



Bruce B. Bragg, M.P.H., Director Dean G. Sienko, M.D., M.S., Medical Director

> Environmental Health Telephone: (517) 887-4312

February 21, 2007

Gary Skaggs 6497 M-33 Cheboygan, MI 49721

RE: Soil evaluation in Aurelius Township, Section 20, at NW corner of Toles and Onondaga Roads, Application # 02-16-07-027.

Dear Mr. Skaggs,

On February 20,2007, a site evaluation was conducted to determine the soil conditions for the above referenced property for an on-site sewage treatment system for 3 lots, referred to as A, B, and C. The results of the evaluations are enclosed in this letter.

Seventeen backhoe cuts were made on the lots to find a suitable location for a sewage treatment system. Backhoe cuts #2 and #6 for lot C; cuts #9 and #12 for lot B; and cuts #14 and #17 for lot A; did not pass the minimum requirements for a conventional on-site wastewater treatment system. Soil conditions on these sites included a sandy loam to clay loam soil with evidence of a seasonal high water level at 18 to 22 inches below the ground surface as indicated by soil mottling. Conventional systems installed in such conditions may fail prematurely and pose serious health concerns. However, these backhoe cuts are suitable for the consideration of engineered wastewater treatment. A company from the county's approved Alternative Wastewater Design Consultant List must prepare a plan for an engineered system for review and approval by this office before the permit can be issued for both the wastewater system and water supply well.

Backhoe cuts #1, #3, #4, #5, #7, #8, #10, #11, #13, #15, and #16 are not suitable for a <u>conventional</u> or <u>engineered</u> wastewater treatment system. Soil conditions at these sites indicated a clay loam soil with seasonal high water level directly below the top soil as indicated by mottling. Systems installed in these conditions would fail prematurely and pose serious health concerns.

In closing, you are reminded to keep equipment off the area that was determined to be suitable for sewage disposal system. Protecting the natural condition of the soils is very important to the future operation of your system. If you have any questions or concerns, contact our office at (517)887-4312.

Sincerely,

Randy Fedewa

Bureau of Environmental Health

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RF/om

CC: Aurelius Township

Enclosure
5303 South Cedar ~ P.O. Box 30161 ~ Lansing, Michigan 48909-4661 ~ Phone: (517)887-4312 ~ Fax: (517)887-4560 ~ www.ingham.org/hd/health.htm
Ingham County Is an Equal Opportunity Employer



Feb 2 Feb. 27. 20073, 1:31 PMGar Coldwell Banker Hubbell - DeWitt31-625-9021 No. 8633 P. 4.2

SOIL EVALUATION DATA SHEET

Ingham County Health Department P.O. Box 30161 Lansing, MI 48909

THIS RECORD SHALL NOT CONSTITUTE A PERMIT

Requested by Cary Address 6497 M Chehov gan MI Phone # 231-625-9	1.33 4972/	Township Aurelius Section 20 Road Location NW Corner OF Toles & Onondaga Rd. Subdivision M+B Lot # A-C Side of Road N
∠ Land OwnerProspective BuyerInstallerN	Realtor Builder Other	File Search Parcel No. 33- 69-69-20-400-0/5 Soil Survey Sheet No. Parcel Size /O acces WAG Zone Y N WAG SITE
W ✓ → E S		PLOT PLAN
	A BUT AND	B

'est #	1	ä	3	4	5
ype of Test	BH	BH	BH	8H	BH
Depth	43"	48"	48"	48"	48"
lach	0-10"75	0-15"75 %	0-14" 75	0-6" 75	0-18' 75
∌st	0-10"75 10-43" CL MT) 12"		14-48" CL	6"-48"CL	0-18' 73 18-48" CL
ole	(MT) 12"	15"-48" SL + SCL MD20"	MF)14"	MD6"	M) 18"
ocated					
n					
'lot					
'lan					
1 y					
umber	. 200	Engineered	No .	,No	No

SOIL REPORT KEY

 \mathbf{B}

BH

Hand Auger Boring

Backhoe Cut

Sandy Clay Loam

Silty Clay Loam

Sand

Loamy Sand

SCL

SiCL

		بنعاص ه سه	march mounts	~~~			
٠	Sandy Loam	CL	Clay Loam	TS	Top S	loil	
	Loam	C	Clay	MT	Seaso	nal High Water Leve	el (mottling)
1	Silty Loam	M	Muck	WL		: Level Observed (sa	
			•	NMT NMT		bserved Seasonal Hi	
mita	tions of the site	that affect use	of on-site subsurf	ace sewage disposa	d: -	SOIL STRUC	TURE KEY
	图 1)		ictive soil features.		•	,	•
	□ _/ 2)	Impervious la	yer within 48" of g	round surface.		BK = blocky	I = weak
	图 3)	High seasonal			•	GR = granular	2 = moderate
	□ 4)	Wet depression	ns or poor surface	drainage.	•	PL = platy	3 ≈ strong
	□ 5)	Slope limitation	ons (exceeds %)			M = massive	
	□ 6)			adjacent higher are	as.		
	1 7)	Insufficient st	ace for replacemen	nt of drainfield.	•		
	□ 8)		olation distance fro				,
mm	ents:			**************************************	•		
21	e A, B,	and C	are not	suitable :	for	coventional	wastewa ter
reat	meat sxs	tems b	owever	51/es A 75	, arc	d C are	suitable_
<u> </u>	the cons	ideration	of alterna	ative unste	imte	r treatment	systems,
bserv	ver: <u>Cory</u>	Skagg 5					
nitar	ian: Randi	i Fecter	c Date	e: 2-20-07			(3)

