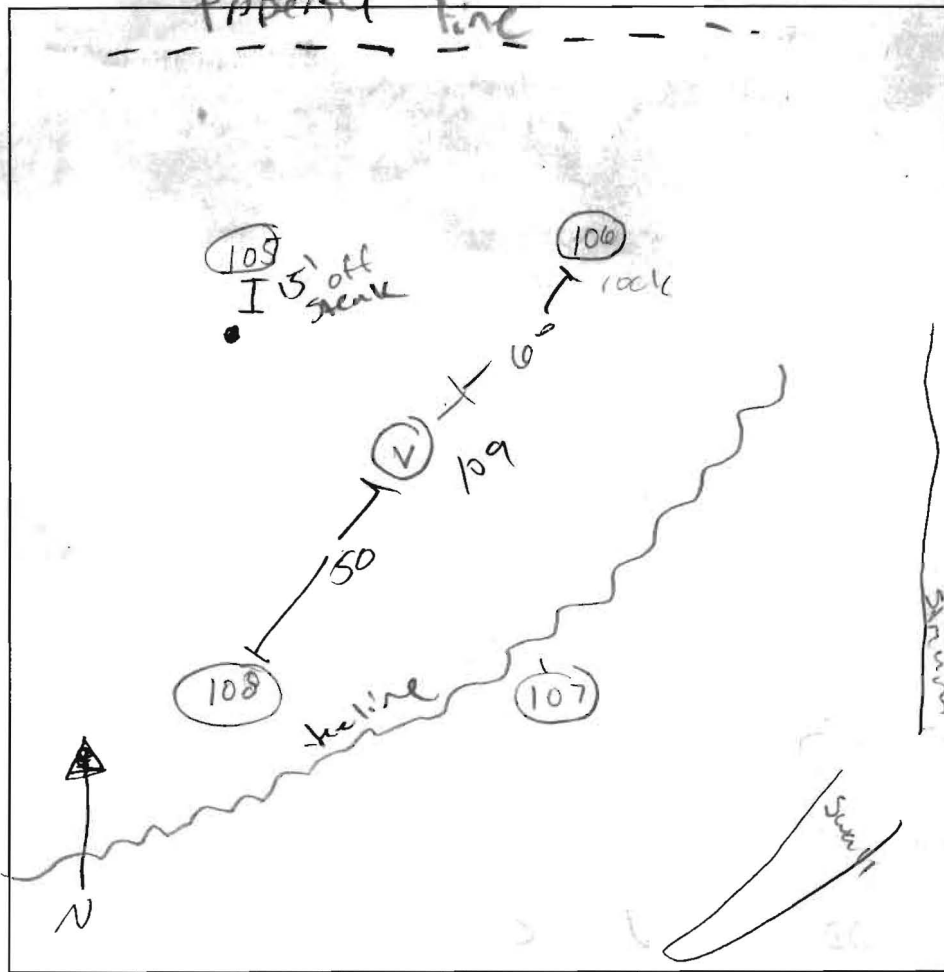
TAX MAP PAGE(S) 7 GRID _____ PARCEL(S) 506 PROPOSED LOT SIZE 10 AC

AS APPLICANT, I UNDERSTAND THE FOLLOWING: THE SYSTEM INSTALLED SUBSEQUENT TO THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS APPLICATION IS COMPLETE WHEN ALL APPLICABLE FEES AND A SUITABLE SITE PLAN HAVE BEEN RECEIVED. I ACCEPT THE RESPONSIBILITY FOR COMPLIANCE WITH ALL M.O.S.H.A. AND "MISS UTILITY" REQUIREMENTS. APPROVAL IS BASED UPON SATISFACTORY REVIEW OF A PERC CERTIFICATION PLAN.

TEST RESULTS WILL BE MAILED TO APPLICANT.

[Signature]
SIGNATURE OF APPLICANT

HOWARD COUNTY HEALTH DEPARTMENT, BUREAU OF ENVIRONMENTAL HEALTH, WELL AND SEPTIC PROGRAM
3525-H ELLICOTT MILLS DRIVE, ELLICOTT CITY, MARYLAND 21043-4544 (410) 313-1771 FAX (410) 313-2648
TDD (410) 313-2323 TOLL FREE 1-877-4MD-DHMH



106
brown
1-10-20%
cherty
frags

orange
brown
1-10-51
25-40%
blue
shale
cobblers
3-6
inches

108
brown
5-10 c frags

SC1
Orange
brown
massive cherty
frags
15-20

15-20%
Cherty frags
orange
brown
sl

blue shale
rock > 50%

109
brown 50% frags

orange / brown
sl
sl
grey
stratified
massive

orange
yellow
brown
sl - sl
massive

12-15%
cobbles sl

107
brown

orange
brown
sl - 1
10-15

40-45
%
Blue
shale
compacted
rock

105
L Brown

orange
brown
sl - 1
10-15
cherty frags

orange b
sl
15-25 cherty
frags

40-51
30-40-60
large cherty
frags

DATE	TEST #	DEPTH	START	BREAK 1" DROP	STOP 2" DROP	TIME OF 2nd INCH	P/F/H
9/24/04	107	6 1/2	SHALLOW ROCK	usual	usual		F
	105	6 11	12:21 ¹⁰	12:22 ¹⁰	12:25 ²⁰	2:40	P
	106	usual	Fail	rock	2'		F
	108	usual	Fail	Rock at 6-7 feet			F
	109	4 11	1:01 ³⁰	1:27 ⁰	1:56 ⁵		F

REMARKS V NOT per plan Possible S. Mound site?

