# Resource Conservation and Recovery Act Facility Investigation Phase II Report

## Volume II of III

**General Motors Corporation**
**NAO Flint Operations Site**
**ID #MID 005 356 712**
**Flint, Michigan**

**July 14, 2006**

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engineers & scientists

# Appendix A

# Boring and Monitoring Well Logs

# APPENDIX A
# SOIL BORING AND MONITORING WELL LOGS

## RFI PHASE II REPORT
## GENERAL MOTORS CORPORATION
## NAO FLINT OPERATIONS SITE - FLINT, MICHIGAN

03-01R
03-03R
03-101R
03-105R
03-105R2
03-105R3
03-110R
03-113R
03-114R
*20-101R
20-101RD
*20-105R
20-500R
20-FP4R
20-FP6R
20-FP9R
40-01R
40-01R2
*40-303R
*40-4R
40-6R
*40-7R
40-7R2
70-102R
70-107R
70-108R
*43-101R
84-06R
84-06R2
84-06R2D
84-07
84-07D
*ACSP-B1
*ACSP-B2
ACSP-B2AR
*ACSP-B2C
*ACSP-B2D
*ACSP-B2E
*ACSP-B3
*ACSP-B3D
*ACSP-B4
*ACSP-B5
*ACSP-B6
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BD01-02R
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BD-01-04
BD94-EP-02C
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*WL-B2
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*WL-B4
*WL-B5
*WL-B6

**Note:**
* = Log was presented in the RFI Phase I Report, and is not included.

# LOG ABBREVIATION LEGEND

## GENERAL MOTORS CORPORATION
## NAO FLINT OPERATION SITE
## FLINT, MICHIGAN

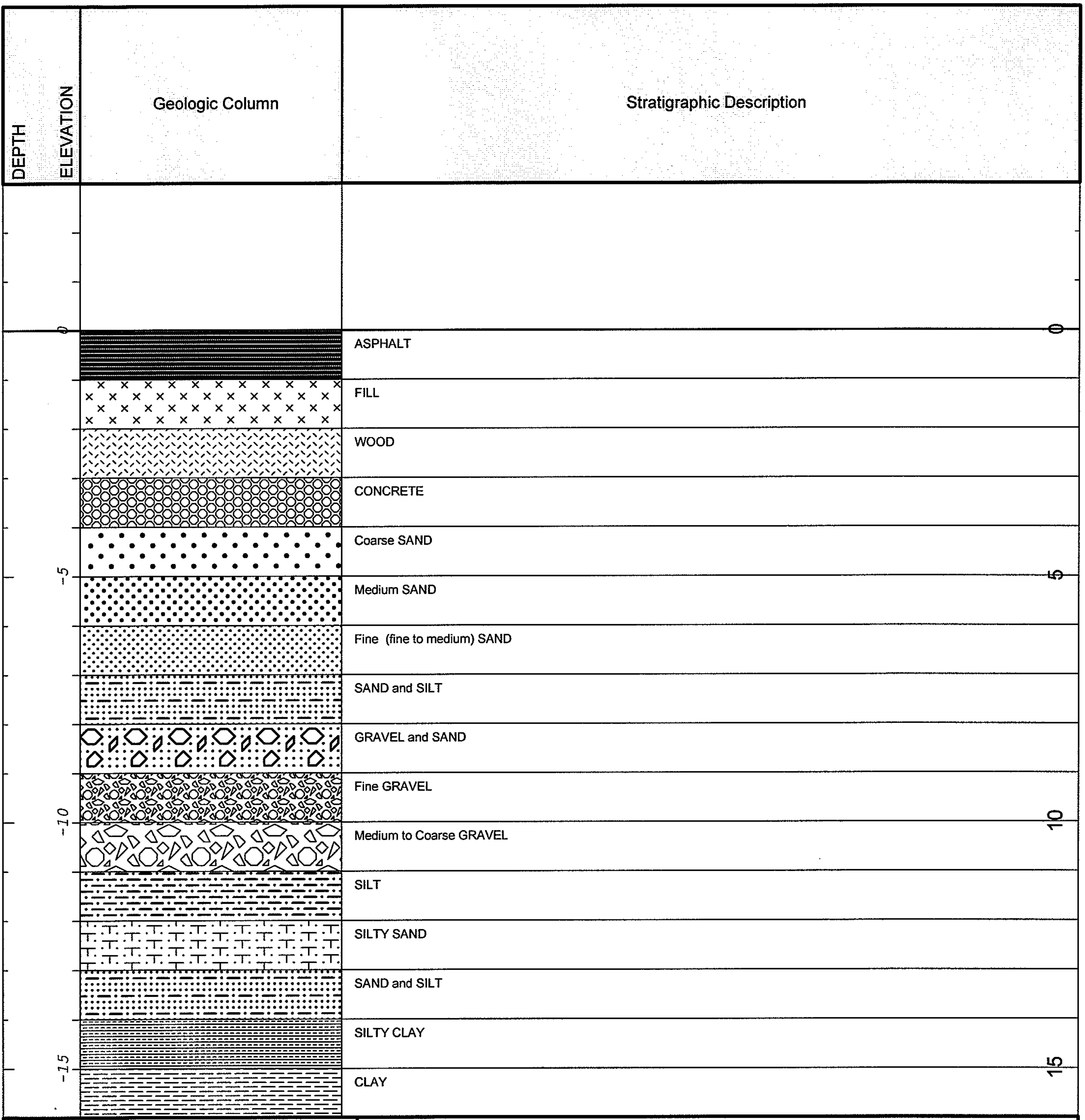
-/+ = Negative/Positive Oil/Water Shake Test Result.
ags = above ground surface.
bgs = below ground surface.
CN = Clear NAPL.
HSA = Hollow Stem Auger.
ID = Inner Diameter.
NA = Not Applicable/Not Available.
pp = pocket penetrometer measurement (tons/square foot).
SS = Split Spoon.
WH/WOH = Weight of Hammer.

USCS = Unified Soil Classification System.

GW = Well-graded gravels, gravel-sand mixtures, little or no fines.
GP = Poorly-graded gravels, gravel-sand mixtures, little or no fines.
GM = Silty gravels, gravel-sand mixtures.
GC = Clayey gravels, gravel-sand-clay mixtures.
SW = Well-graded sands, gravelly sands, little or no fines.
SC = Clayey sands, sand-silt mixtures.
ML = Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts, with slight plasticity.
CL = Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
OL = Organic silts and organic silty clays of low plasticity.
MH = Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
CH = Inorganic clay of high plasticity, fat clays.
OH = Organic clay of medium to high plasticity, organic silts.

# GEOLOGIC SYMBOL KEY

## GENERAL MOTORS CORPORATION
## NAO FLINT OPERATION SITE
## FLINT, MICHIGAN



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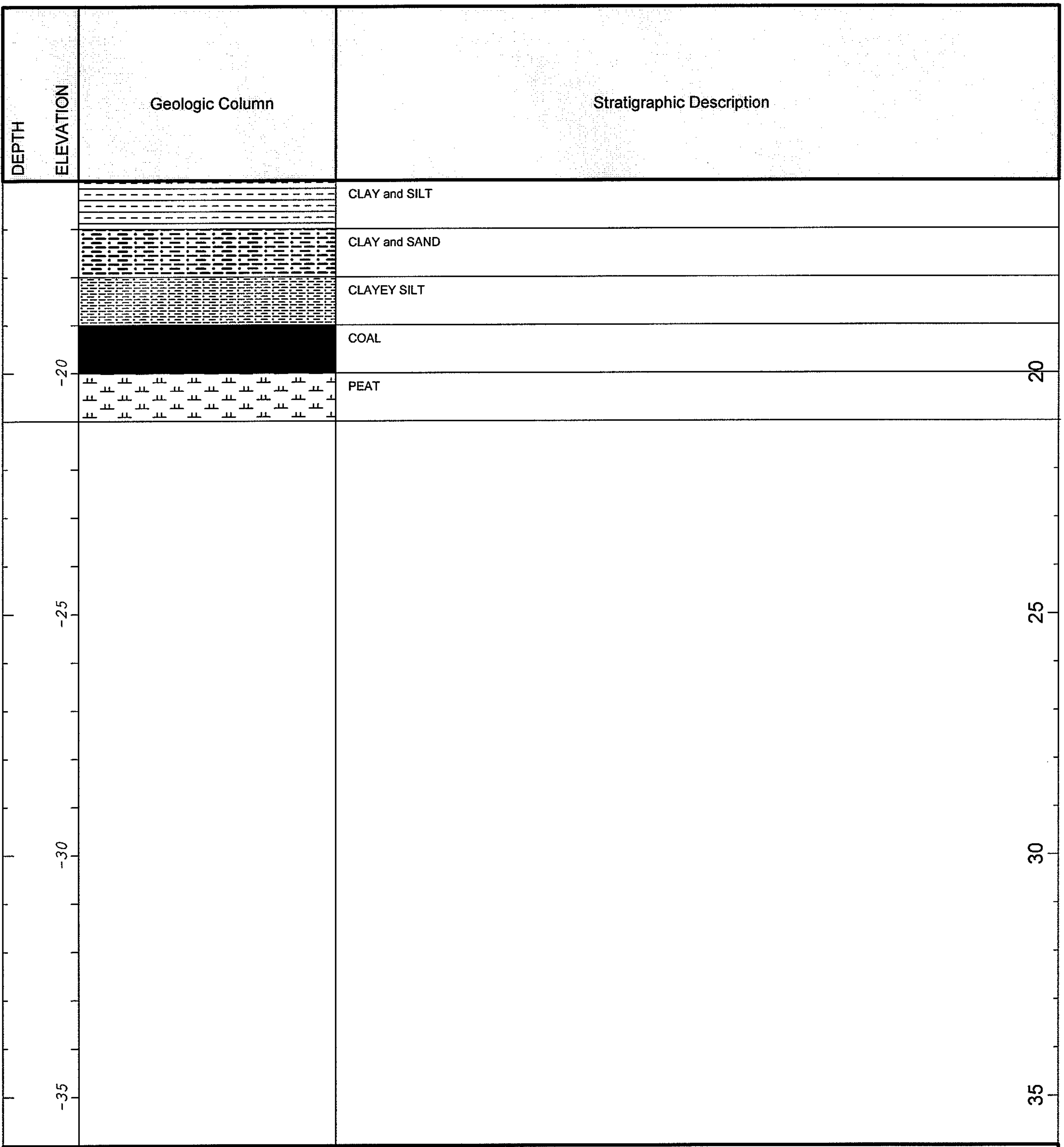
**Remarks:**

Project:
Data File:Key.dat

Template: J:\Rockware\LogPlot 2001\LogFiles\64410\Key.ldf
Date: 6/26/02

# GEOLOGIC SYMBOL KEY
## GENERAL MOTORS CORPORATION
## NAO FLINT OPERATION SITE
## FLINT, MICHIGAN



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**Remarks:**

Project:
Data File:Key.dat

Template: J:\Rockware\LogPlot 2001\LogFiles\64410\Key.ldf
Date: 6/26/02

**Date Start/Finish:** 3/28/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 565096.55
**Easting:** 13305981.59
**Casing Elevation:** 744.90' AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

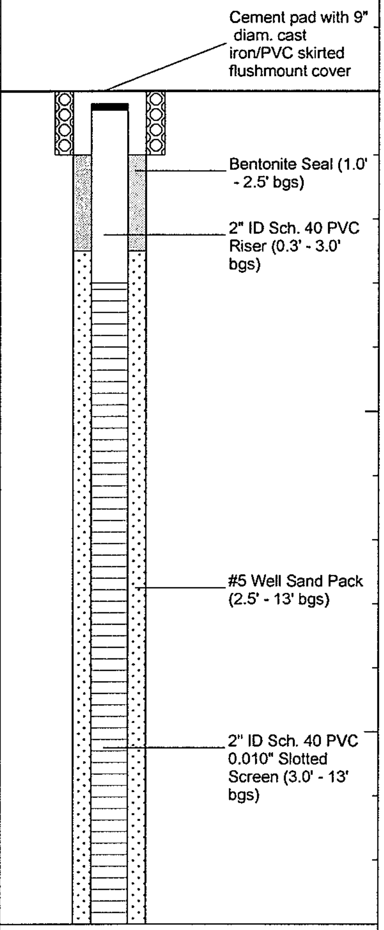
**Well/Boring ID:** 03-01R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | ML | | Black (10YR 2/1) SILT (ML), some Clay and fine Sand, Gravel aggregate from 0 - 1.0' bgs, aplastic, strong odor, damp to moist. [FILL] |
| | | 1 | 1-3 | 7<br>5<br>5<br>7 | 10 | 1.5 | 0.0 | + | | | |
| | | 2 | 3-5 | 2<br>3<br>3<br>2 | 6 | 2.0 | 0.0 | + | | | Gray (10YR 5/1) SILT (ML), aplastic, strong odor, moist to saturated at 4.8' bgs. |
| 5 | -5 | | | | | | | | | | No samples collected from 5.0' - 13' bgs. See log for location 03-01 for geologic description. |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: 03-01R.dat Date: 6/7/04

**Date Start/Finish:** 3/30/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 565209.04
**Easting:** 13306124.73
**Casing Elevation:** 746.47' AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

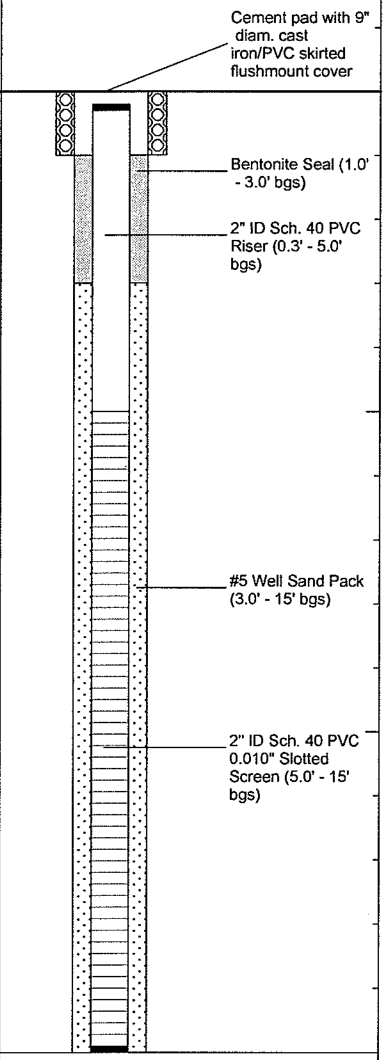
**Well/Boring ID:** 03-03R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Black (10YR 2/1) SILT (ML), little Clay, few fine Sand, strong odor, damp to moist. |
| | | 1 | 3-5 | 2<br>3<br>4<br>4 | 7 | 1.5 | 0.0 | + | ML | | |
| 5 | -5 | 2 | 5-7 | 6<br>6<br>7<br>9 | 13 | 0 | 0.0 | NA | | | Occasional Concrete fragments at 5.7' bgs. |
| | | 3 | 7-9 | 9<br>4<br>3<br>3 | 7 | 0.5 | 0.0 | + | | | Wet at 8.5' bgs. |
| 10 | -10 | | | | | | | | | | No samples collected from 9.0' - 15' bgs. See log for location 03-03 for geologic description. |
| 15 | 15 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: 03-03R.dat Date: 6/7/04

**Date Start/Finish:** 3/29/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 565209.17
**Easting:** 13305943.03
**Casing Elevation:** 747.95' AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

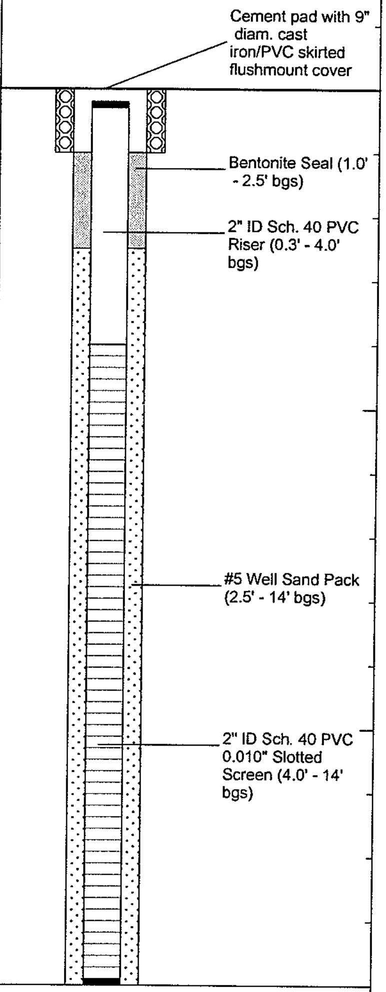
**Well/Boring ID:** 03-101R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | CONCRETE |
| | | | 0-3 | NA | | | | | SM | | Black (10YR 2/1) SILTY SAND (SM), medium dense to loose, pooorly graded, no apparent odor, damp. [FILL] |
| | | 1 | 3-5 | 4<br>6<br>6<br>7 | 12 | 1.75 | 0.0 | + | | | |
| 5 | -5 | 2 | 5-7 | 3<br>2<br>4<br>2 | 6 | 1.0 | 0.0 | + | | | Saturated at 6.8' bgs. |
| | | | | | | | | | | | No samples collected from 7.0' - 14.0' bgs. See log for location 03-101 for geologic description. |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
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| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: 03-101R.dat
Date: 6/7/04

**Date Start/Finish:** 3/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565284.02
**Easting:** 13305985.53
**Casing Elevation:** 748.16' AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** 748.41' AMSL

**Descriptions By:** SM Duly

**Boring ID:** 03-105R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. | |
| | | 1 | 1-3 | 7<br>9<br>13<br>27 | 22 | 1.0 | 0.0 | - | SM | | Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, Slag and Ash present, large amount of Metallic debris present, aplastic, no odor, dense, dry. Foundry Sand. | Borehole grouted to surface. |
| | | 2 | 3-5 | 4<br>10<br>NA<br>NA | NA | 1.0 | 0.0 | - | | | Wood and Metallic debris at 3.0' bgs. | |
| 5 | -5 | 3 | 5-7 | 3<br>5<br>7<br>7 | 12 | 0.6 | 0.0 | - | | | | |
| | | 4 | 7-9 | 3<br>3<br>3<br>5 | 6 | 0.8 | 0.0 | - | | | Patch of white Ash, 1/2" in diameter, damp at 7.0' bgs.<br>Mottled to gray (10YR 5/1) and dark yellow-brown (10YR 4/6) at 8.5' bgs. | |
| | | 5 | 9-10 | 2<br>5 | NA | 0.5 | 27.6 | + | | | | |
| 10 | 10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
AMSL = Above Mean Sea Level; NA = Not
Applicable/Not Available; WH = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:03-105R.dat
Date: 3/14/03

**Date Start/Finish:** 4/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565292.34
**Easting:** 13305981.64
**Casing Elevation:** 748.16 AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** 748.41 AMSL

**Descriptions By:** SM Duly

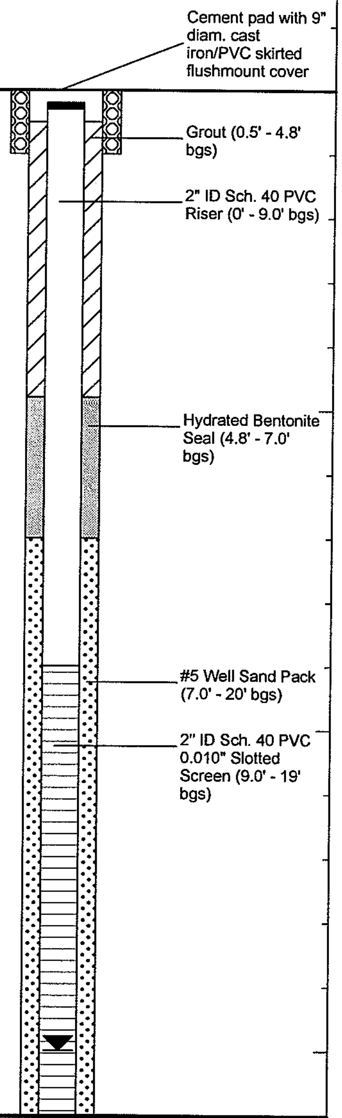
**Boring ID:** 03-105R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | |
| 0 | | | | | | | | | FL | CONCRETE. | CONCRETE |
| | | 1 | 1-3 | 7<br>9<br>13<br>27 | 22 | 1.0 | 0.0 | - | SM | Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, Slag and Ash present, large amount of Metallic debris present, aplastic, no odor, dense, dry. Foundry Sand. | SILTY SAND |
| | 745 | 2 | 3-5 | 4<br>10<br>NA<br>NA | NA | 1.0 | 0.0 | - | | Wood and Metallic debris at 3.0' bgs. | |
| 5 | | 3 | 5-7 | 3<br>5<br>7<br>7 | 12 | 0.6 | 0.0 | - | | | |
| | 740 | 4 | 7-9 | 3<br>3<br>3<br>5 | 6 | 0.8 | 0.0 | - | | Patch of white Ash, 1/2" in diameter, damp at 7.0' bgs.<br>Mottled to gray (10YR 5/1) and dark yellow-brown (10YR 4/6) at 8.5' bgs. | |
| | | 5 | 9-10 | 2<br>5 | NA | 0.5 | 27.6 | + | | | |
| 10 | | 6 | 10-12 | 23<br>24<br>13<br>8 | 41 | 0.3 | 52.7 | + | | Black (10YR 2/1) fine to coarse subangular POORLY GRADED SILTY SAND (SM), few fine to coarse rounded Gravel, little Clay, up to 40% Slag present throughout, loose, strong odor, moist with oil. Foundry Sand and Slag. | |
| | 735 | 7 | 12-14 | 10<br>15<br>17<br>24 | 32 | 0.0 | 48.8 | + | | No recovery from 12' - 14' bgs due to large pieces of Slag in shoe. | |
| 15 | | 8 | 14-16 | 7<br>9<br>6<br>4 | 15 | 0.5 | 14.3 | + | ML | Gray (10YR 5/1) SILT (ML), little Clay, few fine subrounded Sand, aplastic, moderate odor, loose, saturated. Glacio-Alluvial. | SILT |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Refusal at 11' bgs after 3 attempts on 3/11/03.
Sample information from 0 - 10' bgs from 1st attempt.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

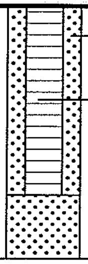
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 03-105R

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 8<br>10<br>18<br>12 | 18 | 0.0 | NA | NA | ML | | Gray (10YR 5/1) SILT (ML), little Clay, few fine subrounded Sand, aplastic, moderate odor, loose, saturated. Glacio-Alluvial. | SILT | |
| | 730 | 10 | 18-20 | 5<br>6<br>8<br>10 | 14 | 1.1 | 4.8 | + | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, moderately plastic, weak to no odor, soft to medium stiff, damp. Native Glacial Clay Till. | CLAY | |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |



#5 Well Sand Pack (8.0' - 20' bgs)

2" ID Sch. 40 PVC 0.010" Slotted Screen (9.0' - 19' bgs)

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Refusal at 11' bgs after 3 attempts on 3/11/03.
Sample information from 0 - 10' bgs from 1st attempt.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: 03-105R.dat Date: 3/14/03

**Date Start/Finish:** 4/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565292.34
**Easting:** 13305981.64
**Casing Elevation:** 748.16' AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** 748.41' AMSL

**Descriptions By:** SM Duly

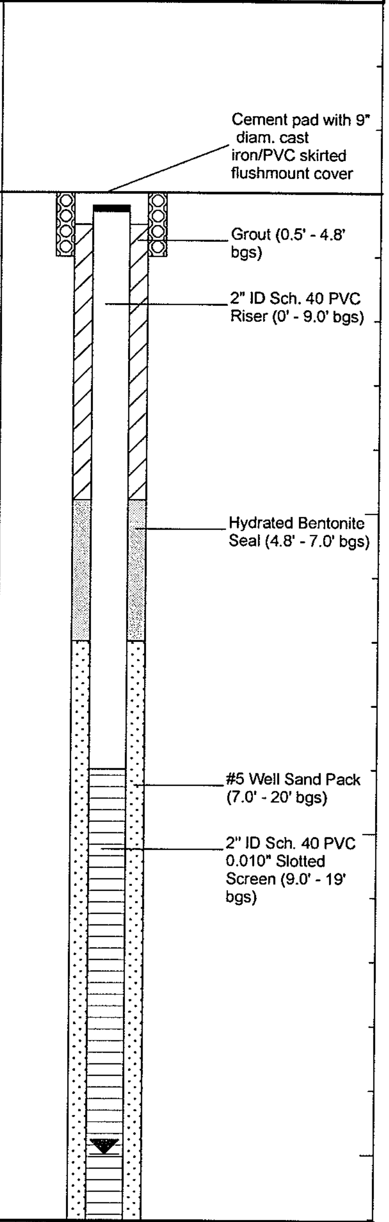
**Boring ID:** 03-105R2

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
|  | 750 |  |  |  |  |  |  |  |  |  |
| 0 |  |  |  |  |  |  |  |  | FL | CONCRETE. |
|  |  | 1 | 1-3 | 7<br>9<br>13<br>27 | 22 | 1.0 | 0.0 | - | SM | Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, Slag and Ash present, large amount of Metallic debris present, aplastic, no odor, dense, dry. Foundry Sand. |
|  | 745 | 2 | 3-5 | 4<br>10<br>NA<br>NA | NA | 1.0 | 0.0 | - |  | Wood and Metallic debris at 3.0' bgs. |
| 5 |  | 3 | 5-7 | 3<br>5<br>7<br>7 | 12 | 0.6 | 0.0 | - |  |  |
|  | 740 | 4 | 7-9 | 3<br>3<br>3<br>5 | 6 | 0.8 | 0.0 | - |  | Patch of white Ash, 1/2" in diameter, damp at 7.0' bgs.<br>Mottled to gray (10YR 5/1) and dark yellow-brown (10YR 4/6) at 8.5' bgs. |
|  |  | 5 | 9-10 | 2<br>5 | NA | 0.5 | 27.6 | + |  |  |
| 10 |  | 6 | 10-12 | 23<br>24<br>13<br>8 | 41 | 0.3 | 52.7 | + |  | Black (10YR 2/1) fine to coarse subangular POORLY GRADED SILTY SAND (SM), few fine to coarse rounded Gravel, little Clay, up to 40% Slag present throughout, loose, strong odor, moist with oil. Foundry Sand and Slag. |
|  | 735 | 7 | 12-14 | 10<br>15<br>17<br>24 | 32 | 0.0 | 48.8 | + |  | No recovery from 12' - 14' bgs due to large pieces of Slag in shoe. |
| 15 |  | 8 | 14-16 | 7<br>9<br>6<br>4 | 15 | 0.5 | 14.3 | + |  |  |
|  |  |  |  |  |  |  |  |  | ML | Gray (10YR 5/1) SILT (ML), little Clay, few fine subrounded Sand, aplastic, moderate odor, loose, saturated. Glacio-Alluvial. |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; WH = Weight of Hammer.
Refusal at 11' bgs after 3 attempts on 3/11/03.
Sample information from 0 - 10' bgs from 1st attempt.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

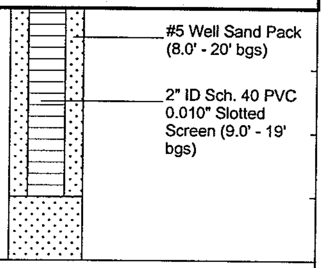
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 03-105R2

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 8<br>10<br>18<br>12 | 18 | 0.0 | NA | NA | ML | | Gray (10YR 5/1) SILT (ML), little Clay, few fine subrounded Sand, aplastic, moderate odor, loose, saturated. Glacio-Alluvial. | |
| | 730 | 10 | 18-20 | 5<br>6<br>8<br>10 | 14 | 1.1 | 4.8 | + | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, moderately plastic, weak to no odor, soft to medium stiff, damp. Native Glacial Clay Till. | |
| 20 | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; WH = Weight of Hammer.
Refusal at 11' bgs after 3 attempts on 3/11/03.
Sample information from 0 - 10' bgs from 1st attempt.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/30/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 565312.37
**Easting:** 13306004.96
**Casing Elevation:** 747.76' AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** Ryan Tuttle

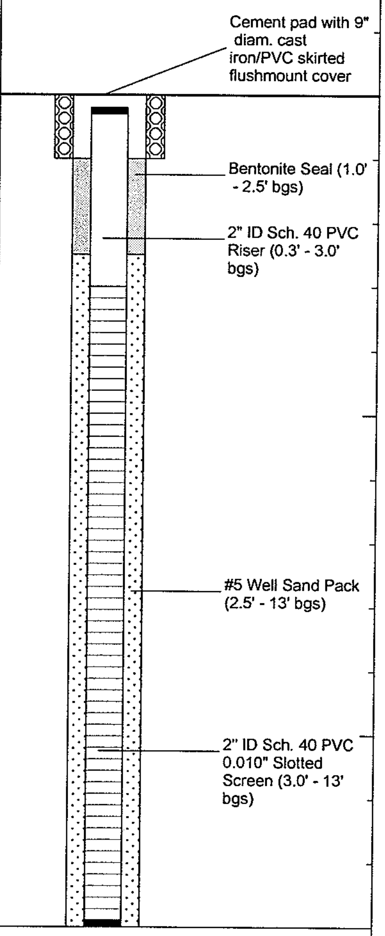
**Well/Boring ID:** 03-105R3

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Black (10YR 2/1) non-plastic, mostly fine subrounded POORLY GRADED SILTY SAND (SM), foundry sand, trace Slag, loose to medium dense, no odor, dry to damp. [FILL] |
| | | 1 | 3-5 | 4<br>2<br>2<br>4 | 4 | 1.5 | 0.0 | + | SM | | |
| 5 | -5 | | | | | | | | | | |
| | | 2 | 5-7 | 6<br>7<br>7<br>8 | 14 | 2 | 0.0 | + | | | Saturated at 7' bgs. |
| | | 3 | 7-9 | 4<br>2<br>2<br>3 | 4 | 1.75 | 0.0 | + | | | 2" brown (10YR1/1) SILTY SAND lense, at 8.5' bgs. |
| | | | | | | | | | | | No samples collected from 9.0' - 13.0' bgs. See log for location 03-105R2 for geologic description. |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
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Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: 03-105R3.dat
Date: 6/7/04

**Date Start/Finish:** 3/29/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 565146.03
**Easting:** 13305989.28
**Casing Elevation:** 746.76' AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

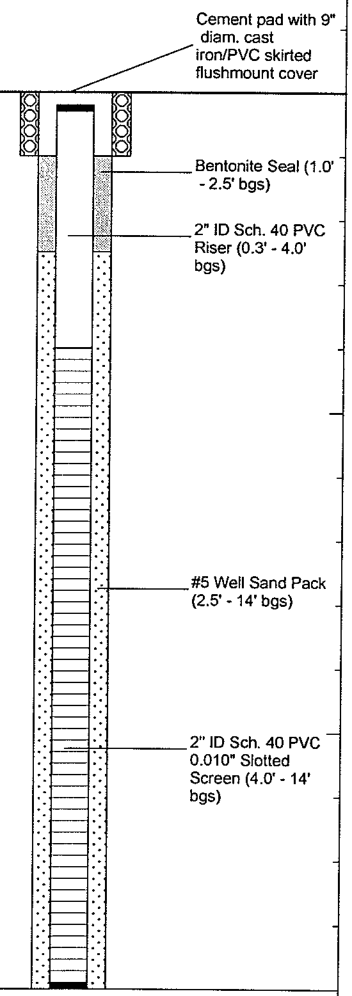
**Well/Boring ID:** 03-110R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | CONCRETE |
| | | 1 | 1-3 | 9<br>7<br>6<br>8 | 13 | 2.0 | 0.0 | - | SM | | Black (10YR 2/1) fine POORLY GRADED SILTY SAND (SM), medium dense, no apparent odor. [FILL] |
| | | 2 | 3-5 | 5<br>4<br>2<br>3 | 6 | 0.5 | 0.0 | - | SP | | Yellow Brown (10YR 2/1) fine poorly graded SAND (SP), rare fragments of Clay, loose, no apparent odor, damp. [FILL] |
| 5 | -5 | 3 | 5-7 | 3<br>2<br>2<br>3 | 4 | 1.0 | 0.0 | - | | | Saturated at 6' bgs. |
| | | | | | | | | | | | No samples collected from 7.0' - 14.0' bgs. See log for location 03-110 for geologic description. |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: 03-110R.dat
Date: 6/8/04

*Page: 1 of 1*

**Date Start/Finish:** 12/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Tom Rau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 13' bgs.
**Surface Elevation:** NA

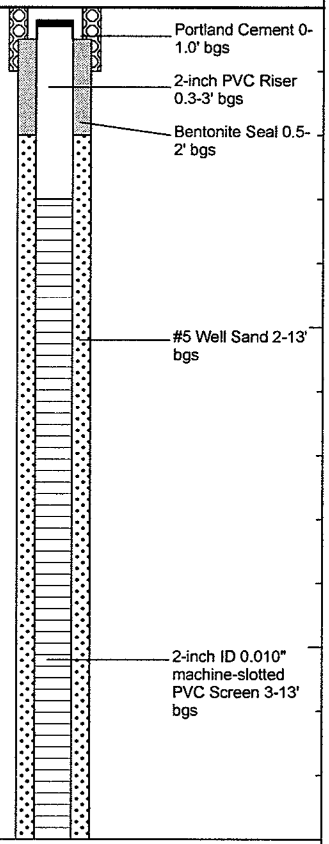
**Descriptions By:** Wayne Patterson

**Boring ID:** 03-113R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-4' see 03-113 boring log. | | |
| 5 | -5 | 1 | 4-6' | 3<br>3<br>3<br>2 | 6 | 2.0 | NA | NA | SP | ▨ | Yellow-brown (10YR 5/4) fine SAND (SP), loose, wet, no odor. (Fill)<br>Saturated. | SAND | |
| | | | | | | | | | | | 6-13' see 03-113 boring log. | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-4' and 6-13' bgs, see 03-113 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565294.11
**Easting:** 13306176.13
**Casing Elevation:** 746.27 AMSL

**Borehole Depth:** 19' bgs
**Surface Elevation:** 746.72 AMSL

**Descriptions By:** SM Duly

**Boring ID:** 03-114R

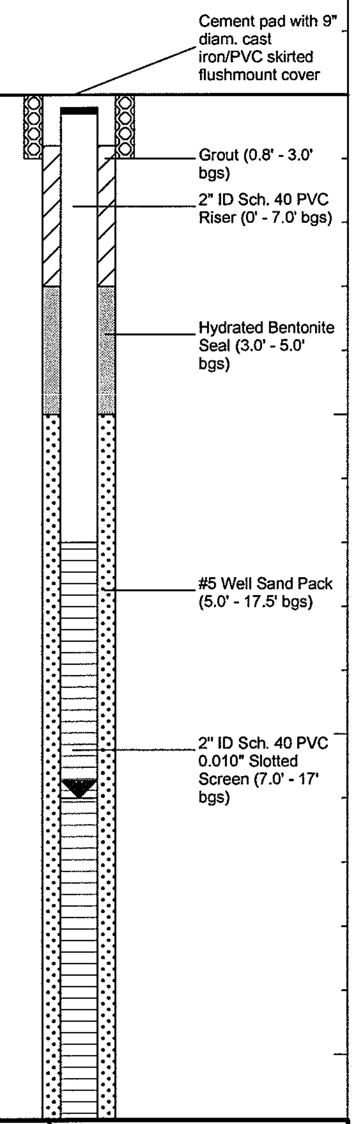
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION |
|---|---|
| 0 | |
| | 745 |
| 5 | |
| | 740 |
| 10 | |
| | 735 |
| 15 | |

| Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FL | | ASPHALT.<br>CONCRETE. | CONCRETE |
| 1 | 1-3 | 10<br>15<br>22<br>5 | 37 | 1.5 | 0.0 | - | ML | | Black (10YR 2/1) to very dark brown (10YR 2/2) SILT (ML), some Clay, few to locally little fine to coarse subrounded to angular Sand, trace fine to coarse rounded Gravel, Cinders, melted Glass, and Building Debris present, aplastic, very dense, no odor, dry. Native Till used as Backfill. | SILT |
| 2 | 3-5 | 1<br>1<br>2<br>2 | 3 | 1.8 | 0.0 | - | | | Decreased Clay to little, increased poorly graded fine Sand to little, loose below 3.0' bgs. | |
| 3 | 5-7 | 1<br>1<br>2<br>2 | 3 | 1.1 | 0.0 | - | SM | | Brown (10YR 4/3) fine subangular POORLY GRADED SILTY SAND (SM), little to few Clay, aplastic, no odor, loose, dry. Fill Sand. | SILTY SAND |
| 4 | 7-9 | 1<br>1<br>1<br>1 | 2 | 1.6 | 0.0 | - | | | Saturated to wet at 8.9' bgs. | |
| 5 | 9-11 | 1<br>2<br>2<br>2 | 4 | 1.8 | 0.0 | - | CL<br>SM | | Dark gray (10YR 3/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, moderately plastic, soft, no odor, moist to damp. Native Clay Till used as Backfill.<br>Brown (10YR 5/3) fine subangular POORLY GRADED SILTY SAND (SM), little to few Clay, aplastic, no odor, loose, moist. Fill Sand. | SILTY CLAY<br>SILTY SAND |
| 6 | 11-13 | WH<br>WH<br>2<br>1 | WH | 1.3 | 0.0 | - | CL | | Very dark brown (10YR 2/2) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, yellow-brown (10YR 5/6) and gray (10YR 5/1) mottling, black saturated Silt lense at 11' bgs, moderately plastic, soft, no odor, moist to damp. Native Clay Till used as Backfill.<br>Gray (10YR 4/1) 6" thick Silt lens, saturated at 12.1' bgs. | SILTY CLAY |
| 7 | 13-15 | 4<br>3<br>2<br>2 | 5 | 1.6 | 0.0 | - | | | Brown (10YR 5/3) 6" thick poorly graded fine subangular Sand (SP) lense, some fine to coarse angular to subangular Gravel, occasional subangular Pebbles, few Silt, no odor, loose, saturated at 13.9' bgs. | |
| 8 | 15-17 | 2<br>4 | 8 | 2.0 | 0.0 | - | | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, 30% yellow-brown (10YR 5/4) mottling, homogeneous, occasional saturated Silt lenses up to 1.5" thick throughout, moderately plastic, soft, no odor, saturated. Native Undisturbed Glacial Clay Till. | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/4/03 | 11' | |

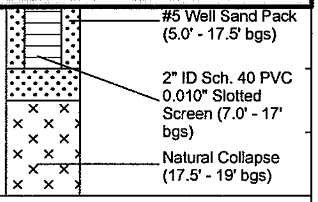
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:03-114R.dat Date: 3/6/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 03-114R

**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | 8 | 15-17 | 4<br>5 | 8 | 2.0 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL) few fine to coarse subrounded Sand, trace fine rounded Gravel, 30% yellow-brown (10YR 5/4) mottling, homogeneous, occasional saturated Silt lenses up to 1.5" thick throughout to 17' bgs, moderately plastic, soft, no odor, saturated. Native Undisturbed Glacial Clay Till. | SILTY CLAY |  |
| | | 9 | 17-19 | 2<br>5<br>6<br>9 | 11 | 2.0 | 0.0 | - | | | | | |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/4/03 | 11' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/23/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 566775.01
**Easting:** 13306492.79
**Casing Elevation:** 752.13 ft. AMSL

**Borehole Depth:** 30' bgs
**Surface Elevation:** 752.26 AMSL

**Descriptions By:** SM Duly

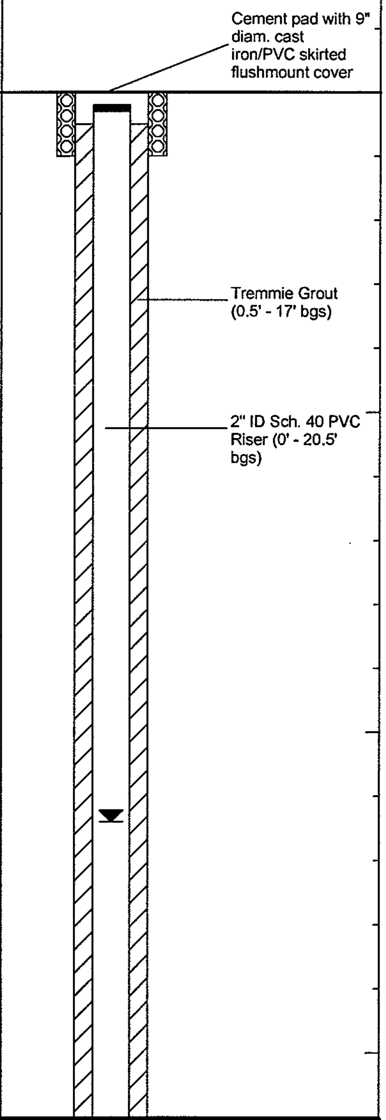
**Boring ID:** 20-101RD

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | | |
| 0 | | 1 | 0-2 | 3<br>4<br>9<br>10 | 13 | 1.5 | 0.0 | - | ML | | Dark brown (10YR 3/3) SILT (ML), few fine to coarse subrounded Sand, trace fine rounded Gravel, few Clay, Vegetation such as Grass and Roots present, aplastic, medium dense, moist with rainfall.<br>Bleached light brown-gray (10YR 6/2) SILT (ML) as above, old root structure present, patches of Topsoil, dry. | STIL |
| | 750 | 2 | 2-4 | 8<br>6<br>7<br>10 | 13 | 1.5 | 0.0 | - | | | Black (10YR 2/1) SILT (ML), no odor, aplastic, medium dense, dry. Foundry Fill material.<br>Very dark gray-brown (10YR 4/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, few to trace rounded Gravel, heavily oxidized and with black mottling throughout, Cinders and Metallic debris present, 6" of Concrete Rubble from 3.0' - 3.5' bgs, aplastic, medium stiff, no odor, dry. Native Clay Till used as backfill. | Silty CLAY |
| 5 | | 3 | 4-6 | 7<br>9<br>8<br>8 | 17 | 1.3 | 0.0 | - | CL | | Black (10YR 2/1) Cinders present at 4.8' bgs.<br>Becomed increasingly gray in color and decreasing stiffness with depth, occasional Cinder present at 5.8' bgs. | |
| | 745 | 4 | 6-8 | 4<br>5<br>2<br>2 | 7 | 1.6 | 0.0 | - | | | 2"-thick lense of Cinders, moist to wet at 7.3' bgs.<br>Soft to very soft, moist to damp at 7.5' bgs. | |
| 10 | | 5 | 8-10 | 1<br>2<br>2<br>3 | 4 | 1.8 | 0.0 | - | | | Dark gray (10YR 4/2) SILT (ML), some Clay, trace fine to medium subrounded Sand, rare Cinders, aplastic, no odor, loose. Native Glacial Till used as backfill and/or Glacio-alluvial.<br>Moist to wet at 9.8' bgs. | SILT |
| | | 6 | 10-12 | 1<br>1<br>2<br>7 | 3 | 1.9 | 0.0 | - | | | Becoming gray (10YR 5/1) with fine subangular Sand at 10.7' bgs.<br>Saturated at 11.4' bgs. | |
| | 740 | 7 | 12-14 | 5<br>6<br>8<br>9 | 14 | 1.5 | 0.0 | - | ML | | Gray (10YR 6/1) SILT (ML), trace Clay, trace fine subangular Sand, no odor, medium dense, aplastic, saturated. Glacio-alluvial. | |
| 15 | | 8 | 14-16 | 3<br>5<br>5<br>6 | 10 | 1.4 | 0.0 | - | | | Increased Clay content to little at 16' bgs. | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/23/02 | 11.4' | |

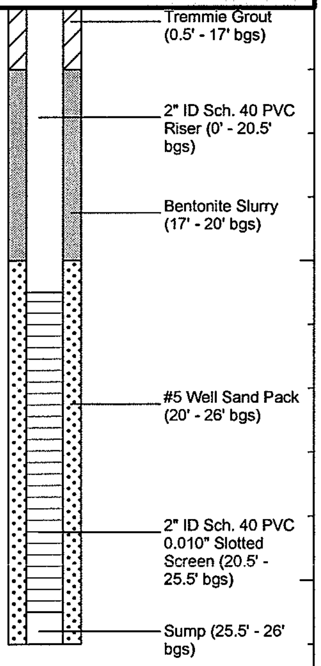
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:20-101RD.dat Date: 10/22/02

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 20-101RD
**Borehole Depth:** 30' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 735 | 9 | 16-18 | 3<br>5<br>5<br>6 | 10 | 1.4 | 0.0 | - | ML | Gray (10YR 6/1) SILT (ML), little Clay, trace fine subangular Sand, no odor, medium dense, aplastic, saturated. Glacio-alluvial. | SILT |
|  |  | 10 | 18-20 | 2<br>5<br>4<br>5 | 9 | 1.6 | 0.0 | - |  |  |  |
| 20 |  | 11 | 20-22 | 3<br>3<br>4<br>4 | 7 | 1.5 | 0.0 | - |  |  |  |
|  | 730 | 12 | 22-24 | 3<br>2<br>3<br>3 | 5 | 1.5 | 0.0 | - |  |  |  |
| 25 |  | 13 | 24-26 | 2<br>1<br>2<br>3 | 3 | 1.3 | 0.0 | - | CL | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, homogenous, no odor, wet to moist. Native Glacial Clay Till.<br>Moist at 24.5' bgs. | Silty CLAY |
|  | 725 | 14 | 26-28 | 2<br>2<br>3<br>4 | 5 | 1.5 | 0.0 | - |  |  |  |
|  |  | 15 | 28-30 | 1<br>3<br>4<br>7 | 7 | 2.0 | 0.0 | - |  | 1"-thick Siilty Sand (SM) lense, saturated at 29.7' bgs. |  |
| 30 |  |  |  |  |  |  |  |  |  |  |  |
|  | 720 |  |  |  |  |  |  |  |  |  |  |
| 35 |  |  |  |  |  |  |  |  |  |  |  |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/23/02 | 11.4' |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:20-101RD.dat Date: 10/22/02

**Date Start/Finish:** 12/3/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 567032.60
**Easting:** 13306825.97
**Casing Elevation:** 751.24

**Borehole Depth:** 16' bgs.
**Surface Elevation:** 751.00

**Descriptions By:** Wayne Patterson

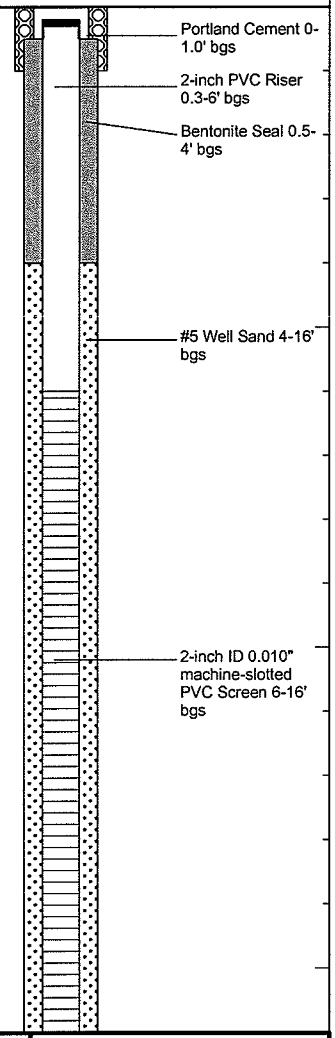
**Boring ID:** 20-500R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-5' see 20-500 boring log. | |
| 5 | -5 | 1 | 5-7' | 2<br>3<br>3<br>4 | 6 | 2.0 | NA | NA | SP | ░ | Yellowish-brown (10 YR 5/4) fine SAND (SP), loose, damp, no odor. (Fill) | SAND |
| | | 2 | 7-9' | 2<br>2<br>3<br>4 | 5 | 2.0 | NA | NA | | ░ | Gray (10YR 5/1). | |
| 10 | -10 | 3 | 9-11' | 3<br>3<br>3<br>3 | 6 | 2.0 | NA | NA | | ░ | Black (10YR 2/1), saturated, strong odor. | |
| | | | | | | | | | | | 11-16' see 20-500 boring log. | |
| 15 | -15 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-5' and 11-16' bgs, see 20-500 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:j:\rockware\logplot2001\logfiles\64410\20-500R.dat Date:12/29/03

**Date Start/Finish:** 12/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Tom Rau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 15' bgs.
**Surface Elevation:** NA

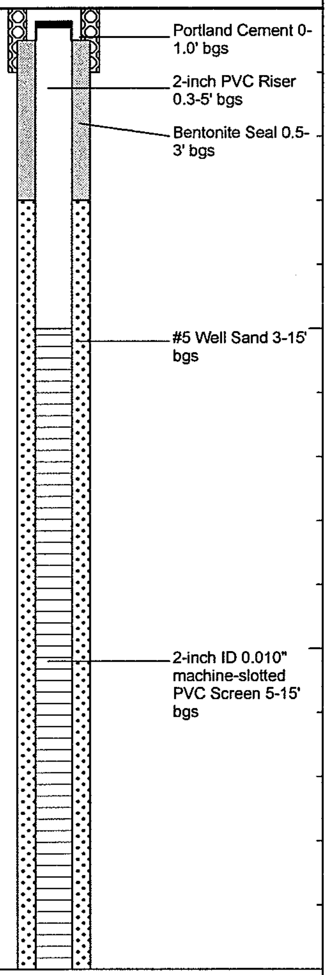
**Descriptions By:** Wayne Patterson

**Boring ID:** 20-FP4R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-3' see 20-FP4 boring log. | | |
| | | 1 | 3-5' | 9<br>13<br>18<br>32 | 31 | 2.0 | NA | NA | ML | | Black (10YR 2/1) fine SAND and SILT (ML), some metal and wood debris, rare slag, medium dense, damp, little odor. (Fill) | SILT and SAND | |
| 5 | -5 | 2 | 5-7' | 8<br>11<br>13<br>15 | 24 | 2.0 | NA | NA | | | | | |
| | | 3 | 7-9' | 14<br>32<br>23<br>23 | 55 | NA | NA | NA | | | Product saturated. | | |
| | | | | | | | | | | | 9-15' see 20-FP4 boring log. | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-3' and 9-15' bgs, see 20-FP4 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:j:\rockware\logplot2001\logfiles\64410\20-FP4R.dat Date:12/29/03

**Date Start/Finish:** 12/3/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 565627.49
**Easting:** 13306256.92
**Casing Elevation:** 748.31

**Borehole Depth:** 15' bgs.
**Surface Elevation:** 748.32

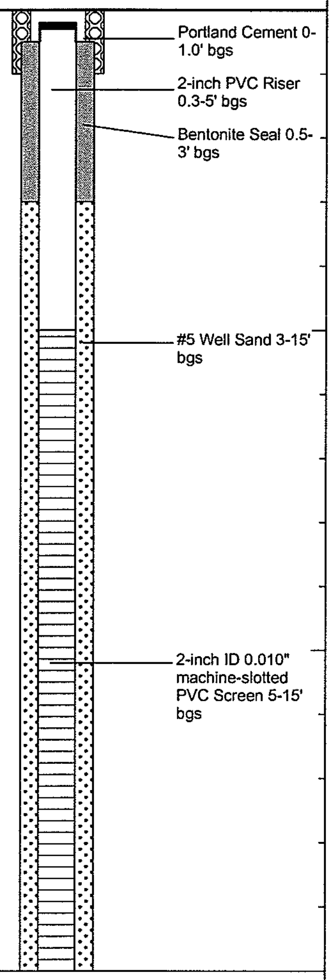
**Descriptions By:** Wayne Patterson

**Boring ID:** 20-FP6R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-5' see 20-FP6 boring log. | | |
| 5 | -5 | 1 | 5-7' | 3<br>4<br>4<br>3 | 8 | 2.0 | NA | NA | SM | | Black (10YR 2/1) fine Silty SAND (SM), loose, damp, no odor. (Fill) | SILTY SAND | |
| | | 2 | 7-9' | 5<br>6<br>7<br>3 | 13 | 1.75 | NA | NA | | | Black (10YR 2/1) fine to coarse Silty SAND (SM), some fine angular Gravel, loose, saturated, weak odor. (Fill)<br>Saturated. | | |
| | | | | | | | | | | | 9-15' see 20-FP6 boring log. | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-5' and 9-15' bgs, see 20-FP6 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:j:\rockware\logplot2001\logfiles\64410\20-FP6R.dat Date:12/29/03

**Date Start/Finish:** 12/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Tom Rau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 565861.24
**Easting:** 13306556.66
**Casing Elevation:** 749.63

**Borehole Depth:** 15' bgs.
**Surface Elevation:** 749.59

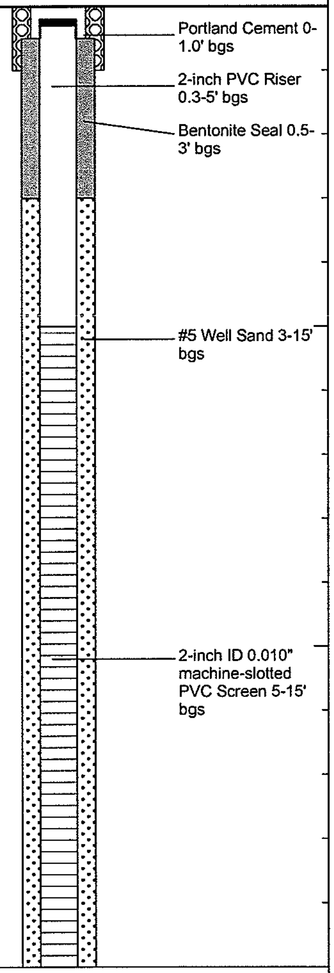
**Descriptions By:** Wayne Patterson

**Boring ID:** 20-FP9R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-7' see 20-FP9 boring log. | | |
| 5 | -5 | | | | | | | | | | | | |
| | | 1 | 7-9' | 3<br>4<br>4<br>5 | 8 | 2.0 | NA | NA | SP | ▨ | Brown (10YR 5/3) fine SAND (SP), loose, no odor. (Fill)<br>Saturated. | SAND | |
| | | | | | | | | | | | 9-15' see 20-FP9 boring log. | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-7' and 9-15' bgs, see 20-FP9 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Page: 1 of 1

Data File:j:\rockware\logplot2001\logfiles\64410\20-FP9R.dat Date:12/29/03

**Date Start/Finish:** 2/13/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561686.65
**Easting:** 13305940.66
**Casing Elevation:** 733.64 AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** 733.98 AMSL

**Descriptions By:** SM Duly

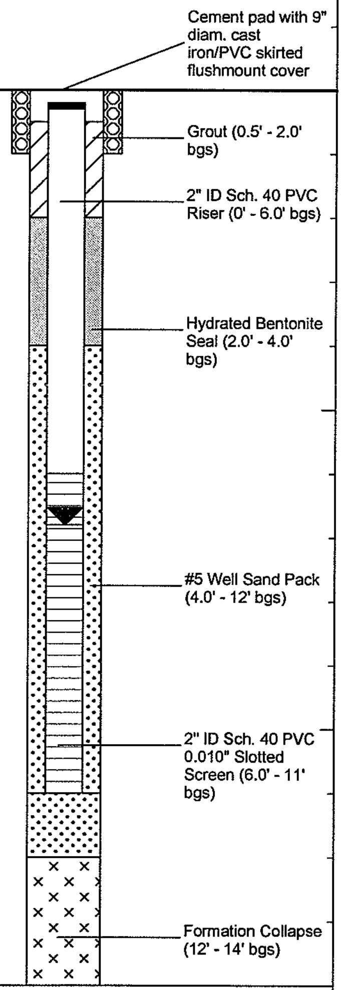
**Boring ID:** 40-01R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 735 | | | | | | | | | | |
| 0 | | | | | | | | | FL | FILL debris, piping and rebar from demolition activities. | FILL |
| | | 1 | 1-3 | 2<br>3<br>3<br>4 | 6 | 1.5 | NA | - | SM | Yellow-bown (10YR 5/4) SILTY fine to medium subangular POORLY GRADED SAND (SM), few Clay, aplastic, loose, no odor, dry. Fill Sand.<br>Cinders and Metallic debris at 3.5' bgs. | SILTY SAND |
| 5 | 730 | 2 | 3-5 | 2<br>1<br>1<br>1 | 2 | 0.5 | NA | - | | | |
| | | 3 | 5-7 | 1<br>10<br>5<br>3 | 15 | 1.2 | NA | - | | Wood and fine to coarse subrounded well graded Gravel, saturated at 6.8' bgs.<br>Black (10YR 2/1) color, saturated at 7.8' bgs. | |
| | 725 | 4 | 7-9 | 3<br>4<br>5<br>8 | 9 | 1.3 | NA | - | SW | Light yellow-brown (10YR 6/4) fine to coarse WELL GRADED SAND (SW), some Silt, little fine to coarse subrounded to rounded Gravel and Clay, occasional rounded Pebbles, aplastic, no odor, medium dense to loose, saturated. Glacio-Alluvial. | Fine SAND |
| 10 | | 5 | 9-11 | 5<br>9<br>10<br>20 | 15 | 1.7 | NA | - | CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), heavily oxidized to yellow-brown (10YR 6/4) to 12' bgs, few fine to coarse rounded to subrounded Sand, trace to few fine to medium rounded Gravel, very stiff, weakly plastic, no odor, dry. Native Glacial Clay Till. | SILTY CLAY |
| | 720 | 6 | 11-13 | 10<br>25<br>23<br>29 | 48 | 2.0 | NA | - | | | |
| 15 | | | | | | | | | | | |

## Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Located 7' West of 40-01.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/13/03 | 6.8' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:40-01R.dat Date: 3/14/03

**Date Start/Finish:** 12/8/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Denny
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME

**Northing:**
**Easting:**
**Casing Elevation:**

**Borehole Depth:** 10' bgs
**Surface Elevation:**

**Descriptions By:** Wayne Patterson

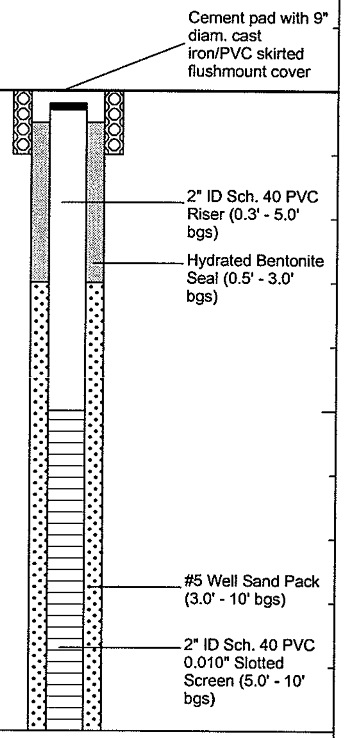
**Boring ID:** 40-01R2

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-5' see 40-01R boring log. | |
| 5 | -5 | 1 | 5-7' | 1<br>1<br>1<br>2 | 2 | 1.8 | NA | NA | SM | ⋮ | Yellow-brown (10YR 5/4) SILTY fine to medium subangular poorly graded Silty SAND (SM), few Clay, loose, no odor, wet. (Fill)<br>Dark gray (10YR 4/1), saturated. | Silty Sand |
| | | | | | | | | | | | 7-10' see 40-01R boring log. | |
| 10 | 10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface
NA = Not Applicable/Not Available
For descriptions from 0-5' and 7-10' bgs, see 40-01R boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 2/14/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 85

**Northing:** 561665.61
**Easting:** 13305811.61
**Casing Elevation:** 735.00 AMSL

**Borehole Depth:** 11' bgs
**Surface Elevation:** 735.33 AMSL

**Descriptions By:** SM Duly

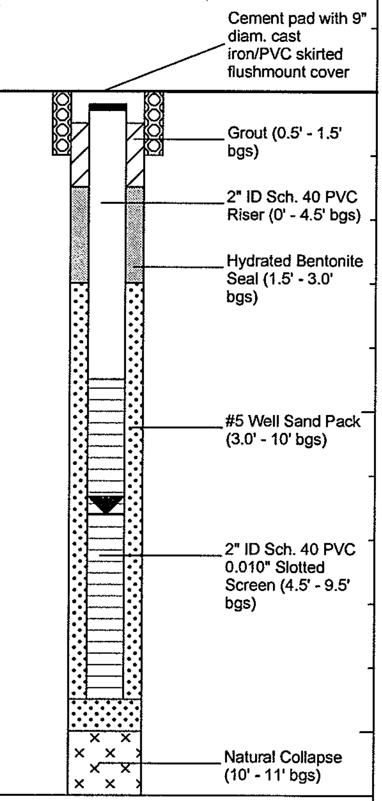
**Boring ID:** 40-6R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 735 | | | | | | | | FL | | CONCRETE. | ONCRET |
| | | 1 | 1-3 | 16<br>14<br>2<br>2 | 16 | 1.9 | NA | - | CL | | Very dark brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine rounded Gravel, intermittant Silty Sand lenses up to 3" thick mixed with Cinders and Metallic debris, weakly plastic, very stiff, no odor, dry. Native Till used as backfill mixed with Fill Sand. | SILTY CLAY |
| | | 2 | 3-5 | 1<br>5<br>2<br>4 | 7 | 1.0 | NA | - | SM | | Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, loose to medium dense, no odor, dry. Fill Sand. | SILTY SAND |
| 5 | 730 | 3 | 5-7 | 1<br>1<br>1<br>1 | 2 | 2.0 | NA | + | | | Saturated at 6.6' bgs. | |
| | | 4 | 7-9 | 1<br>1<br>1<br>1 | 2 | 1.7 | NA | + | | | Weak odor and faint sheen at 9.0' bgs. | |
| 10 | 725 | 5 | 9-11 | 4<br>4<br>6<br>9 | 10 | 2.0 | NA | + | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to medium rounded Gravel, weakly plastic, stiff to very stiff, no odor, dry. Native Glacial Clay Till. | SILTY CLAY |
| 15 | 720 | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/14/03 | 6.6 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:40-6R.dat Date: 3/6/03

**Date Start/Finish:** 2/13/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561643.26
**Easting:** 13305921.33
**Casing Elevation:** 735.37 AMSL

**Borehole Depth:** 24' bgs
**Surface Elevation:** 735.73 AMSL

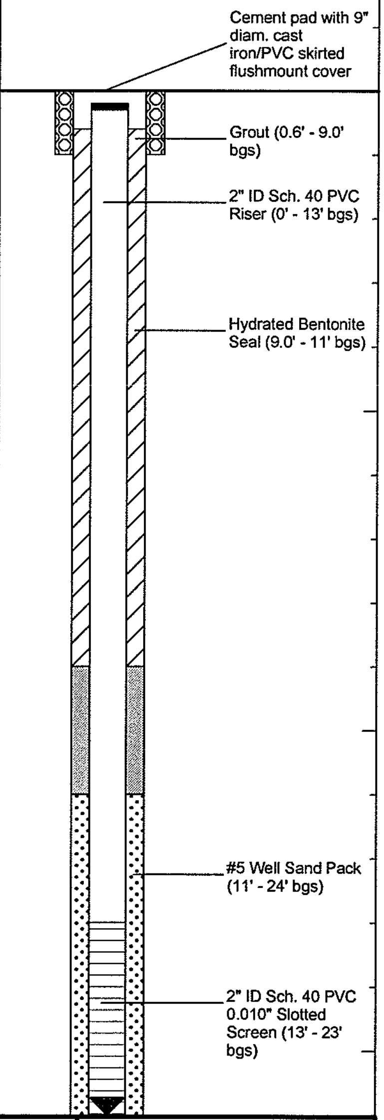
**Descriptions By:** SM Duly

**Boring ID:** 40-07R2

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 735 | | | | | | | | FL | | CONCRETE. | FILL | |
| | | 1 | 1-3 | 12<br>14<br>12<br>10 | 26 | 1.8 | NA | - | SM | | Pale brown (10YR 2/3) to brown (10YR 5/3) fine to coarse subrounded to subangular POORLY GRADED SILTY SAND (SM), few Clay, trace fine rounded Gravel, aplastic, no odor, dense, dry. Fill Sand. | SILTY SAND | |
| | | 2 | 3-5 | 7<br>6<br>5<br>6 | 11 | 1.5 | NA | - | | | 1"-thick lens with black (10YR 2/1) coarse angular Gravel, Silty Sand is now brown (10YR 5/3) at 4.0' bgs.<br>Moist to damp at 4.7' bgs. | | |
| 5 | 730 | 3 | 5-7 | NA | NA | 0.0 | NA | NA | FL | | CONCRETE. | FILL | |
| | | 4 | 7-9 | 4<br>4<br>7<br>9 | 11 | 1.2 | NA | + | SM | | Black (10YR 2/1) SILTY fine subangular POORLY GRADED SAND (SM), few Clay, aplastic, moderate odor, medium dense to loose, dry. Fill.<br>Concrete Pebbles present, Sand is Cobble-sized at 8.5' bgs. | SILTY SAND | |
| | | 5 | 9-10 | NA | NA | 0.0 | NA | NA | FL | | CONCRETE. | FILL | |
| 10 | 725 | 6 | 10-12 | 3<br>4<br>4<br>3 | 8 | 1.3 | NA | + | SM | | Dark gray-brown (10YR 4/2) fine to coarse POORLY GRADED SILTY SAND (SM), few Clay, aplastic, moderate odor, medium dense to loose, damp to moist. Fill. | SILTY SAND | |
| | | 7 | 12-14 | 2<br>2<br>2<br>2 | 4 | 1.5 | NA | + | CL | | Dark gray (10YR 3/2) SILTY LEAN CLAY (CL), few fine to coarse subangular to subrounded Sand, trace fine rounded Gravel, interbedded with Silty Sand lenses as above from 10' - 12' bgs, aplastic, moderate odor, damp. Native Till/Glacio-Alluvial. | SILTY CLAY | |
| 15 | 720 | 8 | 14-16 | 2<br>2<br>2<br>2 | 4 | 1.6 | NA | + | SP | | Very dark gray (10YR 3/1) fine subangular POORLY GRADED SAND (SP), some Silt, few Clay, oily sheen present, aplastic, loose, moderate to strong odor, moist. | Fine SAND | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

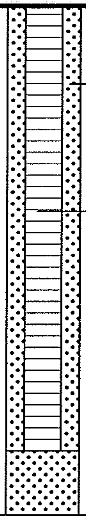
| Date | Depth | Elev. |
|---|---|---|
| 2/13/03 | 16 | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 40-07R2

**Borehole Depth:** 24' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>2<br>3<br>5 | 5 | 1.5 | NA | + | SP | | Very dark gray (10YR 3/1) fine subangular POORLY GRADED SAND (SP), some Silt, few Clay, oily sheen present, aplastic, loose, moderate to strong odor, saturated. | Fine SAND |  #5 Well Sand Pack (11' - 24' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (13' - 23' bgs) |
| | | 10 | 18-20 | WH<br>1<br>1<br>1 | 2 | 1.7 | NA | + | | | Shell fragments present at 19.5' bgs. | | |
| 20 | 715 | 11 | 20-22 | 1<br>1<br>1<br>1 | 2 | 2.0 | NA | + | | | | | |
| | | 12 | 22-24 | 1<br>2<br>2<br>3 | 4 | 1.5 | NA | + | | | | | |
| 25 | 710 | | | | | | | | | | | | |
| 30 | 705 | | | | | | | | | | | | |
| 35 | 700 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/13/03 | 16 | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:40-07R2.dat Date: 3/14/03

**Date Start/Finish:** 12/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Tom Rau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 564888.56
**Easting:** 13306494.43
**Casing Elevation:** 742.96

**Borehole Depth:** 13' bgs.
**Surface Elevation:** 743.04

**Descriptions By:** Wayne Patterson

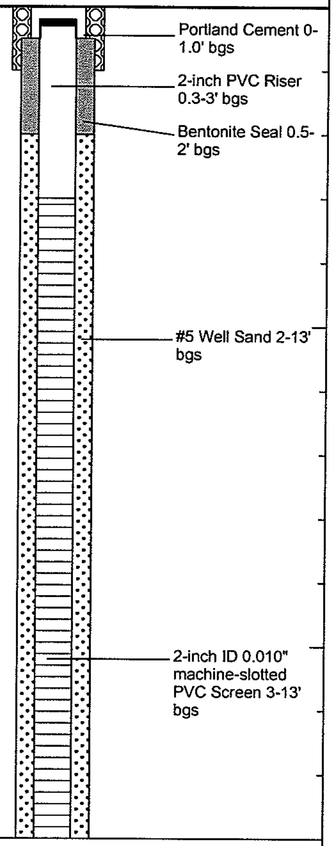
**Boring ID:** 70-102R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-3' see 70-102 boring log. | |
| | | 1 | 3-5' | 3<br>2<br>2<br>2 | 4 | 1.0 | NA | NA | SM | | Black (10YR 2/1) fine to coarse subangular Silty SAND (SM), loose, moist, no odor. (Fill) | Silty sand |
| 5 | -5 | 2 | 5-7' | 2<br>2<br>7<br>3 | 9 | 1.0 | NA | NA | ML | | Dark gray (10YR 4/1) SILT (ML), little fine Sand, no odor, moist. (Fill)<br>Saturated. | SILT |
| | | | | | | | | | | | 7-13' see 70-102 boring log. | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-3' and 7-13' bgs, see 70-102 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 12/3/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 564776.42
**Easting:** 13306382.60
**Casing Elevation:** 743.04

**Borehole Depth:** 13' bgs.
**Surface Elevation:** 742.88

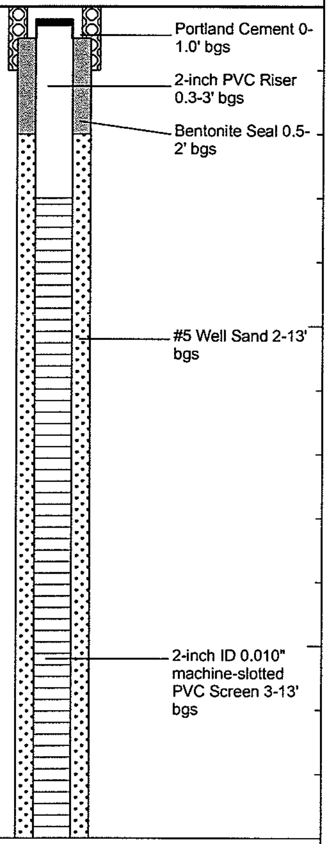
**Descriptions By:** Wayne Patterson

**Boring ID:** 70-107R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-3' see 70-107 boring log. | | |
| | | 1 | 3-5' | 3<br>4<br>4<br>3 | 8 | 2.0 | NA | NA | CL | | Pale brown (10YR 6/3) Silty CLAY (CL), some black (10YR 2/1) staining, medium stiff, moist, no odor. (Fill) | Silty Clay | |
| 5 | -5 | 2 | 5-7' | 1<br>2<br>2<br>2 | 4 | 1.5 | NA | NA | SM | | Black (10YR 2/1) fine Silty SAND (SM), loose, saturated, no odor. (Fill) | ilty sanc | |
| | | | | | | | | | | | 7-13' see 70-107 boring log. | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-3' and 7-13' bgs, see 70-107 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 12/8/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Denny
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 564933.29
**Easting:** 13306339.39
**Casing Elevation:** 744.34

**Borehole Depth:** 16' bgs.
**Surface Elevation:** 744.42

**Descriptions By:** Wayne Patterson

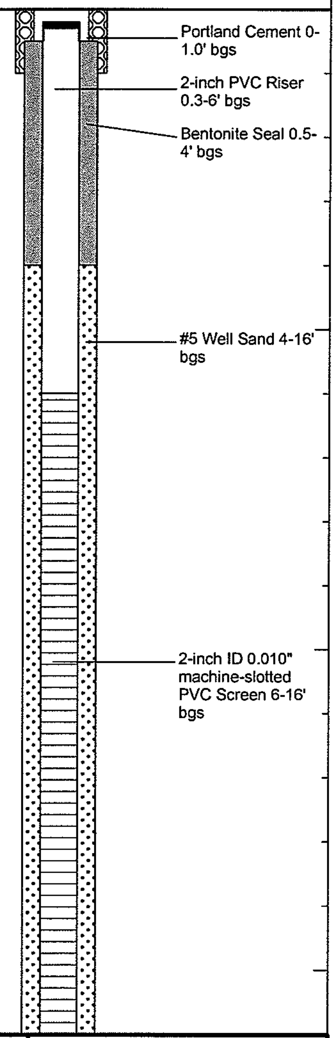
**Boring ID:** 70-108R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | 0-2' see 70-108 boring log. | |
| | | | | | | | | | Fill | | CONCRETE. | concrete |
| | | | | | | | | | | | 3-6' see 70-108 boring log. | |
| 5 | -5 | 1 | 5-7' | 5<br>6<br>8<br>2 | 14 | 1.0 | NA | NA | ML | | Dark gray (10YR 4/1) SILT (ML), few Clay and slag, dry, no odor. (Fill). | silt |
| | | 2 | 7-9' | 2<br>5<br>3<br>5 | 8 | 1.0 | NA | NA | CL | | Black (10YR 2/1) Silty CLAY (CL), few fine to coarse subangular Sand and fine subangular Gravel, medium stiff, saturated, strong odor, product. (Fill) | Silty Clay |
| | | | | | | | | | | | 9-16' see 70-108 boring log. | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 0-2', 3-6' and 9-16' bgs,
see 70-108 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:j:\rockware\logplot2001\logfiles\64410\70-108R.dat Date:12/29/03

**Date Start/Finish:** 3/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561355.69
**Easting:** 13306147.41
**Casing Elevation:** 720.32 AMSL

**Borehole Depth:** 25' bgs
**Surface Elevation:** 720.69 AMSL

**Descriptions By:** SM Duly

**Boring ID:** 84-06R

**Client:** General Motors

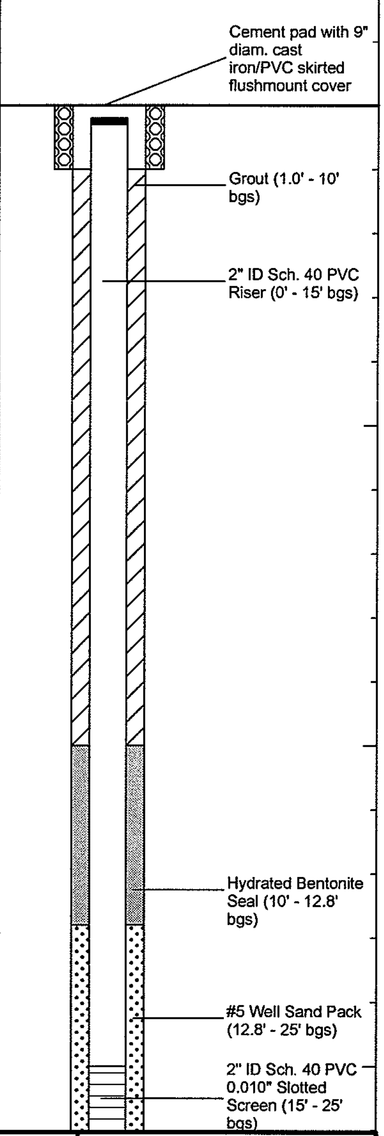
**Location:** GM Flint
Flint, Michigan

| Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|
| 1 | 0-2 | 18<br>10<br>16<br>16 | 26 | 1.7 | 0.0 | - |
| 2 | 2-4 | 4<br>5<br>5<br>9 | 10 | 1.3 | 0.0 | - |
| 3 | 4-6 | 2<br>6<br>8<br>9 | 14 | 2.0 | 0.0 | - |
| 4 | 6-8 | 3<br>3<br>6<br>9 | 9 | 2.0 | 0.0 | - |
| 5 | 8-10 | 2<br>6<br>11<br>16 | 17 | 2.0 | 0.0 | - |
| 6 | 10-12 | 4<br>9<br>17<br>19 | 26 | 2.0 | 0.0 | - |
| 7 | 12-14 | 2<br>4<br>7<br>9 | 11 | 2.0 | 0.0 | - |
| 8 | 14-16 | 2<br>4<br>6<br>6 | 10 | 2.0 | 0.0 | - |

DEPTH: 0, 5, 10, 15
ELEVATION: 720, 715, 710, 705

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| SM | ASPHALT.<br>Brown (10YR 5/3) fine to coarse POORLY GRADED SILTY SAND (SM), few fine to coarse angular Gravel, aplastic, no odor, dense, dry. Fill Sand. | SILTY SAND |
| ML | Black (10YR 2/1) SILT (ML) some Clay, few fine to coarse subrounded Sand, aplastic, no odor, dense, dry. Native Till used as Backfill. | SILT |
| SM | Yellow-brown (10YR 5/4) fine to coarse subangular to subrounded locally WELL GRADED SILTY SAND (SM), patches of poorly graded fine to medium Silty Sand up to 4" in diameter, few Clay, local patches of increased fine to coarse subrounded Gravel, no odor, mmedium dense to loose, damp. Fill Sand. | SILTY SAND |
| CL | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse rounded to subrounded Sand, trace fine to coarse rounded Gravel, gray (10YR 5/1) mottling locally present, weakly plastic, no odor, medium stiff, dry. Native Clay Till used as Backfill.<br>Brown (10YR 5/3) with occasional gray (10YR 5/1) mottling, dry at 10' bgs. | SILTY CLAY |
| | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL) as above, homogeneous, weakly plastic, no odor, medium stiff, dry. Undisturbed Native Clay Till.<br>Minute/tiny stringers of moisture present throughout, damp below 14' bgs. | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/4/03 | 17' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:84-6R.dat Date: 3/6/03

**Client:**
General Motors

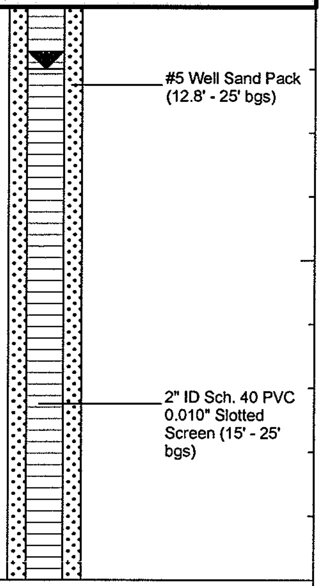
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 84-06R

**Borehole Depth:** 25' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>5<br>6<br>6 | 11 | 2.0 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse rounded to subrounded Sand, trace fine to coarse rounded Gravel, homogeneous, weakly plastic, no odor, medium stiff, dry. Undisturbed Native Clay Till.<br>Silt lenses up to 1" thick throughout, decreased stiffness between lenses, saturated below 17' bgs. | SILTY CLAY |
| | | 10 | 18-20 | 4<br>6<br>7<br>9 | 13 | 2.0 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), little to some Clay, homogeneous, aplastic, medium dense to loose, no odor, saturated. Glacio-Alluvial.<br>2" thick lens of SILTY Lean Clay (CL) at 19.1' bgs. | SILT |
| 20 | 700 | 11 | 20-22 | 4<br>4<br>4<br>6 | 8 | 2.0 | 0.0 | - | | | 5" thick lens of SILTY Lean Clay (CL) at 21.5' bgs. | |
| | | 12 | 22-24 | WH<br>1<br>2<br>3 | 3 | 2.0 | 0.0 | - | SP | | Gray (10YR 5/1) fine to coarse subangular POORLY GRADED SAND (SP), little Silt, aplastic, no odor, loose, saturated, Glacio-Alluvial.<br>Brown (10YR 5/3) with patches of darker oxidation in thin lenses less than 1/4" thick below 23.3' bgs. | SAND |
| 25 | 695 | | | | | | | | | | | |
| 30 | 690 | | | | | | | | | | | |
| 35 | 685 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/4/03 | 17' | |

**Date Start/Finish:** 7/23/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 561317.55
**Easting:** 13306145.70
**Casing Elevation:** NA

**Borehole Depth:** 26' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

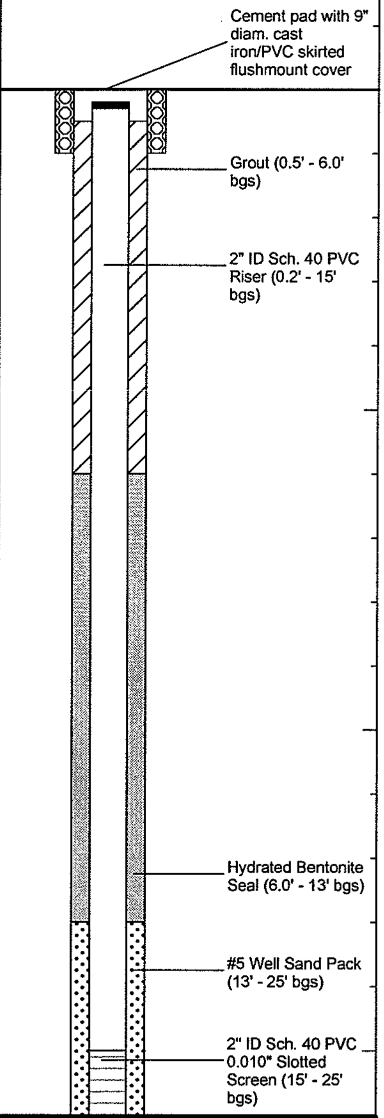
**Boring ID:** 84-06R2

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 9<br>9<br>12<br>13 | 21 | 1.0 | 37.9 | - | FL<br>SP | | Demolition DEBRIS consisting of coarse Gravel to Cobble-sized Concrete, Rebar, Brick, Wood, and Plastic. Fill<br>Yellow-brown (10YR 5/4) fine subangular POORLY-GRADED SAND (SP), some Silt, few Clay, aplastic, no odor, medium dense, dry. Fill Sand. | FILL<br>Fine SAND |
| | | 2 | 2-4 | 7<br>8<br>9/1"<br>- | 17 | 1.0 | 0.4 | - | | | Refusal at 3.0' bgs. Damp and increased Clay content. | |
| 5 | -5 | 3 | 4-6 | 6<br>8<br>11<br>10 | 19 | 1.7 | 0.0 | - | | | Gray-brown (10YR 5/3) with gray (10YR 5/1) LEAN CLAY (CL), some Silt, few fine to coarse subrounded Sand, local patches of oxidation in stringers, weakly plastic, no odor, stiff, rare stringers of moisture to 5.0' bgs, dry. Native Glacial Clay Till used as Backfill. | CLAY |
| | | 4 | 6-8 | 7<br>16<br>26<br>27 | 42 | 1.8 | 0.0 | - | | | | |
| | | 5 | 8-10 | 6<br>7<br>22<br>26 | 29 | 2.0 | 0.0 | - | | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, homogenous, weakly plastic, no odor, hard, dry. Undisturbed Glacial Clay Till.<br>1"-thick lenses of oxidation to dark yellow-brown (10YR 4/4) at 9.8' bgs. | Silty CLAY |
| 10 | -10 | 6 | 10-12 | 7<br>15<br>20<br>25 | 35 | 2.0 | 0.0 | - | CL | | Stringers of oxidation to dark yellow-brown (10YR 5/6) from 11' - 11.7' bgs.<br>Increased plasticity, decreased stiffness, damp below 12' bgs. | |
| | | 7 | 12-14 | 7<br>9<br>10<br>13 | 19 | 1.9 | 0.0 | - | | | | |
| 15 | -15 | 8 | 14-16 | 4<br>5<br>6<br>7 | 11 | 1.8 | 0.0 | - | | | Occasional moist Silt lenses up to 1/2"-thick. Clay is now soft to medium stiff, damp between Silt lenses below 15' bgs. | |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/23/03 | 22' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:84-6R2.dat Date: 3/6/03

**Client:**
General Motors

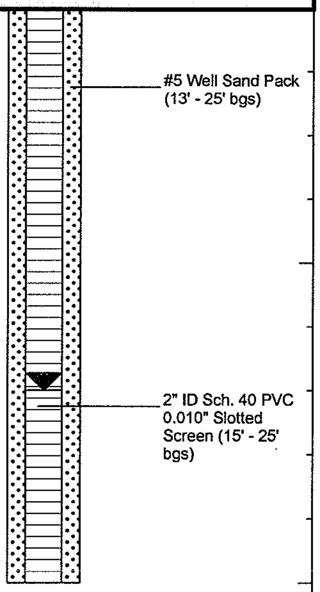
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** 84-06R2

**Borehole Depth:** 26' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 9 | 16-18 | 9<br>10<br>13<br>17 | 23 | 0.2 | 0.0 | - | CL |  | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, homogenous, weakly plastic, no odor, soft to medium stiff, damp. Undisturbed Glacial Clay Till. (Low recovery due to Pebble in shoe.) | Silty CLAY |
|  | 10 | 18-20 | 4<br>5<br>6<br>7 | 11 | 1.6 | 0.0 | - | ML |  | Gray (10YR 5/1) SILT (ML), some to little Clay, trace fine subangular Sand, aplastic, no odor, loose, saturated. Native Glacio-Alluvial. | SILT |
| 20-20 | 11 | 20-22 | 6<br>7<br>4<br>5 | 11 | 1.4 | 0.0 | - | CL |  | Gray (10YR 5/1) SILTY LEAN CLAY (CL), as above from 8.0' - 18' bgs. | y CL |
|  | 12 | 22-24 | WH | NA | 0.7 | 0.0 | - | SP |  | Gray (10YR 5/1) fine to medium (predominantly fine) subangular POORLY-GRADED SAND (SP), little Silt, occasional Clay patches up to 1/2" to 1" diameter, no odor, loose, saturated. Alluvial | Fine SAND |
| 25-25 | 13 | 24-26 | WH | NA | 0.6 | 0.0 | - |  |  | Rare fine subrounded Gravel below 25' bgs.<br>Water came up to 11' bgs in augers. |  |
| 30-30 |  |  |  |  |  |  |  |  |  |  |  |
| 35-35 |  |  |  |  |  |  |  |  |  |  |  |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/23/03 | 22' |  |

**Date Start/Finish:** 7/22/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 561317.55
**Easting:** 13306145.7
**Casing Elevation:** NA

**Borehole Depth:** 35' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle/J. Kralik

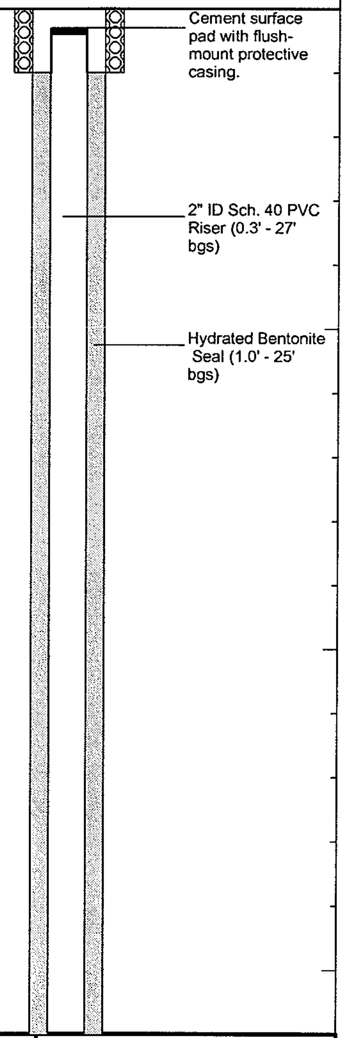
**Well/Boring ID:** 84-06R2D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 2<br>2<br>4<br>6 | 6 | 2.0 | 0.1 | | FL | | Demolition debris consisting of coarse Gravel to Cobble-sized Concrete fragments, Metal, Plastic, Brick, and Wood, some yellowish-brown fine to coarse Sand, loose, no odor, damp. |
| | | 2 | 2-4 | 3<br>4<br>3<br>4 | 7 | 1.5 | 0.0 | | SP | | Yellow-brown (10YR 5/4) fine POORLY-GRADED SAND (SP), some Silt, trace Clay, loose, no odor, damp. Fill. |
| 5 | -5 | 3 | 4-6 | 2<br>1<br>3<br>3 | 4 | 1.5 | 0.7 | | CL | | Gray-brown (10YR 5/3) with yellowish-brown CLAY (CL), some Silt, little red Brick debris, non-plastic, soft, slight sheen, odor, damp to wet.<br>Upon pulling augers, recovered several large chunks of red drainage tile at depth of impacted soils. |
| | | 4 | 6-8 | 1<br>3<br>5<br>7 | 8 | NA | 0.1 | | | | No Recovery. CLAY (CL) as above in tip of split spoon. |
| | | 5 | 8-10 | 3<br>4<br>4<br>8 | 8 | 2.0 | 0.7 | | CL | | Yellow-brown SILTY CLAY (CL), trace coarse Sand and fine Gravel, medium stiff, damp. |
| 10 | -10 | | | | | | | | | | Auger to 25' bgs. |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:84-06R2-D.dat Date: 8/5/05

**Client:**
General Motors

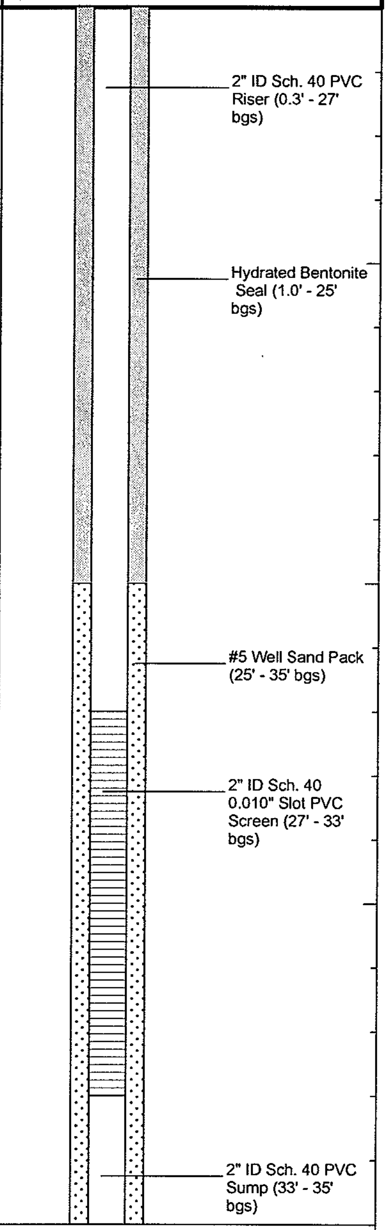
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** 84-06R2D

**Borehole Depth:** 35' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Auger to 25' bgs. |
| 20 | 20 | | | | | | | | | | |
| 25 | 25 | 6 | 24-26 | 2<br>4<br>5<br>7 | 9 | 1.0 | 0.0 | | SP | | Light brownish-gray (5YR 6/1) fine POORLY-GRADED SAND (SP), little Silt and Clay, loose, no odor, saturated. |
| | | 7 | 26-28 | 1<br>2<br>2<br>4 | 4 | 2.0 | 0.0 | | SP | | Few coarse subrounded Gravel below 26' bgs. |
| | | 8 | 28-30 | 6<br>80/0.5<br>-<br>- | NA | 1.0 | 0.0 | | SP<br>SW | | Brownish-gray (10Yr 4/1) below 28' bgs.<br>Olive-gray (5YR 4/1) fine to coarse GRAVELLY fine SAND (SW), no odor, saturated.<br>Possible Cobble prevented further advancement of split spoon at 29' bgs. |
| 30 | 30 | 9 | 30-32 | NA | NA | 0.5 | 0.0 | | GW | | Olive-gray to brownish-gray fine to coarse GRAVEL (GW), some fine Sand, Cobble fragments present, saturated.<br>Auger refusal at 31' bgs. Pull augers and redrill hole 5' north of existing well.<br>Light olive-gray (5Y 6/1) fine to coarse SAND and fine to coarse subangular GRAVEL (GW), coarse material is Sandstone fragments, saturated. |
| | | 10 | 32-34 | NA | NA | 1.5 | 0.0 | | CL | | Brownish-gray (5YR 4/1) fine SANDY CLAY (CL), trace Silt, extremely hard, no odor, damp. |
| 35 | 35 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: 84-06R2-D.dat Date: 8/5/05

**Date Start/Finish:** 03/17/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 561141.24
**Easting:** 13306252.85
**Casing Elevation:** 727.53' AMSL

**Borehole Depth:** 21' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

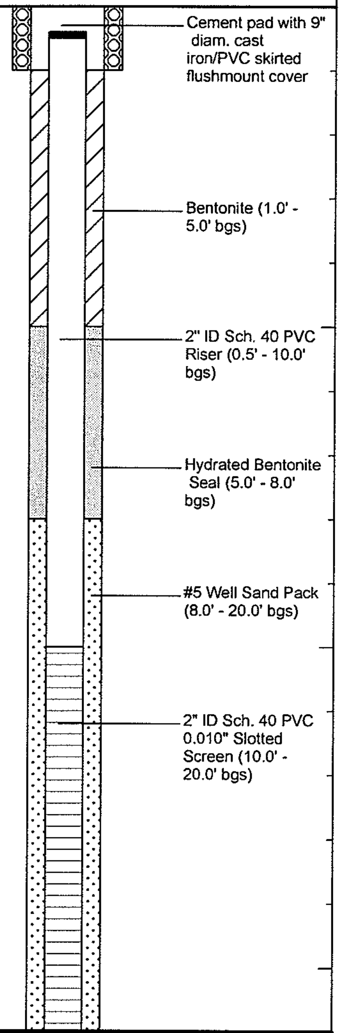
**Well/Boring ID:** 84-07

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | *0* | | | | | | | | FL | | CONCRETE. |
| | | 1 | 0.8-2 | 2<br>2 | NA | 1.2 | 0.0 | | | | Dark brown to black-brown fine SAND, some fine Gravel, little Silt, trace Clay and medium to coarse Sand, little Brick and Concrete debris, loose, damp. [FILL] |
| | | 2 | 2-4 | 2<br>2<br>2<br>6 | 4 | 2.0 | 0.0 | + | | | |
| | | | | | | | | | | | CONCRETE. |
| 5 | *-5* | 3 | 5-7 | 2<br>4<br>6<br>13 | 10 | 1.0 | 0.0 | + | | | Dark brown to black-brown fine SAND, some fine Gravel, little Silt, trace Clay and medium to coarse Sand, little Brick and Concrete debris, loose, damp. [FILL] |
| | | 4 | 7-9 | 1<br>1<br>6<br>13 | 7 | 1.5 | 0.0 | - | ML | | Olive gray SILT grading to yellow-brown coloring below 8.0' bgs, little Clay, no odor, medium stiff, damp. |
| 10 | *-10* | 5 | 9-11 | 10<br>10<br>10<br>10 | 20 | 2.0 | 0.0 | | CL | | Yellow-brown to gray CLAY, some Silt, trace fine Sand, no odor, stiff, damp. |
| | | 6 | 11-13 | 1<br>2<br>8<br>20 | 10 | 2.0 | 0.0 | - | | | |
| | | 7 | 13-15 | 2<br>2<br>6<br>10 | 8 | 2.0 | 0.0 | | | | |
| 15 | *-15* | 8 | 15-17 | 2<br>2 | 8 | 2.0 | 0.0 | - | ML | | Gray SILT becoming yellow-brown below 17.0' bgs, no odor, medium stiff to stiff, moist to wet. |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil sample collected from 0.0' - 2.0', 8.0' - 10.0' and 15' - 17'bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

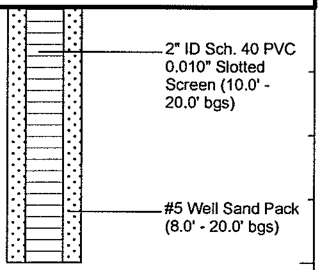
| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Hamilton Ave.
Flint, Michigan

**Well/Boring ID:** 84-07

**Borehole Depth:** 21' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 6<br>8 | 8 | 2.0 | 0.0 | - | ML | | Gray SILT becoming yellow-brown below 17.0' bgs, no odor, medium stiff to stiff, moist to wet. |  |
| | | 9 | 17-19 | 1<br>1<br>9<br>11 | 10 | 2.0 | 0.0 | | | | | |
| 20 | 20 | 10 | 19-21 | 1<br>2<br>4<br>2 | 6 | 2.0 | 0.0 | | SP | | Yellow-brown medium SAND, some fine and coarse Sand, trace Silt, no odor, loose, wet to saturated. | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
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Soil sample collected from 0.0' - 2.0', 8.0' - 10.0' and 15' - 17'bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 7/18/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 561150.83
**Easting:** 13306253.82
**Casing Elevation:** 727.42' AMSL

**Borehole Depth:** 40' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle

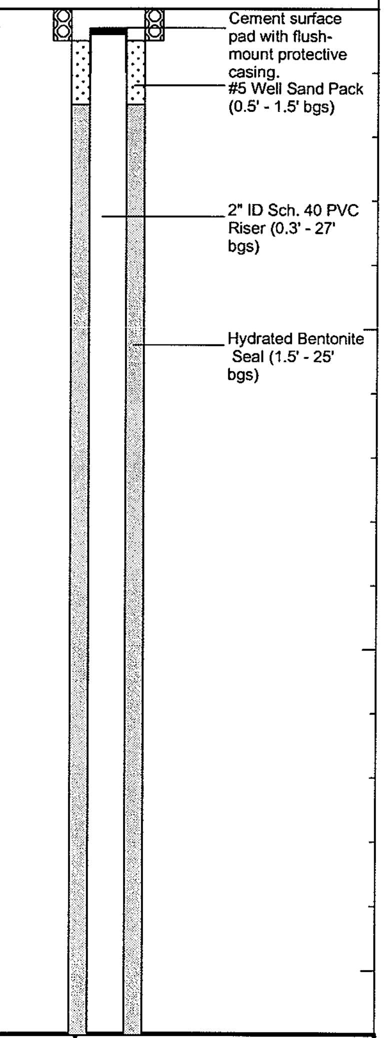
**Well/Boring ID:** 84-07D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 4<br>5<br>4<br>4 | 9 | 1.0 | 0.0 | | FL | CONCRETE. |
| | | 2 | 2-4 | 1<br>2<br>5<br>6 | 7 | 1.75 | 0.0 | | SP | Black (10YR 2/1) fine POORLY-GRADED SAND (SP), few Concrete rubble, loose, no odor, dry.<br>No Concrete rubble below 2.0' bgs. |
| 5 | -5 | 3 | 4-6 | NA | NA | 0.0 | NA | | | No Recovery. Drillers report subsurface Concrete from 4.0' - 6.0' bgs. |
| | | 4 | 6-8 | 4<br>4<br>20<br>11 | 24 | 1.0 | 0.0 | - | SP | Black (10YR 2/1) fine POORLY-GRADED SAND (SP), some Concrete rubble, slight fuel-like odor, loose, no odor, saturated. |
| | | 5 | 8-10 | 2<br>2<br>8<br>10 | 10 | 1.5 | 0.0 | | CL | Yellow-brown (10YR 5/6), with gray (10YR 5/1) mottling, LEAN CLAY with Silt (CL), few fine subrounded Gravel and coarse Sand, slightly plastic, medium stiff, damp. Reworked Native Clay Till.<br>No Mottling, no odor below 9.0' bgs. |
| 10 | -10 | 6 | 10-12 | 2<br>3<br>10<br>8 | 13 | 1.75 | 0.0 | | | |
| | | 7 | 12-14 | 2<br>3<br>7<br>9 | 10 | 1.5 | 0.0 | | | Gray (10YR 4/1) color, few fine subrounded Gravel, stiff to medium stiff, damp below 12' bgs. |
| 15 | -15 | 8 | 14-16 | 2<br>2<br>4<br>4 | 6 | 1.5 | 0.0 | | | No Gravel below 14' bgs. |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

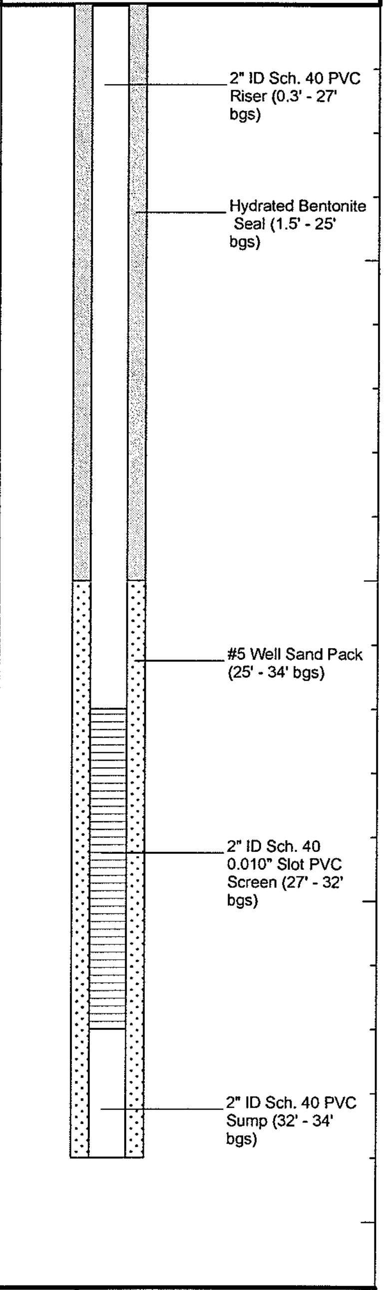
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** 84-07D

**Borehole Depth:** 40' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 9 | 16-18 | 4<br>4<br>6<br>4 | 10 | 1.75 | 0.0 |  | CL |  | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel, slightly plastic, stiff to medium stiff, saturated. Reworked Native Clay Till. |
|  |  | 10 | 18-20 | 1<br>2<br>4<br>4 | 6 | 1.5 | 0.0 |  | ML |  | Yellow-brown (10YR 5/6) CLAYEY SILT (ML), loose, no odor, saturated. |
| 20 | 20 | 11 | 20-22 | 1<br>1<br>2<br>2 | 3 | 2.0 | 0.0 |  | SP |  | Gray-brown (10YR 5/2) fine to medium POORLY-GRADED SAND (SP), loose, no odor, saturated. |
|  |  | 12 | 22-24 | NA | NA | 1.25 | 0.0 |  |  |  |  |
| 25 | 25 | 13 | 24-26 | 1<br>2<br>6<br>8 | 8 | 1.0 | 0.0 |  |  |  |  |
|  |  | 14 | 26-28 | 1<br>5<br>11<br>9 | 16 | 1.75 | 0.0 |  | SW |  | Gray-brown (10YR 5/2) fine to coarse WELL-GRADED SAND (SW), trace fine subangular Gravel, loose, no odor, saturated. Fluvial Deposit. |
|  |  | 15 | 28-30 | 4<br>8<br>14<br>16 | 22 | 0.75 | 0.0 |  |  |  | Little fine to medium subangular Gravel below 28' bgs. |
| 30 | 30 | 16 | 30-32 | 50<br>70<br>-<br>- | NA | 0.5 | 0.0 |  |  |  | Driller reports Boulder during drilling below 30' bgs. |
|  |  | 17 | 32-34 | 10<br>30<br>33<br>- | NA | 0.5 | 0.0 |  |  |  | Driller reports Clay at 32' bgs. |
| 35 | 35 | 18 | 34-36 | 5<br>14<br>14<br>16 | 28 | 1.0 | 0.0 |  | CL |  | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and coarse Sand, slightly plastic, stiff, no odor, damp. |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** 84-07D

