McDowell & Associates

Geotechnical, Environmental & Hydrogeological Services • Materials Testing & Inspection
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Phone: (248) 399-2066 • Fax: (248) 399-2157

April 6, 2004

Lautrec

31550 Northwestern Highway

Farmington Hills, Michigan 48018-5507

Job No. 04-142

Attention:

Mr. Mark Kassab

Subject:

Preliminary Soils Investigation

Highland Park Site Avon and John R. Roads Rochester Hills, Michigan DRAFT

Gentlemen:

In accordance with your request, we have performed a Preliminary Soils Investigation at the subject site.

A total of sixteen (16) backhoe test pit excavations, designated as TP-1 through TP-7 and TP-9 through TP-17, were made in the approximate locations shown on the attached Test Pit Location Plan. In addition, one (1) hand auger boring, designated as HB-8, was also made in the approximate location indicated on the attached plan. The test pits were excavated to depths ranging from about 2.0' to approximately 13.0'. The shallow 2.0' deep excavation was due to an obstruction. Detailed soil and groundwater observations may be found on the accompanying Log of Test Pit sheets.

The remainder of this report discusses our findings.

Subsurface Conditions

Test Pits TP-1, TP-3 through TP-7, TP-9 through TP-13 and TP-16 encountered fill that varied in thickness from a few inches to approximately 12.0. TP-17 encountered about 2.0 of topsoil fill over a concrete slab that obstructed any further attempt at excavating. With the exception of TP-17, the fill consisted mostly of topsoil or granular fill, some of it mixed with household refuse such as bottles and tree stumps and limbs. Test Pits TP-4, TP-5, TP-9 and TP-12 encountered layers of tree stumps and limbs that ranged in thickness from about 1.7 to approximately 11.0. The thickest layer was found at the location of Test Pit TP-5. The underlying soils appeared to be native and consisted mostly of brown, gray and variegated fine to medium sands with silt and gravel content.

No fill was encountered at the location of Test Pits TP-2 and TP-7 as well as Hand Boring HB-8.

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Job No. 04-142

Water was measured in Test Pits TP-1 through TP-13, TP-15 and Hand Boring HB-8 during and shortly after excavating or drilling at depths varying from about 0.8' to approximately 9.0' below the existing ground surface. Water volumes were described as medium to heavy, with cave-ins occurring at various depths.

Review of Historical Aerial Photographs

Aerial photographs of the subject site from the years 1963, 1974, 1980, 1990, 1997 and 2002 were reviewed as part of this preliminary study. The 1963 aerial photograph reveals the subject site as vacant land, with obvious signs of landfilling. The 1974 aerial photograph reveals what looks like disturbance in the location of Test Pits TP-4, TP-5 and TP-9 which contained stumps and limbs. Buried stumps and limbs were also encountered in Test Pits TP-12 and TP-13 and landfilling in the area of these test pits shows up on the 1980 aerial photograph. In the locations where lesser amounts of fill were found in the test pits, the 1974 aerial photograph does indicate some disturbance in these areas, after 1974, the disturbance is less obvious.

Conclusions

A significant portion of the subject site appears to have been used for landfilling and this was evident either from materials encountered in some of our test pits, or observing what appear to be gas vents located near our Test Pits TP-4, TP-16 and TP-17. Construction of building foundations, utility lines and pavement systems will be very difficult in these areas and would most likely require complete removal of the landfilled materials, or possibly the use of structurally supported floors and deep foundations consisting of driven piles. Pile driving would even prove difficult in the area of the buried stumps and deep landfilled materials where methane gas may be present.

A relatively high water table would also require special dewatering techniques prior to any excavating activities.

We suggest performing a more detailed soils and groundwater investigation at the subject site, in addition to environmental studies if you choose to develop this site.

If we can be of any further service, please do not hesitate to call.

Very truly yours,

McDOWELL & ASSOCIATES

DRAFT

Steven C. Pelto, M.S., P.E. Project Engineer

SCP/jb

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LOG OF TEST PIT NO.

PROJECT _ Highland Park Site LOCATION Avon and John R Roads

04-142 JOB NO.