SANITARIAN py / KN BACKHOE Hayfields OTHERS C. Roehuba

TEST HOLES USED IN SDA _____ AVG. PERC TIME _____ SQ. FT/BR _____

TRENCH WIDTH _____ INLET DEPTH _____ MAX. BOT DEPTH _____ EFFECTIVE S/W _____

Engineer: DMW
 X 410-296-4705
 X 410-781-3475

MOUND TEST DATA SHEETS

Property I.D. KDDC Lot # _____ Date _____
 Sanitarian Kacie Landscape Position Flatwoodland
 % Slope _____ Soil Type _____ Contractor _____

HOLE # 105a DEPTH OF TEST 18" START TIME 11:53

organic, dk brn
 v.f.s.g. sL
 root mat
 4"
 tan Loam
 sbk
 7"
 org brn
 loam
 sm chert frags
 35%+
 1/2" x 1/2", 2mm thick
 15"
 s.g. w.c.
 v.f. sL (sL)
 Chert frags
 (2" x 1/2" x 1/2" thick)
 35-40%
 36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 10/16	START	—		
9 6/16	15	Δ 10/16		
8 13/16	15	Δ 9/16		
8 7/16	15	Δ 8/16		
8 2/16	15	Δ 5/16		
7 11/16	15	Δ 7/16		
7 5/16	15	Δ 6/16		
6 15/16	15	Δ 6/16		
6 11/16	15	Δ 6/16		

24/16 in 1 hr = 1.5" / hr

OLD TEST HOLE ON 9/24/04 N. of SANDMOUND
 test hole 105a by 7' ±

HOLE # 109a DEPTH OF TEST _____ START TIME _____

VISUAL SEE 107a

org brn, 3pl
 many roots
 Loam
 NE corner 12-18'
 w.c., s.g. Loam
 18"
 org brn loam
 Structure
 60% s.g.
 20% sbk
 20% gr
 Pockets of
 compact loam
 30"
 s.g. friable
 ybrn
 Loam
 36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change

@ 4' 1" in 40 min
 (tested for trenches on 9/24/04)

PASSED @ 4" / hr

MOUND TEST DATA SHEETS

Property I.D. KDDC Lot # _____ Date _____

Sanitarian Kacie Landscape Position Flat woodland

% Slope 5-7% Soil Type M+ Contractor Fogles

HOLE # 111 DEPTH OF TEST 18" START TIME 11:03

organic detritus
gt. loam
3" pebbly
3" layer
Str org brn, DAM
Str brn, (common
roots) 2pl, hairy
few sbk peds
11"
Str org
w.c., s.g., sil
14-
15"
tightly
packed,
massive
sil
TRACE R_x
↓
42"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
916/16	START	—		
912/16	11:18	Δ4/16		
910/16	15	Δ2/16		
99/16	15	Δ1/16		
98/16	15	Δ1/16		
97/16	15	Δ1/16		
		TOO SLOW		FAILED

HOLE # 110 DEPTH OF TEST 16" START TIME 11:21³⁰

organic dk brn
w/ MANY Root (rooted)
3gr / 1bk
2 1/2'
Str org sil
compact but
breaks into lg
sbk peds
15"
16"
wk rd, strong
sil
w.c., s.g.
TRACE R_x - 10%
(chert frags)
↓
(sil) 4/3"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
916/16	START	—		
816/16	15	Δ1"		
80/16	15	Δ10/16		
715/16	15	Δ7/16		
77/16	15	Δ8/16		
610/16	15	Δ7/16		
67/16	15	Δ9/16		
		30/16" in 1 hr = 1.875"/hr		

NOT PER PLAN

PASSED

MOUND TEST DATA SHEETS

Property I.D. KDDC Prop Lot # _____ Date _____

Sanitarian Racie Landscape Position Flat Woodlands

% Slope <12% Soil Type HE Contractor Fogles

HOLE # 110 DEPTH OF TEST 15" START TIME 1:52

org loam
1% detritus
2"
str brn loam
Lg SbK peds
8"
Str org
S.g., compacted
SiL
Chart frags
10%
36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 ¹⁶ / ₁₆	START			
6 ¹² / ₁₆	15	Δ 2 ⁴ / ₁₆		
4 ¹¹ / ₁₆	15	Δ 1 ⁵ / ₁₆		
3 ¹⁰ / ₁₆	15	Δ 1 ¹ / ₁₆		
Repair				
9 ¹⁶ / ₁₆	START			
8 ¹⁶ / ₁₆	15	Δ 1"		
7 ¹⁵ / ₁₆	15	Δ 1 ¹ / ₁₆ "		
6 ¹⁴ / ₁₆	15	Δ 1 ¹ / ₁₆ "		
			4 ¹ / ₄ " per hour	

(Passed)