**Borehole Depth:** 40' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 19 | 36-38 | 105<br>57<br>18<br>- | NA | 0.0 | 0.0 | | | | No Recovery. | |
| 40 | 40 | 20 | 38-40 | 12<br>22<br>25<br>27 | 47 | 1.1 | 0.0 | | CL | ▤ | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and coarse Sand, slightly plastic, stiff, no odor, damp. | |
| 45 | 45 | | | | | | | | | | | |
| 50 | 50 | | | | | | | | | | | |
| 55 | 55 | | | | | | | | | | | |

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**Remarks:**
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NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: 84-07-D.dat Date: 8/5/05

**Date Start/Finish:** 8/28/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 558982.95
**Easting:** 13304696.37
**Casing Elevation:** NA

**Borehole Depth:** 33' bgs
**Surface Elevation:** NA

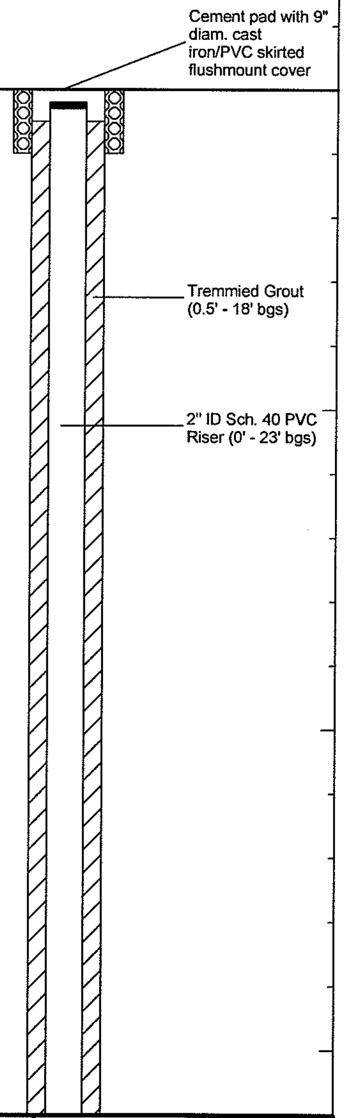
**Descriptions By:** SM Duly

**Boring ID:** ACSP-B2AR

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | 0-16 | NA | NA | NA | NA | NA | | | Auger to 20' bgs. See log for ACSP-B2A for sampling information from 0 - 20' bgs. | | |
| 5 | -5 | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

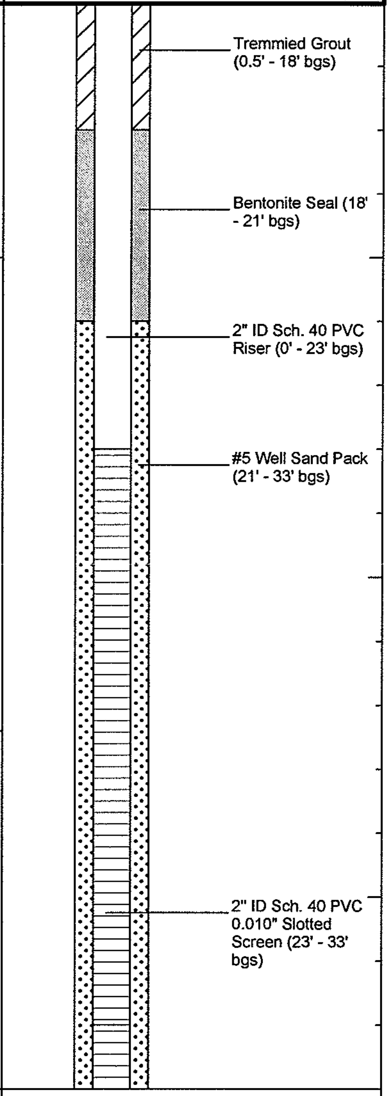
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** ACSP-B2AR

**Borehole Depth:** 33' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NA | 16-20 | NA | NA | NA | NA | NA | | | Auger to 20' bgs. See log for ACSP-B2A for sampling information from 0 - 20' bgs. | | |
| 20-20 | 1 | 20-22 | 10<br>15<br>24<br>32 | 39 | 1.7 | 0.0 | - | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, saturated Silt lenses throughout, aplastic, very stiff to hard, weakly plastic, no odor, dry. Native Glacial Clay Till. | Silty CLAY | |
| | 2 | 22-24 | 18<br>58<br>-<br>- | 58 | 1.0 | 0.0 | - | | | | | |
| 25-25 | 3 | 24-26 | 28<br>26<br>25<br>46 | 51 | 1.8 | 0.0 | - | | | 1"-thick Silt lenses, saturated at 24.9' bgs.<br>6"-thick Silt lense, fine subrounded Gravel, rare fine to medium rounded Gravel, dense, no odor, saturated at 25.6' bgs. | | |
| | 4 | 26-28 | 15<br>27<br>32<br>35 | 64 | 1.5 | 0.0 | - | | | 1"-thick Silt lenses, saturated at 26.5' bgs.<br>1"-thick Silt lenses, saturated at 26.8' bgs. | | |
| | 5 | 28-30 | 22<br>32<br>42<br>50 | 74 | 1.7 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), little Clay, aplastic, dense, no odor, saturated. Glacio-alluvial. | SILT | |
| 30-30 | 6 | 30-32 | 8<br>16<br>22<br>27 | 38 | 1.9 | 0.0 | - | | | Increased Sand content to little, fine subangular to subrounded Sand at 30' bgs. | | |
| | NA | 32-33 | NA | NA | NA | NA | NA | | | | | |
| 35-35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 08/28/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 55

**Northing:** 559972.69
**Easting:** 13304944.40
**Casing Elevation:** 736.42 ft. AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** 736.67 ft. AMSL

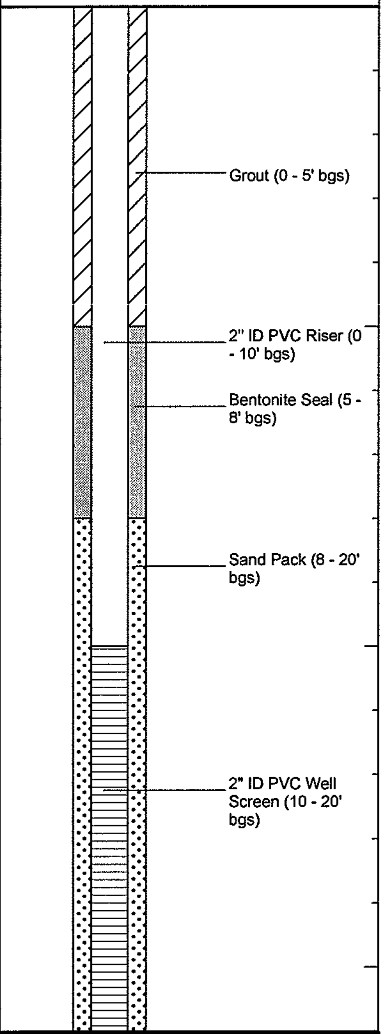
**Descriptions By:** SM Duly

**Boring ID:** BD01-02R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | No samples collected. See log for BD01-02 for sampling information from 0 - 20' bgs. | | |
| | 735 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

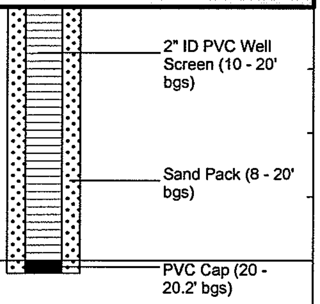
Project: 644.12.001 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: BD01-02.dat Date: 10/10/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** BD01-02R

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 720 | | | | | | | | | | No samples collected. See log for BD01-02 for sampling information from 0 - 20' bgs. | |  |
| 20 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.12.001 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: BD01-02.dat Date: 10/10/02

**Date Start/Finish:** 4/2/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 559944.3
**Easting:** 13304978.56
**Casing Elevation:** 736.02 ft. AMSL

**Borehole Depth:** 22' bgs
**Surface Elevation:** 736.33 ft. AMSL

**Descriptions By:** SM Duly

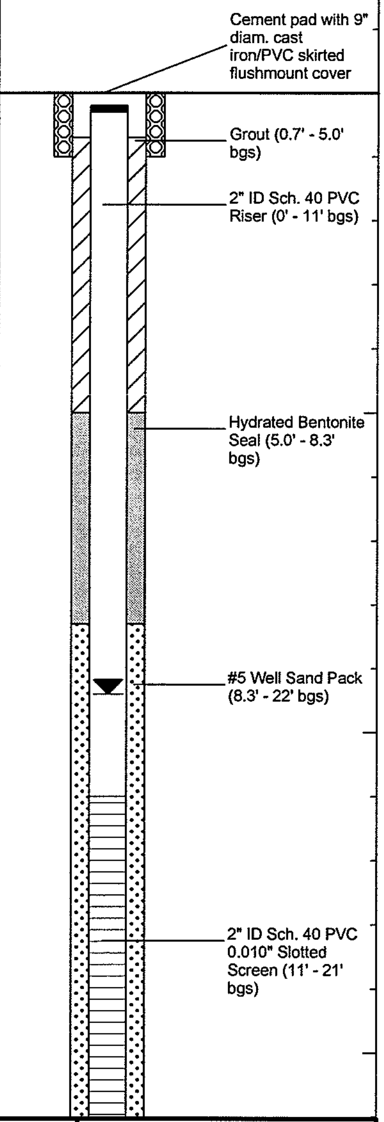
**Boring ID:** BD01-04

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 735 | 1 | 0-2 | NA<br>8<br>6<br>5 | 14 | 1.3 | 0.0 | - | FL<br>SW |  | CONCRETE.<br>Brown (10YR 4/3) fine to coarse subangular to rounded WELL GRADED SAND (SW), increased maturity with increased grain-size, little fine to medium rounded Gravel, little Silt, aplastic, no odor, loose, dry. Fill. | ILL<br>SAND |
|  |  | 2 | 2-4 | 3<br>4<br>5<br>4 | 9 | 1.7 | 0.0 | - | SM |  | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), little Clay, patches of Cinders and Slag present up to 3" in diameter, aplastic, no odor, loose, damp. | SILTY SAND |
| 5 |  | 3 | 4-6 | 2<br>3<br>4<br>6 | 7 | 1.6 | 0.0 | - |  |  | Yellow-brown (10YR 5/4) with gray (10YR 5/1) mottling, SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine rounded Gravel, weakly to moderately plastic, no odor, soft, damp. Native Glacial Clay Till used as Backfill. | SILTY CLAY |
|  | 730 | 4 | 6-8 | 3<br>4<br>4<br>5 | 8 | 1.7 | 0.0 | - |  |  |  |  |
|  |  | 5 | 8-10 | 1<br>1<br>1<br>1 | 2 | 2.0 | 0.0 | - | CL |  | 2"-thick Silt lense, wet at 8.9' bgs.<br>3"-thick Silty fine subangular poorly graded Sand (SM) lense, little to some Clay, loose, no odor, saturated (perched) at 9.4' bgs.<br>1"-thick Silty Sand lense as above at 9.4' bgs at 9.9' bgs. |  |
| 10 | 725 | 6 | 10-12 | 2<br>2<br>4<br>5 | 6 | 2.0 | 0.0 | - |  |  | 3"-thick fine poorly graded Sand (SP) lense, damp at 10.9' bgs.<br>3"-thick Silty Sand (SM) lense, moist to wet as above at 9.4' at 11.4' bgs |  |
|  |  | 7 | 12-14 | 2<br>2<br>3<br>3 | 5 | 1.5 | 0.0 | - | SM |  | 1"-thick Silt lense, saturated at 12.8' bgs.<br>Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, loose becoming increasingly dense with depth, damp. Glacio-Alluvial. | SILTY SAND |
| 15 |  | 8 | 14-16 | 5<br>6<br>12<br>13 | 18 | 2.0 | 0.0 | - | CL |  | Brown (10YR 5/3) to gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 5.0' - 12.9' bgs but homogenous, stiff, weakly plastic, up to 4"-thick lenses of wet and/or saturated Silt and/or Silty Sand as described above, dry. Undisturbed Native Glacial Clay Till.<br>4"-thick Silty Sand (SM) lense, saturated at 15.5' bgs. | SILTY CLAY |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Samples collected from 0.3' - 2.3' & 6.3' - 8.3' bgs.
Duplicate sample DUP-431 collected from 6.3' - 8.3' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/2/03 | 9.4' |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:BD01-04.dat Date: 5/8/03

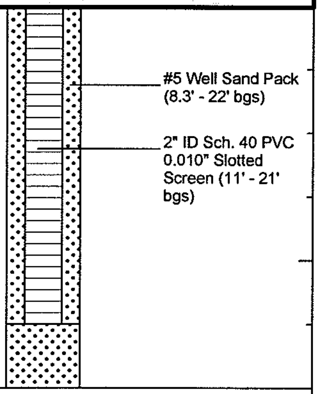
**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** BD01-04

**Borehole Depth:** 22' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 720 | 9 | 16-18 | 4<br>9<br>16<br>16 | 25 | 2.0 | 0.0 | - | CL | ▤ | Brown (10YR 5/3) to gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 5.0' - 12.9' bgs but homogenous, stiff, weakly plastic, up to 4"-thick lenses of wet and/or saturated Silt and/or Silty Sand as described above, dry. Undisturbed Native Glacial Clay Till.<br>2"-thick saturated Silt lense at 16.6' bgs.<br>7"-thick Silty Sand (SM) lense, saturated at 17.4' bgs. | SILTY CLAY |
| | | 10 | 18-20 | 5<br>6<br>9<br>14 | 15 | 1.1 | 0.0 | - | SP | ░ | Gray (10YR 5/1) fine to coarse, predominantly fine, subangular to subrounded POORLY GRADED SAND (SP), few to little Silt, trace Shell fragments (?), aplastic, no odor, medium dense to loose, saturated. Glacio-Alluvial/Riverine. | SAND |
| 20 | 715 | 11 | 20-22 | 9<br>11<br>17<br>22 | 28 | 1.9 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 14' - 19' bgs. Undisturbed Native Glacial Cla y Till.<br>Silty Sand lense, saturated at 21.9' bgs. | SILTY CLAY |
| 25 | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |

## Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Samples collected from 0.3' - 2.3' & 6.3' - 8.3' bgs.
Duplicate sample DUP-431 collected from 6.3' - 8.3' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/2/03 | 9.4' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/21/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 6.0' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** BD94-EP-02C

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | |
| | | 1 | 0-2 | -<br>5<br>8<br>5 | 13 | 1.3 | NA | NA |
| | | 2 | 2-4 | 4<br>5<br>6<br>6 | 11 | 2.0 | NA | NA |
| 5 | -5 | 3 | 4-6 | 6<br>6<br>7<br>8 | 13 | 1.0 | NA | NA |
| 10 | -10 | | | | | | | |
| 15 | -15 | | | | | | | |

| USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|
| FL | | ASPHALT. | Fill |
| SM | | Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), few Clay, metallic debris and Slag present, aplastic, no odor, loose, dry. Foundry Sand. | Sand |
| CL | | Gray-brown (10YR 5/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, soft, plastic, no odor, dry. Native Clay Till used as backfill. | Clay |
| SW | | Brown (10YR 5/3) fine to coarse angular well graded SAND (SW), little Silt, trace Clay, trace fine to coarse subangular Gravel, no odor, loose, dry. Fill Sand. | an |
| CL | | Light yellow-brown (10YR 6/4) Silty Lean CLAY (CL) as above from 1.3' - 1.9' bgs, stiff, dry. | Clay |

**Boring Construction**

Borehole backfilled with Bentonite to grade.

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/21/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 6.0' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** BD94-EP-02D

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | -<br>5<br>5<br>4 | 10 | 1.2 | NA | NA |
|  |  | 2 | 2-4 | 5<br>4<br>4<br>3 | 8 | 1.5 | NA | NA |
| 5 | -5 | 3 | 4-6 | 3<br>4<br>4<br>6 | 8 | 1.8 | NA | NA |
| 10 | 10 |  |  |  |  |  |  |  |
| 15 | 15 |  |  |  |  |  |  |  |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | ASPHALT. | FILL |
| SM | Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), few Clay, Metallic debris present, aplastic, no odor, loose, dry. Foundry Sand. | an |
| CL | Very dark gray-brown (10YR 3/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, no odor, soft, plastic, dry. Native Clay Till used as backfill. | Clay |
| SM | Brown (10YR 5/3) Silty SAND (SM) as above from 0.5' - 0.9' bgs, with metallic debris and Slag. Fill Sand. | Sand |
| CL | Black (10YR 2/1) Silty Lean CLAY (CL) as above from 0.9' - 1.7' bgs. | Clay |
| GW | Dark gray-brown (10YR 4/2) fine to coarse subangular to subrounded well graded GRAVEL (GW), little to some fine to coarse subangular Sand, little Silt, few Clay, no odor, aplastic, loose, saturated. Fill Sand (?). | av |

**Boring Construction**

Borehole backfilled with Bentonite to grade.

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/21/02 | 5.8' |  |

**Date Start/Finish:** 03/17/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 3' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

**Boring ID:** RFI-02-03R

**Client:** General Motors

**Location:**

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-1 | NA | NA | NA | | | FL | | CONCRETE. | |
| | | 2 | 1-3 | 4<br>16<br>15<br>6 | 31 | 2 | 0.0<br>0.0 | | | | Light brown to dark brown fine to coarse SAND, some fine subangular Gravel, little Silt and Clay, trace Brick, Concrete and Metal debris, few Cobbles, no odor, damp. | Borehole backfilled with Hydrated Bentonite Chips. |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
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Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-03R.dat Date: 3/15/05

**Date Start/Finish:** 2/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4-1/4"
**Rig Type:** CME 85

**Northing:** 562165.1
**Easting:** 13306012.64
**Casing Elevation:** 738.51 ft. AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** 739.05 ft. AMSL

**Descriptions By:** SM Duly

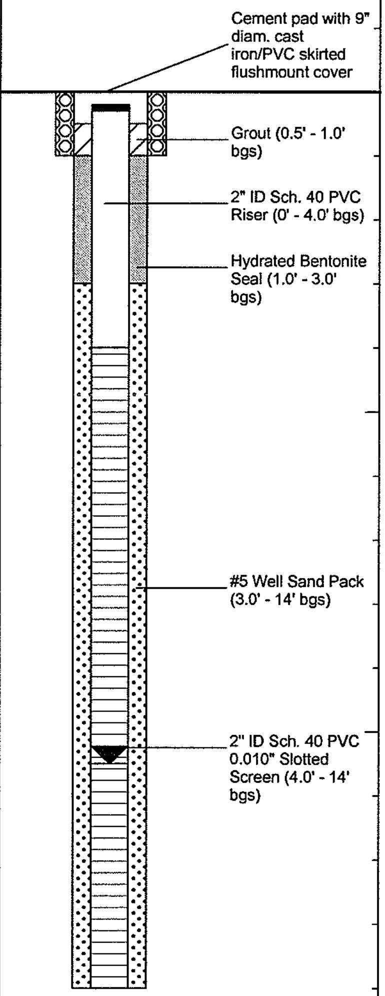
**Boring ID:** RFI-02-12

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 740 | | | | | | | | | | |
| 0 | | | | | | | | | FL | CONCRETE. | FILL |
| | | 1 | 1-3 | NA<br>10<br>4<br>7 | 14 | 1.2 | 0.0 | - | SM | Yellow-brown (10YR 5/4) subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, medium dense to loose, no odor, dry. Fill Sand. | SILT and SAND |
| | 735 | 2 | 3-5 | 4<br>4<br>NA<br>NA | NA | 1 | 0.0 | - | GP | Yellow-brown (10YR 5/4) coarse subrounded GRAVEL (GP), trace Wood debris and Concrete, poorly graded. Fill. | GRAVEL |
| 5 | | 3 | 5-7 | 8<br>12<br>11<br>9 | 23 | 2 | 0.0 | - | CL | Very dark gray (10YR 3/4) to black (10YR 2/1) SILTY LEAN CLAY (CL), with yellow-brown (10Y 5/6) oxidation, few fine to coarse subrounded Sand, trace fine to medium subrounded to rounded Gravel, Cinders, Ash, and Glass, weakly plastic, very stiff, no odor. Native Clay Till used as Backfill. | SILT AND CLAY |
| | | 4 | 7-9 | 2<br>3<br>4<br>5 | 7 | 1.7 | 0.0 | - | | Becomes gray to black (10YR 2/1) at 7.5' bgs.<br>Black (10YR 2/1) with wood debris from 8.0' - 8.5' bgs. | |
| 10 | 730 | 5 | 9-11 | 2<br>3<br>4<br>7 | 7 | 1.3 | 0.0 | - | SM | Yellow-brown (10YR 5/4) SILTY SAND (SM) as at 1.2' - 4.0' bgs but saturated, loose, little to some Clay in patches, few fine to coarse subrounded Gravel. Glacio-Alluvial. | T and S |
| | | 6 | 11-13 | 3<br>4<br>6<br>9 | 10 | 1.7 | 0.0 | - | CL | Gray-brown (10YR 5/2) SILTY LEAN CLAY (CL) with gray (10YR 5/2) mottling, few fine to coarse subrounded to rounded Sand, trace fine to medium rounded Gravel, Silt and Silty Sand lenses throughout up to 2" thick, weakly plastic, medium stiff, no odor, saturated. Undisturbed Native Clay Till. | SILT AND CLAY |
| | 725 | 7 | 13-15 | 6<br>8<br>13<br>12 | 21 | 2 | 0.0 | - | | Dry with no lenses from 13' - 15' bgs. | |
| 15 | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA - Not Applicable/Available.
Samples collected from 1.2' - 3.2' and 7.0' - 9.0' bgs.
Duplicate sample RFI-02-DUP-4/7 collected from 7.0' - 9.0'.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.022 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-02-12.dat Date: 3/18/03

**Date Start/Finish:** 10/16/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 562647.31
**Easting:** 13306291.70
**Casing Elevation:** 731.00 AMSL

**Borehole Depth:** 12.5' bgs
**Surface Elevation:** 731.44 AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-02-13

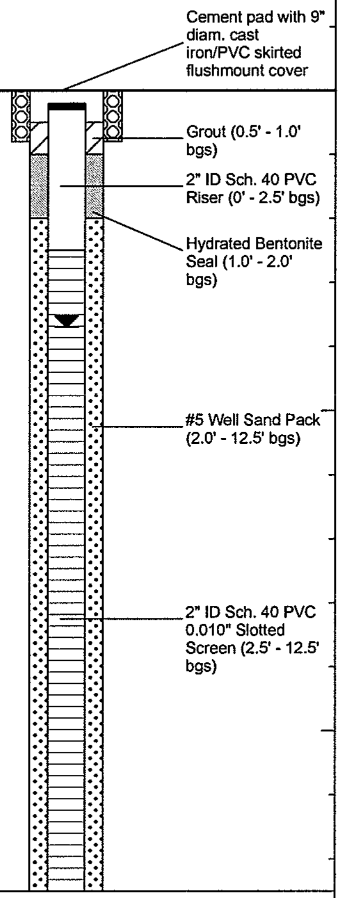
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 730 | 1 | 0-2 | -<br>5<br>7<br>6 | 12 | 1.3 | 0.0 | - |
|  |  | 2 | 2-4 | 6<br>5<br>5<br>6 | 10 | 1.7 | 0.0 | - |
| 5 |  | 3 | 4-6 | 6<br>7<br>7<br>5 | 14 | 1.7 | 0.0 | - |
|  | 725 | 4 | 6-8 | 4<br>7<br>16<br>18 | 23 | 1.9 | 0.0 | - |
|  |  | 5 | 8-10 | 8<br>25<br>40<br>47 | 65 | 2.0 | 0.0 | - |
| 10 | 720 | 6 | 10-12 | 16<br>29<br>42<br>50/5" | 71 | 2.0 | 0.0 | - |
|  |  | NA | NA | NA | NA | NA | 0.0 | NA |
| 15 |  |  |  |  |  |  |  |  |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | ASPHALT. | Fill |
| SC | Yellow-brown (10YR 5/4) Clayey fine to coarse subangular to subrounded well graded SAND (SC), little Silt, trace fine to coarse subrounded Gravel, Metallic debris and Cinders present, aplastic, medium dense, no odor, damp. Fill. | yey S |
| ML | Black (10YR 2/1) SILT (ML), trace Clay, few fine to medium subangular or subrounded Sand, Metallic debris, Slag, Ash, and Cinders present, aplastic, medium dense, no odor, damp. Fill Sand. | Silt |
| SM | brown (10YR 5/3) Silty fine to medium (predominantly fine) subangular poorly graded SAND (SM), little Clay, aplastic, medium dense, no odor, moist. Glacio-alluvial used as backfill. | Silty Sand |
| ML | Yellow-brown (10YR 5/8) SILT (ML), little Clay, few fine subangular Gravel, aplastic, medium dense, no odor, moist becoming saturated at 3.7' bgs. Glacio-alluvial used as backfill.<br>Gray (10YR 5/1) mottling at 4.8' bgs.<br>1.5"-thick Silty Lean Clay lense, very stiff, moist to damp at 6.0' bgs.<br>Silty fine to coarse poorly graded Sand lense, few Clay, aplastic, no odor, medium dense, saturated from 7.5' - 7.9' bgs. | Silt |
| CL | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occasional stringers (< 1mm-thick) of oxidation to yellow-brown (10YR 5/8) throughout, homogeous, weakly plastic, very stiff to stiff, no odor, damp. Native Glacial Clay Till.<br>Silty fine to coarse well graded subangular Sand lense, no odor, dense, saturated at 11.3' bgs. | Silty Clay |

## Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/16/02 | 3.7' |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-02-13.dat Date: 10/23/02

**Date Start/Finish:** 03/17/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 562006.86
**Easting:** 13305984.84
**Casing Elevation:** 738.78' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

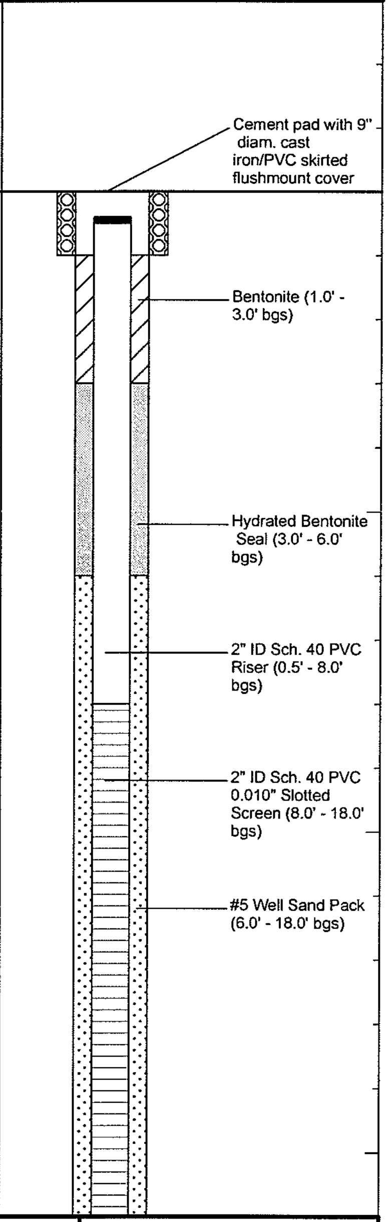
**Well/Boring ID:** RFI-02-14

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 2.0 | 0.0 |  | FL |  | CONCRETE. |
|  |  | 2 | 2-4 | 2<br>2<br>4<br>6 | 6 | 0.0 | 0.0 |  |  |  | Dark brown to black-brown fine SAND, some fine Gravel, little Silt, trace Clay and medium to coarse Sand, some Brick, Concrete and Slag debris, damp. |
| 5 | -5 | 3 | 4-6 | 2<br>4<br>4<br>2 | 8 | 0.5 | 0.0 |  |  |  | No Recovery. |
|  |  | 4 | 6-8 | 2<br>2<br>2<br>8 | 4 | 2.0 | 0.0 |  | FL |  | Fine to medium grained CONCRETE debris, some fine Gravel-sized Concrete chunks, loose, dry from 6.0' - 6.5' bgs. |
|  |  | 5 | 8-10 | 10<br>10<br>10<br>25 | 20 | 2.0 | 0.0 |  |  |  | Wood fragments from 9.5' - 10.0' bgs.<br>Loose below 10.0' bgs. |
| 10 | -10 | 6 | 10-12 | 2<br>4<br>6<br>10 | 10 | 2.0 | 0.0 | - | CL |  | Yellow-brown CLAY, some Silt, little fine subrounded Gravel, no odor, damp. |
|  |  | 7 | 12-14 | 3<br>10<br>10<br>30 | 20 | 2.0 | 0.0 | +<br>- | SP<br>CL |  | Gray fine SAND, sheen, no odor, medium dense, wet.<br>Yellow-brown CLAY, sheen, no odor, medium dense, wet. Thin (<1") saturated Silt layers, orange staining. |
| 15 | -15 | 8 | 14-16 | 10<br>11<br>10<br>14 | 21 | 2.0 | 0.0 | + |  |  | Gray SILTY CLAY, some fine Gravel, little fine Sand, no odor, stiff to medium stiff, extremely hard. |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 2.0' - 4.0' and 8.0' - 10.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

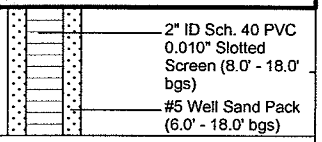
Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-02-14.dat Date: 3/15/05

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-14

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 6<br>6<br>8<br>10 | 14 | 2.0 | 0.0 | | CL | ▤ | Gray Silty CLAY, some fine Gravel, little fine Sand, no odor, stiff to medium stiff, extremely hard. |  |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
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Soil samples collected from 2.0' - 4.0' and 8.0' - 10.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

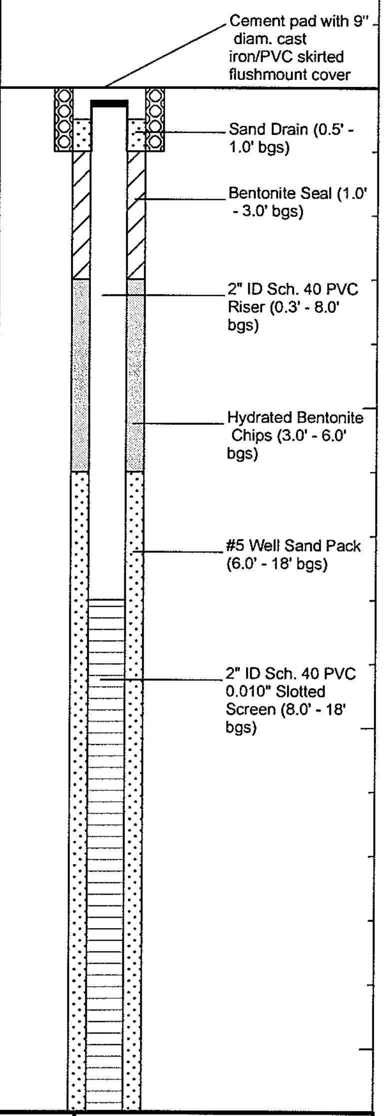
| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-14.dat Date: 3/15/05

| | | |
|---|---|---|
| **Date Start/Finish:** 3/21/05<br>**Drilling Company:** Altech<br>**Driller's Name:** D. Wells<br>**Drilling Method:** HSA/SS<br>**Sampler Size:** 2'x2" ID SS<br>**Auger Size:** 4 - 1/4" ID<br>**Rig Type:** CME 75 | **Northing:** 561987.19<br>**Easting:** 13305980.58<br>**Casing Elevation:** 738.74' AMSL<br><br>**Borehole Depth:** 18' bgs<br>**Surface Elevation:** NA<br><br>**Descriptions By:** J. Kralik | **Well/Boring ID:** RFI-02-15<br><br>**Client:** General Motors<br><br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA<br>NA<br>NA<br>16 | NA | 0.0 | NA | | FL | | CONCRETE. |
| | | 2 | 2-4 | 4<br>5<br>3<br>4 | 8 | 2.0 | 0.2 | | SP | | Dark brown to blackish-brown fine SAND, some medium Sand, little Silt, loose, no odor. |
| 5 | -5 | 3 | 4-6 | 9<br>10<br>16<br>10 | 26 | 2.0 | 0.0 | | | | Some fine Gravel from 5.0' - 5.5' bgs. |
| | | 4 | 6-8 | 10<br>10<br>11<br>10 | 21 | 2.0 | 1.5 | | | | Olive-gray fine SAND, some Silt, medium dense, slight odor, damp.<br>Little Clay, soft, from 6.5' - 7.0' bgs. |
| | | 5 | 8-10 | 4<br>3<br>2<br>4 | 5 | 2.0 | 2.3 | | | | Sheen and free-product present, some black staining, wet from 8.5' - 9.0' bgs. |
| 10 | -10 | 6 | 10-12 | 2<br>4<br>6<br>3 | 10 | 2.0 | 0.6<br>1.6 | | CL | | Yellowish-brown CLAY, some fine Sand, some olive-gray mottling from 10.5' - 11' bgs, stiff, slight odor, damp.<br>Thin (<1") Sand layer, wet at 11.5' bgs. |
| | | 7 | 12-14 | 4<br>4<br>5<br>4 | 9 | 2.0 | 0.6 | | | | Thin (<1") Sand layer, wet at 13' bgs. |
| 15 | -15 | 8 | 14-16 | 10<br>10<br>10<br>10 | 20 | 2.0 | 0.0 | | | | Gray SILTY CLAY, some fine Gravel, some fracturing from 14' - 14.5' bgs, very stiff, extremely hard, no odor, damp. |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.
Soil samples collected from 1.8' - 3.8', 8.0' - 10', and 10-12' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

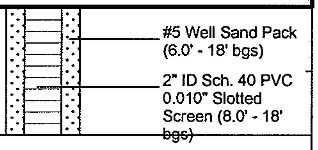
| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-15

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 10<br>10<br>10<br>10 | 20 | 2.0 | 0.0 | | CL | ▤ | Gray SILTY CLAY, some fine Gravel, very stiff, extremely hard, no odor, damp. |  |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
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Soil samples collected from 1.8' - 3.8', 8.0' - 10', and 10-12' bgs for VOCs, SVOCs, PCBs, and Metals.

| Water Level Data | | |
|---|---|---|
| Date | Depth | Elev. |
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/21/05 - 3/22/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 562009.16
**Easting:** 13305949.25
**Casing Elevation:** 738.66' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

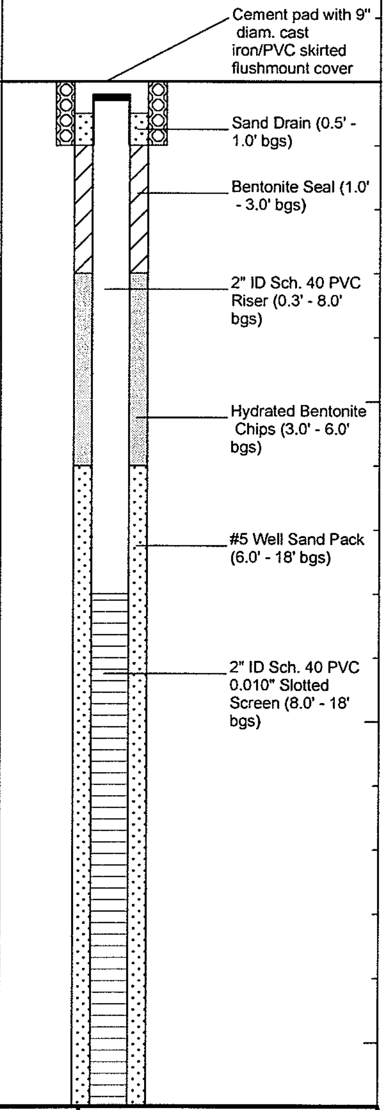
**Well/Boring ID:** RFI-02-16

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | |
| | | 1 | 0-2 | NA | NA | 0.0 | NA | | FL | | CONCRETE. |
| | | 2 | 2-4 | 7<br>6<br>5<br>4 | 12 | 2.0 | 0.9 | | SP | | Dark brown to blackish-brown fine SAND, some medium Sand, little fine Gravel and Silt, medium dense, no odor, damp. |
| 5 | -5 | 3 | 4-6 | 4<br>4<br>3<br>2 | 7 | 0.3 | 0.0 | | FL | | Yellow-brown and gray fine GRAVEL and CONCRETE debris, some fine Sand, medium dense, dry.<br>Concrete rubble from 4.5' - 5.5' bgs. |
| | | 4 | 6-8 | 7<br>8<br>6<br>6 | 14 | 2.0 | 0.0 | | CL | | Olive-gray fine SANDY CLAY, trace fine Gravel, some gray mottling present, stiff, very plastic, slight "earthy" odor, damp. |
| | | 5 | 8-10 | 3<br>3<br>4<br>2 | 7 | 1.5 | 0.2 | | | | Yellowish-brown Clay below 8.0' bgs. |
| 10 | -10 | 6 | 10-12 | 4<br>4<br>2<br>2 | 6 | 2.0 | 0.0<br>0.0 | | | | 3" gray fine to coarse Sand layer, wet from 10' - 10.3' bgs.<br>3" yellow-brown Sand layer, wet from 11' - 11.3' bgs.<br>3" yellow-brown Sand layer, wet from 11.7' - 12' bgs. |
| | | 7 | 12-14 | 4<br>3<br>3<br>3 | 6 | 2.0 | 0.0 | | SM | | Yellowish-brown SILTY fine SAND, some fine subrounded Gravel, medium dense, no odor, moist to wet. |
| 15 | -15 | 8 | 14-16 | 10<br>12<br>14<br>12 | 26 | 1.5 | 0.0 | | CL<br>SP | | Gray SILTY CLAY, some fine Gravel, very stiff, hard, no odor.<br>Brownish-gray fine SAND and GRAVEL, trace Silt and medium to coarse Sand, no odor, saturated. |

**Well/Boring Construction**



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.
Soil samples collected from 2.2' - 4.0' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
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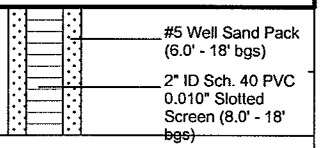
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-16

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 11<br>10<br>12<br>12 | 22 | 1.5 | 0.0 | | CL | ▤ | Gray SILTY CLAY, some fine Gravel, very stiff, extremely hard, no odor. |  |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
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Soil samples collected from 2.2' - 4.0' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-16.dat Date: 3/15/05

**Date Start/Finish:** 3/22/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 562027.15
**Easting:** 13305989.60
**Casing Elevation:** 738.67' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

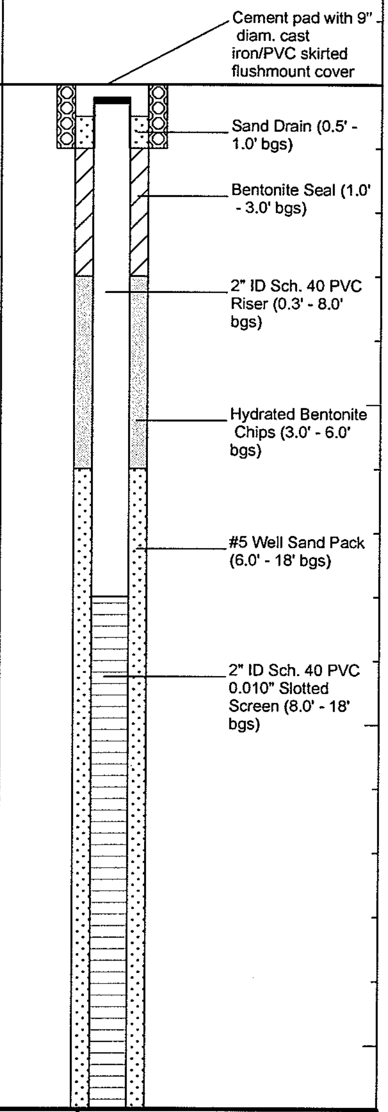
**Well/Boring ID:** RFI-02-17

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | |
| | | 1 | 0-2 | NA | NA | 1.3 | 1.0 | | FL | CONCRETE. |
| | | 2 | 2-4 | NA | NA | 2.0 | 0.0 | | SP | Dark brown to blackish-brown fine SAND, some medium Sand, little fine Gravel and Silt, Wood fragments present, medium dense, no odor, damp. |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>1<br>2 | 3 | 2.0 | 0.4 | | SP<br>SW | Yellowish-brown fine to coarse WELL GRADED SAND, some fine subangular to subrounded Gravel, no odor, wet. |
| | | 4 | 6-8 | 3<br>4<br>5<br>4 | 9 | 2.0 | 0.6 | | SP | Olive-gray fine SAND, some fine Gravel and Silt, trace Clay, loose, no odor, damp to wet. |
| | | 5 | 8-10 | 4<br>5<br>6<br>5 | 11 | 2.0 | 0.0 | | SM | Yellowish-brown SILTY fine SAND, some fine Gravel, medium dense, no odor, moist to wet. |
| 10 | -10 | 6 | 10-12 | 4<br>3<br>4<br>5 | 7 | 2.0 | 0.0 | | SM | |
| | | 7 | 12-14 | 3<br>3<br>6<br>4 | 9 | 2.0 | 0.0. | | CL | Yellowish-brown CLAY, some fine Sand, very plastic, stiff, no odor, damp.<br>Thin (<1") yellow-brown fine Sand layer, wet at 12.5' bgs.<br>Thin (<1") yellow-brown fine Sand layer, wet at 13' bgs.<br>Thin (<1") yellow-brown fine Sand layer, wet at 13.9' bgs. |
| 15 | -15 | 8 | 14-16 | 6<br>8<br>5<br>6 | 13 | 2.0 | 0.0 | | CL | Yellowish-brown SANDY CLAY, some fine Gravel, moist. |

Well/Boring Construction



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Soil samples collected from 2.7' - 4.0' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-02-17.dat
Date: 4/25/05

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-17

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 11 | | | | | | | Yellowish-brown SANDY CLAY, some fine Gravel, moist. | #5 Well Sand Pack (6.0' - 18' bgs) |
| | | 9 | 16-18 | 12<br>12<br>20 | 24 | 2.0 | 0.0 | | CL | | Gray SILTY CLAY, some fine Gravel, very stiff, extrememly hard, no odor, damp. | 2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
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Soil samples collected from 2.7' - 4.0' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/22/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 561962.48
**Easting:** 13305976.37
**Casing Elevation:** 738.69' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

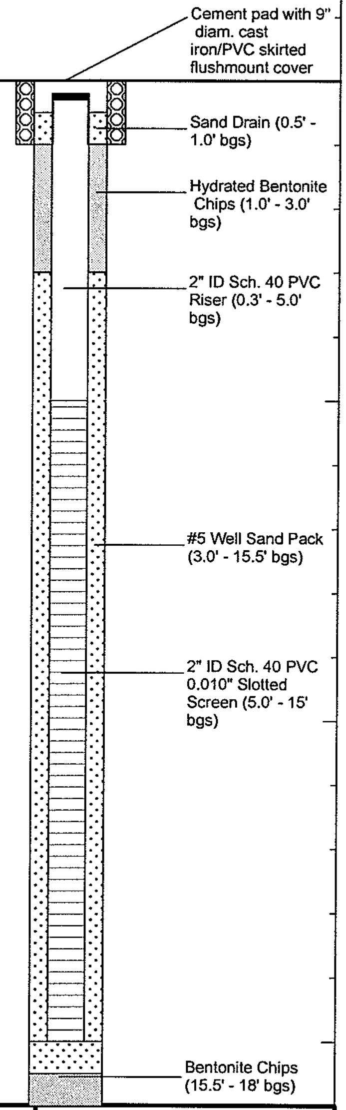
**Well/Boring ID:** RFI-02-18

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 2.0 | NA | | FL | | CONCRETE. |
| | | 2 | 2-4 | 3<br>4<br>2<br>3 | 6 | 2.0 | 0.9 | | SP | | Dark brown to blackish-brown fine SAND, some medium Sand in pockets, little Silt, loose, no odor, damp. |
| 5 | -5 | 3 | 4-6 | 3<br>4<br>4<br>4 | 8 | 2.0 | 0.2 | | SW<br>SM | | Yellowish-brown fine to coarse WELL GRADED SAND, some fine Gravel, no odor, wet.<br>Olive-gray SILTY fine SAND, little Clay, trace fine Gravel, sheen and small NAPL globules present, medium stiff, no odor, damp to moist. |
| | | 4 | 6-8 | 4<br>5<br>4<br>3 | 9 | 2.0 | 0.0<br>1.2 | | SM | | 3" olive-gray Clay layer from 7.0' - 7.3' bgs. |
| | | 5 | 8-10 | 4<br>4<br>5<br>6 | 9 | 2.0 | 0.0 | | SM | | Wet to saturated below 9.0' bgs. |
| 10 | -10 | 6 | 10-12 | 4<br>4<br>4<br>4 | 8 | 2.0 | 0.0 | | SC | | Moderate yellowish-brown CLAYEY fine SAND, some Silt, trace fine Gravel, loose, no odor, damp.<br>Thin (<1") yellowish-brown fine Sand layer, wet at 10.5' bgs. |
| | | 7 | 12-14 | 5<br>6<br>6<br>4 | 12 | 2.0 | 0.0. | | SC | | Thin (<1") yellowish-brown fine Sand layer, wet at 12' bgs.<br>Thin (2") yellowish-brown fine Sand layer, wet at 13.7' bgs. |
| 15 | -15 | 8 | 14-16 | 10<br>12<br>9<br>11 | 21 | 2.0 | 0.0 | | CL | | Mottled gray and yellowish-brown SILTY CLAY, some fine Sand, trace fine Gravel, fractured from 14' - 15' bgs, extremely hard, stiff, no odor, damp. |

Well/Boring Construction



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Soil samples collected from 1.5' - 3.5' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-18

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 12<br>12<br>13<br>14 | 25 | 2.0 | 0.0 | | CL | ▤ | Gray SILTY CLAY, some fine Sand, trace fine Gravel, extremely hard, stiff, no odor, dry to damp. | Bentonite Chips (15.5' - 18' bgs) |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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Soil samples collected from 1.5' - 3.5' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-18.dat Date: 4/25/05

**Date Start/Finish:** 3/22/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 562092.14
**Easting:** 13306000.99
**Casing Elevation:** 738.54' AMSL

**Borehole Depth:** 19' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

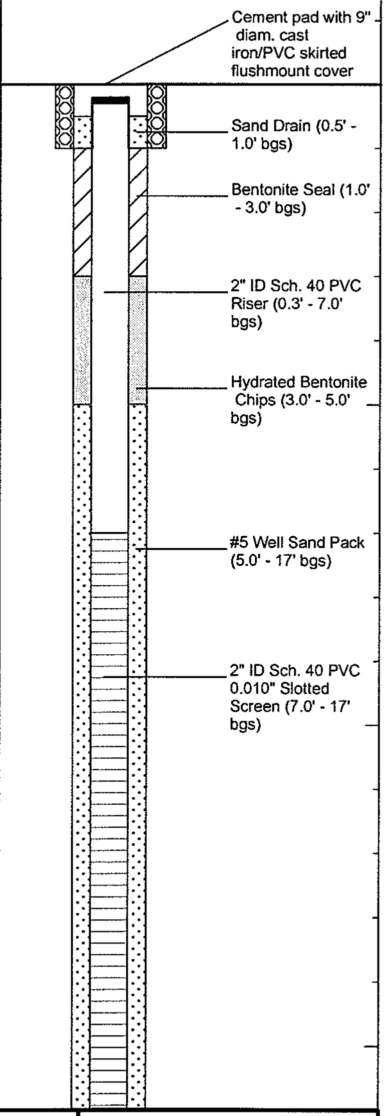
**Well/Boring ID:** RFI-02-19

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. |
| | | 1 | 2-4 | 2<br>3<br>3<br>2 | 6 | 1.5 | 2.4 | | SP | | Dark brown to blackish-brown fine SAND, some medium Sand, some yellowish-brown fine Sand in pockets, little Silt, loose, no odor, damp. |
| | | | | | | | | - | FL | | CONCRETE from 4.0' - 5.0' bgs. |
| 5 | -5 | 2 | 5-7 | 5<br>2<br>2<br>2 | 4 | 2.0 | 0.9 | + | CL | | Olive-gray CLAY to SANDY CLAY, some fine Sand and fine Gravel, some gray mottling present, very plastic, stiff, no odor, damp.<br>Thin (1") yellow-brown coarse Sand layer, black staining, wet from 6.0' - 6.5' bgs. |
| | | 3 | 7-9 | 4<br>2<br>3<br>4 | 5 | 2.0 | 2.0 | - | | | |
| 10 | -10 | 4 | 9-11 | 5<br>4<br>2<br>4 | 6 | 1.5 | 0.7 | - | SP | | Yellowish-brown fine SAND, some Silt, trace fine Gravel, no odor, medium dense, moist to wet at 10.5' bgs. |
| | | 5 | 11-13 | 4<br>4<br>3<br>4 | 7 | 2.0 | 0.0 | | CL | | Yellowish-brown SILTY CLAY, some fine Sand, trace fine Gravel, some orange (rust-like) staining, stiff, damp.<br>Thin (<1") yellow-brown fine Sand layer, wet at 12' bgs. |
| | | 6 | 13-15 | 5<br>5<br>5<br>4 | 10 | 2.0 | 0.0 | | | | Gray mottling from 13.5' - 16' bgs. |
| 15 | -15 | 7 | 15-17 | 6<br>5 | 10 | 2.0 | 0.0 | | | | |

**Well/Boring Construction**



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Soil samples collected from 1.7' - 4.0' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-02-19.dat Date: 4/25/05

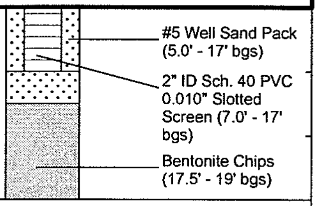
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-19

**Borehole Depth:** 19' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 7 | 15-17 | 5<br>5 | 10 | 2.0 | 0.0 |  | CL |  | Gray SILTY CLAY, some fine Gravel, trace fine Sand, some yellow-brown mottling from 16.2' - 17' bgs, extremely hard, stiff, damp. |  |
|  | 8 | 17-19 | 11<br>10<br>12<br>12 | 22 | 2.0 | 0.0 |  |  |  |  |  |
| 20-20 |  |  |  |  |  |  |  |  |  |  |  |
| 25-25 |  |  |  |  |  |  |  |  |  |  |  |
| 30-30 |  |  |  |  |  |  |  |  |  |  |  |
| 35-35 |  |  |  |  |  |  |  |  |  |  |  |



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Soil samples collected from 1.7' - 4.0' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-19.dat
Date: 4/25/05

**Date Start/Finish:** 3/24/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 562179.23
**Easting:** 13305934.52
**Casing Elevation:** 738.30' AMSL

**Borehole Depth:** 16' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

**Well/Boring ID:** RFI-02-20

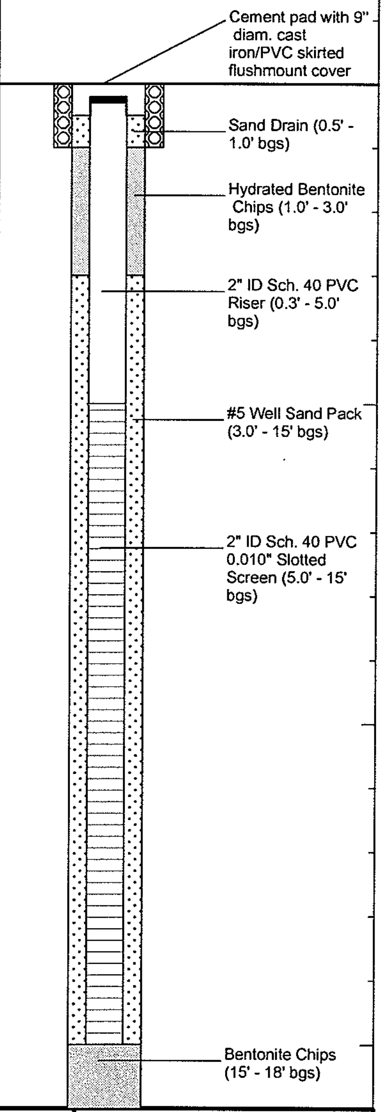
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | |
| | | 1 | 0-2 | NA | NA | 0.5 | 1.5 | |
| | | 2 | 2-4 | 2<br>2<br>3<br>1 | 5 | 1.5 | 1.5 | |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>3<br>2 | 5 | 1.5 | 0.6 | |
| | | 4 | 6-8 | 2<br>3<br>3<br>2 | 6 | 2.0 | 0.0 | |
| | | 5 | 8-10 | 4<br>4<br>4<br>3 | 8 | 2.0 | 1.8 | |
| 10 | -10 | | | | | | | |
| | | 6 | 10-12 | 4<br>4<br>3<br>4 | 7 | 2.0 | 0.7 | |
| | | 7 | 12-14 | 4<br>4<br>4<br>3 | 8 | 2.0 | 0.0 | |
| 15 | -15 | 8 | 14-16 | 10<br>12<br>12<br>16 | 24 | 1.5 | 0.0 | |

| USCS Code | Stratigraphic Description |
|---|---|
| FL | CONCRETE. |
| SP | Dark brown to blackish-brown fine SAND, some medium Sand, little Silt, Slag and Concrete debris present, loose, no odor, damp. |
| CL | Yellowish-brown CLAY, some fine Sand, medium stiff, no odor, damp. |
| SP | Yellowish-brown fine SAND, some fine Gravel, loose, no odor, wet. |
| CL | Mottled olive-gray and yellowish-brown SILTY CLAY, some fine Sand and fine Gravel, very plastic, stiff, no odor, damp. |
| SM | Yellowish-brown SILTY fine SAND, trace fine Gravel, loose, no odor, wet. |
| CL | Yellowish-brown CLAY, some fine Sand, trace fine Gravel, stiff, very plastic, no odor, damp. |
| SP | Yellowish-brown fine to medium SAND, medium dense, no odor, wet. |
| CL | Gray SILTY CLAY, some fine Gravel, extremely hard, very stiff, no odor, damp. |

**Well/Boring Construction**



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Soil samples collected from 1.5' - 3.5' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-02-20.dat
Date: 3/15/05

**Date Start/Finish:** 3/23/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 562241.53
**Easting:** 13305951.09
**Casing Elevation:** 738.50' AMSL

**Borehole Depth:** 16.7' bgs
**Surface Elevation:** NA

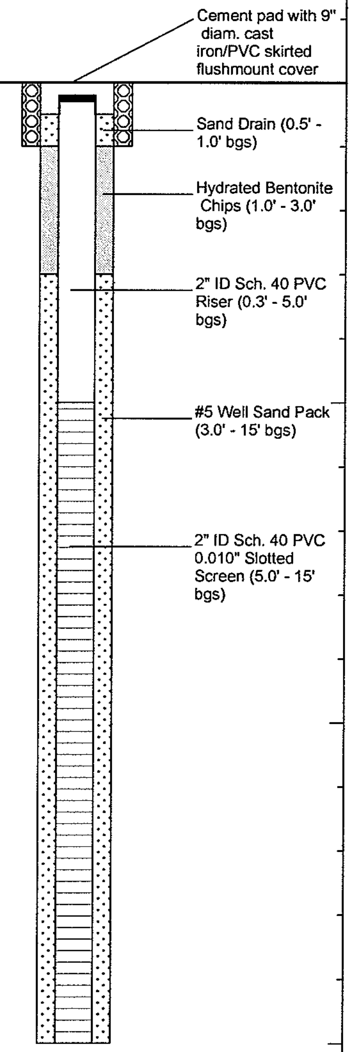
**Descriptions By:** J. Kralik

**Well/Boring ID:** RFI-02-21

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 0.5 | 1.2 | | FL | | CONCRETE. | |
| | | 2 | 2-4 | 2<br>2<br>1<br>2 | 3 | 1.0 | 1.0 | | SC/CL | | Yellowish-brown CLAYEY fine to coarse SAND, trace fine Gravel, loose, no odor, damp.<br>Becoming SANDY CLAY below 3.5' bgs. | |
| 5 | -5 | 3 | 4-6 | 2<br>4<br>1<br>2 | 5 | 1.5 | | | CL | | Thin (2") yellow-brown fine Sand layer, moist at 5.2' bgs.<br>Gray CLAY, some Silt, trace ifne Sand, no odor, soft. | |
| | | 4 | 6-8 | 9<br>8<br>10<br>11 | 18 | 1.5 | 0.6<br>0.0<br>1.1 | | SP | | Yellow-brown and gray fine SAND, Concrete debris present, loose, no odor, dry. | |
| | | 5 | 8-10 | 8<br>8<br>9<br>8 | 17 | 1.5 | 2.7 | | CL/SC | | Olive gray CLAY to SANDY CLAY, some fine Sand and fine Gravel, very stiff to medium stiff, very plastic to plastic, no odor, damp. | |
| 10 | -10 | 6 | 10-12 | 2<br>4<br>2<br>2 | 6 | 1.5 | 1.2 | | | | Thin (4") fine Gravel layer at 11.5' bgs.<br>Mottled olive-gray and grey color below 11.5' bgs.<br>Olive-gray fine Sand, wet from 12' - 12.5' bgs. | |
| | | 7 | 12-14 | 11<br>12<br>10<br>12 | 22 | 2.0 | 0.0 | | | | | |
| 15 | -15 | 8 | 14-16 | 14<br>13<br>20<br>- | 33 | 0.0 | NA | | | | No Recovery from 14' - 16' bgs. [Driller reports hard drilling] | |



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Soil samples collected from 1.5' - 3.5' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-21

**Borehole Depth:** 16.7' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-16.7 | 50 | NA | 0.7 | 0.0 | | CL | ▤ | Gray SILTY CLAY, very stiff, extremely hard, damp. | |
| 20 | *20* | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | |

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Soil samples collected from 1.5' - 3.5' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/23/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 561930.36
**Easting:** 13306184.46
**Casing Elevation:** 729.77' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

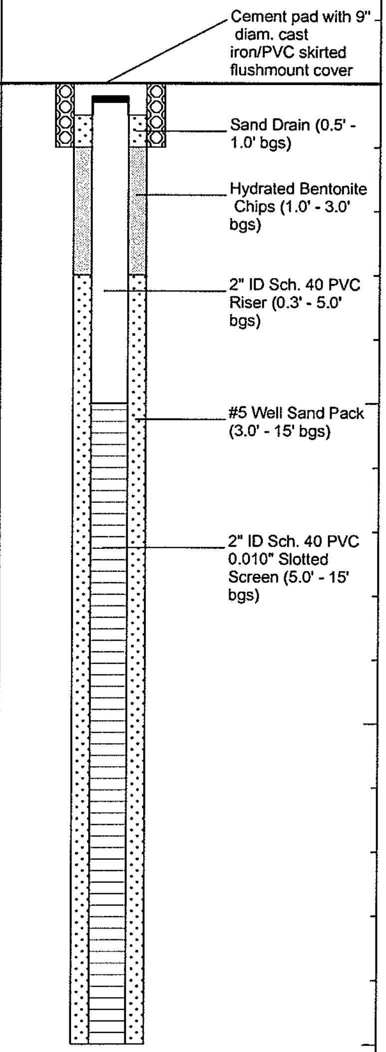
**Well/Boring ID:** RFI-02-22

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA<br>1<br>1<br>1 | NA | 1.3 | 1.7 |  | FL |  | ASPHALT.<br>Dark brown fine to coarse SAND, fine GRAVEL, and CLAY FILL, Coal, Slag, and Concrete debris present, trace Roots and Plant debris, soft, no odor, damp. |
|  |  | 2 | 2-4 | 2<br>1<br>1<br>1 | 2 | 2.0 | 1.0 |  | SC/CL |  | Gray to olive-gray fine SANDY CLAY, little fine Gravel, trace Slag and Concrete soft, non-plastic, no odor. |
| 5 | -5 | 3 | 4-6 | 1<br>1<br>1<br>1 | 2 | 2.0 | 0.0 |  |  |  |  |
|  |  | 4 | 6-8 | 1<br>1<br>1<br>1 | 2 | 2.0 | 0.0 |  |  |  | Moist below 6.0' bgs.<br>Ceramic fragments at 7.5' bgs. |
|  |  | 5 | 8-10 | WOH<br>WOH<br>WOH<br>WOH | WOH | 2.0 | 0.8 |  |  |  | Increased Sand content below 8.5' bgs. |
| 10 | -10 | 6 | 10-12 | WOH<br>1<br>1<br>1 | 2 | 2.0 | 0.2 |  |  |  | Becomes CLAYEY SAND at 10.5' bgs. |
|  |  | 7 | 12-14 | 1<br>2<br>1<br>1 | 3 | 2.0 | 0.0 |  |  |  | Wet below 13' bgs. |
| 15 | -15 | 8 | 14-16 | 4<br>8<br>8<br>8 | 16 | 2.0 | 0.0 |  | CL |  | Gray to light gray SILTY CLAY, stiff to very stiff, extremely hard, no odor, damp to dry. |

Well/Boring Construction



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**Remarks:**
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Soil samples collected from 0.0' - 3.0', 8.0' - 10', and 11-13' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-22.dat Date: 3/15/05

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-22

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 18<br>19<br>20<br>20 | 39 | 2.0 | 0.0 | | CL | ▤ | Gray to light gray SILTY CLAY, stiff to very stiff, extremely hard, no odor, damp to dry. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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Soil samples collected from 0.0' - 3.0', 8.0' - 10', and 11-13' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-02-22.dat
Date: 3/15/05

**Date Start/Finish:** 3/24/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 561943.41
**Easting:** 13305972.67
**Casing Elevation:** 738.57' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

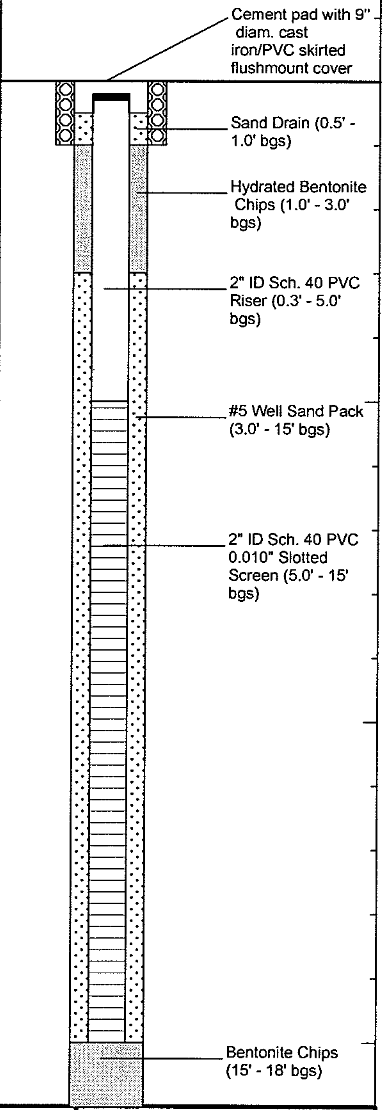
**Well/Boring ID:** RFI-02-23

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 0.3 | 0.8 | | FL | CONCRETE. |
| | | 2 | 2-4 | 3<br>2<br>2<br>3 | 4 | 2.0 | 0.8 | | SP | Brown to blackish-brown fine SAND, some medium Sand, little Silt, loose, no odor, damp. |
| 5 | -5 | 3 | 4-6 | 3<br>3<br>4<br>3 | 7 | 1.5 | 0.6 | | SC/CL | Olive-gray SANDY CLAY/CLAYEY SAND, some fine to coarse Sand, little fine Gravel at 4.5' bgs, slightly plastic to plastic, medium stiff, no odor, damp to moist. |
| | | 4 | 6-8 | 4<br>5<br>3<br>3 | 8 | 2.0 | 0.7 | | SM | Olive-gray SILTY fine SAND, little Clay, trace fine Gravel, loose, no odor. |
| | | 5 | 8-10 | 4<br>5<br>5<br>5 | 10 | 2.0 | 0.4 | | SP | Yellowish-brown fine SAND, some Silt, trace fine Gravel, no odor, loose, wet. |
| 10 | 10 | 6 | 10-12 | 4<br>5<br>4<br>4 | 9 | 2.0 | 0.0 | | | |
| | | 7 | 12-14 | 5<br>6<br>10<br>10 | 16 | 2.0 | 0.0 | | CL | Yellowish-brown fine SANDY CLAY, some Silt, trace fine Gravel, very stiff, no odor, moist. |
| 15 | 15 | 8 | 14-16 | 15<br>16<br>15<br>15 | 31 | 2.0 | 0.0 | | | Gray SILTY CLAY, some fine Gravel, Cobble at 15' bgs, extremely hard, no odor, damp to dry. |

**Well/Boring Construction**



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## Remarks:

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Soil samples collected from 1.7' - 3.7' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-02-23

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | NA | NA | 2.0 | 0.0 | | CL | ▤ | Gray SILTY CLAY, some fine Gravel, extremely hard, no odor, damp to dry. | Bentonite Chips (15' - 18' bgs) |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.
Soil samples collected from 1.7' - 3.7' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf

Data File: RFI-02-23.dat

Date: 3/15/05

**Date Start/Finish:** 3/24/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 75

**Northing:** 562107.08
**Easting:** 13306203.88
**Casing Elevation:** 729.88' AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

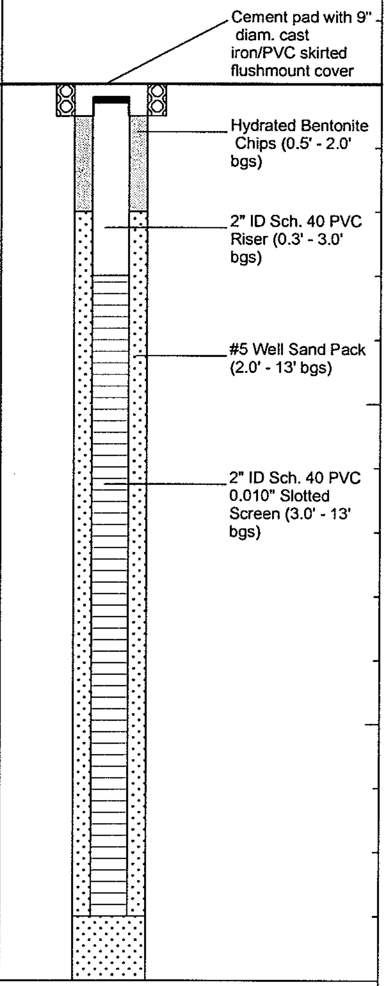
**Well/Boring ID:** RFI-02-24

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | -<br>-<br>-<br>4 | NA | 0.5 | 0.0 |  | FL<br>CL | CONCRETE.<br>Yellowish-brown to olive-gray fine to medium SANDY CLAY, little fine Gravel, Concrete and Slag debris present, slight sweet odor. |
|  |  | 2 | 2-4 | 1<br>2<br>1<br>1 | 3 | 1.5 | NA |  | CL | Wet below 3.5' bgs.<br>Brick debris present from 4.0' - 4.2' bgs. |
| 5 | -5 | 3 | 4-6 | 3<br>3<br>4<br>4 | 7 | 1.5 | 0.5 |  | SC/CL | Olive-gray CLAYEY SAND/SANDY CLAY, fine to coarse Sand, little fine Gravel, non-plastic, soft, no odor, damp.<br>Becoming mottled olive-gray and gray below 5.0' bgs. |
|  |  | 4 | 6-8 | 10<br>10<br>10<br>10 | 20 | 2.0 | 0.0 |  | CL | Yellowish-brown CLAY, some fine Sand and fine Gravel, little medium to coarse Sand and Silt, some orange staining, very stiff, extremely hard, no odor. |
|  |  | 5 | 8-10 | 12<br>12<br>12<br>14 | 24 | 2.0 | NA |  |  | Becoming medium brown below 8.7' bgs. |
| 10 | -10 | 6 | 10-12 | 10<br>15<br>10<br>10 | 25 | 2.0 | NA |  |  | Becoming mottled brown and gray below 10' bgs.<br>Gray SILTY CLAY, Cobble at 11.2' bgs, stiff, extremely hard, no odor. |
|  |  | 7 | 12-14 | 10<br>15<br>15<br>15 | 30 | 2.0 | NA |  |  |  |
| 15 | -15 |  |  |  |  |  |  |  |  |  |

Well/Boring Construction



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Soil samples collected from 1.3' - 3.3' and 8.0' - 10' bgs for VOCs, SVOCs, PCBs, and Metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Date Start/Finish:** 8/23/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** NA
**Rig Type:** NA

**Northing:** 565490.62
**Easting:** 13306393.44
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 745.94 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-03-09

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | ▨ | Dark brown (10YR 3/3) SILT (ML), little Clay, few fine to coarse subrounded to subangular Sand, Metallic debris and Cinders present, angular pebble-sized aggregae present, Vegetation such as Roots and Grass, aplastic, loose, no odor, moist with rainfall. Topsoil mixed with Aggregate. | ← SILT → | ▨ Borehole backfilled with Bentonite to grade. |
| 5 | 740 | | | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-03-09.dat Date:10/22/02

**Date Start/Finish:** 8/23/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** NA
**Rig Type:** NA

**Northing:** 565414.88
**Easting:** 13306324.81
**Casing Elevation:** NA

**Borehole Depth:** 1.0' bgs
**Surface Elevation:** 745.77 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-03-10

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | 1 | 0-1 | NA | NA | NA | 0.0 | - | ML | | Black (10YR 2/1) to Dark brown (10YR 3/3) SILT (ML), few fine to coarse subrounded Sand, Metallic debris and Cinders present, angular pebble-sized aggregate present, Vegetation such as Roots and Grass, aplastic, loose, no odor, moist with rainfall. Topsoil mixed with Aggregate. | Silt | Borehole backfilled with Bentonite to grade. |
| 5 | 740 | | | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-03-10.dat Date:10/22/02

**Date Start/Finish:** 3/7/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 565376.44
**Easting:** 13306335.88
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs.
**Surface Elevation:** 744.63 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-03-11

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | |
| 0 | | 1 | 0-2 | 2.0 | 0.0 | - | SM | | Black (10 YR 2/1) fine to coarse subangular, predominately fine, POORLY GRADED SILTY SAND, few Clay, few fine to coarse angular Gravel, Slag, metallic debris, and Cinders throughout, aplastic, no odor, medium dense, damp. Foundary Sand. | SILTY SAND | Borehole backfilled with Bentonite to grade. |
| 5 | 740 | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101
Data File:RFI-03-11
Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Date: 04/21/03

**Date Start/Finish:** 3/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565409.5
**Easting:** 13306270.90
**Casing Elevation:** NA

**Borehole Depth:** 2.8' bgs
**Surface Elevation:** 745.85 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-03-12

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | ASPHALT. | ONCRET | Borehole backfilled with Bentonite to grade. |
| | 745 | | | | | | | | | | CONCRETE. | | |
| | | 1 | 0.8-<br>2.8 | 16<br>16<br>22<br>20 | 28 | 1.7 | 0.0 | - | SM | | Black (10YR 2/1) fine to coarse angular to subangular POORLY GRADED SILTY SAND (SM), few Clay, few fine to coarse subangular Gravel, Slag, and Cinders, aplastic, dense to loose, no odor, dry. Foundry Sand. | SILTY SAND | |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-03-12.dat Date: 3/14/03

**Date Start/Finish:** 3/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565556.29
**Easting:** 13306338.56
**Casing Elevation:** NA

**Borehole Depth:** 2.8' bgs
**Surface Elevation:** 747.32 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-03-13

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | | | |
| 0 | | | | | | | | | FL | | ASPHALT. | ONCRET | |
| | | | | | | | | | | | CONCRETE. | | |
| | 745 | 1 | 0.8-<br>2.8 | 12<br>17<br>13<br>9 | 30 | 1.7 | 0.0 | - | SM | | Dark brown (10YR 3/3) fine to coarse subangular POORLY GRADED SILTY SAND (SM), few Slag, few fine to coarse subrounded Gravel, white Ash at 2.0' bgs, dense where frozen, otherwise loose, aplastic, no odor, dry. Foundry Sand. Slag and Cinders from 2.3' - 2.8' bgs. | SILTY SAND | Borehole backfilled with Bentonite to grade. |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-03-13.dat Date: 3/14/03

**Date Start/Finish:** 3/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565569.96
**Easting:** 13306280.04
**Casing Elevation:** NA

**Borehole Depth:** 2.8' bgs
**Surface Elevation:** 748.08 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-03-14

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | | | |
| 0 | | | | | | | | | FL | | ASPHALT.<br>CONCRETE. | ONCRET | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0.8-<br>2.8 | 12<br>10<br>10<br>12 | 20 | 1.5 | 0.0 | - | SM | | Dark brown (10YR 3/3) fine to coarse subangular POORLY GRADED SILTY SAND (SM), little fine to coarse subrounded Gravel, few Clay, aplastic, no odor, dense as frozen, otherwise loose, dry. Fill Sand.<br>Few Slag and Cinders at 2.7' bgs. | SILTY SAND | |
| | 745 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-03-14.dat Date: 3/14/03

**Date Start/Finish:** 4/10/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 565253.11
**Easting:** 13306013.04
**Casing Elevation:** 747.48 ft. AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** 747.82 ft. AMSL

**Descriptions By:** SM Duly

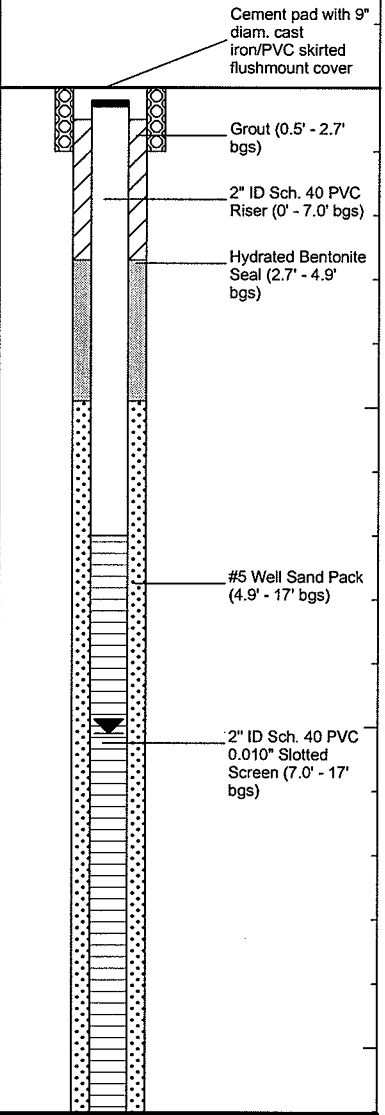
**Boring ID:** RFI-03-15

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 750 |  |  |  |  |  |  |  |  |  |  |  |
| 0 |  |  |  |  |  |  |  |  | FL |  | CONCRETE. | FILL |
|  |  | 1 | 1-3 | 4<br>6<br>6<br>5 | 12 | 1.1 | 3.6 | - | SM |  | Black (10YR 2/1) fine to coarse, predominantly fine, subangular to angular POORLY GRADED SILTY SAND (SM), little to few Clay, few fine to coarse subrounded Gravel, Ash, Slag, and Cinders present, aplastic, no odor, loose, damp. Foundry Sand. | SILTY SAND |
|  | 745 | 2 | 3-5 | 5<br>4<br>3<br>3 | 7 | 1.6 | 0.0 | - |  |  |  |  |
| 5 |  | 3 | 5-7 | 2<br>3<br>3<br>5 | 6 | 0.9 | 0.0 | - |  |  |  |  |
|  | 740 | 4 | 7-9 | 3<br>3<br>3<br>3 | 6 | 1.6 | 3.7 | + |  |  | Moist to damp at 8.0' bgs. |  |
| 10 |  | 5 | 9-11 | 1<br>1<br>1<br>1 | 2 | 1.5 | 5.3 | + |  |  | Weak odor, saturated at 10.1' bgs. |  |
|  |  | 6 | 11-13 | 0.5<br>0.5<br>3<br>4 | 3.5 | 1.5 | 0.0 | + |  |  |  |  |
|  | 735 |  |  |  |  |  |  |  | SP |  | Gray (10YR 5/1) fine to coarse, predominantly fine, subangular to subrounded POORLY GRADED SAND (SP), some to little Silt, few to little Clay, fines downward, aplastic, no odor, loose, saturated. Native Glacio-Alluvial. | SAND |
|  |  | 7 | 13-15 | 2<br>2<br>2<br>6 | 4 | 1.3 | 0.8 | + | CL |  | Very drak gray (10YR 2/2) LEAN CLAY with fine to coarse Sand (CL), some Silt, weak to moderate "oily" odor, weakly plastic, soft, damp. Native Glacil Clay Till. | CLAY |
| 15 |  | 8 | 15-17 | 2<br>3 | 8 | 1.8 | 0.0 | + | SM |  | Gray (10YR 5/1) POORLY GRADED SILTY SAND (SM), few Clay, emerald to teal green patches of discoloration at 14.7', weak odor with oily sheen at 14.7', loose, saturated. | SILTY SAND |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Samples collected from 0.9' - 2.9' & 6.9' - 8.9' bgs.

**Water Level Data**

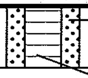
| Date | Depth | Elev. |
|---|---|---|
| 4/10/03 | 10.1 |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-03-15.dat Date: 5/8/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-03-15

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 5<br>8 | 8 | 1.8 | 0.0 | + | SM | ┬·┬ | Gray (10YR 5/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, emerald to teal green patches of discoloration up to 1/2" in diameter at 14.7', weak odor with oily sheen at 14.7', loose, saturated. Native Glacio-Alluvial. | ILTY SAN |  #5 Well Sand Pack (4.9' - 17' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (7.0' - 17' bgs) |
| | 730 | | | | | | | | | | End of boring at 17' bgs. In Shoe: Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, medium stiff, weakly plastic, no odor, damp. Undisturbed Native Glacial Clay Till. | | |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Samples collected from 0.9' - 2.9' & 6.9' - 8.9' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/10/03 | 10.1 | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-03-15.dat Date: 5/8/03

**Date Start/Finish:** 3/30/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 565246.82
**Easting:** 13306012.77
**Casing Elevation:** 747.54' AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** Ryan Tuttle

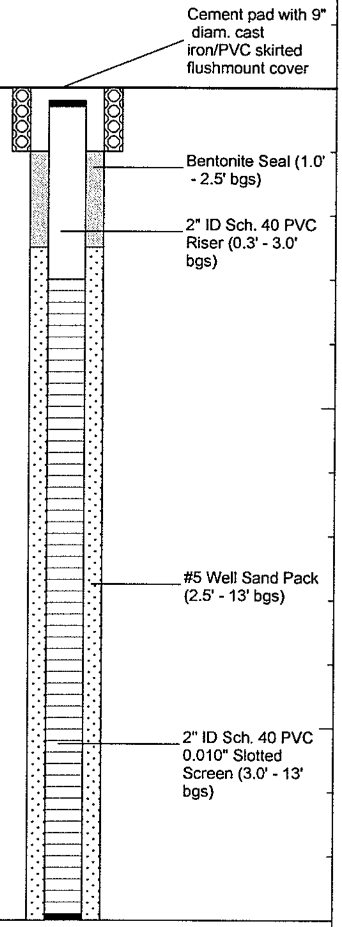
**Well/Boring ID:** RFI-03-15R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Suface Concrete |
| | | | | | NA | NA | NA | | | | Black (10YR 2/1) fine subrounded, POORLY GRADED SILTY SAND (SM), trace Slag, foundry Sand, non-plastic, loose, no odor, damp. |
| | | 1 | 3-5 | 6<br>5<br>4<br>3 | 25 | 2.0 | 0.0 | + | | | At 4.0' bgs. Moist<br>Saturated at 4.5' bgs. |
| 5 | -5 | 2 | 5-7 | 3<br>5<br>7<br>9 | 13 | 2.0 | 0.0 | + | SM | | |
| 10 | -10 | | | | | | | | | | No samples collected from 7.0' - 13.0' bgs. See log for location RFI-03-15 for geologic description. |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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## Remarks:

bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

8" Subsurface Concrete

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-03-15R.dat
Date: 7/9/04

**Date Start/Finish:** 10/10/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 2" & 4' PVC Sleeve
**Auger Size:** NA
**Rig Type:** SIMCO 200 Geoprobe

**Northing:** 565711.07
**Easting:** 13305384.55
**Casing Elevation:** NA

**Borehole Depth:** 4.2' bgs
**Surface Elevation:** 754.33 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-05-31

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | |
| 0 | | | | | | | FL | | CONCRETE. | FL | |
| | | 1 | 0-4 | 3.8 | 0.0<br>0.0<br>0.0 | -<br>-<br>- | ML | | Brown (10YR 4/3) SILT (ML), some Clay, few fine to coarse subangular to subrounded well graded Sand, trace fine to medium rounded Gravel, 25% fine to coarse angular sand-sized to medium gravel-sized Cinders and Foundry Sand throughout, aplastic, no odor, medium dense, dry. Native Till mixed with Foundry Sand used as backfill. | SILT | Borehole backfilled with Bentonite to grade. |
| | | NA | NA | NA | NA | NA | | | | | |
| | 750 | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| | 745 | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| | 740 | | | | | | | | | | |
| 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-05-31.dat Date: 10/24/02

**Date Start/Finish:** 10/10/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 2" & 4' PVC Sleeve
**Auger Size:** NA
**Rig Type:** SIMCO 200 Geoprobe

**Northing:** 565711.07
**Easting:** 13305384.55
**Casing Elevation:** NA

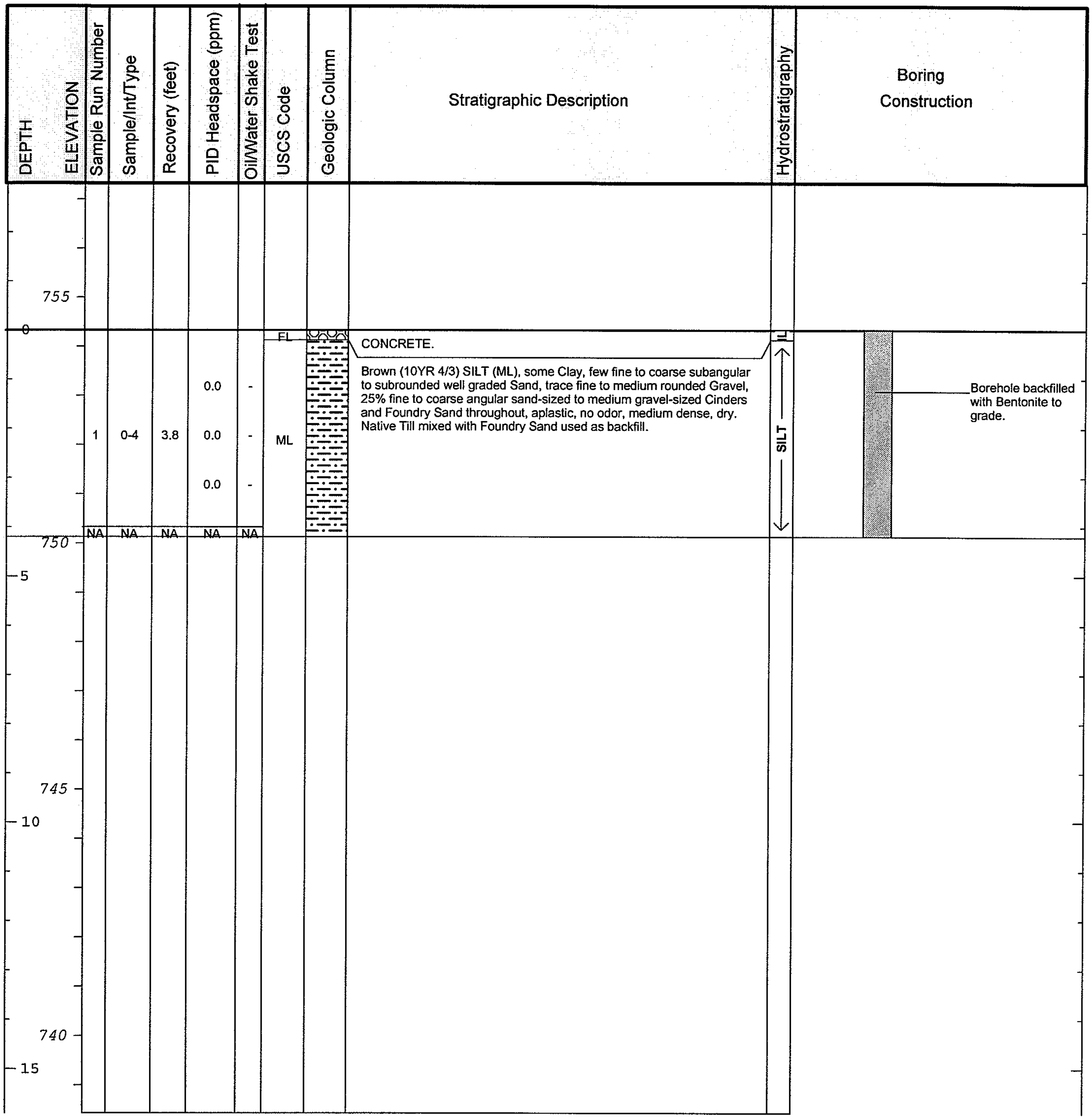
**Borehole Depth:** 4.2' bgs
**Surface Elevation:** 754.33 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-05-31

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan



| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | FL | | CONCRETE. | FL | |
| | | 1 | 0-4 | 3.8 | 0.0<br>0.0<br>0.0 | -<br>-<br>- | ML | | Brown (10YR 4/3) SILT (ML), some Clay, few fine to coarse subangular to subrounded well graded Sand, trace fine to medium rounded Gravel, 25% fine to coarse angular sand-sized to medium gravel-sized Cinders and Foundry Sand throughout, aplastic, no odor, medium dense, dry. Native Till mixed with Foundry Sand used as backfill. | SILT | Borehole backfilled with Bentonite to grade. |
| | 750 | NA | NA | NA | NA | NA | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-05-31.dat Date: 10/24/02

**Date Start/Finish:** 3/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 565711.07
**Easting:** 13305384.55
**Casing Elevation:** NA

**Borehole Depth:** 9' bgs
**Surface Elevation:** 754.33 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-05-31R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | |
| 0 | | | | | | | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 1-5 | 3.4 | 0.0<br>0.0 | -<br>- | SM | | Brown (10YR 5/3) to pale brown fine subangular POORLY GRADED SILTY SAND (SP), few Clay, dense, no odor, dry. Fill Sand.<br>3"-thick lense of black (10YR 2/1) Foundry Sand, Cinders, and Cement debris at 3.5' bgs. | SILTY SAND | |
| 5 | 750 | | | | 0.0 | + | SM | | Black (10YR 2/1) SILTY SAND (SM) as above, with fine "sparkly" Ash and Cinders. Foundry Sand. | | |
| | | | | | | | CL | | Brown (10YR 5/3) to gray (10YR 4/1) mottled SILTY CLAY (CL), little fine to coarse subrounded Sand, trace rounded Gravel, weakly plastic, moderately stiff, no odor. Native Glacial Clay Till used as Backfill. | LTY CL | |
| | | 2 | 5-9 | 1.0 | 0.0<br>0.0 | +<br>- | SM | | Brown (10YR 5/3) to dark brown (10YR 3/3) fine to coarse subangular to subrounded SILTY SAND (SM), little Clay, few fine to coarse rounded Gravel, trace Organics, aplastic, moderately dense, no odor, dry. Possible Former Topsoil Horizon. | SILTY SAND | |
| | 745 | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| | 740 | | | | | | | | | | |
| 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Samples collected from 7.0' - 9.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.022 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-05-31R.dat Date: 3/19/03

**Date Start/Finish:** 10/10/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 2" x 4' PVC Sleeve
**Auger Size:** NA
**Rig Type:** SIMCO 200 Geoprobe

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 4.6' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-05-32

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | FL | | ASPHALT. | Fill | Borehole backfilled with Bentonite to grade. |
| | | | | | | | | | CONCRETE. | | |
| | | 1 | 0-4 | 3.7 | 0.0 | - | SW | | Black (10YR 2/1) fine to coarse angular to subangular well graded SAND (SW), little Silt, trace Clay, trace fine to medium angular Gravel, aplastic, no odor, loose, dry. Foundry Sand. | Sand | |
| | | | | | 0.0 | - | CL | | Yellow-brown (10YR 5/4) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, few to trace fine to medium rounded Gravel, plastic, medium stiff, no odor, dry. Native Clay Till used as backfill. | Silty CLAY | |
| | | NA | 4-4.6 | NA | 0.0 | - | ML | | Yellow-brown (10YR 5/4) SILT (ML), some to little Clay, fine subangular to subrounded Sand, aplastic, dense, no odor, dry. Glacio-alluvial material used as backfill. | Silt | |
| 5 | -5 | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-05-32.dat Date: 10/24/02

**Date Start/Finish:** 10/11/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 2" x 4' PVC Sleeve
**Auger Size:** NA
**Rig Type:** SIMCO 200 Geoprobe

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 4.7' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-05-33

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | FL | | ASPHALT. | Fill | |
| | | | | | | | | | CONCRETE. | | |
| | | | | | 0.0 | - | | | Yellow-brown (10YR 5/4) SILT (ML), some Clay, little fine to medium subangular to subrounded Sand, occasional fine subangular to subrounded Gravel lenses up to 2"-thick throughout, trace fine to medium subrounded to rounded Gravel, aplastic, dense, no odor, dry to damp. Glacial Till used as backfill. | SILT | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 3.5 | | | ML | | | | |
| | | | | | 0.0 | - | | | | | |
| | | NA | 4-4.7 | NA | 0.0 | - | | | | | |
| 5 | -5 | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-05-33.dat Date: 10/25/02

**Date Start/Finish:** 7/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 16' bgs
**Surface Elevation:** NA

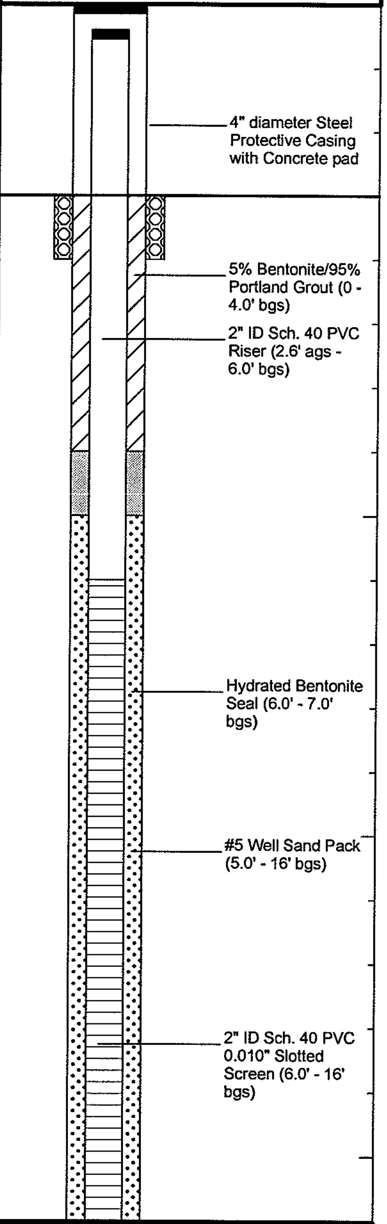
**Descriptions By:** SM Duly

**Boring ID:** RFI-07-01R2

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | Demolition Debris from recent demolition. | FILL | |
| | | | | | | | | | | | CONCRETE. | | |
| 5 | -5 | 1 | 4-6 | 10<br>12<br>14<br>16 | 26 | 1.5 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, few to trace fine to coarse rounded Gravel, stringers of oxidation to yellow-brown (10YR 5/4) also present, weakly plastic, very stiff, no odor, homogenous, dry. | SILTY CLAY | |
| | | 2 | 6-8 | 5<br>10<br>11<br>11 | 21 | 1.5 | 1.1 | - | ML | | Gray (10YR 5/1) SILT (ML), little to some Clay, few fine to medium subrounded Sand, medium dense becoming increasingly loose with depth, no odor, moist. | SILT | |
| | | 3 | 8-10 | 4<br>5<br>7<br>9 | 12 | 1.7 | 0.0 | - | | | Saturated at 7.7' bgs.<br>Lenses of saturated fine subangular to subrounded Sand up to 3"-thick throughout below 9.0' bgs. | | |
| 10 | -10 | 4 | 10-12 | 15<br>42<br>45<br>50/2" | 87 | 0.6 | 0.0 | - | | | 6"-thick lense of fine to coarse subrounded Gravel (GW), little fine to coarse subrounded Sand, few Silt, few fine to coarse rounded Pebbles, well graded, no odor, loose, saturated at 11' bgs. | | |
| | | 5 | 12-14 | 18<br>35<br>20/6"<br>- | 85 | 1.4 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 3.9' - 6.5' bgs, occasional rounded Pebbles and Cobbles, hard, dry. | SILTY CLAY | |
| 15 | -15 | 6 | 14-16 | 8<br>27<br>33<br>40/4" | 60 | 1.3 | 0.0 | - | | | | | |



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**Remarks:** bgs = below ground surface; + = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-07-01R2.dat Date: 11/12/03

**Date Start/Finish:** 3/19/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563706.75
**Easting:** 13306517.88
**Casing Elevation:** NA

**Borehole Depth:** 8.0' bgs
**Surface Elevation:** 731.47 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-07-10

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | FL | × × × | Black (10YR 2/1) ANTHRACITE COAL, fine to coarse Sand, Silt to large Pebble-sized fragments, loose, no odor, moist with snow melt. Anthracite Coal in Coal Pile. | FILL | Borehole backfilled with Bentonite to grade. |
| | 730 | 1 | 0-4 | 4.0 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, few fine to coarse rounded Gravel, Anthracite Coal fragments present from 0.5' - 1.0' bgs, weakly to moderately plastic, soft to medium stiff, damp. Native Clay Till used as Backfill. | SILTY CLAY | |
| | | | | | 0.0 | - | SM | | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few to little Clay, aplastic, medium dense, no odor, moist. Fill Sand. | ILTY SAN | |
| 5 | 725 | 2 | 4-8 | 4.0 | 0.0<br>0.0 | -<br>- | CL | | Brown (10YR 5/3) SILTY LEAN CLAY (CL) as above from 0.5' - 2.8' bgs, Silt lenses up to 6"-thick throughout, moist. Native Glacial Clay Till used as Backfill. | SILTY CLAY | |
| | | | | | | | SM | | Brown (10YR 5/3) SILTY SAND (SM) as above from 2.8' - 4.0' bgs, wet then saturated at 7.8' bgs. Fill Sand or a Silty Sand lense from the above Silty Clay unit. | | ▼ |
| 10 | | | | | | | | | | | |
| | 720 | | | | | | | | | | |
| 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/19/03 | 7.8' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-07-10.dat Date: 4/30/03

**Date Start/Finish:** 3/18/03 - 3/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B & CME 550 ATV

**Northing:** 563706.75
**Easting:** 13306925.64
**Casing Elevation:** NA

**Borehole Depth:** 16' bgs
**Surface Elevation:** 731.47 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-07-11

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 730 | 1 | 0-2 | 2<br>2<br>3<br>4 | 5 | 1.8 | 0.0 | - | ML | | Dark brown (10YR 3/3), to yellow-brown (10YR 5/4) below 1.0' bgs, SILT (ML), little to some Clay, few fine to coarse subrounded Sand, rare fine to coarse angular Gravel (aggregate), Plant Roots and Vegetative debris from 0 - 1' bgs, aplastic, loose, no odor, damp. Fill - Native Till used as Backfill. | SILT | Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 4<br>4<br>3<br>4 | 7 | 1.8 | 0.0 | - | | | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, 1.5"-thick lenses of Silt and Silty Sand throughout to 5.0' bgs, weakly to moderately plastic, no odor, soft, damp. Native Clay Till used as Backfill. | SILTY CLAY | |
| 5 | | 3 | 4-6 | 13<br>41<br>50/ 0.5 | 91 | 1.4 | 0.0 | - | | | Gray-brown (10YR 5/2) color, hard, dry at 5.0' bgs. | | |
| | 725 | 4 | 6-8 | 34<br>20<br>22<br>28 | 42 | 2.0 | 0.0 | - | | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, but homogenous, hard, dry. Native Undisturbed Native Glacial Clay Till.<br>Well rounded Pebble at 8.0' bgs. | | |
| | | 5 | 8-10 | 5<br>12<br>19<br>17 | 36 | 2.0 | 0.0 | - | CL | | | | |
| 10 | 720 | 6 | 10-12 | 7<br>14<br>18<br>19 | 32 | 1.6 | 0.0 | - | | | | | |
| | | 7 | 12-14 | 8<br>22<br>24<br>26 | 47 | 2.0 | 0.0 | - | | | | | |
| 15 | | 8 | 14-16 | 8<br>40<br>43<br>45 | 83 | 1.6 | 0.0 | - | | | Saturated Silty fine to coarse subangular Sand (SM) lense, few fine rounded Gravel, no odor, medium dense at 15.5' bgs. | | ▼ |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Sample collected from 0 - 2.0' bgs with MS/MSD.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/18/03 | 15.5' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-07-11.dat
Date: 04/17/03

**Date Start/Finish:** 3/17/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 563205.18
**Easting:** 13307043.84
**Casing Elevation:** NA

**Borehole Depth:** 18.0' bgs
**Surface Elevation:** 728.44 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-07-12

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 730 |  |  |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 0-2 | 2<br>2<br>4<br>5 | 6 | 1.2 | 0.0 | - | FL |  | ASPHALT.<br>Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse Sand, few fine to coarse rounded Gravel, Sitly Sand lenses up to 3" thick throughout, moderately plastic, no odor, damp, soft, moist to wet. Native Clay Till used as Backfill. | FIL | Borehole backfilled with Bentonite to grade. |
|  | 725 | 2 | 2-4 | 4<br>6<br>7<br>7 | 13 | 1.2 | 0.0 | - |  |  |  |  |  |
| 5 |  | 3 | 4-6 | 12<br>13<br>25<br>22 | 38 | 2.0 | 0.0 | - |  |  | Silty Sand lense, wet at 4.0' bgs.<br>Dry, mottled and oxidized to dark yellow-brown (10YR 6/3), increased thickness, very stiff at 4.5'. |  |  |
|  |  | 4 | 6-8 | 4<br>8<br>18<br>22 | 26 | 2.0 | 0.0 | - |  |  | Gray (10 YR 5/1) SILTY LEAN CLAY (CL), as above, but homogenous, very stiff, dry. Undisturbed Native Glacial Clay Till. | SILTY CLAY |  |
|  | 720 | 5 | 8-10 | 5<br>10<br>11<br>17 | 21 | 2.0 | 0.0 | - | CL |  |  |  |  |
| 10 |  | 6 | 10-12 | 8<br>12<br>16<br>25 | 28 | 2.0 | 0.0 | - |  |  |  |  |  |
|  | 715 | 7 | 12-14 | 4<br>12<br>16<br>25 | 28 | 2.0 | 0.0 | - |  |  |  |  |  |
| 15 |  | 8 | 14-16 | 8<br>17<br>25<br>29 | 42 | 1.5 | 0.0 | - |  |  | Hard below 14' bgs. |  |  |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/17/03 | 17.7' |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-07-12.dat Date: 04/17/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-07-12

**Borehole Depth:** 18.0' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 9 | 16-18 | 13<br>18<br>27<br>27 | 45 | 1.7 | 0.0 | - | CL |  | Gray (10 YR 5/1) SILTY LEAN CLAY (CL), as above, but homogenous, very stiff, dry. Undisturbed Native Glacial Clay Till.<br>Saturated at 17.7' bgs. | SILTY CLAY | Borehole backfilled with Bentonite to grade. |
|  | 710 |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 705 |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 700 |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 695 |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 |  |  |  |  |  |  |  |  |  |  |  |  |  |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/17/03 | 17.7' |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-07-12.dat Date: 04/17/03

**Date Start/Finish:** 3/17/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 563094.52
**Easting:** 13307043.26
**Casing Elevation:** NA

**Borehole Depth:** 18.0' bgs
**Surface Elevation:** 728.77 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-07-13

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | 2<br>8<br>8<br>11 | 16 | 1.7 | 0.0 | - | FL<br>CL | | ASPHALT.<br>Brown (10 YR 5/3) becoming very dark brown (10 YR 2/2), SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, Silty Sand lenses up to 1" thick and moist throughout to 3.0' bgs, weakly plastic, no odor, dry, medium stiff. Native Clay Till used as Backfill. | FIL<br>SILTY CLAY | Borehole backfilled with Bentonite to grade. |
| | 725 | 2 | 2-4 | 6<br>6<br>9<br>13 | 15 | 1.2 | 0.0 | - | | | Cement debris at 4.0' bgs. | | |
| 5 | | 3 | 4-6 | 8<br>11<br>12<br>12 | 23 | 2.0 | 0.0 | - | ML | | Yellow-brown (10 YR 5/4) SILT (ML), little fine subangular Sand, few Clay, aplastic, no odor, medium dense, moist. Fill. | SILT | |
| | | 4 | 6-8 | 9<br>13<br>17<br>24 | 30 | 1.8 | 0.0 | - | | | Brown SILTY LEAN CLAY (CL) as above from 0.3' - 4.2'. Native Clay Till used as Backfill.<br>Mottled with areas of highly oxidized to yellow-brown (10 YR 5/6), with stains of gray (10 YR 5/1), at 7.0' bgs. | SILTY CLAY | |
| | 720 | 5 | 8-10 | 6<br>9<br>14<br>11 | 23 | 2.0 | 0.0 | - | | | Gray (10 YR 5/1) SILTY LEAN CLAY (CL) as above from 0.3' - 4.2' bgs, but homogenous and very stiff. Native Undisturbed Glacial Clay Till. | | |
| 10 | | 6 | 10-12 | 9<br>18<br>19<br>25 | 37 | 2.0 | 0.0 | - | CL | | | | |
| | 715 | 7 | 12-14 | 7<br>17<br>17<br>23 | 34 | 1.6 | 0.0 | - | | | | | |
| 15 | | 8 | 14-16 | 8<br>13<br>13<br>13 | 26 | 2.0 | 0.0 | - | | | Dry at 14' bgs | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/17/03 | 17.8' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-07-13 Date: 04/17/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-07-13

