

**McDowell & Associates***Geotechnical, Environmental & Hydrogeological Services • Materials Testing & Inspection*21355 Hatcher Avenue • Ferndale, MI 48220  
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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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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. HB-8

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows per ft	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Sr. %
	1		1'0" Moist to wet dark brown silty sandy TOPSOIL & VEGETATION						
	2		Wet brown silty fine SAND with pebbles						
	3		3'3"						
	4								
	5								
	6								
	7								
	8								
	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 S.S. - SPLIT SPOON R.C. - ROCK CORE ( ) - PENETROMETER	REMARKS:  Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30" Count Made at 6" Intervals	GROUND WATER OBSERVATIONS  G.W. ENCOUNTERED AT 0 FT. 10 INS. G.W. ENCOUNTERED AT 0 FT. 10 INS. G.W. AFTER COMPLETION 0 FT. 10 INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES heavy cave in @ 1'±
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LOG OF TEST PIT NO. TP-1

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R. Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural WL P.C.F.	Dry Den WL P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown silty sandy TOPSOIL, VEGETATION & ROOTS, fill						
	2		2'0" Moist brown silty CLAY						
	3		2'6" Wet brown silty fine SAND with pebbles and occasional stones						
	4		4'0" Wet brown fine to medium SAND with gravel						
	5								
	6								
	7		7'3" Wet gray fine to medium SAND with gravel						
	8								
	9		8'4"						
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

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

GROUND WATER OBSERVATIONS  
 G.W. ENCOUNTERED AT 2 FT. 8 INS.  
 G.W. ENCOUNTERED AT 4 FT. 10 INS.  
 G.W. AFTER COMPLETION 4 FT. 10 INS.  
 G.W. AFTER 7 1/2 HRS. 3 FT. 0 INS.  
 G.W. VOLUME 6 heavy cave in @ 3'



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LOG OF TEST PIT NO. TP-2

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_

DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown silty sandy TOPSOIL						
	2								
	3								
	4		Moist to wet brown silty fine to medium SAND with gravel						
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20		Note: Adjacent excavation (tree planting hole) had water level at 1'6" below existing ground surface.						
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE  
 D. - DISTURBED  
 U.L. - UNDIST. LINER  
 S.T. - SHIELD TUBE  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:

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

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT 3 FT. 0 INS.  
 G.W. ENCOUNTERED AT FT. INS.  
 G.W. AFTER COMPLETION 3 FT. 0 INS.  
 G.W. AFTER HRS. FT. INS.  
 G.W. VOLUMES heavy conc in @ 2'



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LOG OF TEST PIT NO. TP-3

PROJECT Highland Park Site

LOCATION Avon and John R Roads

JOB NO. 04-142

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Uns. Comp. Strength PSF.	Sr. %
	1		Moist dark brown and black silty sandy TOPSOIL & VEGETATION, fill						
	2								
	3		Moist to wet brown silty fine to medium SAND with gravel						
	4								
	5								
	6								
	7								
	8								
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:

Standard Penetration Test - Driving 2" OD Sampler 1' With  
 140# Hammer Falling 30" Count Made at 6" intervals

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT 2 FT. 4 INS.  
 G.W. ENCOUNTERED AT FT. INS.  
 G.W. AFTER COMPLETION FT. INS.  
 G.W. AFTER 5 HRS. 2 FT. 2 INS.  
 G.W. VOLUMES heavy cave in @ 2 1/2



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LOG OF TEST PIT NO. TP-4

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Aven and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows (or 6")	Molcure %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Sr. %
	1		1'0" Moist brown and dark brown fine sandy TOPSOIL & VEGETATION, fill						
	2		STUMPS, TREE LIMBS and moist brown oxidized silty SAND, fill						
	3		2'8" Moist oxidized fine SAND mixed with broken glass, fill						
	4								
	5		5'0" Wet brown silty fine SAND						
	6								
	7								
	8		8'0" Wet gray sandy SILT						
	9								
	10		9'6"						
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:

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

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT 5 FT. 0 INS.  
 G.W. ENCOUNTERED AT FT. INS.  
 G.W. AFTER COMPLETION 5 FT. 0 INS.  
 G.W. AFTER HRS. FT. INS.  
 G.W. VOLUMES heavy cave in @ 5 1/2



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LOG OF TEST PIT NO. TF-5

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Lin. Comp. Strength PSF.	Slr. %
	1		Moist brown oxidized sandy silty clayey TOPSOIL						
	2								
	3								
	4		STUMPS, TREE LIMBS (8" to 12" diameter 5' to 6' in length) oxidized clayey silty SAND & BROKEN CONCRETE, fill						
	5								
	6								
	7								
	8		8'0" Wet gray sandy SILT mixed with decomposed wood, fill						
	9		9'0"						
	10								
	11		Wet decomposed WOOD, fill						
	12								
	13		12'0" Wet gray clayey SILT (P.P. = 1,000 psf)						
	14		13'0"						
	15								
	16								
	17								
	18								
	19								
	20		Note: Stumps as large as 6' to 7' long, 18" to 24" diameter.						
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE  
 D. - DISTURBED  
 U.L. - UNDIST. LINER  
 S.T. - SHELBY TUBE  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

