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Environmental Restoration Program

OPERABLE UNIT 9, SITE SCOPING REPORT: VOLUME 2 ADDENDUM – STRATIGRAPHIC AND LITHOLOGIC LOGS

MOUND PLANT
MIAMISBURG, OHIO

April 1993

FINAL
(Revision 0)

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
EG&G Mound Applied Technologies

REFERENCE USE ONLY

ENVIRONMENTAL RESTORATION PROGRAM

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MOUND PLANT
MIAMISBURG, OHIO

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DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL

(REVISION 0)

Signature Page

This report is an addendum to Volume 2 of a multiple-volume Site Scoping Report providing the background information pertinent to the remedial investigation/feasibility study (RI/FS) of the Mound Plant. Under the terms of the Federal Facility Agreement between DOE and US EPA, this report is submitted to US EPA for approval.

This report is approved by US EPA only for the purposes of scoping the RI/FS, and approval does not imply concurrence with the interpretations presented herein. It is recognized that additional information will be collected during the RI/FS and may supersede information contained in this report.

APPROVED: Diana Mally
Remedial Project Manager
U.S. Environmental Protection Agency
Region V

Diana Mally

CONTENTS

1. INTRODUCTION 1

2. STRATIGRAPHIC AND LITHOLOGIC LOGS 2

3. BACKGROUND OF EXPLORATORY BOREHOLE INVESTIGATIONS 2
   3.1. MOUND TEST BORING INVENTORY 2
   3.2. SITE SAFETY ASSESSMENT 3
   3.3. OVERFLOW POND AND RETENTION BASIN CONSTRUCTION 3
   3.4. POTABLE WATER STANDARDS PROJECT 4
   3.5. BURIED VALLEY AQUIFER EVALUATION 5
   3.6. NEW PROPERTY EVALUATION 6
   3.7. SITE SURVEY PROJECT 6
   3.8. TEST PIT EXCAVATION PROGRAM 7

4. MAP COMPILATIONS 7

5. REFERENCES 7

APPENDIX A TEST BORING LOG DRAWINGS 1-425
APPENDIX B TEST BORING DRILLERS LOGS 426-703
APPENDIX C SITE SAFETY ASSESSMENT
APPENDIX D OVERFLOW POND AND RETENTION BASIN CONSTRUCTION
APPENDIX E POTABLE WATER STANDARDS PROJECT
APPENDIX F BURIED VALLEY AQUIFER EVALUATION
APPENDIX G NEW PROPERTY EVALUATION
APPENDIX H SITE SURVEY PROJECT
APPENDIX I TEST PIT EXCAVATION PROGRAM

FIGURES

4.1. Unconsolidated Isopach Map, EG&G Mound Plant, Miamisburg, Ohio 8
4.2. Bedrock Topography, EG&G Mound Plant, Miamisburg, Ohio 9

ACRONYMS

DOE	U.S. Department of Energy
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FFA	Federal Facility Agreement
NPL	National Priority List
EPA	U.S. Environmental Protection Agency
OEPA	Ohio Environmental Protection Agency
RI	remedial investigation
FS	feasibility study
ER	Environmental Restoration (Program)
MRC	Monsanto Research Corporation
PVC	polyvinyl chloride

1. INTRODUCTION

The U.S. Department of Energy (DOE) Mound Plant, Miamisburg, Ohio, was placed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priority List (NPL) on November 21, 1989 (54 FR 48184). Pursuant to its NPL status, the DOE signed a CERCLA Section 120 Federal Facility Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) that became effective October 11, 1990. A similar agreement is currently in negotiation between the DOE and the Ohio EPA (OEPA). The terms of the FFA require that the DOE develop and implement remedial investigations (RIs) and feasibility studies (FSs) and conduct interim remedial actions in order to ensure that environmental impacts associated with past and present activities at the site are thoroughly investigated and appropriate action is taken to protect the public health and welfare and the environment.

The Albuquerque Field Office of the DOE established the Environmental Restoration (ER) Program in 1984 to collect and assess environmental data in order to develop a conceptual site model to assess both the nature and extent of contamination and to identify potential exposure pathways and potential human and environmental receptors. These activities have been conducted under DOE policy to ensure that all facilities comply with applicable environmental regulations. In order to provide EPA with sufficient information and data gathered during these previous investigations, a multi-volume scoping report, providing background information, has been prepared. The Site Scoping Report will provide descriptions and summaries of the current conditions and characteristics of Mound Plant and will consist of at least the following volumes:

1. Groundwater Data: February 1987 - July 1990
2. Geologic Log and Well Information
3. Radiologic Site Survey
4. Engineering Map Series
5. Topographic Map Series
6. Photo History
7. Waste Management
8. Environmental Monitoring Data
9. Bibliography
10. Permits and Enforcement Actions
11. Spills and Response Actions

2. STRATIGRAPHIC AND LITHOLOGIC LOGS

This report is an addendum to the Site Scoping Report: Volume 2, Geologic Log and Well Information Report (DOE 1992b). This addendum presents stratigraphic and lithologic information for Mound Plant as a compilation of borehole logs and borehole location maps from previous investigations. Most of the work was performed during plant engineering, planning, and foundation studies and contaminant infiltration and movement studies. Borehole logs and location maps included in this report are from the following:

- Mound Plant Test Boring Inventory (MRC 1976),
- Site Safety Assessment (Dames and Moore 1973),
- Overflow Pond, and Retention Basin Construction (Bowser-Morner 1975; Dames and Moore 1976a)
- Potable Water Standards Project (Dames and Moore 1976b),
- Buried Valley Aquifer Evaluation (Dames and Moore 1976c),
- New Property Evaluation (Bowser-Morner 1983),
- Site Survey Project (DOE 1991), and
- Test Pit Excavation Program (Terran 1987).

A summary of each investigation is presented in the following sections. Borehole location maps and corresponding lithologic logs related to each investigation and the test boring inventory are reproduced in Appendixes A through I of this addendum.

3. BACKGROUND OF EXPLORATORY BOREHOLE INVESTIGATIONS

3.1. MOUND TEST BORING INVENTORY

Approximately 703 onsite exploratory borings have been drilled by various subcontractors at Mound Plant since its construction in the 1940s. The borings were drilled to obtain engineering and structural information for onsite construction projects and as part of several investigations. In many cases, records that describe sample collection, groundwater level measurements, and drilling methods used are not available. Monsanto Research Corporation, the plant operating contractor, began compiling these boring logs from individual engineering reports onto map-sized drawings in 1976 (MRC 1976) but never completed the task.

Appendix A includes a boring location map, Plate A1; and borehole log drawings of borings 1 through 425, Plates A2 through A10. Drillers' logs of borings 426 through 703 are reproduced in Appendix B. Appendix B is an incomplete listing of borings 426 through 703, since some of the logs are in engineering reports and files that are yet to be retrieved. A list of the logs that are missing is included in Appendix B.

3.2. SITE SAFETY ASSESSMENT

In 1973, a description and safety assessment was made of Mound Plant to comply with Atomic Energy Commission safety analysis report requirements. The general areas of study included geography and demography; nearby industrial, transportation, and military facilities; meteorology; hydrology; and geology and seismology (Dames and Moore 1973). The geology section compiled geologic, tectonic, and seismic data.

As part of the geology study, six test borings were drilled by Bowser-Morner, Inc., using mud and water rotary methods, to depths ranging from 50 to 200 ft below the existing ground surface. Soil and rock samples were collected for laboratory tests that provided information for use in evaluating the stability of the Mound Plant under static and dynamic (earthquake) loading. Additionally, downhole geophysical surveys were performed. Potential problems that could affect site stability were identified and addressed.

The borehole logs, boring location map, and additional detailed information describing the test borings and associated analyses are contained in "Description and Safety Assessment of the Mound Laboratory Site" (Dames and Moore 1973). Drillers' logs of the six borings, along with a base map of the boring locations, are reproduced in Appendix C.

3.3. OVERFLOW POND AND RETENTION BASIN CONSTRUCTION

Geotechnical investigations to determine the physical characteristics of the soil were conducted at the sites of the proposed retention basins (Bowser-Morner 1975) and overflow pond (Dames and Moore 1976a) as part of the engineering and water control facilities constructed to comply with the National Pollution Discharge Elimination System permit conditions (DOE 1992a).

The Bowser-Morner investigation involved drilling seven hollow-stem auger borings (B-1 through B-4 and A, B, and C) to depths ranging from 10 to 20 ft below the existing ground surface. The precise borehole locations have not been identified, but it has been confirmed that the borings were completed

in the vicinity of the retention basins and overflow pond. Soil samples were collected for laboratory analysis from borings B-1 through B-4 (Bowser-Morner 1975).

The Dames and Moore investigation involved drilling three soil borings (BP-1 through BP-3) and nine auger probes (AP-1 through AP-9). Borings BP-1 and BP-2 were drilled using rotary-wash drilling equipment, and the remaining boring (BP-3) and auger probes (AP-1 through AP-9) were drilled with hollow-stem augers. Soil samples were collected for laboratory analysis from borings BP-1 through BP-3 and auger probes AP-1, AP-4, and AP-6 (Dames and Moore 1976a).

The original borehole logs, boring location map (Dames and Moore borings only), and additional information describing the borings and probes and associated laboratory results are contained in "Soil Investigation and Construction Drawings for Proposed Low Flow Retention Basin" (Bowser-Morner 1975) and the "Hydrologic and Soils/Foundation Investigations Proposed Overflow Pond Mound Laboratory for Monsanto Research Corporation" (Dames and Moore 1976a). The legend and lithologic logs for borings drilled during the Bowser-Morner investigations and a location map and corresponding lithologic logs for the borings drilled during the Dames and Moore investigation are reproduced in Appendix D.

3.4. POTABLE WATER STANDARDS PROJECT

The Potable Water Standards Project began in 1976 in response to the publication of regulations and standards of radioactive substances in public drinking water in 1975 by the EPA as part of the National Interim Primary Drinking Water Regulations. The new standards of 20 nCi/L for tritium in public drinking water was 50 times lower than the Radioactivity Concentration Guideline in use by the DOE. Three Mound Plant wells and nine nearby private and community wells were expected to be out of compliance with the new standard. To bring tritium concentrations in local drinking water supplies into compliance with the new EPA tritium standard, the Potable Water Standards Project was initiated. The objectives of the Potable Water Standards Project were to determine the extent and concentration of tritium in groundwater at and near Mound, identify source(s) and pathways of tritium contamination, evaluate current remediation efforts, identify alternative remediation options, and evaluate alternative water supply sources (Dames and Moore 1976b).

The potable water standards project included the drilling of 32 test borings, using mud rotary or auger drilling techniques. Monitoring wells 12-1, 19-4, 27-1, 27-2, 33-1, 34-1, 34-2, 35-2, 37-1, 42-1, 42-2, 43-1, 43-2, 52-1, and 55-5 were installed in 15 of the borings and were used in conjunction with existing wells to monitor groundwater levels and tritium concentrations at Mound Plant. Some borehole logs and well completion specifications are presented in the Site Scoping Report: Volume 2,

Geologic Log and Well Information Report (DOE 1992b). The remaining seventeen borings, G-1 through G-18 (G-14 was not drilled), were drilled in the historical landfill area to determine the areal extent and concentrations of tritium in the landfill. The borings ranged in depth from 15 ft in boring G-5 to 37.5 ft in boring G-18. The landfill borings did not penetrate the water table; therefore, water level data were not obtained (Dames and Moore 1976b).

The original borehole logs, borehole location map, and tritium concentration data can be found in "Potable Water Standards Project" (Dames and Moore 1976b). Boreholes completed as monitoring wells are described in the Site Scoping Report: Volume 2 (DOE 1992b). The boring location map and corresponding lithologic logs for test borings not completed as wells are reproduced in Appendix E to this Addendum.

3.5. BURIED VALLEY AQUIFER EVALUATION

The Buried Valley aquifer project (Dames and Moore 1976c) was conducted in 1976 as a follow-up study to the Potable Water Standards Project (Dames and Moore 1976b). Offsite characteristics were emphasized in the Buried Valley aquifer evaluation; whereas, the Potable Water Standards Project report emphasized onsite conditions. Objectives of the Buried Valley aquifer evaluation were to assess the feasibility of reducing tritium contamination by offsite pumping, characterize tritium distribution in soil water, characterize geologic and hydrologic properties of the aquifer, monitor changes in tritium concentration with water levels and time, and evaluate the lower zone of the aquifer as an alternative water supply for local private well owners. The program included test borings to collect soil samples, and the installation of observation wells for groundwater monitoring. Ten observations wells (OW-1 through OW-8, OW-1A, and OW-6A) were constructed in the Buried Valley aquifer, using mud rotary drilling techniques, to obtain water level and tritium concentration data. The borehole logs and well completion specifications are presented in the Site Scoping Report: Volume 2 (DOE 1992b). In addition, 10 test borings (SB-1 through SB-10) were drilled in the Miami-Erie Canal area to evaluate the areal extent of tritium in the soil. Depths ranged from 20 ft in SB-7 to 32 ft in SB-9, with each boring penetrating the water table. One and one-half-inch slotted PVC casing was installed in SB-3, SB-6, SB-7, and SB-8. One additional boring (DD-1) was drilled to 45 ft in the center of the onsite drainage ditch to evaluate tritium concentrations in soil distillate (Dames and Moore 1976c).

The original borehole logs, borehole location maps, and tritium concentration data can be found in "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory" (Dames and Moore 1976c). Boreholes completed as monitoring wells are described in the Site Scoping Report: Volume 2 (DOE 1992b). The borehole location map, lithology legend, and corresponding detailed lithologic logs for test borings SB1 through SB10, and DD1, are reproduced in Appendix F to this Addendum.

3.6. NEW PROPERTY EVALUATION

The new property evaluation was conducted by Bowser-Morner, Inc., in 1983, to provide Mound Plant with information for future land use planning, structure location, and landfill siting (Bowser-Morner 1983). Thirty-seven borings were drilled (No. 1 and No. 5 through No. 40) using hollow stem augers. Borings 2, 3, and 4 were canceled during the exploratory phase. The borings ranged in depth from 4 ft to 25 ft below ground surface and were made in the relative positions shown on the boring location plan (Plate G1 of Appendix G). Soil samples were collected at 5-ft intervals or at major changes in lithology, whichever occurred first. Rock cores were collected at selected borings to confirm the presence of bedrock and to determine its physical characteristics. Laboratory tests, including compressive strength, Unified Soil Classification, and natural moisture content, were performed on selected soil and rock samples (Bowser-Morner 1983).

The original boring logs, boring location map, and additional detailed information describing the boring program are contained in the "Preliminary Geotechnical Study for the Mound Facility (New Property)" (Bowser-Morner 1983). The borehole location map and lithologic logs for borings 1 and 5 through 40 are reproduced in Appendix G to this Addendum.

3.7. SITE SURVEY PROJECT

During the years 1982 through 1985, Mound Plant performed a systematic survey of radiologic contamination of plant soils. The purposes of the survey were to document the radionuclide levels present in the exposed land areas within the Mound Plant boundary and to characterize environmental radiological contaminants on a Site-wide basis in order to provide the DOE with the basis for estimating the cost and time required for stabilizing or removing contaminated soils. The Operable Unit 9, Site Scoping Report, Volume III - Radiological Site Survey (DOE 1991) served to summarize and analyze data obtained from the site survey project. It described and evaluated the sample collection, analysis, and reporting procedures used during the site survey project; tabulated the site survey project analytical results; identified areas of concern at the Mound Plant; and made recommendations concerning the collection of additional data and the inclusion of areas requiring further investigation.

As part of the site survey project, 97 soil borings were collected at various locations within the Mound Plant boundaries. No monitoring wells or piezometers were installed at any of the soil boring locations. Core samples showing elevated gamma activity were collected at 60 locations. The drilling and sampling were performed by Bowser-Morner., Inc., in 1984, using hollow-stem augers and a 2-ft split barrel sampler. An additional 37 boreholes were drilled using solid augers and cased with 4-inch PVC pipe to facilitate *in situ* gamma ray logging of the soil profile as part of the old fill sites evaluation.

Drillers' logs of the 97 borings, along with base maps of the boring locations, are reproduced in Appendix H.

3.8. TEST PIT EXCAVATION PROGRAM

Twelve test pits were excavated to explore the subsurface geologic conditions and define the occurrences and movement of groundwater beneath the Mound Plant Main Hill (Terran 1987). Using stratigraphic data collected at the test pits, a generalized geologic cross section was developed for the Main Hill site. Some of the test pits had monitoring wells installed before being backfilled; these are described in the Site Scoping Report: Volume 2 (DOE 1992b). A location map and detailed descriptive logs were recorded for the 12 test pits (Terran 1987) and are reproduced in Appendix I.

4. MAP COMPILATIONS

As part of the process of reviewing exiting information for the remedial investigation, the stratigraphic data from Mound Plant's test boring program were compiled and contoured. Two maps were reproduced that may yield useful information during scoping and evaluating data for planning of field activities. The first (Figure 4.1) is a map of the thickness of the unconsolidated deposits on and adjacent to the plant. This map was compiled by contouring the depth to bedrock from the test boring data. The unconsolidated deposits include all glacial till and outwash deposits that mantle the bedrock topography and act as valley fill materials. Contours of equal thickness (isopaches) were generated by the computer software package Surfer™ and hand smoothed. The second (Figure 4.2) is a depth to bedrock map. This map was compiled by subtracting the thickness of unconsolidated deposits from the surface topography at each borehole location. This map was also generated by the computer software package Surfer™ and hand smoothed. No effort has been made to assure the quality of the data presented.

5. REFERENCES

Bowser-Morner. 1975. "Soil Investigation and Construction Drawings for Proposed Low Flow Retention Basin." Report prepared for Monsanto Research Corporation, Cincinnati, Ohio. Laboratory Report No. 789844. August 15, 1975.

Bowser-Morner. 1983. "Preliminary Geotechnical Study for the Mound Facility (New Property) Monsanto Research Corporation, Miamisburg, Ohio." Prepared for Monsanto Research Corporation, Miamisburg, Ohio. 1983.

Dames and Moore. 1973. "Description and Safety Assessment of the Mound Laboratory Site." Prepared for the U.S. Atomic Energy Commission and Monsanto Research Corporation, Mound Laboratory. March 15, 1973.

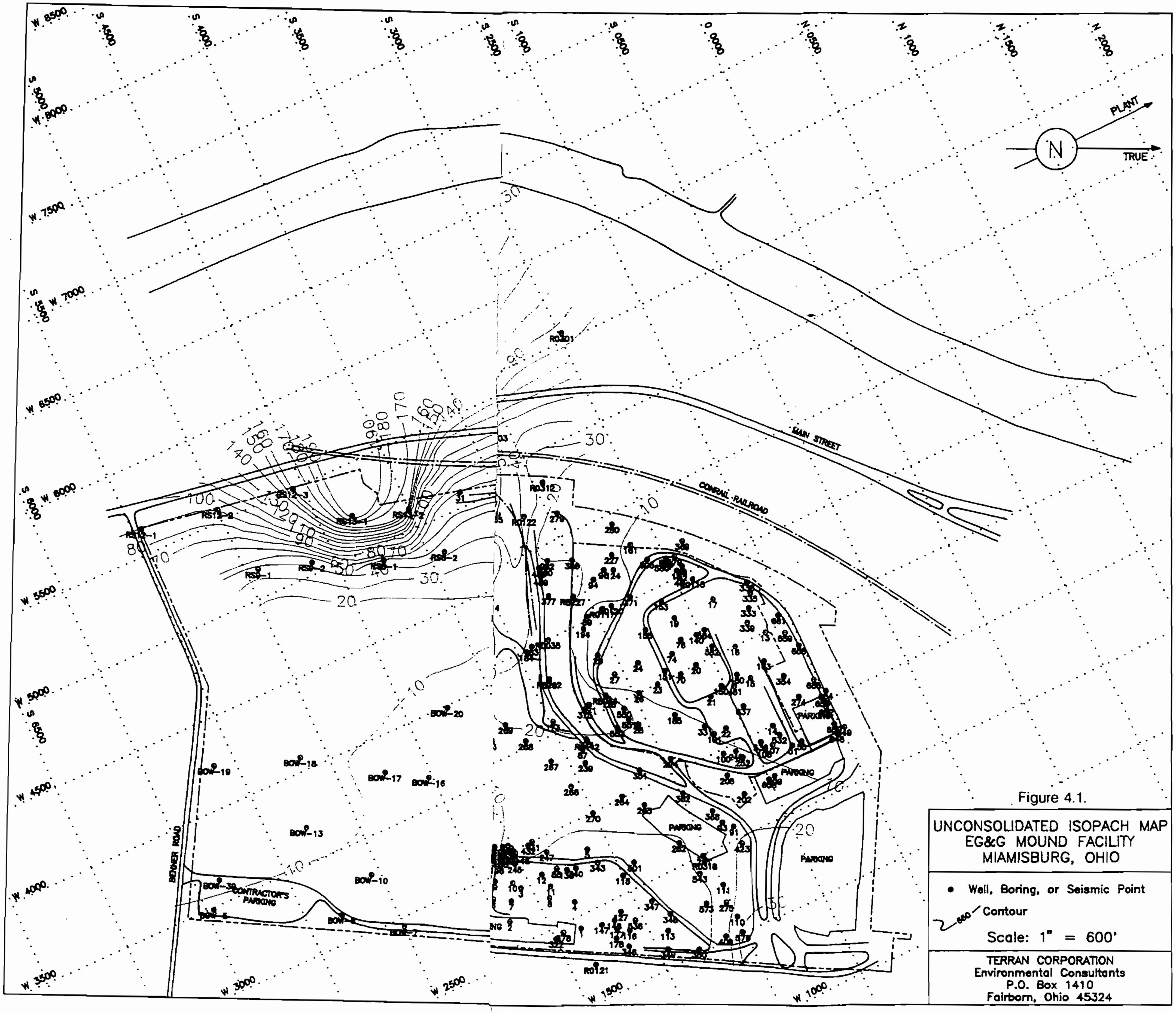


Figure 4.1.

UNCONSOLIDATED ISOPACH MAP
EG&G MOUND FACILITY
MIAMISBURG, OHIO

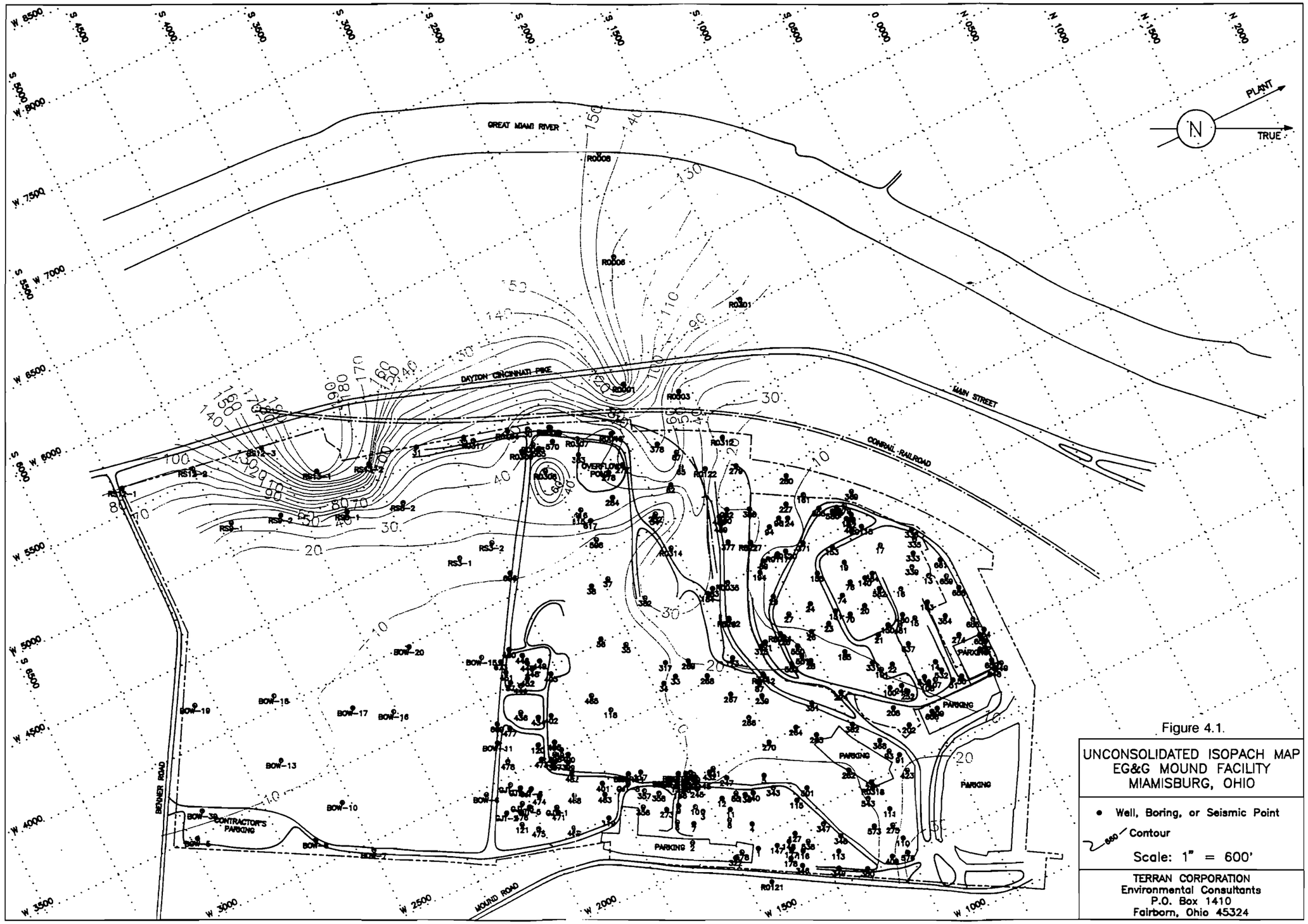


Figure 4.1.

UNCONSOLIDATED ISOPACH MAP
EG&G MOUND FACILITY
MIAMISBURG, OHIO

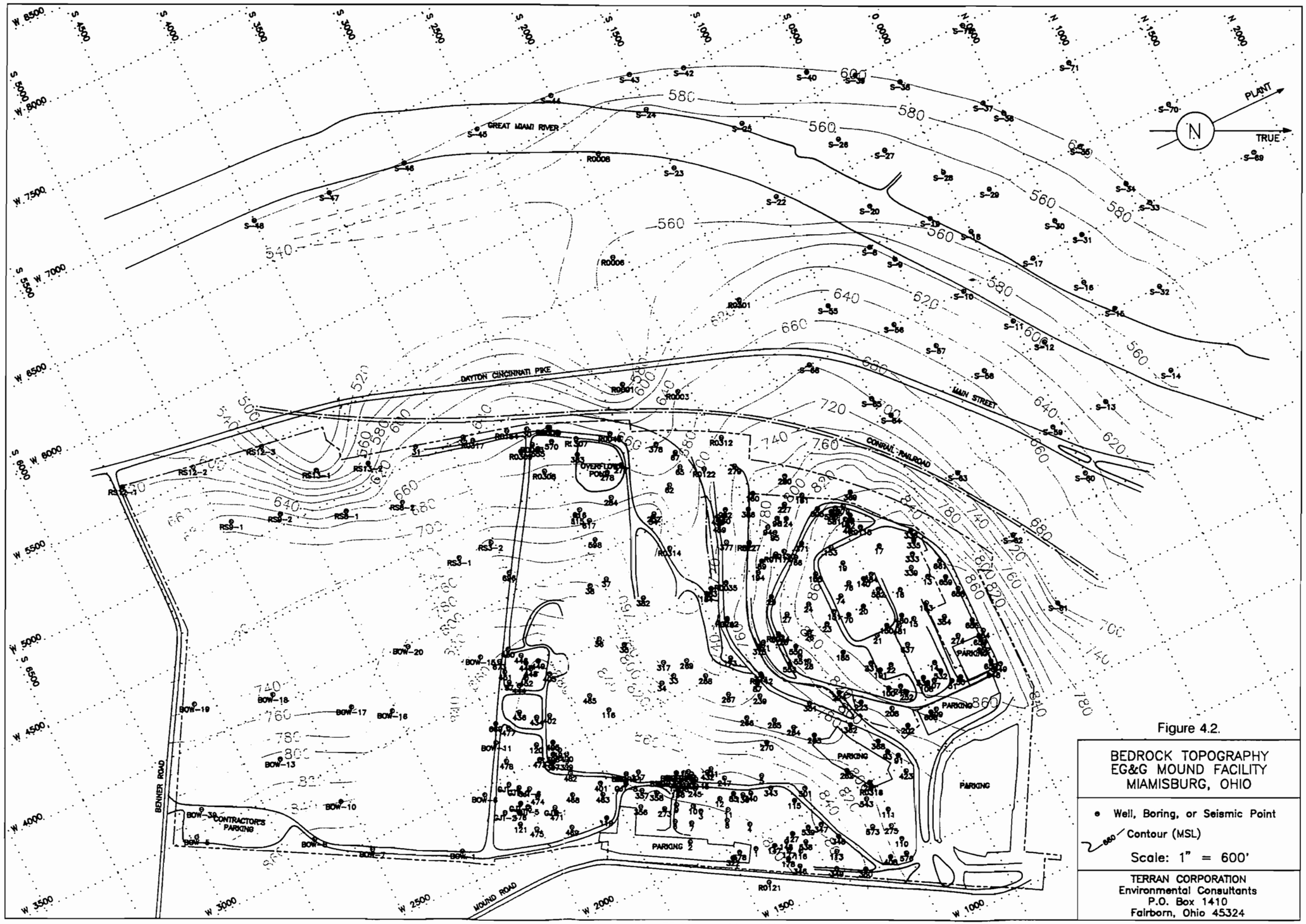


Figure 4.2.

BEDROCK TOPOGRAPHY
EG&G MOUND FACILITY
MIAMISBURG, OHIO

• Well, Boring, or Seismic Point

640 Contour (MSL)

Scale: 1" = 600'

TERRAN CORPORATION
Environmental Consultants
P.O. Box 1410
Fairborn, Ohio 45324

Dames and Moore. 1976a. "Hydrologic and Soils/Foundation Investigations Proposed Overflow Pond Mound Laboratory for Monsanto Research Corporation." Prepared for Monsanto Research Corporation, Miamisburg, Ohio. March 31, 1976.

Dames and Moore. 1976b. "Potable Water Standards Project Mound Laboratory." Report prepared for Monsanto Research Corporation, Miamisburg, Ohio. August 1976.

Dames and Moore. 1976c. "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory." Report prepared for Monsanto Research Corporation, Miamisburg, Ohio. December 1976.

DOE 1991. "Operable Unit 9, Site Scoping Report Volume III - Radiological Site Survey (DRAFT)." U.S. Department of Energy, Albuquerque Operations Office, Albuquerque, New Mexico. April 1991.

DOE 1992a. "Operable Unit 9, Site Scoping Report: Volume 10 - Permits and Enforcement Actions (DRAFT FINAL)." U.S. Department of Energy, Albuquerque Field Office, Albuquerque, New Mexico. March 1992.

DOE 1992b. "Operable Unit 9, Site Scoping Report: Volume 2 - Geologic Log and Well Information Report (DRAFT FINAL)." U.S. Department of Energy, Albuquerque Field Office, Albuquerque, New Mexico. April 1992.

MRC 1976. "Site Plan--Test Borings," drawing FSE 16472, 11 sheets. Monsanto Research Corporation, Miamisburg, Ohio.

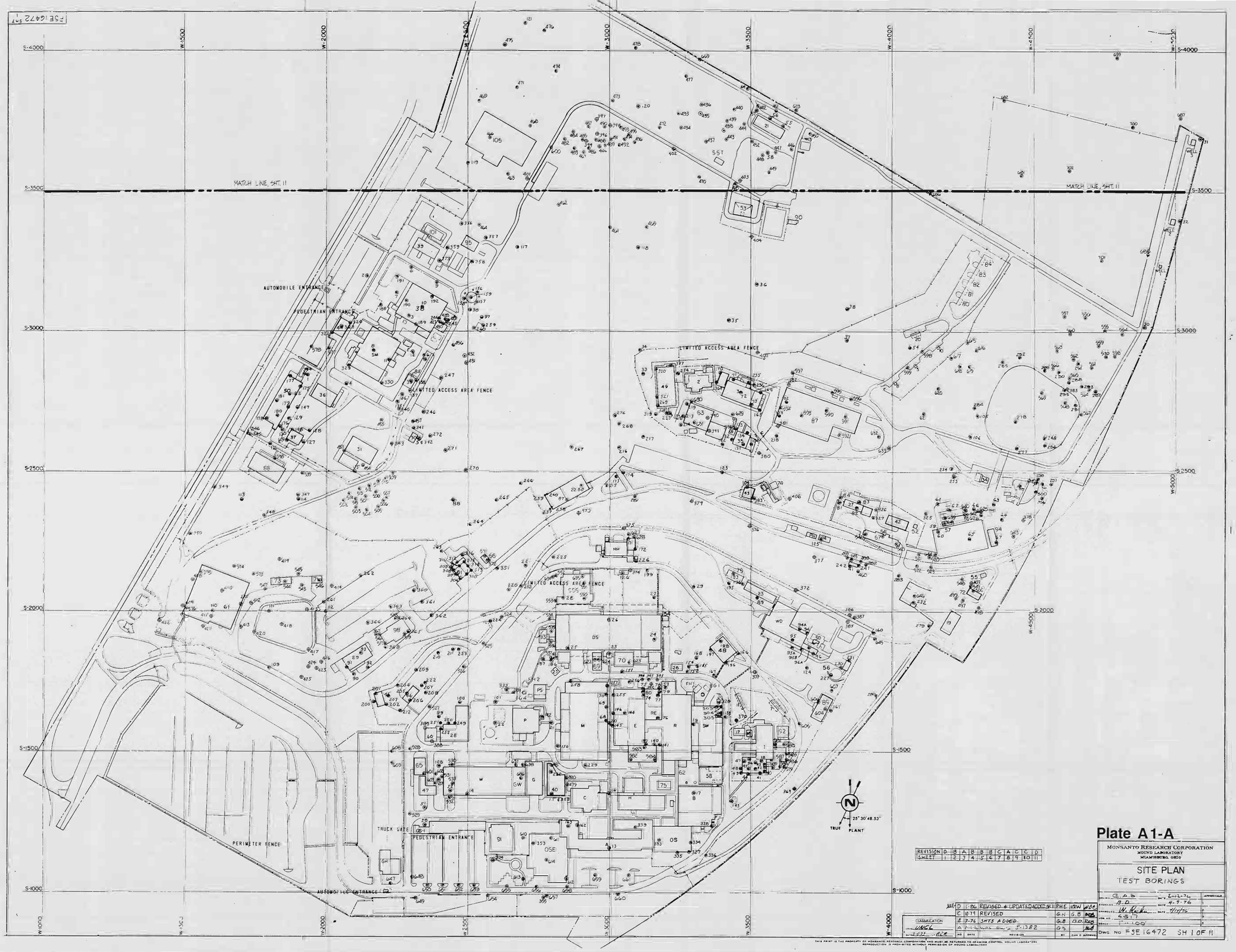
Terran 1987. "Groundwater Occurrence and Movement in the Consolidated Bedrock at the DOE Mound Laboratory, Miamisburg, Ohio." Terran Corporation, Hydrogeological Consultants, Fairborn, Ohio. March 1987.

A

Cardinal®

APPENDIX A

TEST BORING LOG DRAWINGS 1-425


FSE16472 SH 1
MATCH LINE, SHT. 11
AUTOMOBILE ENTRANCE
PEDESTRIAN ENTRANCE
LIMITED ACCESS AREA FENCE
TRUCK GATE
PERIMETER FENCE
TRUE
PLANT
25° 30' 48.53"
REVISION D B A B B B C A C C D
SHEET 1 2 3 4 5 6 7 8 9 10 11
D 1-06 REVISED & UPDATED ADDED SH 11 PHE KRW WDE
C 10-79 REVISED G.H. G.B. RCB
B 7-76 SHTS ADDED G.B. D.D. RCB
A 11-14-74 ORIG. F-13182 G.B. WD
CLASSIFICATION UNCL
DATE 5-21-76 RCR
NO DATE REVISION BY CHK'D APPROVED
Plate A1-A
MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO
SITE PLAN
TEST BORINGS
DRAWN G.A.B. DATE 4-12-76
CHECKED B.D. DATE 4-9-76
APPROVED W. Rocha DATE 4/19/76
JOB NO. 4817
SCALE 1" = 100'
DWG. NO. FSE 16472 SH 1 OF 11
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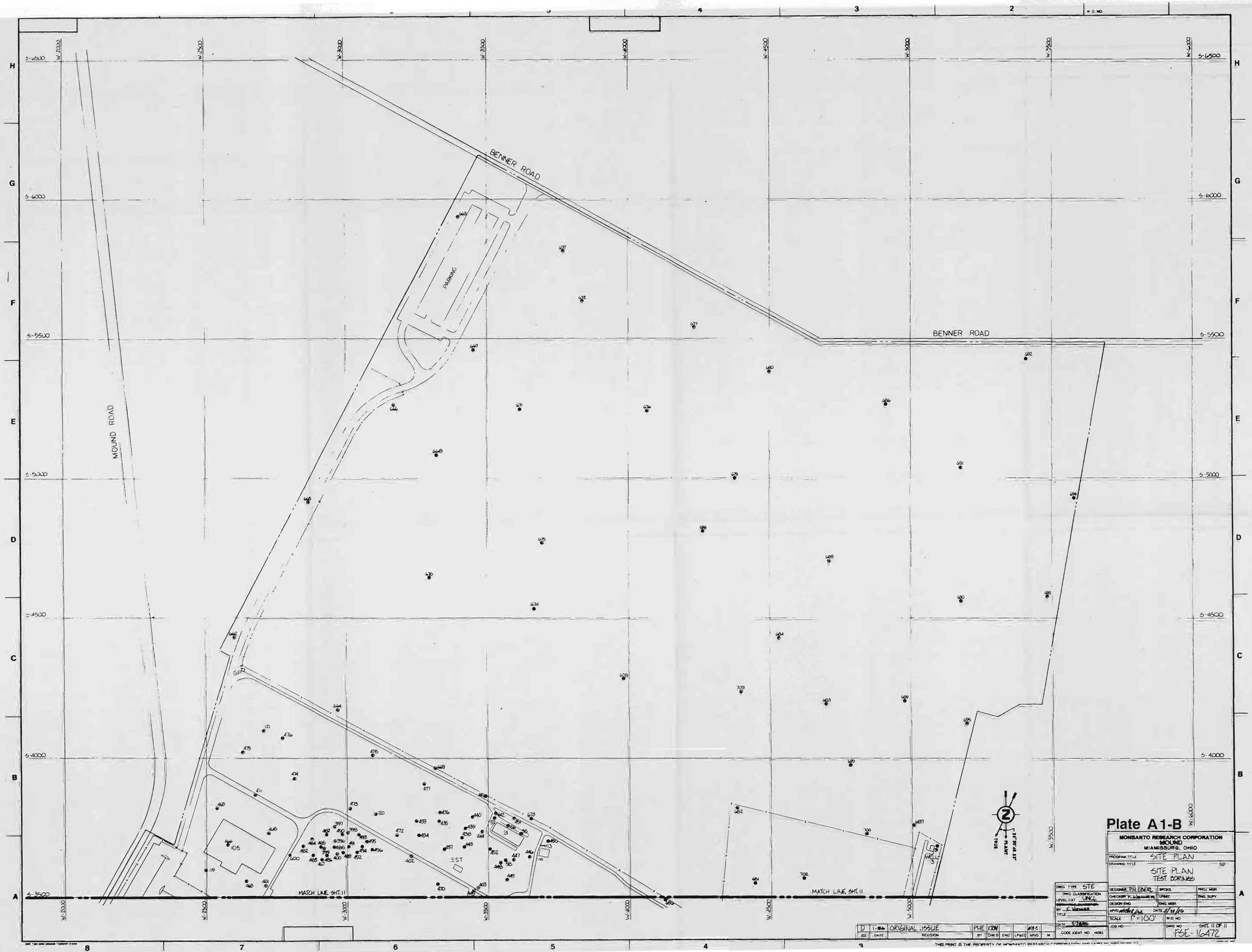
BENNER ROAD
BENNER ROAD
MOUND ROAD
PARKING
MATCH LINE, SHT. 11
MATCH LINE, SHT. 11
105
S.S.T.
GP
S-6500
S-6000
S-5500
S-5000
S-4500
S-4000
S-3500
W-2000
W-2500
W-3000
W-3500
W-4000
W-4500
W-5000
W-5500
W-6000
TRUE
MAGNETIC
Plate A1-B
MONSANTO RESEARCH CORPORATION
MOUND
MIAMISBURG, OHIO
PROGRAM TITLE SITE PLAN
DRAWING TITLE SITE PLAN
TEST BORINGS
DESIGNED P.H. EDER
CHECKED K. WEAVER
DESIGN ENG
APPD
BY C. Vanaik
TITLE
SCALE 1" = 100'
DATE 3/18/66
DWG TYPE STE
DWG CLASSIFICATION
LEVEL CAT UNCL
CODE IDENT NO 14065
SPECS
LPSEC
ENG. MGR.
W.O. NO
JOB NO
PROJ. MGR
ENG. SUPV
DWG NO PSE-16472
SHT. 11 OF 11
D 1-8-66 ORIGINAL ISSUE PHE KRW
REVISION
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FSE16472 SH 2

LOC. NO.	BORING NO.	BLDG. AREA	COORDINATE LOC. SOUTH	WEST	GROUND ELEV.	DRAWING BY	DWG. NO.	DWG. OR REPORT DATE
162	1	A	1238	2888	878.3	BOWSER-MORNER		4/27/67
163	2	A	1237	2855	878.9	BOWSER-MORNER		4/27/67
164	1	TF	2778	2545	748.6	BOWSER-MORNER		2/2/67
165	2	TF	2721	3533	742.8	BOWSER-MORNER		2/2/67
166	1	WD	1850	3455	836.0	BOWSER-MORNER		2/9/67
167	2	WD	1772	3370	877.0	BOWSER-MORNER		2/8/67
168	3	SD	1835	3308	863.4	BOWSER-MORNER		2/8/67
169	1	TF	2820	3380	749.0	BOWSER-MORNER		8/27/67
170	4	TF	2852	3392	749.0	BOWSER-MORNER		8/27/67
171	1	HH	2258	3065	812.0	BOWSER-MORNER		8/28/67
172	2	HH	2225	3091	822.5	BOWSER-MORNER		9/28/67
173	1	22	2482	3021	765.5	BOWSER-MORNER		2/9/67
174	2	22	2498	3048	762.8	BOWSER-MORNER		2/9/67
175	1	36	2808	1910	864.7	BOWSER-MORNER		1/24/67
176	2	37	2862	1838	878.9	BOWSER-MORNER		1/24/67
177	3	36	2843	1878	886.8	BOWSER-MORNER		1/24/67
178	4	37	2689	1790	88?	BOWSER-MORNER		1/24/67
179	1	37	2732	1868	881.8	BOWSER-MORNER		1/24/67
180	2	37	2782	1829	881.8	BOWSER-MORNER		1/24/67
181	3	37	2755	1828	883.1	BOWSER-MORNER		1/24/67
182	4	36	2778	1872	883.0	BOWSER-MORNER		1/24/67
183	1	1	2408	3508	744.5	BOWSER-MORNER		5/18/67
184	2	1	2447	2490	743.4	BOWSER-MORNER		5/18/67
185	1	25	1835	2798	872.0	BOWSER-MORNER		9/30/67
186	2	25	1825	2798	873.0	BOWSER-MORNER		9/30/67
187	3	25	1830	2768	868.7	BOWSER-MORNER		9/30/67
188	1	PP	3098	2198	887.7	BOWSER-MORNER		1/8/59
189	2	PP	3028	2320	885.5	BOWSER-MORNER		1/8/59
190	3	PP	3110	2285	887.5	BOWSER-MORNER		1/8/59
191	4	PP	3197	2255	889.7	BOWSER-MORNER		1/8/59
192	5	PP	3125	2378	886.5	BOWSER-MORNER		1/8/59

LOC. NO.	BORING NO.	BLDG. AREA	COORDINATE LOC. SOUTH	WEST	GROUND ELEV.	DRAWING BY	DWG. NO	DWG. OR REPORT DATE
193	1	23	2135	3440	792.4	BOWSER-MORNER		10/9/68
194	2	23	2089	3471	793.8	BOWSER-MORNER		10/9/68
195	3	23	2100	3422	794.2	BOWSER-MORNER		10/9/68
196	1	R	1874	3416	851.9	BOWSER-MORNER		3 29/68
197	2	R	1862	3360	847.8	BOWSER-MORNER		3 30 68
198	3	R	1894	3398	830.9	BOWSER-MORNER		3 30 68
199	1	DS-HH	2149	3135	818.95	BOWSER-MORNER		4 19 68
200	1	28-29	1678	2171	839.29	BOWSER-MORNER		5 1 68
201	2	28-29	1709	2180	834.59	BOWSER-MORNER		5 1 68
202	3	28-29	1667	2216	843.92	BOWSER-MORNER		5 1 68
203	4	28-29	1698	2222	841.24	BOWSER-MORNER		5 1 68
204	5	28-29	1737	2257	838.00	BOWSER-MORNER		5 1 68
205	6	28-29	1709	2287	842.93	BOWSER-MORNER		5 1 68
206	7	28-29	1683	2300	845.94	BOWSER-MORNER		5 1 68
207	8	28-29	1736	2341	842.23	BOWSER-MORNER		5 1 68
208	9	28-29	1710	2355	846 88	BOWSER-MORNER		5 1 68
209	10	28-29	1790	2322	832.48	BOWSER-MORNER		5 1 68
210	11	28-29	1852	2400	825 8	BOWSER-MORNER		5 1 68
211	12	28-29	1868	2452	827.99	BOWSER-MORNER		5 1 68
212	13	28-29	1648	2262	848.22	BOWSER-MORNER		5 1 68
213	1	2-32	2700	3260	744 9	BOWSER-MORNER		7 2 68
214	2	2-32	2669	3252	744.5	BOWSER-MORNER		7 2 68

LOC NO	BORING NO	BLDG AREA	COORDINATE LOC SOUTH	WEST	GROUND ELEV	DRAWING BY	DWG NO	DWG. OR REPORT DATE
1	1	SM	2845	1934	886.4	GIRDLER CONST CO	E-5131-211	11 11 59
2	2		3197	2145	889.2			
3	3		3055	2292	886.3			
4	4		2814	2080	883.2			
5	5		2618	2327	867 0			
6	6		3227	2300	888 4			
7	[illegible]		3138	2248	887 9			
8	8		2931	2168	885.2			
9	9		3175	2391	886 0			
10	10		3085	2339	886 2			
11	11		2897	2227	882.0			
12	12		2915	2310	882 2			
13	B-10	A	1160	3000	884 9	MOUND	CR-103	12 16 48
14	B-11	W	1350	2500	879 9			
15	B-12	G-C	1350	2800	884 6			
16	B-13	C-H	1350	3000	884.6			
17	B-14	B	1350	3300	879 7			
18	B-15	I	1470	3540	867 7			
19	B-16	R	1600	3300	884 2			
20	B-17	E-M	1600	3000	885 9			
21	B-18	M-P	1600	2800	883 8			
22	B-19	P	1600	2600	879 9			
23	B-20	T	1850	3000	873 6			
24	B-21	T	1900	3160	865 6			
25	B-22	T	1870	2856	854 8			
26	B-23	T	1970	3000	854 8			
27	B-24	T-HH	2050	3160	830 2			
28	B 25	T-HH	2050	2840	822 0			
29	B 26	T-HH	2000	3300	824 9			
30	WELL 1		3016	4893	704 6			
31	WELL 2		3688	5806	700 4			
32	WELL 3		3397	5015	702 6			
33	30	FAC F	2849	3119	777 94	MOUND	4 2206	2 1 52
34	31		2935	3108	784 65			
35	32		3040	4322	793 96			
36	33		3168	3521	822 93			
37	34		2968	3839	778 64			
38	35		3079	3842	801 04			
39	1	ADDN	1457	3550	873 04	IGLEBURGER-HENDERSON C		
40	2		1432	3550	872 75			
41	3		1427	3536	873 25			
42	4		1443	3519	873 43			
43	5		1465	3519	873 25			
44	6		1423	3494	873 33			
45	[illegible]		1443	3494	873 75			
46	8		1475	3497	873 25			
47	9		1470	3479	873 67			
48	10		1443	3467	874 00			
49	11		1425	3467	874 00			
50	1	GS-1	1240	2350	870	MOUND	SKETCH	7 10 63
51	2		1300	2350	870			
52	3		1360	2440	870			
53	[illegible]	B	1730	3200	878			
54	1	MAG	2942	4065	760			
55	1	SL STOR	3732	3614	870			
56	2		3759	3567	870			
57	3		3787	3520	870			
58	4		3637	3560	870			
59	1	EXP COMP	2286	4162	729 8	CATALYTIC CONST CO	C-1	6 29 63
60	1A		2286	4162	730 5			
61	2		2386	4162	730 5			
62	2A		2367	4201	730 24			
63	3		2386	4359	725			
64	3A		2330	4388	725 43			
65	4A		2260	4274	729 38			
66	5A		2368	4289	726 67			
67	6A		2249	4368	728 28			
68	[illegible]	M	1610	2992	878	J R AHART & ASSOC	A-1	7 26 63
69	2		1660	2992	878			
70	3		1705	2992	878			
71	[illegible]	TF	2829	3441	746 7	SAMBORN STEKETEE OTIS & EVANS	G-1 & G-2	5 22 63
72	2		2783	3446	745 3			
73	3		2741	3506	749 0			
74	1	R E ADD'N	1700	3120	878			
75	2		1725	3120	878			
76	3		1619	3173	878			
77	4		1700	3173	878			
78	5		1725	3178	878			
79	6		1712	3178	878			
80	[illegible]		1712	3120	878			
81	1	EXP PROC	2390	3815	737			
82	2		2372	3876	737			7 10 63
83	3		2392	3884	737			
84	4		2410	3820	737			
85	1a		2825	2300	979 3	BOWSER-MORNER REPORT		3 11 64
86	1b		2900	2350	879 4			
87	2a		2400	2850	773 5			
88	2b		2450	2900	768 0			
89	3		2050	3525	792.5			
90	4a		1775	2100	815.2			
91	4b		1800	2075	812 9			
92	4c		1800	2150	815 4			
93	4d		1850	2125	811 6			
94	5a		1925	3700	802 1			
95	5b		1900	3650	806.0			
96	5c		1850	3725	804 2			
97	6a		3050	2550	872 6			
98	6b		3075	2510	877 5			
99	7a		1625	2400	868 7			
100	7b		1675	2475	872 2			
101	7c		1675	2600	876 5			
102	8a		2750	3625	852 4			
103	8b		2700	3600	748 8			
104	8c		2600	3500	745 3			
105	9a		2700	4300	750 2			
106	9b		2625	4275	744 9			
107	10a		1400	2400	872.6			
108	10b		1450	2400	872 9			
109	11		1800	1800	805.7			
110	12		2000	1600	810 0			
111	13		2000	1800	804 0			
112	14		2000	2000	NO BORING MADE			
113	15		2400	1700	867 3			
114	16		2400	1900	862.7			
115	17		2500	2100	867.5			
116	18		2600	1800	878.0			
117	19		3300	2675	877.5			
118	20		3300	3100	874.8			
119	21		3600	2500	889.6			
120	22		3800	3100	890.7			
121	23		4100	2700	893.1			
122	24		2600	3400	744.1			
123	25		2500	3400	744.6			
124	26		1800	3700	828.6			
125	27		2260	3750	742.0			
126	28		2138	3048	818 6			

REF. DWGS - SEE TEST BORING CROSS SECTIONS DWGS 5-1378-1, -2 & -3

LOC NO	BORING NO	BLDG AREA	COORDINATE LOC SOUTH	WEST	GROUND ELEV	DRAWING BY	DWG NO	DWG OR REPORT DATE
947	1	[illegible]	1925	367.	802 3	BOWSER MORNER		2 4 64
95A	2		1875	3657	810 9			
95B	3		1883	3687	808 5			
96A	4		1903	3717	806 3			
127	1	SM	2600	1918				
128	2	SM	2645	1940				
129	3	SM	2590	1865				
130	4	SM	2645	1843				
131	1	TF	2601	3476	745	BOWSER MORNER		9 17 65
132	2	TF	2614	3428	745			
133	3	TF	2658	3447	745			
134	4	TF	2641	3494	745			
135	1	SM	2750	2250	879 0	BOWSER MORNER		4 9 65
136	2	SM	2775	22?0	879 0			
137	3	SM	2785	229?	873 0			
138	4	SM	2825	2315	873.0			
139	1	R	1525	3130	878.0			4 8 65
140	2	R	1525	3155	878.0			
141	3	R	1525	3180	878.0			
142	1	P	1623	2762	878.0			
143	1	B	1322	3435	874.0			4 9 65
144	1	E	1634	3053	877.9			5 26 66
145	2	E	1592	3015	878.0			
146	3	E	1634	3015	878.1			
147	A	SM	2732	1900	882.1			
148	B	SM	2655	1890	878.9			
149	C	SM	2615	1820	877.8			
150	1	M	1520	2830		BOWSER MORNER		10 11 66
151	2	DS	1780	3050		BOWSER MORNER		10 11 66
152	3	26	1780	3275		BOWSER MORNER		10 11 66
153	4	SW	1625	3420		BOWSER MORNER		10 11 66
154	1	26	1782	3280	868 1	BOWSER MORNER		10 21 66
155	2	26	1781	3310	865 6	BOWSER MORNER		10 21 66
156	T-1	SM	3125	2471	879 8			
157	T 2	SM	3120	2513	876 5			
158	T 3	SM	3087	2492	876 9			
159	T 4	SM	3110	2492	878 2			
160	310		1320	3920	787 0	BOWSER MORNER		5 2 66
161	510		1650	3790	824 8	BOWSER MORNER		5 2 66
215		22	2451	2590	767.5	B.M.		12/9/71
216		22	2586	3033	749.0	B.M.		12/9/71
217		22	2627	3121	749.4	B.M.		12/9/71
218		12	2628	3551	743.8	B.M.		12/9/71
219		2	2740	3276	746.3	B.M.		12/9/71
220		T EAST	2079	2647	838.9	B.M.		12/9/71
221		S.E. T	2164	2707	819.2	B.M.		12/9/71
222		46	1747	2355	843.6	B.M.		12/9/71
223		46	1867	2472	832.9	B.M.		12/9/71
224		POST 5	1966	2585	832.4	B.M.		12/9/71
225		E. HH.	2195	2806	821.1	B.M.		12/9/71
226		HH	2189	3092	819.4	B.M.		12/9/71
227		57	1774	3785	811.3	B.M.		12/9/71
228		40	1430	2796	878.1	B.M.		12/9/71
229		M	1452	2921	878.0	B.M.		9/22/69
230	1	57	1799	3821	807.4	B.M.		1/5/72
231	2	57	1825	3850	801.6	B.M.		1/5/72
232	1	19	2531	4078	-	B.M.		6/26/70
233	1	34	2481	4218	719.39	B.M.		9/23/69
234	2	34	2510	4209	720.65	B.M.		9/23/69
235	4	3	3494	2817	748.9	B.M.		1/25/69
236	5	3	3511	2809	748.7	B.M.		1/25/69
237	2	22	2368	2796	772.2	B.M.		10/21/68
238	2A	22	2375	2799	772 1	B.M.		10/21/68
239	1	22	2418	2775	770.6	B.M.		10/21/68
240	1A	22	2421	2782	770.5	B.M.		10/21/68
241	1	41	2165	3882	-	B.M.		1/30/69
242	3	41	2162	3851	-	B.M.		1/30/69
243	2	41	2185	3857	-	B.M.		1/30/69
244	1	38	3043	2403	880.	B.M.		1/12/71
245	2	38	3030	2429	879.	B.M.		1/12/71
246	1	38	2712	2348	-	B.M.		5/26/70
247	2	38	2835	2411	-	B.M.		5/26/70
248	BAT	34	2619	4536	-	B.M.		5/26/70
249	4	28	1603	2458	874.4	B.M.		2/18/69
250	3	28	1603	2435	873.2	B.M.		2/18/69
251	2	28	1603	2409	870.7	B.M.		2/18/69
252	1	28	1583	2409	872 4	B.M.		2/18/69
253	2	2	2708	3714		B.M.		6/22/63
254	1	2	2851	3245	-	B.M.		6/22/63
255	1	E	1702	3016	-	B.M.		3/7/69
256	2	E	1749	3072	-	B.M.		3/7/69
257	1	M	1736	2895	-	B.M.		3/7/69
258	2	M	1752	2869	-	B.M.		3/7/69
259	2	38	3021	2542	876.0	B.M.		9/12/75
260	1	38	3011	2520	874.5	B.M.		9/12/75
261		TF 2	2032	1997	-	B.M.		6/9/67
262		N.E.	2128	2126	-	B.M.		6/9/67
263		IN	2215	2411	-	B.M.		6/9/67
264		DRAIN.	2311	2510	-	B.M.		6/9/67
265			2399	2602	-	B.M.		6/9/67
266			2458	2689	-	B.M.		6/9/67
267			2588	2869	-	B.M.		6/9/67
268			2670	3036	-	B.M.		6/9/67
269			2736	3171	-	B.M.		6/9/67
270			2503	2496	-	B.M.		6/9/67
271			2575	2425	-	B.M.		6/9/67
272			2627	2371	-	B.M.		6/9/67
273	1		3252	2400	886.3	D&M		10/1/73
274	2		1145	2590	873.1	D&M		10/1/73
275	3		2025	1700	807.3	D&M		10/1/73
276	4		2703	3020	754.0	D&M		10/1/73
277	5		2558	4390	729.5	D&M 5		10/1/73
278	6		2662	4395	737.0	D&M 6		10/1/73

S-3500 W-5500

Plate A2

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS 1 THRU 43

DRAWN	G.A.B	1-15-76
CHECKED	N.D	4-14-76
JOB NO.	4517	
SCALE	1" = 100'	

ISS	DATE	REVISION	BY	CHK'D	APPRD.
B	7-76	DWGS ADDED	G.B	DC	REB
A	4-15-76	WAS DWG 5-1378	G.B		[illegible]

DWG CLASSIFICATION UNCL
DATE 1/15/76
CODE IDENT. NO. 14065

DWG NO FSE16472 SH 2 OF

THIS PRINT IS THE PROPERTY OF MONSANTO RESEARCH CORPORATION AND MUST BE RETURNED TO DRAWING CONTROL, MOUND LABORATORY. REPRODUCTION IS PROHIBITED WITHOUT PERMISSION OF MOUND LABORATORY.

F5E16472

W.O. NO.

LOC. NO.	BORING NO.	BLDG. AREA	COORDINATE LOC SOUTH	WEST	GROUND ELEV.	DRAWING BY	DRG. OR REPORT DATE
279	1	18	S-1859	W-4132	749.1	B-W	10-30-75
280	3	32	S-1880	E-3941	732.9	B-W	10-30-75
282	4	41	S-2118	W-3910	739.0	B-W	10-30-75
283	5	41	S-2130	W-4025	740.1	B-W	10-30-75
284	BP-1	POND	S-2627	W-4283	736.0	D&W	3-31-76
285	BP-2	POND	S-2895	W-4380	742.1	D&W	3-31-76
286	PP-3	POND	S-2598	W-4530	723.1	D&W	3-31-76
287	AP-1	POND	S-2785	W-4711	704.8	D&W	3-31-76
288	AP-2	POND	S-2826	W-4618	708.3	D&W	3-31-76
289	AP-3	POND	S-2867	W-4532	710.0	D&W	3-31-76
290	AP-4	POND	S-2869	W-4580	711.0	D&W	3-31-76
291	AP-5	POND	S-2745	W-4646	706.8	D&W	3-31-76
292	AP-6	POND	S-2913	W-4446	732.7	D&W	3-31-76
293	AP-7	POND	S-2811	W-4663	706.0	D&W	3-31-76
294	AP-8	POND	S-2801	W-4648	705.6	D&W	3-31-76
295	AP-9	POND	S-2800	W-4690	709.7	D&W	3-31-76
296	1	OUTFLOW	S-2408	W-4527	710.3	B-W	6-12-75
297	2	OUTFLOW	S-2459	W-4562	711.8	B-W	6-12-75
298	3	OUTFLOW	S-2477	W-4515	717.2	B-W	6-12-75
299	4	OUTFLOW	S-2452	W-4451	712.9	B-W	6-12-75
300	A	OUTFLOW	S-2431	W-4590	710.3	B-W	6-13-75
301	B	OUTFLOW	S-2450	W-4530	713.0	B-W	6-13-75
302	C	OUTFLOW	S-2462	W-4508	716.7	B-W	6-13-75
303	1	SF	S-1860	W-3384	878.7	B-W	3-13-75
304	2	SF	S-1860	W-3398	878.7	B-W	3-13-75
305	3	SF	S-1838	W-3398	878.7	B-W	3-13-75
306	1	51	2117	2478	794.3	HOULEMBELT	10-23-69
307	2	51	2132	2464	793.5	& SEIFERT	10-23-69
308	3	51	2146	2450	793.0	"	10-23-69
309	4	51	2151	2440	792.3	"	10-23-69
310	5	51	2135	2494	793.4	"	10-23-69
311	6	51	2164	2468	791.0	"	10-23-69
312	7	51	2174	2458	790.4	"	10-23-69
313	8	51	2148	2511	793.0	"	10-23-69
314	9	51	2167	2501	790.9	"	10-23-69
315	10	51	2182	2487	789.7	"	10-23-69
316	11	51	2200	2478	788.7	"	10-23-69
317	D-1	49	2871	3718	745.5	HUTTING	8-6-68
318	D-2	49	2788	3206	754.4	"	8-6-68
319	D-3	49	2794	3162	748.1	"	8-6-68
320	D-4	49	2867	3157	734.8	"	8-6-68
321	D-5	49	2765	3168	750.5	"	8-6-68
322	1	44	2941	1905	-	IGLEBURGER	5-68
323	2	44	2998	1942	-	& HENDERSON	5-68
324	3	44	3016	1976	-	"	5-68
325	"A	47	75	4102	-	HUTTING	"-"
326	1	-	2374	3945	736.3	WILDE	5-68
327	2	77	2349	3935	736.8	& KRAUS	5-68
328	1	SN	1673	3392	878.2	HUTTING	5-68
329	1	JM	2882	2959	885.3	KINNEY	10-63
330	2	SW	2819	2178	884.9	"	10-63
331	1	P	1708	2863	-	HEAPY	10-72
332	2	P	1719	2842	-	HEAPY	10-72
333	215	OS	1176	3167	876.8	SCHOMIKY	3-24-72
334	216	OS	1178	3280	875.1	"	3-24-72
335	217	OS	1142	3240	875.6	"	3-24-72
336	218	OS	1131	3304	875.1	"	3-24-72
337	219	OS	1147	3283	874.8	"	3-24-72
338	2-B	B	1234	3363	-	KINNEY	10-68
339	1	A	1230	3092	878	KINNEY	5-64
340	TB-3	33	2727	2256	875.7	"	5-64
341	TB-4	30	2665	2310	867.9	"	5-64
342	TB-5	30	2620	2375	867.0	"	5-64
343	TB-6	31	2609	2232	869.2	"	5-64
344	TB-11	50	2644	1925	880.4	"	5-64
345	TB-15	50	2635	1721	881.05	"	5-64
346	TB-16	50	2643	1718	881.05	"	5-64
347	TB-17	31	2418	1896	882.7	"	5-64
348	TB-18	SW AREA	2346	1781	857.3	"	5-64
349	TB-20	SW AREA	2445	1605	870.4	"	5-64
350	TB-21	SW AREA	2283	1525	856.5	"	5-64
351	TB-22	HW AREA	2156	2604	778.9	"	5-64
352	TB-23	T-1 51	2005	2681	775.8	"	5-64
353	TB-24	40	1354	2795	778.5	"	5-64
354	TB-26	A. LOT	1173	2731	875.0	"	5-64
355	TB-27	NORTH A	982	2759	875.4	"	5-64
356	E-1	39	3480	2472	-	HUTTING	8-6-68
357	E-2	39	3330	2546	-	"	8-6-68
358	E-3	39	3245	2510	-	"	8-6-68
359	E-4	39	3295	2412	-	"	8-6-68
360	F-1	29	2092	2312	-	HUTTING	8-5-68
361	F-2	29	2131	2347	-	"	8-5-68
362	F-3	29	1985	2374	-	"	8-5-68
363	F-4	29	2020	2238	-	"	8-5-68
364	F-5	29	1800	2258	-	"	8-5-68
365	F-6	29	1910	2291	-	"	8-5-68
366	F-7	29	1986	2145	-	"	8-5-68
367	F-8	29	1925	2173	-	"	8-5-68
368	F-9	29	1874	2208	-	"	8-5-68

Plate A3

A	7-76	ADDED TEST BORINGS	G.B. DD RRB
BR.	DATE	REVISION	BY CHK'D APPRD

DWG. CLASSIFICATION LEVEL UNCL DATE 7/1/76 CODE IDENT NO. 14085

FINAL ASSEMBLY DWG. | NEXT ASSEMBLY DWG.

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS

DRAWN G.A.B. DATE 7-12-76
CHECKED D.D. DATE 7-15-76
APPROVED [illegible] DATE 7-8-76
JOB NO. 4517
SCALE NONE

APPROVALS 1 2 3 4

DWG. NO. F5E 16472 SHT 3 OF

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FSE16472 SHT 4

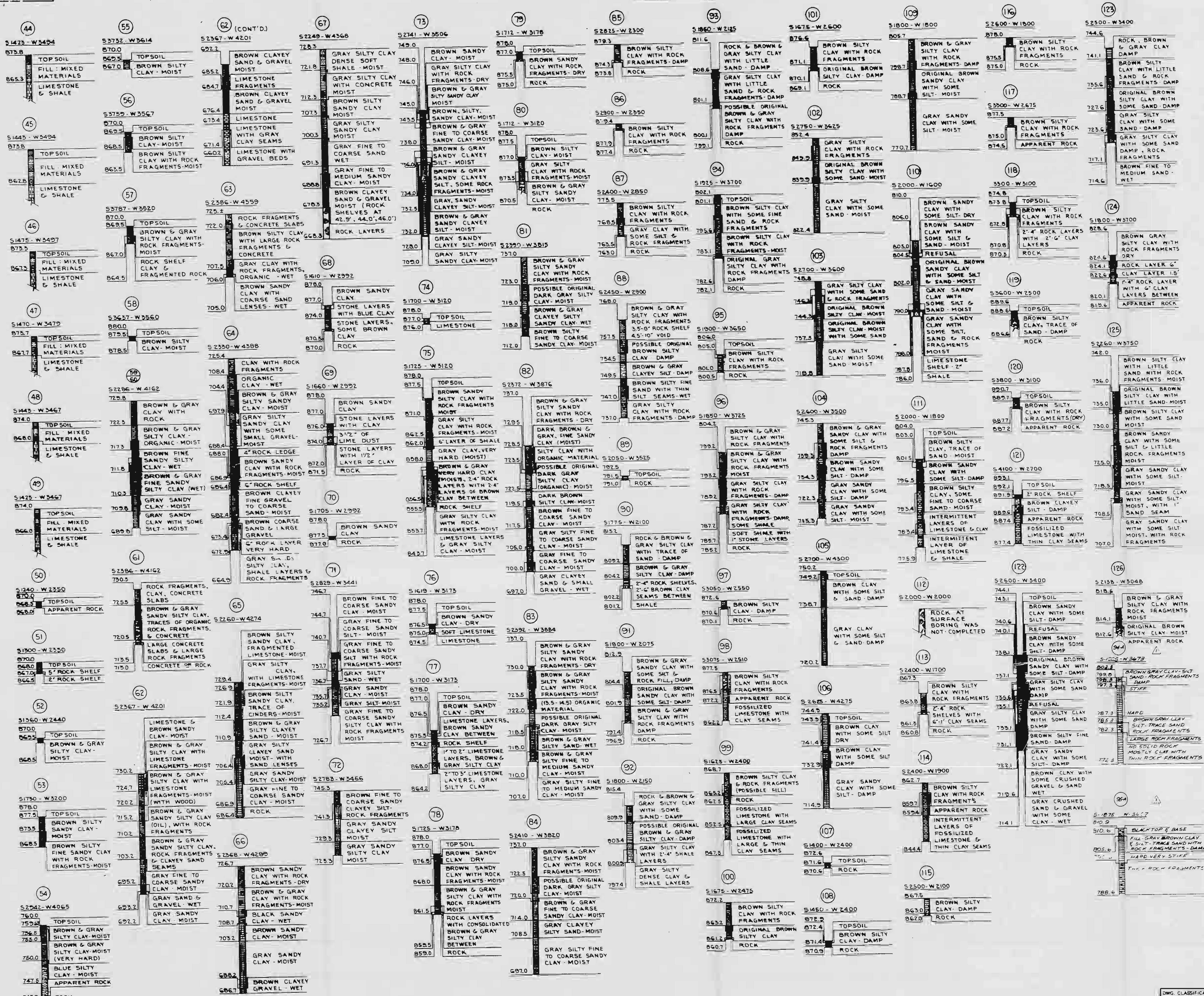

Plate A4

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS
44 THRU 95-A

DRAWN G.A.B.
CHECKED W.O.
DWG. CLASSIFICATION UNCL
CODE IDENT. NO. 14085
DWG. NO. FSE16472 SHT 4 OF

LTR.	DATE	REVISION	BY	CHKD	APPD
B	8-17-76	DWGS ADDED	G.B.		
A	1-13-76	WAS DWG S-1378	G.B.		

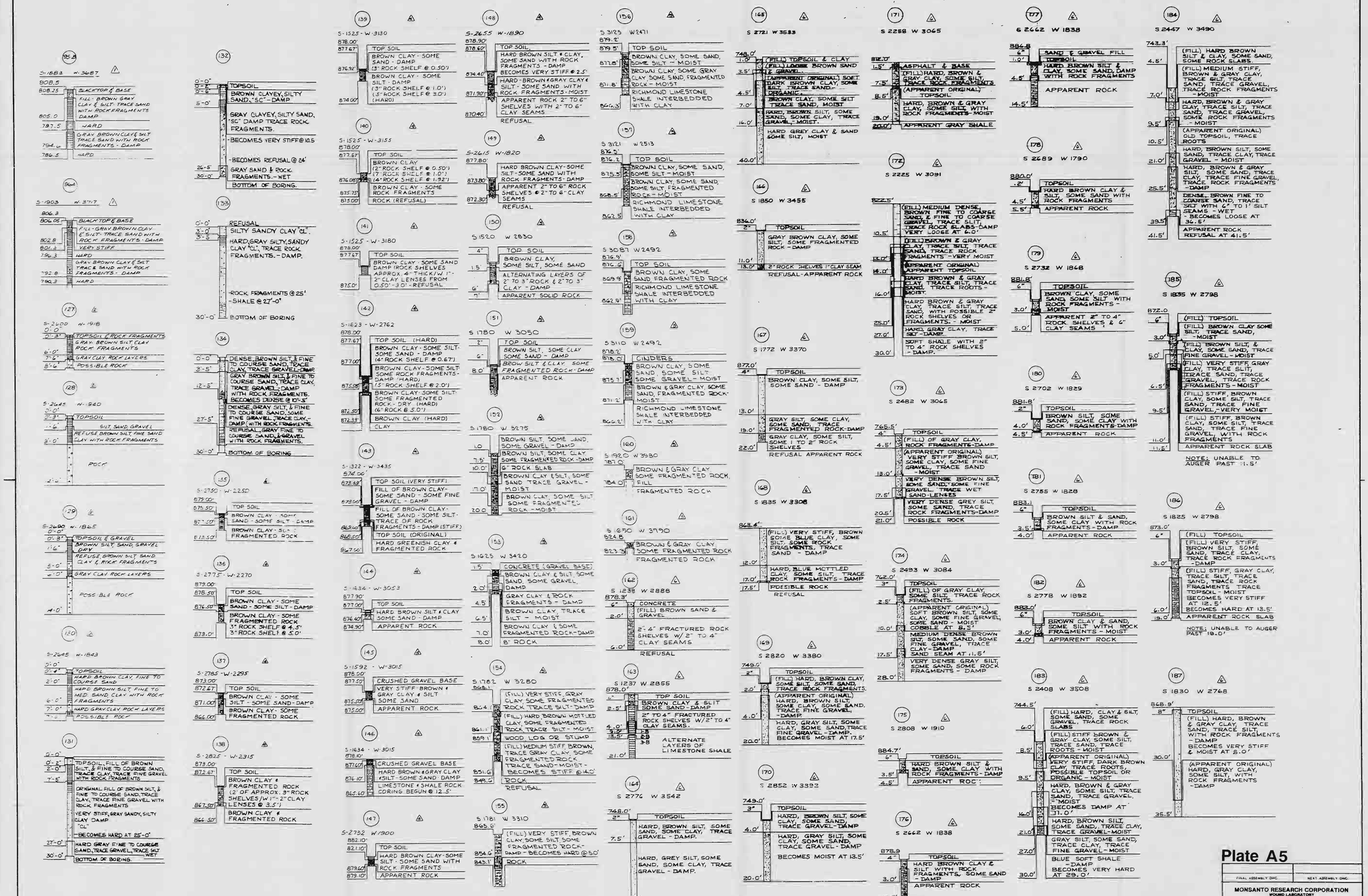

Plate A5

FINAL ASSEMBLY DWG.	NEXT ASSEMBLY DWG.

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS
93B THRU 187

DRAWN: G.A.B.	DATE: 1-15-76	APPROVALS
CHECKED: W.D.	DATE: 1-16-76	1
APPROVED	DATE	2
JOB NO. 4547		3
SCALE 1" = 100'		4

REV	DATE	REVISION	BY	CHK'D	APPRO.
B	7-76	DWGS ADDED	G.B.	G.D.	7-7-76
A	10-76	WAS DWG E-1376	G.B.		10-6

DWG. CLASSIFICATION
LEVEL UNCL — 0 — E
DATE 1/1/71 INIT. WRA
CODE IDENT NO 14065
DWG NO. 4SE.2472 SHT. 5 OF

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THS 2609135

188 S 3090 W 2198
887.7'
6' (FILL) BROWN CLAYEY SILT WITH GRAVEL
2.0' BROWN CLAYEY SILT WITH SAND & GRAVEL
3.0' BROWN SANDY SILT WITH GRAVEL
6.0' ALTERNATING LAYERS OF GRAY LIMESTONE AND BROWN SANDY SILT WITH GRAVEL & COBBLES
20.0' GRAY LIMESTONE WITH OCCASIONAL LAYERS OF GRAY CLAYEY SILT

189 S 3028 W 2320
886.5'
6" ASPHALT
1.0' (FILL) GRAY SAND & GRAVEL
1.5' BROWN CLAYEY SILT WITH SAND & GRAVEL
2.5' GRAY LIMESTONE
3.5' BROWN SANDY SILT WITH GRAVEL & COBBLES
6.5' ALTERNATING LAYERS OF GRAY LIMESTONE & BROWN SANDY SILT WITH GRAVEL & COBBLES
WATER LEVEL 10-7-66 GRAY LIMESTONE WITH OCCASIONAL LAYERS OF GRAY CLAYEY SILT.
18.0' LAYER OF GRAY SILTSTONE

190 S 3110 W 2285
887.5'
2.0' BROWN CLAYEY SILT WITH SAND & GRAVEL
5.0' BROWN SANDY SILT WITH GRAVEL & COBBLES
8.0' ALTERNATING LAYERS OF GRAY LIMESTONE AND BROWN SANDY SILT WITH GRAVEL & COBBLES
13.5' GRAY LIMESTONE WITH OCCASIONAL LAYERS OF GRAY CLAYEY SILT

191 S 3197 W 2255
889.7'
3.0' BROWN CLAYEY SILT WITH SAND & GRAVEL.
5.0' BROWN SANDY SILT WITH GRAVEL & COBBLES
7.5' ALTERNATING LAYERS OF GRAY LIMESTONE & BROWN SANDY SILT WITH GRAVEL & COBBLES
22.0' GRAY LIMESTONE WITH OCCASIONAL LAYERS OF GRAY CLAYEY SILT.