**Borehole Depth:** 18.0' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 8<br>12<br>16<br>17 | 28 | 2.0 | 0.0 | - | CL | ▤ | Gray (10 YR 5/1) SILTY LEAN CLAY (CL) as above from 0.3' - 4.2' bgs, but homogenous and very stiff. Native Undisturbed Glacial Clay Till.<br>3"-thick saturated Silty Sand lense, little to few Clay, dense, no odor at 17.8' bgs. | SILTY CLAY | Borehole backfilled with Bentonite to grade. |
| | 710 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 695 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/17/03 | 17.8' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/20/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563169.4
**Easting:** 13307151.93
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 728.96 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-07-14

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | |
| 0 | | 1 | 0-2 | 2.0 | 0.0 | - | CL | ▤ | Dark brown (10YR 3/3) SILTY LEAN CLAY (CL), little fine to oarse subrounded to rounded Sand, few fine to coarse rounded Gravel, Plant material and Roots from 0 - 1' bgs (Topsoil), weakly plastic, no odor, soft, damp.<br>Brick and Concrete debris below 1.3' bgs.<br>No Brick, but Concrete debris still present below 1.8' bgs. | SILTY CLAY | ▒ Borehole backfilled with Bentonite to grade. |
| | 725 | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| | 720 | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| | 715 | | | | | | | | | | |
| 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-07-14.dat Date: 4/30/03

**Date Start/Finish:** 2/26/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 559068.66
**Easting:** 13305518.70
**Casing Elevation:** NA

**Borehole Depth:** 10' bgs
**Surface Elevation:** 725.50 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-01R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 725 | | | | | | | | | | ASPHALT. | | |
| | | | | | | | | | | | Auger to 4.0' bgs. See log for RFI-09-01 for stratigraphic description from 0.5' - 4.0' bgs. | | Borehole backfilled with Bentonite Chips to grade. |
| 5 | 720 | 1 | 4-6 | WH | WH | 1.9 | 3.7 | - | | | Black (10YR 2/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, plastic, no odor, soft, moist to wet, saturated at 4.5' bgs. Native Clay Fill used as Backfill. | SILTY CLAY | |
| | | 2 | 6-8 | WH<br>2<br>3<br>3 | 5 | 1.5 | 7.5 | - | CL | | Becoming gray-brown (10YR 5/2) with gray (10YR 5/1) mottling, decreased moisture content to moist between saturated Silt and Silty Sand lenses up to 2" thick below 6.0' bgs. | | |
| | | 3 | 8-10 | 1<br>2<br>3<br>3 | 5 | 2.0 | 23 | - | | | | | |
| 10 | 715 | | | | | | | | | | | | |
| 15 | 710 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
+ = Positive Test Result; WH = Weight of Hammer;
NA = Not Applicable/Not Available
Samples collected from 4.0'-6.0', 6.0'-8.0', & 8.0'-10' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/26/03 | 4.5' | |

Project: 644.10.011 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-09-01R.dat Date: 3/6/03

**Date Start/Finish:** 2/26/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 559441.95
**Easting:** 13305466.93
**Casing Elevation:** NA

**Borehole Depth:** 2.5' bgs
**Surface Elevation:** 726.01 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-03R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | ASPHALT | | |
| | 725 | 1 | 0.5-2.5 | 41<br>48<br>18<br>13 | 66 | 1.5 | 0.0 | - | | | See log for RFI-09-03 for stratigraphic descriptions. | | Borehole backfilled with Bentonite Chips to grade. |
| 5 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
+ = Positive Test Result; WH = Weight of Hammer;
NA = Not Applicable/Not Available
Samples collected from 0.5' - 2.5' bgs for SVOCs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-09-03R.dat Date: 3/6/03

**Date Start/Finish:** 03/3/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560190.67
**Easting:** 13305650.51
**Casing Elevation:** 728.10' AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

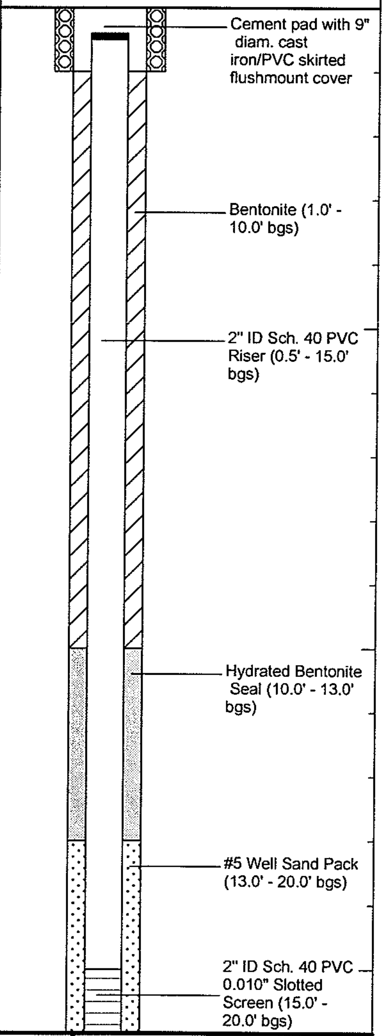
**Well/Boring ID:** RFI-09-08D

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 0.7 | 0.0 | | FL | | CONCRETE.<br>Dark brown and yellow-brown fine to coarse subangular to subrounded SAND, no odor, medium dense, damp to moist. |
| | | 2 | 2-4 | 8<br>8<br>9<br>10 | 17 | 2 | 0.0 | | | | |
| 5 | -5 | 3 | 4-6 | 4<br>6<br>8<br>12 | 14 | 2 | 35.8 | | | | Dark brown to black fine SAND, some Silt and fine Gravel, Wood fragments, odor, moist. |
| | | 4 | 6-8 | 2<br>2<br>4<br>8 | 6 | 2 | 5.9 | | SP | | Wet below 6.0' bgs.<br>Sheen present at 7.5' bgs. |
| | | 5 | 8-10 | 2<br>2<br>4<br>8 | 6 | 1 | 3.3 | | | | |
| 10 | -10 | 6 | 10-12 | 2<br>2<br>4<br>6 | 6 | 1 | 1.3 | | | | Saturated below 10.0' bgs. |
| | | 7 | 12-14 | 1<br>1<br>1<br>1 | 2 | 1 | 1.5 | | | | |
| 15 | -15 | 8 | 14-16 | 2<br>6<br>6<br>12 | 12 | 2 | 0.8<br>1.3<br>10.7 | | | | Brown-gray fine SAND, some Silt, trace fine Gravel, slight odor, medium dense, moist. |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-09-08D.dat
Date: 3/13/05

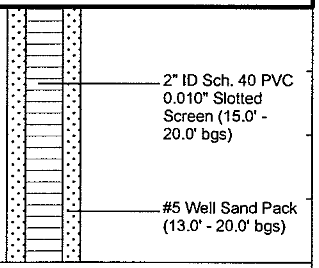
**Client:**
General Motors

**Site Location:**
GM Flint
Hamilton Ave.
Flint, Michigan

**Well/Boring ID:** RFI-09-08D

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 4<br>10<br>10<br>20 | 20 | 2 | 2.5<br>1.3<br>2.7 | | | | Brown-gray fine SAND, some Silt, trace fine Gravel, slight odor, medium dense, moist.<br>Brown-gray CLAY, some fine subangular to subrounded Gravel, little Silt, trace fine Sand, no odor, very stiff, extremely hard, damp. | 2" ID Sch. 40 PVC 0.010" Slotted Screen (15.0' - 20.0' bgs) |
| | | 10 | 18-20 | 10<br>10<br>10<br>10 | 20 | 2 | 1.5<br>0.0<br>0.0 | | SP | | | #5 Well Sand Pack (13.0' - 20.0' bgs) |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 03/2/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560139.05
**Easting:** 13305499.86
**Casing Elevation:** 728.30' AMSL

**Borehole Depth:** 22' bgs
**Surface Elevation:** NA

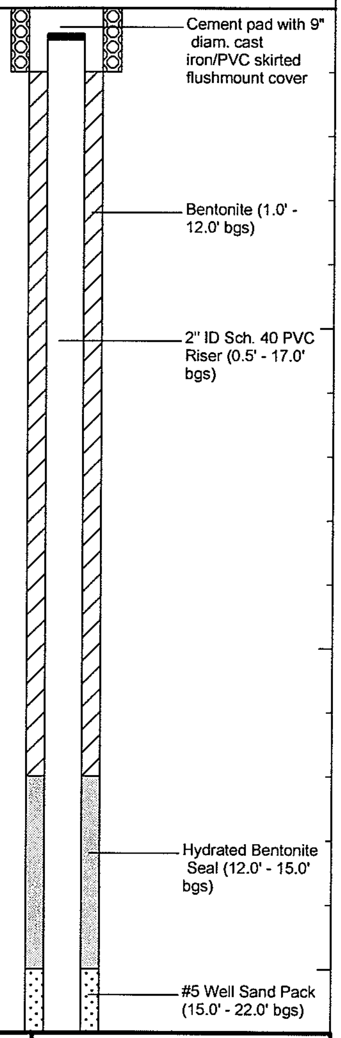
**Descriptions By:** J. Kralik

**Well/Boring ID:** RFI-09-09D

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 4<br>8<br>10<br>12 | 18 | 1.2 | 0.0 |  | FL |  | CONCRETE.<br>Light gray to dark gray fine to medium SAND, some coarse Sand and fine Gravel, some Brick, Concrete debris, some dark brown fine to medium Sand with angular to subangular Concrete fragments, dense, no odor, dry. |  |
|  |  | 2 | 2-4 | NA | NA | 0.0 | 0.0 |  |  |  | CONCRETE. |  |
| 5 | -5 | 3 | 4-6 | 5<br>7<br>9<br>11 | 16 | 2.0 | 0.0 |  | SP |  | Dark brown fine SAND.<br>Yellow-brown (10YR 5/4) fine SAND, some medium Sand, poorly graded, some orange de-coloration, dense, damp. |  |
|  |  | 4 | 6-8 | 4<br>5<br>10<br>12 | 15 | 2.0 | 0.0<br>0.0<br>35.5 |  |  |  |  |  |
|  |  | 5 | 8-10 | 4<br>5<br>8<br>10 | 13 | 2.0 | 121<br>303 |  | ML |  | Olive-gray SILT/CLAYEY SILT, odor present, black staining at 7.5' to 8' bgs, some fine Sand and Gravel, sheen, stiff, damp.<br>Black staining and wet at 9.5' bgs. |  |
| 10 | -10 | 6 | 10-12 | NA | NA | 2.0 | 151 |  |  |  | Gray SILT, some fine Sand and fine subangular Gravel, little medium to coarse Sand, trace Clay, no odor, stiff, damp. |  |
|  |  | 7 | 12-14 | 4<br>4<br>8<br>10 | 12 | 2.0 | 3.8 |  |  |  |  |  |
| 15 | -15 | 8 | 14-16 | 5<br>8<br>10<br>10 | 18 | 2.0 | 0.0 |  | SP<br>ML |  | Gray fine SAND, poorly graded, trace coarse Sand, no odor, medium dense, wet.<br>Gray SILT, some fine Sand and fine subangular Gravel, little medium to coarse Sand, trace Clay, no odor, stiff, damp. |  |



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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
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|  |  |  |
|  |  |  |

**Client:**
General Motors

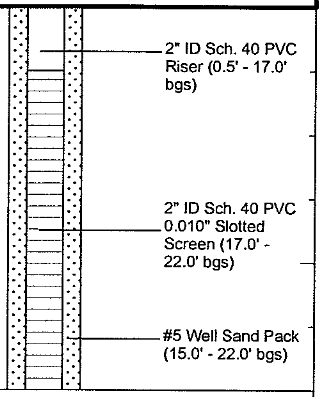
**Site Location:**
GM Flint
Hamilton Ave.
Flint, Michigan

**Well/Boring ID:** RFI-09-09D

**Borehole Depth:** 22' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 5<br>8<br>10<br>10 | 18 | 2.0 | 0.0 | | SP | ▨ | Gray fine SAND, little Silt and medium to coarse Sand, poorly graded, no odor, saturated. |
| | 10 | 18-20 | 10<br>10<br>10<br>30 | 20 | 2.0 | 0.0 | | CL | ▤ | Brown-gray CLAY, some fine subangular to subrounded Gravel, little Silt, trace fine Sand, no odor, very stiff, extremely hard, damp. |
| 20-20 | 11 | 20-22 | 10<br>11<br>21<br>25 | 32 | 2.0 | 0.0 | | | | |
| 25-25 | | | | | | | | | | |
| 30-30 | | | | | | | | | | |
| 35-35 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-09-09D.dat
Date: 3/13/05

**Date Start/Finish:** 03/2/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560155.86
**Easting:** 13305420.16
**Casing Elevation:** 728.85' AMSL

**Borehole Depth:** 24' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

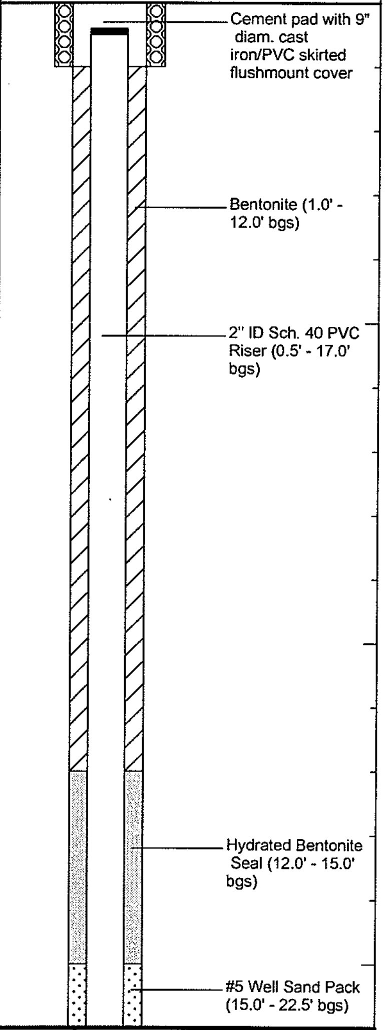
**Well/Boring ID:** RFI-09-11D

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 1<br>1<br>1<br>1 | 2 | 1.0 | 0.0 | | FL<br>SP<br>ML | | CONCRETE.<br>Gray-brown (10YR 5/2) subangular to subrounded fine to coarse SAND, some Silt and fine Gravel, no odor, loose, dry to damp.<br>Yellow-brown (10YR 5/4) SILT, dense, damp. |
| | | 2 | 2-4 | 2<br>3<br>2<br>6 | 5 | 1.5 | 0.0 | | CL | | Gray (10YR 5/1) soft CLAY, yellow-brown mottling, some Silt, trace fine Sand and fine Gravel, odor, 3" gray moist Sand at 5.5' bgs. |
| 5 | -5 | 3 | 4-6 | 2<br>3<br>4<br>5 | 7 | 2.0 | 7.8 | | | | |
| | | 4 | 6-8 | 5<br>5<br>6<br>7 | 11 | 2.0 | 77.7 | | | | |
| | | 5 | 8-10 | 2<br>3<br>4<br>5 | 7 | 2.0 | 254 | | | | Gray (10YR 5/1) medium stiff CLAY, some Silt, little fine subangular to subrounded Gravel, extremely hard, slight odor, damp. |
| 10 | -10 | 6 | 10-12 | 4<br>3<br>5<br>3 | 8 | 2.0 | 121 | | ML | | Gray (10YR 5/1) SANDY SILT, fine to medium Sand, some yellow-brown (10YR 5/4 to 5/2) Silt throughout, trace fine Gravel, medium stiff, odor, damp.<br>Wet from 11.0' - 12.0' bgs. |
| | | 7 | 12-14 | 4<br>5<br>8<br>12 | 13 | 2.0 | 1.1 | | | | |
| 15 | -15 | 8 | 14-16 | 4<br>6<br>9<br>11 | 15 | 2.0 | 0.0 | | | | Saturated from 14.5' - 15.0' bgs. |

**Well/Boring Construction**



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

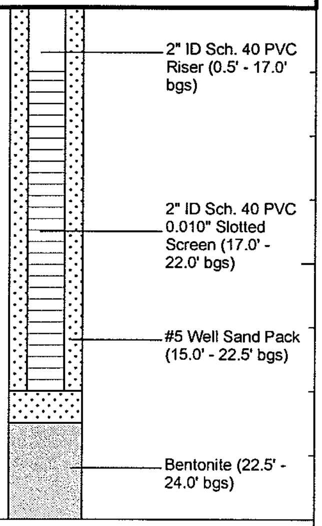
**Site Location:**
GM Flint
Hamilton Ave.
Flint, Michigan

**Well/Boring ID:** RFI-09-11D

**Borehole Depth:** 24' bgs

| DEPTH / ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 6<br>7<br>9<br>11 | 16 | 1.0 | 0.0 | | ML | | Gray (10YR 5/1) SANDY SILT, fine to medium Sand, some yellow-brown (10YR 5/4 to 5/2) Silt throughout, trace fine Gravel, medium stiff, odor, damp. |
| | 10 | 18-20 | 8<br>10<br>10<br>12 | 20 | 1.5 | 0.0 | | SP | | Gray (10YR 5/1) fine to medium SAND, some subangular to subrounded fine Gravel, medium dense, little Silt, no odor, wet to19' bgs, damp from 19' to 20' bgs. |
| 20-20 | 11 | 20-22 | 10<br>11<br>20<br>30 | 31 | 1.0 | 0.0 | | CL | | Gray (10YR 5/1) SILTY CLAY, some very fine to fine Sand, trace fine Gravel, no odor, hard, damp. |
| | 12 | 22-24 | 9<br>10<br>21<br>21 | 31 | 1.5 | 0.0 | | | | |
| 25-25 | | | | | | | | | | |
| 30-30 | | | | | | | | | | |
| 35-35 | | | | | | | | | | |

Well/Boring Construction



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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-09-11D.dat Date: 3/11/05

**Date Start/Finish:** 4/9/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Dennis Emmery
**Drilling Method:** Hand Auger
**Sampler Size:** 4" Barrel
**Auger Size:** NA
**Rig Type:** NA

**Northing:** 559585.85
**Easting:** 13305560.52
**Casing Elevation:** NA

**Borehole Depth:** 3.0' bgs
**Surface Elevation:** 724.23 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-17

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 725 | | | | | | | | | | |
| 0 | | 1 | 0-3 | 3.0 | 0.0 | - | SW | ▨ | Black (10YR 2/1) fine to coarse angular WELL GRADED SAND (SW), 50% Cinders and Coal fragments, little Silt, few Clay, Pebble-sized angular Aggregate from 0 - 0.5' bgs, aplastic, no odor, loose, saturated with melted snow. Fill. | FINE SAND | Borehole backfilled with Bentonite to grade. |
| | 720 | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| | 715 | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| | 710 | | | | | | | | | | |
| 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
Sample collected from 1.0' - 3.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-09-17.dat Date: 4/30/03

**Date Start/Finish:** 8/20/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** 559294.34
**Easting:** 13305338.57
**Casing Elevation:** NA

**Borehole Depth:** 7.0' bgs
**Surface Elevation:** 726.67 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-33

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | ASPHALT. | FILL | Borehole backfilled with Bentonite to grade. |
| | 725 | 1 | 0-2 | -<br>22<br>19<br>20 | 41 | 1.0 | 0.0 | - | SM | | Black (10YR 2/1) Silty fine to medium (predominantly fine) subangular to subrounded poorly graded SAND (SM), little to few Clay, few fine subangular Gravel, Cinders and Metallic debris present, moderately dense, no odor, dry. Foundry Sand. | Silty SAND | |
| | | NA | 2-3 | NA | NA | NA | NA | NA | FL | | CEMENT Rubble.<br>CONCRETE in situ. | FILL | |
| | | 2 | 3-5 | 8<br>8<br>10<br>11 | 18 | 1.2 | 0.0 | - | SW | | Dark yellow-brown (10YR 4/6) fine to coarse subrounded well graded SAND (SW), little Silt, few fine to medium rounded Gravel, moderately dense, no odor, damp. Fill Sand. | SAND | |
| 5 | 720 | 3 | 5-7 | 5<br>7<br>9<br>6 | 16 | 1.2 | 0.0 | - | SM | | Pale brown (10YR 6/3) Silty fine poorly graded subangular SAND (SM), few Clay, no odor, dense, damp. Fill Sand.<br>Saturated at 6.8' bgs. | ← Silty SAND → | |
| 10 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/20/02 | 6.0' bgs | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-09-33.dat Date:9/23/02

**Date Start/Finish:** 8/20/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** 559227.99
**Easting:** 13305350.25
**Casing Elevation:** NA

**Borehole Depth:** 4.0' bgs
**Surface Elevation:** 726.76 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-34

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 725 | 1 | 0-2 | 7<br>7<br>6<br>15 | 13 | 1.6 | 0.0 | - | SW | ░ | VEry dark brown (10YR 3/3) to black (10YR 2/1) fine to coarse angular well graded SAND (SW), some to little Silt, trace Clay, Metallic debris and Cinders present, 2" of aggregat mixed in at upper contact, aplastic, no odor, medium dense, dry. Foundry Sand. | SAND | Borehole backfilled with Bentonite to grade. |
|  |  | 2 | 2-4 | 13<br>12<br>15<br>20 | 37 | 2.0 | 0.0 | - | SM | ▨ | Yellow-brown (10YR 5/8) Silty fine subangular poorly graded SAND (SM), few Clay, dense to moderately dense, no odor, damp. Fill Sand. | Silty SAND |  |
| 5 | 720 |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | 715 |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
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Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-09-34.dat Date:9/23/02

**Date Start/Finish:** 8/20/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** 559149.3
**Easting:** 13305371.07
**Casing Elevation:** NA

**Borehole Depth:** 4.0' bgs
**Surface Elevation:** 726.24 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-35

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 725 | 1 | 0-2 | 8<br>9<br>11<br>10 | 20 | 1.3 | 0.0 | - | SM | | Black (10YR 2/1), with 4" bleaching to dark gray-brown (10YR 4/2) at surface, Silty fine to medium angular to subangular well graded SAND (SM), little angular to subangular Gravel, dense, no odor, dry. | Silty SAND | Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 12<br>8<br>14<br>19 | 22 | 1.5 | 0.0 | - | | | Reddish-brown color from 2.5' - 2.8' bgs.<br>Mixed with Concrete rubble from 3.5' - 4.0' bgs. | | |
| 5 | 720 | | | | | | | | | | | | |
| 10 | 715 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-09-35.dat Date:9/23/02

| | | |
|---|---|---|
| **Date Start/Finish:** 8/20/02<br>**Drilling Company:** Rau Drilling<br>**Driller's Name:** Greg Compeau<br>**Drilling Method:** HSA/SS<br>**Sampler Size:** 2' x 2" ID<br>**Auger Size:** 3 1/4" ID<br>**Rig Type:** CME 75 | **Northing:** 559650.52<br>**Easting:** 13305502.97<br>**Casing Elevation:** NA<br>**Borehole Depth:** 6.0' bgs<br>**Surface Elevation:** 726.06 ft. AMSL<br>**Descriptions By:** SM Duly | **Boring ID:** RFI-09-36<br>**Client:** General Motors<br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | ASPHALT. | IL | |
| | 725 | 1 | 0-2 | 9<br>11<br>10<br>13 | 21 | 1.6 | 0.0 | + | SM | | Black (10YR 2/1) Silty fine to medium (predominantly fine) poorly graded SAND (SM), little Clay, Cinders, Metallic debris, and Brick fragments present, medium dense, no odor<br>Low recovery from 2.0' - 4.0' bgs due to presence of stone in shoe. | Silty SAND | Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 4<br>5<br>5<br>4 | 10 | 0.5 | 6.7 | + | | | | | |
| 5 | | 3 | 4-6 | 4<br>3<br>3<br>3 | 6 | 1.2 | 0.0 | + | CL | | Saturated at 4.6' bgs<br>Dark gray (10YR 4/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, Oily material present, soft, very plastic, saturated. Native Clay Till used as backfill. | ilty CLA | |
| | 720 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
Boring redrilled due to presence of product, RFI-09-36R.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/20/02 | 4.6' bgs | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/20/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 559648.03
**Easting:** 13305503.13
**Casing Elevation:** 725.90 ft. AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** 726.06 ft. AMSL

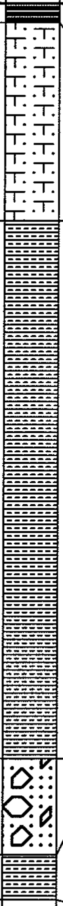
**Descriptions By:** SM Duly

**Boring ID:** RFI-09-36R

**Client:** General Motors

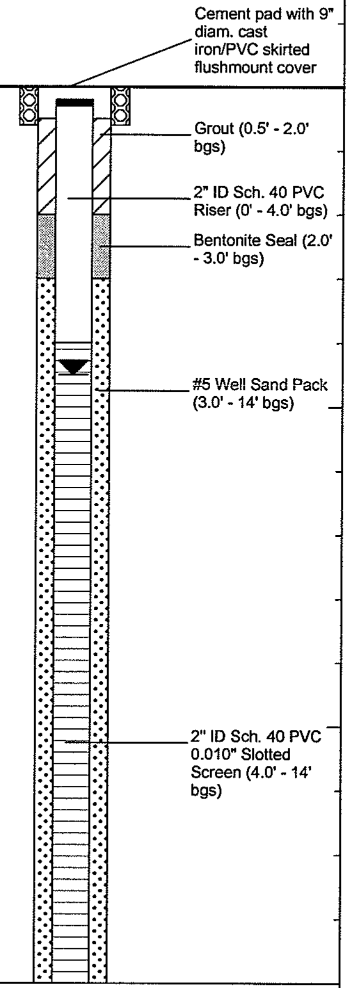
**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 725 | 1 | 0-2 | -<br>9<br>10<br>12 | 19 | 1.6 | 0.0 | + |
|  |  | 2 | 2-4 | 25<br>12<br>9<br>5 | 21 | 1.7 | 8.4 | + |
| 5 |  | 3 | 4-6 | 3<br>2<br>3<br>4 | 5 | 2.0 | 0.0 | + |
|  | 720 | 4 | 6-8 | 2<br>2<br>4<br>4 | 6 | 1.5 | 0.0 | + |
|  |  | 5 | 8-10 | 2<br>2<br>3<br>4 | 5 | 1.6 | 0.0 | + |
| 10 | 715 | 6 | 10-12 | 2<br>2<br>5<br>10 | 7 | 1.6 | 0.0 | + |
|  |  | 7 | 12-14 | 2<br>3<br>5<br>8 | 8 | 1.5 | 0.0 | + |
| 15 |  |  |  |  |  |  |  |  |



| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | ASPHALT. | IL |
| SM | Black (10YR 2/1) Silty fine to coarse (predominantly fine) poorly graded SAND (SM), little Clay, few fine to coarse subangular to angular Gravel, Metallic debris, Cinders, and Brick fragments present, medium dense, no odor, dry. Foundry Sand.<br>Wet to moist at 2.6' bgs. | Silty SAND |
| CL | Black (10YR 2/1) becoming dark gray (2.5Y 4/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, clear Oily material present, Silt lenses throughout, no odor, damp to moist. Native Clay Till used as backfill.<br>Saturated at 4.5' bgs.<br>Gray (10YR 5/1) native and undisturbed, homogenous below 10' bgs. | Silty CLAY |
| SG | Gray (10YR 5/1) fine to coarse subangular well graded SAND with GRAVEL (SG), few Silt, loose, no odor, saturated. Glacio-Alluvial. | SAND |
| CL | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 3.4' - 11.8' bgs, homogenous, native, undisturbed, dry. Native Glacial Clay Till. | CLAY |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/20/02 | 4.5' bgs |  |

**Date Start/Finish:** 10/11/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 2' x 2" PVC Sleeve
**Auger Size:** NA
**Rig Type:** SIMCO 200 Geoprobe

**Northing:** 559599.01
**Easting:** 13305430.07
**Casing Elevation:** NA

**Borehole Depth:** 8.5' bgs
**Surface Elevation:** 726.44 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-37

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|
| 1 | 0-2 | 1.6 | 0.0 | - |
| 2 | 2-4 | 2.0 | 0.0 | - |
| 3 | 4-6 | 2.0 | 0.0 | - |
| 4 | 6-8 | 2.0 | 0.0 | - |
| NA | 8-8.5 | NA | NA | NA |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | ASPHALT. | Fill |
| FL | Metallic Debris and SLAG. | Fill |
| SM/ CL | Interbedded layers of yellow-brown (10YR 5/4) Silty fine to medium subangular to subrounded poorly graded SAND (SM), little Clay, aplastic, no odor, medium dense, dry, interbedded with brown (10YR 5/3) Silty Lean CLAY (CL), little to few fine to coarse subrounded Sand, trace fine rounded Gravel, medium stiff, plastic, no odor, dry. Native Glacial Clay Till mixed with Fill Sand used as backfill. | Clay & Sand |
| SP | Yellow (10YR 7/3) to yellow-brown (10YR 5/8) fine to coarse (predominantly fine to medium) subangular to rounded poorly graded SAND (SP), little Silt, medium loose, no odor, dry. Fill Sand. | SAND |
| ML | Yellow-brown (10YR 5/4) to gray (10YR 6/1) SILT (ML), little to few Clay, aplastic, dense, saturated, no odor.<br>Gray (10YR 6/1) color, Homogenous below 6.5' bgs. | SILT |

DEPTH: 0, 5, 10, 15
ELEVATION: 725, 720, 715

**Boring Construction**

Borehole backfilled with Bentonite to grade.

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/11/02 | 6.0' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-09-37.dat Date: 10/25/02

**Date Start/Finish:** 8/21/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** 559565.27
**Easting:** 13305399.60
**Casing Elevation:** NA

**Borehole Depth:** 5.0' bgs
**Surface Elevation:** 726.51 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-38

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 1 | 0-2 | -<br>6<br>8<br>9 | 17 | 1.3 | 0.0 | + | FL | ▤ | ASPHALT. | FILL | Borehole backfilled with Bentonite to grade. |
| | 725 | | | | | | | | SM | ┬ | Black (10YR 2/1), becoming yellow-brown (10YR 5/4), Silty fine to medium (predominantly fine) poorly graded subangular SAND (SM), few fine to coarse angular Gravel, Cinders, and Metallic debris, aplastic, medium dense, no odor, dry. Fill and Foundery Sand.<br>Gravel at 2.8' bgs. | Silty SAND | |
| | | 2 | 2-4 | 8<br>10<br>11<br>16 | 21 | 1.2 | 0.0 | - | | | | | |
| | | 3 | 4-5 | 12<br>13 | 13 | 0.9 | 0.0 | - | SW | ░ | Pale brown (10YR 4/3) fine to coarse subangular to subrounded well graded SAND (SW), little Silt, trace Clay, trace fine to medium rounded Gravel, medium dense, no odor, dry. Fill Sand. | SAND | |
| 5 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-09-38.dat Date:10/21/02

**Date Start/Finish:** 8/20/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** 559501.62
**Easting:** 13305467.71
**Casing Elevation:** NA

**Borehole Depth:** 6.0' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-39

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | - | | | | | FL | | ASPHALT. | FILL | |
| | | 1 | 0-2 | 9<br>8<br>6 | 17 | 1.3 | 0.0 | - | SM | | Black (10YR 2/1), fine to medium (predominantly fine) poorly graded Silty SAND (SM), little Clay, few fine to coarse subangular to subrounded Gravel, Cinders and Metallic debris present, aplastic, medium dense, dry to damp. | Sand | Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 8<br>8<br>9<br>6 | 17 | 1.2 | 0.0 | - | CL | | Very dark gray (10YR 3/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, soft to medium stiff, no odor, damp to moist. | Silty CLAY | |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>2<br>2 | 4 | 0.9 | 0.0 | - | ML | | Pale brown (10YR 6/3) SILT (ML), few fine subangular Sand, aplastic, no odor, loose, moist. Silty Lean CLAY (CL) lenses up to 2" wide throughout. | SILT | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |

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NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/20/02 | 4.8' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-39.dat Date: 10/21/02

**Date Start/Finish:** 8/15/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560106.63
**Easting:** 13305325.55
**Casing Elevation:** NA

**Borehole Depth:** 17' bgs
**Surface Elevation:** 730.05 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-40

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 730 | 1 | 0-2 | -<br>6<br>5<br>35 | 11 | 1.2 | 0.0 | - | FL<br>CL | | CONCRETE.<br>Dark gray-brown (10YR 4/2), with yellow-brown (10YR 5/6) mottling, Silty Lean CLAY (CL), few fine to coarse subrounded Sand, few fine rounded Gravel, Cinders and Concrete debris present, moderately plastic, no odor, moderately stiff, dry. Native Clay Till used as backfill. | FILL<br>Silty CLAY | |
| | | NA | 2-3 | NA | NA | NA | NA | NA | FL | | CONCRETE rubble and Cinders, saturated (Perced?). | Fill | |
| | | 2 | 3-5 | 2<br>3<br>9<br>11 | 12 | 1.4 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) Silty Lean CLAY (CL), as above from 0.7' - 1.9' bgs. Thin (1" - 2") well graded fine to coarse subangular Sand lense at upper contact, moist. Native Clay Till used as backfill. | Silty CLAY | |
| 5 | 725 | 3 | 5-7 | 6<br>9<br>11<br>12 | 20 | 1.2 | 0.0 | - | | | Gray (10YR 5/1), with yellow-brown (10YR 5/4) mottling. | | |
| | | 4 | 7-9 | 4<br>6<br>7<br>10 | 13 | 1.8 | 1111 | + | | | Silt lense with trace fine to medium subangular Sand, clear Oily material present, moderate odor from 8.1' - 8.5' bgs. | | |
| 10 | 720 | 5 | 9-11 | 5<br>6<br>6<br>11 | 12 | 1.6 | 1925 | + | | | Silt lense with trace fine to medium subangular Sand, clear Oily material present, moderate odor from 9.5' - 9.7' bgs.<br>Silt lense with trace fine to medium subangular Sand, clear Oily material present, sweet odor from 10' - 10.5' bgs.<br>Brown-yellow (10YR 6/6) hard, unoxidized, dry at 10.9' bgs. | | |
| | | 6 | 11-13 | 9<br>13<br>19<br>24 | 32 | 1.8 | 2389 | + | SW | | Gray (10YR 6/1) fine to coarse well graded subangular SAND (SW), little to some Silt, few Clay, strong "oily" odor, aplastic, very dense. Glacio-alluvial. | SAND | |
| | | 7 | 13-15 | 15<br>21<br>27<br>28 | 48 | 1.6 | 20.9 | + | | | Fining downward at 13' bgs. | | |
| 15 | 715 | 8 | 15-17 | 10<br>18 | 42 | 1.5 | 0.0 | - | | | Gray (10YR 6/1) fine to coarse well graded subangular SAND (SW), little to some Silt, few Clay, strong "oily" odor, aplastic, very dense. Glacio-alluvial. | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/15/02 | 11.2' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-40.dat Date: 10/21/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-09-40

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 24<br>26 | 42 | 1.5 | 0.0 | - | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), hard, dry. Native Glacial Clay Till. | Clay | Borehole backfilled with Bentonite to grade. |
| 20 | 710 | | | | | | | | | | | | |
| 25 | 705 | | | | | | | | | | | | |
| 30 | 700 | | | | | | | | | | | | |
| 35 | 695 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/15/02 | 11.2' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-40.dat Date: 10/21/02

**Date Start/Finish:** 8/26/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560110.24
**Easting:** 13305327.11
**Casing Elevation:** 729.76 ft. AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** 729.96 ft. AMSL

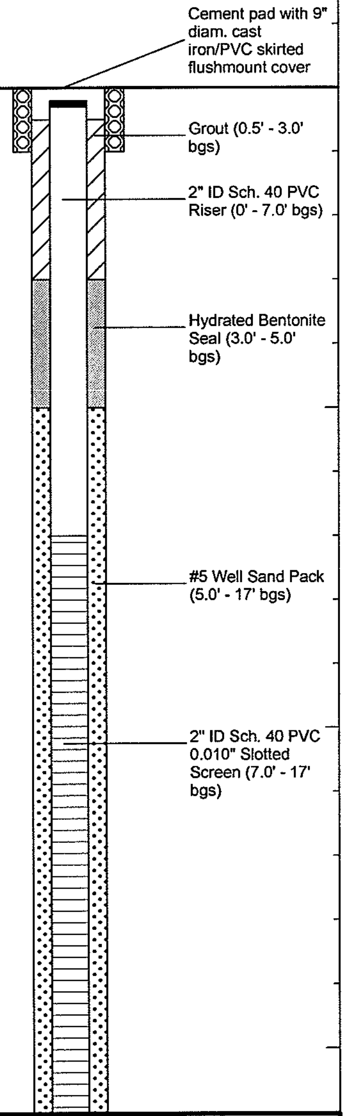
**Descriptions By:** SM Duly

**Boring ID:** RFI-09-40R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 730 | | | | | | | | | | Auger from 0.0 - 17' bgs. See RFI-09-40 for Stratigraphic and Sampling information. | | |
| | | NA | NA | NA | NA | NA | NA | NA | NA | | | | |
| 5 | 725 | | | | | | | | | | | | |
| 10 | 720 | | | | | | | | | | | | |
| 15 | 715 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

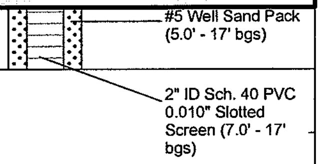
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-40R.dat Date: 10/21/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-09-40R

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | NA | NA | NA | NA | NA | NA | NA | NA |  | Auger from 0.0 - 17' bgs. See RFI-09-40 for Stratigraphic and Sampling information. |  |  |
| 20 | 710 |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | 705 |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 | 700 |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 | 695 |  |  |  |  |  |  |  |  |  |  |  |  |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-40R.dat Date: 10/21/02

**Date Start/Finish:** 8/16/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560099.85
**Easting:** 13305360.71
**Casing Elevation:** NA

**Borehole Depth:** 14' bgs
**Surface Elevation:** 729.59 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-41

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | -<br>4<br>7<br>11 | 11 | 1.0 | 538 | + | FL<br>GM | | CONCRETE.<br>Brown (10YR 4/3) Silty fine to coarse subangular well graded GRAVEL (GM), some well graded fine to coarse subangular Sand, little Clay, medium dense, aplastic, no odor, dry. Fill Sand and Aggregate mixed. | FILL<br>GRAVEL & SILT | Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 9<br>6<br>4<br>8 | 10 | 1.6 | 28.6 | + | SM | | Black (10YR 2/1) Silty fine poorly graded SAND (SM), few Clay, Oily black substance present, moderately dense, no odor, aplastic, dry. Fill Sand. | SAND | |
| 5 | 725 | 3 | 4-6 | 2<br>4<br>5<br>6 | 9 | 1.5 | 434 | - | CL | | Gray-brown (10YR 5/2) Silty Lean CLAY (CL), few fine to medium subrounded Sand, trace fine to medium rounded Gravel, black streaking and patches of oxidation also present, especially below 8.0' bgs, weak odor, dry. Native Clay Till used as backfill. | Silty CLAY | |
| | | 4 | 6-8 | 4<br>5<br>9<br>10 | 14 | 1.5 | 1504 | + | | | 3"-thick SILT (ML) lense at 6.6' bgs.<br>3"-thick Silt (ML) lense with fine to medium subrounded Sand and trace rounded fine to medium Gravel, strong sweet odor at 7.5' bgs. | | |
| | 720 | 5 | 8-10 | 4<br>5<br>7<br>10 | 12 | 1.6 | 1537 | + | | | Silt lense from 8.7' - 9.2' bgs.<br>Silty fine to medium (predominantly medium) poorly graded Sand (SM) lense, few Clay, strong sweet odor at 9.7' bgs. | | |
| 10 | | 6 | 10-12 | 7<br>9<br>15<br>28 | 24 | 1.3 | 1545 | + | | | 6"-thick Silty Sand (SM) lense as above at 11.6' bgs. | | ▼ |
| | | 7 | 12-14 | 7<br>8<br>11<br>15 | 19 | 1.7 | 1299 | + | SP | | Gray (10YR 5/1) fine to medium (predominantly fine) poorly graded SAND (SP), little to some Silt, trace Clay, moderate odor, moderately dense. Glacio-alluvial.<br>Fining downward to a Silt from 13.7' - 14' bgs. | SAND | |
| 15 | 715 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/16/02 | 11.6' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-41.dat Date: 10/21/02

**Date Start/Finish:** 8/16/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560090.53
**Easting:** 13305393.89
**Casing Elevation:** NA

**Borehole Depth:** 14' bgs
**Surface Elevation:** 729.03 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-42

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | -<br>10<br>10<br>6 | 20 | 1.2 | 0.0 | - | FL<br>GM<br>SM | | CONCRETE.<br>Brown (10YR 4/3) Silty fine to coarse subrounded to rounded well graded GRAVEL (GM), some fine to coarse subangular Sand, little Silt, trace Clay, no odor, moderately dense, aplastic, dry. Fill Sand and Aggregate mixed. | FILL<br>Silty SAND | Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 6<br>6<br>5<br>4 | 11 | 0.8 | 2357 | - | CL | | Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), few Clay, black oil substance present, moderately dense, aplastic, moderate odor, damp. Fill Sand.<br>Yellow-brown (10YR 5/4) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, moderate "oily" odor, semi-lithified and bleached to very pale brown (10YR 8/2) from 2.3' - 2.8' bgs, occasional lenses of Silt throughout, moderately plastic, dry. Native Clat Till used as backfill. | Silty CLAY | |
| 5 | 725 | 3 | 4-6 | 4<br>5<br>6<br>6 | 11 | 1.9 | 25.7 | - | | | | | |
| | | 4 | 6-8 | 3<br>4<br>5<br>5 | 9 | 1.4 | 537 | + | | | Becoming soft, very plastic, moist.<br>2"-thick saturated Silt lense at 7.0' bgs.<br>2"-thick saturated Silt lense at 7.8' bgs. | | |
| | 720 | 5 | 8-10 | 5<br>8<br>9<br>5 | 17 | 2.0 | 2384 | + | | | 4"-thick saturated Silt lense at 8.2' bgs. | | |
| 10 | | 6 | 10-12 | 3<br>7<br>11<br>14 | 18 | 1.5 | 1771 | + | | | Gray (10YR 5/1) Silty Lean CLAY (CL) as above, homogenous, dry becoming damp at 11' bgs. Undisturbed Native Glacial Clay Till. | | ▼ |
| | | 7 | 12-14 | 5<br>7<br>9<br>13 | 16 | 1.3 | 2014 | + | SM/<br>GM | | Light brown-gray (10YR 6/2) Silty fine to medium (predominantly fine) poorly graded subangular SAND (SM), trace Clay, moderate odor, light oily substance present, medium dense, saturated. Glacio-alluvial.<br>Coarsens downward to a fine rounded well graded Gravel with fine to coarse well graded angular to subangular Sand (GS), little Silt, moderate odor, loose, clear light oily substance still present, saturated below 12.5' bgs.<br>Fining downwards at 13.7' bgs. | Silty SAND | |
| | 715 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/16/02 | 11.2' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-09-42.dat Date: 10/21/02

**Date Start/Finish:** 8/16/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3 1/4" ID
**Rig Type:** CME 75

**Northing:** 560081.7
**Easting:** 13305443.32
**Casing Elevation:** NA

**Borehole Depth:** 14' bgs
**Surface Elevation:** 728.46 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-43

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | -<br>6<br>7<br>7 | 13 | 1.1 | 0.0 | + | FL<br>SW | | CONCRETE.<br>Brown (10YR 5/8), becoming black (10YR 2/1), fine to coarse angular well graded SAND (SW), few fine to coarse subangular Gravel, few Clay, black oily substance present at 1.2' bgs, moderately dense, no odor, dry. Fill Sand. | FILL<br>SAND | Borehole backfilled with Bentonite to grade. |
| | 725 | 2 | 2-4 | 4<br>6<br>4<br>3 | 10 | 1.3 | 9.7 | - | CL | | Very dark gray (10YR 3/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, soft to medium stiff, very plastic, weak odor, damp to moist with increasing moisture with depth. Native Glacial Clay Till used as backfill. | Silty CLAY | |
| 5 | | 3 | 4-6 | 1<br>2<br>3<br>2 | 5 | 1.6 | 12.7 | - | | | | | |
| | | 4 | 6-8 | 1<br>2<br>2<br>3 | 4 | 1.0 | 0.3 | - | SM | | Brown (10YR 5/3) Silty fine poorly graded subangular SAND (SM), trace Clay, weak odor, loose, moist to saturated at 7.5' bgs, loose. Fill Sand. | Silty SAND | ▼ |
| | 720 | 5 | 8-10 | 4<br>5<br>7<br>10 | 12 | 1.5 | 287 | - | | | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 1.5' - 5.2' bgs, homogenous, Silt lenses present up to 6" thick throughout with damp to moist Clay between lenses. Undisturbed Native Glacial Clay Till.<br>6"-thick saturated Silt lense at 9.5' bgs. | | |
| 10 | | 6 | 10-12 | 5<br>7<br>12<br>14 | 19 | 1.6 | 320 | + | CL | | Black (10YR 2/1) subangular fine to coarse well graded SAND (SW) lense, some to little Silt, few Clay, moderate odor, oily black substance present, saturated from 10.4' - 11.5' bgs. | Silty CLAY | |
| | 715 | 7 | 12-14 | 6<br>10<br>13<br>15 | 23 | 1.5 | 94.1 | + | | | Well graded Sand lense as above from 12' - 12.5' bgs. | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/16/02 | 7.5' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-43.dat Date: 10/21/02

**Date Start/Finish:** 8/16/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560071.15
**Easting:** 13305487.49
**Casing Elevation:** 728.22 ft. AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** 728.48 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-44

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
|  | 730 |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 0-2 | -<br>8<br>9<br>12 | 17 | 1.2 | 0.0 | - | FL<br>SW |
|  | 725 | 2 | 2-4 | 9<br>7<br>7<br>7 | 14 | 1.5 | 0.0 | - | SM<br>CL |
| 5 |  | 3 | 4-6 | 3<br>3<br>4<br>5 | 7 | 1.6 | 0.0 | - | SM |
|  |  | 4 | 6-8 | 2<br>7<br>11<br>11 | 18 | 1.6 | 0.0 | - |  |
|  | 720 | 5 | 8-10 | 5<br>8<br>11<br>11 | 19 | 1.5 | 0.0 | - | ML |
| 10 |  | 6 | 10-12 | 3<br>5<br>10<br>7 | 15 | 1.8 | 0.0 | - |  |
|  | 715 | 7 | 12-14 | 7<br>15<br>20<br>21 | 35 | 2.0 | 0.0 | - | CL |
| 15 |  | NA | 14-15 | NA | NA | NA | NA | NA |  |

**Stratigraphic Description**

CONCRETE.

Black (10YR 2/1) fine to coarse angular to subangular well graded SAND (SW), little to locally some Silt, trace fine to coarse subangular Gravel, strongly oxidized to yellow-brown (10YR 5/8) at 2.6' bgs, no odor, moderately dense, dry. Foundry Sand.

Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), few Clay, no odor, moderately dense, aplastic, dry. Fill Sand.

Brown (10YR 4/3) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, rare fine rounded Gravel, weakly plastic, very stiff to stiff, no odor, dry. Native Glacial Clay Till used as backfill.

Pale brown (10YR 6/3) Silty SAND (SM) as above from 2.8' - 3.3' bgs, moist. Fill Sand.

Saturated at 5.7' bgs.

Gray (10YR 5/1) SILT (ML), lenses of damp Silty lean Clay as above from 3.3' - 3.7' bgs, up to 3" think throughout, moderately to medium dense, no odor, saturated.

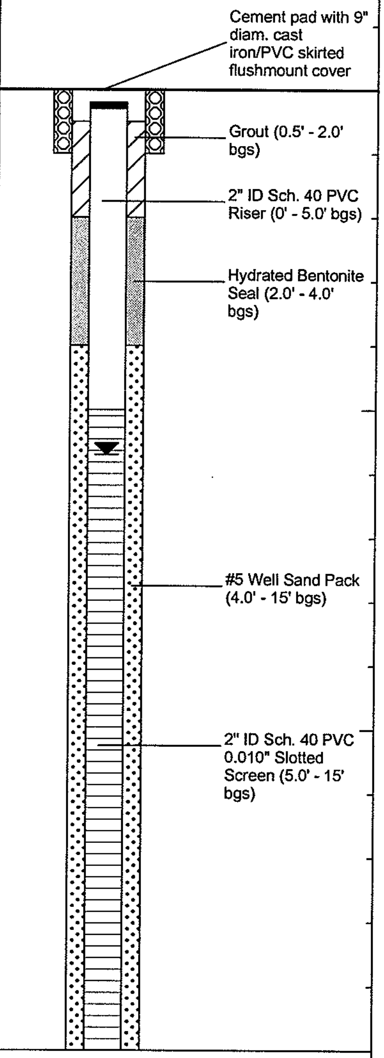
Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 3.3' - 3.7' bgs, saturated Silt lenses present up to 3" thick throughout, homogenous, stiff to very stiff, dry to damp. Native Glacial Clay Till.

Saturated 3"-thick Silt lense as above at 13.1' bgs.

Saturated 3"-thick Silt lense as above at 13.6' bgs.

**Hydrostratigraphy:** FILL; SAND; y Cly SA; Silty SAND; SILT; Silty CLAY

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

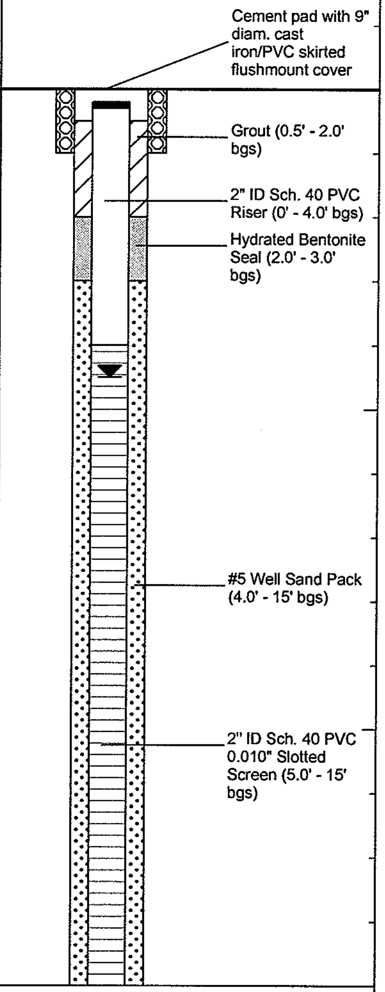
| Date | Depth | Elev. |
|---|---|---|
| 8/16/02 | 5.7' |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-44.dat
Date: 10/21/02

| | | |
|---|---|---|
| **Date Start/Finish:** 8/20/02<br>**Drilling Company:** Rau Drilling<br>**Driller's Name:** Greg Compeau<br>**Drilling Method:** HSA/SS<br>**Sampler Size:** 2' x 2" ID<br>**Auger Size:** 4 1/4" ID<br>**Rig Type:** CME 75 | **Northing:** 560054.75<br>**Easting:** 13305314.73<br>**Casing Elevation:** NA<br>**Borehole Depth:** 14' bgs<br>**Surface Elevation:** 730.17 ft. AMSL<br>**Descriptions By:** SM Duly | **Boring ID:** RFI-09-45<br>**Client:** General Motors<br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 730 | | | | | | | | FL | CONCRETE. | FILL |
| | | 1 | 0-2 | -<br>3<br>5<br>4 | 8 | 1.5 | 0.0 | - | SM | Black (10YR 2/1) Silty fine to medium subangular to subrounded (predominantly fine) poorly graded SAND (SM), few Clay, aplastic, no odor, loose, dry. Fill Sand.<br>Pale brown (10YR 6/3) color from 2.0' - 2.1' bgs. | Sand |
| | | 2 | 2-4 | 4<br>4<br>6<br>7 | 10 | 1.9 | 0.0 | - | CL<br>SM | Brown (10YR 5/3) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, rare rounded Gravel, no odor, stiff, plastic, damp. Native Clay Till used as backfill.<br>Yellow-brown (10YR 5/4) Silty SAND (SM) as above from 0.5' - 2.7' bgs, moist. Fill Sand. | Clay<br>Sand |
| 5 | 725 | 3 | 4-6 | 4<br>4<br>5<br>6 | 9 | 1.8 | 0.0 | +* | CL | Brown (10YR 5/3) with light gray (10YR 7/1) mottling (heavily oxidized), Silty Lean CLAY (CL), as above from 2.7' - 3.7' bgs, Silt lenses up to 2"-thick throughout, moist to damp between lenses, saturated at 4.5' bgs. Native Clay Till used as backfill. | Clay |
| | | 4 | 6-8 | 3<br>3<br>3<br>3 | 6 | 2.0 | 0.0 | +* | SM<br>CL | Brown (10YR 5/4) Silty fine to medium (predominatly fine) poorly graded SAND (SM), little Clay, no odor, medium dense, saturated.<br>Silty Lean CLAY (CL) as above from 4.4' - 6.8' bgs. | Sand<br>Clay |
| | | 5 | 8-10 | 3<br>5<br>9<br>13 | 14 | 1.8 | 0.0 | +* | SM | Silty SAND (SM) as above from 6.8' - 7.0' bgs. | Sand |
| 10 | 720 | 6 | 10-12 | 6<br>6<br>9<br>13 | 15 | 1.6 | 0.0 | +* | CL | Gray 2"-thick rounded coarse Gravel lense at 10.9' bgs.<br>Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 4.4' - 6.8' bgs, homogenous, stiff to very stiff, dry. Native Glacial Clay Till. | Clay |
| | | 7 | 12-14 | 10<br>7<br>10<br>11 | 17 | 1.7 | 0.0 | - | | Saturated Silty SAND (SM) lense from 12.8' - 13.3' bgs. Glacio-alluvial. | |
| 15 | 715 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
* = Very light clear oil observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/20/02 | 4.5' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-45.dat Date: 10/21/02

**Date Start/Finish:** 2/26/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 560051.37
**Easting:** 13305314.69
**Casing Elevation:** NA

**Borehole Depth:** 2.3' bgs
**Surface Elevation:** 730.12 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-45R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 730 | | | | | | | | | | CONCRETE. | | |
| | | 1 | 0.3-1.3 | 30<br>38<br>20<br>10 | 58 | 1.6 | 0.0 | NA | | | See log for RFI-09-45 for stratigraphic descriptions. | | Borehole backfilled with Bentonite Chips to grade. |
| 5 | 725 | | | | | | | | | | | | |
| 10 | 720 | | | | | | | | | | | | |
| 15 | 715 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
+ = Positive Test Result; WH = Weight of Hammer;
NA = Not Applicable/Not Available
Samples collected from 0.3' - 2.3' bgs for SVOCs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/21/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560183.56
**Easting:** 13305879.75
**Casing Elevation:** 723.07 ft. AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** 723.17 ft. AMSL

**Descriptions By:** SM Duly

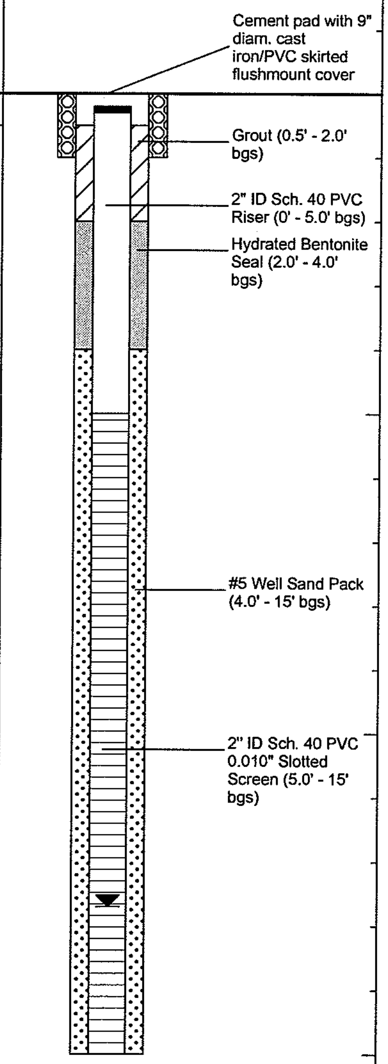
**Boring ID:** RFI-09-46

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 725 |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 0-1 | 5<br>- | - | 0.5 | 0.0 | - | ML | Dark brown (10YR 3/3) SILT (ML), some Clay, trace fine to medium subrounded Sand, Roots and Vegetation present as Topsoil, aplastic, no odor, medium dense, damp. | Silt |
|  |  | NA | 1-3 | NA | NA | NA | NA | NA | FL | Pink very large Quartzite COBBLES and assorted other Cobbles. | FILL |
|  | 720 | 2 | 3-5 | 3<br>5<br>8<br>12 | 13 | 1.8 | 0.0 | - | SM | Pale brown (10YR 6/3) Silty fine subangular poorly graded SAND (SM), trace fine rounded Gravel, aplastic, no odor, medium dense to loose, dry. Fill Sand. | Silty SAND |
| 5 |  | 3 | 5-7 | 5<br>6<br>8<br>9 | 14 | 1.6 | 0.0 | - | CL | Dark gray-brown (10YR 4/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, no odor, moderately plastic, stiff to very stiff, moist to damp. Native Clay Till used as backfill. | Silty CLAY |
|  | 715 | 4 | 7-9 | 2<br>5<br>6<br>10 | 11 | 2.0 | 0.0 | - |  | Gray (10YR 5/1) Silty Lean CLAY (CL) as above, homogenous, saturated Silt lenses throughout with damp to moist Clay in between lensNative Glacial Clay Till.<br>1.5"-thick Silt lense, saturated at 7.8' bgs.<br>2"-thick Silt lense, saturated at 8.2' bgs. |  |
| 10 |  | 5 | 9-11 | 4<br>4<br>7<br>8 | 11 | 1.8 | 0.0 | - |  | 1"-thick Silt lense, saturated at 9.4' bgs.<br>1"-thick Silt lense, saturated at 9.9' bgs.<br>2"-thick Silt lense, saturated at 10.2' bgs.<br>1/2"-thick Silt lense, saturated at 10.6' bgs. |  |
|  |  | 6 | 11-13 | 1<br>2<br>7<br>10 | 9 | 1.6 | 0.0 | - |  | 2"-thick Silt lense, saturated at 12.2' bgs.<br>3"-thick Silt lense, with few fine Sand, saturated at 12.4' bgs. |  |
|  | 710 | 7 | 13-15 | 8<br>10<br>9<br>11 | 19 | 1.4 | 0.0 | - | GC | Gray (10YR 5/1) Clayey fine to coarse subangular to subrounded GRAVEL (GC), some to little fine to coarse subangular to subrounded Sand, little to few Silt, weak odor, aplastic, medium dense to loose, saturated. Glacio-alluvial.<br>Decreasing Clay content at 14' bgs. | Clayey GRAVEL |
| 15 |  | 8 | 15-17 | 9<br>10 | 25 | 1.8 | 0.0 | - | CL | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 7.4' - 12.7' bgs, weakly plastic, very stiff, dry. Native Glacial Clay Till. | CLAY |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/21/02 | 12.7' |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-46.dat Date: 10/22/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-09-46

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 15<br>36 | 25 | 1.8 | 0.0 | - | CL | ▨ | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 7.4' - 12.7' bgs, weakly plastic, very stiff, dry. Native Glacial Clay Till. | CLAY | |
| | 705 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 695 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 690 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/21/02 | 12.7' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File: RFI-09-46.dat Date: 10/22/02

**Date Start/Finish:** 8/26/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560141.86
**Easting:** 13305323.22
**Casing Elevation:** 729.64 ft. AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** 730.02 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-47

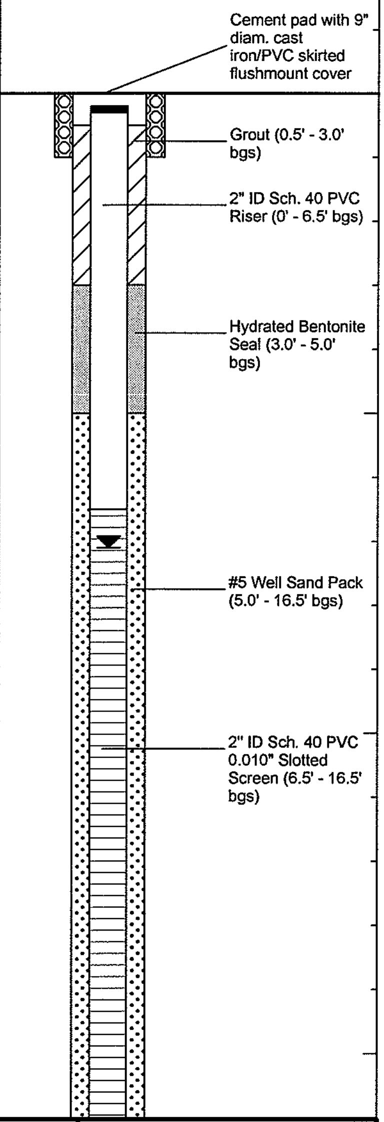
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 730 | 1 | 0-2 | -<br>12<br>11<br>9 | 23 | 0.8 | 0.0 | - |
| | | 2 | 2-4 | 4<br>6<br>16<br>18 | 22 | 1.5 | 113 | - |
| 5 | 725 | 3 | 4-6 | 9<br>10<br>20<br>20 | 30 | 1.5 | 2535 | - |
| | | 4 | 6-8 | 12<br>13<br>13<br>14 | 26 | 2.0 | 2646 | + |
| | | 5 | 8-10 | 6<br>9<br>11<br>13 | 20 | 2.0 | 2285 | + |
| 10 | 720 | 6 | 10-12 | 7<br>13<br>18<br>24 | 31 | 2.0 | 2465 | + |
| | | 7 | 12-14 | 8<br>12<br>15<br>34 | 27 | 1.5 | 2652 | +* |
| 15 | 715 | 8 | 14-16 | 11<br>14<br>15<br>17 | 29 | 2.0 | 149 | - |

| USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|
| FL | | CONCRETE. | FILL |
| SM | | Gray-brown (10YR 5/2) Silty fine to coarse subangular to subrounded well graded SAND (SM), few Clay, few fine to medium angular Gravel (aggregate), Brick debris, aplastic, medium dense, no odor, damp. Till Sand mixed with aggregate and Building Debris. | Silty SAND |
| CL | | Dark gray (10YR 4/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, Cinders present, moderately plastic, very stiff, weak odor, damp becoming increasingly dry with depth. Native Clay Till used as backfill. | Silty CLAY |
| FL | | CONCRETE Cobble. | FILL |
| CL | | Silty Lean CLAY (CL) as above from 2.8' - 4.8' bgs, local patches of oxidation and bleaching, dry. Native Clay Till used as backfill. | Silty CLAY |
| SM | | Brown (10YR 5/3) Silty fine subangular poorly graded SAND (SM), few Clay, aplastic, weak odor, medium dense, saturated. Fill Sand. | SAND |
| CL | | Yellow-brown (10YR 5/6) Silty Lean CLAY (CL) as above from 2.8' - 4.8' bgs, no Cinders, heavily oxidized, very stiff, weak odor, damp. Native Clay Till used as backfill.<br>1"-thick Silty Sand lense, saturated at 10.4' bgs.<br>1/2"-thick Silty Sand lense, saturated at 10.7' bgs.<br>3"-thick Silty Sand lense, saturated at 11.3' bgs.<br>Becoming gray in color, decreasing oxidation at 11.5' bgs. | Silty CLAY |
| SM | | Gray (10YR 5/1) Silty fine to medium (predominantly fine) subangular poorly graded SAND (SM), trace fine subangular Gravel, aplastic, moderate odor, dense, saturated. Glacio-alluvial.<br>Increased Clay content to little throughout to lower contact.<br>Increased Gravel content and coarseness, no odor below 14' bgs. | Silty SAND |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
* = Very light clear oil observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/26/02 | 7.1' | |
| | | |
| | | |
| | | |

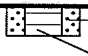
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-47.dat Date: 10/21/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-09-47

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 8<br>10<br>14<br>25 | 24 | 1.4 | 0.0 | - | SM | | Gray (10YR 5/1) Silty fine to medium (predominantly fine) subangular poorly graded SAND (SM), trace fine subangular Gravel, aplastic, moderate odor, dense, saturated. Glacio-alluvial.<br>Gray (10YR 5/1) Silty Lean Clay lense, very stiff to hard, weakly plastic, homogenous, no odor from 7.3' - 17.8' bgs. Native Clay Till. | Silty SAND |  #5 Well Sand Pack (5.0' - 16.5' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (6.5' - 16.5' bgs) |
| 20 | 710 | | | | | | | | | | | | |
| 25 | 705 | | | | | | | | | | | | |
| 30 | 700 | | | | | | | | | | | | |
| 35 | 695 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
* = Very light clear oil observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/26/02 | 7.1' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-09-47.dat Date: 10/21/02

**Date Start/Finish:** 4/2/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 560162.7
**Easting:** 13306188.80
**Casing Elevation:** 719.69 ft. AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** 719.88 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-48

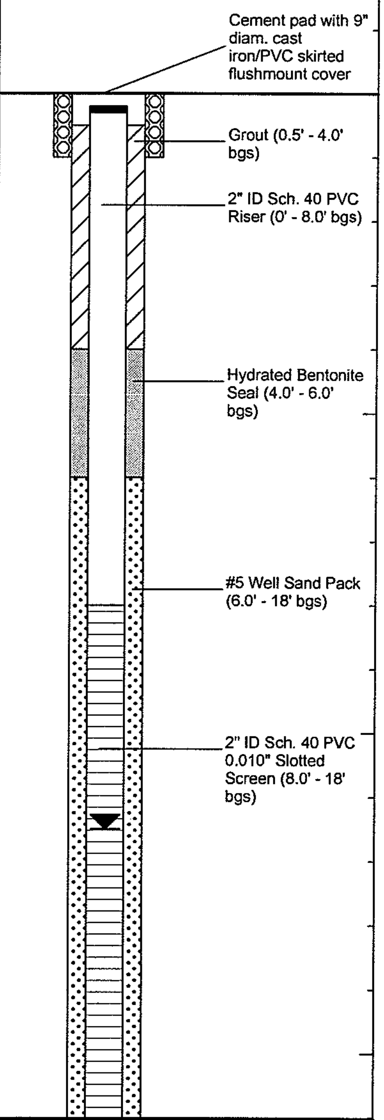
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 720 | 1 | 0-2 | NA<br>7<br>9<br>13 | 16 | 1.5 | 0.0 | - |
| | | 2 | 2-4 | 6<br>6<br>6<br>6 | 12 | 1.8 | 0.0 | - |
| 5 | 715 | 3 | 4-6 | 2<br>2<br>3<br>2 | 5 | 1.3 | 0.0 | - |
| | | 4 | 6-8 | 2<br>2<br>3<br>5 | 5 | 1.7 | 0.0 | - |
| | | 5 | 8-10 | 2<br>3<br>5<br>4 | 8 | 1.5 | 0.0 | - |
| 10 | 710 | 6 | 10-12 | 2<br>2<br>3<br>3 | 5 | 1.3 | 0.0 | - |
| | | 7 | 12-14 | 7<br>1<br>1<br>1 | 2 | 1.2 | 0.0 | - |
| 15 | 705 | 8 | 14-16 | H<br>H<br>H<br>H | H | 1.7 | 0.0 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | CONCRETE. | FILL |
| SW | Dark brown (10YR 3/3) to black (10YR 2/1) fine to coarse angular to subrounded WELL GRADED SAND (SW) with Silt- to Gravel-sized angular Slag, few Clay, aplastic, no odor, medium dense, dry. Foundry Fill/Sand. | |
| CL | Dark gray (10YR 4/1) to black (10YR 2/1) SILTY LEAN CLAY (CL), few fine to coarse subrouded Sand, few to trace fine rounded Gravel, occasional lenses of Slag, Cinders, and Ash up to 3"-thick at 3.1' bgs, weakly plastic, no odor, soft to medium stiff, damp. Native Glacial Clay Till used as Backfill. | SILTY CLAY |
| SM | Pale brown (10YR 6/3) fine to coarse, predominantly fine, subangular to subrounded POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, damp to moist at 6.0' bgs, loose. Fill Sand. | SILTY SAND |
| FL | Black (10YR 2/1) fine to coarse Sand- to Gravel-sized angular SLAG, ASHES, and CINDERS, little Silt, few Clay, 10% metallic debris, aplastic, no odor, loose, damp.<br>Moist and locally oxidized from 10.5' - 11.5' bgs | FILL |
| SM | Black (10YR 2/1) to gray (10YR 5/1) fine subrounded to subangular POORLY GRADED SILTY SAND (SM), little Clay, very small pieces of Vegetative debris present, aplastic, no odor, loose, saturated. Alluvial/Riverine, low energy environment of deposition.<br>Local increase in Clay content to some at 13' bgs. | SILTY SAND |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.5' - 2.5' & 8.5' - 10.5' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/2/03 | 11.5' | |

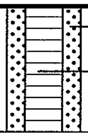
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-09-48.dat Date: 5/8/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-09-48

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | H<br>H<br>H<br>H | H | 2.0 | 0.0 | - | SM | | Black (10YR 2/1) to gray (10YR 5/1) fine subrounded to subangular POORLY GRADED SILTY SAND (SM), little Clay, very small pieces of Vegetative debris present, gray (10YR 5/1) local lense of Silty Sand and patches of oxidation at 16' bgs, aplastic, no odor, loose, saturated. Alluvial/Riverine, low energy environment of deposition. | SILTY SAND |  #5 Well Sand Pack (6.0' - 18' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| | | | | | | | | | | | End of boring at 18' bgs. In Shoe: SILTY LEAN CLAY (CL) as above at 1.7' - 4.7' bgs but Native Undisturbed Glacial Clay Till. | | |
| 20 | 700 | | | | | | | | | | | | |
| 25 | 695 | | | | | | | | | | | | |
| 30 | 690 | | | | | | | | | | | | |
| 35 | 685 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.5' - 2.5' & 8.5' - 10.5' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/2/03 | 11.5' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-09-48.dat Date: 5/8/03

**Date Start/Finish:** 2/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME 85

**Northing:** 560162.7
**Easting:** 13305370.65
**Casing Elevation:** 719.69 ft. AMSL

**Borehole Depth:** 16' below grade
**Surface Elevation:** 719.88 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-49

**Client:** General Motors

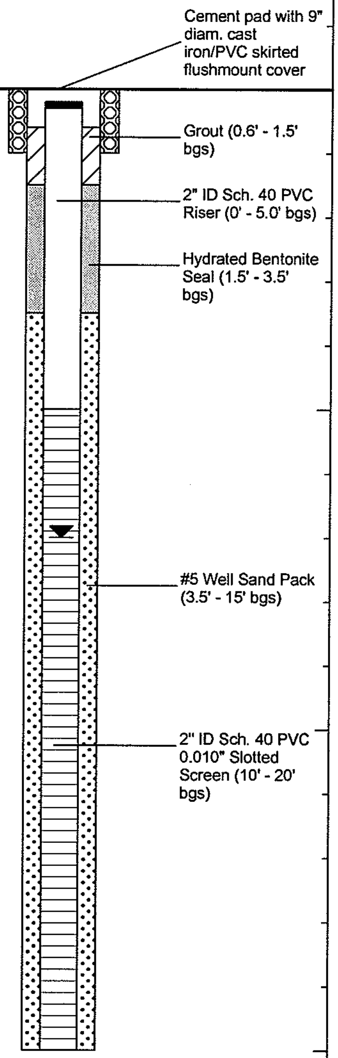
**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION |
|---|---|
| 0 | 720 |
| 5 | 715 |
| 10 | 710 |
| 15 | 705 |

| Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|
| 1 | 0-2 | 27<br>24<br>30<br>30/3" | 54 | 1.7 | 0.0 | - |
| 2 | 2-4 | 8<br>10<br>8<br>7 | 18 | 2 | 0.0 | - |
| 3 | 4-6 | 2<br>3<br>5<br>7 | 8 | 1.9 | 0.0 | - |
| 4 | 6-8 | 3<br>5<br>5<br>9 | 10 | 1.6 | 0.0 | - |
| 5 | 8-10 | 3<br>4<br>5<br>5 | 9 | 1.5 | 0.0 | - |
| 6 | 10-12 | 1<br>3<br>6<br>13 | 9 | 1.8 | 0.0 | - |
| 7 | 12-14 | 4<br>8<br>10<br>11 | 18 | 1.3 | 0.0 | - |
| 8 | 14-16 | 4<br>8<br>7<br>6 | 15 | 1.4 | 0.0 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| SW | Brown (10YR 5/3) fine to coarse subangular WELL GRADED SAND (SW), some Gravel, little Silt, few Clay, Concrete debris, Roots and Vegetation from 0 - 0.5' bgs, aplastic, dense, no odor. | SAND |
| SM | Black (10YR 2/1) fine to coarse subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, dense, no odor. Foundry Fill Sand. | LTY SA |
| FL | CONCRETE Rubble. | FILL |
| SP | Yellow-brown (10YR 5/6) fine to coarse subangular to subrounded POORLY GRADED SAND (SP), little to some Silt, aplastic, medium dense to dense, no odor, moist. Fill Sand. | SAND |
| CL | Gray-brown (10YR 5/2) to brown (10YR 4/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, mottled occasional Silty Sand and Silt lenses up to 3" thick especially between 7' and 7.6' bgs, weakly to moderately plastic, moderately stiff, no odor, damp. Native Glacial Clay Till used as Backfill.<br>Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, but homogeneous and damp between saturated lenses of Silt and/or Silty Sand throughout, especially from 8.0' - 10.5' bgs. Undisturbed Native Glacial Clay Till. | SILTY CLAY |
| SW | Brown (10YR 5/3) fine to coarse subangular to subrounded SAND (SW), some fine to coarse subangular to subrounded Gravel, few Silt, loose, no odor, saturated. Glacio-alluvial. | SAND |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
Samples collected from 0 - 2.0' & 4.0' - 6.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/25/03 | 7.0' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_Well2.ldf
Data File: RFI-09-49.dat Date: 3/18/03

**Date Start/Finish:** 3/4/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 3-1/4" ID HSA
**Rig Type:** CME 550 ATV

**Northing:** 559265.32
**Easting:** 13305366.85
**Casing Elevation:** 726.43 ft. AMSL

**Borehole Depth:** 20' below grade
**Surface Elevation:** 726.80 ft. AMSL

**Descriptions By:** SM Duly

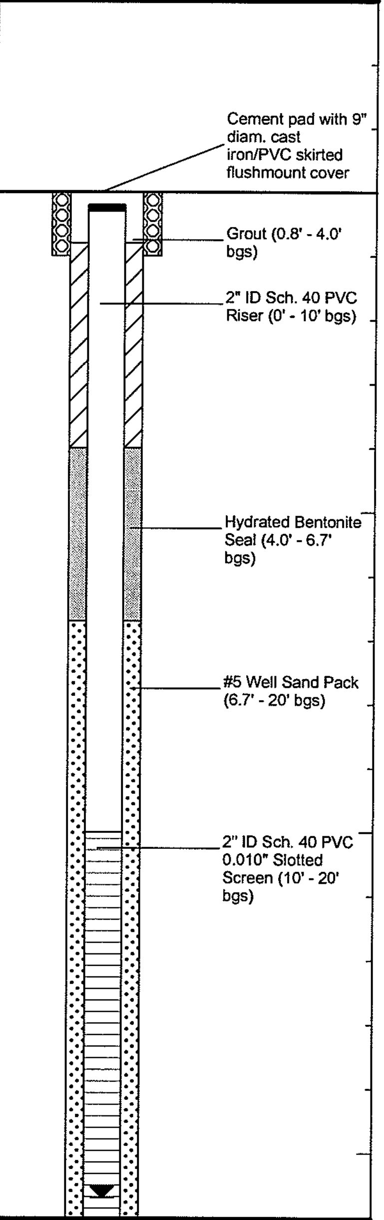
**Boring ID:** RFI-09-49R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | No samples collected from 0 - 10' bgs. See log for RFI-09-49 for geologic information. | |
| | 725 | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | |
| 10 | | 1 | 10-12 | 2<br>7<br>9<br>13 | 16 | 1.5 | 0.0 | - | CL | | Gray (10YR 3/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, saturated lenses of Silt up to 2"-thick at 10.9' bgs, homogenous, weakly plastic, no odor, medium to stiff to stiff, damp.<br>Becomes oxidized to yellow-brown (10YR 5/4) at 11.2' bgs. | SILTY CLAY |
| | 715 | 2 | 12-14 | 3<br>9<br>13<br>14 | 19 | 1.2 | 0.0 | - | SW | | Brown (10YR 5/3) fine to coarse subangular to subrounded WELL GRADED SAND (SW), oxidized at upper contact to yellow-brown (10YR 5/4), increased maturity with increased grain size, little to locally some fine to coarse subrounded to rounded Gravel, little to few Silt, aplastic, no odor, saturated from 11.3' - 11.4' bgs, then moist. Glacio-Alluvial. | SAND, FINE |
| 15 | | 3 | 14-16 | 6<br>7<br>9<br>10 | 16 | 1.4 | 0.0 | - | | | Saturated, increased Gravel content to some, occasional rounded Pebbles present below 15.7' bgs. | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/4/03 | 15.7' | |

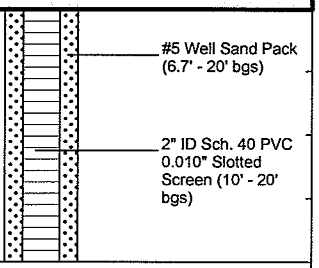
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-09-49R

**Borehole Depth:** 20' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 710 | 4 | 16-18 | 4<br>6<br>8<br>9 | 14 | 0.8 | 0.0 | - | SW |  | Brown (10YR 5/3) fine to coarse subangular to subrounded WELL GRADED SAND (SW), increased maturity with increased grain size, some fine to coarse subrounded to rounded Gravel, little to few Silt, aplastic, no odor, saturated. Glacio-Alluvial. | SAND, FINE |  |
|  |  | 5 | 18-20 | 6<br>12<br>12<br>14 | 24 | 0.8 | 0.0 | - |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 705 |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 700 |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 695 |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 |  |  |  |  |  |  |  |  |  |  |  |  |  |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/4/03 | 15.7' |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Date Start/Finish:** 2/26/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 559635.31
**Easting:** 13305524.86
**Casing Elevation:** NA

**Borehole Depth:** 4.5' bgs
**Surface Elevation:** 725.40 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-50

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 725 | | | | | | | | | | ASPHALT. | SILT | Borehole backfilled with Bentonite Chips to grade. |
| | | 1 | 0.5-2.5 | 11<br>27<br>14<br>18 | 41 | 1.5 | 0.0 | - | ML | | Brown (10YR 4/3) SILT (ML), some Clay, few fine to coarse subangular to subrounded Sand, few fine to coarse angular Gravel (Fill), aplastic, no odor, dense, dry. Native Clay Till used as Backfill. | | |
| | | | | | | | | | FL | | GRAVEL and CEMENT rubble. | FILL | |
| | | 2 | 2.5-4.5 | 1<br>2<br>3<br>4 | 5 | 1.8 | 0.0 | + | CL | | Black (10YR 2/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, very plastic, soft, weak odor, moist. Native Clay Till used as Backfill. | SILTY CLAY | |
| 5 | 720 | | | | | | | | | | | | |
| 10 | 715 | | | | | | | | | | | | |
| 15 | 710 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
+ = Positive Test Result; WH = Weight of Hammer;
NA = Not Applicable/Not Available
Samples collected from 0.5' - 2.5' bgs for Lead; and from 2.5' - 4.5' bgs for VOCs and Lead.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.011 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-09-50.dat Date: 3/6/03

**Date Start/Finish:** 4/9/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Dennis Emmery
**Drilling Method:** Hand Auger
**Sampler Size:** 4"
**Auger Size:** NA
**Rig Type:** NA

**Northing:** 559543.69
**Easting:** 13305552.03
**Casing Elevation:** NA

**Borehole Depth:** 3.0' bgs
**Surface Elevation:** 724.19 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-51

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 725 |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 0-3 | 3.0 | 0.0 | - | SW | ⠿ | Black (10YR 2/1) fine to coarse angular WELL GRADED SAND (SW), 50% Cinders and Coal fragments, little Silt, few Clay, Pebble-sized angular Aggregate from 0 - 0.3' bgs, aplastic, no odor, loose, moist to wet with melted snow. Fill. | FINE SAND | Borehole backfilled with Bentonite to grade. |
|  | 720 |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |
|  | 715 |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 710 |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  |  |  |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
Sample collected from 1.0' - 3.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-09-51.dat Date: 4/30/03

**Date Start/Finish:** 7/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 560207.55
**Easting:** 13305420.31
**Casing Elevation:** NA

**Borehole Depth:** 16' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-09-52

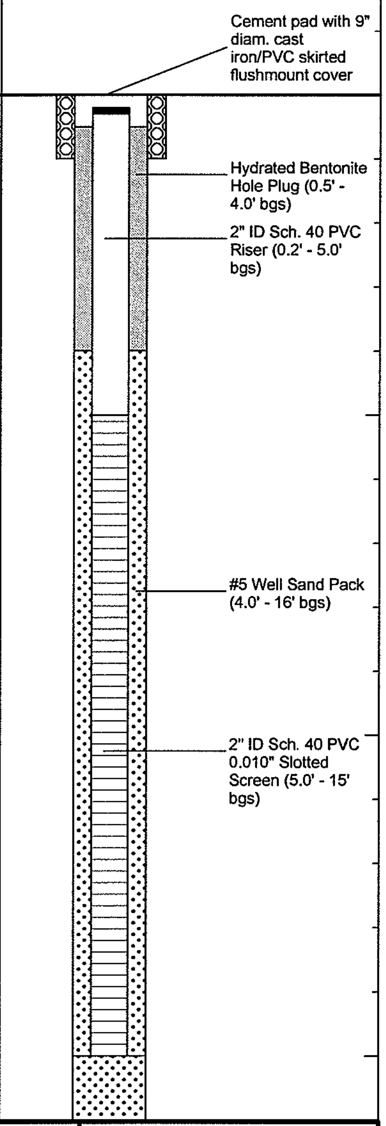
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | -<br>12<br>18<br>10 | 30 | 0.8 | 2451 | - |
| | | 2 | 2-4 | 9<br>17<br>22<br>24 | 39 | 1.7 | 3386 | - |
| 5 | -5 | 3 | 4-6 | 8<br>20<br>27<br>21 | 42 | 1.5 | 463 | - |
| | | 4 | 6-8 | 1<br>1<br>4<br>6 | 5 | 1.2 | 394 | - |
| | | 5 | 8-10 | 5<br>6<br>9<br>13 | 15 | 1.7 | 72.8 | - |
| 10 | -10 | 6 | 10-12 | 5<br>9<br>17<br>27 | 16 | 1.7 | 4872 | + |
| | | 7 | 12-14 | 5<br>11<br>18<br>30 | 29 | 1.6 | 5742 | + |
| 15 | -15 | 8 | 14-16 | 11<br>15<br>26<br>30 | 41 | 1.3 | 12.8 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | CONCRETE. | NCRE |
| SW | Gray-brown (10YR 5/2) fine to coarse subangular WELL GRADED SAND (SW), little Silt, few Clay, Concrete and Brick fragments throughout, medium dense to loose, aplastic, no odor, dry. | SAND |
| SP | Black (10YR 2/1), with strong oxidation/mottling to dark yellow-brown (10YR 3/6) throughout, fine subangular to angular POORLY GRADED SAND (SP), metallic luster on some grains, little to some Silt, no odor, dense, aplastic, dry. Foundry Sand.<br>Occasional metallic Silt- to fine gravel-sized Slag present, moist at 4.0' bgs.<br>Brown (10YR 5/3) fine to medium (predominantly fine) subangular POORLY GRADED SAND (SP), some Silt, little to few Clay, no odor, loose, aplastic, saturated. FILL SAND. | |
| CL | Yellow-brown (10YR 5/6) SILTY LEAN CLAY (CL), gray (10YR 5/1) mottling throughout, few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occasional lenses of saturated Silt and/or fine Sand throughout up to 6"-8" thick, weakly to moderately plastic, no odor, medium stiff to soft, damp.<br>6"-thick saturated Silty Sand lense at 8.7' bgs.<br>2"-thick saturated Silt lense at 11' bgs.<br>8"-thick saturated Silty Sand lense with black mottling, moderate to weak "oily" odor at 11.4' bgs.<br>8"-thick saturated Sand lense, little fine rounded Gravel, sharp, strong gasoline-type odor at 13' bgs.<br>6"-thick saturated Silty Sand lense, little fine rounded Gravel at 15.3' bgs. | SILTY CLAY |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-09-52.dat

Date: 11/12/03

**Date Start/Finish:** 03/3/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 559134.15
**Easting:** 13305386.28
**Casing Elevation:** 725.48'AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

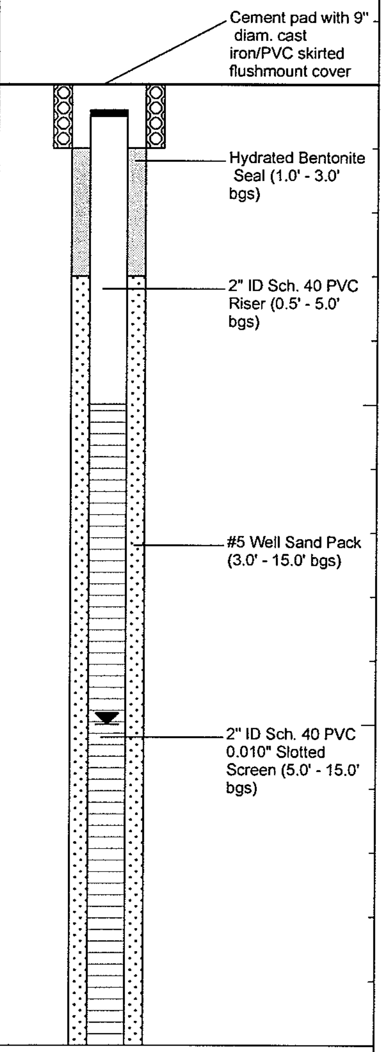
**Well/Boring ID:** RFI-09-53

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 4<br>3<br>5<br>3 | 8 | 1.0 | 0.0<br>0.0 | | FL | | Light brown to dark brown fine to coarse SAND, some fine subangular Gravel, trace Silt, trace Brick, and Concrete debris, Slag, yellow and reddish-brown coarse Sand, a few Cobbles, no odor, loose, damp (frozen). [FILL] |
| | | 2 | 2-4 | 4<br>4<br>6<br>7 | 10 | 1.0 | 0.0<br>0.2 | | | | |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>4<br>4 | 6 | 2.0 | 0.0 | | SP | | Yellow to yellow-brown fine to coarse CLAYEY SAND, little coarse Sand and fine Gravel, no odor, loose, damp. |
| | | 4 | 6-8 | 3<br>3<br>3<br>5 | 6 | 2.0 | 0.0 | | | | |
| | | 5 | 8-10 | 2<br>2<br>3<br>6 | 5 | 2.0 | 0.0<br>2.8 | | ML | | Brown-gray SILT, little fine to medium Sand, trace Clay and fine Gravel, medium stiff, damp to moist. |
| 10 | -10 | 6 | 10-12 | 2<br>4<br>4<br>6 | 8 | 1.5 | 0.0 | | | | Wet with some thin (<1") saturated zones from 10.0' -12.0' bgs. |
| | | 7 | 12-14 | 5<br>10<br>10<br>9 | 20 | 2.0 | 0.0 | | | | Some fine to medium Sand, very stiff, damp to moist below 12' bgs. |
| 15 | -15 | 8 | 14-15 | 25<br>50 | NA | 0.0 | 0.0 | | | | Granite Cobble in tip of spoon. |

Well/Boring Construction



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## Remarks:

a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 0.0' - 2.0' and 8.0' - 10.0' bgs for VOCs, SVOCs, PVCs and metals.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-09-53.dat

Date: 3/15/05

**Date Start/Finish:** 03/3/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560095.92
**Easting:** 13305632.87
**Casing Elevation:** 728.05' AMSL

**Borehole Depth:** 24' bgs
**Surface Elevation:** NA

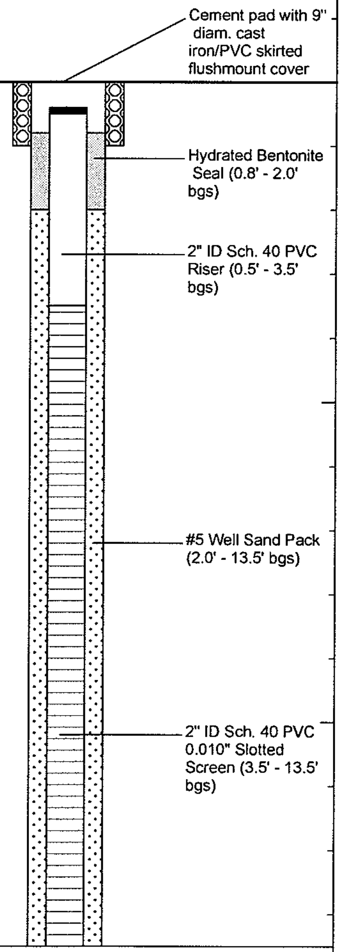
**Descriptions By:** J. Kralik

**Well/Boring ID:** RFI-09-54S

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | No Samples collected from 0 - 13.5' bgs. See boring log RFI-09-54D for geologic information. | |
| 5 | -5 | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | |



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-09-54S.dat
Date: 3/14/05

**Date Start/Finish:** 03/3/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560099.17
**Easting:** 13305634.27
**Casing Elevation:** 728.01' AMSL

**Borehole Depth:** 24' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

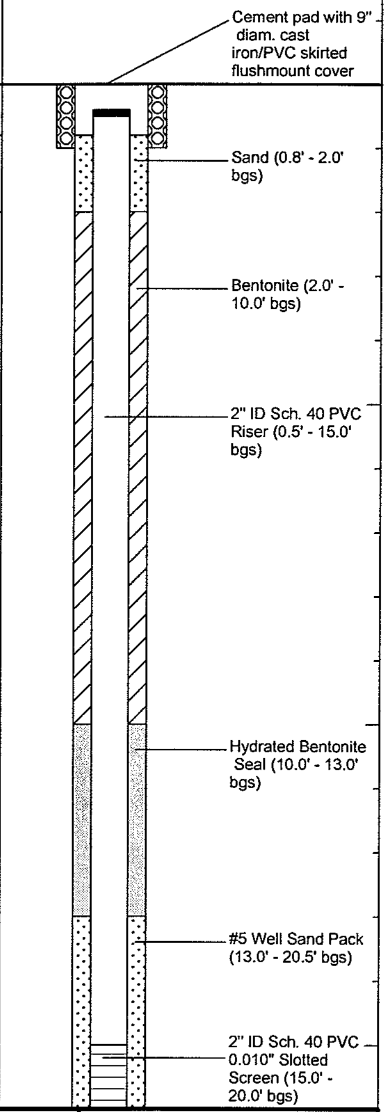
**Well/Boring ID:** RFI-09-54D

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 1<br>1<br>1<br>1 | 2 | 0.5 | 0.0 | | FL | | ASPHALT.<br>CONCRETE. |
| | | 2 | 2-4 | 2<br>5<br>10<br>10 | 15 | 1.5 | 0.0 | | SP | | Yellow-brown fine to medium SAND, some Silt, medium dense, damp.<br>Some thin (<1") dark brown Silty Sand layers from 3.5' - 5.0' bgs. |
| 5 | -5 | 3 | 4-6 | 4<br>6<br>8<br>8 | 14 | 1.5 | 0.0 | | | | |
| | | 4 | 6-8 | 2<br>6<br>8<br>10 | 14 | 2.0 | 0.0 | | ML | | Yellow-brown to gray-brown SILT, little fine to medium Sand and Clay, thin (<1") saturated layers, stiff, damp to moist. |
| | | 5 | 8-10 | 2<br>2<br>2<br>2 | 4 | 2.0 | 0.0 | | CL | | Brown-gray SILTY CLAY, trace fine Sand, no odor, soft, slightly plastic, damp to wet. |
| 10 | -10 | 6 | 10-12 | 2<br>2<br>6<br>12 | 8 | 2.0 | 0.0 | | | | Thin (1-1.5") layers of brown-gray wet Silt from 11.2 - 13.0' bgs. |
| | | 7 | 12-14 | 2<br>4<br>6<br>9 | 10 | 2.0 | 0.0 | | ML | | Brown-gray SILT, little very fine to fine Sand, trace Clay, stiff, no odor, wet. |
| 15 | -15 | 8 | 14-16 | 2<br>4<br>6<br>10 | 10 | 2.0 | 0.0 | | | | |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

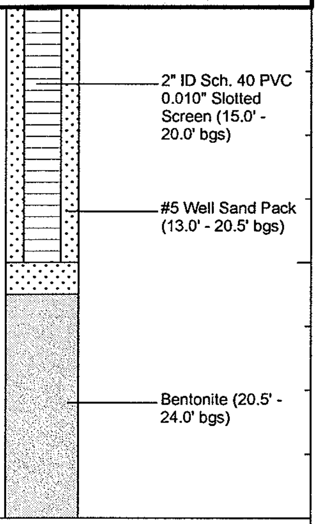
**Site Location:**
GM Flint
Hamilton Ave.
Flint, Michigan

**Well/Boring ID:** RFI-09-54D

**Borehole Depth:** 24' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 5<br>10<br>8<br>12 | 18 | 2.0 | 0.0 | | ML | | Brown-gray SILT, little very fine Sand, trace Clay, no odor, stiff, wet.<br>Thin (<1-1") layers of brown-gray Clay from 17.3 - 18.0' bgs. |
| | | 10 | 18-20 | 5<br>15<br>20<br>20 | 35 | 0.5 | 0.0 | | CL | | Brown-gray CLAY, some fine Gravel, little Silt, very stiff, damp. Cobble in tip of spoon. |
| 20 | 20 | 11 | 20-22 | 8<br>10<br>12<br>17 | 22 | 0.0 | 0.0 | | | | No Recovery from 20.0' - 22.0' bgs. |
| | | 12 | 22-24 | 6<br>12<br>12<br>20 | 24 | 2.0 | 0.0 | | | | |
| 25 | 25 | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-09-54D.dat Date: 3/14/05

**Date Start/Finish:** 03/3/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560027.07
**Easting:** 13305619.67
**Casing Elevation:** 728.02' AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

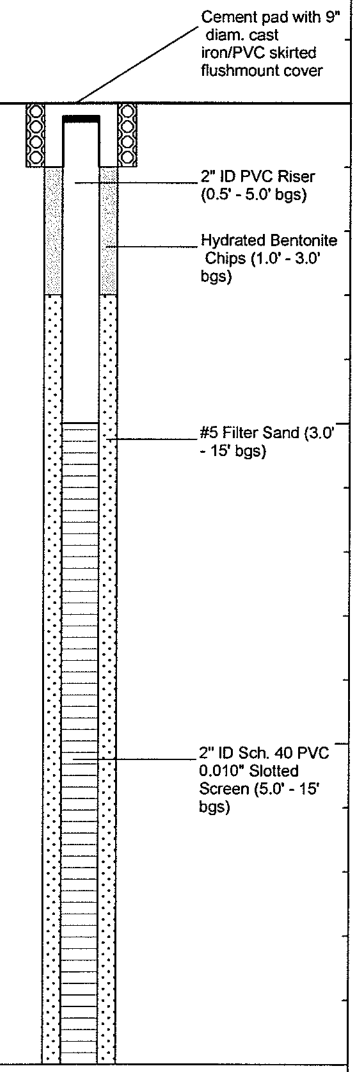
**Descriptions By:** J. Kralik

**Well/Boring ID:** RFI-09-55S

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | No samples collected from 0 - 15' bgs. See boring log RFI-09-55D for geologic information. | |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | |



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 03/3/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 560023.87
**Easting:** 13305618.76
**Casing Elevation:** 728.10' AMSL

**Borehole Depth:** 24' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

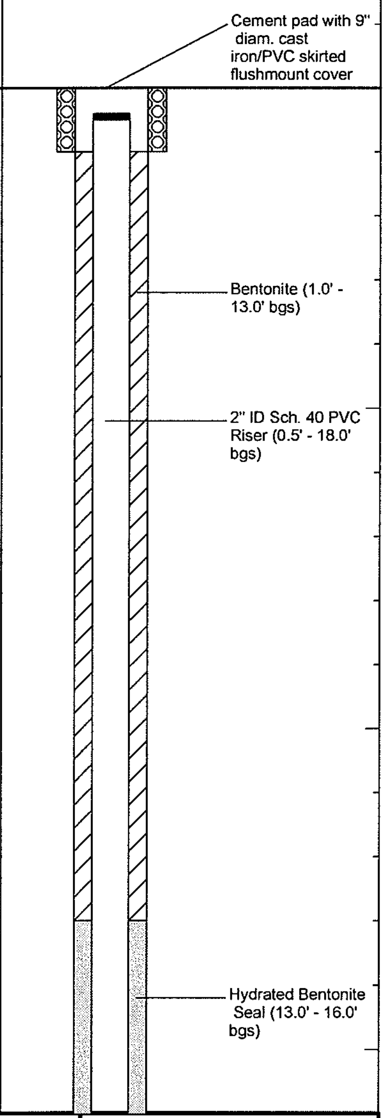
**Well/Boring ID:** RFI-09-55D

**Client:** General Motors

**Location:** GM Flint
Hamilton Ave.
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 1.0 | 0.0 | | SP | | Dark gray to brown fine to coarse SAND, some Silt, little Clay, no odor, medium dense, damp (frozen). |
| | | 2 | 2-4 | 2<br>2<br>4<br>4 | 6 | 2.0 | 0.0 | | SP | | Black Slag and orange coarse Sand, loose, damp from 2.0' -3.0' bgs.<br>Dark brown fine Sand, loose, moist from 4.0' - 4.5' bgs. |
| 5 | -5 | 3 | 4-6 | 4<br>3<br>2<br>2 | 5 | 2.0 | 0.0 | | ML | | Yellow-brown SILT, no odor, stiff, damp. |
| | | 4 | 6-8 | 2<br>4<br>6<br>4 | 10 | 2.0 | 0.0 | | ML | | Some gray mottling from 6.0' - 8.5' bgs.<br>Increasing Clay content becoming plastic with depth below 6.0' bgs. |
| | | 5 | 8-10 | 2<br>2<br>4<br>4 | 6 | 2.0 | 0.0 | | ML | | Thin (2") layer of medium to coarse wet Sand from 8.5' - 8.7' bgs |
| 10 | -10 | 6 | 10-12 | 4<br>10<br>25<br>10 | 35 | 2.0 | 61.7<br>91.3<br>13.3 | + | SP | | Brown-gray medium to coarse SAND, little fine Gravel, strong odor, loose, wet. |
| | | 7 | 12-14 | 5<br>5<br>10<br>10 | 15 | 2.0 | 175<br>80.1<br>0.7 | + | SP | | |
| 15 | -15 | 8 | 14-16 | 10<br>10<br>10<br>10 | 20 | 2.0 | 1.2<br>1.2 | - | SP | | Brown-gray Silt in tip of sampler. |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

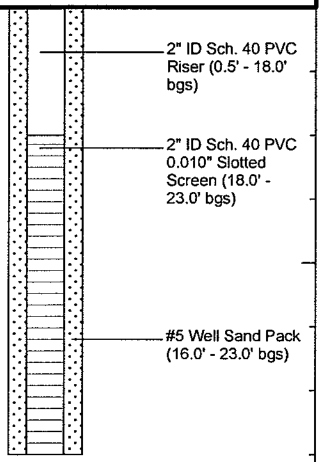
**Site Location:**
GM Flint
Hamilton Ave.
Flint, Michigan

**Well/Boring ID:** RFI-09-55D

**Borehole Depth:** 24' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 8<br>10<br>10<br>12 | 20 | 2.0 | 0.8<br>1.5 | - | SP | Brown-gray medium to coarse SAND, little fine Gravel, strong odor, loose, wet.<br>Sheen at 11' bgs.<br>Brown-gray Silt in tip of sampler. |
| | | 10 | 18-20 | 4<br>10<br>10<br>10 | 20 | 2.0 | 0.8<br>1.0<br>0.0 | | ML | Brown-gray SILT, little very fine to fine Sand, odor, wet. |
| 20 | 20 | | | | | | | | SP | Brown-gray medium to coarse SAND, little fine Gravel, strong odor, loose, wet. |
| | | 11 | 20-22 | 6<br>8<br>12<br>12 | 20 | 2.0 | 0.0<br>0.0 | | CL | Brown-gray CLAY, some fine Gravel, little Silt, very stiff, extremely hard, damp.<br>Sandy Clay layer from 21.5-22' bgs, wet. |
| | | 12 | 22-24 | 7<br>8<br>12<br>13 | 20 | 2.0 | 0.0 | | | |
| 25 | 25 | | | | | | | | | |
| 30 | 30 | | | | | | | | | |
| 35 | 35 | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-09-55D.dat Date: 3/14/05

**Date Start/Finish:** 6/30/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 559131.15
**Easting:** 13305211.90
**Casing Elevation:** 726.93' AMSL