HOLE # 107A DEPTH OF TEST 18" START TIME 2:46

organic
DK brn
org brn L
3pl, many roots, many org chem
18"
2"
@ 15" 2' wide packet of massive sil
22"
S.g.; w.c.; loam
packets of compact loam w/ mix of structures
60% s.g., 20% gr
24"
s.g. Friable y brn loam
30"
36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 ¹⁶ / ₁₆	15	START		
9 ¹ / ₁₆	15	Δ 1 ⁵ / ₁₆		
8 ² / ₁₆	15	Δ 1 ⁵ / ₁₆		
7 ⁴ / ₁₆	15	Δ 1 ⁴ / ₁₆		
6 ⁶ / ₁₆	15	Δ 1 ⁴ / ₁₆		
			≈ 4" per hour	

(PASSED)

Note 107 on 9/24/04 Rx @ 6'

MOUND TEST DATA SHEETS

Property I.D. KDDC Property Lot # _____ Date _____

Sanitarian Kacie Landscape Position Top of Ridge

% Slope less than 12% Soil Type ML Contractor Zoglus

DUG ON STAKE
HOLE # 108 DEPTH OF TEST ~20" START TIME 12:44

organic brn
tan SiL-hvy L
1 pl thin (2mm)
zgr
some struct.
hvy loam
2 pl, few packets
of sig. struct.
around chert
frags; chert
Str brn.
massive
SiL

6"
10%
16"
18"

24"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 16/16	0	0	START	
9 8/16	15	Δ 8/16		
9 4/16	15	Δ 4/16		
8 16/16	15	Δ 4/16		
8 14/16	15	Δ 2/16		
8 9/16	15	Δ 5/16		
8 5/16	15	Δ 4/16		
			AVG 1/4" drop per 15 min = 1 1/2" / hr	
MARGINAL PASS				

HOLE # 111A DEPTH OF TEST 15" START TIME 1:21

DK brn, organic
Loam
gr/sbk
wk rd brn,
str org brn
SiL/pockets
hvy L
pebbles ~30%
Str org
S.g., w.c.
Loam
Friable
Pebbles ~10-15%

8"
20"

36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
10 4/16	START			
9 4/16	15	Δ 1"		
8 9/16	15	Δ 1 1/16"		
7 14/16	15	Δ 1 1/16"		
7 8/16	15	Δ 6/16		
7 2/16	15	Δ 6/16		
6 12/16	15	Δ 6/16		
6 6/16	15	Δ 6/16		
			24/16 in 1 hr = 1.5" / hr	

NOT PER PLAN

Engineer: DMW
 x 410-296-4705
 x 410-781-3475

MOUND TEST DATA SHEETS

Property I.D. KDDC Lot # _____ Date _____
 Sanitarian Kacie Landscape Position Flatwoodland
 % Slope _____ Soil Type _____ Contractor _____

HOLE # 105a DEPTH OF TEST 18" START TIME 11:53

organic, dk brn
 v.f.s.g. SL
 root mat
 4"
 tan Loam
 SBK
 7"
 org brn
 Loam
 Sm Chert frags
 35% ±
 1/2" x 1/2", 2mm thick
 15"
 s.g. w.c.
 v.f. SL (S.L)
 Chert frag
 (2" x 1/2" x 1/2" thick)
 35-40%
 36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 16/16	START	—		
9 6/16	15	Δ 10/16		
8 13/16	15	Δ 9/16		
8 7/16	15	Δ 8/16		
8 2/16	15	Δ 5/16		
7 11/16	15	Δ 7/16		
7 5/16	15	Δ 6/16		
6 15/16	15	Δ 6/16		
6 11/16	15	Δ 6/16		

24/16 in 1 hr = 1.5" / hr

OLD TEST HOLE ON 9/24/04 N. of SAND mound
 test hole 105a by 7' ±

HOLE # 109a DEPTH OF TEST _____ START TIME _____

VISUAL SEE 107a

org brn, 3pl
 many roots
 Loam
 NE corner 12-18"
 w.c., s.g. Loam
 18"
 org brn loam
 Structure
 60% s.g.
 20% sbk
 20% gr
 Pockets of
 compact loam
 30"
 s.g. friable
 ybrn
 Loam
 36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change

@ 4" 1" in 40 min
 (tested for trenches on 9/24/04)

PASSED 24" / hr

MOUND TEST DATA SHEETS

Property I.D. KDDC Lot # _____ Date _____

Sanitarian Kacie Landscape Position Flatwoodland

% Slope ≈ 5-7% Soil Type M+ Contractor Fogles

HOLE # 111 DEPTH OF TEST 18" START TIME 11:03

organic detritus
gl, loam
3" pebbly
3" layer
Str org brn loam
Str brn (common
roots) 2 pl tiny
few sbk peds
11"
Str org
w.c., sig, sil
14-
15"
tightly
packed,
massive
sil
TRACE R_x
↓
42"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
916/16	START	—		
912/16	11:18	Δ 4/16		
910/16	15	Δ 2/16		
99/116	15	Δ 1/16		
98/116	15	Δ 1/16		
97/116	15	Δ 1/16		
		TOO SLOW		FAILED