	SUR	FACE ELEV DATE <u>4-02-04</u>		Rocl	rester Hill	s, Michiga	n	
mple Typa Depti	Legend	BOIL DESCRIPTION	Penstration Blows for 6°	Molelure %	Natural WLP.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strongth PSF.	51. %
		Moist to wet dark brown slity sandy TOPSOIL &		ļ		<u> </u>		\vdash
1		1'0" VEGETATION	-	-	 	 		
2		Wet brown sitty fine SAND with pebbles						
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3	—	3'3"	-		 		· · · · · · · · · · · · · · · · · · ·	
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LOG OF TEST PIT NO. TP-1
PROJECT Highland Park Site

) 399-215 / PNO

LOCATION Avon and John R Roads

					DATE 4-02-04	-		Rock	ester Hills	s, Michiga	n '	
Sample & Type	٦	Depth	Legend	NOE LEEV	SOIL DESCRIPTION		enetration over for 6"	Maisture %	Natural Wt. P.C.F.	Dry Den WL P.C.F.	Unc. Comp., Strength PSF.	Str.
1,7,50					Molst dark brown silty sandy TOPSOIL,							
		2 .			VEGETATION & ROOTS, fill							
		3		2'0" 2'6"	Moist brown silly CLAY							
\square		4		4100	Wet brown silty fine SAND with pebbles and occasional stones							<u> </u>
	H	5		4'0"	·							
		6		1	Wet brown fine to medium SAND with gravel							
		7			•							
	Н	8		7'3"	Wet gray fine to medium SAND with gravel							-
	H	9		8'4"								
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TP-2 LOG OF TEST PIT NO.

PROJECT Highland Park Site

LOCATION_Avon and John R Roads

G.W. ENCOUNTERED AT
G.W. AFTER COMPLETION
G.W. AFTER HRS.
G.W. VOLUMES heavy Give in @ 2'+

0 INS.

JOB NO. _ Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Dry Dan Wt. P.C.F. Unc. Damp. Strangth PSF. Natural WL P.C.F. Penekation Samula ŝt. SOIL DESCRIPTION Depth & Type Blows for 6° Moist dark brown slity sandy TOPSOIL 1'0" 2 3 Moist to wet brown silty fine to medium SAND with gravel 4 \$ 6.0. 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Note: Adjacent excavation (tree planting hole) had 20 water level at 1'6" below existing ground surface. 21 23 24 25 TYPE OF SAMPLE

D.- - DISTURBED

U.L - UNDIST, LINER

S.T. - SHELBY TUBE

S.S. - SPLIT SPOON

R.G. - ROCK CORE

() - PENETROMETER REMARKS: **GROUND WATER OBSERVATIONS** G.W. ENCOUNTERED AT 3 FT. O INS.

Standard Penetration Test • Driving 2" OD Sampler 1" With 140# Hammer Falling 30": Count Made at 6" Intervals

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PROJECT Highland Park Site

SURFACE ELEV.		
STORE DEPON Legend Scott DESCRIPTION Penerated blocks with Store for first to wet brown and black sitty sendy TOPSOIL & VEGETATION, fill 114" Moist to wet brown sitty fine to medium SAND with gravel 60" 60" 60" 110 111 112 113 114 115 116 117 118		
Moist dark brown and black silty sendy TOPSOIL & VEGETATION, fill 1'4" Moist to wet brown silty fine to medium SAND with gravel 6'0" 7 8 9 10 11 12 13 14 16 16 17 18 19 19	Uns. Comp. Strength PSF.	Sv.
2 3 Moist to wet brown slity fine to medium SAND with gravel		_
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TYPE OF SAMPLE REMARKS: GROUND WATER OBU	RVATIONS	
D DISTURBED U.L. VINOIST, LINER S.T SHELBYTURE S.S SPUT SPOON R.C RICK CORE Slandard Penetration Test - Driving 2" OD Sampler 1" With () - PÉNETROMÉTÉR 140# Harranor Falling 30": Count Made at 6" Intervatis G.W. VOLUMES hoavy cave in @	FT. 4 FT. FT. ! FT. 2	INS. INS. INS.

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TP-4 LOG OF TEST PIT NO.