**Borehole Depth:** 8' below grade
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

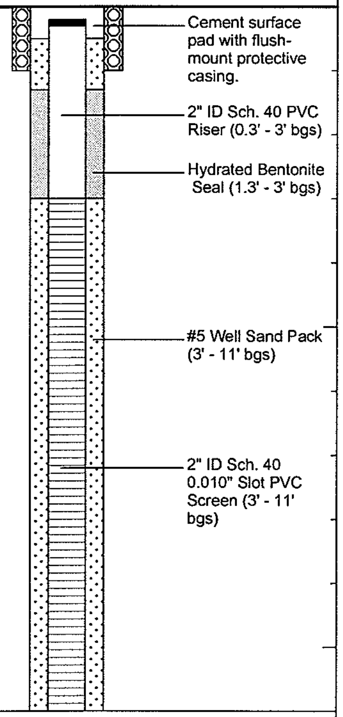
**Well/Boring ID:** RFI-09-56

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 9<br>11<br>8<br>5 | 19 | 1.25 | 212 | | FL<br>SP | | Brown TOPSOIL, some Organics (Roots) and Gravel aggregate, dry. [FILL]<br>GRAVEL aggregate, dry. [FILL]<br>Black fine POORLY GRADED SAND (SP), lose, dry. [FILL] |
| | | 2 | 2-4 | 2<br>3<br>4<br>5 | 7 | 1.75 | 600 | | SP | | Becoming tannish-brown at 2' bgs.<br>Brown SILTY LEAN CLAY (CL), little Brick, Concrete, and Wood debris, soft, moist, slight odor. [FILL] |
| 5 | -5 | 3 | 4-6 | 5<br>13<br>5<br>5 | 18 | 0.5 | 197 | | CL | | |
| | | 4 | 6-7 | 3<br>7 | NA | 0.25 | 310 | | | | Moderate odor, black staining, sheen, at 6' bgs. |
| | | | | | | | | | | | CONCRETE. Spoon refusal at 7' bgs. Auger to 11' bgs. |
| 10 | -10 | | | | | | | | | | |
| | | | | | | | | | | | End of boring at 11' bgs. |
| 15 | -15 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-09-56(0-2) and RFI-09-56(2-4) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-09-56.dat Date: 7/19/2005

**Date Start/Finish:** 7/1/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 Tractor-Mount

**Northing:** 558990.79
**Easting:** 13305341.79
**Casing Elevation:** 724.90' AMSL

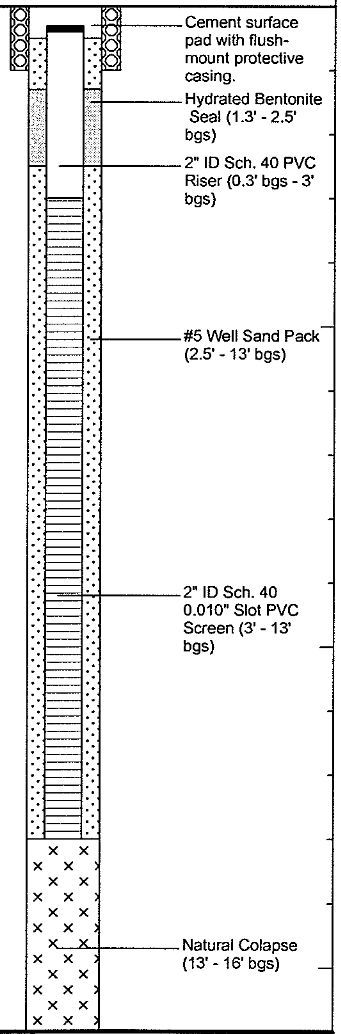
**Borehole Depth:** 16' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

**Well/Boring ID:** RFI-09-57

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 6<br>10<br>2<br>4 | 12 | 1.6 | 0.5 | | SP | | Brown fine SAND (SP), trace fine Gravel, loose, dry.<br>Brownish-black fine SAND (SP), trace fine Gravel, loose, dry. |  |
| | | 2 | 2-4 | 1<br>20<br>15<br>10 | 35 | 0.8 | 1.8 | | SP | | | |
| 5 | -5 | 3 | 4-6 | 4<br>11<br>8<br>4 | 19 | 1.2 | 1.3 | | SP | | Light orangish-brown fine SAND (SP), loose, moist. | |
| | | 4 | 6-8 | 2<br>2<br>2<br>2 | 4 | 1.4 | 1.5 | | ML | | Light orangish-brown CLAYEY SILT (ML), stiff to very stiff, moist to wet. | |
| | | 5 | 8-10 | 2<br>20<br>43<br>10 | 63 | 1.0 | 0.8 | | ML | | | |
| 10 | -10 | 6 | 10-12 | 25<br>20<br>31<br>39 | 51 | 0.3 | 0.5 | | GM | | Light orangish-brown CLAYEY SILT and medium GRAVEL (GM), stiff, wet. | |
| | | 7 | 12-14 | 61<br>27<br>21<br>42 | 46 | 1.1 | 1.3 | | ML | | Light grayish-brown CLAYEY SILT (ML), trace fine Gravel, very stiff, moist to dry. | |
| 15 | -15 | 8 | 14-16 | 27<br>45<br>46<br>52 | 91 | 1.4 | 1.0 | | ML | | End of boring at 16' bgs. | |

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## Remarks:

bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-09-57(0-2) and RFI-09-57(4-6) collected for PAL analysis.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 7/13/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 ATV

**Northing:** 558906.37
**Easting:** 13305410.15
**Casing Elevation:** 723.38' AMSL

**Borehole Depth:** 16' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle

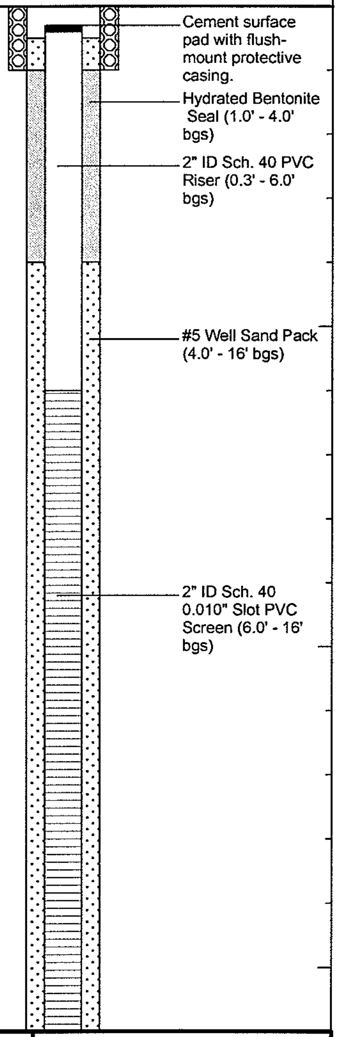
**Well/Boring ID:** RFI-09-58

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 1<br>5<br>5<br>3 | 10 | 1.0 | 1.5 |  | SP |  | Black (10YR 2/1) fine POORLY-GRADED SAND (SP), some fine subangular Gravel, Slag, and Coal pieces, no odor, dry. [FILL] |
|  |  | 2 | 2-4 | 1<br>2<br>5<br>3 | 7 | 1.5 | 0.5 |  |  |  | Yellow-brown (10YR 5/8) fine POORLY-GRADED SAND (SP), loose, no odor, damp. |
| 5 | -5 | 3 | 4-6 | 1<br>1<br>2<br>2 | 3 | 1.5 | 1.2 |  | CL |  | Yellow-brown (10YR 5/8) LEAN CLAY with Silt (CL), some fine Sand, medium stiff, slightly plastic, no odor, damp. |
|  |  | 4 | 6-8 | 2<br>3<br>6<br>7 | 9 | 1.5 | 1.1 |  |  |  | Few fine angular Gravel, no odor, moist below 6.0' bgs. |
|  |  | 5 | 8-10 | 3<br>3<br>3<br>26 | 6 | 1.5 | 1.4 |  | SC |  | Yellow-brown (10YR 5/4) fine POORLY-GRADED CLAYEY SAND (SC), little Silt, few fine angular Gravel and Clay lenses approximately 2mm-thick, no odor, loose, damp. |
| 10 | -10 | 6 | 10-12 | 20<br>40<br>-<br>- | NA | 0.0 | NA |  |  |  | No Recovery, Cobble in shoe. |
|  |  | 7 | 12-14 | 10<br>29<br>25<br>- | NA | 0.75 | 1.0 |  | CL |  | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel, few fine Sand, brittle, very stiff, slightly plastic, no odor, dry. Native Clay Till. |
| 15 | -15 | 8 | 14-16 | 2<br>30<br>8<br>10 | 38 | 0.5 | 1.2 |  | ML |  | Gray (10YR 5/1) CLAYEY SILT (ML), few fine subrounded Gravel, brittle, hard, no odor, dry. |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-09-58 (0-2) and RFI-09-58 (8-10) collected for VOCs, SVOCs, PCBs, and Metal analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-09-58.dat Date: 8/4/05

**Date Start/Finish:** 10/14/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 55

**Northing:** 566589.9
**Easting:** 13307067.16
**Casing Elevation:** NA

**Borehole Depth:** 20' bgs
**Surface Elevation:** 752.58 ft. AMSL

**Descriptions By:** SM Duly

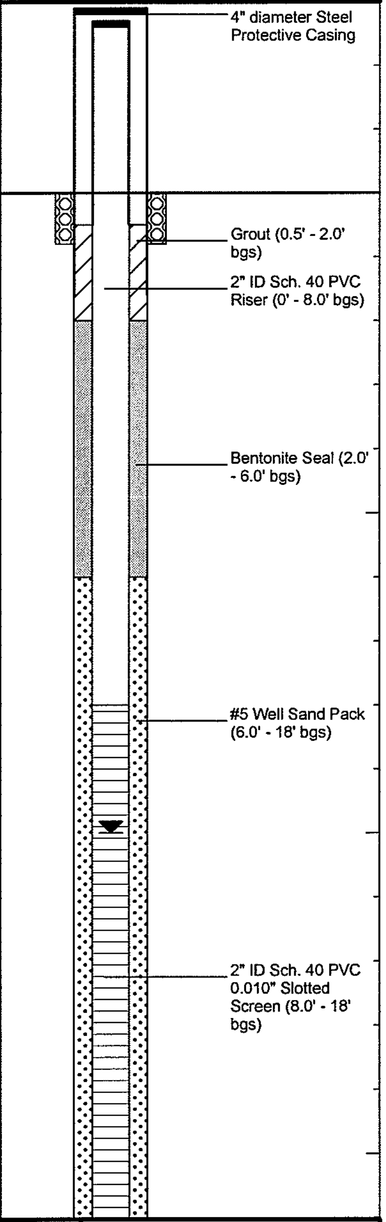
**Boring ID:** RFI-10-28

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 755 |  |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 0-2 | 4<br>5<br>10<br>12 | 15 | 1.8 | 0.0 | - | ML |  | Pale brown (10YR 6/3) SILT (ML), some Clay, few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, Roots and Vegetation in top 4-6" (Topsoil), aplastic, brittle, medium dense, no odor, dry. Native Glacial Till used as backfill. | SILT |
|  | 750 | 2 | 2-4 | 11<br>12<br>12<br>13 | 24 | 1.7 | 0.0 | - |  |  | Localized bleaching to very pale brown (10YR 8/3) at 2.0' bgs. |  |
| 5 |  | 3 | 4-6 | 8<br>6<br>5<br>6 | 11 | 1.8 | 0.0 | - | SM |  | Yellow-brown (10YR 5/4) Silty fine subangular poorly graded SAND (SM), few Clay, aplastic, no odor, loose, dry. Glacio-alluvial. | Silty SAND |
|  | 745 | 4 | 6-8 | 3<br>4<br>5<br>5 | 9 | 1.8 | 0.0 | - |  |  | Light yellow-brown (10YR 6/4) color, damp at 7.5' bgs. |  |
|  |  | 5 | 8-10 | 2<br>3<br>2<br>3 | 5 | 1.7 | 0.0 | - |  |  | Moist at 8.5' bgs. |  |
| 10 |  | 6 | 10-12 | 2<br>3<br>5<br>8 | 8 | 1.5 | 0.0 | - |  |  | Saturated at 10' bgs. |  |
|  | 740 | 7 | 12-14 | 3<br>4<br>4<br>5 | 8 | 1.8 | 0.0 | - |  |  |  |  |
| 15 |  | 8 | 14-16 | 3<br>5<br>2<br>3 | 7 | 2.0 | 0.0 | - | ML |  | Gray (10YR 5/1) SILT (ML), few fine subangular Sand, few Clay, aplastic, no odor, loose, saturated. Glacio-alluvial. | SILT |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

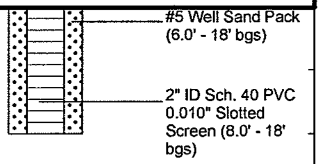
| Date | Depth | Elev. |
|---|---|---|
| 10/12/02 | 10' |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-10-28.dat Date: 10/25/02

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-10-28

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 735 | 9 | 16-18 | 4<br>5<br>2<br>3 | 7 | 1.9 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), few fine subangular Sand, little Clay, aplastic, no odor, loose, saturated. Glacio-alluvial. | SILT | <br>#5 Well Sand Pack (6.0' - 18' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| | | 10 | 18-20 | 1<br>3<br>5<br>2 | 8 | 2.0 | 0.0 | - | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, moderately plastic, medium stiff, no odor, increased stiffness and decreased moisture with depth, wet to moist. Native Clay Till. | Silty CLAY | |
| 20 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/12/02 | 10' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-10-28.dat Date: 10/25/02

**Date Start/Finish:** 10/14/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 55

**Northing:** 566262.12
**Easting:** 13307227.19
**Casing Elevation:** NA

**Borehole Depth:** 22' bgs
**Surface Elevation:** 752.40 ft. AMSL

**Descriptions By:** SM Duly

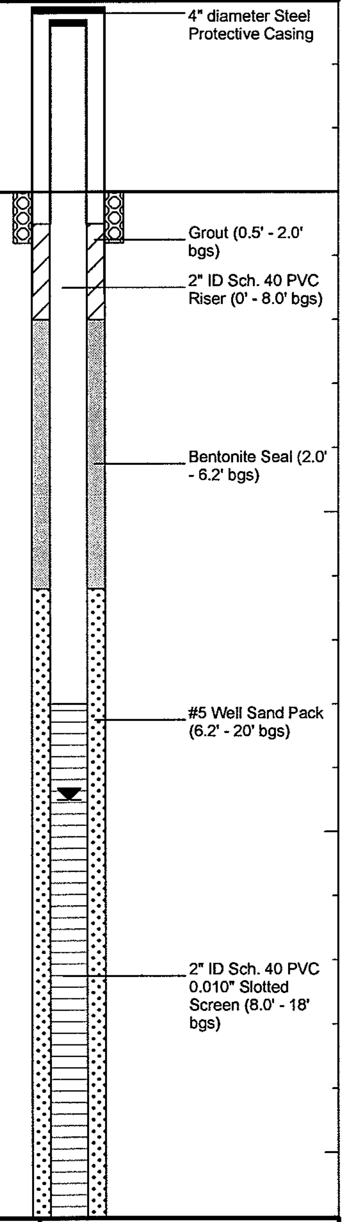
**Boring ID:** RFI-10-29

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | | |
| 0 | | 1 | 0-2 | 8<br>16<br>14<br>13 | 30 | 1.2 | 0.0 | - | SM | | Brown (10YR 5/3), becoming light gray (10YR 3/2) below 0.3' bgs, Silty fine poorly graded SAND (SM), trace Clay, trace fine rounded Gravel, Roots and Vegetation (Topsoil) in to 4", aplastic, no odor, medium dense, occasional Glass fragments, no odor. Fill Sand. | Silty SAND |
| | 750 | 2 | 2-4 | 10<br>11<br>14<br>13 | 25 | 1.5 | 0.0 | - | | | Light yellow-brown (10YR 6/4) color at 2.5' bgs. | |
| 5 | | 3 | 4-6 | 2<br>3<br>3<br>4 | 6 | 1.7 | 0.0 | - | | | Brown (10YR 5/3) color, becoming less loose, damp at 5.0' bgs. | |
| | 745 | 4 | 6-8 | 2<br>2<br>3<br>3 | 5 | 1.8 | 0.0 | - | | | Moist at 8.0' bgs. | |
| | | 5 | 8-10 | 2<br>3<br>4<br>5 | 7 | 1.8 | 0.0 | - | ML | | Yellow-brown (10YR 5/4) SILT (ML), few Clay, trace subangular to subrounded fine Sand, aplastic, no odor, loose, moist becoming saturated at 9.5' bgs. Glacio-alluvial. | SILT |
| 10 | | 6 | 10-12 | 3<br>4<br>6<br>7 | 10 | 1.7 | 0.0 | - | | | | |
| | 740 | 7 | 12-14 | 3<br>4<br>7<br>8 | 11 | 1.6 | 0.0 | - | | | | |
| 15 | | 8 | 14-16 | 3<br>4<br>4<br>3 | 8 | 1.7 | 0.0 | - | | | Gray (10YR 6/1) color, increased Clay to little at 14' bgs. | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/14/02 | 9.5' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-10-29.dat Date: 10/25/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

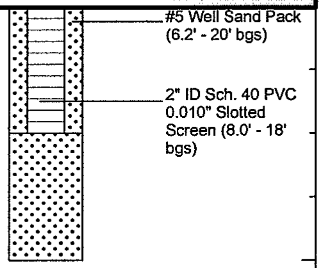
**Boring ID:** RFI-10-29

**Borehole Depth:** 22' bgs

| Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|
| 9 | 16-18 | H<br>2<br>4<br>4 | 6 | 1.7 | 0.0 | - | ML | Gray (10YR 6/1) SILT (ML), little Clay, trace subangular to subrounded fine Sand, aplastic, no odor, loose, saturated. Glacio-alluvial. | SILT |
| 10 | 18-20 | 3<br>3<br>3<br>2 | 6 | 2.0 | 0.0 | - | | | |
| 11 | 20-22 | 3<br>3<br>4<br>5 | 7 | 2.0 | 0.0 | - | CL | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace rounded Gravel, no odor, medium stiff, plastic, saturated, decreased moisture and increased stiffness with depth. Native Glacial Clay Till. | y CL |

DEPTH: 20, 25, 30, 35
ELEVATION: 735, 730, 725, 720

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/14/02 | 9.5' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-10-29.dat Date: 10/25/02

**Date Start/Finish:** 3/27/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 566049.36
**Easting:** 13306798.65
**Casing Elevation:** 745.56 ft. AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** 745.55 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-10-30

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | 1 | 0-2 | 1<br>3<br>3<br>3 | 6 | 1.7 | 0.2 | + | SM |
| | | 2 | 2-4 | 2<br>2<br>3<br>4 | 5 | 1.1 | 0.0 | + | SM |
| 5 | 740 | 3 | 4-6 | 2<br>2<br>3<br>5 | 5 | 1.0 | 0.0 | - | SM |
| | | 4 | 6-8 | 5<br>9<br>10<br>10 | 19 | 1.6 | 0.0 | - | ML |
| | | 5 | 8-10 | 5<br>5<br>6<br>7 | 11 | 1.2 | 0.0 | - | ML |
| 10 | 735 | 6 | 10-12 | 2<br>3<br>3<br>2 | 6 | 1.8 | 0.0 | - | ML |
| | | 7 | 12-14 | H<br>H<br>2<br>2 | 2 | 1.8 | 0.0 | - | CL |
| 15 | 730 | | | | | | | | |

**Stratigraphic Description**

Dark brown (10YR 3/2) fine to coarse subangular to subrounded WELL GRADED SILTY SAND (SM), few to little Clay, few fine to coarse angular to subangular Gravel, Vegetative debris and Roots (Topsoil) from 0 - 0.5' bgs, occasional Gravel- to pebble-sized Aggregate, aplastic, no odor, moist with rainfall/snowmelt.

Weak odor, possible presence of oil at 1.0' bgs.

Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, loose, dry.

Moist at 5.0' bgs.

Saturated at 5.3' bgs.

Yellow-brown (10YR 5/6) SILT (ML), few fine subangular Sand, little to few Clay, aplastic, no odor, loose to medium dense, saturated. Glacio-Alluvial.

Gray (10YR 5/1) SILT (ML), few fine subrounded to subangular Sand, little Clay, aplastic, no odor, loose to medium dense, saturated.

Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, homogenous, moderately plastic, no odor, soft, damp. Undisturbed Native Glacial Clay Till.

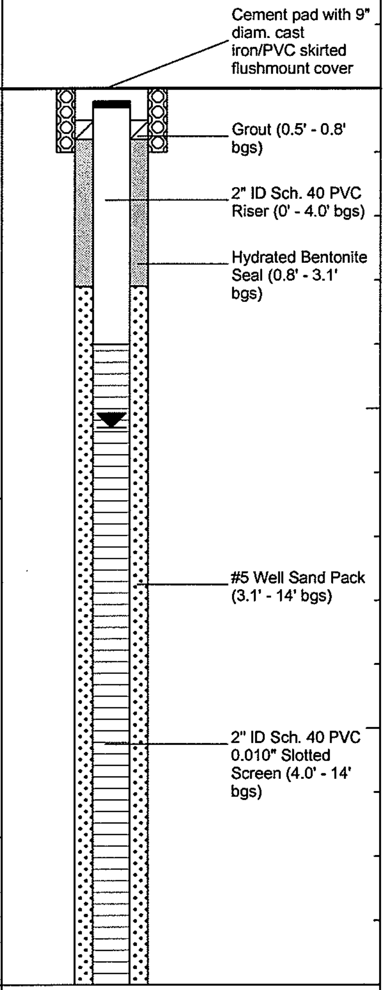
**Hydrostratigraphy**

SILTY SAND

SILT

SILTY CLAY

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result NA = Not Applicable/Not Available; H = Weight of Hammer. Samples collected from 0 - 2.0' bgs. Duplicate sample DUP-425 collected from 0 - 2.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/27/03 | 5.3' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-10-30.dat Date: 5/8/03

**Date Start/Finish:** 3/27/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 566451.74
**Easting:** 13306875.13
**Casing Elevation:** 746.66 ft. AMSL

**Borehole Depth:** 14' bgs
**Surface Elevation:** 746.85 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-10-31

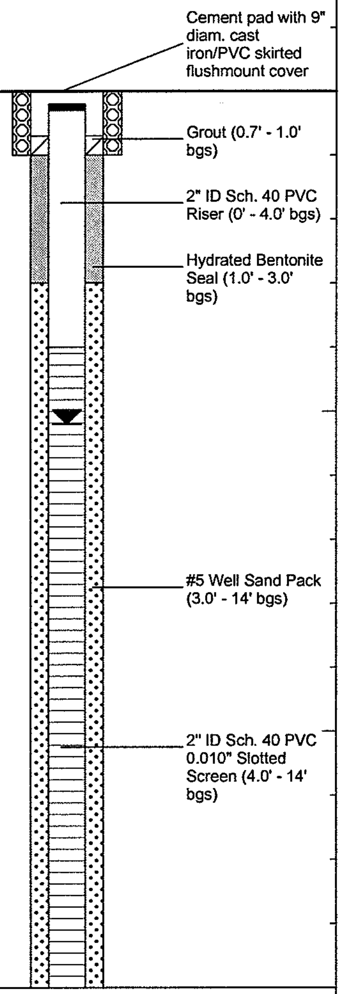
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| | 745 | NA | 0-2 | NA | NA | NA | NA | NA |
| | | 1 | 2-4 | 2<br>5<br>7<br>8 | 12 | 1.8 | 0.0 | - |
| 5 | | 2 | 4-6 | 3<br>6<br>5<br>5 | 11 | 1.3 | 0.0 | - |
| | 740 | 3 | 6-8 | 5<br>6<br>7<br>8 | 13 | 1.2 | 0.0 | - |
| 10 | | 4 | 8-10 | 3<br>8<br>6<br>8 | 11 | 1.3 | 0.0 | - |
| | 735 | 5 | 10-12 | 3<br>3<br>5<br>8 | 8 | 1.2 | 0.0 | - |
| | | 6 | 12-14 | 3<br>5<br>9<br>13 | 14 | 1.5 | 0.0 | - |
| 15 | | | | | | | | |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| GP | Cream to white coarse to pebble-sized angular POORLY GRADED GRAVEL (GP) AGGREGATE, loose, no odor, dry to wet from rainfall/snow melt. | Gravel |
| SW | Black (10YR 2/1) fine to coarse subrounded WELL GRADED SAND (SW), some Silt, predominated by Aggregate as described above, no odor, loose, moist with rainfall/snow melt. | Sand |
| SM | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, no odor, loose, aplastic, damp.<br>Moist at 4.0' bgs. | SILTY SAND |
| ML | Yellow-brown (10YR 5/6) SILT (ML), little fine subrounded Sand, little Clay, faint gray (10YR 5/1) mottling and local patches of oxidation to dark yellow-brown (10YR 4/6), no odor, loose, saturated. Glacio-Alluvial.<br>Increasing gray in tone, local patches of increased Sand content up to 2" in diameter where Silt turns to a Silty Sand (SM0, increased density to medium desne locally below 8.0' bgs.<br>Gray (10YR 5/1) SILT (ML), few fine subangular Sand, little Clay, no odor, medium density, saturated. Glacio-Alluvial. | SILT |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0 - 3.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/27/03 | 5.2' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-10-31.dat Date: 7/16/03

**Date Start/Finish:** 03/18/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/MC
**Sampler Size:** 5'x2.125" Macrocore
**Auger Size:** 4 - 1/4" ID
**Rig Type:** Geoprobe 6610 DT

**Northing:** 566055.19
**Easting:** 13307084.95
**Casing Elevation:** 754.61' AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

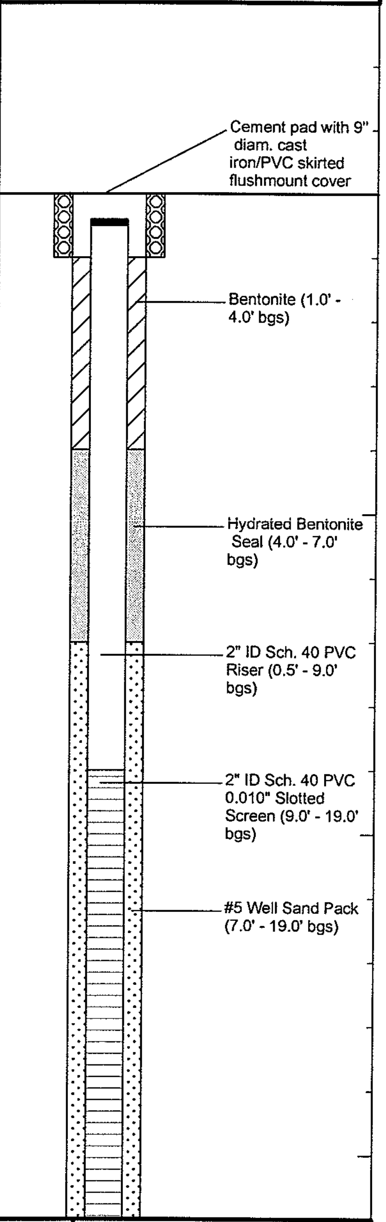
**Well/Boring ID:** RFI-10-32

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | Brown Sandy TOPSOIL, some Silt and Clay, fine Sand, trace Gravel, plant debris, no odor, damp. |
| | | 1 | 0-5 | | | 5.0 | 0.0 | - | CL | Yellow-brown SILTY CLAY, trace very fine to fine Sand, trace fine Gravel, thin (1") layers of road Gravel at 0.5' bgs, no odor, medium stiff, damp to moist. |
| 5 | -5 | | | | | | | | | |
| | | 2 | 5-10 | | | 4.5 | 0.0 | - | SP | Yellow-brown fine SAND, little medium Sand, trace fine Gravel and Silt, no odor, medium stiff, damp to moist. |
| 10 | -10 | | | | | | | | | |
| | | 3 | 10-15 | | | 5.0 | 0.0 | - | | Saturated 12.0' bgs. |
| 15 | -15 | | | | | | | | | |
| | | 4 | 15-20 | | | 5.0 | 0.0 | | | |

Well/Boring Construction



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## Remarks:

a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soli samples collected from 0.0' - 2.0', 8.0' - 10.0' and 10.0' - 12.0' bgs for VOCs, SVOCs, PCBs and metals.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |

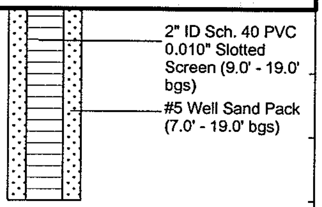
Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe_well2005.ldf
Data File:RFI-10.32.dat
Date: 3/15/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-10-32

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 4 | 15-20 | | | 5.0 | 0.0 | | SP | | Yellow-brown fine SAND, little medium Sand, trace fine Gravel and Silt, no odor, medium stiff, damp to moist.<br>Orange (rust) staining from 17.5 - 18.0' bgs, grades into a gray fine Sand at 18.0' bgs. |  |
| | | | | | | | | | | | Gray fine SAND. | |
| | | | | | | | | | CL | | Gray CLAY/SILTY CLAY, trace fine Gravel, stiff, very plastic, damp. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soli samples collected from 0.0' - 2.0', 8.0' - 10.0' and 10.0' - 12.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 6/28/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 Tractor-Mount

**Northing:** 566366.46
**Easting:** 13306943.72
**Casing Elevation:** 755.30' AMSL

**Borehole Depth:** 18' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

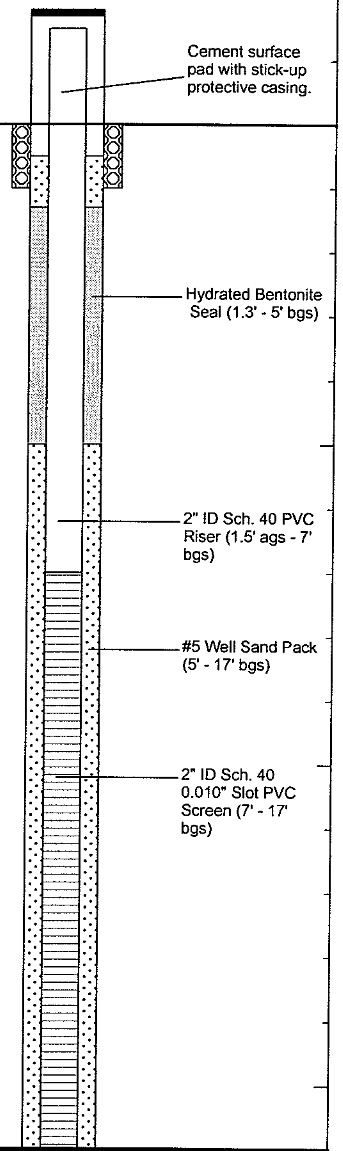
**Well/Boring ID:** RFI-10-33

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 3<br>4<br>5<br>5 | 9 | 1.3 | 4.3 | | | | Light brown fine SAND, loose, dry. [TOPSOIL]<br>Dark brown SILT (ML), little fine Sand, trace fine Gravel, stiff, dry. |
| | | 2 | 2-4 | 2<br>4<br>5<br>6 | 9 | 1.4 | 4.1 | | ML | | Light orangish-brown SILT (ML), trace fine SAND, stiff, moist. |
| 5 | -5 | 3 | 4-6 | 2<br>3<br>4<br>5 | 7 | 1.8 | 0.7 | | | | Light orangish-brown fine SAND (SP), loose, moist. |
| | | 4 | 6-8 | 2<br>3<br>3<br>3 | 6 | 1.7 | 2.4 | | | | |
| | | 5 | 8-10 | 2<br>3<br>3<br>4 | 6 | 1.5 | 0.5 | | SP | | |
| 10 | -10 | 6 | 10-12 | 2<br>4<br>5<br>6 | 9 | 1.0 | 0.0 | | | | Wet at 10' bgs. |
| | | 7 | 12-14 | 3<br>6<br>7<br>5 | 13 | 0.9 | 0.0 | | | | Light pinkish-gray fine SAND (SP), loose, wet. |
| 15 | -15 | 8 | 14-16 | 5<br>4<br>5<br>4 | 9 | 1.4 | 0.0 | | ML | | Light pinkish-gray very fine SAND (ML), medium dense, wet. |

Well/Boring Construction



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**Remarks:**
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Soil samples RFI-10-33(0-2) and RFI-10-33(8-10) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

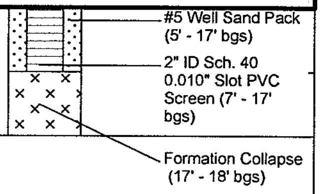
**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-10-33

**Borehole Depth:** 18' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 5<br>6<br>6<br>7 | 12 | 1.2 | 0.0 | | ML | | Light pinkish-gray very fine SAND (ML), medium dense, wet. | |
| | | | | | | | | | | | End of boring at 18' bgs. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |



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Soil samples RFI-10-33(0-2) and RFI-10-33(8-10) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 6/28/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 Tractor-Mount

**Northing:** 566181.71
**Easting:** 13307266.59
**Casing Elevation:** 755.77' AMSL

**Borehole Depth:** 18' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

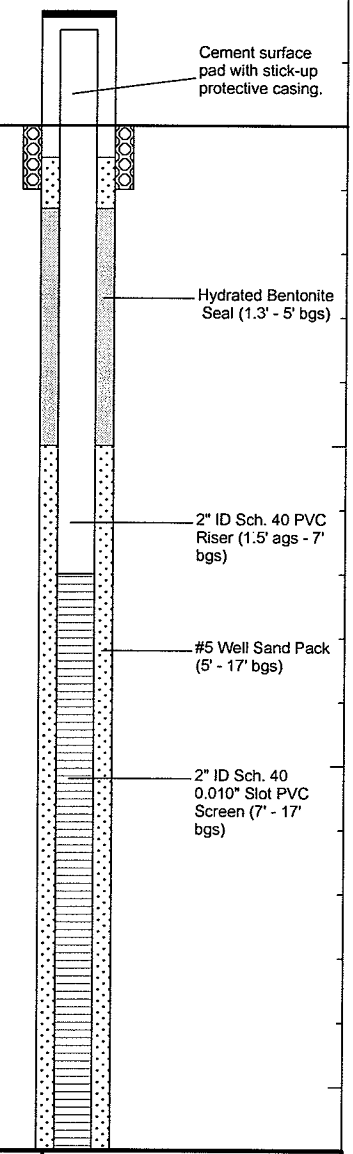
**Well/Boring ID:** RFI-10-34

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 2<br>3<br>5<br>5 | 8 | 1.6 | 0.0 | | ML | | Dark brown SILT (ML), little fine Sand, medium stiff, dry. |
| | | 2 | 2-4 | 2<br>4<br>5<br>5 | 9 | 1.2 | 0.0 | | | | |
| 5 | -5 | 3 | 4-6 | 3<br>2<br>4<br>7 | 6 | 1.4 | 0.0 | | SM | | Orangish-brown SILT and fine SAND (SM), medium dense, moist. |
| | | 4 | 6-8 | 3<br>3<br>4<br>4 | 7 | 1.5 | 0.0 | | SP | | Light orangish-brown fine SAND (SP), loose, moist. |
| | | 5 | 8-10 | 3<br>3<br>3<br>3 | 6 | 1.0 | 0.0 | | | | |
| 10 | -10 | 6 | 10-12 | 3<br>3<br>2<br>2 | 5 | 0.9 | 0.0 | | | | Wet at 10' bgs. |
| | | 7 | 12-14 | 2<br>2<br>2<br>2 | 4 | 1.2 | 0.0 | | | | |
| 15 | -15 | 8 | 14-16 | 3<br>3<br>5<br>7 | 8 | 1.0 | 0.0 | | | | |

Well/Boring Construction



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**Remarks:**
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Soil samples RFI-10-34(0-2) and RFI-10-34(8-10) collected for PAL analysis.

**Water Level Data**

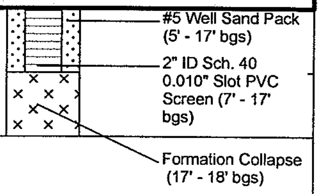
| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-10-34

**Borehole Depth:** 18' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 6<br>5<br>5<br>6 | 10 | 1.0 | 0.0 | | CL | ▤ | Light pinkish-gray SILTY CLAY (CL), stiff, high plasticity, wet. |  |
| | | | | | | | | | | | End of boring at 18' bgs. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
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Soil samples RFI-10-34(0-2) and RFI-10-34(8-10) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 6/28/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 Tractor-Mount

**Northing:** 566023.64
**Easting:** 13307256.01
**Casing Elevation:** 755.69' AMSL

**Borehole Depth:** 18' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

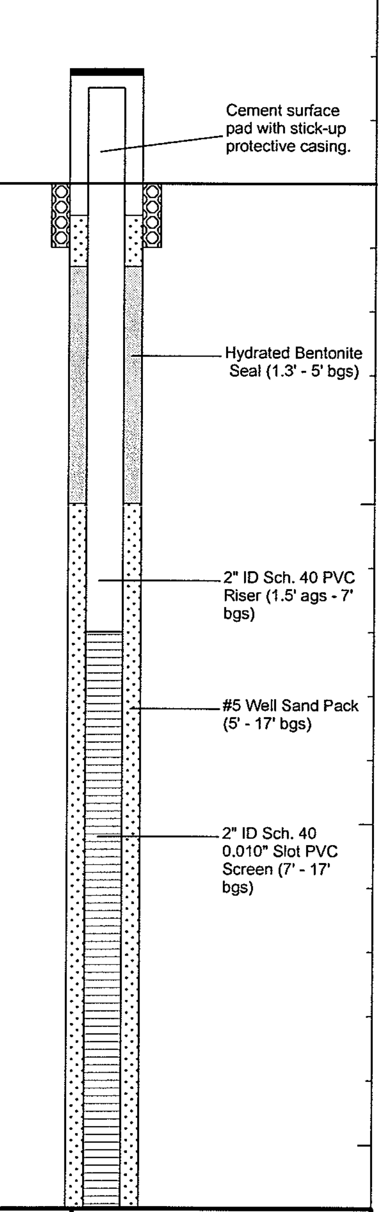
**Well/Boring ID:** RFI-10-35

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 1.5 | 0.0 | | ML | | Light orangish-brown SILT (ML), hard, dry. |
| | | 2 | 2-4 | 3<br>3<br>3<br>2 | 6 | 1.5 | 0.0 | | ML | | Light orangish-brown CLAYEY SILT (ML), medium stiff, medium plasticity, moist. |
| 5 | -5 | 3 | 4-6 | 3<br>3<br>5<br>2 | 8 | 1.3 | 0.0 | | SP | | Light orangish-brown fine SAND (SP), loose, moist. |
| | | 4 | 6-8 | 3<br>3<br>3<br>5 | 6 | 1.5 | 0.0 | | SP | | |
| | | 5 | 8-10 | 3<br>5<br>3<br>2 | 8 | 1.4 | 0.0 | | SP | | |
| 10 | -10 | 6 | 10-12 | 1<br>2<br>2<br>2 | 4 | 1.5 | 0.0 | | SP | | Wet at 10' bgs. |
| | | 7 | 12-14 | 2<br>2<br>4<br>5 | 6 | 1.2 | 0.0 | | SP | | |
| 15 | -15 | 8 | 14-16 | 6<br>5<br>6<br>6 | 10 | 0.9 | 0.0 | | CL | | Light pinkish-gray SILTY CLAY (CL), stiff, high plasticity, wet. |

Well/Boring Construction



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Soil samples RFI-10-35(0-2) and RFI-10-35(8-10) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

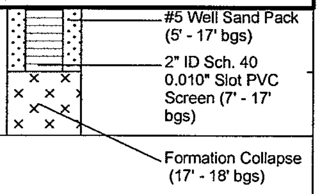
Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-10-35.dat Date: 7/19/2005

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-10-35

**Borehole Depth:** 18' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 6<br>5<br>6<br>6 | 11 | 1.2 | 0.0 | | CL | | Light pinkish-gray SILTY CLAY (CL), stiff, high plasticity, wet. |  |
| | | | | | | | | | | | End of boring at 18' bgs. | |
| 20 | *20* | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | |

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**Remarks:**
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Soil samples RFI-10-35(0-2) and RFI-10-35(8-10) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-10-35.dat
Date: 7/19/2005

**Date Start/Finish:** 6/28/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 Tractor-Mount

**Northing:** 565864.26
**Easting:** 13307263.33
**Casing Elevation:** 752.82' AMSL

**Borehole Depth:** 16' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

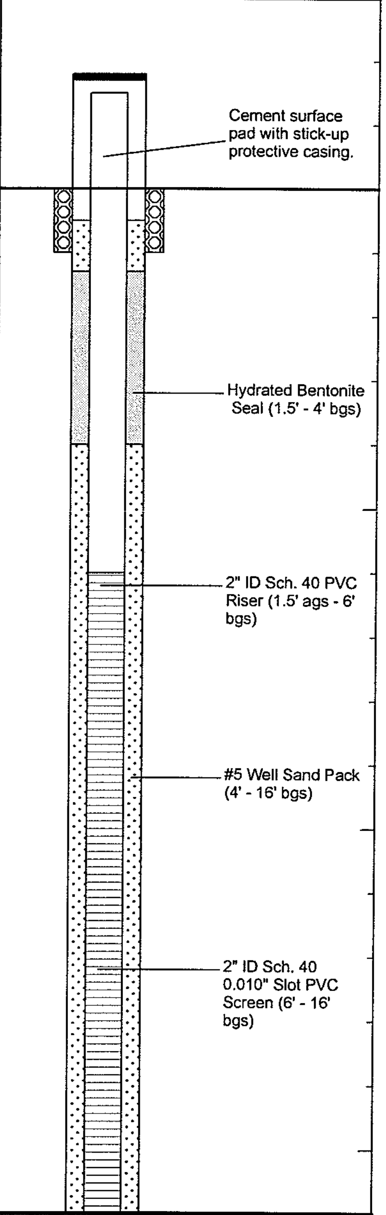
**Well/Boring ID:** RFI-10-36

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 7<br>5<br>4<br>4 | 9 | 1.2 | 0.0 |  | ML |  | Light orangish-brown SILT (ML), hard, dry. |
|  |  | 2 | 2-4 | 2<br>4<br>4<br>4 | 8 | 1.2 | 0.0 |  | SP |  | Light orangish-brown fine SAND (SP), loose, dry to moist. |
| 5 | -5 | 3 | 4-6 | 3<br>3<br>3<br>4 | 6 | 1.3 | 0.0 |  |  |  |  |
|  |  | 4 | 6-8 | 2<br>3<br>3<br>3 | 6 | 1.0 | 0.0 |  |  |  |  |
|  |  | 5 | 8-10 | 2<br>2<br>2<br>2 | 4 | 1.6 | 0.0 |  |  |  | Wet at 9' bgs. Little Silt below 9.2' bgs. |
| 10 | -10 | 6 | 10-12 | 1<br>1<br>1<br>1 | 2 | 0.6 | 0.0 |  |  |  |  |
|  |  | 7 | 12-14 | 3<br>3<br>5<br>8 | 8 | 1.4 | 0.0 |  |  |  |  |
| 15 | -15 | 8 | 14-16 | 1<br>1<br>2<br>3 | 3 | 1.5 | 0.0 |  | CL |  | Light pinkish-gray SILTY CLAY (CL), stiff, high plasticity, wet. |

Well/Boring Construction



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## Remarks:

ags = above ground surface; bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-10-36(0-2) and RFI-10-36(8-10) collected for PAL analysis.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-10-36.dat
Date: 7/19/2005

**Date Start/Finish:** 12/1/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 562416.31
**Easting:** 13305349.66
**Casing Elevation:** 742.44

**Borehole Depth:** 13' bgs.
**Surface Elevation:** 742.44

**Descriptions By:** Wayne Patterson

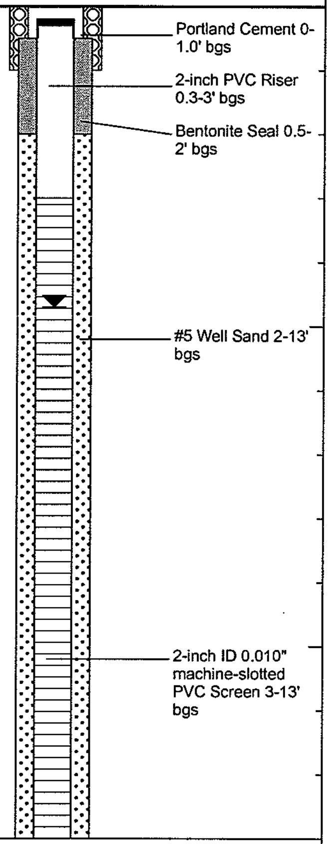
**Boring ID:** RFI-12-07R2

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | Concrete. | |
| | | | | | | | | | | Black (10YR 2/1) fine subrounded Silty SAND (SM), rare fine subrounded Gravel, loose, no odor, damp. (Fill) | SILTY SAND |
| | | 1 | 3-5' | 7<br>10<br>20<br>17 | 30 | 2.0 | NA | NA | SM | Moist to wet. | |
| 5 | -5 | 2 | 5-7' | 5<br>10<br>11<br>10 | 21 | 1.0 | NA | NA | | Saturated. | |
| | | | | | | | | | | 7-13' see RFI-12-07 boring log. | |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For soil descriptions from 7-13' bgs, see RFI-12-07 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/1/03 | 4.7' | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Page: 1 of 1

Data File:j:\rockware\logplot2001\logfiles\64410\RFI-12-07R2.dat Date:12/19/03

**Date Start/Finish:** 12/2/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 562971.94
**Easting:** 13305079.59
**Casing Elevation:** 742.51

**Borehole Depth:** 13' bgs.
**Surface Elevation:** 742.48

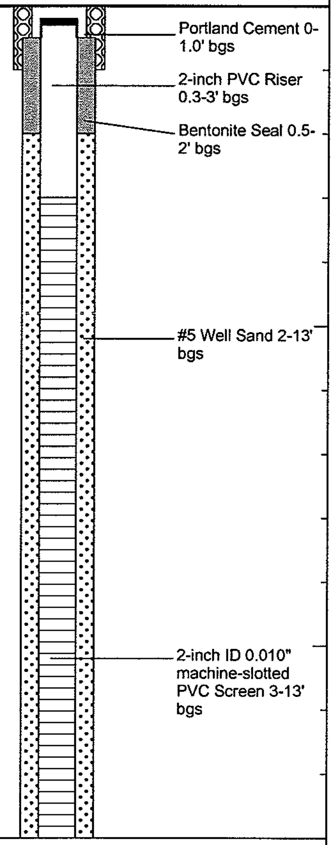
**Descriptions By:** Wayne Patterson

**Boring ID:** RFI-12-09R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | CONCRETE. | FILL | |
| | | | | | | | | | SM | | Black (10YR 2/1) fine Silty SAND (SM), rare fine Gravel, damp, loose, odor. (Fill) | SILTY SAND | |
| | | 1 | 3-5' | 2<br>2<br>1<br>1 | 3 | 1.5 | NA | NA | | | | | |
| 5 | -5 | 2 | 5-7' | 1/<br>12"<br>1<br>1 | NA | 1.75 | NA | NA | | | Saturated with product. | | |
| | | | | | | | | | | | 7-13' see RFI-12-09 boring log. | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For description from 7-13' bgs, see RFI-12-09 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:j:\rockware\logplot2001\logfiles\64410\RFI-12-09R.dat Date:12/29/03

**Date Start/Finish:** 12/2/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 562853.10
**Easting:** 13305093.89
**Casing Elevation:** 742.48

**Borehole Depth:** 13' bgs.
**Surface Elevation:** 742.46

**Descriptions By:** Wayne Patterson

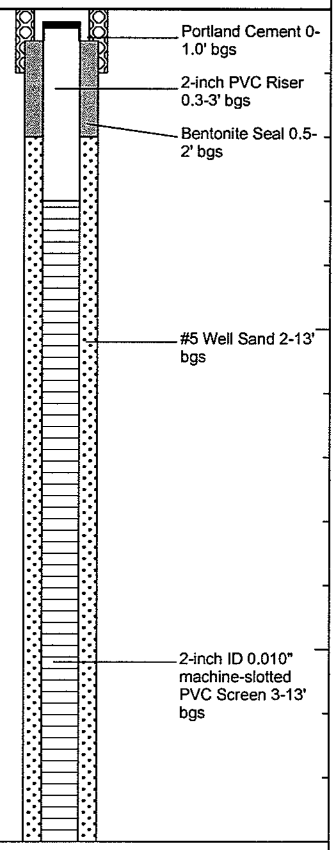
**Boring ID:** RFI-12-14R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | CONCRETE. | FILL |
| | | | | | | | | | SM | Black (10YR 2/1) fine Silty SAND (SM), rare fine subrounded Gravel, damp, loose, no odor. (Fill) | SILTY SAND |
| | | 1 | 3-5' | 1<br>1<br>1<br>1 | 2 | 1.0 | NA | NA | | | |
| 5 | -5 | 2 | 5-7' | 1<br>1<br>1<br>1 | 2 | 1.75 | NA | NA | | Saturated. | |
| | | | | | | | | | | 7-13' see RFI-12-14 boring log. | |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 7-13' bgs, see RFI-12-14 boring log.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:j:\rockware\logplot2001\logfiles\64410\RFI-12-14R.dat Date:12/29/03

**Date Start/Finish:** 12/2/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 562618.58
**Easting:** 13305307.02
**Casing Elevation:** 742.37

**Borehole Depth:** 13' bgs.
**Surface Elevation:** 742.36

**Descriptions By:** Wayne Patterson

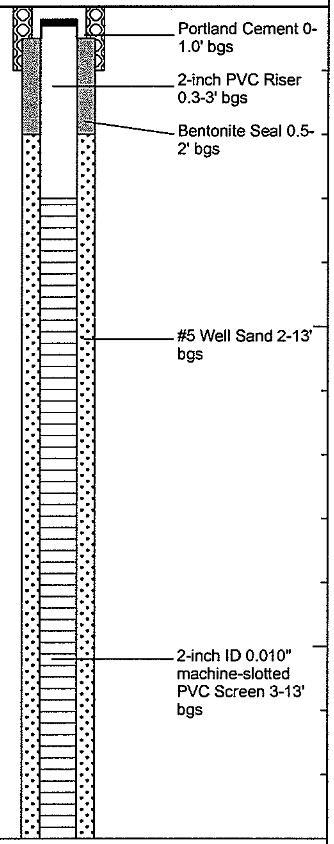
**Boring ID:** RFI-12-22R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | CONCRETE. | FILL |
| | | | | | | | | | | Black (10YR 2/1) fine subrounded Silty SAND (SM), rare fine subrounded Gravel, damp, loose, no odor. (Fill) | SILTY SAND |
| | | 1 | 3-5' | 7<br>24<br>32<br>18 | 56 | 1.0 | NA | NA | SM | | |
| 5 | -5 | 2 | 5-7' | 5<br>6<br>5<br>4 | 11 | NA | NA | NA | | Saturated. | |
| | | | | | | | | | | 7-13' see RFI-12-22 boring log. | |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 7-13' bgs, see RFI-12-22 boring log.
Located 5' West of RFI-12-22.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.111 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:j:\rockware\logplot2001\logfiles\64410\RFI-12-22R.dat Date:12/29/03

**Date Start/Finish:** 2/19/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME 85

**Northing:** 562755.84
**Easting:** 13305196.88
**Casing Elevation:** 742.21 ft. AMSL

**Borehole Depth:** 18.5' below grade
**Surface Elevation:** 742.50 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-12-23

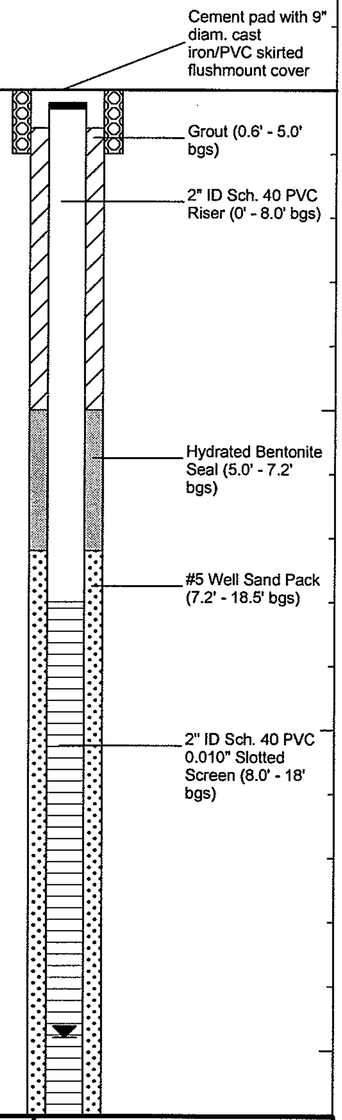
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | |
| 0 | | | | | | | | | FL |
| | | | | | | | | | SW |
| | | 1 | 1-3 | NA<br>25<br>2<br>3 | NA | 1.0 | 0.0 | + | FL |
| | 740 | | | | | | | | |
| | | 2 | 3-5 | 3<br>7<br>2<br>3 | 6 | 1.6 | 155 | + | ML |
| 5 | | 3 | 5-7 | 1<br>2<br>WH/<br>7" | 4 | 1.7 | 23.8 | + | SM |
| | 735 | 4 | 7-9 | 3<br>3<br>4<br>7 | 6 | 1.1 | 209 | + | CL |
| 10 | | 5 | 9-11 | 4<br>13<br>2<br>4 | 18 | 1.0 | 333 | + | |
| | | 6 | 11-13 | 9<br>8<br>1<br>3 | 13 | 2.0 | 324 | + | |
| | 730 | 7 | 13-15 | 7<br>9<br>3<br>6 | 10 | 2.0 | 116 | + | |
| 15 | | 8 | 15-17 | 8<br>15 | 14 | 1.5 | 143 | + | |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | CONCRETE. | FILL |
| SW | Gray (10YR 5/1) fine to medium subangular to subrounded WELL GRADED SAND (SW), some Silt, little Clay, few fine to coarse subrounded to rounded Gravel, aplastic, no odor, dense. Fill. | SAND |
| FL | CONCRETE. | CONCRETE |
| ML | Yellow-brown (10YR 5/4) SILT (ML), little Clay, trace fine to coarse subangular Sand, aplastic, no odor, loose, dry. Fill. | SILT |
| SM | Black (10YR 2/1) POORLY GRADED SILTY SAND (SM), little Clay, trace subrounded coarse Gravel and Cinders, aplastic, loose, no odor, dry. Fill.<br>Wet with black oily material, moderate odor at 6.0' bgs. | SILTY SAND |
| CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), with brown (10YR 3/3) to yellow-brown (10YR 5/4) mottling, few fine to coarse subrounded to rounded Sand, trace fine rounded Gravel, moderately plastic, moderately stiff, moderate odor, moist. Native Clay Till Used as Backfill.<br>Occasional bleaching at 9.0' bgs.<br>Occasional fractures and parting planes (stringers) with moisture present throughout in tiny rivelets.at 10.5' bgs.<br>2"-thick lense of Sand and cinders at 11.2' bgs. | CLAYEY SILT |
| CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, but homogeneous, tiny areas of moisture/water/oily material present along fractures and parting planes (stringers) throughout, moderate odor, damp to moist.<br>Thin Sand lense, hard but friable/brittle, moderate odor that is more sharp/sweet than the moderate oily odor above at 14.5' bgs.<br>Saturated Silt lenses Up to 6"-thick throughout to 18.5' bgs. | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
Samples collected 1.2' - 3.2' and 7.0' - 9.0' bgs.
+ = Positive Test Result.

**Water Level Data**

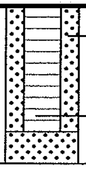
| Date | Depth | Elev. |
|---|---|---|
| 2/19/03 | 14.8' | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-12-23

**Borehole Depth:** 18.5' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 2<br>14 | 14 | 1.5 | 143 | + | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, but homogeneous, tiny areas of moisture/water/oily material present along fractures and parting planes (stringers) throughout, moderate odor, damp to moist. | CLAYEY SILT |  2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs)<br>#5 Well Sand Pack (7.2' - 18.5' bgs) |
| | 725 | 9 | 17-19 | 25<br>34<br>34 | 39 | 1.8 | 151 | + | | | Saturated Silt lenses Up to 6"-thick throughout to 18.5' bgs.<br>Dry at 18' bgs. | | |
| 20 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
Samples collected 1.2' - 3.2' and 7.0' - 9.0' bgs.
+ = Positive Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/19/03 | 14.8' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_Well2.ldf
Data File: RFI-12-23.dat Date: 3/7/03

**Date Start/Finish:** 3/28/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 45B

**Northing:** 562760.37
**Easting:** 13305414.38
**Casing Elevation:** 742.12 ft. AMSL

**Borehole Depth:** 15.5' bgs
**Surface Elevation:** 742.41 ft. AMSL

**Descriptions By:** SM Duly

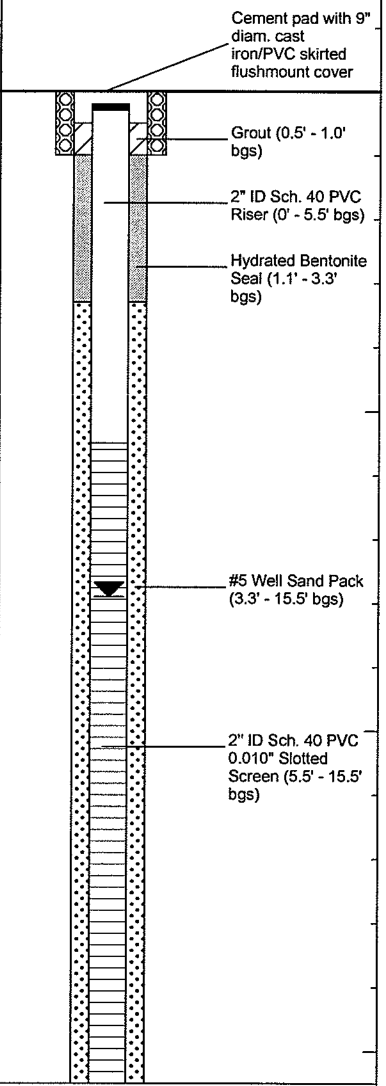
**Boring ID:** RFI-12-24

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|
| 745 | | | | | | | | | | |
| 0 | | | | | | | | FL | CONCRETE. | FILL |
| 740 | 1 | 1-3 | 1<br>2<br>5<br>6 | 7 | 1.3 | 0.0 | - | SM | Pale brown (10YR) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, trace fine rounded Gravel, aplastic, no odor, loose, dry. Fill. | SILTY SAND |
| | 2 | 3-5 | 4<br>5<br>7<br>7 | 12 | 1.0 | 0.0 | - | | | |
| 5 | 3 | 5-7 | 5<br>8<br>10<br>11 | 18 | 1.2 | 0.0 | - | | Damp at 5.5' bgs.<br>Yellow-brown (10YR 5/4) color, moist at 6.5' bgs. | |
| 735 | 4 | 7-9 | 1<br>2<br>2<br>4 | 4 | 1.5 | 0.0 | - | | Saturated at 7.9' bgs. | |
| 10 | 5 | 9-11 | 1<br>3<br>4<br>4 | 7 | 1.7 | 0.0 | - | | Becoming more gray in tone at 9.0' bgs. | |
| 730 | 6 | 11-13 | H<br>H<br>1<br>1 | 1 | 0.6 | 0.0 | - | | Brown (10YR 4/3) color, subangular to subrounded at 12.5' bgs. | |
| | 7 | 13-15 | 1<br>2<br>2<br>3 | 4 | 1.1 | 0.0 | - | SP | Brown (10YR 4/3) fine to coarse, predominantly fine, subangular to rounded POORLY GRADED SAND (SP), increased maturity with increased grain size, little Silt, few Clay, few fine rounded Gravel, aplastic, no odor, loose, saturated. Alluvial/Riverine. | SAND |
| 15 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/28/03 | 7.9 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-24.dat Date: 5/8/03

**Date Start/Finish:** 4/3/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 562591.61
**Easting:** 13305468.99
**Casing Elevation:** 741.85 ft. AMSL

**Borehole Depth:** 19' bgs
**Surface Elevation:** 742.26 ft. AMSL

**Descriptions By:** SM Duly

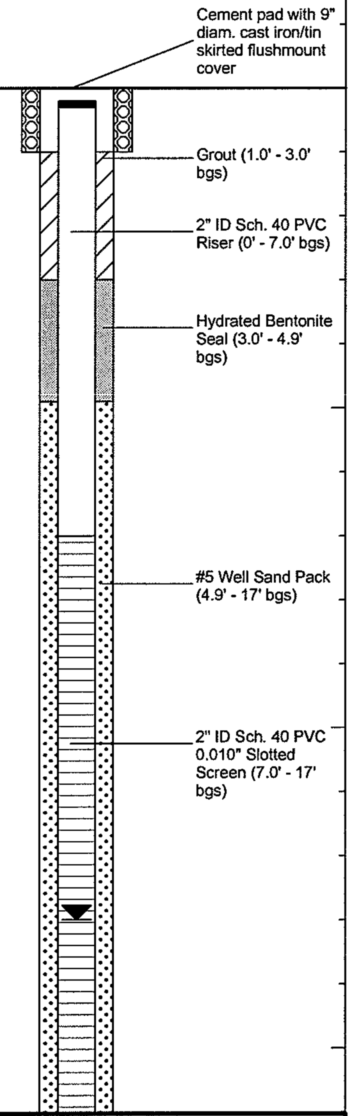
**Boring ID:** RFI-12-25

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | |
| 0 | | | 0-1 | | | | | | FL | CONCRETE. | FILL |
| | 740 | 1 | 1-3 | 6<br>7<br>7<br>9 | 14 | 1.7 | 0.0 | - | SM | Brown (10YR 5/3) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, medium dense to medium loose, damp. Fill Sand. | SILTY SAND |
| | | 2 | 3-5 | 3<br>5<br>8<br>8 | 13 | 1.8 | 0.0 | + | CL | Dark brown (10YR 3/3) fine to coarse subrounded to subangular, predominantly fine, POORLY GRADED SANDY LEAN CLAY (CL), some Silt, Occasional Ash and Cinders, positive for presence of Oil, weakly plastic, no odor, soft to medium stiff, damp. Native Clay Till used as Backfill. | Sandy CLAY |
| 5 | | | 5-7 | 2<br>4<br>5<br>4 | 9 | 1.7 | 7.6 | + | SM<br>CL | Brown (10YR 5/3) SILTY SAND (SM) as above from 1.0' - 3.3' bgs. Fill Sand.<br>Brown (10YR 5/3) to gray (10YR 5/1) SANDY LEAN CLAY (CL) as above from 3.3' - 5.5' bgs, weak odor. Native Clay Till used as Backfill. | y SA<br>Sandy CLAY |
| | 735 | | 7-9 | 2<br>2<br>3<br>4 | 5 | 1.5 | 66.4 | + | | Moist with Oil, moderate odor at 8.5' bgs. | |
| 10 | | | 9-11 | 2<br>4<br>8<br>9 | 12 | 0.0 | NA | NA | CL | No Recovery from 9.0' - 11' bgs due to Pebble in shoe. | |
| | 730 | | 11-13 | 2<br>4<br>6<br>10 | 10 | 2.0 | 65.8 | + | | Damp below 11' bgs. | |
| | | | 13-15 | 1<br>9<br>40/2"<br>- | NA | 0.8 | 20.2 | + | | 2"-thick lens of fine subangular Silty Sand (SM), little to few Clay, loose, weak odor, saturated at 13' bgs. | |
| 15 | | | 15-17 | 6<br>16 | 51 | 1.5 | NA | NA | ML | Yellow-brown (10YR 5/4) SILT (ML), some Clay, few fine to medium subrounded Sand, no odor, very dense, dry. Undisturbed Native Glacial Clay Till. | SILT |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Samples collected from 1.0' - 3.0', 7.0' - 9.0', & 11' - 13' bgs.

**Water Level Data**

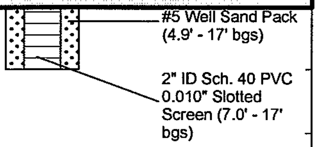
| Date | Depth | Elev. |
|---|---|---|
| 4/3/03 | 13' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-25.dat Date: 7/17/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-12-25

**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15-17 | 35<br>50/5" | 51 | 1.5 | NA | NA | ML | | Yellow-brown (10YR 5/4) to gray (10YR 5/1) SILT (ML), some Clay, few fine to medium subrounded Sand, oxidized locally to dark yellow-brown (10YR 6/6), Varved areas indicated by increasing and decreasing zones of oxidation, aplastic, no odor, very dense, dry. Undisturbed Native Glacial Clay Till. | SILT |  |
| | 725 | | 17-19 | 13<br>37<br>50/6"<br>- | NA | 2.0 | NA | NA | | | | | |
| 20 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Samples collected from 1.0' - 3.0', 7.0' - 9.0', & 11' - 13' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/3/03 | 13' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-12-25.dat Date: 7/17/03

**Date Start/Finish:** 3/31/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 45B

**Northing:** 562498.08
**Easting:** 13305513.00
**Casing Elevation:** 742.04 ft. AMSL

**Borehole Depth:** 21' bgs
**Surface Elevation:** 742.39 ft. AMSL

**Descriptions By:** SM Duly

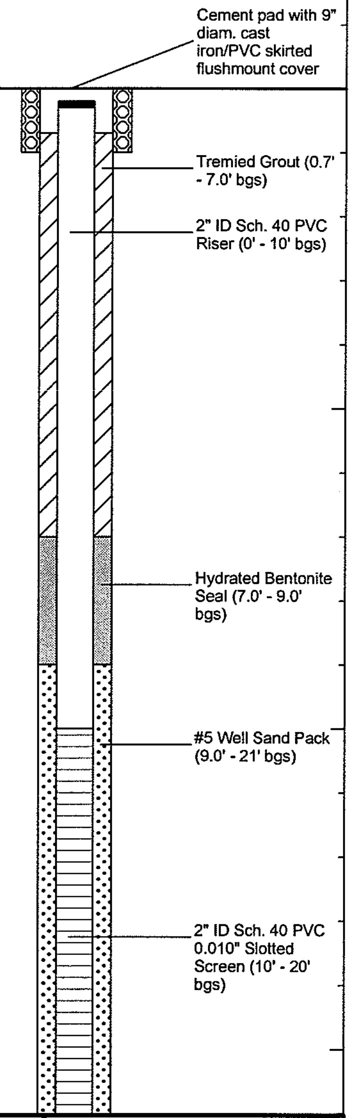
**Boring ID:** RFI-12-26

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 745 |  |  |  |  |  |  |  |  |  |  |  |
| 0 |  |  |  |  |  |  |  |  | FL |  | CONCRETE. | FILL |
|  | 740 | 1 | 1-3 | 7<br>8<br>8<br>4 | 16 | 1.1 | 0.0 | - | SM |  | Brown (10YR 5/4) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few Clay, few fine to coarse subrounded Gravel, aplastic, no odor, dry. Fill Sand. | SILTY SAND |
|  |  | 2 | 3-5 | 6<br>17<br>17<br>20 | 34 | 1.6 | 0.0 | - | ML |  | Black (10YR 5/1) SILT (ML) and Slag, some Clay, few fine to coarse subangular Sand, few fine to coarse subangular to subrounded Gravel, Cinders present throughout, up to 60% Brick debris present, aplastic, no odor, dense, dry. Foundry Sand/Fill/Slag. | ML |
| 5 |  |  |  |  |  |  |  |  | FL |  | CONCRETE. | FILL |
|  | 735 | 3 | 6-8 | 3<br>1<br>1<br>NA | 2 | 0.5 | 20.7 | + | ML |  | Black (10YR 2/1) SILT (ML) and Slag as above from 4.8' - 6.0' bgs, but moderate odor, loose, moist. Wood debris from 8.0' - 8.1' bgs. | SILT |
|  |  |  |  |  |  |  |  |  | FL |  | CONCRETE. | FILL |
| 10 |  | 4 | 9-11 | 2<br>3<br>5<br>6 | 8 | 1.7 | 3.1 | + | CL |  | Gray (10YR 4/1) with yellow-brown (10YR 9/4) and black (10YR 2/1) mottling, SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine rounded Gravel, clear light weight Oil present in stringers throughout, moderately plastic, moderate odor, damp. Native Clay Till used as Backfill. | SILTY CLAY |
|  | 730 | 5 | 11-13 | 2<br>3<br>4<br>6 | 7 | 1.3 | 2.7 | + |  |  | Silty Sand (SM) lenses up to 1"-thic throughout; Oil is now black and in stringers and lenses below 12' bgs. |  |
|  |  | 6 | 13-15 | 7<br>9<br>13<br>21 | 22 | 1.4 | 0.9 | + |  |  |  |  |
| 15 |  | 7 | 15-17 | 5<br>10 | 63 | 1.8 | 0.0 | - | ML |  | Brown (10YR 5/3), with gray (10YR 5/1) mottling, SILT (ML), some to little Clay, no Oil present, aplastic, medium dense to medium loose, saturated to 15.4' bgs then dry. Undisturbed Glacio-Alluvial. | SILT |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

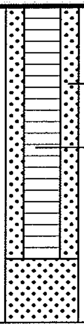
**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-12-26

**Borehole Depth:** 21' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7 | 15-17 | 53/<br>0.5' | 52 | 1.8 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), some to little Clay, no Oil present, aplastic, medium dense to medium loose, saturated 16.1' - 16.4' bgs, otherwise dry. Undisturbed Glacio-Alluvial.<br>Occasional varves of increased oxidation and lenses of saturated up to 1/2"-thick throught below 17' bgs. | SILT | <br>#5 Well Sand Pack (9.0' - 21' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (10' - 20' bgs) |
| | 725 | 8 | 17-19 | 10<br>12<br>40<br>50/<br>0.2' | 52 | 1.8 | 0.0 | - | | | | | |
| 20 | | 9 | 19-21 | 17<br>30<br>50/<br>0.5 | 80 | 1.3 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, few fine to coarse rounded Gravel, trace rounded Pebbles, homogenous, weakly plastic, hard, no odor, dry. | SILTY CLAY | |
| | 720 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-12-26.dat Date: 5/8/03

**Date Start/Finish:** 7/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562465.44
**Easting:** 13305565.41
**Casing Elevation:** NA

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

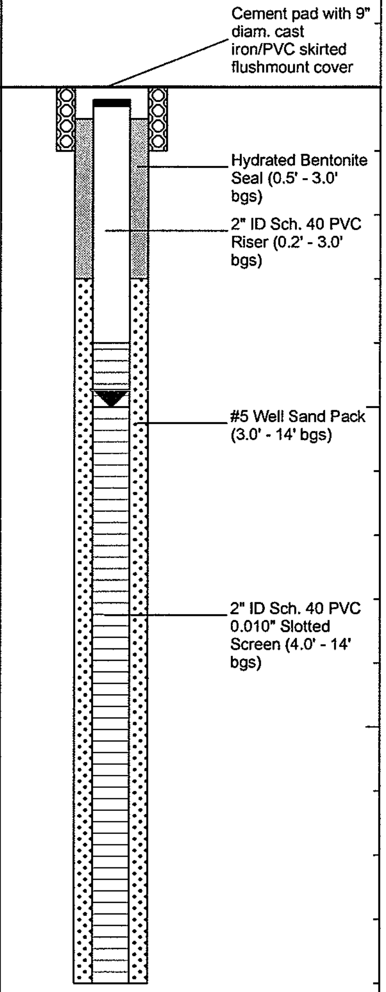
**Boring ID:** RFI-12-27

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. | CONCRETE |
| | | 1 | 1-3 | 7<br>9<br>9<br>11 | 18 | 1.1 | 6117 | - | SP | | Black (10YR 2/1) fine subangular POORLY-GRADED SAND (SP), little Silt, few Clay, occasional subangular metallic particles up to medium sand-sized especially where oxidation is present, aplastic, no odor, medium dense, dry. | Fine SAND |
| | | 2 | 3-5 | 9<br>9<br>10<br>11 | 19 | 1.1 | 9546 | + | | | Pale brown (10YR 6/3) fine to medium subangular yo subrounded (predominanlt fine) POORLY-GRADED SAND (SP), some Silt, few Clay, aplastic, no odor, medium dense, moist. Fill Sand. | |
| 5 | -5 | 3 | 5-7 | 3<br>5<br>5<br>7 | 10 | 1.5 | 73.3 | + | | | Weak odor, saturtated below 5.0' bgs. Blebs of medium to dark brown oil present in oil/water shake test. | |
| | | 4 | 7-9 | 3<br>3<br>4<br>4 | 7 | 1.8 | 61.4 | + | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, lenses of saturated Silty Sand up to 6"-thick throughout, weakly to moderately plastic, soft to medium stiff, damp. Native Glacial Clay Till.<br>6"-thick saturated Silty Sand lense, free-phase product present as dark brown blebs during oil/water shake test.<br>No odor, very stiff, increased stiffness and plasticity with depth below 9.0' bgs. | Silty CLAY |
| 10 | -10 | 5 | 9-11 | 7<br>11<br>13<br>20 | 24 | 2.0 | 0.0 | + | | | 1"-thick Silt lenses , dry below 11' bgs. | |
| | | 6 | 11-13 | 11<br>16<br>26<br>36 | 42 | 2.0 | 0.0 | - | | | | |
| | | 7 | 13-15 | 26<br>50/5"<br>-<br>- | NA | 0.8 | 0.0 | - | | | Wet to saturated fine to coarse subrounded Well-Graded Gravel (GW) lense, some fine to coarse subrounded Sand, little Silt, little to few Clay, no odor at 14' bgs. | |
| 15 | 15 | | | | | | | | | | | |

**Boring Construction**



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NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/24/03 | 5.0 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-12-27.dat Date: 8/11/03

**Date Start/Finish:** 7/23/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563048.74
**Easting:** 13305097.18
**Casing Elevation:** NA

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

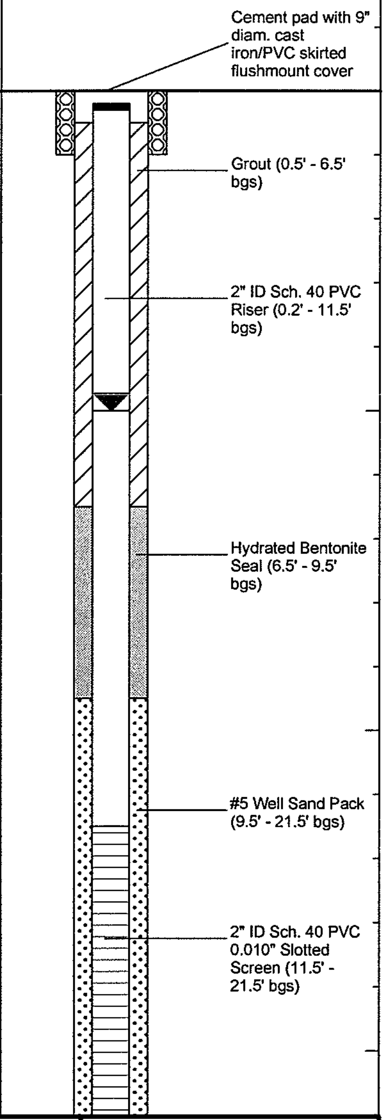
**Descriptions By:** SM Duly

**Boring ID:** RFI-12-28

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | CONCRETE. | CONCRETE |
| | | 1 | 1-3 | 4<br>4<br>4<br>5 | 8 | 1.3 | 328 | - | SP | Gray-brown (10YR 5/2) to yellow-brown (10YR 5/4) fine to coarse subangular to subrounded (predominantly fine) POORLY-GRADED SAND (SP), little to some Silt, fea Clay, few to trace fine subrounded Gravel, aplastic, no odor, loose, dry. Fill Sand. | Fine SAND |
| | | 2 | 3-5 | 2<br>3<br>3<br>4 | 6 | 1.0 | 50.6 | - | | Yellow-brown (10YR 5/4) color, some Silt below 4.0' bgs. | |
| -5 | -5 | 3 | 5-7 | 1<br>2<br>4<br>4 | 6 | 1.3 | 56.4 | - | | Moist below 5.0' bgs. | |
| | | 4 | 7-9 | 2<br>3<br>3<br>4 | 6 | 1.5 | 31.3 | - | CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, brown (10YR 5/3) mottling in patches with localized oxidation in stringers to yellow-brown (10YR 5/8), occasional lenses of Silt and/or fine Sand up to 1"-thick throughout, weakly to moderately plastic, no odor, medium soft, damp.<br>Homogenous throughout below 8.5' bgs. | Silty CLAY |
| 10 | -10 | 5 | 9-11 | 2<br>4<br>7<br>12 | 11 | 1.7 | 257 | + | | | |
| | | 6 | 11-13 | 3<br>7<br>9<br>14 | 16 | 2.0 | 241 | + | | | |
| | | 7 | 13-15 | 3<br>5<br>5<br>7 | 10 | 1.8 | 62.6 | + | | 2"-thick saturated Silt lense at 14' bgs.<br>1"-thick saturated Sand lense at 14.3' bgs. | |
| 15 | -15 | 8 | 15-17 | 7<br>11 | 23 | 1.6 | 74 | - | | Dry increasing stiffness below 15' bgs. | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/24/03 | 14' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-28.dat Date: 8/11/03

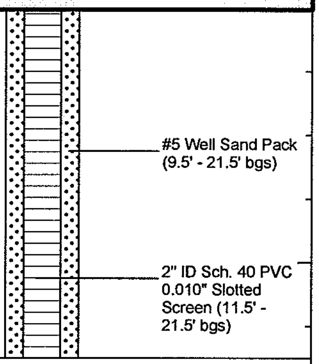
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-12-28

**Borehole Depth:** 15' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8 | 15-17 | 12<br>17 | 23 | 1.6 | 74 | - | | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, localized oxidation in stringers to yellow-brown (10YR 5/8), occasional lenses of Silt and/or fine Sand up to 1"-thick throughout, weakly to moderately plastic, no odor, medium soft, damp. | | |
| | 9 | 17-19 | 7<br>9<br>22<br>31 | 31 | 2.0 | 53.2 | + | | | 3"-thick saturated Silt lense, weak odor, sheen present in oil/water shake test at 19' bgs. | | |
| 20-20 | 10 | 19-21 | 21<br>53<br>44<br>37 | 87 | 2.0 | 57.8 | + | | | 5"-thick saturated Silt lense, sheen present in spoon and in oil/water shake test, weak odor at 20.5' bgs. | | |
| 25-25 | | | | | | | | | | | | |
| 30-30 | | | | | | | | | | | | |
| 35-35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/24/03 | 14' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-28.dat Date: 8/11/03

**Date Start/Finish:** 7/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562834.55
**Easting:** 13305197.36
**Casing Elevation:** NA

**Borehole Depth:** 19' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-12-29

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. | FILL | |
| | | 1 | 1-3 | 4<br>5<br>5<br>4 | 10 | 1.1 | 5753 | - | SM | | Light yellow-brown (10YR 6/4) fine subangular SILTY POORLY-GRADED SAND (SM), little to few Clay, no odor, dry, loose. Fill Sand. | Silty SAND | Borehole Tremmie Grouted to grade. |
| | | 2 | 3-5 | 3<br>5<br>7<br>7 | 12 | 1.0 | 2067 | - | SP | | Black (10YR 2/1) fine to coarse subangular to angular (predominantly fine to medium) POORLY-GRADED SAND (SP), little Silt, few Clay, Cinders and small sand- to silt-sized pieces of Slag also presentno odor, loose, dry. Foundry Sand. | Fine SAND | |
| 5 | -5 | 3 | 5-7 | 2<br>3<br>5<br>4 | 8 | 1.6 | 2739 | - | SM | | Dark brown (10YR 3/3), becoming yellow-brown (10YR 5/4) from 6.0' - 7.0' bgs, fine to medium subangular SILTY POORLY-GRADED SAND (SM), few Clay, occasional emerald green patches of discoloration up to 1/2" in diameter, aplastic, no odor, loose, moist. Foundry Sand. | Silty SAND | |
| | | 4 | 7-9 | 2<br>3<br>6<br>2 | 9 | 1.2 | 182 | + | | | Saturated at 8.0' bgs. | | |
| | | | | | | | | | CL | | Yellow-brown (10YR 5/4) fine to coarse subrounded WELL-GRADED SANDY LEAN CLAY (CL), little Silt, trace fine to medium subrounded to rounded Gravel, very plastic, soft, no odor, saturated. Fill. | Sandy CLAY | |
| 10 | -10 | 5 | 9-11 | 2<br>4<br>8<br>13 | 12 | 1.6 | 113 | + | | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occasional lenses of Silt present up to 1"-thick, homogenous, weakly plastic, moderate odor, stiff to very stiff, dry to damp. | Silty CLAY | |
| | | 6 | 11-13 | 6<br>9<br>17<br>19 | 26 | 1.8 | 95.5 | + | CL | | Yellow-brown (10YR 5/4) oxidation in patches, mottled below 11.5' bgs.<br>Becomes predominantly yellow-brown with gray motting below 12' bgs. | | |
| | | 7 | 13-15 | 4<br>8<br>12<br>14 | 20 | 2.0 | 47.9 | + | | | Decreased stiffness and increased plasticity, weak odor, stringers of moisture throughout below 13' bgs. | | |
| 15 | -15 | 8 | 15-17 | 3<br>6 | 14 | 2.0 | 35.4 | + | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/24/03 | 8.0 | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-12-29

**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 8<br>9 | 14 | 2.0 | 35.4 | + | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occasional lenses of Silt present up to 1"-thick, homogenous, weakly plastic, moderate odor, stiff to very stiff, dry to damp.<br>Saturated 2"-thick Sand lense, free-phase product in very dark blobs in oil/water shake test at 16.7' bgs. | Silty CLAY | Borehole Tremmie Grouted to grade. |
| | | 9 | 17-19 | 9<br>17<br>32<br>26 | 59 | 1.2 | 18.6 | + | | | | | |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 7/24/03 | 8.0 | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 7/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562913.72
**Easting:** 13305194.15
**Casing Elevation:** NA

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-12-30

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. | FILL | |
| | | 1 | 1-3 | 2<br>9<br>14<br>15 | 23 | 1.7 | 5273 | - | SP | | Black (10YR 2/1) fine to medium subangular to angular POORLY-GRADED SAND (SP), little Silt, Metallic Debris and Slag present in pieces ranging from silt- to coarse gravel-sized, aplastic, no odor, loose, dry. Foundry Sand. | Fine SAND | Borehole Tremmie Grouted to grade. |
| | | 2 | 3-5 | 43/4"<br>-<br>-<br>- | NA | 0.0 | NA | NA | | | Refusal. No recovery, rubbly drilling at 3.0' bgs. | | |
| 5 | -5 | 3 | 5-7 | 1<br>2<br>5<br>5 | 7 | 1.7 | 95.1 | + | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), little fine to medium subrounded Sand, trace fine to coarse rounded Gravel, moderately plastic, moderate odor, sheen present on Clay and in spoon, damp. Native Clay Till used as Backfill. | Silty CLAY | |
| | | 4 | 7-9 | 3<br>4<br>4<br>3 | 8 | 1.8 | 89.3 | + | SP | | Brown (10YR 5/2) fine subangular POORLY GRADED SAND (SP), little Silt, little Clay, free-phase product present as very dark amber-brown blobs and in oil/water shake test, moderate odor, loose, saturasted. Glacio-Alluvial.<br>Lenses of Clay up to 1"-thick throughout below 7.0' bgs. | Fine SAND | |
| 10 | -10 | 5 | 9-11 | 2<br>2<br>4<br>4 | 6 | 1.1 | 23.6 | + | CL | | Brown (10YR 5/2) SILTY LEAN CLAY (CL), as above from 5.3' - 6.4' bgs, with lenses of saturated Sand present up to 2"-thick, stringers of moisture (free water and product in cracks), sheen on Clay and in Sand lenses, weak odor, damp. | Silty CLAY | |
| | | 6 | 11-13 | 3<br>4<br>6<br>9 | 10 | 1.5 | 31.6 | + | | | | | |
| 15 | -15 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-12-30.dat Date: 8/11/03

**Date Start/Finish:** 7/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563030.38
**Easting:** 13305194.91
**Casing Elevation:** NA

**Borehole Depth:** 4.2' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-12-31

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | CONCRETE. | ONCRE | |
| | | 1 | 1-3 | 4<br>5<br>8<br>9 | 13 | 1.2 | >10000 | + | ML | | 'Very dark brown (10YR) SILT (ML), some fine to coarse subangular Sand, little Clay, Slag/Silt to fine Gravel-sized pieces mixed in throughout, locally oxidized to yellow-brown (10YR 8/4), Rubbly drilling and metallic debris also coming up with augers, medium loose to medium dense, no odor, damp. FILL. | ← SILT → | Borehole Tremmie Grouted to grade. |
| | | | | | | | | | | | Subsurface CONCRETE. | ONCRETI | |
| | | 2 | 3-4.2 | NA | NA | 0.1 | NA | + | ML | | SILT (ML) as above, no metallic debris or slag, strong oily sheen present, saturated. In jar in water, lense of very dark brown LNAPL present.<br>Possible top of tank. Dark brown free-phase product observed coming into borehole at 4.2' bgs. | IL | |
| 5 | -5 | | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-31.dat Date: 11/12/03

**Date Start/Finish:** 7/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562472.17
**Easting:** 13305621.11
**Casing Elevation:** NA

**Borehole Depth:** 14' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

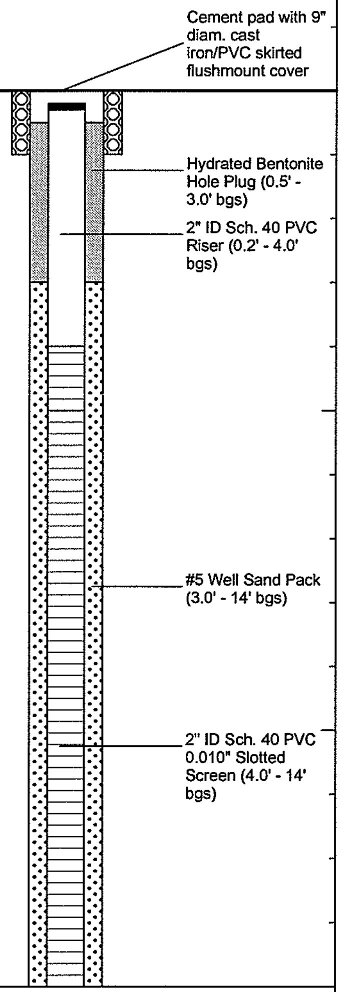
**Boring ID:** RFI-12-32

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | | |
| | | 1 | 0-2 | 2<br>8<br>12<br>12 | 20 | 1.8 | 4054 | - | SP | | Pale brown (10YR 6/3) fine subangular POORLY GRADED SAND (SP), some Silt, few Clay, Cement debris, glass and Brick also present to 2.0' bgs, loose to medium dense, no odor, dry. Fill. | SAND |
| | | 2 | 2-4 | 9<br>11<br>12<br>7 | 23 | 0.0 | NA | - | | | No recovery due to presence of large piece of Cement debris from demolition activities. | |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>3<br>4 | 5 | 1.1 | 158 | - | | | Very loose, saturated. | |
| | | 4 | 6-8 | 1<br>1<br>1/12"<br>- | 2 | 1.0 | 0.0 | - | | | | |
| | | 5 | 8-10 | H/12"<br>1<br>1<br>- | 1 | 0.3 | 0.0 | - | | | | |
| 10 | -10 | 6 | 10-12 | 1<br>2<br>8<br>12 | 10 | 1.5 | 0.0 | - | | | Gray (10YR 5/1) fine to coarse (predominantly fine) subangular poorly graded SAND (SP), little Silt, little Clay, occasional lenses of Clay up to 1"-thick throughout, saturated, loose, no odor. Native Glacio-Alluvial.<br>Gray (10YR 5/1) SILTY Lean CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to coarse rounded Gravel, homogenous, weakly plastic, no odor, medium stiff, dry. Native Glacial Clay Till | SILTY CLAY |
| | | 7 | 12-14 | 20<br>37<br>50/5" | 87 | 1.1 | 0.0 | - | CL | | Hard, dry at 13' bgs. | |
| 15 | -15 | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-32.dat Date: 11/12/03

**Date Start/Finish:** 8/28/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562850.53
**Easting:** 13305203.78
**Casing Elevation:** NA

**Borehole Depth:** 14' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

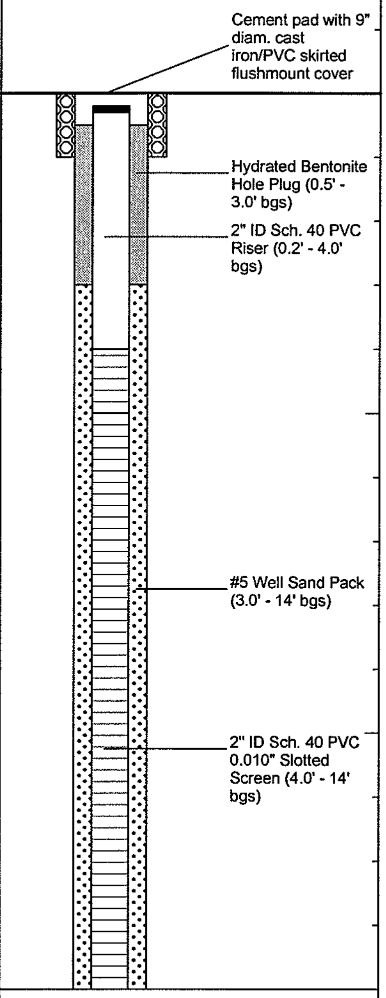
**Boring ID:** RFI-12-33

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | CONCRETE. | ONCRET |
| | | 1 | 1-2 | 29/5" | NA | 0.5 | 917 | - | SW | Brown (10YR 5/3) fine to coarse subangular WELL GRADED SAND (SW), little Silt, few fine to coarse subrounded Gravel, aplastic, no odor, loose, dry. Fill Sand. | AND, FIN |
| | | | | | | | | | FL | CONCRETE debris and rubble in cuttings. | NCR |
| | | 2 | 2-4 | -<br>2<br>8<br>7 | 10 | 1.1 | 1027 | - | SM | Gray-brown (10YR 5/2) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, medium dense, damp. Fill Sand. | SILTY SAND |
| 5 | -5 | 3 | 4-6 | 6<br>7<br>8<br>10 | 15 | 1.5 | 770 | + | | Moderate to strong sharp, sweet "oily" odor, Saturated at 5.0' bgs.<br>Black sheen present on saturated material at 5.5' bgs. | |
| | | 4 | 6-8 | 9<br>9<br>9<br>15 | 18 | 1.7 | 440 | + | | Black (10YR 2/1) fine angular to subrounded POORLT GRADED SILTY SAND (SM), few Clay, moderate to strong odor, sheen, medium loose to medium dense, aplastic, Metallic debris and small amounts of slag material present at upper contact, saturated. Foundry Sand. | |
| | | 5 | 8-10 | 2<br>2<br>3<br>6 | 5 | 1.8 | 573 | + | | Gray (10YR 5/1) fine subrounded to subangular POORLY GRADED SILTY SAND (SM), few coarse subangular Gravel and Pebbles, moderate to strong odor, black oily patches up to 1" diameter present throughout, sheen, aplastic, saturated. Fill Sand. | |
| 10 | -10 | 6 | 10-12 | 3<br>7<br>9<br>11 | 16 | 1.8 | 108 | + | CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, moderate to weak odor, locally oxidation present as concave varves and patches of oily Sand and Silt, stringers of oil also present in cracks. soft, damp to moist. Native Clay Till used as backfill. | SILTYT CLAY |
| | | 7 | 12-14 | 8<br>10<br>15<br>22 | 25 | 1.8 | 536 | + | | 2"-thick lense of fine poorly graded fine subangular to subrounded Sand, oily sheen and strong odor present, saturated at 10.8' bgs.<br>1"-thick Silt lense, oily sheen and strong odor present, saturated at 11.3' bgs. | |
| | | | | | | | | | | Possibly Native Undisturbed Till at 13' bgs. | |
| 15 | -15 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-33.dat
Date: 11/14/03

**Date Start/Finish:** 8/28/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562812.14
**Easting:** 13305282.38
**Casing Elevation:** NA

**Borehole Depth:** 14' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-12-34

**Client:** General Motors

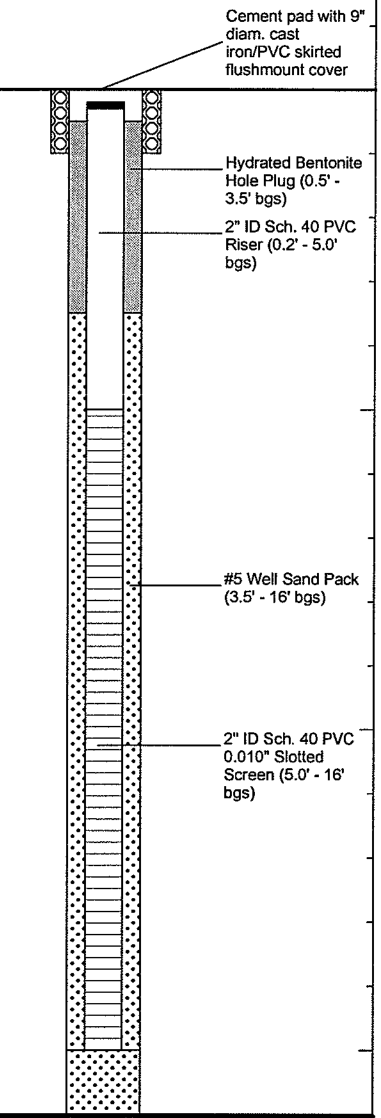
**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION |
|---|---|
| 0 | 0 |
| 5 | -5 |
| 10 | -10 |
| 15 | -15 |

| Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|
| 1 | 1-3 | 1<br>1<br>1<br>2 | 2 | 0.6 | 8068 | - |
| 2 | 3-5 | 2<br>2<br>2<br>4 | 2 | 1.7 | 6675 | - |
| 3 | 5-7 | 2<br>15/3"<br>-<br>- | NA | 0.3 | 1108 | + |
| 4 | 7-8 | 4<br>50/3" | NA | 1.0 | NA | + |
| 5 | 8-10 | 4<br>9<br>6<br>4 | 15 | 1.0 | 1177 | + |
| 6 | 10-12 | 2<br>4<br>6<br>6 | 10 | 1.3 | 48.9 | + |
| 7 | 12-14 | 3<br>6<br>6<br>8 | 12 | 1.7 | 66.6 | + |
| 8 | 14-16 | 3<br>6<br>8<br>10 | 14 | 2.0 | 48.3 | + |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | CONCRETE. | ONCRET |
| SM | Brown (10YR 5/3), to black (10YR 2/1) at 1.3' bgs, fine to coarse POORLY GRADED SILTY SAND (SM), few coarse subangular Gravel, Metallic debris at upper contact, no odor, loose, damp. Fill Sand.<br>Brown (10YR 5/3) fine subangular POORLY GRADED SILTY SAND (SM), few coarse subangular Gravels and Pebbles, few Clay, weak odor, medium dense, moist. Fill Sand. | SILTY SAND |
| SP | Black (10YR 5/1) fine to coarse subangular POORLY GRADED SAND (SP), little Silt, Slag, Metallic debirs, and Cinders present, medium dense, no odor, moist to saturated at 8.0' bgs. Foundry Sand.<br>Black (10YR 5/1), with yellow-brown (10YR 5/4) patches, fine to coarse subangular POORLY GRADED SAND (SP), little Silt, Metallic debris and Slag present, loose, no odor, saturated. | SAND |
| CL | Brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, moderate sweet, sharp odor, moist. Native Clay Till used as backfill. | TY CL |
| SP | Brown (10YR 5/3) fine to coarse subangular POORLY GRADED SAND (SP), little Silt, moderate sweet, sharp odor, loose, saturated. | SAND |
| CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), as above from 11' - 11.7' bgs, brown mottling and oxidation, moderate odor and stringers of moisture and possibly oil.<br>2"-thick fine to medium Sand lense, oily sheen and sweet, sharp odor present, saturated at 13.8' bgs.<br>1"-thick fine to medium Sand lense, oily sheen and sweet, sharp odor present, saturated at 15' bgs.<br>2"-thick saturated Silt lense at 15.8' bgs. | SILTY CLAY |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-34.dat
Date: 11/14/03

**Date Start/Finish:** 8/29/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 562980.16
**Easting:** 13305201.46
**Casing Elevation:** 744.45

**Borehole Depth:** 17' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

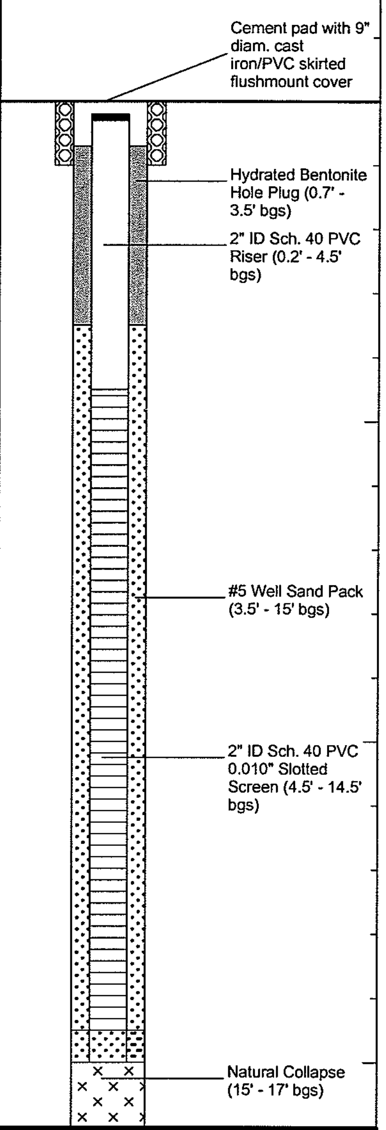
**Boring ID:** RFI-12-35

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | CONCRETE. | CONCRETE |
| | | 1 | 3-5 | 11<br>24<br>-<br>- | NA | 1.0 | 2384 | + | CL<br>FL | Gray-brown (10YR 5/2) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, moderate odor, lenses of saturated Silt throughout, moderately plastic, soft, moist. Native Clay Till used as backfill.<br>3"-thick Silt lense, sheen present on Silt, moist at 3.8' bgs.<br>CONCRETE. | SILTY CLA<br>CONCRET |
| 5 | -5 | 2 | 5-7 | 3<br>2<br>3<br>3 | 5 | 1.8 | 5979 | + | CL | Gray-brown (10YR 5/2) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, moderate odor, moderately plastic, soft, moist to saturated from 6' - 6.5' bgs. Native Clay Till used as backfill. | SILTY CLAY |
| | | 3 | 7-9 | 6<br>11<br>13<br>9 | 24 | 1.9 | 1696 | + | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), as above, moderate odor, sheens on sample and stringers of oily moisture present throughout, saturated Silt lense up to 1/2"-thick throughout. Undisturbed Native Clay Till. | |
| 10 | -10 | 4 | 9-11 | 5<br>6<br>8<br>9 | 14 | 2.0 | 473 | + | | | |
| | | 5 | 11-13 | 4<br>7<br>10<br>12 | 17 | 2.0 | 229 | + | | | |
| | | 6 | 13-15 | 5<br>9<br>14<br>16 | 23 | 1.6 | 113 | + | | | |
| 15 | -15 | 7 | 15-17 | 4<br>6 | 14 | 1.7 | 126 | + | | 2"-thick saturated fine poorly gfraded subangular to subrounded Sand lense, some Silt, weak odor, loose to medium dense at 15' bgs. | |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-12-35.dat Date: 11/14/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-12-35

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7 | 15-17 | 8<br>9 | 14 | 1.7 | 126 | + | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL), as above, moderate odor, sheens on sample and stringers of oily moisture present throughout, Undisturbed Native Clay Till.<br>3"-thick saturated Silt lense at 16' bgs.<br>4"-thick saturated Silt lense with few fine to coarse rounded Sand, and trace fine to coarse rounded Gravel at 16.6' bgs. | ILTY CLA | × × × Natural Collapse (15' - 17' bgs) |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-12-35.dat Date: 11/14/03

**Date Start/Finish:** 4/1/2004
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563031.42
**Easting:** 13305192.71
**Casing Elevation:** 743.89' AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

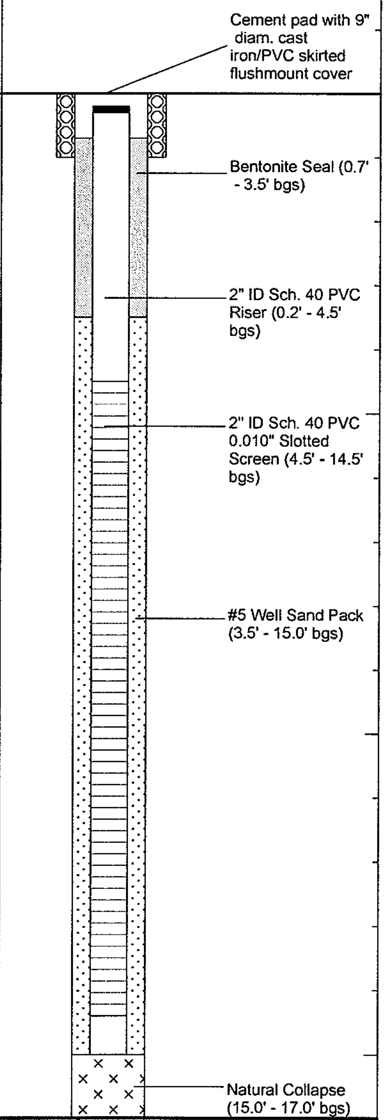
**Well/Boring ID:** RFI-12-36

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | CONCRETE. |
| | | | | | | | | | | | Brown (10YR 4/3) becoming dark brown (10YR 3/3) LEAN CLAY with SILT (CL), some fine Sand, soft, strong odor, little black staining throughout, saturated. [FILL] |
| | | 1 | 2-4 | 4<br>4<br>1<br>7 | 10 | 2.0 | 0.0 | + | CL | | |
| 5 | -5 | 2 | 4-6 | 3<br>3<br>2<br>7 | 5 | 1.5 | 0.0 | + | | | |
| | | | | | | | | | FL | | CONCRETE. |
| | | | | | | | | | | | Gray (10YR 5/1) LEAN CLAY with SILT (CL), few fine to coarse subrounded sand, trace fine to coarse rounded Gravel, rare Silt lenses, medium stiff to stiff, no apparent odor, dry to damp. [Native Clay TILL] |
| 10 | -10 | 3 | 9-11 | 3<br>4<br>4<br>6 | 8 | 1.8 | 0.0 | + | | | |
| | | 4 | 11-13 | 4<br>7<br>8<br>9 | 15 | 2.0 | 0.0 | + | CL | | |
| | | 5 | 13-15 | 4<br>4<br>6<br>7 | 10 | 2.0 | 0.0 | + | | | Clay is soft below 14' bgs. |
| 15 | -15 | 6 | 15-17 | 5<br>4 | 9 | 2.0 | 0.0 | + | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; + = Positive Test Result; - = Negative Test Result; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-12-36