192 S 3125 W 2378
884.5'
2.5' BROWN CLAYEY SILT WITH SAND & GRAVEL
4.0' BROWN SANDY SILT WITH GRAVEL & COBBLES
8.0' ALTERNATING LAYERS OF GRAY LIMESTONE & BROWN SANDY SILT WITH GRAVEL & COBBLES
18.0' GRAY LIMESTONE WITH OCCASIONAL LAYERS OF GRAY CLAYEY SILT

193 S 2135 W 3440
792.4'
8" TOP SOIL
7.5' (FILL) GRAY CLAY, SOME SILT, TRACE SAND, WITH ROCK FRAGMENTS - MOIST
17.0' (APPARENT ORIGINAL) VERY STIFF BROWN & GRAY CLAY, SOME SILT, TRACE SAND (BECOMES HARD AT 13.5')
20.0' HARD BROWN GRAY CLAY SOME SILT, TRACE SAND, WITH ROCK FRAGMENTS

194 S 2099 W 3471
793.8'
18" TOP SOIL & GRAVEL
5.5' (FILL) BROWN & GRAY CLAY, SOME SILT, TRACE SAND WITH ROCK FRAGMENTS MOIST
6.0' OLD TOPSOIL - ORIGINAL
7.0' BLACK ORGANIC CLAY - MOIST
17.0' HARD BROWN & GRAY CLAY, SOME SILT, TRACE SAND, MOIST - (TRACE ROCK FRAGMENTS)
20.0' GRAY SHALE

195 S 2100 W 3422
794.2
4.5' (FILL) BROWN & GRAY CLAY, SOME SILT, TRACE SAND, WITH ROCK FRAGMENTS - MOIST
6.1' (POSSIBLE FILL) BROWN CLAY, SOME SILT, TRACE SAND - MOIST
8.0' (POSSIBLE FILL) BROWN SAND - MOIST
14.0' HARD BROWN & GRAY CLAY, SOME SILT, TRACE SAND - MOIST (POSSIBLE ORIG.)
15.0' HARD BROWN & GRAY CLAY, SOME SILT, TRACE SAND, WITH ROCK FRAGMENTS - DAMP

196 S 1814 W 3416
851.9'
13.5' (FILL) BROWN & GRAY CLAY, SOME SILT, TRACE SAND (WITH ROCK FRAGMENTS) - MOIST
16.0' (POSSIBLE ORIGINAL) BROWN CLAY, SOME SILT, TRACE SAND - MOIST
36.0' SOFT SHALE
37.5' 4" TO 6" ROCK SHELVES
48.0' POSSIBLE ROCK

197 S 1862 W 3360
847.8'
9.0' (FILL) BROWN & GRAY CLAY, SOME SILT, TRACE SAND (WITH ROCK FRAGMENTS) - MOIST
22.5' (APPARENT ORIGINAL) SOFT SHALE
24.5' 2" TO 4" ROCK LAYERS
25.0' POSSIBLE ROCK

198 S 1894 W 3398
830.9'
11.0' (FILL) GRAY CLAY, SOME SILT, (WITH ROCK FRAGMENTS) - DRY
16.0' (APPARENT ORIGINAL) GRAY SHALE (2" TO 6" ROCK SHELVES)

199 S 2149 W 3135
818.95'
3.0' (FILL) BROWN & GRAY CLAY & SILT, TRACE SAND, WITH ROCK FRAGMENTS
9.0' (FILL) HARD, GRAY CLAY, SOME SILT, WITH ROCK FRAGMENTS - MOIST (1" TO 3" ROCK FRAGMENTS AT 5.0' TO 8.0')
20.0' (POSSIBLE ORIGINAL) HARD, BROWN CLAY, TRACE SILT WITH ROCK FRAGMENTS - MOIST

200 S 1678 W 2171
833.29
4.0' (FILL) BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENTS)
16.0' (APPARENT ORIGINAL) GRAY & BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT OR ROCK SHELVES)

201 S 1709 W 2180
834.53
5.5' (FILL) HARD, BROWN & GRAY CLAY, SOME SILT, SOME SAND - MOIST (ROCK FRAGMENTS)
11.5' (APPARENT ORIGINAL) HARD, BROWN & GRAY CLAY, SOME SILT - MOIST (ROCK FRAGMENT OR SHELVES
15.5' (1" TO 6" ROCK SHELVES & 1" TO 6" CLAY SEAMS)

202 S 1667 W 2216
843.52
7.5' (FILL) VERY STIFF, BROWN CLAY, SOME SILT, SOME SAND - MOIST (ROCK FRAGMENTS) (BECOMES HARD AT 4.0')
15.5' (APPARENT ORIGINAL) HARD, BROWN & GRAY CLAY, SOME SILT - MOIST (ROCK FRAGMENT OR SHELVES)
20.5' GRAY SHALE (1" TO 3" ROCK SHELVES)

203 S 1698 W 2222
841.24'
5.0' (FILL) BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
16.0' (APPARENT ORIGINAL) GRAY CLAY, SOME SILT (ROCK FRAGMENT OR ROCK SHELVES)
REFUSAL

204 S 1737 W 2257
838.0'
4.0' (FILL) BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
5.0' (APPARENT ORIGINAL) BROWN & BLACK CLAY, SOME SILT, TRACE GRAVEL - MOIST
16.0' BROWN & GRAY CLAY, SOME SILT - MOIST (2" TO 6" ROCK SHELVES)

205 S 1709 W 2287
842.93
6.0' (FILL) BROWN & GRAY CLAY, SOME SILT, SOME SAND - MOIST (ROCK FRAGMENT)
15.0' (APPARENT ORIGINAL) HARD, BROWN & GRAY CLAY, SOME SILT (2" TO 4" ROCK SHELVES, ROCK FRAGMENT) MOIST
20.0' GRAY SHALE (2" TO 6" ROCK SHELVES)

206 S 1689 W 2300
845.94
3.5' (FILL) BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
11.0' (APPARENT ORIGINAL) BROWN & GRAY CLAY, SOME SILT - MOIST (2" TO 6" ROCK SHELVES)

207 S 1736 W 2341
842.23
3.0' (FILL) BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
10.5' (APPARENT ORIGINAL) BROWN & GRAY CLAY, SOME SILT - MOIST (2" TO 6" ROCK SHELVES)
REFUSAL

208 S 1710 W 2355
846.88
4.0' (FILL) HARD, BROWN & GRAY CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
5.5' (APPARENT ORIGINAL) HARD, BROWN & GRAY CLAY, SOME SILT (ROCK FRAGMENT) - MOIST
13.5' (1" TO 1" CLAY SEAMS AND 2" TO 8" ROCK SHELVES)
15.5' GRAY SHALE (WITH 2" ROCK SHELVES)

209 S 1790 W 2322
832.08
10.0 GRAY & BROWN CLAY, SOME SILT (2" TO 4" ROCK SHELVES AND 6" TO 2.0' CLAY SEAMS - MOIST

210 S 1852 W 2400
825.8
5.0' BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
10.0' GRAY CLAY, SOME SILT - MOIST (2" TO 8" ROCK SHELVES)

211 S 1868 W 2452
827.99
2.0' (FILL) BROWN CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
6.0' (APPARENT ORIGINAL) BROWN AND GRAY CLAY, SOME SILT - MOIST (ROCK FRAGMENT)
12.0' BROWN & GRAY CLAY, SOME SILT - MOIST (2" TO 6" ROCK SHELVES)

212 S 1648 W 2262
848.22
3.5' (FILL) BROWN CLAY, SOME SILT, SOME SAND - MOIST (ROCK FRAGMENT)
8.0' (APPARENT ORIGINAL) 2" TO 6" ROCK SHELVES AND 6" TO 1.0' CLAY SEAMS
14.5' 2" TO 6" ROCK SHELVES AND 2" TO 6" CLAY SEAMS
15.5' GRAY SHALE (2" ROCK SHELVES)

213 S 2700 W 3260
744.9
5.0' (FILL) VERY STIFF GRAY CLAY, SOME SILT, SOME SAND, TRACE GRAVEL, ROCK FRAGMENTS - MOIST
7.0' (APPARENT ORIGINAL) GRAY CLAY, SOME SILT, SOME SAND, TRACE GRAVEL, ROCK FRAGMENTS - MOIST
20.0' HARD GRAY CLAY, SOME SILT, SOME SAND, TRACE GRAVEL - MOIST

214 S 2699 W 3252
744.5
2' TOPSOIL
4.0' (FILL) BROWN AND GRAY CLAY, SOME SILT, TRACE SAND, TRACE GRAVEL - MOIST
9.0' (APPARENT ORIGINAL) VERY STIFF BROWN SILT AND SAND, TRACE GRAVEL - MOIST
20.0' VERY STIFF GRAY CLAY, SOME SILT, SOME SAND - MOIST (1" TO 2" SAND SEAMS AT 9.0') (BECOMES HARD AT 13.5')

215 S 2450 W 2980
767.5'
0.5' (FILL) GRAVEL BASE
3.5' (FILL) GRAY CLAY, SOME SILT TRACE OF SAND - MOIST
12.0' (ORIGINAL) DARK BROWN CLAY, SOME SILT, TRACE OF SAND, TRACE OF GRAVEL

216 S 2587 W 3035
749.0'
0.5' (FILL) TOPSOIL
12.0' (FILL) GRAY CLAY, SOME SILT TRACE OF SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST

217 S 2625 W 3120
749.4
0.5' (FILL) GRAVEL BASE
5.0' (FILL) GRAY CLAY, SOME SILT TRACE OF SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
7.0' (ORIGINAL) TOPSOIL
13.0' BROWN CLAY, SOME SILT, SOME SAND, TRACE OF GRAVEL - MOIST
16.0' GRAY CLAY, SOME SILT, SOME SAND, TRACE OF GRAVEL - MOIST

218 S 2629 W 3589
743.8'
0.5' (FILL) TOPSOIL
2.0' (FILL) BROWN & GRAY CLAY SOME SILT, TRACE OF SAND, TRACE OF GRAVEL, WITH ROCK FRAGMENTS - MOIST
5.0' (FILL) GRAY SHALE & BROWN CLAY, SOME SILT, TRACE OF SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
8.0' (ORIGINAL) TOPSOIL
15.0' BROWN CLAY & SILT, SOME SAND, TRACE OF GRAVEL - MOIST

219 S 2741 W 3276
746.3
2.0' (FILL) TOPSOIL
4.0' (FILL) BROWN CLAY & SILT TRACE OF GRAVEL, WITH ROCK FRAGMENTS - MOIST
15.0' (ORIGINAL) GRAY CLAY (SILT TRACE OF SAND, TRACE OF GRAVEL, WITH ROCK FRAGMENTS - MOIST

220 S 2078 W 2646
833.9'
0.5' (FILL) TOPSOIL
7.0' (FILL) GRAY CLAY & SILT, SOME SAND, TRACE OF GRAVEL, WITH ROCK FRAGMENTS - MOIST
8.0' (FILL) BROWN CLAY & SILT, SOME SAND, TRACE OF GRAVEL - MOIST
10.5' (FILL) GRAY CLAY & SILT, SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
15.0' (ORIGINAL) BROWN CLAY & SILT, TRACE OF SAND, TRACE OF GRAVEL - MOIST

221 S 2163 W 2708
819.2
0.6' (FILL) TOPSOIL
6.5' (FILL) GRAY CLAY & SILT SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
15.0' (FILL) BROWN CLAY & SILT, SOME SAND, TRACE OF GRAVEL - MOIST

222 S 1746 W 2354
843.6
0.5' (FILL) TOPSOIL
4.5' (ORIGINAL) BROWN CLAY SOME SILT, TRACE OF SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
9.5' ROCK SHELVES WITH 6" TO 2' CLAY SEAMS
12.0' GRAY SHALE WITH ROCK LAYERS - (REFUSAL @ 12.0')

223 S 1806 W 2471
832.9'
0.3' (FILL) TOPSOIL
3.0' (FILL) BROWN CLAY & SILT, SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
5.0' BROWN CLAY & SILT, SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
9.3' (ORIGINAL) GRAY CLAY, SOME SILT, TRACE OF SAND, TRACE OF GRAVEL, WITH ROCK FRAGMENTS - MOIST
11.5' ROCK SHELVES WITH 1" TO 6" CLAY SEAMS (REFUSAL @ 11.5')

224 S 1963 W 2584
832.4'
0.5' (FILL) TOPSOIL
6.0' (FILL) GRAY SHALE
12.5' (ORIGINAL) GRAY CLAY SOME SILT, TRACE OF SAND, WITH ROCK FRAGMENTS - MOIST
15.0' ROCK SHELVES WITH 1" TO 10" CLAY SEAMS

225 S 2195 W 2807
821.1'
1.0' (FILL) TOPSOIL
20.0' (FILL) BROWN CLAY & SILT SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS MOIST

226 S 2188 W 3091
819.4'
0.5' (FILL) SAND & GRAVEL BASE
3.5' (FILL) BROWN CLAY & SILT, SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
10.5' (FILL) GRAY CLAY, SOME SILT, TRACE OF SAND, WITH ROCK FRAGMENTS - MOIST
15.0' (ORIGINAL) BROWN CLAY, SOME SILT, TRACE OF SAND, WITH ROCK FRAGMENTS - MOIST

227 S 1772 W 3784
811.3'
1.0' (FILL) TOPSOIL
6.0' (FILL) VERY STIFF BROWN & GRAY CLAY & SILT, TRACE OF SAND - MOIST
13.0' (POSSIBLE FILL) HARD BROWN & GRAY CLAY & SILT, TRACE OF SAND, WITH ROCK SHELVES - MOIST
16.0' (POSSIBLE ORIGINAL) BROWN SHALE
19.0' GRAY SHALE

228 S 1429 W 2795
878.1'
0.5' TOPSOIL
1.5' BROWN CLAY & SILT SOME SAND, TRACE OF GRAVEL WITH ROCK FRAGMENTS - MOIST
5.0' 1" TO 4" ROCK SHELVES WITH 1" TO 6" CLAY SEAMS

229 S 1452 W 2921
878.0
1.0 FILL BROWN CLAY, TRACE SAND & GRAVEL
14.5 ORIGINAL, 1 TO 4" ROCK SHELVES 1 TO 4" CLAY SEAMS

230 S 1799 W 3821
807.4
0.4' (FILL) TOP SOIL
3.5' (FILL) VERY STIFF, BROWN & GREY CLAY & SILT, TRACE SAND, TRACE ORGANIC - MOIST
12.5' (ORIGINAL) HARD, GREY & BROWN CLAY, SOME SILT, TRACE SAND WITH ROCK FRAGMENTS - MOIST
14.5' SOFT GREY & BROWN SHALE

231 S 1625 W 3850
801.6
.5' FILL (TOPSOIL)
3.0' (ORIGINAL) VERY STIFF, BROWN CLAY & SILT, TRACE SAND & ORGANIC - MOIST
10.0' (VERY STIFF, GREY & BROWN CLAY, SOME SILT, TRACE SAND, TRACE GRAVEL WITH ROCK FRAGMENTS (BECOMES HARD AT 6')

232 S 2531 W 4078
1.0 BROWN SILT, SOME SAND & GRAVEL, TRACE COBBLES - DAMP
8.5' HARD, BROWN SILT, SOME CLAY & SAND TRACE GRAVEL - MOIST
14.0 SOFT GREY SHALE - DAMP
14.5 REFUSAL

233 S 2481 W 4218
719.35'
0.5' TOPSOIL
4.5' HARD, BROWN SILT, SOME SAND & CLAY TRACE GRAVEL - MOIST
7.0' HARD, BROWN & GREY SILT, SOME SAND TRACE CLAY & GRAVEL - MOIST
13.0' HARD, BROWN SILT SOME SAND, TRACE GRAVEL & CLAY - MOIST TO WET
20.0' HARD, GREY SILT, SOME SAND, TRACE GRAVEL & CLAY (WITH SAND SEAMS) - MOIST

234 S 2510 W 4209
720.65'
1.0 (FILL) VERY STIFF, BROWN CLAY, SOME SILT & SAND, TRACE BRICK, TRACE COAL, TRACE GRAVEL - MOIST
15.0 (ORIGINAL) HARD, BROWN SILT, SOME SAND, TRACE CLAY & GRAVEL - MOIST (BECOMES VERY STIFF AT 5.0') (BECOMES HARD AT 8.5')

235 S 3494 W 2817
748.9
0.75' TOPSOIL
4.5' (FILL) MEDIUM STIFF BROWN SILT, SOME CLAY & SAND, TRACE GRAVEL, MOIST (APPARENT SEWER BACKFILL)
15.0 (APPARENT ORIGINAL) HARD GREY SILT, SOME CLAY, SAND & GRAVEL MOIST

236 S 3511 W 2809
768.7
0.75 TOPSOIL
6.0' HARD, BROWN SILT, SOME CLAY & SAND - DAMP
11.0' HARD, GREY SILT, SOME CLAY & SAND, TRACE GRAVEL - DAMP

237 S 2368 W 2796
772.2
7.5' (FILL) VERY STIFF BROWN GREY CLAY, SOME SILT, ROCK FRAGMENTS, MOIST. POSSIBLE ROCK FRAGMENTS COULD NOT AUGER PAST 7.5'

238 S 2375 W 2799
772.1
9.0' (FILL) VERY STIFF BROWN GREY CLAY SOME SILT, TRACE SAND, ROCK FRAG. MOIST - BECOMES STIFF AT 3.5'
14.0' (FILL) HARD GREY CLAY, SOME SILT TRACE SAND, ROCK FRAG. WET (POSSIBLE ORGANIC)
23.5' (ORIGINAL) VERY STIFF BROWN CLAY TRACE SILT, TRACE SAND, MOIST. (BECOMES STIFF AT 7.5') (BECOMES VERY STIFF AT 18.5')
25.0' HARD GREY SILT & SAND, SOME CLAY - MOIST

239 S 2418 W 2775
770.6'
5.5' (FILL) HARD GREY BROWN CLAY SOME SILT, SOME ROCK FRAGMENTS TRACE SAND, MOIST. ROCK FRAGMENTS COULD NOT AUGER PAST 5.5'

240 S 2421 W 2782
770.5
10.5' (FILL) VERY STIFF GREY BROWN CLAY SOME SILT, TRACE SAND, TRACE ROCK FRAGMENTS, MOIST. (BECOMES STIFF AT 5.0') POSSIBLE VOID AT 8.5'
14.5' (FILL) GREY SILT, TRACE SAND, GRAVEL & ROCK FRAGMENTS - MOIST
16.0' (FILL) HARD GREY & BROWN SILT, SOME CLAY & ROCK FRAGMENTS, WET
21.5' (ORIGINAL) VERY STIFF DARK BROWN CLAY, SOME SILT, TRACE SAND & ROCK FRAG. MOIST (ORGANIC)
30.0' HARD GREY SILT, SOME CLAY, TRACE SAND, GRAVEL & ROCK FRAG. - MOIST

Plate A6

B	7-7-76	DWG'S ADDED	G.B.		
A	7-22-74	WAS DWG 5-1378	G.B.		
ISS	DATE	REVISION	BY	CHK'D	APPR.

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS
188 THRU 240

DRAWN G.A.B. DATE 7-22-74
CHECKED W.D.
DWG. CLASSIFICATION: UNCL.
CODE IDENT. NO. 14065
DWG. NO. 7-5516472 SHT. 6 OF

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FSE16472 SHT 7

Plate A7

241
S-2165 W-3882

Depth	Description
6.0'	FILL OF VERY SOFT, BROWN CLAY, SOME SILT SOME SAND, TRACE GRAVEL, MOIST
8.0'	FILL OF STIFF, BROWN, FINE TO COARSE SAND & GRAVEL, TRACE CLAY-MOIST
15.0'	FILL OF VERY SOFT BROWN CLAY SOME SILT, SAND & GRAVEL-MOIST
25.0'	ORIGINAL, HARD, BROWN & GREY CLAY, SOME SILT, SAND & GRAVEL WITH ROCK FRAG. DAMP

242
S-2162 W-3851

Depth	Description
3.0'	FILL OF BROWN SAND & GRAVEL, TRACE CLAY, MOIST
15.5'	FILL VERY SOFT, BROWN CLAY, SOME GREY CLAY, SOME SILT & SAND, TRACE OF GRAVEL (BECOMES STIFF AT 10.0')
19.0'	ORIGINAL, HARD, GREY CLAY, SOME SILT & SAND, TRACE GRAVEL, MOIST
25.0	HARD, GREY SILT, SOME CLAY & SAND. SOME GRAVEL, MOIST.

243
S-2185 W 3857

Depth	Description
6.0'	VERY STIFF, BROWN CLAY, SOME SILT & SAND, TRACE GRAVEL. MOIST.
18.5'	HARD, GREY CLAY & SILT, SOME SAND TRACE GRAVEL, MOIST
28.5'	HARD, GREY CLAY, SOME SILT, SOME SAND, TRACE GRAVEL-MOIST
30.0	HARD, GREY CLAY & SILT, SOME SAND, TRACE GRAVEL, MOIST

244
S-3043 W 2403

Depth	Description
4.0'	HARD BROWN CLAY, SOME SILT SAND & GRAVEL-MOIST. (WITH ROCK FRAG. AT 1.5')
6.5'	HARD BROWN CLAY, SOME SILT & SAND WITH ROCK FRAG.-DAMP.
7.5'	SHALE WITH ROCK LAYERS

245
S-3030 W-2429

Depth	Description
5.5'	HARD BROWN CLAY, SOME SILT SAND & GRAVEL - MOIST. ROCK FRAG. AT 0.5'
13.0'	GREY RICHMOND SHALE & LIMESTONE

246
S-2712 W-2348

Depth	Description
1.0'	FILL, BROWN SILT, SOME SAND & GRAVEL, TRACE OF CLAY & COBBLES, TRACE BOULDERS-MOIST TO DRY.
11.0	APPARENT FILL, HARD, BROWN CLAY, SOME SILT, TRACE OF SAND & GRAVEL (WITH 2"-4" ROCK LAYERS MOIST
11.5'	APPARENT ROCK, (REFUSAL)

247
S-2835 W-2411

Depth	Description
0.5'	FILL, BROWN CLAY, SOME SILT SAND & GRAVEL, TRACE OF COBBLES & BOULDERS-MOIST TO DRY
7.5'	APPARENT FILL, HARD, BROWN CLAY & SILT, SOME SAND, TRACE GRAVEL (WITH 2" TO 4" ROCK LAYERS)-DRY
8.0'	APPARENT ROCK (REFUSAL)

248
S-2619 W-4536

Depth	Description
0.0	
0.5	TOPSOIL
19.0'	HARD, BROWN SILT, SOME CLAY & SAND, TRACE FINE TO COARSE GRAVEL-MOIST. (BECOMES VERY STIFF AT 5.0') (BECOMES HARD AT 7.5')
25.0'	HARD GREY CLAY, SOME SILT & SAND, TRACE GRAVEL-MOIST.

249
S-1603 W-2458

Depth	Description
874.4	
1.0'	TOPSOIL
3.5'	FILL OF HARD BROWN CLAY, SOME SILT, TRACE GRAVEL, TRACE SAND MOIST
4.5'	ORIGINAL, HARD, BROWN CLAY, SOME SILT, TRACE GRAVEL-MOIST
8.5'	HARD, BROWN CLAY & SILT, SOME ROCK FRAG. TRACE SAND, -DAMP
16.5'	POSSIBLE ROCK SHELVES WITH 6" TO 1' CLAY SEAMS.
17.5'	GREY SHALE

250
S-1603 W-2435

Depth	Description
1.0'	TOPSOIL
3.5'	FILL OF HARD, BROWN CLAY, SOME SILT, TRACE GRAVEL, TRACE ROOTS, MOIST
5.5'	ORIGINAL, HARD BROWN CLAY, SOME SILT, TRACE GRAVEL & SAND MOIST, (ORGANIC)
8.5	HARD. BROWN CLAY & SILT, SOME ROCK FRAG, MOIST
15.0	POSSIBLE 2" TO 4" ROCK SHELVES WITH 4" TO 1.0' CLAY SEAMS

251
S-1603 W-2409

Depth	Description
870.7	
5.0'	TOPSOIL
8.5'	FILL OF MEDIUM STIFF, BROWN CLAY, SOME SILT, TOPSOIL & ROCK FRAG. TRACE GRAVEL, MOIST.
14.0'	ORIGINAL, HARD, BROWN & GREY CLAY, SOME SILT & ROCK FRAG. MOIST.
15.0'	HARD, BROWN & GREY CLAY & ROCK FRAG. SOME SILT, MOIST
17.0'	2" TO 4" ROCK SHELVES & 2" TO 6" CLAY SEAMS

252
S-1583 W-2409

Depth	Description
872.4	
1.0'	TOPSOIL
5.5'	FILL OF VERY STIFF, BROWN CLAY & SILT, TRACE SAND & ROOTS, MOIST
6.5'	ORIGINAL TOPSOIL-MOIST
15.5'	HARD, BROWN, CLAY, SOME SILT TRACE ROCK FRAG. TRACE SAND MOIST. (APPARENT ROCK AT 15-0")

253
S-2708 W-3214

Depth	Description
0.16'	TOPSOIL
.75'	LIGHT BROWN SANDY SILTY CLAY WITH LARGE GRAVEL & ROCK FRAG-MOIST
2.5'	DARK BROWN SANDY SILTY CLAY WITH LARGE GRAVEL & ROCK FRAG.-MOIST

254
S-2351 W-3245

Depth	Description
0.16'	TOPSOIL - MOIST
1.25'	LIGHT BROWN SANDY SILTY CLAY LARGE GRAVEL & ROCK FRAG. MOIST
2.6'	GREY SANDY SILTY CLAY WITH LARGE GRAVEL & ROCK FRAG.-MOIST

255
S-1702 W-3016

Depth	Description
1.0	GRAVEL (FILL)
7.5'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG (FILL) MOIST-STIFF
12.5'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG (FILL) WET-SOFT.
20.0	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG STIFF TO MEDIUM STIFF

256
S-1749 W-3072

Depth	Description
15.0'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST-STIFF

257
S-1736 W-2895

Depth	Description
21.5'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST-STIFF.

258
S-1752 W-2869

Depth	Description
0.58'	CONCRETE
8.5'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST STIFF.
11.5'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) VERY MOIST-MEDIUM STIFF.
20.0'	BROWN & GREY SILTY CLAY WITH SHALE & ROCK FRAG (FILL) MOIST-STIFF

259
S-3021 W-2542

Depth	Description
876.0'	
4.5'	(FILL) HARD BROWN & GREY SILT, SOME SAND & CLAY. TRACE OF GRAVEL, COBBLES & ROCK FRAG. DAMP
6.5'	(FILL) VERY STIFF BROWN SILT TRACE SAND & CLAY, & GRAVEL, TRACE OF ORGANIC MAT'L.-DAMP
8.5'	(FILL) HARD BROWN SILT, SOME SAND & CLAY, TRACE GRAVEL-DAMP
9.0'	(ORIGINAL) HARD BLACK SILT SOME CLAY & SAND, TRACE OF GRAVEL WITH ROCK FRAG. TRACE OF ORGANIC MAT'L-DAMP
10.5'	HARD BROWN SILT, SOME CLAY & SAND TRACE GRAVEL & ROCK FRAG. DAMP
19.5'	BROWN CLAY & SOFT SHALE WITH LIMESTONE LAYERS

260
S-3011 W-2520

Depth	Description
874.5'	
3.5'	(FILL) VERY STIFF BROWN & GREY SILT, SOME CLAY, SAND, GRAVEL & ROCK FRAG. SOME COBBLES DAMP
13.0'	(FILL) MED. STIFF BROWN & GREY SILT, SOME CLAY & SAND, TRACE OF GRAVEL & ROCK FRAG. TRACE COBBLES MOIST (BECOMES VERY STIFF AT 8.5')
14.0'	(ORIGINAL) TOPSOIL
19.0'	HARD BROWN SILT, SOME CLAY, SAND & GRAVEL, WITH ROCK FRAG. -DAMP
19.5'	BROWN & GREY SOFT SHALE IN LIMESTONE LAYERS

261
S-2032 W-1997

Depth	Description
18.8'	CLAY, SOME FILL ON TOP, WITH LIMESTONE FRAG. IN LOWER PORTION
18.8'	BEDROCK, LIMESTONE & SHALE

262
S-2128 W-2126

Depth	Description
8.8'	CLAY, SOME FILL ON TOP, WITH LIMESTONE FRAG. IN LOWER PORTION
BELOW 8.8	LIMESTONE SLABS, WEATHERED BEDROCK & SHALE.

263
S-2215 W-2411

Depth	Description
21.0'	CLAY, SOME FILL ON TOP, WITH LIMESTONE FRAG. IN LOWER PORTION
BELOW 21.0'	BEDROCK. LIMESTONE & SHALE

264
S-2311 W-2510

Depth	Description
17.9'	CLAY WITH LIMESTONE FRAG.
BELOW 17.9'	BEDROCK, LIMESTONE & SHALE

265
S-2399 W-2602

Depth	Description
30.0'	CLAY WITH LIMESTONE FRAG.
BELOW 30.0'	BEDROCK, LIMESTONE & SHALE

266
S-2458 W-2689

Depth	Description
14.8'	CLAY WITH LIMESTONE FRAG.
BELOW 14.8'	BEDROCK, LIMESTONE & SHALE

267
S-2588 W-2869

Depth	Description
15.8'	CLAY WITH LIMESTONE FRAG.
BELOW 15.8'	BEDROCK, LIMESTONE & SHALE

268
S-2670 W-3036

Depth	Description
16.0'	CLAY WITH LIMESTONE FRAG.
BELOW 16.0'	LIMESTONE SLABS, WEATHERED BEDROCK & SHALE

269
S-2736 W-3171

Depth	Description
20.0	CLAY WITH LIMESTONE FRAG.
BELOW 20.0	BEDROCK, LIMESTONE & SHALE

270
S-2503 W-2496

Depth	Description
8.5'	CLAY WITH LIMESTONE FRAG.
BELOW 8.5'	LIMESTONE SLABS, WEATHERED BEDROCK & SHALE.

271
S-2575 W-2425

Depth	Description
9.0'	CLAY WITH LIMESTONE FRAG.
BELOW 9.0'	LIMESTONE SLABS, WEATHERED BEDROCK & SHALE.

272
S-2627 W-2371

Depth	Description
14.0'	LIMESTONE SLABS, WEATHERED BEDROCK & SHALE
BELOW 14.0'	BEDROCK, LIMESTONE & SHALE

273 DANES & MOORE GEOLOGY BORING #1
S-3252 W-2400

Depth	Description
886.3	
6.3'	BROWN & GREY SILTY CLAY
52.3'	BLUE-GREY THINLY BEDDED LIMESTONE & SHALE
72.3'	BLUE-GREY INTERBEDDED SHALE & LIMESTONE
149.3'	BLUE-GREY INTERBEDDED SHALE & LIMESTONE -
200.0'	DARK-GREY, THINLY BEDDED, HORIZ. FISSIL, SHALE WITH SOME LIMESTONE

274 DANES & MOORE GEOLOGY BORING #2
S-1145 W-2590

Depth	Description
873.1	
4.1'	BLUISH-GREY CLAYEY SILT (FILL) WETHERED ROCK.
37.1'	BLUE-GREY THINLEY BEDDED FOSSILIFEROUS LIMESTONE & SHALE
65.1	BLUE-GREY FOSSILIFEROUS LIMESTONE & SHALE.
161.1	BLUE-GREY INTERBEDDED FOSSILIFEROUS LIMESTONE & SHALE
200.0'	DARK-GREY THINLY BEDDED SHALE WITH SOME INTERBEDDED THIN BLUE-GREY LIMESTONE LAYERS.

275 DANES & MOORE GEOLOGY BORING #3
S-2025 W-1700

Depth	Description
807.3'	
11.8'	BROWN CLAYEY SILT W/LITTLE FINE-COARSE SAND, TRACE GRAVEL-(DENSE)
18.3'	BROWN, CLAYEY SILT W/LITTLE FINE-COARSE SAND, WITH BLUISH GREY SHALE
27.1	BLUISH-GREY SHALE W/LIMESTONE FRAGMENTS
50'	BLUE-GREY LIMESTONE & SHALE

276 DANES & MOORE GEOLOGY BORING #4
S-2703 W-3020

Depth	Description
754.0	
2.0'	TOPSOIL
20.5'	MOTTLED BROWN & GREY CLAYEY SILT WITH LITTLE FINE-COARSE SAND (DENSE)
46.0'	MOTTLED BROWN & GREY, SILTY, FINE TO COARSE SAND & GRAVEL. (DENSE)
50.5'	BLUISH-GREY WEATHERED SHALE
75.0'	DARK BROWN SHALE & LIMESTONE WITH SOME FOSSILS.

277 DANES & MOORE GEOLOGY BORING #5
S-2585 W-4440

Depth	Description
729.5	
34.5'	BROWN CLAYEY SILT WITH LITTLE FINE-COARSE SAND, TRACE GRAVEL (DENSE)
51.0'	BROWN, SILTY, FINE-COARSE SAND & GRAVEL (VERY DENSE)
58.5'	WEATHERED BEDROCK.
110.0'	TOP OF HARD ROCK. DARK GREY INTERBEDED LIMESTONE & SHALE

278 DANES & MOORE GEOLOGY BORING #6
S-2680 W-4435

Depth	Description
737.0'	
36.0'	BROWN CLAYEY SILT WITH LITTLE FINE-COARSE SAND. (DENSE)
49.0'	BROWN, SILTY, FINE-COARSE SAND & GRAVEL (VERY DENSE)
108.0'	WEATHERED BLUISH-GREY SHALE GREY SHALE & LIMESTONE

279
S-1950 W-4132

Depth	Description
749.1	
2.5'	BROWN SILT, SOME SAND & CLAY, TRACE GRAVEL, MOIST
8.5	HARD BROWN & GREY SILT, SOME CLAY & SAND, TRACE GRAVEL-MOIST
19.0'	GREY SOFT SHALE, WITH LIMESTONE FRAGMENTS-MOIST

280
S-1695 W-3941

Depth	Description
773.0	
1.0	(FILL) BROWN SAND & GRAVEL SOME SILT-MOIST
.0	(ORIGINAL) HARD BROWN & GREY SILT SOM CLAY & SAND, TRACE ROCK FRAG.-MOIST
42.5'	HARD GREY SOFT SHALE, WITH ROCK FRAG.-MOIST.

281
S-3090 W-2413

Depth	Description
763.1	
2.0'	(FILL) BROWN SAND & GRAVEL. SOME SILT - MOIST
26.5'	(ORIGINAL) HARD GREY SOFT SHALE, WITH ROCK FRAGMENTS.-MOIST

282
S-2118 W-3910

Depth	Description
739.0	
6.5'	BROWN SILT, SOME CLAY & SAND TRACE GRAVEL-MOIST (BECOMES HARD AT 3.5')
19.5'	HARD GREY SILT, SOME CLAY & SAND, TRACE OF GRAVEL-MOIST (BECOMES VERY STIFF AT 13.5')
27.0'	HARD GREY SOFT SHALE, WITH ROCK FRAGMENTS-MOIST (BECOMES WET AT 23.5')

283
S 2130 W-4025

Depth	Description
740.1	
1.0	(FILL) BROWN SAND & GRAVEL, SOME SILT-MOIST
4.0	(ORIGINAL) BROWN SILT, SOME CLAY & SAND, TRACE GRAVEL, MOIST.
10.0	VERY STIFF GREY SILT, SOME CLAY & SAND, TRACE GRAVEL-MOIST (BECOMES WET AT 7.9') (BECOMES STIFF AT 8.5')

284
S-2726 W-4283

Depth	Description
738.0	
31.0	BROWN SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (DENSE)
42.0	BROWN SAND & GRAVEL WITH SILT & CLAY (VERY DENSE) GRADES WITH OCCASIONAL COBBLES & BOULDERS.
50.0	WEATHERED ROCK

WATER LEVEL 2/23/76 36'2" BELOW GROUND.

285
S-2895 W-4380

Depth	Description
742.1	
39.0	BROWN SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (DENSE)
45.0	SAND & GRAVEL (VERY DENSE)

WATER LEVEL 2/23/76 7'-6" BELOW GROUND

286
S-2598 W-4530

Depth	Description
723.1	
38.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (MEDIUM DENSE)
45.0'	BROWN SAND & GRAVEL WITH SILT & CLAY (DENSE)

BORING COMPLETE 2/18/76
WATER LEVEL 2/23/76 32'0" BELOW GRADE

287
S-2795 W-4711

Depth	Description
704.8	
10.0'	GREYISH BROWN CLAYEY SILT WITH GRAVEL & TRASH (BROKEN GLASS, CHINA ETC.) (FILL)
28.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (DENSE
31.5'	BROWN SANDY GRAVEL WITH TRACE SILT (DENSE)

BORING COMPLETE 2/17/76
WATER LEVEL 2/23/76 19'-11" BELOW GRADE

288
S-2826 W-4618

Depth	Description
708.3	
13.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (FILL) ABUNDANT TRASH (GLASS, WIRE, TIN ORGANIC MATERIAL.
20.0	BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIL TILL) (DENSE)

BORING COMPLETE 2/76
WATER LEVEL NOT RECORDED

289
S-2867 W-4532

Depth	Description
716.0	
6.5'	GREYISH BROWN CLAYEY SILT WITH GRAVEL & TRASH (CHINA, PAPER, ORGANIC MATERIAL ETC.)
13.5'	BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIL TILL) (DENSE)

BORING COMPLETE 2/19/76
WATER LEVEL NOT RECORDED

290
S-2860 W-4580

Depth	Description
711.0'	
8.0'	BROWN CLAYEY SILT TO SILTY CLAY (FILL)
27.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIAL TILL) (DENSE
31.0'	BROWN SILTY GRAVEL WITH TRACE OF CLAY VERY DENSE

BORING COMPLETE 2/17/76
WATER LEVEL 2/23/76 25'-4" BELOW GRADE

291
S-2745 W-4640

Depth	Description
706.8'	
10.0'	BROWN CLAYEY SILT TO SILTY CLAY (ELEC. TAPE, WIRE, WOOD, GLASS, ORGANIC MAT'L ETC.) (FILL)
24.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (DENSE
25.0'	BROWN SILTY SAND & GRAVEL (VERY DENSE)

BORING COMPLETE 2/17/76
WATER LEVEL 2/23/76 22'-8" BELOW GRADE

292
S-2913 W-4448

Depth	Description
732.7'	
26.0'	BROWN SILTY CLAY TO CLAYEY SILT (FILL) ABUNDANT TRASH (PAPER, METAL, WOOD, ORGANIC MAT'L ETC.)
29.0'	GREY SILTY CLAY TO CLAYEY SILT WITH POCKETS OF BROWN SILT (GLACIAL TILL) (DENSE)
30.0'	BROWN MEDIUM COARSE SAND

BORING COMPLETE 2/19/76
WATER LEVEL NOT RECORDED

293
S-2811 W-4663

Depth	Description
706.0	
12.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL & ORGANIC MAT'L (FILL)
20.0'	BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIAL TILL) (DENSE) SOME COBBLES & BOULDERS.

BORING COMPLETE 2/17/76
WATER LEVEL NOT RECORDED

294
S-2891 W-4648

Depth	Description
705.6'	
21.0'	BROWN SILTY CLAY TO CLAYEY SILT (FILL) TRASH (WOOD, GLASS, BRICK, WIRE, ORGANIC MAT'L. ETC.)
27.0'	GREY SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (DENSE)
30.0'	SAND & GRAVEL-(VERY DENSE)

BORING COMPLETE 2/19/76
WATER LEVEL 2/23/76 21'-3" BELOW GRADE

295
S-2800 W-4600

Depth	Description
708.7	
11.0'	BROWN SILTY CLAY TO CLAYEY SILT. (FILL) TRASH (GLASS, WIRE, WOOD, ORGANIC MAT'L. ETC.)
12.5'	BROWN SILTY CLAY TO CLAYEY SILT WITH SAND & GRAVEL (GLACIAL TILL) (DENSE)

BORING COMPLETE 2/19/76
WATER LEVEL NOT RECORDED

296
S-2409 W-4527

Depth	Description
710.3	
6.0'	(FILL) VERY STIFF BROWN CLAY SOME SAND & SILT, TRACE OF GRAVEL, ROCK FRAGMENTS & ORGANIC MAT'L-MOIST
14.0'	(ORIGINAL) VERY STIFF BROWN SILT & SAND SOME CLAY, TRACE OF GRAVEL WITH 1" TO 2" SAND & GRAVEL SEAMS-MOIST (BECOMES HARD AT 8.5')
15.0'	VERY STIFF GRAY SILT & SAND SOME CLAY TRACE OF GRAVEL - MOIST

BOTTOM OF BORING @ 15.0'

297
S-2459 W-4562

Depth	Description
711.8'	
2.0'	(FILL) TOP SOIL & BROWN SILT SOME CLAY
5.0'	(FILL) VERY STIFF BROWN CLAY SOME SILT & SAND, TRACE OF GRAVEL-MOIST
15.0'	(ORIGINAL) VERY STIFF BROWN SILT & SAND SOME CLAY TRACE OF GRAVEL-MOIST BECOMES HARD @ 14.0'

BOTTOM OF BORING @ 15.0'

298
S-2477 W-4515

Depth	Description
717.2	
0.5'	(FILL) TOPSOIL
10.0'	(ORIGINAL) VERY STIFF BROWN & GRAY SILT & SAND, SOME CLAY TRACE OF GRAVEL - MOIST

BOTTOM OF BORING @ 10.0'

299
S-2452 W-4451

Depth	Description
712.9'	
0.5'	(FILL) TOPSOIL
8.0'	(ORIGINAL) VERY SOFT BROWN & GRAY SILT & SAND SOME CLAY. TRACE OF GRAVEL - MOIST BECOMES HARD @ 6.5'
10.0'	HARD GRAY SILT & SAND, SOME CLAY, TRACE OF GRAVEL WITH WET SAND SEAMS - MOIST

BOTTOM OF BORING @ 10.0'

300
S-2431 W-4508

Depth	Description
710.3'	
0.5'	TOPSOIL
10.0'	BROWN SILT & SAND, SOME CLAY, TRACE OF GRAVEL - MOIST

BOTTOM OF BORING @ 10.0'

ISS.	DATE	REVISION	BY	CHK'D	APPRD.
C	7-76	DWG'S ADDED	G.B.	DD	REB
B	4-27-76	BORINGS ADDED 279 THRU 300	G.B.		
A	4-12-76	WAS DWG S-1378	G.B.		[illegible]

FINAL ASSEMBLY DWG.	NEXT ASSEMBLY DWG.

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS
241 THRU 300

DRAWN G. A. B	DATE 4-8-76	APPROVALS
CHECKED W. D	DATE 4-12-76	1
APPROVED [illegible]	DATE 7-[illegible]-76	2
JOB NO. 4517		3
SCALE NONE		4

DWG. CLASSIFICATION LEVEL UNCL GP — DATE 4/14/76 INIT WSR
CODE IDENT. NO. 14065
DWG. NO. FSE16472 SHT. 7 OF

S-FSE16472

(301)
S-2458 W-1530
713.9'

0.5'	TOPSOIL
10.0'	BROWN SILT & SAND, SOME CLAY, TRACE OF GRAVEL - MOIST

BOTTOM OF BORING @ 10.0'

(302)
S-2462 W-4508
716.7'

0.5'	TOPSOIL
12.5'	BROWN SILT & SAND, SOME CLAY, TRACE OF GRAVEL - MOIST
20.0'	GRAY SILT & SAND, TRACE OF GRAVEL, SOME CLAY - MOIST

BOTTOM OF BORING @ 20.0'

(303)
S-1660 W 3384
878.7'

0.5'	(FILL) CONCRETE
2.0'	(FILL) MEDIUM STIFF BROWN & GRAY SILT & CLAY, SOME SAND & GRAVEL MOIST
7.0'	(FILL) VERY STIFF BROWN & GRAY CLAY, SOME SILT, WITH ROCK FRAGMENTS DAMP
7.5'	(ORIGINAL) VERY STIFF GRAY CLAY, SOME SILT, WITH ROCK FRAGMENTS DAMP
	FRACTURED ROCK

BOTTOM OF BORING @ 8.0'

(304)
S-1660 W-3398
878.7'

0.4'	(FILL) CONCRETE
8.0'	(FILL) VERY STIFF BROWN SILT SOME SAND & GRAVEL - MOIST (REFUSAL @ 3.5')
10.0'	(FILL) FRACTURED ROCK & CLAY
18.5'	(ORIGINAL) RICHMOND LIMESTONE

BOTTOM OF BORING @ 8.5'

(305)
S-1638 W-3398
878.7'

0.4'	(FILL) CONCRETE
3.0'	(FILL) MEDIUM DENCE BROWN SAND & GRAVEL, TRACE OF SILT - DAMP
5.0'	(FILL) MEDIUM STIFF BROWN CLAY & SILT, TRACE OF SAND & GRAVEL-MOIST
5.5'	(FILL) BROWN SILT WITH ORGANIC MATERIAL (TOPSOIL)
6.5'	(FILL) HARD BROWN CLAY & SILT, SOME SAND, TRACE OF ROCK FRAGMENTS - MOIST
7.0'	(FILL, FRACTURED ROCK (REFUSAL @ 7.0')

BOTTOM OF BORING @ 7.0'

(306)
S-2522 W 2117
794.3

0.5'	FILL-BROWN, FINE BROWN TO COARSE SAND, TRACE GRAVEL-DAMP
6.0'	FILL-HARD, BROWN CLAY. SOME SILT & SAND, TRACE GRAVEL - MOIST.
8.5'	FILL-HARD BROWN CLAY, SOME SILT & GRAVEL- TRACE ROCK FRAG & SAND MOIST
14.0'	FILL- HARD. BROWN CLAY, SOME SILT TRACE GRAVEL, SAND, GLASS & WIRE. MOIST.
19.0'	FILL- HARD, BROWN CLAY SOME SILT TRACE ROCK FRAG. & GRAVEL. - MOIST.
22.0'	FILL- HARD. BROWN & GRAY CLAY SOME SILT, TRACE SAND & ROCK FRAG. - MOIST
30.5'	FILL- HARD, BROWN & GRAY CLAY SOME SILT, TRACE TOP SOIL & ROCK FRAG. MOIST
31.0'	(ORIGINAL) VERY STIFF TOP SOIL- MOIST.
33.0'	VERY STIFF, BROWN & GRAY SILT SOME FINE SAND, TRACE CLAY- MOIST.
40.5'	VERY DENSE, BROWN, FINE TO MEDIUM SAND TRACE GRAVEL & SILT- MOIST
49.5'	VERY DENSE, BROWN, FINE TO COARSE SAND, SOME GRAVEL - WET
51.0'	HARD GR Y SILT SOME CLAY & SAND, TRACE GRAVEL - WET

(307)
S-2536 W 2132
793.5'

0.5'	FILL- BROWN, FINE TO MEDIUM SAND & GRAVEL, TRACE SILT & ROCK FRAG. MOIST
4.0'	FILL- VERY STIFF, BROWN CLAY & SILT, SOME SAND, TRACE TOP SOIL, GLASS & GRAVEL - MOIST
10.0'	FILL, VERY STIFF, BROWN SILT, SOME SAND, SOME WOOD, TOP SOIL, TRACE OF GLASS & GRAVEL - MOIST.
15.0'	FILL- STIFF. BROWN SILT & CLAY, SOME SAND, TRACE GRAVEL & ROCK FRAG, MOIST
30.0'	FILL- VERY STIFF, BROWN & GRAY CLAY, SOME SILT, TRACE SAND, GRAVEL & ROCK FRAG. MOIST - HARD AT 25.0'
31.0'	(ORIGINAL) TOP SOIL.
34.5'	HARD, BROWN CLAY, SOME SILT, TRACE SAND, GRAVEL & ORGANIC MAT'L- MOIST
40.0'	VERY DENSE, BROWN SAND, & GRAVEL TRACE SILT, WET.
41.0'	HARD, BROWN SILT & CLAY, SOME SAND, TRACE GRAVEL- MOIST.
51.5'	HARD, GRAY SILT & CLAY, SOME SAND TRACE GRAVEL, MOIST.

(308)
S-2550 W- 2146
793.0

4.5'	FILL- VERY STIFF, BROWN CLAY, SOME SILT & SAND, TRACE ROCK FRAG. & GRAVEL. MOIST
7.0'	FILL- HARD, BROWN CLAY, SOME SILT. & SAND, TRACE TOP SOIL, GRAVEL & ROCK FRAG. - MOIST.
27.0'	FILL- HARD, BROWN CLAY, SOME SILT & SAND, TRACE ROCK FRAG. & GRAVEL- MOIST. VERY STIFF AT 15' HARD AT 25'
34.0'	(ORIGINAL) HARD, BROWN SILT, SOME SAND & CLAY, TRACE GRAVEL- MOIST
38.0'	HARD, BROWN CLAY, SOME SILT, TRACE GRAVEL & SAND - MOIST.
45.5'	HARD. GRAY SILT, SOME CLAY. TRACE GRAVEL- WET
46.0'	HARD, BROWN SILT. SOME CLAY & ROCK FRAG. - DAMP.

(309)
S-2560 W- 2157
792.3

2.0'	FILL- BROWN SAND, SOME GRAVEL- DAMP
29.0'	FILL- BROWN & GRAY CLAY, SOME SILT & SAND, TRACE GRAVEL WITH ROCK FRAG. - MOIST. 2 TO 6" ROCK SLABS AT 18.0' TO 28.0'
30.5'	(ORIGINAL) TOP SOIL
31.0'	VERY STIFF, BROWN CLAY, SOME SILT, TRACE FINE SAND. MOIST.
34.0'	VERY STIFF, BROWN & GR Y CLAY, & SILT, SOME SAND - MOIST
40.0'	DENSE, GRAY SILT & SAND WITH CLAY LAYERS - WET.
44.0'	DENSE, BROWN SAND, TRACE FINE GRAVEL, & SILT - WET
45.5'	HARD, BROWN SILT, SOME CLAY & SAND, TRACE GRAVEL- MOIST.
51.5'	HARD. GRAY SIL: SOME CLAY & SAND, TRACE GRAVE . - MOIST.

(310)
S-2504.5 W 2135
793.4

19.0'	FILL-BROWN & GRAY CLAY, & SILT, SOME SAND, WITH ROCK FRAG. METAL & TOP SOIL, TRACE PLASTIC. MOIST.
20.0'	(POSSIBLE ORIGINAL) TOPSOIL
37.0'	STIFF, BROWN CLAY, SOME SILT & SAND, TRACE GRAVEL, MOIST. (BECOMES HARD AT 25.5')
42.0'	VERY DENSE, BROWN SAND & GRAVEL, SOME SILT WITH ROCK FRAG.- MOIST
45.5'	HARD, BROWN CLAY, SOME SILT, TRACE SAND, WITH ROCK LAYERS - MOIST.

(311)
S-2533 W-2164
791.0'

26.5'	FILL- BROWN & GRAY CLAY & SILT SOME SAND WITH ROCK. FRAG. METAL & TOP SOIL- MOIST 2" LAYER BLACKTOP AT 15' BECOMES WET AT 23.0'
38.5'	(ORIGINAL) VERY STIFF, BROWN CLAY, SOME SILT & SAND. TRACE GRAVEL - MOIST- HARD AT 34.0'
42.0'	VERY STIFF, GRAY SILT, SOME CLAY & SAND, TRACE GRAVEL - MOIST
43.0'	VERY DENSE. BROWN SAND & GRAVEL, SOME SILT- MOIST.
45.0'	HARD, BROWN CLAY- SOME SILT & SAND, TRACE GRAVEL- MOIST
54.5'	VERY DENSE. BROWN SAND & GRAVEL, SOME SILT- DAMP
57.0'	HARD, BROWN SILT, SOME CLAY & SAND, TRACE GRAVEL,- MOIST
59.5'	HARD, GRAY CLAY, SOME SILT & SAND, TRACE GRAVEL- MOIST.
60.0'	HARD, BROWN CLAY, SOME SILT & SAND, TRACE GRAVEL WITH ROCK FRAG.- MOIST.
65.5'	VERY DENSE, BROWN SAND & GRAVEL SOME SILT - WET. MEDIUM DENSE AT 64.0'

(312)
S-2542 W-2174
790.4'

22.0'	FILL- BROWN & GRAY CLAY, & SILT. SOME SAND WITH ROCK FRAG.- DAMP LARGE ROCK SLAB AT 5.0'
24.0'	(POSSIBLE ORIGINAL) TOP SOIL & WOOD
25.0'	HARD, BROWN SILT & SAND- MOIST
35.0'	HARD, BROWN CLAY, SOME SILT & SAND TRACE GRAVEL - MOIST (WITH ROCK FRAG.) 12" SAND & SILT SEAM AT 29.5' - WET
39.5'	HARD, GRAY CLAY, SOME SILT & SAND, TRACE GRAVEL, - MOIST
45.5'	HARD, BROWN CLAY, SOME SILT, TRACE SAND, WITH ROCK FRAG- MOIST

(313)
S-2489 W-2149
793.0'

2.0'	FILL- SAND - MOIST.
28.0'	FILL- BROWN & GRAY CLAY & SILT. SOME SAND WITH ROCK FRAG, TRACE TOPSOIL- MOIST
30.0'	(ORIGINAL) STIFF BROWN CLAY, SOME SILT, TRACE SAND- MOIST
33.0'	STIFF, DARK BROWN ORGANIC CLAY & SILT, TRACE SAND- MOIST.
39.5'	DENSE, BROWN SAND, SOME SILT, TRACE FINE GRAVEL - WET
44.5'	DENSE, BROWN SAND & GRAVEL, SOME SILT - MOIST.
49.5'	HARD- GRAY SILT, SOME CLAY & SAND TRACE GRAVEL- MOIST
55.5'	HARD. GRAY SILT, SOME CLAY & SAND TRACE GRAVEL WITH ROCK FRAG. MOIST

(314)
S-2499 W- 2167
790.9

18.5'	HARD. BROWN SILT & CLAY, SOME SAND, TRACE TOPSOIL & ROCK FRAG. TRACE GRAVEL- DAMP.- MEDIUM STIFF & MOIST AT 10' VERY STIFF 15'
30.5'	FILL- HARD, BROWN & GRAY CLAY, SOME SILT & SAND, TRACE ROCK FRAG, WOOD & GRAVEL, MOIST. SOME WOOD AT 25.0'
38.0'	(ORIGINAL) MEDIUM-DENSE, BROWN SAND & GRAVEL, SOME SILT, TRACE CLAY - WET - VERY DENSE AT 35.0'
51.5'	HARD, GRAY SILT, SOME CLAY & SAND, TRACE GRAVEL- MOIST

(315)
S-2513 W-2182
789.7'

28.0'	FILL- BROWN & GRAY CLAY, AND SILT, SOME SAND WITH ROCK FRAG. 6" TO 12" LAYER CINDERS AT 5.0' TRACE WOOD AT 15.0' - 6" TO 12" LAYER WOOD AT 19.0' WET AT 25.0'
34.0'	VERY STIFF (POSSIBLE ORIGINAL) BROWN CLAY, SOME SILT. TRACE SAND, - MOIST.
39.0'	HARD. GRAY SILT, SOME CLAY & SAND, TRACE GRAVEL, MOIST,
44.0'	HARD, GRAY CLAY, SOME SILT & SAND. TRACE GRAVEL WITH ROCK FRAG. MOIST
50.0'	VERY DENSE- BROWN SAND & GRAVEL, SOME SILT WITH ROCK FRAG. - DAMP

(316)
S-2522 W 2200
788.7'

19.5'	FILL- BROWN & GRAY CLAY, AND SILT, SOME SAND WITH TOPSOIL & ROCK, FRAG, MOIST, CONC. SLAB (6") AT 6'-0"
20.0'	(POSSIBLE ORIGINAL) TOPSOIL
24.0'	VERY STIFF, BROWN SILT, SOME SAND, TRACE CLAY - MOIST.
32.0'	HARD, BROWN CLAY, SOME SILT & SAND, TRACE GRAVEL- MOIST VERY STIFF AT 28.5'
40.0'	HARD BROWN CLAY, SOME SILT, TRACE WITH ROCK FRAG.- MOIST.

(317)
S-2871 W-3219
749.5'

2.0'	FILL- MEDIUM DENSE- BROWN SILTY FINE TO COARSE SAND WITH FINE GRAVEL - WET
3.0'	HARD - FINE SHALE WITH LIMESTONE FRAG.
5.0	GREY FOSSIL LIMESTONE WITH GRAY & BROWN SHALE WITH LIMESTONE FRAG. BENEATH.
8.0	LAYERED GRAY TOUGH SHALE WITH MEDIUM TOUGH SEAMS

(318)
S-2790 W-3206
754.4'

6.5'	FILL- BROWN SANDY SILTY CLAY WITH ROCK FRAG. MOIST- STIFF
30.0'	GRAY SANDY SILTY CLAY WITH FINE GRAVEL, ROCK FRAG. & COBBLES, MOIST VERY STIFF TO STIFF
35.0'	GRAY SANDY SILTY CLAY WITH FINE GRAVEL, ROCK FRAG. & COBBLES, & FINE TO COARSE SAND SEAMS- STIFF
50.0'	BROWN SILTY FINE TO COARSE SAND & GRAVEL WITH COBBLES & ROCK FRAG. WET- VERY DENSE TO DENSE
57.5'	GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & COBBLES, MOIST- STIFF.
60.5'	LAYERED GRAY SHALE & LIMESTONE

(319)
S-2704 W-3169
748.1

4.0'	FILL- BROWN SANDY SILTY CLAY WITH ROCK FRAG. HARD
17.5'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG HARD
35.0'	GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG MOIST HARD
41.5'	GRAY CLAYEY FINE TO COARSE SAND & GRAVEL WITH ROCK FRAG & COBBLES. WET, VERY DENSE

(320)
S-2867 W- 3147
774.8'

5.0'	BROWN SANDY SILTY CLAY WITH ROCK FRAG. HARD,
10.0'	BROWN & GRAY SHALE WITH LIMESTONE FRAG. MOIST- VERY STIFF
15.0'	GRAY SHALE & LIMESTONE FRAG, DRY - HARD
16.5'	BROWN & GRAY SHALE WITH LIMESTONE FRAG,
22.5'	LAYERED GRAY SHALE WITH MEDIUM TOUGH SEAMS & THIN (½" TO 1") LIMESTONE LAYERS
25.0'	LAYERED GRAY SHALE & GREY FOSSIL HIGH ANGLE JOINTED LIMESTONE APPROX 20 TO 25% IN ½" TO 1" LAYERS

(321)
S-2765 W-3169
759.5'

1.0'	TOPSOIL- MOIST- MED. DENSE
5.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL - HARD
10.0'	BROWN SILTY FINE TO COARSE SAND & GRAVEL. MOIST- DENSE.
15.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL, MOIST STIFF
30.0'	GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL, ROCK FRAG. & COBBLES MOIST - VERY STIFF.
32.0'	BROWN & GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL, ROCK FRAG. & COBBLES - VERY MOIST - MED. STIFF.
35.0'	LAYERED GRAY SHALE & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE - APPROX. 30 TO 35% LIMESTONE IN ½" TO 4½" LAYERS

(322)
S-2981 W 1909

2.0'	FILL-TOPSOIL SOME SAND & GRAVEL MOIST
2.5'	APPARENT ORIGINAL BROWN SILT SOME SAND, TRACE CLAY & GRAVEL MOIST
3.0'	APPARENT ROCK

(323)
S-2998 W-1942

5"	TOPSOIL
4.0'	VERY STIFF BROWN SILT & SAND TRACE GRAVEL- MOIST
5.0'	1 TO 6" ROCK SHELVES & 1 TO 3" CLAY SEAMS
15.0"	ROCK

(324)
S-3016 W-1976

8"	BLACKTOP & BASE
3.0'	HARD, BROWN SILT, SOME SAND & CLAY- MOIST
5.0'	3 TO 6" ROCK SHELVES & 1 TO 4" CLAY SEAMS
5.5	APPARENT ROCK

(325)
S-3256 W-4102

7.5'	BROWN & GRAY SILTY CLAY WITH LIMESTONE FRAG. & FLOATERS (FILL) MOIST- MED. STIFF
15.0'	BROWN & GRAY SILTY CLAY WITH LIMESTONE FRAG. & FLOATERS WET-SOFT
17.5'	BROWN SILTY CLAY WITH ORGANIC MOIST - MED. STIFF.
35.0'	BROWN SANDY CLAY WITH FINE GRAVEL & ROCK FRAG. MOIST VERY STIFF
40.0'	BROWN SANDY CLAY WITH FINE GRAVEL & ROCK FRAG. MOIST - MED STIFF
45.0'	BROWN SILTY FINE SAND WITH ROCK FRAG. MOIST - VERY DENSE
55.0'	BROWN SILTY FINE SAND - WET - DENSE
57.0'	CLAY, GRAVEL, LIMESTONE FRAG. & FLOATERS - WET - VERY DENSE
60.0'	BROWN & GRAY SILTY CLAY WITH ROCK FRAG. & LIMESTONE FLOATERS MOIST- STIFF
80.0'	GRAY SILTY CLAY WITH LIMESTONE FRAG. & FLOATERS- MOIST STIFF.
85.0'	LIMESTONE WITH CLAY & SHALE LAYERS
90.0'	GRAY LIMESTONE WITH SHALE LAYERS

(326)
S-2378 W-3945
736.3'

17.6'	FILL
19.7'	TOPSOIL, BROWN & GRAY CLAY SOME SILT
24.6'	BROWN SILT, SOME SAND, SOME CLAY, TRACE GRAVEL
44.5'	GRAY SILT, SOME SAND & CLAY, TRACE GRAVEL.
49.0'	GRAY CLAY & SAND, SOME GRAVEL.
58.2'	GRAY CLAY. SOME SILT, SOME SAND WITH ROCK FRAG.
60.0'	FINE SAND - SOME SILT.
68.8'	GRAY CLAY, SOME SILT, SOME SAND WITH ROCK FRAG.
73.5'	GRAY SAND & SILT.
91.0'	GRAY CLAY, TRACE SILT WITH ROCK FRAG.

(327)
W-2349 S-3935
736.8'

1.0'	TOPSOIL
2.0'	COMCRETE
10.3'	FILL
10.8'	TOPSOIL
20.5'	BROWN SILT, SOME SAND & CLAY TRACE GRAVEL
40.4'	GRAY SILT, SOME SAND & CLAY TRACE GRAVEL
50.5'	GRAY CLAY, SOME SILT & SAND WITH ROCK FRAG.

(328)
S-.673 W-3392
878.2

11.0'	BROWN SANDY SILTY CLAY WITH ROCK FRAG. (FILL) DRY- HARD
17.5'	BROWN & GRAY SHALE WITH LIMESTONE FRAG. DRY- HARD
20.0'	GRAY & BROWN SHALE WITH ROCK FRAG. DRY- HARD.
23.0'	LAYERED BROWN GRAY SHALE, & GRAY FOSSIL LIMESTONE. APPROX. 30 TO 35% LIMESTONE IN ½ TO 3" LAYERS, HIGH ANGLE JOINTING IN LIMESTONE NEAR SHALE.

(329)
S-2882 W-2086
885.3'

1.2'	TOPSOIL
6.3'	BROWN & GRAY CLAYEY SILT (FILL)
11.2'	SANDY SILT WITH SOME CLAY
13.5'	SILTY CLAY W/LIMESTONE FRAG.
39.0'	SHALE & LIMESTONE

(330)
S-2819 W-2177
884.9'

1.2	TOP SOIL
7.8	SANDY SILT (FILL)
15.0	SANDY SILT, SOME CLAY WITH LIMESTONE FRAG.
37.0	SHALE & LIMESTONE

(331)
S-1708 W- 2663

1.0'	FILL- SAND GRAVEL, TOPSOIL
1.5'	TOP SOIL (FILL)
3.5'	(FILL) HARD BROWN SILT, SOME SAND & ROCK FRAG. TRACE GRAVEL & CLAY MOIST
5.5'	(FILL) STIFF BROWN & GREY CLAY, SOME SILT & ROCK FRAG. TRACE SAND- MOIST
6.5'	(ORIGINAL) MED. STIFF BLACK ORGANIC CLAY, TRACE SILT-MOIST
13.0	VERY STIFF BROWN CLAY SOME SILT. TRACE OF SAND - MOIST. HARD AT 8.5' ROCK FRAG FROM 9.5'
14.5	BROWN & GRAY SHALE

(332)
S-1719 W-2642

1.0'	(FILL) SAND. GRAVEL. CLAY & SILT. TOPSOIL - DAMP
1.5'	(FILL) TOPSOIL
5.5'	(FILL) HARD BROWN CLAY, SOME SILT & SAND, TRACE GRAVEL & ROCK FRAG. - MOIST - VERY STIFF AT 3.5'
9.0'	(FILL) MED. STIFF GRAY CLAY & SILT, SOME SAND, TRACE GRAVEL & ROCK FRAG. - WET
11.0'	(FILL) MED. STIFF ORGANIC GRAY CLAY & SILT, SOME SAND TRACE GRAVEL - WET.
13.0'	(FILL) HARD BROWN & GRAY CLAY SOME SILT, SOME GRAVEL & SAND WITH ROCK FRAG. WET.
15.0'	(ORIGINAL) HARD BROWN & GRAY SILT SOME CLAY & SAND, TRACE GRAVEL - MOIST

(333)
S-1186 W- 3167
876.8

1.0'	TOPSOIL AND BROWN SILTY CLAY (FILL) MED. STIFF
5.0'	BROWN & GRAY WEATHERED SHALE & LIMESTONE FRAG. MOIST - VERY STIFF
8.0'	LAYERED BROWN & GRAY WEATHERED SHALE & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE - APPROX 30 TO 35% LIMESTONE IN ½ TO 2½" LAYERS

(334)
S-1178 W- 3290
875.1'

0.5'	BLACKTOP
2.0'	BROWN SILTY CLAY WITH ROCK FRAG. (FILL) MOIST - STIFF
3.5'	BROWN SILTY CLAY WITH LIMESTONE FRAG. MOIST - STIFF.
10.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. MOIST. VERY STIFF
15.0'	LAYERED BROWN WEATHERED SHALE & GRAY FOSSIL LIMESTONE IN ½ TO 3½" LAYERS. ENTIRE RECOVERY LIMESTONE

(335)
S-1142 W-3240
875.6'

0.5'	BLACKTOP
1.0'	CLAY & GRAVEL- (FILL) VERY MOIST MED. DENSE
10.0	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG MOIST- VERY STIFF
13.8	LAYERED BROWN & GRAY WEATHERED SHALE & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE. APPROX. 45 TO 50% LIMESTONE IN ½ TO 3 LAYERS.
15.8	LAYERED GRAY & BROWN WEATHERED SHALL & GRAY FOSSIL LIMESTONE WITH SOME HIGHANGLE JOINTING APPROX. 30 TO 35% LIMESTONE IN ½ TO 2½ LAYERS

(336)
S-1131 N- 3304
875.1'

6.0'	BROWN & GRAY SILTY CLAY WITH ROCK FRAG (FILL) MOIST - STIFF
15.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG MOIST VERY STIFF
	LAYERED BROWN & GRAY WEATHERED SHALE & GREY FOSSIL HIGH ANGLE JOINTED LIMESTONE APPROX. 30 TO 35% LIMESTONE IN ½ TO 2½" LAYERS
	LAYERED GRAY FOSSIL LIMESTONE & BROWN & GRAY WEATHERED SHALE APPROX. 55 TO 60% LIMESTONE IN ½ TO 4" LAYERS

(337)
S-1147 W- 3283
874.8'

1.0	BLACKTOP & GRAVEL
4.5'	BROWN & GRAY SILTY CLAY WITH ROCK FRAG. (FILL) MOIST- MED. STIFF
5.0'	BROWN SILTY CLAY WITH LIMESTONE FRAG. MOIST- STIFF
10.5'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. MOIST VERY STIFF

(338)
S-1234 W-3363

1.0'	TOPSOIL (FILL)
5.5'	BROWN SILTY CLAY WITH LIMESTONE FRAG. & FLOATERS - MOIST - STIFF

(339)
S-1230 W- 3097
878.0'

1.2'	TOPSOIL
1.5'	LIMESTONE & SHALE

(340)
S-2727 W-2256
873.7'

8.0'	(FILL) VERY STIFF BROWN CLAY & SILT SOME SAND. TRACE GRAVEL. MOIST
10.0'	(APPARENT ORIGINAL) WEATHERED SHALE & LIMESTONE FRAG.
13.0'	LIMESTONE WITH 1"-2" SHALE LAYERS

(341)
S-2665 W- 2310
876.9'

7.0'	FILL- VERY STIFF BROWN CLAY & SILT SOME SAND & GRAVEL- MOIST
10.5'	(APPARENT ORIGINAL) HARD GREEN SHALE & CLAY (WEATHERED SHALE
11.0'	LIMESTONE

(342)
S-2620 W-2325
867.0'

8.5'	BROWN GRAVELLY CLAY
15.0'	BLUE SHALE & FOSSIL LIME STONE

(343)
S-2600 W- 2232
869.2'

8.0'	FILL- BROWN CLAY & LIMESTONE FRAG.
10.0'	(ORIGINAL) GREEN, WEATHERED SHALE & LIMESTONE FRAG.
12.0'	LIMESTONE
16.0	SHALE
17.0	LIMESTONE

(344)
S-2844 W-1925
886.4'

2.5'	BROWN GRAVELLY CLAY
16.0'	BLUE SHALE & FOSSIL LIMESTONE

(345)
S-2635 W-1730
881.05'

0.4'	(FILL) SAND & GRAVEL
3.0	(ORIGINAL) BROWN SILT, SOME SAND. TRACE GRAVEL - MOIST
3.5	LIMESTONE
4.00	WEATHERED SHALE
8.00	LIMESTONE & WEATHERED SHALE LAYERS

(346)
S-2643 W- 1718
881.05

0.5	(FILL) SAND & GRAVEL BASE
2.0'	(ORIGINAL) BROWN CLAY & SILT, SOME SAND, TRACE GRAVEL- MOIST
5.5'	WEATHERED SHALE & LIMESTONE LAYERS

(347)
S-2413 W- 1896
862.7

3.0'	BROWN SILTY CLAY WITH ROCK FRAG.
3.3'	APPARENT ROCK
18.3'	INTERMITTANT LAYERS OF FOSSILIZED LIMESTONE & THIN CLAY SEAMS

(348)
S-2348 W- 1781
857.3'

13.5	HARD-GREEN- BROWN CLAY, WEATHERED SHALL & LIMESTONE LAYERS, MOIST. BECOMES WEATHERED AT 13.5'
15.5	LIMESTONE

(349)
S-2445 W-1605
870.5'

2.5'	(FILL) BROWN CLAY, LIMESTONE FRAG.
5.0'	(ORIGINAL) HARD BROWN CLAY, AND SILT SOME SAND. TRACE GRAVEL - MOIST
7.5'	LAYERS OF WEATHERED SHALE & LIMESTONE
7.5'	LIMESTONE

(350)
S-2283 W- 1525
850.5'

5.0	HARD BROWN CLAY & SILT, SOME SAND- TRACE GRAVEL - MOIST.
10.5	LAYERS OF WEATHERED GREEN SHALE & LIMESTONE
10.5	LIME STONE

(351)
S-2156 W- 2604
788.8'

13.0'	(FILL) VERY STIFF, BLUE-GRAY & GREEN CLAY (WEATHERED SHALE) & LIMESTONE FRAG. - MOIST. MED. STIFF AT 3.5' VERY STIFF AT 8.5'
29.0'	(APPARENT ORIGINAL) HARD GREEN CLAY (WEATHERED SHALE) TRACE GRAVEL- MOIST
30.0'	HARD BLUE-GRAY SHALE

Plate A8

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS 301 THRU 351

DRAWN D. DIXON	DATE 5-6-76	APPROVALS	
CHECKED G. A. B	DATE 7-13-76	1	
APPROVED W [illegible]	DATE 7-1-76	2	
JOB NO. 4517		3	
SCALE NONE		4	

DWG. CLASSIFICATION LEVEL UNCL GP — DATE 7/13/76 INIT [illegible]

CODE IDENT. NO. 14065

DWG. NO. FSE16472 SHT. 8 OF

ISS.	DATE	REVISION	BY	CHK'D	APPRD.
A	5-76	BORINGS 301 - 305	DD	GB.	REB

W. O. NO.

FSE16472-9

W.O. NO. P25993

352
S-2095 W-2689
825.8'

Depth	Description
0.8'	CONCRETE
33.5'	(FILL) MED. STIFF BROWNISH-GREEN & GRAY CLAY (WEATHERED SHALE) & LIMESTONE FRAG. MOIST. HARD AT 3.5' VERY STIFF AT 8.5' STIFF AT 13.5' MED STIFF AT 18.5' LIMESTONE FRAG. AT 23.5' HARD AT 28.5'
38.5'	(ORIGINAL) HARD GREEN CLAY. TRACE LIMESTONE FRAG. (W/ SHALE)
40.0'	GREEN SHALE & CLAY - SOME FOSSIL FRAG. - MOIST

353
S-1354 W-2798
878.5'

Depth	Description
0.5	CONCRETE
1.1'	(FILL) GRAVEL
5.7'	GRAY SHALE & LIMESTONE

354
S-1173 W-2731
875.0'

Depth	Description
0.1'	BLACKTOP
1.5'	(FILL) SAND & GRAVEL BASE
2.5'	(ORIGINAL) LIMESTONE

355
S-982 W-2769
875.4'

Depth	Description
	(FILL) HARD BROWN CLAY SOME SILT & SAND, TRACE GRAVEL - MOIST
	(ORIGINAL) HARD GREEN, BROWN CLAY (WEATHERED SHALE) LIMESTONE (MOIST
	LAYERS OF LIMESTONE & WEATHERED SHALE

356
S-3380 W-2472
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Depth	Description
1.0'	TOPSOIL - DRY - MED DENSE
2.0'	BROWN SILTY CLAY - DRY - HARD
5.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. DRY - HARD
7.0'	LAYERED GRAY MED. TOUGH SHALE & GREY FOSSIL LIMESTONE, APPROX. 30 TO 35% LIMESTONE IN ½ TO 1½" LAYERS, SOME HIGH ANGLE JOINTING IN LIMESTONE

357
S-3330 W-2560
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Depth	Description
1.0'	TOPSOIL - DRY - MED. DENSE
2.5'	BROWN & GRAY CLAY WITH LIMESTONE FRAG, DRY - HARD
5.2'	BROWN & GREY WEATHERED SHALE WITH LIMESTONE FRAG, DRY HARD

358
S-3254 W-2510
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Depth	Description
1.0'	TOPSOIL - MOIST LOOSE
2.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. DRY - HARD
10.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. DRY - HARD
12.0'	LAYERED GRAY MED. TOUGH SHALE & GR Y FOSSIL HIGH ANGLE JOINTED LIMESTONE. 30 TO 35° LIMESTONE IN ½ TO 4" LAYERS.
17.0'	LAYERED GRAY FOSSIL SHALE WITH MED TOUGH SEAMS, & GR Y FOSSIL SLIGHTLY HIGH ANGLE JOINTED LIMESTONE APPROX. 20 TO 25% LIMESTONE IN ½ TO 2" LAYERS

359
S-3295 W-2412
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Depth	Description
1.0'	TOP SOIL & BROWN SANDY SILTY CLAY - MOIST - VERY STIFF
2.0'	BROWN SANDY SILTY CLAY WITH FINE GRAVEL - MOIST - VERY STIFF
5.5	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. DRY - HARD

360
S-2075 W-2312
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Depth	Description
12.5'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST - STIFF
25.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG., WOOD & CINDERS (FILL) WET - SOFT
35.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. VERY MOIST - MED. STIFF.
45.0'	BROWN CLAYEY FINE TO COARSE SAND & GRAVEL WITH ROCK FRAG. & COBBLES MOIST. VERY DENSE TO DENSE
55.0'	BROWN SILTY FINE TO COARSE SAND & GRAVEL WITH ROCK FRAG. & COBBLES MOIST - VERY STIFF.
60.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL - MOIST - STIFF.
65.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & FINE TO COARSE SAND LAYERS, VERY MOIST - MED STIFF.
66.0'	GRAY SHALE & LIMESTONE FRAG. DRY - HARD
70.0'	LAYERED GRAY TOUGH SHALE WITH MED. TOUGH SEAMS & GR Y FOSSIL HIGH ANGLE JOINTED LIMESTONE APPROX. 15 TO 20% LIMESTONE IN ½ TO 2" LAYERS
75.0'	LAYERED GRAY TOUGH SHALE WITH MED. TOUGH SEAMS & GREY FOSSIL HIGH ANGLE JOINTED LIMESTONE APPROX 10 TO 15% LIMESTONE IN ½ TO 2" LAYERS

361
S-2036 W-2340
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Depth	Description
1.5'	TOPSOIL & BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST - STIFF
19.0'	BROWN & GRAY SILTY CLAY WITH ROCK FRAG. & SHALE (FILL) MOIST - STIFF.
25.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) WET - SOFT.
28.5'	BROWN & GRAY CLAY WITH ORGANIC TRACES (FILL) MOIST - STIFF
35.0'	BROWN CLAYEY SILT - MOIST - MED DENSE
44.0'	BROWN CLAYEY FINE TO COARSE SAND & GRAVEL. WET - MED DENSE TO DENSE
50.0'	BROWN SANDY SILT - WET - DENSE
65.0'	GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. VERY MOIST - VERY STIFF.
100.0'	BROWN & GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. MOIST - HARD
100.5'	GRAY SHALE WITH LIMESTONE FRAG. DRY - HARD

362
S-1985 W-2374
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Depth	Description
5.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) DRY TO MOIST - HARD TO VERY STIFF
12.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST - STIFF
15.0'	BROWN & GRAY SILTY CLAY WITH ROCK FRAG. & ORGANIC TRACES - (FILL) MOIST - STIFF
25.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. MOIST - VERY STIFF
30.0'	LAYERED BROWN & GRAY WEATHERED SHALE & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE - 5 TO 10% LIMESTONE IN ½ TO 1½" LAYERS
32.0'	LAYERED GRAY & BROWN WEATHERED SHALE & GRAY FOSSIL LIMESTONE APPROX. 10 TO 15% LIMESTONE IN ½" TO 2½" LAYERS SOME HIGH ANGLE JOINTING IN LIMESTONE.
37.0'	LAYERED GRAY TOUGH SHALE WITH MED. TOUGH SEAMS & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE APPROX. 25 TO 35% LIMESTONE IN ½ TO 3½" LAYERS

LOST WATER AT 27.0'

363
S-2020 W-2230
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Depth	Description
10.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. MOIST STIFF TO MED STIFF.
17.5'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) WET - SOFT TO MED. STIFF
30.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK. FRAG. (FILL) VERY MOIST - STIFF
35.0'	BROWN CLAYEY FINE TO COARSE SAND & GRAVEL - WET - MED. DENSE
40.0'	BROWN SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. VERY MOIST - STIFF
55.0'	GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. MOIST VERY STIFF
105.0'	BROWN & GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. MOIST TO VERY MOIST - VERY STIFF TO STIFF
106.0'	GRAY SHALE WITH LIMESTONE FRAG. DRY - HARD
111.0'	LAYERED GREY FOSSIL WITH IRREGULAR AND DISCONTINUOUS LIMESTONE LENSES

364
S-1980 W-2258
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Depth	Description
28.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST - STIFF
39.0'	BROWN & GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & ROCK FRAG. MOIST - STIFF TO VERY STIFF
46.0'	GRAY & BROWN WEATHERED SHALE WITH LIMESTONE FRAG. MOIST. VERY STIFF TO STIFF
48.0	LAYERED GRAY MED. TOUGH SHALE & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE, APPROX. 15 TO 20% LIMESTONE IN ½ TO 2" LAYERS
53.0'	LAYERED GRAY MED. TOUGH SHALE & GRAY FOSSIL SHALE & GRAY FOSSIL LIMESTONE, APPROX. 10% LIMESTONE IN ½ TO 1½" LAYERS. SOME HIGH ANGLE JOINTING IN LIMESTONE

365
S-1930 W-2291
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Depth	Description
10.0'	BROWN & GRAY SILTY CLAY & BROKEN SHALE & LIMESTONE FRAG - (FILL) MOIST - STIFF.
16.0'	BROWN & GRAY WEATHERED SHALE & LIMESTONE FRAG. MOIST - HARD
19.0'	GRAY WEATHERED SHALE & LIMESTONE FRAG. DRY - HARD REFUSAL

366
S-1966 W-2145
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Depth	Description
29.0'	BROWN & GRAY SANDY CLAY WITH BROKEN SHALE & LIMESTONE (FILL) MOIST - STIFF
35.0'	BROWN SANDY CLAY WITH FINE TO COARSE GRAVEL & LIMESTONE FRAG. MOIST - VERY STIFF
55.0'	GRAY SANDY CLAY WITH FINE TO COARSE GRAVEL & LIMESTONE FRAG. MOIST - VERY STIFF
70.0'	BROWN & GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & LIMESTONE FRAG. MOIST TO VERY MOIST - HARD TO VERY STIFF
75.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. MOIST - STIFF
85.0'	LAYERED BROWN & GRAY WEATHERED SHALE & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE IN ½ TO 3½" LAYERS - ENTIRE RECOVERY LIMESTONE
98.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. MOIST - STIFF TO VERY STIFF
103.0'	LAYERED GRAY FOSSIL WITH MED. TOUGH SEAMS & GRAY FOSSIL LIMESTONE APPROX. 15 020% LIMESTONE IN ½ TO 3½" LAYERS. HIGH ANGLE JOINTING EVIDENCES

367
S-1925 W-2173

Depth	Description
0.5'	CONCRETE
20.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST - STIFF
25.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST STIFF
28.0'	BROWN & GRAY SANDY SILTY CLAY WITH FINE TO COARSE GRAVEL & LIMESTONE FRAG. MOIST - STIFF
30.5	GRAY SHALE WITH LIMESTONE FRAG. DRY - HARD - REFUSAL

368
S-1874 W-2208
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Depth	Description
7.5'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) DRY - HARD
10.0'	BROWN & GRAY SILTY CLAY WITH SHALE & ROCK FRAG. (FILL) MOIST - STIFF
16.0'	BROWN & GRAY WEATHERED SHALE WITH LIMESTONE FRAG. MOIST TO DRY - VERY STIFF TO HARD
19.0'	GRAY SHALE WITH LIMESTONE FRAG. DRY - HARD
21.0'	LAYERED GRAY MED. TOUGH WITH SOFT SEAMS & GRAY FOSSIL HIGH ANGLE JOINTED LIMESTONE APPROX 25 TO 30% LIMESTONE IN ½ TO 1½" LAYERS
26.0'	LAYERED GRAY MED. TOUGH SHALE, GRAY FOSSIL SHALE & GRAY FOSSIL LIMESTONE APPROX. 10 TO 15% LIMESTONE IN ½ TO 1½" LAYERS SOME HIGH ANGLE JOINTING EVIDENCED IN LIMESTONE

369
S-1369.31 W-3678.78
842.4

Depth	Description
7.0'	BROWN CLAYEY SILT WITH SMALL TO LARGE GRAVEL - TRACE SAND SEAMS & LIMESTONE - STIFF
15.0'	LIMESTONE ROCK (FRACTURED)
16.0'	BROWN - GRAY WEATHERED CLAYEY SHALE, MED HARD TO MED SOFT
27'	GRAY WEATHERED SHALE RELATIVELY SOFT

370
S-1611.83 W-3459.08
873.5

Depth	Description
0.5'	TOP SOIL
1.2'	BROWN CLAYEY SILT / ROOTS, PLANT FRAG. SMALL TO MED. GRAVEL, SOFT, LOOSE
3.0'	GRADING TO SI CL BROWN / SM TO MED GR
6.0'	CLAY - SOFT GREEN TO GRN - BLACK (ORG) CLAY - ABUNDANT SM TO LG GRAVEL. ROCK. FRAG. V SOFT, WET.
8.0'	BROWN SILTY CLAY MATRIX / > 50% LG. LIMESTONE BOULDER FRAG. V. LOOSE DRY, VERY STIFF
12.0'	BROWN CLAYEY SILT WITH ~30-40% SHALE & ROCK FRAG (WEATHERED) VERY STIFF, DRY
15.0'	MTL BROWN & GRAY SILTY CLAY (WEATHERED (ORGANIZED ZONES) / ~15% F-C ROCK FRAG. DRY VERY STIFF
19.0'	WEATHERED SHALE - V CLAYEY W/ FREQUENT LS FRAGS, GRAY CLAYEY SHALE (TOP BEDROCK)

371
S-1780.67 W-3518.16
EL-841.6

Depth	Description
0.3'	TOP SOIL
3.0'	BROWN CLAYEY SILT W/ > 50% LOOSE LS ROCK FRAG, V-DRY (FILL)
9.0'	OLV BROWN + LT BRN SILTY CLAY W/ F-C GVL TO LG LS ROCK FRAG, M-STIFF TO STIFF. WATER AT 8'. MTL BLU GRAY + BROWN SLIGHTLY SILTY CLAY W/ ~10-15% F-M GVL. MOIST. M-STIFF.
17.0'	OLV GRN-BRN + LT BRN CLAY, V-STIFF. CLAY AS ABOVE W/ ~30% WEATHERED SHALE FRAG, V-STIFF. OLV BRN CLAY W/ SOME DECOMP SHALE FRAG ~10% BROKEN LS FRAG GRADES V-STIFF HARD CLAY SHALE. GRAY CLAYEY SHALE BEDROCK M-HARD.

372
S-2074.19 W-3660.67
EL-785.0

Depth	Description
3.0'	BRN LOOSE CLAYEY SILT, TRACE TO SOME SM-LG GVL, LOOSE, DRY. GRADING W/ SOME M-SAND, BRN + GRAY MTL SILTY CLAY, SOFT TO M-SOFT.
10.0'	BRN F-C SAND W/ SOME LG GVL, TRACE SILT, LOOSE, DRY. BRN SILTY CLAY W/ SOME SM-LG GVL, LOOSE, MOIST, SOFT.
13.0'	GRN-GRAY SLIGHTLY SILTY CLAY W/ < 10% WELL GRADED GVL, V-SOFT, WET. WATER AT 12'. BRN V-CLAYEY M-SAND W/ S-M GVL, ORG MTL IN UPR RINGS.
28.0'	GRN TO BRN CLAY. V-SOFT. WET. GRADES W/ INC LG ROCK FRAG - TO 50%. BRN CLAY (TRACE SILT) W/ LT GRAY WEATHERED SHALE STREAKS, GVL, F-M ~20%, V-STIFF, DRY. BRN SILTY CLAY W/ > 50% LS ROCK FRAG, TO ~15% F-M GVL, TO BRN SI CL, V-STIFF, DRY.
31.5'	DK GRN-GRAY CLAY, V-STIFF (WEATHERED SHALE). GRAY SHALE (CLAYEY). COMPETENT SHALE.

373
S-2355.57 W-2894.35
EL-775.9

Depth	Description
2.0'	BRN CLAYEY SILT W/ TRACE GVL, SOFT TO M-STIFF, MOIST, (FILL). GRADES W/ SHALE FRAG.
4.5'	MOTTLED LT + DK BRN SILTY CLAY W/ WEATHERED SHALE FRAG, SOFT TO M-STIFF. GRN-BRN SILTY CLAY, FILL
8.0'	TOP SOIL (OLD FILLED OVER) DK BRN, V-ORG W/ PLANT FRAG, SOFT, MOIST. DK SOFT CLAY, MOIST
12.0'	RED-BRN SILTY CLAY W/ DECOMP SHALE FRAG, FILL. BRN SILT W/ SOME LS FRAG, STREAKS F-GRAY SAND, M-SOFT, V-MOIST, PLANT FRAG.
16.0'	BRN SILT W/ STREAKS F-M GVL FILL, TRACES OXIDIZED SILT, STIFF, MOIST. GRADES W/ LG LIMESTONE FRAG, STIFF.
21.0'	GRAY SILTY CLAY W/ SOME DISSEMINATED GRN SHALE FRAG + F-M GVL, STIFF TO V-STIFF. GRAY FILL W/ GRN SHALE FRAG AS ABOVE, LG ROCK FRAG, TRACE TO SOME F-GVL, STIFF.
23.0'	SHALE, DK GRN-GRAY, WEATHERED.

374
S-2151.09 W-3071.15
EL-818.9

Depth	Description
9.0'	FILL, BRN-GRN SILTY CLAY W/ SM-LG GVL, DRY, LOOSE. GRN CLAY W/ GVL. BRN-GRAY MTL SI CL W/ F-M GVL TO 30% MOIST, SOFT. WATER AT 5'. GRN-BRN MTL CLAY W/ TRACE SILT, LG ROCK FRAG, SOFT, MOIST.
12.5'	MTL + LAYERED GRN-BRN SI CL W/ LG GVL, STIFF, MOIST.
15.5'	WEATHERED SHALE BEDROCK - GRN-BRN, M-STIFF (DISTURBED), MOIST. WEATHERED CLAY SHALE
20.0'	LAYERED BRN + GRN-GRAY SI CL W/ LG ROCK FRAG, V-STIFF, DRY TO SEMI-MOIST. BRN SILTY CLAY (FILL) TRACE TO SOME F-M GVL, V-STIFF. GRAY WEATHERED SHALE BEDROCK, M-HARD.

375
S-2289.08 W-3051.90
EL-801.6

Depth	Description
0.5'	ASPHALT PAVEMENT
4.0'	LG LIMESTONE FRAG + SOME C GVL LG LS FRAG + BRN SILTY CLAY MATRIX TO ~50% M-STIFF, DRY (FILL) GRADES TO MTL GRN-GRAY SI CL W/ ~40% LS ROCK FRAG
10.0'	BRN SILT V-LOOSE, DRY. GRADES TO SILTY CLAY, BRN-DK BRN LAYERED W/ SOME F-C GVL, V-SOFT, MOIST. BRN SILTY CLAY W/ V-LG LS ROCK FRAG, > 50% WEATHERED SHALE FRAG, V-SOFT, LOOSE, IN RINGS, MOIST, WATER AT 9'.
21.0'	BRN-GRN SOFT SILTY CLAY W/ ~45% SM-LG ROCK FRAG. DK BRN SILTY CLAY, SOFT, MOIST. DK BRN SI CL, SOFT. MTL LT BRN + GRAY CLAY, TRACE DECOMP SHALE FRAG, V-STIFF, MOIST, TRACE PLANT ROOT. BRN + GRAY CLAY LAYERED, V-STIFF, MOIST. BRN + GRAY SI CL W/ ~15% WEA-SHALE FRAG, TRACE OXIDIZED, STIFF TO V-STIFF
24.0'	BRN-GRAY CLAY, TRACE SHALE FRAG, V-STIFF, HARD. TOP WEA-SHALE, DK GRAY, CLAYEY.

376
S-2308.08 W-3498.86
EL-746.1

Depth	Description
7.0'	MTL OLV-BRN SILTY CLAY W/ DECOMP SHALE FRAG, M-STIFF, TRACE GVL, M-MOIST. SILTY CLAY W/ ABUND DECOMP WEA-SHALE FRAG, M-STIFF, DRY TO SL-MOIST. OLV-BRN SILT.
12.0'	SILTY CLAY W/ DECOMP ROCK FRAG, V-STIFF, M-MOIST. OLV-BRN W/ LT BRN F-SAND LAYERED, > 30% ROCK FRAG, MOIST.
20.0'	OLV-GRAY CLAYEY SILT W/ WEA-SHALE + LS FRAG, V-STIFF, SL-MOIST. WATER AT 14'. WEA-SHALE + CLAYEY SHALE W/ SOME LIMESTONE FRAG. GRN-GRAY WEA-SHALE (BEDROCK)

377
S-2196.39 W-3726.49
EL-745.6

Depth	Description
2.5'	TOPSOIL, SOME PLANT ROOT, LT BRN SILT, TRACE M-GVL, LOOSE, DRY, M-STIFF.
16.0'	BRN SILTY CLAY W/ SOME F-GVL, TRACE ROCK FRAG, M-STIFF, DRY, GRADING TO BRN WEA-CLAY TO 15% GVL > TO 20%, WELL GRADED, STIFF, MOIST. TO TRACE F-SAND, GVL ~25%. TO ROCK FRAG ~25%, V-STIFF, SOME LG ROCK FRAG.
20.0'	GRAY F-M SAND, SILTY. GRAY FILL M-STIFF W/ SOME F-M SAND. M-SAND, CLAYEY, LOOSE, WET.
24.0'	GRAY CLAY, SILTY, TRACE F-M GVL, M-STIFF. M-C SAND + GVL, WELL GRADED W/ CLAY. GRAY CLAY, M-STIFF W/ LENSES F-M SAND, F-C GVL TO 10%.
30.0'	BRN-GRAY FILL W/ TRACE DECOMP SHALE FRAG, V-STIFF. BLU-GRN WEA-SHALE, V-HARD W/ SOME WEA-LIMESTONE FRAG.