PROJECT _Highland Park Site

LOCATION Avon and John R Roads JOB NO. Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Natural WL P.C.F. Unc, Camp. . Strength PSF. Peneuration Dry Den 85, Dapth SOIL DESCRIPTION Blows for 6" Wt. P.C.F. Moist brown and dark brown fine sandy TOPSOIL & VEGETATION, fill 2 STUMPS, TREE LIMBS and moist brown oxidized silty SANO, fill 2'8" 3 Moist oxidized fine SAND mixed with broken 4 glass, fill 5 5'0" 6 Wet brown silty fine SAND 7 8 8'0" Wet gray sandy SILT 9 9'6" 10 11 12 13 15 16 17 18 19 20 21 22 23 24 25 REMARKS: TYPE OF SAMPLE D. DISTURBED
U.L. UNDIST, LINER
S.T. SHELBY TUGE
S.S. - SPLIT SPOON G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT INS. INS. INS.

R.C. - ROCK CORE

() - PENETROMETER

33.

Slandard Peneiration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals

G.W. AFTER COMPLETION 5
G.W. AFTER HRS,
G.W. VOLUMES heavy cave in @ 5'4

INS.



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LOG OF TEST PIT NO. TP-5

PROJECT Highland Park Site

JOB NO. 04-142 LOCATION Avon and John R Roads

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Penetration Moisure Line, Comp. Str. Legend SOIL DESCRIPTION Depth WLP.C.F. WLP.C.F. Strength PSF. Moist brown oxidized sandy silty clayey TOPSOIL 1'0" 2 3 STUMPS, TREE LIMBS (8" to 12" diameter 4 5' to 6' In length) oxidized clayey silty SAND . & BROKEN CONCRETE, fill 5 ß В 8'0" Wet gray sandy SILT mixed with decomposed wood, fill 9 10 Wet decomposed WOOD, fill 11 12 12'0" Wet gray clayey SILT (P.P. = 1,000 psf) 13 13'0" 14 15 16 17 18 19 Note: Stumps as large as 6' to 7' long, 18" to 24" 20 diameter. 21 22 23 24 25 REMARKS; TYPE OF SAMPLE GROUND WATER OBSERVATIONS D. - DISTURBED U.L. - UNDIST, LINER S.T. - SHELBY TUBE G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT INS. INS. INS. INS. S.S. - SPLIY SPOON R.C. - ROCK CORE () - PENETROMETER G.W. AFTER COMPLETION B
G.W. AFTER HRS.
G.W. VOLUMES heavy cave in @ 2'+ Standard Penetration Test - Orlving 2" OD Sampler 1" With 140# Mammer Failing 30": Count Made at 6" Intervals



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TP-6 LOG OF TEST PIT NO. PROJECT Highland Park Site

· LOCATION_Avon and John R Roads

04-142 JOB NO. 💆

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Penetration Blows for 6 Dry Don Wt. P.C.F. Unic. Comp. Strength PSF. Sample & Type Molstura Str. Dep(h SOIL DESCRIPTION WŁ P.C.F. Moist dark brown and black silty fine sandy 1 TOPSOIL & VEGETATION, fill 1'6" 2 Moist to wet brown fine SAND with occasional pebbles and bottles, fill 3 4 3'6" Wet brown fine to medium SAND with gravel 5 5'5" 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 REMARKS! TYPE OF SAMPLE GROUND WATER OBSERVATIONS D. - DISTURBED U.L. - UNDIST, LINER S.T. - SHELBY TUBE S.S. - SPLIT SPCION G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT FT. FT. FT. 10 INS. INS. G.W. AFTER COMPLETION G.W. AFTER 1 10 Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Failing 30": Count Made at 5" Intervals G.W. AFTER HRS.
G.W. VOLUMES heavy cave in @ 1'± () - PENETROMETER



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LOG OF TEST PIT NO.	
PROJECT Highla	nd Park Site
LOCATION AVOIL	and John R Roads