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6 | 15-17 | 5<br>8 | 9 | 2.0 | 0.0 | + | CL | ▤ | Gray (10YR 5/1) LEAN CLAY with SILT (CL), few fine to coarse subrounded sand, trace fine to coarse rounded Gravel, rare Silt lenses, dry to damp, medium stiff to stiff, no apparent odor. [Native Clay TILL] | ☒ |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; + = Positive Test Result; - = Negative Test Result; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.136 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-12-36.dat Date: 5/26/2004

**Date Start/Finish:** 4/05/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563053.71
**Easting:** 13305097.18
**Casing Elevation:** NA

**Borehole Depth:** 5' bgs
**Surface Elevation:** NA

**Descriptions By:** W. Patterson

**Well/Boring ID:** RFI-12-37

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | ASPHALT | |
| | | | | | | | | | | | CONCRETE | |
| | | 1 | 1-3 | 2<br>5<br>5<br>5 | 10 | 1.0 | 0.0 | - | SP | | Black (10YR 2/1) fine POORLY GRADED SAND (SP), loose, no apparent odor, foundry Sand, dry. | Borehole backfilled with Bentonite to grade. |
| | | 2 | 3-5 | 5<br>3<br>4<br>5 | 7 | 0.3 | 0.0 | - | | | | |
| | | | | | | | | | CL | | Black (10YR 2/1) LEAN SANDY CLAY (CL), some Silt, soft moderately plastic, no apparent odor. [FILL] | |
| 5 | 5 | | | | | | | | | | Refusal at 5.0' bgs. | |
| 10 | 10 | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Applicable/Not Available;
+/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-12-37.dat Date: 7/13/04

**Date Start/Finish:** 4/05/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563093.33
**Easting:** 13305116.21
**Casing Elevation:** 742.39' AMSL

**Borehole Depth:** 11' bgs
**Surface Elevation:** NA

**Descriptions By:** W. Patterson

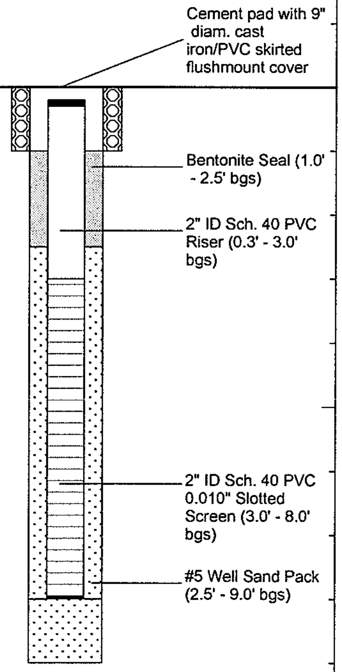
**Well/Boring ID:** RFI-12-38

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | ASPHALT |
| | | | | | | | | | | | CONCRETE |
| | | 1 | 1-3 | 2<br>5<br>5<br>5 | 10 | 1.0 | 0.0 | - | SP | | Black (10YR 2/1) fine POORLY GRADED SAND (SP), loose, no apparent odor, foundry Sand, dry. |
| | | 2 | 3-5 | 5<br>3<br>4<br>5 | 7 | 0.3 | 0.0 | - | CL | | Black (10YR 2/1) LEAN SANDY CLAY (CL), some Silt, soft, moderately plastic, no apparent odor. [FILL] |
| 5 | -5 | 1 | 5-7 | 7<br>10<br>8<br>8 | 18 | 2.0 | 7.4 | + | ML | | Yellow Brown (10YR 5/4) and Black (10YR 2/1) SILT (ML), moist, strong odor. [FILL] |
| | | 2 | 7-9 | 3<br>6<br>6<br>9 | 12 | 1.5 | 0.0 | - | SP<br>CL | | Dark gray (10YR 3/1) fine to medium POORLY GRADED SAND (SP), loose, strong odor, with NAPL, saturated. [FILL]<br>Dark gray (10YR 4/1) LEAN CLAY with SILT (CL), slightly plastic and stiff, no apparent odor, damp [NATIVE CLAY and SILT] |
| 10 | -10 | 3 | 9-11 | 4<br>7<br>6<br>10 | 13 | 1.5 | 0.0 | - | CL | | |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-12-38.dat
Date: 7/12/04

**Date Start/Finish:** 4/05/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563076.42
**Easting:** 13305054.73
**Casing Elevation:** NA

**Borehole Depth:** 7.5' bgs
**Surface Elevation:** NA

**Descriptions By:** W. Patterson

**Well/Boring ID:** RFI-12-39

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | ASPHALT | |
| | | | | | | | | | | | CONCRETE | |
| | | | | | | | | | SP | | Dark yellow-brown (10YR 4/6) fine to medium POORLY GRADED SAND (SP), loose, no apparent odor, dry. [FILL] | Borehole backfilled with Bentonite to grade. |
| 5 | -5 | 1 | 5-7 | 1<br>1<br>1<br>5 | 2 | 1.5 | 0.0 | - | ML | | Dark yellow-brown (10YR 4/6) SILT (ML), no apparent odor, saturated. [FILL] | |
| | | 2 | 7-7.5 | >50 | >50 | 0.2 | 0.0 | | | | | |
| | | | | | | | | | | | Refusal at 7.5' bgs. | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Applicable/Not Available;
+/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-12-39.dat
Date: 7/12/04

**Date Start/Finish:** 4/05/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 563090.68
**Easting:** 13305068.01
**Casing Elevation:** 741.47' AMSL

**Borehole Depth:** 9' bgs
**Surface Elevation:** NA

**Descriptions By:** W. Patterson

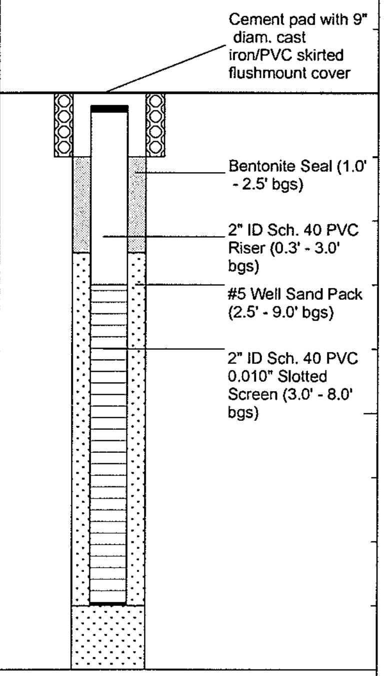
**Well/Boring ID:** RFI-12-40

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | ASPHALT |
| | | | | | | | | | | | CONCRETE |
| | | | | | | | | | SP | | Dark yellow-brown (10YR 4/6) fine to medium POORLY GRADED SAND (SP), loose, no apparent odor, dry. [FILL] |
| 5 | -5 | | 5-7 | 1<br>1<br>1<br>5 | 2 | 1.5 | 0.0 | - | ML | | Dark yellow-brown (10YR 4/6) SILT (ML), no apparent odor, saturated. [FILL] |
| | | 1 | 7-9 | 2<br>5<br>9<br>10 | 14 | 1.5 | 0.0 | - | CL | | Dark gray (10YR 4/1) LEAN CLAY with SILT (CL), slightly plastic, medium stiff to stiff, no apparent odor. [Native CLAY and SILT] |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-12-40.dat Date: 7/13/04

**Date Start/Finish:** 8/23/04
**Drilling Company:** Prosonic
**Driller's Name:** Don Bond
**Drilling Method:** HSA/Macrocore
**Sampler Size:** 5' Macrocore
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 563198.99
**Easting:** 13305110.70
**Casing Elevation:** 741.56' AMSL

**Borehole Depth:** 12' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

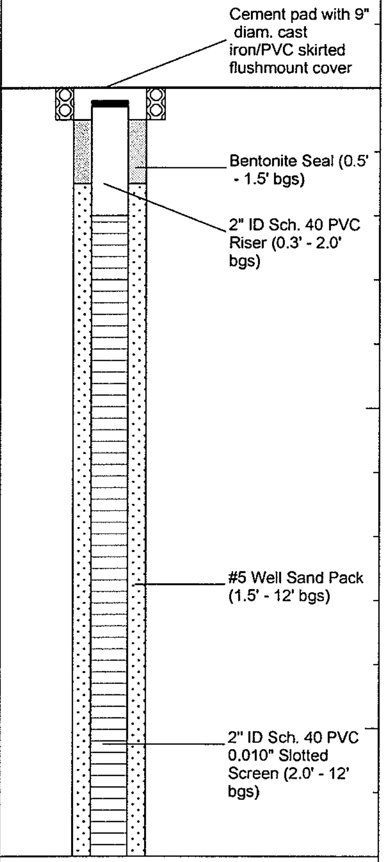
**Well/Boring ID:** RFI-12-41

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-5 | NA | NA | 2.0 | 0.0 | NA | FL | | CONCRETE. |
| | | | | | | | | | SM | | Brown (10YR 4/3) SANDY SILT (SM), few Clay, no odor, damp. [FILL]<br>2" of Concrete Rubble at 2.0' bgs.<br>Wet below 3.5' bgs. |
| 5 | -5 | 2 | 5-10 | NA | NA | 4.0 | 0.0 | NA | SP | | Brown (10YR 4/3) fine to medium POORLY GRADED SAND (SP), no odor, native, loose, saturated. |
| | | | | | | | | | CL | | Dark gray (10YR 4/1) LEAN CLAY with Silt (CL), little fine Sand, few fine Gravel, medium stiff, damp. [Native Clay Till] |
| 10 | -10 | NA | NA | NA | NA | NA | NA | NA | | | |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-12-41.dat Date: 8/27/04

**Date Start/Finish:** 12/8/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Denny
**Drilling Method:** HSA
**Sampler Size:** 2" x 2' long
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME

**Northing:** 561059..41
**Easting:** 13305678.35
**Casing Elevation:** 732.59

**Borehole Depth:** 16' bgs.
**Surface Elevation:** 732.56

**Descriptions By:** Wayne Patterson

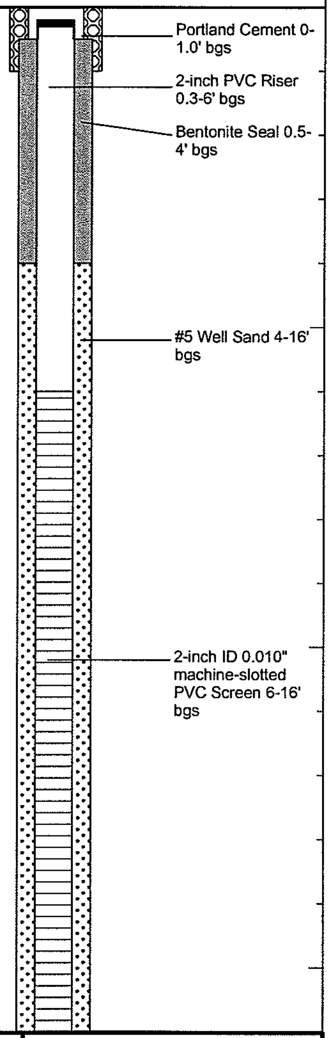
**Boring ID:** RFI-16-04R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | Fill | ASPHALT. | fill |
| | | | | | | | | | | CONCRETE. | |
| | | | | | | | | | | 1.2-6' see RFI-16-04 boring log. | |
| 5 | -5 | | | | | | | | | | |
| | | 1 | 5-7' | 1<br>2<br>2<br>4 | 4 | 0.75 | NA | NA | SM | Yellowish-brown (10YR 5/6) fine Silty SAND (SM), some black staining toward top, few Clay and fine angular Gravel, rare slag, moist, no odor, loose. (Fill). | Silty Sand |
| | | 2 | 7-9' | 1<br>5<br>9<br>10 | 11 | 1.5 | NA | NA | CL | Dark gray-brown (10YR 4/2) Silty CLAY (CL), few fine to coarse subangular to subrounded Sand, few fine subangular Gravel, medium stiff, no odor, wet. (Fill) | SC |
| | | | | | | | | | SM | Dark gray (10YR 4/1) fine to coarse Silty SAND (SM), some fine subangular Gravel, medium dense, saturated, no odor. (Fill) | SS |
| | | | | | | | | | | 9-16' see RFI-16-04 boring log. | |
| 10 | -10 | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | |

Boring
Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.
For descriptions from 1.2-6' and 9-16' bgs, see RFI-16-04 boring log.
Located 5' west of RFI-16-04. SC=Silty Clay, SS=Silty Sand

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 2/18/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 22' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

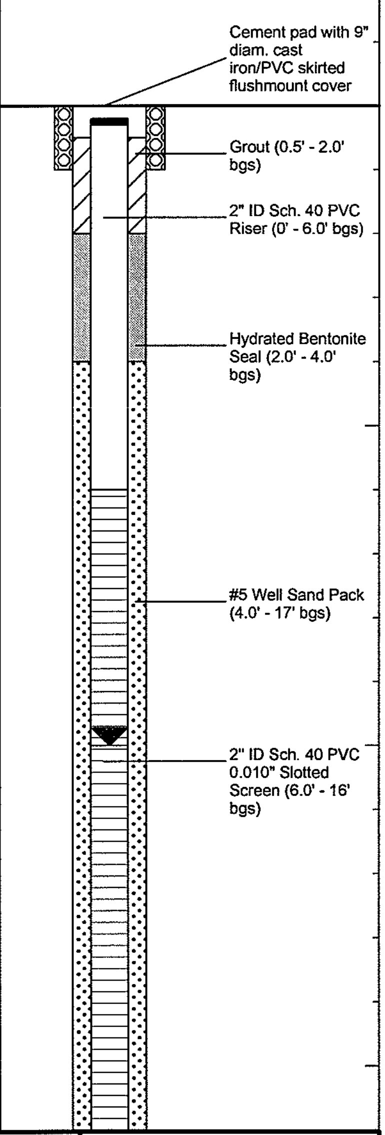
**Boring ID:** RFI-16-24

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. | FILL |
| | | 1 | 1-3 | 21<br>23<br>24<br>14 | 47 | 1.8 | 6.4 | - | SM | | Dark brown (10YR5/1) to black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), little to few Clay, aplastic, no odor, dense to very dense, dry. Foundry/Fill Sand. | SILTY SAND |
| | | 2 | 3-5 | 10<br>7<br>6<br>6 | 13 | 1.3 | 2.8 | - | | | Brown (10YR 3/3) color, less dense at 3.0' bgs.<br>Very dark brown (10YR) color at 3.8' bgs.<br>Cinders and fine to coarse subrounded Gravel present throughout below 4.7' bgs. | |
| 5 | -5 | 3 | 5-7 | 3<br>3<br>3<br>4 | 6 | 1.8 | 86.5 | - | | | Loose at 5.0' bgs. | |
| | | 4 | 7-9 | 4<br>6<br>NA<br>NA | NA | 0.7 | 73.2 | - | FL | | Moist at 7.5' bgs.<br>CONCRETE. | FILL |
| 10 | -10 | 5 | 10-12 | 3<br>5<br>7<br>11 | 12 | 1.8 | 5.6 | - | ML | | Brown (10YR 3/3) to gray-brown (10YR 5/2) SILT (ML), some Clay, little fine to coarse subrounded Sand, trace rounded Gravel, aplastic, dense, wet to saturated to dry. Undisturbed Native Glacial Clay Till. | SILT |
| | | 6 | 12-14 | 2<br>8<br>12<br>18 | 20 | 1.9 | 14.3 | - | | | Lense up to 1" thick of saturated fine to coarse subrounded Sand throughout, heavily oxidized to yellow-brown (10YR /4) along fractures from 13' to 14' bgs.<br>Gray (10YR 2/1), iincreased Sand to little and subrounded to rounded, homogenous, dry below 14' bgs. | |
| 15 | -15 | 7 | 14-16 | 5<br>12<br>12<br>20 | 19 | 2.0 | 0.0 | - | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Samples collected from 1.0'-3.0' abd 5.0'-7.0' for PAL VOCs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/18/03 | 10' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-16-24.dat Date: 3/14/03

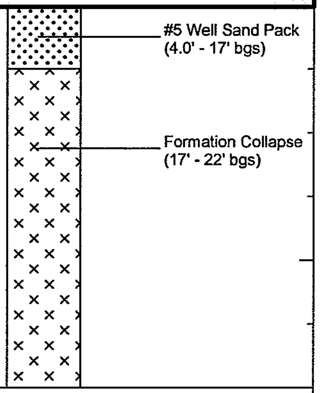
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-16-24

**Borehole Depth:** 22' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8 | 16-18 | 7<br>15<br>19<br>23 | 34 | 1.8 | 0.0 | - | ML | | Brown (10YR 3/3) to gray-brown (10YR 5/2) SILT (ML), some Clay, little fine to coarse subrounded Sand, trace rounded Gravel, aplastic, dense, wet to saturated to dry. Undisturbed Native Glacial Clay Till. | SILT | |
| | 9 | 18-20 | 4<br>11<br>11<br>13 | 22 | 2.0 | 0.0 | - | | | | | |
| 20-20 | 10 | 20-22 | 5<br>10<br>12<br>13 | 22 | 2.0 | 0.0 | - | | | | | |
| 25-25 | | | | | | | | | | | | |
| 30-30 | | | | | | | | | | | | |
| 35-35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Samples collected from 1.0'-3.0' abd 5.0'-7.0' for PAL VOCs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/18/03 | 10' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-16-24.dat
Date: 3/14/03

**Date Start/Finish:** 2/18/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561274.01
**Easting:** 13305532.28
**Casing Elevation:** 736.14 ft. AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** 736.50 ft. AMSL

**Descriptions By:** SM Duly

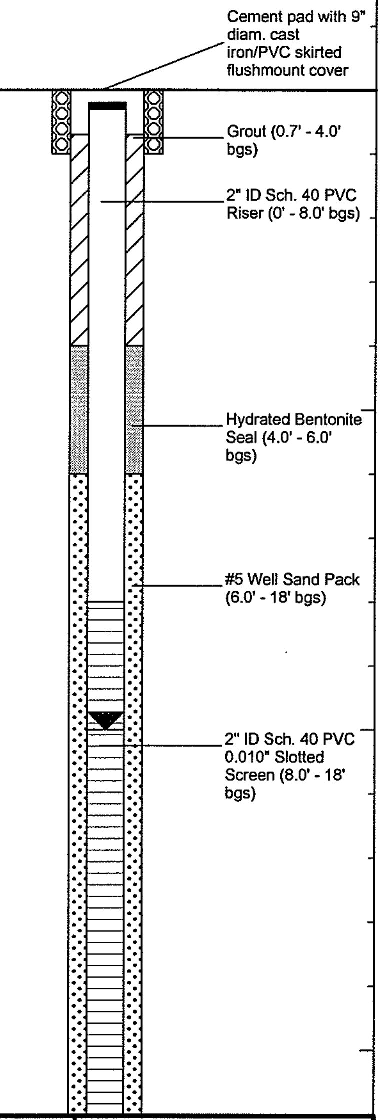
**Boring ID:** RFI-16-25

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | CONCRETE. | ONCRET |
| | 735 | 1 | 1-3 | 12<br>26<br>19<br>17 | 45 | 2.0 | 0.7 | NA | SM | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, dense, dry. Fill Sand. | SILTY SAND |
| | | 2 | 3-5 | 11<br>13<br>20<br>20 | 33 | 1.5 | 0.4 | NA | | | |
| 5 | 730 | | | | | | | | FL | Concrete Rubble, Wood, Rebar, and debris, moist. | FILL |
| | | 3 | 8-10 | 3<br>3<br>5<br>6 | 8 | 1.8 | 0.8 | NA | CL | Gray (10YR 5/1), with yellow-brown (10YR 5/4) mottling, SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to coarse rounded Gravel, weakly to moderately plastic, weak sewer-type odor, damp. Native Undisturbed Glacial Clay Till.<br>Moist at 9.8' bgs.<br>Saturated, lenses of saturated Silt or Silty Sand up to 1" thick below 10' bgs. | Concrete Rubble |
| 10 | 725 | 5 | 10-12 | 2<br>3<br>3<br>3 | 6 | 2.0 | 0.0 | NA | | | |
| | | 6 | 12-14 | WH<br>2<br>4<br>10 | 6 | 1.5 | 0.0 | NA | SM | Brown (10YR 3/3) fine to coarse subrounded WELL GRADED SAND (SM), some to little Silt, little Clay, few fine to medium rounded to subrounded Gravel, aplastic, no odor, saturated, loose. Glacio-Alluvial.<br>Lenses of SILTY Lean CLAY as above from 8.0' - 11.7' bgs up to 8"-thick throughout below 13' bgs.<br>Gray (10YR 5/1) color at 14' bgs.<br>Fine to coarse Sand, decreased Silt and Clay content to few, saturated below 14.6' bgs. | Fine SAND |
| 15 | | 7 | 14-16 | 9<br>14<br>12<br>13 | 26 | 2.0 | 0.0 | NA | CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 8' - 11.7' bgs, very stiff, no odor, dry. | LTY CL |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Samples collected from 1.0'-3.0' abd 8.0'-10' for PAL VOCs.

**Water Level Data**

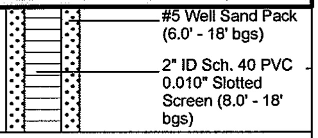
| Date | Depth | Elev. |
|---|---|---|
| 2/18/03 | 10' | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-16-25

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 720 | 8 | 16-18 | 3<br>10<br>13<br>15 | 23 | 1.8 | 0.0 | NA | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 8' - 11.7' bgs, very stiff, no odor, dry. | SILTY CLAY |  #5 Well Sand Pack (6.0' - 18' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| 20 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Samples collected from 1.0'-3.0' abd 8.0'-10' for PAL VOCs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/18/03 | 10' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-16-25.dat
Date: 3/14/03

**Date Start/Finish:** 7/14/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560488.61
**Easting:** 13306350.94
**Casing Elevation:** 720.38' AMSL

**Borehole Depth:** 29' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle

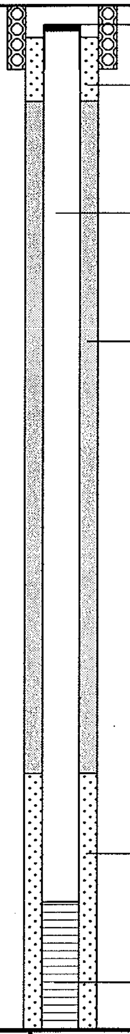
**Well/Boring ID:** RFI-17-02D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 12' bgs. For geologic descriptions see RFI-17-02. |
| 5 | -5 | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | |
| | | 1 | 12-14 | 1<br>1<br>1<br>1 | 2 | 1.75 | 0.0 | | SP | ▨ | Brown-yellow (10YR 6/8) medium to coarse POORLY-GRADED SAND (SP), trace fine subangular Gravel, loose, no odor, saturated. |
| 15 | -15 | 2 | 14-16 | 5<br>5<br>6<br>7 | 11 | 1.0 | 0.0 | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-17-02D.dat Date: 8/5/05

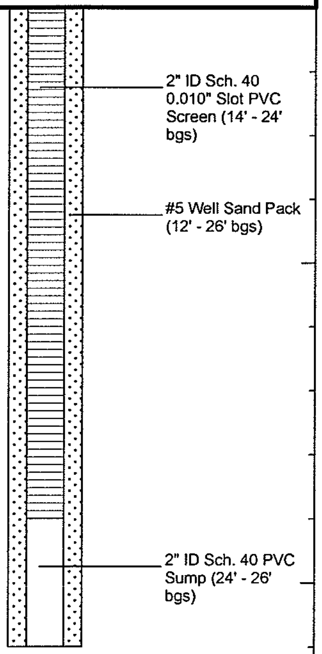
**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-17-02D

**Borehole Depth:** 29' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3 | 16-18 | 3<br>4<br>4<br>6 | 8 | 1.75 | 0.0 | | SP | | Brown-yellow (10YR 6/8) medium to coarse POORLY-GRADED SAND (SP), trace fine subangular Gravel, loose, no odor, saturated. | |
| | | 4 | 18-20 | 6<br>7<br>10<br>10 | 17 | 1.25 | 0.0 | | SW | | Gray (10YR 5/1) fine to coarse WELL-GRADED SAND (SW), little fine to medium angular to subangular Gravel, no odor, saturated. | |
| 20 | *20* | 6 | 20-22 | 8<br>10<br>10<br>15 | 20 | 1.0 | 0.0 | | | | | |
| | | 7 | 22-24 | 6<br>12<br>12<br>10 | 24 | 0.75 | 0.0 | | | | | |
| 25 | *25* | 8 | 24-26 | 10<br>18<br>25<br>30 | 43 | 1.0 | 0.0 | | CL | | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and Sand, slightly plastic, no odor, damp. | |
| | | 9 | 26-28 | 50 | NA | 1.0 | 0.0 | | | | | |
| | | 10 | 28-28.5 | 70 | NA | 0.5 | 0.0 | | ML | | Gray (10YR 5/1) CLAYEY SILT (ML), some fine Sand, brittle, hard, no odor, damp. | |
| | | 11 | 28.5-29 | 70 | NA | 0.5 | 0.0 | | | | | |
| 30 | *30* | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 2/20/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID HSA
**Rig Type:** CME 85

**Northing:** 563019.15
**Easting:** 13305487.16
**Casing Elevation:** 741.73 ft. AMSL

**Borehole Depth:** 16' below grade
**Surface Elevation:** 742.05 ft. AMSL

**Descriptions By:** SM Duly

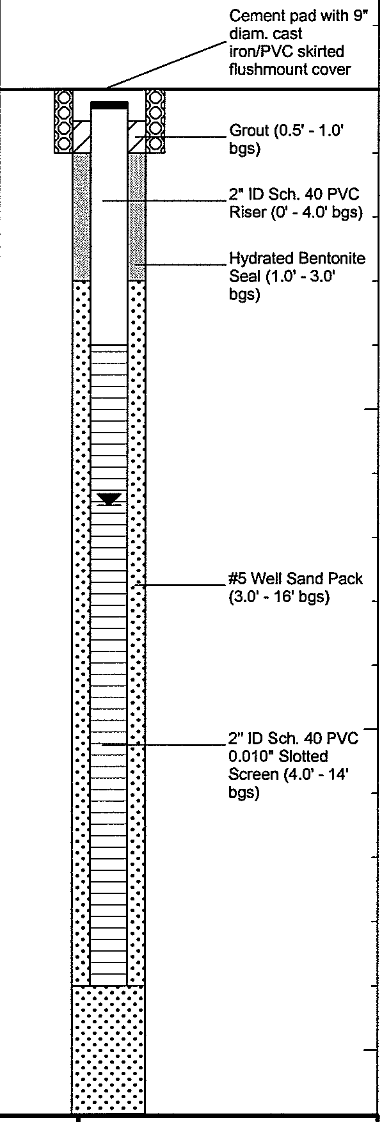
**Boring ID:** RFI-23-01R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | | |
| 0 | | 1 | 0-2 | -<br>18<br>26<br>16 | 44 | 1.2 | 83.4 | - | FL<br>SM | | CONCRETE.<br>Brown (10YR 5/3) to very pale brown (10YR 7/3) subangular POORLY GRADED SILTY SAND (SM), little Clay, trace angular coarse Gravel, aplastic, no odor, dry, dense. Fill Sand. | FILL<br>SAND |
| | 740 | 2 | 2-4 | 10<br>7<br>8<br>8 | 15 | 2 | 105 | - | CL | | Brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, weakly plastic, medium stiff, gray (10YR 5/1) mottled Silt lenses up to 3" thick throughout, no odor, damp. Native Clay Till used as Backfill. 3"-thick saturated Silt lense (perched water) at 3.7' bgs. | CLAYEY SILT |
| 5 | | 3 | 4-6 | -<br>6<br>8<br>7 | 14 | 1.6 | 236 | - | SM | | Brown (10YR 5/3) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, damp, moderately dense. Fill Sand. | SILTY SAND |
| | 735 | 4 | 6-8 | 4<br>4<br>4<br>5 | 8 | 2 | 84.8 | - | CL | | Brown (10YR 5/3), to gray (10YR 5/1) at 7.1' bgs, SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, homogenous, tiny stringers of water present occasionally throughout, no odor, damp with saturated Silt lenses up to 2"-thick throughout, medium stiff (locally soft). Undisturbed Native Clay Till. | CLAYEY SILT |
| | | 5 | 8-10 | 2<br>2<br>4<br>4 | 6 | 1.9 | 52.6 | - | | | | |
| 10 | | 6 | 10-12 | WH<br>3<br>3<br>3 | 6 | 1.8 | 17.8 | - | CL | | 4"-thick lenses of fine poorly graded Sand (SW), saturated at 10.5' bgs. | |
| | 730 | 7 | 12-14 | WH<br>2<br>5<br>6 | 7 | 2 | 0.9 | - | | | | |
| 15 | | 8 | 14-16 | 6<br>7<br>12<br>21 | 19 | 1.7 | 0.0 | - | | | Saturated Gravel lenseat 15' bgs.<br>Dry with increased stiffness below 15.3' bgs. | |

## Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available; + = Positive Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/20/03 | 6.5' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_Well2.ldf
Data File: RFI-12-23.dat Date: 3/8/03

**Date Start/Finish:** 2/20/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME 85

**Northing:** 562874.47
**Easting:** 13305606.43
**Casing Elevation:** 740.08 ft. AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** 740.38 ft. AMSL

**Descriptions By:** SM Duly

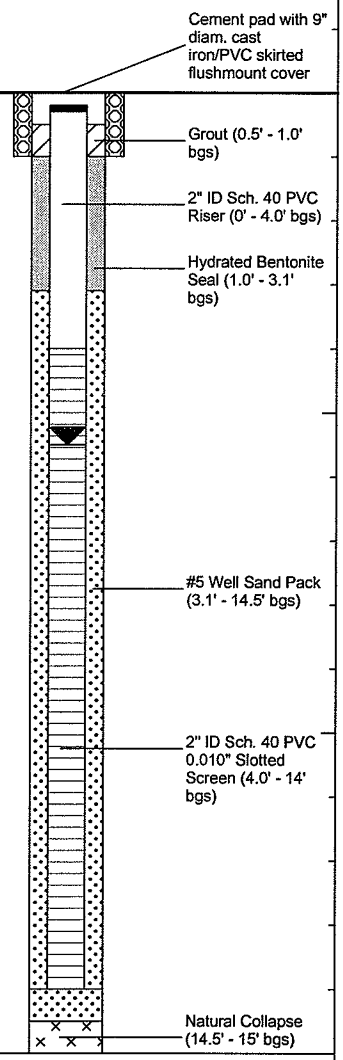
**Boring ID:** RFI-23-02R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 740 | | | | | | | | FL | | CONCRETE. | FILL |
| | | 1 | 1-3 | 14<br>17<br>7<br>4 | 24 | 1.2 | 23.8 | - | | | Brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to coarse rounded Gravel and Cinders, weakly plastic to stiff, no odor, dry. Native Glacial Clay Till used as Backfill. | SILT and CLAY |
| | | 2 | 3-5 | 3<br>3<br>3<br>3 | 6 | 1.3 | 8.7 | - | | | Silty Sand lenses up to 2" thick, moist at 4.0' bgs. | |
| 5 | 735 | 3 | 5-7 | 1<br>2<br>4<br>7 | 6 | 1.8 | 9.2 | - | | | Wet at 5.0' bgs.<br>Saturated, intermittent saturated Silt lenses up to 1" thick throughout in addition to Silty Sand lenses below 5.5' bgs.<br>Becomes gray (10YR 5/1) below 6.8' bgs. | |
| | | 4 | 7-9 | 1<br>3<br>4<br>6 | 7 | 1.7 | 0.2 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, but homogenous, with saturated Silty fine to coarse Sand lenses up to 3" thick and saturated Silt lenses up to 1" thick throughout to lower contact, Clay Till between lenses is damp. Native Undisturbed Glacial Clay Till. | |
| 10 | 730 | 5 | 9-11 | 3<br>4<br>5<br>7 | 9 | 2 | 0.0 | - | | | | |
| | | 6 | 11-13 | WH<br>4<br>7<br>7 | 11 | 1.3 | 0.0 | - | | | Silty Sand lense, saturated, with some fine to medium Gravel from 11.5' - 17.3' bgs. | |
| | | 7 | 13-15 | 2<br>5<br>7<br>8 | 12 | 2.0 | 0.0 | - | | | 1/2"- to 1"-thick Sand lense. Till is dry and increasingly stiff from 14' - 15' bgs. | |
| 15 | 725 | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/20/03 | 5.5 | |

Project: 644.10.022 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-23-02R.dat Date: 3/17/03

**Date Start/Finish:** 10/15/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 55

**Northing:** 568742.76
**Easting:** 13307373.15
**Casing Elevation:** NA

**Borehole Depth:** 24' bgs
**Surface Elevation:** 749.26 ft AMSL

**Descriptions By:** SM Duly

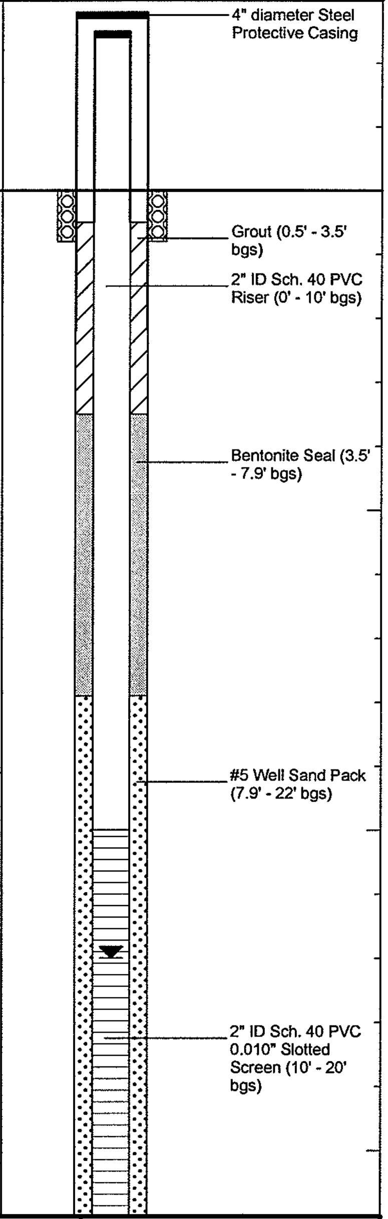
**Boring ID:** RFI-36-47

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | 0.0 | 0.0 | - | | Very dark gray-brown (10YR 3/2) SILT, little fine to coarse subangular fine Sand, few to little Clay, trace fine to coarse rounded Gravel, Glass, Slag, and Building Debris (Cement) present, Roots and Vegetation to 0.3' (Topsoil), aplastic, medium dense, no odor, dry. Fill. | SILT |
| | | 2 | 2-4 | NA | NA | 0.0 | 0.0 | - | | | |
| 5 | 745 | 3 | 4-6 | 6<br>4<br>6<br>9 | 10 | 0.5 | 0.0 | - | ML | | |
| | | 4 | 6-8 | 5<br>5<br>3<br>8 | 8 | 1.3 | 0.0 | - | | | |
| 10 | 740 | 5 | 8-10 | 5<br>5<br>10<br>12 | 15 | 1.5 | 0.0 | - | | Very dark brown (10YR 4/3) Silty fine subangular poorly graded SAND (SM), few Clay, aplastic, medium dense, no odor, dry. Glacio-alluvial. | Silty SAND |
| | | 6 | 10-12 | 4<br>5<br>5<br>7 | 10 | 1.8 | 0.0 | - | | Yellow-brown (10YR 5/4) color, moist at 11.5' bgs. | |
| | | 7 | 12-14 | 3<br>3<br>3<br>4 | 6 | 1.7 | 0.0 | - | SM | | |
| 15 | 735 | 8 | 14-16 | 2<br>3<br>6<br>7 | 9 | 1.8 | 0.0 | - | ML | Brown (10YR 5/3) SILT (ML), little fine subangular to subrounded SAND, few Clay, aplastic, medium dense, no odor, saturated. Glacio-Alluvial. | Silt |

**Boring Construction**



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**Remarks:** bgs = below ground surface; NA = Not Applicable/Available; H = Weight of Hammer. Soil description from 0 - 4' bgs based on auger cuttings due to spoon refusal.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/15/02 | 12' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-36-47.dat Date: 10/23/02

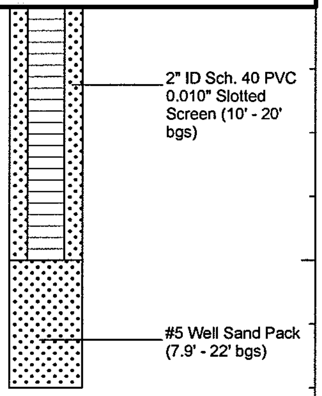
**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-36-47

**Borehole Depth:** 24' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>5<br>7<br>6 | 12 | 1.7 | 0.0 | - | ML | Brown (10YR 5/3) SILT (ML), little fine subangular to subrounded SAND, few Clay, aplastic, medium dense, no odor, saturated. Glacio-Alluvial. | Silt |
| | 730 | 10 | 18-20 | 2<br>3<br>5<br>4 | 8 | 1.8 | 0.0 | - | | Gray (10YR 5/1) color, increased Clay to little to some at 19' bgs. | |
| 20 | | 11 | 20-22 | 2<br>3<br>4<br>6 | 7 | 1.8 | 0.0 | - | | | |
| | | 12 | 22-24 | H<br>1<br>2<br>4 | 3 | 1.5 | 0.0 | - | CL | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, homogenous, plastic, soft to medium stiff, increasing stiffness and decreasing moisture with depth, no odor, damp. Native Glacial Clay Till. | Silty CLAY |
| 25 | 725 | | | | | | | | | | |
| 30 | 720 | | | | | | | | | | |
| 35 | 715 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
Soil description from 0 - 4' bgs based on auger cuttings due to spoon refusal.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/15/02 | 12' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-36-47.dat Date: 10/23/02

**Date Start/Finish:** 10/15/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 55

**Northing:** 568498.38
**Easting:** 13307612.53
**Casing Elevation:** NA

**Borehole Depth:** 32' bgs
**Surface Elevation:** 755.33 ft. AMSL

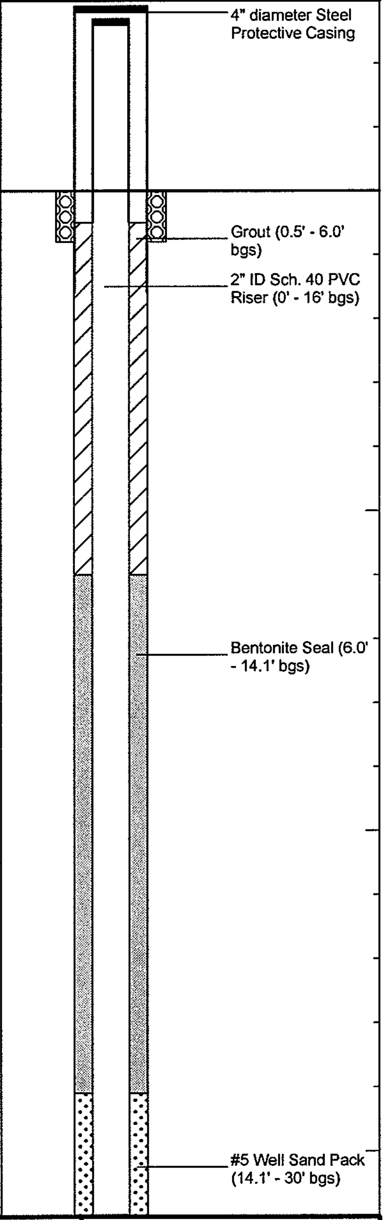
**Descriptions By:** SM Duly

**Boring ID:** RFI-36-48

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 755 | 1 | 0-2 | 10<br>17<br>25<br>19 | 42 | 1.5 | 4.7 | - | ML | | Dark brown (10YR 3/1) SILT (ML), some fine subangular Sand, few fine to coarse subangular Gravel, Slag, and building debris, Roots and vegetation present top 4" (Topsoil), aplastic, no odor, dense, dry. Fill. | SILT |
| | | 2 | 2-4 | 11<br>14<br>22<br>39 | 36 | 1.5 | 1.9 | - | | | Predominantly Metallis debris, Ash, and Cinders at 2.0' bgs.<br>Wood from 3.6' - 3.9' bgs. | |
| 5 | 750 | 3 | 4-6 | 11<br>13<br>14<br>14 | 27 | 2.0 | 0.0 | - | | | Ash and Coal debris at 4.5' bgs. | |
| | | 4 | 6-8 | 5<br>6<br>9<br>17 | 17 | 1.5 | 5.1 | - | | | Wood at 7.8' bgs. | |
| | | 5 | 8-10 | 5<br>9<br>9<br>12 | 18 | 1.0 | 12.1 | - | | | | |
| 10 | 745 | 6 | 10-12 | 5<br>9<br>8<br>8 | 17 | 1.5 | 0.0 | - | SM | | Yellow-brown (10YR 5/4) Silty fine subangular to subrounded poorly graded SAND (SM), few Clay, , aplastic, no odor, medium dense, damp. Glacio-alluvial. | Silty SAND |
| | | 7 | 12-14 | 3<br>5<br>6<br>7 | 11 | 1.7 | 0.0 | - | | | | |
| 15 | 740 | 8 | 14-16 | 4<br>5<br>5<br>6 | 10 | 1.2 | 0.0 | - | | | Darker yellow-brown (10YR 5/4) color, moist at 14' bgs. | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/15/02 | 17.7' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-36-48.dat Date: 10/25/02

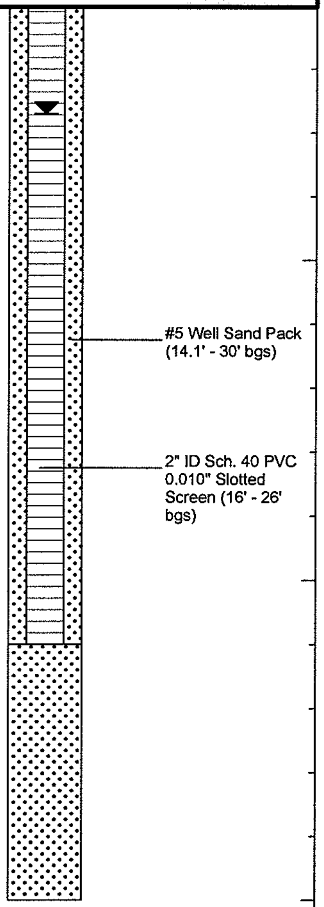
**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-36-48

**Borehole Depth:** 32' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 4<br>5<br>5<br>7 | 10 | 1.8 | 0.0 | - | | | Yellow-brown (10YR 5/4) Silty fine subangular to subrounded poorly graded SAND (SM), few Clay, , aplastic, no odor, medium dense, moist. Glacio-alluvial.<br>Saturated at 17.7' bgs. | |
| | 10 | 18-20 | 1<br>3<br>4<br>7 | 7 | 1.5 | 0.0 | - | SM | | Locally finning to a Silt (ML) and coarsening to a fine to medium Silty Sand (SM) at 18' bgs. | Silty SAND |
| 20<br>735 | 11 | 20-22 | 3<br>6<br>8<br>12 | 14 | 1.5 | 0.0 | - | | | | |
| | 12 | 22-24 | 4<br>4<br>7<br>9 | 11 | 1.8 | 0.0 | - | | | Gray (10YR 5/1) SILT (ML), little fine subangular to subrounded Sand, few Clay, aplastic, medium dense to loose, no odor, daturated. Glacio-alluvial. | |
| 25<br>730 | 13 | 24-26 | 3<br>3<br>3<br>6 | 6 | 2.0 | 0.0 | - | | | Increased Clay content to little at 25' bgs. | |
| | 14 | 26-28 | H<br>2<br>2<br>3 | 4 | 1.5 | 0.0 | - | ML | | | SILT |
| | 15 | 28-30 | H<br>1<br>4<br>6 | 5 | 2.0 | 0.0 | - | | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to medium subrounded Sand, lenses of saturated Silt up to 8" thick as above from 23.2' - 29.1' bgs throughout, homogenous, soft to medium stiff, plastic, no odor, damp to moist with decreased moisture and increased stiffness with depth. Native glacial Clay Till. | |
| 30<br>725 | 16 | 30-32 | 1<br>3<br>2<br>4 | 5 | 2.0 | 0.0 | - | CL | | | Silty CLAY |
| 35<br>720 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/15/02 | 17.7' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 4/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 45B

**Northing:** 568347.09
**Easting:** 13306670.44
**Casing Elevation:** 755.71 ft. AMSL

**Borehole Depth:** 25' bgs
**Surface Elevation:** 755.94 ft. AMSL

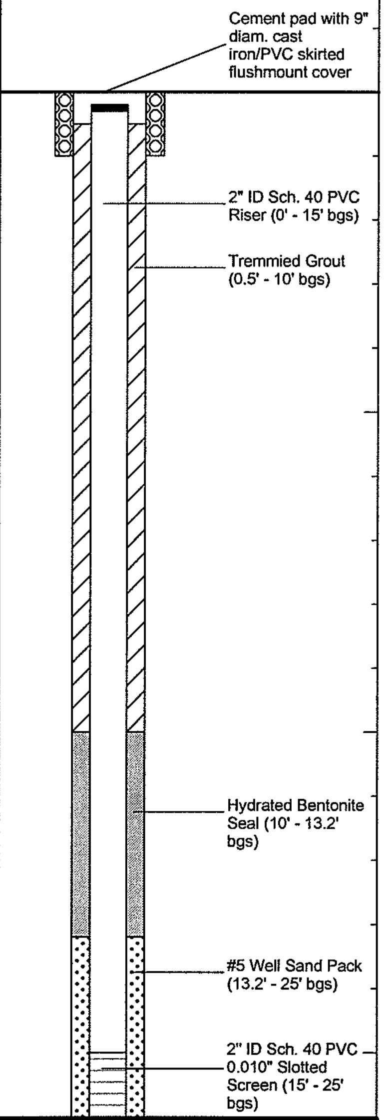
**Descriptions By:** SM Duly

**Boring ID:** RFI-36-49

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | CONCRETE. | FILL |
| | 755 | 1 | 1-3 | 6<br>6<br>5<br>5 | 11 | 1.1 | 1.3 | NA | SM | | Black (10YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few Clay, few fine to coarse subangular to subrounded Gravel, Glass and building debris present, aplastic, no odor, loose, dry. Fill. | SILTY SAND |
| | | 2 | 3-5 | 16<br>25<br>25<br>35 | 50 | 0.8 | 0.8 | NA | | | | |
| 5 | 750 | 3 | 5-7 | 6<br>7<br>5<br>4 | 12 | 1.7 | 0.5 | NA | | | Concrete in shoe at 5.0' bgs. | |
| | | 4 | 7-9 | 2<br>4<br>5<br>5 | 9 | 1.6 | 0.7 | NA | CL | | Black (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, few fine to medium rounded Gravel, lenses of ground and broken glass up to 1/2"-thick at 6.7' and 6.9' bgs, moderately plastic, soft, damp. Native Clay Till used as Backfill.<br>2"-thick lense of burned Wood and Ashes at 7.5' bgs.<br>No debris as described above below 8.0' bgs. | SILTY CLAY |
| 10 | 745 | 5 | 9-11 | 3<br>4<br>5<br>7 | 9 | 1.8 | 0.5 | NA | SM | | Brown (10YR 5/3) to pale brown (10YR) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, loose, dry. Fill Sand. | SILTY SAND |
| | | 6 | 11-13 | 3<br>4<br>4<br>5 | 8 | 1.3 | 0.6 | NA | | | Damp at 12.5' bgs. | |
| | | 7 | 13-15 | 3<br>3<br>3<br>3 | 6 | 1.5 | 1.1 | NA | | | | |
| 15 | 740 | 8 | 15-17 | 1<br>1 | 3 | 1.2 | 1.3 | NA | | | Moist at 15' bgs. | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0' - 3.0', 7.0'- 9.0', 17' - 19' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

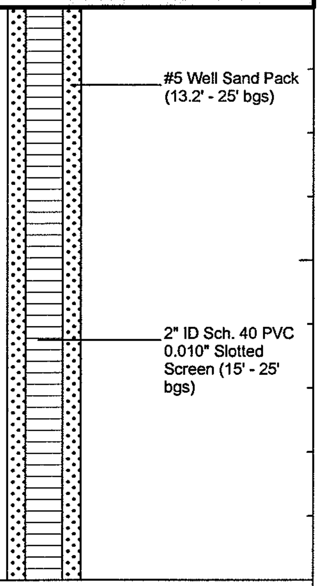
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-36-49

**Borehole Depth:** 25' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 2<br>4 | 3 | 1.2 | 1.3 | NA | SM | | Brown (10YR 5/3) to pale brown (10YR) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, loose, moist. Fill Sand. | SILTY SAND | |
| | | 9 | 17-19 | 4<br>4<br>5<br>5 | 9 | 1.3 | 3.0 | NA | | | Gray (10YR 5/1) color, moist to wet, possible Native Glacio-Alluvial at 18' bgs. | | |
| 20 | 735 | 10 | 19-21 | 4<br>5<br>6<br>8 | 11 | 1.6 | 0.0 | NA | | | Saturated, Oily sheen present in tip of shoe at 19' bgs. Next spoon is saturated throughout, no odor, sheen present throughout to 20' bgs.<br>Auger to 25' bgs. Clear, light weight Oil present. | | |
| 25 | 730 | | | | | | | | | | | | |
| 30 | 725 | | | | | | | | | | | | |
| 35 | 720 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0' - 3.0', 7.0'- 9.0', 17' - 19' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

**Date Start/Finish:** 3/6/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 568066.07
**Easting:** 13307147.79
**Casing Elevation:** NA

**Borehole Depth:** 22' bgs
**Surface Elevation:** 750.19 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-36-50

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 750 | NA | 0-2 | NA | NA | NA | NA | NA | GP | | Coarse to pebble-sized angular POORLY GRADED GRAVEL (GP), no odor, loose, dry to wet from rainfall/snow melt. | Gravel | Borehole backfilled with Bentonite to grade. |
| | | 1 | 2-4 | 2<br>3<br>3<br>4 | 6 | 2.0 | 0.0 | - | CL | | Black (10YR 2/1) at upper contact then yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine rounded Gravel, plastic, soft, no odor, damp. Native Clay Till used as backfill. | SILTY CLAY | |
| 5 | 745 | 2 | 4-6 | 4<br>4<br>5<br>3 | 9 | 0.8 | 0.0 | - | SM | | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), little to few Clay, aplastic, no odor, loose, damp. Fill Sand. | SILTY SAND | |
| | | 3 | 6-8 | 2<br>2<br>2<br>2 | 4 | 1.6 | 0.0 | - | | | Moist to wet at 6.0' bgs. | | |
| | | 4 | 8-10 | 3<br>4<br>6<br>7 | 10 | 1.4 | 0.0 | - | | | | | |
| 10 | 740 | 5 | 10-12 | 3<br>7<br>7<br>7 | 14 | 1.6 | 0.0 | - | | | Increased density with depth, moist to damp below 10' bgs. | | |
| | | 6 | 12-14 | 4<br>8<br>10<br>10 | 18 | 1.6 | 0.0 | - | | | Saturated, loose at 12.7' bgs. | | ▼ |
| 15 | 735 | 7 | 14-16 | 2<br>4<br>4<br>3 | 8 | 1.2 | 0.0 | - | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 2.0 - 4.0', 8.0' - 10' bgs.
MS/MSD sample collected from 10' - 12' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/6/03 | 12.7' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-36-50.dat Date: 7/16/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-36-50

**Borehole Depth:** 22' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 16-18 | H<br>3<br>4<br>4 | 7 | 1.5 | 0.0 | - | SM | | Yellow-brown (10YR 5/4), becoming gray, fine subangular POORLY GRADED SILTY SAND (SM), little to few Clay, trace rounded Gravel, aplastic, no odor, loose, damp. Fill Sand, possibly Native Glacio-Alluvial. | SILTY SAND | Borehole backfilled with Bentonite to grade. |
| | | 9 | 18-20 | H<br>2<br>3<br>4 | 5 | 1.2 | 0.0 | - | | | Gray (10YR 5/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, saturated. Glacio-Alluvial. | | |
| 20 | 730 | 10 | 20-22 | 1<br>3<br>3<br>3 | 6 | 1.7 | 0.0 | - | | | Fines downward and density increases below 21.4' bgs. | | |
| | | | | | | | | | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse rounded to subrounded Sand, trace fine to medium rounded Gravel, no odor, soft, plastic, homogenous, moist. Undisturbed Native Glacial Clay Till. | la | |
| 25 | 725 | | | | | | | | | | | | |
| 30 | 720 | | | | | | | | | | | | |
| 35 | 715 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 2.0 - 4.0', 8.0' - 10' bgs.
MS/MSD sample collected from 10' - 12' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/6/03 | 12.7' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-36-50.dat Date: 7/16/03

**Date Start/Finish:** 3/26/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 568355.31
**Easting:** 13307172.85
**Casing Elevation:** 749.23 ft. AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** 749.48 ft. AMSL

**Descriptions By:** SM Duly

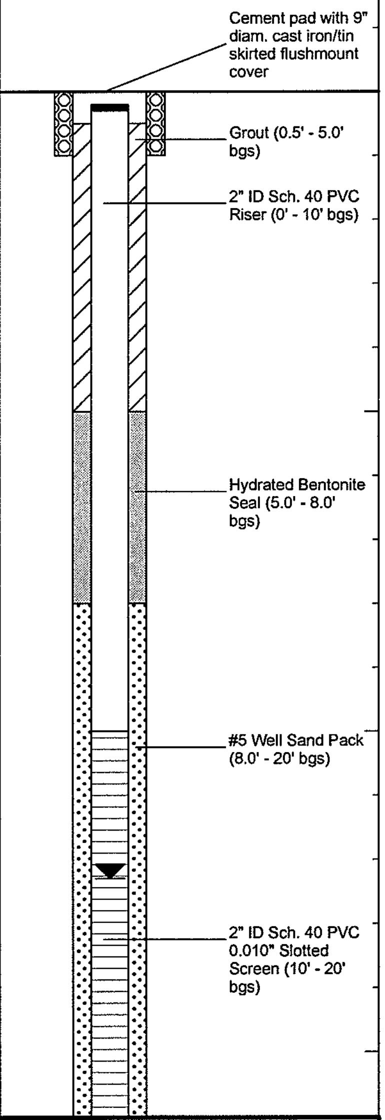
**Boring ID:** RFI-36-51

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 750 |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 0-2 | 2<br>2<br>3<br>2 | 5 | 1.7 | 0.0 | - | SW | Black (10YR 2/1) fine to coarse sngular WELL GRADED SAND (SW), some Silt, little fine to coarse angular to subrounded Gravel, few Clay, Vegetative debris and Roots present in the first 6" at surface (Topsoil) then 25-30% Slag and Cinders, aplastic, no odor, moist with rainfall/snow melt. | SAND |
|  |  | 2 | 2-4 | 3<br>2<br>3<br>5 | 5 | 1.2 | 0.0 | - | CL | Dark yellow-brown (10YR 6/4) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, plastic, no odor, soft, damp. Native Glacial Clay Till used as Backfill. | SILTY CLAY |
| 5 | 745 | 3 | 4-6 | 2<br>3<br>3<br>4 | 6 | 1.4 | 0.0 | - | SM | Yellow-brown (10YR 5/4) fine subangular to angular POORLY GRADED SILTY SAND (SM), little Clay, aplastic, no odor, loose, damp. Fill Sand. | SILTY SAND |
|  |  | 4 | 6-8 | 2<br>3<br>4<br>5 | 7 | 1.3 | 0.0 | - |  |  |  |
|  | 740 | 5 | 8-10 | 2<br>2<br>3<br>3 | 5 | 1.8 | 0.0 | - |  |  |  |
| 10 |  | 6 | 10-12 | 2<br>2<br>3<br>3 | 5 | 1.0 | 0.0 | - |  | Moist at 10.5' bgs. |  |
|  |  | 7 | 12-14 | 1<br>3<br>5<br>5 | 8 | 1.7 | 0.0 | - | SP | Saturated at 12.3' bgs.<br>Gray-brown (10YR 5/2) fine to coarse, predominantly fine, subangular POORLY GRADED SAND (SP), little Silt, few fine rounded Gravel, trace Shell fragments, no odor, loose, saturated. Alluvial/Riverine. | SAND |
| 15 | 735 | 8 | 14-16 | 2<br>2<br>2<br>2 | 4 | 1.6 | 0.0 | - |  |  |  |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

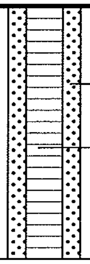
| Date | Depth | Elev. |
|---|---|---|
| 3/26/03 | 12.3' |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-36-51.dat
Date: 7/16/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-36-51

**Borehole Depth:** 20' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | H<br>3<br>5<br>6 | 8 | 1.3 | 0.0 | - | SP | | Gray-brown (10YR 5/2) fine to coarse, predominantly fine, subangular POORLY GRADED SAND (SP), little Silt, few fine rounded Gravel, trace Shell fragments, no odor, loose, saturated. Alluvial/Riverine.<br>Fines downward to a Gray (10YR 5/1) Silt below 17.4' bgs. | SAND |  #5 Well Sand Pack (8.0' - 20' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (10' - 20' bgs) |
| 20 | 730 | 10 | 18-20 | H<br>2<br>3<br>4 | 5 | 1.2 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), little fine subangular Sand at upper contact then decreasing to few Sand at 18.7' bgs, little Clay, no odor, aplastic, loose, saturated. Glacio-Alluvial. | SILT | |
| 25 | 725 | | | | | | | | | | | | |
| 30 | 720 | | | | | | | | | | | | |
| 35 | 715 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/26/03 | 12.3' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-36-51.dat Date: 7/16/03

|  |  |  |
|---|---|---|
| **Date Start/Finish:** 10/10/02<br>**Drilling Company:** Rau Drilling<br>**Driller's Name:** Allan Rau<br>**Drilling Method:** Direct Push<br>**Sampler Size:** 4' x 2" PVC Sleeve<br>**Auger Size:** NA<br>**Rig Type:** SIMCO 200 Geoprobe | **Northing:** NA<br>**Easting:** NA<br>**Casing Elevation:** NA<br>**Borehole Depth:** 20.5' bgs<br>**Surface Elevation:** NA<br>**Descriptions By:** SM Duly | **Boring ID:** RFI-36-52<br>**Client:** General Motors<br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 |  |  |  |  |  | FL |  | CONCRETE. | Fill |  |
|  |  |  |  |  | 0.0 | - | SM |  | Yellow-brown (10YR 5/4) Silty fine to coarse subangular well graded SAND (SM), little to few Clay, aplastic, no odor, medium dense, damp. Fill Sand. | Silty SAND | Borehole backfilled with Bentonite to grade. |
|  |  | 1 | 0-4 | 3.0 |  |  |  |  |  |  |  |
|  |  |  |  |  | 0.0 | - | CL |  | Gray (10YR 5/1) Silty Lean CLAY (CL), few to little fine to coarse subangular to subrounded Sand, trace fine to medium rounded to subrounded Gravel, local patches of oxidation, lenses of fine poorly graded Sand (SP) with some to little Silt up to 4"-thick throughout, soft to medium stiff, plastic, no odor, damp. Glacial Clay Till used as backfill. | Silty CLAY |  |
| 5 | -5 |  |  |  | 0.0 | - |  |  |  |  |  |
|  |  | 2 | 4-8 | 3.0 |  |  |  |  |  |  |  |
|  |  |  |  |  | 0.0 | - |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 2.1' - 8.0' bgs, homogenous, weak odor, native and undisturbed, moist. |  |  |
|  |  |  |  |  | 0.0 | - |  |  |  |  |  |
| 10 | -10 | 3 | 8-12 | 3.7 |  |  |  |  |  |  |  |
|  |  |  |  |  | 3.9 | - |  |  |  |  |  |
|  |  |  |  |  |  |  | SP |  | Light gray (10YR 7/2) Silty fine to coarse (predominantly fine) subangular poorly graded SAND (SP), little Clay, faint varves distinguished by slightly darker and lighter coloration, aplastic, weak odor, medium dense, dry. Glacio-alluvial.<br>Gray (10YR 6/1) color, occasional Silty Clay lenses as above from 8.0' - 11.2' bgs up to 2"-thickm weak odor below 12' bgs.<br>Saturated at 13' bgs. | Silty SAND |  |
|  |  |  |  |  | 5.2 | - |  |  |  |  | ▼ |
|  |  | 4 | 12-16 | 3.5 |  |  |  |  |  |  |  |
| 15 | -15 |  |  |  | 0.0 | - |  |  |  |  |  |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/10/02 | 13.0' |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-36-52.dat Date: 10/25/02

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-36-52

**Borehole Depth:** 20.5' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0.0 | - | | | Gray (10YR 6/1) Silty fine to medium subangular poorly graded SAND (SP), little Clay, faint varves distinguished by slightly darker and lighter coloration, occasioinal very dense Silt lenses up to 3"-thick throughout, aplastic, weak odor, medium dense, dry. Glacio-alluvial. | Silty SAND | Borehole backfilled with Bentonite to grade. |
| | | 5 | 16-20 | 3.5 | | | SP | | | | |
| | | | | | 0.6 | - | | | | | |
| 20 | 20 | NA | NA | NA | NA | NA | | | | | |
| 25 | 25 | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/10/02 | 13.0' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-36-52.dat Date: 10/25/02

**Date Start/Finish:** 03/19/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/MC
**Sampler Size:** 5'x2.125" Macrocore
**Auger Size:** 4 - 1/4" ID
**Rig Type:** Geoprobe 6610 DT

**Northing:** 568327.50
**Easting:** 13307535.01
**Casing Elevation:** 753.25' AMSL

**Borehole Depth:** 25' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

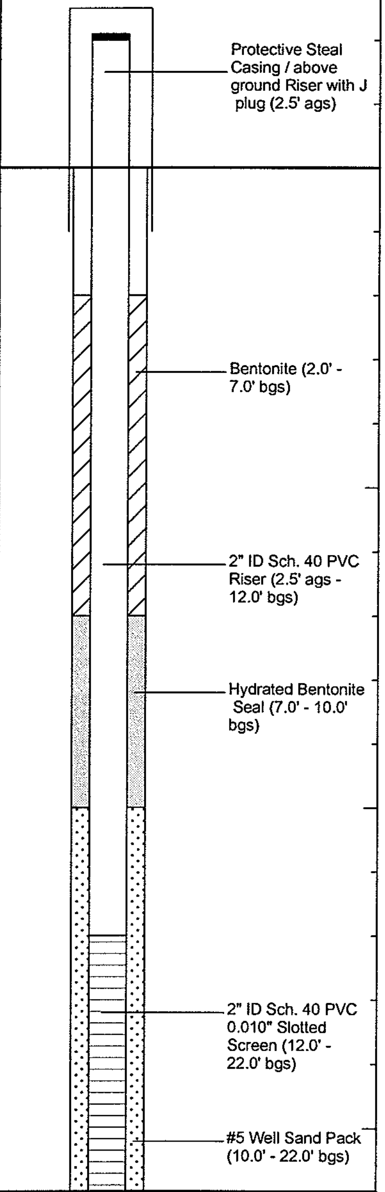
**Well/Boring ID:** RFI-36-53

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | Dark brown TOPSOIL, Plant debris and Roots, frozen. |
| | | | | | | | | | CL | Yellow-brown CLAY, some Silt, and very fine to fine Sand, trace Plant debris and Roots, some staining at depth, no odor, medium stiff, damp to moist. |
| | | 1 | 0-5 | | | 4.5 | 0.0 | | | |
| 5 | -5 | | | | | | | | | |
| | | | | | | | | | SP | Yellow-brown fine SAND, trace medium to coarse Sand, few fine Gravel, no odor, loose, damp to moist. |
| | | 2 | 5-10 | | | 5.0 | 0.0 | | | |
| 10 | -10 | | | | | | 0.0 | | | |
| | | | | | | | | | | Thin ( 1") layer of orange stained yellow-brown wet Silt at 12.0' bgs. |
| | | | | | | | 0.0<br>38.5 | | | Gray fine SAND, trace medium to coarse Sand, few fine Gravel, light sheen, odor, loose, damp to moist. |
| | | 3 | 10-15 | | | 5.0 | 70.4 | | | |
| | | | | | | | 25.5 | | | |
| 15 | -15 | | | | | | | | | Saturated at 15.0' bgs, no sheen below 15.5' bgs. |
| | | 4 | 15-20 | | | 5.0 | 27.4 | | | |

Well/Boring Construction



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 0.0' - 2.0', 8.0' - 10.0' and 12.0' - 14.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe_well2005.ldf
Data File: RFI-36-53.dat Date: 3/15/03

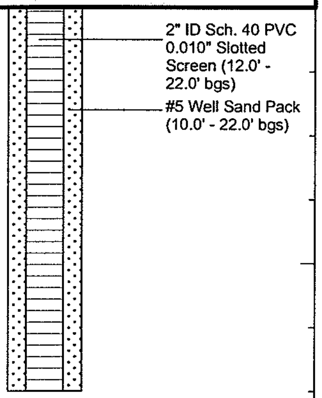
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-36-53

**Borehole Depth:** 25' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Gray fine SAND, trace medium to coarse Sand, few fine Gravel, light sheen, odor, loose, damp to moist. | |
| | | | | | | | 0.0 | | | | | |
| | | 4 | 15-20 | | | 5.0 | | | | | | |
| | | | | | | | 0.0 | | | | | |
| 20 | 20 | | | | | | | | SP | | No odor below 20.0' bgs. | |
| | | 5 | 20-25 | | | 5.0 | 0.0 | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |



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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 0.0' - 2.0', 8.0' - 10.0' and 12.0' - 14.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 7/14/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 ATV

**Northing:** 568514.95
**Easting:** 13307769.87
**Casing Elevation:** 756.98' AMSL

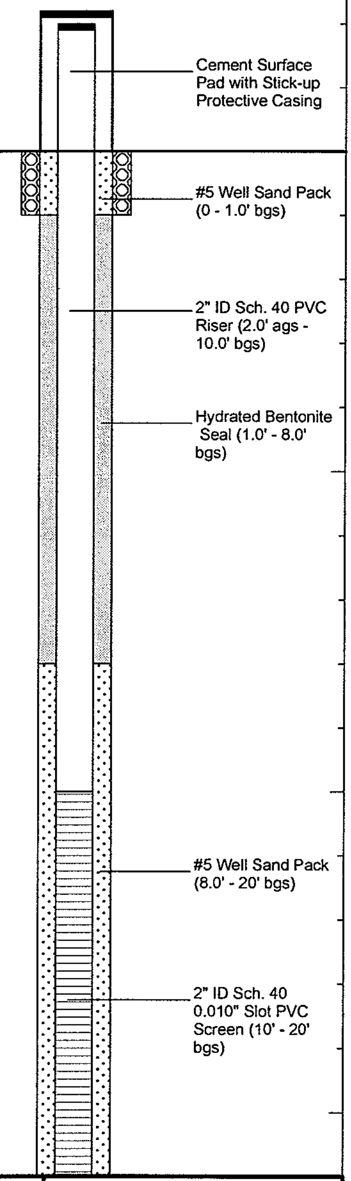
**Borehole Depth:** 20' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle

**Well/Boring ID:** RFI-36-54

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |  |
| 0 | 0 | 1 | 0-2 | 2<br>7<br>14<br>6 | 21 | 1.0 | 0.0 | | SP | | Brown (10YR 4/3) fine POORLY GRADED SAND (SP), 3"-thick lense of white (10YR 8/1) Fill material from 0.25' - 0.5' bgs, Roots, loose, dry. | |
| | | 2 | 2-4 | 2<br>11<br>9<br>7 | 20 | 1.25 | 0.0 | | | | Black (10YR 2/1) fine POORLY GRADED SILTY SAND (SM), few Clay, loose to medium dense, no odor, dry. [FILL] | |
| 5 | -5 | 3 | 4-6 | 2<br>6<br>8<br>8 | 14 | 1.0 | 0.0 | | | | Few Slag below 4.0' bgs. | |
| | | 4 | 6-8 | 5<br>5<br>3<br>3 | 8 | 1.0 | 0.0 | | | | Trace Slag below 6.0' bgs. | |
| | | 5 | 8-10 | 1<br>2<br>3<br>2 | 5 | 0.75 | 0.0 | + | SM | | | |
| 10 | -10 | 6 | 10-12 | 2<br>3<br>3<br>2 | 6 | 1.5 | 0.0 | + | | | | |
| | | 7 | 12-14 | 2<br>3<br>4<br>1 | 7 | 0.5 | 0.0 | + | | | Wood debris in shoe from 12' - 14' bgs. | |
| 15 | -15 | 8 | 14-16 | 1<br>2<br>3<br>1 | 5 | 1.0 | 1.7 | + | | | Slight fuel-like odor, moist below 14' bgs. | |

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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-36-54 (0-2), RFI-36-54 (8-10), and RFI-36-54 (14-16) collected for laboratory analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-36-54.dat Date: 8/4/05

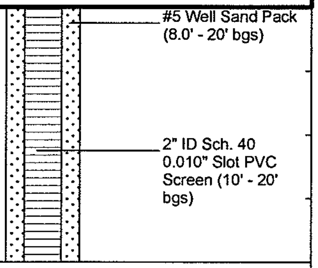
**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-36-54

**Borehole Depth:** 20' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 1<br>2<br>5<br>6 | 7 | 1.5 | 6.8 | + | SP | ░ | Gray-brown fine POORLY-GRADED SAND (SP), slight fuel-like odor, loose, wet.<br>3"-thick lense of Lean Clay below 16.9' bgs. | |
| | | 10 | 18-20 | 2<br>4<br>5<br>6 | 9 | 1.25 | 0.0 | | | ░ | | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-36-54 (0-2), RFI-36-54 (8-10), and RFI-36-54 (14-16) collected for laboratory analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-36-54.dat Date: 8/4/05

**Date Start/Finish:** 7/1/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 Tractor-Mount

**Northing:** 56393.96
**Easting:** 13307682.80
**Casing Elevation:** 750.49' AMSL

**Borehole Depth:** 18' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

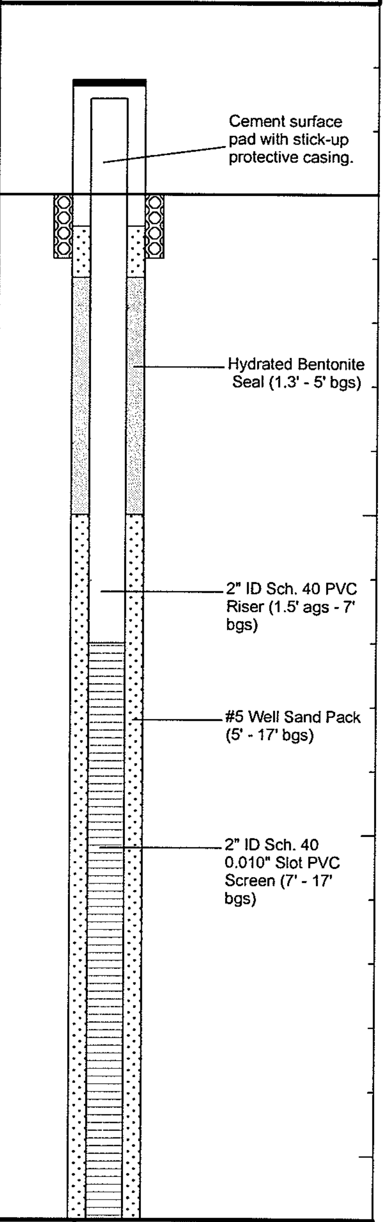
**Well/Boring ID:** RFI-36-55

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 2<br>2<br>3<br>3 | 5 | 1.4 | 110 | | SP | | Brown fine SAND (SP), trace fine Gravel, Organics (Roots, Wood), and Cinders, loose, dry. |
| | | 2 | 2-4 | 3<br>3<br>3<br>3 | 6 | 1.0 | 4.6 | | | | Brown fine SAND (SP), loose, dry. |
| 5 | -5 | 3 | 4-6 | 3<br>3<br>4<br>4 | 7 | 0.6 | 23.7 | | | | |
| | | 4 | 6-8 | 2<br>2<br>3<br>2 | 5 | 1.0 | 2.2 | | | | Orangish-brown fine SAND (SP), loose, moist. |
| | | 5 | 8-10 | 3<br>3<br>4<br>4 | 7 | 1.0 | 4.9 | | | | |
| 10 | -10 | 6 | 10-12 | 3<br>3<br>3<br>3 | 6 | 1.4 | 2.0 | | | | Wet at 10' bgs. |
| | | 7 | 12-14 | 1<br>1<br>1<br>1 | 2 | 1.7 | 3.0 | | | | |
| 15 | -15 | 8 | 14-16 | 1<br>1<br>2<br>2 | 5 | 1.6 | 2.6 | | | | |

Well/Boring Construction



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**Remarks:**
ags = above ground surface; bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-36-55(0-2) and RFI-36-55(8-10) collected for PAL analysis.

**Water Level Data**

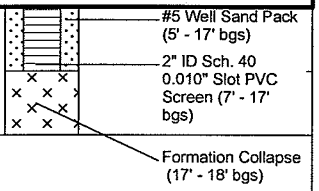
| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-36-55

**Borehole Depth:** 18' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>2<br>2<br>2 | 4 | 1.0 | NA | | ML | ▤ | Light pinkish-gray SILT (ML), medium stiff, wet. |  |
| | | | | | | | | | | | End of boring at 18' bgs. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
ags = above ground surface; bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-36-55(0-2) and RFI-36-55(8-10) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-36-55.dat Date: 7/19/2005

**Date Start/Finish:** 7/13/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-55 ATV

**Northing:** 568053.65
**Easting:** 13307581.90
**Casing Elevation:** 749.97' AMSL

**Borehole Depth:** 18' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle

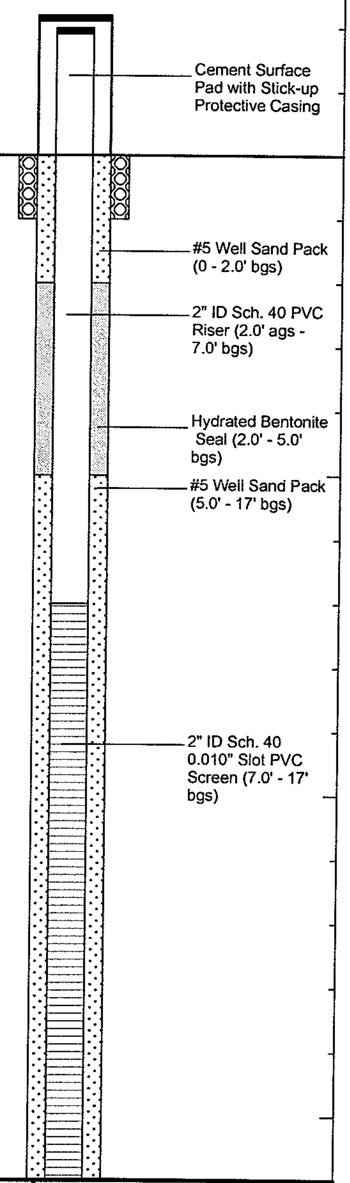
**Well/Boring ID:** RFI-36-56

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | 1.5 | 1.5 | | SP | | Dark gray-brown (10YR 3/2) POORLY-GRADED SAND (SP), Roots, loose, no odor, dry. |
| | | 2 | 2-4 | 4<br>4<br>4<br>3 | 8 | 1.25 | 1.6 | | SM | | Yellow-brown (10YR 5/4) fine POORLY-GRADED SILTY SAND (SM), loose, no odor, dry. |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>4<br>5 | 6 | 1.25 | 1.6 | | SP | | Brown-yellow (10YR 6/8) fine to medium POORLY-GRADED SAND (SP), loose, no odor, dry. |
| | | 4 | 6-8 | 1<br>4<br>4<br>3 | 8 | 1.5 | 1.5 | | | | Light brown-yellow (10YR 6/4) color below 6.0' bgs. |
| | | 5 | 8-10 | 1<br>3<br>2<br>1 | 5 | 1.0 | 0.0 | | | | Saturated below 8.0' bgs. |
| 10 | -10 | 6 | 10-12 | 1<br>1<br>1<br>1 | 2 | 1.75 | 0.0 | | | | |
| | | 7 | 12-14 | 1<br>1<br>-<br>- | NA | 2.0 | 0.0 | | | | |
| 15 | -15 | 8 | 14-16 | NA | NA | 0.75 | 0.0 | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-36-56

**Borehole Depth:** 18' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>2<br>2<br>2 | 4 | 1.5 | 0.0 | | SP | | Gray (10YR 5/1) fine to medium POORLY-GRADED SAND (SP), loose, no odor, saturated. | #5 Well Sand Pack (5.0' - 17' bgs)<br>2" ID Sch. 40 0.010" Slot PVC Screen (7.0' - 17' bgs) |
| | | | | | | | | | CL | | Gray (10YR 5/1) LEAN CLAY with Silt (CL), trace fine subrounded Gravel, soft, highly plastic, no odor, saturated. | |
| | | | | | | | | | | | End of boring at 18' bgs. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-36-56.dat

Date: 8/4/05

**Date Start/Finish:** 2/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4-1/4"
**Rig Type:** CME 85

**Northing:** 561463.32
**Easting:** 13305814.71
**Casing Elevation:** 735.17 ft. AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** 735.63 ft. AMSL

**Descriptions By:** SM Duly

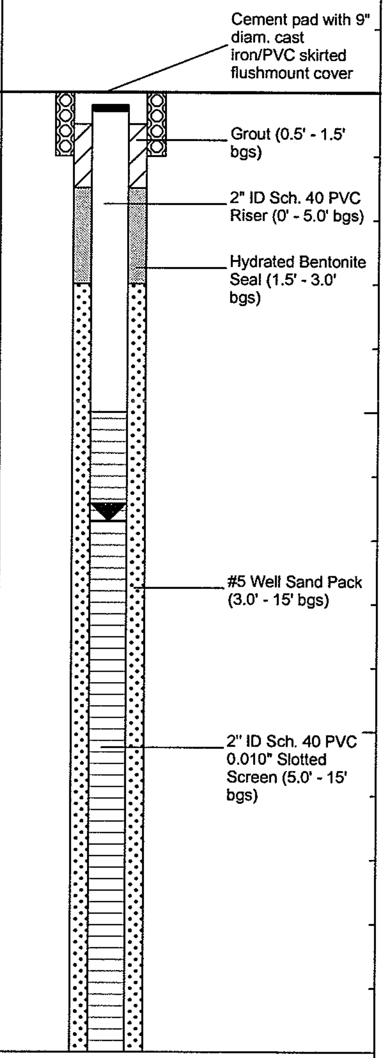
**Boring ID:** RFI-40-10R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 735 | | | | | | | | FL | | CONCRETE. | FILL |
| | | | | | | | | | SM | | Brown (10YR 5/3) fine to coarse subangular POORLY GRADED SILTY SAND (SM), few fine to coarse subrounded Gravel, few Clay, aplastic, very dense, no odor, dry. Fill Sand. | SILTY SAND |
| | | 1 | 1-3 | 12<br>25<br>32<br>16 | 57 | 2 | 0.0 | - | CL | | Dark brown (10YR 3/3) to yellow-brown (10YR 5/4), mottled with black (10YR 2/1) patches, SILTY LEAN CLAY (CL), few to little fine to coarse subrounded to rounded Sand, few to trace fine to coarse subrounded to rounded Gravel and Cinders (up to 2"-thick throughout), weakly plastic, moderately stiff, no odor, dry. Native Clay Till used as Backfill. | SILTY CLAY |
| | | 2 | 3-5 | 5<br>7<br>6<br>7 | 13 | 1.8 | 0.0 | - | | | Brick debris at 4.8' bgs. | |
| 5 | 730 | 3 | 5-7 | 1<br>2<br>2<br>5 | 4 | 0.8 | 0.0 | - | | | 3"-thick saturated Clayey poorly graded Sand (SC) lense, some Silt, medium dense to loose, no odor at 6.7' bgs. | |
| | | 4 | 7-9 | 2<br>4<br>6<br>8 | 70 | 1.7 | 0.0 | - | | | 2"-thick saturated Silty fine to coarse subrounded poorly graded Sand (SM) lense, little Clay, no Cinders, occasional gray (10YR 5/1) streaks and mottling, no odor, medium dense at 7.9' bgs. | |
| 10 | | 5 | 9-11 | 3<br>9<br>11<br>19 | 20 | 2 | 0.0 | - | | | | |
| | 725 | 6 | 11-13 | 3<br>7<br>9<br>12 | 16 | 2 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, few fine to coarse subrounded to rounded Sand, trace fine to medium rounded Gravel, weakly plastic, stiff, no odor, damp to dry. Saturated Silt/Sand lenses present throughout up to 3"-thick. Undisturbed Native Glacial Clay Till. | |
| | | 7 | 13-15 | 6<br>9<br>9<br>16 | 18 | 1.9 | 0.0 | - | | | 4"-thick saturated Silty Sand lense at 14.7' bgs. | |
| 15 | 720 | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/24/03 | 6.7' | |

**Date Start/Finish:** 2/17/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561242.54
**Easting:** 13305911.00
**Casing Elevation:** 730.82 ft. AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** 731.22 ft. AMSL

**Descriptions By:** SM Duly

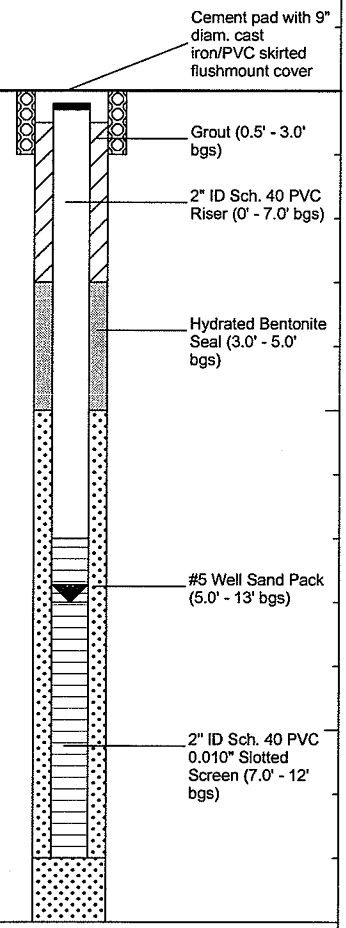
**Boring ID:** RFI-40-11

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | ASPHALT.<br>CONCRETE. | FILL |
| | 730 | 1 | 1-3 | 25<br>30<br>14<br>11 | 44 | 2.0 | 0.0 | - | ML | Black (10YR 2/1) SILT (ML), some Clay, few to locally some fine subrounded to rounded poorly graded Sand, little Cinders, Ashes, and fine Metallic debris to 2.2' bgs, aplastic, very dense, no odor, dry. Fill.<br>Yellow-brown (10YR 5/4) rare Cinders, Ashes, and fine Metallic debris below 2.2' bgs.<br>Black (10YR 2/1) Cinders present below 3.0' bgs. | SILT |
| | | 2 | 3-5 | 2<br>2<br>4<br>3 | 6 | 1.6 | 0.0 | - | SM | Brown (10YR 5/3) fine to coarse subrounded to rounded fine to medium WELL GRADED SILTY SAND (SM), little Clay, aplastic, loose, no odor, moist. FILL. | SILTY SAND |
| 5 | 725 | 3 | 5-7 | 2<br>2<br>4<br>5 | 6 | 1.6 | 0.0 | - | CL | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse rounded to subrounded Sand, trace fine to coarse rounded Gravel, weakly plastic, very stiff to hard, no odor, damp. Unidsturbed Native Clay Till. | SILTY CLAY |
| | | 4 | 7-9 | 6<br>6<br>9<br>12 | 15 | 2.0 | 0.0 | - | | Gray (10YR 5/1) saturated Silty Sand and Silt lenses throughout up to 3" thick at 8.0' bgs. | |
| 10 | | 5 | 9-11 | 2<br>4<br>13<br>15 | 24 | 2.0 | 0.0 | - | | No saturated lenses, Oxidation to yellow-brown (10YR 6/4) along fractures and fracture selvages in Till, dry below 9.0' bgs. | |
| | 720 | 6 | 11-13 | 10<br>17<br>23<br>25 | 40 | 0.7 | 0.0 | - | | Till is dry with no evidence of oxidation below 12' bgs. | |
| 15 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Samples collected from 0.9' - 2.9' & 4.9' - 6.9' for PAL VOCs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/17/03 | 8.0' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-11.dat

Date: 3/14/03

**Date Start/Finish:** 3/24/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 45B

**Northing:** 561595.58
**Easting:** 13305941.02
**Casing Elevation:** 732.71 ft. AMSL

**Borehole Depth:** 23' bgs
**Surface Elevation:** 732.96 ft. AMSL

**Descriptions By:** SM Duly

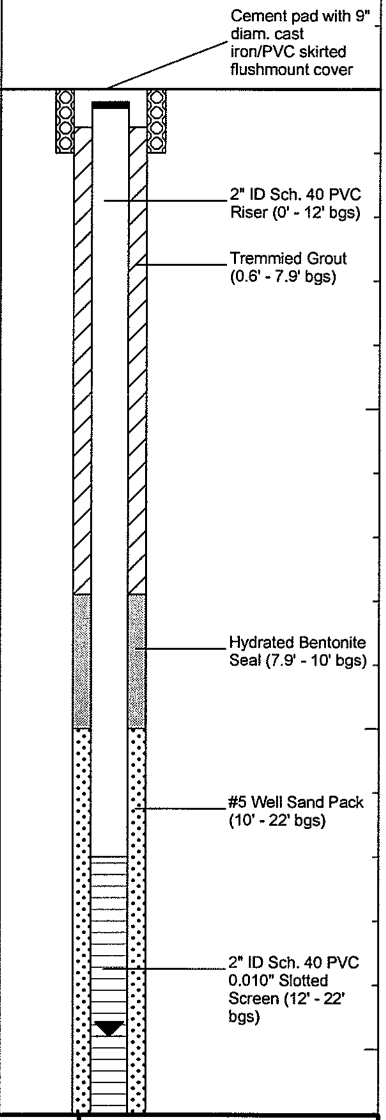
**Boring ID:** RFI-40-12

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 735 | | | | | | | | | | | |
| 0 | | | | | | | | | ML | | Brown (10YR 5/3)SILT (ML), some fine to coarse subangular to subrounded Sand, little Clay, few fine to coarse rounded Gravel, Aggregate, Rubble, and Building debris present throughout, aplastic, no odor, medium dense, moist with rainfall. Fill and Building debris and Rubble. | SILT |
| | 730 | 1 | 1-3 | 5<br>7<br>9<br>10 | 16 | 0.5 | 0.0 | - | | | | |
| 5 | | 2 | 3-5 | 9<br>8<br>6<br>5 | 14 | 1.0 | 0.0 | - | SM | | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), little Clay, aplastic, no odor, medium dense, damp. Fill Sand. | SILTY SAND |
| | | 3 | 5-7 | 4<br>7<br>9<br>11 | 16 | 2.0 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, plastic, soft becoming medium stiff, no odor, damp. Native Clay Till used as Backfill. | SILTY CLAY |
| | 725 | 4 | 7-9 | 4<br>8<br>11<br>14 | 19 | 2.0 | 0.0 | - | | | | |
| 10 | | 5 | 9-11 | 5<br>7<br>9<br>13 | 16 | 2.0 | 23.8 | - | | | | |
| | | 6 | 11-13 | 9<br>17<br>16<br>16 | 33 | 2.0 | 18 | - | | | 3"-thick Silt lense, wet at 11.5' bgs.<br>Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL) as above, but homogenous. Undisturbed Native Glacial Clay Till. | SILTY CLAY |
| | 720 | 7 | 13-15 | 6<br>8<br>9<br>16 | 17 | 2.0 | 2056 | + | | | | |
| 15 | | 8 | 15-17 | 5<br>6 | 12 | 1.0 | 1524 | + | SP | | Gray (10YR 5/1) to black (10YR 2/1) fine subangular POORLY GRADED SAND (SP), Oily material present, moderate to strong odor, saturated. Alluvial-Riverine. | SAND |

Boring Construction



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*engineers & scientists*

**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0 - 2.0', 8.0'- 10', 12' - 14' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/24/03 | 14.8 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-12.dat Date: 5/8/03

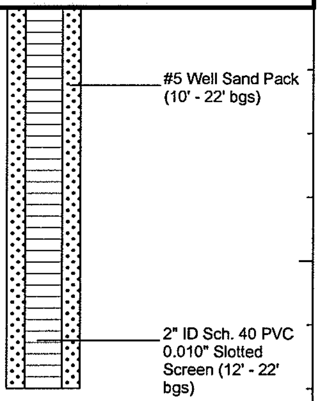
**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-12

**Borehole Depth:** 23' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 6<br>4 | 12 | 1.0 | 1524 | + | SP | Gray (10YR 5/1) to black (10YR 2/1) fine subangular POORLY GRADED SAND (SP), little Silt, trace fine to coarse rounded Gravel, aplastic, loose, Oily material present, moderate to strong odor, saturated. Alluvial-Riverine. | SAND |
| | 715 | 9 | 17-19 | 9<br>6<br>7<br>9 | 13 | 1.7 | 1846 | + | | Possible Shell fragments, strong odor, odor intensity increasing with depth, coarsens to fine to medium below 17.8' bgs. | |
| 20 | | 10 | 19-21 | 3<br>7<br>10<br>10 | 17 | 1.8 | 2070 | + | SM | Fining downward, increased Silt content becoming Silty Sand (SM) at 20' bgs. | SILTY SAND |
| | 710 | 11 | 21-23 | H<br>2<br>5<br>6 | 7 | 1.7 | 2049 | + | | | |
| 25 | 705 | | | | | | | | | | |
| 30 | 700 | | | | | | | | | | |
| 35 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0 - 2.0', 8.0'- 10', 12' - 14' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/24/03 | 14.8 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-40-12.dat Date: 5/8/03

**Date Start/Finish:** 9/2/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 21' bgs
**Surface Elevation:** NA

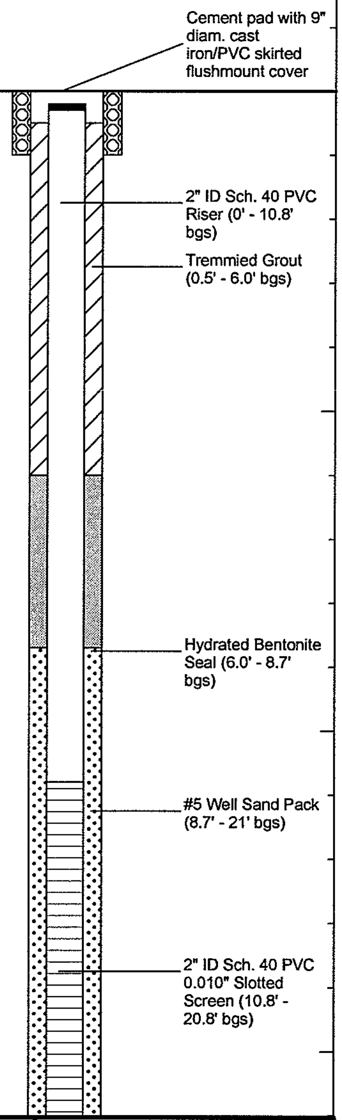
**Descriptions By:** SM Duly

**Boring ID:** RFI-40-12R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | No Samples collected. See log for RFI-40-12 (3/24/03) for Lithology. | | |
| 5 | -5 | | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

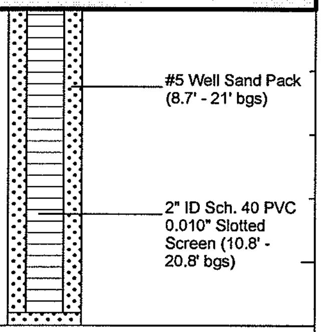
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-12R.dat Date: 11/25/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-12R

**Borehole Depth:** 21' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | No Samples collected. See log for RFI-40-12 (3/24/03) for Lithology. | | |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 561635.06
**Easting:** 13305982.55
**Casing Elevation:** 731.92 ft. AMSL

**Borehole Depth:** 19.5' bgs
**Surface Elevation:** 732.88 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-40-13

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|
| | 735 | | | | | | | | | |
| 0 | | 1 | 0-2 | NA<br>4<br>5<br>5 | 9 | 1.1 | 0.0 | - | FL<br>SM | FILL<br>SILTY SAND |
| | 730 | 2 | 2-4 | 4<br>2<br>4<br>3 | 6 | 1.7 | 0.0 | - | | |
| 5 | | 3 | 4-6 | 3<br>5<br>8<br>11 | 13 | 1.6 | 0.0 | - | CL | SILTY CLAY |
| | 725 | 4 | 6-8 | 3<br>9<br>6<br>6 | 11 | 2.0 | 0.0 | - | | |
| | | 5 | 8-10 | 3<br>5<br>12<br>13 | 17 | 2.0 | 8.7 | - | | |
| 10 | | 6 | 10-12 | 7<br>13<br>17<br>22 | 30 | 2.0 | 23.2 | - | | |
| | 720 | 7 | 12-14 | 11<br>20<br>26<br>27 | 46 | 2.0 | 58.4 | - | | |
| 15 | | 8 | 14-16 | 4<br>5<br>5<br>6 | 10 | 1.3 | 2457 | + | | |

**Stratigraphic Description**

ASPHALT.

Coarse angular POORLY GRADED GRAVEL (GP) Aggregate, loose, no odor. Aggregate.

Black (10YR 2/1), yellow-brown (10YR 5/4) color at 1.3' bgs, fine to coarse subangular to subrounded WELL GRADED SILTY SAND (SM), little to few Clay, few fine to coarse rounded Gravel, aplastic, no odor, loose, damp. Fill.

Yellow-brown (10YR 5/4) fine POORLY GRADED SILT SAND (SM), as above, moist.

Brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, occasional rounded fine Gravel, weakly plastic, medium stiff, no odor, dry. Native Clay Till used as Backfill.

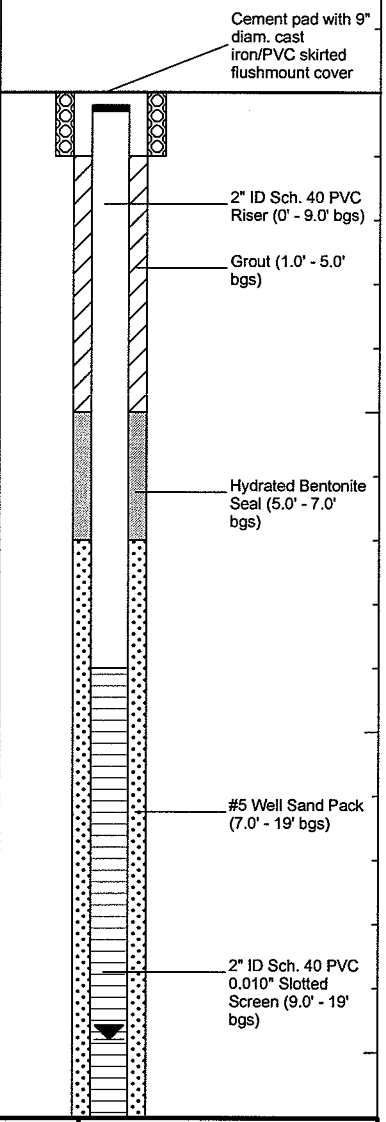
Pale olive- green color at 7.6' bgs.

Brown (10YR 5/3) color, occasional 6"-thick Silt lenses, moist throughout below 9.0' bgs.

Gray (10YR 5/1) SILTY LEAN CLAY (CL), as above but homogenous. Undisturbed Native Clay Till.

Saturated Silt lense, oxidized to yellow-brown (10YR 5/4) from 14.8' - 15.6' bgs.

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.5 - 2.5', 8.5'- 10.5', 12.5' - 14.5' bgs.
Duplicate sample DUP-422 collected from 8.5' - 10.5' bgs.

**Water Level Data**

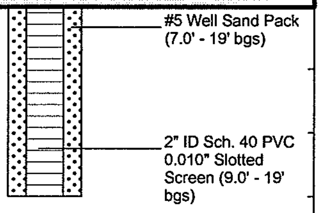
| Date | Depth | Elev. |
|---|---|---|
| 3/25/03 | 14.8 | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-13

**Borehole Depth:** 19.5' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 715 | 9 | 16-18 | 2<br>4<br>15<br>33 | 19 | 1.5 | 1676 | + | SM | | Black (10YR 2/4) to gray (10YR 5/1) POORLY GRADED SILTY SAND (SM), little Clay, few fine rounded Gravel, Oily material/liquid present (Oil is occasionally lighter and nearly clear and then black - possibly more than one oil), aplastic, strong odor, saturated. Alluvial/Riverine | SILTY SAND |  |
| | | 10 | 18-19.5 | 12<br>40<br>50 | 90 | 0.5 | 943 | + | SC | | Gray (10YR 5/1) fine to coarse subangular WELL GRADED SAND with CLAY (SC), little to some Silt, few fine to coarse rounded Gravel, aplastic, moderate to strong odor, very dense, damp. Glacio-Alluvial.<br>Large Cobble/Pebble causing high blow counts and low recovery below 18' bgs. | SAND w/ CLAY | |
| 20 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.5 - 2.5', 8.5'- 10.5', 12.5' - 14.5' bgs.
Duplicate sample DUP-422 collected from 8.5' - 10.5' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/25/03 | 14.8 | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/25/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 561681.48
**Easting:** 13305991.21
**Casing Elevation:** NA

**Borehole Depth:** 22' bgs
**Surface Elevation:** 732.45 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-40-14

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
| | 735 | | | | | | | | |
| 0 | | | | NA | | | | | FL |
| | | 1 | 0-2 | 3<br>3<br>3 | 6 | 1.0 | 0.0 | - | SM |
| | 730 | 2 | 2-4 | 2<br>2<br>2<br>4 | 4 | 1.6 | 0.0 | - | |
| 5 | | 3 | 4-6 | 3<br>4<br>4<br>5 | 8 | 1.5 | 0.0 | - | CL |
| | 725 | 4 | 6-8 | 2<br>3<br>5<br>8 | 8 | 1.7 | 0.0 | - | |
| | | 5 | 8-10 | 6<br>9<br>16<br>17 | 25 | 2.0 | 0.0 | - | |
| 10 | | 6 | 10-12 | 11<br>25<br>32<br>44 | 57 | 2.0 | 0.0 | - | |
| | 720 | 7 | 12-14 | 11<br>17<br>23<br>28 | 40 | 2.0 | 0.0 | - | |
| 15 | | 8 | 14-16 | 16<br>33<br>51<br>36 | 84 | 1.7 | 0.0 | - | SW |

**Stratigraphic Description**

ASPHALT.

Coarse angular POORLY GRADED GRAVEL (GP) Aggregate, loose, no odor, dry. Aggregate.

Black (10YR 2/1), yellow-brown (10YR 5/4) at 2.0' bgs, fine to coarse WELL GRADED SILTY SAND (SM), few Clay, few fine to coarse subrounded to rounded Gravel, aplastic, no odor, loose, damp. Fill.

Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, rare fine rounded Gravel, lenses of Silt or Silty Sand up to 3"-thick throughout, moderately to weakly plastic, no odor, damp to dry. Native Clay Till iised as Backfill.

Moist to wet at 5.7' bgs.

2"-thick fine subangular poorly graded Silty Sand (SM) lense, aplastic, loose, no odor, saturated at 7.0' bgs.

2"-thick Silty Sand (SM) lense, saturated at 7.5', 7.8', and 8.0' bgs.

Dry below 8.0' bgs.

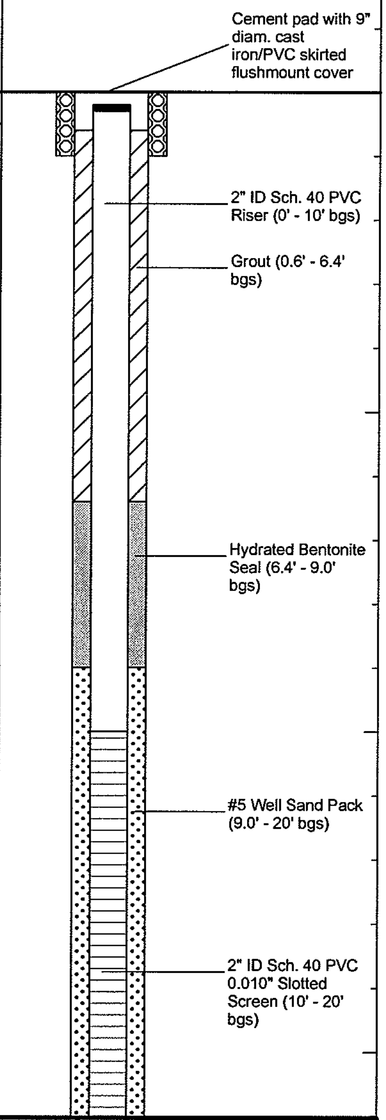
Yellow-brown (10YR 5/4) SILTY LEAN SAND (CL) as above from 3.4' - 12' bgs, but homogenous, weakly plastic, very stiff to hard, dry. Undisturbed Native Clay Till.

Gray (10YR 5/1) fine to coarse subangular to rounded WELL GRADED SAND (SW), increased maturity with grain size, little to some Silt, little Clay, few fine to coarse rounded Gravel, very dense, no odor, moist to wet. Glacio-Alluvial.

**Hydrostratigraphy**

FILL
SILTY SAND
SILTY CLAY
Sand

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.5 - 2.5' & 4.5'- 6.5' bgs.