378
S-2334.17 W-4464.83
EL-723.2

Depth	Description
17.5'	GVL + BKN ROCK COVER. GRAY SILT TO SILTY CLAY W/ TRACE F-GVL (FILL). GRN-GRN/GRA SL-SILTY CLAY W/ ~35% ROCK FRAG. GRN CLAYEY SILT W/ 15% F-M GVL, LOOSE, DRY. GRN CLAY, SOFT, MOIST.
34.0'	DK BRN CLAYEY SILT (TOPSOIL), TRACE F-GVL, SOFT. MTL BRN + GRA CLAY. WATER AT 19'. RED/BRN CLAYEY F-SAND W/ LG GVL. GRA SILTY CLAY W/ ~25% F-C GVL, STIFF. RED/BRN OXIDIZED LAYER.
43.0'	BRN SILTY CLAY. M-STIFF. BRN SAND, V-CLAYEY W/ ~50% F-M GVL, DENSE, SOME LAYERED M-SAND, ABUND ROCK FRAG, V-DENSE, DRY.
50.0'	GVL-CLAY MIX, SANDY, DENSE, WET.
63.0'	GRN F-M SAND, CLEAN. DENSE. TO F-C SAND, CLAYEY TO ~10%, TRACE SILT, SOME M-GVL + ROCK FRAG. GRADING W/ INC FS + LG ROCK FRAG.
70.0'	GVL-SAND-CLAY MIX, BRN, V-CLAYEY, F-C SAND W/ ~35% GRADED GVL + ROCK FRAG, M-DENSE. BRN SAND W/ SOME SILT, WELL GRADED, CLEAN.
75.0'	DK GRAY WEA-SHALE (BED ROCK)

379
S-2397.50 W-3291.25
EL-752.8

Depth	Description
0.5'	BRN CLAYEY SILT W/ ROCK FRAG.
13.0'	GRAY SHALE BEDROCK W/ LIMESTONE LAYERS. GRA-GRN SHALE BEDROCK. WATER AT 5½'. GRAY SHALE W/ LS FRAG. WATER AT 10'. GRAY SHALE, WEA-LIMESTONE.

380
S-2507.48 W-3530.33
EL-741.1

Depth	Description
4.8'	GVL + FILL. DK BRN V-SILTY CLAY W/ SOME F-M GVL, MOIST, SOFT. WELL GRADED SILTY SAND, LOOSE, MOIST.
9.3'	BRN CLAYEY SILT W/ F-M GVL TO ~30%. TRACE GRN-GRA CLAY, SOFT TO M-STIFF, MOIST. MTL BRN SILTY CLAY + GRN CLAY (SHALE) W/ ~25% F-M GVL (FILL).
18.0'	DK BRN SILTY CLAY, ORGANIC W/ TRACE TO SOME F-GVL, SOFT, MOIST, PLANT FRAG. LT GOL-BRN CLAYEY SILT W/ ~15% F-M GVL, M-STIFF. WATER AT 14'. BRN SILTY CLAY W/ SL-TRACE F-GVL, M-STIFF. BRN WEA-FILL, GRADING MORE DENSE.
27.0'	GRA-BLU SILTY CLAY W/ ~25% F-C GVL, LAYERED OCC (SP) SAND, STIFF. GRAY FILL, STIFF. GRAY SILTY CLAY W/ ~30% F-C GVL.
33.0'	BRN F-M SAND, SL-TRACE CLAY. M-V DENSE, CLEAN. BRN/GRA CLAY LENS W/ F-GVL + SOME SAND. SAND AS ABOVE, POORLY GRADED.
39.0'	GRAY SILTY CLAY, STIFF W/ ~20% F-C GVL + F-SAND (SP) LAYERED. POORLY GRADED F-M SAND, M-DENSE. TRACE SHALE. GRAY CLAYEY SAND, V-DENSE, TIGHT.
45.0'	GRAY CLAY, STIFF. WELL GRADED V-CLAYEY SAND W/ ~20% LG GVL. GRAY FILL, SILTY CLAY W/ > 50% GVL + POORLY SORTED SAND, STIFF TO V-STIFF.

381
S-2664.52 W-3596.33
EL-746.5

Depth	Description
8.0'	GVL FILL UPR 6". DK BRN CLAYEY SILT (TOPSOIL). FILL W/ SOME LG LS SHALE FRAG. DK BRN SILTY CLAY W/ TRACE F-GVL, M-STIFF. BRN SILTY CLAY W/ ~20% F-C GVL, DISSEM LT GRA V-F SAND LENS, STIFF, MOIST.
14.0'	BRN WEA-FILL
34.0'	GRAY CLAYEY SILT W/ ~15% F-VC GVL, HARD, STIFF (FILL). WATER AT 24'. GRADING SOFTER, MORE CLAYEY, GVL DEC TO < 10%. MUD AT 33'.
43.0'	GRAY SILTY CLAY W/ ~15% F-C GVL, M-STIFF, WET. VC GVL, SILTY, POORLY SORTED
60.0'	GRAY SILTY CLAY, V-HARD + STIFF, GVL TO ~20% WELL GRADED (FILL). OLV-GRA SILTY CLAY, V-HARD + STIFF W/ F-VC GVL, MOIST. MTL OLV GRN SILTY CLAY + BLU GRA CLAY AS ABOVE, GVL INC TO 40%.
73.0'	OLV GRA SILTY CLAY W/ LAYERED BLU GRA CLAY, F-C GVL TO ~45%. OLV GRA CLAY FILL AS ABOVE EXT-STIFF.

382
S-2813.90 W-3633.38
EL-758.5

Depth	Description
3.0'	DK BRN SILTY CLAY (TOPSOIL). GRADING
10.0'	SL-LIGHTER. LT GOL-BRN CLAYEY SILT, MTL LAYERED LT GRA CLAY + BRN SILT, SOFT TO M-STIFF. WATER AT 9½'.
13.0'	WELL GRADED SILTY SAND, LT BRN W/ TRACE TO SOME F-GVL, LOOSE, WET.
15.0'	LT BRN V-F SAND W/ SILT, STIFF, WET. MTL LT GRA CLAY + BRN SILT. LT BRN SILT, STIFF, WET. LT BRN SILTY CLAY W/ ~20% F-M GVL (WEA-FILL).
19.3'	TOP GRAY FILL.
37.0'	GRAY SILTY CLAY W/ TRACE TO SOME F-M GVL, V-STIFF.
38.5'	GRA SHALE, HARD, BEDROCK.

383
S-2799.12 W-4612.97
EL-708.6

Depth	Description
2.0'	BRN CLAYEY SILT W/ ~20% F-C GVL + ROCK FRAG, V-STIFF, MOIST TO DRY, INC CLAYEY.
7.0'	GRADES V-DK BRN. ORGANIC. TRACE F-C GVL. TO LT BRN W/ POCKETS GRA CLAY-TRASH. MUD AT 6'. LOST WATER AT ~7'.
12.0'	BLK V-ORGANIC MATL W/ ABUN TRASH (GLASS, BRICK, PAPER, WIRE, ETC). BRN SILTY CLAY W/ SOME SM TRASH FRAG. GRN CLAY, ORG TO 10%, TRACE SM GVL. BRN WEA-FILL W/ F-C GVL TO 20%.
20.0'	TRASH/FILL ML/CL, TRASH DEC TO TRACE. BRN SILTY CLAY W/ ~30% F-VC GVL + LIMESTONE FRAG. BRN SAND WELL GRADED.
28.0'	CLAYEY SILT W/ ~50% LG GVL + LIMESTONE FRAG. BRN V-SILTY GVL W/ CLAY > 50% LG LS FRAG.
36.0'	BRN F-C V-CLAYEY SAND W/ SOME GVL. BRN SILTY GVL W/ SOME CLAY, WELL GRD GVL, DENSE. BRN. WELL GRADED SAND, SILTY W/ ~40% F-C GVL. CLAY AS ABOVE, INC TO ~15% VC-GVL, DENSE. V-SILTY SAND WELL GRADED W/ ~40% F-C GVL, SAND TO ~30%, CLAY ~20%.
38.5'	WELL GRD GVL W/ F-C SAND + SOME CLAY, M-DENSE. GRA WEA-SHALE, CLAYEY, BEDROCK.

384
SEE LOC PLAN
EL-100.5

Depth	Description
0.8'	(FILL) TOPSOIL
5.5'	(ORIG) BRN SILT, SOME CLAY, SOME SAND, TRACE GVL, DAMP, HARD.
7.0'	GRA + BRN SILT, SOME SAND, SOME CLAY, TRACE GVL, MOIST, HARD.
29.5'	GRA SILT, AS ABOVE, DAMP, HARDNESS INC FROM 10½'. LIMESTONE FRAG, SOME SILT, TRACE GVL, SAND, WET, HARD.

385
S-1965. W-3843.
EL-789.6

Depth	Description
7.0'	LT BRN SILTY, GVLY, SAND - FILL.
19.0'	MTL GRN/GRA, BRN + YEL/GRA CLAY W/ GVL - TILL.
19.5'	GRAY SHALE.

386
S-1989. W-3851.
EL-787.2

Depth	Description
1.5'	SANDY SILT W/ ROOTS.
22.0'	GRN/GRA CLAY W/ GVL - TILL.
22.5'	GRAY SHALE.

387
S-1979. W-3876.
EL-788.

Depth	Description
0.5'	SILTY SAND W/ ROOTS.
22.0'	MTL GRN/GRA + BRN CLAY - TILL.
23.0'	GRAY SHALE.

388
S-1537. W-2378.
EL-870.7

Depth	Description
1.5'	(FILL) TOPSOIL.
4.0'	BRN CLAY, SOME SILT, SOME SAND, TRACE GVL + ROOTS, V-STIFF, MOIST (FILL).
5.0'	(ORIG) BRN SILT, SOME CLAY, TRACE COBBLES, HARD, DAMP.
17.0'	LIMESTONE, GRAY, CRYS, FOS W/ LG CLAY + SHALE, GRAY, LENS, SOFT SEAMS.

389
S-1584. W-2351.
EL-864.3

Depth	Description
1.0'	(FILL) TOPSOIL
4.0'	BRN CLAY, SOME + SILT, TRACE GVL + ROOTS, STIFF, MOIST (FILL)
9.0'	(ORIG) BRN SILT, SOME CLAY + SAND, TRACE GVL + ROCK FRAG, HARD, DAMP. (APPARENT ROCK)

390
S-2692. W-3350.
EL-746.3

Depth	Description
1.0'	CRUSHED GVL
4.0'	BRN SILT, SOME CLAY + SAND, TRACE GVL, V-STIFF, DAMP.
15.5'	GRAY SILT, SOME CLAY + SAND, TRACE GVL, V-STIFF, DAMP, TO MOIST AT 8½'.

391
S-2547. W-3356.
EL-744.4

Depth	Description
1.0'	TOPSOIL
3.5'	BRN SILT, SOME CLAY + SAND, TRACE GVL, HARD, DAMP.
15.0'	GRAY SILT AS ABOVE, MOIST, V-STIFF.

392
S-1742 W-3148.
EL-878.0

Depth	Description
0.5'	(FILL) CONCRETE.
1.5'	BRN SILT, SOME CLAY + SAND + GVL, MOIST.
4.5'	GRAY SILT, SOME CLAY + SAND, TRACE GVL, HARD, MOIST, WATER AT 3'.
7.0'	BRN SILT + CLAY, SOME SAND, TRACE ROCK FRAG, V-STIFF, MOIST.
27.5'	BRN + GRAY SILT + CLAY, SOME SAND, TRACE GVL, V-STIFF, TO HARD AT 9½', TO V-STIFF AT 19'. (ORIG)
34.5'	GRAY WEA-SHALE.

393
S-1758. W-3138.
EL-877.6

Depth	Description
0.3'	(FILL) CONCRETE.
1.0'	BRN SAND + SILT, SOME CLAY, TRACE GVL.
6.5'	BRN SAND + GVL, SOME SILT, TRACE CLAY + ROCK FRAG, M-DENSE, MOIST.
9.5'	BRN SILT + CLAY, SOME SAND, TRACE GVL + ROCK FRAG, SOFT, WET.
27.0'	GRAY + BRN SILT + CLAY, SOME ROCK FRAG + SAND, HARD, MOIST (ORIG) TO V-STIFF AT 14½' - TO HARD AT 16½' - TO V-STIFF AT 24'.

394
S-1758 W-3117
EL-877.7

Depth	Description
0.2'	(FILL) CONCRETE.
1.0'	BRN SILT + CLAY, SOME SAND, TRACE GVL, MOIST.
3.5'	BRN + GRA AS ABOVE, SOME ROCK FRAG, V-STIFF.
9.0'	BRN SILT, SOME CLAY AS ABOVE, TO M-STIFF + WET AT 6'.
26.0'	(ORIG) GRA + BRN SILT, SOME CLAY + SAND + GVL, HARD, MOIST, TO V-STIFF AT 18'.
32.5'	GRAY WEA-SHALE + LIMESTONE FRAG.

395
S-1757. W-3170.
EL-877.1

Depth	Description
0.3'	(FILL) CONCRETE.
3.5'	BRN + GRA SILT, SOME CLAY + SAND TRACE ROCK FRAG.
9.5'	BRN SILT + CLAY, SOME SAND + ROCK FRAG, HARD, MOIST, TO V-STIFF AT 6½'.
13.5'	(ORIG) GRAY SILT + CLAY, SOME SAND, TRACE GVL, HARD, MOIST.
26.5'	GRA + BRN SILT. SOME CLAY + SHALE + GVL HARD. MOIST - TO V-STIFF AT 18.5' - TO HARD AT 23.5'.
30.5'	GRAY WEA-SHALE + LIMESTONE FRAG

396
S-3706.41 W-2959.92
EL-897.0

Depth	Description
0.3'	TOPSOIL.
3.5'	BRN CLAY, SOME SILT + SAND, TRACE ROCK FRAG, HARD, MOIST.
19.5'	BRN CLAY SHALE - 1 TO 6" LIMESTONE LAYER (RICHMOND FORMATION BEDROCK) M-DK GRAY LIMESTONE W/ DK WEA-SHALES, FOS, SOME WEA-CELLS BRK TO TOUCH, SEVERE FRAC ALONG INTERFACE OF SHALE + LIMESTONE. HARD

397
S-3755.5 W-2956.
EL-897.0

Depth	Description
0.7'	TOPSOIL
2.5'	BRN CLAY, SOME SILT + SAND, HARD, MOIST
7.0'	GRAY SHALE W/ 1-4" LIMESTONE LAYER (RICHMOND FORMATION BEDROCK)

398
S-3734. W-3001.
EL-896.6

Depth	Description
0.3'	TOPSOIL
4.0'	BRN CLAY, SOME SILT + SAND, TRACE ROCK FRAG, HARD, MOIST.
18.5'	BRN SHALE W/ 1 TO 6" LIMESTONE LAYER (RICHMOND FORMATION BEDROCK)

399
S-3678. W-2919.
EL-894.5

Depth	Description
4.0'	BRN SILT W/ 1-6" LIMESTONE LAYERS, HARD.
7.5'	BRN CLAY SHALE W/ 1-4" LIMESTONE LAYER (RICHMOND FORMATION BEDROCK)

400
S-3655. W-2964.
EL-894.0

Depth	Description
0.3'	TOPSOIL
4.5'	BRN CLAY, SOME SILT + SAND, TRACE ROCK FRAG, HARD, DAMP.
8.0'	BRN CLAY SHALE W/ 1-4" LIMESTONE LAYERS (RICHMOND FORMATION BEDROCK)

401
S-3544. W-2709.
EL-886.3

Depth	Description
0.4'	TOPSOIL
3.5'	BRN CLAY, SOME SILT + SAND, TRACE ROCK FRAG, V-STIFF, MOIST.
7.0'	BRN SHALE W/ 1-6" LIMESTONE LAYERS (RICHMOND FORMATION BEDROCK)

402
S-3650. W-3228.
EL-892.8

Depth	Description
0.4'	TOPSOIL
3.5'	BRN CLAY, SOME SILT + SAND, TRACE ROCK FRAG, V-STIFF, MOIST.
8.0'	BRN CLAY SHALE W/ 1-6" LIMESTONE LAYERS (RICHMOND FORMATION BEDROCK)

403
S-3539. W-3462.
EL-887.0

Depth	Description
1.0'	TOPSOIL
2.0'	BRN SILT + CLAY, SOME ROCK FRAG, HARD, MOIST.
5.5'	RICHMOND FORMATION BEDROCK

404
S-3339.09 W-3504.
EL-885.5

Depth	Description
1.0'	TOPSOIL
7.0'	BRN SILT + CLAY, SOME ROCK FRAG + SAND, HARD, MOIST.

405
S-2927. W-3524
EL-775.6

Depth	Description
0.3'	TOPSOIL
4.0'	BRN + GRA CLAY. SOME SILT + SAND, TRACE ROCK FRAG + GVL, HARD, MOIST.
10.5'	BRN + GRA SILT, SOME CLAY + SAND, TRACE ROCK FRAG, HARD, MOIST - TO DAMP AT 6.5'

406
S-2404. W-3637.
EL-741.8

Depth	Description
0.3'	TOPSOIL (FILL)
4.0'	BRN SILT + SOME CLAY + SAND, TRACE ROCK FRAG + GVL, HARD, MOIST.
9.0'	(ORIG) BRN + GRA SILT, SOME SAND + CLAY, TRACE ROCK FRAG, HARD.
10.5'	BRN + GRA SILT + CLAY, SOME SAND + ROCK FRAG, V-STIFF, MOIST.

407
S-2103.14 W-4281.17
EL-739.3

Depth	Description
3.0'	(FILL) CRUSHED STONE.
10.0'	BRN + GRA SILT, SOME CLAY + ROCK FRAG, HARD, DAMP (ORIG) TO V-STIFF + MOIST AT 8½'.

408
S-2112. W-1528.
EL-823.9

Depth	Description
0.5'	(FILL) TOPSOIL.
4.0'	(ORIG) BRN SILT + SAND, TRACE ROOTS + GVL, STIFF, MOIST.
10.0'	BRN SILT, SOME SAND + CLAY, TRACE GVL, HARD, MOIST.
15.0'	GRAY SILT, SOME CLAY W/ ROCK FRAG, HARD, MOIST, TO WET AT 14'.
25.0'	LT BLU/GRA SHALE, CAL, FOSS, SCATT PYRITE CRYS W/ SM SEAMS DK GRA LIMESTONE, FOSS (RICHMOND FORM)

Plate A9

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS
352 & UP

DRAWN	G.A.B. DATE 7-13-76
CHECKED	DATE 7-15-76
APPROVED	DATE 7-76
JOB NO.	4517
SCALE	NONE
DWG. CLASSIFICATION LEVEL	UNCL
CODE IDENT. NO.	14065
DWG. NO.	FSE 16472 SHT 9 OF

ISS.	DATE	REVISION	BY
C	10-76	REVISED	GCH
A	7-76	ADDED BORINGS	G.B.

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FSE16472-10

W.O. NO. F 25993

BILL OF MATERIAL					
QTY.	DWG. NO.	DESCRIPTION	REQ'D.	MAT'L.	STOCK SIZE

(409)

S-2019 W-1493.
EL- 813.4

2.0'	TOPSOIL
11.5'	BRN SILT, SOME CLAY+SAND, TRACE GVL+ROOTS V-STIFF, MOIST-HARD AT 4½'- V-STIFF AT 7'- HARD AT 9½'.
15.0'	GRAY SILT, SOME CLAY+SAND, TRACE GVL, HARD

(410)

S-2074 W-1631
EL- 814.9

1.0'	(FILL) TOPSOIL
8.5'	BRN SILT, SOME CLAY+SAND, TRACE ORG MATL+GVL, HARD, MOIST. (ORIG)
14.5'	GRAY SILT, SOME CLAY → ROCK FRAG, HARD, WET.

(411)

S-1980 W-1594
EL- 810.2

1.0'	(FILL) TOPSOIL, TRACE GVL
1.5'	(ORIG) TOPSOIL
4.5'	BRN CLAY, SOME SILT, TRACE SAND, V-STIFF, MOIST.
6.5'	BRN SILT, SOME CLAY, TRACE SAND, M-STIFF, MOIST.
12.0'	BRN SILT, SOME CLAY+SAND, TRACE GVL, STIFF, MOIST - V-STIFF AT 9½'.
15.0'	GRAY SILT AS ABOVE, HARD

(412)

S-2035 W-1734
EL-808.8

1.0'	(FILL) TOPSOIL
4.0'	BRN CLAY, SOME SILT+SAND, TRACE GVL, V-STIFF, MOIST.
9.0'	(ORIG) BRN SILT, SOME CLAY+SAND TRACE TRACE GVL, HARD, MOIST.
11.5'	BRN SILT, SOME CLAY, TRACE SAND+ROCK FRAG, HARD, MOIST.
17.0'	GRAY SILT, SOME CLAY → ROCK FRAG, HARD, WET.

(413)

S-1942 W-1699
EL- 807.1

4.0'	(FILL) BRN SILT, SOME CLAY+SAND, TRACE GVL, M-STIFF, MOIST.
12.0'	(ORIG) BRN SILT, SOME CLAY+SAND, TRACE GVL, V-STIFF, MOIST.
25.0'	GRAY SILT AS ABOVE, HARD, DAMP.

(414)

S-2093 W-2020
EL- 807.4

0.2'	(FILL) TOPSOIL
14.5'	(ORIG) GRA+BRN CLAY, SOME SILT, TRACE SAND+GVL, V-STIFF MOIST TRACE ROCK FRAG FROM 2½' - HARD AT 3½'.

(415)

S-2006 W-1934
EL- 805.7

0.5'	(FILL) TOPSOIL
3.0'	BRN+GRA CLAY, SOME SILT, TRACE SAND +GVL+ROOTS+ROCK FRAG, HARD, MOIST.
6.5'	GRA BRN SILT, SOME CLAY, TRACE SAND +GVL+ROCK FRAG, HARD, MOIST.
9.0'	BRN GRA CLAY, SOME ORG MATL+SILT, TRACE SAND+GVL, STIFF, MOIST.
14.0'	BRN+GRA CLAY, SOME SILT+SAND, TRACE GVL+ROCK FRAG, HARD, MOIST (ORIG)
18.0'	GRA BRN SILT, SOME CLAY, TRACE SAND+ GVL+ROCK FRAG, V-STIFF, MOIST.
20.5'	BRN CLAY, SOME SAND+SILT, TRACE GVL, HARD, MOIST.

(416)

S-1820 W-1984
EL-812.2

0.5'	(FILL) TOPSOIL
1.5'	BRN SILT, SOME CLAY, TRACE SAND+GVL, V-STIFF, MOIST.
3.5'	GRA SILT+CLAY, TRACE SAND+GVL+ROCK FRAG, V-STIFF, MOIST.
9.5'	BRN GRA CLAY+SILT, SOME SAND, TRACE GVL+ROCK FRAG, STIFF, MOIST.

(417)

S-1861 W-1939
EL- 808.6

9.0'	(FILL) BRN SILT, SOME CLAY+ROCK FRAG, TRACE SAND+GVL+ROOTS, HARD, DAMP.

(418)

S-1953 W-1843
EL- 806.1

0.3'	(FILL) TOPSOIL
6.5'	GRA BRN CLAY, SOME SILT+ROCK FRAG, TRACE SAND+GVL+WOOD, V-STIFF, MOIST.
10.0	BRN+GRA CLAY+SILT, TRACE SAND+GVL +ORG MATL, STIFF, MOIST.
18.0'	(ORIG) DK GRA ORG CLAY, SOME SILT, TRACE SAND+GVL, M-STIFF, MOIST - WET AT 12½', SOME ROCK FRAG FROM 13½'
20.5'	GRA BRN SILT, SOME CLAY+SAND, TRACE GVL, HARD, DAMP.

(419)

S-2185 W-1835
EL-821.4

9.5'	OVERBURDEN (INTERBEDDED ROCK LAYERS AT 4½' + 8', 6" THK)

(420)

S-1925 W-1747
EL- 806.1

0.5'	(FILL) TOPSOIL
2.5'	DK BRN CLAY, SOME SILT+SAND, TRACE GVL+ROOTS+ROCK FRAG, HARD, MOIST.
4.5'	BRN+GRA CLAY, SOME SILT, TRACE SAND+ GVL+ROOTS, STIFF, MOIST.
6.5'	DK BRN ORG CLAY, SOME SILT, TRACE SAND+GVL, STIFF, MOIST.
10.5'	(ORIG) GRA BRN CLAY AS ABOVE

(421)

S-1946 W-1565
EL- 807.8

2.0'	DENSE GVL (FILL)
3.5'	BLK ORG SILT, SOME CLAY, TRACE SAND +GVL, STIFF, MOIST.
6.5'	BRN CLAY, SOME SILT+SAND, TRACE GVL +ROOTS, SOFT, MOIST (ORIG)
14.0'	BRN CLAY+SAND, SOME SILT, V-STIFF, MOIST - HARD AT 9'.
20.5'	GRAY SILT, SOME CLAY+SAND, TRACE GVL, HARD, MOIST.

(422)

S-1965 W-1410
EL- 809.4

0.3'	TOPSOIL
3.5'	DK BRN CLAY, SOME SILT, TRACE SAND+ GVL+ORG MATL, V-SOFT, MOIST.
6.5'	GRA BRN CLAY, SOME SILT, TRACE SAND +GVL, V-STIFF, MOIST - WATER AT 4'.
10.5'	BRN CLAY+SAND, SOME SILT, TRACE GVL, V-STIFF, MOIST - HARD AT 9½'.

(423)

S-1797.1 W-1967.5
EL- 812.5

5.0'	(FILL) BRN SILT, SOME CLAY+SAND, TRACE GVL, V-STIFF, MOIST.
7.5'	BRN+GRA SILT, SOME SAND, CLAY, GVL +ASPHALT, HARD, MOIST.
13.5'	BRN+GRA SILT+CLAY, SOME SAND, TRACE GVL, V-STIFF, MOIST.
20.0'	(ORIG) BRN SILT, SOME SAND+CLAY, TRACE GVL, V-STIFF, MOIST - HARD AT 19'.
23.5'	GRAY SILT AS ABOVE, HARD.
24.5'	BLU CLAY SHALE.

(424)

S-1807 W-1938.3
EL- 809.5

6.0'	(FILL) BRN SILT, SOME SAND+CLAY, TRACE GVL+ROOTS, HARD, MOIST - V-STIFF AT 2½'.
10.0'	GRAY SILT AS ABOVE, TRACE ORG MATL+ WOOD - V-STIFF AT 8½'.
20.0'	(ORIG) BRN SILT, SOME SAND+CLAY, TRACE GVL, V-STIFF, MOIST.
25.5'	GRAY SILT AS ABOVE, HARD.

(425)

S-1766.5 W-1914.1
EL- 810

5.5'	(FILL) BRN SILT+CLAY, SOME SAND, TRACE GVL, ROOTS+ROCK FRAG, HARD, MOIST.

Plate A10

FINAL ASSEMBLY DWG.	NEXT ASSEMBLY DWG.

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

SITE

TEST BORING DETAILS
409 & UP

DWG. TYPE ARH

TOLERANCES
FRACTIONAL TOL.
DECIMAL TOL.
ANGLE TOL.
SURFACE FIN.

DWG. CLASSIFICATION
LEVEL UNCL
DATE 11-26-79 INITIAL

DRAWN HAGGARD	DATE 11-19-79	APPROVALS
CHECKED G.A.B.	DATE 11-26-79	1
APPROVED [illegible]	DATE 11-26-79	2
JOB NO. 4517		3
SCALE NONE		4

CODE IDENT. NO. 14065

DWG. NO. FSE16472 SHT. 10 OF

ISS.	DATE	REVISION	BY	CHK'D	APPRD.
C	11-19-79	ADDED SHT 10	GCH	G.B.	[illegible]

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APPENDIX B

TEST BORING DRILLERS LOGS 426-703

The following test boring drillers logs are either not available or illegible at the time of publication of this Addendum. As they become available, these logs will be furnished in future revisions of this document.

426 - 430
453 - 457
466
492 - 493
516 - 519
554
556 - 569
622 - 624
627 - 631
634 - 635
639 - 668
670 - 672
674 - 680
683 - 686
689 - 695
698

#431

LOG OF BORING NO. 286-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 2885.666
West 2498.921

DATE STARTED: 1-23-84

SURFACE ELEVATION: 871.07

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, trace of sand, trace of concrete fragments - damp				
3.0'	(ORIGINAL) Brown clay, trace of silt, trace of sand, trace of gravel-moist				
5'					
10'					
12.0'	Gray clay, trace of silt, trace of sand, trace of gravel - moist				
15.0'	Apparent rock (auger refusal)				
	Bottom of boring at 15.0'				
20'					
25'	Note: 4" PVC pipe installed with bottom at 14.5' with 2.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#432

LOG OF BORING NO. 287-1

MONITORING WELLS IN OLD FILLS SITES

BORING LOCATION: South 2915.293
West 2490.347

DATE STARTED: 1-23-84

SURFACE ELEVATION: 874.17

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, trace of sand, trace of gravel, trace of concrete fragments - damp				
3.0'	(ORIGINAL) Brown clay, trace of sand, trace of silt, trace of gravel-moist				
5'					
10'					
12.0'	Apparent rock (auger refusal)				
	Bottom of boring at 12.0'				
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 11.5' with 2.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#493

LOG OF BORING NO. 288-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3777.190
West 3245.281

DATE STARTED: 1-23-84

SURFACE ELEVATION: 388.87

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown silt, trace of sand, trace of gravel - damp				
2.0'	Brown clay, trace of silt, trace of gravel - damp				
5.0'	Limestone layers, 6" to 1' thick				
8.0'	Apparent rock (auger refusal)				
10'	Bottom of boring at 8.0'				
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 7.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#434

LOG OF BORING NO. 289-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3724.774
West 3254.302

DATE STARTED: 1-23-84

SURFACE ELEVATION: 891.24

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.2'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - damp				
2.0'	Brown clay and silt, trace of sand, trace of gravel - damp				
5'					
5.5'	Apparent rock (auger refusal)				
	Bottom of boring at 5.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 5.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#435

LOG OF BORING NO. 290-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3752.358
West 3322.860

DATE STARTED: 1-23-84

SURFACE ELEVATION: 888.69

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.8'	(ORIGINAL) Brown clay, trace of sand, trace of gravel - moist (6" limestone layers at 2.5')				
5.0'	Apparent rock (auger refusal)				
	Bottom of boring at 5.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 5.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#436

LOG OF BORING NO. 291-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3808.217
West 3323.569

DATE STARTED: 1-24-84

SURFACE ELEVATION: 886.12

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - damp				
2.0'	Brown clay, trace of sand, trace of gravel - moist				
5.5'	Apparent rock (auger refusal)				
	Bottom of boring at 5.5'				
5'					
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 5.0' with 1.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#437

LOG OF BORING NO. 292-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3670.827
West 3342.887

DATE STARTED: 1-24-84

SURFACE ELEVATION: 889.39

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'					
1.0'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - moist				
4.0'	Brown clay, trace of silt, trace of sand, trace of gravel - moist				
5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#438

LOG OF BORING NO. 293-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3716.055
West 3400.604

DATE STARTED: 1-24-84

SURFACE ELEVATION: 886.19

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - moist				
2.0'	Red and brown clay, trace of silt, trace of sand, trace of gravel-moist				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#439

LOG OF BORING NO. 294-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3751.261
West 3418.167

DATE STARTED: 1-24-84

SURFACE ELEVATION: 884.19

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - moist				
1.5'	Brown clay, trace of sand, trace of gravel - moist				
4.5'	Apparent rock (auger refusal)				
5'	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#440

LOG OF BORING NO. 295-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3791.907
West 3441.524

DATE STARTED: 1-24-84

SURFACE ELEVATION:

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - damp				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
5'					
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER	WATER OBSERVATIONS	TYPE SAMPLER:
TECHNICIAN: RF-RH	INITIAL DEPTH: None	____ A. SPLIT SPOON
	COMPLETION DEPTH: None	____ B.
JOB NO.: 27298 (mjj)	DEPTH AFTER: ____ HRS. ____	____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 296-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3865.887
West 3483.068

DATE STARTED: 1-24-84

SURFACE ELEVATION: 372.57

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.25'	(ORIGINAL) Brown clay, some silt, trace of sand, trace of gravel - moist				
5.0'	Light brown silt, some clay, trace of sand, trace of gravel - damp				
10'					
11.0'	Apparent rock (auger refusal)				
	Bottom of boring at 11.0'				
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 11.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#442

LOG OF BORING NO. 297-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3801.142
West 3524.052

DATE STARTED: 1-24-84

SURFACE ELEVATION: 376.32

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown silt, trace of sand, trace of gravel, trace of cobbles - damp				
5.0'					
6.0'	Weathered rock				
	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#443

LOG OF BORING NO. 298-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3682.070
West 3413.341

DATE STARTED: 1-24-84

SURFACE ELEVATION: 886.39

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.75'	(ORIGINAL) Red and brown clay, some silt, trace of sand, trace of gravel - damp				
3.5'	Weathered rock				
5'					
6.5'	Apparent rock (auger refusal)				
	Bottom of boring at 6.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.5' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 299-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3737.870
West 3478.508

DATE STARTED: 1-25-84

SURFACE ELEVATION: 881.72

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.1'	(ORIGINAL) Brown clay, trace of sand, trace of gravel - damp				
4.5'	Apparent rock (auger refusal)				
5'	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 300-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3529.943
West 3447.023

DATE STARTED: 1-25-84

SURFACE ELEVATION: 887.24

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown clay, trace of silt, trace of gravel - moist				
2.5'	Weathered rock				
5'					
6.0'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note" 4" PVC pipe installed with bottom at 6.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#446

LOG OF BORING NO. 301-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3648.130
West 3642.829

DATE STARTED: 1-25-84

SURFACE ELEVATION: 874.47

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown clay, trace of sand, trace of gravel - moist				
3.0'	Weathered rock				
5'					
6.0'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#447

LOG OF BORING NO. 302-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3640.540
West 3587.254

SURFACE ELEVATION: 878.92

DATE STARTED: 1-25-84

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.1'					
2.0'	(OIRGINAL) Brown clay, trace of silt, trace of gravel - moist				
	Weathered rock				
4.0'					
5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#448

LOG OF BORING NO. 303-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3628.301
West 3541.960

DATE STARTED: 1-25-84

SURFACE ELEVATION: 882.67

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown clay, trace of sand, trace of gravel - moist				
1.0'	Weathered rock				
3.0'	Apparent rock (auger refusal)				
5'	Bottom of boring at 3.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 2.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#449

LOG OF BORING NO. 304-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3567.768
West 3565.347

DATE STARTED: 1-25-84

SURFACE ELEVATION: 884.17

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown sand and gravel - damp				
0.6'	Brown silt, trace of sand, trace of gravel - moist				
3.0'	Weathered rock				
4.5'	Apparent rock (auger refusal)				
5'	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#450

LOG OF BORING NO. 305-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3705.192
West 3710.715

DATE STARTED: 1-25-84

SURFACE ELEVATION: 863.22

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown silt, trace of sand, trace of gravel - moist				
3.0'	Apparent rock (auger refusal)				
5'	Bottom of boring at 3.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 3.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#451

LOG OF BORING NO. 306-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3784.253
West 3591.393

DATE STARTED: 1-25-84

SURFACE ELEVATION: 870.22

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Cinders, trace of sand, trace of gravel - damp				
0.5'					
2.0'	Brown silt, trace of sand, trace of gravel - damp				
	Weathered rock				
5'					
6.0'					
	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.0' with 1.5' above ground.				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#452

LOG OF BORING NO. 307-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3679.278
West 3500.858

DATE STARTED: 1-25-84

SURFACE ELEVATION: 882.72

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone and sand - moist				
1.0'	(ORIGINAL) Weathered rock				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
5'					
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#458

LOG OF BORING NO. 7

SOIL STUDY FOR PROPOSED FACILITIES IN THE AREA OF BUILDINGS #38 AND #41, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from Map 2180S 3890W Plant Coor. **DATE STARTED:** 2/15/84

SURFACE ELEVATION: 739.7' **DATE COMPLETED:** 2/15/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.5'					
1.0'	(FILL) Brown sand and gravel base				
1.5'	(FILL) Hard brown and gray silty clay, trace of sand, trace of gravel - damp (CL)	1A	1.0-1.9	25-75/5"	100+
2.5'					
5'					
	(FILL) Brown sand and gravel, trace of silt - damp (SW-GW)				
	(ORIGINAL) Very stiff brown clayey silt, trace of sand, trace of gravel - moist (ML)	2A	4.0-5.5	9-11-14	25
9.0'					
10'		1C	6.5-7.5		12"
	(Becomes hard at 7.5')	3A	7.5-9.0	17-22-25	47
	Very stiff gray silty clay, trace of sand, trace of gravel - damp (CL)	4A	9.0-10.5	11-13-14	27
15'	(Becomes hard at 14.0')	5A	14.0-15.5	8-14-31	45
20.0'					
	Apparent rock (Auger refusal at 21.0')	6A	19.0-20.4	8- 9-83/5"	92+
	Bottom of boring at 21.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF-JA

JOB NO.: 27879 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 8.5' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER

#459

LOG OF BORING NO. 8

SOIL STUDY FOR PROPOSED FACILITIES IN THE AREA OF BUILDINGS #38 AND #41, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 21925 3842W Plant Coor. **DATE STARTED:** 2/15/84

SURFACE ELEVATION: 740.2' **DATE COMPLETED:** 2/15/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very loose brown sand and gravel, trace of silt - wet	1A	1.0-2.5	1- 2- 3	5
3.0'	(FILL) Very stiff brown and gray clayey silt, trace of sand, trace of gravel - moist (ML)	2A	4.0-5.5	5-13-16	29
6.0'	(ORIGINAL) Very stiff gray clayey silt, trace of sand, trace of gravel moist (ML)	3A	6.5-8.0	9-14-15	29
10'		4A	9.0-10.5	8-10-12	22
15'	(Becomes hard at 14.0')	5A	14.0-15.4	35-34-31/5"	65+
19.0'					
20'	Apparent rock (Auger refusal at 20.0')	6A	19.0-19.3	100/4"	100+
	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF-JA

JOB NO.: 27879 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 1.0' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#460

LOG OF BORING NO. 9

SOIL STUDY FOR PROPOSED FACILITIES IN THE AREA OF BUILDINGS #38 AND #41, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2144 S 3880W Plant Coor.

DATE STARTED: 2/15/84

SURFACE ELEVATION: 744.9'

DATE COMPLETED: 2/15/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very soft brown silt, trace of sand, trace of gravel - damp (ML)	1A	1.0-2.5	3- 1- 2	3
3.0'	(FILL) Hard brown silty clay, trace sand, trace of gravel - damp (CL)	2A	4.0-5.5	10-17-25	42
5'		3A	6.5-7.0	100/6"	100+
7.5'	(ORIGINAL) Hard brown and gray clayey silt, trace of sand, trace of gravel - damp (ML)	4A	9.0-10.5	14-25-26	51
10'		5A	14.0-15.5	22-29-31	60
15'		6A	19.0-20.5	17-51-33	100
20'					
21.0'	Apparent rock (Auger refusal at 21.5')				
	Bottom of boring at 21.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF-JA

JOB NO.: 27879 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

BORING CB-1

SURFACE ELEVATION: 877.1

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0			SM/SC	Tan and brown highly weathered shale with alternating seams of limestone and limestone fragments. Shale zones run 2 to 6 inches thick and limestone runs 1 to 4 inches thick	18.2		
5							
10							
15				Color change approximately 16.5 feet to light brown to gray green			
17.0				Boring terminated at 17.0 feet on 7/14/84 No groundwater encountered			
20							
25							
30							
35							

NOTES

Blows/ft = Number of blows required to drive the Type "U" Sampler 1 foot with a 300-lb weight falling 30 inches or a Standard Penetration Test Sampler 1 foot with a 140-lb weight falling 30 inches.

Recovery, % = Amount of rock core recovered expressed as a percent of the total length of the core run.

RQD, % = Cumulative amount of pieces of rock core 4 inches or greater in length expressed as a percent of the total length of core run.

Dames & Moore

5627-029-17 AUG. 1984

MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2A

"46L

BORING CB-2

SURFACE ELEVATION: 881.9

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR
0	57		SM/SC	Tan to light brown highly weathered shale with alternating seams of limestone with 0.5 foot limestone layer at 2.5 feet. Weathered shale color change at 7.0 feet to grayish blue, interlayered with limestone to depth	10.4		
	50/5"						
5							
10							
12.0				Boring terminated at 12.0 feet on 7/14/84 No groundwater encountered			
15							
20							
25							
30							
35							

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MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2B

BORING CB-3

SURFACE ELEVATION: 896.8

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0			SM/SC	Interbedded shale and limestone. Shale is tan and highly weathered becoming less weathered with depth, color change at 7.5 feet to blueish gray. Limestone is tan to light brown weathered with some fragments, layers for shale and limestone run approximately 3 to 4 inches each.			
5							
9.0				Auger refusal at 9.0 feet			
10	96%	41%		Thinly bedded limestone with numerous shale partings and seams. Limestone is blue-gray, fossiliferous with two vertical fractures at 9.8 to 10.3 and 12.6 to 12.8 feet. Shale is also blue-gray, fossiliferous, and argillaceous with layers up to 4 inches thick. Ratio of limestone to shale is approximately 70% to 30%, respectively.			
15							
19.0							
20	100%	95%		Ratio of limestone to shale approximately 50% to 50%. Bedding is distinct.			
25							
29.0							
30				Boring terminated at 29.0 feet on 7/12/84 No groundwater encountered			
35							

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MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2C

#464

BORING CB-4

SURFACE ELEVATION: 887.1

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0			SM/SC	Tan to light brown alternating layers of shale and limestone with occasional rock fragments, highly weathered limestone layer from 0 to 1 foot, shale layer from 1 to 2 feet, and interbedded to 4 feet			
4.0				Auger refusal at 4.0 feet on 7/10/84 No groundwater encountered			
5							
10							
15							
20							
25							
30							
35							

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MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2D

#465

BORING CB-5

SURFACE ELEVATION: 878.4

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	46		CL	Brown silty clay with some gravel and rock fragments	18.0	100.8	3.75
2.0			SM/SC	Grayish blue limestone layer, slightly weathered, fossiliferous, very hard			
3.0				Auger refusal at 3.0 feet on 7/10/84 No groundwater encountered.			
5							
10							
15							
20							
25							
30							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2E

#467

BORING CB-8

SURFACE ELEVATION: 890.1

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	34		CL	Brown silty clay with some gravels. Limestone fragments encountered at 2.5 to 3.2 feet	18.2	104.9	4.5
3.2	100 /0.4"		SM/SC	Yellowish tan to brown highly weathered limestone. Predominantly limestone at top with minor shale seams up to 2 inches thick. Shale seams more frequent with depth, very hard	21.8	99.5	4.5
5				Auger refusal at 8.5 feet			
8.5				Blue-gray limestone interbedded with shale parting and seam highly fractured. Shale partings range from ½ to 4 inches thick with a 1 inch average. Ratio of limestone to shale is 60% to 40%. Core broken along bedding.			
10	100%	*					
15	93%	8%		Ratio of limestone to shale changing to 50% to 50%. Core fracture along bedding			
20							
22.5				Sounder rock encountered. Ratio of limestone to shale 75% to 25%			
25	100%	57%					
28.5							
30	100%	49%					
33.5							
35							

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COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 2 PLATE A-2G

BORING CB-8 (con't)

SURFACE ELEVATION: 890.1

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH ksf
35							
	100%	64%					
38.5							
40	100%	95%					
41.0				Rock coring terminated at 41 feet on 7/13/84 No groundwater encountered			
45							
50							
55							
60							
65							
70				*RQD considered invalid due to nature of deposits and resulting effects of core sampling			

#468

BORING CB-9

SURFACE ELEVATION: 896.8

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR
0	35		CL	Brown silty clay moist, stiff, with traces of gravel and organics. (Top soil)	16.2	92.3	4.5
1.75	50/6"		SM/SC	Highly weathered shale with interbedded layers of limestone. Shale is greenish gray to tan changing to blueish gray with depth. Limestone layers are blueish gray weathered with thickness from 0.25 to 1.0 feet. Intersparse limestone fragments throughout, moist, very hard	9.6		4.5
5	50/2"				16.8		4.5
				Auger refusal at 8.0 feet			
8.0				Interbedded limestone and shale. Limestone is blue gray and highly fractured at top, shale is dark to medium gray with weathered zones, ratio of limestone to shale is approximately 50% to 50%			
10	92%	23%					
14.0							
15	100%	18%					
20				Highly fractured zone 20.0 to 21.0 feet			
24.0				Less shale with depth, ratio is 60% limestone to 40% shale			
25	100%	40%					
30							
34.0							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 2 PLATE A-2H

BORING CB-9 (con't)

SURFACE ELEVATION: 896.8

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, psf
35				Less shale, 80% limestone to 20% shale			
	100%	69%					
40							
44.0							
45				Rock core terminated at 44 feet on 7/14/84 No groundwater encountered			
50							
55							
60							
65							
70							

#467

BORING CB-10

SURFACE ELEVATION: 899.5

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	22		CL	Brown silty clay, dry, desiccated, with traces of organics (roots) near surface. Limestone fragments at 3.0 feet	13.7		4.5+
	140				8.4		4.5+
8.5			SM/SC	Interbedded greenish gray limestone and shale. Limestone is layered in 2 to 4 inch thicknesses. Weathered very hard.			
5	100/2"						
9.0				Auger refusal at 9.0 feet on 7/9/84 No groundwater encountered			
10							
15							
20							
25							
30							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-21

#470

BORING CB-11

SURFACE ELEVATION: 892.2

DATUM: USGS B.M. 871.8

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	14		CL	Brown silty clay, medium stiff to stiff, moist with traces of organics	19.5	109.2	4.5+
1.5	100/6"		SM/SC	Interbedded tan to dark tan limestone and shale, weathered shale color change to greenish gray at approximately 3.25 feet, very hard	20.5		3.5
5					8.1		
8.0				Auger refusal at 8.0 feet on 7/10/84 No groundwater encountered			
10							
15							
20							
25							
30							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2J

#471

BORING CB-12

SURFACE ELEVATION: 900.1

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	35		CL	Brown silty clay with limestone fragments at 1.5 to 2.0 feet stiff	20.6	91.6	4.5+
2.0	111		SM/SC	Tan to brown shale with seams of limestone. Shale is highly weathered notably very moist at 4.5 to 5 feet and at 10 feet. Limestone highly weathered with seam thicknesses increasing with depth.	17.3	98.1	4.5+
5	100/2"				5.5	165.7	4.5+
10	100/2"			Auger refusal at 11.5 feet	9.2		4.5+
11.5	88%	36%		Interbedded shale and limestone. Limestone is greenish gray and slightly weathered at top, shale is blueish gray slightly weathered at top, with a very soft moist seam at 16.0 feet.			
15							
18.5	100%	38%		Limestone very fossiliferous in zones			
20							
22.5				Rock coring terminated at 22.5 feet on 7/10/84 No groundwater encountered			
25							
30							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2K

*472

BORING CB-13

SURFACE ELEVATION: 891.9

DATUM: USGS B.M. 871.8

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	32		CL	Brown silty clay with some gravels and traces of shell fragments at 2.0 feet	17.6	64.3	4.3
2.0	100/6"		SM/SC	Interbedded limestone and shale. Shale is tan changing to grey highly weathered, slight show of blue shale at 7.0 feet. Limestone is tan to yellowish brown weathered, traces of silty clay at 3.5 feet	9.9		
5	100/2"			Auger refusal at 8 feet			
8.0				Interbedded limestone and shale. Limestone is greenish gray to gray weathered at top. Shale is gray and weathered.			
10	100%	48%					
15	100%	30%					
20							
22.0				Rock coring terminated at 22.0 feet on 7/12/84 No groundwater encountered			
25							
30							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2L

#473

BORING CB-14

SURFACE ELEVATION: 891.9

DATUM: USGS B.M. 871.8

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0			SM/SC	Tan to yellowish brown highly weathered limestone interlayered with seams and partings of highly weathered shale. Traces of brown silty clay throughout			
				Auger refusal at 4.0 feet			
4.0							
5	72%	*		Interbedded limestone and shale. Predominantly limestone, slightly weathered at top, with several vertical fractures, shale bedding runs 2 to 3 inches thick, weathered with very soft moist zones at top. Core fractures along bedding ratio of limestone to shale is approximately 80% to 20%			
6.5							
	100%	38%		Vertical limestone fracture at 6.5 to 6.8, 8.6 to 9.2 feet			
10							
12.7							
15	100%	40%					
19.0							
20	95%	36%					
				Rock coring terminated at 23.0 feet on 7/12/84 No groundwater encountered			
25							
30							
35				*RQD considered invalid due to nature of deposits and resulting effects of core sampling			

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5627-029-17 AUG. 1984

MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2M

#474

BORING CB-15

SURFACE ELEVATION: 893.2

DATUM: USGS B.M. 871.8

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	87		SM/SC	Tan and gray weathered to highly weathered shale with traces of limestone fragments	11.4	125.7	4.5+
	100/6"				7.7	109.4	
5				Tan to yellowish brown shale with limestone interbedded, weathered, very hard, traces of blue shale at 6.0 feet Auger refusal at 7.5 feet			
7.5	97%	28%		Interlayered limestone and shale, few natural fractures with no voids. Core breaks at shale layers or in shaly limestone.			
10				Highly weathered shale seams between 9.5 and 10.5 feet, containing limestone fragments.			
10.5							
15	96%	26%					
19.5							
20	100%	72%					
25				Vertical fracture at 25.4 to 25.9 feet			
26.5				Rock coring terminated at 26.5 feet on 7/11/84 No groundwater encountered			
30							
35							

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MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2N

#475

BORING CB-16

SURFACE ELEVATION: 897.2

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	55		CL	Tan and light gray silty clay with traces of medium grain sand, gravels, and rock fragments, moist, very stiff	7.8	125.7	4.5+
3.6	100/5"						
5	100/8"			Interlayered highly weathered shale and limestone tan to gray, limestone seams are 2 to 4 inches thick with fragments throughout. Shale changes to blueish gray at approximately 7.0 feet. Slight water loss at 7.0 feet			
9.0				Auger refusal at 9.0 feet on 7/9/84 No groundwater encountered			
10							
15							
20							
25							
30							
35							

Dames & Moore

5627-029-17 AUG. 1984

MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2.2

#A76

BORING CB-17

SURFACE ELEVATION: 887.7

DATUM: USGS B.M. 911.2

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	112		SM/SC	Interbedded tan to brown weathered limestone and shale, traces throughout of tan silty clay	12.2	122.0	4.5+
3.5				Auger refusal at 3.5 feet on 7/9/84			
5							
10							
15							
20							
25							
30							
35							

Dames & Moore

5627-029-17 AUG. 1984

MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2P

#477

BORING CB-18

SURFACE ELEVATION: 875.3

DATUM: USGS B.M. 871.8

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0	50/5"		SM/SC	Tan weathered shale with limestone fragments moist to very moist. Shale from 0 to 3 feet predominate with seams of limestone. Below 3 feet interbedded shale and limestone, shale 2 to 3 inches and limestone 1 to 4 inches thick	13.4	120.2	3.2
5				Blue shale encountered at 8 feet			
10				Boring terminated at 10.0 feet on 7/14/84 No groundwater encountered			
15							
20							
25							
30							
35							

Dames & Moore

5627-029-17 AUG. 1984

MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2Q

#478

BORING CB-19

SURFACE ELEVATION: 880.4

DATUM: USGS B.M. 871.8

DEPTH, feet	BLOWS/FOOT (soil) RECOVERY, % (rock)	SAMPLES (soil) RQD, % (rock)	CLASSIFICATION SYMBOLS	DESCRIPTIONS	MOISTURE CONTENT, %	DRY DENSITY, pcf	SHEAR STRENGTH, ksf
0			SM/SC	Brown to tan weathered shale interbedded with weathered limestone. Shale 1 to 4 inches and limestone 2 to 6 inches thick.	6.4 13.1		
5							
10				Blue shale encountered at 13 to 14 feet			
14.0				Boring terminated at 14 feet on 7/14/84 No groundwater encountered			
15							
20							
25							
30							
35							

Dames & Moore

5627-029-17 AUG. 1984

MONSANTO RESEARCH CORPORATION
COMPONENT ASSEMBLY FACILITY
MIAMISBURG, OHIO

LOG OF BORING

SHEET 1 OF 1 PLATE A-2R

#479

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED BUILDING ADDITION TO BUILDING NO. 40,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 1382.5, W 2853.5 **DATE STARTED:** 6/8/84

SURFACE ELEVATION: 877.6' **DATE COMPLETED:** 6/8/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone and gravel, some sand				
0.7'	(FILL) Brown silt, some clay, some sand, trace of rock fragments - moist				
1.5'	(ORIGINAL) Gray limestone (Auger refusal at 2.5')	1A	1.5-1.7	100/2"	100+
5'	Bottom of boring at 2.5'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 28066 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#480

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED BUILDING ADDITION TO BUILDING NO. 40, MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 1409.2711, W 2850.2866 **DATE STARTED:** 6/8/84

SURFACE ELEVATION: 877.55' **DATE COMPLETED:** 6/8/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone and gravel, some sand				
0.7'					
1.5'	(FILL) Brown silt, some clay, some sand, trace of gravel - moist				
	(ORIGINAL) Gray shale, with limestone partings	1A	1.0-2.5	25-22-19	41
5'		2A	3.5-5.0	5-28-41	69
		3A	6.0-6.9	33-67/3"	100+
	(Auger refusal at 8.0')				
10'	Bottom of boring 8.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28066 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 4.0' (light)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#481

LOG OF BORING NO. 3

SOIL STUDY FOR PROPOSED BUILDING ADDITION TO BUILDING NO. 40, MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 1450.4875, W 2797.7277 **DATE STARTED:** 6/8/84

SURFACE ELEVATION: 877.95' **DATE COMPLETED:** 6/11/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.2'					
1.5'	(FILL) Hard brown silt, some clay, some sand, trace of gravel, trace of organic material - damp	1A	1.0-1.5	100	100+
4.5'	(ORIGINAL) Gray shale, with limestone partings	2A	3.5-4.5	35-67	102
5'	Gray limestone, with clay partings	1B	4.5-7.0		30"
10'	(RQD = 0%)	2B	7.0-12.0		60"
		3A	12.0-14.5		30"
15'	Bottom of boring at 14.5'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28066 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 4.0' (trace)

COMPLETION DEPTH: Unknown*

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" WIRELINE

___ C. SHELBY TUBE

* Coring water in the hole

BOWSER – MORNER

#482

LOG OF BORING NO. 335

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3686.46; W 2844.70 **DATE STARTED:** 7/16/84

SURFACE ELEVATION: 899.85' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of concrete, trace of asphalt, trace of organic material - damp	1A	1.0-2.5	43- 7- 3	10
3.5'	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of organic material - moist (Becomes stiff at 6.0')	2A	3.5-5.0	3- 3- 3	6
8.5'		3A	6.0-7.5	6- 7- 8	15
10' 11.0'	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of rock fragments, trace of gravel, trace of asphalt, trace of organic material - moist	4A	8.5-10.0	4- 3- 4	7
15'	(ORIGINAL) Hard brown and gray soft shale, with rock fragments - moist (Auger refusal at 13.0')	5A	11.0-12.5	9-45-50/1"	95+
	Bottom of boring at 13.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

#483

LOG OF BORING NO. 336

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3654.55; W 2877.66 **DATE STARTED:** 7/16/84

SURFACE ELEVATION: 900.85' **DATE COMPLETED:** 7/16/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of gravel, trace of concrete, trace of asphalt, trace of organic material, trace of rock fragments, trace of wood, trace of metal - moist	1A	1.0-2.5	2- 2- 8	10
5'	(Becomes stiff at 3.5')	2A	~~3.~~5-5.0	4- 6- 6	12
	(Becomes medium stiff at 6.0')	3A	6.0-7.5	7- 6- 4	10
10'	(Becomes very stiff at 9.0')	4A	8.5-10.0	13-14-16	30
11.0'	(ORIGINAL) Hard brown and gray soft shale, trace of rock fragments - damp	5A	11.0-12.5	56-45	101
15'	(Auger refusal at 13.0')				
	Bottom of boring at 13.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#484

LOG OF BORING NO. 337

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3712.39; W 2874.51 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 901.25' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of gravel, trace of organic material, trace of rock fragments - moist	1A	1.0-2.5	4- 5- 5	10
3.5'	(FILL) Very stiff brown and gray silt, some clay, some sand, trace of gravel, trace of organic material, trace of rock fragments, trace of wood - moist	2A	3.5-5.0	5- 8-10	18
6.0'	(ORIGINAL) Hard brown and gray soft shale, with rock fragments - damp (Auger refusal at 8.5')	3A	6.0-6.5	75/6"	75+
	Bottom of boring at 8.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#485

LOG OF BORING NO. 338

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3683.15; W 2907.31 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 902.05' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments - moist	1A	1.0-2.5	12- 8-15	23
5'	(Becomes stiff at 3.5')	2A	3.5-5.0	12- 8- 4	12
6.0'	(FILL) Stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of asphalt - moist	3A	6.0-7.5	10- 8- 5	13
8.5'	(ORIGINAL) Hard brown and gray soft shale, with rock fragments - damp (Auger refusal at 10.5')	4A	8.5-10.0	20-33-50/3"	83+
10'	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#486

LOG OF BORING NO. 339

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3655.73; W 2930.93 **DATE STARTED:** 7/16/84

SURFACE ELEVATION: 901.25' **DATE COMPLETED:** 7/16/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown and gray silt, some clay, some rock fragments, trace of asphalt, trace of brick, trace of concrete, trace of organic material - moist	1A	1.0-2.5	7-34- 7	41
5'	(Becomes very stiff at 3.5')	2A	3.5-5.0	19-15- 8	23
	(Becomes medium stiff at 6.0')	3A	6.0-7.5	12- 4- 3	7
8.5'					
10'	(ORIGINAL) Hard brown and gray silt, some clay, trace of rock fragments, trace of gravel - moist (Auger refusal at 10.5')	4A	8.5-9.5	16-100/5"	116"
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

#487

LOG OF BORING NO. 340

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3727.29; W 2928.33 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 901.85' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of asphalt, trace of concrete, trace of organic material - moist	1A	1.0-2.5	6- 7- 6	13
5'	(Becomes very stiff at 3.5')	2A	3.5-5.0	5-10-13	23
	(Becomes hard at 6.0')	3A	6.0-6.5	100/6"	100+
	(Auger refusal at 8.5')				
10'	Bottom of boring at 8.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AGUER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#488

LOG OF BORING NO. 341

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3683.30; W 2953.46 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 902.25' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown and gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments, trace of concrete, trace of asphalt, trace of organic material - moist	1A	1.0-2.5	28-10-21	31
5'	(Becomes very stiff at 4.0')	2A	3.5-5.0	15-10-10	20
	(Becomes hard at 6.5')	3A	6.0-7.5	4- 7-31	38
8.5' 10'	(ORIGINAL) Hard brown and gray shale, with rock fragments - damp (Auger refusal at 10.5')	4A	8.5-10.0	3 2-36-50/2"	86+
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#489

LOG OF BORING NO. 342

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3662.59; W 2985.43 **DATE STARTED:** 7/16/84

SURFACE ELEVATION: 900.85' **DATE COMPLETED:** 7/16/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium stiff brown and gray silt, some clay, some sand, some rock fragments, trace of gravel, trace of asphalt, trace of brick, trace of glass - moist	1A	1.0-2.5	4- 3- 4	7
5'	(Becomes very stiff at 3.5')	2A	3.5-5.0	5-10-10	20
6.7'	(ORIGINAL) Hard brown and gray soft shale, with rock fragments - damp	3A	6.0-7.0	8-78	86
10'		4A	8.5-9.5	23-77/3"	100+
	(Auger refusal at 10.5')				
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#490

LOG OF BORING NO. 343

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3729.69; W 2984.25 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 900.55' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of organic material, trace of asphalt, trace of concrete - moist	1A	1.0-2.5	6- 7- 8	15
5'	(Becomes very stiff at 4.0')	2A	3.5-5.0	5- 5-13	18
6.5'	(ORIGINAL) Hard brown and gray shale, with rock fragments - damp (Auger refusal at 8.5')	3A	6.0-7.0	9-45	54
10'	Bottom of boring at 8.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#491

LOG OF BORING NO. 344

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3685.79; W 3006.08 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 901.45' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of concrete, trace of organic material, trace of asphalt, trace of metal - moist	1A	1.0-2.5	4- 5- 5	10
5'	(Becomes hard at 3.5')	2A	3.5-4.0	100/5"	100+
6.5'	(ORIGINAL) Hard gray and brown soft shale, with rock fragments - moist (Auger refusal at 8.5')	3A	6.0-7.5	7-11-22	33
10'	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#494

LOG OF BORING NO. 347

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3685.58; W 3055.13 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 900.15' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of asphalt, trace of organic material, trace of brick, trace of concrete, trace of metal - moist	1A	1.0-2.5	20-50- 8	58
5'	(Becomes stiff at 4.0')	2A	3.5-5.0	4- 4- 7	11
	(Becomes hard at 6.0')	3A	6.0-6.5	100/6"	100+
10'	(Auger refusal at 8.5')				
	Bottom of boring at 8.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#495

LOG OF BORING NO. 348

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3702.58; W 3069.61 **DATE STARTED:** 7/17/84

SURFACE ELEVATION: 898.95' **DATE COMPLETED:** 7/17/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very stiff brown and gray silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of asphalt, trace of organic material - moist	1A	1.0-2.5	4- 7-12	19
5'	(Becomes stiff at 3.5')	2A	3.5-5.0	4- 5-10	15
6.5'	(ORIGINAL) Hard brown and gray soft shale, with rock fragments - damp	3A	6.5-7.5	44-50	94
10'	(Auger refusal at 8.5')				
	Bottom of boring at 8.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#496

LOG OF BORING NO. 349

MOUND FACILITY, N.E. OF BUILDING 21

BORING LOCATION: S 3672.76; W 3090.36 **DATE STARTED:** 7/16/84

SURFACE ELEVATION: 899.25' **DATE COMPLETED:** 7/16/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Stiff brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist	1A	1.0-2.5	10- 8- 6	14
5'	(Becomes medium stiff at 3.5')	2A	3.5-5.0	3- 4- 5	9
6.0'	(ORIGINAL) Hard brown and gray shale, with limestone fragments - damp	3A	6.0-6.7	100/7"	100+
8.0'	Hard brown and gray shale, with limestone layers - damp (Auger refusal at 9.0')	4A	8.5-9.0	100/6"	100+
10'	Bottom of boring at 9.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28141 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#497

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S 2040.8043, W 4252.7807 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 741.27' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown and gray sand, some gravel, some cobbles, some asphalt chunks, trace of silt - damp				
2.0'					
2.5'	(FILL) Topsoil				
4.5'	(FILL) Medium stiff gray silt and clay, some sand, trace of gravel - moist	1A	1.5-3.0	14- 5- 4	9
5'					
7.0'	(FILL) Stiff brown silt, some clay, some sand, trace of gravel - moist	2A	3.5-5.0	4- 5- 6	11
8.5'	(ORIGINAL) Stiff dark brown silt and clay, some sand, trace of organic material - moist	3A	6.0-7.5	4- 5- 9	14
10'					
	Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	7- 8- 8	16
		5A	13.5-15.0	9-11-14	25
15'					
18.5'					
20'	Hard gray silt, some clay, some sand, trace of gravel - moist	6A	18.5-20.0	11-15-20	35
	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#498

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S 2015.2758, W 4308.9847 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 738.87' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt chunks, sand and gravel, some cobbles, some silt - moist				
0.8'	(FILL) Dense brown sand and gravel, some silt - moist	1A	1.0-2.5	12-22-25	47
4.5'	(FILL) Very stiff brown silt, some clay, some organic material, trace of sand - moist	2A	3.5-5.0	7- 8- 9	17
5.5'	(FILL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	3A	6.0-7.5	4- 7- 9	16
8.5'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	6-10-11	21
		5A	13.5-15.0	10-14-15	29
18.5'	Very stiff gray silt, some clay, some sand, trace of gravel - moist	6A	18.5-20.0	12-14-15	29
	Bottom of boring at 20.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 18.5' (light)

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#499

LOG OF BORING NO. 3

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S 2048.4599, W 4227.3680 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 736.77' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gray sand and gravel, some crushed stone - damp				
1.3'	(FILL) Very stiff brown and gray silt, some clay, some sand, trace of gravel - moist	1A	1.0-2.5	5- 7- 9	16
5'		2A	3.5-5.0	9- 9- 8	17
	(Becomes hard at 6.0')	3A	6.0-7.5	12-15-18	33
8.5'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	5- 9- 9	18
10'					
15'	(Becomes hard at 14.0')	5A	13.5-15.0	13-15-16	31
20'		6A	18.5-20.0	16-18-20	38
	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#500

LOG OF BORING NO. 4

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S 2074.9607, W 4287.0641 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 739.17' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0' – 1.0'	(FILL) Gray sand and gravel, some cobbles - damp				
1.0' – 3.5'	(FILL) Hard gray silt, some clay, some gravel, some sand, some rock fragments - damp	1A	1.0-2.5	15-30-35	65
3.5' – 7.0'	(ORIGINAL) Very stiff dark brown silt and clay, some sand, trace of gravel - moist	2A	3.5-5.0	5- 8-12	20
7.0' – 8.0'	Medium stiff brown silt and sand, some clay, trace of gravel - moist	3A	6.0-7.5	3- 4- 6	10
8.0' – 18.5'	Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	9- 8- 9	17
		5A	13.5-15.0	8- 9- 9	18
18.5' –	Very stiff gray silt, some clay, some sand, trace of gravel - moist	6A	18.5-20.0	7- 8- 9	17
		7A	23.5-25.0	8-11-11	22
30'	(Becomes hard at 29.0')	8A	28.5-30.0	12-15-18	33

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 21.0' (medium)

COMPLETION DEPTH: 22.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 4 (Second page)

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S 2074.9607, W 4287.0641 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 739.17' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
34.0'					
35'	Very dense brown sand and gravel, some silt - wet	9A	33.5-35.0	31-38-50/2"	88+
	Bottom of boring at 35.0'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 21.0' (medium)

COMPLETION DEPTH: 22.0'

DEPTH AFTER: _____ **HRS.** _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

#501

LOG OF BORING NO. 317

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2411.54 S.; 2139.18 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 863.6' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Gray shale, with rock fragments - damp				
5'					
10'					
15'	(Auger refusal at 14.5')				
	Bottom of boring at 14.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 14.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#502

LOG OF BORING NO. 318

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2395.01 S.; 2063.57 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 862.3' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, some gravel, trace of cobbles, trace of rock fragments - damp				
5'					
10'					
	(Auger refusal at 12.5')				
15'	Bottom of boring at 12.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 12.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#503

LOG OF BORING NO. 319

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2371.92 S.; 2104.88 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 861.2' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
7.0'	(FILL) Black and gray clay, some silt, some sand, some organic material - moist				
10'					
11.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments - moist (Auger refusal at 13.5')				
15'	Bottom of boring at 13.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 13.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#5C4

LOG OF BORING NO. 320

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2362.67 S.; 2142.37 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 860.7' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
2.5'	(FILL) Gray and black silt and clay, some sand, trace of gravel - moist				
5'					
10'					
15'	(Auger refusal at 14.0')				
	Bottom of boring at 14.0'				
20'					
25'					
30'	NOTE: Set 4"PVC pipe 14.0' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#565

LOG OF BORING NO. 321

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2374.12 S.; 2184.29 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 860.2' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
10'					
11.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 13.5')				
15'	Bottom of boring at 13.5				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 13.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#506

LOG OF BORING NO. 322

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2396.63 S.; 2204.70 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 860.2' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of cobbles - moist				
5'					
10'	(Auger refusal at 9.5')				
	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 9.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#507

LOG OF BORING NO. 323

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2405.82 S.; 2212.91 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 860.6' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of rock fragments, trace of cobbles, trace of gravel - moist				
5' 5.5'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 7.0')				
10'	Bottom of boring at 7.0'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 7.0' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#5.5

LOG OF BORING NO. 324

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2428.62 S.; 2178.04 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 863.7' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
10'					
10.5'	(FILL) Gray silt, some clay, some sand, trace of gravel, trace of rock fragments - moist (Auger refusal at 11.5')				
15'	Bottom of boring at 11.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 11.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#509

LOG OF BORING NO. 325

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2495.90 S.; 2236.24 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 866.5' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of rock fragments, trace of gravel, trace of cobbles - moist				
5'					
7.5'	(FILL) Gray silt, some clay, some rock fragments - moist (Auger refusal at 9.5')				
10'	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 9.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 326

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2478.86 S.; 2212.03 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 866.2' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of cobbles - moist				
5'					
7.0'	(FILL) Gray silt, some clay, some sand, trace of gravel, trace of rock fragments - moist (Auger refusal at 9.5')				
10'					
	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 9.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#511

LOG OF BORING NO. 327

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2464.14 S.; 2183.99 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 865.8' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist				
5'					
6.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 7.5')				
10'	Bottom of boring at 7.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 7.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#5:2

LOG OF BORING NO. 328

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2450.73 S.; 2151.55 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 865.0' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist				
5'					
5.5'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace cobbles - moist (Auger refusal at 7.5')				
10'	Bottom of boring 7.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 7.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#513

LOG OF BORING NO. 329

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2438.63 S.; 2119.34 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 864.5' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of rock fragments, trace of gravel - moist				
5'					
10'					
11.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 12.5')				
15'	Bottom of boring at 12.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 12.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#514

LOG OF BORING NO. 330

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2422.74 S.; 2080.99 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 863.4' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist				
5'					
5.5'	(FILL) Gray silt, some clay, some sand, trace of rock fragments - moist (Auger refusal at 6.5')				
10'	Bottom of boring at 6.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 6.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#515

LOG OF BORING NO. 331

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2401.45 S.; 2102.09 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 863.1' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
7.0'	(FILL) Gray shale with rock fragments - damp				
10'					
15'	Bottom of boring at 15.0'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 15.0' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

#520

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S2204.9043, W4154.7462 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 741.27' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown and gray sand, some gravel, some cobbles, some asphalt chunks, trace of silt - damp				
2.0'					
2.5'	(FILL) Topsoil				
4.5'	(FILL) Medium stiff gray silt and clay, some sand, trace of gravel - moist	1A	1.5-3.0	14- 5- 4	9
7.0'	(FILL) Stiff brown silt, some clay, some sand, trace of gravel - moist	2A	3.5-5.0	4- 5- 6	11
8.5'	(ORIGINAL) Stiff dark brown silt and clay, some sand, trace of organic material - moist	3A	6.0-7.5	4- 5- 9	14
	Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	7- 8- 8	16
		5A	13.5-15.0	9-11-14	25
18.5'	Hard gray silt, some clay, some sand, trace of gravel - moist	6A	18.5-20.0	11-15-20	35
	Bottom of boring at 20.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#521

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S2204.4102, W4093.2311 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 738.87' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt chunks, sand and gravel, some cobbles, some silt - moist				
0.8'	(FILL) Dense brown sand and gravel, some silt - moist	1A	1.0-2.5	12-22-25	47
4.5'	(FILL) Very stiff brown silt, some clay, some organic material, trace of sand - moist	2A	3.5-5.0	7- 8- 9	17
5.5'	(FILL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	3A	6.0-7.5	4- 7- 9	16
8.5'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	6-10-11	21
		5A	13.5-15.0	10-14-15	29
18.5'	Very stiff gray silt, some clay, some sand, trace of gravel - moist	6A	18.5-20.0	12-14-15	29
	Bottom of boring at 20.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 18.5' (light)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#522

LOG OF BORING NO. 3

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S2165.3816, W4086.5783 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 736.77' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gray sand and gravel, some crushed stone - damp				
1.3'	(FILL) Very stiff brown and gray silt, some clay, some sand, trace of gravel - moist	1A	1.0-2.5	5- 7- 9	16
5'		2A	3.5-5.0	9- 9- 8	17
	(Becomes hard at 6.0')	3A	6.0-7.5	12-15-18	33
8.5'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	5- 9- 9	18
10'					
15'	(Becomes hard at 14.0')	5A	13.5-15.0	13-15-16	31
20'		6A	18.5-20.0	16-18-20	38
	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 28042 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#523

LOG OF BORING NO. 4

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19,
MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S2159.5975, W4137.7369 **DATE STARTED:** 6/7/84

SURFACE ELEVATION: 739.17' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gray sand and gravel, some cobbles - damp				
1.0'	(FILL) Hard gray silt, some clay, some gravel, some sand, some rock fragments - damp	1A	1.0-2.5	15-30-35	65
3.5'	(ORIGINAL) Very stiff dark brown silt and clay, some sand, trace of gravel - moist	2A	3.5-5.0	5- 8-12	20
7.0'	Medium stiff brown silt and sand, some clay, trace of gravel - moist	3A	6.0-7.5	3- 4- 6	10
8.0'	Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	8.5-10.0	9- 8- 9	17
		5A	13.5-15.0	8- 9- 9	18
18.5'	Very stiff gray silt, some clay, some sand, trace of gravel - moist	6A	18.5-20.0	7- 8- 9	17
		7A	23.5-25.0	8-11-11	22
	(Becomes hard at 29.0')	8A	28.5-30.0	12-15-18	33

(Continued on next page)

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 28042 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: 21.0' (medium)
COMPLETION DEPTH: 22.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 4 (Second page)

SOIL STUDY FOR PROPOSED BUILDING SITE SOUTH OF BUILDING NO. 19, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: S2159.5975, W4137.7369 **DATE STARTED:** [redacted]

SURFACE ELEVATION: 739.17' **DATE COMPLETED:** 6/7/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
34.0'					
35'	Very dense brown sand and gravel, some silt - wet	9A	33.5-35.0	31-38-50/2"	88+
	Bottom of boring at 35.0'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 28042 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: 21.0' (medium)
COMPLETION DEPTH: 22.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#524

LOG OF BORING NO. 1

SOIL STUDY FOR STREET IMPROVEMENT,
MONSANTO RESEARCH CORPORATION, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: N1981.5443, E2618.9954 **DATE STARTED:** 5/24/84

SURFACE ELEVATION: 826.98' **DATE COMPLETED:** 5/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt (2 inches)				
0.2'					
1.0'	(FILL) Concrete (10 inches)				
1.5'	(FILL) Base (6 inches)				
	(FILL) Hard gray silt, some clay, some sand, some rock fragments - damp	1A	1.0-2.5	8-12-20	32
5'					
6.0'	(Becomes stiff at 4.0')	2A	4.0-5.5	10-10- 3	13
	(ORIGINAL) Hard gray silt, some clay, some sand, some rock fragments - damp	3A	6.5-8.0	75-24-15	39
10'	(Becomes medium stiff at 9.0')	4A	9.0-10.5	6- 3- 5	8
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BC-KB
JOB NO.: 28031 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#525

LOG OF BORING NO. 2

SOIL STUDY FOR STREET IMPROVEMENT,
MONSANTO RESEARCH CORPORATION, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: N1905.6425, E2573.7033 **DATE STARTED:** 5/24/84

SURFACE ELEVATION: 829.66' **DATE COMPLETED:** 5/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt (4 inches)				
0.4'					
1.0'	(FILL) Sand and gravel base (8 inches)				
2.5'					
	(FILL) Stiff gray silt, some clay, some sand - damp	1A	1.0-2.5	4- 7- 8	15
5'					
	(ORIGINAL) Very stiff gray silt, some clay, some sand, some rock fragments - damp	2A	4.0-5.5	8- 9-11	20
	(Becomes hard at 6.5')	3A	6.5-8.0	16-40-32	72
10'	(Auger refusal at 9.0')				
	Bottom of boring at 9.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-KB

JOB NO.: 28031 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#526

LOG OF BORING NO. 3

SOIL STUDY FOR STREET IMPROVEMENT,
MONSANTO RESEARCH CORPORATION, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: N1801.4289, E2484.0029 **DATE STARTED:** 5/24/84

SURFACE ELEVATION: 839.82' **DATE COMPLETED:** 5/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt (2 inches)				
0.2'					
0.8'	(FILL) Concrete (8 inches)				
1.1'	(FILL) Sand and gravel base (3 inches)				
3.5'					
5'	(FILL) Very stiff brown silt, some clay, some sand, trace of gravel - damp	1A	1.0-2.5	5-10-12	22
	(ORIGINAL) Hard brown silt, some clay, some sand, some rock fragments - damp	2A	4.0-5.5	15-27-20	47
10'		3A	6.5-8.0	20-16-29	45
	(Auger refusal at 8.0')				
	Bottom of boring at 8.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-KB

JOB NO.: 28031 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#527

LOG OF BORING NO. 4

SOIL STUDY FOR STREET IMPROVEMENT,
MONSANTO RESEARCH CORPORATION, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: N1657.6292, E2362.8950 **DATE STARTED:** 5/24/84

SURFACE ELEVATION: 854.10' **DATE COMPLETED:** 5/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt (2 inches)				
0.2'	(FILL) Concrete (8 inches)				
0.8'	(FILL) Sand and gravel base (3 inches)				
1.0'	(ORIGINAL) Very stiff brown and gray silt, some clay, some sand, trace of rock fragments - damp	1A	1.0-2.5	5-12-10	22
5'	(Becomes hard with some rock fragments from 4.0')	2A	4.0-5.5	20-32-28	60
		3A	6.5-7.0	100/1"	100+
10'		4A	9.0-10.5	16-22-25	47
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD:	HOLLOW STEM AUGER	WATER OBSERVATIONS	TYPE SAMPLER:	
TECHNICIAN:	BC-KB	INITIAL DEPTH: None	X	A. SPLIT SPOON
JOB NO.:	28031 (bw)	COMPLETION DEPTH: None		B.
		DEPTH AFTER: ____ HRS. ____		C. SHELBY TUBE

BOWSER – MORNER

#52E

LOG OF BORING NO. 5

SOIL STUDY FOR STREET IMPROVEMENT,
MONSANTO RESEARCH CORPORATION, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: N1509.1097, E2292.4143 **DATE STARTED:** 5/24/84

SURFACE ELEVATION: 866.35' **DATE COMPLETED:** 5/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt (2 inches)				
0.2'					
1.0'	(FILL) Concrete (10 inches)				
1.5'	(FILL) Sand and gravel base (6 inches)				
5'	(ORIGINAL) Hard gray silt, some clay, some sand, trace of rock fragments - damp	1A	1.0-2.5	10- 9-25	34
6.0'	(With trace of cobbles at 4.5')	2A	4.0-5.5	20-16-15	31
	Very stiff brown silt, some clay, some sand, trace of rock fragments - damp	3A	6.5-8.0	3- 6-21	27
10'	(Becomes hard at 9.0')	4A	9.0-10.5	13-16-23	39
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-KB

JOB NO.: 28031 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#529

LOG OF BORING NO. 6

SOIL STUDY FOR STREET IMPROVEMENT,
MONSANTO RESEARCH CORPORATION, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: N1275.0807, E2282.7943 **DATE STARTED:** 5/24/84

SURFACE ELEVATION: 868.33' **DATE COMPLETED:** 5/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Aspahlt (2 inches)				
0.2'					
1.0'	(FILL) Concrete (10 inches)				
1.3'	(FILL) Sand and gravel base (4 inches)				
5'	(ORIGINAL) Hard brown silt, some clay, some sand, trace of rock fragments - damp	1A	1.0-2.5	30-21-17	38
		2A	4.0-4.5	100/2"	100+
	(Auger refusal at 5.5')				
10'	Bottom of boring at 5.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-KB

JOB NO.: 28031 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#530

LOG OF BORING NO. 1

GEOTECHNICAL STUDY FOR PROPOSED BUILDING "W" MODIFICATIONS,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMSBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 1452 S 2446 W (Plant Ctr.)

DATE STARTED: 5-18-83

SURFACE ELEVATION: 873.8'

DATE COMPLETED: 5-18-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.1'	(FILL) Very stiff brown silt, trace of clay, trace of sand, trace of gravel, trace of organic material - damp	1A	1.0-2.5	7-13-14	27
2.0'	(FILL) Brown sand and gravel, trace of silt - moist				
3.0'	Apparent weathered rock (auger refusal)				
	Bottom of boring at 3.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF-BP

JOB NO.: 27325 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#531

LOG OF BORING NO. 2

GEOTECHNICAL STUDY FOR PROPOSED BUILDING "W" MODIFICATIONS,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-17-83

SURFACE ELEVATION: 874.8' **DATE COMPLETED:** 5-18-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.2'	(FILL) Very stiff brown silt, trace of sand, trace of gravel, trace of clay, trace of organic material - damp	1A	1.0-2.5	3-13-16	29
2.0'	(FILL) Very dense brown sand and gravel, trace of silt - damp	2A	4.0-5.2	4-19-77/3"	96+
5.0'	Hard brown and gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments (residual soil) - moist				
5.3'	(Rock) Shaly limestone, moderately weathered, brown and gray to dark gray, medium hard	1B	6.0-16.0		98"
8.0'	(Rock) Shale and limestone light gray to dark gray, moderately weathered, medium soft, with clay partings				
	Bottom of boring at 16.0'				

10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-RH

JOB NO.: 27325 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: Unknown

COMPLETION DEPTH: 5.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#532

LOG OF BORING NO. 3

GEOTECHNICAL STUDY FOR PROPOSED BUILDING "W" MODIFICATIONS,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 1338 S 2438 W (plant coor.)

DATE STARTED: 5-17-83

SURFACE ELEVATION: 873.2'

DATE COMPLETED: 5-18-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gravel fill				
0.3'	(FILL) Hard gray and brown silt and rock fragments, trace of sand and gravel - moist	1A	1.0-1.8	14-86/4"	100+
2.0'	Hard brown and gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments (residual soil) - moist (Heavy rock fragments from 2.0')	1B	4.0-14.0		116"
4.0'	(Rock) Shaly limestone, gray to light gray, soft to medium hard, interbedded with occasional hard clay partings				
5'					
10'					
15'	Bottom of boring at 14.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF-BA

JOB NO.: 27325 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 2.4'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#533

LOG OF BORING NO. 4

GEOTECHNICAL STUDY FOR PROPOSED BUILDING "W" MODIFICATIONS,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-18-83

SURFACE ELEVATION: 875.6' **DATE COMPLETED:** 5-18-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brick				
.1'	Concrete footing				
2.25'	Gray and brown silt, some clay, trace of sand, trace of gravel, trace of rock fragments - damp				
2.80'	Apparent weathered rock				
	Bottom of pit at 2.80'				
5'					
10'					
15'					
20'					
25'					
30'		1A 1C	27.75-33.75 27.75-33.75	50/6"	50+ 6"

METHOD: JACK HAMMER SHOVEL

TECHNICIAN: TA-RF-BP

JOB NO.: 27325 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 1

EVALUATION OF EXISTING FILL
IN THE AREA OF THE PIPE STANCHIONS ADJACENT TO THE DS BUILDING,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-16-83

SURFACE ELEVATION: 870.4' **DATE COMPLETED:** 5-16-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0	(FILL) Brown silt, some sand, some gravel, trace of clay - damp				
4.5	(6" sand seam at 4.0')				
5'	(FILL) Medium stiff brown and gray silt, some clay, trace of sand, trace of gravel - damp	1A	4.0- 5.5	3- 4- 6	10
10.0'	(FILL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	2A	9.0-10.5	5-11-11	22
13.0'	Apparent top of tunnel (auger refusal)				
15'	Bottom of boring at 13.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RF, BP
JOB NO.: 27317 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#535

LOG OF BORING NO. 2

EVALUATION OF EXISTING FILL
IN THE AREA OF THE PIPE STANCHIONS ADJACENT TO THE DS BUILDING,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-13-83

SURFACE ELEVATION: 871.3' **DATE COMPLETED:** 5-13-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0	(FILL) Medium stiff brown clay, some silt, trace of rock fragments, trace of topsoil - moist				
		1A	4.0- 5.5	2- 2- 6	8
5'					
		2A	9.0-10.1	5- 6-30/1"	36+
10'					
10.5'	Apparent top of tunnel (auger refusal)				
	Bottom of boring at 10.1'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**
TECHNICIAN: TA, BC	**INITIAL DEPTH:** None	X A. SPLIT SPOON
	COMPLETION DEPTH: None	B.
JOB NO.: 27317 (cp)	**DEPTH AFTER:** ____ **HRS.** ____	C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#536

LOG OF BORING NO. 3

EVALUATION OF EXISTING FILL
IN THE AREA OF THE PIPE STANCHIONS ADJACENT TO THE DS BUILDING,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-13-83

SURFACE ELEVATION: 871.2' **DATE COMPLETED:** 5-13-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0	(FILL) Brown sand and gravel, trace of cobbles, trace of silt - damp				
3.5'	(FILL) Medium stiff brown clay, some silt, some sand, trace of rock fragments, trace of topsoil - moist	1A	4.0- 5.5	8- 4- 6	10
5'		2A	9.0-10.5	3- 3- 3	6
10'		1C	11.5-13.5		14"
13.0'	(FILL) Stiff blue-gray and brown silt, some clay, some silt, trace of rock fragments - moist	3A	13.5-15.0	3- 4- 5	9
15'		4A	19.0-20.5	3- 4- 6	10
20'	(Becomes very stiff at 24.0')	5A	24.0-25.5	17-10-18	28
25'	(Becomes stiff at 29.0')	6A	29.0-30.5	3- 6- 5	11
30'	(Continued on next page)				

METHOD: HOLLOW STEM AUGER
TECHNICIAN: TA, BC
JOB NO.: 27317 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
B.
X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 3 (Second sheet)

EVALUATION OF EXISTING FILL
IN THE AREA OF THE PIPE STANCHIONS ADJACENT TO THE DS BUILDING,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-13-83

SURFACE ELEVATION: 871.2' **DATE COMPLETED:** 5-13-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30.0'	(continued)				
		7A	34.0-35.5	8- 8- 5	13
35'	Bottom of boring at 35.5'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA, BC

JOB NO.: 27317 (cp)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 4

EVALUATION OF EXISTING FILL
IN THE AREA OF THE PIPE STANCHIONS ADJACENT TO THE DS BUILDING,
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-13-83

SURFACE ELEVATION: 871.3' **DATE COMPLETED:** 5-13-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium stiff gray clay, some silt, trace of sand, trace of rock fragments, trace of topsoil - moist				
		1A	4.0- 5.5	8- 4- 3	7
5'					
9.0'	(FILL) Soft blue-gray and brown silt, and clay, some sand, trace of gravel - wet	2A	9.0-10.5	4- 3- 2	5
10'	(Becomes very soft at 11.5')	3A	11.5-13.0	4- 2- 1	3
15'		1C	14.0-16.0		14"
20'	(Becomes medium stiff at 20.0')	4A	20.0-21.5	4- 4- 6	10
	(Rock fragments from 22.0' to 30.0')				
	(Becomes hard at 24.0')	5A	24.0-25.5	14-26- 9	35
25					
	(Trace of wood at 29.0')	6A	29.0-30.5	4- 5-10	15
30'	Bottom of boring at 30.5'				

METHOD: HOLLOW STEM AUGER
TECHNICIAN: TA, BC
JOB NO.: 27317 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: 8.0' (heavy)
COMPLETION DEPTH: 5.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#538

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED BUILDING SITE, NEAR BUILDING 50,
MOUND FACILITY, MRC, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from Map 2546 S 1838 W (Plant Coor)

SURFACE ELEVATION: ~~107.9'~~ ~ 978

DATE STARTED: 3-8-83

DATE COMPLETED: 3-8-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0'	(FILL) Topsoil				
0.4'	(FILL) Very stiff brown silt, some rock fragments, some clay, trace of sand, trace of gravel - moist (Becomes damp and hard at 4.0')	1A	1.0- 2.5	8-18-11	29
		2A	4.0- 5.5	21-50-29/2"	79+
		3A	6.5- 7.3	14-86/4"	100+
9.5'	(ORIGINAL) Medium soft highly weathered gray shale	4A	9.0-10.3	21-48-31/2"	79+
14.5'	Apparent solid rock (auger refusal)	5A	14.0-14.2	100/2"	100+
	Bottom of boring at 14.2'				

5000 lb/sq FT

METHOD: HOLLOW STEM AUGER

CREW CHIEF: BW-TA

RIG NO.: 27167 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#539

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED BUILDING SITE, NEAR BUILDING 50,
MOUND FACILITY, MRC, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2494 S 1914 W (Plant Coor.)