JOB NO. 04-142 Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV._ Una. Comp., Penelralian Moisture % Natural Dry Den WŁ P.C.F. Str. Sample & Type Depin Legend **SOIL DESCRIPTION** WL P.C.F. Moist dark brown silty sandy TOPSOIL & 0'10" VEGETATION, fill 2 3 Wet brown fine SAND 4 5 5'3" Wet gray fine to medium SAND with gravel 6 6'6" 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 REMARKS: TYPE OF SAMPLE GROUND WATER OBSERVATIONS D. - DISTURBED U.L. - UNDIŞT, LIMER FY. FT. FT. ins. Ins. Ins. Ins. G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT 10 S.T. - SHELBY TUBE
S.S. - SPLIT SPOON
R.G. - ROCK CORE
() - PENETROMETER G.W. AFTER COMPLETION 0
G.W. AFTER HRS.
G.W. VOLUMES Heavy Cave in @ 0'10" 10 Standard Penetration Teal - Orlying 2" OD Sampler 1" With 140# Hammer Falling 30"; Count Made at 6" Intervals



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JOB NO. ______04-142

LOG OF TEST PIT NO.

TP-9

PROJECT __Highland Park Site

LOCATION_Avon and John R Roads

		SUR	FACE ELE	V DATE 4-02-04		Rock	nester Hill	s, Michiga	in	
Sample & Typu	Depth	Legend		SOIL DESCRIPTION	Penebason Blows for 6°	Moleture %	Netural WL P.C.F.	Dry Den WL P.C.F.	Vac, Comp. Strength PSF.	Str.
		Construction of	0'6"	Moist brown oxidized slity sandy TOPSOIL &						
	1			VEGETATION, fill						
	2			-						
	3			TREE STUMPS, METAL DEBRIS, BROKEN						
 	-3-			CONCRETE mixed with discolored sand	<u> </u>					
	4									
				•					-	
\vdash	5	00000000	5'0"				<u> </u>			<u> </u>
	6	1			<u> </u>		 	·		
	<u> </u>			Moist brown oxidized silly fine SAND, fill						
-	7				<u> </u>		 -			
	8		B'0"		<u> </u>		 		· · · · ·	
			80							
	9			Wet brown and gray fine to medium SAND				<u>-</u>		,
	10			with gravel	-		ļ			
			40102							
	11		10'6"							<u> </u>
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5.T.	- UNDIST. - SHELBY	TU8@				ENCOUNTE		8	हा. a हा,	INS. INS.
R.C	- SPLIT SE - ROCK C - PENETR	ÔRÊ	8	tandard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30": Count Made at 8" Intervals	G.W. /	AFTER COM		8 \$. /cin @. 8' <u>+</u>	FT. 0 FT.	INS. INS.



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_TP-10	
	TP-10

Modium

PROJECT _Highland Park Site

LOCATION Avon and John R Roads 04-142 JOB NO.

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Natura! WLF.C.F. Unc. Comp. Strength PSF. Penetration Blows for B* Dry Oen Wt. P.C.F. Moisture Depth **SOIL DESCRIPTION** Molst dark brown silty sandy TOPSOIL & 1'2" VEGETATION, fill 2 Moist brown fine SAND with some silt content 2'9" 3 Moist to wet brown fine to medium SAND with 4 gravel and slight silt content 5 5'0" Wet gray clayey SILT 5'10" 6 7 Moist blue silty CLAY В 8'6" 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 REMARKS: TYPE OF SAMPLE GROUND WATER OBSERVATIONS D. DISTURBED
U.L. UNDEST, LINER
S.T. SHELBY TUBE
S.G. - SPLIT SPOON
R.C. - ROCK CORE G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT G.W. AFTER COMPLETION 71. FT. FT. FT. INS. INS. INS. 0 ٥ andard Penetration Text - Driving 2" OD Sempler 1' With 140# Hammer Felling 30": Coun! Made at 6" Intervals G.W. AFTER G.W. VOLUMES HRS.



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LOG OF TEST PIT NO.

TP-11

PROJECT Highland Park Site

JOB NO. __

LOCATION_Avon and John R Roads

G.W. VOLUMES heavy

cave in @ 3'±

Rochester Hills, Michigan SURFACE ELEV.___ DATE 4-02-04 Penetration Blows for 6 Unc. Comp. Strength PSF. Natigal Dry Den Wil P.C.F. Moleture Str. SOIL DESCRIPTION Depth Legend % WL P.C.F. Moist brown and black silty sandy TOPSOIL & 1 **VEGETATION, fill** 2 2'0" : 3 Moist brown fine SAND with some silty content 4 5 5'9" 6 Moist to wet brown fine to medium SAND with gravel 7 7'0" Wet gray sandy SILT 8 8'6" 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 TYPE OF SAMPLE

D. - DISTURBED

LUL. - UNDIGT, LINER RÉMARKS: **GROUND WATER OBSERVATIONS** G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT G.W. AFTER COMPLETION FT. FT. FT. INS. INS. INS. INS. S.T. - SHELBY YUBE S.S. - SPLIT SPOON R.G. - ROCK CORE () - PENETROMETER 7 0 Standard Penetration Test - Driving Z* OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals G.W. AFTER HR5.