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

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT 8 FT. 0 INS.  
 G.W. ENCOUNTERED AT \_\_\_\_\_ FT. \_\_\_\_\_ INS.  
 G.W. AFTER COMPLETION 8 FT. 0 INS.  
 G.W. AFTER \_\_\_\_\_ HRS. \_\_\_\_\_ FT. \_\_\_\_\_ INS.  
 G.W. VOLUMES heavy cave in @ 2'





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LOG OF TEST PIT NO. TP-6

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown and black silty fine sandy TOPSOIL & VEGETATION, fill						
	2		1'6" 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								
	6								
	7		5'5"						
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

TYPE OF SAMPLE  
 D. - DISTURBED  
 U.L. - UNDISY. LINER  
 S.T. - SHELLEY TUBE  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:  
  
 Standard Penetration Test - Driving 2" OD Sampler 1' With  
 140# Hammer Falling 30"; Count Made at 5" Intervals

GROUND WATER OBSERVATIONS  
 G.W. ENCOUNTERED AT 1 FT. 10 INS.  
 G.W. ENCOUNTERED AT 1 FT. 10 INS.  
 G.W. AFTER COMPLETION 1 FT. 10 INS.  
 G.W. AFTER HRS. FT. INS.  
 G.W. VOLUMES heavy cave in @ 1'



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LOG OF TEST PIT NO. TP-7

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural WL P.C.F.	Dry Den WL P.C.F.	Unsat. Comp. Strength PSF	Str. %
	1		0'10" Moist dark brown silty sandy TOPSOIL & VEGETATION, fill						
	2								
	3		Wet brown fine SAND						
	4								
	5								
	6		5'3" Wet gray fine to medium SAND with gravel						
	7		6'6"						
	8								
	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 S.S. - SPLIT SPOON R.C. - ROCK CORE ( ) - PENETROMETER	REMARKS:  Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals	GROUND WATER OBSERVATIONS  G.W. ENCOUNTERED AT 0 FT. 10 INS. G.W. ENCOUNTERED AT 0 FT. INS. G.W. AFTER COMPLETION 0 FT. 10 INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES heavy cave in @ 0'10"
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LOG OF TEST PIT NO. TP-9

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		0'6" Moist brown oxidized silty sandy TOPSOIL & VEGETATION, fill						
	2								
	3		TREE STUMPS, METAL DEBRIS, BROKEN CONCRETE mixed with discolored sand						
	4								
	5		5'0" Moist brown oxidized silty fine SAND, fill						
	6								
	7								
	8		8'0" Wet brown and gray fine to medium SAND with gravel						
	9								
	10								
	11		10'6"						
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:  
  
 Standard Penetration Test - Driving 2" DD Sampler 1' With  
 140# Hammer Falling 30". Count Made at 6" Intervals

GROUND WATER OBSERVATIONS  
 G.W. ENCOUNTERED AT 8 FT. 0 INS.  
 G.W. ENCOUNTERED AT \_\_\_\_\_ FT. \_\_\_\_\_ INS.  
 G.W. AFTER COMPLETION 8 FT. 0 INS.  
 G.W. AFTER \_\_\_\_\_ HRS. \_\_\_\_\_ FT. \_\_\_\_\_ INS.  
 G.W. VOLUMES heavy cave in @ 8'±



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LOG OF TEST PIT NO. TP-10

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for B"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unsat. Comp. Strength PSF.	Str. %
	1		1'2" Moist dark brown silty sandy TOPSOIL & VEGETATION, fill						
	2		Moist brown fine SAND with some silt content						
	3		2'9" Moist to wet brown fine to medium SAND with gravel and slight silt content						
	4								
	5		5'0" Wet gray clayey SILT						
	6		5'10" Moist blue silty CLAY						
	7								
	8								
	9		8'6"						
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:  
  
 Standard Penetration Test - Driving 2" DD Sampler 1' With  
 140# Hammer Falling 30" Count Made at 6" Intervals

GROUND WATER OBSERVATIONS  
 G.W. ENCOUNTERED AT 5 FT. 0 INS.  
 G.W. ENCOUNTERED AT FT. INS.  
 G.W. AFTER COMPLETION 5 FT. 0 INS.  
 G.W. AFTER HRS. FT. INS.  
 G.W. VOLUMES Medium