DATE STARTED: 3-8-83

SURFACE ELEVATION: ~~103.0'~~ 871.5

DATE COMPLETED: 3-8-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.3'	(FILL) Very stiff brown silt and rock fragments, some clay, trace of sand, trace of gravel - moist	1A	1.0- 2.5	10-14-11	25
	(Becomes medium stiff with trace or organic material at 4.0')	2A	4.0- 5.5	2- 3- 3	6
5'	(Becomes hard and damp at 6.5')	3A	6.5- 7.7	25-43-32/3"	75+
9.0'					
10'	(ORIGINAL) Hard gray and brown silt, some clay, trace of sand, trace of gravel, trace of rock fragments (weathered rock) - moist	4A	9.0- 9.7	40-60/2"	100+
		5A	14.0-14.7	18-82/3"	100+
15'	(Heavy rock fragments from 15.0')				
		6A	19.0-19.2	100/2"	100+
20'					
22.0'	Apparent solid rock (auger refusal)				
	Bottom of boring at 22.5'				
25'					
30'					

METHOD:	HOLLOW STEM AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**
TECHNICIAN:	BW-TA	INITIAL DEPTH: None	X A. SPLIT SPOON
JOB NO.:	27167 (cp)	COMPLETION DEPTH: None	B.
		DEPTH AFTER: ____ HRS. ____	C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED MODULAR OFFICE STRUCTURE
BUILDING NO. 67, MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/30/80

SURFACE ELEVATION: 101.7'* **DATE COMPLETED:** 1/30/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gravel, some asphalt				
1.0'	(FILL) Very stiff brown silt, some sand, some clay, trace of gravel, trace of bricks, trace of cinders - moist	1A	1.0- 2.5	7-10-11	21
4.3'	(ORIGINAL) Very stiff brown and gray silt, some clay, some sand, trace of gravel - moist	1C	4.0- 6.0		12"
5'		2A	6.0- 7.5	5-11-13	24
10'		3A	9.0-10.5	10-12-14	26
		2C	13.0-15.0		24"
15'	(Becomes hard at 15.0')	4A	15.0-16.5	16-24-60	84
19.5'	Very stiff gray silt, some clay, some sand, trace of gravel - moist	5A	19.0-20.5	18-13-12	25
20'					
25'	(With 2" to 4" sand seams at 25.0')	6A	24.0-25.5	11-13-16	29
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BC-LS
JOB NO.: 25514 (cls)

WATER OBSERVATIONS
INITIAL DEPTH: **
COMPLETION DEPTH: 22.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
X C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

**7.0' (trace); 19.0'

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

#541

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED MODULAR OFFICE STRUCTURE
BUILDING NO. 67, MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/30/80

SURFACE ELEVATION: 101.6'* **DATE COMPLETED:** 1/30/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gravel, some asphalt				
1.0'	(FILL) Hard brown and gray silt, some clay, some sand, some rock fragments - moist	1A	1.0- 2.0	11-90/3"	101+
5'		2A	4.0- 5.5	35-34-17	51
	(Becomes very stiff at 6.5')	3A	6.5- 8.0	5-10-10	20
8.0'	(ORIGINAL) Very stiff brown silt and clay, some sand, some topsoil, trace of gravel - damp	4A	9.0-10.5	5- 7-13	20
10'					
13.0'	Very stiff brown silt, some clay, some sand, trace of gravel - moist	5A	14.0-15.5	9-13-14	27
15'					
17.5'	Very stiff gray silt, some clay, some sand, trace of gravel - moist	6A	19.0-20.5	10-12-15	27
20'					
25'	(Becomes hard with some sand seams at 24.0')	7A	24.0-25.5	12-14-19	33
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-LS

JOB NO.: 25514 (cls)

WATER OBSERVATIONS

INITIAL DEPTH: 7.0

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

#542

LOG OF BORING NO. 3

SOIL STUDY FOR PROPOSED MODULAR OFFICE STRUCTURE
BUILDING NO. 67, MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/30/80

SURFACE ELEVATION: 102.7'* **DATE COMPLETED:** 1/30/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Gravel, some asphalt				
1.0'	(FILL) Hard gray silt, some clay, some sand, trace of gravel, trace of rock fragments - moist	1A	1.0- 2.5	14-18-16	34
5'		2A	4.0- 5.5	20-30-20	50
	(Becomes very stiff at 6.5')	3A	6.5- 8.0	4-12- 8	20
9.0'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	4A	9.0-10.5	4- 8-10	18
10'					
		1C	13.5-15.5		24"
15'					
	(Becomes hard at 15.5')	5A	15.5-17.0	11-22-33	55
18.0'	Hard gray silt, some clay, some sand, trace of gravel - damp (With 2" to 6" wet sand seams at 19.0')				
20'		6A	19.0-20.5	16-24-36	60
25'		7A	24.0-25.5	11-18-29	47
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BC-LS
JOB NO.: 25514 (cls)

WATER OBSERVATIONS
INITIAL DEPTH: **
COMPLETION DEPTH: 22.5'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
X C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan
**6.5' (heavy); 13.5'

BOWSER – MORNER
TESTING LABORATORIES, INC.

2815

#543

LOG OF BORING NO. 1

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan
From Map 2092 S 1916 W Plant coor

DATE STARTED: 11-26-80

SURFACE ELEVATION: ~~103.9'~~ 817.0 from map

DATE COMPLETED: 11-26-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Hard gray and brown silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist	1A	1.0- 2.5	10-24-66/5"	90+
		2A	4.0- 5.5	27-19-45	64
5'		3A	6.5- 7.2	80-20/1"	100+
		4A	9.0-10.5	25-22-23	45
10'					
14.3'					
15'	Soft gray weathered shale	5A	14.0-15.0	7-83	90+
		6A	19.0-19.7	67-33/2"	100+
20'	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: 18.0' (light)

COMPLETION DEPTH: 18.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#544

LOG OF BORING NO. 2

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 11-26-80

SURFACE ELEVATION: 106.0' **DATE COMPLETED:** 11-26-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Hard gray and brown silt, some clay, some rock fragments, trace of gravel, trace of sand - moist	1A	1.0- 1.5	100	100
2.5'	(ORIGINAL) Hard gray brown silt, some clay, trace of sand trace of gravel - moist	2A	4.0- 5.5	12-14-27	41
		3A	6.5- 8.0	10-20-33	53
		4A	9.0-10.5	11-20-32	52
14.5'	Soft gray weathered shale	5A	14.0-14.9	36-64/5"	100+
19.0'	Auger refusal - apparent solid rock	6A	19.0	100	100
	Bottom of boring at 19.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: 14.8' (trace)

COMPLETION DEPTH: 18.0'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#545

LOG OF BORING NO. 3

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 11-26-80

SURFACE ELEVATION: 114.5' **DATE COMPLETED:** 11-26-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Topsoil				
0.5'	(Fill) Hard gray and brown silt, some clay, some rock fragments, trace of sand, trace of silt - moist	1A	1.0- 2.5	15-30-19	49
4.0'	(Fill) Hard gray and brown silt, some clay, some rock fragments, trace of sand, trace of gravel, trace of organic material - moist	2A	4.0- 5.5	24-34-28	62
7.0'	(Original) Hard gray and brown silt, some clay, trace of rock fragments, trace of sand, trace of gravel - moist (Some rock fragments from 8.5')	3A 4A	6.5- 8.0 9.0- 9.8	24-34-28 40-60/3"	62 100+
13.0'	Soft gray weathered shale	5A	14.0-14.4	100/5"	100+
18.0'	Auger refusal - apparent solid rock				
	Bottom of boring at 18.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: 13.0' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#546

LOG OF BORING NO. 4

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 11-26-80

SURFACE ELEVATION: 109.0' **DATE COMPLETED:** 11-26-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.4'	(FILL) Hard brown silt, some clay, some rock fragments, trace of sand, trace of gravel - moist	1A	1.0- 1.8	37-63/3"	100
		2A	4.0- 4.2	100/2"	100+
5'					
7.5'	(ORIGINAL) Hard gray and brown silt, some clay, some rock fragments, trace of sand, trace of gravel-moist	3A	6.5- 8.0	27-63-34	97
10'		4A	9.0- 9.8	14-86/3"	100
13.5'	Soft gray weathered shale	5A	14.0-14.2	100/2"	100+
15'					
20.0'	Auger refusal - apparent solid rock	6A	19.0-19.5	100/6"	100+
	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#547

LOG OF BORING NO. 5

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 11-26-80

SURFACE ELEVATION: 103.9' **DATE COMPLETED:** 12-1-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.8'	(FILL) Very stiff gray and brown silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist	1A	1.0- 2.5	7-12-17	29
4.5'	(ORIGINAL) Hard brown and gray silt, some clay, trace of rock fragments, trace of sand, trace of gravel-damp	2A	4.0- 5.5	9-14-29	43
		1C	6.0- 6.5		0"
		3A	6.5- 8.0	14-20-28	48
		4A	9.0- 9.5	100	100+
14.0'	Soft gray weathered shale	5A	14.0-14.5	100	100+
20.0'	Auger refusal - apparent solid rock	6A	19.0-19.5	100/4"	100+
	Bottom of boring at 20.0'				

5' 10' 15 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: 19.0' (light)

COMPLETION DEPTH: 19.0'

DEPTH AFTER: 40 HRS. 13.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#548

LOG OF BORING NO. 1A

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12-1-80

SURFACE ELEVATION: 94.6' **DATE COMPLETED:** 12-1-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown sand and gravel				
1.5'	(FILL) Hard gray silt, some clay, some rock fragments, trace of sand, trace of gravel - moist	1A	1.0- 2.5	32-30-18	48
2.5'		2A	4.0- 5.5	6- 7- 8	15
5'	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel-moist				
6.5'	(ORIGINAL) Very stiff brown silt, some clay, trace of sand, trace of gravel - moist	3A	6.5- 8.0	9-14-16	30
		4A	9.0-10.5	7- 9-10	19
10'	(Becomes very stiff at 9.0')				
		1C	12.0-14.0		24"
	(Becomes hard at 14.0')	5A	14.0-15.5	21-16-22	38
15'					
16.0'	Very stiff gray silt, some clay, trace of sand, trace of gravel-moist				
		6A	19.0-20.5	9-14-16	30
20'					
		7A	24.0-25.5	14-14-16	30
25'					
		8A	29.0-30.5	7-11-18	29
30'	Bottom of boring at 30.5'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB-MM

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: 21.0' (light)

COMPLETION DEPTH: 28.5'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#549

LOG OF BORING NO. 2A

SOIL STUDY FOR GROUNDWATER AND FOUNDATION REQUIREMENTS FOR FLAMMABLE LIQUIDS AND GAS CYLINDER, BUILDING 61 AND WASTE SOLVENTS STORAGE BUILDING

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12-1-80

SURFACE ELEVATION: 93.3' **DATE COMPLETED:** 12-1-80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown sand and gravel				
1.0' 2.0'	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel-moist	1A	1.0- 2.5	7- 7- 7	14
4.0' 5'	(FILL) Stiff gray silt, some rock fragments, trace of sand, trace of gravel - moist				
6.0'	(FILL) Very stiff brown silt, some clay, trace of sand, trace of gravel trace of organic material - moist	2A	4.0- 5.5	5- 7-11	18
10'	(ORIGINAL) Hard brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist (Becomes very stiff at 9.0')	3A 4A	6.5- 8.0 9.0-10.5	15-16-18 7-10-12	34 22
15'		5A	14.0-15.5	8-10-12	22
19.0' 20'	Very stiff gray silt, some clay, trace of sand, trace of gravel-moist	6A	19.0-20.5	8-10-14	24
24.0' 25'	Hard gray silt, some clay, some sand, trace of gravel - moist	7A	24.0-25.5	10-19-24	43
		8A	29.0-30.5	13-13-18	31
30'	Bottom of boring at 30.5'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-TB-MM

JOB NO.: 26013 (mjs)

WATER OBSERVATIONS

INITIAL DEPTH: 24.0' (light)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#550

LOG OF BORING NO. B-1

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: ~~As shown on boring location plan~~ from Map 29565 28816 N Plant Coor

DATE STARTED: 5/01/84

SURFACE ELEVATION: 853.1'

DATE COMPLETED: 5/01/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very stiff brown and gray silt, some clay, some gravel, some sand, trace of rock fragments, trace of organic material - moist				
5'		1A	3.5-5.0	6-10-10	20
10'	(Becomes hard at 8.5')	2A	8.5-10.0	8-53-50/2"	103+
13.0'	(FILL) Hard gray silt, some clay, some gravel, some sand, trace of rock fragments - moist	3A	13.5-15.0	36-38-42	80
15'					
18.5'	(ORIGINAL) Hard brown and gray silt, some clay, some gravel, some sand trace of rock fragments - moist	4A	18.5-20.0	7-32-49	81
20'					
25'		5A	23.5-25.0	23-17-42	59
30'		6A	28.5-30.0	12-17-40	57

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 27955 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" WIRELINE

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. B-1 (Second page)

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5/01/84

SURFACE ELEVATION: 853.1' **DATE COMPLETED:** 5/01/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
33.5'	Brown and gray shale with limestone shelves - dry	7A	33.5-34.5	43-100/3"	143+
35'					
40'		1B	34.5-44.5	RQD=0%	70"
45'	Bottom of boring at 44.5'				
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 27955 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER

#551

LOG OF BORING NO. B-2

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2690 S 20 E.N plant coor

DATE STARTED: 4/26/84

SURFACE ELEVATION: 834.0'

DATE COMPLETED: 4/26/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown and gray silt and clay, some sand, some gravel, some rock fragments, some cobbles - moist				
5'		1A	3.5-5.0	20-30-14	44
10'	(Becomes very stiff and wet at 8.5')	2A	8.5-10.0	7-11- 7	18
13.5'					
15'	(ORIGINAL) Hard gray clay and silt, some gravel, some sand, trace of rock fragments - moist (Residual soil)	3A	13.5-15.0	20-23-18	41
18.5'					
20'	Hard brown and light gray clay and silt, some gravel, some rock fragments, with interbedded thin layers of limestone - moist	4A	18.5-20.0	17-23-24	47
25'		5A	23.5-25.0	17-23-24	47
28.0'					
30'	[illegible] (hard rock) Shale and limestone	[illegible]	28.5-30.0	[illegible]	65

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 27955 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 8.0'

COMPLETION DEPTH: Unknown

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" WIRELINE

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. B-2 (Second page)

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/26/84

SURFACE ELEVATION: 834.0' **DATE COMPLETED:** 4/26/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
33.0'	(Rock) Shale and limestone	7A	33.5-34.0	100/3"	100+
35'					
40'		8A	38.5-39.0	100/3"	100+
45'		9A	43.5-44.5	48-100/5"	148+
	Bottom of boring at 44.5'				
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 27955 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: 8.0'
COMPLETION DEPTH: Unknown
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER

#552

LOG OF BORING NO. B-3

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map ~~2674~~ 2168 S ~~2168~~ 2874 W plant coor.

DATE STARTED: 5/02/84

SURFACE ELEVATION: 828.0'

DATE COMPLETED: 5/02/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown and gray silt, some clay, some gravel, some sand, trace of rock fragments, trace of organic material - moist				
3.5'	(FILL) Hard gray silt and clay, some gravel, some sand, trace of rock fragments - wet	1A	3.5-5.0	7-20-64	84
5' 6.0'	(FILL) Very stiff brown silt, some clay, some gravel, some sand, some rock fragments, trace of organic material - moist	2A	8.5-10.0	7-13-15	28
10'					
15'		3A	13.5-15.0	17- 7-27	34
18.0'	(ORIGINAL) Hard gray silt, some clay, some gravel, some sand, some rock fragments - moist	4A	18.5-20.0	18-32-50/2"	82+
20'					
23.5'	Hard brown and gray silt, some clay, some gravel, some sand, some rock fragments - dry	5A	23.5-25.0	9-17-66	83
25' 26.0'	Brown and gray shale with limestone shelves (Rock) - dry	6A	28.5-30.0	22-23-40	63
30'	(Continued on next page)				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: DH-DD

JOB NO.: 27955 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 3.5'

COMPLETION DEPTH: Unknown

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" WIRELINE

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. B-3 (Second page)

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5/02/84

SURFACE ELEVATION: 828.0' **DATE COMPLETED:** 5/02/83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
		1B	30.0-37.0	RQD=0%	45"
35'					
	Bottom of boring at 37.0'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 27955 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: 3.5'
COMPLETION DEPTH: Unknown
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER

#553

LOG OF BORING NO. B-9

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/27/84

SURFACE ELEVATION: 858.8' **DATE COMPLETED:** 5/01/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Stiff gray and brown silt, some clay, some sand, some rock fragments - moist				
		1A	3.5-5.0	20-10- 5	15
5'					
10'	(Becomes hard at 8.5')	2A	8.5-10.0	52-22-32	54
13.0'	(FILL) Very stiff gray and brown clay, some silt, some sand, some rock fragments - moist	3A	13.5-15.0	10-12-13	25
15'					
20'	(Becomes hard at 18.5')	4A	18.5-20.0	7-11-23	34
25'	(With some organic material at 24.5')	5A	23.5-25.0	11-14-17	31
30'	(Becomes medium stiff at 28.5')	6A	28.5-30.0	7- 5- 7	12

(Continued on next page)

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 27955 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: 38.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. B-9 (Second page)

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/27/84

SURFACE ELEVATION: 858.8' **DATE COMPLETED:** 5/01/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
34.0'					
35'	(ORIGINAL) Very stiff brown and light gray silt and clay, some gravel, some rock fragments interbedded with thin layers of limestone - moist	7A	33.5-35.0	5- 7-10	17
40'		8A	38.5-40.0	50-13-17	30
41.0'	(Weathered rock) Shale and limestone				
45'		9A	43.5-45.0	15-18-21	39
50'		10A	48.5-49.5	13-100/3"	113+
53.5'	(Rock) Gray shale and limestone	11A	53.5-54.0	100/3"	100+
55'		1B	54.0-56.0	RQD=51%	24"
60'	(Continued on next page)	2B	56.0-64.5	RQD=51%	102"

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 27955 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: 38.0'
DEPTH AFTER: ____ **HRS.** ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. B-9 (Third page)

GEOTECHNICAL EVALUATION FOR PROPOSED C.O.S. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/27/84

SURFACE ELEVATION: 858.8' **DATE COMPLETED:** 5/01/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
60'	(Continued)				
65'					
70'		3B	64.5-74.0	RQD=51%	104"
75'	Bottom of boring at 74.0'				
80'					
85'					
90'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: DH-DD
JOB NO.: 27955 (bw)

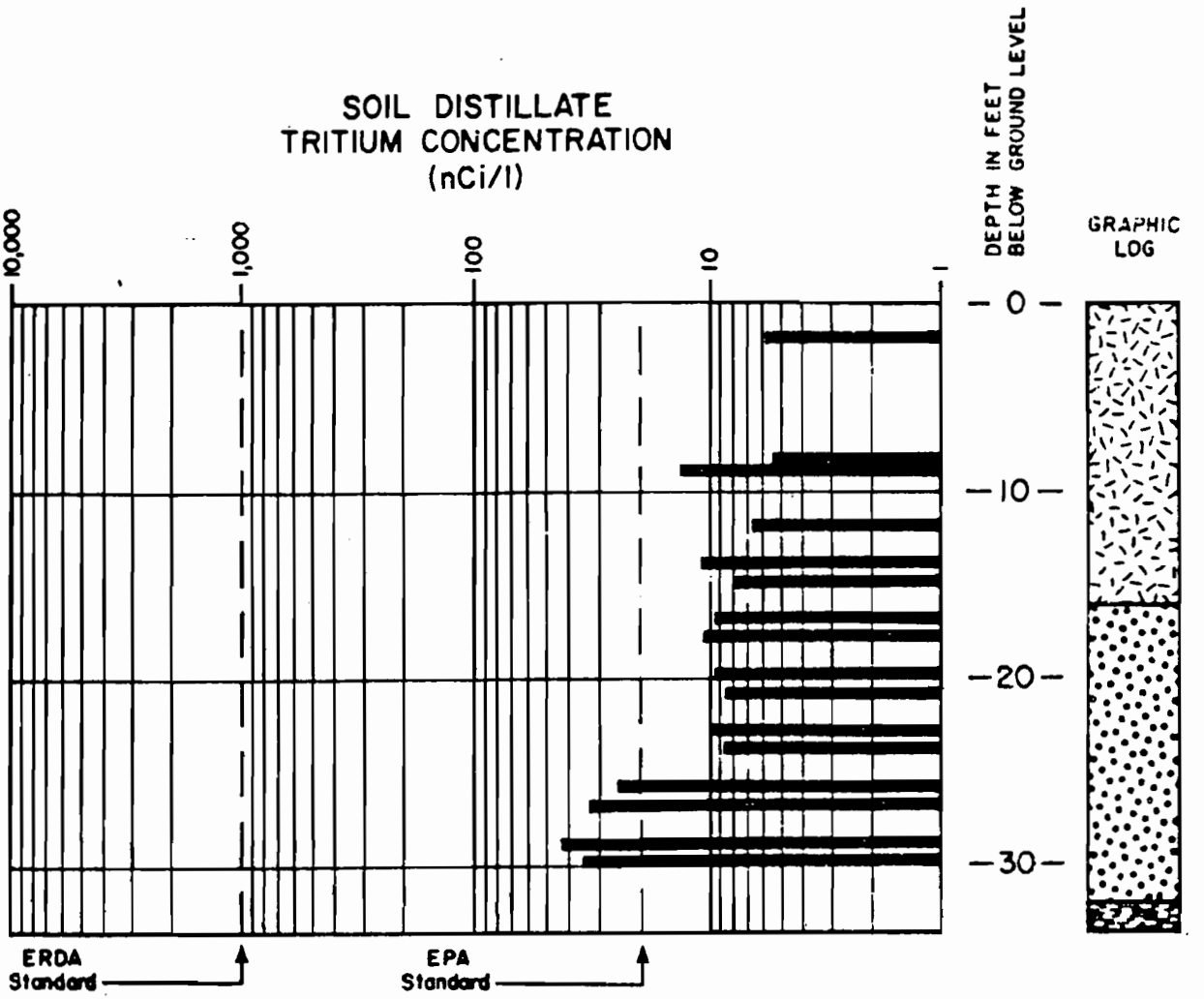
WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: 38.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER

#555

BORING G-2 SURFACE ELEVATION 704.2 COORDINATES 3005.63 S 4752.37 W



DATE STARTED: 6/9/76
DATE FINISHED: 6/9/76
TOTAL DEPTH: 33 1/2'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

WELL CONSTRUCTION:
2 3' BENTONITE SEALS

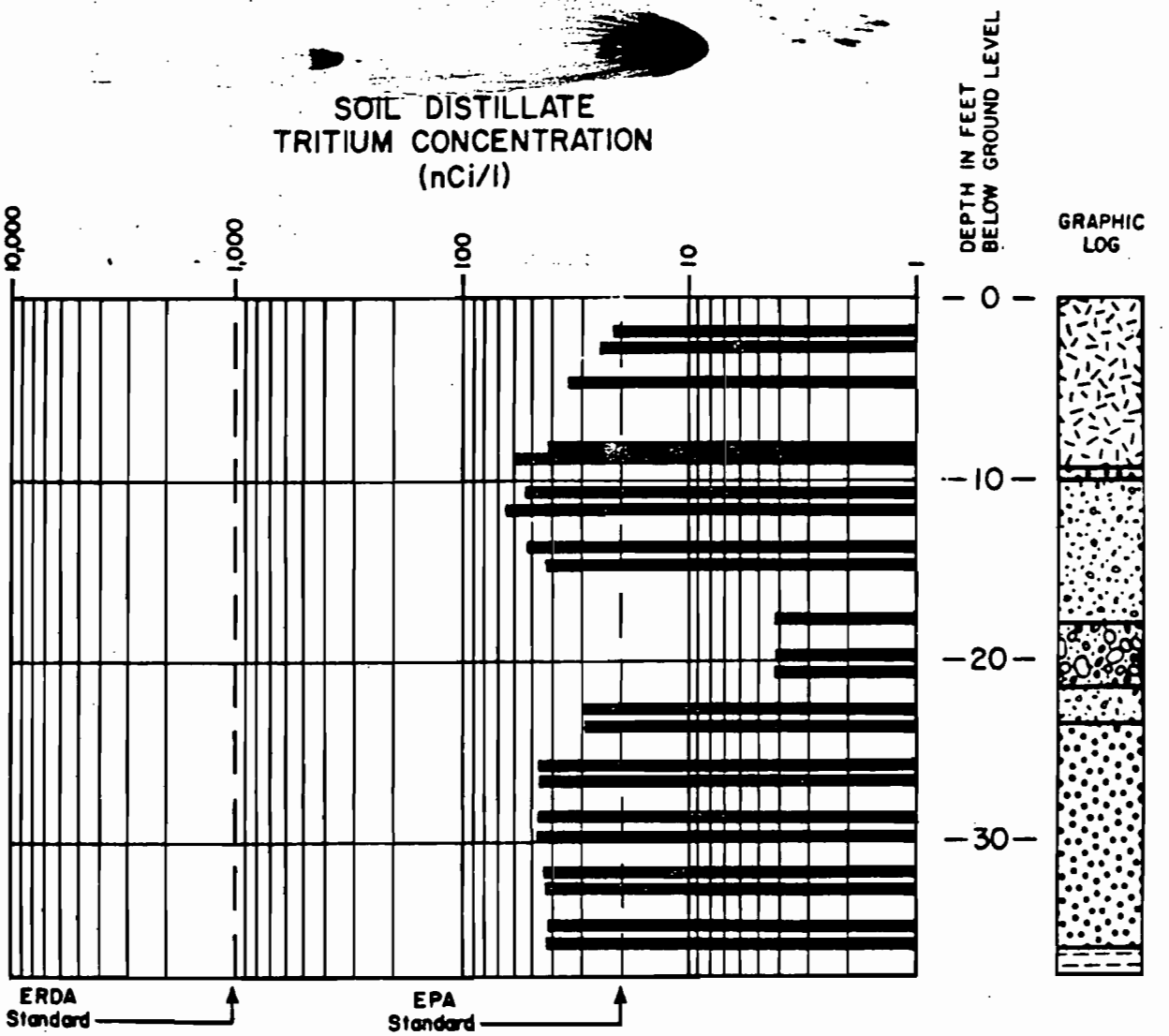
NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-2

#570

BORING G-18 SURFACE ELEVATION 704.4 COORDINATES 2911.02 S 4757.39 W



DATE STARTED: 6/10/76
DATE FINISHED: 6/10/76
TOTAL DEPTH: 37 1/2'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-18

#571

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED MODULAR OFFICE BUILDING,
(NEW BUILDING NO. 66), MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12/14/79

SURFACE ELEVATION: 787.8' **DATE COMPLETED:** 12/14/79

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Brown clay, trace of silt, trace of sand, trace of gravel, trace of cobbles - moist				
1.0'	(Fill) Stiff brown silt and sand, some clay, trace of gravel, trace of cobbles - moist (Becomes hard at 4.5')	1A	1.0- 2.5	3- 5- 8	13
		2A	4.0- 5.0	8-100/3"	108+
5'					
6.0'	(Fill) Hard gray silt, some clay, some sand, trace of gravel, trace of cobbles - moist (Becomes stiff at 9.0')	3A	6.5- 8.0	14-18-23	41
		4A	9.0-10.5	3- 5- 8	13
10'					
15'	(Becomes very stiff with trace of rock fragments at 14.0')	5A	14.0-15.5	25- 7- 9	16
20'	(Becomes hard at 19.0')	6A	19.0-20.5	12-17-18	35
24.0'	(Original) Very stiff gray silt, some clay, some sand, trace of organic material - moist (Possible original topsoil)	7A	24.0-25.5	4- 6-11	17
25'					
29.0'	Very stiff brown silt, some clay, some sand, trace of gravel - moist (Continued on next page)	8A	29.0-30.5	7- 7-17	24
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RG-LS-RF

JOB NO.: 25480 (bab)

WATER OBSERVATIONS

INITIAL DEPTH: 24.0'

COMPLETION DEPTH: 31.5'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

LOG OF BORING NO. 1 (second page)

SOIL STUDY FOR PROPOSED MODULAR OFFICE BUILDING,
(NEW BUILDING NO. 66), MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12/14/79

SURFACE ELEVATION: 787.8' **DATE COMPLETED:** 12/14/79

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
34.0'	Hard gray silt and fine sand, trace of clay - wet	9A	34.0-35.5	17-19-37	56
35'	Bottom of boring at 35.5'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RG-LS-RF
JOB NO.: 25480 (bab)

WATER OBSERVATIONS
INITIAL DEPTH: 24.0'
COMPLETION DEPTH: 31.5'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

#572

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED MODULAR OFFICE BUILDING,
(NEW BUILDING NO. 66), MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12-14-79

SURFACE ELEVATION: 789.3' **DATE COMPLETED:** 12/14/79

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Crushed stones				
0.3'	(Fill) Hard brown silt, some sand, some gravel, some clay, some cobbles, trace of cinders - moist	1A	1.0- 2.5	9-13-21	34
5'		2A	4.0- 5.5	8-36-12	48
6.5'	(Fill) Stiff gray and brown silt and clay, some sand, trace of gravel, trace of cobbles - moist	3A	6.5- 8.0	4- 8- 6	14
10'		4A	9.0-10.5	4- 4- 8	12
15'	(Becomes very stiff at 14.0')	5A	14.0-15.5	4-10- 8	18
20'	(Becomes hard at 19.0')	6A	19.0-20.0	45-55	100
21.0'	(Original) Stiff dark brown silt and clay, some sand - moist (Possible original topsoil)				
25		7A	24.0-25.5	4- 4- 8	12
		1C	25.5-27.5		24"
27.5'	Stiff brown silt and clay, some fine sand - wet	8A	27.5-29.0	3- 3- 8	11
30'	(Continued on next page)				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RG-LS-RF

JOB NO.: 25480 (bab)

WATER OBSERVATIONS

INITIAL DEPTH: 25.5'

COMPLETION DEPTH: 32.0'

DEPTH AFTER: 1 HRS. 14.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

LOG OF BORING NO. 2 (second page)

SOIL STUDY FOR PROPOSED MODULAR OFFICE BUILDING,
(NEW BUILDING NO. 66), MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12/14/79

SURFACE ELEVATION: 789.3' **DATE COMPLETED:** 12/14/79

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued) (Becomes hard with some rock fragments at 30.0')	9A	30.0-31.5	14-20-23	43
32.0'	Hard gray silt, some sand, some clay, trace of gravel - damp	10A	34.0-35.5	18-25-30	55
35'	Bottom of boring at 35.5'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RG-LS-RF

JOB NO.: 25480 (bab)

WATER OBSERVATIONS

INITIAL DEPTH: 25.5'

COMPLETION DEPTH: 32.0'

DEPTH AFTER: 1 HRS. 14.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2B15

#573

LOG OF BORING NO. 7

SOIL STUDY FOR PROPOSED ADDITIONS TO BUILDING #61,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2132 S 1744 W (plant coor)

SURFACE ELEVATION: ~~109.4'~~* 9.18

DATE STARTED: 8-12-81

DATE COMPLETED: 8-12-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Hard brown silt, some clay, trace of sand, trace of gravel - damp	1A	1.0- 2.0	7- 93	100
5' 4.0'	Hard light gray and brown silt, some clay, trace of sand, trace of gravel - damp	2A	4.0- 5.5	9-15-76	91
6.5'	Hard brown silt, some clay, trace of sand, trace of gravel - damp	3A	6.5- 7.5	55-40	95
8.0'	Weathered rock				
9.0'	Apparent rock (Auger refusal)				
10'	Bottom of boring at 9.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGERS

TECHNICIAN: RG-TB-JK

JOB NO.: 26400 (kab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark as shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#574

LOG OF BORING NO. 8

SOIL STUDY FOR PROPOSED ADDITIONS TO BUILDING #61,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 8-12-81

SURFACE ELEVATION: 114.3'* **DATE COMPLETED:** 8-12-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsil				
0.3'	Hard brown silt, some clay, trace of sand, trace of gravel - damp	1A	1.0- 1.3	100/3"	100+
5'		2A	4.0- 4.8	57-43/4"	100+
6.0'	Weathered rock				
7.0'	Apparent rock (Auger refusal)				
	Bottom of boring at 7.0'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RG-TB-JK
JOB NO.: 26400 (kab)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark as shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#575

LOG OF BORING NO. 9

SOIL STUDY FOR PROPOSED ADDITIONS TO BUILDING #61,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 8-12-81

SURFACE ELEVATION: 115.6'* **DATE COMPLETED:** 8-12-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Hard light brown silt, some clay, trace of sand, trace of gravel - damp (Rock fragments at 3.0')	1A	1.0- 2.2	15-64-21/2"	85+
5'		2A	4.0- 4.8	10-90/4"	100+
		3A	6.5- 8.0	25-25-53	78
8.5'	Gray shale with interbedded limestone layers				
10'		1B	8.5-13.5		21"
15'		2B	13.5-18.5		17"
20'	Bottom of boring at 18.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGERS
TECHNICIAN: RG-TB-JK
JOB NO.: 26400 (kab)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: 8.5'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. NX WL CORE
___ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark as shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#576

LOG OF BORING NO. 10

SOIL STUDY FOR PROPOSED ADDITIONS TO BUILDING #61,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2012 S 1506 W (plant coor.)

DATE STARTED: 8-12-81

SURFACE ELEVATION: ~~99.8~~** 813

DATE COMPLETED: 8-12-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Very stiff brown silt, some clay, trace of sand, trace of gravel - damp	1A	1.0- 2.5	8- 8- 8	16
5' 4.5'	Very stiff gray and brown silt, some clay, some sand, trace of gravel - moist	2A	4.0- 5.5	5-11-12	23
6.0'	Very stiff brown silt, some clay, some sand, trace of gravel - moist (Becomes hard at 9.5')	1C	6.0- 8.0		12"
		3A	8.0- 9.5	10-10-14	24
10'		4A	9.5-11.0	10-15-18	33
12.0'	Very stiff gray silt, some sand, some clay, trace of gravel - moist				
15'		5A	14.0-15.5	8-11-19	30
20'		6A	19.0-20.5	6- 8-11	19
25'		7A	24.0-25.5	5- 9-12	21
	(Sand seams inbedded 1" to 2")				
30'	(Becomes medium stiff at 29.0') (continued on next page)	8A	29.0-30.5	2- 4- 6	10

METHOD:	HOLLOW STEM AUGERS	WATER OBSERVATIONS	**	TYPE SAMPLER:	
TECHNICIAN:	RG-TB-JK	INITIAL DEPTH:		X	A. SPLIT SPOON
JOB NO.:	26400 (kab)	COMPLETION DEPTH:	32.0'		B.
		DEPTH AFTER: ____ HRS. ____		X	C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark as shown on boring location plan

**8.5'(Trace);32.0' (Medium)

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 10 (second page)
SOIL STUDY FOR PROPOSED ADDITIONS TO BUILDING #61,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 8-12-81

SURFACE ELEVATION: 99.8'* **DATE COMPLETED:** 8-12-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(continued)				
35' 35.0'	Very dense gray sand and gravel, trace of silt - wet	9A	34.0-35.5	6-20-74	94
37.0'	Weathered gray shale				
38.0'	Gray shale	10A	38.0-38.3	100/3"	100+
40'	Bottom of boring at 38.3'				
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGERS
TECHNICIAN: RG-TB-JK
JOB NO.: 26400 (kab)

WATER OBSERVATIONS
INITIAL DEPTH: * *
COMPLETION DEPTH: 32.0'
DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
X C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark as shown on boring location plan
**8.5'(Trace);32.0'(Medium)

BOWSER – MORNER
TESTING LABORATORIES, INC.

#577

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED MODULAR BUILDING,
S.M.P.P. AREA, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan DATE STARTED: 11/21/80

SURFACE ELEVATION: 99.7' * DATE COMPLETED: 11/21/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Asphalt				
0.4'	(Fill) Sand and gravel base				
1.5'	(Original) Very stiff brown silt, some clay, trace of gravel, trace of sand	1A	1.0-2.5	5-10-14	24
4.5'	Gray limestone (Auger refusal at 5.5')	2A	4.5-5.0	100/3"	100+
	Bottom of boring at 5.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER	WATER OBSERVATIONS	TYPE SAMPLER:
TECHNICIAN: BW-BC	INITIAL DEPTH: None	X A. SPLIT SPOON
JOB NO.: 25980 (11s)	COMPLETION DEPTH: None	B.
	DEPTH AFTER: ____ HRS. ____	C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#578

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED MODULAR BUILDING
S.M.P.P. AREA, MOUND LABORATORY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2946 S 1956 W (plant coor.)

DATE STARTED: 11/21/80

SURFACE ELEVATION: ~~99.8'*~~ 887

DATE COMPLETED: 11/21/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Asphalt				
0.4'	(Fill) Sand and gravel base				
1.5'	(Original) Very stiff brown and gray silt, trace of clay, trace of sand, trace of gravel	1A	1.0-2.5	5 -9-10	19
		2A	4.0-5.0	22-78/4"	100 +
4.0'	Weathered limestone (Auger refusal at 5.5')				
	Bottom of boring at 5.5'				
5'					
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-BC

JOB NO.: 25980

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#579

LOG OF BORING NO. 1

SOIL STUDY FOR "I" BUILDING ADDITION (H.E. PRODUCTION),
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan

DATE STARTED: 4-30-82

From map 144E 5 Sc 1E NW (plant coor)

SURFACE ELEVATION: 856.7'

DATE COMPLETED: 4-30-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.2'	(FILL) Brown sand and gravel base				
0.3'	(FILL) Concrete				
1.0'	(FILL) Brown sand and gravel base				
1.5'	(FILL) Stiff gray silt, some clay, trace of sand, trace of gravel - moist	1A 2A	1.5- 3.0 4.0- 5.5	2- 4- 8 3- 4- 7	12 11
5'					
6.5'	(FILL) Hard brown and gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist (Becomes very stiff at 9.0')	3A 4A	6.5- 7.5 9.0-10.5	17-83/3" 7- 7- 9	100+ 16
10'					
11.0'	(ORIGINAL) Hard gray and brown silt, some clay, trace of sand, trace of gravel, trace of rock fragments - damp	5A	14.0-14.5	100/6"	100+
15'					
16.5'	Gray shale and limestone	6A	19.0-19.2	100/2"	100+
20'	Bottom of boring at 19.5'				
25'					
30'					

METHOD:	HOLLOW STEM AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**
TECHNICIAN:	BB-TB	INITIAL DEPTH: None	X A. SPLIT SPOON
JOB NO.:	26796 (cp)	COMPLETION DEPTH: None	B.
		DEPTH AFTER: ____ HRS. ____	C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#580

LOG OF BORING NO. 2

SOIL STUDY FOR "I" BUILDING ADDITION (H.E. PRODUCTION),
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan

From map 1528 S 3020 W (plant coord)

SURFACE ELEVATION: 856.7'

DATE STARTED: 4-30-82

DATE COMPLETED:

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Very stiff brown silt, trace of clay, trace of sand, trace of gravel - moist	1A	1.0- 2.5	8- 8- 8	16
2.2'	(FILL) Very stiff brown clay, some silt, trace of sand, trace of gravel - moist (Becomes stiff at 4.0')	2A	4.0- 5.5	3- 4- 7	11
5'					
6.5'	(ORIGINAL) Very stiff gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist (Becomes hard at 9.0')	3A	6.5- 8.0	8-15-15	30
		4A	9.0-10.5	12-20-30	50
10'					
11.5'	Hard brown and gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist	5A	14.0-15.5	21-15-22	37
15'					
		6A	19.0-19.5	90/6"	90+
20.0'	Gray shale and limestone				
		7A	24.0-24.3	100/3"	100+
25'					
		8A	29.0-29.5	100/6"	100+
30'	Bottom of boring at 29.5'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26796 (cp)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#581

LOG OF BORING NO. 3

SOIL STUDY FOR "I" BUILDING ADDITION (H.E. PRODUCTION),
MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan
Grid coord 152E S 358E N (plant Corr)

SURFACE ELEVATION: 860

DATE STARTED: 4-30-82

DATE COMPLETED: 4-30-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0' – 0.3'	(FILL) Topsoil				
0.3' – 3.5'	(FILL) Stiff brown silt, some sand, trace of clay, trace of gravel - moist	1A	1.0- 2.5	4- 7- 7	14
3.5' – 6.5'	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel - moist	2A	4.0- 5.5	4- 5- 7	12
6.5' – 8.0'	(ORIGINAL) Very stiff gray and brown silt, some clay, trace of sand, trace of gravel, trace of organic material, trace of rock fragments - moist	3A	6.5- 8.0	15- 9-17	26
		4A	9.0- 9.3	100/4"	100+
8.0' – 13.0'	Hard gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist				
13.0' – 20.0'	Hard brown and gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist	5A	14.0-15.5	45-24-41	65
		6A	19.0-19.5	89/6"	89+
20.0' – 25'	Gray shale and limestone	7A	24.0-24.5	100/1"	100+
25'	Bottom of boring at 24.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26796 (cp)

WATER OBSERVATIONS

INITIAL DEPTH: 19.0' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#582

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED OFFICE ADDITION TO BUILDING "E",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan
from map 1472 S 3056 W (plant coor.)

DATE STARTED: 5/30/80

SURFACE ELEVATION: 877.1'

DATE COMPLETED: 5/30/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
1.0'	(ORIGINAL) Apparent rock				
3.5'	(Auger refusal at 3.5')				
5'	Highly weathered limestone (Richmond Formation) (RQD = 0%)	1B	3.5-13.5		96"
10'					
15'	Bottom of boring at 13.5'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RC-BC

JOB NO.: 25692 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: *

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

	A.	SPLIT SPOON
X	B.	"NX" CORE
	C.	SHELBY TUBE

*Coring water in the hole at 6.0'

BOWSER – MORNER
TESTING LABORATORIES, INC.

B15

#583

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED OFFICE ADDTION TO BUILDING "E",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5/30/80

SURFACE ELEVATION: 877.8' **DATE COMPLETED:** 5/30/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0	(FILL) Crushed Stone				
1.0	(FILL) Hard gray silt, some clay, some sand, some rock fragments - moist (Auger refusal at 1.5')	1A	1.0- 1.5	100/2"	100 +
5.0'	Bottom of boring at 1.5'				
10.0'					
15.0'					
20.0'					
25.0'					
30.0'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RC-BC

JOB NO.: 25692 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

:B15

#584

LOG OF BORING NO. 3

SOIL STUDY FOR PROPOSED OFFICE ADDITION TO BUILDING "E",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 1472 S 3160W (plant coor)

DATE STARTED: 5/30/80

SURFACE ELEVATION: 877.12'

DATE COMPLETED: 5/30/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.4'	(FILL) Brown silt, trace of clay				
1.0'	(ORIGINAL) Highly weathered shale and limestone (Auger refusal at 3.5')				
3.5'	Highly weathered limestone (Richmond Formation) (RQD = 0%)	1B	3.5-13.5		96"
	Bottom of boring at 13.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RC-BC

JOB NO.: 25692 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: ~~None~~

COMPLETION DEPTH: *

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

	A.	SPLIT SPOON
X	B.	"NX" CORE
	C.	SHELBY TUBE

*Coring water in the hole at 3.5'

BOWSER – MORNER
TESTING LABORATORIES, INC.

#585

LOG OF BORING NO. 1

SOIL STUDY FOR BUILDING ADDITION TO EXISTING BUILDING "I",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: 1496.08 S.; 3629.63 W. **DATE STARTED:** 10/19/84

SURFACE ELEVATION: 856.0' **DATE COMPLETED:** 10/19/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown sand and gravel - moist				
1.0'	(FILL) Stiff greenish tan silt and clay, some sand, trace of gravel, trace of rock fragments - moist	1A	1.0-2.5	5- 5- 9	14
3.0'	(FILL) Hard dark gray and brown silt and clay, some sand, trace of rock fragments - moist (With trace of organic material at 4.0')	2A	3.5-5.0	32-34-34	68
5'					
6.0'	(ORIGINAL) Gray and brown shale, with limestone partings	3A	6.0-7.5	25-20-35	55
10'		4A	8.5-9.0	100/6"	100+
15'		5A	13.5-14.5	40-60/2"	100+
20'		6A	18.5-19.0	100/6"	100+
	Bottom of boring at 19.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TB-JP

JOB NO.: 28250 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 0.5'

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#566

LOG OF BORING NO. 2

SOIL STUDY FOR BUILDING ADDITION TO EXISTING BUILDING "I",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: 1472.96 S.; 3629.28 W. **DATE STARTED:** 10/19/84

SURFACE ELEVATION: 857.0' **DATE COMPLETED:** 10/19/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very stiff greenish silt and clay, some sand, some rock fragments - moist	1A	1.0-2.5	4-15-11	26
4.0'	(ORIGINAL) Gray and brown shale, with limestone partings	2A	3.5-5.0	10-40-50	90
5'		3A	6.0-7.0	70-30/2"	100
10'		4A	9.0-10.0	30-70	100
15'		5A	14.0-14.5	100/3"	100+
20'		6A	19.0-19.5	100/6"	100+
	Bottom of boring at 19.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: TB-JP
JOB NO.: 28250 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#587

LOG OF BORING NO. 3

SOIL STUDY FOR BUILDING ADDITION TO EXISTING BUILDING "I",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: 1472.67 S.; 3605.16 W. **DATE STARTED:** 10/20/84

SURFACE ELEVATION: 857.0' **DATE COMPLETED:** 10/20/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard gray silt and clay, some sand, some gravel, some rock fragments - moist	1A	1.0-2.5	18-30-20	50
3.0'	(ORIGINAL) Gray and brown shale, with limestone partings	2A	3.5-4.0	100/6"	100+
5'		3A	6.0-6.5	100/3"	100+
10'		4A	8.5-10.0	21-39-47	86
	(Auger refusal at 13.5')	5A	13.5-13.6	100/I"	100+
15'	Bottom of boring at 13.5'				
20'					
25'					
30					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: TB-JP
JOB NO.: 28250 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#588

LOG OF BORING NO. 4

SOIL STUDY FOR BUILDING ADDITION TO EXISTING BUILDING "I",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: 1448.27 S.; 3604.28 W. **DATE STARTED:** 10/23/84

SURFACE ELEVATION: 862.0' **DATE COMPLETED:** 10/23/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown and gray silt and clay, some sand, some rock fragments - wet	1A	0.0-1.5	3-25-25	50
5'		2A	3.5-5.0	12-13-32	45
6.0'	(ORIGINAL) Brown shale, with limestone partings	3A	6.0-7.5	25-50-50	100
10'		4A	8.5-10.0	100/6"	100+
15'		5A	13.5-14.0	100/3"	100+
	(Auger refusal at 17.0')				
20'	Bottom of boring at 17.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RG-BP
JOB NO.: 28250 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUB

BOWSER – MORI

#589

LOG OF BORING NO. 5

SOIL STUDY FOR BUILDING ADDITION TO EXISTING BUILDING "I",
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: 1447.28 S.; 3579.29 W. **DATE STARTED:** 10/23/84

SURFACE ELEVATION: 867.0' **DATE COMPLETED:** 10/23/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown silt, some clay, some sand, some rock fragments - moist	1A	0.0-1.5	11-26-31	57
5'		2A	3.5-5.0	16-36-40	76
5.5'	(ORIGINAL) Gray and brown shale, with limestone rock partings	3A	6.0-7.5	13-15-36	51
10'		4A	8.5-10.0	19-25-41	56
15'		5A	13.5-15.0	35-65/3"	100+
20'		1B	15.5-25.5		48"
25'	Bottom of boring at 25.0'				
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RG-BP
JOB NO.: 28250 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: 5.0'
COMPLETION DEPTH: *
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX WIRELINE"
___ C. SHELBY TUBE

* Unknown, with coring water in the boring

BOWSER – MORNER

#590

LOG OF BORING NO. A

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY,
MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-28-82

SURFACE ELEVATION: 751.6' **DATE COMPLETED:** 4-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Very stiff gray silt, some clay, trace of rock fragments-moist	1A	1.0- 2.5	9- 7-10	17
3.0'	(FILL) Very stiff brown silt, some clay, trace of sand - moist	2A	4.0- 5.5	8-13-15	28
5'					
7.0'	(ORIGINAL) Very stiff brown silt, trace of clay, trace of sand, trace of gravel - moist	3A	6.5- 8.0	6- 9-11	20
10'		4A	9.0-10.5	7-10-14	24
13.0'	Hard gray silt, some sand, trace of clay, trace of gravel - moist	5A	14.0-15.5	10-13-21	34
15'					
20'		6A	19.0-20.5	10-14-20	34
	Bottom of boring at 20.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BB-TB
JOB NO.: 26795 (mjj)

WATER OBSERVATIONS
INITIAL DEPTH: 14.5' (trace)
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#591

LOG OF BORING NO. B

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-28-82

SURFACE ELEVATION: 751.2' **DATE COMPLETED:** 4-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.2'					
1.0'	(FILL) Brown sand and gravel base				
	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel-moist	1A	1.0- 2.5	2- 4- 7	11
4.0'					
5'	(ORIGINAL) Hard brown silt, some sand, trace of gravel, trace of clay-moist	2A	4.0- 5.5	15-16-20	36
	(Becomes very stiff at 6.5')	3A	6.5- 8.0	9-12-15	27
9.5'					
10'	Very stiff gray silt, some sand, trace of gravel, trace of clay-moist	4A	9.0-10.5	9-13-13	26
12.0'					
	Hard brown silt, some sand, trace of gravel, trace of clay - moist	5A	14.0-15.5	9-14-19	33
15'					
17.5'					
	Very stiff gray silt, some sand, trace of clay, trace of gravel-moist	6A	19.0-20.5	6- 9-14	23
20'					
25'		7A	24.0-25.5	8-11-14	25
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 2.0' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#592

LOG OF BORING NO. C

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-28-82

SURFACE ELEVATION: 746.9' **DATE COMPLETED:** 4-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown sand and gravel				
0.5'	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel-moist	1A	1.0- 2.5	3- 4- 7	11
3.5'	(ORIGINAL) Hard brown silt, some sand, trace of clay, trace of gravel - moist (Becomes stiff at 6.5')	2A	4.0- 5.5	10-15-17	32
5'		3A	6.5- 8.0	4- 5-10	15
		4A	9.0-10.5	2- 5-10	15
10'					
13.0'	Very stiff gray silt, some sand, trace of clay, trace of gravel-moist	5A	14.0-15.5	7- 9-12	21
15'					
		6A	19.0-20.5	4-10-13	23
20'					
		7A	24.0-25.5	7-12-15	27
25'	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 6.5' (light)

COMPLETION DEPTH: 19.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#593

LOG OF BORING NO. D

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-27-82

SURFACE ELEVATION: 751.1' **DATE COMPLETED:** 4-27-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel - moist	1A	1.0- 2.5	7- 6- 9	15
3.0'	(ORIGINAL) Very stiff brown silt, some sand, trace of gravel, trace of clay - moist	2A	4.0- 5.5	7-14-14	28
5'	(Becomes stiff at 6.5')	3A	6.5- 8.0	3- 2- 9	11
10'	(Becomes hard at 9.0')	4A	9.0-10.5	16-24-23	47
13.0'	Very stiff gray silt, some sand, trace of gravel, trace of clay-moist	5A	14.0-15.5	11-12-14	26
15'					
20'		6A	19.0-20.5	7- 9-15	24
25'		7A	24.0-25.5	12-10-16	26
30'		8A	29.0-30.5	6- 9-13	22

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 7.0' (light)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. D (Second Sheet)

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-27-82

SURFACE ELEVATION: 751.1' **DATE COMPLETED:** 4-27-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
35'		9A	34.0-35.5	7-11-18	29
	Bottom of boring at 35.5'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 7.0' (light)

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#594

LOG OF BORING NO. E

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY,
MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-27-82

SURFACE ELEVATION: 751.4' **DATE COMPLETED:** 4-27-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.2'					
1.5'	(FILL) Brown sand and gravel				
	(FILL) Weathered gray shale	1A	1.0- 2.0	6-94	100
4.5'					
5'	(ORIGINAL) Medium stiff brown silt, trace of gravel, trace of clay-moist (Becomes very stiff at 6.5')	2A	4.0- 5.5	11- 4- 5	9
		3A	6.5- 8.0	8- 8-19	27
		4A	9.0-10.5	10-10-15	25
10'					
14.5'					
15'	Hard gray silt, some sand, trace of gravel, trace of clay - moist	5A	14.0-15.5	16-19-23	42
20'		6A	19.0-20.5	10-12-20	32
25'		7A	24.0-25.5	9-13-28	41
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BB-TB
JOB NO.: 26795 (mjj)

WATER OBSERVATIONS
INITIAL DEPTH: 14.0' (trace)
COMPLETION DEPTH: None
DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#595

LOG OF BORING NO. F

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-27-82

SURFACE ELEVATION: 755.3' **DATE COMPLETED:** 4-27-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Hard brown silt, some cobbles, some sand, trace of gravel, trace of shale fragments - moist	1A	1.0- 1.5	100/6"	100+
5.0'	(ORIGINAL) Very stiff brown silt, some sand, trace of clay, trace of gravel - moist	2A	4.0- 5.5	5- 7- 9	16
		1C	6.5- 8.0		20"
		3A	8.5-10.0	9-11-16	27
10'					
13.5'					
15'	Hard gray silt, some sand, trace of gravel, trace of clay - moist	4A	14.0-15.5	16-20-24	44
20'		5A	19.0-20.5	10-13-20	33
		6A	24.0-25.5	9-18-23	41
25'	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#596

LOG OF BORING NO. G

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-27-82

SURFACE ELEVATION: 755.3' **DATE COMPLETED:** 4-27-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Hard brown silt, trace of sand, trace of gravel, trace of clay, trace of rock fragments - moist	1A	1.0- 2.5	7-17-24	41
5' 4.0'	(ORIGINAL) Very stiff brown silt, some sand, trace of gravel, trace of clay - moist	2A	4.0- 5.5	7- 8-13	21
		3A	6.5- 8.0	7- 9-14	23
10'		4A	9.0-10.5	5- 9-12	21
15' 14.5'	Very stiff gray silt, some sand, trace of gravel, trace of clay-moist	5A	14.0-15.5	8- 8-11	19
20'	(Becomes stiff at 19.0')	6A	19.0-20.5	4- 6- 9	15
	Bottom of boring at 20.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. H

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-28-82

SURFACE ELEVATION: 760.7' **DATE COMPLETED:** 4-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.5'	(FILL) Brown silt, some clay, trace of sand, trace of gravel - moist				
2.5'	(FILL) Very stiff gray silt, some clay, trace of sand, trace of gravel - moist	1A	1.5- 3.0	4-11-16	27
4.0'	(ORIGINAL) Very stiff brown silt, some clay, trace of sand, trace of gravel - moist	2A	4.0- 5.5	5- 9-14	23
6.5'	Brown silt and fine sand, trace of clay - moist	1C	6.5- 8.5		24"
9.0'	Stiff brown silt, trace of sand, trace of clay - moist	3A	8.5-10.0	12- 9- 6	15
14.5'	Very stiff brown silt, some sand, trace of clay, trace of gravel-moist	4A	14.0-15.5	8-11-15	26
18.0'	Very stiff gray silt, some sand, trace of clay, trace of gravel-moist	5A	19.0-20.5	13-14-14	28
	Bottom of boring at 20.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 9.0' (trace)

COMPLETION DEPTH: 17.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#598 I

LOG OF BORING NO. I

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY,
MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 2928 S 4066 W plant coor. **DATE STARTED:** 4-28-82

SURFACE ELEVATION: 762.3' **DATE COMPLETED:** 4-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown sand and gravel				
1.0'	(ORIGINAL) Very stiff brown and gray silt, some clay, trace of sand, trace of gravel - damp	1A	1.0- 2.5	6-10-17	27
5'	(Becomes hard at 4.0')	2A	4.0- 5.5	11-14-22	36
6.5'	Gray limestone (Auger refusal at 7.0')	3A	6.5- 7.0	100/4"	100+
10'	Bottom of boring at 7.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#599

LOG OF BORING NO. J

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY,
MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-28-82

SURFACE ELEVATION: 754.6' **DATE COMPLETED:** 4-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.2'					
2.0'	(FILL) Brown sand and gravel base				
	(ORIGINAL) Very stiff gray and brown silt, some clay, trace of sand, trace of gravel - moist	1A	1.0- 2.5	6- 9-12	21
5'	(Becomes hard at 4.0')	2A	4.0- 5.5	10-20-30	50
7.0'					
	Very stiff brown silt, some sand, trace of clay, trace of gravel-moist	3A	6.5- 8.0	27-12-16	28
10'	(Becomes hard at 9.0')	4A	9.0-10.5	20-15-18	33
13.5'					
15'	Very stiff gray silt, some sand, trace of clay, trace of gravel-moist	5A	14.0-15.5	11-13-16	29
	Bottom of boring at 15.5'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mij)

WATER OBSERVATIONS

INITIAL DEPTH: *

COMPLETION DEPTH: 14.0'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

*10.0' (trace); 14.5' (light)

BOWSER – MORNER
TESTING LABORATORIES, INC.

#600'

LOG OF BORING NO. K

SOIL STUDY FOR COMPONENT TEST FACILITY (CTF), MOUND FACILITY,
MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 3654 S 2712 W plant coor.

DATE STARTED: 4-29-82

SURFACE ELEVATION: 888.4'

DATE COMPLETED: 4-29-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel-moist				
2.0'	(ORIGINAL) Very stiff gray silt, some clay, trace of sand, trace of gravel, trace of rock fragments - moist	1A	1.0- 2.5	6- 7-18	25
5' 4.0'	Apparent rock (Auger refusal at 4.5')	2A	4.0- 4.1	100/1"	100+
	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TB

JOB NO.: 26795 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#601

LOG OF BORING NO. 1

MONSANTO RESEARCH MOUND LABORATORY FACILITY FIREHOUSE ADDITION

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-9-81

SURFACE ELEVATION: 871.6' **DATE COMPLETED:** 4-9-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	Brown gravel, trace of sand	1A	0.0- 1.5	1- 2- 4	6
1.0'	(ORIGINAL) Medium stiff brown silt, some clay, trace of sand, trace of gravel - moist				
2.0'	Gray limestone				
	Bottom of boring at 2.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-KB

JOB NO.: 26197(kab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#602

LOG OF BORING NO. 2

MONSANTO RESEARCH MOUND LABORATORY FACILITY FIREHOUSE ADDITION

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-9-81

SURFACE ELEVATION: 872.2' **DATE COMPLETED:** 4-9-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown gravel, trace of sand				
0.5'	(ORGINAL) Brown silt, trace of clay, trace of sand - moist				
1.5'	Gray limestone	1A	0.0- 1.5	2- 4-100/3'	100+
	Bottom of boring at 1.5'				
5'					
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-KB

JOB NO.: 26197(kab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

B15

#603

LOG OF BORING NO. 3

MONSANTO RESEARCH MOUND LABORATORY FACILITY FIREHOUSE ADDITION

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-9-81

SURFACE ELEVATION: 877.14' **DATE COMPLETED:** 4-9-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown gravel, trace of sand - dry				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of rock fragments - moist	1A	0.0- 1.5	1- 4- 75	79
1.5'	Gray limestone with 1" to 3" clay seams	1B	1.5-11.5		100"
5'					
10'					
	Bottom of boring at 11.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-KB

JOB NO.: 26197(kab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 1.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. NX CORE

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

'B15

#604

LOG OF BORING NO. 2

GEOTECHNICAL STUDY FOR PROPOSED BUILDING #89
MRC - MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-16-83

SURFACE ELEVATION: 827.3' **DATE COMPLETED:** 5-16-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0' 0.5'	(ORIGINAL) Topsoil				
2.0'	Medium stiff brown clay, some silt, trace of sand, trace of gravel - damp	1A	1.0- 2.5	2- 4- 6	10
5' 6.0'	Brown and gray silt and clay, trace of sand, trace of rock fragments (residual soil) - moist	2A	4.0- 5.5	14- 8-12	20
7.5'	Medium hard gray shale and highly weathered limestone	3A	6.5- 7.5	5-95/4"	100
10'	Apparent rock (auger refusal)				
	Bottom of boring at 7.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RF,BP
JOB NO.: 27324 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#605

LOG OF BORING NO. 3

GEOTECHNICAL STUDY FOR PROPOSED BUILDING #89
MRC - MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 15985 3672W plant Coor.

DATE STARTED: 5-16-83

SURFACE ELEVATION: 851.5'

DATE COMPLETED: 5-17-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0' 0.5'	(FILL) Topsoil (6") with outcropped rock fragments				
	(FILL) Hard brown silt, some clay, trace of sand, trace of gravel, trace of rock fragments - damp	1A	1.0- 2.5	17-19-64/2"	83
5'		2A	4.0- 5.5	10-16-18	34
6.5'	(ORIGINAL) Very stiff brown clay, some silt, trace of sand, trace of gravel - moist	3A	6.5- 8.0	9- 7- 9	15
10.0'		1C	8.0-10.0		
	Light brown silt, trace of clay, trace of sand, trace of gravel - moist	4A	10.0-11.5	5- 6- 5	11
13.0'	LIMESTONE, shaley, gray, highly weathered with 1" to 6" clay seams				
15'		1B	13.0-18.0		24"
20'					
		2B	18.0-27.0		26"
25'					
		5A	27.0-28.0	45-100/5"	100
30'					

(Continued on next page)

METHOD: HOLLOW STEM AUGER

TECHNICIAN: TA-RH

JOB NO.: 27324 (cp)

WATER OBSERVATIONS

INITIAL DEPTH: Unknown

COMPLETION DEPTH: 32.0'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. NX WIRELINE

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 3 (Second sheet)

GEOTECHNICAL STUDY FOR PROPOSED BUILDING #89
MRC - MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-16-83

SURFACE ELEVATION: 851.5' **DATE COMPLETED:** 5-17-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30.0'	(continued)				
		6A	34.0-35.0	80-70/2"	100+
35.0'	SHALE, limey, gray to dark gray, highly weathered, soft with intermittent mud seams				
40'		3B	35.0-45.0		104"
45'	Bottom of boring at 45.0'				
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: TA, RH
JOB NO.: 27324 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: Unknown
COMPLETION DEPTH: 32.0'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. NX WIRELINE
___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#606

LOG OF BORING NO. 4

GEOTECHNICAL STUDY FOR PROPOSED BUILDING #89
MRC - MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-24-83

SURFACE ELEVATION: 826.8' **DATE COMPLETED:** 5-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(ORIGINAL) Topsoil				
0.1'	Hard brown and gray clay and silt, trace of sand, trace of rock fragments - damp (Limestone layers from 1.5')	1A	1.0- 1.8	7-93/3"	100
		2A	4.0- 4.5	100/6"	100
5'					
6.0'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF, BP

JOB NO.: 27324 (cp)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#607

LOG OF BORING NO. 1

GEOTECHNICAL STUDY FOR PROPOSED BUILDING #89
MRC - MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 5-17-83

SURFACE ELEVATION: 812.6' **DATE COMPLETED:** 5-17-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(ORIGINAL) Topsoil				
0.5'	Very stiff brown silt, some clay, trace of sand, trace of gravel - damp	1A	1.0- 2.5	6- 7-14	21
4.0'	Hard brown and gray silt and clay, trace of sand, trace of rock fragments (residual soil) - moist	2A	4.0- 5.5	12-20-20	40
5.5'	LIMESTONE, shaley, light gray to dark gray, highly weathered, soft, with intermittent clay seams	1B	5.5-10.5		30"
13.0'	SHALE, dark gray, highly weathered, soft, with many thick clay seams	2B	10.5-15.5		48"
	Bottom of boring at 15.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RF,BG
JOB NO.: 27324 (cp)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. NX CORE
____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#608

LOG OF BORING NO. 1

SOIL STUDY FOR PROPOSED MODULAR BUILDING AT SOUTHWEST CORNER OF PURCHASING DEPARTMENT PARKING LOT, MOUND LABORATORY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12-28-82

from: map 1562 S 2230 W plant coor.

SURFACE ELEVATION: ~~99.0'*~~ 86.5 **DATE COMPLETED:** 12-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.2'					
1.0'	(FILL) Sand and cobble base				
1.8'	(FILL) Dark brown organic silt, some some clay, trace of sand, trace of gravel - moist				
5'	(FILL) Medium stiff brown and gray silt, some clay, trace of sand, trace of gravel - moist	1A	1.5- 3.0	4- 4- 5	9
		2A	4.0- 5.5	3- 2- 5	7
	(Becomes very stiff with trace of cobbles from 6.0')	3A	6.5- 8.0	17-18- 8	26
10'	(Becomes hard at 9.0')	4A	9.0-10.5	22-31-14	45
	(Some cobbles from 11.0')				
15'		5A	14.0-15.3	30-26-44/4"	70+
20'		6A	19.0-19.7	31-69/2"	100+
24.0'		7A	24.0-24.2	100/2"	100+
25'	(ROCK) Hard gray limestone				
26.0'	Medium soft gray shale with lime-[illegible] partings				
30'		1B	25.5-34.5		95"

(Continued on next page)

METHOD:	HOLLOW STEM AUGER	WATER OBSERVATIONS		TYPE SAMPLER:	
TECHNICIAN:	BB-TA	INITIAL DEPTH:	None	X	A. SPLIT SPOON
JOB NO.:	27052 (mjj)	COMPLETION DEPTH:	20.5'	X	B. "NX" CORE
		DEPTH AFTER: ____ HRS. ____		____	C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

BOWSER – MORNER TESTING LABORATORIES, INC.

LOG OF BORING NO. 1 (Second Sheet)
SOIL STUDY FOR PROPOSED MODULAR BUILDING AT SOUTHWEST CORNER OF PURCHASING DEPARTMENT PARKING LOT, MOUND LABORATORY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 12-28-82

SURFACE ELEVATION: 99.0'* **DATE COMPLETED:** 12-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Continued)				
35'	Bottom of boring at 34.5'				
40'					
45'					
50'					
55'					
60'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BB-TA
JOB NO.: 27052 (mjj)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: 20.5'
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
X B. "NX" CORE
____ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#609

LOG OF BORING NO. 2

SOIL STUDY FOR PROPOSED MODULAR BUILDING AT SOUTHWEST CORNER OF PURCHASING DEPARTMENT PARKING LOT, MOUND LABORATORY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 1464 S 2234 W plant coor.

DATE STARTED: 12-28-82

SURFACE ELEVATION: ~~99.61*~~ 866

DATE COMPLETED: 12-28-82

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.3'					
1.0'	(FILL) Sand and gravel cobble base				
	(FILL) Stiff brown silt, some clay, trace of sand, trace of gravel, trace of cobbles - moist	1A	1.0- 2.5	5- 6- 5	11
5'	(Becomes damp and very stiff at 4.0')	2A	4.0- 5.5	8-14-14	28
	(Becomes hard at 6.5')	3A	6.5- 8.0	7-11-24	35
		4A	9.0-10.5	10-17-18	35
10'					
14.0'					
15'	Apparent solid rock (auger refusal)				
	Bottom of boring at 14.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-TA

JOB NO.: 27052 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

___ C. SHELBY TUBE

*In reference to assumed elevation of 100.0' for bench mark shown on boring location plan

BOWSER – MORNER
TESTING LABORATORIES, INC.

#610

LOG OF BORING NO. B-4

GEOTECHNICAL EVALUATION FOR PROPOSED O.S.E. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/14/84

SURFACE ELEVATION: 874.9' **DATE COMPLETED:** 4/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.4'					
1.0'	(FILL) Brown and gray sand and gravel base				
2.5'					
	(ORIGINAL) (Weathered rock) Gray limestone and shale	1A	1.0-1.5	100/6"	100+
5'					
	Apparent rock (Auger refusal at 2.5')				
	Bottom of boring at 2.5'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RG-WH
JOB NO.: 27954 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#611

LOG OF BORING NO. B-5

GEOTECHNICAL EVALUATION FOR PROPOSED O.S.E. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: 6' Plant N. of location **DATE STARTED:** 4/14/84

SURFACE ELEVATION: 875.7' **DATE COMPLETED:** 4/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.4'					
1.5'	(FILL) Sand and gravel base				
2.0'	(ORIGINAL) (Weathered rock) Gray limestone and shale	1A	1.0-1.7	26-100/2"	126+
5'	Apparent rock (Auger refusal at 2.0')				
	Bottom of boring at 2.0'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RG-WH

JOB NO.: 27954 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: _____

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#612

LOG OF BORING NO. B-6

GEOTECHNICAL EVALUATION FOR PROPOSED O.S.E. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/14/84

SURFACE ELEVATION: 876.8' **DATE COMPLETED:** 4/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.2'					
1.0'	Very stiff gray and brown silt, some clay, some rock fragments - moist (ML)	1A	1.0-2.0	12-45	57
2.5'					
5'	(Weathered rock) Gray limestone and shale				
	Apparent rock (Auger refusal at 2.5')				
	Bottom of boring at 2.5'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**
TECHNICIAN: RG-WH	**INITIAL DEPTH:** None	X A. SPLIT SPOON
JOB NO.: 27954 (bw)	**COMPLETION DEPTH:**	B.
	DEPTH AFTER: ____ **HRS.** ____	C. SHELBY TUBE

BOWSER – MORNER

#613

LOG OF BORING NO. B-7

GEOTECHNICAL EVALUATION FOR PROPOSED O.S.E. BU DING,
M.R.C., MOUND FACILITY, MIAMISBURG, OH

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/14/84

SURFACE ELEVATION: 875.0' **DATE COMPLETED:** 4/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.4'					
1.0'	(FILL) Brown sand and gravel base				
1.5'	(ORIGINAL) Gray silt, some clay, some rock fragments - moist (ML)	1A	1.0-1.5	100/6"	100+
2.0'					
5'	(Weathered rock) Gray limestone and shale				
	Apparent rock (Auger refusal at 2.0')				
10'	Bottom of boring at 2.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: RG-WH
JOB NO.: 27954 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

#614

LOG OF BORING NO. B-8

GEOTECHNICAL EVALUATION FOR PROPOSED O.S.E. BUILDING,
M.R.C., MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4/14/84

SURFACE ELEVATION: 875.3' **DATE COMPLETED:** 4/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Asphalt				
0.4'					
1.0'	(FILL) Sand and gravel base				
3.0'	(ORIGINAL) (Weathered rock) Gray limestone and shale	1A	1.0-1.5	100/6"	100+
5'	(Rock) Interbedded limestone and shale, dark to light gray, slightly weathered				
		1B	4.0-9.2		65"
10'					
		2B	9.2-14.0		55"
15'	Bottom of boring at 14.0'				
20'					
25'					
30'					

METHOD:	HOLLOW STEM AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**	
TECHNICIAN:	RG-WH	INITIAL DEPTH: None	X	A. SPLIT SPOON
JOB NO.:	27954 (bw)	COMPLETION DEPTH: 6.0'	X	B. "NX" WIRELINE
		DEPTH AFTER: ____ HRS. ____	____	C. SHELBY TUBE

BOWSER – MORNER

#615

LOG OF BORING NO. 1

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2962.5 S.; 4268.5 W. DATE STARTED: 9/24/85

SURFACE ELEVATION: 751.62' DATE COMPLETED: 9/25/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'					
1.0'	(FILL) Very stiff brown silt, some clay, some sand, trace of cobbles, trace of gravel - damp	1A	1.0- 2.5	8-13-12	25
5'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel, trace of cobbles - moist	2A	3.5- 5.0	6- 8-12	20
		3A	6.0- 7.5	6-11-10	21
10'		1C	8.5-10.5		19"
	(Becomes hard at 11.0')	4A	11.0-12.5	12-16-20	36
13.0'					
15'	Gray silt, some clay, some sand, trace of gravel - moist	2C	13.5-15.0		15"
	(Very stiff at 15.5')	5A	15.5-17.0	11-13-13	26
20'		6A	18.5-20.0	8-10-13	23
		7A	21.0-22.5	8-10-12	22
25'		8A	23.5-25.0	10-14-11	25
		9A	26.0-27.5	7- 9-12	21
30'		10A	28.5-30.0	7- 6-11	17

(Continued on next page)

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: 31.0'	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. "NX" WIRELINE
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	X C. SHELBY TUBE

BOWSER MORNER

LOG OF BORING NO. 1 (Second sheet)

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2962.5 S.; 4268.5 W. DATE STARTED: 9/24/85

SURFACE ELEVATION: 751.62' DATE COMPLETED: 9/25/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
30'	(Continued)				
31.0'					
32.0'	Very dense gray sand and gravel, some silt, trace of clay - wet	11A	31.0-31.5	100	100+
	Weathered gray shale (Richmond Formation Rock)				
35'					
		1B	33.5-38.5		4'8"
		2B	38.5-39.5		12"
40'		3B	39.5-43.0		41"
	Bottom of boring at 43.0'				
45'					
50'					
55'					
60'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: 31.0'	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. "NX" WIRELINE
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	X C. SHELBY TUBE

BOWSER MORNER

#616

LOG OF BORING NO. 2

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2933.5 S.; 4298.0 W. DATE STARTED: 9/27/85

SURFACE ELEVATION: 750.12' DATE COMPLETED: 9/27/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'	Very stiff brown silt, some clay, some sand, trace of gravel, trace of cobbles - damp (Becomes hard at 3.5')	1A	1.0- 2.5	9-12-14	26
		2A	3.5- 5.0	45-31-26	57
5'		1D	6.0- 7.5		
	(Becomes very stiff at 6.0')	3A	6.0- 7.5	7-10-14	24
10'		1C	8.5-10.0		16"
	(Becomes hard at 10.0')	4A	10.0-11.5	13-21-21	42
12.0'	Gray silt, some clay, some sand, trace of gravel - moist (Very stiff at 14.5')	2C	12.5-14.5		24"
15'		5A	14.5-16.0	8-10-10	20
		6A	17.0-18.5	6- 9-10	19
20'		7A	19.5-21.0	4- 9-12	21
		8A	22.0-23.5	11-14-15	29
25'		9A	24.5-26.0	7-10-10	20
	(Becomes hard at 27.0')	10A	27.0-28.5	12-15-21	36
30'	(Becomes very stiff at 29.5') (Continued on next page)	11A	29.5-31.0	11-11-12	23

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: None	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. "NX" WIRELINE
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	X C. SHELBY TUBE X D. AUGER CUTTINGS

BOWSER MORNER

LOG OF BORING NO. 2 (Second sheet)

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2933.5 S.; 4298.0 W. DATE STARTED: 9/27/85

SURFACE ELEVATION: 750.12' DATE COMPLETED: 9/27/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
30'	(Continued)				
		12A	32.0-33.5	7-11-14	25
35'		13A	34.5-36.0	11- 8-13	21
		14A	37.0-38.5	7- 9-11	20
40' 39.0'	Weathered gray shale, with limestone partings (Richmond Formation)	1B	39.5-44.5		48"
45'		2B	44.5-46.0		18"
	Bottom of boring at 46.0'				
50'					
55'					
60'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: None	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. "NX" WIRELINE
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	X C. SHELBY TUBE X D. AUGER CUTTINGS

BOWSER MORNER

#617

LOG OF BORING NO. 3

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2908.0 S.; 4211.5 W. DATE STARTED: 9/27/85

SURFACE ELEVATION: 753.42' DATE COMPLETED: 10/01/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'					
1.0'	(FILL) Brown silt, some clay, some sand, trace of gravel - damp				
	(ORIGINAL) Hard brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	7-10-23	33
5'	(Becomes very stiff at 3.5')	2A	3.5- 5.0	13-13-13	26
		3A	6.0- 7.5	6- 9- 7	16
10'		1C	8.5- 9.5		0"
		2C	10.5-10.6		0"
11.5'	Gray silt, some clay, some sand, trace of gravel - damp				
15'		1B	13.0-14.5		
	(Becomes hard at 13.0')	4A	13.0-14.5	27-30-36	66
		3C	15.5-16.5		0"
	(Becomes very stiff, with wet sand seam at 16.5')	5A	16.5-18.0	12-13-16	29
20'		6A	19.0-20.5	12-14-16	30
		7A	21.5-23.0	8-10-12	22
25'		8A	24.0-25.5	11-10-12	22
	(Becomes hard at 26.5')	9A	26.5-28.0	12-15-16	31
30'	(Becomes very stiff at 29.0')	10A	29.0-30.5	6- 8-11	19

(Continued on next page)

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: •	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. AUGER CUTTINGS
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	X C. SHELBY TUBE

* 16.5' (trace); 31.0'

BOWSER MORNER

LOG OF BORING NO. 3 (Second sheet)

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2908.0 S.; 4211.5 W. DATE STARTED: 9/27/85

SURFACE ELEVATION: 753.42' DATE COMPLETED: 10/01/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
30'	(Continued)				
31.0'	Medium dense gray sand and silt, some clay, trace of gravel, trace of cobbles - wet	11A	31.5-33.0	9- 8-11	19
34.0'	Highly weathered gray shale (Richmond Formation Rock)	12A	34.0-35.5	100	100+
35'	Bottom of boring at 34.5'				
40'					
45'					
50'					
55'					
60'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: *	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. AUGER CUTTINGS
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	X C. SHELBY TUBE

* 16.5' (trace); 31.0'

BOWSER MORNER

#618

LOG OF BORING NO. 4

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2877.5 S.; 4240.5 W. DATE STARTED: 9/24/85

SURFACE ELEVATION: 751.22' DATE COMPLETED: 9/24/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'					
1.0'	(FILL) Brown silt, some clay, some sand, trace of gravel - damp				
	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	7-10-15	25
5'		2A	3.5- 5.0	8-10- 9	19
	(Becomes medium stiff at 6.0')	3A	6.0- 7.5	4- 6- 8	14
10'	(Becomes hard at 8.5')	4A	8.5-10.0	15-19-20	39
12.0'					
	Very stiff gray silt, some clay, some sand, trace of gravel - damp				
15'		5A	13.5-15.0	10-13-15	28
20'	(Becomes hard at 18.5')	6A	18.5-20.0	10-14-20	34
21.5'					
	Highly weathered gray shale (Richmond Formation Rock)	7A	23.5-23.8	100/4"	100+
25'	Bottom of boring at 23.8'				
30'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: [illegible]	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: 10.0'	___ B.
JOB NO. 28724 bw(#22)	DEPTH AFTER: .5 HRS. 10.0'	___ C. SHELBY TUBE

BOWSER MORNER

#619

LOG OF BORING NO. 5

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2875.0 S.; 4273.5 W. DATE STARTED: 9/24/85

SURFACE ELEVATION: 750.12' DATE COMPLETED: 9/24/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'					
1.0'	(FILL) Brown silt and sand, some clay, trace of gravel, trace of cobbles - damp				
	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel, trace of cobbles - damp	1A	1.0- 2.5	6- 8-15	23
5'		2A	3.5- 5.0	13-13-15	28
		1B	3.5- 6.0		
		3A	6.0- 7.5	6- 8-10	18
10'		4A	8.5-10.0	6- 9-12	21
11.5'					
	Very stiff gray silt, some clay, some sand, trace of gravel, trace of cobbles - moist				
15'		5A	13.5-15.0	10-11-15	26
20'		6A	18.5-20.0	10-14-14	28
25'		7A	23.5-25.0	12-15-23	38
	Bottom of boring at 25.0'				
30'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: None	X A. SPLIT SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	X B. AUGER CUTTING
JOB NO. 28724 bw(#22)	DEPTH AFTER: ____ HRS. ____	____ C. SHELBY TUBE

BOWSER MORNER

#620

LOG OF BORING NO. 6

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2798.5 S.; 4162.0 W.