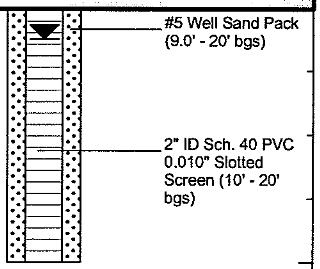
**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/25/03 | 16.5 | |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-14

**Borehole Depth:** 22' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 715 | 9 | 16-18 | 11<br>18<br>37<br>44 | 55 | 2.0 | 0.0 | - | SW | | Gray (10YR 5/1) fine to coarse subangular to rounded WELL GRADED SAND (SW), increased maturity with grain size, little to some Silt, little Clay, few fine to coarse rounded Gravel, very dense, no odor, moist to wet, saturated ta 16.5' bgs. Glacio-Alluvial. | SAND |  |
| | | 10 | 18-20 | 12<br>21<br>17<br>15 | 38 | 0.3 | 0.0 | - | | | Low recovery due to stones in shoe at 18' bgs. | | |
| 20 | | 11 | 20-22 | 5<br>11<br>12<br>22 | 28 | 1.8 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 2.0' - 14.5' bgs, but homogenous, hard to very stiff, damp. Undisturbed Native Glacial Clay Till. | SILTY CLAY | |
| | 710 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.5 - 2.5' & 4.5'- 6.5' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/25/03 | 16.5 | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-14.dat Date: 5/13/03

**Date Start/Finish:** 4/3/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 561684.55
**Easting:** 13305997.94
**Casing Elevation:** 732.18 ft. AMSL

**Borehole Depth:** 23' bgs
**Surface Elevation:** 732.56 ft. AMSL

**Descriptions By:** SM Duly

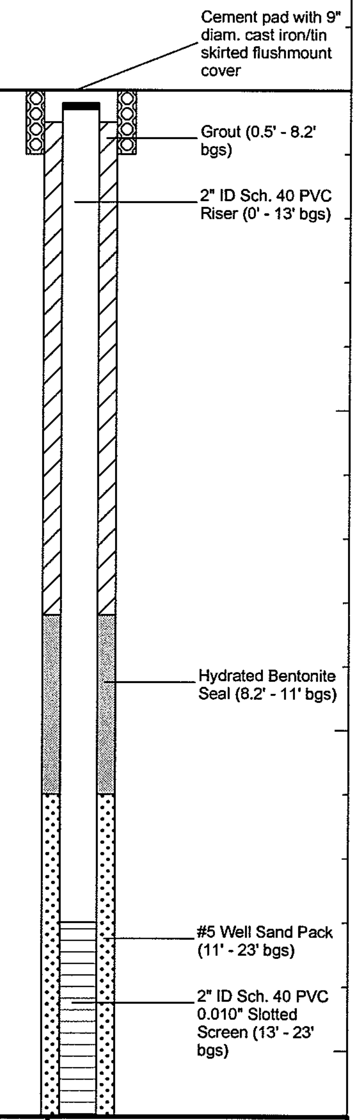
**Boring ID:** RFI-40-15

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 735 | | | | | | | | | | | |
| 0 | | NA | 0-2 | NA | NA | NA | NA | NA | ML | × × × | Brown (10YR 5/3) FILL consisting ofr SILT (ML) and BUILDING RUBBLE, aplastic, loose, no odor, moist with rainfall/snow melt. Rubble | FILL |
| | | | | | | | | | GP | | Coarse to pebble-sized angular GRAVEL AGGREGATE (GP), loose, no odor, moist. | GRAVEL |
| | 730 | 1 | 2-4 | 3<br>4<br>4<br>5 | 8 | 1.9 | 0.0 | - | CL | | Gray-brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, moderately plastic, no odor, soft, moist. Native Clay Till used as Backfill. | SILTY CLAY |
| 5 | | 2 | 4-6 | 3<br>4<br>4<br>6 | 8 | 1.7 | 0.0 | - | | | Occasional Silt and Silty Sand lenses up to 1"-thick throughout, increased stiffness with depth below 5.0' bgs. | |
| | 725 | 3 | 6-8 | 6<br>8<br>10<br>13 | 18 | 2.0 | 0.0 | - | | | | |
| | | 4 | 8-10 | 4<br>9<br>13<br>13 | 24 | 1.7 | 0.0 | - | | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above, homogenous, damp. Undisturbed Native Glacial Clay Till. | |
| 10 | | 5 | 10-12 | 2<br>7<br>12<br>13 | 19 | 2.0 | 0.0 | - | | | | |
| | 720 | 6 | 12-14 | 2<br>13<br>13<br>15 | 26 | 2.0 | 0.0 | - | | | | |
| 15 | | 7 | 14-16 | 5<br>16<br>21<br>23 | 37 | 1.9 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), some to little Clay, homogenous, no odor, aplastic, dense, dry. Glacio-Alluvial. | SILT |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 2.0' - 4.0', 8.0' - 10', & 14' - 16' bgs.

**Water Level Data**

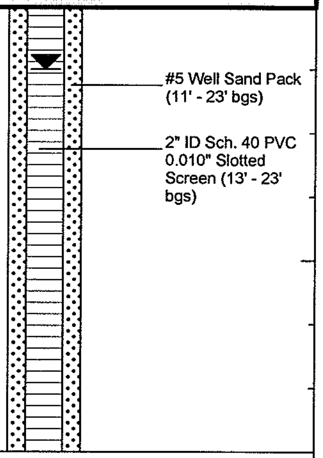
| Date | Depth | Elev. |
|---|---|---|
| 4/3/03 | 17' | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-15

**Borehole Depth:** 23' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 715 | 8 | 16-18 | 3<br>4<br>5<br>6 | 9 | 1.8 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), some to little Clay, homogenous, no odor, aplastic, dense, dry. Glacio-Alluvial.<br>Saturated at 17' bgs. | SILT |  |
| | | 9 | 18-20 | 3<br>7<br>8<br>10 | 15 | 1.5 | 0.0 | - | | | | | |
| 20 | | 10 | 20-22 | 3<br>4<br>8<br>11 | 12 | 1.3 | 0.0 | - | SP | | Brown-gray (10YR 5/3) fine to coarse, predominantly fine, subangular to subrounded POORLY GRADED SAND (SP), little Silt, increased maturity with increased grain size, medium loose, aplastic, no odor, saturated. Alluvial/Riverine.<br>Coarsens to fine to medium, occasional fine to coarse rounded Gravel, possible Shell fragments below 20' bgs. | SAND | |
| | 710 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 2.0' - 4.0', 8.0' - 10', & 14' - 16' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/3/03 | 17' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/24/04
**Drilling Company:** Prosonic
**Driller's Name:** Don Bond
**Drilling Method:** Direct Push
**Sampler Size:** 5' Macrocore
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561595.58
**Easting:** 13305926.02
**Casing Elevation:** NA

**Borehole Depth:** 9.5' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

**Well/Boring ID:** RFI-40-16

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | FILL consisting of Clay, Gravel, and building debris. | Borehole backfilled with Soil Cuttings to grade. |
| | | 1 | 0-5 | NA | NA | 2.5 | NA | NA | | | | |
| | | | | | | | | | | | CONCRETE. | |
| | | | | | | | | | ML | | Very dark gray (10YR 3/1) fine SANDY SILT (ML), no odor, dry. | |
| 5 | -5 | | | | | | | | | | | |
| | | 2 | 5-9.5 | NA | NA | 4.0 | NA | NA | | | | |
| | | | | | | | | | FL | | FILL consisting of Gravel, Asphalt, few Sand. | |
| | | | | | | | | | CL | | Dark gray (10YR 4/1) and dark yellow-brown (10YR 4/4) mottled LEAN CLAY with Silt (CL), no odor, stiff, dry. | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Applicable/Not Available.
Soil sample collected from 0.0' - 2.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-40-16.dat
Date: 8/27/04

**Date Start/Finish:** 8/24/04
**Drilling Company:** Prosonic
**Driller's Name:** Don Bond
**Drilling Method:** Direct Push
**Sampler Size:** 5' Macrocore
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561580.58
**Easting:** 13305941.02
**Casing Elevation:** NA

**Borehole Depth:** 7.0' bgs
**Surface Elevation:** NA

**Descriptions By:** Wayne Patterson

**Well/Boring ID:** RFI-40-18

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | GRAVEL FILL, some Clay and building debris. | Borehole backfilled with Soil Cuttings to grade. |
| | | 1 | 0-4 | NA | NA | 3.0 | 0.0 | NA | ML | | Black (10YR 2/1) SILT (ML), few Clay, no odor, damp. | |
| | | | | | | | | | | | 3"-thick dark gray (10YR 4/1) and dark yellow-brown (10YR 4/4) mottled Clay layer at 4.5' bgs. | |
| 5 | -5 | 2 | 4-7 | NA | NA | 3.0 | 0.0 | NA | SM | | Very dark gray (10YR 3/1) fine to medium SILTY SAND (SM), no odor, dense, wet. [FILL] | |
| | | | | | | | | | CL | | Dark gray (10YR 4/1) and dark yellow-brown (10YR 4/4) mottled LEAN CLAY and Silt (CL), stiff, no odor, damp. | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Applicable/Not Available.
Soil sample collected from 0.0' - 2.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-40-18.dat
Date: 8/27/04

**Date Start/Finish:** 12/16/04
**Drilling Company:** EDAC
**Driller's Name:** B. Emerick
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4-1/4"
**Rig Type:** CME 85

**Northing:** 561512.95
**Easting:** 13305898.67
**Casing Elevation:** 735.77' AMSL

**Borehole Depth:** 5' bgs
**Surface Elevation:** NA

**Descriptions By:** David Straccia

**Boring ID:** RFI-40-19

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | CONCRETE. | |
| | | 1 | 0-2 | 6<br>6<br>4<br>4 | 10 | 1.0 | NA | (-) | SM | | Brown-black SILTY SAND, fine to coarse SAND, trace Clay, no odor, moist.<br>Shake test indicated no sheen. | Borehole backfilled with cement-bentonite grout to grade. |
| | | 2 | 2-4 | 8<br>6<br>6<br>5 | 12 | 1.5 | NA | (+) | | | Black SILTY SAND, fine to coarse Sand, little Clay, strong odor, wet.<br>Shake test indicated a sheen. | |
| | | 3 | 4-5 | 8<br>8 | NA | 1.0 | NA | (+) | | | Black SILTY SAND, fine Sand, little to some Clay, very strong odor.<br>Shake test indicated a sheen. | |
| 5 | 5 | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available.
Auger refusal at 5' bgs - could not drill further.
(+) = Sheen shown in oil/water Shake test.
(-) = NO sheen shown in oil/water Shake test

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-19.dat Date: 1/24/05

**Date Start/Finish:** 12/16/04
**Drilling Company:** EDAC
**Driller's Name:** Emerick
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-85

**Northing:** 561515.41
**Easting:** 13305874.30
**Casing Elevation:** 738.47' AMSL

**Borehole Depth:** 10.0' bgs
**Surface Elevation:** NA

**Descriptions By:** David Straccia

**Boring ID:** RFI-40-20

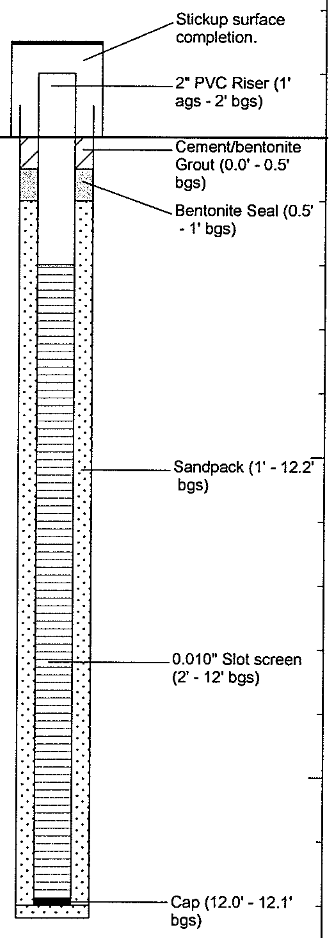
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 8<br>4<br>2<br>2 | 6 | 0.2 | NA | (-) |
| | | 2 | 2-4 | 12<br>10<br>13<br>12 | 23 | 1.8 | NA | (-) |
| 5 | -5 | 3 | 4-6 | 8<br>7<br>6<br>6 | 13 | 1.0 | NA | (+) |
| | | 4 | 6-8 | 6<br>6<br>4<br>5 | 10 | 1.0 | NA | (+) |
| | | 5 | 8-10 | 8<br>8<br>8<br>9 | 16 | 1.8 | NA | (-) |
| 10 | -10 | | | | | | | |
| 15 | -15 | | | | | | | |

| USCS Code | Stratigraphic Description |
|---|---|
| | CONCRETE. |
| SW | Brown well graded fine to coarse SAND, little Gravel and Silt, moist. |
| | Brown well sorted fine to coarse SAND, little Gravel and Silt, wet. |
| | Olive-brown to green-white fine to coarse SAND, stiff, dry. |
| CL | Black Silty GRAVEL, fine to coarse SAND, sheen, odor, wet. |
| GM | Black Silty GRAVEL, some fine to coarse Sand, sheen, odor, wet. |
| CL | Olive Silty CLAY, fine Sand, little fine to coarse Gravel, odor, moist. |
| GM | Brown Silty fine to coarse SAND and GRAVEL, moist. |
| CL | Olive Silty CLAY, fine Sand, little fine to coarse Gravel, odor, moist. |
| | Olive CLAY, stiff, dry to moist.<br>Wet at 9.0' bgs. |

Boring Construction



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(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/22/04 | 7.05' | (TOC) |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-20.dat Date: 1/5/05

**Date Start/Finish:** 12/16/04
**Drilling Company:** EDAC
**Driller's Name:** Emerick
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 561541.30
**Easting:** 13305903.31
**Casing Elevation:** NA

**Borehole Depth:** 6.0' bgs
**Surface Elevation:** 735.81' AMSL

**Descriptions By:** David Straccia

**Boring ID:** RFI-40-21

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 735 | NA | NA | NA | NA | NA | NA | (-) | NA<br>SP | | CONCRETE.<br>Copper-brown poorly sorted fine SAND, dry. | Borehole backfilled with cement-bentonite grout to grade. |
| | | 1 | 0-2 | 6<br>10<br>8<br>5 | 18 | 0.5 | NA | (+) | SM | | Brown-black Silty fine to medium SAND, little Gravel, odor, dry. Shake test shows sheen. | |
| | | 2 | 2-4 | 8<br>7<br>5<br>4 | 12 | 2.0 | NA | (-) | CL<br>SM | | Brown CLAY, stiff, dry.<br>Brown-black Silty fine SAND, some Clay. | |
| 5 | 730 | 3 | 4-5 | NA<br>NA | NA | 1.0 | NA | (-) | SM | | Black Silty fine SAND, sheen, moist to wet. | |
| 10 | 725 | | | | | | | | | | | |
| 15 | 720 | | | | | | | | | | | |

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Auger refusal at 5' bgs - cound not drill further.
(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-21.dat Date: 1/5/05

**Date Start/Finish:** 12/17/04
**Drilling Company:** EDAC
**Driller's Name:** Emerick
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-85

**Northing:** 561564.70
**Easting:** 13305892.16
**Casing Elevation:** NA

**Borehole Depth:** 6.0' bgs
**Surface Elevation:** 735.82' AMSL

**Descriptions By:** David Straccia

**Boring ID:** RFI-40-22

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | NA | NA | NA | NA | NA | NA | NA | | CONCRETE. | Borehole backfilled with cement-bentonite grout to grade. |
| | | 1 | 0-2 | 9<br>8<br>9<br>8 | 17 | 1.2 | NA | (-) | SP | | Brown poorly sorted fine SAND, dry.<br>Black Silty fine SAND, sheen, odor, moist. | |
| | | 2 | 2-4 | 9<br>11<br>8<br>6 | 19 | 2.0 | NA | (+) | SM | | | |
| 5 | -5 | 3 | 4-5 | NA<br>NA | NA | 1.0 | NA | NA | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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Auger refusal at 5' bgs.
(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-22.dat
Date: 1/14/05

**Date Start/Finish:** 12/17/04
**Drilling Company:** EDAC
**Driller's Name:** Emerick
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-85

**Northing:** 561501.30
**Easting:** 13305914.93
**Casing Elevation:** 732.32' AMSL

**Borehole Depth:** 10.0' bgs
**Surface Elevation:** NA

**Descriptions By:** David Straccia

**Well/Boring ID:** RFI-40-23

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 18<br>15<br>13<br>19 | 28 | 0.8 | NA | (-) | SW | | Dark brown well graded fine to coarse SAND, dry.<br>Gray well graded fine to coarse GRAVEL, dry. | |
| | | 2 | 2-4 | 14<br>11<br>12<br>14 | 23 | 1.0 | NA | (+) | SM<br>CL | | Brown Silty fine SAND, some Clay, odor, moist.<br>Sheen at 3' bgs.<br>Brown CLAY, medium stiff, dry. | Borehole backfilled with cement-bentonite grout to grade. |
| 5 | -5 | 3 | 4-6 | 12<br>9<br>7<br>9 | 16 | 2.0 | NA | (+) | SM<br>CL | | Brown fine to coarse SAND, some Gravel, sheen, odor, wet.<br>Brown Silty CLAY, stiff, dry. | |
| | | 4 | 6-8 | 14<br>7<br>13<br>12 | 20 | 2.0 | NA | (-) | CL | | Brown CLAY, trace fine to coarse Sand, stiff, dry. | |
| | | 5 | 8-10 | 11<br>12<br>17<br>15 | 29 | 2.0 | NA | (-) | | | | |
| 10 | 10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-40-23.dat Date: 1/14/05

**Date Start/Finish:** 12/17/04
**Drilling Company:** EDAC
**Driller's Name:** Emerick
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-85

**Northing:** 561478.91
**Easting:** 13305910.36
**Casing Elevation:** 731.96' AMSL

**Borehole Depth:** 12.0' bgs
**Surface Elevation:** NA

**Descriptions By:** David Straccia

**Well/Boring ID:** RFI-40-24

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 9<br>6<br>11<br>13 | 17 | 2.0 | NA | (-) | SM<br>CL | | Brown-black Silty fine to coarse SAND, very slight sheen, strong odor, dry to moist.<br>Dark brown SILTY CLAY, soft, dry to slightly moist.<br>Olive Silty CLAY, sheen, stiff, strong odor, moist. | Borehole backfilled with cement-bentonite grout to grade. |
| | | 2 | 2-4 | 11<br>12<br>17<br>15 | 29 | 2.0 | NA | (+) | | | | |
| 5 | -5 | 3 | 4-6 | 11<br>12<br>11<br>15 | 23 | 2.0 | NA | (+) | GW | | Dark brown to black well graded Gravel, some fine to coarse Sand, sheen, strong odor, wet.<br>Olive Clay, small Silty SAND lens, strong odor, dry. | |
| | | 4 | 6-8 | 9<br>8<br>10<br>10 | 18 | 1.8 | NA | (-) | | | Olive-gray CLAY, orange-brown banding, stiff, dry. | |
| | | 5 | 8-10 | 6<br>4<br>4<br>6 | 8 | 2.0 | NA | (-) | CL | | | |
| 10 | -10 | 6 | 10-12 | 5<br>5<br>7<br>4 | 12 | 1.7 | NA | (+) | | | Black-gray Silty CLAY, trace fine to coarse Sand, sheen, soft, strong odor, moist to wet.<br>Gray SILTY CLAY, moist. | |
| 15 | -15 | | | | | | | | | | | |

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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-40-24.dat
Date: 1/14/05

**Date Start/Finish:** 12/17/04, 12/22/04
**Drilling Company:** EDAC
**Driller's Name:** Emerick
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-85

**Northing:** 561445.91
**Easting:** 13305902.84
**Casing Elevation:** 734.17' AMSL

**Borehole Depth:** 14.0' bgs
**Surface Elevation:** NA

**Descriptions By:** David Straccia

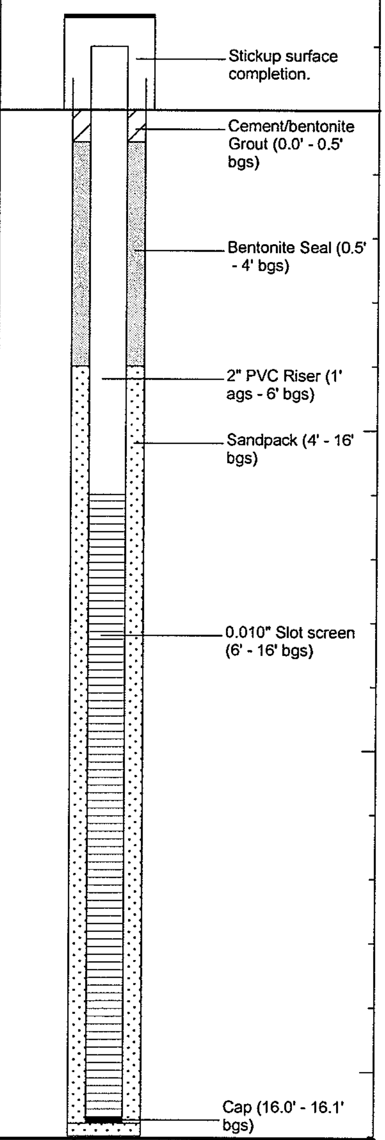
**Boring ID:** RFI-40-25

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | NA | | ASPHALT. |
| | | 1 | 0-2 | 10<br>11<br>9<br>9 | 20 | 2.0 | NA | (-) | CL | | Black-brown SILTY CLAY, fine Sand, stiff, dry. |
| | | 2 | 2-4 | 12<br>15<br>19<br>17 | 34 | 2.0 | NA | (-) | | | Olive-brown-orange CLAY. |
| | | | | | | | | | WG | | Dark brown Gravel, some fine to coarse Sand, strong odor, wet. |
| 5 | -5 | 3 | 4-6 | 12<br>7<br>9<br>7 | 16 | 2.0 | NA | (-) | CL | | Olive-orange Clay stiff, dry. |
| | | 4 | 6-8 | 12<br>4<br>4<br>7 | 8 | 2.0 | NA | (-) | | | |
| | | 5 | 8-10 | 12<br>14<br>7<br>11 | 21 | 2.0 | NA | (-) | ML | | Olive-brown SILT, trace Clay, no odor, dry. |
| 10 | -10 | 6 | 10-12 | 14<br>10<br>22<br>24 | 32 | 1.0 | NA | (-) | | | |
| | | 7 | 12-13 | 10<br>17<br>22<br>19 | 39 | 1.0 | NA | (-) | | | Gray color at 13' bgs. |
| 15 | -15 | | | | | | | | | | |

Boring Construction



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(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

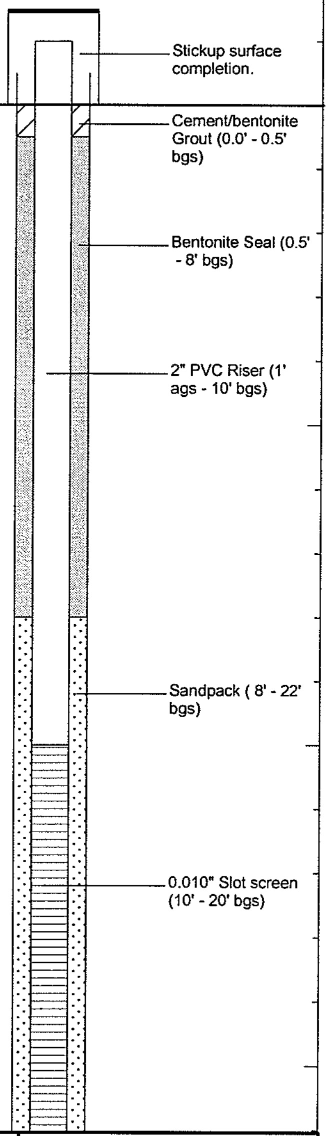
| Date | Depth | Elev. |
|---|---|---|
| 12/22/04 | 9.93' | (TOC) |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-25.dat Date: 1/14/05

|  |  |  |
|---|---|---|
| **Date Start/Finish:** 12/21/04<br>**Drilling Company:** EDAC<br>**Driller's Name:**<br>**Drilling Method:** Hollow Stem Auger<br>**Sampler Size:** 2" x 2' Split Spoon<br>**Auger Size:** 4-1/4" ID<br>**Rig Type:** CME-85 | **Northing:** 561550.15<br>**Easting:** 13305915.98<br>**Casing Elevation:** 738.37' AMSL<br>**Borehole Depth:** 22.0' bgs<br>**Surface Elevation:** NA<br>**Descriptions By:** BTL | **Boring ID:** RFI-40-26<br>**Client:** General Motors<br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | NA | NA | NA | NA | NA | NA | NA |  | CONCRETE from demolition.<br>Drilled without sample collection.<br>CONCRETE, Gravel Asphalt. |
| 5 | -5 | 1 | 4-6 | 22<br>4<br>8<br>6 | 12 | 2.0 | 0.0 | (-) | SM |  | Dark brown to black SAND and SILT.<br>Light brown SANDY CLAY with gray mottles.<br>Dark brown to black SAND with Clay and Silt, |
|  |  | 2 | 6-8 | 6<br>5<br>7<br>10 | 12 | 1.4 | 0.0 | (-) | CL |  | Brown CLAY, with gray mottles, stiff. |
|  |  | 3 | 8-10 | 6<br>8<br>11<br>12 | 19 | 2.0 | 0.0 | (-) | NA |  | No Recovery.<br>Dark brown-gray CLAY with subangular Gravel. |
| 10 | -10 | 4 | 10-12 | 5<br>9<br>12<br>14 | 21 | 2.0 | 0.0 | (-) | CL |  | Brown CLAY with angular Gravel, some mottles, stiff.<br>Brown CLAY, very stiff. |
|  |  | 5 | 12-14 | 12<br>12<br>15<br>19 | 27 | 0.0 | 0.0 | (-) | NA |  | No Recovery.<br>Brown CLAY, stiff. |
| 15 | -15 | 6 | 14-16 | 6<br>14<br>22<br>25 | 36 | 1.8 | 0.0 | (-) | CL<br>ML |  | Gray SILT, dry. |

**Boring Construction**



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**Remarks:** bgs = below ground surface. AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available.
(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/22/04 | 17.19' | (TOC) |

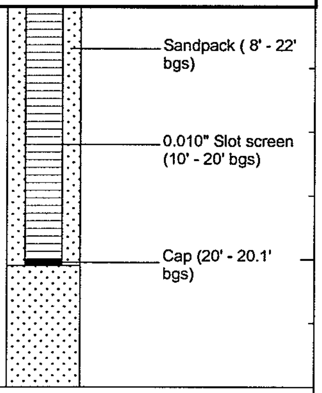
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-26

**Borehole Depth:** 22.0' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 7 | 16-18 | 15<br>17<br>12<br>14 | 29 | 1.5 | 0.0 | (-) |  |  | Gray SILT, dry.<br>Clay and subangular Gravel, lense at 17.5' - 17.6' bgs |  |
|  |  | 8 | 18-20 | 6<br>8<br>13<br>11 | 21 | 1.6 | 0.0 | (-) | ML |  | Gray SILT and CLAY, stiff, dry.<br>Gray SILT, trace Clay, wet. |  |
| 20 | 20 | 9 | 20-22 | 6<br>8<br>13<br>24 | 21 | 1.6 | 0.0 | (-) |  |  |  |  |
| 25 | 25 |  |  |  |  |  |  |  |  |  |  |  |
| 30 | 30 |  |  |  |  |  |  |  |  |  |  |  |
| 35 | 35 |  |  |  |  |  |  |  |  |  |  |  |



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**Remarks:** bgs = below ground surface. AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available.
(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/22/04 | 17.19' | (TOC) |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: J:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-40-26.dat Date: 1/24/05

**Date Start/Finish:** 12/21/04
**Drilling Company:** EDAC
**Driller's Name:** E. Kish
**Drilling Method:** Hollow Stem Auger
**Sampler Size:** 2" x 2' Split Spoon
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-85

**Northing:** 561550.73
**Easting:** 13305974.85
**Casing Elevation:** 731.71' AMSL

**Borehole Depth:** 22.0' bgs
**Surface Elevation:** NA

**Descriptions By:** BTL

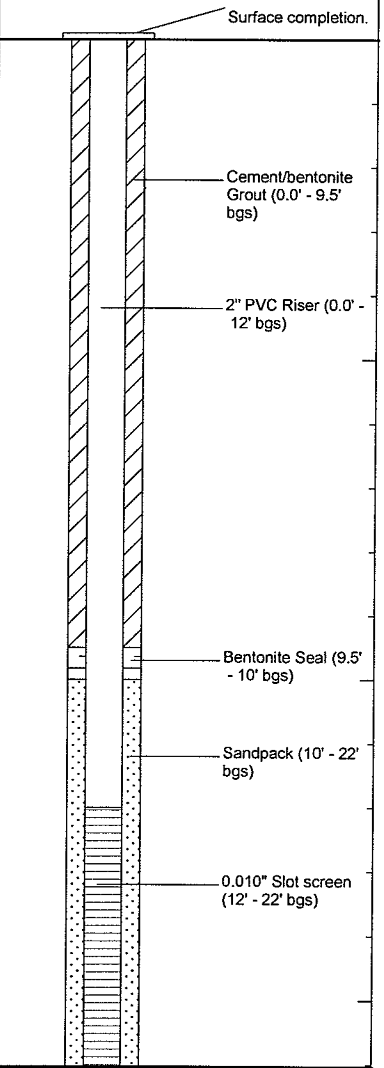
**Boring ID:** RFI-40-27

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 10<br>8<br>6<br>4 | 14 | 1.0 | 0.0 | (-) | NA<br>SW | | ASPHALT.<br>Reddish-brown coarse SAND and GRAVEL.<br>Dark brown fine SAND, with rounded Gravel, moist. |
| | | 2 | 2-4 | 4<br>7<br>8<br>8 | 15 | 1.5 | 0.0 | (-) | SM<br>CL | | Fine to medium SAND and SILT, wet.<br>Brown CLAY, with gray mottles, stiff. |
| 5 | -5 | 3 | 4-6 | 6<br>9<br>4<br>14 | 13 | 1.8 | 0.0 | (-) | SM<br>CL | | SAND and SILT, loose, saturated.<br>Brown CLAY, with gray mottles, stiff. |
| | | 4 | 6-8 | 4<br>6<br>9<br>8 | 15 | 2.0 | 0.0 | (-) | | | Brown CLAY, with gray and red mottles, trace rounded Gravel. |
| | | 5 | 8-10 | 14<br>11<br>15<br>29 | 26 | 2.0 | 0.0 | (-) | | | Brown CLAY, with gray and red mottles, stiff.<br>Gray-brown CLAY, stiff, dry. |
| 10 | -10 | 6 | 10-12 | 9<br>16<br>21<br>27 | 37 | 1.5 | 0.0 | (-) | SM | | Gray SILT and CLAY, trace red mottles, trace rounded Gravel, dry. |
| | | 7 | 12-14 | 7<br>11<br>19<br>20 | 30 | 1.2 | 0.0 | (-) | | | Gray SILT and CLAY, with rounded Gravel, dry. |
| 15 | -15 | 8 | 14-16 | 5<br>8<br>9<br>13 | 17 | 1.5 | 0.0 | (-) | | | Gray SILT with Clay, trace Gravel, dry.<br>Gray SILT with Clay, trace Gravel, red mottles, moist. |

Boring Construction



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(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/22/04 | 9.50' | (TOC) |

**Client:**
General Motors

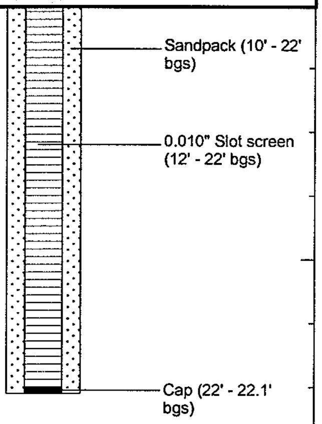
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-40-27

**Borehole Depth:** 22.0' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 11<br>10<br>8<br>11 | 18 | 1.7 | 0.0 | (-) | | | Gray SILT with Clay, trace Gravel, dry. Moisture increases with depth. |
| | | 10 | 18-20 | 5<br>4<br>7<br>6 | 11 | 2.0 | 0.0 | (-) | SM | | Saturated at 18' bgs.<br>Brown coarse SAND, saturated. |
| 20 | 20 | 11 | 20-22 | 9<br>6<br>5<br>5 | 11 | 2.0 | 0.0 | (-) | | | |
| 25 | 25 | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | |

**Boring Construction**



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(+) = Sheen shown in oil/water Shake test.
(-) = No sheen shown in oil/water Shake test.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/22/04 | 9.50' | (TOC) |
| | | |
| | | |
| | | |

**Date Start/Finish:** 10/16/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 560786.1
**Easting:** 13305531.45
**Casing Elevation:** NA

**Borehole Depth:** 24' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

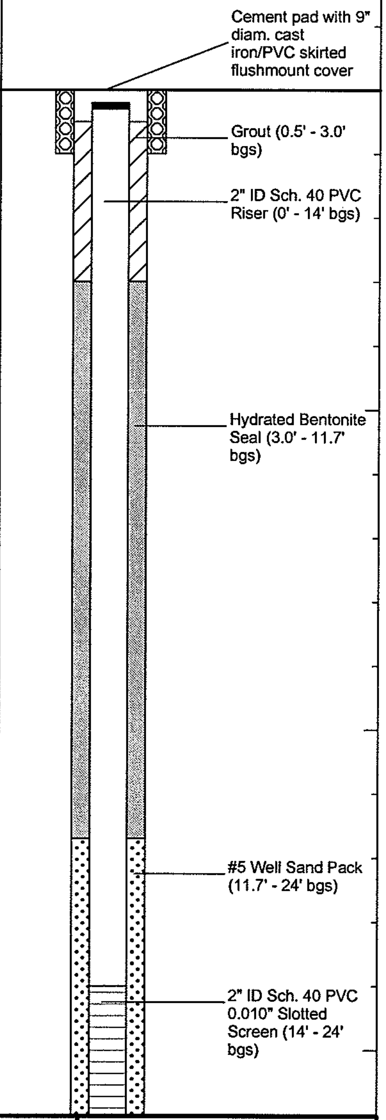
**Boring ID:** RFI-44-06R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | 0-1 | NA | NA | NA | NA | NA | FL | CONCRETE. | Fill |
| | | 1 | 1-3 | 11<br>30<br>-<br>- | 30 | 1.0 | 9.7 | + | SM | Brown (10YR 5/3) Silty fine to coarse (predominantly fine) subangular to subrounded poorly graded SAND (SM), few Clay, few fine rounded Gravel, aplastic, moderate odor, dense, dry. Fill Sand.<br>Color change to black (10YR 2/1) at 1.8' bgs. | Silty Sand |
| | | | | | | | | | FL | CONCRETE. | Fill |
| | | 2 | 3-5 | 4<br>4<br>8<br>12 | 12 | 1.4 | 0.0 | - | SM | Yellow-brown (10YR 3/8) Silty SAND (SM) as above from 0.7' - 2.0' bgs, no odor. Fill Sand. | Silty Sand |
| 5 | -5 | 3 | 5-7 | 8<br>13<br>13<br>12 | 26 | 1.8 | 0.0 | - | | Color change to pale brown (10YR 6/3) at 6.3' bgs. | |
| | | 4 | 7-9 | 5<br>10<br>10<br>20 | 26 | 2.0 | 0.0 | - | CL | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to corse subrounded Sand, trace fine to coarse rounded Gravel, homogenous, weakly plastic, very stiff, no odor, dry. Native Glacial Clay Till. | Silty Clay |
| 10 | 10 | 5 | 9-11 | 11<br>22<br>24<br>30 | 46 | 2.0 | 0.0 | - | | | |
| | | 6 | 11-13 | 12<br>19<br>24<br>22 | 43 | 1.7 | 0.0 | - | | | |
| | | 7 | 13-15 | 8<br>16<br>34<br>32 | 50 | 1.9 | 0.0 | - | | 5"-thick Silty Sand lense, moist at 14.6' bgs. | |
| 15 | 15 | 8 | 15-17 | 4<br>12 | 29 | 2.0 | 0.0 | - | | 3"-thick Silty Sand lense, saturated at 16' bgs. | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/16/02 | 19.5' | |

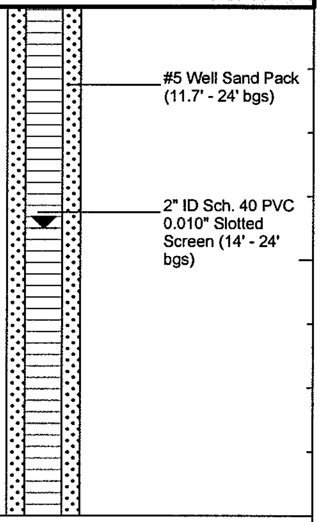
**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-44-06R

**Borehole Depth:** 24' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8 | 15-17 | 17<br>24 | 29 | 2.0 | 0.0 | - | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to corse subrounded Sand, trace fine to coarse rounded Gravel, homogenous, weakly plastic, very stiff, no odor, dry. Native Glacial Clay Till. | Silty Clay |
| | 9 | 17-19 | 5<br>15<br>30<br>34 | 45 | 1.8 | 0.0 | - | | | | |
| 20-20 | 10 | 19-21 | 7<br>19<br>19<br>21 | 38 | 1.7 | 0.0 | - | SC | | Gray (10YR 5/1) Clayey fine to coarse subangular to subrounded well graded SAND (SC), little Silt, trace to few fine to medium rounded Gravel, Silty Clay lenses (up to 5"-thick) throughout, aplastic, no odor, dense, saturated. Glacio-alluvial. | Clayey Sand |
| | 11 | 21-23 | 7<br>11<br>14<br>22 | 25 | 2.0 | 0.0 | - | | | | |
| | NA | 23-24 | NA | NA | NA | NA | NA | | | | |
| 25-25 | | | | | | | | | | | |
| 30-30 | | | | | | | | | | | |
| 35-35 | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 10/16/02 | 19.5' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 9/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

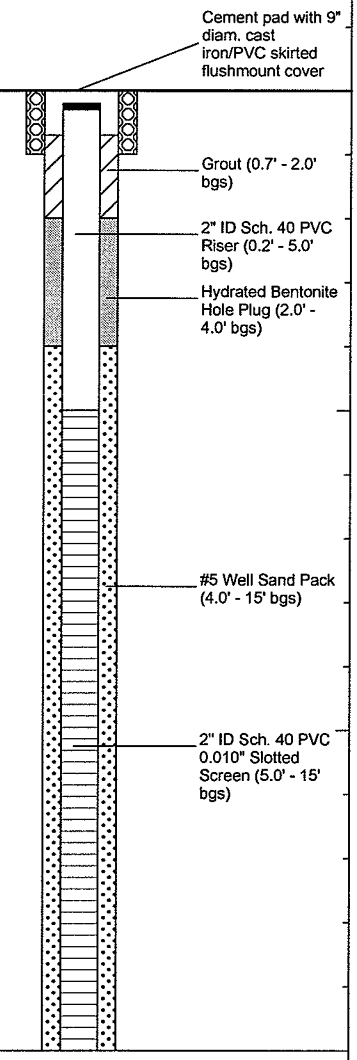
**Boring ID:** RFI-55-11

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | ASPHALT. | ASPHALT |
| | | 1 | 1-3 | 1<br>10<br>9<br>8 | 19 | 1.0 | 1818 | + | CL | | Brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to medium rounded Gravel, no odor, stiff, dry. Glacial Clay Till used as backfill. | SILTY CLAY |
| | | 2 | 3-5 | 5<br>5<br>5<br>5 | 10 | 1.3 | 4310 | + | SP | | Yellow-brown (10YR 4/6) fine to coarse POORLY GRADED SAND (SP), little Silt, few fine to coarse subrounded Gravel, aplastic, loose, no odor, dry. Fill Sand. | SAND |
| 5 | -5 | 3 | 5-7 | 3<br>5<br>6<br>6 | 11 | 1.6 | 7179 | + | CL | | Gray-brown (10YR 5/2) SILTY LEAN CLAY (CL), little fine to coarse subangular Sand, trace fine to coarse subrounded Gravel, lenses of Silty fine Sand and/or Silt up to 2" thick throughout, no odor, stiff to medium stiff, dry to moist. Clay Till used as backfill. | SILTY CLAY |
| | | 4 | 7-9 | 3<br>4<br>7<br>8 | 11 | 1.7 | 1779 | + | ML | | Brown (10YR 5/3) to yellow-brown (10YR 5/4) SILT (ML), little Clay, few fine subrounded to subangular Sand, occasional gray (10YR 5/1) mottling, aplastic, medium dense, no odor, saturated. Backfill. | SILT |
| 10 | -10 | 5 | 9-11 | 6<br>12<br>15<br>13 | 27 | 1.4 | 2575 | - | | | Highly oxidized to orange color at 10.6' bgs. | |
| | | 6 | 11-13 | 6<br>7<br>8<br>11 | 15 | 2.0 | 1338 | - | | | Gray (10YR 5/2) color from 11' - 15' bgs. Native Undisturbed Glacial Silt. | |
| | | 7 | 13-15 | H<br>6<br>8<br>10 | 14 | 2.0 | 3451 | - | | | | |
| 15 | 15 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-55-11.dat Date: 11/14/03

**Date Start/Finish:** 9/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 567078.05
**Easting:** 13305788.29
**Casing Elevation:** NA

**Borehole Depth:** 17' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

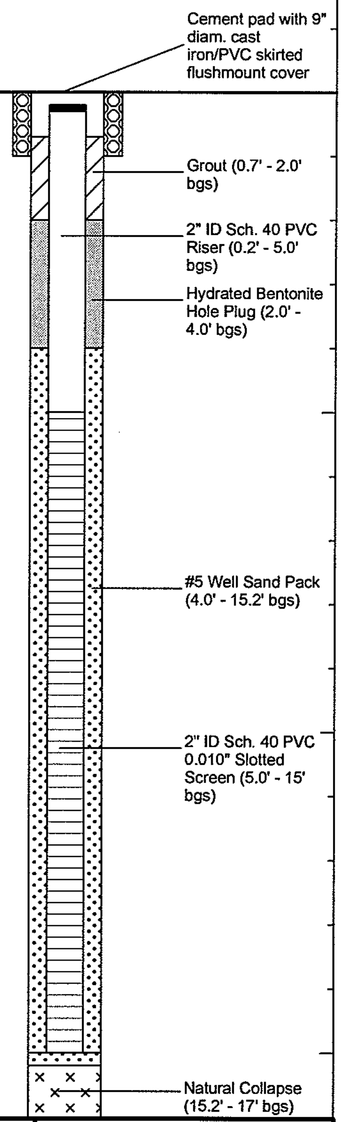
**Boring ID:** RFI-55-12

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | ASPHALT. | ASPHALT |
| | | 1 | 1-3 | 3<br>6<br>9<br>11 | 15 | 1.3 | 7350 | + | SP | Gray-brown (10YR 5/2) to brown (10YR 5/3) fine to coarse subangular to subrounded POORLY GRADED SAND (SP), little Silt, few fine to coarse subrounded Gravel and occasional rounded Pebbles, aplastic, no odor, loose, dry. Fill Sand. | SAND, FINE |
| | | 2 | 3-5 | 14<br>8<br>8<br>5 | 16 | 1.1 | 4468 | + | | | |
| 5 | -5 | 3 | 5-7 | 3<br>5<br>7<br>9 | 12 | 1.8 | 7891 | + | CL | Gray-brown (10YR 5/2) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, weakly plastic, no odor, stiff, dry. Glacial Clay Till used as backfill.<br>Brown (10YR 5/3) color at 5.5' bgs. | SILTY CLAY |
| | | 4 | 7-9 | 3<br>8<br>13<br>17 | 21 | 1.9 | 9917 | + | ML | Brown (10YR 5/3) to gray-brown (10YR 5/2) SILT (ML), little to few Clay, few fine subangular Sand, aplastic, no odor, medium dense, moist.<br>Saturated at 7.4' bgs. | SILT |
| 10 | -10 | 5 | 9-11 | 9<br>19<br>23<br>21 | 42 | 1.6 | 4201 | + | | 2"-thick lense of oxidation to orange at 10.3' bgs. | |
| | | 6 | 11-13 | 5<br>7<br>9<br>11 | 16 | 1.3 | 410 | + | | Gray (10YR 5/1) color from 12' - 17' bgs. Native Glacial Silt. | |
| | | 7 | 13-15 | 4<br>6<br>8<br>9 | 14 | 1.3 | 180 | - | | | |
| 15 | -15 | 8 | 15-17 | 4<br>5 | 10 | 1.4 | 30.6 | - | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-55-12.dat Date: 11/14/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-55-12

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 5<br>4 | 10 | 1.4 | 30.6 | - | ML | | Gray (10YR 5/1) SILT (ML), little to few Clay, few fine subangular Sand, aplastic, no odor, medium dense, saturated. Native Glacial Silt. | SILT | Natural Collapse (15.2' - 17' bgs) |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface; + = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-55-12.dat Date: 11/14/03

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 564410.68
**Easting:** 13305818.63
**Casing Elevation:** NA

**Borehole Depth:** 10' bgs.
**Surface Elevation:** 746.05 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-36

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | 745 | | | | | | | | | | STEEL PLATE. | | |
| | | | | | | | | | SM | | Black (10 YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few Clay, few fine to coarse subangular Gravel, Metallic debris, Slag, and Cinders also present, aplastic, no odor, loose, dry. Foundary Sand. | SILTY SAND | |
| 5 | | NA | 0-10 | NA | NA | NA | NA | - | | | | | |
| | 740 | | | | | | | | | | | | |
| | | | | | | | | | | | Black (10 YR 2/1) SILTY SAND (SM) as above, but too compacted and dense to push split-spoon. Sample from inside of auger teeth. | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-81-36.dat Date: 04/17/03

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 564273.29
**Easting:** 13305833.74
**Casing Elevation:** NA

**Borehole Depth:** 10.0' bgs.
**Surface Elevation:** 746.09 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-37

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | CONCRETE. | FILL | |
| | 745 | | | | | | | | FL | | | | Borehole backfilled with Bentonite to grade. |
| | | | | | | | | | | | Black (10YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few fine to coarse subangular Gravel, little to few Clay, Slag and Cinders present, aplastic, no odor, loose, dry. Foundary Sand. | SILTY SAND | |
| 5 | | NA | 0-10 | NA | NA | NA | NA | - | | | | | |
| | 740 | | | | | | | | SM | | Metallic debris present at 6.0' bgs. | | |
| | | | | | | | | | | | Increase Slag and Cinders content, fines of metallic debris present at 7.0' bgs. | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-81-37 Date: 04/17/03

**Date Start/Finish:** 3/17/2003
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564765.06
**Easting:** 13305970.00
**Casing Elevation:** NA

**Borehole Depth:** 5.0' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-38

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | FL | | CONCRETE. | FILL | |
| | | 1 | 1-4 | 2.5 | NA | + | SP | | Brown (10YR 5/3) fine to medium, predominantly fine, POORLY GRADED SAND (SP), little Silt, strong sweet odor, loose, saturated with light weight oil and possible water. Fill.<br>Oil is medium weight and dark brown to black in color at 4.0' bgs. | FINE SAND | Borehole backfilled with Bentonite to grade. |
| | | 2 | 4-5 | NA | NA | + | | | Refusal encountered at Concrete at 5.0' bgs. | | |
| 5 | 5 | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101
Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-81-38
Date: 4/17/03

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564717.46
**Easting:** 13306006.17
**Casing Elevation:** NA

**Borehole Depth:** 1.5' bgs
**Surface Elevation:** 746.10 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-39

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | ▨ | CONCRETE. | | ▨ |
| | 745 | 1 | 0-1.5 | NA | NA | NA | FL | | VOID. | FILL | Borehole backfilled with Bentonite to grade. |
| | | | | | | | | ▨ | CONCRETE. | | |
| 5 | | | | | | | | | | | |
| | 740 | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| | 735 | | | | | | | | | | |
| 15 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-81-39.dat Date: 04/17/03

**Date Start/Finish:** 4/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 564716.86
**Easting:** 13306055.00
**Casing Elevation:** 745.77 ft. AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** 746.07 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-39R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | |
| | 745 | | | | | | | | FL |
| | | 1 | 3-5 | 3<br>4<br>2<br>1 | 6 | 1.5 | 1850 | - | |
| 5 | | | | | | | | | |
| | 740 | 2 | 5-7 | 2<br>2<br>2<br>2 | 4 | 1.4 | 1737 | - | |
| | | 3 | 7-9 | 1<br>1<br>3<br>3 | 4 | 1.1 | 1358 | - | SM |
| 10 | | 4 | 9-11 | 3<br>2<br>3<br>2 | 5 | 0.3 | 2783 | + | |
| | 735 | | | | | | | | |
| | | 5 | 11-13 | 10<br>20<br>26<br>17 | 46 | 0.0 | NA | + | |
| 15 | | | | | | | | | |

**Stratigraphic Description**

CONCRETE, smells like "moth balls" as it is being ground.

Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, 10-20% Slag and obvious metallic debris such as wire and bolts, moderate "moth ball"-like odor, aplastic, loose, dry. Foundry Sand.

Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, lenses of Silty Sand as above up to 3"-thick throughout, aplastic, moderate "moth ball"-like odor, loose, dry. Fill.

Black (10YR 2/1) SILTY SAND (SM) as above from 1.7' - 3.9' bgs, but no Slag, strong odor, damp. Fill Sand.

Light weight Oil present on oil/water shake test, saturated below 10' bgs.

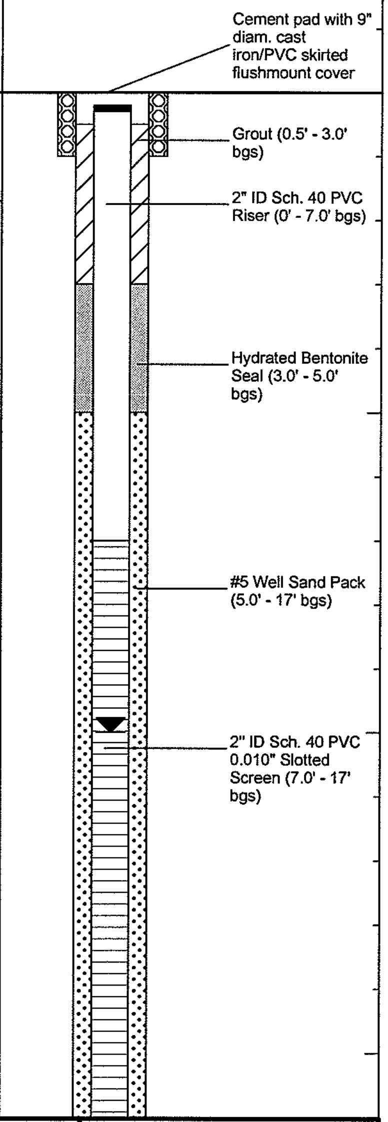
Blind Drill to 17' bgs.

**Hydrostratigraphy**

CONCRETE

SILTY SAND

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.7' - 3.7' & 7.7'- 9.7' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/5/03 | 10' | |

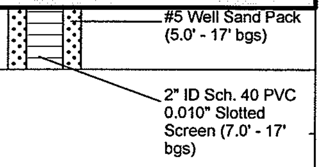
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-81-39R

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 730 |  |  |  |  |  |  |  | SM | ┬:┬ | Black (10YR 2/1) SILTY SAND (SM) as above from 1.7' - 3.9' bgs, but no Slag, strong odor, damp. Fill Sand. | ILTY SAN |  |
| 20 | 725 |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | 720 |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 | 715 |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 |  |  |  |  |  |  |  |  |  |  |  |  |  |


#5 Well Sand Pack (5.0' - 17' bgs)

2" ID Sch. 40 PVC 0.010" Slotted Screen (7.0' - 17' bgs)

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.7' - 3.7' & 7.7'- 9.7' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/5/03 | 10' |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-81-39R.dat Date: 5/13/03

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 564477.54
**Easting:** 13306304.69
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 744.54 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-40

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | 17<br>32<br>37<br>41 | 69 | 1.8 | 0.0 | - | SM | ┬·┬· | Black (10YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few Clay, few fine to coarse subrounded Gravel, Slag, Cinders, Ash, and Cement/Concrete debris throughout, aplastic, no odor, dense, dry. Foundary Sand. | SILTY SAND | ▨ Borehole backfilled with Bentonite to grade. |
| | 740 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf

Data File:RFI-81-40 Date: 04/17/03

| | | |
|---|---|---|
| **Date Start/Finish:** 3/12/03<br>**Drilling Company:** Rau Drilling<br>**Driller's Name:** Greg Compeau<br>**Drilling Method:** HSA /SS<br>**Sampler Size:** 2" OD + 2'<br>**Auger Size:** 2-1/4" ID<br>**Rig Type:** CME-45B | **Northing:** 564501.49<br>**Easting:** 13306328.40<br>**Casing Elevation:** NA<br>**Borehole Depth:** 2.0' bgs<br>**Surface Elevation:** 743.58 ft. AMSL<br>**Descriptions By:** SM Duly | **Boring ID:** RFI-81-41<br>**Client:** General Motors<br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | 28<br>41<br>49<br>64 | 90 | 1.8 | 0.0 | - | CL | ▤ | Brown (10YR 5/3) to black (10YR 2/1) SILTY LEAN CLAY (CL), little fine to coarse subrounded to angular Sand, few fine to coarse subrounded to angular Gravel, Pale green patches up to 1/2" in diameter of Clay-like particles, Slag, Ash and Cinders also present, extensively mottled, hard, weakly plastic, no odor, dry. Native Clay Till used as Backfill and mixed with other Fill. | SILTY CLAY | ▨ Borehole backfilled with Bentonite to grade. |
| | 740 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-81-41.dat Date: 04/17/03

**Date Start/Finish:** 4/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 4-1/4" ID
**Rig Type:** CME-45B

**Northing:** 564761.87
**Easting:** 13306054.78
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 746.02 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-81-42

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | CONCRETE. | FILL | |
| | 745 | | | | | | | | SM | | Black (10YR 2/1) fine to coarse subangular SILTY SAND (SM), few Clay, few fine to coarse rounded to subrounded Gravel, 20% Slag, Metallic debris such as Wire and Washers, aplastic, no odor, loose, damp. Foundry Sand and Debris. | SILTY SAND | Borehole backfilled with Bentonite to grade. |
| | | | | | | | | | | | Refusal at 2.0' bgs - Concrete. | | |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Sample collected from 0.7' - 2.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-81-42.dat Date: 4/30/03

**Date Start/Finish:** 3/31/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 564775.99
**Easting:** 13306344.92
**Casing Elevation:** 743.76' AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** Ryan Tuttle

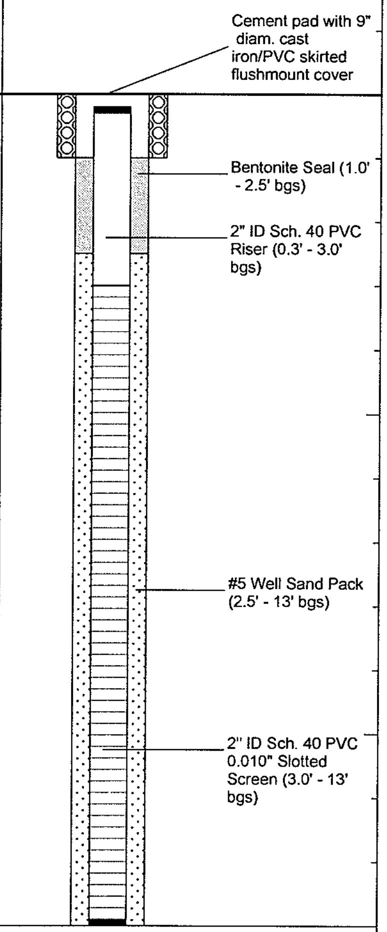
**Well/Boring ID:** RFI-81-43

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | No samples collected from 0.0' - 3.0' bgs. See log location 70-107 for geologic description. |
| | | 1 | 3-5 | 17<br>37<br>>50<br>NA | 37 | 1.25 | 0.0 | + | CL | | Dark gray (10YR 3/1) LEAN CLAY with SILT (CL), little Sand, trace fine Gravel, trace Slag, soft, slightly plastic, no odor, dry to damp. |
| | | | | | | | | | FL | | CONCRETE |
| 5 | -5 | 2 | 5-7 | 4<br>4<br>4<br>4 | 8 | 1.75 | 0.0 | + | SM | | Yellow-brown (10YR 5/4) nonplastic, subrounded POORLY GRADED SILTY SAND (SM), trace Slag, trace fine angular gravel, no odor, loose, moist.<br>Saturated at 7.0' bgs. |
| | | 3 | 7-9 | 2<br>2<br>2<br>2 | 4 | 1.0 | 0.0 | + | | | 0.25" Black stain on Silty Sand at 8.85' bgs |
| 10 | -10 | | | | | | | | | | No samples collected from 0.0' - 3.0' bgs. See log location 70-107 for geologic description. |
| 15 | -15 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-81-43.dat
Date: 7/9/04

**Date Start/Finish:** 3/31/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 9' bgs
**Surface Elevation:** NA

**Descriptions By:** Ryan Tuttle

**Well/Boring ID:** RFI-81-44

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | No samples collected from 0.0' - 3.0' bgs. See log for location 70-107 for geologic description. | |
| | | 2 | 3-5 | 4<br>4<br>4<br>5 | 8 | 1.5 | 0.0 | + | SP | | Dark gray (10YR 3/1) mostly fine surounded SAND (SP), few Silt, no odor, loose, moist, increasing moisture content with depth.<br>Brownish yellow (10YR 6/5). | Borehole backfilled with Bentonite to grade |
| 5 | -5 | 3 | 5-7 | 3<br>3<br>4<br>4 | 7 | 2.0 | 0.0 | + | | | Saturate at 6.0' bgs .<br>At 6.25' bgs Greyish brown. | |
| | | 4 | 7-9 | 2<br>2<br>2<br>2 | 4 | 1.5 | 0.0 | + | | | Black stain ~0.25" at 9.0' bgs | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Applicable/Not Available;
+/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2003.ldf
Data File:RFI-81-44.dat Date: 7/15/04

**Date Start/Finish:** 3/31/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 564689.18
**Easting:** 13306371.71
**Casing Elevation:** 742.87' AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** Ryan Tuttle

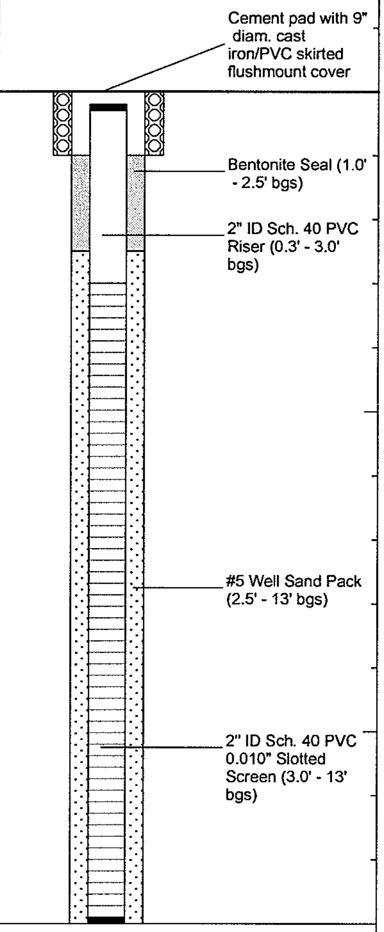
**Well/Boring ID:** RFI-81-45

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | TOPSOIL |
| | | | | | | | | | | | Brown (10YR 4/3) mostly fine subrounded POORLY GRADED SAND (SP), trace angular Gravel, no odor, moist. |
| | | 2 | 3-5 | 9<br>11<br>11<br>13 | 22 | 1.0 | 0.0 | + | SP | | Black (10YR 2/1) LEAN CLAY with SILT (CL), few fine to medium subrounded Sand, ~2' Slag layer at 4.0' bgs, few Wood debris, slightly plastic, strong odor, wet. [FILL] |
| 5 | -5 | 3 | 5-7 | 4<br>5<br>5<br>6 | 10 | 1.0 | 0.0 | + | | | Soft very plastic at 6.5' bgs.<br>Few fine angular Gravel strong odor, sheen present on spoon, saturated, below 7.0' bgs. |
| | | 4 | 7-9 | 9<br>11<br>NA<br>NA | 11 | 1.0 | 0.0 | + | | | |
| 10 | -10 | | | | | | | | | | Mostly Slag from 9.0' - 11.0' bgs.<br>Steel chunck at 10.0' bgs. |
| 15 | -15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-81-45.dat Date: 7/15/04

**Date Start/Finish:** 3/31/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 564532.60
**Easting:** 13306367.15
**Casing Elevation:** NA

**Borehole Depth:** 4' bgs
**Surface Elevation:** NA

**Descriptions By:** Ryan Tuttle

**Well/Boring ID:** RFI-81-46

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 4<br>5<br>6<br>6 | 11 | 2.0 | 0.0 | - | SP | ░ | Brown-yellow (10YR 6/8) mostly fine, subrounded POORLY GRADED SAND (SP), no odor, loose, dry to damp. | ▒ Borehole backfilled with Bentonite to grade. |
| | | 2 | 2-4 | 9<br>9<br>6<br>6 | 15 | 0.0 | 0.0 | + | CL | ☰ | Black (10YR 2/1) LEAN CLAY with SILT (CL), little Sand, few Slag, no odor, medium stiff, slightly plastic, damp. [FILL] | ▒ |
| | | | | | | | | | | | Refusal - hit pipe (fire line) at 4.0' bgs. | |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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+/- = Positive/Negative Test Result.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 4/02/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 564509.21
**Easting:** 13306391.39
**Casing Elevation:** 742.38' AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

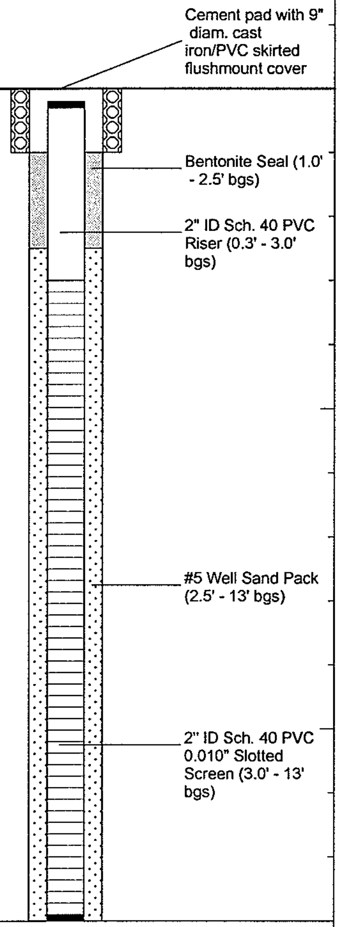
**Descriptions By:** W. Patterson

**Well/Boring ID:** RFI-81-47

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | TOPSOIL | |
| | | 1 | 1-3 | 6<br>6<br>7<br>6 | 13 | 2.0 | 0.0 | + | CL | | Dark Yellow-brown (10YR 4/6) and Black (10YR 2/1) LEAN CLAY with SILT (CL), some fine Sand, Slag, medium stiff, no apparent odor, damp. [FILL] | |
| | | 2 | 3-5 | 7<br>11<br>14<br>18 | 25 | 1.0 | 0.0 | + | SP | | Dark brown (10YR 3/3) and Black (10YR 2/1) fine poorly graded SAND (SP), some Slag, loose, no apparent odor, dry to damp. | |
| 5 | -5 | 3 | 5-7 | 16<br>9<br>4<br>7 | 13 | 1.0 | 0.0 | + | | | Saturated at 6.8' bgs. | |
| | | 4 | 7-9 | 3<br>3<br>2<br>1 | 5 | 1.0 | 0.0 | + | | | Color is Black (10YR 2/1) few Slag At. 7.0' bgs. | |
| 10 | -10 | 5 | 9-11 | 3<br>3<br>3<br>6 | 6 | 1.0 | 0.0 | + | | | | |
| | | 6 | 11-13 | 6<br>7<br>4<br>3 | 11 | 1.0 | 0.0 | + | ML<br>CL | | Black (10YR 2/1) Silt (ML), no apparent odor, saturated.<br>Gray (10YR 5/1) and brown (10YR 5/3) mottled LEAN CLAY and SILT (CL), stiff, moderately plastic, no apparent odor, damp. [FILL] | |
| 15 | -15 | | | | | | | | | | | |



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## Remarks:

bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Applicable/Not Available; +/- = Positive/Negative Test Result.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |
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| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-81-47.dat Date: 7/16/04

**Date Start/Finish:** 4/02/04
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 55

**Northing:** 564488.72
**Easting:** 13306405.48
**Casing Elevation:** NA

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** W. Patterson

**Well/Boring ID:** RFI-81-48

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | NA | NA | NA | NA | NA | | | TOPSOIL | |
| | | 1 | 1-3 | 6<br>7<br>7<br>8 | 14 | 1.0 | 0.0 | - | ML | | Dark yellow-brown (10YR 4/6) SILT (ML), dense, no apparent odor, dry. [FILL] | |
| | | 2 | 3-5 | 8<br>8<br>4<br>3 | 12 | 1.0 | 0.0 | - | | | | |
| 5 | -5 | 3 | 5-7 | 2<br>2<br>1<br>2 | 3 | 0.1 | 0.0 | - | | | | |
| | | 4 | 7-9 | 1<br>1<br>1<br>1 | 2 | 1.0 | 0.0 | - | | | Little fine Sand, few Clay, no apparent odor, saturated at 8.0' bgs. | Borehole backfilled with Bentonite to grade. |
| 10 | 10 | 5 | 9-11 | 1<br>WOH<br>NA<br>1 | 1 | 1.5 | 0.0 | - | SM | | Dark yellow-brown (10YR 4/4) SILTY SAND (SM), some Slag.<br>Black stained NAPL at 11.0' bgs. | |
| | | 6 | 11-13 | 1<br>1<br>4<br>2 | 5 | 1.5 | 0.0 | + | CL | | Gray (10YR 5/1 and brown mottled (10YR 5/3) LEAN CLAY with SILT (CL), stiff no apparent odor, moderately plastic, [FILL] | |
| | | 7 | 13-15 | 4<br>5<br>7<br>11 | 12 | | 0.0 | + | | | | |
| 15 | 15 | | | | | | | | | | | |

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**Remarks:**
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+/- = Positive/Negative Test Result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-81-48.dat Date: 7/16/04

**Date Start/Finish:** 8/23/04
**Drilling Company:** Prosonic
**Driller's Name:** Don Bond
**Drilling Method:** HSA/Macrocore
**Sampler Size:** 5' Macrocore
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 564449.41
**Easting:** 13306388.80
**Casing Elevation:** 742.71' AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

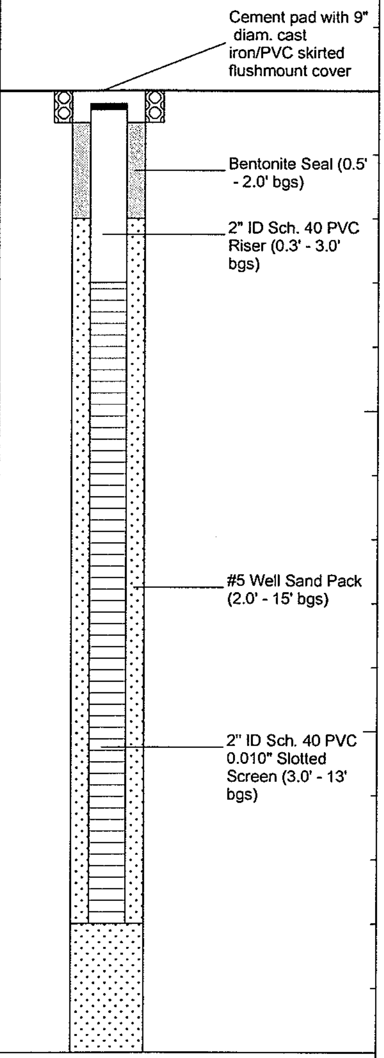
**Descriptions By:** Wayne Patterson

**Well/Boring ID:** RFI-81-49

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-5 | NA | NA | 4.75 | 0.0<br>34.5 | NA | | | Brown (10YR 5/3) TOPSOIL, Roots, no odor, dry.<br>Black (10YR 2/1) and yellow-brown (10YR 5/6) fine SILTY SAND (SM), some Slag, no odor, damp. [FILL] | |
| 5 | -5 | 2 | 5-10 | NA | NA | 2.5 | 17.4 | NA | SM | | | |
| 10 | -10 | 3 | 10-15 | NA | NA | 4.0 | 1.0 | NA | CL | | Dark gray-brown (10YR 4/2) and dark yellow-brown (10YR 4/6) mottled LEAN CLAY with Silt (CL), no odor, medium stiff, damp. | |
| 15 | -15 | | | | | | | | | | | |



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**Remarks:**
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NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-81-49.dat Date: 8/27/04

**Date Start/Finish:** 03/19/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/MC
**Sampler Size:** 5'x2.125" Macrocore
**Auger Size:** 4 - 1/4" ID
**Rig Type:** Geoprobe 6610 DT

**Northing:** 564579.18
**Easting:** 13306483.09
**Casing Elevation:** 740.60' AMSL

**Borehole Depth:** 15' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

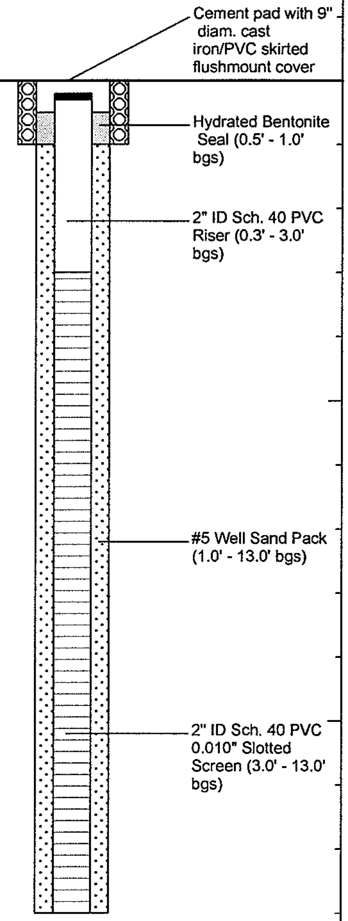
**Well/Boring ID:** RFI-81-50

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Railroad GRAVEL, Gray medium Gravel, some fine gray Sand, Metal debris and Wood fragments, loose, damp, thin (<1") wet layers. [FILL] |
| | | | | | | | | | FL | | |
| | | 1 | 0-5 | | | 4.0 | 0.1 | | | | |
| | | | | | | | 2.3 | | | | Yellow-brown SANDY CLAY, fine Sand, some Silt, some orange staining, no odor, medium stiff to stiff, damp to moist. |
| 5 | -5 | | | | | | | | | | |
| | | | | | | | 2.4 | | CL | | |
| | | | | | | | | | | | Yellow-brown fine SAND, some fine Gravel, little orange staining, slight odor, loose to medium dense, wet to saturated. |
| | | 2 | 5-10 | | | 5.0 | 0.3 | | | | |
| | | | | | | | | | | | Some gray fine Sand from 7.9' - 8.3' bgs, no sheen, no odor. |
| 10 | -10 | | | | | | | | SP | | |
| | | | | | | | | | | | Some dark gray fine Sand from 10.0' - 11.0' bgs, slight odor. |
| | | 3 | 10-15 | | | 5.0 | 0.2 | | | | |
| | | | | | | | | | | | Gray SILTY CLAY, no odor, plastic to very plastic, stiff to very stiff, damp. |
| | | | | | | | | | CL | | |
| 15 | 15 | | | | | | | | | | |

Well/Boring Construction



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe_well2005.ldf
Data File:RFI-81-50.dat Date: 3/15/03

**Date Start/Finish:** 03/17/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 22' bgs
**Surface Elevation:** NA

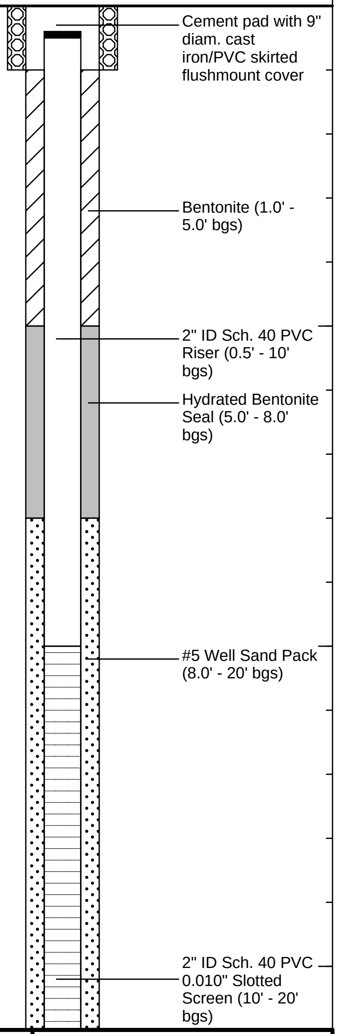
**Descriptions By:** J. Kralik

**Well/Boring ID:** RFI-81-51

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 2<br>6<br>6<br>6 | 12 | 1.2 | 0.0 | | FL<br>SP | | CONCRETE.<br>Yellow-brown fine SAND, medium dense, damp.<br>Dark brown to black-brown SAND, some fine Gravel, little Silt, trace Clay, and medium to coarse Sand, some Brick, Concrete, Metal, Glass, and Slag debris, medium dense, damp. | |
| | | 2 | 2-4 | 4<br>6<br>11<br>19 | 17 | 1.5 | 0.0 | | | | | |
| 5 | -5 | 3 | 4-6 | 4<br>4<br>9<br>9 | 13 | 1.5 | 0.0 | | | | | |
| | | 4 | 6-8 | 6<br>8<br>19<br>24 | 27 | 2.0 | 0.0 | | | | | |
| | | 5 | 8-10 | 4<br>8<br>20<br>24 | 28 | 2.0 | 0.0 | | | | | |
| 10 | -10 | 6 | 10-12 | 2<br>4<br>4<br>4 | 8 | 2.0 | 0.0 | | | | | |
| | | 7 | 12-14 | NA | NA | 2.0 | 0.0 | | | | Wet from 13.0' - 14.0' bgs. | |
| 15 | -15 | 8 | 14-16 | NA | NA | 2.0 | 0.0 | | ML | | Light gray SILT, some Clay, some olive and orange mottling, no odor, stiff, damp. | |



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**Remarks:**
a/bgs = above/below ground surface; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 0.0' - 2.0', 8.0' - 10.0' and 11.0' - 13.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-81-51.dat Date: 3/15/05

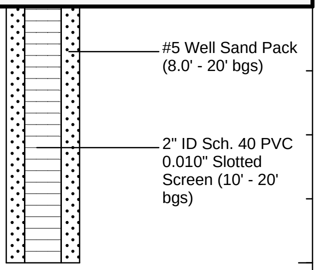
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-81-51

**Borehole Depth:** 22' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>4<br>6<br>12 | 10 | 2.0 | 0.0 | | ML | | Light gray SILT, some Clay, some olive and orange mottling, no odor, stiff, damp. | |
| | | 10 | 18-20 | 2<br>4<br>6<br>10 | 10 | 2.0 | 0.0 | | CL | | Gray CLAY, some fine Gravel, little fine Sand and Silt, slightly plastic, becomes extremely hard at 19.8' bgs, damp. | |
| 20 | 20 | 11 | 20-22 | 6<br>8<br>12<br>24 | 20 | 2.0 | 0.0 | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |



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**Remarks:**
a/bgs = above/below ground surface; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 0.0' - 2.0', 8.0' - 10.0' and 11.0' - 13.0' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-81-51.dat
Date: 3/15/05

**Date Start/Finish:** 3/6/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563395.49
**Easting:** 13305137.03
**Casing Elevation:** NA

**Borehole Depth:** 3.0' bgs
**Surface Elevation:** 745.65 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-17R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 1-3 | 2.0 | 0.0 | - | SP | | Black (10YR 2/1), fine subangular POORLY GRADED SILTY SAND (SP), few Clay, trace fine angular Gravel, occasional woody splinters/debris, aplastic, no odor, loose, dry. Fill Sand.<br>CONCRETE floor - Refusal at 3.0' bgs. | SILTY SAND | |
| 5 | 740 | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83_84-17R.dat Date: 3/14/03

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564144.9497
**Easting:** 13305396.53
**Casing Elevation:** NA

**Borehole Depth:** 11.5' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-30

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 3.3 | 0.8<br>0.6 | -<br>- | SM | | Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), trace Clay, trace fine to coarse rounded Gravel, Slag present, medium dense to loose, aplastic, no odor, dry. Foundry Sand.<br>Weathered Concrete fragments from 1.0' - 1.3' bgs.<br>Increased Gravel content to few to little at 3.3' bgs. | Silty SAND | |
| 5 | -5 | 2 | 4-8 | 3.0 | 0.9 | - | | | 6" of gray, pale brown and white discoloration at 4.5' bgs. | | |
| | | | | | 0.3 | - | CL | | Brown (10YR 5/3) Silty Lean CLAY (CL), few fine to coarse subrounded to subangular Sand, few fine to medium rounded Gravel, weakly to moderately plastic, stiff, no odor, moist. Native Clay Till used as backfill.<br>Moist at 8.0' bgs. | Silty CLAY | |
| 10 | -10 | 3 | 8-11.5 | 2.5 | 1.5<br>0.4 | -<br>- | | | | | |
| 15 | -15 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-30.dat Date: 10/21/02

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564125.47
**Easting:** 13305408.03
**Casing Elevation:** NA

**Borehole Depth:** 12' bgs
**Surface Elevation:** 745.88 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-31

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | FILL | |
| | | 1 | 0-4 | 2.0 | 0.0<br>0.2 | -<br>- | SM | | Light yellow-brown (10YR 6/4) Silty fine to medium (predominantly fine) subangular poorly graded SAND (SM), trace Clay, aplastic, loose, no odor, dry. Fill Sand. | Silty SAND | Borehole backfilled with Bentonite to grade. |
| 5 | 740 | 2 | 4-8 | 3.0 | 0.0<br>1.3 | +<br>+ | | | 2" - 3" weathered Concrete fragments at 5.4' bgs.<br>Black (10YR 2/1) Silty SAND (SM) as above, moist ot damp. Fill Sand and Slag. | | |
| 10 | 735 | 3 | 8-12 | 2.3 | 3.1<br>1.2 | +<br>+ | | | Weathered Concrete from 10.8' - 11.3' bgs.<br>Slag and Oil present at 11.3' bgs. | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available;

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/4/02 | 11.3' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-31.dat Date: 10/21/02

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564069.7433
**Easting:** 13305317.91
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 745.62 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-32

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | Fill | |
| | | 1 | 0-2 | 2.0 | 16.8 | - | SM | | Black (10YR 2/1) Silty fine subangular to angular poorly graded SAND (SM), few Clay, Slag present, aplastic, loose, no odor, dry. Foundry Sand. | Silty Sand | Borehole backfilled with Bentonite to grade. |
| 5 | 740 | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-32.dat Date: 10/21/02

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563968.2094
**Easting:** 13305402.92
**Casing Elevation:** NA

**Borehole Depth:** 12' bgs
**Surface Elevation:** 745.65 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-33

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | 0.8 | + | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 1.8 | 9.8 | + | SM | | Very dark gray (10YR 3/1) Silty fine subangular poorly graded SAND (SM), few Clay, trace fine angular Gravel, slag present, aplastic, no odor, loose, dry. Foundry Sand and Slag. | Silty SAND | |
| 5 | 740 | 2 | 4-8 | 3.7 | 4.9 | + | | | | | |
| | | | | | 9.8 | + | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subangular to subrounded Sand, trace fine to coarse rounded Gravel, aplastic to moderately plastic, stiff, no odor, moist to damp. Native Glacial Clay Till used as backfill. | Silty CLAY | |
| | | | | | | + | | | Becomes Native Glacial Clay Till below 8' bgs.<br>5"-thick Silt lense, saturated at 9.4' bgs. | | ▼ |
| 10 | 735 | 3 | 8-12 | 4.0 | 39.2 | + | SP | | Gray (10YR 6/1) fine subangular poorly graded SAND (SP), little Silt, trace Clay, aplastic, no odor, loose, saturated. Glacio-alluvial. | SAND | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/4/02 | 9.4' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563432.42
**Easting:** 13305137.10
**Casing Elevation:** NA

**Borehole Depth:** 6.5' bgs
**Surface Elevation:** 745.71 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-34

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | FL | | CONCRETE. | FILL | |
| | 745 | | | | 0.4 | + | SM | | Brown-yellow (10YR 6/6) Silty fine subangular poorly graded SAND (SM), trace Clay, few fine to coarse rounded Gravel to 2.0' bgs, black (10YR 2/1) to brown (10YR 5/3) mottling from 0.7' - 2.0', aplastic, no odor, loose, dry. Fill Sand. | Silty SAND | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 3.0 | | | | | | | |
| | | | | | 0.1 | - | | | | | |
| 5 | | 2 | 4-6.5 | 2.1 | 0.4 | - | | | Brown (10YR 4/3) color from 5.2' - 5.5' bgs. | | |
| | 740 | | | | | | | | Moist to wet at 6.5' bgs. | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-34.dat Date: 10/23/02

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563432.41
**Easting:** 13305109.19
**Casing Elevation:** NA

**Borehole Depth:** 11' bgs
**Surface Elevation:** 745.50 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-35

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 2.0 | 0.0 | - | SM | | Black (10YR 2/1) Silty fine subangular to angular poorly graded SAND (SM), few Clay, few fine to coarse subangular Gravel, Slag present, aplastic, no odor, loose, dry. Foundry Sand. | Silty SAND | |
| | | | | | 0.0 | + | ML | | Light yellow-brown (10YR 6/4) SILT (ML), few Clay, aplastic, medium dense, no odor, dry. Fill. | SILT | |
| 5 | 740 | 2 | 4-8 | 3.8 | 0.1 | - | SM | | Light yellow-brown (10YR 6/4) Silty fine subangular poorly graded SAND (SM), trace Clay, aplastic, loose, no odor, dry. Fill Sand.<br>Dark gray-brown (10YR 4/2) color from 4.0' - 4.3' bgs. | Silty SAND | |
| | | | | | 0.0 | - | | | Moist, increasing moisture with depth below 6.5' bgs. | | |
| | | 3 | 8-11 | 2.9 | 0.8 | - | | | Saturated at 8.2' bgs. | | ▼ |
| 10 | 735 | | | | 0.3 | - | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded to subangular Sand, trace fine to medium rounded Gravel, stiff, moderately to weakly plastic, no odor, moist. Native Glacial Clay Till. | Silty CLAY | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/4/02 | 8.2' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-35.dat Date: 10/23/02

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563317.118
**Easting:** 13305089.55
**Casing Elevation:** NA

**Borehole Depth:** 11' bgs
**Surface Elevation:** 745.71 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-36

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | Fill | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 3.2 | 0.0 | - | SM | | Black (10YR 2/1) to brown (10YR 4/3) Silty fine to coarse (predominantly fine) subangular to subrounded poorly graded SAND (SM), little Clay, few to little fine to coarse subrounded to rounded Gravel, aplastic, dense, no odor, dry. Fill Sand. | Silty SAND | |
| | | | | | 0.0 | + | CL | | Very dark gray-brown (10YR 3/2) Silty Lean Clay (CL), few fine to coarse subangular to subrounded Sand, rare fine to medium rounded Gravel, weakly to moderately plastic, stiff, no odor, damp. Native Clay Till used as backfill. | Clay | |
| | | | | | | | FL | | Weathered CONCRETE Rubble. | Fill | |
| 5 | | 2 | 4-8 | 3.7 | 0.2 | - | ML | | Yellow-brown (10YR 5/6) SILT (ML), few to little Clay, aplastic, no odor, dense, damp to moist. Fill. | SILT | |
| | 740 | | | | 0.8 | - | SM | | Light yellow-brown (10YR 6/4) Silty fine to subangular poorly graded SAND (SM), few to trace Clay, aplastic, no odor, loose, dry. Fill Sand. | Silty SAND | |
| 10 | 735 | 3 | 8-11 | 3.0 | 0.0 | - | | | Saturated, color darkening to brown (10YR 4/3) below 8.8' bgs. | | ▼ |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/4/02 | 8.8' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-36.dat Date: 10/23/02

**Date Start/Finish:** 9/04/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 1.5" Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563308.688
**Easting:** 13305123.15
**Casing Elevation:** NA

**Borehole Depth:** 10' bgs
**Surface Elevation:** 745.62 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-37

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | Fill | |
| | | 1 | 0-4 | 2.8 | 0.0 | + | SM | | Black (10YR 2/1) Silty fine to coarse (predominantly fine) subangular to subrounded poorly graded SAND (SM), few fine rounded Gravel, trace Clay, Slag and Metallic debris present, aplastic, loose, no odor, dry. Foundry Sand and Slag. | Silty SAND | Borehole backfilled with Bentonite to grade. |
| | | | | | 0.0 | - | CL | | Very dark brown (10YR 2/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, rare fine rounded Gravel, moderately plastic, no odor, damp. Native Clay Till used as backfill. | Cla | |
| 5 | | 2 | 4-8 | 4.0 | 0.0 | - | ML | | Brown-yellow (10YR 6/6) SILT (ML), little to few Clay, aplastic, medium dense, no odor, moist to dense. Backfill/Fill. | SILT | |
| | 740 | | | | 0.0 | | SM | | Light brown-yellow (10YR 6/4) Silty fine subangular poorly graded SAND (SM), few to trace Clay, no odor, loose, moist. | Silty SAND | |
| | | | | | 0.0 | - | | | Moist to wet at 7.5' bgs. | | |
| | | 3 | 8-10 | 2.0 | 0.0 | - | | | Saturated, color darkens to yellow-brown (10YR 5/4) below 8.6' bgs. | | ▼ |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/4/02 | 8.6' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-37.dat Date: 10/23/02

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564179.7033
**Easting:** 13305484.94
**Casing Elevation:** NA

**Borehole Depth:** 7.0' bgs.
**Surface Elevation:** 745.97 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-38

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | CONCRETE. | | Borehole backfilled with Bentonite to grade. |
| | 745 | | | | | | | | See log for RFI-83/84-27 (installed on 12/31/02) for stratigraphy and soil descriptions. | | |
| 5 | | | | | | | | | Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), little Slag, few Clay, aplastic, no odor, loose, dry. Foundary Sand. | SILTY SAND | |
| | 740 | 1 | 5-7 | NA | 4.2 | - | SM | | | | |
| 10 | | | | | | | | | | | |
| | 735 | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer
Located 1' from RFI-83/84-27R.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83-84-38.dat Date: 04/17/03

**Date Start/Finish:** 3/19/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564073.26
**Easting:** 13305502.69
**Casing Elevation:** NA

**Borehole Depth:** 10' bgs
**Surface Elevation:** 745.56 ft. AMSL

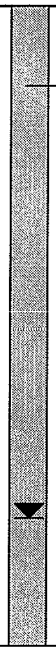
**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-39

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 0-4 | 2.7 | 158<br>182 | +<br>+ | SM | | Black (10YR 2/1) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, loose, dry. Fill Sand. | SILTY SAND | |
| 5 | 740 | 2 | 4-8 | 3.5 | 422<br>1320 | +<br>+ | | | Oily material with moderate odor, wet to moist at 7.0' bgs. | | |
| | | 3 | 8-10 | 2.0 | 628 | + | | | Saturated at 8.0' bgs. | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.
Samples collected from 1.1' - 3.1' bgs & 5.1' - 7.1' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/19/03 | 8.0' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-39.dat Date: 10/23/02

**Date Start/Finish:** 3/6/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allan Rau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Sleeve
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 564039.26
**Easting:** 13305421.31
**Casing Elevation:** NA

**Borehole Depth:** 2.5' bgs
**Surface Elevation:** 745.67 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-40

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | FL | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 1-2.5 | 1.5 | 0.0 | + | SM | | Black (10YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few Clay, few fine angular Gravel, Cinders, and possible Slag present, aplastic, no odor, loose, dry. Fill/Foundry Sand. | SILTY SAND | |
| | | | | | | | | | Refusal at 2.0' bgs due to presence of Concrete. | | |
| 5 | 740 | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83/84-40.dat Date: 10/23/02

**Date Start/Finish:** 3/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563463.66
**Easting:** 13305083.26
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs.
**Surface Elevation:** 745.82 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-41

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | 745 | | | | | | | | | | |
| | | 1 | 1-2 | 1.0 | 0.0 | - | SW | | Gray (10YR 4/1) fine to coarse subangualr to subrounded SAND (SW), few Silt, wood and concrete debris present throughout, aplastic, no odor, dry, loose. Fill | SAND | |
| 5 | | | | | | | | | | | |
| | 740 | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| | 735 | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563438.8
**Easting:** 13305067.51
**Casing Elevation:** NA

**Borehole Depth:** 3.0' bgs
**Surface Elevation:** 745.80 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-42

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 1-3 | 2.0 | 0.0 | - | SM | | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, weak odor, medium dense to loose, dry. Fill Sand. | SILTY SAND | |
| 5 | 740 | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83_84-42.dat Date: 04/21/03

**Date Start/Finish:** 3/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Direct Push
**Sampler Size:** 4' Acetate Liners
**Auger Size:** NA
**Rig Type:** Truck-mounted Geoprobe

**Northing:** 563418.09
**Easting:** 13305096.79
**Casing Elevation:** NA

**Borehole Depth:** 3.5 bgs
**Surface Elevation:** 745.63 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-43

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 1-3 | 2.0 | 0.0 | - | SM | | Dark brown (10YR 3/3) fine to coarse, predominantly fine, subrounded to subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, loose, dry. Fill Sand. | SILTY SAND | |
| 5 | 740 | | | | | | | | | | |
| 10 | 735 | | | | | | | | | | |
| 15 | 730 | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File:RFI-83_84-43.dat Date: 04/21/03

**Date Start/Finish:** 3/16/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 45B

**Northing:** 564563.84
**Easting:** 13305265.89
**Casing Elevation:** 746.16 ft. AMSL

**Borehole Depth:** 19' bgs
**Surface Elevation:** 746.44 ft. AMSL

**Descriptions By:** SM Duly

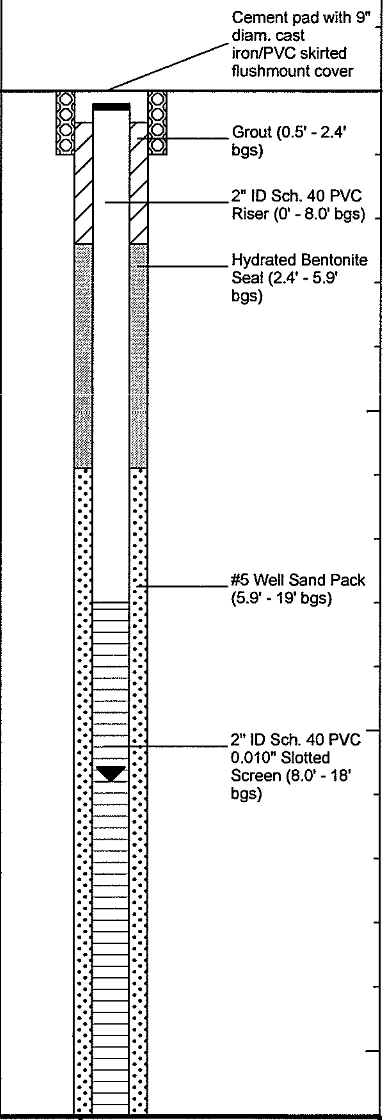
**Boring ID:** RFI-83/84-44

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | ML | | CONCRETE. | ONCRET |
| | 745 | 1 | 1-3 | 4<br>4<br>7<br>5 | 11 | 1.5 | 0.0 | - | SM | | Very dark brown (10YR 2/2) fine to coarse, predominantly fine, subangular SILTY SAND (SM), few fine to coarse subangular to rounded Gravel, Slag, Cinders, and Ash present, aplastic, no odor, medium dense, dry. Foundry Sand. | SILTY SAND |
| | | 2 | 3-5 | 8<br>10<br>14<br>18 | 24 | 1.3 | 0.0 | - | | | | |
| 5 | 740 | 3 | 5-7 | 8<br>9<br>10<br>11 | 19 | 1.6 | 0.0 | - | | | Mottled to black (10YR 2/1) to dark yellow-brown (10YR 4/6) at 5' bgs.<br>Brown (10YR 5/4) color, fine rather than fine to coarse at 6.8' bgs. | |
| | | 4 | 7-9 | 3<br>3<br>4<br>7 | 7 | 1.7 | 0.0 | - | SP | | Yellow-brown (10YR 5/6) fine subangular POORLY GRADED SAND (SP), little Silt, aplastic, loose, no odor, dry. Fill Sand. | Fine SAND |
| 10 | | 5 | 9-11 | 5<br>5<br>10<br>12 | 15 | 1.3 | 0.0 | - | | | Wet at 10' bgs.<br>Saturated at 10.8' bgs. | |
| | 735 | 6 | 11-13 | 4<br>10<br>12<br>16 | 22 | 1.5 | 0.0 | - | SM | | Gray (10YR 5/1) fine to medium, predominantly fine, POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, medium dense, saturated. Undisturbed Native Glacio-Alluvial. | SILTY SAND |
| | | 7 | 13-15 | 4<br>9<br>8<br>11 | 17 | 1.3 | 0.0 | - | | | Gray (10YR 5/1) SILT (ML), few fine subangular Sand, little Clay, aplastic, no odor, moderately dense, saturated. | SILT |
| 15 | | 8 | 15-17 | 5<br>5 | 15 | 1.2 | 0.0 | - | ML | | | |

## Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0' - 3.0' & 7.0'- 9.0' bgs.

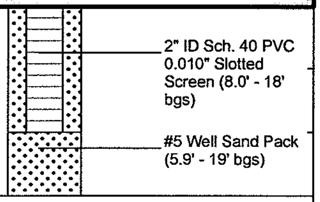
**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/16/03 | 10.8 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-83_84-44.dat Date: 5/8/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-44
**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | 8 | 15-17 | 10<br>12 | 15 | 1.2 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), few fine subangular Sand, little Clay, aplastic, no odor, moderately dense, saturated. | SILT |  |
| | | 9 | 17-19 | 11<br>12<br>18<br>22 | 30 | 1.6 | 0.0 | - | | | | | |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0' - 3.0' & 7.0'- 9.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/16/03 | 10.8 | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/6/03 - 3/10/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 4' Liners (0-10')/2' x 2" ID (10-19')
**Auger Size:** 3-1/4" ID
**Rig Type:** Geoprobe (0-10')/CME 45B (10-19')

**Northing:** 564582.4
**Easting:** 13305247.72
**Casing Elevation:** 746.22 ft. AMSL

**Borehole Depth:** 19' bgs
**Surface Elevation:** 746.57 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-45

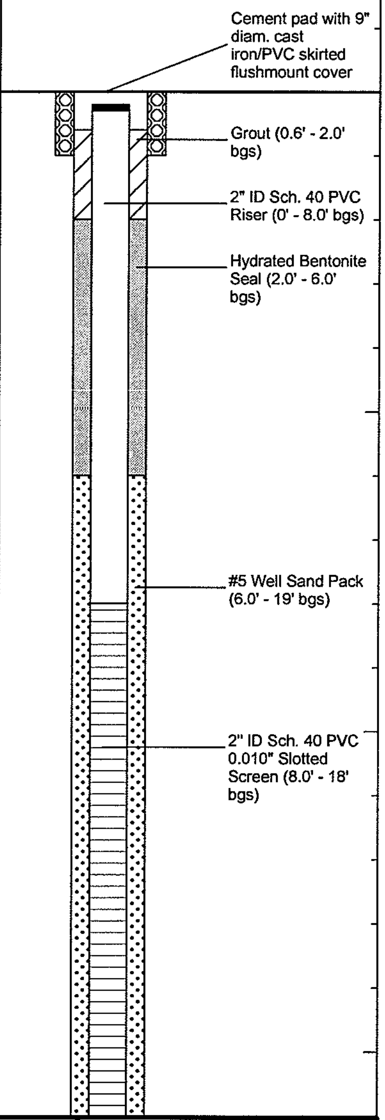
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 745 | 1 | 0-4 | NA | NA | 2.0 | 0.0 | - |
| 5 | 740 | 2 | 4-8 | NA | NA | 4.0 | 0.0 | - |
| 10 | | 3 | 8-11 | NA | NA | 3.0 | 0.0 | - |
| | 735 | 4 | 11-13 | 8<br>10<br>16<br>16 | 26 | 1.3 | 0.0 | - |
| | | 5 | 13-15 | 4<br>6<br>7<br>9 | 13 | 1.8 | 0.0 | - |
| 15 | | 6 | 15-17 | 10<br>11 | 20 | 1.7 | 0.0 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| ML | CONCRETE. | ONCRET |
| SM | Black (10YR 2/1) to dark brown (10YR 3/3) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few fine to coarse angular Gravel, Metallic Slag, Glass, and Building debris, aplastic, no odor, loose, dry. Fill/Foundry Sand.<br>Yellow-brown (10YR 5/4) color at 5.5' bgs.<br>5"-thick black glassy angular Cinders at 5.7' bgs.<br>5"-thick black glassy angular Cinders at 5.7' bgs. | SILTY SAND |
| ML | Brown (10YR 5/3) to black (10YR 2/1) to gray-brown (10YR 5/2) SILT (ML), little Clay, aplastic, no odor, dense, damp. Fill. | SILT |
| SP | Brown (10YR 4/3) subangular POORLY GRADED SAND (SP), little to locally some Silt, aplastic, medium dense, no odor, damp becoming moist at 10' bgs. Fill Sand.<br>Refusal with Geoprobe, switch to Hollow Stem Auger.<br>Saturated at 11' bgs. | SAND |
| ML | Gray (10YR 5/1) SILT (ML), little Clay, aplastic, loose, no odor, saturated. Native Undisturbed Glacio Alluvial | SILT |
| SM | Gray (10YR 5/1) fine to medium, predominanlt fine, subangular POORLY GRADED SILTY SAND (SM), little to few Clay, aplastic, no odor, loose, saturated. Native Undisturbed Glacio-Alluvial. | SILTY SAND |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.9' - 2.9' & 7.9'- 9.9' bgs.
Duplicate sample DUP-418 collected from 7.9' - 9.9' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-45

**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | 6 | 15-17 | 9<br>8 | 20 | 1.7 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML) as above from 14' - 14.9' bgs, saturated. Native Undisturbed Glacio Alluvial. | SILT | 2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs)<br>#5 Well Sand Pack (6.0' - 19' bgs) |
| | | 7 | 17-19 | 7<br>9<br>13<br>12 | 22 | 1.3 | 0.0 | - | | | | | |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.9' - 2.9' & 7.9'- 9.9' bgs.
Duplicate sample DUP-418 collected from 7.9' - 9.9' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 3/18/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/DP
**Sampler Size:** 4' Acetate Liners
**Auger Size:** 3-1/4" ID
**Rig Type:** Geoprobe/CME 45B

**Northing:** 564643.23
**Easting:** 13305188.53
**Casing Elevation:** 746.38 ft. AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** 746.65 ft. AMSL

**Descriptions By:** SM Duly

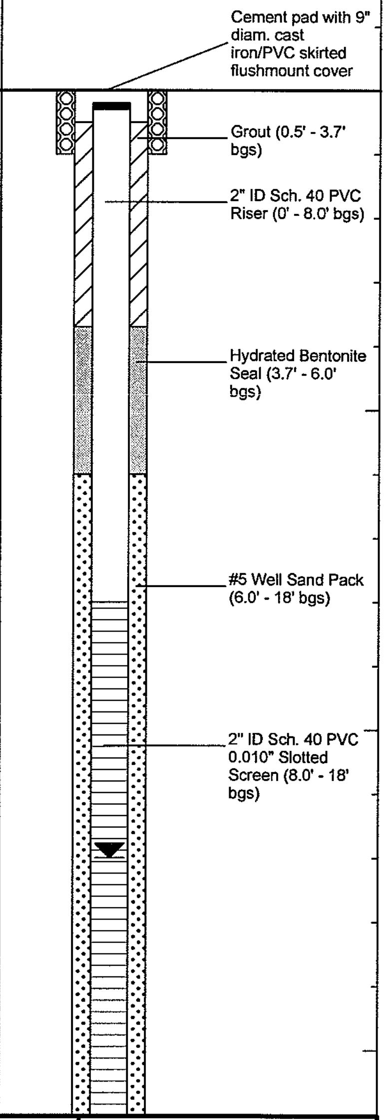
**Boring ID:** RFI-83/84-46

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | CONCRETE. | CONCRETE |
| | 745 | 1 | 0-4 | | | 2.3 | 4.6<br>18.8 | + | SP | | Black (10YR 2/1) fine to coarse subangular, predominanlt fine, POORLY GRADED SAND (SP), some Silt, few Clay, few fine to coarse angular Gravel, Slag, and Cinders present, aplastic, loose, no odor, dry. Foundry Sand. | SAND |
| 5 | 740 | 2 | 4-8 | | | 4.0 | 188<br>86.7<br>11.1 | + | | | Increased Clay to locally some in patches and lenses up to 2" in diameter at 7.5'. | |
| 10 | | 3 | 8-12 | | | 4.0 | 11.1<br>24 | + | | | | |
| | 735 | | | | | | | | CL | | Black (10YR 2/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, few fine to coarse subrounded to rounded Gravel, weakly plastic, stiff, weak odor, dry to damp with increased moisture with depth after 11.' bgs. Native Clay Till used as Backfill. | SILTY CLAY |
| | | | | | | | | | FL | | WOOD debris, moderate sweet odor, saturated. | WOO |
| 15 | | 4 | 12-16 | | | 1.0 | 51.7 | + | SM | | Gray (10YR 5/1) fine subangular poorly graded SILTY SAND (SM), Oily material/liquid present, aplastic, moderate sweet odor, saturated. Glacio-Alluvial.<br>Low recovery from 12' - 16' bgs due to collapse. Pushed spoon with rods to 18' bgs. | SILTY SAND |

**Boring Construction**



Cement pad with 9" diam. cast iron/PVC skirted flushmount cover

Grout (0.5' - 3.7' bgs)

2" ID Sch. 40 PVC Riser (0' - 8.0' bgs)

Hydrated Bentonite Seal (3.7' - 6.0' bgs)

#5 Well Sand Pack (6.0' - 18' bgs)

2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs)

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/18/03 | 12' | |

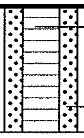
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File: RFI-83_84-46.dat Date: 5/8/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-46

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | SM | | Gray (10YR 5/1) fine subangular poorly graded SILTY SAND (SM), Oily material/liquid present, aplastic, moderate sweet odor, saturated. Glacio-Alluvial. | SILTY SAND | <br>2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs)<br>#5 Well Sand Pack (6.0' - 18' bgs) |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 3/18/03 | 12' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Geoprobe.ldf
Data File: RFI-83_84-46.dat Date: 5/8/03

| | | |
|---|---|---|
| **Date Start/Finish:** 4/7/03<br>**Drilling Company:** Rau Drilling<br>**Driller's Name:** Greg Compeau<br>**Drilling Method:** HSA/SS<br>**Sampler Size:** 2" OD + 2'<br>**Auger Size:** 4-1/4" ID<br>**Rig Type:** CME 550 ATV | **Northing:** 564586.82<br>**Easting:** 13305188.34<br>**Casing Elevation:** NA<br>**Borehole Depth:** 17' bgs<br>**Surface Elevation:** 746.51 ft. AMSL<br>**Descriptions By:** SM Duly | **Boring ID:** RFI-83/84-47<br>**Client:** General Motors<br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | FL | | CONCRETE. | FILL | |
| | 745 | 1 | 1-3 | 3<br>3<br>2<br>2 | 5 | 0.8 | 4727 | - | SM | | Black (10YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM), few fine to coarse subangular to subrounded Gravel, occasional Slag, Cinders, and Ash, aplastic, no odor, loose, dry. Foundry Sand. | SILTY SAND | Borehole backfilled with Bentonite to grade. |
| | | 2 | 3-5 | 5<br>7<br>9<br>20 | 16 | 1.0 | 170 | - | | | Increased Slag content to 10-15% throughout at 4.0' bgs. | | |
| 5 | 740 | 3 | 5-7 | 8<br>11<br>13<br>14 | 24 | 1.1 | 1009 | - | | | Increased Slag content to 25% throughout at 6.0' bgs. | | |
| | | 4 | 7-9 | 8<br>13<br>3<br>2 | 16 | 0.5 | 1320 | + | | | Low recovery due to presence of Slag in shoe at 7.0' bgs. | | |
| 10 | | 5 | 9-11 | 2<br>2<br>3<br>6 | 5 | 0.8 | 24.8 | + | CL | | Black (10YR 2/1) SILTY LEAN CLAY (CL), some Silt, few fine to coarse subrounded to rounded Gravel, trace subrounded well graded Sand, very plastic, soft, weak odor, moist to saturated with sheen present at 10.8' bgs. Native Clay Till used as Backfill. | SILTY CLAY | ▼ |
| | 735 | 6 | 11-13 | 5<br>7<br>7<br>8 | 14 | 1.1 | 159 | + | ML | | Gray (10YR 5/1) SILT (ML), some Clay, few fine subangular Sand, aplastic, no odor, medium dense, saturated. Native Glacial-Alluvial. | SILT | |
| | | 7 | 13-15 | 10<br>10<br>9<br>8 | 19 | 0.9 | 4.5 | - | | | | | |
| 15 | | 8 | 15-17 | 6<br>8 | 18 | 0.6 | 1.9 | - | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Sample collected from 1.0' - 3.0' bgs with Duplicate;
and from 8.0' - 10' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/7/03 | 10.8' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf

Data File: RFI-83_84-47.dat Date: 5/1/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-47

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | 8 | 15-17 | 10<br>6 | 18 | 0.6 | 1.9 | - | ML | | Gray (10YR 5/1) SILT (ML), some Clay, few fine subangular Sand, aplastic, no odor, medium dense, saturated. Native Glacial-Alluvial. | SILT | Borehole backfilled with Bentonite to grade. |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Sample collected from 1.0' - 3.0' bgs with Duplicate;
and from 8.0' - 10' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/7/03 | 10.8' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 4/7/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 540 ATV

**Northing:** 564585.53
**Easting:** 13305128.30
**Casing Elevation:** 746.23 ft. AMSL

**Borehole Depth:** 17.5' bgs
**Surface Elevation:** 746.56 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-48

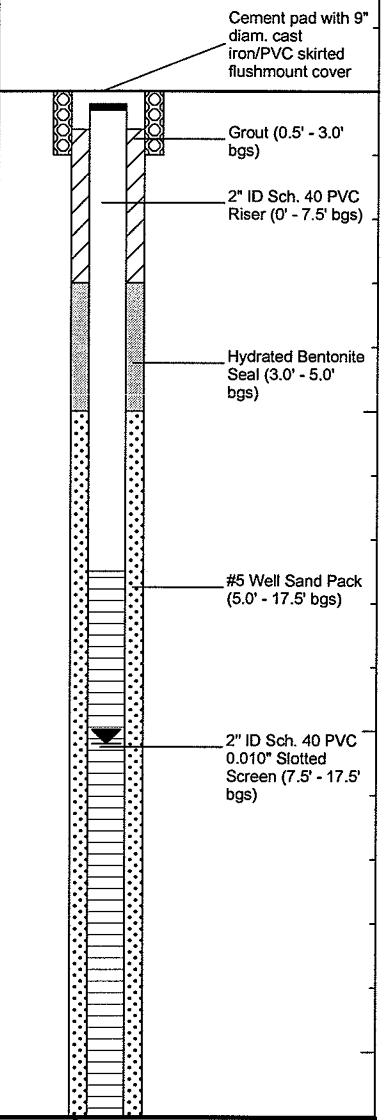
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| | 745 | 1 | 1-3 | 2<br>2<br>3<br>4 | 5 | 1.8 | 1458 | - |
| | | 2 | 3-5 | 4<br>3<br>3<br>2 | 6 | 0.8 | 113 | - |
| 5 | 740 | 3 | 5-7 | 10<br>11<br>7<br>6 | 18 | 1.3 | 42.9 | - |
| | | 4 | 7-9 | 2<br>1<br>4<br>9 | 5 | 1.6 | 24.7 | - |
| 10 | | 5 | 9-11 | 5<br>5<br>5<br>5 | 10 | 1.5 | 38.6 | + |
| | 735 | 6 | 11-13 | 3<br>5<br>5<br>6 | 10 | 1.3 | 0.0 | - |
| | | 7 | 13-15 | 4<br>5<br>5<br>8 | 10 | 1.1 | 0.0 | - |
| 15 | | 8 | 15-17 | 5<br>7 | 13 | 1.4 | 0.0 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | CONCRETE. | CONCRET |
| SM | Black (10YR 2/1) fine to coarse, predominantly fine, subangular POORLY GRADED SILTY SAND (SM) and Slag, few Clay, few fine to coarse subangular to subrounded Gravel, approximately 40-50% Slag, Ashes, Cinders, and large pieces of Metal throughout, aplastic, no odor, loose, dry. Foundry Sand and Slag. | SILTY SAND |
| FL | Black (10YR 2/1) fine to coarse angular to fine to medium angular Gravel-sized SLAG, some Cinders and little Silt as above from 1.0' - 6.3' bgs, aplastic, no odor, loose, dry. Slag used as Fill. | SLAG |
| CL | Gray-brown (10YR 5/3) to black (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, small Sand- to Silt-sized pieces of Slag, Cinders, and Ash mised in where Clay is black, moderately plastic, soft. Native Clay Till used as Backfill. | LTY CL |
| SM | Fine to coarse subangular to subrounded WELL GRADED SILTY SAND (SM), few Clay, few fine to coarse rounded Gravel, aplastic, no odor, loose, dry. Fill Sand.<br>Brown (10YR 5/3) to yellow-brown (10YR 5/4) fine POORLY GRADED SILTY SAND (SM), few Clay, faint sheen on soils in spoon and on cuttings, aplasic, loose, moist then saturated at 10.2' bgs. Fill Sand. | SILTY SAND |
| ML | Gray (10YR 5/1) SILT (ML) some Clay, few fine subangular Sand, aplastic, no odor, loose to medium dense, saturated. Undisturbed Native Glacio-Alluvial. | SILT |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0' - 3.0' & 7.0'- 9.0' bgs.
MS/MSD collected from 1.0' - 3.0' bgs.