HOLE # 110 DEPTH OF TEST 16" START TIME 11:21³⁰

organic d k brn
w/ MANY Root (rootnet)
Sgr / lbk
2 1/2'
Str org sil
compact but
breaks into lg
sbk peds
15"
w/ rd, str org
sil
w.c., sig
TRACE R_x - 10%
(chert frags)
↓
(51") 4'3"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
916/16	START	—		
816/116	15	Δ 1"		
80/116	15	Δ 10/16		
715/116	15	Δ 7/16		
77/116	15	Δ 8/16		
610/116	15	Δ 7/16		
67/116	15	Δ 9/16		
		30/16" in 1 hr = 1.875"/hr		

NOT PER PLAN

PASSED

MOUND TEST DATA SHEETS

Property I.D. KDDX Property Lot # _____ Date _____

Sanitarian Kacie Landscape Position Top of Ridge

% Slope less than 12% Soil Type pk Contractor Zogler

Dug ON STAKE

HOLE # 10B DEPTH OF TEST 220" START TIME 12:44

organic brn
tan s:L-hvy L
1 pl thin (2mm)
zgr
6"
some struct.
hvy loam
2 pl, few pockets
of sig. struct.
around chert
frag; chert 13%
16"
18"
Str brn
massive
s:L
24"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 16/116	0	0	START	
9 8/116	15	Δ 8/116		
9 4/116	15	Δ 4/116		
8 16/116	15	Δ 4/116		
8 14/116	15	Δ 2/116		
8 9/116	15	Δ 5/116		
8 5/116	15	Δ 4/116		
Ave 1/4" drop per 15 min = 1 1/2" / hr MARGINAL PASS				

HOLE # 111A DEPTH OF TEST 15" START TIME 1:21

DK brn, organic
Loam
gr/sbk
8"
wk rd brn,
str org brn
s:L/pockets
hvy L
pebbles ~30%
20"
Str org
sig., w.c.
Loam
Friable
Pebbles ~10-15%
36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
10 4/116	START			
9 4/116	15	Δ 1"		
8 9/116	15	Δ 1 1/16"		
7 14/110	15	Δ 1 1/16"		
7 8/116	15	Δ 6/116		
7 2/116	15	Δ 6/116		
6 12/116	15	Δ 6/116		
6 6/116	15	Δ 6/116		
24/116 in 1 hr = 1.5" / hr 45 min				

NOT PER PLAN


MOUND TEST DATA SHEETS

Property I.D. KDDC Prop Lot # _____ Date _____

Sanitarian Racie Landscape Position Flat Woodlands

% Slope <12% Soil Type Mt Contractor Fogles

HOLE # 110 DEPTH OF TEST 15" START TIME 1:52

Mtg Loam
 1% detritus
 2"
 Str brn Loam
 Lg SbK peds
 8"
 Str org
 S.g., compacted
 SiL
 Chert frags
 10%


Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 ¹⁶ / ₁₆	START			
6 ¹² / ₁₆	15	Δ 2 ⁴ / ₁₆		
4 ¹¹ / ₁₆	15	Δ 1 ⁵ / ₁₆	2 ⁴ / ₁₆	
3 ¹⁰ / ₁₆	15	Δ 7 ¹ / ₁₆	17 ¹ / ₁₆	
Repair				
9 ¹⁶ / ₁₆	START			
8 ¹⁶ / ₁₆	15	Δ 1"	16 ¹ / ₁₆	
7 ¹⁵ / ₁₆	15	Δ 1 ¹ / ₁₆ "	17 ¹ / ₁₆	
6 ¹⁴ / ₁₆	15	Δ 1 ¹ / ₁₆ "	17 ¹ / ₁₆	
				4 ¹ / ₄ " per hour

15

Passed

36"

HOLE # 107A DEPTH OF TEST 18" START TIME 2:46

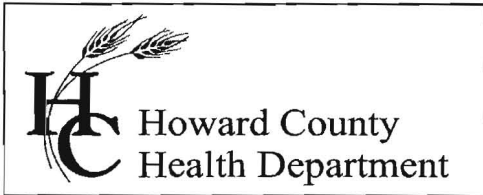
organic
 DK brn Like hole 109

org brn L
 3pl, many roots, many org chem
 @ 15" 2" wide packet of massive sil
 S.g., w/c, loam
 packets of compact loam w/ mix of structures
 60% S.g., 20% gr
 24"
 S.g. Friable y brn Loam
 30"
 36"

Hook Gauge Reading	Elapsed Time (min)	Measured Drop	Estimated Rate	% Change
9 ¹⁶ / ₁₆	15	START		
9 ¹ / ₁₆	15	Δ 1 ⁵ / ₁₆		
8 ² / ₁₆	15	Δ 1 ⁵ / ₁₆		
7 ⁴ / ₁₆	15	Δ 1 ⁴ / ₁₆		
6 ⁶ / ₁₆	15	Δ 1 ⁴ / ₁₆		
				≈ 4" per hour

PASSED

Note 107 on 9/24/04 Rx @ 6'



7178 Columbia Gateway Drive, Columbia MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

MEMORANDUM

TO: Tom Ernst
Ernst Environmental Services, Inc.