DATE STARTED: 9/24/85

SURFACE ELEVATION: 741.42'

DATE COMPLETED: 9/24/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'					
0.7'	(FILL) Brown fine sand and silt				
	(FILL) Very stiff brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	8- 8-10	18
5'		2A	3.5- 5.0	8- 9- 9	18
6.3'					
8.5'	(ORIGINAL) Very dense brown fine sand and silt, trace of clay - moist	3A	6.0- 7.5	19-26-26	52
10'	Hard gray silt, some sand, some clay, trace of gravel - moist	4A	8.5-10.0	17-24-35	59
		5A	13.5-15.0	10-13-22	35
15'					
20'	(Becomes very stiff at 18.5')	6A	18.5-20.0	10-12-16	28
25'		7A	23.5-25.0	12-14-16	30
	Bottom of boring at 25.0'				
30'					

	WATER OBSERVATIONS	TYPE SAMPLE
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: 6.3' (Light)	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	___ B.
JOB NO. 28724 bw(#22)	DEPTH AFTER: ___ HRS. ___	___ C. SHELBY TUBE

BOWSER MORNER

#621

LOG OF BORING NO. 7

SOIL STUDY FOR POWDER PROCESSING BUILDING, MIAMISBURG, OHIO

BORING LOCATION: 2709.5 S.; 4112.0 W. DATE STARTED: 9/23/85

SURFACE ELEVATION: 733.73' DATE COMPLETED: 9/24/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'	(FILL) Medium stiff brown silt, some clay, some sand, trace of gravel - damp	1A	0.0- 1.5	3- 2- 8	10
	(Becomes stiff at 2.5')	2A	2.5- 4.0	7- 6- 7	13
5'					
6.0'					
7.0'	(ORIGINAL) Stiff dark brown silt, some clay, some sand, trace of gravel - damp (With trace of organic material at 6.0')	3A	5.0- 6.5	6- 7- 8	15
10'					
	Very stiff brown silt, some sand, some clay, trace of gravel, trace of cobbles - moist	4A	7.5- 9.0	7-10-12	22
13.0'					
15'		5A	10.0-11.5	8-12-16	28
	Very stiff gray silt, some clay, some sand, trace of gravel, trace of cobbles - damp (Becomes hard at 15.0')	6A	12.5-14.0	11-11-13	24
		7A	15.0-16.5	17-24-32	56
20'		8A	17.5-19.0	7-17-17	34
		9A	20.0-21.5	23-26-30	56
		10A	22.5-24.0	21-27-28	55
25'		11A	24.5-26.0	56-36-50	86
	Bottom of boring at 26.0'				
30'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: 7.0' (light)	X A. SPLIT-SPOON
TECHNICIAN: MC	COMPLETION DEPTH: None	___ B.
JOB NO. 28724 bw(#22)	DEPTH AFTER: ___ HRS. ___	___ C. SHELBY TUBE

BOWSER MORNER

#625

LOG OF BORING NO. 1

SOIL STUDY FOR PUMP TANK AND SAND FILTER BED FOUNDATIONS,
NEAR BUILDING NO. 57, MIAMISBURG, OHIO

BORING LOCATION: S-2361.8, W-4302.5 DATE STARTED: 1/10/86

SURFACE ELEVATION: 726.0' DATE COMPLETED: 1/10/86

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0' 1.0'	(FILL) Crushed stone				
	(FILL) Medium stiff brown and gray silt, some clay, some sand, trace of gravel, trace of cobbles, trace of shale fragments - moist	1A	3.5- 5.0	5- 3- 4	7
5'		2A	6.0- 7.5	5- 3- 4	7
	(Becomes wet at 8.5')	3A	8.5-10.0	2- 4- 3	7
10'	(Becomes stiff at 11.0')	4A	11.0-12.5	4- 7- 5	12
13.5'	(ORIGINAL) Medium stiff dark gray organic silt, some clay, some sand - moist	5A	13.5-15.0	3- 3- 6	9
15'					
18.7'	Very stiff brown silt, some clay, some sand, trace of gravel - mist	6A	18.5-20.0	4- 9-10	19
20'					
23.5'	Hard gray silt, some clay, some sand, trace of gravel, trace of cobbles - moist	7A	23.5-25.0	22-40-40	80
25'					
	(Becomes very stiff at 28.5')	8A	28.5-30.0	10-14-16	30
30'					

(Continued on next page)

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: •	X A. SPLIT-SPOON
TECHNICIAN: MC-JL	COMPLETION DEPTH: 12.0'	___ B.
JOB NO. 28844 mjj(#34)	DEPTH AFTER: ___ HRS. ___	___ C. SHELBY TUBE

*6.0' (light); 41.0'

BOWSER MORNER

LOG OF BORING NO. 1 (Second Sheet)

SOIL STUDY FOR PUMP TANK AND SAND FILTER BED FOUNDATIONS,
NEAR BUILDING NO. 57, MIAMISBURG, OHIO

BORING LOCATION: S-2361.8, W-4302.5 DATE STARTED: 1/10/86

SURFACE ELEVATION: 726.0' DATE COMPLETED: 1/10/86

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
30'	(Continued)				
		9A	33.5-35.0	7-11-15	26
35'					
		10A	38.5-40.0	8-14-14	28
40'					
41.0'	Very dense brown and gray gravel and sand, some silt, trace of clay - wet	11A	43.5-45.0	32-45-35	80
45'					
		12A	48.5-50.0	55-47-53	100
50'	Bottom of boring at 50.0'				
55'					
60'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: •	X A. SPLIT-SPOON
TECHNICIAN: MC-JL	COMPLETION DEPTH: 12.0'	___ B.
JOB NO. 28844 mjj(#34)	DEPTH AFTER: ___ HRS. ___	___ C. SHELBY TUBE

*6.0' (light); 41.0'

BOWSER MORNER

#626

LOG OF BORING NO. 2

SOIL STUDY FOR PUMP TANK AND SAND FILTER BED FOUNDATIONS,
NEAR BUILDING NO. 57, MIAMISBURG, OHIO

BORING LOCATION: S-2345.4, W-4317.8 DATE STARTED: 1/10/86

SURFACE ELEVATION: 726.1' DATE COMPLETED: 1/10/86

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
0.0'	(FILL) Gravel base				
0.3'	(FILL) Very dense brown sand, some gravel, some silt, some cobbles - moist	1A	1.0- 1.5	100/3"	100+
3.5'	(FILL) Stiff gray and brown silt, some clay, some sand, trace of shale fragments - moist	2A	4.0- 5.5	6- 6- 8	14
	(Becomes medium stiff at 6.5')	3A	6.5- 8.0	16- 5- 5	10
		1C	9.0-11.0		5"
	(Becomes very stiff at 11.0')	4A	11.0-12.5	6- 7-17	24
	(Becomes hard at 14.0')	5A	14.0-14.5	100/5"	100+
16.0'	(ORIGINAL) Very stiff brown silt, some clay, some sand, trace of gravel - moist	6A	19.0-20.5	13-13-16	29
23.0'	Hard gray silt, some clay, some sand, trace of gravel - moist	7A	24.0-25.0	58-40	98
		8A	29.0-30.5	18-32-3[illegible]	68

(Continued on next page)

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: 14.0'	X A. SPLIT-SPOON
TECHNICIAN: TB-SS	COMPLETION DEPTH: 43.5'	___ B.
JOB NO. 28844 mjj(#34)	DEPTH AFTER: ___ HRS. ___	X C. SHELBY TUBE

BOWSER MORNER

LOG OF BORING NO. 2 (Second Sheet)

SOIL STUDY FOR PUMP TANK AND SAND FILTER BED FOUNDATIONS,
NEAR BUILDING NO. 57, MIAMISBURG, OHIO

BORING LOCATION: S-2345.4, W-4317.8 DATE STARTED: 1/10/86

SURFACE ELEVATION: 726.1' DATE COMPLETED: 1/10/86

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6"	"N" BLOWS /Ft. OR CORE REC.
30'	(Continued)				
35'		9A	34.0-35.5	11-24-27	51
40'		10A	39.0-40.5	13-21-25	46
43.0'	Very dense gray and brown gravel and sand, some silt, trace of rock fragments - wet	11A	44.0-45.0	42-49	91
45'	Bottom of boring at 45.0'				
50'					
55'					
60'					

	WATER OBSERVATIONS	TYPE SAMPLER
METHOD: HOLLOW STEM AUGER	INITIAL DEPTH: 14.0'	X A. SPLIT-SPOON
TECHNICIAN: TB-SS	COMPLETION DEPTH: 43.5'	___ B.
JOB NO. 28844 mjj(#34)	DEPTH AFTER: ___ HRS. ___	X C. SHELBY TUBE

BOWSER MORNER

#632

LOG OF BORING NO. 1

WASTE CHEMICAL STORAGE BUILDING - MOUND FACILITY

BORING LOCATION: As shown on boring locatio plan

DATE STARTED: 4-9-81

SURFACE ELEVATION: 750.4'

DATE COMPLETED: 4-9-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.2'					
1.5'	(FILL) Gray silt, trace of rock fragments, trace of sand - moist	1A	1.0- 2.5	4- 8-10	18
3.0'	(FILL) Very stiff brown silt, some clay, trace of sand, trace of gravel - moist	2A	4.0- 5.5	8-14-12	26
5.0'	(FILL) Brown sand and gravel, some silt - wet	3A	5.4- 8.0	17-29-30	59
	(ORIGINAL) Brown silt, some sand, trace of gravel - moist				
10'	(Becomes hard at 7.5')				
	(Wet brown sand and gravel from 9.5' -10.0)	4A	9.0-10.0	8-13-17	30
12.5'	Very stiff gray silt, trace of sand, trace of clay, trace of gravel - moist				
15'		5A	14.0-15.5	10-11-15	26
		1C	16.5-18.5		19"
		6A	18.4-20.0	9-12- 9	21
20'					
25'		7A	24.0-25.5	7-10-25	35
	(Becomes hard at 25.0')				
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-KB

JOB NO.: 26212(kab)

WATER OBSERVATIONS

INITIAL DEPTH: *

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

*3.0'(Trace), 9.5'(Trace), 14.0'(Medium)

BOWSER – MORNER
TESTING LABORATORIES, INC.

#633

LOG OF BORING NO. 2

WASTE CHEMICAL STORAGE BUILDING - MOUND FACILITY

BORING LOCATION: As shown on boring location plan

DATE STARTED: 4-9-81

SURFACE ELEVATION: 747.3'

DATE COMPLETED: 4-9-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.2'	(FILL) Gray silt, some rock fragment trace of sand - moist	1A	1.0- 2.0	5- 75	80
3.0'	(ORIGINAL) Hard brown silt, some sand, trace of gravel - moist	2A	4.0- 5.5	10- 14- 17	31
5.0'	(Becomes very stiff at 7.5')	3A	6.5- 8.0	9- 10- 14	24
10'					
10.5'	Very stiff gray silt, some sand, trace of gravel - moist	4A	9.0-10.5	10- 14- 15	29
13.0'	Stiff brown and gray silt, trace of sand , trace of clay, trace of gravel - moist	5A	14.0-15.5	4- 6- 8	14
15'					
17.0'	Medium stiff, gray silt, some sand, trace of clay, trace of gravel - moist	6A	19.0-20.5	3- 5- 5	10
20'					
23.0'	Stiff gray silt and sand, trace of gravel - moist	7A	24.0-25.5	8- 7- 8	15
25'					
29.0'	Gray silt, some sand, trace of clay, trace of gravel - moist	8A	29.0-30.5	7- 10- 11	21
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-KB

JOB NO.: 26212(kab)

WATER OBSERVATIONS

INITIAL DEPTH: 24.0' (Medium)

COMPLETION DEPTH: None

DEPTH AFTER: 4 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 2 (second page)

WASTE CHEMICAL STORAGE BUILDING - MOUND FACILITY

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 4-9-81

SURFACE ELEVATION: 747.3' **DATE COMPLETED:** 4-9-81

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
30'	(Becomes very stiff at 30.0', trace of rock fragments				
35'		9A	34.0-35.0	20- 8- 12	20
	Bottom of boring at 35.5'				
40'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BB-KB

JOB NO.: 26212 (kab)

WATER OBSERVATIONS

INITIAL DEPTH: 24.0' (Medium)

COMPLETION DEPTH: None

DEPTH AFTER: 4 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

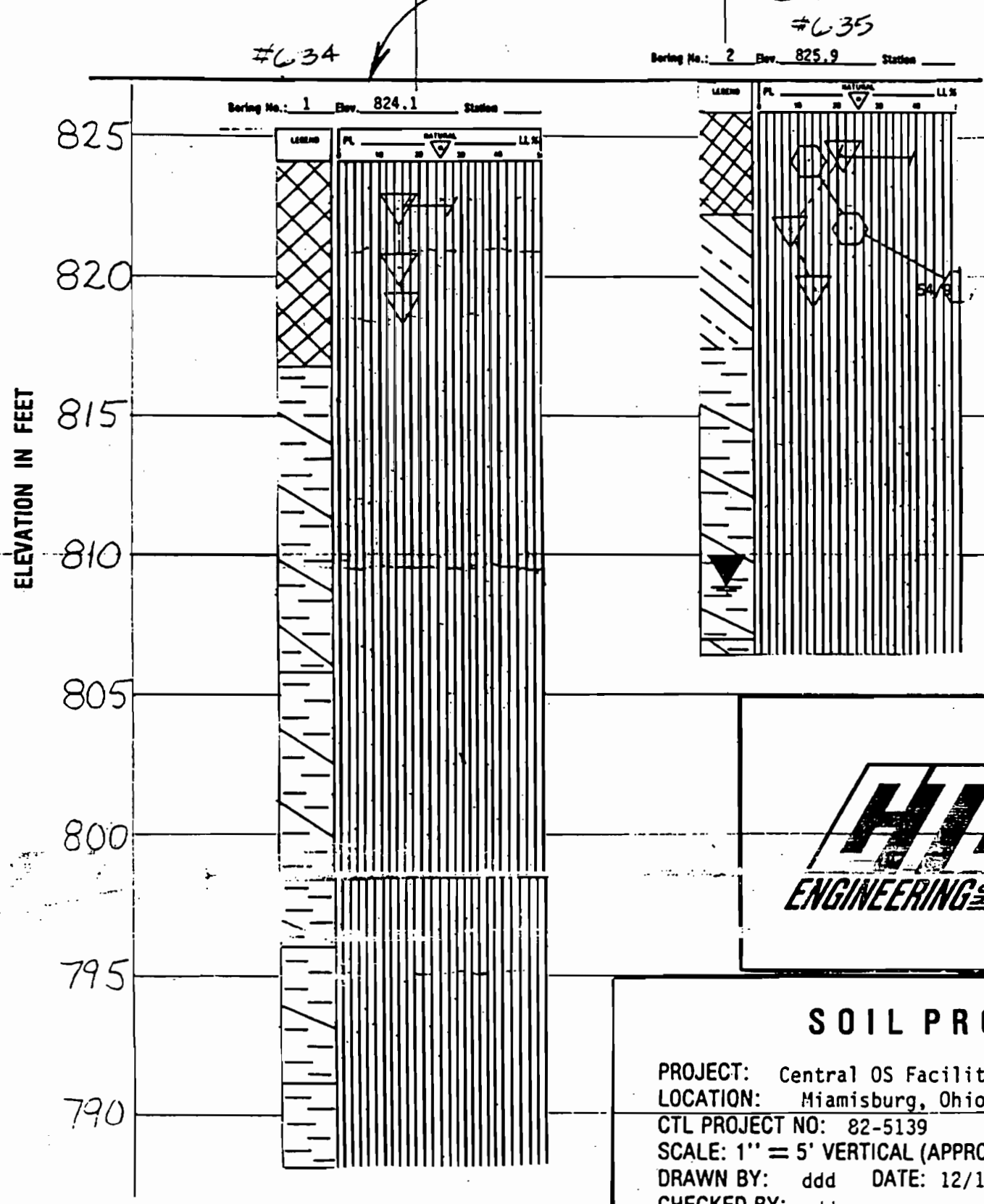
___ B.

___ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

TEST BORING NO.

Proposed Fin. Fl. @ EL. 827.0 ±



HTL ENGINEERING INC

SOIL PROFILE

PROJECT: Central OS Facility
LOCATION: Miamisburg, Ohio
CTL PROJECT NO: 82-5139
SCALE: 1" = 5' VERTICAL (APPROX.)
DRAWN BY: ddd DATE: 12/17/82
CHECKED BY: dd

LOG OF BORING NO. 1 #636

SOIL STUDY FOR PROPOSED SECOND STORY ADDITION TO "GW" BUILDING,
MOUND LABORATORY FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/16/80

SURFACE ELEVATION: 878.6' **DATE COMPLETED:** 1/16/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Concrete				
0.4'	(Fill) Brown sand and gravel, some silt (base) - moist				
0.5'	(Original) Brown silt, trace of sand, trace of clay, trace of organic materials - moist	1A	0.5- 1.0	11-100/5"	111+
0.8'	Brown and gray silt, some sand, trace of gravel - moist				
1.0'	Weathered rock				
1.5'	Solid rock				
	Bottom of boring at 2.0'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: JD-BL-RN

JOB NO.: 25485 (bab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2815

LOG OF BORING NO. 2 #637

SOIL STUDY FOR PROPOSED SECOND STORY ADDITION TO "GW" BUILDING,
MOUND LABORATORY FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 1454 S 2670 W plant coor.

DATE STARTED: 1/16/80

SURFACE ELEVATION: 881.3'

DATE COMPLETED: 1/16/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Concrete				
0.4'	(Fill) Brown sand and gravel, some silt (base) - moist	1A	0.5- 2.0	30-30-86	116
0.7'	(Original) Hard brown and gray silt, some clay, some sand, trace of gravel with rock fragments - moist				
2.5'	Apparent rock				
3.5'	LIMESTONE, light gray, crystalline to very fine grained, medium hard, argillareous, (dolemitic) , frequent solution activity, with gray clayey residue, very soft bands about 2-3" thick, occuring throughout the run	1B	3.5- 8.5		34"
8.5'	LIMESTONE, light gray, crystalline to very fine grained, medium hard, argillareous, (dolemitic) , frequent solution activity, with gray clayey residue, very soft bands about 203" thick, occuring throughout the run	2B	8.5-13.5		47"
13.5'	LIMESTONE, light gray, crystalline to very fine grained, medium hard, argillareous, (dolemitic) , frequent solution activity, with less clay residue, very soft bands, about 2-3" thick, occuring throughout the run	3B	13.5-20.5		

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: JD-BW-RN

JOB NO.: 25485 (bab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. NX Core

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2815

#6383

LOG OF BORING NO. 3

SOIL STUDY FOR PROPOSED SECOND STORY ADDITION TO "GW" BUILDING,
MOUNT LABORATORY FACILITY, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan

DATE STARTED: 1/16/80

SURFACE ELEVATION: 881.2'

DATE COMPLETED: 1/16/80

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Concrete				
0.3'	(Fill) Brown sand and gravel, some silt (base) - moist				
0.4'	(Original) Stiff brown clay and silt, some sand, trace of gravel, trace of organic materials - moist	1A	0.5- 2.0	15-50-50/2"	100+
1.0'	Hard brown and gray silt, some sand, some gravel - moist				
3.0'	Apparent rock				
3.5'	Auger refusal				
	Bottom of boring at 3.5'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: JD-BW-RN

JOB NO.: 25485 (bab)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

2815

#669

LOG OF BORING NO. 11

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 3372.5 3324 W plant coor.

DATE STARTED: 9-24-83

SURFACE ELEVATION: 870.7'

DATE COMPLETED: 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Hard brown and gray silt, some sand, some rock fragments, trace of organic material - moist	1A	1.0- 2.0	25-75	100
2.0'	(Weathered Rock) Gray shaley limestone	2A	3.5- 5.0	26-26-75	101
5' 5.5'	(Rock) Weathered gray to gray-blue limey shale	3A	6.0- 7.5	16-29-59	88
		4A	8.5- 9.5	60-40	100
10'	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#673

LOG OF BORING NO. 15

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan from map 3786 5 3662 in plant coor.

DATE STARTED: 9-24-83

SURFACE ELEVATION: 861.7'

DATE COMPLETED: 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Hard brown silt, some sand, some rock fragments, trace of clay-moist	1A	1.0- 2.5	26-19-16	35
4.5'	Apparent rock (auger refusal)				
5'	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

681

LOG OF BORING NO. 23

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 736.3' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some clay, some sand, trace of gravel, trace of rock fragments - damp (Becomes very stiff at 4.0')	1A	1.0- 2.5	25-28-23	51
5'		2A	3.5- 5.0	5-14-14	28
		3A	6.0- 7.5	15-19-25	44
8.0'	Hard gray silt, some clay, some sand, trace of gravel, trace of rock fragments - damp	4A	8.5-10.0	14-23-63	86
10'					
		5A	13.5-15.0	11-15-23	38
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 24

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 742.0' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	12-13-14	27
		2A	3.5- 5.0	5-13-14	27
5'		3A	6.0- 7.5	9-11-13	24
10'	(Becomes hard with rock fragments at 9.0')	4A	8.5-10.0	5-23-37	60
11.5'	Hard gray silt, some clay, trace of sand, trace of gravel - moist	5A	13.5-15.0	11-12-15	27
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. 9.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#687

LOG OF BORING NO. 30

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 701.2' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown organic silt, some clay, trace of sand - moist	1A	1.0- 2.5	8-11-19	30
3.5'	Hard brown clay, some silt, some sand, some gravel - moist	2A	4.0- 5.5	9-18-89	107
5' 5.5'	Very dense brown sand and gravel, some silt, some cobbles - moist	3A	6.5- 8.0	36-34-41	75
10'	(Becomes medium dense at 9.0')	4A	9.0-10.5	9- 8- 6	14
15'	(Becomes very dense at 14.0')	5A	14.0-15.5	19-29-34	63
20'		6A	19.0-19.7	84-16/2"	100+
25'	Bottom of boring at 19.7'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 13.5' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#688

LOG OF BORING NO. 29

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 701.8' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Stiff brown silt and clay, some sand, trace of gravel - moist	1A	1.0- 2.5	4- 5- 8	13
3.5'	Dense brown sand and gravel, some silt, trace of cobbles - moist	2A	4.0- 5.5	16-21-25	46
5'	(Becomes very dense at 7.0')	3A	6.5- 8.0	19-27-37	64
10'		4A	9.0-10.5	30-21-34	55
15'		5A	14.0-15.3	45-32-68/3"	100+
20'		6A	19.0-19.8	60-40/4"	100+
	Bottom of boring at 19.8'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#696

LOG OF BORING NO. 38

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan
from map 3496 S 4134 W plant coor.

SURFACE ELEVATION: 804.3'

DATE STARTED: 9-20-83

DATE COMPLETED: 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Hard brown silt and clay, some sand, with rock fragments (decomposed limey shale) - moist	1A	4.0-5.5	9-32-68	100
5'					
5.5'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

#697

LOG OF BORING NO. 39

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-29-83

SURFACE ELEVATION: 820.8' **DATE COMPLETED:** 9-29-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard gray silt, some sand, some rock fragments, trace of organic material - moist	1A	1.0- 2.5	20-30-50	80
		2A	3.5- 5.0	28-72/5"	100+
5'		3A	6.0- 7.5	22-21-38	59
10'		4A	9.0-10.5	28-21-25	46
12.5'	(Weathered rock) Gray limey shale				
13.5'	(Rock) Shale, medium gray, calcareous, weathered, moderately fissile to massive, with scattered thin beds of black, crystalline fossiliferous limestone	1B	13.5-20.5		68"
15'					
20'	Bottom of boring at 20.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 9.0'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

___ C. SHELBY TUBE

BOWSER – MORNER

699

LOG OF BORING NO. 41

DESIGN AND SPECIFICATIONS FOR PROPOSED CONSTRUCTION SPOIL STORAGE FACILITY, MOUND FACILITY NEW PROPERTY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/5/84

SURFACE ELEVATION: 710.8' **DATE COMPLETED:** 1/5/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Stiff brown silt, trace of gravel, trace of clay - moist				
2.5'	Medium dense brown sand and gravel, trace of silt - moist	1A	1.0-2.5	4- 6- 6	12
5'		2A	4.0-5.5	6- 6- 6	12
	(Becomes dense at 6.5')	3A	6.5-8.0	15-25-21	46
10'	(Becomes very dense at 9.0')	4A	9.0-10.5	25-40-45	85
	(Cobbles from 12.0')				
15'		5A	14.0-15.5	47-49-52	101
20'		6A	19.0-20.0	67-33/3"	100+
25'		7A	24.0-25.5	33-34-36	70
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BC-TB
JOB NO.: 27811 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

700

LOG OF BORING NO. 42

DESIGN AND SPECIFICATIONS FOR PROPOSED CONSTRUCTION SPOIL STORAGE FACILITY, MOUND FACILITY NEW PROPERTY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/5/84

SURFACE ELEVATION: 703.5' **DATE COMPLETED:** 1/5/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Very stiff dark brown silt, some clay, trace of gravel, trace of organic material - moist	1A	1.0-2.5	7- 7-11	18
5'		1C	4.0-6.0		24"
6.0'	Very stiff brown silt and clay, trace of gravel - moist	2A	6.0-7.5	6-10-10	20
9.0'					
10' 9.5'	Medium stiff brown clay, some sand - moist				
	Medium dense brown sand, some silt, trace of gravel, trace of cobbles - moist	3A	9.0-10.5	5-10-18	28
15'	(Becomes dense at 14.0')	4A	14.0-15.5	16-25-17	42
19.0'					
20'	Very stiff brown silt, some sand, trace of clay, trace of gravel - moist	5A	19.0-20.5	10-10-15	25
24.0'					
25'	Very dense brown fine to medium coarse sand, some gravel, trace of silt - wet	6A	24.0-25.5	23-28-29	57
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER	WATER OBSERVATIONS	TYPE SAMPLER:
TECHNICIAN: BC-TB	INITIAL DEPTH: 24.0'	X A. SPLIT SPOON
JOB NO.: 27811 (bw)	COMPLETION DEPTH: 24.0'	B.
	DEPTH AFTER ____ HRS. ____	X C. SHELBY TUBE

BOWSER – MORNER

701

LOG OF BORING NO. 43

DESIGN AND SPECIFICATIONS FOR PROPOSED CONSTRUCTION SPOIL STORAGE FACILITY, MOUND FACILITY NEW PROPERTY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/5/84

SURFACE ELEVATION: 704.5' **DATE COMPLETED:** 1/5/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Very stiff dark brown silt, some clay, trace of gravel, trace of organic material - moist	1A	1.0-2.5	7- 7- 9	16
5'		1C	4.0-6.0		24"
6.0'	Very stiff brown clay and silt, trace of gravel - moist	2A	6.0-7.5	7- 9-19	28
10'	(Becomes damp and hard at 9.0')	3A	9.0-10.5	7-14-19	33
11.0'	Dense brown sand and gravel, trace of silt, trace of cobbles - moist	4A	14.0-15.5	10-17-17	34
15'					
20'		5A	19.0-20.5	15-16-23	39
25'	(Becomes wet and medium dense at 25.0')	6A	24.0-25.5	11-13-15	28
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-TB

JOB NO.: 27811 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 25.0'

COMPLETION DEPTH: 25.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

X C. SHELBY TUBE

BOWSER – MORNER

702

LOG OF BORING NO. 44

DESIGN AND SPECIFICATIONS FOR PROPOSED CONSTRUCTION SPOIL STORAGE FACILITY, MOUND FACILITY NEW PROPERTY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/6/84

SURFACE ELEVATION: **DATE COMPLETED:** 1/6/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Stiff dark brown silt, some clay, trace of gravel, trace of organic material - moist	1A	1.0-2.5	10- 6- 8	14
3.5'	Very stiff brown silt, some sand, trace of clay, trace of gravel - moist	2A	4.0-5.5	4- 9-14	23
5'	(Becomes hard at 6.5')	3A	6.5-8.0	8-16-17	33
10'	(Traces of cobbles at 9.0')	4A	9.0-10.5	10-18-19	37
15'		5A	14.0-15.5	23-27-21	48
19.0'	Medium dense brown sand and gravel, trace of silt - moist	6A	19.0-20.5	5- 8- 8	16
20'					
25'	(Becomes dense at 24.0') (Traces of cobbles at 24.0')	7A	24.0-25.5	13-14-29	43
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: BC-TB
JOB NO.: 27811 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

703

LOG OF BORING NO. 45

DESIGN AND SPECIFICATIONS FOR PROPOSED CONSTRUCTION SPOIL STORAGE FACILITY, MOUND FACILITY NEW PROPERTY, MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 1/5/84

SURFACE ELEVATION: 732.5' **DATE COMPLETED:** 1/5/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Very stiff brown silt, some clay, trace of gravel, trace of sand - moist	1A	1.0-2.5	3- 8-11	19
5'	(Becomes hard at 4.0', with trace of cobble at 4.0' and 6.0')	2A	4.0-5.5	7-60-20	80
	(Becomes very stiff at 6.5')	3A	6.5-8.0	6- 9-11	20
10'	(Becomes hard at 9.0')	4A	9.0-10.5	5-15-22	37
13.5'					
15'	Hard gray silt, some clay, trace of sand, trace of gravel - moist	5A	14.0-15.5	6-14-17	31
20'	(Becomes very stiff at 19.0')	6A	19.0-20.5	10-10-13	23
24.5'					
25'	Very dense brown sand and gravel, trace of silt, trace of cobbles - damp	7A	24.0-25.5	9-34-37	71
	Bottom of boring at 25.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-TB

JOB NO.: 27811 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

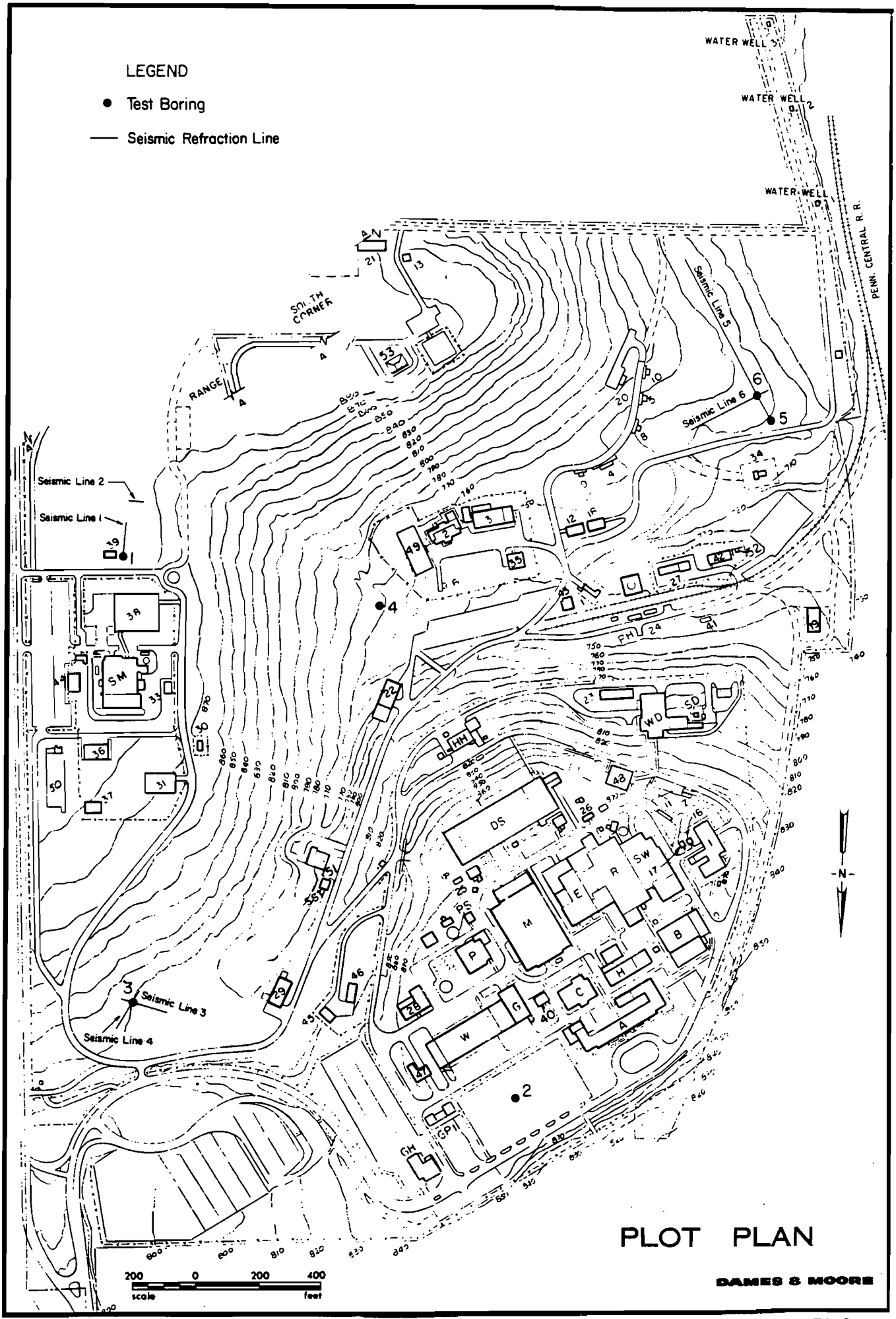
___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

APPENDIX C

SITE SAFETY ASSESSMENT



PLOT PLAN

DAMES & MOORE

PLATE 7.1-2

Richmond Group (Ordovician)

- Whitewater Formation
- Liberty Formation
- Waynesville Formation
- Arnheim Formation

KEY TO SAMPLES:

14 ■ INDICATES UNDISTURBED SAMPLE

25 ⊠ INDICATES DISTURBED SAMPLE

39 □ INDICATES SAMPLING ATTEMPT WITH NO RECOVERY

└ INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE SAMPLER 1 FOOT.

RQD ROCK QUALITY DESIGNATION
A MODIFIED CORE RECOVERY PERCENTAGE IN WHICH ONLY THE PIECES OF SOUND CORE OVER 4 INCHES LONG ARE COUNTED AS RECOVERY. THE MODIFIED SUM OF CORE RECOVERED IS THE EXPRESSED AS A PERCENTAGE OF THE TOTAL LENGTH OF THE CORE RUN.

90% RECOVERY INDICATES TOTAL AMOUNT OF CORE RECOVERED FOR EACH RUN, EXPRESSED AS A PERCENTAGE OF THE TOTAL LENGTH OF THE CORE RUN.

ELEVATIONS REFER TO PLANT DATUM WHICH IS 1.143 FEET HIGHER THAN U.S.C. & G. S. NORTH AMERICAN DATUM OF 1927.

THE DISCUSSION IN THE TEXT IS NECESSARY FOR PROPER UNDERSTANDING OF THE NATURE OF THE SUBSURFACE MATERIALS.

Bedrock Classification System with Key to Samples

DAMES & MOORE

PLATE 7.1-10

BORING I

SURFACE ELEVATION 886.3 (PLANT DATUM)

LABORATORY TESTS PERFORMED	DEPTH (FEET)	FIELD PERMEABILITY (GALLONS PER DAY PER SQ. FT.)	BLOW COUNT (SOIL) RECOVERY (ROCK)	SAMPLES (SOIL) R Q D (ROCK)
			117/8"	☒
			80%	0%
BRAZILIAN TENSILE UNIAXIAL COMPRESSION	10		100%	66%
BRAZILIAN TENSILE			100%	67%
	20		100%	41%
BRAZILIAN TENSILE BRAZILIAN TENSILE		7.65		
UNIAXIAL COMPRESSION UNIAXIAL COMPRESSION	30		100%	85%
PERMEABILITY		0.04		
UNIAXIAL COMPRESSION				
BRAZILIAN TENSILE	40		98%	93%
		0.04		
UNIAXIAL COMPRESSION PERMEABILITY				
BRAZILIAN TENSILE	50		99%	99%
BRAZILIAN TENSILE BRAZILIAN TENSILE-		0.01-		
PERMEABILITY UNIAXIAL COMPRESSION	60		100%	100%
		0.03		
UNIAXIAL COMPRESSION	70		98%	98%
		0.05		
	80		97%	97%
		0.01-		
	90		98%	98%
		0.02		
	100		100%	100%
BRAZILIAN TENSILE UNIAXIAL COMPRESSION		0.01-		
	110		99%	99%
		0.10		
RESONANT COLUMN TEST	120		100%	100%
		0.08		
	130		98%	98%
		0.13		
	140		100%	100%
		0.22		
	150		100%	100%
		0.11		
	160		100%	100%
		0.07		
	170		98%	98%
	180			
	190		81%	81%
	200			

GAMMA RAY LOG — COUNTS/SECOND INCREASING → — SCALE: 50CPS

SYMBOLS	DESCRIPTIONS	ELEVATION (FEET)
CL-ML	BROWN AND GRAY SILTY CLAY W/LITTLE FINE SAND AND GRAVEL. (GLACIAL TILL) (DENSE)	
	WHITEWATER FM. (ORDOVICIAN)	880.0
	BLUE-GRAY THINLY BEDDED FOSSILIFEROUS LIMESTONE AND SHALE. LIMESTONE IS CRYSTALLINE AND HARD WITH TRACE CALCITE REPLACEMENT IN CAVITIES. SHALE IS HORIZONTAL, THINLY BEDDED AND FISSLE. (RATIO OF LIMESTONE TO SHALE IS APPROXIMATELY 60% TO 40%.	870.0
	LIMESTONE IS LENTICULAR WITH INDISTINCT BEDDING.	860.0
		850.0
	STRATA BECOMING MORE EVENLY BEDDED, LESS LIMESTONE CONTENT, MORE SHALE.	840.0
	LIBERTY FM.	
	BLUE-GRAY INTERBEDDED FOSSILIFEROUS SHALE AND LIMESTONE. SHALE IS HORIZONTAL, THINLY BEDDED, AND FISSLE. SHALE SECTIONS SELDOM EXCEED 18" THICKNESS. LIMESTONE IS THIN TO MEDIUM BEDDED (WITH THICKNESSES SELDOM EXCEEDING 6"), HARD AND CRYSTALLINE. PYRITE ZONE AT 55 FEET. (RATIO OF SHALE TO LIMESTONE IS APPROXIMATELY 60% TO 40%).	830.0
	PYRITE ZONE IN MEDIUM BEDDED LIMESTONE LAYER.	820.0
	EVENLY BEDDED	
	HAYNESVILLE FM.	810.0
	BLUE-GRAY INTERBEDDED FOSSILIFEROUS SHALE AND LIMESTONE. SHALE IS HORIZONTAL, THINLY BEDDED, AND HAS NUMEROUS CALCAREOUS ZONES. SHALE LAYERS USUALLY GREATER THAN 6". LIMESTONE IS CRYSTALLINE AND THICKNESS SELDOM EXCEEDS 3". (RATIO OF SHALE TO LIMESTONE IS APPROXIMATELY 65% TO 35%).	800.0
		790.0
	LIMESTONES GENERALLY LESS EVENLY BEDDED	
		780.0
	3-1/2' CALCAREOUS SHALE	770.0
		760.0
		750.0
	MORE SHALE, LESS LIMESTONE	
		740.0
		730.0
	6-1/2' SHALE	
		720.0
	SHALE BEDS GRADE THICKER, STRATA ARE EVENLY BEDDED	
	ARNHEIM FM.	710.0
	DARK GRAY, THINLY BEDDED, HORIZONTAL, FISSLE, FOSSILIFEROUS SHALE WITH SOME THIN TO MEDIUM INTERBEDDED, HARD, CRYSTALLINE LIMESTONE. (RATIO OF SHALE TO LIMESTONE IS APPROXIMATELY 80% TO 20%).	700.0
	5" GRAY LIMESTONE LAYER 2-1/2' CALCAREOUS SHALE	690.0

BORING COMPLETED AT 200 FEET ON FEBRUARY 5, 1973.

TWO-INCH DIAMETER SPLIT SPOON SAMPLER DRIVEN BY A 140 LB. HAMMER FALLING 30 INCHES.

DEPTH TO WATER WAS 10 FEET ON MARCH 2, 1973.

LOG OF BORING

DAMES & MOORE

BORING 2

SURFACE ELEVATION 873.1 (PLANT DATUM)

LABORATORY TESTS PERFORMED	DEPTH (FEET)	FIELD PERMEABILITY	BLOW COUNT (SOIL) RECOVERY (ROCK)	SAMPLES (SOIL) RQD (ROCK)	ELEVATION (FEET)
			85/6"	☒	870.0
			76%	0%	
BRAZILIAN TENSILE UNIAXIAL COMPRESSION	10		89%	0%	860.0
UNIAXIAL COMPRESSION BRAZILIAN TENSILE BRAZILIAN TENSILE UNIAXIAL COMPRESSION	20		99%	42%	850.0
UNIAXIAL COMPRESSION					
UNIAXIAL COMPRESSION BRAZILIAN TENSILE PERMEABILITY	30	2.48	100%	26%	840.0
	40	0.07			830.0
PERMEABILITY BRAZILIAN TENSILE BRAZILIAN TENSILE			98%	90%	
	50	2.03			820.0
UNIAXIAL COMPRESSION BRAZILIAN TENSILE	60	0.18			810.0
PERMEABILITY			99%	99%	
	70	0.07			800.0
	80	0.01			790.0
			100%	100%	
	90	0.01-			780.0
	100	0.01-			770.0
			98%	98%	
	110	0.08			760.0
BRAZILIAN TENSILE UNIAXIAL COMPRESSION	120	0.01-			750.0
			100%	100%	
	130	0.03			740.0
	140	0.09	96%	96%	730.0
	150	0.17			720.0
	160	0.04	100%	100%	710.0
	170				700.0
	180		100%	100%	690.0
	190				680.0
			100%	100%	
	200				

GAMMA RAY LOG — COUNTS/SECOND INCREASING → — SCALE: 50 CPS

FIELD PERMEABILITY: GALLONS PER DAY PER SQ. FT.

SYMBOLS

DESCRIPTIONS

CL-ML — BLUISH-GRAY CLAYEY SILT (FILL?)
WEATHERED ROCK

WHITEWATER FM. (ORDOVICIAN)

BADLY FRACTURED

INTERBEDDED GRAY FRACTURED LMS. AND CLAY

LOST CIRCULATION @ 15'

BEDDING-LENTICULAR AND INDISTINCT

BLUE-GRAY THINLY BEDDED FOSSILIFEROUS LIMESTONE AND SHALE. LIMESTONE IS CRYSTALLINE AND HARD WITH FRACTURE ZONES NEAR SURFACE. SHALE IS THINLY BEDDED (BUT THICKNESS GENERALLY DOES NOT EXCEED 6"). FISSILE AND HORIZONTAL. (RATIO OF LIMESTONE TO SHALE IS APPROXIMATELY 60% TO 40%).

1½" GRAY FOSSILIFEROUS LMS., FRACTURED

BEDS BECOME MORE DISTINCT, LESS LIMESTONE CONTENT, MORE SHALE

LIBERTY FM.

BLUE-GRAY INTERBEDDED FOSSILIFEROUS LIMESTONE AND SHALE. LIMESTONE IS HARD & CRYSTALLINE WITH DISTINCT BEDDING; BEDS GENERALLY 1-2 INCHES THICK, BUT DO NOT EXCEED 6". SHALE IS THINLY BEDDED, HORIZONTAL AND FISSLE. (RATIO OF SHALE TO LIMESTONE IS 60% TO 40%).

SHALE CONTENT INCREASES, LIMESTONE DECREASES

WAYNESVILLE FM.

PYRITE ZONE @ 65'

BLUE-GRAY INTERBEDDED FOSSILIFEROUS LIMESTONE AND SHALE. SHALE IS HORIZONTAL, THINLY BEDDED AND CALCAREOUS. LIMESTONE IS THIN TO MEDIUM BEDDED (THICKNESS GENERALLY DOES NOT EXCEED 4"). CRYSTALLINE, WITH SOME ARGILLACEOUS MATERIAL IN THE MATRIX. (RATIO OF SHALE TO LIMESTONE IS 65% TO 35%).

VERTICAL FRACTURE IN LIMESTONE

SHALE CONTENT INCREASES, LIMESTONE DECREASES

4-1/2' GRAY SHALE

ARNHEIM FM.

DARK GRAY THINLY BEDDED SHALE WITH SOME INTERBEDDED THIN BLUE-GRAY LIMESTONE LAYERS. SOME CALCAREOUS SHALE ZONES. SHALE IS HORIZONTAL, FISSLE. LIMESTONE IS CRYSTALLINE AND HARD WITH TRACE SHALE IN MATRIX. (RATIO OF SHALE TO LIMESTONE IS 80% TO 20%).

BEDDING LESS DISTINCT THAN WAYNESVILLE, EVIDENCE OF PHOSPHATIC PARTICLES

BORING COMPLETED AT 200 FEET ON FEBRUARY 8, 1973

TWO-INCH DIAMETER SPLIT SPOON SAMPLER DRIVEN BY A 140 LB. HAMMER FALLING 30 INCHES.

DEPTH TO WATER WAS 45 FEET ON MARCH 2, 1973.

LOG OF BORING

DAMES & MOORE

BORING 3

SURFACE ELEVATION 807.3 (PLANT DATUM)

LABORATORY TESTS PERFORMED	DEPTH (FEET)	GAMMA RAY LOG COUNTS/SECOND INCREASING →	FIELD PERMEABILITY	BLOW COUNT (SOIL) RECOVERY (ROCK)	SAMPLES (SOIL) R Q D (ROCK)	SYMBOLS	DESCRIPTIONS	ELEVATION (FEET)
				13 22 25 16		CL-ML	BROWN, CLAYEY SILT W/LITTLE FINE - COARSE SAND, TRACE OF GRAVEL (GLACIAL TILL) (DENSE)	800.0
	10			60/11"		ML	BROWN, CLAYEY SILT W/LITTLE FINE - COARSE SAND, INTERBEDDED WITH BLUISH-GRAY WEATHERED SHALE.	790.0
				50/3" 50/4" 50/4"			BLUISH-GRAY WEATHERED SHALE W/LIMESTONE FRAGMENTS.	
	20						TOP OF HARD BEDROCK	
				90%	35%		CLAY & LIMESTONE	730.0
	30						WAYNESVILLE FM. (ORDOVICIAN)	
				100%	92%		4" CLAY & LIMESTONE 7" LMS. LAYER BLUE-GRAY INTERBEDDED FOSSILIFEROUS LIMESTONE AND SHALE. SHALE IS HORIZONTAL, THINLY BEDDED AND CALCAREOUS. LIMESTONE IS THIN TO MEDIUM BEDDED, BUT THICKNESS DOES NOT NORMALLY EXCEED 4". WHEN BEDDING IS DISTINCT, LIMESTONE IS CRYSTALLINE. (RATIO OF SHALE TO LIMESTONE IS APPROXIMATELY 65% TO 35%).	770.0
	40							
UNIAXIAL COMPRESSION BRAZILIAN TENSILE				83%	83%		SHALE CONTENT INCREASE, LIMESTONE BEDS BECOME FEWER AND LESS DISTINCT	760.0
	50						BORING COMPLETED AT 50 FEET ON FEBRUARY 9, 1973. TWO-INCH DIAMETER SPLIT SPOON SAMPLER DRIVEN BY A 140 LB. HAMMER FALLING 30 INCHES.	750.0

DEPTH TO WATER WAS 3 FEET ON MARCH 2, 1973.

LOG OF BORING

DAMES & MOORE

PLATE 7.1-5

BORING 4

SURFACE ELEVATION 754.0 (PLANT DATUM)

LABORATORY TESTS PERFORMED	DEPTH (FEET)	GAMMA RAY LOG (COUNTS/SECOND INCREASING →)	FIELD PERMEABILITY	BLOW COUNT (SOIL) RECOVERY (ROCK)	SAMPLES (SOIL) R Q D (ROCK)	SYMBOLS	DESCRIPTIONS	ELEVATION (FEET)
RESONANT COLUMN TEST TRIAXIAL COMPRESSION TEST & GRAIN SIZE		SCALE: 100 CPS		10 26 39	■ ■ ■	CL-ML	TOPSOIL	750
GRAIN SIZE & DYNAMIC PROPERTIES TEST	10			45 50	■ ■	CL-ML	MOTTLED BROWN & GRAY CLAYEY SILT WITH LITTLE FINE-COARSE SAND, TRACE OF GRAVEL. (GLACIAL TILL) (DENSE) (GRADING MORE SAND AND GRAVEL).	740
TRIAXIAL COMPRESSION TEST CONSOLIDATION TEST				30 60	■ ■			
TRIAXIAL COMPRESSION TEST & RESONANT COLUMN TEST & GRAIN SIZE	20			38 34 39	■ ■ ■	GW	MOTTLED BROWN & GRAY, SILTY, FINE TO COARSE SAND AND GRAVEL. (DENSE)	730
				78	■			
TRIAXIAL COMPRESSION TEST	30			62 64	■ ■			720
DYNAMIC PROPERTIES TEST & GRAIN SIZE PERMEABILITY & UNCONFINED COMPRESSION				50 104	■ ■			
	40			34 40	■ ■			
PERMEABILITY & GRAIN SIZE				130	□		BLUISH-GRAY WEATHERED SHALE	
	50			90%	90%	80% LMG. 20% SH.	ARNHEIM FM. (ORDOVICIAN)	700
	60					85% - 90% SH, WITH SOME CALCAREOUS ZONES	DARK GRAY INTERBEDDED SHALE AND LIMESTONE WITH SOME FOSSILS AND TRACE PHOSPHATIC NODULES. SHALE IS HORIZONTAL, THINLY BEDDED AND VERY FISSLE. LIMESTONE IS ABUNDANT IN UPPER SECTION, THIN TO MEDIUM BEDDED, AND CRYSTALLINE. DECREASES ABRUPTLY AT APPROXIMATELY 55' WHERE BEDDING BECOMES INDISTINCT. (RATIO OF SHALE TO LIMESTONE IS 80% TO 20%). (LIMESTONE BEDS SELDOM EXCEED 4" IN THICKNESS).	690
UNIAXIAL COMPRESSION				99%	78%			
	70							680

BORING COMPLETED AT 75 FEET ON FEBRUARY 11, 1973.

DAMES & MOORE TYPE U SAMPLER DRIVEN BY A 300 LB. HAMMER FALLING 24 INCHES.

DEPTH TO WATER WAS 15-1/2 FEET ON MARCH 2, 1973.

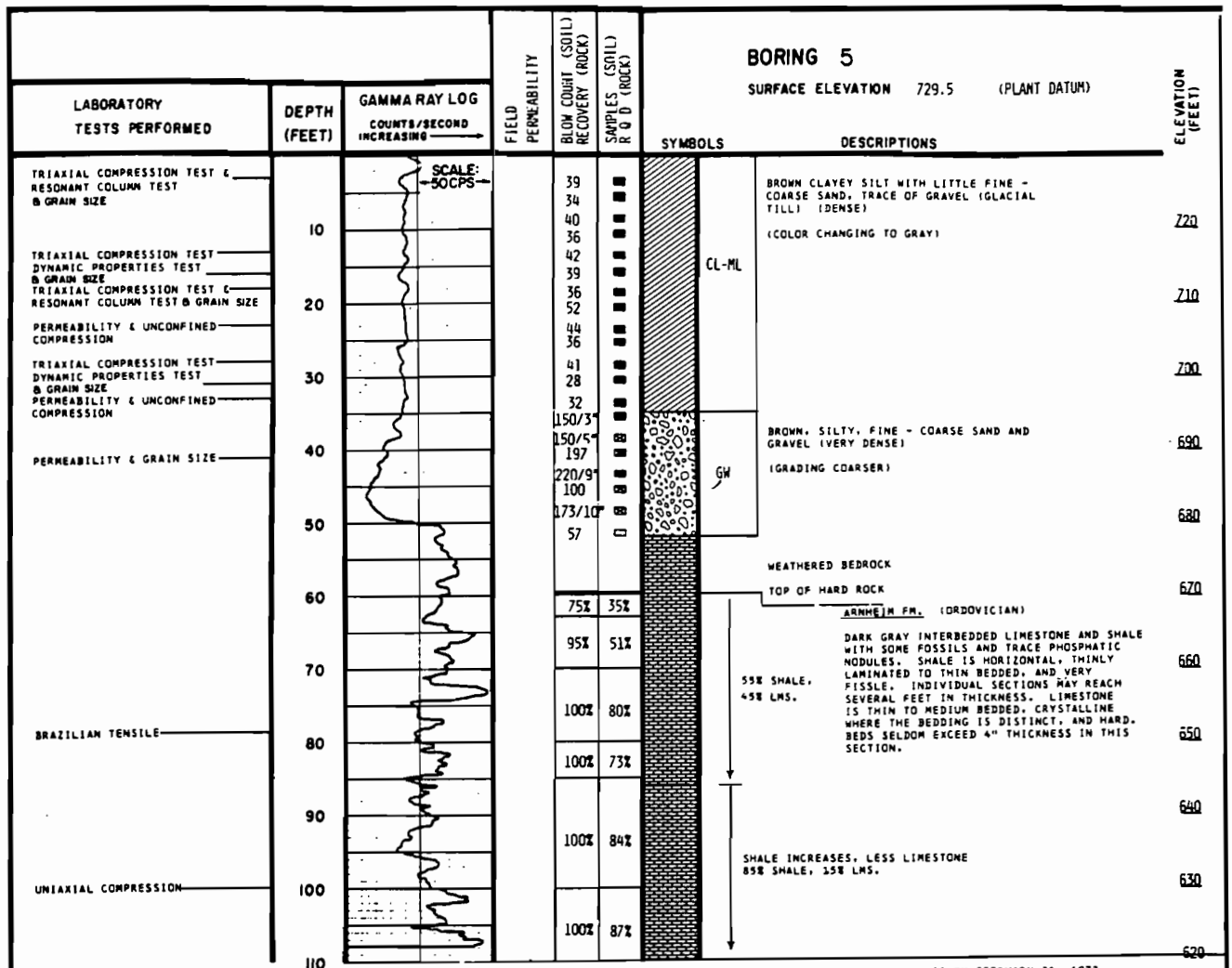
LOG OF BORING

DAMES & MOORE

PLATE 7.1-6

BORING 5

SURFACE ELEVATION 729.5 (PLANT DATUM)



BORING COMPLETED AT 110 FEET ON FEBRUARY 21, 1973. DAMES & MOORE TYPE U SAMPLER DRIVEN BY A 300 LB. HAMMER FALLING 24 INCHES.

DEPTH TO WATER WAS 44 FEET ON MARCH 2, 1973.

LOG OF BORING

DAMES & MOORE

PLATE 7.1-7

BORING 6

SURFACE ELEVATION 737.0 (PLANT DATUM)

LABORATORY TESTS PERFORMED	DEPTH (FEET)	GAMMA RAY LOG (COUNTS/SECOND INCREASING →)	FIELD PERMEABILITY	BLOW COUNT (SOIL) RECOVERY (ROCK)	SAMPLES (SOIL) RQD (ROCK)	SYMBOLS	DESCRIPTIONS	ELEVATION (FEET)
PERMEABILITY & UNCONFINED COMPRESSION		SCALE: 50 CPS		24, 22		CL-ML	BROWN CLAYEY SILT WITH LITTLE FINE - COARSE SAND, TRACE OF GRAVEL (GLACIL TILL) (DENSE)	730
CONSOLIDATION	10			30, 32			(COLOR CHANGING TO MOTTLED BROWN & GRAY)	
PERMEABILITY & UNCONFINED COMPRESSION				19, 21				720
CONSOLIDATION	20			25, 20			(COLOR CHANGING TO GRAY) (MORE COARSE GRAVEL)	
DYNAMIC PROPERTIES TEST & GRAIN SIZE				20, 21				710
CONSOLIDATION	30			27, 29				
TRIAXIAL COMPRESSION TEST & GRAIN SIZE & RESONANT COLUMN TEST				28				700
PERMEABILITY & GRAIN SIZE	40			130, 140, 118		GW	BROWN, SILTY, FINE - COARSE SAND AND GRAVEY (VERY DENSE)	
				74, 28			(GRADING COARSER)	690
	50			31, 150/3"			WEATHERED BLUISH-GRAY SHALE	
								680
	60			96%	86%		90% SHALE, 10% LMS.	
	70						ARNHEIM FM. (ORDOVICIAN) GRAY INTERBEDDED FOSSILIFEROUS SHALE & LIMESTONE. SHALE IS HORIZONTAL, THINLY LAMINATED TO THINLY BEDDED, WITH SOME SECTIONS REACHING SEVERAL FEET IN THICKNESS. DISTINCT LIMESTONE BEDS ARE THIN TO MEDIUM BEDDED WITH BEDS SELDOM EXCEEDING 5" THICKNESS. MATRIX IS CRYSTALLINE WHERE BEDS ARE DISTINCT, AND HARD. (RATIO OF SHALE TO LIMESTONE IS APPROXIMATELY 85% TO 15%).	670
BRAZILIAN TENSILE	80			100%			65% SHALE, 35% LMS.	660
	90							650
UNIAXIAL COMPRESSION	100			100%	88%		95% SHALE, 5% LMS.	640
								630

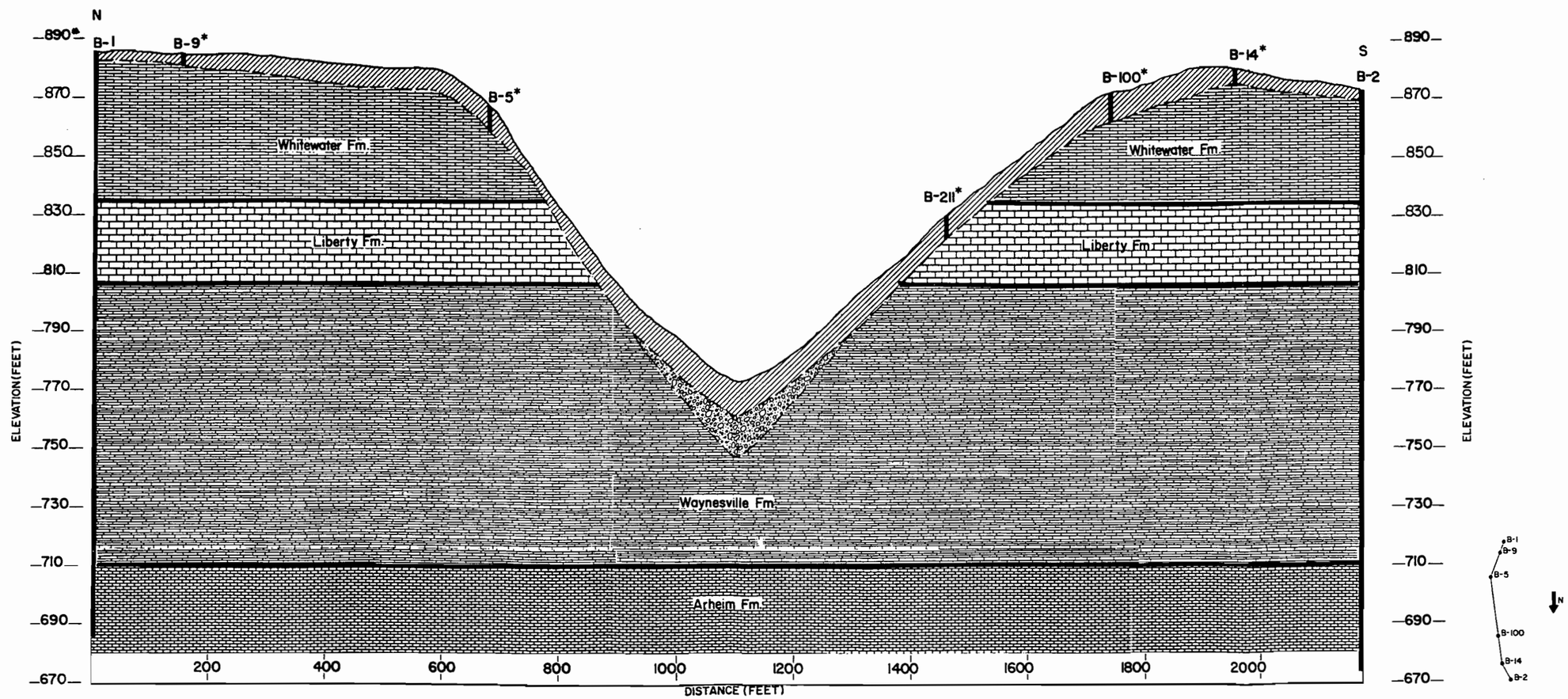
BORING COMPLETED AT 108 FEET ON FEBRUARY 20, 1973. DAMES & MOORE TYPE U SAMPLER DRIVEN BY A 300 LB. HAMMER FALLING 24 INCHES.

DEPTH TO WATER WAS 53-1/2 FEET ON MARCH 2, 1973.

LOG OF BORING

DAMES & MOORE

PLATE 7.1-8



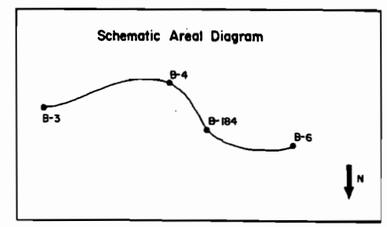
Vertical Exaggeration= 5x

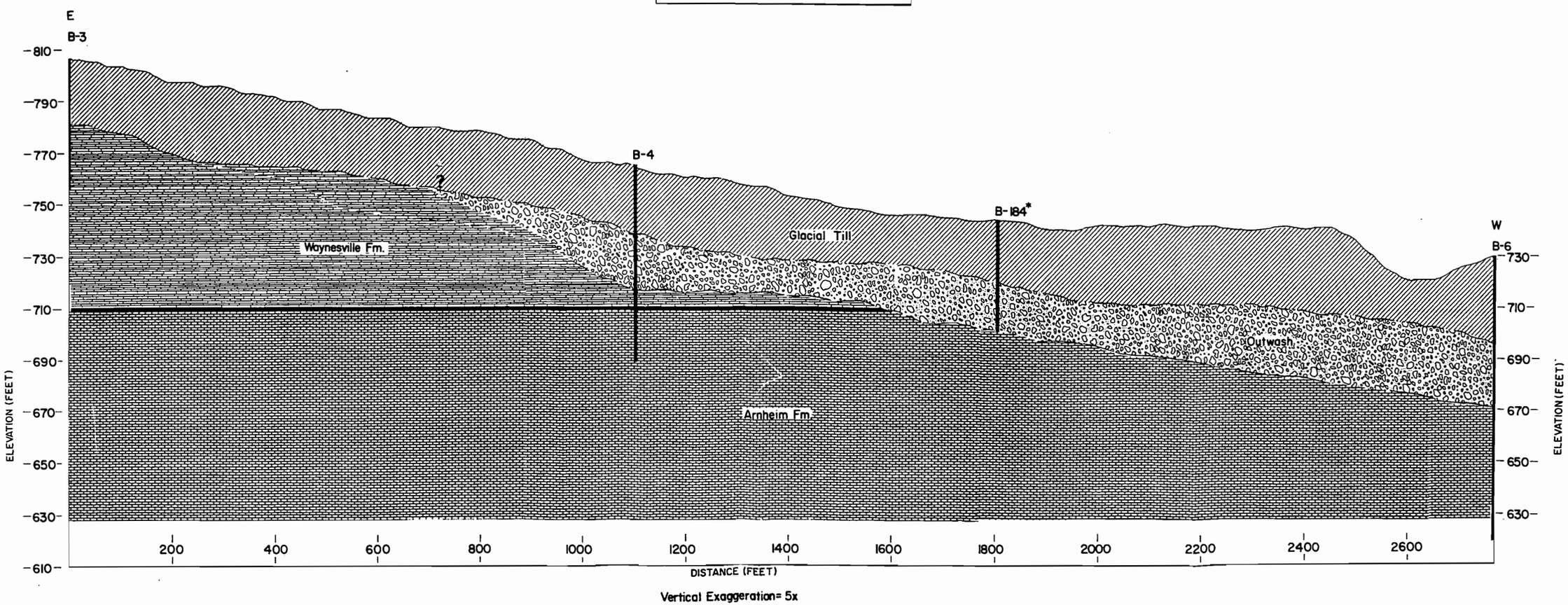
North-South Cross Section through Mound Laboratory

* BORING OBTAINED FROM MONSANTO DRAWING NUMBER 5-1332 DATED 9-11-64.

DAMES & MOORE

PLATE 7.1-48





* BORING OBTAINED FROM MONSANTO DRAWING NUMBER 5-1382 DATED 9-11-64.

East-West Cross Section through Mound Laboratory

DAMES & MOORE

REVISIONS BY DATE
BY DATE
BY DATE
PLATE OF

FILE
BY DATE
CHECKED BY F.W.E. DATE 7-73

PLATE 7.1-49

D

Cardinal®

APPENDIX D

OVERFLOW POND AND RETENTION

BASIN CONSTRUCTION PROJECTS

BORING LOG TERMINOLOGY

Stratum Depth:

Distance in feet and/or inches below ground surface.

Stratum Elevation:

Elevation in feet below ground surface elevation.

Description of Materials:

Major types of soil material existing at boring location. Soil classification based on one of the following systems: Unified Soil Classification System, Ohio State Highway Classification System, Highway Research Board Classification System, Federal Aviation Authority Classification System, Visual Classification.

Sample No.:

Sample numbers are designated consecutively, increasing with depth for each boring.

Sample Type:

"A" Split spoon, 2" O.D., 1-3/8" I.D., 18" in length.

"B" One of the following:

Power Auger Sample
Piston Sample
Diamond Bit NX: BX: AX:
Housel Sample
Wash Sample
Denison Sample

"C" Shelby Tube 3" O.D. except where noted.

Sample Depth:

Depth below top of ground at which appropriate sample was taken.

Blows per 6" on Sampler:

The number of blows required to drive a 2" O.D., 1-3/8" I.D., split spoon sampler, using a 140 pound hammer with a 30 inch free fall, is recorded for 6" drive increments. (Example: 3/8/9)

"N" Blows/Ft.:

Standard penetration resistance. This value is based on the total number of blows required for the last 12" of penetration. (Example: 3/8/9 ∴ N = 8 + 9 = 17)

Water Observations:

Depth of water recorded in test boring is measured from top of ground to top of water level. Initial depth indicates water level during boring, completion depth indicates water level immediately after boring, and depth after "X" number hours indicates water level after letting water rise or fall over a time period. Water observations in pervious soil are considered reliable ground water levels for that date. Water observations in impervious soils can not be considered accurate ground water measurements for that date unless records are made over several days' time. Factors such as weather, soil porosity, etc., will cause the ground water level to fluctuate for both pervious and impervious soils.

SOIL DESCRIPTION

Color:

When the color of the soil is uniform throughout, the color recorded will be such as brown, grey, black and may be modified by adjectives such as light and dark. If the soil's predominant color is shaded by a secondary color, the secondary color precedes the primary color, such as: grey-brown, yellow-brown. If two major and distinct colors are swirled throughout the soil, the colors will be modified by the term mottled, such as: mottled brown and grey.

Particle Size	Visual
Boulders	Larger than 8"
Cobbles	8" to 3"
Gravel—Coarse	3" to 3/4"
Fine	2 mm. to 3/4"
Sand —Coarse	2 mm.-0.6 mm. (Pencil lead size)
—Medium	0.6 mm.-0.2 mm. (Table sugar and salt size)
—Fine	0.2 mm.-0.06 mm. (Powdered sugar and human hair size)
Silt	0.06 mm.-0.002 mm.
Clay	0.002 and smaller (Particle size of both Silt and Clay not visible to naked eye)

Soil Components

Major Component:	Minor Component Term
Gravel	Trace 1-10%
Sand	Some 11-35%
Silt	And 36-50%
Clay	

Moisture Content

Term	Relative Moisture
Dry	Powdery
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit but below liquid limit
Wet	Moisture content above liquid limit

Condition of Soil Relative to Compactness
Granular Material

Very Loose	5 blows/ft. or less
Loose	6 to 10 blows/ft.
Medium Dense	11 to 30 blows/ft.
Dense	30 to 50 blows/ft.
Very Dense	51 blows/ft. or more

Condition of Soil Relative to Consistency
Cohesive Material

Very Soft	3 blows/ft. or less
Soft	4 to 5 blows/ft.
Medium Stiff	6 to 10 blows/ft.
Stiff	11 to 15 blows/ft.
Very Stiff	16 to 30 blows/ft.
Hard	31 blows/ft. or more

LOG OF BORING NO. 1

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/12/75

SURFACE ELEVATION: 710.3' **DATE COMPLETED:** 6/12/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Very Stiff Brown Clay, some Sand, trace of Gravel, some Silt, trace of Rock Fragments, trace of Organic Material - Moist	1C	1.5-3.5'		0"
5.0'		1A	3.5-5.0'	5-9-13	22
6.0'	(Original) Very Stiff Brown Silt and Sand, some Clay, trace of Gravel, with 1" to 2" Sand and Gravel Seams - Moist	2A	6.0-7.5'	9-12-17	29
10.0'	(Becomes Hard at 8.5')	3A	8.5-10.0'	9-25-26	51
14.0'					
15.0	Very Stiff Gray Silt and Sand, some Clay, trace of Gravel - Moist	4A	13.5-15.0'	9-13-17	30
	Bottom of Boring at 15.0'				

METHOD: Hollow Auger

TECHNICIAN: BC-TA

JOB NO.: 04740

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 24 HRS. 5.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

Note: Set P.V.C. Groundwater pipe at 15.0'; used 18.0' of Pipe

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 2

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/12/75

SURFACE ELEVATION: 711.8' **DATE COMPLETED:** 6/12/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Topsoil and Brown Silt, some Clay				
2.0'	(Fill) Very Stiff Brown Clay, some Silt, some Sand, trace of Gravel - Moist	1C	0.5-2.5'		18"
5.0'	(Original) Very Stiff Brown Silt and Sand, some Clay, trace of Gravel - Moist	1A	2.5-4.0'	8-12-12	24
		2A	6.0-7.5'	8-13-15	28
10.0'		3A	8.5-10.0'	8-11-15	26
	(Becomes Hard at 14.0'				
15.0'		4A	13.5-15.0'	8-14-20	34
	Bottom of Boring at 15.0'				

METHOD: Hollow Auger

TECHNICIAN: BC-TA

JOB NO.: 04740

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 24 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

X C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 3

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/12/75

SURFACE ELEVATION: 717.2' **DATE COMPLETED:** 6/12/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Topsoil				
0.5'	(Original) Very Stiff Brown and Gray Silt and Sand, some Clay, trace of Gravel - Moist	1A	1.0-2.5'	17-9-8	17
5.0'		2A	3.5-5.0'	10-9-12	21
		3A	6.0-7.5'	9-11-17	28
		4A	8.5-10.0'	5-9-11	20
10.0'		1B	4.0-10.0'		
	Bottom of Boring at 10.0'				

METHOD: Hollow Auger

TECHNICIAN: BC-TA

JOB NO.: 04740

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 24 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

X B. Bag Sample

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 4

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/12/75

SURFACE ELEVATION: 712.9' **DATE COMPLETED:** 6/12/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(Fill) Topsoil				
0.5'	(Original) Very Soft Brown and Gray Silt and Sand, some Clay, trace of Gravel - Moist	1A	1.0-2.5'	5-8-12	20
5.0'	(Becomes Hard at 6.5')	2A	3.5-5.0'	8-14-15	29
		3A	6.0-7.5'	11-20-27	47
8.0'	Hard Gray Silt and Sand, some Clay, trace of Gravel, with Wet Sand Seams - Moist	4A	8.5-10.0'	13-16-19	35
10.0'	Bottom of Boring at 10.0'				

METHOD: Hollow Auger

TECHNICIAN: BC-TA

JOB NO.: 04740

WATER OBSERVATIONS

INITIAL DEPTH: 8.0'

COMPLETION DEPTH: *

DEPTH AFTER: 24 HRS. 3.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

* Boring filled in to 6.0'

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. A

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/13/75

SURFACE ELEVATION: 710.3' **DATE COMPLETED:** 6/13/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Brown Silt and Sand, some Clay, trace of Gravel - Moist				
5.0'					
10.0'	Bottom of Boring at 10.0'				

METHOD: Hollow Auger	**WATER OBSERVATIONS**	**TYPE SAMPLER:**
TECHNICIAN: BC-TA	INITIAL DEPTH: None	____ A. SPLIT SPOON
JOB NO.: 04740	COMPLETION DEPTH: ____	____ B.
	DEPTH AFTER: ____ HRS. ____	____ C. SHELBY TUBE

Note: Set 10.0' of Casing.
Permeability Test at 10.0'

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. B

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/13/75

SURFACE ELEVATION: 713.9' **DATE COMPLETED:** 6/13/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Brown Silt and Sand, some Clay, trace of Gravel - Moist				
5.0'					
7.0'	Gray Silt and Sand, some Clay, trace of Gravel - Moist				
10.0'	Bottom of Boring at 10.0'				

METHOD: Hollow Auger

TECHNICIAN: BC-TA

JOB NO.: 04740

WATER OBSERVATIONS

INITIAL DEPTH: _____

COMPLETION DEPTH: _____

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

Note: Set 10.0' of Casing.
Permeability Test at 10.0'

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. C

PROPOSED RETENTION BASIN - MOUND LABORATORY - MIAMISBURG, OHIO

BORING LOCATION: As Shown on Boring Location Plan **DATE STARTED:** 6/13/75

SURFACE ELEVATION: 716.7' **DATE COMPLETED:** 6/13/75

STRATUM DEPTH	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Brown Silt and Sand, some Clay, trace of Gravel - Moist				
5.0'					
10.0'					
12.5'	Gray Silt and Sand, trace of Gravel, some Clay - Moist				
15.0'					
20.0'	Bottom of Boring at 20.0'				

METHOD: Hollow Auger

TECHNICIAN: BC-TA

JOB NO.: 04740

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: _____

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

Note: Set 20.0' of Casing.
Permeability Test at 20.0'

BOWSER – MORNER
TESTING LABORATORIES, INC.

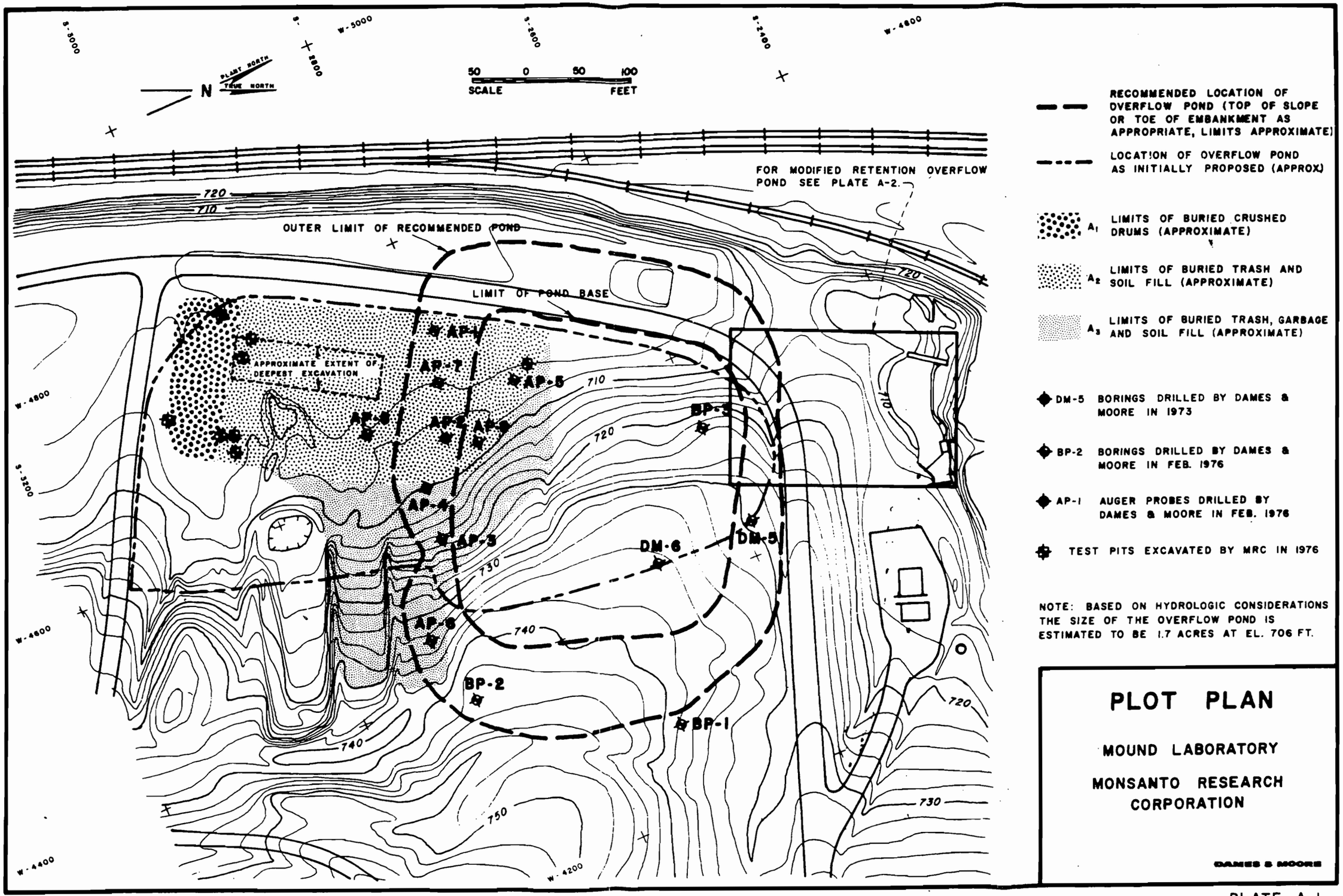
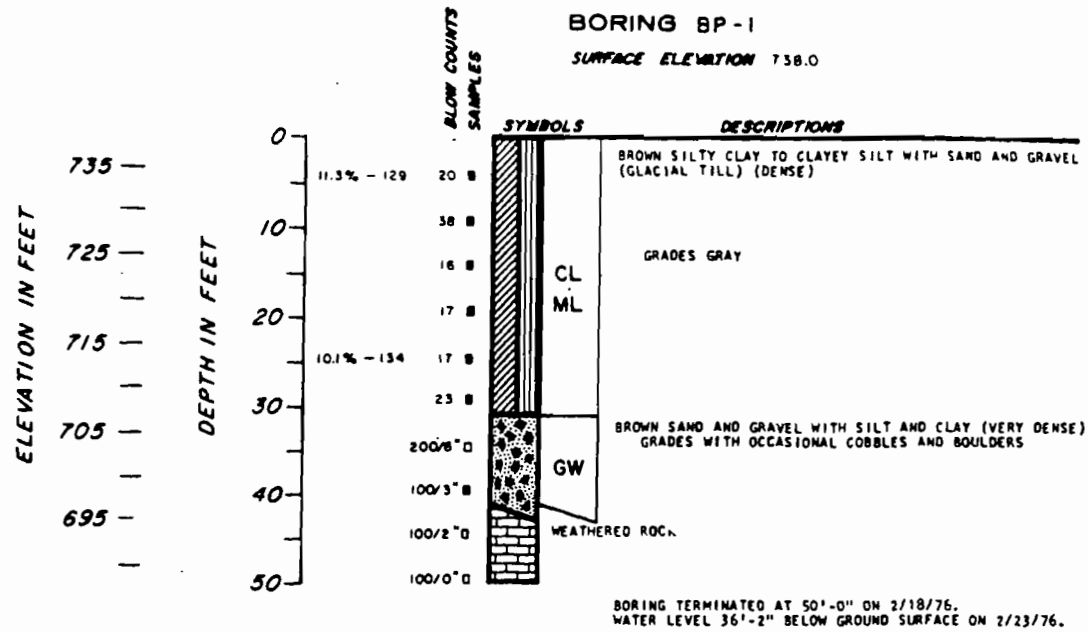

N
PLANT NORTH
TRUE NORTH
50 0 50 100
SCALE FEET
S-3000
S-2800
S-2600
S-2400
W-5000
W-4800
W-4600
W-4400
W-4200
S-3200
FOR MODIFIED RETENTION OVERFLOW POND SEE PLATE A-2.
OUTER LIMIT OF RECOMMENDED POND
LIMIT OF POND BASE
APPROXIMATE EXTENT OF DEEPEST EXCAVATION
AP-1
AP-2
AP-3
AP-4
AP-5
AP-6
AP-7
AP-8
BP-1
BP-2
DM-5
DM-6
720
710
730
740
750
RECOMMENDED LOCATION OF OVERFLOW POND (TOP OF SLOPE OR TOE OF EMBANKMENT AS APPROPRIATE, LIMITS APPROXIMATE)
LOCATION OF OVERFLOW POND AS INITIALLY PROPOSED (APPROX)
A1 LIMITS OF BURIED CRUSHED DRUMS (APPROXIMATE)
A2 LIMITS OF BURIED TRASH AND SOIL FILL (APPROXIMATE)
A3 LIMITS OF BURIED TRASH, GARBAGE AND SOIL FILL (APPROXIMATE)
DM-5 BORINGS DRILLED BY DAMES & MOORE IN 1973
BP-2 BORINGS DRILLED BY DAMES & MOORE IN FEB. 1976
AP-1 AUGER PROBES DRILLED BY DAMES & MOORE IN FEB. 1976
TEST PITS EXCAVATED BY MRC IN 1976
NOTE: BASED ON HYDROLOGIC CONSIDERATIONS THE SIZE OF THE OVERFLOW POND IS ESTIMATED TO BE 1.7 ACRES AT EL. 706 FT.
PLOT PLAN
MOUND LABORATORY
MONSANTO RESEARCH CORPORATION
DAMES & MOORE

PLATE A-1

BORING BP-1

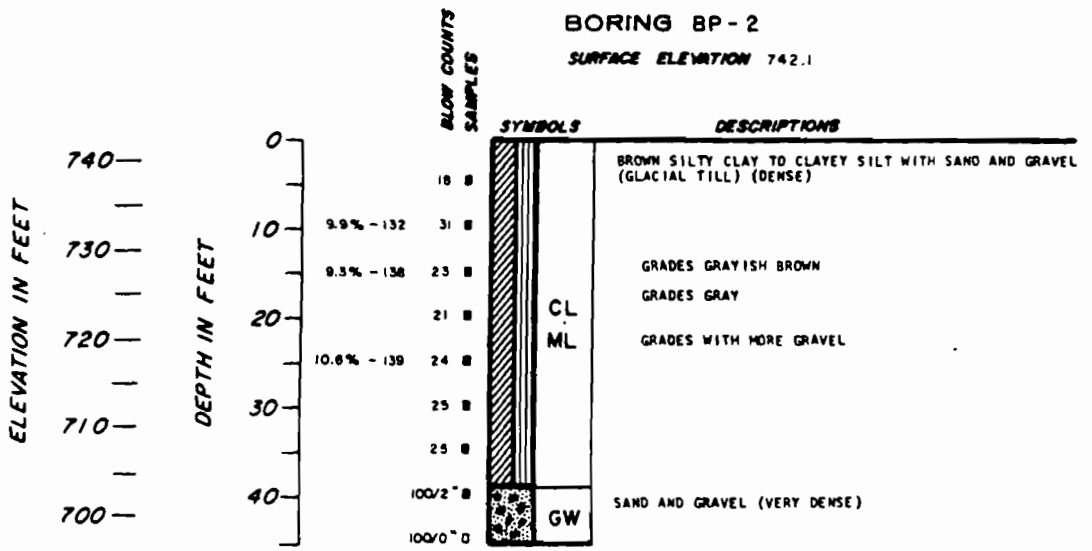
SURFACE ELEVATION 738.0



BORING TERMINATED AT 50'-0" ON 2/18/76.
WATER LEVEL 36'-2" BELOW GROUND SURFACE ON 2/23/76.

BORING BP-2

SURFACE ELEVATION 742.1



BORING TERMINATED AT 45'-0" ON 2/19/76.
WATER LEVEL 7'-7" BELOW GROUND SURFACE ON 2/23/76.
WATER LEVEL CONTINUES TO FALL AND DOES NOT APPEAR TO HAVE STABILIZED.

LEGEND:

- ■ D&M TYPE U SAMPLER (RELATIVELY UNDISTURBED SAMPLE)
- ■ D&M TYPE U SAMPLER (DISTURBED SAMPLE)
- □ D&M TYPE U SAMPLER (NO RECOVERY)

20.4%-104.0 INDICATES PERCENT FIELD MOISTURE EXPRESSED AS A PERCENTAGE OF THE DRY WEIGHT OF SOIL, AND DRY DENSITY EXPRESSED IN POUNDS PER CUBIC FOOT.

NOTE:

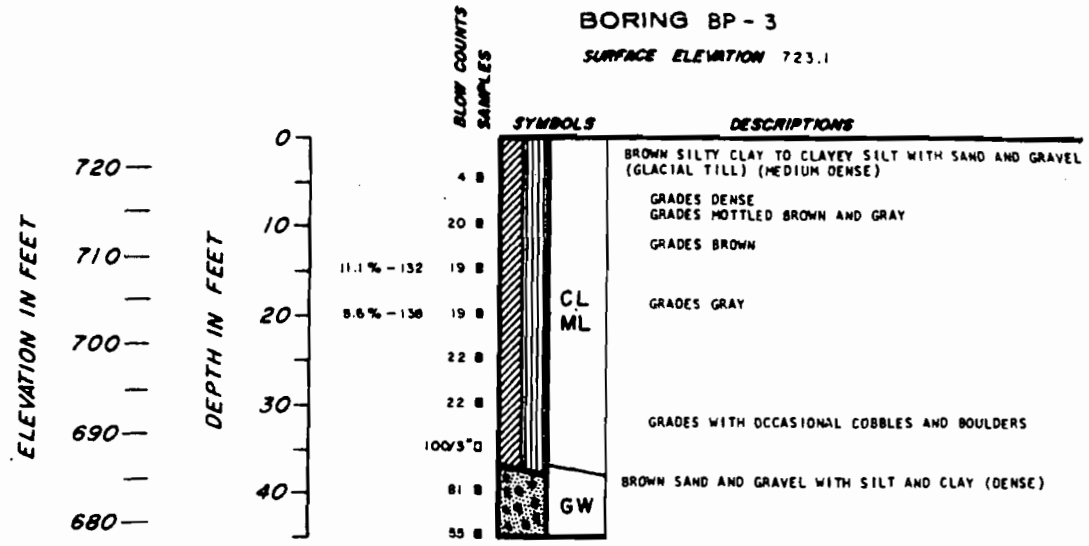
THE 3.25" O.D. DAMES & MOORE TYPE U SAMPLER WAS DRIVEN WITH A 140 POUND DROP HAMMER FALLING FREELY A DISTANCE OF 30 INCHES. THE BLOWS REQUIRED TO DRIVE THE SAMPLER ONE FOOT ARE RECORDED TO THE LEFT OF THE SAMPLE SYMBOLS.

LOG OF BORINGS

DAMES & MOORE

BORING BP - 3

SURFACE ELEVATION 723.1



BORING TERMINATED AT 45'-0" ON 2/18/76.
WATER LEVEL 32'-0" BELOW GROUND SURFACE ON 2/23/76.

LEGEND:

- ■ D&M TYPE U SAMPLER (RELATIVELY UNDISTURBED SAMPLE)
- ■ D&M TYPE U SAMPLER (DISTURBED SAMPLE)
- ○ D&M TYPE U SAMPLER (NO RECOVERY)

20.4%-104.0 INDICATES PERCENT FIELD MOISTURE EXPRESSED AS A PERCENTAGE OF THE DRY WEIGHT OF SOIL, AND DRY DENSITY EXPRESSED IN POUNDS PER CUBIC FOOT.