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LOG OF TEST PIT	NO. TP-12	
PROJECT	Highland Park Site	

JOB NO. 04-142 LOCATION Avon and John R Roads

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Dry Don Wt. P.C.F. Penetration Blows for 6° Natural WL P.C.F. 8tr. % SOIL DESCRIPTION Depth Legend Moist brown sandy CLAY with vegetation, fill 0'8" Moist oxidized clayey SAND mixed with asphalt, 3 gravel and trace of vegetation, fill 4 5 6'0" 6 7 TREE STUMPS AND LIMBS, fill 8 9 9'0" Wet gray silty fine SAND 10 10'6" 11 12 13 14 15 16 17 18 19 Note: Stumps as large as 3' diameter. 20 22 23 24 25 REMARKS: TYPE OF SAMPLE **GROUND WATER OBSERVATIONS** D. - DISTURBED U.L. - UNDIST, LINER G.W. ENCOUNTERED AT G.W. ENCOUNTERED AY G.W. AFTER COMPLETION G.W. AFTER HRS. G.W. VOLUMES heavy & INS. INS. INS. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE () - PENETROMETER 9 Standard Penetration Test - Driving 2° OD Sampler 1' With 140# Hammer Failing 30°: Count Made at 8° Intervals caye in Ø 6'±



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LOG	ÓΕ	TEST	PIT	NO.

TP-13

: (248) \$99•2066 •	F2X: (248) 399-2137	i indi

PROJECT Highland Park Site

JOB NO. 04-142 LOCATION Avon and John R Reads

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Unc. Comp. Strength PSF. Penetration Natural Molecure % Sir. % SOIL DESCRIPTION Legend WL P.C.F. WL P.C.F. & Турв Moist brown clayey TOPSOIL & VEGETATION, fill 0'7" 2 Moist brown oxidized silty sandy gravelly CLAY with some decomposed wood, fill 3 4 4'0" Wet brown fine to medium SAND & GRAVEL 5 with some stumps and limbs, fill 5'6" 6 Wet gray sandy clayey SILT 6'6" 7 В 9 10 .11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 TYPE OF SAMPLE D. - DISTURBED U.L - UNDIST, LINER S.T. - SHELBY TUBE REMARKS: GROUND WATER OBSERVATIONS G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT INS. INS. S.S. - SPLIT SPOON R.C. - ROCK CORE () - PENETROMETER G.W. AFTER COMPLETION 4
G.W. AFTER HRS.
G.W. VOLUMES heavy cays in @ 2'+ Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30": Count Made at 6" Intervals INS.



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PROJECT Highland Park Site

JOB NO. _____04-142 ____

LOCATION Avon and John R Roads

			SURF	ACE ELEV	'	DATE _4-02-04	Rochester Hills, Michigan			n ·		
Sample & Type		Depth	Legand		SOIL DESCRIPTION		Penatration Blows for 6"	Molsiura %	Najural WL P.C.F.	Ory Deπ WL P.C.F.	Unit. Comp Strength PSF.	Str.
к тура	+		22777		Moist brown silty fine sand		CIGHSIO		WET.OUT.	W. F.O.F.	Buengar O	
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		OF SAMPL		REMARKS:			GI	TAW CHUCS	ER OBSER\	/ATIONS		
U. 8. S.	D DISTURBED UIL - UNDIST, LINÉR S.T SHELBYTURE S.S SPUT SPOON R.C ROCK CORE Slandard Faneiration Yest - Driving 2" OD Sampler 1" With 1 1 - PENETROMETER 1 10 - DISTURBED 1					G.W. ENCOUNTERED AT FT, INS. G.W. ENCOUNTERED AT FT, INS. G.W. AFTER COMPLETION none FT. INS. G.W. AFTER HRS. FT, INS. G.W. VOLUMES						

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LOG OF TEST PIT NO.