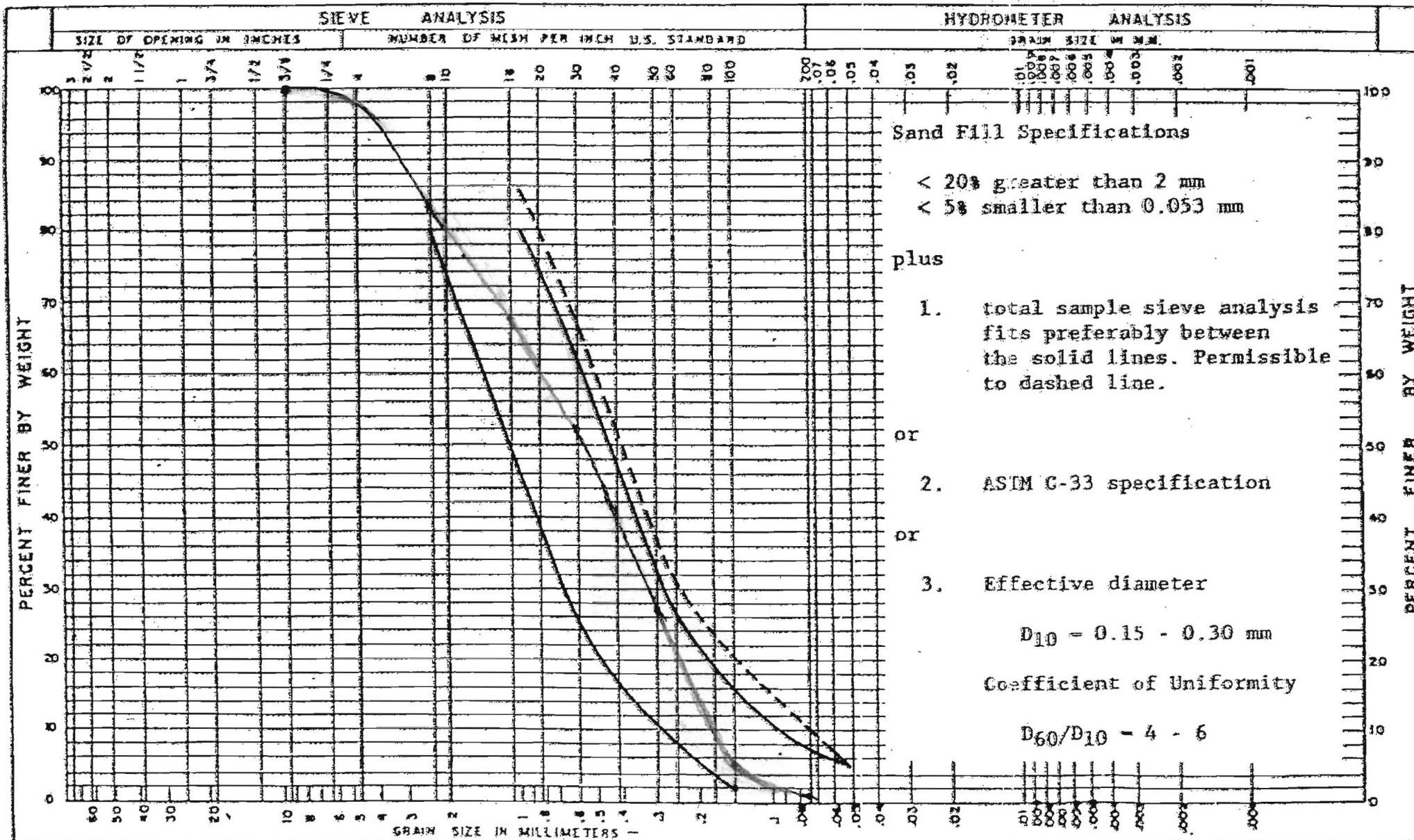
FROM: Sara Sappington, R.S.
Well and Septic Program
Development Coordination Section

RE: 16780 A.E. Mullinix Rd, Lot 1
Sand Mound site plan

DATE: February 7, 2008

1. Site plan needs to show 1' contour intervals
2. Relocate force main position (see enclosed plan)
3. Remove alternative sand references in summary section
4. Elevations needed at the noted points on sand mound cross-section
5. Soil loading rate should be 0.75 gal/ft²/day
6. Need inlet baffle on septic tank (Howard County Code Sec 3.810 D)
7. Need elevations on hydraulic profile at specific points versus as a side bar
8. Alarm elevations need to be shown on pump tank

$\frac{1.88}{1.2} = 1.57$
 $C_{of U} = 4$



LAUREL SAND & GRAVEL, INC. T/A
S.W. Barrick & Sons



Barrick Quarry

Address: P.O. Box 86
Woodsboro, MD 21798
Sales Office: (301) 845-8341
Fax Number: (301) 845-2396
Orders & Dispatch: (301) 845-8343
Toll Free: (800) 548-8343

Finksburg Terminal

Address: 2700 Emory Road
Finksburg, MD 21048
Sales /Dispatch: (410) 833-4400
Fax Number: (410) 833-4909

May 29, 2009

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, MD 21046

Attn: Mr. Brian Baker

wisc.edu/sswmp/publist.html
.25-.5 mm
≤ 3.5

Jerry Blank

Re: Material Certification
Sand Mound Sand
Job: Rachuba Sand Mound Septic System,
A. E. Mullinex Road, Howard County

Gentlemen:

This letter certifies that the Sand Mound Sand (natural washed Concrete Sand), shipped by S.W. Barrick & Sons through our Woodsboro facility, meets the material specifications for ASTM C-33, the Maryland Department of Transportation - State Highway Administration - Standard Specifications For Construction And Materials - Section 901, and the requirements for the "Wisconsin Mound Soil Absorption System: Siting, Design, and Construction Manual, January 2000."