NOTE:

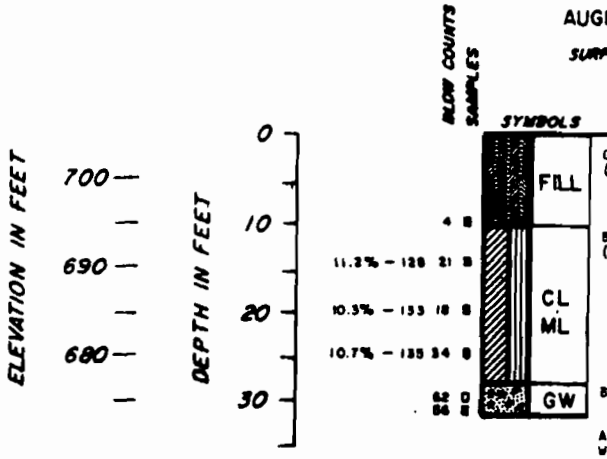
THE 3.25" O.D. DAMES & MOORE TYPE U SAMPLER WAS DRIVEN WITH A 140 POUND DROP HAMMER FALLING FREELY A DISTANCE OF 30 INCHES. THE BLOWS REQUIRED TO DRIVE THE SAMPLER ONE FOOT ARE RECORDED TO THE LEFT OF THE SAMPLE SYMBOLS.

LOG OF BORING

DAMES & MOORE

AUGER PROBE AP-1

SURFACE ELEVATION 704.8



DESCRIPTIONS

GRAYISH BROWN CLAYEY SILT WITH GRAVEL AND TRASH (BROKEN GLASS, CHINA, ETC.) (FILL)
GRADES BROWNISH GRAY WITH ORGANIC MATERIAL
GRADES DARK BROWN WITH MORE ORGANIC MATERIAL

BROWN SILTY CLAY TO CLAYEY SILT WITH SAND AND GRAVEL (GLACIAL TILL) (DENSE)
GRADES WITH MORE GRAVEL

GRADES GRAY

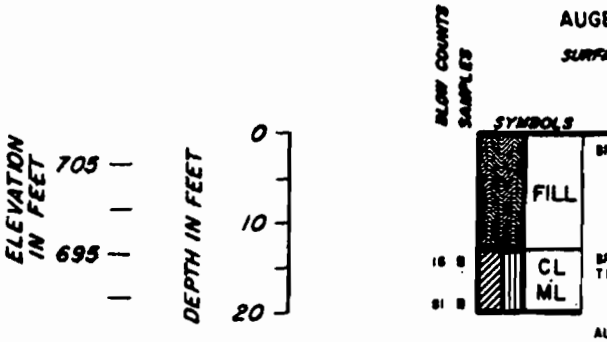
GRADES WITH OCCASIONAL COBBLES AND BOULDERS

BROWN SANDY GRAVEL WITH TRACE OF SILT (DENSE)

AUGER PROBE TERMINATED AT 31'-6" ON 2/17/76.
WATER LEVEL 19'-11" BELOW GROUND SURFACE ON 2/23/76.

AUGER PROBE AP-2

SURFACE ELEVATION 708.3



DESCRIPTIONS

BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (FILL)
GRADES WITH ABUNDANT TRASH (GLASS, WIRE, TIN, ORGANIC MATERIAL)

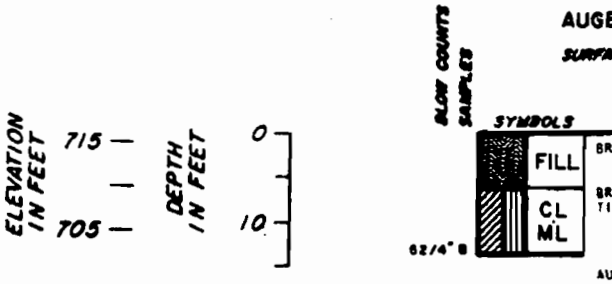
GRADES WITH LESS TRASH

BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIAL TILL) (DENSE)

AUGER PROBE TERMINATED AT 20'-[illegible] ON 2/1[illegible]
WATER LEVEL NOT RECORDED.

AUGER PROBE AP-3

SURFACE ELEVATION 716.0



DESCRIPTIONS

BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (FILL)
GRADES WITH TRASH (CHINA, PAPER, ORGANIC MATERIAL, ETC.)
BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIAL TILL) (DENSE)

GRADES WITH OCCASIONAL COBBLES AND BOULDERS

AUGER PROBE TERMINATED AT 13'-6" ON 2/19/76.
WATER LEVEL NOT RECORDED.

LEGEND:

- ● D&M TYPE U SAMPLER (RELATIVELY UNDISTURBED SAMPLE)
- ■ D&M TYPE U SAMPLER (DISTURBED SAMPLE)
- □ D&M TYPE U SAMPLER (NO RECOVERY)

20.4%-104.0 INDICATES PERCENT FIELD MOISTURE EXPRESSED AS A PERCENTAGE OF THE DRY WEIGHT OF SOIL, AND DRY DENSITY EXPRESSED IN POUNDS PER CUBIC FOOT.

NOTE:

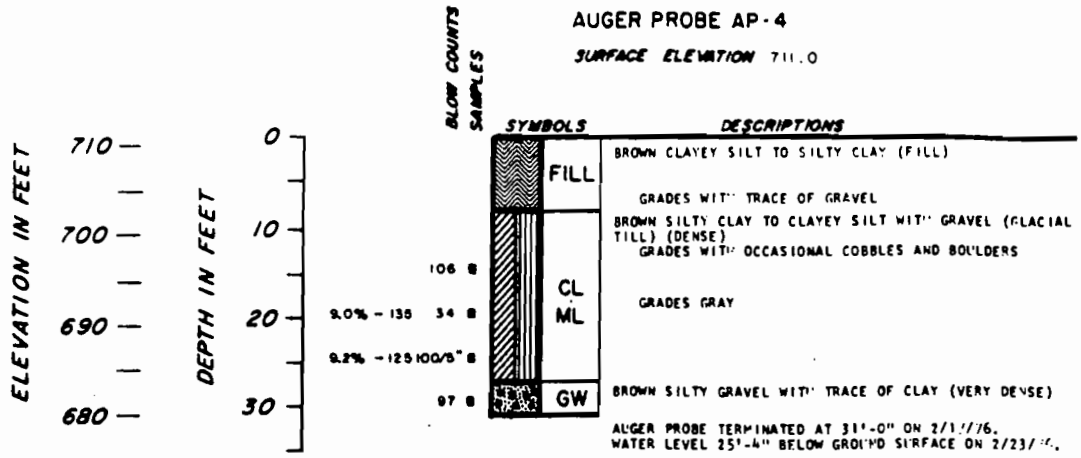
THE 3.25" O.D. DAMES & MOORE TYPE U SAMPLER WAS DRIVEN WITH A 140 POUND DROP HAMMER FALLING FREELY A DISTANCE OF 30 INCHES. THE BLOWS REQUIRED TO DRIVE THE SAMPLER ONE FOOT ARE RECORDED TO THE LEFT OF THE SAMPLE SYMBOLS.

LOG OF AUGER PROBES

DAMES & MOORE

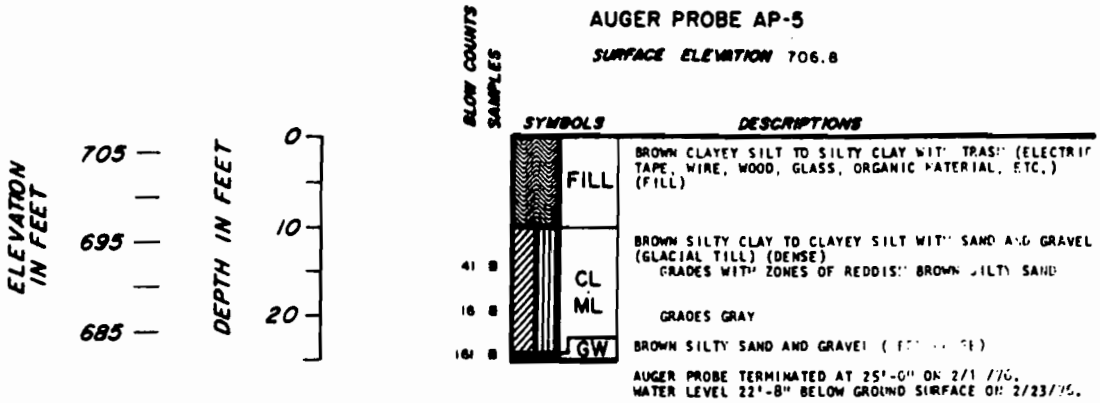
AUGER PROBE AP-4

SURFACE ELEVATION 711.0



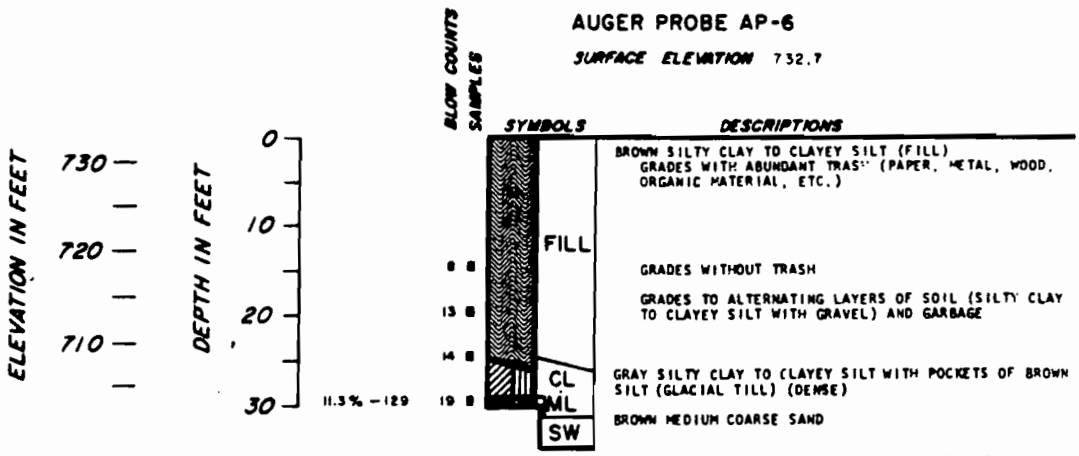
AUGER PROBE AP-5

SURFACE ELEVATION 706.8



AUGER PROBE AP-6

SURFACE ELEVATION 732.7



LEGEND:

- ■ D&M TYPE U SAMPLER (RELATIVELY UNDISTURBED SAMPLE)
- ■ D&M TYPE U SAMPLER (DISTURBED SAMPLE)
- □ D&M TYPE U SAMPLER (NO RECOVERY)

20.4%-104.0 INDICATES PERCENT FIELD MOISTURE EXPRESSED AS A PERCENTAGE OF THE DRY WEIGHT OF SOIL, AND DRY DENSITY EXPRESSED IN POUNDS PER CUBIC FOOT.

NOTE:

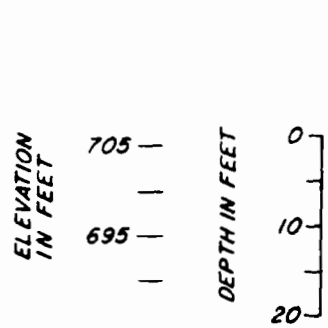
THE 3.25" O.D. DAMES & MOORE TYPE U SAMPLER WAS DRIVEN WITH A 140 POUND DROP HAMMER FALLING FREELY A DISTANCE OF 30 INCHES. THE BLOWS REQUIRED TO DRIVE THE SAMPLER ONE FOOT ARE RECORDED TO THE LEFT OF THE SAMPLE SYMBOLS.

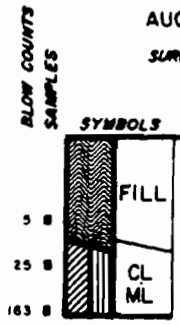
LOG OF AUGER PROBES

DAMES & MOORE

AUGER PROBE AP-7

SURFACE ELEVATION APPROX. 706





DESCRIPTIONS

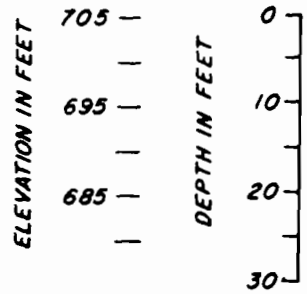
BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL AND ORGANIC MATERIAL (FILL)
- GRADES WITH SAND AND ABUNDANT TRASH (GLASS, COPPER WIRE, SCREWS, ETC.)
- GRADES WITH LESS TRASH
- GRADES WITHOUT TRASH

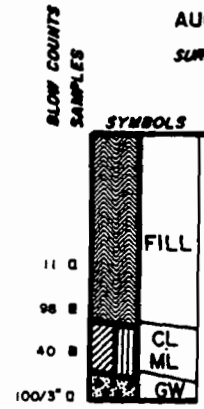
BROWN SILTY CLAY TO CLAYEY SILT WITH GRAVEL (GLACIAL TILL) (DENSE)
- GRADES WITH OCCASIONAL COBBLES AND BOULDERS

AUGER PROBE TERMINATED AT 20'-0" ON 2/17/76. WATER LEVEL NOT RECORDED.

AUGER PROBE AP-8

SURFACE ELEVATION 705.6





DESCRIPTIONS

BROWN SILTY CLAY TO CLAYEY SILT (FILL)
- GRADES WITH TRASH (WOOD, GLASS, BRICK FRAGMENTS, WIRE, ORGANIC MATERIAL, ETC.)
- GRADES WITH MORE ORGAN[illegible] MATERIAL
- GRADES WITHOUT TRASH
- GRADES WITH SAND AND GRAVEL

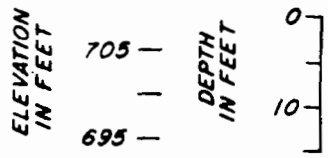
GRAY SILTY CLAY TO CLAYEY SILT WITH SAND AND GRAVEL (GLACIAL TILL) (DENSE)
- GRADES WITH COBBLES AND BOULDERS

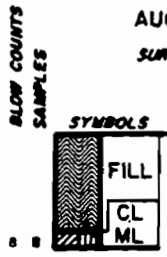
SAND AND GRAVEL (VERY DENSE)

AUGER PROBE TERMINATED AT 30'-0" ON 2/19/76. WATER LEVEL 21'-3" BELOW GROUND SURFACE ON 2/23/76.

AUGER PROBE AP-9

SURFACE ELEVATION 708.7





DESCRIPTIONS

BROWN SILTY CLAY TO CLAYEY SILT WITH TRACE OF GRAVEL (FILL)
- GRADES WITH TRASH (GLASS, WIRE, WOOD, ORGANIC MATERIAL, ETC.) FROM 6'-0" TO 10'-0"

BROWN SILTY CLAY TO CLAYEY SILT WITH SAND AND GRAVEL (GLACIAL TILL) (DENSE)

AUGER PROBE TERMINATED AT 12'-6" ON 2/19/76. WATER LEVEL NOT RECORDED.

LEGEND:

- ■ D&M TYPE U SAMPLER (RELATIVELY UNDISTURBED SAMPLE)
- ■ D&M TYPE U SAMPLER (DISTURBED SAMPLE)
- □ D&M TYPE U SAMPLER (NO RECOVERY)

20.4%-104.0 INDICATES PERCENT FIELD MOISTURE EXPRESSED AS A PERCENTAGE OF THE DRY WEIGHT OF SOIL, AND DRY DENSITY EXPRESSED IN POUNDS PER CUBIC FOOT.

NOTE:

THE 3.25" O.D. DAMES & MOORE TYPE U SAMPLER WAS DRIVEN WITH A 140 POUND DROP HAMMER FALLING FREELY A DISTANCE OF 30 INCHES. THE BLOWS REQUIRED TO DRIVE THE SAMPLER ONE FOOT ARE RECORDED TO THE LEFT OF THE SAMPLE SYMBOLS.

LOG OF AUGER PROBES

DAMES & MOORE

E

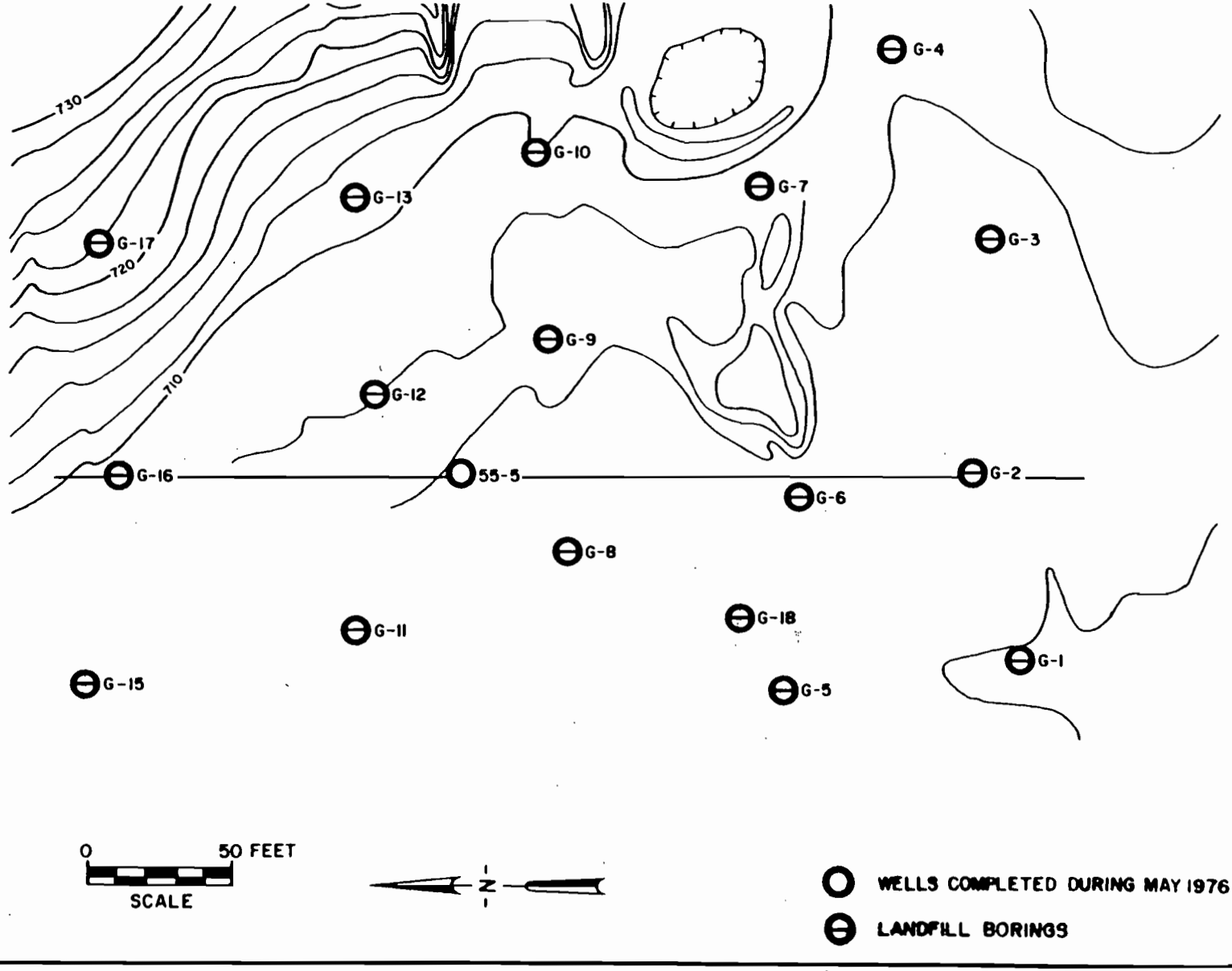
Cardinal®

APPENDIX E

POTABLE WATER STANDARDS PROJECT

BY _____ DATE _____
CHECKED BY _____ FILE _____

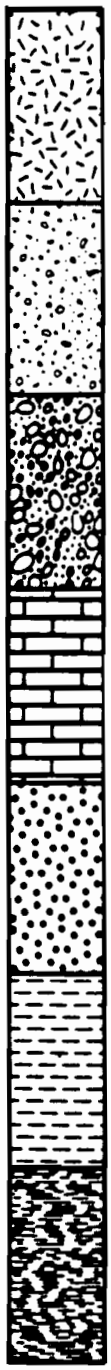
REVISIONS
BY _____ DATE _____



MONSANTO RESEARCH CORPORATION

LOCATION OF LANDFILL BORINGS

BORING LOG LITHOLOGIES



FILL

BROWN TILL

GRAY TILL

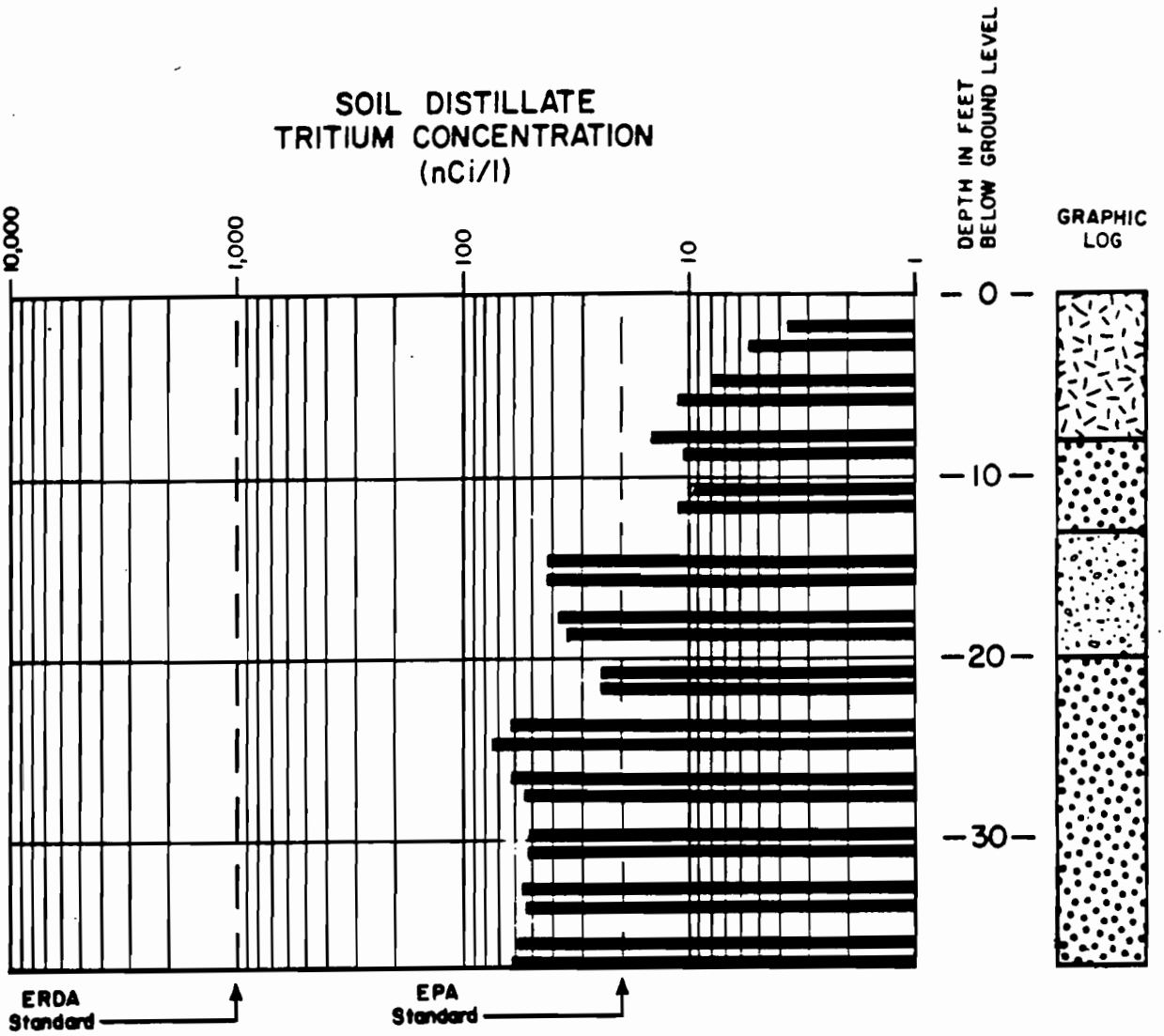
LIMESTONE

SAND AND GRAVEL

WEATHERED SHALE BEDROCK

UNWEATHERED SHALE BEDROCK

BORING G-1 SURFACE ELEVATION 703.7 COORDINATES 2992.92 S 4816.12 W



DATE STARTED: 6/10/76
DATE FINISHED: 6/10/76
TOTAL DEPTH: 37'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb HAMMER WITH 24" DROP

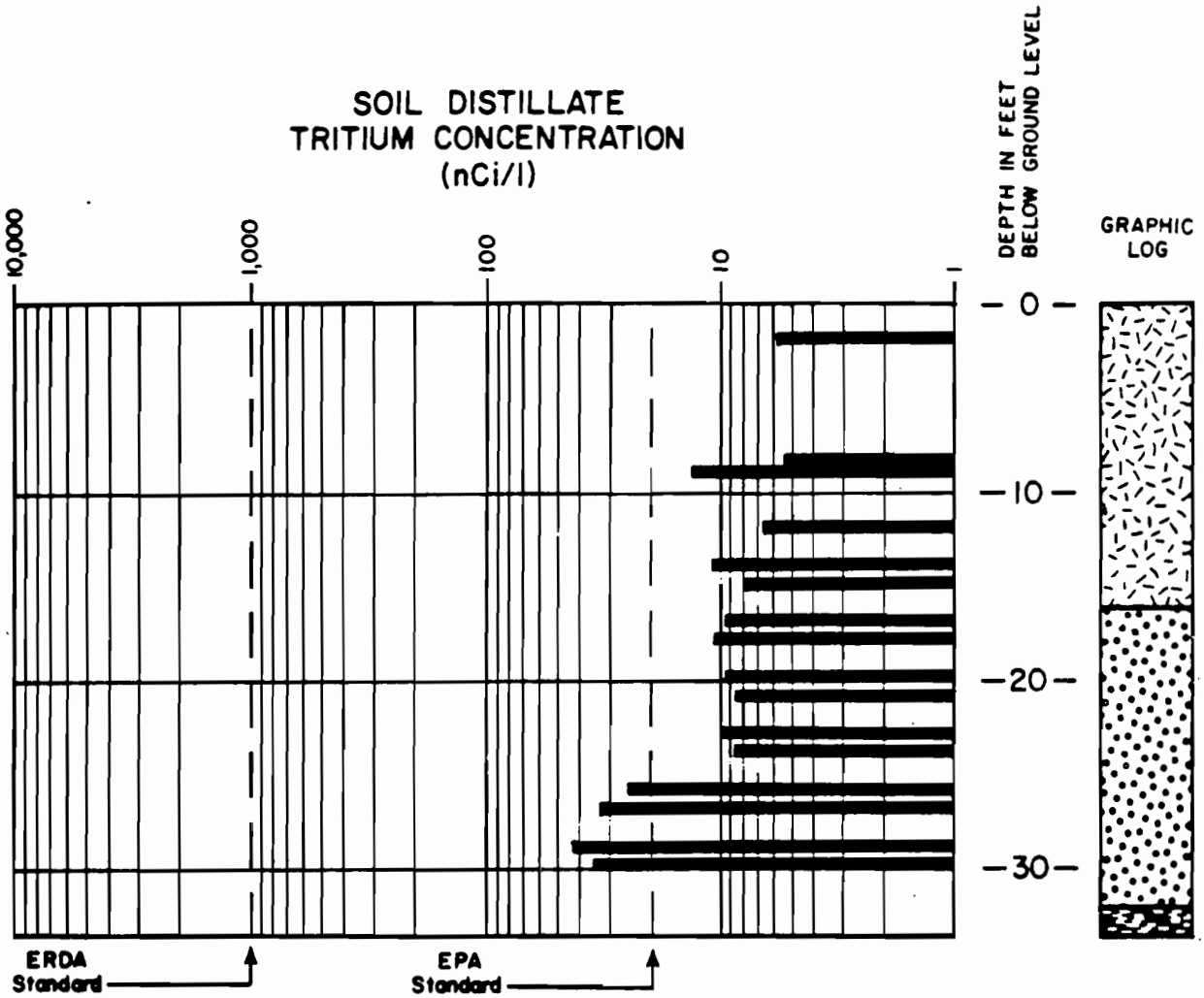
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-1

BORING G-2 SURFACE ELEVATION 704.2 COORDINATES 3006.63 S 4752.37 W



DATE STARTED: 6/9/76
DATE FINISHED: 6/9/76
TOTAL DEPTH: 33 1/2'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

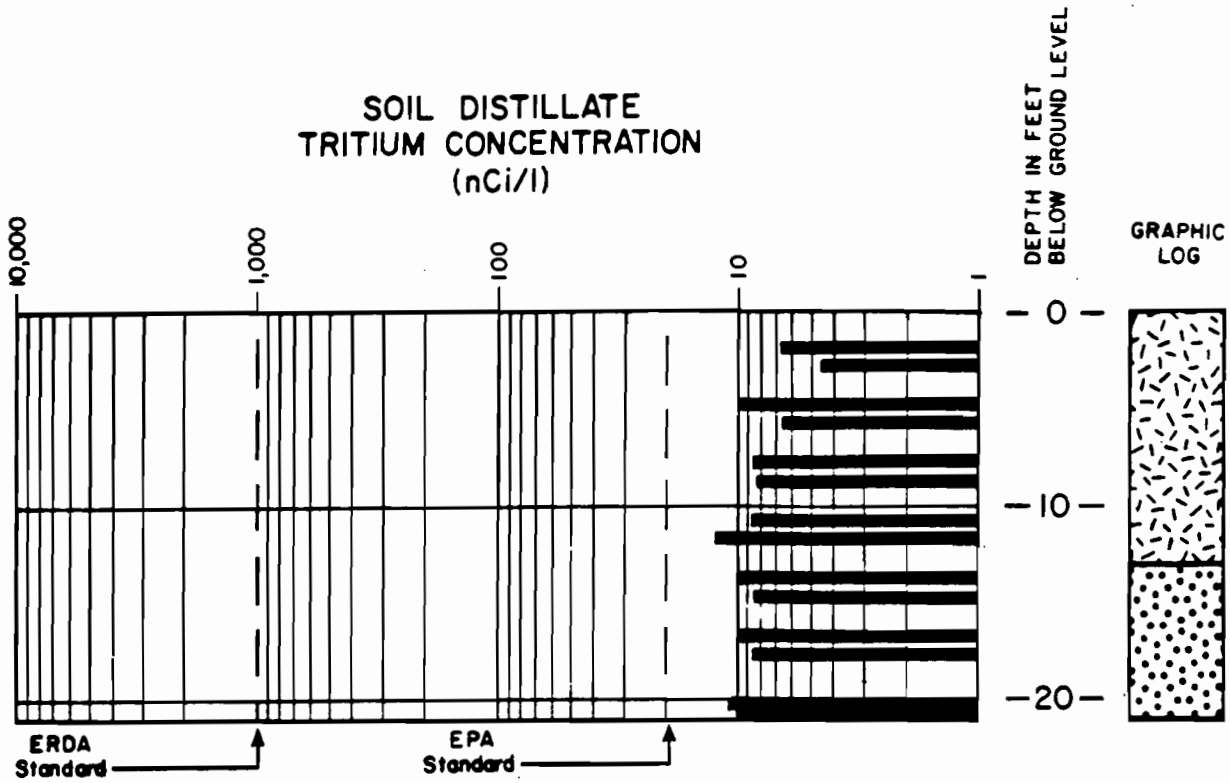
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-2

BORING G-3 SURFACE ELEVATION 705.1 COORDINATES 3050.02 S 4685.87 W



DATE STARTED: 6/9/76
DATE FINISHED: 6/9/76
TOTAL DEPTH: 21'
TYPE OF CASING: NONE
SIZE OF CASING: N. A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

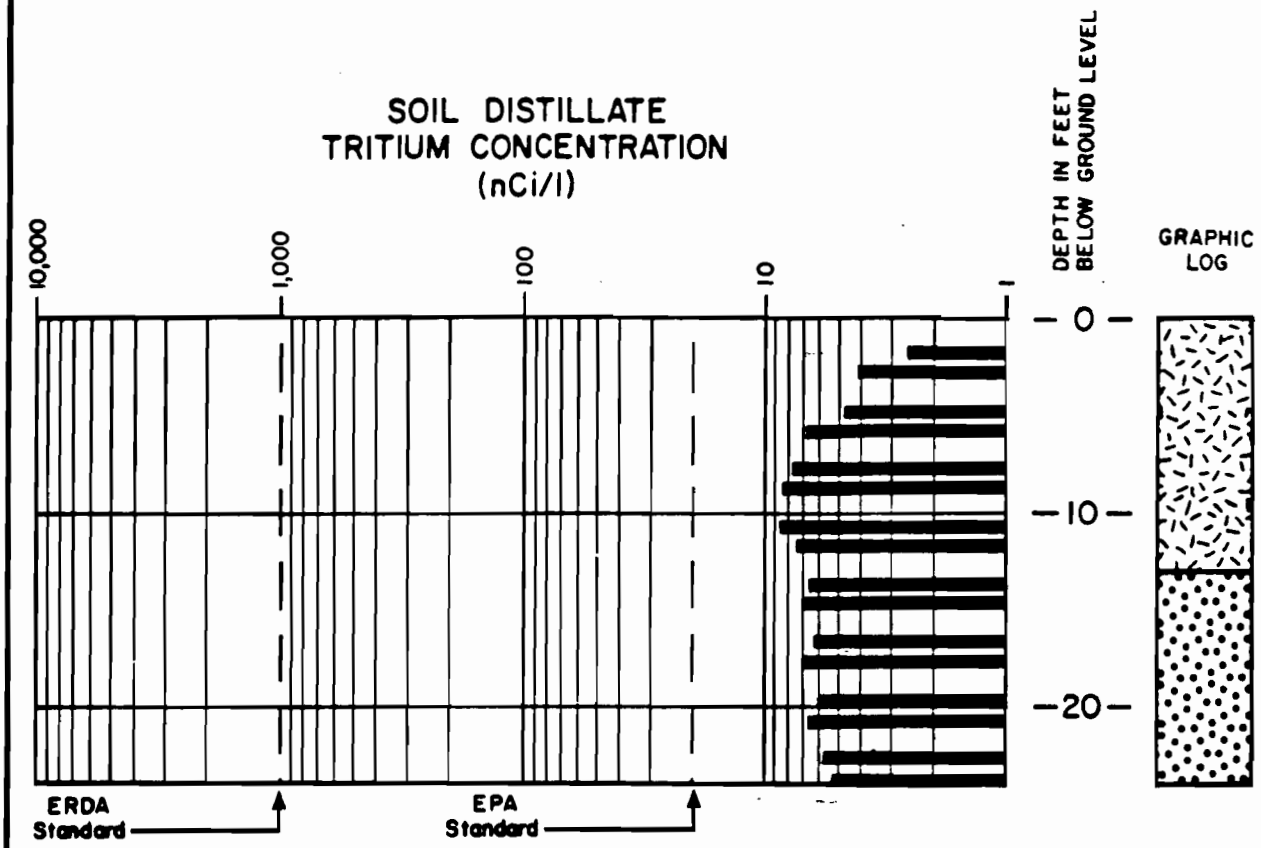
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-3

BORING G-4 SURFACE ELEVATION 707.3 COORDINATES 3053.02 S 4610.24 W



DATE STARTED: 6/8/76
DATE FINISHED: 6/9/76
TOTAL DEPTH: 24'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

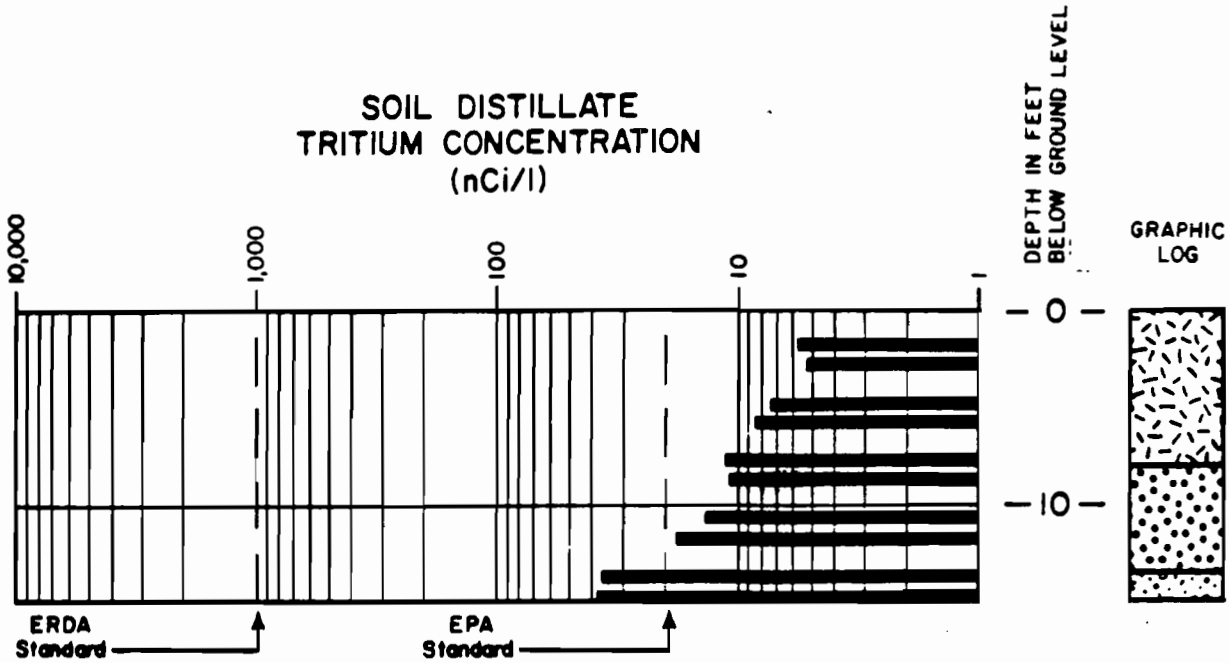
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-4

BORING G-5 SURFACE ELEVATION 704.3 COORDINATES 2914.20 S 4787.44 W



DATE STARTED: 6/8/76
DATE FINISHED: 6/8/76
TOTAL DEPTH: 15'
TYPE OF CASING: NONE
SIZE OF CASING: N. A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

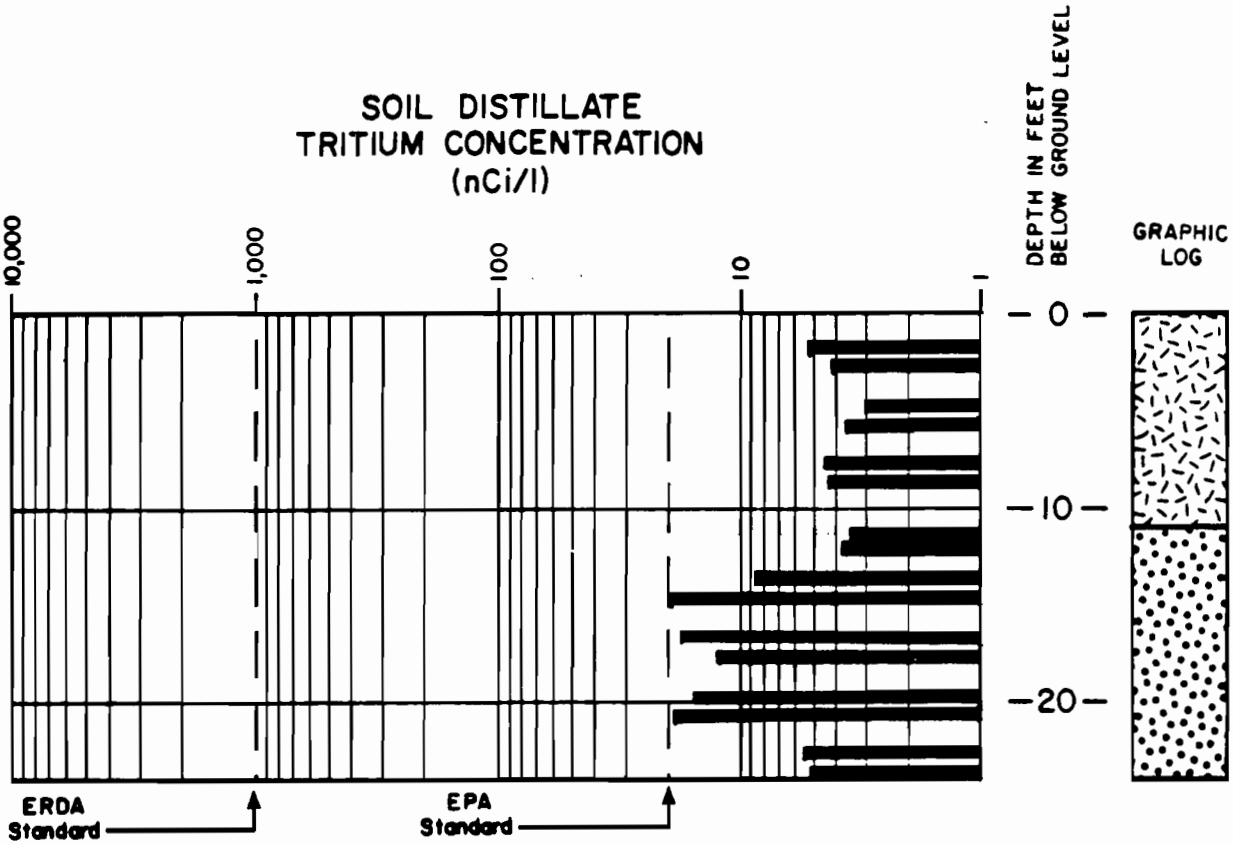
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-5

BORING G-6 SURFACE ELEVATION 704.8 COORDINATES 2951.25 S 4730.67 W



DATE STARTED: 6/9/76
DATE FINISHED: 6/9/76
TOTAL DEPTH: 24'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

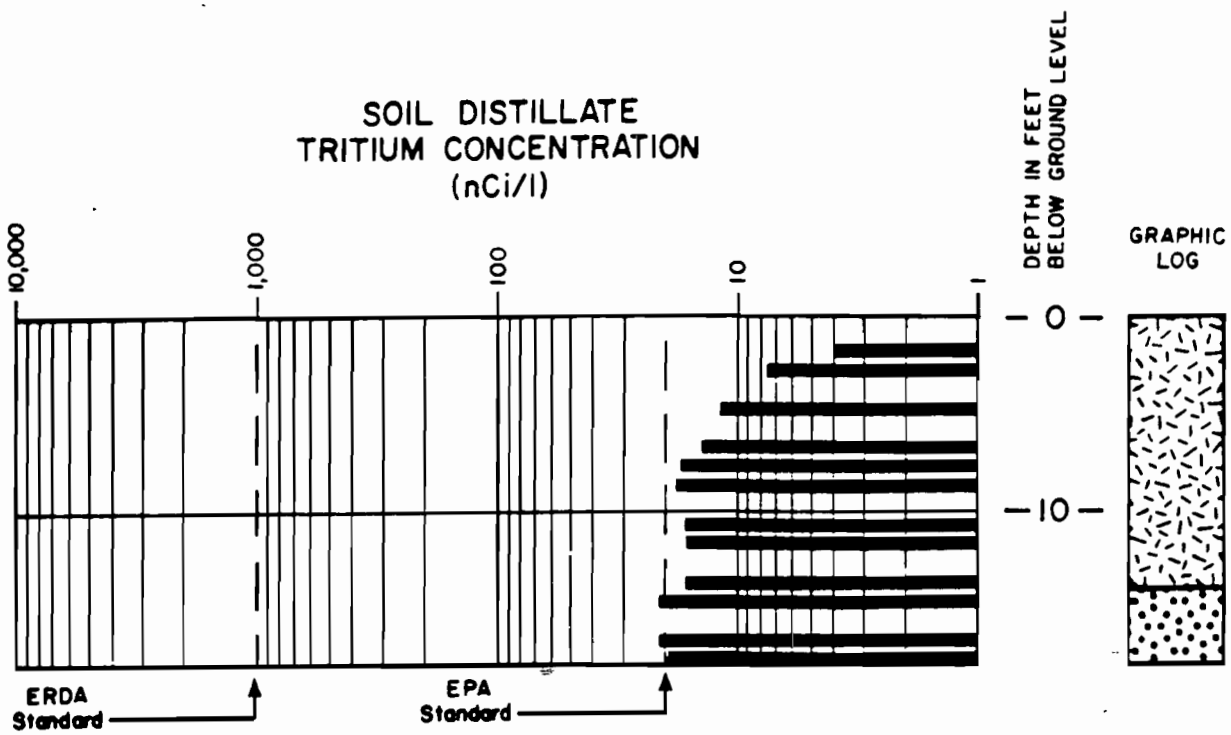
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-6

BORING G-7 SURFACE ELEVATION 708.4 COORDINATES 2993.97 S 4630.75 W



DATE STARTED: 6/8/76
DATE FINISHED: 6/8/76
TOTAL DEPTH: 18'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

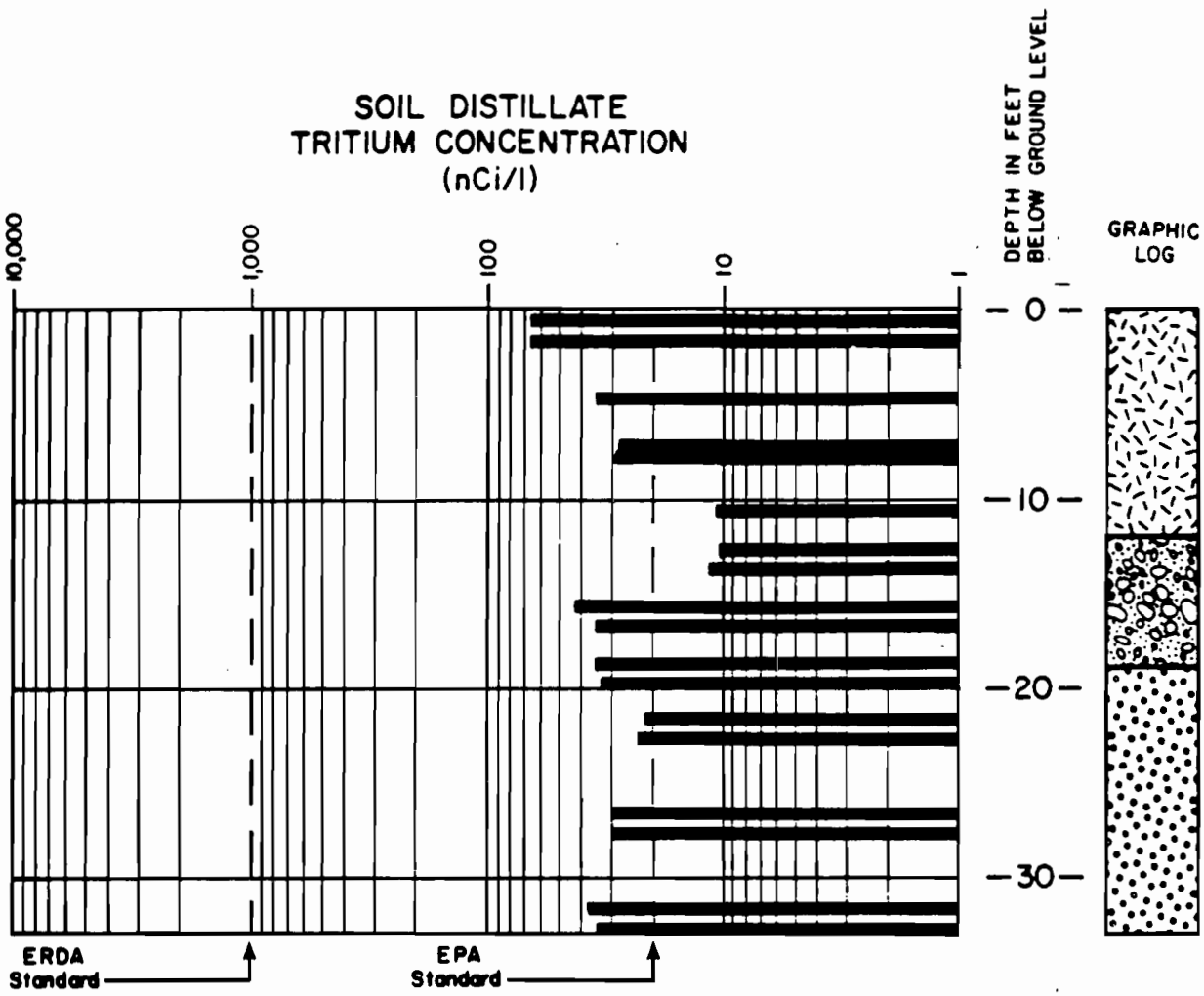
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-7

BORING G-8 SURFACE ELEVATION 705.0 COORDINATES 2873.67 S 4708.49 W



DATE STARTED: 6/3/76
DATE FINISHED: 6/7/76
TOTAL DEPTH: 33'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

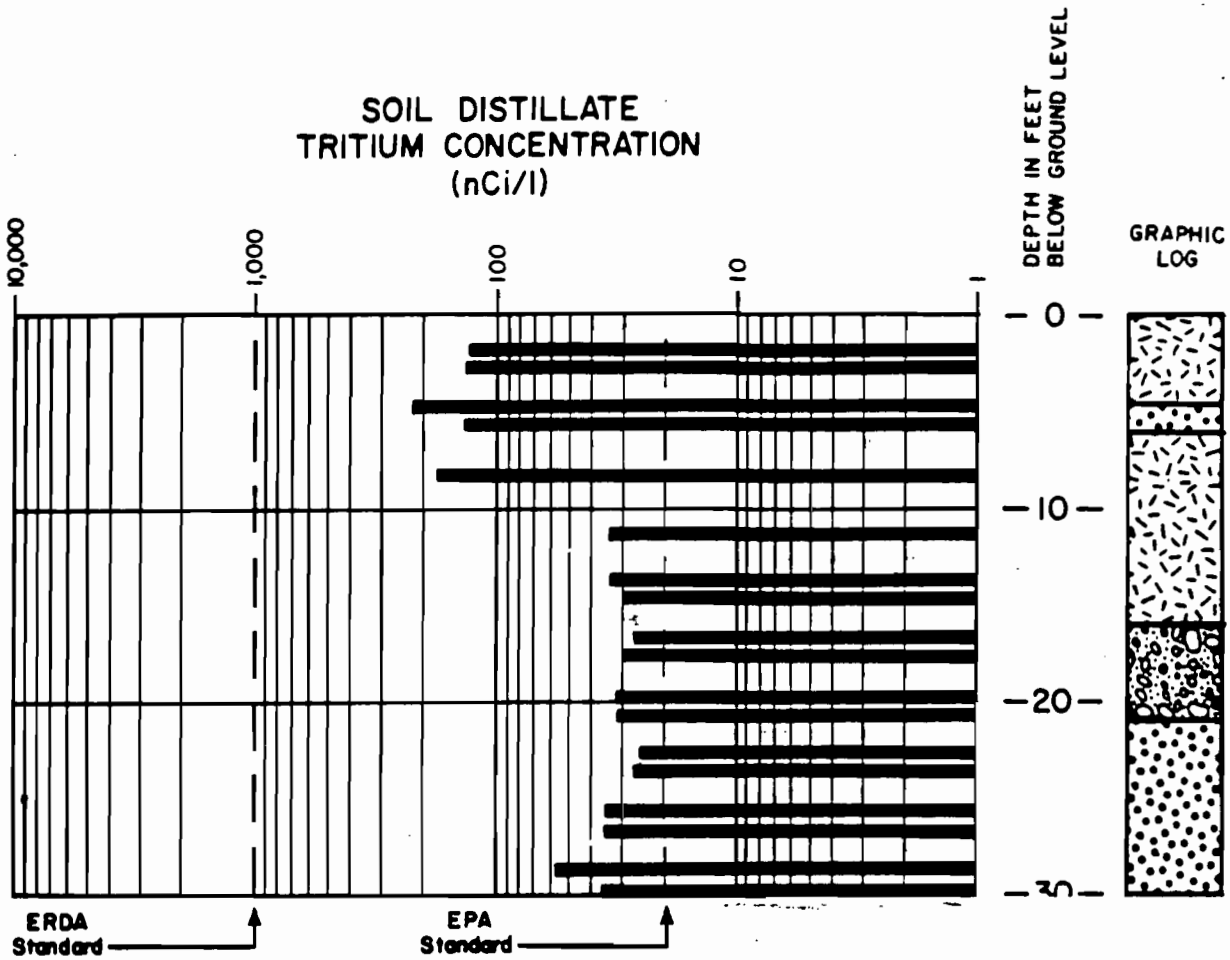
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-8

BORING G-9 SURFACE ELEVATION 706.4 COORDINATES 2902.59 S 4641.29 W



DATE STARTED: 6/7/76
DATE FINISHED: 6/7/76
TOTAL DEPTH: 30'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

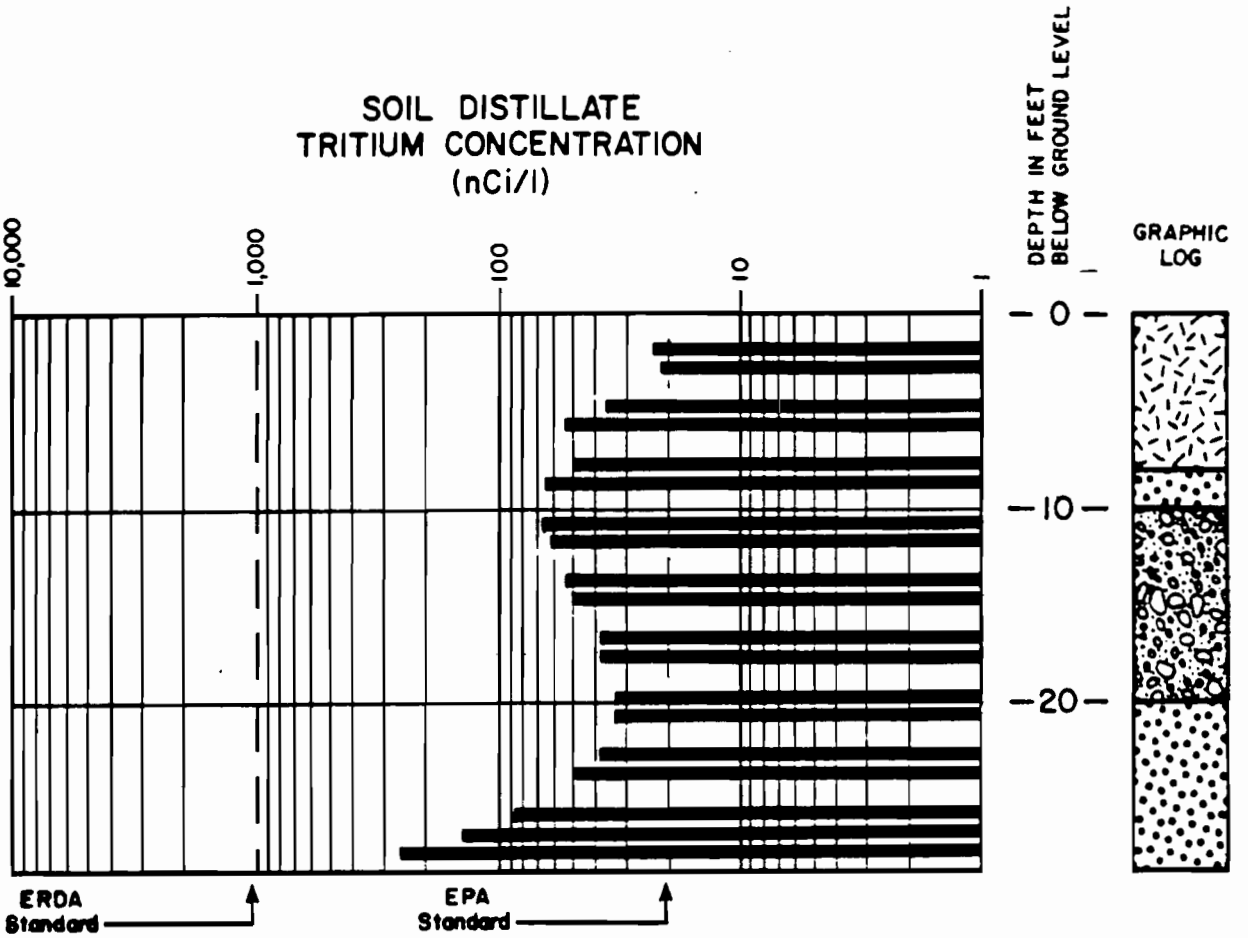
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-9

BORING G-10 SURFACE ELEVATION 709.0 COORDINATES 2931.40 S 4584.28 W



DATE STARTED: 6/10/76
DATE FINISHED: 6/11/76
TOTAL DEPTH: 28 3/4'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

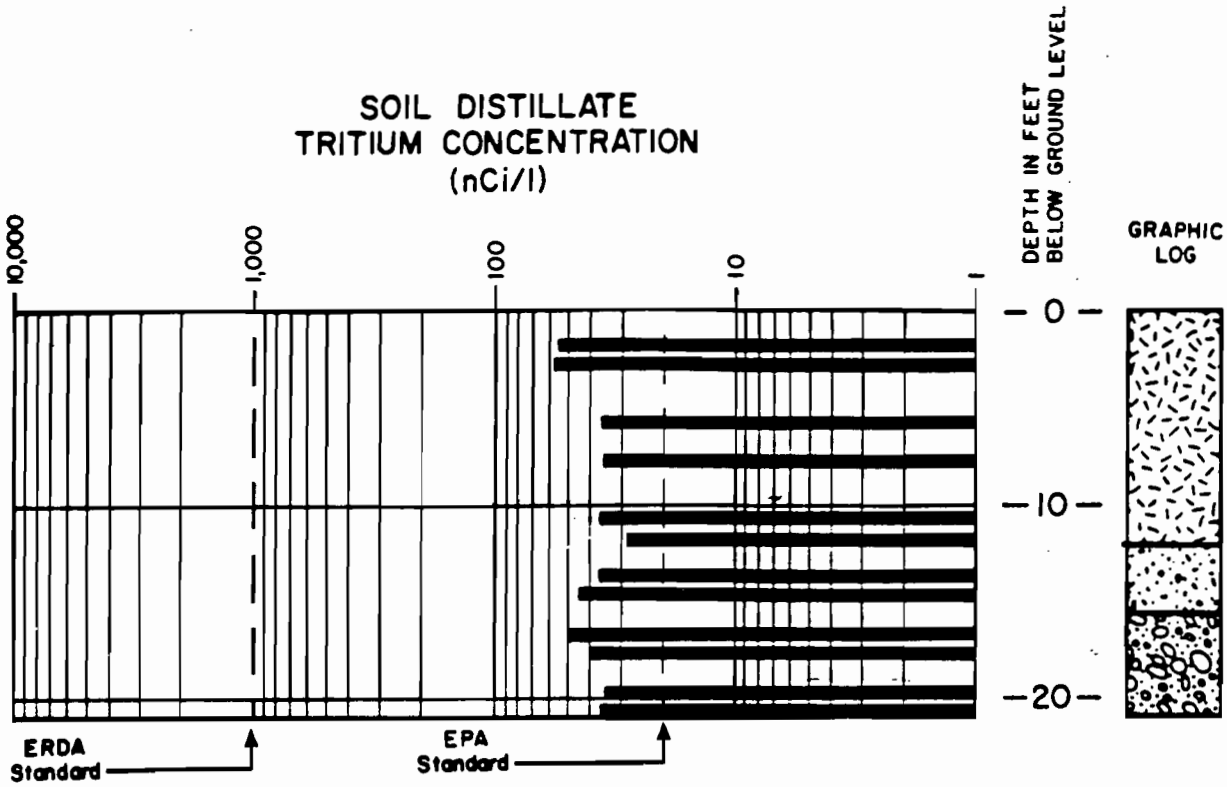
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-10

BORING G-11 SURFACE ELEVATION 704.8 COORDINATES 2797.10 S 4698.39 W



DATE STARTED: 6/7/76
DATE FINISHED: 6/8/76
TOTAL DEPTH: 21'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

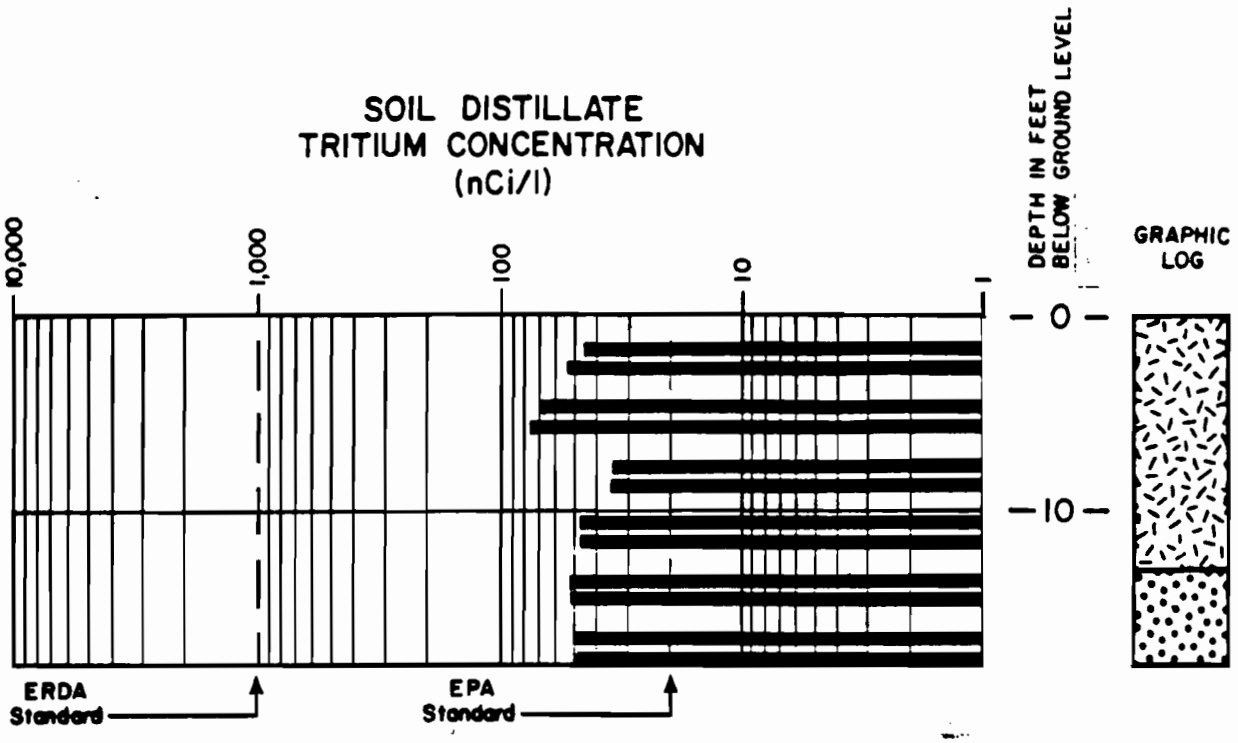
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-11

BORING G-12 SURFACE ELEVATION 708.3 COORDINATES 2836.71 S 4629.88 W



DATE STARTED: 6/8/76
DATE FINISHED: 6/8/76
TOTAL DEPTH: 18'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

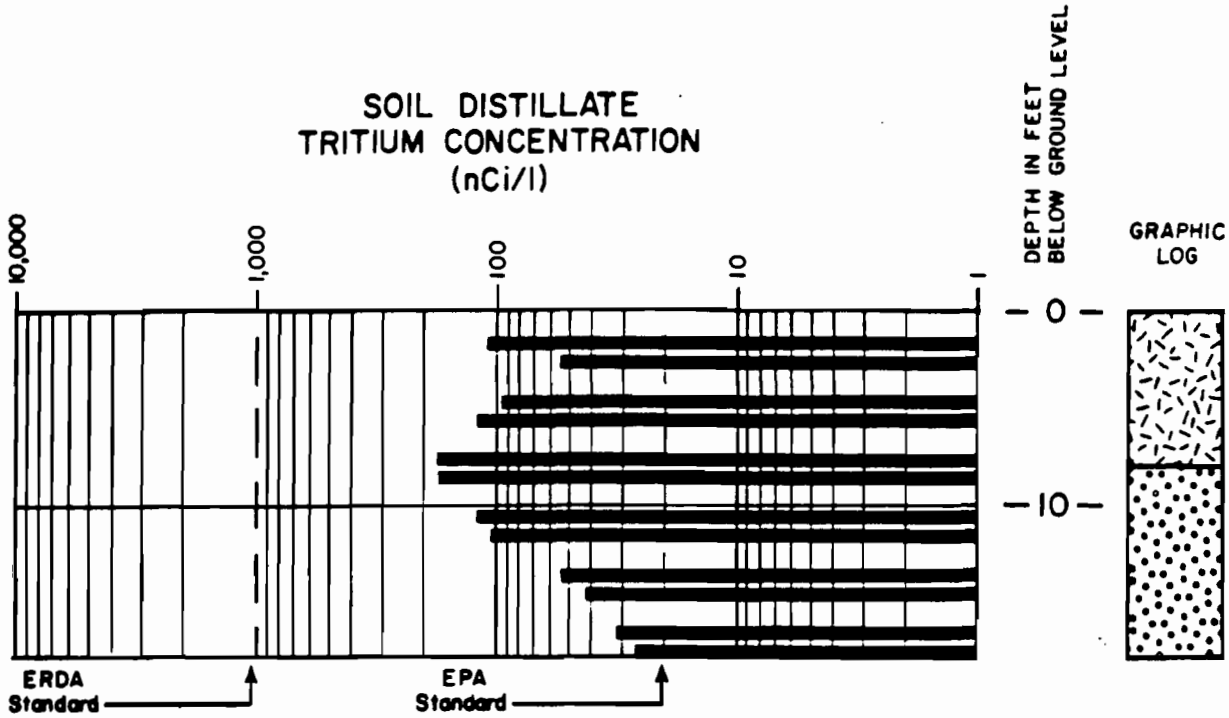
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-12

BORING G-13 SURFACE ELEVATION 710.6 COORDINATES 2869.75 S 4568.19 W



DATE STARTED: 6/8/76
DATE FINISHED: 6/8/76
TOTAL DEPTH: 18'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

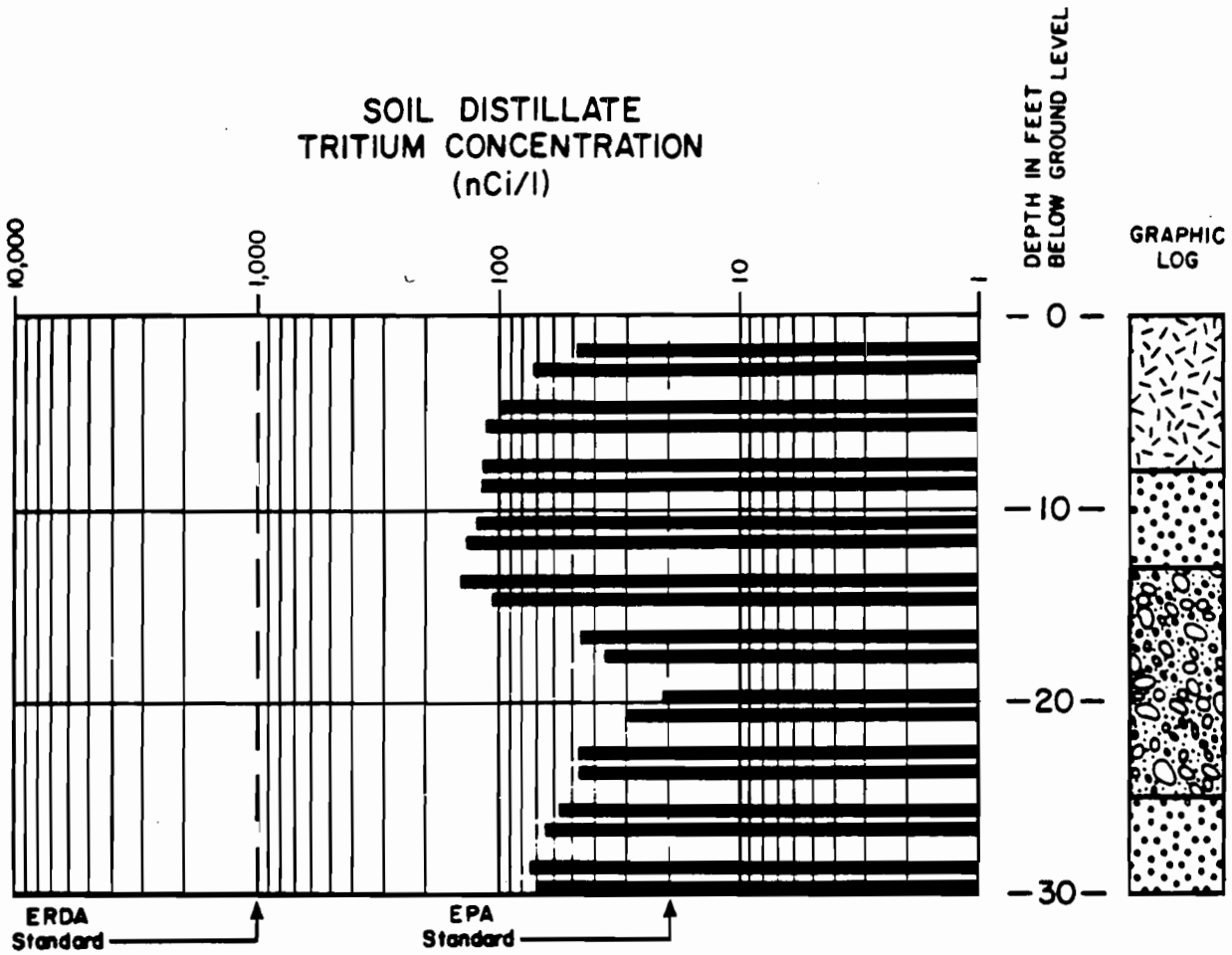
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-13

BORING G-15 SURFACE ELEVATION 705.2 COORDINATES 2707.58 S 4669.59 W



DATE STARTED: 6/11/76
DATE FINISHED: 6/11/76
TOTAL DEPTH: 30'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

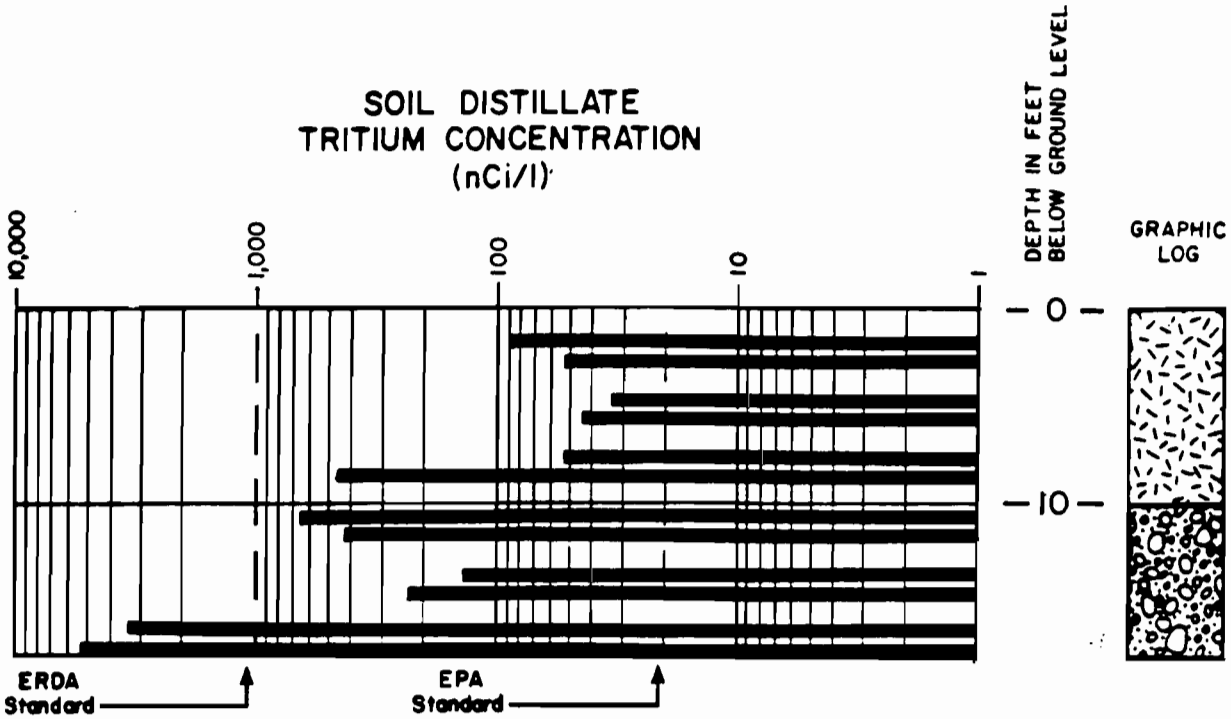
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-15

BORING G-16 SURFACE ELEVATION 708.4 COORDINATES 2750.83 S 4611.55 W



DATE STARTED: 6/11/76
DATE FINISHED: 6/11/76
TOTAL DEPTH: 18'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

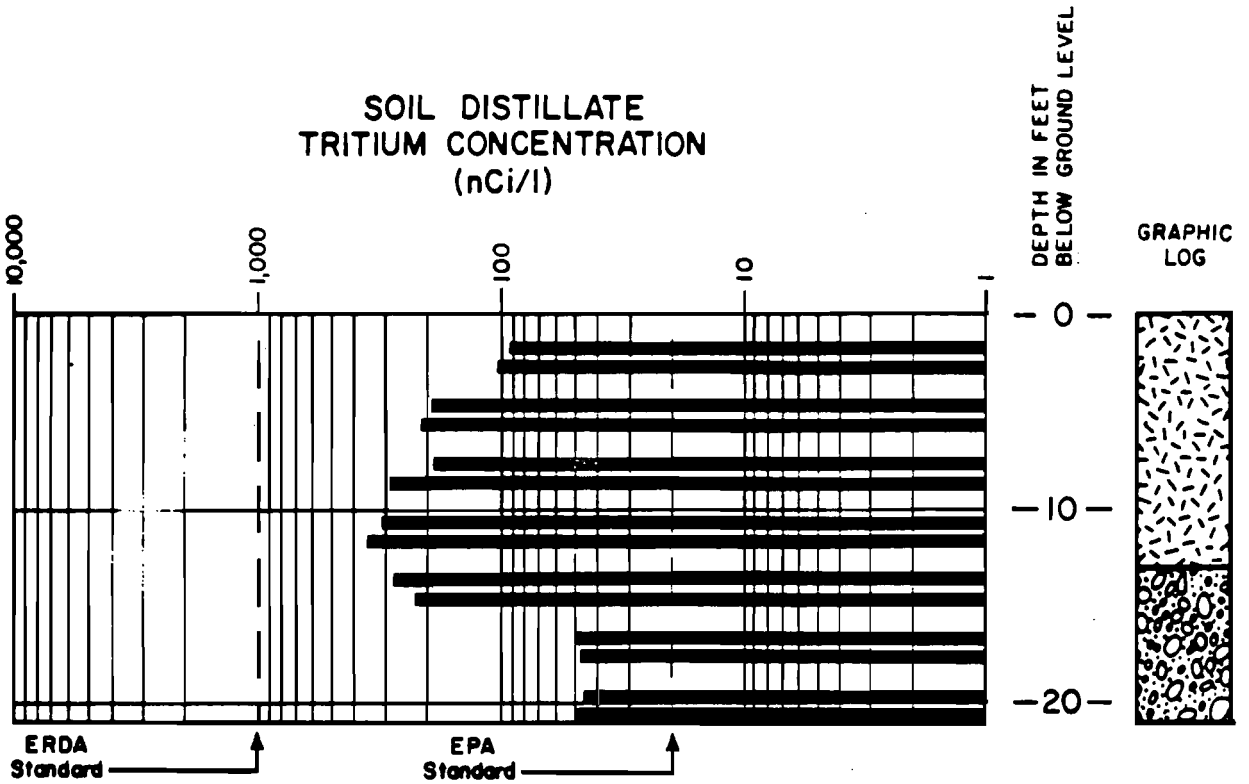
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-16

BORING G-17 SURFACE ELEVATION 721.2 COORDINATES 2785.18 S 4539.38 W



DATE STARTED: 6/11/76
DATE FINISHED: 6/11/76
TOTAL DEPTH: 21'
TYPE OF CASING: NONE
SIZE OF CASING: N.A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

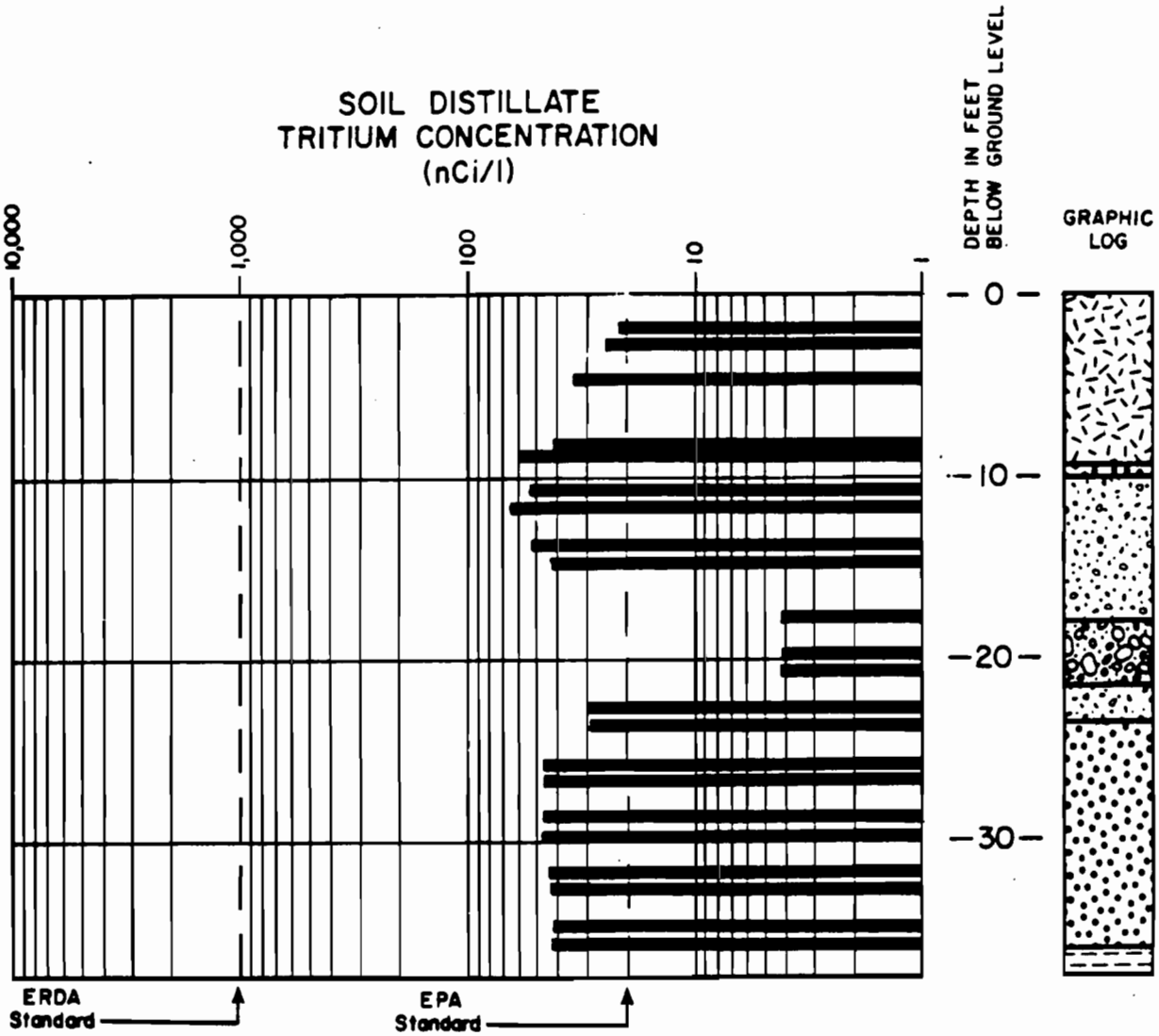
WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-17

BORING G-18 SURFACE ELEVATION 704.4 COORDINATES 2911.02 S 4757.39 W



DATE STARTED: 6/10/76
DATE FINISHED: 6/10/76
TOTAL DEPTH: 37 1/2'
TYPE OF CASING: NONE
SIZE OF CASING: N. A.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

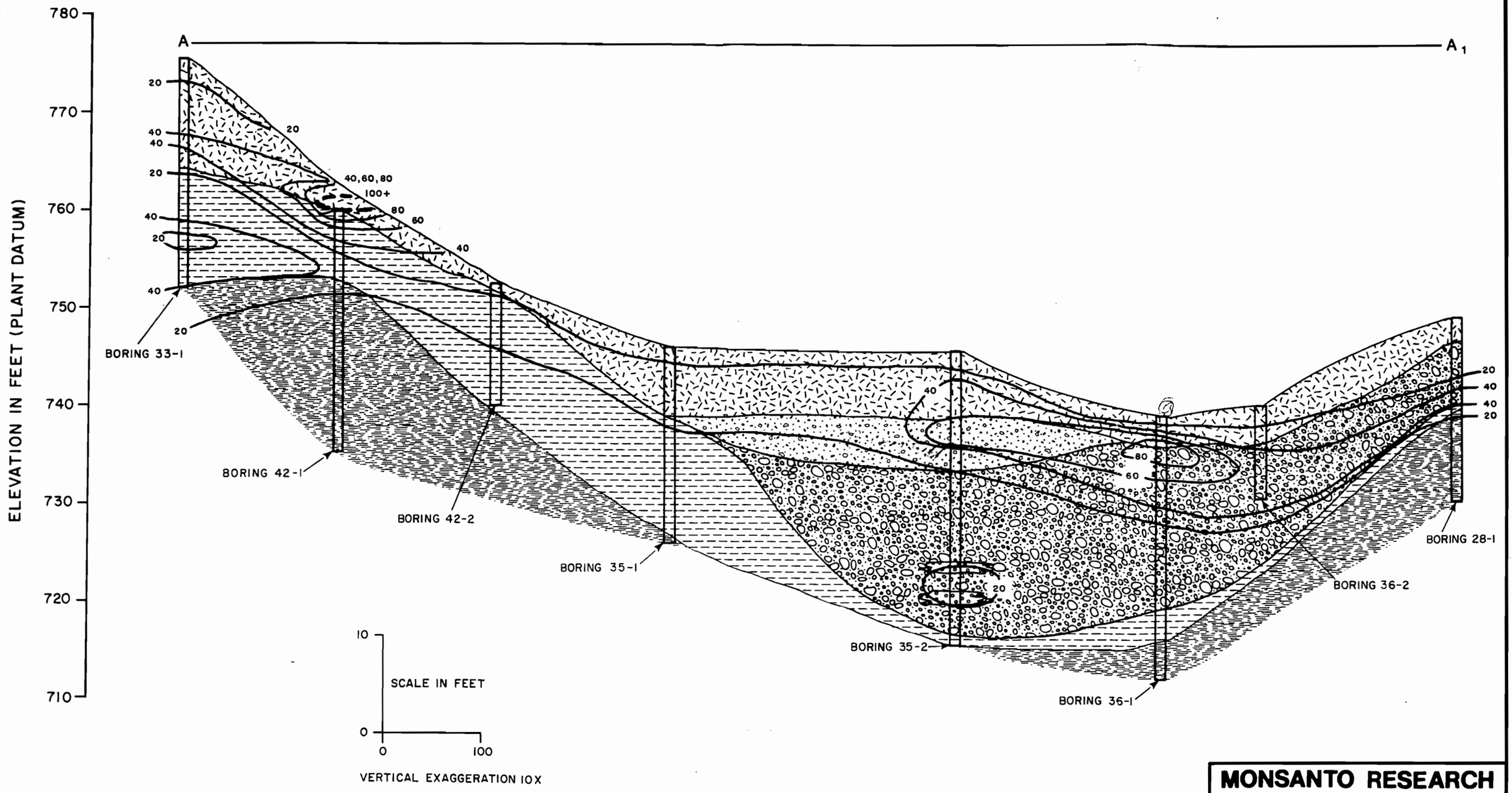
SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 24" DROP