TP-15

PROJECT Highland Park Site

LOCATION Avon and John R Roads

JOB NO						LÇ	LOCATION							
	SURFACE ELEV. DATE 4-02-04						Rochester Hills, Michigan							
Sample & Type	П	Depth	Legena		SOIL DESCRIPTION	Pen Blox	etralion VB for 6"	Maisture %	Naturel WL P.C.F.	Dry Den WL P.C.F.	Unc. Comp. Spangth PSF.	St. ₩		
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5	LL - Undist. Liner S.T Shelby Tube							ENCOUNTE ENCOUNTE	RED AT	4	FT, 0 FT.	ins. Ins.		
		- SPLITS - ROCK C			Standard Penetration Test - Om/on 2* OD Sampler 4" With		Ġ.W.	AFTER CO	MPLETION	4 RS.	FT, 0 FT.	INS.		
(1	- PENETI	ROMETER		Standard Penetration Test - Onving 2" OD Sampler 1" With 140# Hammar Falling 30"; Count Made at 6" Intervals		G.W.	VOLUMES		··	-1.	# 43.		

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LOG OF TEST PIT NO.

TP-16

PROJECT Highland Park Site

JOB NO. 04-142 LOCATION Avon and John R Roads

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV. Penetration Blows for 6" Unc. Comp. Strength PSF. Natural WL P.C.F. Dry Den Wt. P.C.F. Moislure Str. SOIL DESCRIPTION Depth Moist dark brown and black slity fine sandy TOPSOIL & VEGETATION with trace of plastic sheeting, fill 2 Moist brown clayey silty fine SAND with pebbles 2'0" and occasional stones, fill 3 3'0" 4 5 6 Moist variegated very slity fine SAND with seams and layers of moist brown sandy silt 7 8 9 10 10'6" 11 12 13 14 15 16 17 18 Note: 19 Gas vents in place. 20 21 22 23 24 25 REMARKS: TYPE OF SAMPLE GROUND WATER OBSERVATIONS D. DISTURBED
D. DISTURBED
D. UNDIST. LINER
S.T. SHELBY TUBE
S.S. SPLIT SPOON
R.C. - ROCK CORE
() - PENETROMETER G.W. ENCOUNTERED AT G.W. ENCOUNTERED AT G.W. AFTER COMPLETION none ins. Ins. Ins. Standard Penetration Test - Driving 2° OD Sampler 1° With 140% Hammer Falling 30°: Count Made at 6° Intervals G.W. AFTER G.W. VOLUMES HRS.



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LOG OF TEST PIT NO.

TP-17

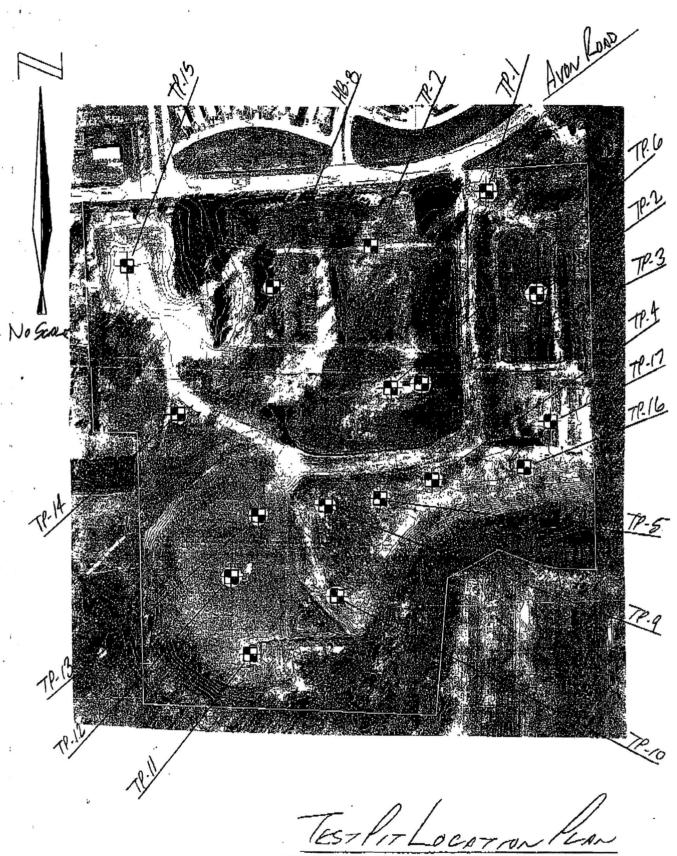
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PROJECT Highland Park Site