The following sieve analysis is an average gradation of our Sand Mound Sand.

Sieve Size	Percent Passing	ASTM C-33 Specifications
3/8"	100.0	100
No. 4	97.9	95-100
No. 8	83.0	80-100
No. 16	67.4	50-85
No. 30	51.9	25-60
No. 50	27.1	5-30
No. 100	5.0	0-10
No. 200	0.7	

1.35 Tons/Yard

R. Heap

(443) 277-7526

Uniformity Coefficient (CU) = 4.49
Effective Size = 0.185 mm

Note: Specifications for CU (4 - 6) and Effective Size (0.15 - 0.30 mm) are presented in "Wisconsin Mound Soil Absorption System: Siting, Design, and Construction Manual, January 2000."

Thank you for your interest in our products. If you have any questions or require additional information, please contact the lab at 301-845-6302, or Jerry Blank at 301-845-6341.

Sincerely,
David Olson (KT)
David Olson
Quality Control Manager

Cc: Kurt Cassell
Fogel's Septic Services

LAUREL SAND & GRAVEL INC. T/A



S.W. Barrick & Sons

P.O. Box 86
Woodsboro, MD 21798

SALES OFFICE: 301-845-6341
FAX: 301-845-2396
ORDERS & DISPATCH: 301-845-6343
800-546-6343

Fax Number: 301-845-2396

Office Number: 301-845-6341

FACSIMILE COVER SHEET

Date: 5/29/09

To: Brian Baker

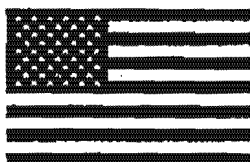
Fax #: 410-313-2648

Company: Howd. Co. Health Dept.

Re: Mat. Cert. - Sand Mound

From: Kathy Tholner
Admin Asst.

Number of Pages: 2
Including Cover Page



Should you have any difficulties during transmission, kindly contact this person sending the facsimile via the number shown above.

Message: Brian,

Please see attached Certification for sand mound
sand for the Reehuba Sand Mound - A.E. Milliner Rd.
in Howard Co.

If you have any questions please call
Dave Olson in our Lab - 301-845-6302.