WELL CONSTRUCTION:
2 3' BENTONITE SEALS

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

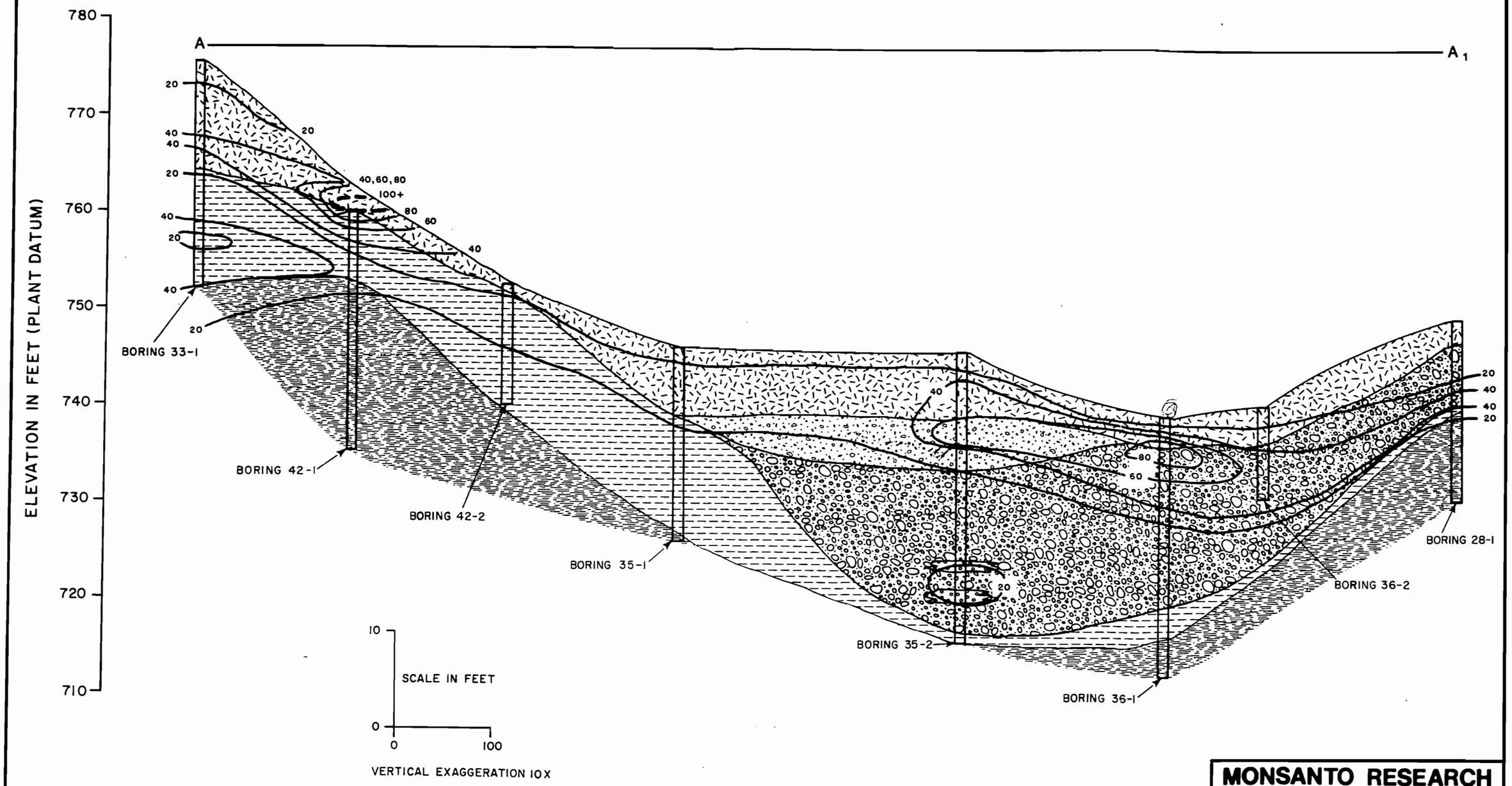
GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING G-18



THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

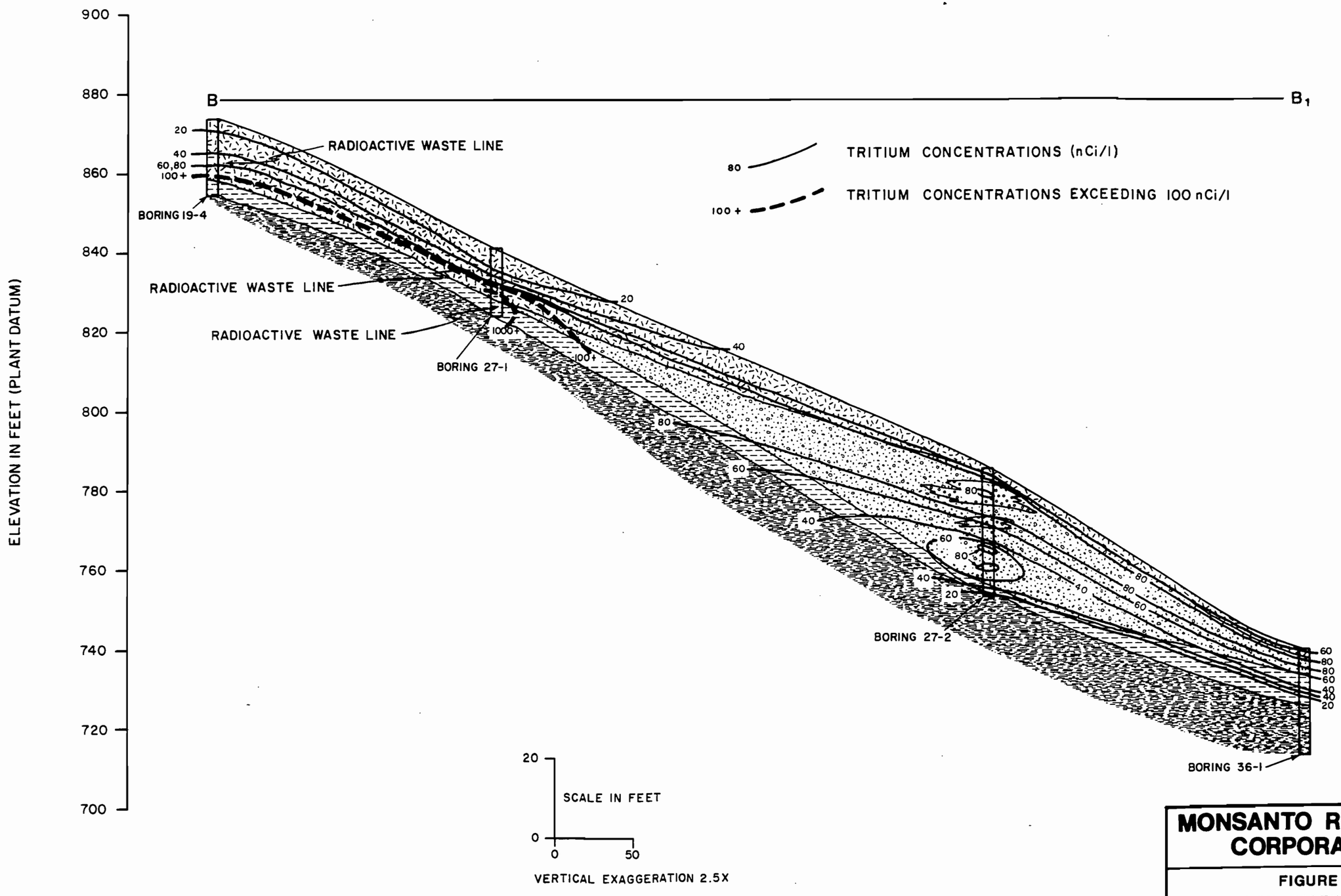
FIGURE 6
SOIL DISTILLATE
TRITIUM CONCENTRATION
VERSUS DEPTH
ALONG CROSS-SECTION A-A_1



THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

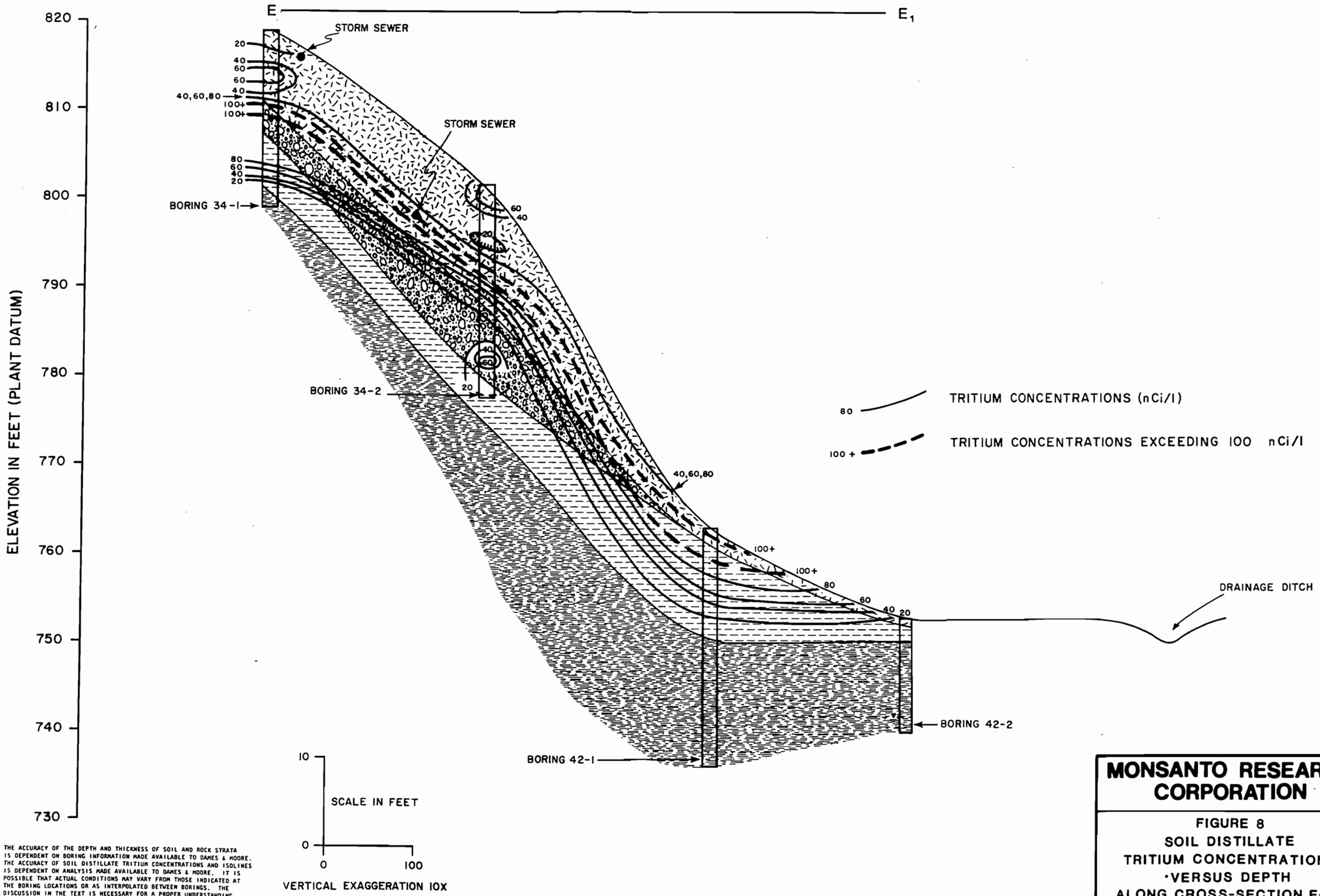
FIGURE 6
SOIL DISTILLATE TRITIUM CONCENTRATION VERSUS DEPTH ALONG CROSS-SECTION A-A_1



THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

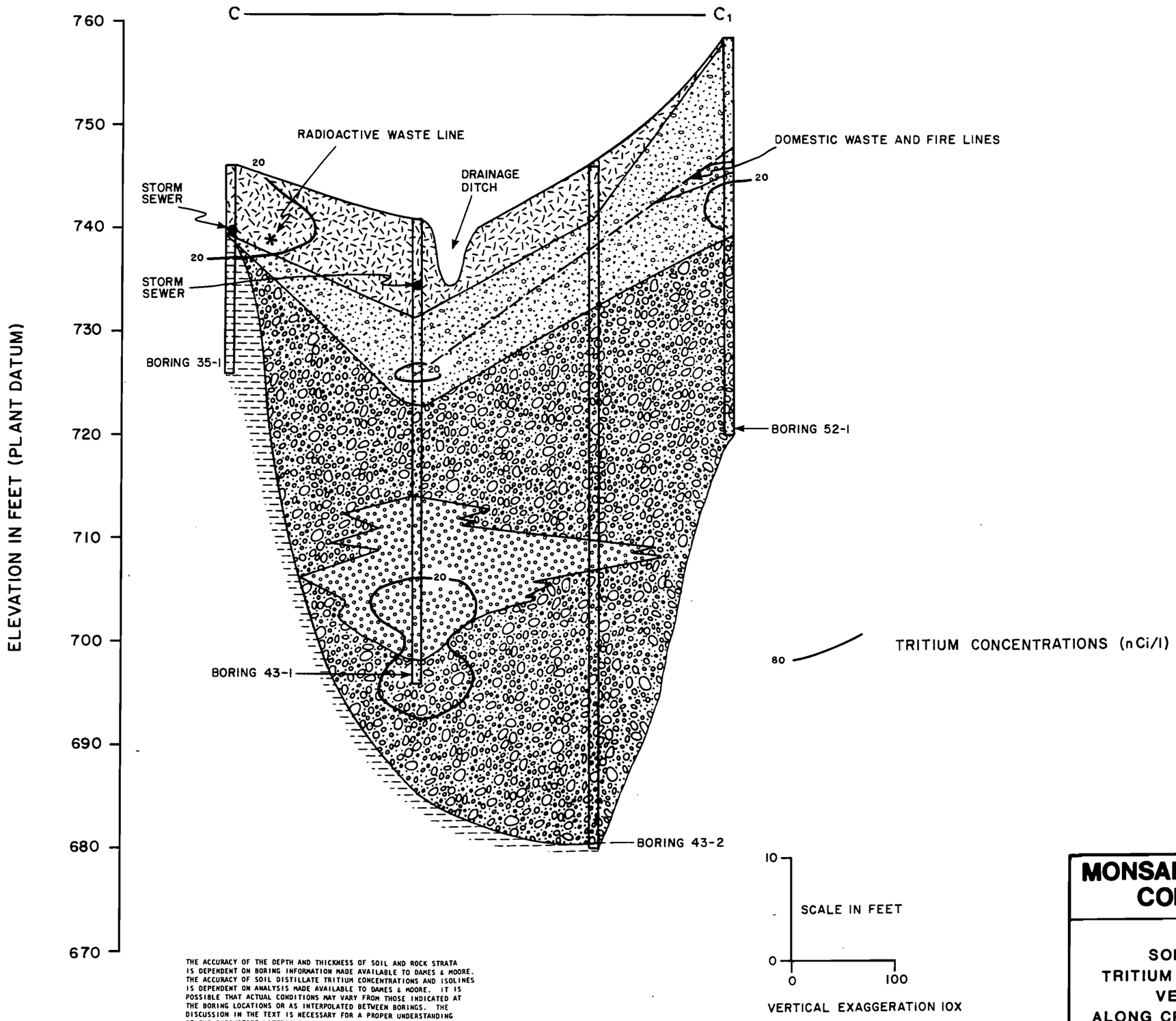
FIGURE 7
SOIL DISTILLATE TRITIUM CONCENTRATIONS VERSUS DEPTH ALONG CROSS-SECTION B-B$_1$



THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

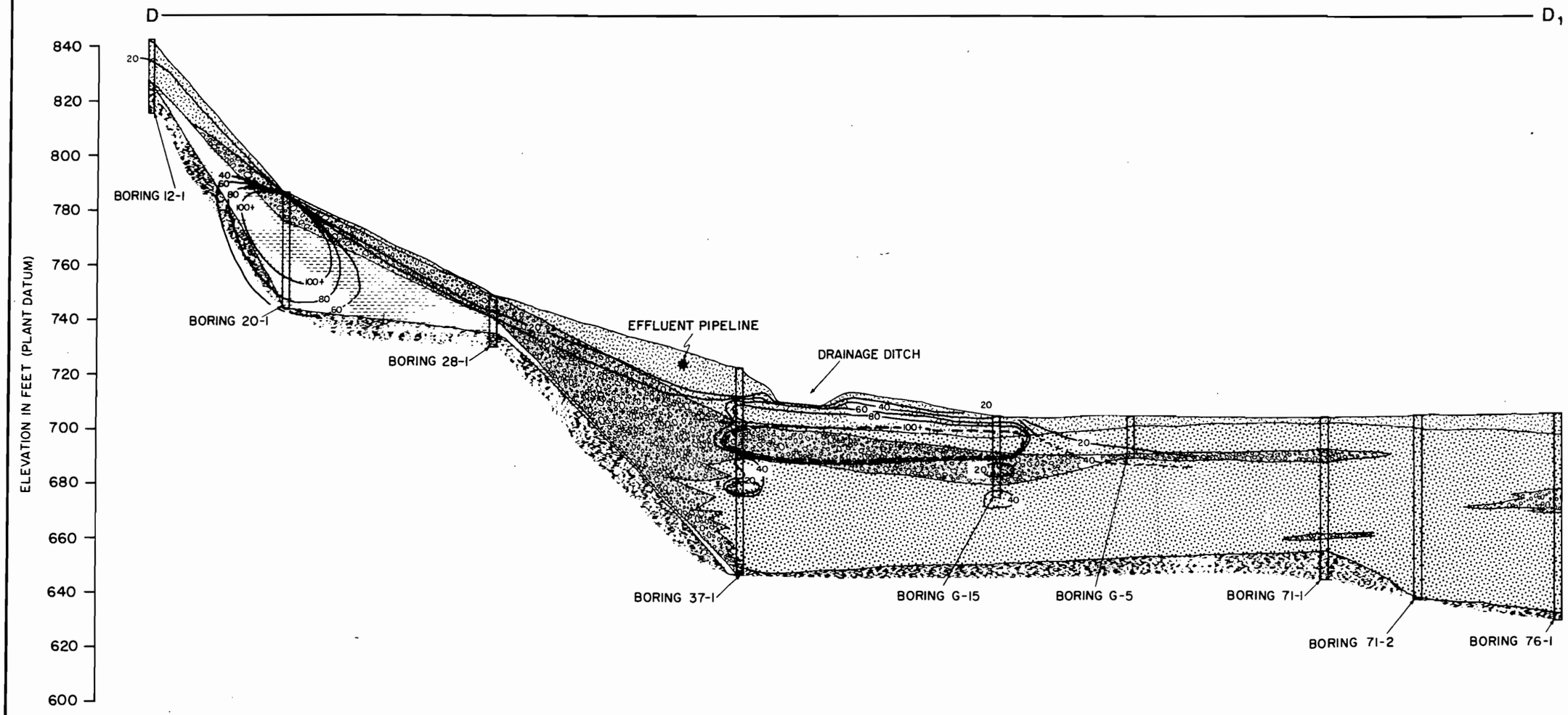
FIGURE 8
SOIL DISTILLATE
TRITIUM CONCENTRATIONS
VERSUS DEPTH
ALONG CROSS-SECTION E-E$_1$

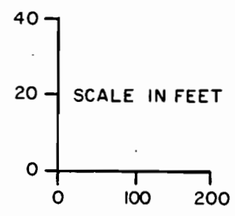


THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

FIGURE 9
SOIL DISTILLATE
TRITIUM CONCENTRATIONS
VERSUS DEPTH
ALONG CROSS-SECTION C-C_1





VERTICAL EXAGGERATION 5X

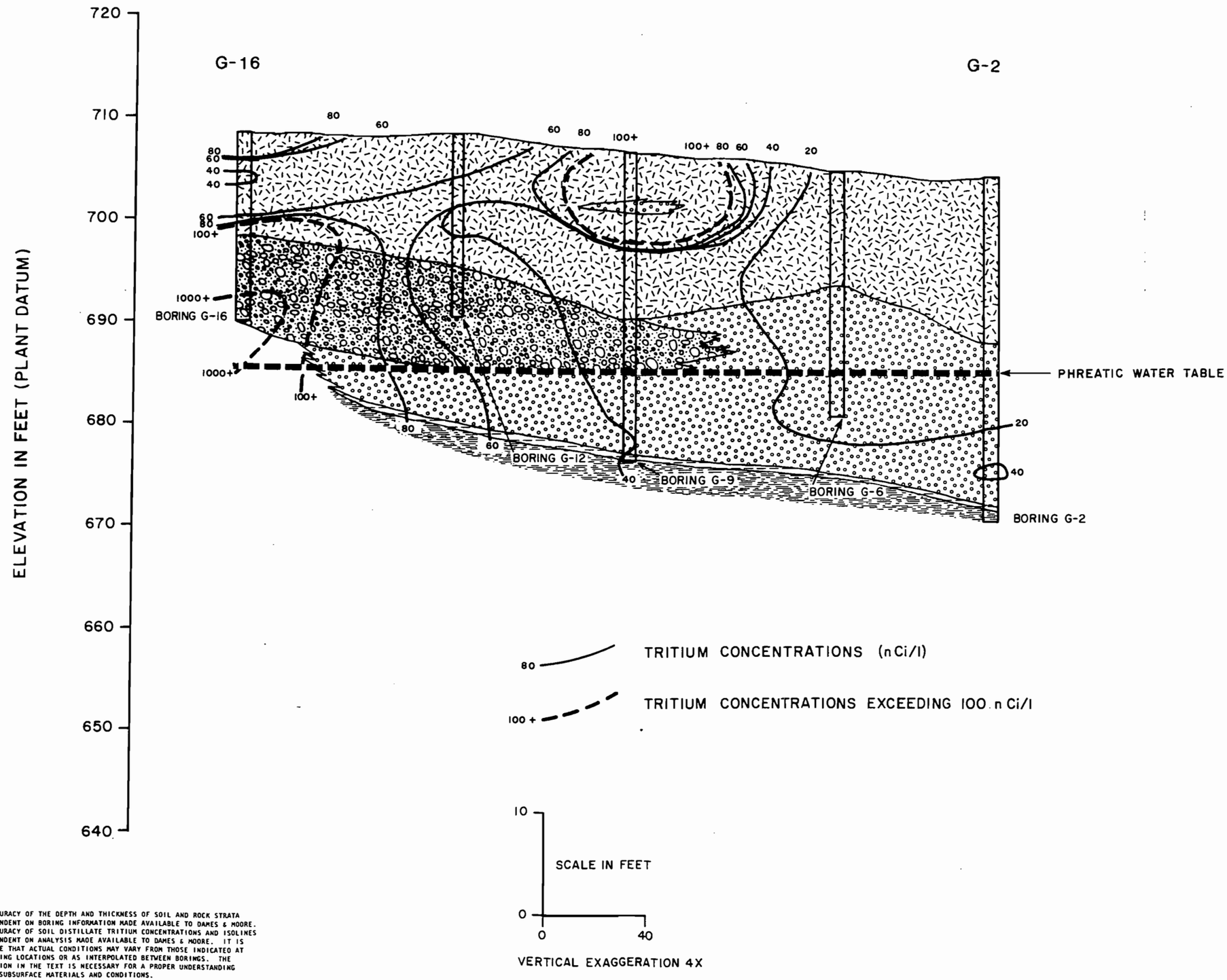
80 TRITIUM CONCENTRATIONS (nCi/l)

100 + TRITIUM CONCENTRATIONS EXCEEDING 100 nCi/l

THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

FIGURE 10
SOIL DISTILLATE
TRITIUM CONCENTRATIONS
VERSUS DEPTH
ALONG CROSS-SECTION D-D1



THE ACCURACY OF THE DEPTH AND THICKNESS OF SOIL AND ROCK STRATA IS DEPENDENT ON BORING INFORMATION MADE AVAILABLE TO DAMES & MOORE. THE ACCURACY OF SOIL DISTILLATE TRITIUM CONCENTRATIONS AND ISOLINES IS DEPENDENT ON ANALYSIS MADE AVAILABLE TO DAMES & MOORE. IT IS POSSIBLE THAT ACTUAL CONDITIONS MAY VARY FROM THOSE INDICATED AT THE BORING LOCATIONS OR AS INTERPOLATED BETWEEN BORINGS. THE DISCUSSION IN THE TEXT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE SUBSURFACE MATERIALS AND CONDITIONS.

MONSANTO RESEARCH CORPORATION

FIGURE 13
SOIL DISTILLATE TRITIUM CONCENTRATION IN THE LANDFILL VERSUS DEPTH ALONG CROSS-SECTION G-16 TO G-2

F

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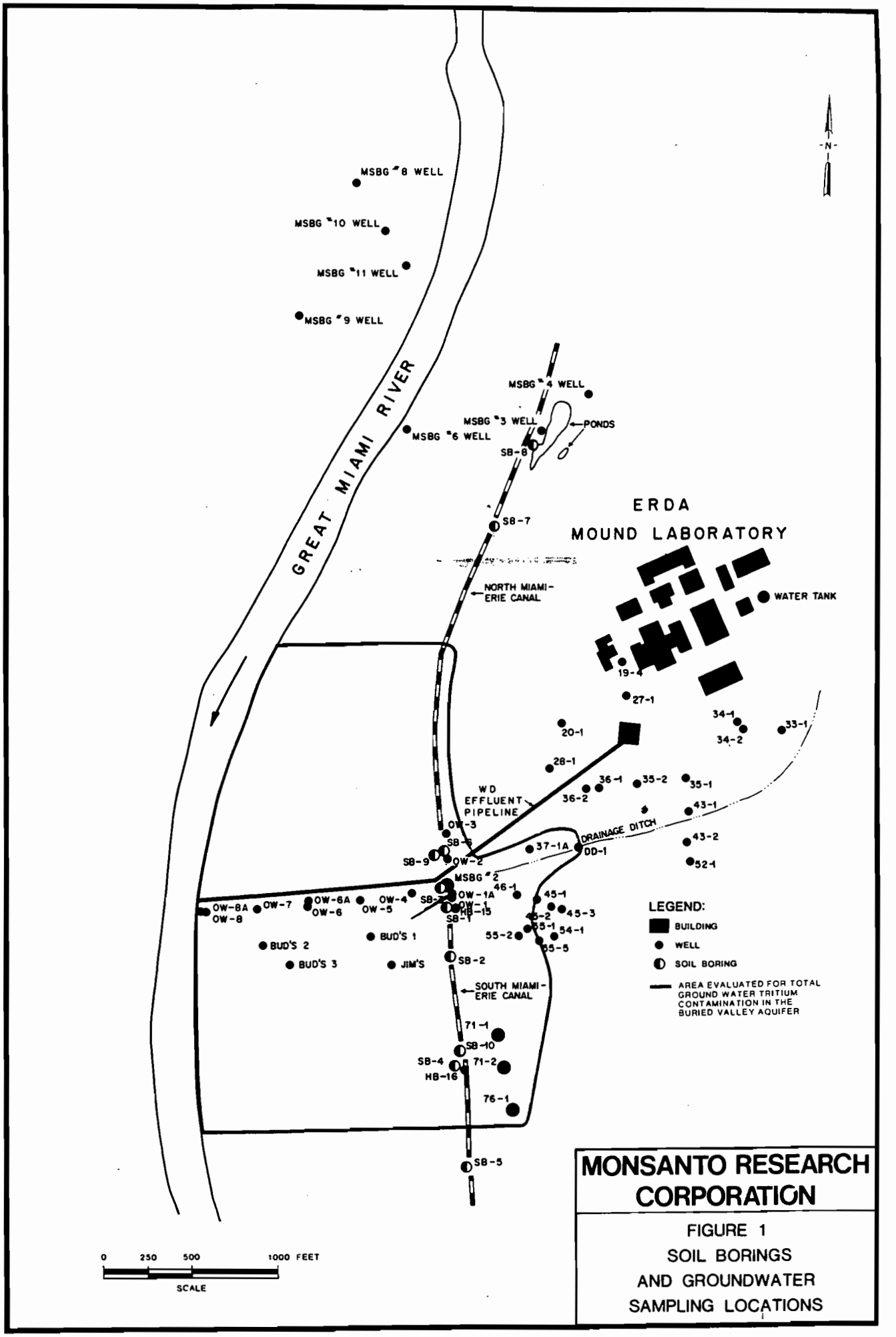
APPENDIX F

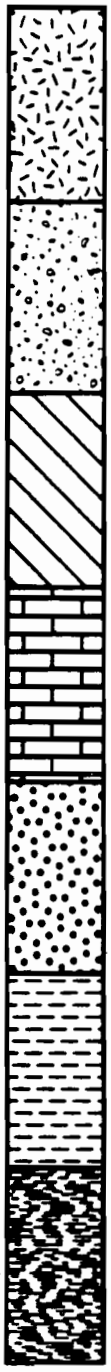
BURIED VALLEY AQUIFER EVALUATION



MONSANTO RESEARCH CORPORATION

FIGURE 1
SOIL BORINGS
AND GROUNDWATER
SAMPLING LOCATIONS

BORING LOG LITHOLOGIES



FILL

CLAY AND SILT

GRAY TILL

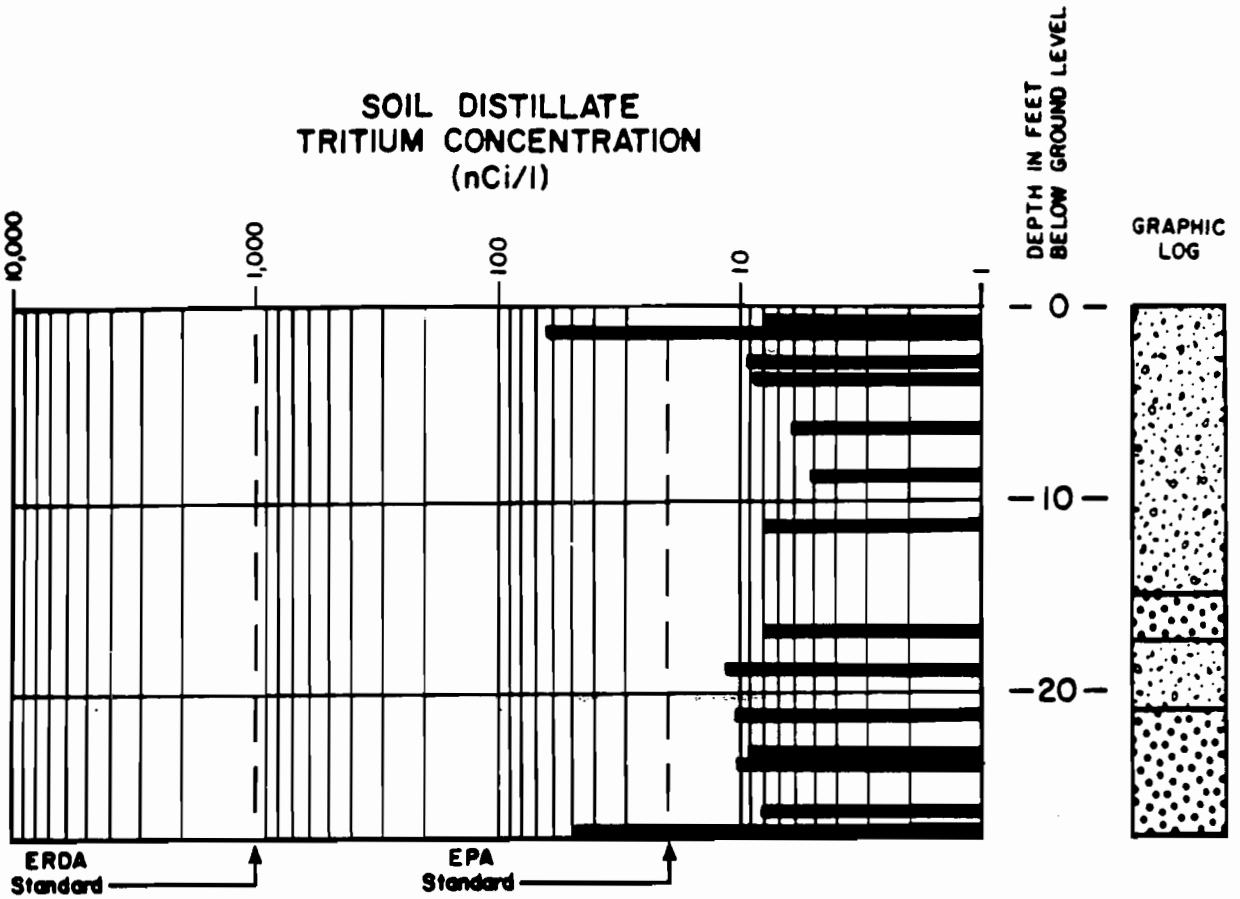
LIMESTONE

SAND AND GRAVEL

WEATHERED SHALE BEDROCK

UNWEATHERED SHALE BEDROCK

BORING SB-1 SURFACE ELEVATION 701 (est.)



DATE STARTED: 9/9/76
DATE FINISHED: 9/9/76
TOTAL DEPTH: 27.5'
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
DAMES & MOORE TYPE U SAMPLER
340 lb. HAMMER WITH 30" DROP

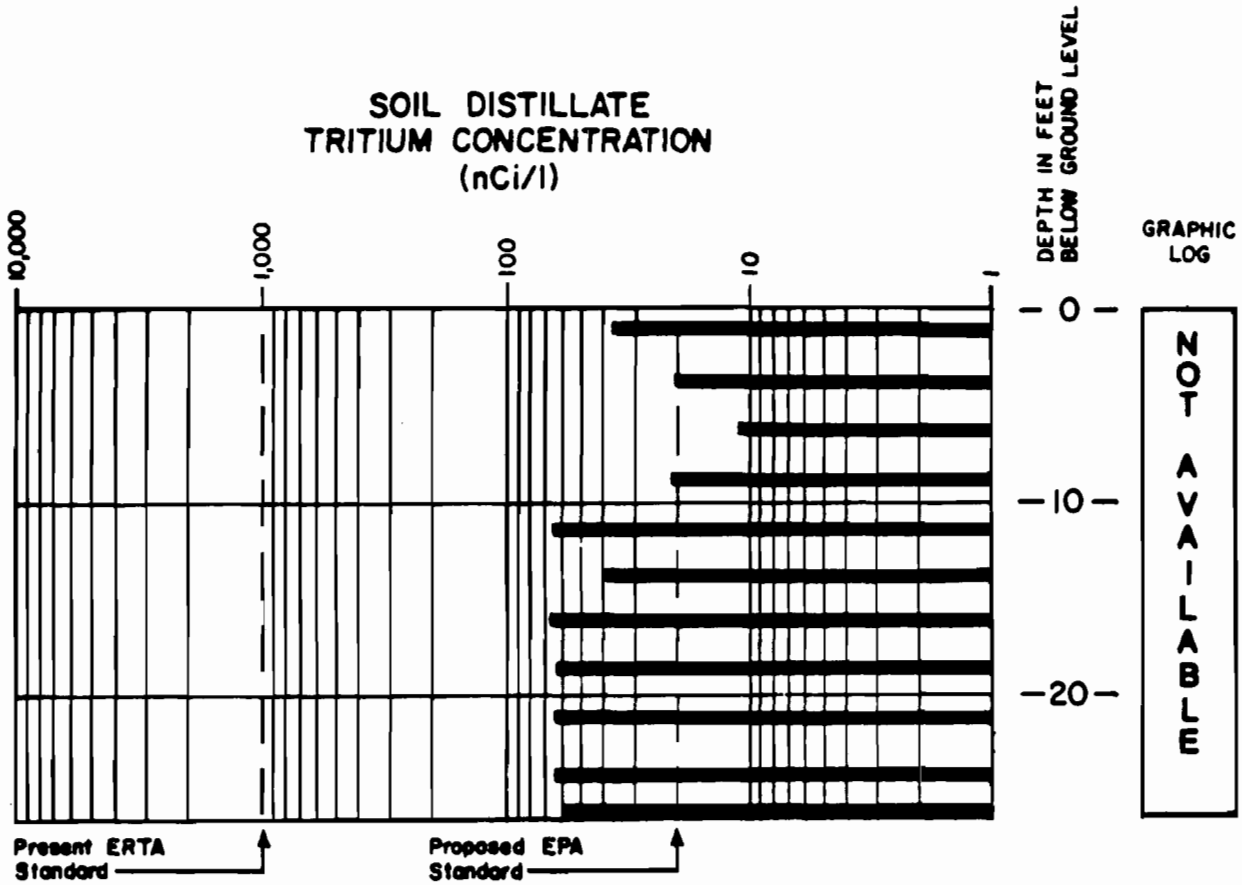
SB-1 boring is 142 feet south of the drainage ditch, 47 feet from the center of the Miami-Erie canal toward old U.S. 25.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-1

BORING SB-2 SURFACE ELEVATION 701 (est.)



DATE STARTED: 9-10-76
DATE FINISHED: 9-10-76
TOTAL DEPTH: 26.5
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENTRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

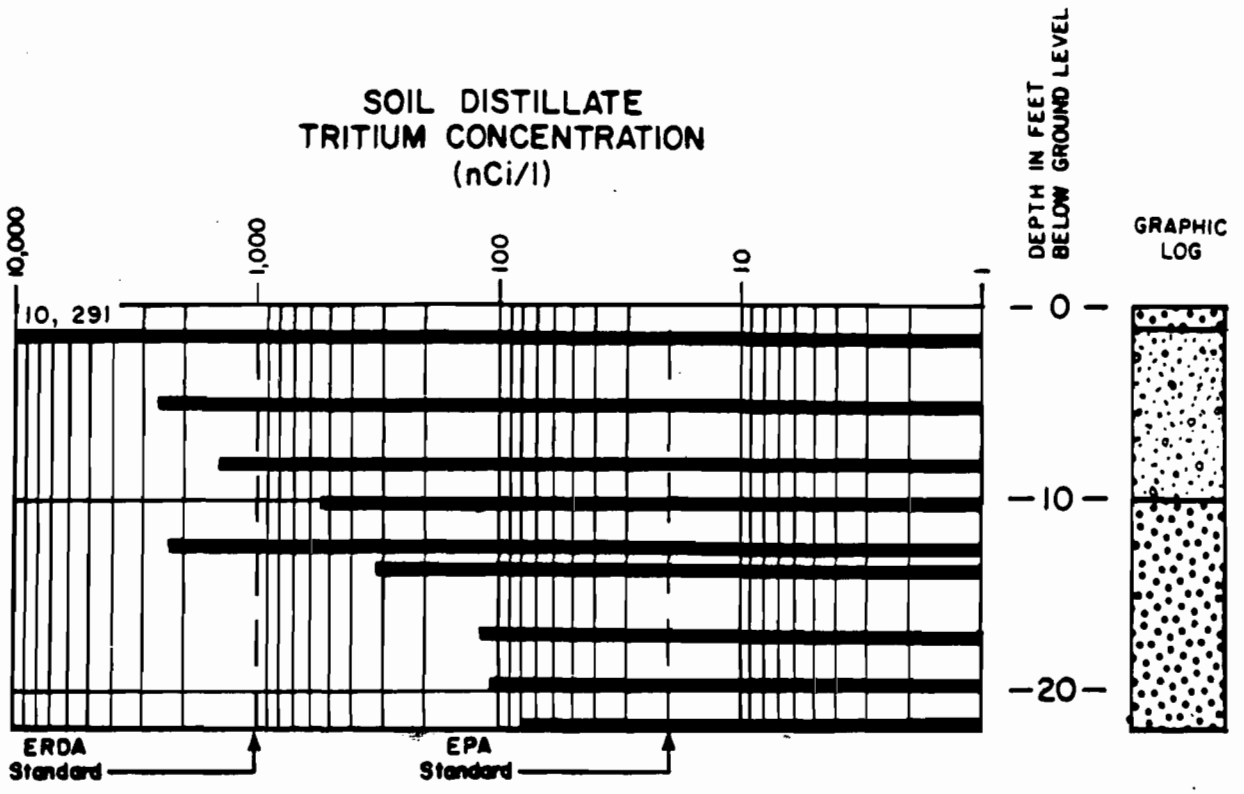
SB-2 boring is 442 feet south of the drainage ditch, 32 feet from the center of the Miami-Erie canal toward old U.S. 25.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-2

BORING SB-3 SURFACE ELEVATION 702 (est.)



DATE STARTED: 9/10/76
DATE FINISHED: 9/10/76
TOTAL DEPTH: 22'
TYPE OF CASING: PVC
SIZE OF CASING: 1 1/2" I.D.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

WELL CONSTRUCTION:

1 1/2" ID PVC CASING SET TO 22 1/2' CASING SLOTTED FROM 17'-22 1/2'

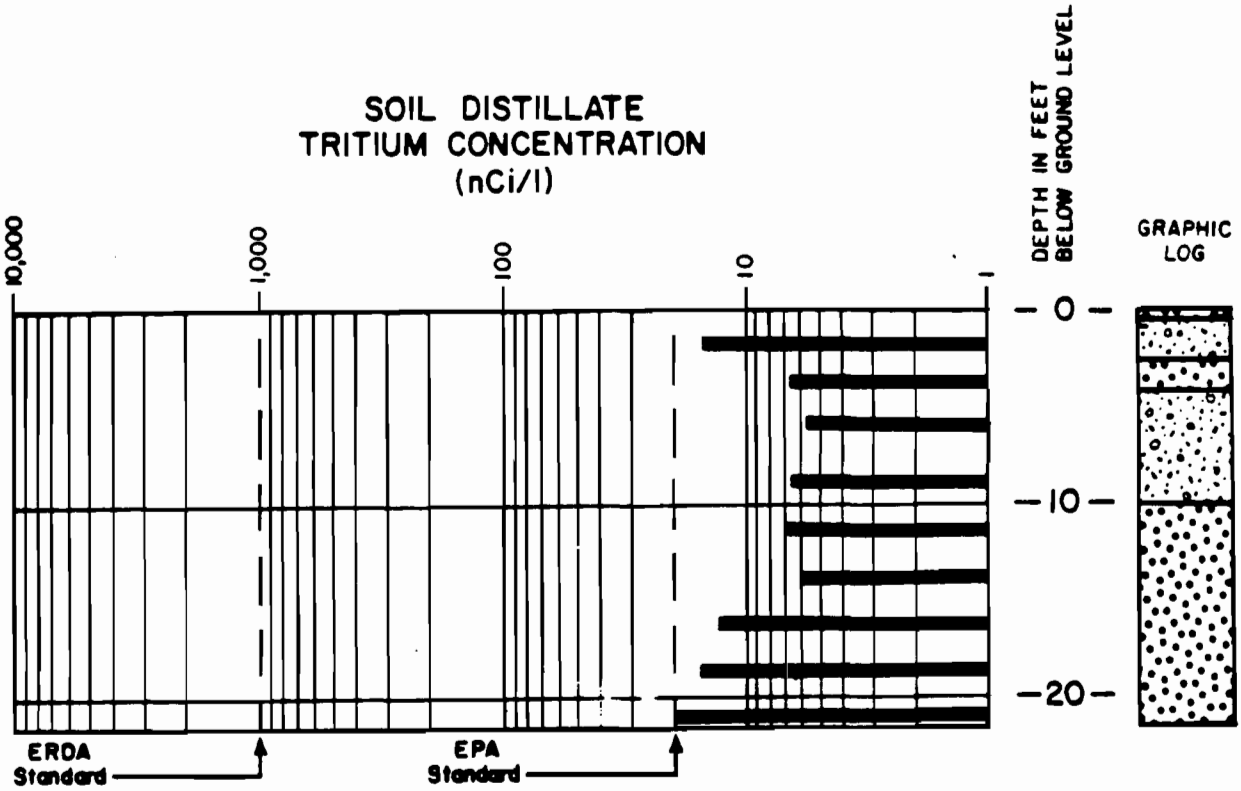
SB-3 boring is 32 feet south of the drainage ditch in the center of the Miami-Erie canal.

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-3

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

BORING SB-4 SURFACE ELEVATION 699 (est.)



DATE STARTED: 9/11/76
DATE FINISHED: 9/11/76
TOTAL DEPTH: 21.5'
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

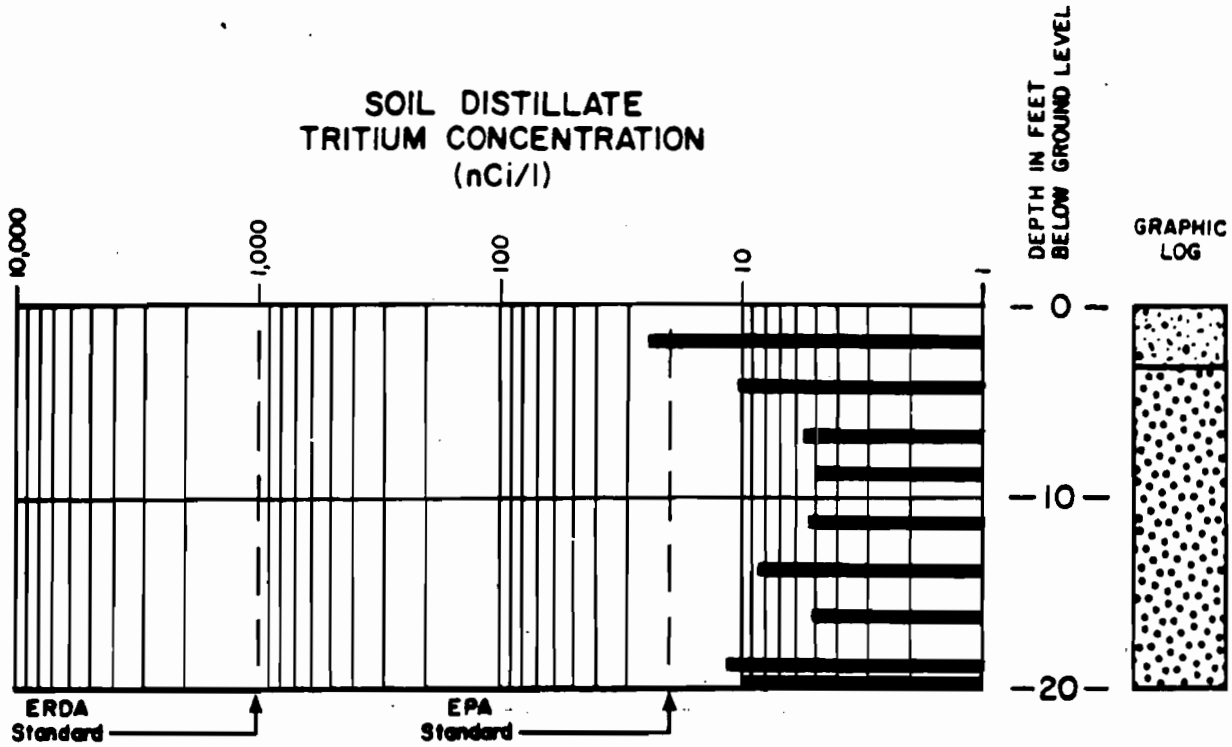
SB-4 boring is 1091 feet south of the drainage ditch, 42 feet from the center of the Miami-Erie canal toward old U.S. 25.

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-4

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

BORING SB-5 SURFACE ELEVATION 699 (est.)



DATE STARTED: 9/11/76
DATE FINISHED: 9/11/76
TOTAL DEPTH: 20'
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

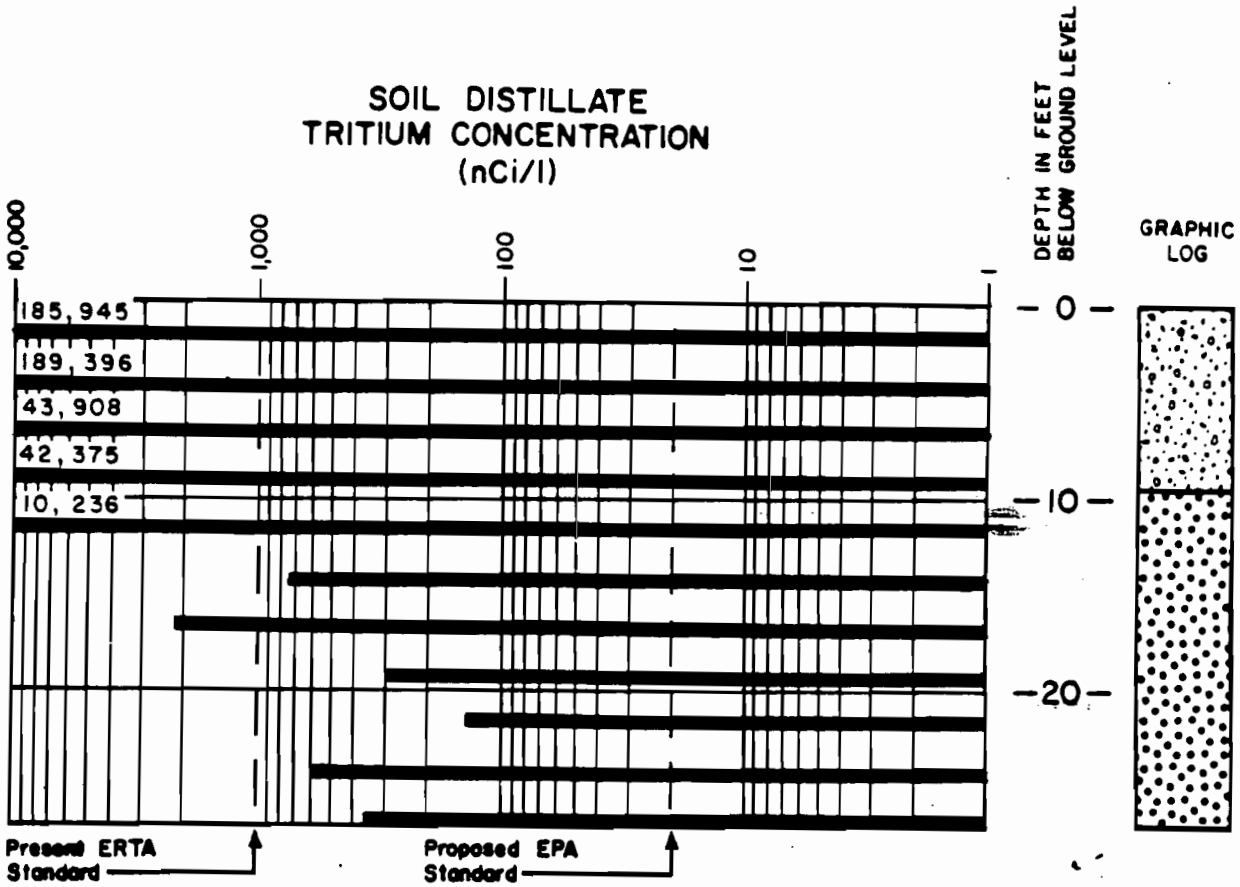
SB-5 boring is 1717 feet south of the drainage ditch, 44 feet from the center of the Miami-Erie canal toward old U.S. 25.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-5

BORING SB-6 SURFACE ELEVATION 702 (est.)



DATE STARTED: 9-11-76
DATE FINISHED: 9-11-76
TOTAL DEPTH: 27.0
TYPE OF CASING: PVC
SIZE OF CASING: 1 1/2" ID. SLOTTED 19-27'
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON, 140 lb. HAMMER DROPPING 30".

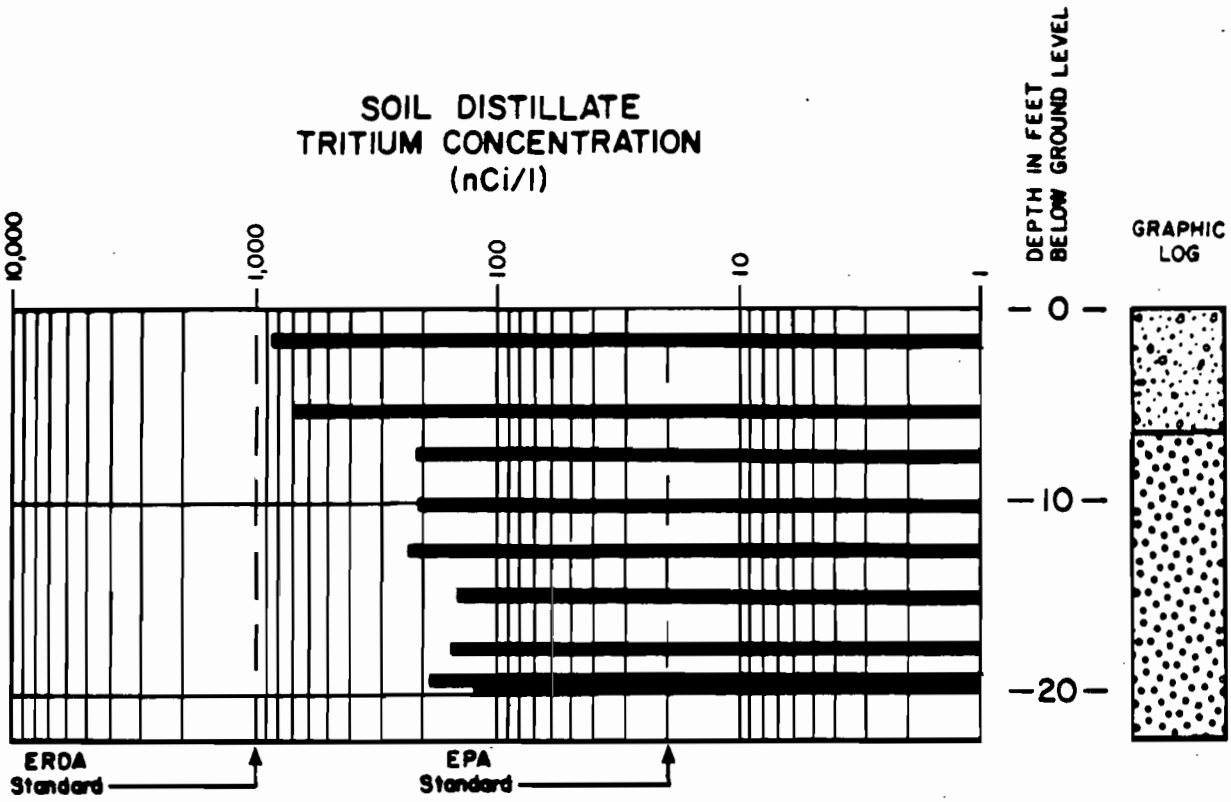
SB-6 boring is 153 feet north of the drainage ditch in the center of the north Miami-Erie canal.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-6

BORING SB-7 SURFACE ELEVATION 699 (est.)



DATE STARTED: 9/11/76
DATE FINISHED: 9/11/76
TOTAL DEPTH: 22.5'
TYPE OF CASING: PVC
SIZE OF CASING: 1 1/2" I.D.
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

WELL CONSTRUCTION:
1 1/2" ID PVC CASING SET TO 22.5'. CASING SLOTTED FROM 17'-22.5'

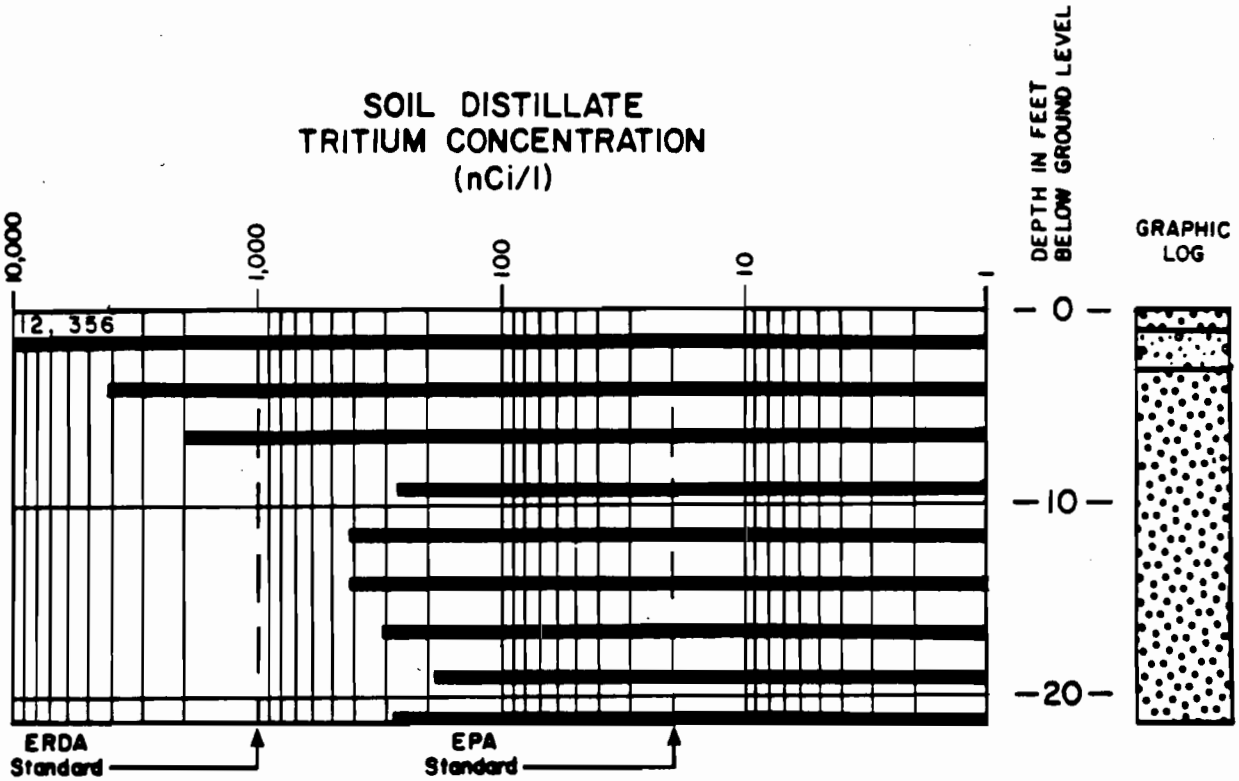
SB-7 boring is 2141 feet north of the drainage ditch, 4 feet from the east bank of the north Miami-Erie canal.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-7

BORING SB-8 SURFACE ELEVATION 698 (est.)



DATE STARTED: 9/12/76
DATE FINISHED: 9/12/76
TOTAL DEPTH: 21.5'
TYPE OF CASING: PVC
SIZE OF CASING: 1 1/2" I.D
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

WELL CONSTRUCTION:
1 1/2" ID PVC CASING SET TO 18'. CASING SLOTTED FROM 13'-18'

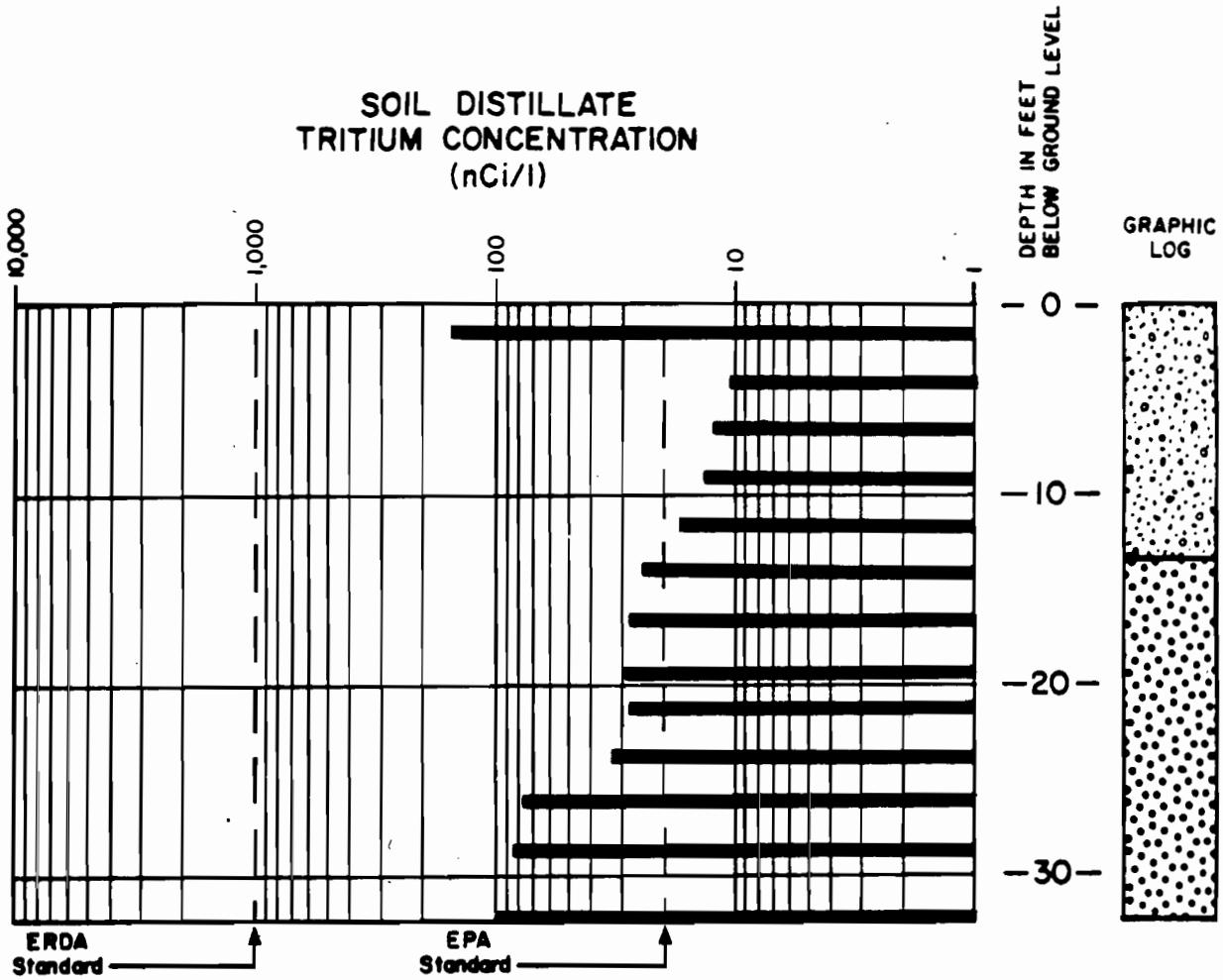
SB-8 boring is between the small south ponds.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-8

BORING SB-9 SURFACE ELEVATION 706 (est.)



DATE STARTED: 9/12/76
DATE FINISHED: 9/12/76
TOTAL DEPTH: 32.5'
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

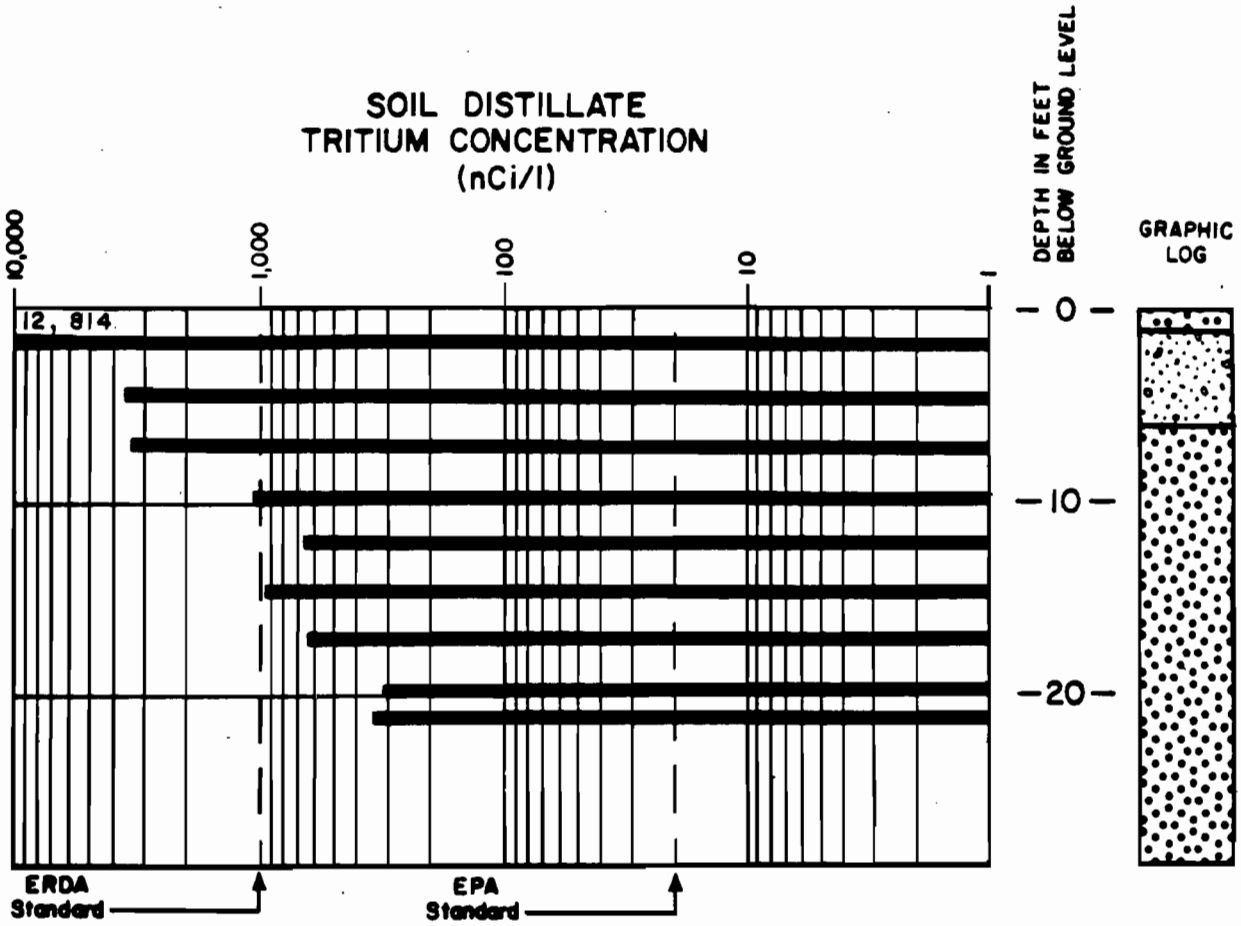
SB-9 boring is approximately 160 feet north of the drainage ditch, 34 feet from the center of the north Miami-Erie canal toward old U.S. 25.

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-9

BORING SB-10 SURFACE ELEVATION 699 (est.)



DATE STARTED: 9/13/76
DATE FINISHED: 9/13/76
TOTAL DEPTH: 29'
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR:
RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

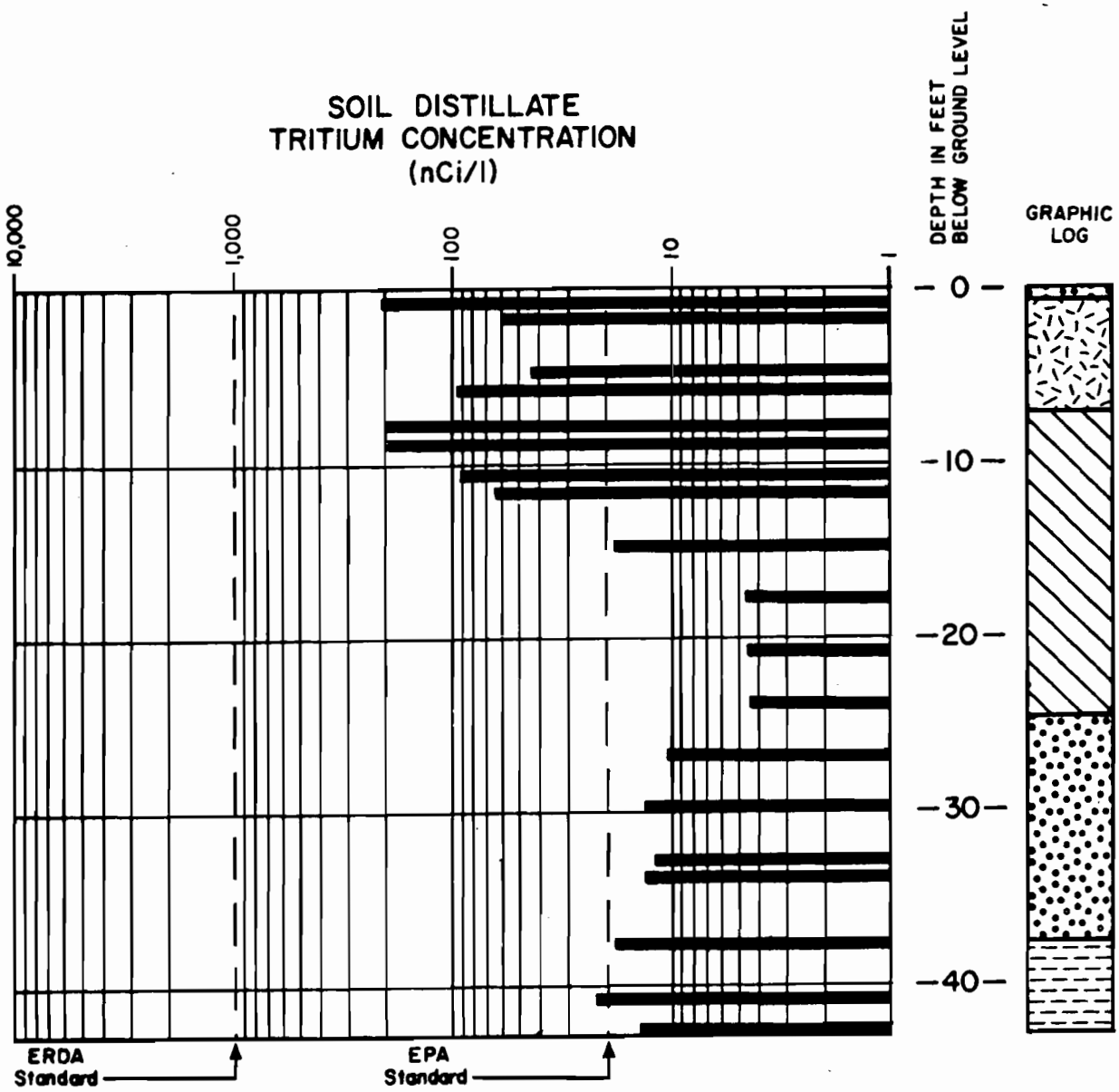
SB-10 boring is 1042 feet south of the drainage ditch in the center of the south Miami-Erie canal.

NOTE: ALL ELEVATIONS
REFER TO PLANT DATUM

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING SB-10

BORING DD-1 SURFACE ELEVATION 715 (est.)



DATE STARTED: 9/15/76
DATE FINISHED: 9/15/76
TOTAL DEPTH: 42.8
TYPE OF CASING: NONE
SIZE OF CASING: NONE
DRILLING CONTRACTOR: RAYMOND INTERNATIONAL
DRILLING METHOD: AUGER

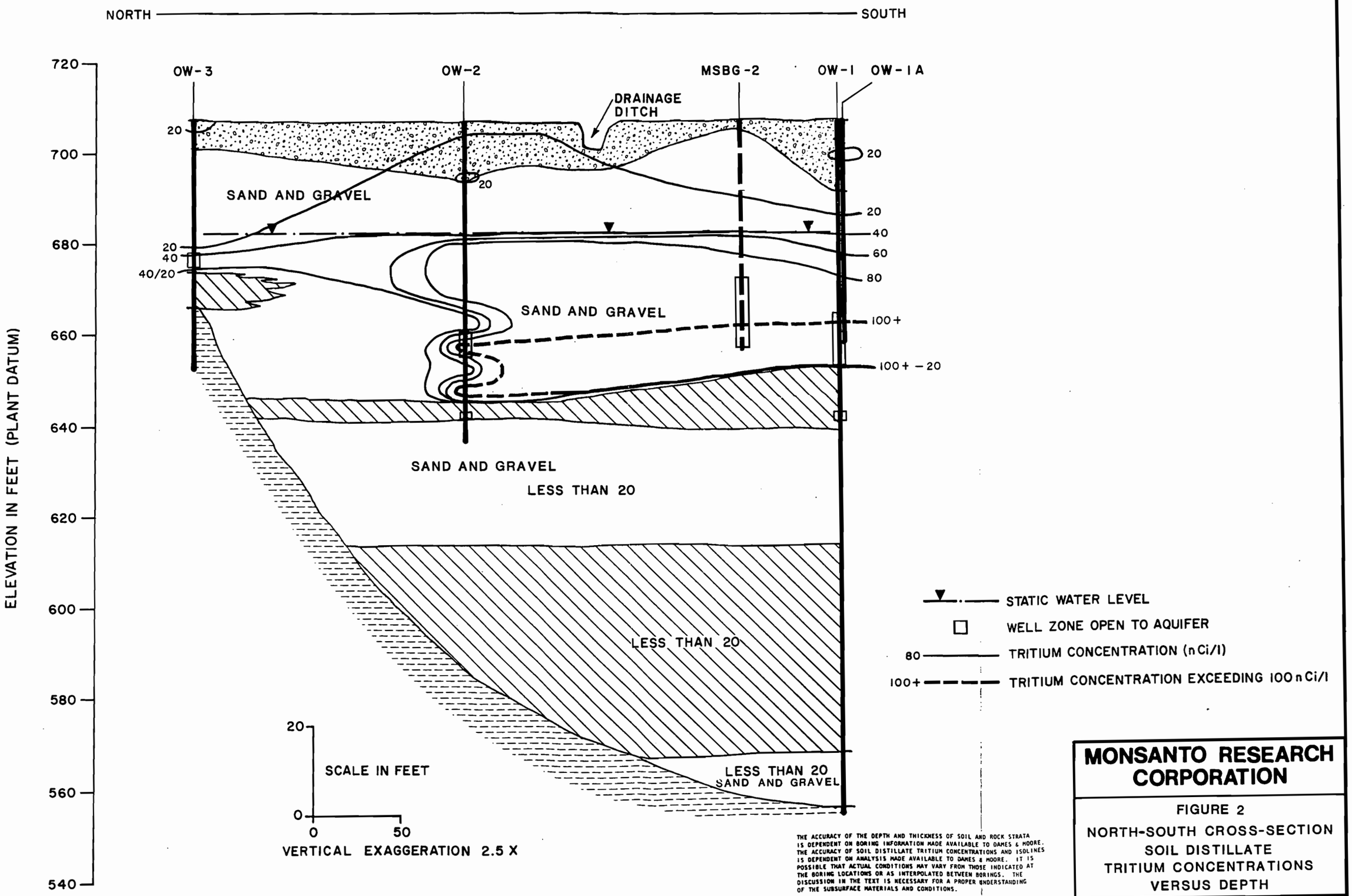
SAMPLING METHOD:
STANDARD PENETRATION SPLIT SPOON
140 lb. HAMMER WITH 30" DROP

DD-1 boring is 250 feet east of well 37-1A in the center of the onsite drainage ditch.