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LOG OF TEST PIT NO. TP-11

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Mol. Hum. %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist brown and black silty sandy TOPSOIL & 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"						
	8			Wet gray sandy SILT					
	9		8'6"						
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

<p>TYPE OF SAMPLE                  D. - DISTURBED                  U.L. - UNDIST. LINER                  S.T. - SHOULDER TUBE                  S.S. - SPLIT SPOON                  R.C. - ROCK CORE                  ( ) - PENETROMETER</p>	<p>REMARKS:                   Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals</p>	<p>GROUND WATER OBSERVATIONS</p> <p>G.W. ENCOUNTERED AT 7 FT. 0 INS.                  G.W. ENCOUNTERED AT FT. INS.                  G.W. AFTER COMPLETION 7 FT. 0 INS.                  G.W. AFTER HRS. FT. INS.                  G.W. VOLUMES heavy cave in @ 3'</p>
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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

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural WL P.C.F.	Dry Den WL P.C.F.	Unc. Comp. Strength PSF	Str. %
	1		Moist brown sandy CLAY with vegetation, fill						
	2		Moist oxidized clayey SAND mixed with asphalt, gravel and trace of vegetation, fill						
	3								
	4								
	5								
	6								
	7		TREE STUMPS AND LIMBS, fill						
	8		Wet gray silty fine SAND						
	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 S.S. - SPLIT SPOON R.C. - ROCK CORE ( ) - PENETROMETER	REMARKS:  Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made at 6" Intervals	GROUND WATER OBSERVATIONS  G.W. ENCOUNTERED AT 9 FT. 0 INS. G.W. ENCOUNTERED AT 9 FT. 0 INS. G.W. AFTER COMPLETION 9 FT. 0 INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES heavy cave in @ 6"
--	--	--



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LOG OF TEST PIT NO. TP-13

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04

Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Silt %
	1		0'7" Moist brown clayey TOPSOIL & VEGETATION, fill						
	2		Moist brown oxidized silty sandy gravelly CLAY with some decomposed wood, fill						
	3								
	4								
	5		4'0" Wet brown fine to medlum SAND & GRAVEL with some stumps and limbs, fill						
	6		5'6" Wet gray sandy clayey SILT						
	7								
	8								
	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 S.S. - SPLIT SPOON R.C. - ROCK CORE ( ) - PENETROMETER	REMARKS:  Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30" Count Made at 6" Intervals	GROUND WATER OBSERVATIONS  G.W. ENCOUNTERED AT 4 FT. 0 INS. G.W. ENCOUNTERED AT _____ FT. _____ INS. G.W. AFTER COMPLETION 4 FT. 0 INS. G.W. AFTER _____ HRS. _____ FT. _____ INS. G.W. VOLUMES heavy cays In @ 2'±
--	--	---



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LOG OF TEST PIT NO. TP-14

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %	
	1		0'6" Moist brown silty fine sandy TOPSOIL & VEGETATION, fill							
	2									
	3									
	4									
	5									
	6			Moist gray sandy SILT (P.P. = 9,000+ psf)						
	7									
	8									
	9									
	10			10'0"						
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

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

**GROUND WATER OBSERVATIONS**  
  
 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

JOB NO. 04-142

LOCATION Avon and John R Roads

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural WL P.C.F.	Dry Den WL P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		0'2" Moist dark brown sandy TOPSOIL & VEGETATION, fill						
	2		Moist brown silty fine SAND						
	3								
	4		4'0" Wet gray sandy SILT						
	5								
	6								
	7								
	8								
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:  
  
 Standard Penetration Test - Driving 2" OD Sampler 1' With  
 140# Hammer Falling 30"; Count Made at 8" Intervals

GROUND WATER OBSERVATIONS  
 G.W. ENCOUNTERED AT 4 FT. 0 INS.  
 G.W. ENCOUNTERED AT FT. INS.  
 G.W. AFTER COMPLETION 4 FT. 0 INS.  
 G.W. AFTER HRS. FT. INS.  
 G.W. VOLUMES heavy



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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

SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 8"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF.	Str. %
	1		Moist dark brown and black silty fine sandy TOPSOIL & VEGETATION with trace of plastic sheeting, fill						
	2								
	3		2'0" Moist brown clayey silty fine SAND with pebbles and occasional stones, fill						
	4		3'0" Moist variegated very silty fine SAND with seams and layers of moist brown sandy silt						
	5								
	6								
	7								
	8								
	9								
	10								
	11		10'6" Note: Gas vents in place.						
	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  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

REMARKS:

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

GROUND WATER OBSERVATIONS

G.W. ENCOUNTERED AT	FT.	INS.
G.W. ENCOUNTERED AT	FT.	INS.
G.W. AFTER COMPLETION	FT.	INS.
G.W. AFTER	FT.	INS.
G.W. VOLUMES		