Thanks and have a great day! ☺ Kathy

PROPOSED SAND MOUND AND CONVENTIONAL SEPTIC FIELD - 5 BEDROOMS - PROPOSED SAND MOUND AREA SHOWN

TAX MAP 7 PARCEL 277 KENNETH WAYNE CULVER

TAX MAP 7 PARCEL 307 DONALD C. & LINDA D. WYANT LIBER1365/ FOLIO241 ZONED: RC-DEO

TAX MAP 7 PARCEL 686 DAVID R. WARFIELD LIBER653/ FOLIO660 ZONED: RC-DEO

APPROXIMATE LOCATION OF EX SEPTIC FIELD

LOT 110 1.282 ACRES

KDDO LAND COMPANY LLC A MARYLAND LLC

TAX MAP 7 PARCEL 323 18.49 ACRES 16780 A E MULLINIX RD - 584 WOODBINE MD. 21797

EX WELL TO BE ABANDONED

EX HOUSE

APPROXIMATE LOCATION OF EX SEPTIC FIELD

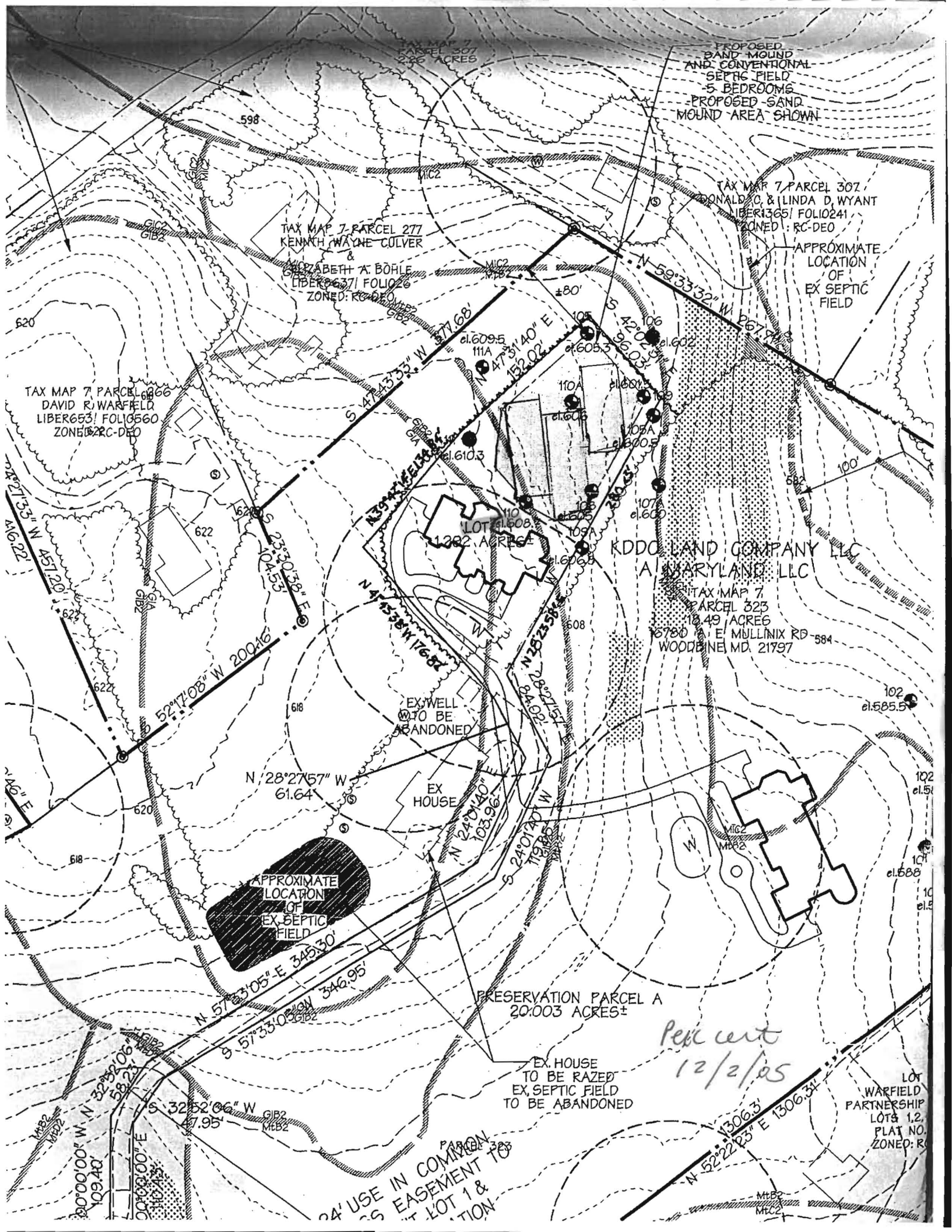
PRESERVATION PARCEL A 20.003 ACRES±

EX HOUSE TO BE RAZED EX SEPTIC FIELD TO BE ABANDONED

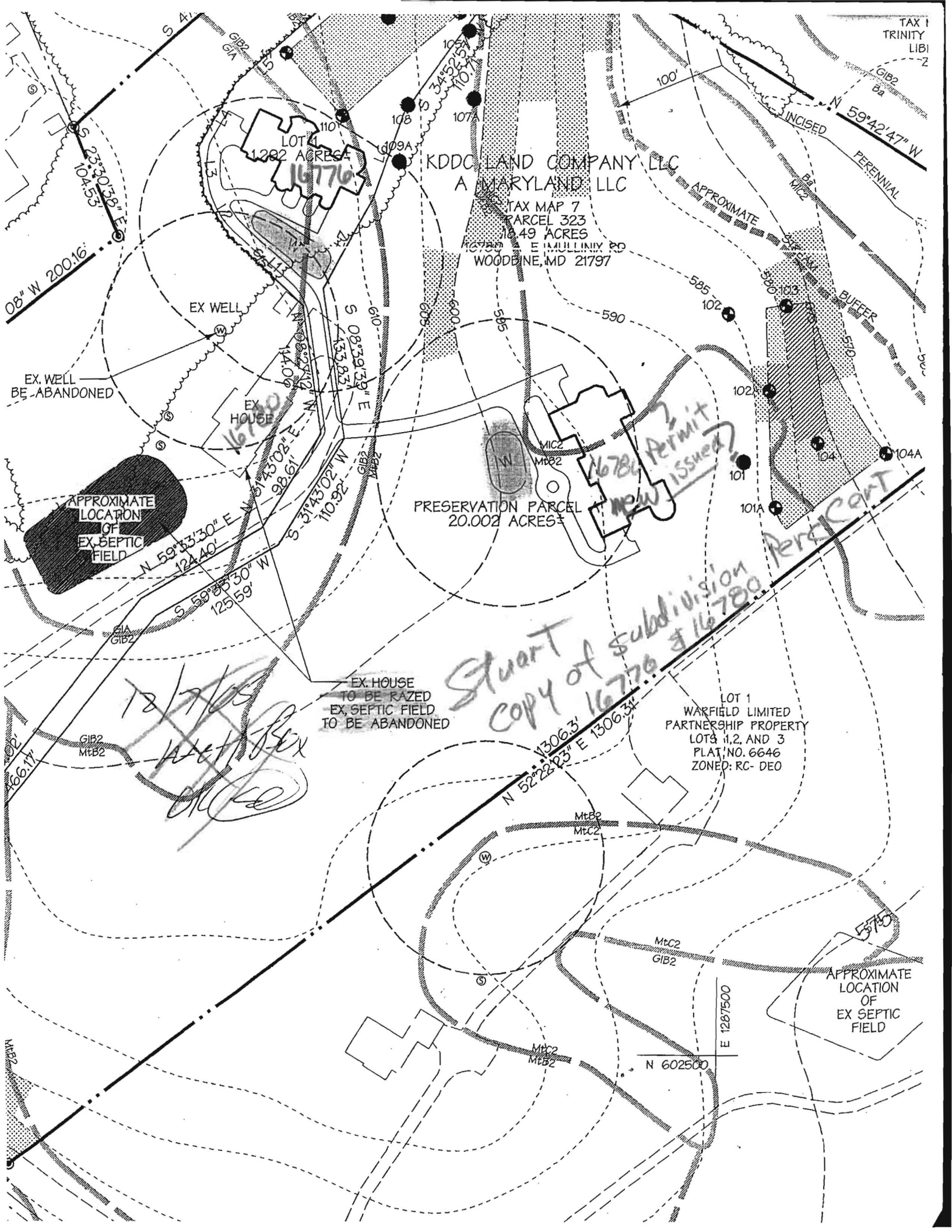
Percent 12/2/05

LOT WARFIELD PARTNERSHIP LOTS 1,2 PLAT NO. ZONED: RC

24' USE IN COMMON EASEMENT TO LOT 1 & 2



TAX I
TRINITY
LIB1
-2



LOT 1
1.282 ACRES
16776

KDDC LAND COMPANY LLC
A MARYLAND LLC

TAX MAP 7
PARCEL 323
10.49 ACRES
E MAULLINLY RD
WOODBINE, MD 21797

PRESERVATION PARCEL
20.002 ACRES

**16780 Permit
new issued?**

*Stuart
copy of subdivision
16776 & 16780*

LOT 1
WARFIELD LIMITED
PARTNERSHIP PROPERTY
LOTS 1, 2, AND 3
PLAT NO. 6646
ZONED: RC-DEO

EX. HOUSE
TO BE RAZED
EX. SEPTIC FIELD
TO BE ABANDONED

EX. WELL
BE ABANDONED

APPROXIMATE
LOCATION
OF
EX. SEPTIC
FIELD

APPROXIMATE
LOCATION
OF
EX SEPTIC
FIELD

*12/7/05
with Ben
OK*

N 602500

E 1287500

acceptable while a sand classified as medium sand may be as it depends upon a combination of various sand fractions.

Figure 5 can be used as a guide for selecting a suitable mound sand fill. Based on a sieve analysis of the total sample, the sand fill specification should fit between the ranges given in Fig. 5. In addition, the sand fill must not have more than 20% (by wt) material that is greater than 2 mm in diameter (coarse fragments) which includes stone, cobbles and gravel. Also, there must not be more than 5% silt and clay (<0.53 mm, 270 mesh sieve) in the fill. **Less would be better.** C-33 specification (ASTM, 1984) for fine aggregate does fit within this guideline but the coarser (>2 mm) and finer (<0.053 mm) fractions must be evaluated to make sure they meet the limits. A sand with an effective diameter (D_{10}) of 0.15 - 0.30 mm and uniformity coefficient (D_{60}/D_{10}) between 4 and 6 fit within these guidelines provided the coarser (>2 mm) and finer (0.053 mm) fractions meet the guideline. **Although these guidelines give a range, it is best to stay on the coarse side (left curve with effective diameter close to 0.30 mm and uniformity coefficient of 4.0) than to be on the fine side (near the right curve).