JOB NO. 04-142 LO

LOCATION Avon and John R Roads

Rochester Hills, Michigan DATE 4-02-04 SURFACE ELEV._ Panevation Natural Wt. P.C.F. Une. Comp. Stength PSF. Moisture % Dry Den Wt. P.C.F. Sample & Type Бт. % SOIL DESCRIPTION Depth Legend Moist black silty fine sandy TOPSOIL & VEGETATION, fill 2 2.0, Concrete Slab at 2'0" 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Notes: TP-17 excavated adjacent to old asphalt 20 pavement, unable to find limits of slab. Small diameter trees in and around TP-17. 21 20' long trench approximately 1.5' to 2' deep, excavated with backhos. 22 23 24 25 REMARKS: **GROUND WATER OBSERVATIONS** - DISTURBED L. - UNDIS'I, LINER I. - SMELBY TUBE G.W. ENCOUNTERED AT MS. S,T. G.W. ENCOUNTERED AT G.W. AFTER COMPLETION none FT. INS. INS. - SPLIT SPOON Standard Pendiration Test - Driving 2° OD Sampler 1' With 140# Hammer Falling 30": Count Made at 5' Intervels R.C. - ROCK CORE G.W. AFTER G.W. VOLUMES HRS. () - PENETROMETER





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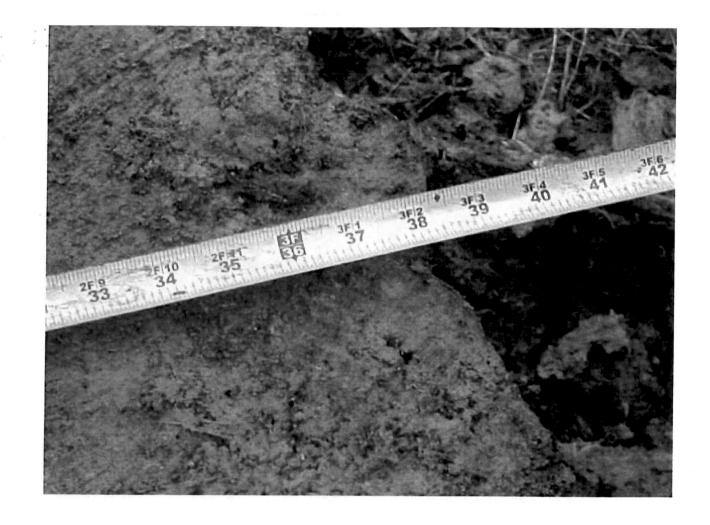


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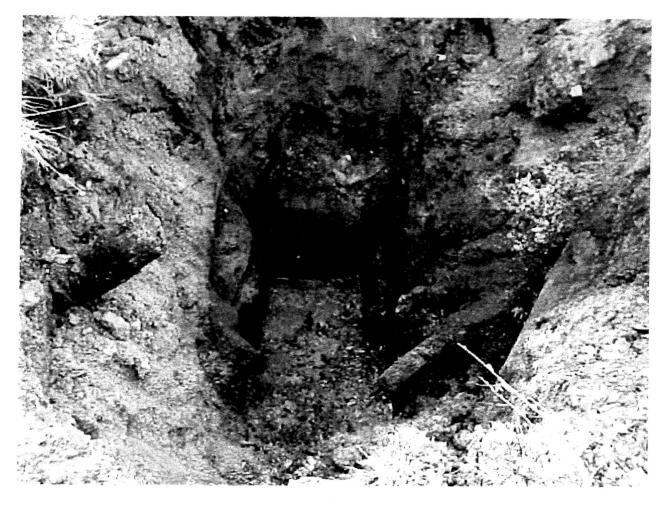


























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