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LOG OF TEST PIT NO. TP-17

PROJECT Highland Park Site

JOB NO. 04-142

LOCATION Avon and John R Roads

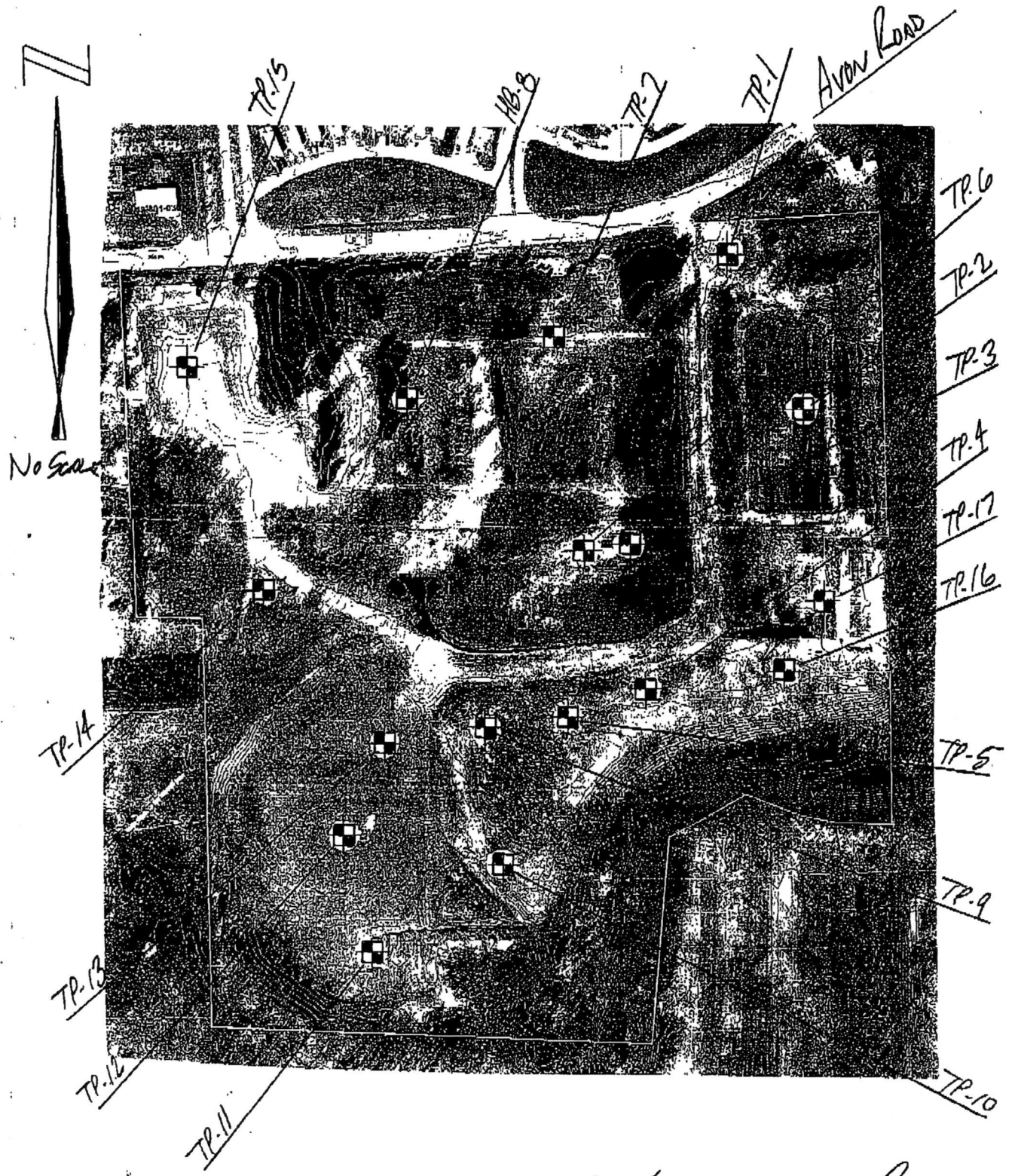
SURFACE ELEV. \_\_\_\_\_ DATE 4-02-04 Rochester Hills, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows for 6"	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF	Str. %
	1		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								
	20		Notes: TP-17 excavated adjacent to old asphalt 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 backhoe.						
	22								
	23								
	24								
	25								

TYPE OF SAMPLE  
 D. - DISTURBED  
 U.L. - UNDIST. LINER  
 S.T. - SHELBY TUBE  
 S.S. - SPLIT SPOON  
 R.C. - ROCK CORE  
 ( ) - PENETROMETER

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

GROUND WATER OBSERVATIONS  
 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



Test Pit Location Plan