** The single pass sand filter recommends a coarser sand with less fine material with effective diameter of 0.30 mm and uniformity coefficient of <4.0 and 0-2% passing the 100 mesh sieve and 0-1% passing the 200 mesh sieve (Orenco, 1998). Since the mound is a sand filter, the material recommended for sand filters would be suitable. The recommended sand filter loading rate is slightly higher than for mounds. The sand filter utilizes timed dosing with small frequent doses and less area/orifice, which enhances treatment quality, instead of demand dosing with large infrequent dosing.

The recommended design loading rate for a sand fill that meets the mound sand fill specification (Fig. 5) is 1.0 gpd/ft² for typical domestic septic tank effluent. Some designers may feel more comfortable using a design loading rate of 0.8 gpd/ft². Experience has shown that a clogging mat may form at this interface and lead to back up or breakout of septic tank effluent requiring corrective action. Based on many years of experience, some mounds have failed via clogging. Initial design called for a loading rates of 1.2 gpd/ft². Reducing the sand loading rate does not substantially increase construction costs.

The 1.0 gpd/ft² loading rate assumes that there is a safety factor. It assumes, for design purposes, that a home generates 75 gpcd with two people per bedroom or 150 gallons per bedroom per day with the actual flow in the range of 50 to 60% of design. Converse and Tyler (1987) found, based on water meter readings in the home, that the waste water generated averaged 47% of design with a range of 29 to 82%. However, some designers like to use the flow generated based on water meter readings or use the number of people per house times the estimated average of 50 gpd/c for design purposes. **If this approach is used, then a factor of safety of 1.5 to 2 must be incorporated or the design loading rate in gpd/ft² reduced accordingly.** Similar procedures should be followed for commercial establishments including lower loading rates due to the higher strengths effluents as discussed previously.