**Water Level Data**

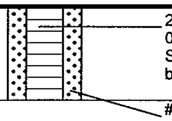
| Date | Depth | Elev. |
|---|---|---|
| 4/7/03 | 10.2' | |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-48

**Borehole Depth:** 17.5' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | 8 | 15-17 | 6<br>7 | 13 | 1.4 | 0.0 | - | ML | ▨ | Gray (10YR 5/1) SILT (ML) some Clay, few fine subangular Sand, aplastic, no odor, loose to medium dense, saturated. Undisturbed Native Glacio-Alluvial. | SILT | |
| 20 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |



2" ID Sch. 40 PVC 0.010" Slotted Screen (7.5' - 17.5' bgs)

#5 Well Sand Pack (5.0' - 17.5' bgs)

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 1.0' - 3.0' & 7.0'- 9.0' bgs.
MS/MSD collected from 1.0' - 3.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/7/03 | 10.2' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 4/9/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 564014.65
**Easting:** 13305496.46
**Casing Elevation:** 745.25 ft. AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** 745.53 ft. AMSL

**Descriptions By:** SM Duly

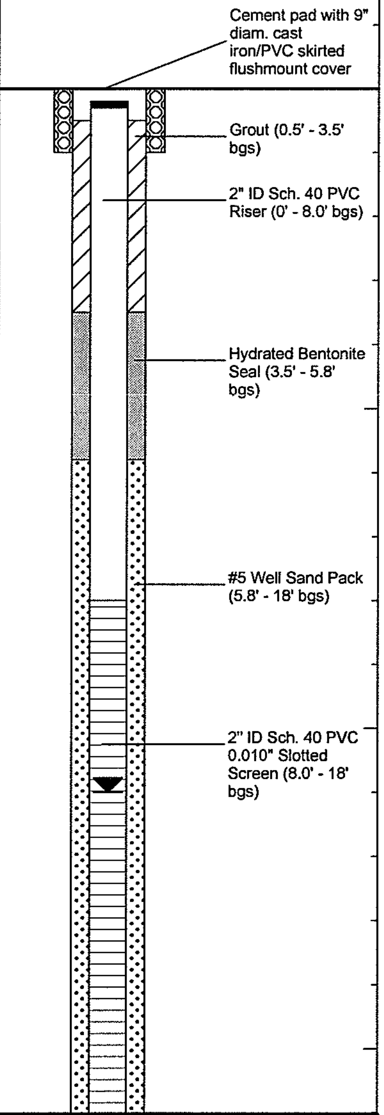
**Boring ID:** RFI-83/84-49

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | | | FL | | CONCRETE. | FILL |
| | | 1 | 1-3 | NA<br>6<br>7<br>12 | 13 | 1.0 | 1162 | - | SM | | Black (10YR 2/1) fine to coarse subangular SILTY SAND (SM), little Clay, few fine to coarse subrounded Gravel, Slag and Wood present, aplastic, weak odor, loose, damp. Foundry Sand. | SILTY SAND |
| | | | | | | | | | FL | | CONCRETE. | FILL |
| 5 | 740 | 2 | 5-7 | 4<br>5<br>12<br>15 | 17 | 1.0 | 1006 | + | SM | | Black (10YR 2/1) SILTY SAND (SM) as above from 0.9' - 3.0' bgs. Foundry Sand. | SILTY SAND |
| | | 3 | 7-9 | 10<br>7<br>5<br>3 | 12 | 0.5 | 78.6 | + | | | | |
| 10 | | 4 | 9-11 | 3<br>5<br>8<br>9 | 13 | 1.5 | 113 | + | CL | | Black (10YR 2/1) SILTY LEAN CLAY (CL), little fine to coarse, predominantly fine poorly graded subrounded Sand, plastic, weak odor, soft, moist. Native Clay Till used as Backfill. | SILTY CLAY |
| | 735 | 5 | 11-13 | 4<br>7<br>7<br>7 | 14 | 1.3 | 17.9 | + | SP | | Dark gray (10YR 3/1) fine subangular POORLY GRADED SAND (SP), some to little Silt, Oily sheen present at tip of spoon, aplastic, weak odor, moist. Fill Sand.<br>Slag present, saturated below 11' bgs.<br>Gray (10YR 5/1) color, Slag present at 12' bgs.<br>1"-thick black lense, Oily sheen on material in spoon at 13' bgs.<br>Blind Drill to 18' bgs. | SAND |
| 15 | 730 | | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.9' - 2.9', 4.5'- 6.5', 8.5' - 10.5' bgs.
Duplicate sample DUP-437 collected from 8.5' - 10.5' bgs.

**Water Level Data**

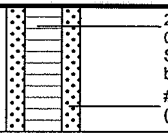
| Date | Depth | Elev. |
|---|---|---|
| 4/9/03 | 11' | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-49

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | SP | ░ | Dark gray (10YR 3/1) fine subangular POORLY GRADED SAND (SP), some to little Silt, Oily sheen present at tip of spoon, aplastic, weak odor, moist. Fill Sand. | ↑ SAND ↓ |  2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs)<br>#5 Well Sand Pack (5.8' - 18' bgs) |
| 20 | 725 | | | | | | | | | | | | |
| 25 | 720 | | | | | | | | | | | | |
| 30 | 715 | | | | | | | | | | | | |
| 35 | 710 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.9' - 2.9', 4.5'- 6.5', 8.5' - 10.5' bgs.
Duplicate sample DUP-437 collected from 8.5' - 10.5' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/9/03 | 11' | |

| | | |
|---|---|---|
| **Date Start/Finish:** 4/10/03<br>**Drilling Company:** Rau Drilling<br>**Driller's Name:** Greg Compeau<br>**Drilling Method:** HSA/SS<br>**Sampler Size:** 2" OD + 2'<br>**Auger Size:** 4-1/4" ID<br>**Rig Type:** CME 550 ATV | **Northing:** 564604.15<br>**Easting:** 13305287.05<br>**Casing Elevation:** NA<br><br>**Borehole Depth:** 15' bgs<br>**Surface Elevation:** 742.69 ft. AMSL<br><br>**Descriptions By:** SM Duly | **Boring ID:** RFI-83/84-50<br><br>**Client:** General Motors<br><br>**Location:** GM Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | | | |
| 0 | 740 | | | | | | | | FL | | CONCRETE debris and angular Pebble-sized AGGREGATE. Fill. | FILL | Borehole backfilled with Bentonite to grade. |
| | | 1 | 3-5 | 6<br>16<br>13<br>9 | 39 | 1.4 | 2805 | + | SM | | Dark yellow-brown (10YR 4/6) fine to coarse, predominantly fine, subangular SILTY SAND (SM), few to little Clay, aplastic, no odor, medium dense, dry. Fill Sand. | SILTY SAND | |
| 5 | | 2 | 5-7 | 5<br>6<br>7<br>9 | 13 | 2.0 | 575 | + | | | Decreased density to loose, moist to damp at 5.0' bgs. | | |
| | 735 | 3 | 7-9 | 6<br>6<br>10<br>11 | 16 | 1.1 | 62 | + | | | | | ▼ |
| 10 | | 4 | 9-11 | 3<br>4<br>9<br>10 | 13 | 1.5 | 106 | + | ML | | Gray (10YR 5/1) SILT (ML), some fine subangular fine poorly graded Sand, few Clay, faint sheen of very light weight Oil presen until 11' bgs, aplastic, no odor, medium dense to loose, saturated. Native Glacio-Alluvial. | SILT | |
| | 730 | 5 | 11-13 | 4<br>5<br>7<br>8 | 12 | 1.7 | 8.3 | - | | | | | |
| 15 | | 6 | 13-15 | 3<br>4<br>5<br>6 | 9 | 1.5 | 0.0 | - | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Sample collected from 3.0' - 5.0' bgs with MS/MSD;
and from 5.0' - 7.0' bgs with Duplicate.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/10/03 | 8.0' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-83_84-50.dat Date: 5/1/03

**Date Start/Finish:** 4/10/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 564605.27
**Easting:** 13305339.98
**Casing Elevation:** 742.39 ft. AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** 742.68 ft. AMSL

**Descriptions By:** SM Duly

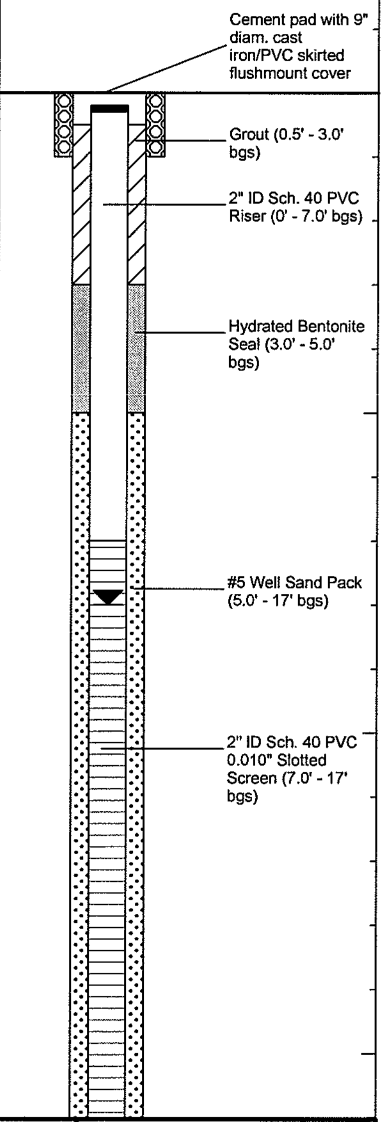
**Boring ID:** RFI-83/84-51

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | |
| 0 | 740 | | | | | | | | FL | ASPHALT.<br>Coarse angular, predominantly large, Pebble-sized to coarse Gravel-sized AGGREGATE, Railroad ties present, no odor, loose, dry. Aggregate. | FILL |
| | | 1 | 3-5 | 6<br>8<br>9<br>8 | 17 | 1.6 | 386 | - | SM | Dark yellow-brown (10YR 4/3) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, medium loose to medium dense, dry. Fill Sand. | SILTY SAND |
| 5 | | 2 | 5-7 | 4<br>6<br>7<br>7 | 13 | 1.8 | 52.4 | - | CL<br>SM | Yellwo-brown (10YR 5/6) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, weakly plastic, no odor, damp. Native Clay Till used as Backfill.<br>Yellow-brwn (10YR 6/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, medium dense to medium loose, damp with increasing moisture content with depth. Fill Sand. | Y C<br>SILTY SAND |
| | 735 | 3 | 7-9 | 4<br>6<br>7<br>8 | 13 | 1.4 | 12.9 | + | SM | Saturated, very faint sheen in oil/water shake test at 8.0' bgs. | SILTY SAND |
| 10 | | 4 | 9-11 | 6<br>5<br>7<br>6 | 12 | 1.3 | 27.6 | + | ML | Gray (10YR 5/1) SILT (ML), some to little fine subangular poorly graded Sand, few Clay, aplastic, moderate "moth ball"-like odor at 11' bgs, loose to moderately dense, saturated. Native Glacio-Alluvial. | SILT |
| | 730 | 5 | 11-13 | 3<br>5<br>7<br>7 | 12 | 1.7 | 3.0 | + | ML | | SILT |
| | | 6 | 13-15 | 4<br>7<br>9<br>11 | 16 | 1.4 | 3.0 | - | ML | Faint "moth ball"-like odor at 13' bgs.<br>No odor below 14' bgs. | SILT |
| 15 | | 7 | 15-17 | 11<br>21 | 45 | 1.5 | 0.0 | - | ML | Gray (10YR 5/1) SILT (ML), some to little fine subangular | SILT |

Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 3.0' - 5.0' & 5.0'- 7.0' bgs.
Duplicate sample DUP-439 collected from 5.0' - 7.0' bgs.

**Water Level Data**

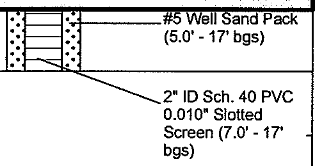
| Date | Depth | Elev. |
|---|---|---|
| 4/10/03 | 8.0' | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-51

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7 | 15-17 | 24<br>23 | 45 | 1.5 | 0.0 | - | ML | ▤ | poorly graded Sand, few Clay, aplastic, moderate "moth ball"-like odor at 11' bgs, loose to moderately dense, saturated. Native Glacio-Alluvial. | SILT |  |
| | 725 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | |
| | 720 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 715 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 3.0' - 5.0' & 5.0'- 7.0' bgs.
Duplicate sample DUP-439 collected from 5.0' - 7.0' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/10/03 | 8.0' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-83_84-51.dat Date: 5/8/03

**Date Start/Finish:** 4/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 563915.18
**Easting:** 13305490.62
**Casing Elevation:** NA

**Borehole Depth:** 13' bgs
**Surface Elevation:** 745.53 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-52

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | | | FL | | CONCRETE. | FILL | |
| | | 1 | 1-3 | 2<br>3<br>2<br>3 | 5 | 1.4 | 3672 | + | ML | | Black (10YR 2/1) for first 2", then brown (10YR 4/3) SILT (ML), some Clay, little fine to coarse, predominantly fine, poorly graded subrounded Sand, aplastic, no odor, loose, dry. Native Glacial Till used as Backfill. | SILT | Borehole backfilled with Bentonite to grade. |
| | | 2 | 3-5 | 2<br>3<br>3<br>2 | 6 | 1.7 | 3076 | + | | | | | |
| 5 | 740 | 3 | 5-7 | 2<br>3<br>4<br>5 | 7 | 1.1 | 2271 | + | | | Weak "Oily" odor, very dark brown (10YR 3/2) color at 5.0' bgs. | | |
| | | 4 | 7-9 | 3<br>2<br>4<br>6 | 6 | 1.8 | 364 | + | CL | | Dark brown (10YR 3/3) SILTY LEAN CLAY (CL), few fine to coarse Sand, trace fine rounded Gravel, moderate odor, weakly to moderately plastic, soft, damp. Native Clay Till used as Backfill. | SILTY CLAY | |
| 10 | 735 | 5 | 9-11 | 4<br>7<br>6<br>7 | 13 | 1.6 | 404 | + | SP | | Gray (10YR 5/1) fine to coarse, predominantly fine, subangular POORLY GRADED SAND (SP), some Silt, few Clay, moderate odor, aplastic, medium dense to loose, sheen on spoon, clear very light weight Oil, moist then wet then saturated at 10.7' bgs. | SAND, FINE | ▼ |
| | | 6 | 11-13 | 3<br>3<br>2<br>4 | 5 | 1.1 | 31.8 | + | | | | | |
| 15 | 730 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available.
Sample collected from 0.9' - 2.9' bgs;
and from 2.9' - 4.9' bgs with Duplicate.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/11/03 | 10.7' | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-83_84-52.dat Date: 5/1/03

**Date Start/Finish:** 4/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 563891.02
**Easting:** 13305501.34
**Casing Elevation:** 745.32 ft. AMSL

**Borehole Depth:** 17' bgs
**Surface Elevation:** 745.63 ft. AMSL

**Descriptions By:** SM Duly

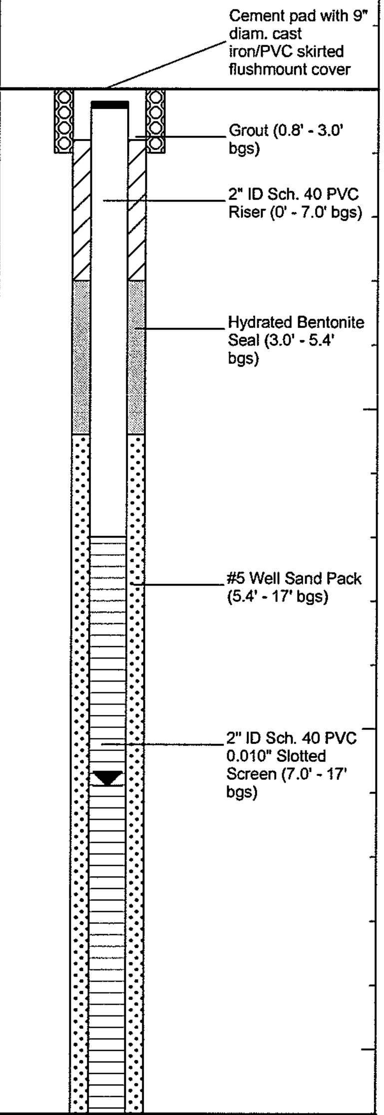
**Boring ID:** RFI-83/84-53

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 745 | | | | | | | | FL | CONCRETE. | ONCRET |
| | | 1 | 1-3 | 3<br>2<br>3<br>3 | 5 | 1.4 | 7.4 | - | SP | Black (10YR 2/1) fine to coarse, predominantly fine, POORLY GRADED SAND (SP), some Silt, few Clay, 10-15% pieces of Wood, Metallic debris, and Slag, aplastic, no odor (except wood has weak odor), loose, dry. Foundry/Fill Sand.<br>Brown (10YR 5/3) SILT (ML), little fine to coarse, predominantly fine, poorly graded Sand, few to little Clay with increased Clay content in patches, aplastic, no odor, loose, dry. Native Glacial Clay Till used as Backfill. | SAND<br>SILT |
| | | 2 | 3-5 | 2<br>2<br>2<br>2 | 4 | 1.3 | 18.9 | - | ML | Dark gray-brown (10YR 3/1) color at 4.0' bgs. | |
| 5 | 740 | 3 | 5-7 | 3<br>5<br>4<br>6 | 9 | 1.4 | 47.6 | + | | | |
| | | 4 | 7-9 | 2<br>2<br>4<br>7 | 6 | 1.3 | 58.7 | + | CL | Dark brown (10YR 3/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, moderately plastic, soft, no odor, damp. Native Clay Till used as Backfill. | SILTY CLAY |
| 10 | 735 | 5 | 9-11 | 6<br>7<br>8<br>11 | 15 | 1.1 | 68.9 | + | SP | Gray (10YR 6/1) fine to coarse, predominantly fine, POORLY GRADED SAND (SP), little Silt, few Clay, very light weight and clear Oil present, aplastic, weak odor, medium dense to loose, damp to moist at 10' bgs. Glacio-Alluvial. | SAND |
| | | 6 | 11-13 | 4<br>5<br>6<br>8 | 11 | 1.2 | 50.1 | + | | Saturated at 10.9' bgs.<br>Fines to a Silty Sand at 11.9' bgs. | |
| | | 7 | 13-15 | 6<br>7<br>8<br>10 | 15 | 1.4 | 0.4 | + | | No odor present below 13' bgs.<br>Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to medium rounded Gravel, occasional Silty Sand lenses up to 1"-thick throughout, weakly to moderately plastic, no odor, soft, damp becoming increasingly dry with depth. Undisturbed Native Glacial Clay Till. | |
| 15 | 730 | 8 | 15-17 | 2<br>1 | 3 | 1.1 | 0.0 | - | CL | | SILTY CLA |

## Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.9' - 2.9', 6.9' - 8.9', 8.9'- 10.9' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/11/03 | 10.9' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-83_84-53.dat Date: 5/8/03

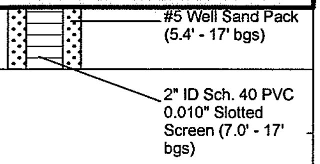
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-83/84-53

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 2<br>2 | 3 | 1.1 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded to rounded Sand, trace fine to medium rounded Gravel, occasional Silty Sand lenses up to 1"-thick throughout, weakly to moderately plastic, no odor, soft, damp becoming increasingly dry with depth. Undisturbed Native Glacial Clay Till. | ILTY CLA | |
| 20 | 725 | | | | | | | | | | | | |
| 25 | 720 | | | | | | | | | | | | |
| 30 | 715 | | | | | | | | | | | | |
| 35 | 710 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.9' - 2.9', 6.9' - 8.9', 8.9'- 10.9' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/11/03 | 10.9' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-83_84-53.dat Date: 5/8/03

**Date Start/Finish:** 4/11/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 550 ATV

**Northing:** 564792.77
**Easting:** 13305030.85
**Casing Elevation:** 746.41 ft. AMSL

**Borehole Depth:** 16' bgs
**Surface Elevation:** 746.65 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-83/84-54

**Client:** General Motors

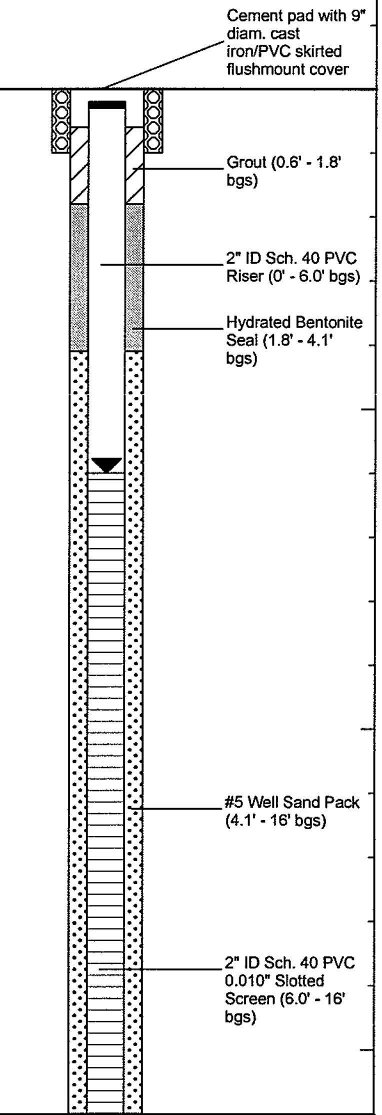
**Location:** GM Flint
Flint, Michigan

| Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|
| | | NA | | | | |
| 1 | 0-2 | 3<br>3<br>2 | 6 | 1.0 | 7.2 | + |
| 2 | 2-4 | 2<br>4<br>5<br>7 | 9 | 0.8 | 0.0 | + |
| 3 | 4-6 | 4<br>5<br>3<br>1 | 8 | 0.0 | NA | NA |
| 4 | 6-8 | 1<br>1<br>1<br>1 | 2 | 0.5 | 3.4 | - |
| 5 | 8-10 | 2<br>7<br>7<br>8 | 14 | 1.1 | 5.4 | - |
| 6 | 10-12 | 4<br>5<br>7<br>7 | 12 | 1.5 | 0.0 | - |
| 7 | 12-14 | 4<br>6<br>6<br>7 | 12 | 1.3 | 0.0 | - |
| 8 | 14-16 | 5<br>7<br>8<br>7 | 15 | 1.2 | 0.0 | - |

DEPTH: 0, 5, 10, 15 — ELEVATION: 745, 740, 735

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | ASPHALT. | FILL |
| SP | Black (10YR 2/1) fine to coarse, predominantly fine, subangular to subrounded POORLY GRADED SAND (SP), some to llittle Silt, few Clay, large pieces of Metallic debris and other foundry Slag mixed in throughout, aplastic, no odor, loose, dry.<br>Brick fragments and Wood, moist at 4.0' bgs. | SAND |
| OL | Black (10YR 5/1) FAT CLAY with Silt (OL), possibly Organic-rich indicated by Plant debris such as Root fragments and Wood debris, increasing Sand content with depth, soft, very plastic, no odor, saturated. Alluvial/Riverine - low energy environment of deposition. | CLAY AND SILT |
| SM | Brown (10YR 5/3) fine subangular to subrounded POORLY GRADED SILTY SAND (SM), few to little Clay with increased Clay content in patches, loose, no odor, saturated. Glacio-Alluvial.<br>Gray (10YR 5/1) to brown (10YR 5/3) Silt (ML) lenses up to 5"-thick, saturated throughout below 11' bgs.<br>Fines downward below 12' bgs. | SILTY SAND |
| ML | Gray (10YR 5/1) SILT (ML), few fine subrounded Gravel, little to some Clay, aplastic, no odor, loose, saturated. Glacio-Alluvial. | SILT |

## Boring Construction



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.
Samples collected from 0.6 - 2.6' bgs.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/11/03 | 6.0 | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-83_84-13.dat Date: 5/13/03

**Date Start/Finish:** 7/21/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560823.79
**Easting:** 13306222.82
**Casing Elevation:** 727.23' AMSL

**Borehole Depth:** 22' below grade
**Surface Elevation:** NA

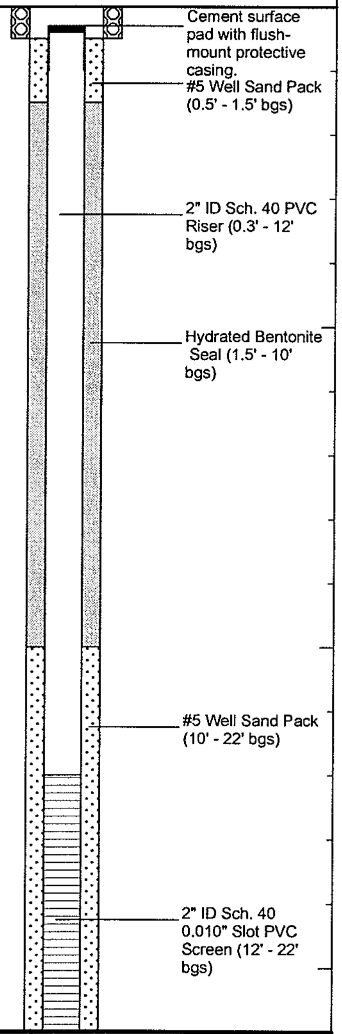
**Descriptions By:** R. Tuttle/J. Kralik

**Well/Boring ID:** RFI-84-03S

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 22' bgs. For geologic descriptions see RFI-84-03D. | |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-84-03-S.dat Date: 8/5/05

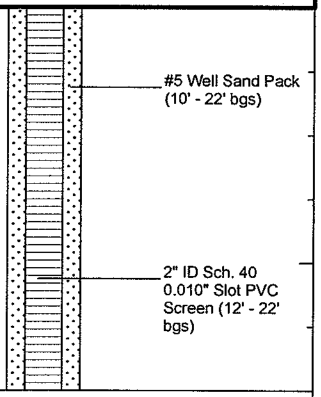
**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-03S

**Borehole Depth:** 22' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Augered without sampling to 22' bgs. For geologic descriptions see RFI-84-03D. | |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-03-S.dat Date: 8/5/05

**Date Start/Finish:** 7/20/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560827.64
**Easting:** 13306219.64
**Casing Elevation:** 727.13' AMSL

**Borehole Depth:** 33' below grade
**Surface Elevation:** NA

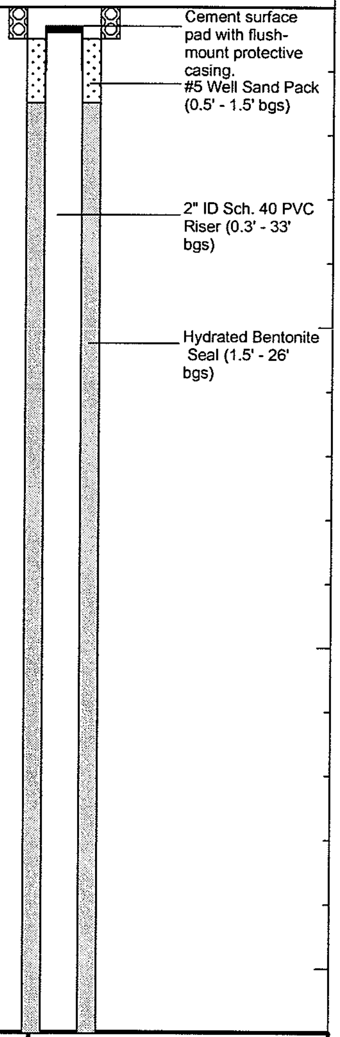
**Descriptions By:** R. Tuttle/J. Kralik

**Well/Boring ID:** RFI-84-03I

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 33' bgs. For geologic descriptions see RFI-84-03D. | |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

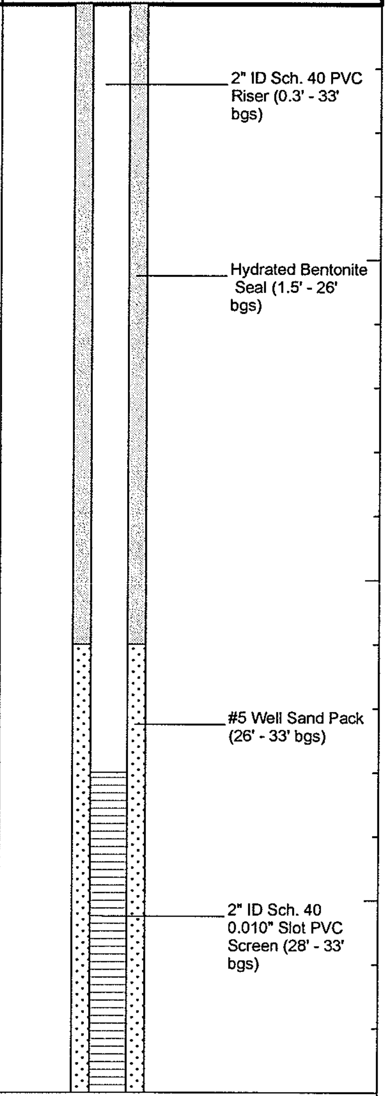
Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-03-I.dat Date: 8/5/05

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-03I

**Borehole Depth:** 33' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20<br>25<br>30<br>35 | 20<br>25<br>30<br>35 | | | | | | | | | | Augered without sampling to 33' bgs. For geologic descriptions see RFI-84-03D. |  |

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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-03-I.dat
Date: 8/5/05

**Date Start/Finish:** 7/19/05 - 7/20/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560822.40
**Easting:** 13306218.90
**Casing Elevation:** 727.20' AMSL

**Borehole Depth:** 46' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle/J. Kralik

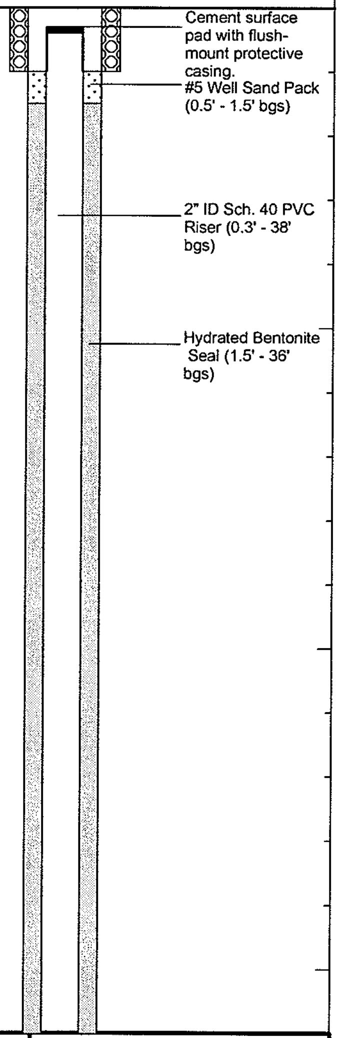
**Well/Boring ID:** RFI-84-03D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | NA | NA | | FL | | CONCRETE. |
| | | 2 | 2-4 | 2<br>2<br>3<br>4 | 5 | 0.75 | 0.0 | | CL | | Brown (10YR 4/3) LEAN CLAY with Silt (CL), little fine Sand, few fine subrounded Gravel and coarse Sand, slightly plastic, medium stiff, no odor, dry. Native Clay used as Fill. |
| 5 | -5 | 3 | 4-6 | 3<br>4<br>4<br>5 | 8 | 1.25 | 0.0 | | | | |
| | | 4 | 6-8 | 3<br>2<br>1<br>1 | 3 | 1.1 | 0.0 | | SP | | Dark yellow-brown (10YR 4/4) fine POORLY-GRADED SAND (SP), few fine subangular Gravel and Clay, loose, no odor, moist. Fill.<br>1"-thick Clay lenses from 7.5' - 8.0' bgs. |
| | | 5 | 8-10 | 2<br>2<br>2<br>2 | 4 | 1.0 | 0.0 | | CL | | Brown (10YR 4/3) LEAN CLAY with Silt (CL), some fine Sand, few fine subrounded Gravel and coarse Sand, slightly plastic, medium stiff, no odor, moist. Native Clay used as Fill. |
| 10 | -10 | 6 | 10-12 | 1<br>3<br>4<br>6 | 7 | 1.75 | 0.0 | | ML | | Dark yellow-brown (10YR 4/4), with gray (10YR 4/1) mottling, CLAYEY SILT (ML), medium dense, no odor, moist. |
| | | 7 | 12-14 | 3<br>3<br>4<br>9 | 7 | 1.4 | 0.0 | | CL | | Gray (10YR 4/1) LEAN CLAY with Silt (CL), little very fine Sand, orange oxidation to 12.5' bgs, moderately plastic, medium stiff, no odor, moist. |
| 15 | -15 | 8 | 14-16 | 1<br>2<br>4<br>7 | 6 | 1.5 | 0.0 | | SP | | Gray (10YR 5/1) fine POORLY-GRADED SAND (SP), trace fine subrounded Gravel, loose, no odor, saturated. |

Well/Boring Construction



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**Remarks:**
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NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-03D

**Borehole Depth:** 46' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 2<br>2<br>4<br>2 | 6 | 1.0 | 0.0 | | SW | | Gray (10YR 5/1) fine to coarse WELL-GRADED SAND (SW), little fine subangular Gravel, trace medium subrounded Gravel, loose, no odor, saturated. Fluvial Deposit. |
| | | 10 | 18-20 | 4<br>6<br>6<br>8 | 12 | 2.0 | 0.0 | | | | Medium dense below 18' bgs. |
| 20 | 20 | 11 | 20-22 | 4<br>5<br>15<br>15 | 20 | 2.0 | 0.0 | | | | |
| | | 12 | 22-24 | 2<br>9<br>12<br>11 | 21 | 1.0 | 0.0 | | | | Light brownish-gray (5YR 6/1) fine to coarse WELL-GRADED SAND (SW), little fine to medium subrounded to subangular Gravel, medium dense, no odor, saturated. Fluvial Deposit. |
| 25 | 25 | 13 | 24-26 | 4<br>5<br>7<br>8 | 12 | 1.0 | 0.0 | | | | |
| | | 14 | 26-28 | 4<br>8<br>14<br>16 | 22 | 1.0 | 0.0 | | | | Trace coarse subrounded Gravel below 26' bgs. |
| | | 15 | 28-30 | 5<br>9<br>12<br>12 | 21 | 1.5 | 0.0 | | | | Light brownish-gray Silt in tip of sampler. |
| 30 | 30 | 16 | 30-32 | 6<br>8<br>12<br>15 | 20 | 1.5 | 0.0 | | ML | | Light brownish-gray (5YR 6/1) SILT (ML), medium dense, no odor, saturated. Fluvial Deposit. |
| | | 17 | 32-34 | 4<br>9<br>11<br>9 | 20 | 1.5 | 0.0 | | SW | | Light brownish-gray (5YR 6/1) fine to coarse WELL-GRADED SAND (SW), little fine to medium subrounded to subangular Gravel, medium dense, no odor, saturated. Fluvial Deposit. |
| 35 | 35 | 18 | 34-36 | 3<br>7<br>10<br>20 | 17 | 1.8 | 0.0 | | SP | | Brownish-gray (5YR 4/1) fine to medium POORLY-GRADED SAND (SP), trace Silt and coarse Sand, medium dense, saturated. Fluvial Deposit. |

**Well/Boring Construction**

2" ID Sch. 40 PVC Riser (0.3' - 38' bgs)

Hydrated Bentonite Seal (1.5' - 36' bgs)

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**Remarks:**
bgs = below ground surface; AMSL= Above Mean Sea Level; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

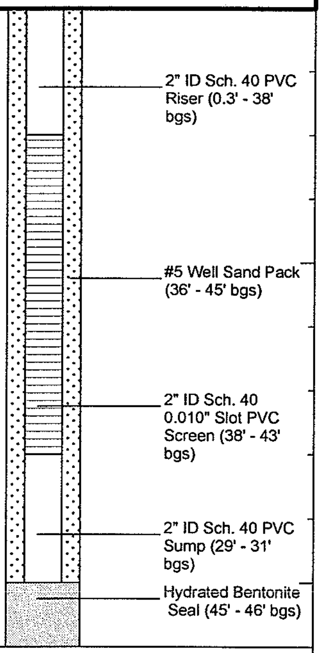
**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-03D

**Borehole Depth:** 46' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 19 | 36-38 | 5<br>20<br>14<br>12 | 34 | 1.5 | 0.0 |  | SP |  | Brownish-gray (5YR 4/1) fine to medium POORLY-GRADED SAND (SP), trace Silt and coarse Sand, medium dense, saturated. Fluvial Deposit. |  |
|  |  | 20 | 38-40 | 10<br>20<br>25<br>27 | 45 | 1.5 | 0.0 |  |  |  | Subangular Limestone Rock fragment at 39.5' bgs.<br>Trace Silt and Clay from 39.5' - 4.0' bgs. |  |
| 40- | 40 | 21 | 40-42 | 6<br>12<br>12<br>20 | 24 |  | 0.0 |  |  |  |  |  |
|  |  | 22 | 42-44 | 5<br>7<br>15<br>20 | 22 | 1.5 | 0.0 |  | CL |  | LIMESTONE Rock fragments.<br>Brownish-gray (5YR 4/1) fine SANDY CLAY (CL), trace to little Silt, hard, no odor, damp.<br>Some fine subangular to subrounded Gravel below 44' bgs. |  |
| 45- | 45 | 23 | 44-46 | 10<br>20<br>70<br>- | 90 | 1.5 | 0.0 |  |  |  |  |  |
| 50- | 50 |  |  |  |  |  |  |  |  |  |  |  |
| 55- | 55 |  |  |  |  |  |  |  |  |  |  |  |



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**Remarks:**
bgs = below ground surface; AMSL= Above Mean Sea Level; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-84-03-D.dat Date: 8/5/05

**Date Start/Finish:** 7/21/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560971.64
**Easting:** 13306087.83
**Casing Elevation:** 727.23' AMSL

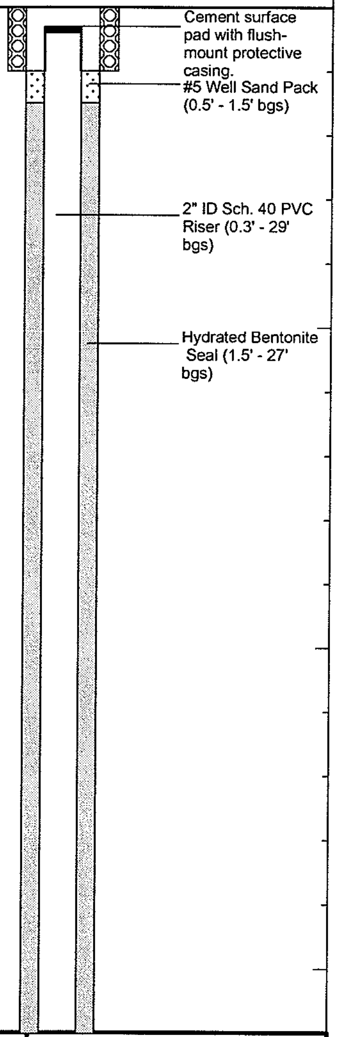
**Borehole Depth:** 34' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle/J. Kralik

**Well/Boring ID:** RFI-84-04I

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 34' bgs. For geologic descriptions see RFI-84-04D. |  |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**
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NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

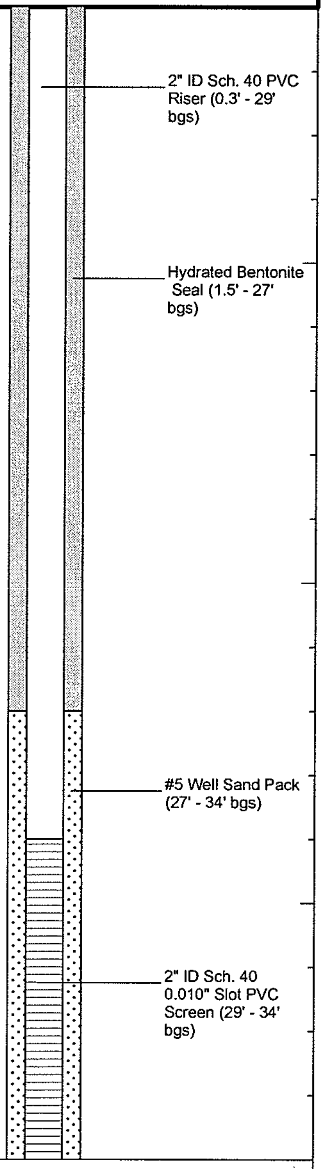
Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-84-04-I.dat Date: 8/12/05

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-04I

**Borehole Depth:** 34' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Augered without sampling to 34' bgs. For geologic descriptions see RFI-84-04D. |  |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-04-I.dat Date: 8/12/05

**Date Start/Finish:** 7/21/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560972.35
**Easting:** 13306082.38
**Casing Elevation:** 727.08' AMSL

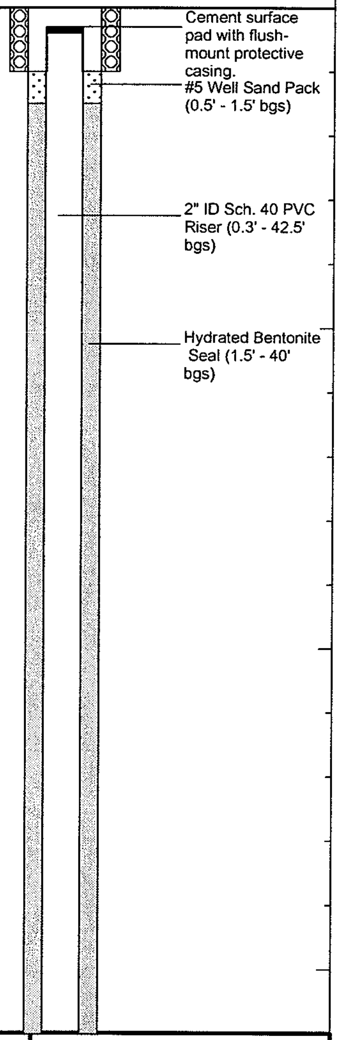
**Borehole Depth:** 50' below grade
**Surface Elevation:** NA

**Descriptions By:** R. Tuttle/J. Kralik

**Well/Boring ID:** RFI-84-04D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | NA | NA | | FL | | CONCRETE. |  |
| | | 2 | 2-4 | 4<br>3<br>4<br>3 | 7 | 1.5 | 0.0 | | | | Brown (10YR 4/3) CLAY (CL), little fine Sand, few fine subrounded Gravel and medium to coarse Sand, medium stiff, extremely hard, no odor, damp. Fill. | |
| 5 | -5 | 3 | 4-6 | 4<br>5<br>7<br>5 | 12 | 2.0 | 0.0 | | | | Stiff below 4.0' bgs. | |
| | | 4 | 6-8 | 5<br>8<br>10<br>12 | 18 | 2.0 | 0.0 | | | | Very stiff below 6.0' bgs. | |
| | | 5 | 8-10 | 5<br>9<br>12<br>20 | 21 | 1.8 | 0.0 | | CL | | | |
| 10 | -10 | 6 | 10-12 | 10<br>12<br>16<br>20 | 28 | 1.8 | 0.0 | | | | | |
| | | 7 | 12-14 | 4<br>6<br>12<br>14 | 18 | 2.0 | 0.0 | | | | Light brownish-gray (5YR 6/1) CLAY (CL), little fine Sand and fine subrounded to subangular Gravel, extremely hard, very stiff, no odor, damp. | |
| 15 | -15 | 8 | 14-16 | 4<br>8<br>10<br>2 | 18 | 2.0 | 0.0 | | | | | |

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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Client:**
General Motors

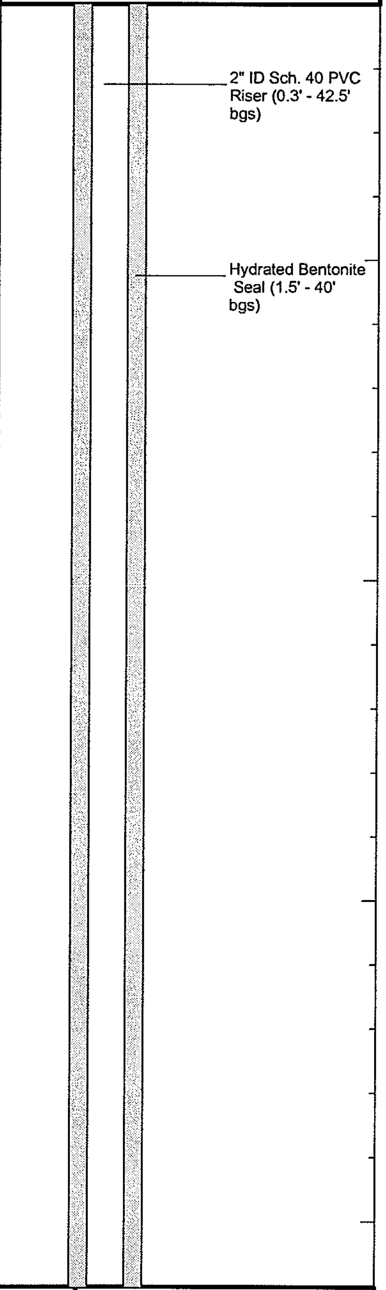
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-04D

**Borehole Depth:** 50' below grade

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 4<br>6<br>12<br>14 | 18 | 2.0 | 0.0 | | CL<br>ML | Light brownish-gray (5YR 6/1) CLAY (CL), little fine Sand and fine subrounded to subangular Gravel, extremely hard, very stiff, no odor, damp.<br>Pale brown (5YR 5/2) SILT (ML), very stiff, damp. |
| | 10 | 18-20 | 3<br>4<br>8<br>14 | 12 | 1.8 | 0.0 | | | Trace Clay below 18' bgs.<br>Weathered Rock fragments at 19.3' bgs. |
| 20-20 | 11 | 20-22 | 4<br>8<br>12<br>16 | 20 | 2.0 | 0.0 | | | |
| | 12 | 22-24 | 4<br>6<br>10<br>14 | 16 | 2.0 | 0.0 | | | |
| 25-25 | 13 | 24-26 | NA | NA | 2.0 | 0.0 | | | |
| | 14 | 26-28 | 10<br>25<br>25<br>17 | 50 | 2.0 | 0.0 | | | Wet to saturated below 27' bgs. |
| | 15 | 28-30 | 10<br>15<br>15<br>15 | 30 | 2.0 | 0.0 | | SW | Light brown fine to coarse WELL-GRADED SAND (SW), trace fine subrounded Gravel, gradational (fine to coarse) sequence present, loose, no odor, saturated. |
| 30-30 | 16 | 30-32 | 4<br>3<br>5<br>10 | 8 | 2.0 | 0.0 | | | |
| | 17 | 32-34 | 2<br>4<br>6<br>10 | 8 | 2.0 | 0.0 | | | |
| 35-35 | 18 | 34-36 | 4<br>7<br>12<br>25 | 19 | 2.0 | 0.0 | | SP | Light brownish-gray medium to coarse POORLY-GRADED SAND (SP), little to trace fine subrounded Gravel, trace Clay inclusions, medium dense, no odor, saturated. Fluvial Deposits. |

Well/Boring Construction



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NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-04-D.dat Date: 8/5/05

**Client:**
General Motors

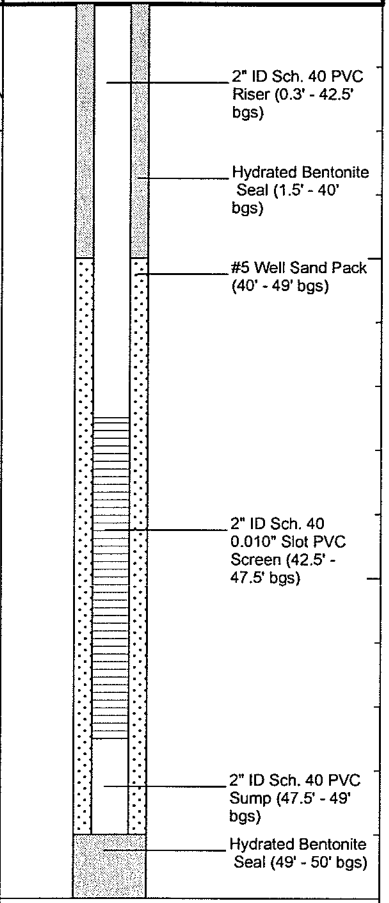
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-04D

**Borehole Depth:** 50' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 19 | 36-38 | 5<br>8<br>13<br>20 | 21 | 2.0 | 0.0 | | SP | | Light brownish-gray medium to coarse POORLY-GRADED SAND (SP), little to trace fine subrounded Gravel, trace Clay inclusions, medium dense, no odor, saturated. Fluvial Deposits.<br>Light brownish-gray fine POORLY-GRADED SAND (SP), trace medium Sand, no odor, saturated. |
| | | 20 | 38-40 | NA | NA | 2.0 | 0.0 | | SP | | Light brownish-gray medium to coarse POORLY-GRADED SAND (SP), trace fine subrounded Gravel, trace Clay inclusions, medium dense, no odor, saturated. Fluvial Deposits. |
| 40 | 40 | 21 | 40-42 | 10<br>14<br>25<br>22 | 39 | 1.5 | 0.0 | | SP | | |
| | | 22 | 42-44 | 4<br>18<br>35<br>35 | 53 | 1.5 | 0.0 | | SP | | |
| 45 | 45 | 23 | 44-46 | NA | NA | 1.5 | 0.0 | | SW | | Light brownish-gray fine to coarse WELL-GRADED SAND (SW), some fine to coarse Gravel, little Silt, trace Clay and Rock fragments, no odor, wet to moist. |
| | | 24 | 46-48 | 15<br>30<br>20<br>20 | 50 | 1.5 | 0.0 | | SW | | |
| | | 25 | 48-50 | 18<br>25<br>30<br>30 | 55 | 1.5 | 0.0 | | CL | | Brownish-gray (5YR 4/1) fine SANDY CLAY (CL), trace Silt, hard, no odor, damp. |
| 50 | 50 | | | | | | | | | | |
| 55 | 55 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 2/21/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4-1/4"
**Rig Type:** CME 85

**Northing:** 560401.27
**Easting:** 13306155.18
**Casing Elevation:** 728.12 ft. AMSL

**Borehole Depth:** 13' bgs
**Surface Elevation:** 728.54 ft. AMSL

**Descriptions By:** SM Duly

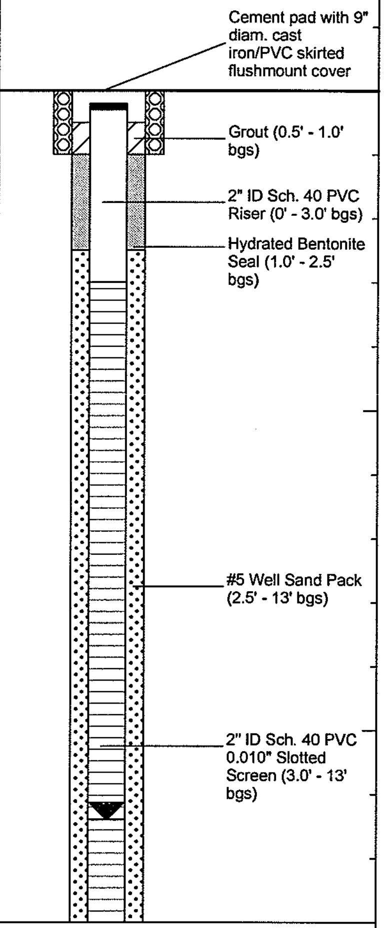
**Boring ID:** RFI-84-06R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | | |
| 0 | | | | | | | | | FL | | ASPHALT.<br>CONCRETE. | FILL |
| | | 1 | 1-3 | 15<br>24<br>10<br>3 | 34 | 2 | 0.0 | - | CL | | Brown (10YR 5/3) to yellow brown (10YR 5/4) SILTY LEAN CLAY (CL), little fine to coarse subrounded to rounded Sand, few fine to coarse rounded Gravel, weakly plastic, very stiff to hard, no odor, dry. Native Clay Till used as Backfill. | SILTY CLAY |
| | 725 | | | | | | | | SP | | Yellow-brown (10YR 5/4) fine to medium POORLY GRADED SAND (SP), little Silt, aplastic, medium dense to loose, saturated (perched?). Fill Sand. | SAND |
| | | 2 | 3-5 | 2<br>4<br>6<br>6 | 10 | 1.4 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY, few fine to coarse subrounded to rounded Sand, trace fine to coarse rounded Gravel, weakly to moderately plastic, medium stiff, no odor, moist to damp. Saturated Sand and Silt lenses throughout up to 1" thick. Tiny stringers of water present throughout. Undisturbed Native Glacial Clay Till.<br>Saturated Sand lense at 4.2' bgs. | SILTY CLAY |
| 5 | | 3 | 5-7 | 3<br>5<br>9<br>9 | 14 | 2 | 0.0 | - | | | | |
| | 720 | 4 | 7-9 | 2<br>5<br>10<br>10 | 15 | 2 | 0.0 | - | | | | |
| 10 | | 5 | 9-11 | 4<br>4<br>5<br>10 | 9 | NA | 0.0 | - | | | 6"-thick saturated Silt lense at 9.3' bgs. | |
| | | 6 | 11-13 | 3<br>12<br>19<br>20 | 31 | NA | 0.0 | - | | | Saturated Silt lense from 11.4' - 12.2' bgs. | |
| | 715 | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/20/03 | 11.4 | |

Project: 644.10.022 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well.ldf
Data File:RFI-84-06R.dat Date: 3/18/03

**Date Start/Finish:** 7/14/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560405.07
**Easting:** 13306158.44
**Casing Elevation:** 720.18' AMSL

**Borehole Depth:** 22' below grade
**Surface Elevation:** NA

**Descriptions By:** SM Duly

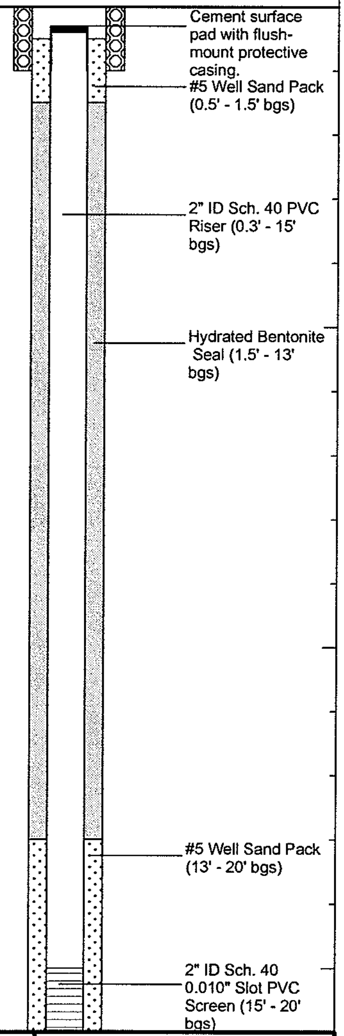
**Well/Boring ID:** RFI-84-06RD

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 10' bgs. For geologic descriptions see RFI-84-06R2. |
| 5 | -5 | | | | | | | | | | |
| 10 | 10 | 1 | 10-12 | 5<br>8<br>10<br>12 | 18 | 1.5 | 0.0 | | ML | | Gray (10YR 5/1) SILT (ML), few Clay, brittle, no odor, dry to damp. |
| | | 2 | 12-14 | 10<br>15<br>25<br>- | NA | 1.0 | 0.0 | | | | |
| 15 | 15 | 3 | 14-16 | 8<br>10<br>10<br>15 | 20 | 1.5 | 0.0 | | SP | | Gray fine POORLY-GRADED SAND (SP), little Silt, loose, no odoe, saturated. |

**Well/Boring Construction**



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
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Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-84-06RD.dat Date: 8/5/05

**Client:**
General Motors

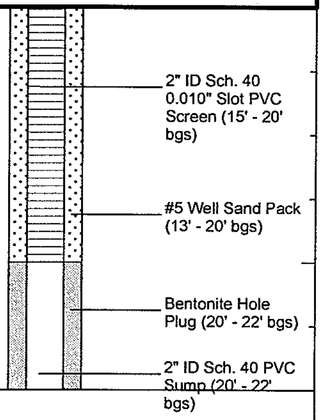
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-06RD

**Borehole Depth:** 22' below grade

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
|  | 4 | 16-18 | 4<br>6<br>6<br>8 | 12 | 1.1 | 0.0 |  | SP<br>SW |  | Gray fine POORLY-GRADED SAND (SP), little Silt, loose, no odoe, saturated.<br>Gray fine to coarse WELL-GRADED SAND (SW), little fine subrounded Gravel, loose, no odor, saturated. |
|  | 6 | 18-20 | 10<br>18<br>18<br>20 | 36 | 1.2 | 0.0 |  | SW |  |  |
| 20-20 | 7 | 20-22 | 15<br>30<br>30<br>30 | 60 | 0.5 | 0.0 |  | ML |  | Gray (10YR 5/1) CLAYEY SILT (ML), few fine to coarse subrounded Sand, hard, no odor, moist. |
| 25-25 |  |  |  |  |  |  |  |  |  |  |
| 30-30 |  |  |  |  |  |  |  |  |  |  |
| 35-35 |  |  |  |  |  |  |  |  |  |  |

**Well/Boring Construction**



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**Remarks:**
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**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
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Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-06RD.dat Date: 8/5/05

**Date Start/Finish:** 6/30/2005
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560993.31
**Easting:** 13306252.29
**Casing Elevation:** 727.12' AMSL

**Borehole Depth:** 22' below grade
**Surface Elevation:** NA

**Descriptions By:** Kristina Gross

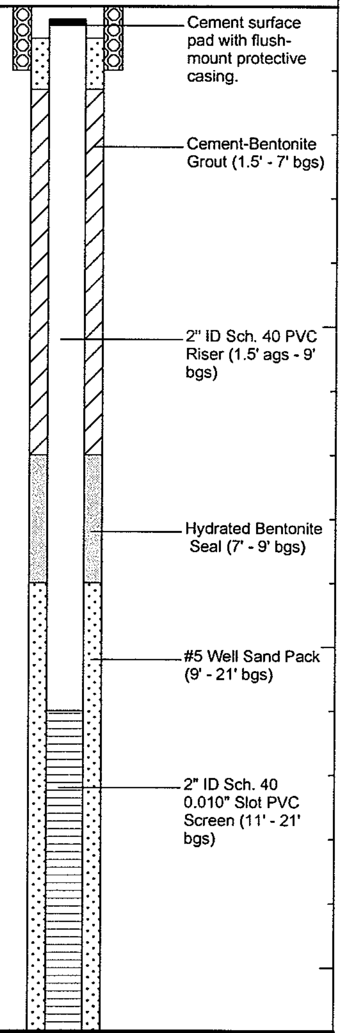
**Well/Boring ID:** RFI-84-07

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | NA | NA | | | | | CONCRETE. Auger to 2' bgs. |
| | | 1 | 2-4 | 3<br>5<br>3<br>4 | 8 | 1.4 | 0.0 | | ML | Light brown SILT (ML), some fine to medium Sand, trace Cinders, hard, dry. [FILL] |
| 5 | -5 | 2 | 4-6 | 4<br>4<br>4<br>6 | 8 | 1.4 | 0.0 | | SP<br>ML | Light brown fine SAND (SP), loose, dry.<br>Light brown SILT (ML), little fine Sand, medium stiff, dry. |
| | | 3 | 6-8 | 3<br>3<br>6<br>8 | 9 | 1.0 | 1.6 | | ML | Light gray CLAYEY SILT (ML), some orange mottling, medium stiff, moist. |
| | | 4 | 8-10 | 2<br>5<br>7<br>7 | 12 | 1.5 | 3.0 | | ML | Light orangish-brown SILT (ML), medium stiff, moist. |
| 10 | -10 | 5 | 10-12 | 2<br>8<br>11<br>12 | 19 | 1.8 | 0.8 | | CL | Light pinkish-gray SILTY CLAY (CL), stiff, moist. |
| | | 6 | 12-14 | 2<br>4<br>4<br>8 | 8 | 1.0 | 0.8 | | ML | Light pinkish-gray CLAYEY SILT (SP), medium stiff, moist to wet at 14' bgs. |
| 15 | -15 | 7 | 14-16 | 2<br>4<br>6<br>5 | 10 | 1.0 | 1.8 | | | |

Well/Boring Construction



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NA = Not Available/Not Applicable.

Soil samples RFI-84-07(2-4) and RFI-84-07(14-16) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

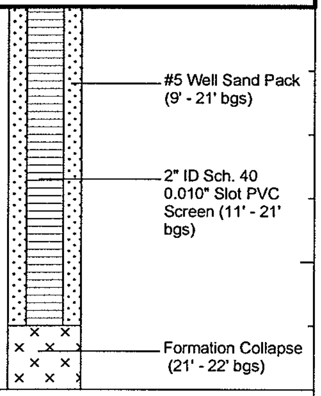
**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-07

**Borehole Depth:** 22' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 16-18 | 2<br>3<br>3<br>5 | 6 | 1.8 | 0.7 | | ML | ▤ | Light pinkish-gray CLAYEY SILT (SP), medium stiff, moist to wet at 14' bgs. | |
| | | 9 | 18-20 | 2<br>3<br>3<br>3 | 6 | 2.0 | 0.6 | | SP | ⁘ | Brown fine to medium SAND (SP), loose, wet. | |
| 20 | *20* | 10 | 20-22 | 1<br>2<br>2<br>2 | 4 | 1.5 | NA | | | ⁘ | | |
| | | | | | | | | | | | End of boring at 22' bgs. | |
| 25 | *25* | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

Soil samples RFI-84-07(2-4) and RFI-84-07(14-16) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-07.dat
Date: 7/19/2005

**Date Start/Finish:** 7/18/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560988.38
**Easting:** 13306251.60
**Casing Elevation:** 727.52' AMSL

**Borehole Depth:** 31' below grade
**Surface Elevation:** NA

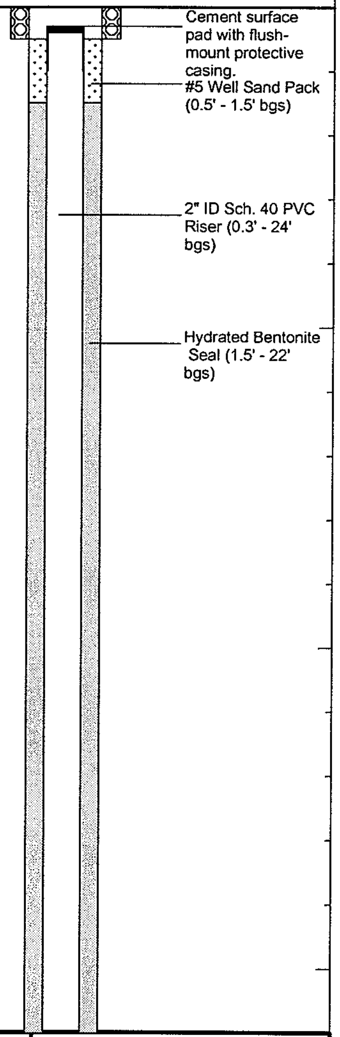
**Descriptions By:** SM Duly

**Well/Boring ID:** RFI-84-07D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA | NA | NA | NA | | FL | | CONCRETE. | |
| | | 2 | 2-4 | 2<br>3<br>3<br>5 | 6 | 1.4 | 0.0 | | CL | | Yellow-brown (10YR 5/4), with gray (10YR 4/1) mottling, LEAN CLAY with Silt (CL), little fine Sand, few fine subrounded Gravel, slightly plastic, stiff, no odor, dry. Native Clay used as Fill. | |
| 5 | -5 | 3 | 4-6 | 2<br>3<br>4<br>4 | 7 | 1.5 | 0.0 | | SP | | Dark yellow-brown (10YR 4/4) fine to medium POORLY-GRADED SAND (SP), no odor, loose, damp. | |
| | | 4 | 6-8 | 3<br>3<br>5<br>7 | 8 | 1.3 | 0.0 | | CL | | Yellow-brown (10YR 5/4), with gray (10YR 4/1) mottling, LEAN CLAY with Silt (CL), little fine Sand, few fine subrounded Gravel, slightly plastic, stiff, no odor, dry. Native Clay used as Fill. | |
| | | 5 | 8-10 | 2<br>3<br>8<br>8 | 11 | 1.7 | 0.0 | | | | No mottling, trace fine angular Gravel, damp below 8.0' bgs. | |
| 10 | -10 | 6 | 10-12 | 3<br>5<br>8<br>11 | 13 | 1.8 | 0.0 | | | | Gray (10YR 4/1) mottling and orange oxidation below 10' bgs. | |
| | | 7 | 12-14 | 3<br>3<br>9<br>11 | 12 | 1.7 | 0.0 | | | | Gray (10YR 4/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and coarse Sand, slightly plastic, stiff, no odor, damp. | |
| 15 | -15 | 8 | 14-16 | 4<br>4<br>4<br>4 | 8 | 1.5 | 0.0 | | ML | | Gray (10YR 4/1) CLAYEY SILT (ML), medium dense, no odor. | |



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-07-D.dat Date: 8/5/05

**Client:**
General Motors

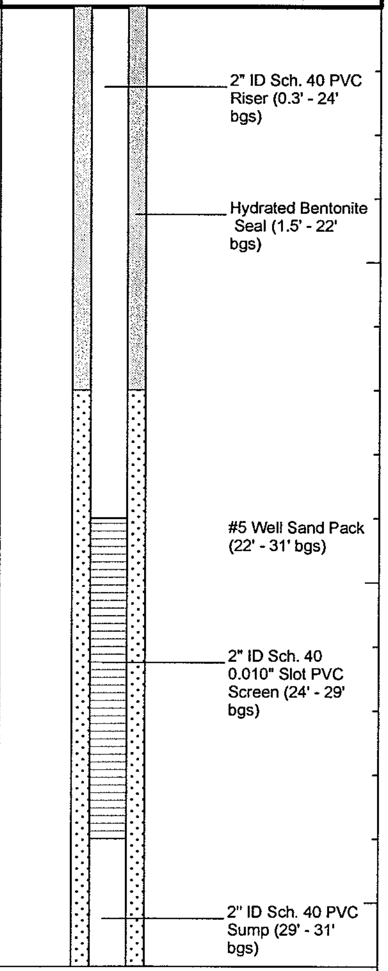
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-07D

**Borehole Depth:** 31' below grade

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 1<br>4<br>7<br>7 | 11 | 1.6 | 0.0 | | ML | Gray (10YR 4/1) CLAYEY SILT (ML), medium dense, no odor. |
| | 10 | 18-20 | 1<br>1<br>1<br>1 | 2 | 1.0 | 0.0 | | CL | Dark gray-brown (10YR 4/2) fine to medium POORLY-GRADED SAND (SP), little fine subrounded Gravel, loose, no odor, saturated. |
| 20-20 | 11 | 20-22 | 3<br>3<br>7<br>9 | 10 | 2.0 | 0.0 | | | |
| | 12 | 22-24 | 1<br>2<br>4<br>7 | 6 | 0.4 | 0.0 | | | |
| 25-25 | 13 | 24-26 | 2<br>4<br>6<br>8 | 10 | 2.0 | 0.0 | | | |
| | 14 | 26-28 | 2<br>2<br>5<br>8 | 7 | 2.0 | 0.0 | - | | |
| | 15 | 28-30 | 5<br>8<br>35<br>35 | 43 | 1.25 | 0.0 | | SP | Dark gray-brown (10YR 4/2) fine to coarse WELL-GRADED SAND (SP), little fine subrounded Gravel, slight fuel odor, loose, saturated. |
| 30-30 | | | | | | | | CL | Gray (10YR 4/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and coarse Sand, slightly plastic, stiff to very stiff, damp. Native Clay Till. |
| 35-35 | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; AMSL = Above Mean Sea Level;
NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-07-D.dat Date: 8/5/05

**Date Start/Finish:** 6/28/2005 - 6/29/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 560846.21
**Easting:** 13306316.33
**Casing Elevation:** 727.22' AMSL

**Borehole Depth:** 20' below grade
**Surface Elevation:** NA

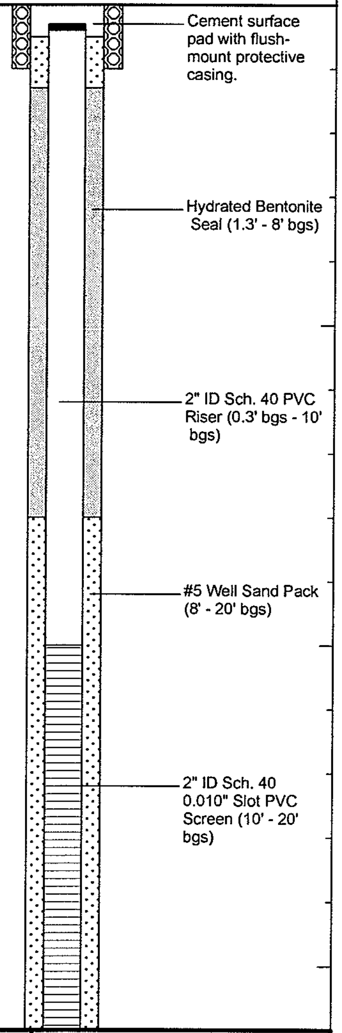
**Descriptions By:** Kristina Gross/ Wayne Patterson

**Well/Boring ID:** RFI-84-08S

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 20' bgs. For geologic descriptions see RFI-84-08D. | |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |



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**Remarks:**
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Soil samples RFI-84-08(2-3), RFI-84-08(8-10), and RFI-84-08(28-30) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

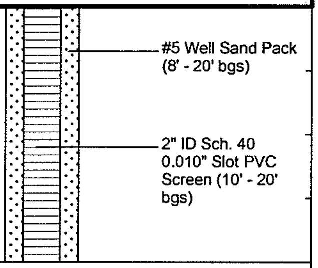
Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-08S.dat
Date: 7/19/2005

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-08S

**Borehole Depth:** 20' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |  |  | Augered without sampling to 20' bgs. For geologic descriptions see RFI-84-08D. |  |
| 20 | 20 |  |  |  |  |  |  |  |  |  | End of boring at 20' bgs. |  |
| 25 | 25 |  |  |  |  |  |  |  |  |  |  |  |
| 30 | 30 |  |  |  |  |  |  |  |  |  |  |  |
| 35 | 35 |  |  |  |  |  |  |  |  |  |  |  |

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**Remarks:**
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Soil samples RFI-84-08(2-3), RFI-84-08(8-10), and RFI-84-08(28-30) collected for PAL analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-08S.dat Date: 7/19/2005

**Date Start/Finish:** 7/15/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 13306505.69
**Easting:** 560507.35
**Casing Elevation:** 719.27

**Borehole Depth:** 34' below grade
**Surface Elevation:** NA

**Descriptions By:** SM Duly

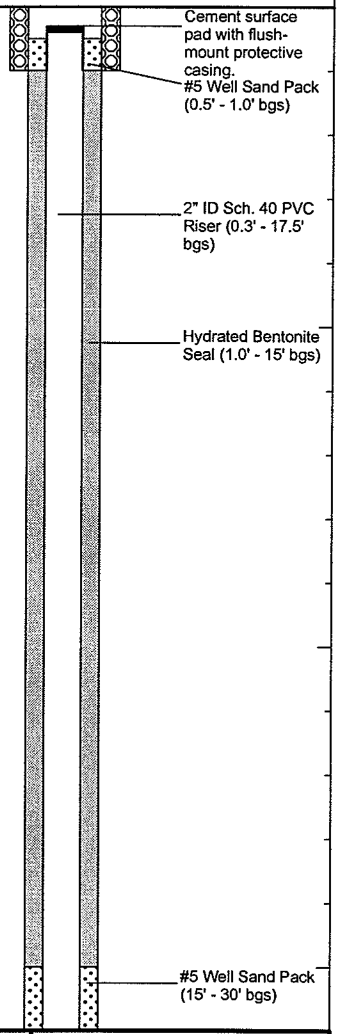
**Well/Boring ID:** RFI-84-09D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 3<br>4<br>7<br>- | NA | 1.0 | 0.0 |  | FL<br>SP | ▤<br>⠿ | ASPHALT.<br>Dark yellow-brown (10YR 3/4) to black (10YR 2/1) fine POORLY-GRADED SAND (SP), little Slag, loose, no odor, dry. Foundry Sand. |
|  |  | 2 | 2-4 | 4<br>4<br>6<br>7 | 10 | 1.0 | 0.0 |  |  | ⠿ | Black (7.5 7/1) color below 3.8' bgs.<br>Increased Slag to some, Cinders and Metallic fragments present below 4.0' bgs. |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>2<br>3 | 4 | 1.2 | NA |  |  | ⠿ |  |
|  |  | 4 | 6-8 | 2<br>3<br>5<br>6 | 8 | 1.0 | 0.0 |  |  | ⠿ | Black (10YR 2/1) fine to very fine POORLY-GRADED SAND (SP), some angular fine to coarse sand-sized Slag, Cinders, and Metallic fragments, loose, no odor, dry to damp. Foundry Sand. |
|  |  | 5 | 8-10 | 4<br>5<br>7<br>8 | 12 | 0.0 | NA |  |  |  | No Recovery. |
| 10 | -10 | 6 | 10-12 | 2<br>3<br>4<br>5 | 7 | 1.0 | 0.0 |  | FL | × | Black (10YR 2/1) FILL consisting of very fie to fine Poorly-Graded Sand, Concrete rubble, saturated. |
|  |  | 7 | 12-14 | 2<br>2<br>2<br>2 | 4 | 1.0 | 0.0 |  | CL | ☰ | Olive (5Y 5/3) , with yellow-brown (10YR 5/6) mottling, LEAN CLAY with Silt (CL), some fine Sand, very soft, moderately plastic, no odor, saturated. Reworked Native Glacial Till. |
| 15 | -15 | 8 | 14-16 | 2<br>2<br>2<br>2 | 4 | 1.0 | 0.0 |  |  | ☰ |  |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

**Water Level Data**

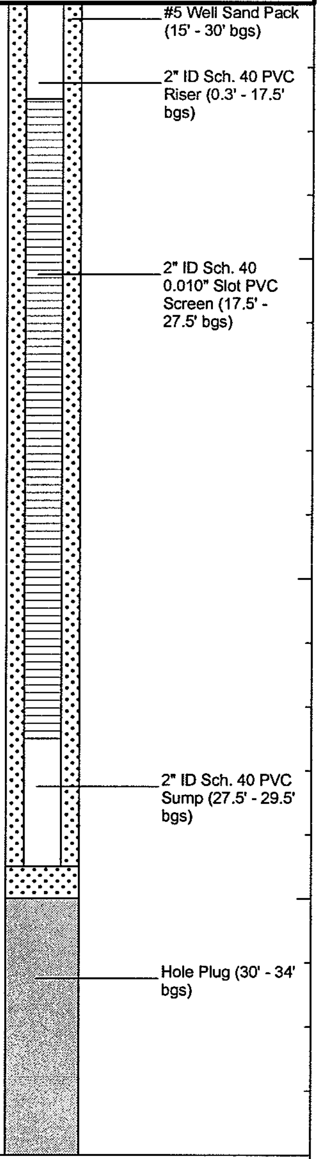
| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

**Client:**
General Motors
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-09D

**Borehole Depth:** 34' below grade

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 3<br>4<br>6<br>6 | 10 | 1.0 | 0.0 | | SP | | Gray (10YR 5/1) fine to medium POORLY-GRADED SAND (SP), trace fine subangular Gravel, loose, no odor, saturated. | |
| | 10 | 18-20 | 1<br>1<br>1<br>2 | 2 | 2.0 | 0.0 | | | | | |
| 20-*20* | 11 | 20-22 | 1<br>1<br>1<br>2 | 2 | 1.75 | 0.0 | | | | | |
| | 12 | 22-24 | 6<br>9<br>11<br>13 | 20 | 2.0 | 0.0 | | | | | |
| 25-*25* | 13 | 24-26 | 6<br>9<br>11<br>11 | 20 | 2.0 | 0.0 | | | | | |
| | 14 | 26-28 | 6<br>7<br>10<br>14 | 17 | 2.0 | 0.0 | | ML | | Gray (10YR 5/1) CLAYEY SILT (ML), some fine to very fine Sand, loose to medium dense, no odor, saturated. | |
| | 15 | 28-30 | 12<br>18<br>20<br>20 | 38 | 0.7 | 0.0 | | CL | | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and medium Sand, stiff, slightly plastic, no odor, damp to moist. Native Glacial Clay Till. | |
| 30-*30* | 16 | 30-32 | 18<br>25<br>30<br>40 | 55 | 1.0 | 0.0 | | | | | |
| | 17 | 32-34 | 18<br>25<br>30<br>50 | 55 | 1.5 | 0.0 | | | | Pink mottling below 33.25' bgs. | |
| 35-*35* | | | | | | | | | | | |



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
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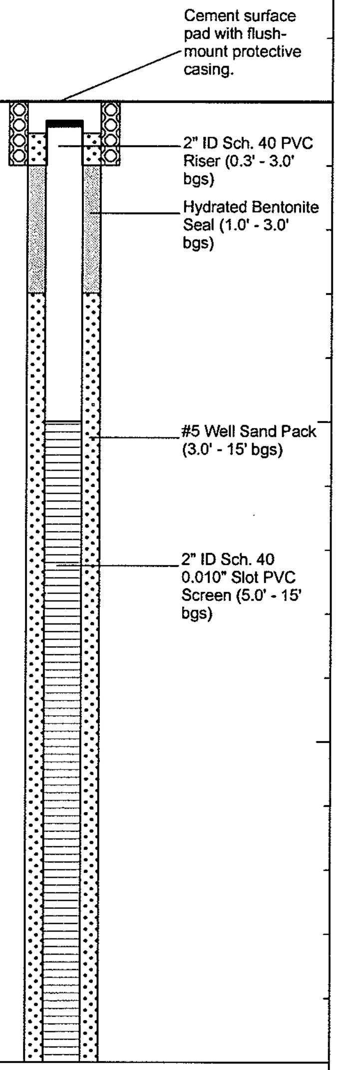
| | | |

|  |  |  |
|---|---|---|
| **Date Start/Finish:** 7/16/05<br>**Drilling Company:** Altech Inc.<br>**Driller's Name:** Troy Barber<br>**Drilling Method:** HSA/SS<br>**Sampler Size:** 2' x 2" ID<br>**Auger Size:** 4 1/4"<br>**Rig Type:** CME-75 Truck-Mount | **Northing:** 13306498.58<br>**Easting:** 560512.49<br>**Casing Elevation:** 719.43<br><br>**Borehole Depth:** 15' below grade<br>**Surface Elevation:** NA<br><br>**Descriptions By:** SM Duly | **Well/Boring ID:** RFI-84-09S<br><br>**Client:** General Motors<br><br>**Location:** General Motors NAO Flint<br>Flint, Michigan |

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 |  |  |  |  |  |  |  |  |  | Augered without sampling to 15' bgs. For geologic descriptions see RFI-84-09D. |  |
| 5 | -5 |  |  |  |  |  |  |  |  |  |  |  |
| 10 | -10 |  |  |  |  |  |  |  |  |  |  |  |
| 15 | 15 |  |  |  |  |  |  |  |  |  |  |  |



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

Soil samples RFI-84-09S (0.5-2.5) and RFI-84-09S (8-10) collected for laboratory analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-09S.dat
Date: 8/4/05

**Date Start/Finish:** 7/15/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 13306505.69
**Easting:** 560507.35
**Casing Elevation:** 719.27

**Borehole Depth:** 34' below grade
**Surface Elevation:** NA

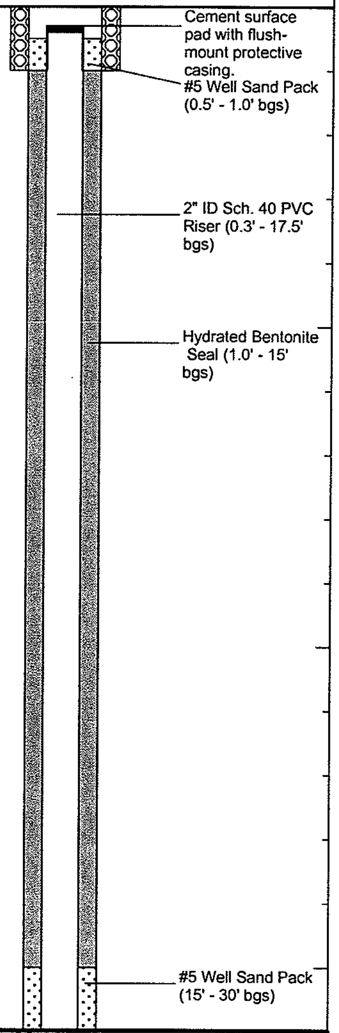
**Descriptions By:** SM Duly

**Well/Boring ID:** RFI-84-09D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 3<br>4<br>7<br>- | NA | 1.0 | 0.0 | | FL<br>SP | | ASPHALT.<br>Dark yellow-brown (10YR 3/4) to black (10YR 2/1) fine POORLY-GRADED SAND (SP), little Slag, loose, no odor, dry. Foundry Sand. | |
| | | 2 | 2-4 | 4<br>4<br>6<br>7 | 10 | 1.0 | 0.0 | | | | Black (7.5 7/1) color below 3.8' bgs.<br>Increased Slag to some, Cinders and Metallic fragments present below 4.0' bgs. | |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>2<br>3 | 4 | 1.2 | NA | | | | | |
| | | 4 | 6-8 | 2<br>3<br>5<br>6 | 8 | 1.0 | 0.0 | | | | Black (10YR 2/1) fine to very fine POORLY-GRADED SAND (SP), some angular fine to coarse sand-sized Slag, Cinders, and Metallic fragments, loose, no odor, dry to damp. Foundry Sand. | |
| | | 5 | 8-10 | 4<br>5<br>7<br>8 | 12 | 0.0 | NA | | | | No Recovery. | |
| 10 | -10 | 6 | 10-12 | 2<br>3<br>4<br>5 | 7 | 1.0 | 0.0 | | FL | | Black (10YR 2/1) FILL consisting of very fie to fine Poorly-Graded Sand, Concrete rubble, saturated. | |
| | | 7 | 12-14 | 2<br>2<br>2<br>2 | 4 | 1.0 | 0.0 | | CL | | Olive (5Y 5/3) , with yellow-brown (10YR 5/6) mottling, LEAN CLAY with Silt (CL), some fine Sand, very soft, moderately plastic, no odor, saturated. Reworked Native Glacial Till. | |
| 15 | -15 | 8 | 14-16 | 2<br>2<br>2<br>2 | 4 | 1.0 | 0.0 | | | | | |



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-09D.dat Date: 8/5/05

**Client:**
General Motors

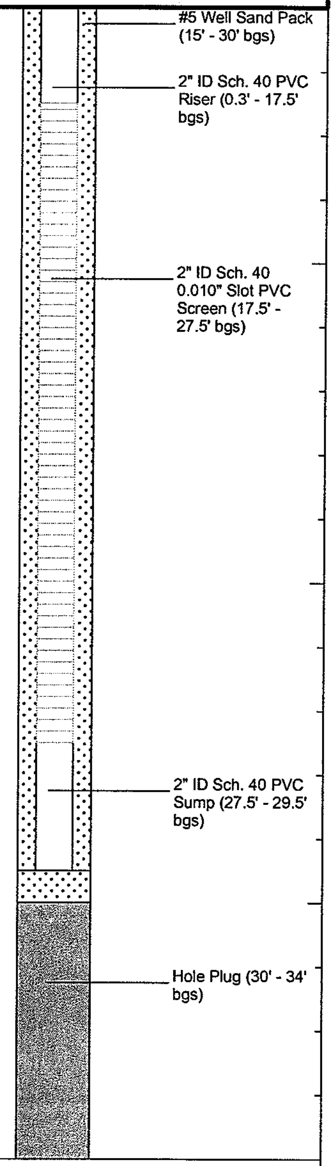
**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-09D

**Borehole Depth:** 34' below grade

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | 9 | 16-18 | 3<br>4<br>6<br>6 | 10 | 1.0 | 0.0 | | SP | | Gray (10YR 5/1) fine to medium POORLY-GRADED SAND (SP), trace fine subangular Gravel, loose, no odor, saturated. |
| | 10 | 18-20 | 1<br>1<br>1<br>2 | 2 | 2.0 | 0.0 | | | | |
| 20-20 | 11 | 20-22 | 1<br>1<br>1<br>2 | 2 | 1.75 | 0.0 | | | | |
| | 12 | 22-24 | 6<br>9<br>11<br>13 | 20 | 2.0 | 0.0 | | | | |
| 25-25 | 13 | 24-26 | 6<br>9<br>11<br>11 | 20 | 2.0 | 0.0 | | | | |
| | 14 | 26-28 | 6<br>7<br>10<br>14 | 17 | 2.0 | 0.0 | | ML | | Gray (10YR 5/1) CLAYEY SILT (ML), some fine to very fine Sand, loose to medium dense, no odor, saturated. |
| | 15 | 28-30 | 12<br>18<br>20<br>20 | 38 | 0.7 | 0.0 | | CL | | Gray (10YR 5/1) LEAN CLAY with Silt (CL), few fine subrounded Gravel and medium Sand, stiff, slightly plastic, no odor, damp to moist. Native Glacial Clay Till. |
| 30-30 | 16 | 30-32 | 18<br>25<br>30<br>40 | 55 | 1.0 | 0.0 | | | | |
| | 17 | 32-34 | 18<br>25<br>30<br>50 | 55 | 1.5 | 0.0 | | | | Pink mottling below 33.25' bgs. |
| 35-35 | | | | | | | | | | |

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-09D.dat
Date: 8/5/05

**Date Start/Finish:** 7/16/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Troy Barber
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 13306426.25
**Easting:** 560667.93
**Casing Elevation:** 718.70

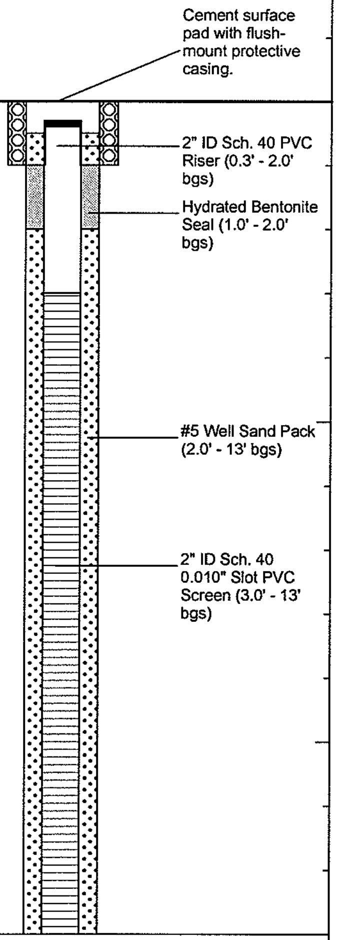
**Borehole Depth:** 13' below grade
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Well/Boring ID:** RFI-84-10S

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | Augered without sampling to 13' bgs. For geologic descriptions see RFI-84-08D. |  |
| 5 | -5 | | | | | | | | | | | |
| 10 | -10 | | | | | | | | | | | |
| 15 | -15 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable.

Soil samples RFI-84-09S (0.7-2.7) and RFI-84-09S (2.7-4.7) collected for laboratory analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-10S.dat
Date: 8/4/05

**Date Start/Finish:** 7/15/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 13306429.97
**Easting:** 560663.21
**Casing Elevation:** 718.64

**Borehole Depth:** 29' below grade
**Surface Elevation:** NA

**Descriptions By:** SM Duly

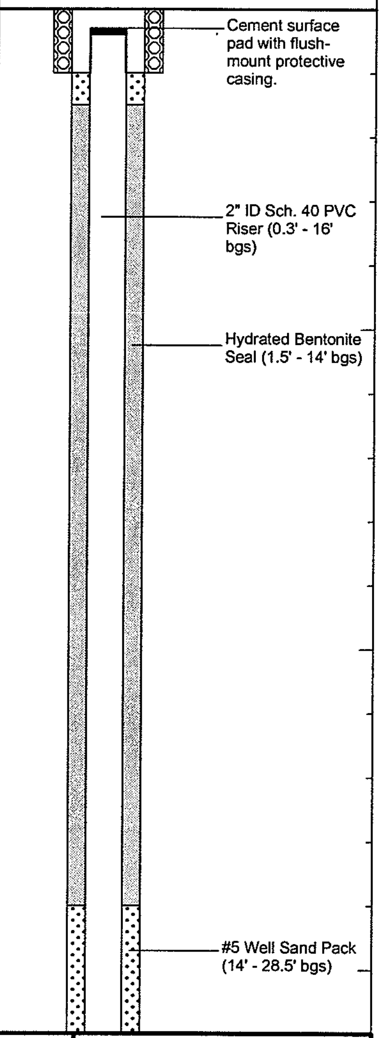
**Well/Boring ID:** RFI-84-10D

**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | ASPHALT. |
| | | 1 | 0-2 | -<br>3<br>3<br>4 | 6 | 1.0 | 0.0 | - | SP | Yellow-brown (10YR 5/6) fine to coarse, predominantly medium, angular to subangular POORLY-GRADED SAND (SP), few Silt, few Silt, aplastic, no odor, loose, damp. [FILL SAND] |
| | | 2 | 2-4 | 1<br>3<br>4<br>3 | 7 | 1.4 | 0.0 | - | CL | Very dark gray-brown (10YR 3/2) LEAN CLAY with Silt (CL), some fine to coarse angular to subangular Sand, few fine to coarse angular Gravel, occasional ground up Glass fragments, fine gravel-sized Cinder fragments, no odor, soft, damp to moist. [FILL]<br>Brick fragments and Concrete, wet to moist at 3.0' bgs. |
| 5 | -5 | 3 | 4-6 | 1<br>1<br>3<br>2 | 4 | 0.8 | 0.0 | - | | Saturated below 5.0' bgs. |
| | | 4 | 6-8 | 1<br>1<br>3 | 2 | 1.5 | 0.0 | - | | Brown (10YR 5/3) with gray (10YR 6/1) mottling, LEAN CLAY with Silt (CL), few fine to coarse subrounded Sand, becoming increasingly stiff with depth, no odor, dry. Native Glacial Clay Till.<br>1"-thick fine Poorly-Graded Silty Sand lense, saturated at 7.2' bgs.<br>Gray (10YR 5/1), stiff below 8.0' bgs. |
| | | 6 | 8-10 | 1<br>2<br>8<br>9 | 10 | 1.8 | 0.0 | - | | Increasing Silt content to become a Silt with some Clay below 9.5' bgs. |
| 10 | -10 | 7 | 10-12 | 2<br>5<br>11<br>18 | 16 | 1.6 | 0.0 | - | ML | Gray (10YR 5/1) SILT (ML), little to some Clay, trace fine rounded Sand, aplastic, no odor, medium dense with increasing density with depth, damp. Glacial Till [NATIVE] |
| | | 8 | 12-14 | 3<br>9<br>16<br>11 | 25 | | 0.0 | - | | Saturated below 13' bgs. |
| 15 | -15 | 9 | 14-16 | 3<br>16<br>14<br>11 | 30 | 1.5 | 0.0 | - | | Moist, increasing dryness with depth below 15.5' bgs. |

Well/Boring Construction



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable; +/- = positive/negative shake test result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-10D.dat
Date: 8/4/05

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-10D

**Borehole Depth:** 29' below grade

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|
| | 10 | 16-18 | 19<br>28<br>29<br>14 | 57 | 1.6 | 0.0 | - | ML |
| | 11 | 18-20 | 12<br>17<br>10<br>5 | 27 | 1.3 | 0.0 | - | |
| 20-20 | 12 | 20-22 | 3<br>7<br>10<br>12 | 12 | 1.7 | 0.0 | - | SW |
| | 13 | 22-24 | 5<br>12<br>11<br>5 | 18 | 1.5 | 0.0 | - | |
| 25-25 | 14 | 24-26 | 6<br>10<br>17<br>12 | 27 | 1.8 | 0.0 | - | |
| | 15 | 26-28 | 50/6" | NA | 0.5 | 0.0 | - | CL |
| 30-30 | | | | | | | | |
| 35-35 | | | | | | | | |

**Stratigraphic Description**

Gray (10YR 5/1) SILT (ML), little to some Clay, trace fine rounded Sand, aplastic, no odor, medium dense with increasing density with depth, damp. Glacial Till [NATIVE]

Lenses of fine to coarse, predominantly medium, Well Rounded Sand, up to 0.5"-thick, saturated below 16' bgs.

Occasional lenses of Lean Clay with Silt up to 1"-thick throughout below 16.8' bgs.

Increased Clay content to Lean Clay with Silt below 18.8' bgs.

Gray (10YR 7/1) WELL GRADED fine to coarse subangular to subrounded SAND (SW), little fine to coarse subrounded to rounded Gravel, little Silt, few Clay, aplastic, medium dense, no odor, saturated. Rework Glacial Clay Till with water - Alluvial.

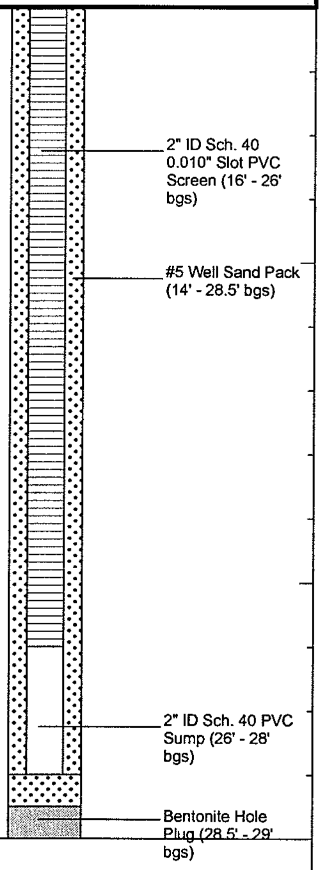
Fines downward to Poorly-Graded medium Sand (SP), little fine to coarse rounded Gravel from 21.7' - 22.7' bgs.

Occasional rounded Pebbles present, decreased Silt content to few, trace Clay below 23.6' bgs.

Increased coarsness to medium to coarse Gravel, Well-Graded Sand with Gravel (SW) below 24.7' bgs.
Fines downward to Poorly-Graded fine Sand below 25.2' bgs.

Brown (10YR 5/3) LEAN CLAY with Silt (CL), few to little fine to coarse subrounded Sand, trace fine to coarse subrounded Gravel, very stiff to hard, dry. Native Glacial Clay Till.