Feb 2 Feb. 27. 2007 1:31PM Gar	Coldwell Banker Hubbell	- DeWittal-625-9021 N	lo. 8633 P. 5 4
oad Location: NW corner of	Toles & Onondaga	Application # <u>(</u>	<u>'- 02 / </u>

Test#	6	7	8	9	10
Type of Test	BH	BH	五件	BH	BH
Depth	48"	42''	48"	48"	48"
Each	0-14"TS	0-11" 75	0-12" 75	0-10" 75	0-12" TS 12"-48" L
test	14"-48" SL	1/"-42" CL	0-12" TS 12"-48"CL	10'-40" L	12"-48" L
hole	MT) 22"	M)II"	M 12"	@ 18"	(M) 12"
located				40"-48"56	
on				M	
Plot					
Plan					
by					
umper	Engineered	No	No	Engineered	ND

SOIL REPORT KEY

S L il	Sand Loamy S Sandy L Loam Silty Loa	oam	SCL SiCL CL C M	Sandy Clay Loam Silty Clay Loam Clay Loam Clay Muck	B BH TS MT WL NS	Hand Auger Boring Backhoe Cut Top Soil Seasonal High Water Le Water Level Observed (No Observed Seasonal)	(saturation)
imita	2 2 2 3 4 4 5 7 8	Sevent) Sevent) Import High Wet Slope Over (1) Insur	erely restrictions land a seasonal depression e limitation flow of refficient sp	of on-site subsurface so ictive soil features. yer within 48" of ground water level. ons or poor surface drain ons (exceeds %). on-off water from adjactace for replacement of plation distance from	ewage disposal d surface. nage. ent higher area drainfield.	BK = blocky GR = granular PL = platy M = massive	1 = weak 2 = moderate 3 = strong

Test #	11	12	/3	14	15
Type of Test	BH	BH	BH	BH	BH
Depth	24"	48"	48"	48"	48"
Each	0-12" 75	0-10"75	0-12" TS	0-12"75	0-10"75
test	12"-24"CL	10"-21" L	12"-48" 64	12"-24"51	10'-48' CL
hole	(M) 12"	5	@ 12"	(h) 18"	MD10" water
located	MD 12" water	27"-48" CL		24"- 48" CL	ware,
מכ					
Plot		·			
Plan					
by	,				
number	No	Engineered		Engineered	100

SOIL REPORT KEY

В

BH

TS

Hand Auger Boring

Backhoc Cut

Top Soil

Sandy Clay Loam

Silty Clay Loam

Clay Loam

Sand

Loamy Sand

Sandy Loam

SCL

CL

SiCL

	TOSIII		Jay	Mi	Deaso	uar urfu warer rea	er (morning)
il	Silty Loam	M	Muck	WL	Water	r Level Observed (sa	ituration)
				NS NMT		bserved Seasonal Hi	gh Water Level
imit	ations of the s	ite that affect use o	of on-site subsur	face sewage dispos	sal:	SOIL STRUC	TURE KEY
	1)		tive soil feature				
	□ / 2)	Impervious laye	er within 48" of	ground surface.		BK = blocky	l = weak
	□ 2) □ 3)	High seasonal v	vater level.	•		GR = granular	2 = moderate
	□ 4)	Wet depression	s or poor surfac	e drainage.		PL = platy	3 = strong
	□ <i>5</i>)		as (exceeds %			M = massive	
	□ 6)	Overflow of ru	1-off water from	adjacent higher ar	eas.		
	□ 7)	Insufficient spa	ce for replaceme	ent of drainfield.		•	
	□ 8)	Insufficient isol	ation distance fi	rom			
omn	nents:		•				
					***************************************	**************************************	

Data 2-21-17

Test #	16 · ·	17		! .		
Type of Test	BH	BH				
Depth	48"	484				
Each	0-b" TS	0-13" 75				
test	1	12"-22" 52				
hole	(M) 12"	1				
located		MD 18" 22"-48"CL				
on						
Plot						
Plan						
by						
number	∧\ 0	· Engineered				
)	ORT KEY			
S Sand	SCL Sa	andy Clay Loam	В	Uand	Auger Boring	
LS Loamy Sand	SiCL Si	lty Clay Loam	BH	Backh	oe Cut	
SL Sandy Loam Loam		lay Loam lay	TS MT	Top Se	oil 1al High Water L	aval (mottling)
Sil Silty Loam		iay (uck	WL		Level Observed (
•	,		ZH4. TMU			High Water Level
		on-site subsurface s	sewage disposa	i l:	SOIL STRU	CTURE KEY
図 1) □ 2)	Severely restricti	ve soil features. within 48" of grour	ad murfosa		BK = blocky	l = weak
口 2) 図 3)	High seasonal wa		ia surrace.		GR = granular	2 = moderate
□ 4)́		or poor surface drai	nage.		PL = platy	3 ≂ strong
□ 5)	Slope limitations	`	-		M = massive	
□ 6) □ 7)		off water from adja	_	as.		
□ 7) □ 8)		e for replacement of tion distance from _				· ·
Comments:	War will and the	TOW GIVENING HOW "		····		· · · · · · · · · · · · · · · · · · ·

Sanitarian: Kandy