**Well/Boring Construction**



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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable; +/- = positive/negative shake test result.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 7/15/05
**Drilling Company:** Altech Inc.
**Driller's Name:** Daniel Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME-75 Truck-Mount

**Northing:** 13306549.04
**Easting:** 560946.93
**Casing Elevation:** 721.97

**Borehole Depth:** 24' below grade
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Well/Boring ID:** RFI-84-11

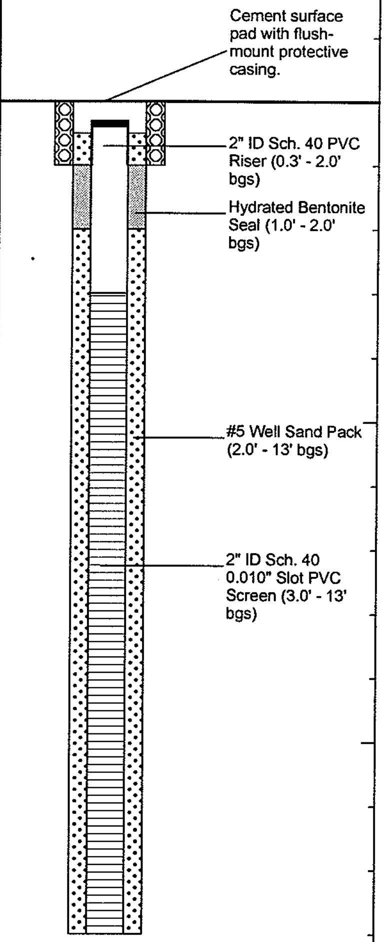
**Client:** General Motors

**Location:** General Motors NAO Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | 4<br>5<br>7<br>9 | 12 | 1.5 | 0.0 | - | FL<br>CL |
| | | 2 | 2-4 | 1<br>2<br>2<br>3 | 4 | 1.2 | 0.0 | - | CL |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>2<br>2 | 4 | 1.7 | 0.0 | - | SP |
| | | 4 | 6-8 | 2<br>2<br>2<br>2 | 4 | 1.8 | 0.0 | - | CL |
| 10 | -10 | 6 | 8-10 | 1<br>5<br>7<br>5 | 12 | 1.3 | 0.0 | - | CL |
| | | 7 | 10-12 | 2<br>6<br>10<br>15 | 16 | 1.7 | 0.0 | - | CL<br>ML |
| | | 8 | 12-14 | 5<br>10<br>20<br>24 | 30 | 1.7 | 0.0 | - | ML |
| 15 | -15 | 9 | 14-16 | 25<br>25<br>50<br>- | 75 | 1.2 | 0.0 | - | ML |

| USCS Code | Stratigraphic Description |
|---|---|
| FL | ASPHALT. |
| CL | Very dark gray-brown (10YR 3/2) LEAN CLAY with Silt (CL), some to locally few fine to coarse subangular to subrounded Sand, most Sand consists of black angular Foundry Sand with Slag, Cinders, and Metallic debris, weakly plastic, no odor, damp. Fill and Foundry Sand.<br>Lenses of up to 3"-thick of yellow-brown (10YR 5/4) fine Poorly-graded Sand (SP), some Silt, present throughout. |
| SP | Yellow-brown (10YR 5/4) POORLY GRADED fine subangular SAND (SP), little to some Silt, aplastic, very loose, no odor, damp, increasing moisture with depth.<br>Becomes Well-Graded fine to coarse subrounded Sand (GW), saturated below 5.5' bgs. |
| CL | Yellow-brown (10YR 5/4) with gray (10YR 5/1) mottling, LEAN CLAY with Silt (CL), few to trace fine to coarse subrounded to rounded Sand, decreasing mottling with depth, weakly to moderately plastic, stiff, no odor, damp. Native Glacial Clay Till.<br>1"- to 2"-thick lenses of fine to coarse subrounded Well-graded Sand (SW), few fine rounded Gravel, little Silt, few Clay, no odor, loose, saturated at 7.3 and 7.8' bgs.<br>2"-thick lenses of fine to coarse subrounded Well-graded Sand (SW), little Silt, few Clay, no odor, loose, saturated at 9.2' bgs.<br>Homogeneous gray (10YR 5/1), no mottling, increased stiffness and decreased plasticity with depth below 9.4' bgs.<br>1"- to 2"-thick lenses of fine rounded Gravel, no odor, loose, saturated at 10.5' bgs. |
| ML | Gray (10YR 5/1) SILT (ML), some to little Clay, trace to few fine to coarse subrounded to rounded Sand, aplastic, medium dense but with increasing density with depth, no odor, damp but becoming increasingly moist with depth. Glacial Till.<br>Zones of saturation throughout up to 8"-thick below 13' bgs.<br>Increased Sand to some fine to coarse subangular to subrounded Sand, saturated below 14' bgs.<br>Well-rounded Cobble in shoe, higher than expected blow counts due to presence of Cobble, damp to moist below 15' bgs. |

**Well/Boring Construction**



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## Remarks:

bgs = below ground surface; NA = Not Available/Not Applicable; +/- = positive/negative shake test result.

Soil samples RFI-84-09S (0.5-2.5) and RFI-84-09S (3.5-5.5) collected for laboratory analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File:RFI-84-11.dat
Date: 8/4/05

**Client:**
General Motors

**Site Location:**
General Motors NAO Flint
Flint, Michigan

**Well/Boring ID:** RFI-84-11

**Borehole Depth:** 24' below grade

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 16-18 | 10<br>20<br>22<br>20 | 42 | 1.7 | 0.0 | - | | ▤ | Gray (10YR 6/1) LEAN CLAY with Silt (CL), little to few fine to coarse subrounded Sand, weakly plastic, very stiff to hard, no odor, damp. Native Glacial Clay Till. | |
| | | 11 | 18-20 | 10<br>26<br>36<br>20 | 62 | 1.5 | 0.0 | - | | ▤ | | |
| 20 | 20 | 12 | 20-22 | 10<br>29<br>30<br>39 | 59 | 1.8 | 0.0 | - | CL | ▤ | 1"- to 2"-thick lenses of Well-Graded fine to coarse subangular to subrounded Sand (SW), medium dense, no odor at 20' bgs.<br>Increased Gravel to few, damp below 21' bgs. | |
| | | 13 | 22-24 | 9<br>20<br>25<br>20 | 45 | 1.3 | 0.0 | - | | ▤ | | |
| | | | | | | | | | | | End of Boring at 24' bgs. Abandon hole and stp out to set well. | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
bgs = below ground surface; NA = Not Available/Not Applicable; +/- = positive/negative shake test result.

Soil samples RFI-84-09S (0.5-2.5) and RFI-84-09S (3.5-5.5) collected for laboratory analysis.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: J:\Rockware\LogPlot2001\logfiles\64410\Auger_well2005.ldf
Data File: RFI-84-11.dat Date: 8/4/05

**Date Start/Finish:** 8/22/02 - 8/23/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 563489.17
**Easting:** 13305860.97
**Casing Elevation:** 746.74 ft. AMSL

**Borehole Depth:** 20' bgs
**Surface Elevation:** 747.03 ft. AMSL

**Descriptions By:** SM Duly

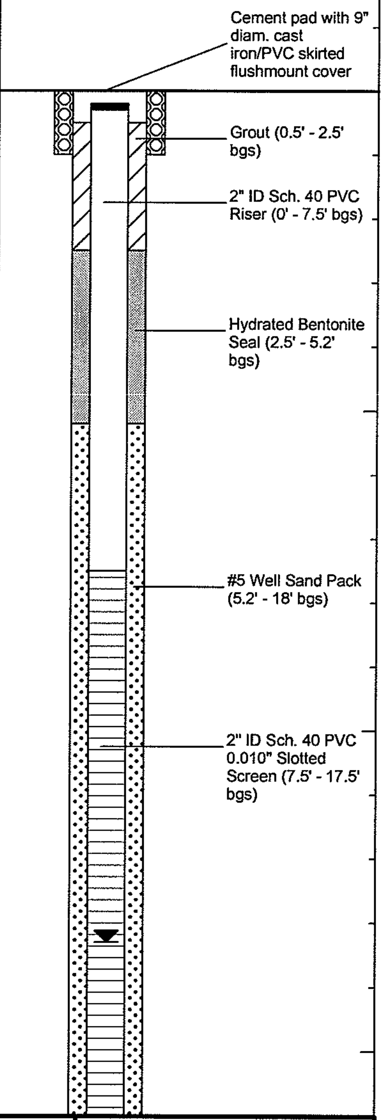
**Boring ID:** RFI-85-08

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | | |
| | | 1 | 0-2 | -<br>H<br>2<br>3 | 2 | 0.7 | 0.0 | - | FL<br>SW | | ASPHALT.<br>Black (10YR 2/1) to very dark gray-brown (10YR 3/2) fine to coarse subangular to angular well graded SAND (SW), little Silt, few fine to coarse angular to subangular Gravel, trace to few Clay, Metallic building debris and Cinders present, aplastic, no odor, loose, dry. Foundry Sand. | Fill<br>Sand |
| | 745 | 2 | 2-4 | 1<br>1<br>1<br>1 | 2 | 1.5 | 0.0 | - | SM | | Yellow-brown (10YR 5/8) Silty fine subangular poorly graded SAND (SM), few Clay, rare fine to coarse rounded Gravel, aplastic, no odor, loose, dry. Fill Sand.<br>2" of Concrete fragments at 7.8' bgs.<br>Damp at 4.0' bgs. | Silty Sand |
| 5 | | 3 | 4-6 | 1<br>2<br>2<br>2 | 4 | 1.6 | 0.0 | - | | | | |
| | 740 | 4 | 6-8 | 1<br>2<br>5<br>7 | 7 | 1.4 | 0.0 | - | ML<br>SM | | Black (10YR 2/1) SILT (ML), some subangular fine Sand, aplastic, no odor, loose, dry. Foundry Sand.<br>Yellow-brown Silty SAND (SM) as above from 1.3' - 6.8' bgs. | Silt<br>Silty Sand |
| | | 5 | 8-10 | 3<br>2<br>3<br>3 | 5 | 1.5 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, saturated Silt lenses throughout, very plastic, soft, no odor, moist. Native Clay Till used as backfill.<br>1"-thick Silt lense, saturated at 8.7' bgs.<br>2"-thick Silt lense, saturated at 9.0' bgs.<br>1/2"-thick Silt lense, saturated at 9.2' bgs.<br>3/4"-thick Silt lense, saturated at 9.5' bgs. | Silty Clay |
| 10 | | 6 | 10-12 | 1<br>2<br>2<br>5 | 4 | 1.3 | 0.0 | - | | | 2"-thick Silt lense, saturated at 11' bgs.<br>1/2"-thick Silt lense, saturated at 11.2' bgs.<br>3"-thick Silt lense, saturated at 11.4' bgs.<br>2"-thick Silt lense, saturated at 12' bgs. | |
| | 735 | 7 | 12-14 | 5<br>3<br>4<br>4 | 7 | 1.3 | 0.0 | - | SM | | 4"-thick Silt lense, saturated at 12.8' bgs.<br>Yellow-brown (10YR 5/4) Silty SAND (SM) as above from 1.3' - 6.8' bgs, loose, saturated. Fill Sand (?). | Silty Sand |
| 15 | | 8 | 14-16 | 1<br>3<br>6<br>10 | 9 | 1.4 | 0.0 | - | | | Yellow-brown (10YR 5/4) Silty SAND (SM) as above from 1.3' | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/21/02 | 13.3' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

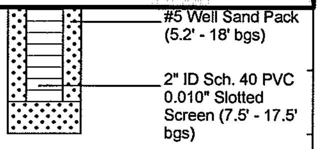
Data File:RFI-85-08.dat Date:10/22/02

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-85-08

**Borehole Depth:** 20' bgs

| DEPTH / ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | SM | | - 6.8' bgs, loose, saturated. Fill Sand (?). | San | |
| 730 | 9 | 16-18 | 3<br>3<br>5<br>7 | 8 | 1.6 | 0.0 | - | CL | | Gray (10YR 6/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, homogenous, medium stiff, very plastic, no odor, moist. Native Glacial Clay Till. | Silty Clay | |
| | 10 | 18-20 | 3<br>3<br>4<br>4 | 7 | 1.9 | 0.0 | - | | | Becoming increasingly stiff and less plastic with depth. | | |
| 20 | | | | | | | | | | | | |
| 725 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 720 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| 715 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/21/02 | 13.3' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 2/27/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 85

**Northing:** 563106.92
**Easting:** 13306451.02
**Casing Elevation:** 731.51 ft. AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** 731.81 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-86-16

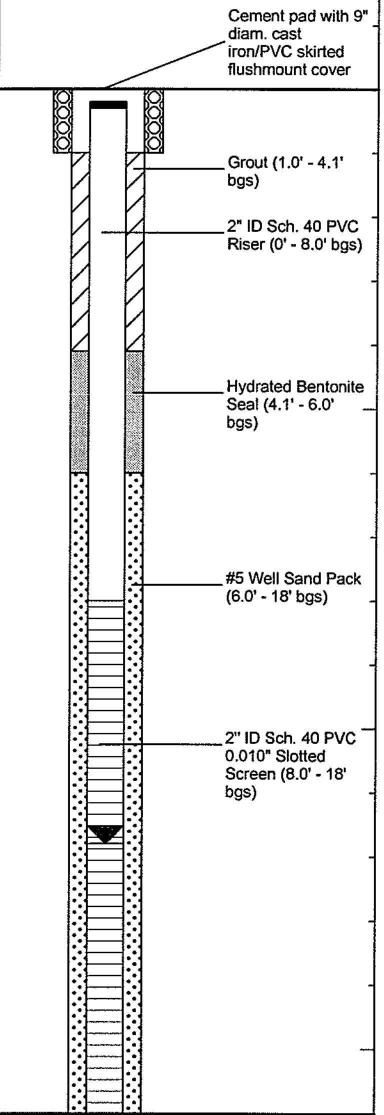
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | | 1 | 0-2 | NA<br>23<br>27<br>11 | 50 | 1.1 | 0.0 | - |
| | 730 | 2 | 2-4 | 10<br>11<br>9<br>7 | 20 | 1.5 | 0.0 | - |
| 5 | | 3 | 4-6 | 8<br>5<br>10<br>12 | 19 | 2.0 | 0.0 | - |
| | 725 | 4 | 6-8 | 4<br>8<br>9<br>10 | 17 | 2.0 | 0.0 | - |
| | | 5 | 8-10 | 2<br>3<br>3<br>4 | 6 | 2.0 | 0.0 | - |
| 10 | 720 | 6 | 10-12 | 2<br>3<br>5<br>6 | 8 | 2.0 | 0.0 | - |
| | | 7 | 12-14 | 2<br>3<br>3<br>5 | 6 | 1.2 | 0.0 | - |
| 15 | | 8 | 14-16 | 3<br>2<br>3<br>8 | 5 | 1.6 | 0.0 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | CONCRETE. | ONCRET |
| SM | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, dense, dry. Fill Sand.<br>Moist to damp at 3.0' bgs. | SILTY SAND |
| CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, weakly plastic, stiff, no odor, damp. Native Clay Till used as Backfill. | LTY SACLAY |
| SM | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few Clay, aplastic, no odor, dense, dry. Fill Sand. | |
| CL | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, saturated Silt and/or Sand lenses up to 2" thick throughout. homogeneous, weakly plastic, medium stiff, no odor, damp. Undisturbed Native Glacial Clay Till.<br>1/2" thick Silt lens, saturated at 11.8' bgs.<br>2" thick saturated Silt lens at 12.8' bgs.<br>2" thick saturated Silt lens at 14.5' bgs.<br>3" thick saturated fine poorly graded subangular Sand lense, little Silt, aplastic, loose at 15.8' bgs. | SILTY CLAY |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result NA = Not Applicable/Not Available; WH = Weight of Hammer. Samples collected from 0.8' - 2.8'(with MS/MSD), 7.8' - 9.8' and 9.8' - 11.8' bgs for PAL.

**Water Level Data**

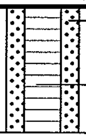
| Date | Depth | Elev. |
|---|---|---|
| 2/27/03 | 11.8' | |
| | | |
| | | |
| | | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-86-16

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 715 | 9 | 16-18 | 4<br>10<br>10<br>12 | 20 | 1.6 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, saturated Silt and/or Sand lenses up to 2" thick throughout, homogeneous, weakly plastic, medium stiff, no odor, damp. Undisturbed Native Glacial Clay Till.<br>Dry, becoming increasingly hard with depth below 16.8' bgs. | SILTY CLAY | <br>#5 Well Sand Pack (6.0' - 18' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| 20 | | | | | | | | | | | | | |
| | 710 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| | 705 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; WH = Weight of Hammer.
Samples collected from 0.8' - 2.8'(with MS/MSD), 7.8' - 9.8' and 9.8' - 11.8' bgs for PAL.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/27/03 | 11.8' | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 4/1/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4-1/4" ID
**Rig Type:** CME 45B

**Northing:** 563108.36
**Easting:** 13306456.36
**Casing Elevation:** NA

**Borehole Depth:** 26' bgs
**Surface Elevation:** 731.65 ft. AMSL

**Descriptions By:** SM Duly

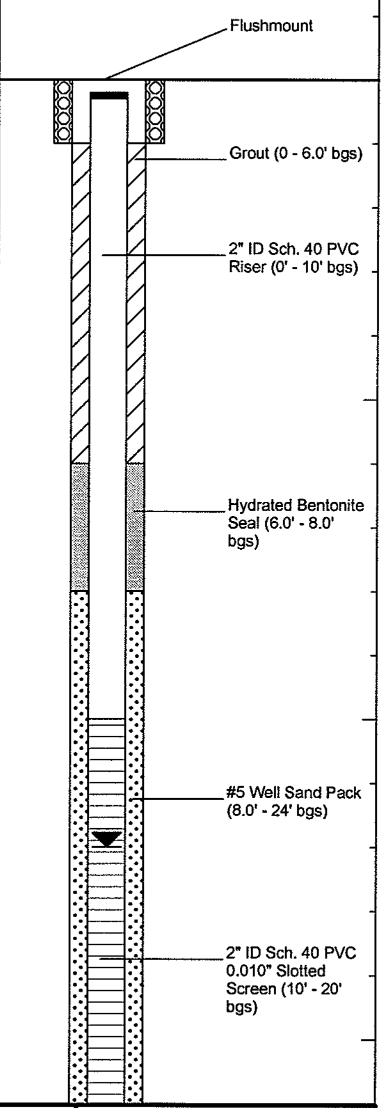
**Boring ID:** RFI-86-16R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | No samples collected from 0 - 10' bgs. See log for RFI-86-16 for geologic information. | |
| | 730 | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | |
| 10 | | 1 | 10-12 | 2<br>4<br>4<br>5 | 8 | 2.0 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, few to trace fine to medium rounded Gravel, saturated Silt and Silty Sand lenses up to 2"-thick throughout, homogenous, moderately plastic, soft, no odor, damp to dry. Undisturbed Native Glacial Clay Till.<br>Saturated at 12' bgs. | SILTY CLAY |
| | 720 | 2 | 12-14 | 2<br>3<br>3<br>3 | 6 | 1.5 | 0.0 | - | ML | | Gray (10YR 5/1) SILT (ML), few fine subangular to subrounded Sand, little to some Clay, homogenous, aplastic, no odor, loose, saturated. Glacio-Alluvial.<br>2"-thick fine subangular to subrounded poorly gradedSilty Sand (SM) lense, little Clay, aplastic, no odor, loose, saturated at 13.9' bgs. | SILT |
| 15 | | 3 | 14-16 | 3<br>4<br>4<br>6 | 8 | 2.0 | 0.0 | - | SP | | Gray (10YR 6/1) fine subangular POORLY GRADED SAND (SP), little to some Silt, aplastic, no odor, dense, damp. Glacio-Alluvial. | AN |

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/1/03 | 12' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-86-16R.dat Date: 5/13/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-86-16R

**Borehole Depth:** 26' bgs

| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|
| 715 | 4 | 16-18 | 9<br>10<br>13<br>13 | 23 | 2.0 | 0.0 | - | SP |
| 20 | 5 | 18-20 | 8<br>14<br>18<br>22 | 32 | 2.0 | 0.0 | - | |
| 710 | 6 | 20-22 | 12<br>12<br>19<br>31 | 36 | 2.0 | 0.0 | - | CL |
| | 7 | 22-24 | 16<br>19<br>38<br>35 | 57 | 2.0 | 0.0 | - | |
| 25 | 8 | 24-26 | 21<br>42<br>43<br>NA | 85 | 1.5 | 0.0 | - | |
| 705 | | | | | | | | |
| 30 | | | | | | | | |
| 700 | | | | | | | | |
| 35 | | | | | | | | |

**Geologic Column**

**Stratigraphic Description**

Gray (10YR 6/1) fine subangular POORLY GRADED SAND (SP), little to some Silt, aplastic, no odor, dense, damp. Glacio-Alluvial.

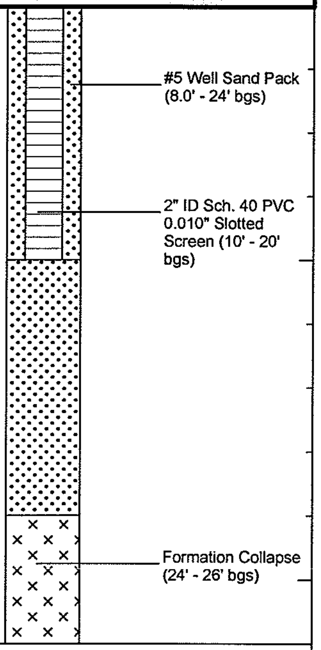
Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 10' - 12.7' bgs, but very stiff, homogenous, dry. Undisturbed Native Glacial Clay Till.

4"-thick lense of poorly graded Sand (SP) as at 15.7' - 16.3' bgs but wet to saturated and with fine rounded Gravel at 17.5' bgs.

**Hydrostratigraphy**

SILTY CLAY

**Boring Construction**



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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 4/1/03 | 12' | |

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 562982.61
**Easting:** 13306116.94
**Casing Elevation:** NA

**Borehole Depth:** 3.0' bgs
**Surface Elevation:** 737.17 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-86-17

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 740 | | | | | | | | | | | | |
| 0 | | | | | | | | | | | CONCRETE. | | |
| | 735 | 1 | 1-3 | 7<br>11<br>13<br>12 | 24 | 1.7 | 0.0 | - | SM | | Brown (10YR 5/3) SILTY LEAN CLAY (CL), few fine to coarse subrounded Sand, trace fine rounded Gravel, lense up to 3"-thick of orange Silt and areas of orange discoloration throughout up to 1" in diameter, Slag, Cinders and Silt also present throughout (especially as a 4"-thick lense at 2.3' bgs), moderately stiff, plastic, no odor, dry. Native Clay Till used as Backfill with Foundary Sand. | | Borehole backfilled with Bentonite to grade. |
| 5 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-86-17.dat

Date: 04/17/03

**Date Start/Finish:** 3/12/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA /SS
**Sampler Size:** 2" OD + 2'
**Auger Size:** 2-1/4" ID
**Rig Type:** CME-45B

**Northing:** 562979.14
**Easting:** 13306077.88
**Casing Elevation:** NA

**Borehole Depth:** 3.0' bgs
**Surface Elevation:** 737.73 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-86-18

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 740 | | | | | | | | | | | | |
| 0 | | | | | | | | | | | CONCRETE. | FILL | Borehole backfilled with Bentonite to grade. |
| | 735 | 1 | 1-3 | 9<br>9<br>11<br>13 | 20 | 1.5 | 0.0 | - | SM | | Black (10YR 2/1) fine to coarse angular to subangular, predominantly fine, POORLY GRADED SILTY SAND (SM), few Clay, trace fine angular Gravel, Slag, Cinders, and Ash throughout, orange color in last 1" of unit, aplastic, no odor, medium dense, dry. Foundary Sand. | SILTY SAND | |
| 5 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 725 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;+ = Positive Test Result
NA = Not Applicable/Not Available
WH=Weight of Hammer

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File:RFI-86-18.dat Date: 04/17/03

**Date Start/Finish:** 2/21/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID
**Auger Size:** 4 1/4"
**Rig Type:** CME 85

**Northing:** 561351.09
**Easting:** 13306846.93
**Casing Elevation:** 727.35 ft. AMSL

**Borehole Depth:** 16' bgs
**Surface Elevation:** 727.71 ft. AMSL

**Descriptions By:** SM Duly

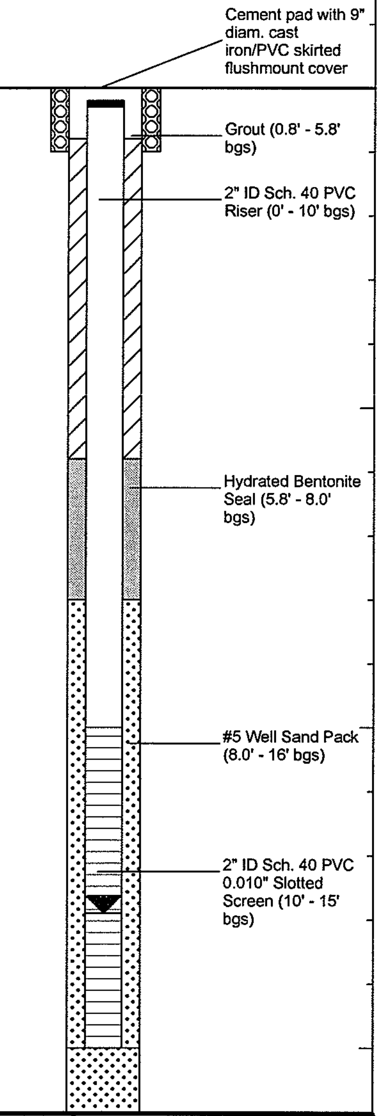
**Boring ID:** RFI-94-02R

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA<br>10<br>16<br>9 | 26 | 1.7 | 0.0 | - | FL<br>ML | | CONCRETE.<br>Dark brown (10YR 2/2) SILT (ML), some fine poorly graded subangular Sand, few to little Clay, aplastic, dense, no odor, dry. Fill. | FILL<br>SILT |
| | 725 | 2 | 2-4 | 2<br>3<br>4<br>7 | 7 | 1.5 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) SILTY LEAN CLAY (CL), few to little fine to coarse subrounded to rounded Sand, few to trace fine to medium rounded Gravel, weakly plastic, moderately stiff, no odor, dry. Native Clay Till used as Backfill. | SILTY CL |
| 5 | | 3 | 4-6 | 5<br>6<br>3<br>3 | 9 | 1.4 | 0.0 | - | SM<br>CL<br>ML | | Black (10YR 2/1) fine to coarse POORLY GRADED SILTY SAND (SM), few Clay and fine to coarse subangular Gravel, Cinders, and Ash, weak odor, loose, dry. Foundry Sand.<br>Yellow-brown (10YR 5/4) SILTY LEAN CLAY as above at 3.3-3.9' bgs. Native Clay Till used as Backfill.<br>Dark brown (10YR 3/3) SILT as above at 0.5' - 3.3' bgs. | SILTY SA<br>LTY CL<br>SILT |
| | 720 | 4 | 6-8 | 1<br>1<br>2<br>4 | 3 | 1.3 | 0.0 | - | CL | | Brown (10YR 5/3) SILTY LEAN CLAY as above at 3.3' - 3.9' bgs, few Clay, trace subrounded Gravel, medium dense to loose, poorly graded, wet. Native Clay Till used as Backfill.<br>Becomes yellow-brown (10YR 5/4) below 7.8' bgs. | SILTY CLAY |
| | | 5 | 8-10 | 2<br>4<br>6<br>6 | 10 | 1.7 | 0.0 | - | | | 9"-thick lense of fine to coarse subangular to subrounded Silty Sand (SM), few Clay, trace subrounded Gravel, no odor, medium dense to loose, wet at 8.0' bgs. | |
| 10 | | 6 | 10-12 | 3<br>9<br>12<br>13 | 21 | 2 | 0.0 | - | | | Gray (10YR 3/1) mottling at 10' bgs.<br>2"-thick Silty Sand lense as at 8' bgs, damp to moist at 10.8' bgs. | |
| | 715 | 7 | 12-14 | 7<br>9<br>11<br>12 | 20 | 1.5 | 0.0 | - | SM | | Yellow-brown (10YR 5/4) fine subangular POORLY GRADED SILTY SAND (SM), few to locally little Clay, local patches of increased Silt content, no odor, medium dense to loose, saturated. Glacio-Alluvial. | ILTY SAND |
| 15 | | 8 | 14-16 | 5<br>4<br>10<br>12 | 14 | 1.6 | 0.0 | - | CL | | Gray (10YR 5/1) SILTY LEAN CLAY (CL) as above from 3.3' - 3.9' bgs, but homogenous, undisturbed, stiff with increased stiffness with depth, dry. | SILTY CLAY |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 2/21/03 | 12.9' | |

Project: 644.10.022 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well2.ldf
Data File: RFI-94-02R.dat Date: 3/18/03

**Date Start/Finish:** 5/9/01
**Drilling Company:** Mateco
**Driller's Name:** Gary Swift
**Drilling Method:** Direct Push
**Sampler Size:** 2 ft cont. acetate sleeve
**Auger Size:** 2 1/4" ID
**Rig Type:** 66 DT Advance Geoprobe

**Northing:** 561723.65
**Easting:** 13306393.62
**Casing Elevation:** 727.48

**Borehole Depth:** 22.5' bgs
**Surface Elevation:** NA

**Descriptions By:** Brian Loomis

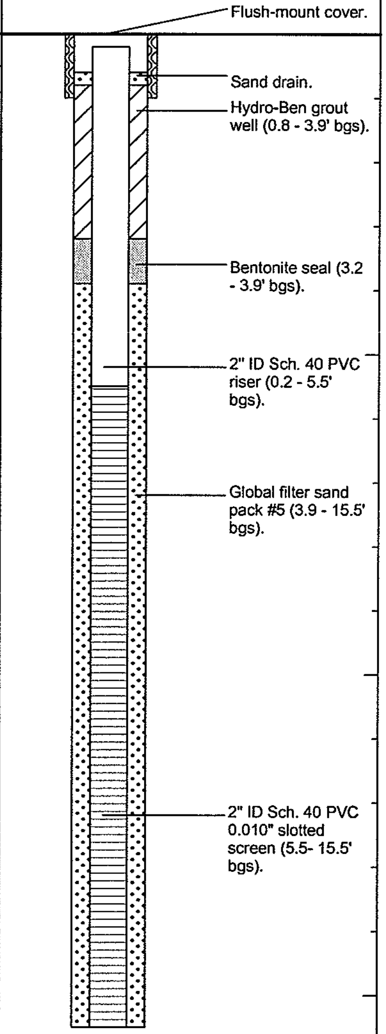
**Boring ID:** RFI-94-05

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 730 | | | | | | | | | | |
| 0 | | 1 | 0-2 | | | 1.5 | 4.6 | NA | Fill<br>SP | CONCRETE.<br>Very dark brown fine to medium SAND, trace Clay, dry, loose. | FILL<br>SAND |
| | 725 | 2 | 2-4 | | | 2.0 | 4.7 | NA | ML | Yellowish-brown fine to medium SAND, some SIlt, moist.<br>Brown SILT, little fine Sand, dry, stiff. | SILT |
| 5 | | 3 | 4-6 | | | 2.0 | 3.0 | NA | | | |
| | 720 | 4 | 6-8 | | | 2.0 | 5.2 | NA | ML | | |
| | | 5 | 8-10 | | | 2.0 | 12.1 | NA | | | |
| 10 | | 6 | 10-12 | | | 2.0 | 2.7 | NA | CL | Dark gray SILT, trace medium Gravel, dry, dense.<br>Dark gray CLAY, trace medium to coarse Gravel, dry. | |
| | 715 | 7 | 12-14 | | | 2.0 | 3.8 | NA | ML | Dark gray SILT, trace medium Gravel, dry, dense. | |
| 15 | | 8 | 14-16 | | | 0.5 | 5.7 | NA | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface
NA = Not Applicable/Not Available
Samples collected 0.5-2' 8-10' and 18-20' bgs.
Monitoring well installed adjacent to original soil boring.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 5/9/01 | 21.0 | |
| | | |
| | | |
| | | |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-94-05

**Borehole Depth:** 22.5' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 710 | 9 | 16-18 | | | 2.0 | 5.6 | NA | ML | | Dark gray SILT, trace medium Gravel, dry, dense. | SILT | |
| | | 10 | 18-20 | | | 2.0 | 2.5 | NA | | | Gray SILT, some fine Sand, dry, loose. | | |
| 20 | | 11 | 20-22 | | | 2.0 | 3.7 | NA | CL | | Dark gray CLAY, some Silt, little fine Sand, trace Gravel, dry. | SILTY CLAY | ▼ |
| | | | | | | | | | SP | | Dark gray fine to medium SAND, some Silt, wet, dense. | | |
| | | | | | | | | | ML | | Gray SILT, some fine Sand, dry, loose. | | |
| | 705 | NA | 22-22.5 | | | NA | NA | NA | SP | | Dark gray fine to medium SAND, some Silt, wet, dense. | | |
| 25 | | | | | | | | | | | | | |
| | 700 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| | 695 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface
NA = Not Applicable/Not Available
Samples collected 0.5-2' 8-10' and 18-20' bgs.
Monitoring well installed adjacent to original soil boring.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 5/9/01 | 21.0 | |
| | | |
| | | |
| | | |

Project: 644.10.011 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-94-05.dat Date:1/21/04

**Date Start/Finish:** 8/21/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 561082.04
**Easting:** 13306774.72
**Casing Elevation:** 720.32 ft. AMSL

**Borehole Depth:** 16' bgs
**Surface Elevation:** 720.81 ft. AMSL

**Descriptions By:** SM Duly

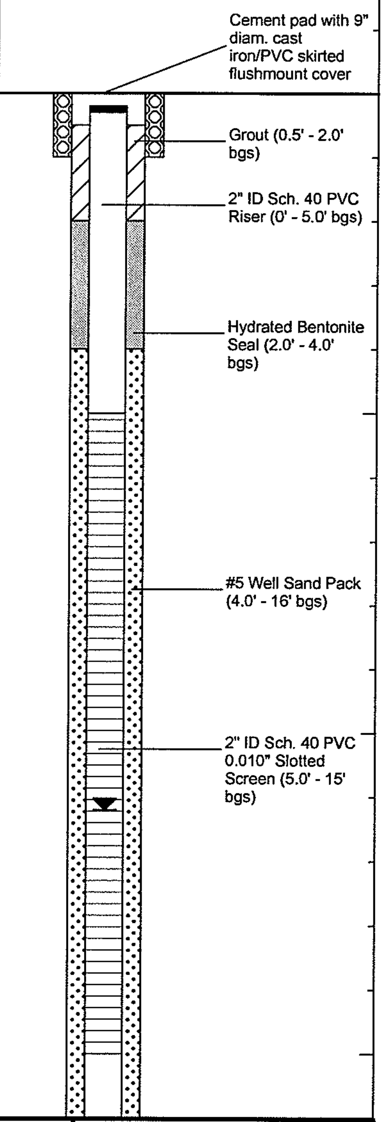
**Boring ID:** RFI-94-07

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 720 | NA | 0-2 | NA | NA | NA | NA | - | FL | | ASPHALT.<br>ASPHALT AND CONCRETE Rubble. | FILL |
| | | 1 | 2-4 | 2<br>2<br>3<br>2 | 5 | 1.2 | 0.0 | - | SW<br>CL<br>SM | | Light yellow-brown (10YR 6/4) fine to coarse subangular well graded SAND (SW), little Silt, few fine to coarse Gravel as Concrete and Asphalt Rubble, few Clay, aplastic, no odor, loose. Fill Sand and Rubble.<br>Dark gray-brown (10YR 4/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, few to rare fine rounded Gravel, extensive oxidation and mottling, moderately plastic, soft, no odor, dry. Native Clay Till used as backfill. | Sand<br>Clay<br>lty Sar |
| 5 | 715 | 2 | 4-6 | 4<br>6<br>6<br>7 | 12 | 1.6 | 0.0 | - | CL | | Dark yellow-brown (10YR 4/4) Silty fine to medium subangular well graded SAND (SM), little Clay, trace fine to coarse rounded to subrounded Gravel, aplastic, no odor, loose, moist. Fill Sand. | Silty Clay |
| | | 3 | 6-8 | 4<br>4<br>5<br>9 | 9 | 1.5 | 0.0 | - | | | Yellow-brown (10YR 5/6) Silty Lean CLAY (CL) as above from 3.1' - 3.6' bgs, large saturated Silt lenses throughout with damp to moist Clay in between, dry. Native Clay Till used as backfill.<br>4"-thick Silt lense, saturated at 6.5' bgs.<br>6"-thick Silt lense, saturated at 6.9' bgs.<br>4"-thick Silt lense, saturated at 7.7' bgs. | |
| | | 4 | 8-10 | 5<br>7<br>9<br>12 | 16 | 1.8 | 0.0 | - | | | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 4.4' - 8.0' bgs, homogenous, very stiff, dry to damp. Native Glacial Clay Till.<br>6"-thick Silt lense, saturated at 9.5' bgs. | |
| 10 | 710 | 5 | 10-12 | 5<br>9<br>14<br>20 | 23 | 1.8 | 0.0 | - | | | 4"-thick Silt lense, saturated at 10.3' bgs. | |
| | | 6 | 12-14 | 8<br>13<br>18<br>22 | 31 | 1.6 | 0.0 | - | SM | | Gray (10YR 5/1) Silty fine to coarse subrounded well graded SAND (SM), little to some Clay, trace fine to medium rounded Gravel, medium dense, no odor, aplastic, saturated. Glacio-alluvial.<br>Silty Sand becomes poorly graded and fine grained after 12.5' bgs.<br>4"-thick Silt lense, moist to damp at 12.6' bgs. | Silty Sand |
| 15 | 705 | 7 | 14-16 | 14<br>24<br>40/ 4" | 64/ 10" | 1.4 | 0.0 | - | CL | | Silty lean CLAY (CL), as above from 8.0' - 11.2' bgs, homogenous, hard, dry. | Silty Clay |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/21/02 | 11.2' | |

**Date Start/Finish:** 12/1/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:**
**Easting:**
**Casing Elevation:**

**Borehole Depth:** 28' bgs
**Surface Elevation:**

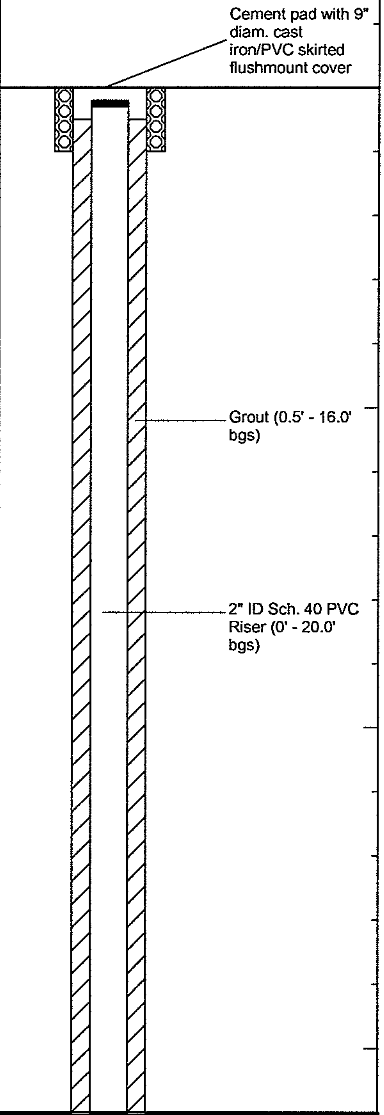
**Descriptions By:** Wayne Patterson

**Boring ID:** RFI-94-08

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | CONCRETE. | FILL | |
| | | NA | 0-2 | NA | NA | NA | NA | | | | Very dark brown (10YR 2/2) Silty CLAY (CL), some fine Sand and fine to medium subrounded Gravel, moderately plastic, no odor, moist to wet, soft. (Fill) | | |
| | | 1 | 2-4 | 2<br>2<br>NA<br>NA | NA | 1.2 | NA | | | | | | |
| 5 | -5 | NA | 4-6 | NA<br>NA<br>NA<br>NA | NA | NA | NA | | | | | | |
| | | 2 | 6-8 | 1/<br>18" | NA | 0.75 | NA | | | | Dark yellow-brown (10YR 4/4) and gray-brown (10YR 5/2) mottled Silty CLAY (CL), few fine to coarse subrounded Sand, rare fine subrounded Gravel, weakly plastic, no odor, dry, stiff. (Fill)<br>at 8', color changes to yellowish-brown (10YR 5/4). | | |
| | | 3 | 8-10 | 9<br>13<br>18<br>19 | 31 | 2.0 | NA | | CL | | | | |
| 10 | -10 | 4 | 10-12 | 7<br>11<br>13<br>20 | 24 | 2.0 | NA | | | | | | |
| | | 5 | 12-14 | 9<br>14<br>21<br>30 | 35 | 2.0 | NA | | | | Little mottling with yellow-brown (10YR 5/6). | | |
| 15 | -15 | 6 | 14-16 | 5<br>9<br>15<br>23 | 24 | NA | NA | | | | Dark gray (10YR 4/1) Silty CLAY (CL), rare fine to coarse subrounded Sand and fine subrounded Gravel, weakly plastic, stiff, no odor, dry. | Silty Clay | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

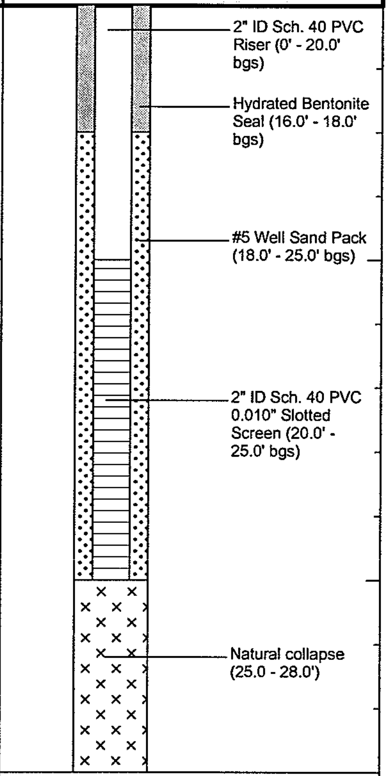
**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-94-08

**Borehole Depth:** 28' bgs



| DEPTH ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 16-18 | 5<br>10<br>14<br>23 | 24 | 2.0 | NA | | CL | | Dark gray (10YR 4/1) Silty CLAY (CL), rare fine to coarse subrounded Sand and fine subrounded Gravel, weakly plastic, stiff, no odor, dry. | Silty Clay |
| | 8 | 18-20 | 6<br>10<br>18<br>24 | 28 | 2.0 | NA | | | | | |
| 20-20 | 9 | 20-22 | 7<br>13<br>31<br>33 | 44 | NA | NA | | ML | | Dark gray-brown (10YR 4/2) Sandy SILT (ML), some fine to medium subangular to subrounded Sand, few Clay and fine to medium subangular to subrounded Gravel, moist to wet, no odor. | Sandy Silt |
| | 10 | 22-24 | 11<br>30<br>31<br>37 | 61 | NA | NA | | SM | | Dark gray (10YR 4/1) fine subangular to subrounded Silty SAND (SM), few Clay, moderately dense, saturated, no odor. | Silty Sand |
| 25-25 | 11 | 24-26 | 48<br>50/<br>3" | NA | 1.0 | NA | | ML | | Dark gray (10 YR 4/1) SILT (ML), rare fine Gravel, dense, no odor, dry. | SILT |
| | 12 | 26-28 | 50<br>50/<br>3" | NA | 0.5 | NA | | | | | |
| 30-30 | | | | | | | | | | | |
| 35-35 | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 12/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 561289.14
**Easting:** 13306940.18
**Casing Elevation:** 719.71

**Borehole Depth:** 19' bgs
**Surface Elevation:** 719.70

**Descriptions By:** Wayne Patterson

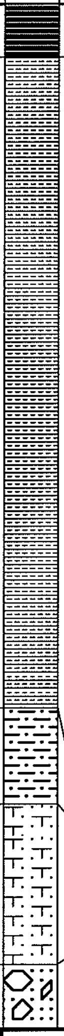
**Boring ID:** RFI-94-09

**Client:** General Motors

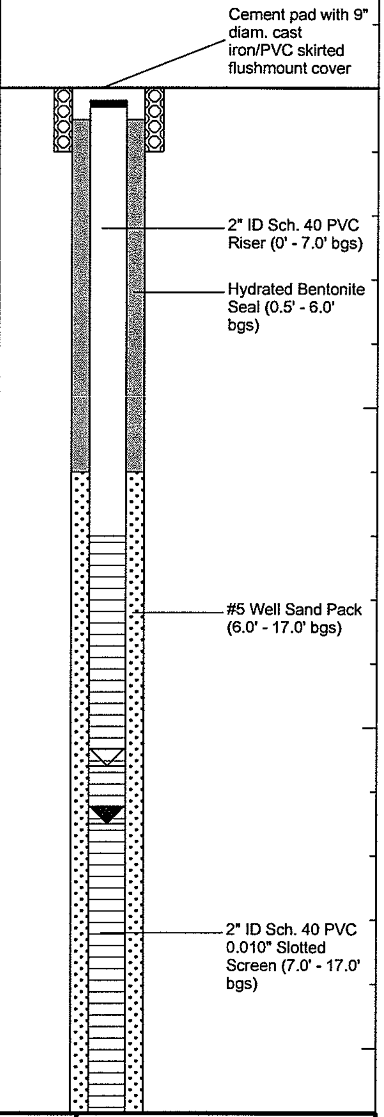
**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | ASPHALT over Brick. | FILL |
| | | 1 | 1-3 | 7<br>5<br>4<br>3 | 9 | 2.0 | NA | | CL | Yellow-brown (10YR 5/6) Silty CLAY (CL), black stained to 4' bgs, rare fine to coarse subangular Sand (some in upper 2'), moderately stiff, no odor, damp. (Fill) | |
| | | 2 | 3-5 | 2<br>4<br>4<br>5 | 8 | 2.0 | NA | | | | |
| 5 | -5 | 3 | 5-7 | 4<br>4<br>6<br>8 | 10 | 1.5 | NA | | | Mottled with gray (10YR 6/1), little fine to coarse subangular to subrounded Sand, little fine subangular to subrounded Gravel, stiff. | |
| | | 4 | 7-9 | 4<br>7<br>11<br>18 | 18 | 2.0 | NA | | | | |
| 10 | -10 | 5 | 9-11 | 6<br>22<br>19<br>15 | 41 | 2.0 | NA | | | At 10.5', 3" lens rock fragments. | |
| | | 6 | 11-13 | 8<br>16<br>32<br>41 | 48 | 1.9 | NA | | ML | Dark gray (10YR 4/1) Silty CLAY (CL), little fine to coarse subangular to subrounded Sand and fine subangular to subrounded Gravel, stiff, no odor, dry.<br>Dark gray (10YR 4/1) SILT (ML), very dense, moist to wet, no odor. | Silt |
| | | 7 | 13-15 | 16<br>21<br>23<br>20 | 44 | NA | NA | | SM | Dark gray (10YR 4/1) fine to coarse subangular to subrounded Silty SAND (SM), rare fine subangular Gravel, moist to wet, no odor, dense.<br>At 13', saturated, alternating layers of Silt and Silty Sand. | Silty Sand |
| 15 | -15 | 8 | 15-17 | 7<br>18 | 39 | 1.8 | NA | | GW | Dark gray (10YR 4/1) fine to coarse angular to subrounded SAND and GRAVEL (GW), well graded and increasing grain size with depth, medium dense, saturated, no odor. | S&G |

Geologic Column



Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
S&G = Sand & Gravel

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/5/03 | 11.5' | |
| 12/5/03 | 10.6' | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

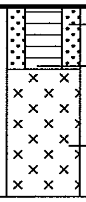
Data File:RFI-94-09.dat Date:12/16/03

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-94-09

**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 21<br>30 | 39 | 1.8 | NA | | GW | | Dark gray (10YR 4/1) fine to coarse angular to subrounded SAND and GRAVEL (GW), well graded and increasing grain size with depth, medium dense, saturated, no odor. | S&G | <br>#5 Well Sand Pack (6.0' - 17.0' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (7.0' - 17.0' bgs)<br>Natural collapse (17.0 - 19.0') |
| | | 9 | 17-19 | 43<br>54/<br>4" | NA | 2.0 | NA | | CL | | Dark gray (10YR 4/1) Silty CLAY (CL), as at 10.75' - 11.0'. | Silty Clay | |
| 20 | *20* | | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.
S&G = Sand & Gravel

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 12/5/03 | 11.5' | |
| 12/5/03 | 10.6' | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-94-09.dat Date:12/16/03

**Date Start/Finish:** 12/5/03
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 561235.34
**Easting:** 13306921.68
**Casing Elevation:** 719.56

**Borehole Depth:** 18' bgs
**Surface Elevation:** 719.56

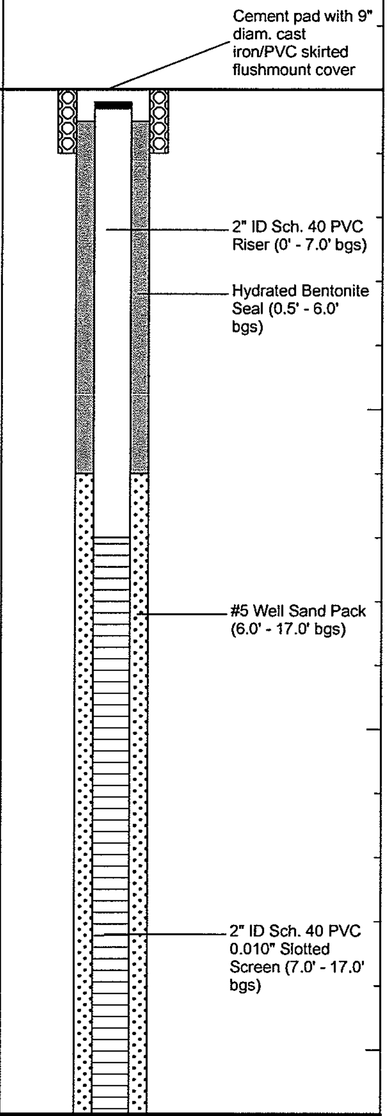
**Descriptions By:** Wayne Patterson

**Boring ID:** RFI-94-10

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | ASPHALT over Brick. | FILL | |
| | | 1 | 1-3 | 3<br>3<br>2<br>3 | 5 | 1.0 | NA | | CL | | Yellow-brown (10YR 5/6) Silty CLAY (CL), black stained to 3' bgs, rare fine to coarse subangular Sand, some fine to coarse subangular Sand in upper 2', medium stiff to soft, damp to moist, no odor. AC Titan plugs, rare glass and metal present in upper 3'. (Fill) | | |
| | | 2 | 3-5 | 6<br>6<br>5<br>6 | 11 | 1.0 | NA | | | | | | |
| 5 | -5 | 3 | 5-7 | 3<br>4<br>4<br>7 | 8 | 1.0 | NA | | | | Mottled with gray (10YR 6/1), rare fine to coarse subangular to subrounded Sand. | | |
| | | 4 | 7-9 | 4<br>7<br>7<br>13 | 14 | 1.5 | NA | | | | 4" lens yellow-brown (10YR 5/6) Silt (ML), wood debris, saturated. | | |
| 10 | -10 | 5 | 9-11 | 8<br>14<br>24<br>24 | 38 | 2.0 | NA | | ML | | Yellow-brown (10YR 5/6) SILT, damp, no odor. | SILT | |
| | | 6 | 11-13 | 11<br>21<br>20<br>23 | 41 | 1.9 | NA | | | | Dark gray (10YR 4/1), few fine to medium subrounded Sand. | | |
| | | 7 | 13-15 | 12<br>25<br>30<br>33 | 55 | 1.9 | NA | | | | Dark gray (10YR 4/1) SILT (ML), little fine to coarse subangular Sand, saturated, no odor. 2" thick fine to medium subangular to subrounded Sand lens at top. | | |
| 15 | -15 | 8 | 15-17 | 21<br>22 | 64 | 2.0 | NA | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

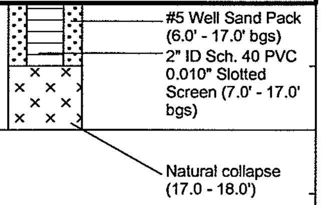
Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-94-10.dat Date:12/16/03

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-94-10

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 42<br>50 | 64 | 2.0 | NA | | ML | ▤ | Dark gray (10YR 4/1) SILT (ML), little fine to coarse subangular Sand, saturated, no odor. | Silt |  |
| | | 9 | 17-19 | 29<br>56 | NA | 1.0 | NA | | CL | ▤ | Dark gray (10YR 4/1) Silty CLAY (CL), few fine to coarse subangular to subrounded Sand and fine subangular to subrounded Gravel, stiff, dry, no odor. | Silty Clay | |
| 20-20 | | | | | | | | | | | | | |
| 25-25 | | | | | | | | | | | | | |
| 30-30 | | | | | | | | | | | | | |
| 35-35 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 03/17/05
**Drilling Company:** Altech
**Driller's Name:** D. Wells
**Drilling Method:** HSA/SS
**Sampler Size:** 2'x2" ID SS
**Auger Size:** 4 - 1/4" ID
**Rig Type:** CME 55 ATV

**Northing:** 561342.26
**Easting:** 13306955.55
**Casing Elevation:** 719.54' AMSL

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** J. Kralik

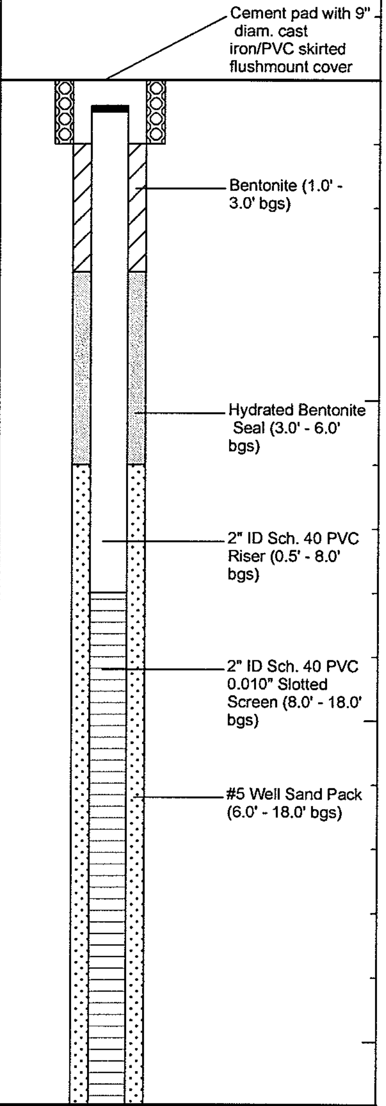
**Well/Boring ID:** RFI-94-11

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | NA<br>2<br>4 | NA | 1.0 | 0.0 | | FL | | ASPHALT/ Road Bed. |
| | | 2 | 2-4 | 2<br>2<br>2<br>2 | 6 | 2.0 | 0.0 | | SP | | Dark brown fine SAND, some Clay, little fine Gravel, and Silt, no odor, loose, damp.<br>Brick fragments from 3.5' - 4.5' bgs. |
| 5 | -5 | 3 | 4-6 | 2<br>6<br>10<br>20 | 8 | 2.0 | 0.0 | | | | Yellow-brown CLAY, some fine Gravel, little medium to coarse Sand, trace Silt, no odor, very stiff, damp.<br>Isolated layers (<.5") of saturated yellow-brown Silt, from 5.5' - 7.5' bgs. |
| | | 4 | 6-8 | 6<br>8<br>12<br>25 | 4 | 2.0 | 0.0 | | CL | | Dark brown deposits on horizontial fractures from 7.0' - 8.5' bgs.<br>Gray and orange mottling present to 8.5' bgs. |
| | | 5 | 8-10 | 10<br>10<br>10<br>10 | 20 | 2.0 | 0.0 | | | | Gray SILT/Clayey SILT, trace very fine Sand, no odor, very stiff, damp. |
| 10 | -10 | 6 | 10-12 | 10<br>10<br>10<br>10 | 10 | 2.0 | 0.0 | | ML | | |
| | | 7 | 12-14 | 10<br>10<br>20<br>20 | 20 | 2.0 | 0.0 | | SP | | Brown-gray fine SAND, trace medium to coarse Sand, no sheen, no odor, wet.<br>Brown-gray Silty CLAY, little fine Sand and Fine Gravel, thin (<1-1") fine wet Sand layers, no odor. |
| 15 | -15 | 8 | 14-16 | 10<br>10<br>20<br>10 | 21 | 2.0 | 0.0 | | CL | | Cobble at 15' bgs. |

Well/Boring Construction



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## Remarks:

a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 1.5' - 3.5', 8.0' - 10.0' and 10.5' - 12.5' bgs for VOCs, SVOCs, PCBs and metals.

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

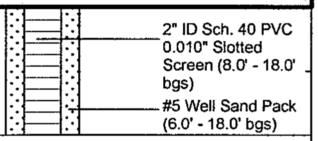
Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File:RFI-94-11.dat Date: 3/15/05

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Well/Boring ID:** RFI-94-11

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Well/Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 10<br>10<br>10<br>12 | 14 | 2.0 | 0.0 | | CL | ▤ | Brown-gray to gray CLAY, some fine Gravel, little fine Sand, no odor, stiff to very stiff, extremely hard, damp. |  |
| 20 | 20 | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | |

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**Remarks:**
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 1.5' - 3.5', 8.0' - 10.0' and 10.5' - 12.5' bgs for VOCs, SVOCs, PCBs and metals.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.023 Template: j:\rockware\logplot2001\logfiles\64410\auger_well2005.ldf
Data File: RFI-94-11.dat Date: 3/15/05

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4 1/4" ID
**Rig Type:** NA

**Northing:** 560343.49
**Easting:** 13304202.51
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 749.18 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-01

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | ▤ | Gray-brown (10YR 5/2) SILT (ML), little to some Clay, few fine to coarse subrounded well graded Sand, trace fine rounded Gravel, Organic matter such as Roots present, aplastic, no odor, dense, dry. Topsoil. | ← SILT → | ▨ Borehole backfilled to grade. |
| | 745 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4 1/4" ID
**Rig Type:** NA

**Northing:** 561500.58
**Easting:** 13304130.74
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 751.98 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-02

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | | Gray-brown (10YR 5/2) SILT (ML), some to little Clay, few fine to coarse subangular to subrounded well graded Sand, trace fine rounded Gravel, Organic matter such as Roots present, aplastic, no odor, dense, dry. Topsoil. | ← SILT → | Borehole backfilled to grade. |
| | 750 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 745 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-02.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 562090.48
**Easting:** 13304106.13
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 756.05 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-03

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | | | | |
| | 755 | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | | Gray-brown (10YR 5/2) SILT (ML), little to few Clay, little fine to coarse subrounded to rounded well graded Sand, few fine to coarse rounded Gravel, Organic matter such as Roots present, aplastic, no odor, dense, dry. Topsoil. | ← SILT → | Borehole backfilled to grade. |
| 5 | | | | | | | | | | | | | |
| | 750 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 745 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
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| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-03.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 562774.61
**Easting:** 13304154.65
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 742.44 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-04

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 745 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | ▤ | Dark gray-brown (10YR 4/2) SILT (ML), some Clay, few fine to coarse rounded well graded Sand, few fine to medium rounded Gravel, Organic matter such as Roots present, aplastic, no odor, dense, dry. Topsoil. | ← SILT → | ▨ Borehole backfilled to grade. |
| | 740 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 730 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-04.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 564918.08
**Easting:** 13304965.81
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 748.91 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-05

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | SM | | Dark gray-brown (10YR 4/2) Silty fine to coarse (predominantly medium) subangular poorly graded SAND (SM), little Clay, few fine to coarse rounded to subrounded Gravel, Slag present, Organic matter such as Roots present, aplastic, no odor, loose, dry. Topsoil mixed with Slag. | Silty SAND | Borehole backfilled to grade. |
| | 745 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
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Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-05.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 566238.13
**Easting:** 13304951.72
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 753.84 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-06

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | SM | | Dark gray-brown (10YR 4/2) Silty fine angular to subangular poorly graded SAND (SM), little Clay, trace to few fine rounded Gravel, some fine to coarse angular aggregate Slag and Foundry Sand present, Organic matter such as Roots present, aplastic, no odor, loose, dry. Topsoil, Aggregate, and Foundry/Slag mix. | Silty SAND | ▨ Borehole backfilled to grade. |
| | 750 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 745 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
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Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-06.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 567707.07
**Easting:** 13305976.56
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 753.37 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-07

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | ▤ | Black (10YR 2/1) SILT (ML), little Clay, few fine to coarse rounded well graded Sand, Organic matter such as Roots present, aplastic, no odor, dense, damp. Topsoil. | ↓ SILT ↑ | ▨ Borehole backfilled to grade. |
| | 750 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 745 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 568863.93
**Easting:** 13306132.72
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 755.47 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-08

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 755 | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | ▤ | Gray-brown (10YR 5/2) SILT (ML), few Clay, little fine to coarse subrounded well graded Sand, few fine to coarse rounded Gravel, rare rounded Cobbles, Organic matter such as Roots present, aplastic, no odor, dense, damp. Topsoil. | ← SILT → | ▨ Borehole backfilled to grade. |
| 5 | 750 | | | | | | | | | | | | |
| 10 | 745 | | | | | | | | | | | | |
| 15 | 740 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
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Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-08.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 568893.99
**Easting:** 13306638.87
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 753.58 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-09

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 755 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | SM | | Dark gray-brown (10YR 4/2) Silty fine to medium (predominantly fine) subangular to subrounded poorly graded SAND (SM), little Clay with increased Clay content in patches, little fine to coarse subangular Gravel, Metallic debris and brick fragments presnet (Fill), Organic material such as Roots present, aplastic, no odor, medium dense, moist. Topsoil. | Silty SAND | Borehole backfilled to grade. |
| | 750 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 745 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-09.dat Date:9/24/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** Hand Auger
**Sampler Size:** NA
**Auger Size:** 4"
**Rig Type:** NA

**Northing:** 569686.56
**Easting:** 13306724.35
**Casing Elevation:** NA

**Borehole Depth:** 2.0' bgs
**Surface Elevation:** 747.46 ft. AMSL

**Descriptions By:** SM Duly

**Boring ID:** RFI-BG-10

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 750 | | | | | | | | | | | | |
| 0 | | 1 | 0-2 | NA | NA | NA | 0.0 | - | ML | ▤ | Dark gray-brown (10YR 4/2) SILT (ML), few Clay, little fine to coarse subrounded well graded Sand, trace fine to medium rounded Gravel, trace Slag, Organic matter such as Roots present, aplastic, no odor, dense, dry. Topsoil. | ← SILT → | ▨ Borehole backfilled to grade. |
| | 745 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | 740 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| | 735 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template:j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf

Data File:RFI-BG-10.dat Date:9/24/02

**Date Start/Finish:** 8/27/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 563066.3227
**Easting:** 13306160.83
**Casing Elevation:** NA

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

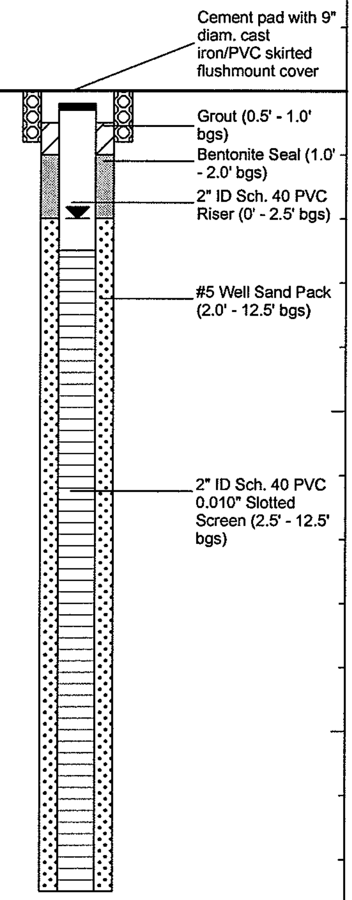
**Boring ID:** RFI-SS-01

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | 0-1 | NA | NA | NA | NA | NA | FL | ASPAHLT.<br>CONCRETE. | FILL |
| | | 1 | 1-3 | 4<br>4<br>6<br>7 | 10 | 1.5 | 0.0 | - | ML | Yellow-brown (10YR 5/4) Silty fine to medium poorly graded SAND (SM), little to few Clay, aplastic, no odor, dense, damp to moist. Fill Sand.<br>Saturated at 2.0' bgs. | Silty SAND |
| | | 2 | 3-5 | 1<br>1<br>2<br>2 | 3 | 1.6 | 0.0 | - | CL | Pale brown (10YR 6/2) SILT (ML), aplastic, no odor, dense, damp to moist. Glacio-alluvial material used as backfill.<br>Gray (10YR 5/1) fine to coarse subangular to subrounded well graded SAND (SW), increased roundness with increased grain size, little Silt, few fine to medium rounded Gravel, aplastic, no odor, loose, saturated. Glacio-alluvial (?) material/lenses of Silt up to 2" thick from 3.7' - 6.2' bgs. | SILT<br>Fine SAND |
| 5 | -5 | 3 | 5-7 | 3<br>3<br>4<br>5 | 7 | 1.8 | 0.0 | - | | Coarsening downward below 6.0' bgs. | |
| | | 4 | 7-9 | 1<br>2<br>3<br>5 | 5 | 1.5 | 0.0 | - | | Fine to coarse (predominantly coarse) Sand at 8.5' bgs. | |
| 10 | -10 | 5 | 9-11 | 3<br>4<br>4<br>5 | 8 | 1.5 | 0.0 | - | | Increased Gravel content to little below 10.5' bgs. | |
| | | 6 | 11-13 | 3<br>5<br>5<br>7 | 10 | 1.4 | 0.0 | - | | | |
| 15 | -15 | | | | | | | | | | |

## Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available

## Water Level Data

| Date | Depth | Elev. |
|---|---|---|
| 8/27/02 | 2.0' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-SS-01.dat Date: 9/20/02

**Date Start/Finish:** 8/27/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 563083.8272
**Easting:** 13306165.73
**Casing Elevation:** NA

**Borehole Depth:** 13' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

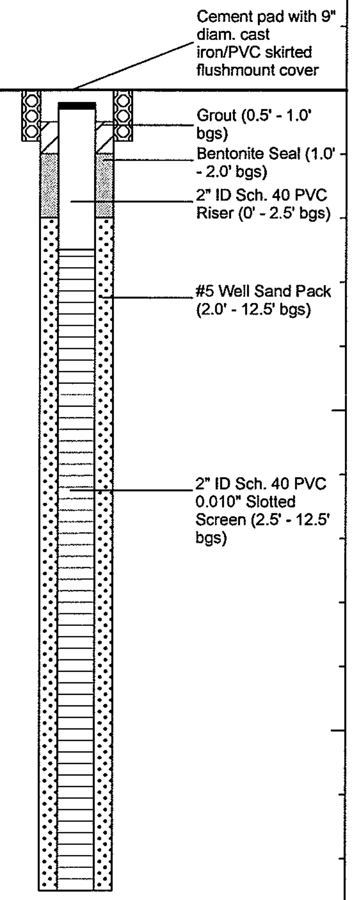
**Boring ID:** RFI-SS-02

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | | | |
| | | NA | 0-1 | NA | NA | NA | NA | NA | FL | ASPAHLT.<br>CONCRETE. | FILL |
| | | 1 | 1-3 | 5<br>6<br>6<br>6 | 12 | 1.3 | 0.0 | - | SM | Brown (10YR 5/3) Silty fine to coarse (predominantly fine to medium) poorly graded SAND (SM), aplastic, loose, no odor, damp. Fill Sand.<br>Saturated at 2.5' bgs. | Silty SAND |
| | | 2 | 3-5 | 2<br>3<br>4<br>5 | 7 | 1.3 | 0.0 | - | SW | Gray (10YR 5/1) fine to coarse subangular to subrounded well graded SAND (SW), increasing roundnedd with increased grain size, little Silt, few fine to coarse Gravel, loose, no odor, saturated, Glacio-alluvial (?) | Fine SAND |
| 5 | -5 | 3 | 5-7 | 2<br>2<br>5<br>6 | 7 | 1.5 | 0.0 | - | | | |
| | | 4 | 7-9 | 2<br>2<br>3<br>4 | 5 | 1.5 | 0.0 | - | | Coarsens downward below 9.0' bgs. | |
| 10 | -10 | 5 | 9-11 | 2<br>3<br>3<br>4 | 6 | 1.5 | 0.0 | - | SG | Gray (10YR 6/1) fine to coarse subangular to subrounded well graded SAND with fine to medium rounded GRAVEL (SG), few Silt, aplastic, loose, no odor, saturated. | SAND and GRAVEL |
| | | 6 | 11-13 | 3<br>3<br>5<br>6 | 8 | 1.5 | 0.0 | - | | | |
| 15 | -15 | | | | | | | | | | |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-02.dat Date: 9/23/02

**Date Start/Finish:** 8/26/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 563259.3319
**Easting:** 13306099.75
**Casing Elevation:** NA

**Borehole Depth:** 19' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

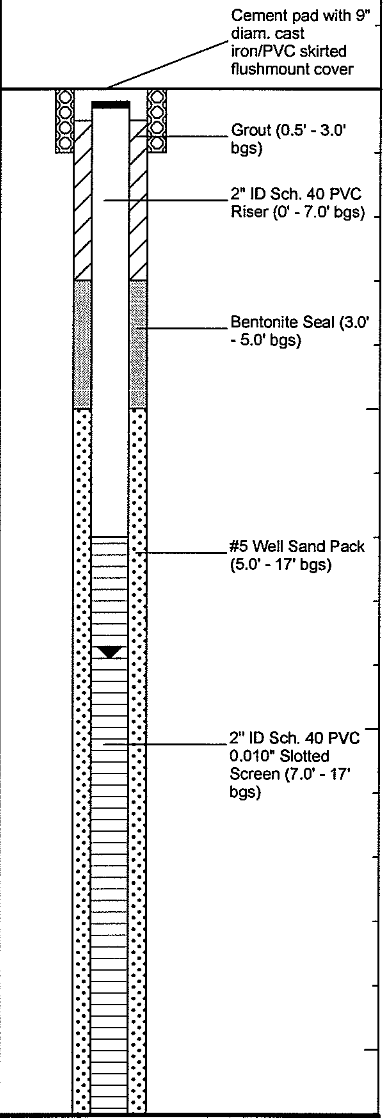
**Boring ID:** RFI-SS-03

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | 0-1 | NA | NA | NA | NA | NA | FL | | CONCRETE. | FILL |
| | | 1 | 1-3 | -<br>7<br>9<br>16 | 16 | 1.5 | 0.0 | - | SM | | Very dark gray-brown (10YR 3/2) Silty fine to coarse subangular well graded SAND (SM), few Clay, Cinders and Metallic debris present, no odor, medium dense to loose, dry. Foundry Sand. | Silty SAND |
| | | 2 | 3-5 | 1<br>2<br>3<br>3 | 5 | 1.5 | 0.0 | - | CL/ SM | | Brown (10YR 4/3) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace rounded Gravel, soft, plastic, no odor, dry, interbedded with Silty fine subangular poorly graded SAND (SM), few Clay, few fine to coarse subrounded Gravel, no odor, loose, dry. Native Glacio-Alluvial material used as backfill. | Silty CLAY & Silty SAND |
| 5 | -5 | 3 | 5-7 | 2<br>2<br>2<br>2 | 4 | 1.4 | 0.0 | - | | | Becomes yellow-brown (10YR 5/4), damp at 6.0' bgs.<br>Damp to moist at 6.8' bgs. | |
| | | 4 | 7-9 | 2<br>3<br>4<br>6 | 7 | 1.8 | 0.0 | - | CL | | Yellow-brown (10YR 5/4) SILTY Lean CLAY (CL), few fine to coarse subrounded Sand, trace rounded Gravel, soft, plastic, no odor, damp to moist. Native Clay Till used as backfill. | Silty CLAY |
| 10 | -10 | 5 | 9-11 | 2<br>3<br>3<br>6 | 6 | 1.8 | 0.0 | + | SM | | Yellow-brown (10YR 5/4) Silty fine subangular poorly graded SAND (SM), few Clay, few fine to coarse subrounded Gravel, strong to moderate odor, saturated. Fill Sand. | Silty SAND |
| | | 6 | 11-13 | 2<br>3<br>3<br>5 | 6 | 1.7 | 0.0 | + | | | Becomes gray-brown (10YR 5/2) at 11' bgs.<br>Black, oily liquid present, moderate odor from 11.8' - 12.1' bgs. Becomes yellow-brown (10YR 5/6) at 12.1' bgs. | |
| | | 7 | 13-15 | 2<br>3<br>3<br>5 | 6 | 1.4 | 27.7 | + | | | Oily liquid present, dark gray (10YR 4/1), moderate to weak odor at 14.4' bgs. | |
| 15 | -15 | 8 | 15-17 | 3<br>5 | 12 | 1.8 | 58.4 | + | | | | |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/26/02 | 8.9' | |

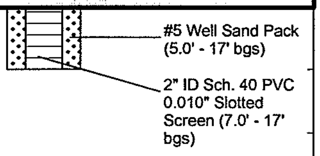
Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-03.dat Date: 9/23/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-03

**Borehole Depth:** 19' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 7<br>8 | 12 | 1.8 | 58.4 | + | SM | | Yellow-brown (10YR 5/4) Silty fine subangular poorly graded SAND (SM), few Clay, few fine to coarse subrounded Gravel, strong to moderate odor, saturated. Fill Sand. | ← Silty SAND → |  |
| | | 9 | 17-19 | 2<br>4<br>8<br>6 | 9 | 1.2 | 42.2 | + | | | Becomes yellow-brown (10YR 5/6) at 18.6' bgs. | | |
| 20 | *20* | | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Not Available

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/26/02 | 8.9' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-03.dat Date: 9/23/02

**Date Start/Finish:** 8/27/02 - 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** NA
**Easting:** NA
**Casing Elevation:** NA

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

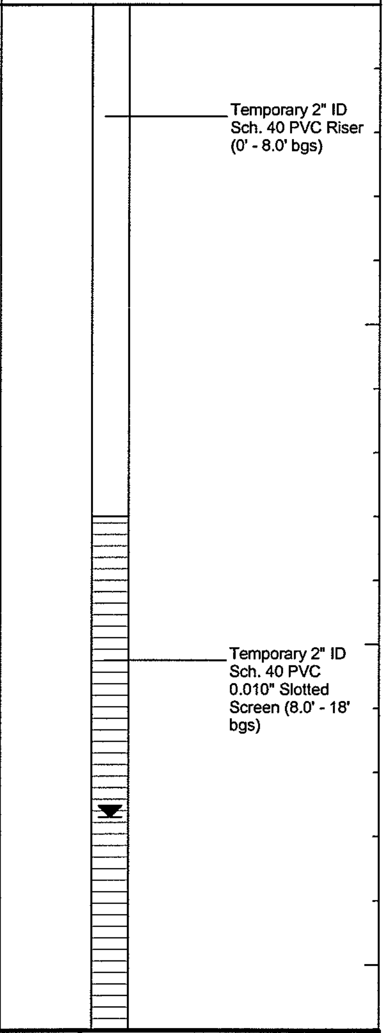
**Boring ID:** RFI-SS-04

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | 0-1 | NA | NA | NA | NA | NA | FL | | CONCRETE. | FILL |
| | | 1 | 1-3 | 17<br>36<br>50/<br>5" | NA | 1.2 | 0.0 | - | SM | | Very dark gray (10YR 3/1) Silty fine to coarse subangular to angular well graded SAND (SM), predominantly composed of Slag, Cinders, few Clay, aplastic, no odor, dense, dry. Slag and Foundry Sand. | Silty SAND |
| | | 2 | 3-5 | 2<br>2<br>2<br>7 | 4 | 1.8 | 0.0 | - | | | Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), few Clay, occasional patches of Slag and Cinders, aplastic, no odor, loose, dry. Foundry Sand. | |
| 5 | -5 | 3 | 5-7 | 9<br>14<br>2<br>3 | 16 | 1.0 | 0.0 | - | | | Slag, Cinders and Metallic debris present below 5.0' bgs.<br>Brown (10YR 8/2) 2"-thick bleached area at 6.8' bgs. | |
| | | 4 | 7-9 | 5<br>7<br>3<br>4 | 10 | 0.1 | 0.0 | - | | | Slag and Metallic Debris at 7.0' bgs. | |
| 10 | -10 | 5 | 9-12 | NA | NA | 0.0 | NA | NA | | | No Recovery. 3' void space from 9.0' -12' bgs, not due to presence of tank, pipe, or sewer. | |
| | | 6 | 12-14 | 4<br>6<br>7<br>9 | 13 | 1.6 | 0.0 | + | SM | | Black (10YR 2/1) to dark gray (10YR 4/1) Silty fine subangular poorly graded SAND (SM), few Clay, aplastic, medium dense, no odor, loose, moist. Fill Sand.<br>Saturated, product (black light weight oil) also present at 12.8' bgs. | Silty SAND |
| 15 | -15 | 7 | 14-16 | 4<br>7<br>6<br>7 | 13 | 1.7 | 0.0 | + | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, Silt lenses throughout, moderately plastic to plastic, stiff, no odor, moist to damp. Native Clay Till.<br>4"-thick saturated Silt lense at 15.2' bgs. | Silty CLAY |

Boring Construction



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**Remarks:** Temporary well screen set from 8.0' - 18' bgs with no surface finishing.
bgs = below ground surface; NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/27/02 | 12.7' | |

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-04

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 16-18 | 4<br>4<br>6<br>8 | 12 | 1.4 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to medium rounded Gravel, Silt lenses throughout, moderately plastic to plastic, stiff, no odor, moist to damp. Native Clay Till.<br>3"-thick saturated Silt lense at 16.8' bgs. | Silty CLAY | Temporary 2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| 20 | *20* | | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | | |

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**Remarks:** Temporary well screen set from 8.0' - 18' bgs with no surface finishing.
bgs = below ground surface; NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/27/02 | 12.7' | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-SS-04.dat Date: 9/23/02

**Date Start/Finish:** 9/3/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 565340.8463
**Easting:** 13306205.02
**Casing Elevation:** NA

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

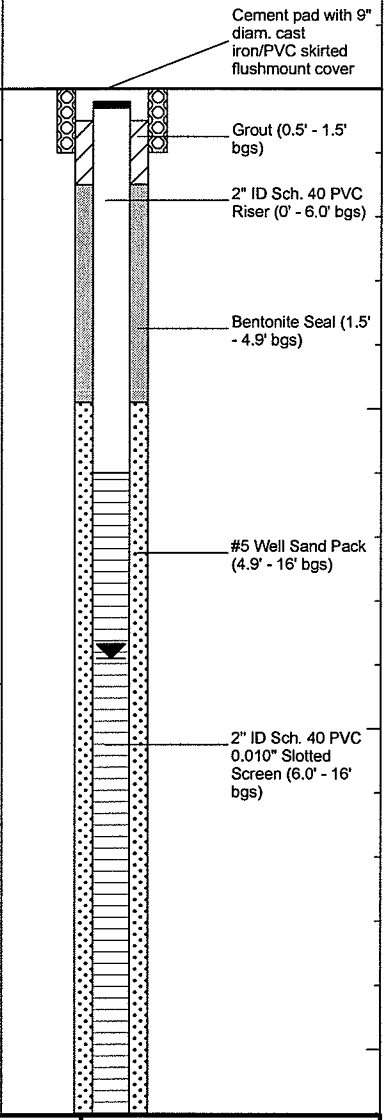
**Boring ID:** RFI-SS-05

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | -<br>-<br>4<br>5 | NA | 0.8 | 0.0 | + | FL<br>SM | ASPHALT.<br>CONCRETE.<br>Black (10YR 2/1) Silty fine subangular poorly graded SAND (SM), few Clay, aplastic, no odor, medium dense, dry. Fill/Foundry Sand. | FILL<br>Silty SAND |
| | | 2 | 2-4 | 6<br>6<br>7<br>10 | 13 | 1.4 | 0.0 | - | | Color change to dark yellow-brown (10YR 4/6) at 3.9' bgs. | |
| 5 | -5 | 3 | 4-6 | 2<br>2<br>4<br>5 | 6 | 1.8 | 0.0 | + | | Color change to brown-yellow (10YR 6/6) at 4.3' bgs.<br>2"-thick Silty Clay lense at 4.8' bgs.<br>Dark brown (10YR 3/3) Silty SAND (SM) as above from 0.8' - 5.5' bgs, local patches of oxidation to red, trace fine to coarse rounded Gravel, trace Slag and Cinders, loose. | |
| | | 4 | 6-8 | 3<br>3<br>3<br>2 | 6 | 1.5 | 0.0 | + | | | |
| | | 5 | 8-10 | 2<br>2<br>1<br>2 | 3 | 1.2 | 0.0 | - | CL | Damp at 8.0' bgs.<br>Saturated at 8.9' bgs.<br>Gray (10YR 5/1) to black (10YR 2/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace to rare fine to medium rounded Gravel, occasional saturated lenses of Silt and Silty Sand throughout, very plastic, no odor, moist to saturated. 2"-thick Silty Sand lense, saturated at 9.5' bgs. Native Clay Till used as backfill. | Silty CLAY |
| 10 | -10 | 6 | 10-12 | 2<br>2<br>3<br>4 | 5 | 1.6 | 0.0 | - | SM | Gray (10YR 6/1) Silty fine to medium (predominantly fine) subangular poorly graded SAND (SM), few fine to coarse rounded Gravel, trace Clay, aplastic, medium dense, no odor, saturated. Glacio-Alluvial (?) | Silty SAND |
| | | 7 | 12-14 | 4<br>5<br>6<br>7 | 11 | 1.7 | 0.0 | - | | | |
| 15 | -15 | 8 | 14-16 | 3<br>3<br>5<br>7 | 8 | 1.6 | 0.0 | - | CL | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 9.3' - 11.9' bgs, lenses of saturated Silt throughout, homogenous, plastic, stiff, moist. Native Clay Till. | Silty CLAY |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/3/02 | 8.9' bgs | |

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-05

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 3<br>5<br>7<br>9 | 12 | 1.8 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) Silty Lean CLAY (CL) as above from 9.3' - 11.9' bgs, lenses of saturated Silt throughout, homogenous, plastic, stiff with increasing stiffness with depth, moist with increasing dryness with depth. Native Clay Till. | Silty CLAY | |
| 20 | *20* | | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/3/02 | 8.9' bgs | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-05.dat Date: 9/23/02

**Date Start/Finish:** 9/3/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 565341.8476
**Easting:** 13306218.47
**Casing Elevation:** NA

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

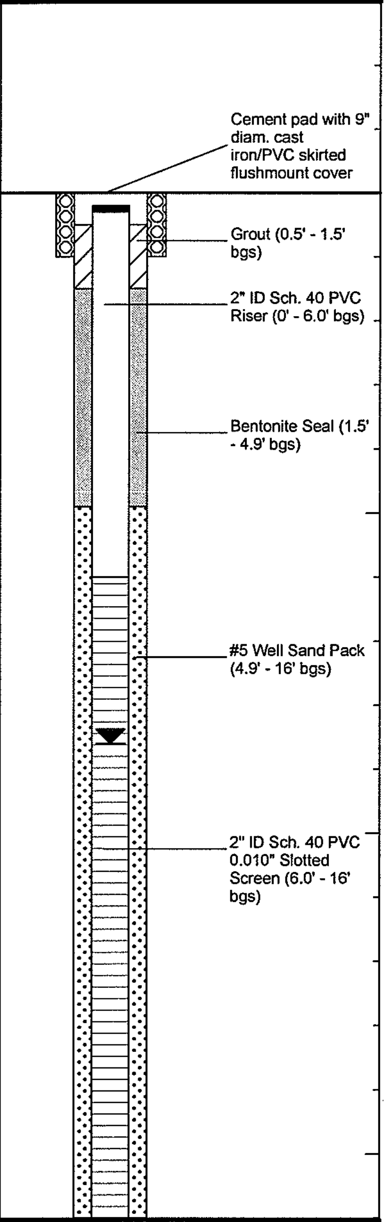
**Descriptions By:** SM Duly

**Boring ID:** RFI-SS-06

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | FL | | ASPHALT.<br>Weathered CONCRETE, Fill and Metalic Debris. | FILL |
| | | 1 | 0-2 | -<br>-<br>6<br>7 | NA | 1.0 | 0.0 | - | SM | | Black (10YR 2/1) to dark yellow-brown (10YR 4/6) mottled Silty fine subangular poorly graded SAND (SM), few Clay, few fine rounded Gravel, few Slag and Cinders, Wood debris from 1.0' - 2.0' bgs, medium dense, no odor, dry. Fill and Foundry Sand. | Silty SAND |
| | | 2 | 2-4 | 7<br>6<br>7<br>7 | 13 | 1.5 | 0.0 | - | | | | |
| 5 | -5 | 3 | 4-6 | 1<br>1<br>1<br>1 | 2 | 1.4 | 0.0 | - | | | | |
| | | 4 | 6-8 | 2<br>2<br>3<br>4 | 5 | 1.6 | 0.0 | +* | | | 6"-thick lense of gray Slag and Cinders at 7.4' bgs. | |
| | | 5 | 8-10 | 2<br>1<br>1<br>1 | 2 | 1.5 | 0.0 | +* | CL | | Gray (10YR 4/1) fine subangular poorly graded Sandy Lean CLAY (CL), little Silt, few fine to coarse rounded Gravel, occasional saturated Sand and Silt lenses throughout, soft, very plastic, moist to saturated. Native Clay Till used as backfill.<br>Color change to black (10YR 2/1) at 9.8' bgs. | Sandy CLAY |
| 10 | -10 | 6 | 10-12 | 2<br>1<br>7<br>17 | 8 | 1.4 | 0.0 | - | | | | |
| | | 7 | 12-14 | 5<br>7<br>4<br>7 | 11 | 1.8 | 0.0 | - | SM | | Gray (10YR 5/1) Silty fine to coarse (predominantly fine) subangular to subrounded SAND (SM), few Clay, few fine to medium rounded Gravel, aplastic, no odor, medium dense, saturated. Glacio-Alluvial.<br>Fining downward below 13.6' bgs. | Silty SAND |
| 15 | -15 | 8 | 14-16 | 4<br>8<br>8<br>9 | 16 | 1.9 | 0.0 | - | CL | | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occaasional saturated Silt lenses throughout, no odor, moist. | CLAY |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available;
* = faint to very light sheen observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/3/02 | 8.6' bgs | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-05.dat Date: 9/23/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-06

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 4<br>4<br>8<br>8 | 12 | 1.6 | 0.0 | - | CL | ▤ | Gray (10YR 5/1) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occaasional saturated Silt lenses throughout, no odor, moist becoming increasingly dry with depth.<br>2"-thick saturated Silt lense at 17.6' bgs. | Silty CLAY | |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available;
* = faint to very light sheen observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/3/02 | 8.6' bgs | |
| | | |
| | | |
| | | |

**Date Start/Finish:** 9/3/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Allen Rau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 565343.2494
**Easting:** 13306232.23
**Casing Elevation:** NA

**Borehole Depth:** 17' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

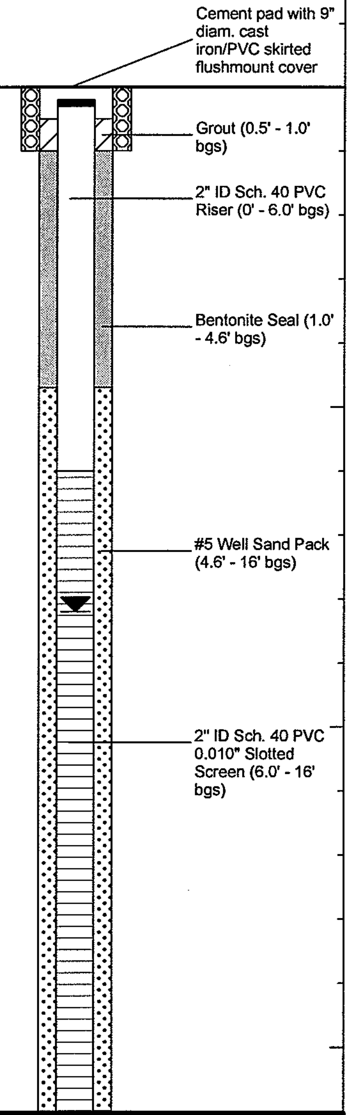
**Boring ID:** RFI-SS-07

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | NA | 0-1 | NA | NA | NA | NA | NA | FL | | ASPHALT.<br>CEMENT/ASPHALT Rubble. | FILL |
| | | 1 | 1-3 | 27<br>21<br>21<br>23 | 42 | 1.2 | 0.6 | +* | SM | | Black (10YR 2/1) Silty fine subangular to angular poorly graded SAND (SM), few fine to coarse subangulat to rounded Gravel, few Clay, Cinders and Slag present, aplastic, no odor, dense, dry. | Silty SAND |
| | | 2 | 3-5 | 4<br>3<br>2<br>1 | 5 | 1.4 | 0.7 | +* | | | 1"-thick lense of gray Slag and Cinders at 3.0' bgs.<br>3"-thick lense of weathered Concrete at 4.3' bgs.<br>Brown (10YR 5/3) mottling, loose to very loose at 4.8' bgs. | |
| 5 | -5 | 3 | 5-7 | 2<br>2<br>4<br>3 | 6 | 1.6 | 0.9 | - | | | | |
| | | 4 | 7-9 | 4<br>3<br>1<br>1 | 4 | 1.0 | 0.2 | - | | | Saturated at 8.2' bgs. | |
| | | | | | | | | | CL | | Gray-brown (10YR 5/2) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, occasional saturated Silt and Silty Sand lenses throughout, soft, very plastic, no odor, moist to saturated. Native Glacial Clay Till used as backfill. | Silty CLAY |
| 10 | -10 | 5 | 9-11 | 2<br>2<br>5<br>6 | 7 | 1.8 | 3.0 | + | | | | |
| | | | | | | | | | SW | | Gray (10YR 5/1) fine to coarse subangular to subrounded well graded SAND (SW), some to little Silt, little to few Clay, few fine to medium rounded Gravel, aplastic, weak odor, loose, saturated. Glacio-Alluvial.<br>No odor below 11' bgs. | SAND |
| | | 6 | 11-13 | 4<br>11<br>13<br>16 | 24 | 1.1 | 0.0 | +* | | | | |
| | | 7 | 13-15 | 5<br>4<br>6<br>8 | 10 | 1.7 | 0.0 | + | | | Fines downward to a Silt in the last 6" of unit to lower contact below 14' bgs. | |
| 15 | -15 | 8 | 15-17 | 3<br>5 | 14 | 1.6 | 0.3 | - | CL | | Gray (10YR 5/1) homogenous Silty Lean CLAY (CL) as above from 8.6' - 10.4' bgs.<br>Silty fine poorly graded subangular Sand (SM) lense, little Clay, dense, saturated from 15' - 15.8' bgs.<br>Gray (10YR 5/1) homogenous Silty Lean CLAY (CL) as above | CLAY |

Boring Construction



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available;
* = faint to very light sheen observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/3/02 | 8.2' bgs | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-07.dat Date: 9/23/02

**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-07

**Borehole Depth:** 17' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 15-17 | 9<br>9 | 14 | 1.6 | 0.3 | - | CL | ▤ | from 8.6' - 10.4' bgs, stiff with increasing stiffness with depth, moist with decreasing moisture with depth. Native Glacial Clay Till. | Silty CLA | |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available;
* = faint to very light sheen observed.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 9/3/02 | 8.2' bgs | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-SS-07.dat Date: 9/23/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 566221.4307
**Easting:** 13305596.05
**Casing Elevation:** NA

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

**Boring ID:** RFI-SS-08

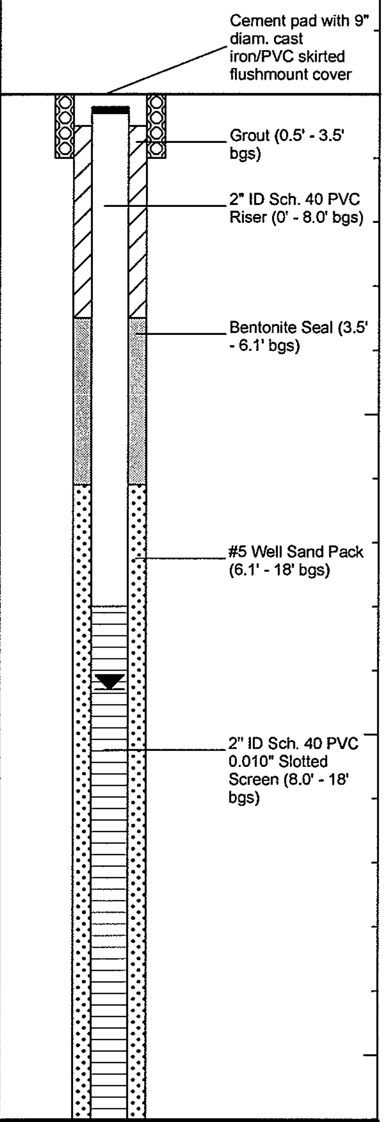
**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0-2 | -<br>2<br>2<br>3 | 4 | 1.1 | 0.0 | - |
| | | 2 | 2-4 | 3<br>3<br>4<br>4 | 7 | 1.4 | 0.0 | - |
| 5 | -5 | 3 | 4-6 | 4<br>6<br>7<br>6 | 13 | 1.7 | 0.0 | - |
| | | 4 | 6-8 | 3<br>6<br>7<br>6 | 13 | 1.3 | 0.0 | - |
| | | 5 | 8-10 | 5<br>7<br>7<br>7 | 14 | 1.9 | 0.0 | - |
| 10 | -10 | 6 | 10-12 | 3<br>5<br>6<br>6 | 11 | 1.4 | 0.0 | - |
| | | 7 | 12-14 | 2<br>3<br>2<br>5 | 5 | 1.5 | 0.0 | - |
| 15 | -15 | 8 | 14-16 | H<br>1<br>2<br>4 | 3 | 1.4 | 0.0 | - |

| USCS Code | Stratigraphic Description | Hydrostratigraphy |
|---|---|---|
| FL | Surface CONCRETE. | FILL |
| CL | Dark yellow-brown (10YR 4/6) Silty Lean CLAY (CL), few fine to coarse subrounded Sand, trace fine to coarse rounded Gravel, soft to medium stiff, plastic, no odor, dry. Native Clay Till used as backfill. | Silty CLAY |
| SM | Dark yellow-brown (10YR 4/4) Silty fine to medium (predominantly fine) poorly graded SAND (SM), aplastic, no odor, loose to medium dense, dry. Fill Sand.<br>4"-thick Silty Clay lense, moist at 3.6' bgs.<br>Trace medium Sand at 4.0' bgs.<br>Moist at 5.7' bgs.<br>Moist to wet at 8.0' bgs.<br>Saturated below 9.3' bgs.<br>Becoming gray to gray-brown (10YR 5/2) at 15.5' bgs. | Silty SAND |

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

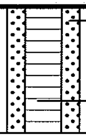
| Date | Depth | Elev. |
|---|---|---|
| 8/29/02 | 9.3' bgs | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File:RFI-SS-05.dat Date: 9/23/02

**Client:**
General Motors
**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-08

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | 1<br>3<br>7<br>9 | 10 | 1.9 | 0.0 | - | SM | ┬·┬· | Dark yellow-brown (10YR 4/4) Silty fine to medium (predominantly fine) poorly graded SAND (SM), aplastic, no odor, loose to medium dense, dry. Fill Sand.<br>Gray (10YR 6/1) Silty fine to medium (predominantly fine) subangular to angular SAND (SM), few Clay, no odor, loose. Glacio-Alluvial. | Silty SAND | <br>#5 Well Sand Pack (6.1' - 18' bgs)<br>2" ID Sch. 40 PVC 0.010" Slotted Screen (8.0' - 18' bgs) |
| 20 | *20* | | | | | | | | | | | | |
| 25 | *25* | | | | | | | | | | | | |
| 30 | *30* | | | | | | | | | | | | |
| 35 | *35* | | | | | | | | | | | | |

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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/29/02 | 9.3' bgs | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-05.dat Date: 9/23/02

**Date Start/Finish:** 8/29/02
**Drilling Company:** Rau Drilling
**Driller's Name:** Greg Compeau
**Drilling Method:** HSA/SS
**Sampler Size:** 2' x 2" ID
**Auger Size:** 4 1/4" ID
**Rig Type:** CME 75

**Northing:** 566221.5886
**Easting:** 13305607.41
**Casing Elevation:** NA

**Borehole Depth:** 18' bgs
**Surface Elevation:** NA

**Descriptions By:** SM Duly

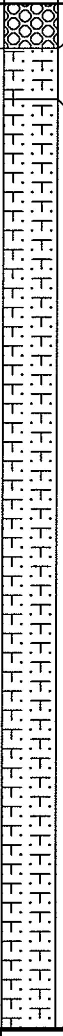
**Boring ID:** RFI-SS-09

**Client:** General Motors

**Location:** GM Flint
Flint, Michigan

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | | | |
| | | 1 | 0-2 | -<br>2<br>3<br>4 | 5 | 0.8 | 0.0 | + | FL |
| | | 2 | 2-4 | 4<br>4<br>5<br>5 | 9 | 1.6 | 0.0 | - | |
| 5 | -5 | 3 | 4-6 | 3<br>4<br>5<br>5 | 9 | 1.4 | 0.0 | - | |
| | | 4 | 6-8 | 2<br>3<br>5<br>3 | 8 | 1.6 | 0.0 | + | |
| | | 5 | 8-10 | 2<br>3<br>3<br>2 | 6 | 1.9 | 0.0 | + | SM |
| 10 | -10 | 6 | 10-12 | H<br>H<br>H<br>H | H | 1.8 | 0.0 | - | |
| | | 7 | 12-14 | H<br>1<br>2<br>4 | 3 | 1.5 | 0.0 | - | |
| 15 | -15 | 8 | 14-16 | H<br>1<br>2<br>3 | 3 | 1.7 | 0.0 | - | |

**Geologic Column**



**Stratigraphic Description**

Surface CONCRETE.

Black (10YR 5/3) Silty fine to coarse (predominantly fine) subangular to subrounded SAND (SM), little Clay, aplastic, no odor, loose, dry. Fill Sand.

Yellow-brown (10YR 5/4) Silty fine to coarse subangular to subrounded (predominantly fine) poorly graded SAND (SM), few Clay, aplastic, no odor, loose, dry. Fill Sand.

Occasional patches/lenses of yellow-brown (10YR 5/4) Silty Lean Clay (CL), few fine to coarse subrounded Clay, rare fine to coarse rounded Gravel, medium stiff, plastic, no odor, damp at 4.0' bgs.

Occasional mottling to oxidation, bleaching, or staining at 6.0' bgs.

Moist to wet at 8.0' bgs.

Saturated, no mottling, very light weight Oily liquid present in water at 9.3' bgs

No oily liquid present at 10' bgs.

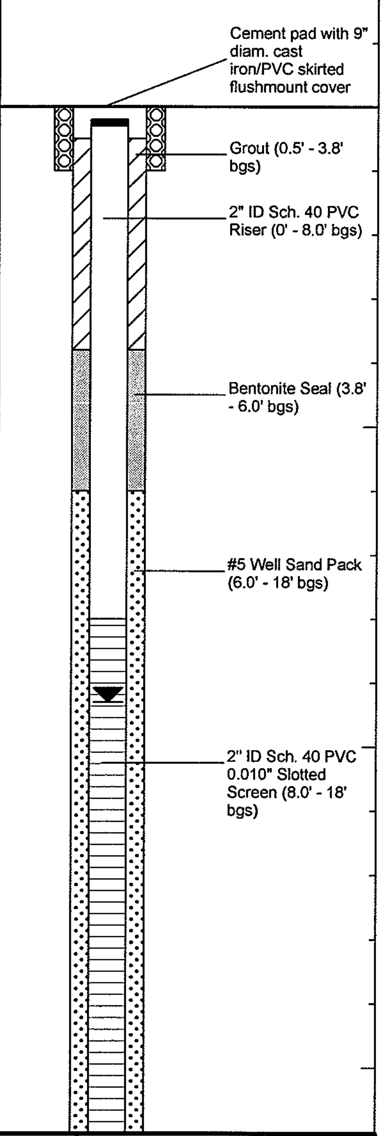
Color change to gray to gray-brown (10YR 5/2) at 15.4' bgs.

**Hydrostratigraphy**

FILL

Silty SAND

**Boring Construction**



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/29/02 | 9.3' bgs | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-09.dat Date: 9/23/02

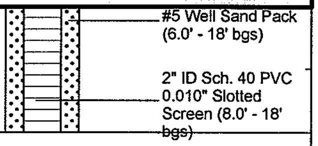
**Client:**
General Motors

**Site Location:**
GM Flint
Flint, Michigan

**Boring ID:** RFI-SS-09

**Borehole Depth:** 18' bgs

| DEPTH | ELEVATION | Sample Run Number | Sample/Int/Type | Blows / 6 Inches | N - Value | Recovery (feet) | PID Headspace (ppm) | Oil/Water Shake Test | USCS Code | Geologic Column | Stratigraphic Description | Hydrostratigraphy | Boring Construction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 16-18 | H<br>1<br>1<br>2 | 2 | 2.0 | 0.0 | - | SM | | Gray (10YR 6/1) Silty fine to medium subangular poorly graded SAND (SM), few Clay, no odor, loose, saturated. Glacio-Alluvial. | Silty SAND | |
| 20 | 20 | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | |



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**Remarks:** bgs = below ground surface;
NA = Not Applicable/Available; H = Weight of Hammer.

**Water Level Data**

| Date | Depth | Elev. |
|---|---|---|
| 8/29/02 | 9.3' bgs | |
| | | |
| | | |
| | | |

Project: 644.10.101 Template: j:\rockware\logplot2001\logfiles\64410\Auger_well3.ldf
Data File: RFI-SS-09.dat Date: 9/23/02