MONSANTO RESEARCH CORPORATION

GEOLOGIC LOG AND TRITIUM ACTIVITY IN BORING DD-1

NOTE: ALL ELEVATIONS REFER TO PLANT DATUM



MONSANTO RESEARCH CORPORATION

FIGURE 2
NORTH-SOUTH CROSS-SECTION
SOIL DISTILLATE
TRITIUM CONCENTRATIONS
VERSUS DEPTH

G

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APPENDIX G

NEW PROPERTY EVALUATION

Plate G1

Job #11324

REVISIONS		
A	ENG ISSUE	
	KW MBS	
BY / DATE		

BOWSER - MORNER
DAYTON • TOLEDO • MAYSVILLE, KY

BORING LOCATION PLAN

DRAWN BY maria	DATE 3/9/84	MONSANTO RESEARCH CORP MOUND FACILITY SPOIL STORAGE FACILITY NEW PROPERTY MIAMISBURG, OHIO
APPROVED BY	DATE	
SCALE GRAPHIC	SHEET 2 OF SHEETS 9	PROJECT NO #27811

3520 41 G 01 002

BRUNING 44131 260976

LOG OF BORING NO. 1

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-24-83

SURFACE ELEVATION: 893.9' **DATE COMPLETED:** 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	(Weathered Rock) Very weathered light gray shaley limestone	1A	1.0- 2.1	35-50-15/1"	65+
		2A	3.5- 4.3	31-69/4"	100+
5'					
6.0'	Apparent rock (Auger refusal at 7.0')	3A	6.0- 6.3	100/3"	100+
	Bottom of boring at 7.0'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 5

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-26-83

SURFACE ELEVATION: 838.3' **DATE COMPLETED:** 9-26-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	(Weathered Rock) Very weathered light gray limey shale	1A	1.0- 2.0	75-25/2"	100+
5.0'	(Rock) Limey shale (Auger refusal at 5.5')	2A	4.0- 5.0	40-60/3"	100+
	Bottom of boring at 5.5'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 6

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-28-83

SURFACE ELEVATION: 878.4' **DATE COMPLETED:** 9-28-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'					
1.5'	Stiff brown sand and silt, trace of gravel - moist				
4.0'	Hard brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist	1A	1.0- 2.5	13-13-23	36
5'					
6.0'	Very dense brown sand and gravel, some silt - moist	2A	4.0- 5.5	13-30-47	77
8.5'	Hard brown and gray silt, some sand, trace of gravel, trace of rock fragments - moist	3A	6.5- 7.0	100/6"	100+
10'					
10.5'	(Rock) Weathered gray shaley limestone	4A	8.5- 8.9	100/4"	100+
15'	(Rock) Shale, medium gray, calcareous, weathered, moderately fissile to massive, with scattered thin beds of black, crystalline fossiliferous limestone	1B	9.0-19.0		117"
20'	Bottom of boring at 19.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 14.0'

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 7

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-24-83

SURFACE ELEVATION: 883.1' **DATE COMPLETED:** 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Hard brown silt, some sand, some gravel, trace of organic material - moist	1A	1.0- 1.9	25-75/4"	100+
2.0'	(ORIGINAL) (Weathered Rock) Very weathered shaley limestone	2A	3.5- 3.8	100/4"	100+
5'		3A	6.0- 6.6	88-12/1"	100+
8.0'	(Rock) Moderately weathered limey shale	4A	8.5- 8.6	100/1"	100+
10'	Bottom of boring at 8.6'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 8

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-16-83

SURFACE ELEVATION: 873.0' **DATE COMPLETED:** 9-16-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Hard brown and gray silt, some clay, some rock fragments - dry	1A	1.0- 1.5	100/5"	100+
4.0'	Apparent rock (auger refusal)				
	Bottom of boring at 4.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: RF-BC

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 9

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-16-83

SURFACE ELEVATION: 847.1' **DATE COMPLETED:** 9-16-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.2'	Very stiff brown silt, trace of sand, trace of clay, trace of gravel - damp	1A	1.0- 2.5	12-13-17	30
3.0'	Hard brown and gray silt, some rock fragments, trace of clay - damp	2A	4.0- 5.5	30-27-31	58
		3A	6.5- 8.0	24-31-32	63
5'		4A	9.0-10.5	27-27-30	57
10'	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-RF

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 10

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-16-83

SURFACE ELEVATION: 845.2' **DATE COMPLETED:** 9-16-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.2'	Hard brown and gray silt, some rock fragments, trace of clay, trace of sand - damp	1A	1.0- 1.4	100/5"	100+
		2A	3.5- 5.0	23-22-24	46
5'		3A	6.0- 6.3	100/4"	100+
8.5'					
10'	(Rock) Moderately weathered gray limey shale	4A	8.5- 9.3	27-73/4"	100+
	Bottom of boring at 9.3'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BC-RF

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 240 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 11

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-24-83

SURFACE ELEVATION: 870.7' **DATE COMPLETED:** 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Hard brown and gray silt, some sand, some rock fragments, trace of organic material - moist	1A	1.0- 2.0	25-75	100
2.0'	(Weathered Rock) Gray shaley limestone	2A	3.5- 5.0	26-26-75	101
5' 5.5'	(Rock) Weathered gray to gray-blue limey shale	3A	6.0- 7.5	16-29-59	88
		4A	8.5- 9.5	60-40	100
10'	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 12

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 795.2' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'					
2.5'	Very stiff brown silt, some sand, trace of clay - damp	1A	1.0- 2.5	16-13-11	24
5'	Medium stiff brown and gray silt, some sand, trace of clay, trace of rock fragments - damp	2A	3.5- 5.0	12- 4- 3	7
5.5'	Hard gray silt and clay, trace of sand, trace of rock fragments-moist	3A	6.0- 7.5	16-24-16	40
		4A	8.5-10.0	24-21-26	47
10'	Bottom of boring at 10.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 5.0' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. 5.4'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

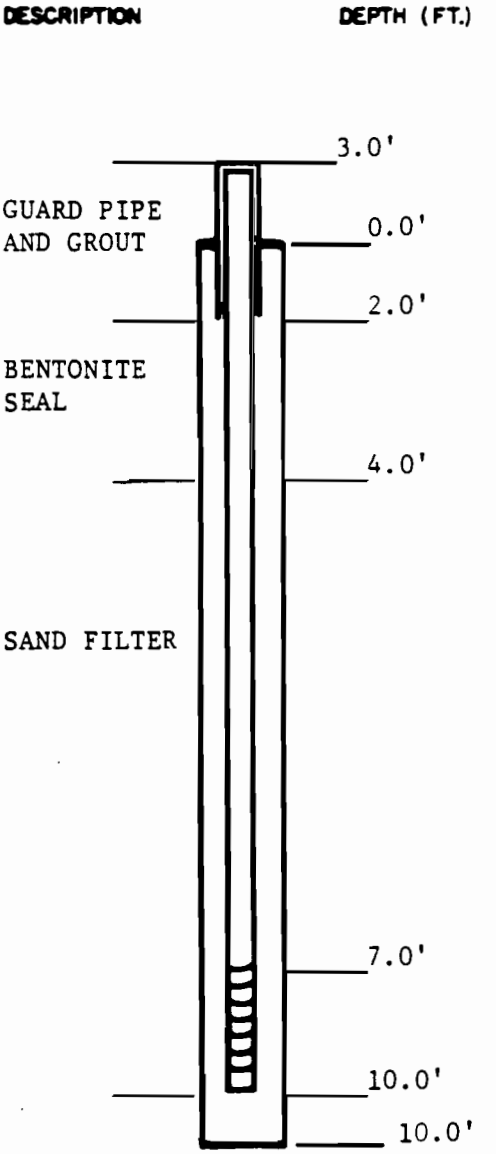
LOG OF WELL NO. 12

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan
DATE INSTALLED: 9/23/83
SURFACE ELEVATION: 795.2'
TOP OF PIPE ELEVATION: 798.2'

TYPE OF PIEZOMETER: 1½" Sch 40 PVC

DATE	WATER SURFACE DEPTH (FT.)	WATER SURFACE ELEV. (FT.)		INSTALLATION DESCRIPTION
9/23/83	None			
9/26/83	8.5'	789.7'		



TECHNICIAN BW

JOB NO. 27755 (bw)

NOTES: 1½" PVC screen 3.0'
Slot size .02014
Guard pipe 3" x 4' black iron with locking cap

LOG OF BORING NO. 13

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-27-83

SURFACE ELEVATION: 816.9' **DATE COMPLETED:** 9-27-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.7'	Hard brown and gray silt and clay, some sand, with rock fragments-moist	1A	1.0- 2.5	10-23-43	66
3.0'	Hard gray and light brown silt, trace of clay, trace of sand, trace of rock fragments - damp	2A	4.0- 5.5	23-25-75	100
5'		3A	6.5- 6.9	100/5"	100+
		4A	9.0-10.0	55-50	105+
10'					
12.5'	(Weathered Rock) Gray limey shale				
14.5'	(Rock) Shale, medium gray, calcareous, weathered, moderately fissile to massive, with scattered thin beds of black crystalline fossiliferous limestone	5A	14.0-14.7	70-30/2"	100+
15'					
20'		1B	15.0-25.0		92"
25'					
	Bottom of boring at 25.0'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 20.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 14

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-26-83

SURFACE ELEVATION: 797.1' **DATE COMPLETED:** 9-26-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some clay, some sand, trace of gravel, trace of rock fragments, trace or oganic material - moist	1A	1.0- 2.4	9-13-87/5"	100+
4.0'	Hard gray silt and clay, some sand, trace of gravel, trace of rock fragments - moist	2A	4.0- 5.5	33-30-34	64
		3A	6.5- 8.0	24-24-39	63
		4A	9.0-10.5	20-50-45	95
	Bottom of boring at 10.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 15

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-24-83

SURFACE ELEVATION: 861.7' **DATE COMPLETED:** 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Hard brown silt, some sand, some rock fragments, trace of clay-moist	1A	1.0- 2.5	26-19-16	35
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 16

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 784.4' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.2'	Very stiff brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	9-12-17	29
3.5'	Hard brown and gray silt and clay, trace of sand, trace of rock fragments - damp	2A	3.5- 5.0	25-31-27	58
		3A	6.0- 6.8	11-89/3"	100+
9.0'	(Rock) Very weathered gray limey shale	4A	8.5- 9.3	60-40/3"	100+
	Bottom of boring at 9.3'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 17

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-26-83

SURFACE ELEVATION: 761.0' **DATE COMPLETED:** 9-26-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Very stiff brown silt and clay, some sand, trace of gravel - moist	1A	1.0- 2.5	8-13-17	30
3.0'	Hard gray and brown silt, some clay, trace of sand, trace of rock fragments - moist	2A	4.0- 4.3	100/3"	100+
5'		3A	6.5- 7.5	70-55	125+
8.0'	(Apparent Rock) Gray moderately weathered limey shale	4A	9.0-9.3	100/4"	100+
10'					
15'	(Auger refusal at 15.5')	5A	14.0-14.5	100/6"	100+
	Bottom of boring at 15.5'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

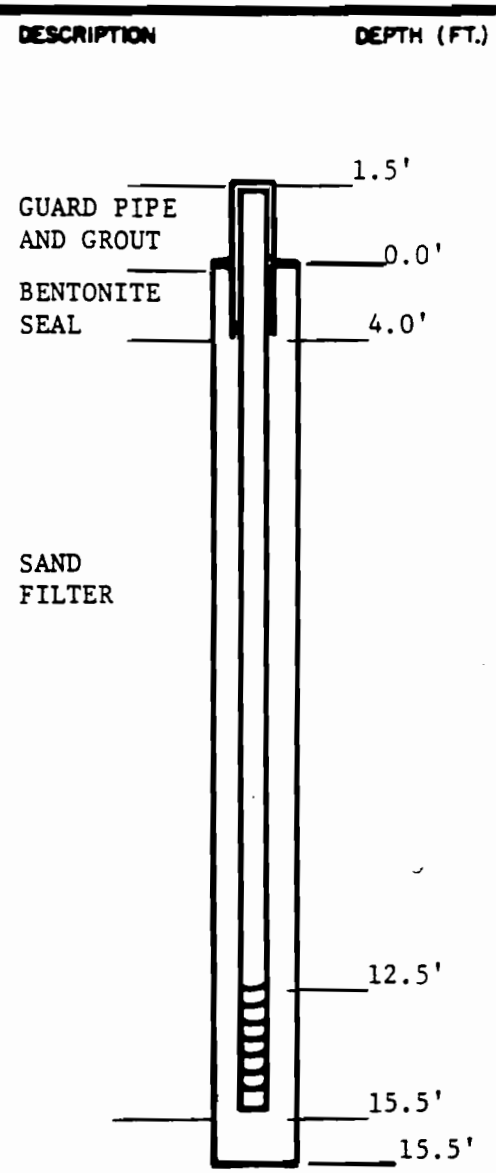
LOG OF WELL NO. 17

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan
DATE INSTALLED: 9/26.83
SURFACE ELEVATION: 761.0'
TOP OF PIPE ELEVATION: 762.5'

TYPE OF PIEZOMETER: 1½" Sch 40 PVC

DATE	WATER SURFACE DEPTH (FT.)	WATER SURFACE ELEV. (FT.)		INSTALLATION DESCRIPTION
9/26/83	None			
9/27/83	None			



TECHNICIAN BW

JOB NO. 27755 (bw)

NOTES: 1½" PVC screen 3.0'
Slot size .02014
Guard pipe 3" x 4' black iron with locking cap

LOG OF BORING NO. 18

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-29-83

SURFACE ELEVATION: 755.4' **DATE COMPLETED:** 9-30-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some sand, some rock fragments - moist	1A	1.0- 2.5	15-25-30	55
		2A	3.5- 5.0	23-32-50	82
5'		3A	6.5- 8.0	22-25-29	54
		4A	9.0- 9.8	50-50/4"	100+
10'					
13.0'					
14.0'	(Weathered Rock)	5A	13.5-14.3	50-50/3"	100+
15'	(Rock) Shale, medium gray, calcareous, weathered, moderately fissile to massive, with scattered thin beds of black, crystalline fossiliferous limestone	1B	14.5-23.5		70"
20'					
25'	Bottom of boring at 23.5'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 19

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-19-83

SURFACE ELEVATION: 746.9' **DATE COMPLETED:** 9-19-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Hard brown silt, some sand, some clay, trace of gravel - moist	1A	1.0- 2.5	12-25-37	62
5'		2A	4.0- 5.5	12-18-22	40
		3A	6.5- 8.0	12-18-25	43
9.0'	Hard brown and gray silt, some clay, some sand, trace of gravel - moist	4A	9.0-10.5	14-22-19	41
10'					
14.5'	(Apparent Rock) Moderately weathered gray limey shale	5A	13.5-14.8	18-70-30/3"	100+
15'	Bottom of boring at 14.8'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 12.5'

DEPTH AFTER: 168 HRS. 8.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 20

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-24-83

SURFACE ELEVATION: 784.4' **DATE COMPLETED:** 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	(Weathered Rock) Very weathered gray limey shale, decomposed	1A	1.0- 2.5	12-43-45	88
		2A	3.5- 5.0	45-18-23	41
5'		3A	6.5- 8.0	16-27-29	56
10'		4A	9.0-10.5	20-27-32	59
	Bottom of boring at 10.5'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 21

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-24-83

SURFACE ELEVATION: 724.5' **DATE COMPLETED:** 9-24-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Very stiff brown silt, some sand, some gravel, trace of organic material - moist (1.5' sand seam from 2.5'-4.0')	1A	1.0- 2.5	10-11-12	23
5'		2A	4.0- 5.5	8-12-16	28
		3A	6.0- 7.5	8-11-17	28
9.0'	Hard brown silt, some sand, some gravel, some rock fragments - moist	4A	9.0-10.5	49-34-36	70
10'					
15'		5A	14.0-14.3	100/5"	100+
17.0'	Dense brown and gray sand and gravel, some silt - moist	6A	18.5-20.0	16-18-23	41
20'	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 48 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 22

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-19-83

SURFACE ELEVATION: 740.1' **DATE COMPLETED:** 9-19-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Hard brown silt, some sand, some clay, trace of gravel - moist	1A	1.0- 2.5	12-24-22	46
3.0'	Hard brown and gray silt and clay, some sand, trace of gravel - moist	2A	4.0- 5.5	11-15-16	31
5'	(Becomes very stiff at 6.5')	3A	6.5- 8.0	8-11-14	25
9.5'	Hard gray silt, some clay, some sand, trace of gravel - moist	4A	9.0-10.5	15-19-22	41
10'	(9" wet sand seam at 14.0')	5A	13.5-15.0	35-50-32	82
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: *

COMPLETION DEPTH: None

DEPTH AFTER: 168 HRS. 8.5'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

*8.5' (trace); 14.0' (trace)

BOWSER – MORNER

LOG OF BORING NO. 23

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 736.3' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some clay, some sand, trace of gravel, trace of rock fragments - damp	1A	1.0- 2.5	25-28-23	51
5'	(Becomes very stiff at 4.0')	2A	3.5- 5.0	5-14-14	28
		3A	6.0- 7.5	15-19-25	44
8.0'	Hard gray silt, some clay, some sand, trace of gravel, trace of rock fragments - damp	4A	8.5-10.0	14-23-63	86
10'					
		5A	13.5-15.0	11-15-23	38
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 24

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 742.0' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	12-13-14	27
		2A	3.5- 5.0	5-13-14	27
5'		3A	6.0- 7.5	9-11-13	24
10'	(Becomes hard with rock fragments at 9.0')	4A	8.5-10.0	5-23-37	60
11.5'	Hard gray silt, some clay, trace of sand, trace of gravel - moist	5A	13.5-15.0	11-12-15	27
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. 9.0'

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 25

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 721.4' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown silt, some clay, some sand, trace of fine gravel - damp	1A	1.0- 2.5	8- 8- 9	17
5'	(Becomes hard at 3.5')	2A	3.5- 5.0	11-15-22	37
6.0'	Very stiff brown clay and silt, some sand, trace of organic material-moist	3A	6.0- 7.5	12-14-15	29
		4A	8.5-10.0	7-12-16	28
10'					
14.5'					
15'	Medium dense brown sand and gravel, some silt - moist	5A	13.5-15.0	6- 6- 5	11
17.0'	Very stiff brown clay and sand - moist	6A	18.5-20.0	13-15-14	29
19.5'					
20'	Medium dense brown sand and gravel, some silt - damp				
	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 26

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-23-83

SURFACE ELEVATION: 736.6' **DATE COMPLETED:** 9-23-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.9'	Hard brown silt, some clay, some sand, trace of gravel - damp	1A	1.0- 2.5	8-13-21	34
		2A	3.5- 5.0	17-14-19	33
5'	(Becomes very stiff and moist at 6.5')	3A	6.0- 7.5	6-10-10	20
		4A	8.5-10.0	8- 8-15	23
10'					
	(Becomes stiff at 14.0')	5A	13.5-15.0	4- 6- 9	15
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-DW

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 72 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 27

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-22-83

SURFACE ELEVATION: 713.2' **DATE COMPLETED:** 9-22-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some sand, trace of gravel, trace of clay tile - moist				
1.5'	(ORIGINAL) Hard brown silt, some sand, some gravel, trace of clay - moist	1A	1.0- 2.5	11-20-80	100
5.0'	Very stiff brown silt and sand, trace of gravel, trace of clay - moist	2A	4.0- 5.5	11-11-14	25
6.0'	Medium dense brown sand and gravel, some silt, trace of cobbles - moist	3A	6.5- 8.0	8-11-15	26
9.5'	Medium dense brown sand, some silt, trace of gravel - moist	4A	9.0-10.5	14- 9- 5	14
10'		5A	14.0-15.5	8- 7- 7	14
15'					
16.0'	Dense brown sand and gravel, some silt - moist	6A	18.5-20.0	20-20-21	41
20'	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 96 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 28

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-19-83

SURFACE ELEVATION: 745.0' **DATE COMPLETED:** 9-19-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Hard brown silt, some sand, trace of clay, trace of gravel - moist	1A	1.0- 2.5	9-13-21	34
5'		2A	4.0- 5.5	21-37-37	74
6.5'	Very stiff brown silt, some clay, some sand, trace of gravel - moist (Becomes hard at 9.0')	3A	6.5- 8.0	9-13-17	30
10'		4A	9.0-10.5	8-12-29	41
15'		5A	13.5-15.0	15-16-22	38
	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 168 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 29

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 701.8' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Stiff brown silt and clay, some sand, trace of gravel - moist	1A	1.0- 2.5	4- 5- 8	13
3.5'	Dense brown sand and gravel, some silt, trace of cobbles - moist	2A	4.0- 5.5	16-21-25	46
5'	(Becomes very dense at 7.0')	3A	6.5- 8.0	19-27-37	64
10'		4A	9.0-10.5	30-21-34	55
15'		5A	14.0-15.3	45-32-68/3"	100+
20'		6A	19.0-19.8	60-40/4"	100+
	Bottom of boring at 19.8'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 30

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 701.2' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown organic silt, some clay, trace of sand - moist	1A	1.0- 2.5	8-11-19	30
3.5'	Hard brown clay, some silt, some sand, some gravel - moist	2A	4.0- 5.5	9-18-89	107
5' 5.5'	Very dense brown sand and gravel, some silt, some cobbles - moist	3A	6.5- 8.0	36-34-41	75
	(Becomes medium dense at 9.0')	4A	9.0-10.5	9- 8- 6	14
10'					
15'	(Becomes very dense at 14.0')	5A	14.0-15.5	19-29-34	63
		6A	19.0-19.7	84-16/2"	100+
20'	Bottom of boring at 19.7'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 13.5' (trace)

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 31

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 705.3' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown organic silt, some clay, some sand - moist	1A	1.0- 2.5	8-10-14	24
3.5'	Hard brown silt and sand, some clay - moist	2A	4.0- 5.5	7-14-17	31
5'					
7.0'	Very stiff brown clay, some silt, some sand, trace of gravel - moist	3A	6.5- 8.0	9- 9- 9	18
8.5'					
10.0'	Very stiff brown clay and sand, trace of silt - moist				
	Loose brown sand and gravel, some silt - moist (Trace of cobbles at 13.5') (Becomes very dense at 14.0')	4A	9.0-10.5	4- 2- 6	8
15'		5A	14.0-15.5	14-23-36	59
		6A	18.5-20.0	28-41-60	101
20'	Bottom of boring at 20.0'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 32

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-22-83

SURFACE ELEVATION: 704.1' **DATE COMPLETED:** 9-22-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown silt, some clay, some sand, trace of gravel - moist	1A	1.0- 2.5	8- 9-17	26
4.0'	Hard brown clay, some silt, some sand, trace of gravel - moist	2A	4.0- 5.5	9-15-23	38
6.5'	Very stiff brown clay, some sand, trace of silt, trace of gravel - moist	3A	6.5- 8.0	5- 7- 9	16
9.5'	Brown sand and gravel, some silt, trace of cobbles - moist	1C	9.0- 9.5		0"
	(Becomes dense at 9.5')	4A	9.5-11.0	15-17-31	48
	(Becomes very dense at 14.0')	5A	14.0-14.8	65-35/3"	100+
		6A	19.0-20.0	42-67	109
	Bottom of boring at 20.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 96 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

__ B.

X C. SHELBY TUBE

BOWSER – MORNER

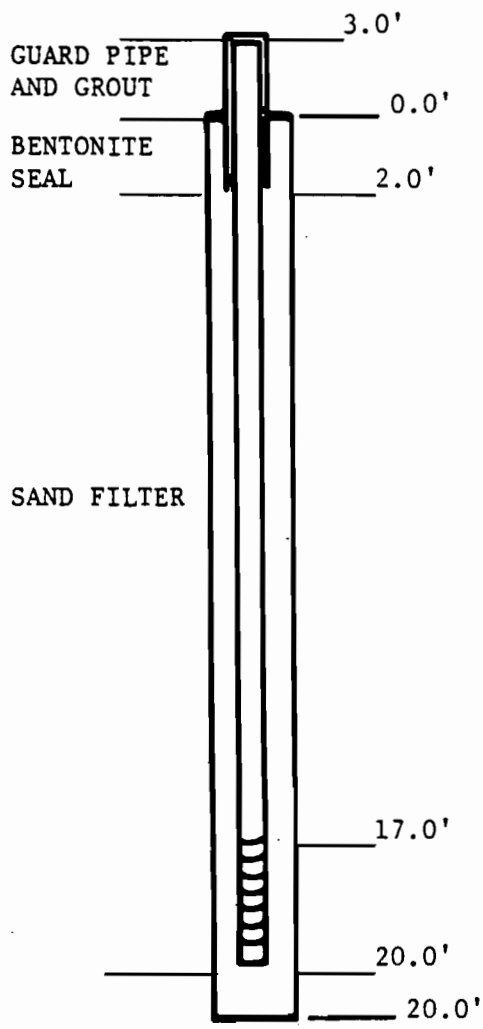
LOG OF WELL NO. 32

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan
DATE INSTALLED: 9/28/83
SURFACE ELEVATION: 704.1'
TOP OF PIPE ELEVATION: 707.1'

TYPE OF PIEZOMETER: 1½" Sch 40 PVC

DATE	WATER SURFACE DEPTH (FT.)	WATER SURFACE ELEV. (FT.)		INSTALLATION DESCRIPTION
9/22/83	None			
9/26/83	None			



TECHNICIAN BW

JOB NO. 27755 (bw)

NOTES: 1½" PVC screen 3.0'
Slot size .02014
Guard pipe 3" x 4' black iron with locking cap

LOG OF BORING NO. 33

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 730.2' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Hard brown silt, some sand, some clay, trace of gravel, trace of organic material - moist	1A	1.0- 2.5	14-28-32	60
5'		2A	4.0- 5.0	32-68	100
6.0'	Hard brown silt, some sand, some clay, trace of gravel - moist	3A	6.5- 8.0	21-26-38	64
10'		4A	9.0-10.0	33-67	100
11.5'	Very dense brown sand and gravel, some silt, some cobbles - moist	4A	14.0-14.3	100/3"	100+
15'					
		5A	19.0-19.8	37-63/4"	100+
20'	Bottom of boring at 19.8'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 34

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-19-83

SURFACE ELEVATION: 719.9' **DATE COMPLETED:** 9-19-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Hard brown silt, some clay, trace of sand, trace of gravel - moist	1A	1.0- 2.5	13-19-22	41
4.0'	Very dense brown sand and gravel, some silt, trace of cobbles-moist	2A	4.0- 5.4	31-46-54/4"	100+
		3A	6.5- 8.0	32-31-47	78
		4A	9.0-10.4	27-45-55/5"	100+
		5A	14.0-14.8	35-65/3"	100+
		6A	19.0-20.0	25-75	100
	Bottom of boring at 20.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 35

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-22-83

SURFACE ELEVATION: 699.1' **DATE COMPLETED:** 9-22-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some clay, some sand, trace of gravel - moist	1A	1.0- 2.5	7-12-21	33
3.5'	Very stiff brown clay, some silt, some sand, trace of gravel - moist	2A	4.0- 5.5	9-12-14	26
5'	(Becomes hard at 6.5')	3A	6.5- 8.0	8-12-19	31
8.5'	Dense brown sand and gravel, some silt, trace of cobbles - moist	4A	9.0-10.5	13-21-23	44
10'					
15'		5A	14.0-15.5	28-23-18	41
20'	(Becomes medium dense at 19.0')	6A	19.0-20.5	12-14-14	28
22.0'	Medium dense brown sand, some silt - wet	7A	23.5-25.0	9-11-15	26
25'	Bottom of boring at 25.0'				
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 22.0'

COMPLETION DEPTH: 22.0'

DEPTH AFTER: 96 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 36

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-22-83

SURFACE ELEVATION: 699.3' **DATE COMPLETED:** 9-22-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown silt, some clay, some sand, trace of gravel - moist	1A	1.0- 2.5	5- 9-11	20
3.0'	Very stiff brown clay and silt, some sand, trace of gravel - moist	2A	4.0- 5.5	7-13-17	30
5' 6.0'	Dense brown sand and gravel, some silt, trace of cobbles - moist	3A	6.5- 8.0	14-22-21	43
10'	(Becomes very dense at 9.0')	4A	9.0-10.5	17-23-38	61
15'		5A	14.0-15.5	36-40-39	79
20'		6A	19.0-20.5	25-31-26	57
25'	(Becomes wet at 23.5')	7A	23.5-25.0	23-30-27	57
30'	Bottom of boring at 25.0'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 23.5'

COMPLETION DEPTH: 23.0'

DEPTH AFTER: 96 **HRS.** None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 37

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 702.3' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Very stiff brown organic silt, some clay, some sand - moist	1A	1.0- 2.5	6- 8-11	19
5.0'	Very stiff brown clay, some silt, some sand, trace of gravel - moist	2A	4.0- 5.5	6- 9-13	22
6.0'	Very dense brown sand and gravel, some silt, trace of cobbles - moist	3A	6.5- 8.0	19-31-40	71
10'	(Becomes dense with 1" to 3" silt seams at 9.0')	4A	9.0-10.5	9-18-31	49
15'	(Becomes very dense at 14.0')	5A	14.0-14.8	38-62/4"	100+
20'		6A	19.0-19.3	100/3"	100+
25'		7A	23.5-25.0	33-26-33	59
30'	Bottom of boring at 25.0'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: 24.0'

COMPLETION DEPTH: 23.5'

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 38

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-20-83

SURFACE ELEVATION: 804.3' **DATE COMPLETED:** 9-20-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.5'	Hard brown silt and clay, some sand, with rock fragments (decomposed limey shale) - moist	1A	4.0-5.5	9-32-68	100
5'					
5.5'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: 144 HRS. None

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 39

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-29-83

SURFACE ELEVATION: 820.8' **DATE COMPLETED:** 9-29-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard gray silt, some sand, some rock fragments, trace of organic material - moist	1A	1.0- 2.5	20-30-50	80
		2A	3.5- 5.0	28-72/5"	100+
5'		3A	6.0- 7.5	22-21-38	59
10'		4A	9.0-10.5	28-21-25	46
12.5'	(Weathered rock) Gray limey shale				
13.5'	(Rock) Shale, medium gray, calcareous, weathered, moderately fissile to massive, with scattered thin beds of black, crystalline fossiliferous limestone	1B	13.5-20.5		68"
15'					
20'					
	Bottom of boring at 20.5'				
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-WH

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: 9.0'

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

X B. "NX" CORE

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 40

PRELIMINARY GEOTECHNICAL STUDY FOR THE MOUND FACILITY (NEW PROPERTY), MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO

BORING LOCATION: As shown on boring location plan **DATE STARTED:** 9-26-83

SURFACE ELEVATION: 727.3' **DATE COMPLETED:** 9-26-83

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Soft brown silt, some clay, some sand, trace of gravel - moist	1A	1.0- 2.5	3- 2- 3	5
3.0'	(ORIGINAL) Hard brown silt, some clay, some sand, trace of gravel - moist	2A	4.0- 5.5	7-13-18	31
5'		3A	6.5- 8.0	11-24-42	66
8.5'	Hard gray silt, some clay, some sand, trace of gravel - moist	4A	9.0-10.5	10-13-20	33
10'	Bottom of boring at 10.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: BW-RB

JOB NO.: 27755 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

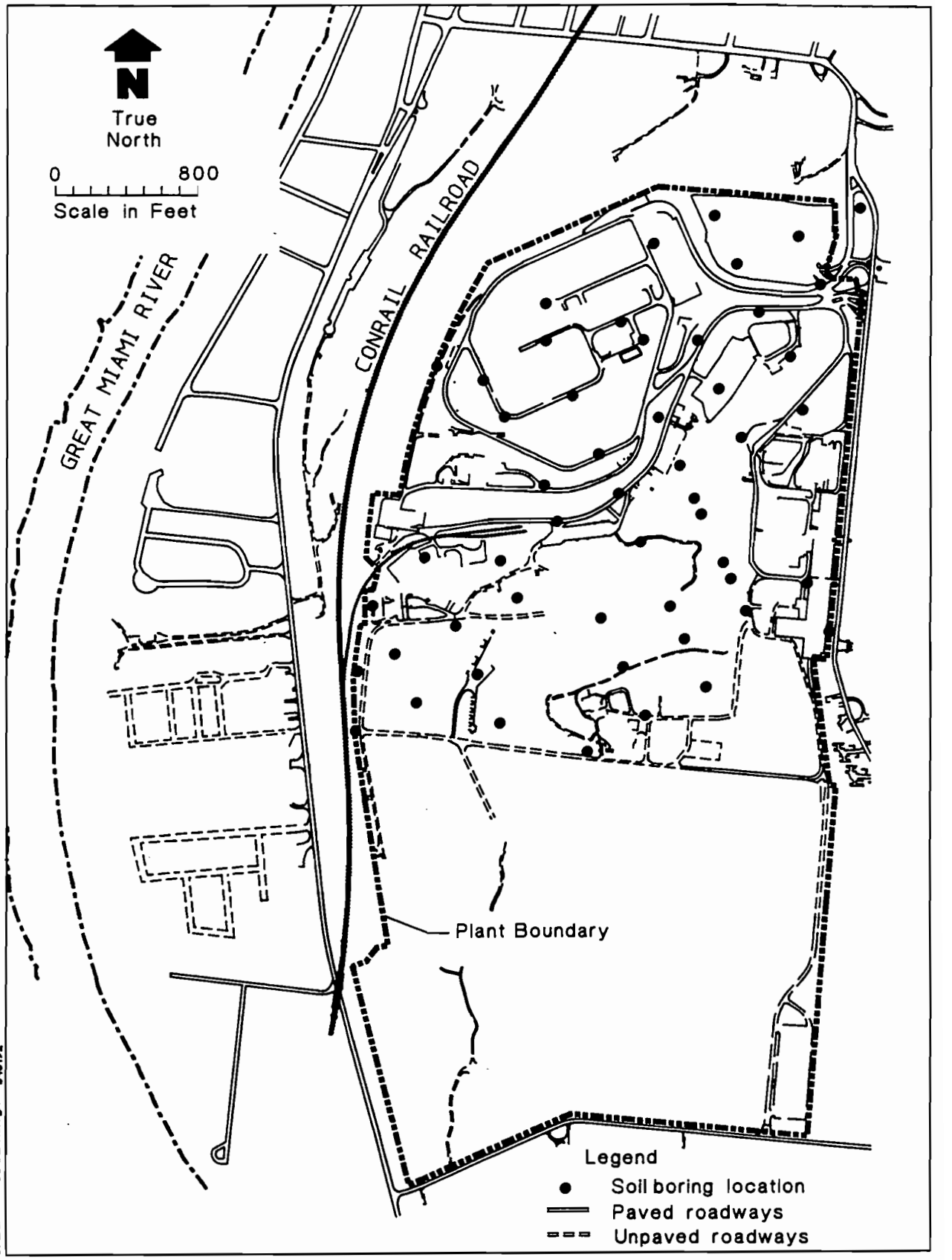
___ C. SHELBY TUBE

BOWSER – MORNER

Cardinal®

APPENDIX H

SITE SURVEY PROJECT



Unnumbered Bowser-Morner soil borings (Site Survey Project).

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2100 W 4140

DATE STARTED: 9/26/84

SURFACE ELEVATION: 744.9

DATE COMPLETED: 9/26/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Very dense brown sand and gravel, trace of silt, trace of cobbles - moist	1A	1.0-2.5	19-63-37/3"	100+
2.5'	(ORIGINAL) Hard brown silt, trace of clay, trace of gravel, trace of sand - moist	2A	3.5-5.0	40-60	100+
5' 6.0'	Hard brown silt, some clay, trace of sand, trace of gravel - moist	3A	6.0-7.5	7-12-24	36
10'		4A	8.5-10.0	7-18-18	36
		5A	11.0-12.5	24-20-31	51
13.5' 15'	Very stiff gray silt, some clay, trace of gravel - moist	6A	13.5-15.0	12-14-14	28
	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-TB

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2275 W 4140

DATE STARTED: 9/25/84

SURFACE ELEVATION: 730.59

DATE COMPLETED: 9/25/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Medium dense brown sand and gravel, trace of cobbles - moist	1A	1.0-2.5	6- 8-11	19
3.0'	(ORIGINAL) Very stiff black silt, some clay, trace of gravel - moist	2A	3.5-5.0	6-11-14	25
5' 6.5'	Stiff black clay, some silt, trace of sand, trace of gravel - moist	3A	6.0-7.5	4- 5- 9	14
10'	(Becomes very stiff at 8.5')	4A	8.5-10.0	6- 7-10	17
11.5' 13.0'	Very stiff gray clay, trace of silt, trace of sand, trace of gravel - moist	5A	11.0-12.5	6- 8-10	18
15'	Hard brown silt, some sand, trace of clay, trace of gravel - moist	6A	13.5-15.0	7-21-20	41
	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2400 W 4520

DATE STARTED: 9/24/84

SURFACE ELEVATION: 711.9'

DATE COMPLETED: 9/24/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Stiff brown silt, some sand, trace of clay, trace of gravel - damp	1A	1.0-2.5	4- 5- 8	13
5'		2A	3.5-5.0	14- 8- 7	15
6.0'	(FILL) Stiff gray clay, some sand, trace of silt, trace of gravel, trace of wood - moist	3A	6.0-7.5	4- 5- 9	14
8.0'					
10'	(ORIGINAL) Hard brown silt, some clay, trace of sand, trace of gravel - moist	4A	8.5-10.0	9-17-21	38
11.5'	Hard gray silt, some clay, trace of sand, trace of gravel - moist	5A	11.0-12.5	15-18-19	37
15'		6A	13.5-15.0	13-16-19	35
	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: 8.0'

COMPLETION DEPTH: _____

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2470 W 3760 **DATE STARTED:** 9/25/84

SURFACE ELEVATION: 738.3 **DATE COMPLETED:** 9/25/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some clay, trace of sand, trace of gravel - damp	1A	1.0-2.5	20-20-20	40
4.5'	Gray shale - damp	2A	3.5-5.0	25-32-30	62
6.0'	Very stiff brown silt, some clay, trace of sand, trace of gravel - damp	3A	6.0-7.5	6-11-13	24
10'	(Becomes hard at 8.5')	4A	8.5-10.0	21-21-20	41
11.5'	Hard gray and brown silt, some clay, trace of sand, trace of gravel - moist	5A	11.0-12.5	21-17-20	37
13.0'	Hard brown silt, some clay, trace of sand, trace of gravel - moist	6A	13.5-15.0	11-12-16	28
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2700 W ~~3750~~ 3760 = correct W Susan Wilson 5-31-90

DATE STARTED: 9/25/84

SURFACE ELEVATION: ~~70~~ 751.1

DATE COMPLETED: 9/25/85

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, trace of clay, trace of sand, trace of gravel - damp	1A	1.0-2.5	12-16-18	34
3.5'	Hard brown silt, some clay, some sand, trace of gravel - moist	2A	3.5-5.0	11-21-19	40
	(Becomes very stiff at 6.0')	3A	6.0-7.5	7- 8-11	19
5'	(Becomes hard at 8.5')	4A	8.5-10.0	9-14-19	33
10'					
11.0'	Hard gray silt, some clay, trace of sand, trace of gravel - moist	5A	11.0-12.5	14-19-25	44
		6A	13.5-15.0	15-16-24	40
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2700 W 4140.

DATE STARTED: 9/20/84

SURFACE ELEVATION: 731.6.

DATE COMPLETED: 9/20/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Very stiff brown silt, trace of sand, trace of clay - damp	1A	1.0-2.5	7-11-14	25
4.0'	Hard brown silt, trace of sand, trace of clay, trace of gravel - moist	2A	3.5-5.0	11-15-17	32
	(Becomes very stiff at 6.0')	3A	6.0-7.5	9-13-17	30
10'	(Becomes hard at 8.5')	4A	8.5-10.0	12-17-25	42 ~~32~~
11.5'	Hard gray silt, trace of clay, trace of sand, trace of gravel - damp	5A	11.0-12.5	10-21-27	48
15'		6A	13.5-15.0	12-35-37	72
	Bottom of boring at 15.0'				

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2700 W 4520 Susan Wilson 5-31-90

DATE STARTED: 9/25/84

SURFACE ELEVATION:

DATE COMPLETED: 9/25/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some sand, trace of clay, trace of gravel - damp	1A	1.0-2.5	6-20-23	43
4.0'	Very stiff brown clay, trace of sand and gravel , trace of silt - moist	2A	3.5-5.0	6- 9- 9	18
6.0'	Hard gray silt, some sand, trace of gravel - damp	3A	6.0-7.5	22-23-31	~~53~~ 54
5'		4A	8.5-10.0	45-30-25	55
10'					
11.5'	Stiff gray and brown clay, some silt, trace of sand, trace of gravel - moist	5A	11.0-12.5	7- 5- 9	14
14.5'	Stiff black clay, some silt, trace of gravel - moist	6A	13.5-15.0	11- 6- 9	15
15'	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN:

JOB NO.:

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 2700 W 4750 **DATE STARTED:** 9/25/84

SURFACE ELEVATION: 703.9 **DATE COMPLETED:** 9/25/84

STRATUM	DESCRIPTION OF MATERIAL (FILL)	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	(FILL) Hard brown silt, trace of clay, trace of sand, trace of gravel, trace of wood - damp	1A	1.0-2.5	13-32-19	51
4.0'	(ORIGINAL) Very dense brown sand and gravel, trace of silt - moist	2A	3.5-5.0	17-32-28	60
	(Auger refusal at ~~8~~ 6.0')				
	Bottom of boring at 6.0')				
5'					
10'					
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 3000 W 4140

DATE STARTED: 9/20/84

SURFACE ELEVATION: 764.0

DATE COMPLETED: 9/20/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Very stiff brown silt, some sand, trace of clay, trace of gravel - damp	1A	1.0-2.5	7-10-14	24
4.5'	Hard brown silt, some clay, trace of sand, trace of gravel - damp	2A	3.5-5.0	13-14-22	36
6.5'	Hard gray silt, some clay, trace of gravel - damp	3A	6.0-7.5	45-55	100
9.0'	Gray shale	4A	8.5-10.0 ~~8.510.0~~	25-40-35	75
	Bottom of boring at 10.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KE-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILTIY, MIAMISBURG, OHIO

BORING LOCATION: S 3000 W 4520 **DATE STARTED:** 9/26/84

SURFACE ELEVATION: 756.1 **DATE COMPLETED:** 9/26/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
0.3'	Hard brown silt, some sand, trace of gravel, trace of clay - moist	1A	1.0-2.5	7-24-31	55
5'		2A	3.5-5.0	24-32-32	64
6.0'	Hard brown silt, some clay, trace of gravel - moist	3A	6.0-7.5	16-17-20	37
8.5'	Very stiff gray and brown silt, some clay, trace of gravel - moist	4A	8.5-10.0	7-10-16	26
10.0'	Very stiff gray silt, some clay, trace of gravel - moist	5A	11.0-12.5	7- 9-10	19
15'		6A	13.5-15.0	14-15-15	30
	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER
TECHNICIAN: KB-TB
JOB NO.: 28216 (bw)

WATER OBSERVATIONS
INITIAL DEPTH: None
COMPLETION DEPTH: None
DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:
X A. SPLIT SPOON
___ B.
___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 3000 W 4900

DATE STARTED: 9/25/84

SURFACE ELEVATION: 703.8

DATE COMPLETED: 9/25/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Stiff dark brown silt, some clay, trace of sand, trace of gravel - moist	1A	1.0-2.5	5- 7- 7	14
3.0'	Very stiff brown silt, some clay, trace of sand, trace of gravel - moist	2A	3.5-5.0	8-10-10	20
5'	Medium dense brown sand, some silt, trace of gravel - moist (Becomes very dense at 8.5')	3A	6.0-7.5	5- 6- 7	13
6.5'		4A	8.5-10.0	40-30-30	60
10'	Hard brown silt, some clay, trace of sand, trace of gravel, trace of cobbles - moist	5A	11.0-12.5	7-17-24	41
10.5'	Hard gray silt, trace of clay, trace of sand, trace of gravel - moist	6A	13.5-15.0	12-17-21	38
14.0'	Bottom of boring at 15.0'				
15'					
20'					
25'					
30'					

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

X A. SPLIT SPOON

___ B.

___ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 3380 W 4140

DATE STARTED: 9/26/84

SURFACE ELEVATION: 796.7

DATE COMPLETED: 9/26/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.3'	(FILL) Dense brown sand, some silt, some cobbles, trace of gravel - moist	1A	1.0-2.5	7- 9-12	21
3.5'	(ORIGINAL) Hard brown silt, some clay, trace of sand, trace of gravel - moist	2A	3.5-5.0	9-15-17	32
5'		3A	6.0-7.5	14-17-17	34
8.5'	Very stiff gray silt, some clay, trace of gravel - moist	4A	8.5-10.0	10-11-18	29
10'	(Becomes hard at 11.0')	5A	11.0-12.5	14-16-18	34
15'		6A	13.5-15.0	17-18-19	37
	Bottom of boring at 15.0'				
20'					
25'					
30'					

METHOD: HOLLOW STEM AGER

TECHNICIAN: KB-JP

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO.

MONSANTO RESEARCH CORPORATION,
MOUND FACILITY, MIAMISBURG, OHIO

BORING LOCATION: S 3650 W 3760

DATE STARTED: 9/26/84

SURFACE ELEVATION: 857.7

DATE COMPLETED: 9/26/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Topsoil				
1.0'	Hard brown silt, some clay, trace gravel - moist	1A	1.0-2.5	7-24-23	47
3.5'	Hard brown silt, some rock fragments, trace of clay, trace of gravel - damp	2A	3.5-4.0	100/4"	100+
		3A	6.0-6.5	100/3"	100+
		4A	8.5-10.0	27-47-53/3"	100
		5A	11.0-12.5	23-77/5"	100
		6A	13.5-14.0	100/5"	100+
	Bottom of boring at 14.0'				

5' 10' 15' 20' 25' 30'

METHOD: HOLLOW STEM AUGER

TECHNICIAN: KB-TB

JOB NO.: 28216 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

X A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING No.

BORING LOCATION:

DATE STARTED: 11-14-64

SURFACE ELEVATION:

DATE COMPLETED:

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS FT.	SAMPLE RECOVERY %
1255-S 931-W	LOC #1	0.0 TOPSOIL ROCK 1.5' BOTB 2.0'					
LOC 2	1525 S 2589 W	0.0 BR CLAY SM SILT, MO. ROCK 2.5' BOTB 3.0'					
LOC. 3	1670 S 2516 W	BR SAND & GRAV, MOIST 2.0'					
LOC. 4	1792 S. 3009 W.	0.0 CRUSHED STONE 0.5 BR SAND, MOIST 2.0 BR CLAY SM SILT, MOIST ROCK 3.5' BOTB 4.0'					
LOC. 5	1743 S 3404 W	0.0 BR SAND SM SILT, MOIST 1.5 SHALE BOTB 2.5'					
LOC. 6	1447 S 3016 W	0.0 BR SAND & GRAV, MO. 0.5 BR CLAY SM SILT, MO. ROCK 1.0 BOTB 1.5'					
LOC. 7	1505 S 3428 W	0.0 CRUSHED STONE 0.5 BR SAND & GRAV, MOIST ROCK 4.5' BOTB 4.5'					
1.15 LOC. 8.	2151 S 3011 W	0.0 BR SAND & GRAV, MO 1.0 SHALE BOTB 2.5'					
LOC. 9	2185 S 3362 W	0.0 CRUSHED STONE 0.5 BR CLAY, C SILT, MOIST ROCK 2.0 BOTB 2.0'					
LOC. 10	1323 S 3631 W	0.0 CRUSHED STONE 0.5 BR SHALE BOTB 2.0'					

DRILLING METHOD: 2 PDPO

DRILLER: RC -

JOB NO.: 2 PDPO

WATER OBSERVATIONS

INITIAL DEPTH: .....

COMPLETION DEPTH: .....

DEPTH AFTER ..... HRS. .....

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

BORING LOCATION:

DATE STARTED: 11-14-84

SURFACE ELEVATION:

DATE COMPLETED: 11-15-85

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS/FT	SAMPLE RECOVERY %
I Bldg NEXT TO PERIMETER FENCE	0.0 ASPHALT (OLD) 2" Br SAND + GRAV, MOIST 3.0' Br CLAY w SILT, MOIST 5.5' ROCK B of B 6.0'					
2400 S 1860 W	0.0 TOPSOIL 2" Br CLAY w ROCK FRAGS. B of B 2.0'					
SO. OF TRAILER 7G	0.0 TOPSOIL 3" Br CLAY w ROCK FRAGS. Appt ROCK 2.5' B of B 3.5'					
2700 S 3760 W	0.0 TOPSOIL 0.5 Br CLAY SILTY, MOIST 3.0' Br CLAY w ROCK FRAGS, MOIST B of B 4.5'					

DRILLING METHOD:

DRILLER:

JOB NO.: 2P2P0

WATER OBSERVATIONS

INITIAL DEPTH: .....

COMPLETION DEPTH: .....

DEPTH AFTER ..... HRS. .....

TYPE SAMPLER:

- ☐ A. SPLIT SPOON
- ☐ B.
- ☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 1200 S – 1860 W

28263

BORING LOCATION: on loc.

DATE STARTED: 11-3-84

SURFACE ELEVATION:

DATE COMPLETED: 11-3-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS/FT	SAMPLE RECOVERY "
orig? 0.0	Topsoil					
hard 0.5	~~Brown sandstone with weathering, moist~~ Brown sandstone. Br. & Br. silt & sandy clay, l. gray, damp	1A	1.0-2.5	40-20-48	68	15"
		2A	3.5-4.5	14-50	64	6"
		3A	6.0-7.5	17-20-43	63	16"
hard 8.0	Br. & br. shale with rock frag. damp	4A	8.5-10.0	15-20-23	43	17"
	oppt. rock 11.0	5A	10-11.5	50+/1"	50+/1"	0"
	Auger refusal at 12.0					
	B.G. @ 12.0					

DRILLING METHOD: Hollow stem.

DRILLER: DH-GJ

JOB NO.: 28263

WATER OBSERVATIONS

INITIAL DEPTH: N

COMPLETION DEPTH: N/A

DEPTH AFTER N HRS. T

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 2240W-1200S

282632

BORING LOCATION: ~~at~~ at ~~of~~ orig loc. Insane z blacktop DATE STARTED: 11-3-84

SURFACE ELEVATION: DATE COMPLETED: 11-3-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY %
Fill	0.0	Topsoil					
Fill	V. stiff 0.5	Br. silt some clay some sand some gravel, some rock frag - damp	1A	1.0-2.5	8-10-11	21	18"
Fill	stiff 3.5	Br. silt some clay some sand some organic, tr gravel, - moist	2A	3.5-5.0	5-7-8	15	18"
Hard org?	6.5	Br. & lgr. sft shale with rock frag damp	3A	6.0-7.5	6-19-23	42	18"
			4A	8.5-9.5	40-50/2"	90+/8"	8"
		Auger refusal at 10.5					
		Bottom of Boring 10.5					
		NOTE: Boring filled in with orig soil Then left 2' open and filled with bentonite Then covered with soil.					

DRILLING METHOD: Hollow stem

DRILLER: OH-GJ

JOB NO.: ~~282632~~

WATER OBSERVATIONS

INITIAL DEPTH: 6.0 Trace

COMPLETION DEPTH: None

DEPTH AFTER NOT HRS. Taken

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 1500S-1100W

282652

BORING LOCATION: on loc.

DATE STARTED: 11-6-84

SURFACE ELEVATION:

DATE COMPLETED: 11-6-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	N' BLOWS FT	SAMPLE RECOVERY %
Fill	0.0	Topsoil					
Fill	hand 0.3	Br. silt & sand & clay some and tr gravel, tr of rock frag. tr organic, moist	1A	0.0-1.5	4-31-6	37	16"
		(Becomes V. stiff at 3.5')	2A	3.5-5.0	8-6-11	17	16"
orig.	hand 6.0	Br. shale with rock frag. moist	3A	6.0-7.0	30-32	62	12"
		auger: fused 8.5					
		B. B. 8.5					

DRILLING METHOD: Hollow stem

DRILLER: OH-GJ

JOB NO.: 282-3

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH:

DEPTH AFTER N HRS. T

TYPE SAMPLER

X A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 1500 S - 1480 W

282632

BORING LOCATION: Brown loc, Blacktop

DATE STARTED: 11-3-84

SURFACE ELEVATION:

DATE COMPLETED: 11-3-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY IN
Fill	0.0	Topsoil					
Fill	V. stiff 0.3	Br. & Br. silt some clay some sand, tr. gravel, tr. rock frag. damp	1A	0.0-1.5	9-13-7	20	16"
orig?	V. stiff 3.5	Br. silt some clay some sand tr. gravel, wet	2A	3.5-5.0	9-9-13	22	18"
	Hard 6.0	Br. silt some clay some sand tr. gravel, tr. rock frag. moist	3A	6.0-7.5	9-18-26	44	16"
			4A	8.5-10.0	18-26-31	57	17"
			5A	11.0-12.5 ~~13.5-15.0~~	18-26-30	53	18"
	Hard 13.5	Br. silt some clay some sand tr. gravel, with wet sand blems.	6A	13.5-15.0	18-26-34	60	18"
		Bg B. 15.0					

DRILLING METHOD: Hollow stem.

DRILLER: OH - CJ

JOB NO.: ~~282632~~

WATER OBSERVATIONS

INITIAL DEPTH: 3.5 Mod. 13.5 Strong

COMPLETION DEPTH: 8.0

DEPTH AFTER 1 HR: Stable

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 1500 S – 1860 W

28263

BORING LOCATION: ~~[illegible]~~ grass off parking lot DATE STARTED: 11-3-84

SURFACE ELEVATION: DATE COMPLETED: 11-3-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS/FT	SAMPLE RECOVERY %
Orig. 0.0	Topsoil					
V stiff 0.8	Br. & Gr. silt some clay, some sand, trace gravel, trace rock frag. moist	1A	1.0-2.5	6-11-13	24	10"
		2A	3.5-5.0	5-7-9	16	16"
hard 5.0	Br. & Gr. shale with rock frag. damp	3A	6.0-7.5	15-26-23	49	16"
	Auger refusal @ 8.0					
	B.B. 8.0					

DRILLING METHOD: Hollow stem.

DRILLER: AH-65

JOB NO.: 28263

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER N HRS. T

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 18005-1480W

28263 2

BORING LOCATION as loc

DATE STARTED: 11-3-84

SURFACE ELEVATION:

DATE COMPLETED: 11-3-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	UNIT BLOWS FT	SAMPLE RECOVERY %
Fill	0.0	Gravel					
Fill	Vistta 0.4	Br. silt some clay some sand tr. gravel, tr. organic moist	1A	1.5	6-9-8	17	16"
?	Vistta 3.5	Br. silt some clay some sand tr. gravel, damp	2A	3.5-5.0	6-7-14	21	16"
		(Becomes moist at 6.0)	3A	6.0-7.5	9-15-14	29	16"
		(Becomes stiff at 8.5)	4A	8.5-10.0	6-6-9	15	18"
		(Becomes hard + wet at 11.0)	5A	11.0-12.5	7-12-23	35	16"
			6A	13.5-15.0	15-16-24	40	16"
		B. of B. 15.0					

DRILLING METHOD: Hollow stem

DRILLER: DN-GJ

JOB NO.: ~~28263~~

WATER OBSERVATIONS

INITIAL DEPTH: 11.0 heavy

COMPLETION DEPTH: 10.0

DEPTH AFTER Not HRS. Taken

TYPE SAMPLER:

[X] A. SPLIT SPOON

[ ] B.

[ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 1800 S – 1860 W

2826 ~~3~~2

BORING LOCATION: as loc.

DATE STARTED: 11-5-84

SURFACE ELEVATION:

DATE COMPLETED: 11-5-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER 6"	SAMPLE RECOVERY
Fill 0.0	Gravel + Crushed stone surf.					
Fill Mottled 0.4	Br. silt some clay some sand to gravel, & glauc. frag. & organic, moist	1A	0.0-1.5	5-8-12	20	16"
	(Becomes hard at 3.5)	2A	3.5-4.0	50+/6"	50+/6"	6"
		3A	6.0-6.5	55+/3"	55+/3"	3"
Mottled 8.5	Br silt some clay some sand & gravel, moist	4A	8.5-10.0	5-13-15	28	16"
		5A	11.0-12.5	6-9-11	20	18"
		6A	13.5-15.0	6-12-13	25	18"
	B.O.B. 15.0					

DRILLING METHOD: Hollow stem.

DRILLER: DH-GJ

JOB NO.: ~~2826~~

WATER OBSERVATIONS

INITIAL DEPTH: 13.5 Trace

COMPLETION DEPTH: None

DEPTH AFTER N HRS. T

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 1800S - 2240W

2826 B2

BORING LOCATION: loc.

DATE STARTED: 11-5-84

SURFACE ELEVATION:

DATE COMPLETED: 11-5-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS FT	SAMPLE RECOVERY
Fill 0.0	Concrete					
Fill Vistty 0.2	Br. silt some clay some sand some gravel, tr. rock frag. damp	1A	1.0-2.5	15-21-6	27	10"
orig? Vistty 1.0	Br. + Br. shale with rock frag. damp	2A	3.5-5.0	5-8-13	21	16"
	(Becomes hard at 6.0)	3A	6.0-6.5	51+ / 6"	51+ / 6"	6"
hard 8.5	Br. shale with rock layers wet	4A	8.5-9.0	54+ / 6"	54+ / 6"	6"
	Auger refusal 11.0					
	B.g.B. 11.0					

DRILLING METHOD: Hollow stem

DRILLER: CH-GJ

JOB NO.: ~~28263~~

WATER OBSERVATIONS

INITIAL DEPTH: 8.5 Med.

COMPLETION DEPTH: 8.0

DEPTH AFTER N HRS. T

TYPE SAMPLER

[X] A. SPLIT SPOON

[ ] B.

[ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 21005-1480W

282632

BORING LOCATION: ~~off~~ loc (asphalt)

DATE STARTED: 11-5-84

SURFACE ELEVATION:

DATE COMPLETED: 11-5-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY IN
Fill	0.0	Topsoil					
Fill	stiff 0.6	Br. silt some clay some sand tr. gravel, tr. rock frag. tr. organic, moist	1A	0.0-1.5	6-5-6	11	18"
Fill?	hard 4.0	Br. shale with rock layers damp	2A	3.5-5.0	6-14-18	32	16"
Fill?	V. stiff 6.0	Br. silt some clay some sand tr. gravel, moist	3A	6.0-7.5	6-10-14	24	16"
			4A	8.5-10.0	6-9-11	20	15"
		appt. rock 11.0					
		Auger refusal at 11.0					
		Bottom 11.0					

DRILLING METHOD: Hollow stem

DRILLER: DN-65

JOB NO.: 28263

WATER OBSERVATIONS

INITIAL DEPTH: 8.5 Tray

COMPLETION DEPTH: 11 Auger

DEPTH AFTER N HRS. T

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 2100S-1800W

282632

BORING LOCATION: gy loc (Bldg-Fr)

DATE STARTED: 11-6-84

SURFACE ELEVATION:

DATE COMPLETED: 11-6-84

	STRATUM	DESCRIPTION OF MATERIAL (SOIL CLASSIFICATION SYSTEM)	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY
Fill	0.0	Topsoil					
Fill	Hand 0.5	Rubble, with rock frag. damp	1A	0.0-1.5	10-20-11	31	16"
Fill	Stiff 3.5	Brn silt some clay some sand to gravel, to gy loc lying. damp	2A	3.5-5.0	3-5-9	14	15"
		(Become listy at 6.5)	3A	6.0-7.5	4-7-11	18	16"
?	Vistiff 8.5	Brn + lev. silt some clay some sand to gravel, damp	4A	8.5-10.0	7-11-18	29	18"
		appt. rock 10.5					
		augering refusal at 11.0					
		B.G.B. 11.0					

DRILLING METHOD: Hollow stem

DRILLER: GN-GJ

JOB NO.: ~~282632~~

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER R HRS. T

TYPE SAMPLER

[X] A. SPLIT SPOON

[ ] B.

[ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 2100 S - 2240 W

28262

BORING LOCATION on loc.

DATE STARTED: 11-6-84

SURFACE ELEVATION:

DATE COMPLETED: 11-6-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM.	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY IN
Fill	0.0	Topsoil					
Fill	M. Stiff 0.5	Brn. & Blk. silty sandy clay, some sand, trace gravel, etc. [illegible] moist	1A	0.0-4.5	1-3-4	7	18"
rig?	V. stiff 4.0	Brn. & Blk. soft shale with rock frag. damp	2A	35-5.0	8-9-11	20	16"
		Auger refusal 5.5					
		B.O.B. 5.5					

DRILLING METHOD: Hollow stem.

DRILLER: OH-65

JOB NO.: 28262

WATER OBSERVATIONS

INITIAL DEPTH: ...

COMPLETION DEPTH: None

DEPTH AFTER N ..... HRS. T .....

TYPE SAMPLER.

[X] A. SPLIT SPOON

[ ] B.

[ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 2100S-2620W

28262

BORING LOCATION: 77 loc (Willrich)

DATE STARTED: 11-6-84

SURFACE ELEVATION:

DATE COMPLETED: 11-6-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT.	SAMPLE RECOVERY %
Fill 0.0	Gravel & Crushed stone					
Fill hard 0.2	Br. + Brn silt some clay some sand, + gravel, etc. rock frag. damp	1A	00-1.5	16-19-13	32	16"
	(Becomes v. stiff at 3.5)	2A	3.5-5.0	8-12-7	29	18"
		3A	6.0-7.5	6-7-9	16	6"
	(Becomes stiff + moist at 8.5)	4A	8.5-10.0	9-9-3	12	10"
hard. 11.0	Br shale with rock frag. damp	5A	11.0-11.5	52/4"	52/4"	4"
		6A	13.5-14.0	51/2"	51/2	2"
	B. of B. 14.0					

DRILLING METHOD: Hollow stem.

DRILLER: CH-BJ

JOB NO.: 28263

WATER OBSERVATIONS

INITIAL DEPTH: 2.5 Med.

COMPLETION DEPTH: None

DEPTH AFTER N HRS. T

TYPE SAMPLER

X A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

2826 2

2400S - 1860W

BORING LOCATION: offset (Hillside)

DATE STARTED: 11-5-84

SURFACE ELEVATION:

DATE COMPLETED: 11-5-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS/FT	SAMPLE RECOVERY %
Fill	0.0	Topsoil					
Fill	hand 0.5	Br. silt some clay some sand, tr. gravel, tr. rock frag. tr. organic, moist	1A	0.0-1	9-12-40	52	16"
orig.	hand 4.0	Br. shale with rock layers damp	2A	35-40	50+/5"	50+/5"	5"
			3A	6.0-7.0	31-32	63	12"
		Auger refusal at 8.0					
		B.B. 8.0					

DRILLING METHOD: Hollow stem,

DRILLER: DH-65

JOB NO.: 28263

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER N HRS. T

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 2400S - 2240W

28263

BORING LOCATION: off loc. (Hillside)

DATE STARTED: 11-5-84

SURFACE ELEVATION:

DATE COMPLETED: 11-5-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS/FT	SAMPLE RECOVERY IN
Fill? 0.0	Topsoil					
Fill? 0.4	Br. silt some clay some sand to gravel, to ½ rock, frag- ments	1A	0.0-1.5	18-12-14	26	10"
		2A	3.5-5.0	9-11-12	23	16"
	(Becomes hard at 6.0)	3A	6.0-7.0	21-45	66	10"
	(Becomes stiff at 8.5)	4A	8.5-10.0	4-5-6	11	10"
hard orig. 11.0	Br. shale with rock layers clays	5A	11.0-12.5	9-13-50/2"	63+/8"	13"
	augur refusal at 13.0 B/B. 13.0					

DRILLING METHOD: Hollow stem

DRILLER: DH-GS

JOB NO. ~~28263~~

WATER OBSERVATIONS

INITIAL DEPTH: 6.0 Trace

COMPLETION DEPTH: None

DEPTH AFTER N HRS. T

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. 24005-2620W

2826 ~~E~~

BORING LOCATION: off loc. (creek)

DATE STARTED 11-6-84

SURFACE ELEVATION:

DATE COMPLETED: 11-6-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FOOT	SAMPLE RECOVERY
Fill	0.0	Gravel & Crushed stone					
Fill	V. stiff 0.3	Br. silty sandy clay some sand, some gravel, trace organics, moist	1A	0.0-1.5	6-9-13	22	10"
orig?	stiff 4.5	Br. silty sandy clay some sand, trace gravel, wet	2A	3.5-5.0	6-4-3	12	10"
		(Becomes V. stiff at 20)	3A	6.0-7.5	5-4-17	21	10"
		(Becomes Mstiff at 8.5)	4A	8.5-10.0	3-3-3	6	6"
hard	11.5	Brown shale with rock frag. wet	5A	11.0-12.0	4-50+/2"	50+/8"	6"
			6A	13.5-14.0	50+/2"	50+/2"	2"
		B. of B. 14.0					

DRILLING METHOD: Hollow-stem

DRILLER: JH-GJ

JOB NO.: 28265

WATER OBSERVATIONS

INITIAL DEPTH: 4.5 Ind.

COMPLETION DEPTH: 4.0

DEPTH AFTER N HRS. T

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

2400 S 3000 W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10·24·84

SURFACE ELEVATION:

DATE COMPLETED: 10·24·84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS FT	SAMPLE RECOVERY IN
0.0	TOPSOIL					
V.STIFF 0.3	BR SILT, Sm CLAY, TR SAND TR GRAV moist	1A	0.0-1.5	2-8-9	17	12"
HARD 2.0	BR SILT, TR CLAY, TR GRAV Sm ROCK FRAGS. DAMP	2A	2.5-4	20-30-45	75	12"
HARD 5.0	WEATHERED GR SHALE w/ LIMESTONE FRAGS	3A	5-6.5	23-32-29	61	12"
V.STIFF 7.5	BR GR CLAY, Sm SILT TR GRAV, TR ROCK FRAGS moist	4A	7.5-9	22-10-12	22	12"
	(BECOMES STIFF AT 10.0)	5A	10-11.5	15-10-5	15	6"
		6A	12.5-14	19-10-20	30	6"
		7A	15-16	7-93/3	100/9	6" *
	EOFB 16.0					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: 15.0

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12 * DROVE ON COBBLE

LOG OF BORING No.

2400-S - 3380-W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-22-84

SURFACE ELEVATION:

DATE COMPLETED: 10-22-84

	STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER 6"	SAMPLE RECOVERY %
Fill	0.0	CRUSHED STONE					
Fill	M. STIFF 0.5	GR CLAY, SM SILT, TR GRAV moist	1A	0.0-1.5	5-5-5	10	12"
	2.5	GR. SHALE w/ LIMESTONE FRAGS.	2A	2.5-3	100/4	100/4	3"
			3A	5-6	40-60/4	100/10	10"
		B OF B 6.0					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: 0.25

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

S-2700 - W-2620

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-20-84

SURFACE ELEVATION:

DATE COMPLETED: 10-20-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FT.	SAMPLE RECOVERY %
0.0	TOPSOIL					
V. STIFF 0.5	BR CLAY, Sm S.H, TR GRAV moist	1A	0.0-1.5	5-10-13	23	16"
HARD 3.0	BR S.H, TR CLAY, TR SAND TR GRAV, Sm ROCK FRAGS DAMP	2A	2.5-4	5-18-21	39	16"
		3A	5-6	23-62	85/R	10"
HARD 7.0	BR BR CLAY, Sm S.H, TR GRAV TR ROCK FRAGS moist	4A	7.5-9	10-40-45	85	16"
		5A	10-11.5	20-25-35	60	12"
		6A	12.5-13.5	25-75	100/R	8"
13.5	POSSIBLE GR SHALE? AUGER REFUSAL 13.5					

DRILLING METHOD: H. S. A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

S-2700 - 3000-W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-22-84

SURFACE ELEVATION:

DATE COMPLETED: 10-22-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY %
Fill 0.0	CRUSHED STONE					
M. STIFF 0.25	DARK BR SILT, TR CLAY, DAMP					
Orig V. STIFF 1.5	BR SILT, SOME CLAY, TR GRAV MOIST	1A	0.0-1.5	4-16-11	27	16"
	(BECOMES HARD AT 2.5 & DAMP)	2A	2.5-4	8-15-23	38	16"
		3A	5-6.5	12-23-25	48	16"
		4A	7.5-9	13-24-35	59	16"
		5A	10-11	47-63/5	100/11	11"
	(TRACES OF ROCK FRAGS AT 12.0)	6A	12.5/13.5	30-58	88	10"
		7A	15-16.5	24-40-44/4	100/10	7"
	BTM B 16.5					

DRILLING METHOD: H.S.A.

DRILLER: TB JP

JOB NO.: 28250 28258

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.
3000 S - 2620 W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-18-84

SURFACE ELEVATION:

DATE COMPLETED: 10-18-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS FT	SAMPLE RECOVERY %	
V. Stiff Fill 0.0	GR BR CLAY, SM S. lt TR GRAV, TR CONCRETE & COBBLES moist	1A	0.0-1.5	5-10-8	18	12"	
		2A	2.5-4	10-21-5	26	12"	
	(BECOMES HARD AT 5.0)	3A	5-6	6-94	100/12	10"	*
		4A	7.5-8	100/3	100/3	3"	*
	(BECOMES STIFF AT 10.0)	5A	10-11.5	10-7-7	14	18"	
V. Stiff Fill 12.5	BR GR CLAY, SM S. lt, TR GRAV TR COBBLES moist	6A	12.5-14	30-8-8	16	16"	
		7A	15-16.5	30-27-12	39	7"	
	BOFB 16.5						

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS
INITIAL DEPTH: NONE
COMPLETION DEPTH: NONE
DEPTH AFTER N HRS. T

TYPE SAMPLER:
☒ A. SPLIT SPOON
☐ B.
☐ C. SHELBY TUBE

* DRIVE ON COBBLE

BOWSER-MORNER

2B12

LOG OF BORING No.

S-3000 - W - 3380

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-20-84

SURFACE ELEVATION:

DATE COMPLETED: 10-20-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY
HARD 0.0	BR S.H, Sm CLAY, TR GRAV Sm ROCK FRAGS. DAMP	1A	0.0-1.5	13-43-34	78	10"
		2A	2.5-4	22-33-39	72	12"
HARD 5.0	GREENISH BR CLAY, Sm S.H TR GRAV, TR ROCK FRAGS MOIST	3A	5-6	24-76/5	100/11	11"
		4A	7.5-8.5	41-53	94/12	12"
11.0	GR SHALE, WEATHERED	5A	10-11.5	23-45-39	84	14"
	AUGER REFUSAL 12.0					
	B OF B 12.0					

DRILLING METHOD: H.S.A.

DRILLER: TB - SA

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER 1½ HRS. F

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

3100-S → 2620-W

BORING LOCATION: DIRECTED

DATE STARTED: 10-18-84

SURFACE ELEVATION:

DATE COMPLETED: 10-18-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY %	
Fill M STIFF 0.0	BR SILT, Sm CLAY, TR GRAV TR COBBLES & CONCRETE moist	1A	0.0-1.5	2-4-6	10	7"	*
	(BECOMES V. STIFF AT 2.5)	2A	2.5-4	17-10-12	22	4"	*
	(BECOMES M-STIFF AT 5.0)	3A	5-6.5	3-4-6	10	12"	
		4A	7.5-9	55-9-6	15	6"	*
HARD 9.5	GR BR CLAY, Sm SILT, TR GRAV Sm COBBLES, TR ASPHALT moist	5A	10-11.5	60-26-14	40	16"	
	(BECOMES V. STIFF AT 12.5)	6A	12.5-14	20-9-12	21	16"	
HARD 14.5	GR & BR SILT, Sm CLAY, TR ROCK FRAGS moist	7A	15-16.5	30-40-50	90	1	
	BOPD 16.5						

DRILLING METHOD: H.S.A.

DRILLER: TB - JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2812

* COBBLE BLOCKED TIP

LOG OF BORING No.

3100-S — 3000 W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-18-84

SURFACE ELEVATION:

DATE COMPLETED: 10-18-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS/FT	SAMPLE RECOVERY "
V. STIFF 0.0	BR SILT, SM CLAY, TR GRAV TR ROCK FRAGS., TR SAND DAMP	1A	0.0-1.5	10-14-16	30	12"
	(BECOMES HARD AT 2.5)	2A	2.5-4	21-16-18	34	12"
		3A	5-6.5	33-24-22	46	16"
HARD 7.5	GREENISH BR CLAY, SM SILT TR GRAV, TR ROCK FRAGS MOIST	4A	7.5-9	24-30-27	57	16"
		5A	10-10.5	100/2	100/2	0"
12.0	GR SHALE	6A	12.5-13.5	25-75/1	100/1	7"
	BUFB 13.5					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

ORIG

* DROP ON TABLE

LOG OF BORING No.

S-3300 - 2240 - W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-23-84

SURFACE ELEVATION:

DATE COMPLETED: 10-23-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FT	SAMPLE RECOVERY
0.0	CRUSHED STONE					
V. STIFF 0.5	BR CLAY, Sm S.Lt, TR GRAV TR ROCK FRAGS moist	1A	0.0-1.5	16-12-18	30	12"
	(BECOMES HARD & DAMP AT 2.5)	2A	2.5-4	40-42-58/4	100/10	6"
HARD 5.0	GREENISH BR S.Lt, Sm CLAY TR GRAV, Sm ROCK FRAGS DAMP	3A	5-6	37-63/2	100/8	5"
		4A	7.5-8	100/4	100/4	4"
8.0?	GR SHALE w/ LIMESTONE FRAGS	5A	8.5-9	100/4	100/4	4"
9.0	AUGER REFUSAL B OF B 9.0					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: 14WKR

DEPTH AFTER N HRS T

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No. ——

3300 S - 2620 W

BORING LOCATION: ON LUC

DATE STARTED: 10-18-84

SURFACE ELEVATION:

DATE COMPLETED: 10-18-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS FT	SAMPLE RECOVERY IN
HARD 0.0	BR SILT, SM CLAY, SM ROCK FRAGS., TR GRAV MOIST	1A	0.0-1.5	14-26-37	63	8" *
		2A	2.5-4	29-32-49	81	12"
		3A	5-6.5	26-26-18	44	12"
		4A	7-8.5	35-26-39	65	12"
HARD 10.0	GR BR SILT SM CLAY, TR SAND SM ROCK FRAGS DAMP	5A	10-10.5	100/6	100/6	4"
		6A	12.5-14	29-20-51	71	12"
		7A	15-15.5	100/3	100/3	3"
	BOF B 15.5					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER:

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12 * COBBLE BLOCKED TIP

LOG OF BORING No.

3300 - S — 3000 W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-20-84

SURFACE ELEVATION:

DATE COMPLETED: 10 20 84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FT.	SAMPLE RECOVERY
0.0	TOPSOIL					
STIFF 0.5	BR SILT, SM CLAY, TR GRAV	1A	0.0-1.5	2-3-8	11	16"
HARD 2.5	BR SILT SM CLAY, TR GRAV SM ROCK FRAGS. DAMP	2A	2.5-3.5	21-77/2	100/8	8"
		3A	5-5.5	100/6	100/6	6"
		4A	7.5-8.5	47-57	104/12	10"
	BUFB 8.5					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER

- [x] A. SPLIT SPOON
- [ ] B.
- [ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

3300-S — 3380-W

BORING LOCATION: As Directed

DATE STARTED: 10-23-84

SURFACE ELEVATION:

DATE COMPLETED: 10-23-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FT.	SAMPLE RECOVERY %
CMIC 0.0						
V.STIFF 0.5	Br CLAY, Sm Silt, Tr Gran MOIST	1A	0.0-1.5	2-2-16	18	12"
HARD 2.0	Br Silt, Tr Clay, Sm Rock Frags, Tr Gran DAMP	2A	2.5-3	100/3	100/3	3"
		3A	5-6	67-33/1	100/7	7"
		4A	7.5-8.5	51-49/2	100/8	6"
		5A	10-11	55-45/3	100/9	9"
		6A	12.5-13.5	63-37/2	100/8	8"
14.0	AUGER REFUSAL					
	BUFB 14.0					

DRILLING METHOD: H.S.A.

DRILLER: TB JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER N HRS.

TYPE SAMPLER

X A. SPLIT SPOON

B.

C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

3600 - S - 2240-W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-24-84

SURFACE ELEVATION:

DATE COMPLETED: 10-24-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS FT	SAMPLE RECOVERY %
0.0	TOPSOIL					
M. STIFF 0.3	BR CLAY, SM SILT, TR GRAV moist	1A	0.0-1.5	2-3-6	9	16
HARD 2.5	BR SILT, TR CLAY, TR GRAV SM ROCK FRAGS DAMP	2A	2.5-3	100	100/6	4"
		3A	5-5.5	100/3	100/3	3"
		4A	7.5-8	100/3	100/3	3"
8.5	GR SHALE w/ LIMESTONE FRAGS	5A	8.5-9	100/3	100/3	3"
9.0	AUGER REFUSAL					
	BOTTOM 9.0					

DRILLING METHOD: H. S. A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER 24 HRS. T

TYPE SAMPLER:

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

3600-S — 2620-W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10-23-84

SURFACE ELEVATION:

DATE COMPLETED: 10-23-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FT.	SAMPLE RECOVERY %
M. STIFF 0-0 ORIG?	BR SILT, SM CLAY, TR GRAV MOIST	1A	0.0-1.5	5-5-12	17	16"
HARD 2.0	BR SILT, TR CLAY, TR GRAV SM ROCK FRAGS DAMP	2A	2.5-3	100/3	100/3	3"
		3A	5-5.5	100/4	100/4	4"
6.0?	GR SHALE w/ LIMESTONE FRAGS.	4A	6.5-7	100/2	100/2	7"
	BOFB 7.0					

DRILLING METHOD: H.S.A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER

[X] A. SPLIT SPOON

[ ] B.

[ ] C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

3600-S — 3000-W

BORING LOCATION: AS ABOVE

DATE STARTED: 10-23-84

SURFACE ELEVATION:

DATE COMPLETED: 10 27 84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	BLOWS PER FT	SAMPLE RECOVERY %
VISIFF 0.0	BR SILT, SM CLAY, TR GRAV moist	1A	0.0-1.5	3-16-12	29	16"
HARD 2.0	BR SILT, TR GRAV, TR CLAY SM ROCK FRAGS DAMP	2A	2.5-3.5	27-73/3	100/9	9"
		3A	5-6	47-53/2	100/8	4"
		4A	7.5-8	100/2	100/2	0"
8.5	GR SHALE, w/ LIMESTONE FRAGS	5A	8.75-9	100/2	100/2	2"
9.0	AUGER REFUSAL					
	BOFB 9.0					

DRILLING METHOD: H.S.A.

DRILLER: TB - JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH. . . . . .

COMPLETION DEPTH. . . . . .

DEPTH AFTER . . . . HRS. . . . . .

TYPE SAMPLER

☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12

LOG OF BORING No.

3600-S — 3380-W

BORING LOCATION: AS DIRECTED

DATE STARTED: 10 23-84

SURFACE ELEVATION:

DATE COMPLETED: 10 23-84

STRATUM	DESCRIPTION OF MATERIAL SOIL CLASSIFICATION SYSTEM:	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	UNIT BLOWS FT	SAMPLE RECOVERY %
Fill 0.0	BR SAND GRAVEL w/ CRUSHED STONE MOIST					
ORIG? 0.75	BR SILT, SM CLAY, TR GRAV MOIST	1A	0.0-1.5	10-12-13	25	16"
HARD 3.0	BR SILT, TR CLAY, TR GRAV SM ROCK FRAGS DAMP	2A	2.5-3.5	10-99/3	100/9	9"
		3A	5-5.5	100/6	100/6	6"
7.0	AUGER REFUSAL					
	BOF B 7.0					

DRILLING METHOD: H. S. A.

DRILLER: TB-JP

JOB NO.: 28238

WATER OBSERVATIONS

INITIAL DEPTH: NONE

COMPLETION DEPTH: NONE

DEPTH AFTER N HRS. T

TYPE SAMPLER

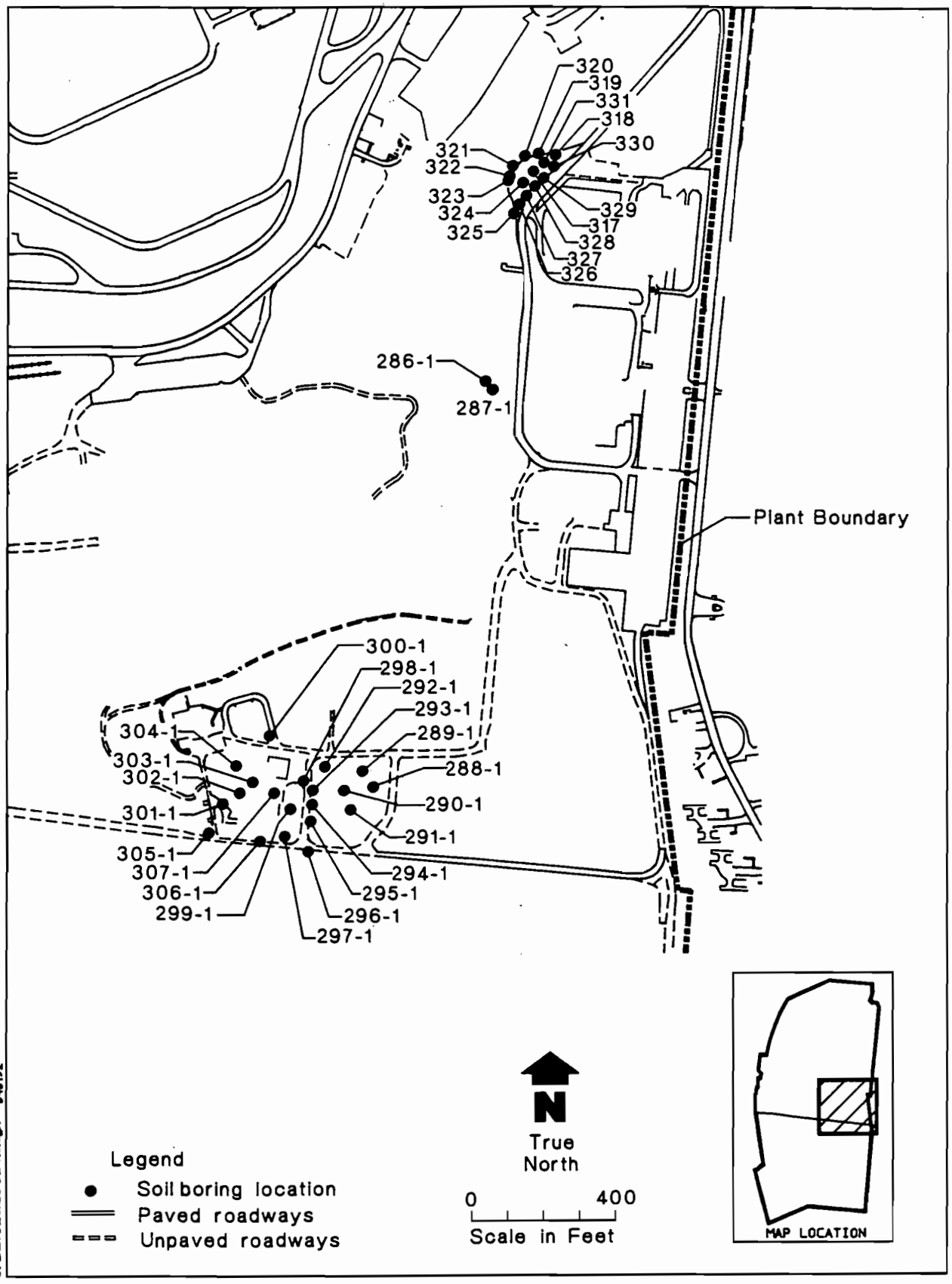
☒ A. SPLIT SPOON

☐ B.

☐ C. SHELBY TUBE

BOWSER-MORNER

2B12



Bowser-Morner soil borings (Old Fill Sites Evaluation).

#431

LOG OF BORING NO. 286-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 2885.666
West 2498.921

DATE STARTED: 1-23-84

SURFACE ELEVATION: 871.07

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, trace of sand, trace of concrete fragments - damp				
3.0'	(ORIGINAL) Brown clay, trace of silt, trace of sand, trace of gravel-moist				
5'					
10'					
12.0'	Gray clay, trace of silt, trace of sand, trace of gravel - moist				
15.0'	Apparent rock (auger refusal)				
	Bottom of boring at 15.0'				
20'					
25'	Note: 4" PVC pipe [illegible] with [illegible] .5' with 2.5' above [illegible]				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#432

LOG OF BORING NO. 287-1

MONITORING WELLS IN OLD FILLS SITES

BORING LOCATION: South 2915.293
West 2490.347

DATE STARTED: 1-23-84

SURFACE ELEVATION: 874.17

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, trace of sand, trace of gravel, trace of concrete fragments - damp				
3.0'	(ORIGINAL) Brown clay, trace of sand, trace of silt, trace of gravel-moist				
5'					
10'					
12.0'	Apparent rock (auger refusal)				
	Bottom of boring at 12.0'				
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 11.5' with 2.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#433

LOG OF BORING NO. 288-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3777.190
West 3245.281

DATE STARTED: 1-23-84

SURFACE ELEVATION: 888.87

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown silt, trace of sand, trace of gravel - damp				
2.0'	Brown clay, trace of silt, trace of gravel - damp				
5.0'	Limestone layers, 6" to 1' thick				
8.0'	Apparent rock (auger refusal)				
10'	Bottom of boring at 8.0'				
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 7.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#434

LOG OF BORING NO. 289-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3724.774
West 3254.302

DATE STARTED: 1-23-84

SURFACE ELEVATION: 891.24

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.2'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - damp				
2.0'	Brown clay and silt, trace of sand, trace of gravel - damp				
5.5'	Apparent rock (auger refusal)				
	Bottom of boring at 5.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 5.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#435

LOG OF BORING NO. 290-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3752.358
West 3322.860

DATE STARTED: 1-23-84

SURFACE ELEVATION: 888.69

DATE COMPLETED: 1-23-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.8'	(ORIGINAL) Brown clay, trace of sand, trace of gravel - moist (6" limestone layers at 2.5')				
5.0'	Apparent rock (auger refusal)				
	Bottom of boring at 5.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 5.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#436

LOG OF BORING NO. 291-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3808.217
West 3328.569

DATE STARTED: 1-24-84

SURFACE ELEVATION: 886.12

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - damp				
2.0'	Brown clay, trace of sand, trace of gravel - moist				
5.5'	Apparent rock (auger refusal)				
	Bottom of boring at 5.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 5.0' with 1.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#437

LOG OF BORING NO. 292-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3670.827
West 3342.887

DATE STARTED: 1-24-84

SURFACE ELEVATION: 889.39

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'					
1.0'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - moist				
4.0'	Brown clay, trace of silt, trace of sand, trace of gravel - moist				
5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 293-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3716.055
West 3400.604

DATE STARTED: 1-24-84

SURFACE ELEVATION: 886.19

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - moist				
2.0'	Red and brown clay, trace of silt, trace of sand, trace of gravel-moist				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 294-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3751.261
West 3418.167

SURFACE ELEVATION: 884.19

DATE STARTED: 1-24-84

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - moist				
1.5'	Brown clay, trace of sand, trace of gravel - moist				
4.5'	Apparent rock (auger refusal)				
5'	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#440

LOG OF BORING NO. 295-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3791.907
West 3441.524

DATE STARTED: 1-24-84

SURFACE ELEVATION:

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.5'	(ORIGINAL) Brown silt, trace of sand, trace of gravel - damp				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 296-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3865.887
West 3483.068

SURFACE ELEVATION: 372.57

DATE STARTED: 1-24-84

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.25'	(ORIGINAL) Brown clay, some silt, trace of sand, trace of gravel - moist				
5.0'	Light brown silt, some clay, trace of sand, trace of gravel - damp				
10'					
11.0'	Apparent rock (auger refusal)				
	Bottom of boring at 11.0'				
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 11.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

#442

LOG OF BORING NO. 297-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3801.142
West 3524.052

DATE STARTED: 1-24-84

SURFACE ELEVATION: 376.32

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown silt, trace of sand, trace of gravel, trace of cobbles - damp				
5.0'					
6.0'	Weathered rock				
	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 298-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3682.070
West 3413.341

SURFACE ELEVATION: 886.39

DATE STARTED: 1-24-84

DATE COMPLETED: 1-24-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.75'	(ORIGINAL) Red and brown clay, some silt, trace of sand, trace of gravel - damp				
3.5'	Weathered rock				
5'					
6.5'	Apparent rock (auger refusal)				
	Bottom of boring at 6.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.5' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-RH

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 299-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3737.870
West 3478.508

DATE STARTED: 1-25-84

SURFACE ELEVATION: 881.72

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.1'	(ORIGINAL) Brown clay, trace of sand, trace of gravel - damp				
4.5'					
5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 300-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3529.943
West 3447.023

DATE STARTED: 1-25-84

SURFACE ELEVATION: 887.24

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown clay, trace of silt, trace of gravel - moist				
2.5'	Weathered rock				
5'					
6.0'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note" 4" PVC pipe installed with bottom at 6.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 301-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3648.130
West 3642.829

DATE STARTED: 1-25-84

SURFACE ELEVATION: 874.47

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown clay, trace of sand, trace of gravel - moist				
3.0'	Weathered rock				
5'					
6.0'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 302-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3640.540
West 3587.254

DATE STARTED: 1-25-84

SURFACE ELEVATION: 878.92

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone				
0.1'					
2.0'	(OIRGINAL) Brown clay, trace of silt, trace of gravel - moist				
	Weathered rock				
4.0'					
5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 303-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3628.301
West 3541.960

DATE STARTED: 1-25-84

SURFACE ELEVATION: 882.67

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown clay, trace of sand, trace of gravel - moist				
1.0'	Weathered rock				
3.0'	Apparent rock (auger refusal)				
5'	Bottom of boring at 3.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 2.0' with 1.5' above ground				
30'					

METHOD:	SOLID AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**
TECHNICIAN:	RF-BP	INITIAL DEPTH: None	____ A. SPLIT SPOON
JOB NO.:	27298 (mjj)	COMPLETION DEPTH: None	____ B.
		DEPTH AFTER: ____ HRS. ____	____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 304-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3567.768
West 3565.347

DATE STARTED: 1-25-84

SURFACE ELEVATION: 884.17

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown sand and gravel - damp				
0.6'	Brown silt, trace of sand, trace of gravel - moist				
3.0'	Weathered rock				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
5'					
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 305-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3705.192
West 3710.715

DATE STARTED: 1-25-84

SURFACE ELEVATION: 863.22

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Brown silt, trace of sand, trace of gravel - moist				
3.0'	Apparent rock (auger refusal)				
5'	Bottom of boring at 3.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 3.0' with 2.0' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 306-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3784.253
West 3591.393

DATE STARTED: 1-25-84

SURFACE ELEVATION: 870.22

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	Cinders, trace of sand, trace of gravel - damp				
0.5'	Brown silt, trace of sand, trace of gravel - damp				
2.0'	Weathered rock				
5'					
6.0'	Apparent rock (auger refusal)				
	Bottom of boring at 6.0'				
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 6.0' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 307-1

MONITORING WELLS IN OLD FILL SITES

BORING LOCATION: South 3679.278
West 3500.858

DATE STARTED: 1-25-84

SURFACE ELEVATION: 882.72

DATE COMPLETED: 1-25-84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Crushed stone and sand - moist				
1.0'	(ORIGINAL) Weathered rock				
4.5'	Apparent rock (auger refusal)				
	Bottom of boring at 4.5'				
5'					
10'					
15'					
20'					
25'	Note: 4" PVC pipe installed with bottom at 4.5' with 1.5' above ground				
30'					

METHOD: SOLID AUGER

TECHNICIAN: RF-BP

JOB NO.: 27298 (mjj)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER
TESTING LABORATORIES, INC.

LOG OF BORING NO. 317

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2411.54 S.; 2139.18 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 863.6' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Topsoil				
0.5'	(FILL) Gray shale, with rock fragments - damp				
5'					
10'					
15'	(Auger refusal at 14.5')				
	Bottom of boring at 14.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 14.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 318

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2395.01 S.; 2063.57 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 862.3' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, some gravel, trace of cobbles, trace of rock fragments - damp				
5'					
10'					
	(Auger refusal at 12.5')				
15'	Bottom of boring at 12.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 12.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 319

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2371.92 S.; 2104.88 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 861.2' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
7.0'	(FILL) Black and gray clay, some silt, some sand, some organic material - moist				
10'					
11.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments - moist (Auger refusal at 13.5')				
15'	Bottom of boring at 13.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 13.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 320

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2362.67 S.; 2142.37 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 860.7' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
2.5'	(FILL) Gray and black silt and clay, some sand, trace of gravel - moist				
5'					
10'					
15'	(Auger refusal at 14.0')				
	Bottom of boring at 14.0'				
20'					
25'					
30'	NOTE: Set 4"PVC pipe 14.0' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 321

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2374.12 S.; 2184.29 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 860.2' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
10'					
11.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 13.5')				
15'	Bottom of boring at 13.5				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 13.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 322

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2396.63 S.; 2204.70 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 860.2' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of cobbles - moist				
5'					
10'	(Auger refusal at 9.5')				
	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 9.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 323

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2405.82 S.; 2212.91 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 860.6' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of rock fragments, trace of cobbles, trace of gravel - moist				
5'					
5.5'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 7.0')				
10'	Bottom of boring at 7.0'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 7.0' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 324

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2428.62 S.; 2178.04 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 863.7' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
10'					
10.5'	(FILL) Gray silt, some clay, some sand, trace of gravel, trace of rock fragments - moist (Auger refusal at 11.5')				
15'	Bottom of boring at 11.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 11.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 325

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2495.90 S.; 2236.24 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 866.5' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of rock fragments, trace of gravel, trace of cobbles - moist				
5'					
7.5'	(FILL) Gray silt, some clay, some rock fragments - moist				
10'	(Auger refusal at 9.5')				
	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 9.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 326

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2478.86 S.; 2212.03 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 866.2' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments, trace of cobbles - moist				
5'					
7.0'	(FILL) Gray silt, some clay, some sand, trace of gravel, trace of rock fragments - moist (Auger refusal at 9.5')				
10'					
	Bottom of boring at 9.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 9.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 327

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2464.14 S.; 2183.99 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 865.8' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist				
5'					
6.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 7.5')				
10'	Bottom of boring at 7.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 7.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 328

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2450.73 S.; 2151.55 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 865.0' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist				
5'					
5.5'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace cobbles - moist (Auger refusal at 7.5')				
10'	Bottom of boring 7.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 7.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: ____ HRS. ____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 329

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2438.63 S.; 2119.34 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 864.5' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of rock fragments, trace of gravel - moist				
5'					
10'					
11.0'	(FILL) Gray silt, some clay, some sand, trace of rock fragments, trace of gravel - moist (Auger refusal at 12.5')				
15'	Bottom of boring at 12.5'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 12.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

____ A. SPLIT SPOON

____ B.

____ C. SHELBY TUBE

BOWSER – MORNER

LOG OF BORING NO. 330

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2422.74 S.; 2080.99 W. **DATE STARTED:** 6/14/84

SURFACE ELEVATION: 863.4' **DATE COMPLETED:** 6/14/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of rock fragments - moist				
5'					
5.5'	(FILL) Gray silt, some clay, some sand, trace of rock fragments - moist (Auger refusal at 6.5')				
10'	Bottom of boring at 6.5'				
15'					
20'					
25'					
30'	NOTE: Set 4" PVC pipe 6.5' deep with locking steel cover				

METHOD: 8" SOLID AUGER

TECHNICIAN: DH-GJ

JOB NO.: 28070 (bw)

WATER OBSERVATIONS

INITIAL DEPTH: None

COMPLETION DEPTH: None

DEPTH AFTER: _____ HRS. _____

TYPE SAMPLER:

_____ A. SPLIT SPOON

_____ B.

_____ C. SHELBY TUBE

BOWSER – MORNER

#515

LOG OF BORING NO. 331

MONITORING WELL INSTALLATION AT OLD FILL SITE

BORING LOCATION: 2401.45 S.; 2102.09 W. **DATE STARTED:** 6/13/84

SURFACE ELEVATION: 863.1' **DATE COMPLETED:** 6/13/84

STRATUM	DESCRIPTION OF MATERIAL	SAMPLE NO. & TYPE	SAMPLE DEPTH	BLOWS PER 6" ON SAMPLER	"N" BLOWS /FT. OR CORE REC.
0.0'	(FILL) Brown silt, some clay, some sand, trace of gravel, trace of cobbles, trace of rock fragments - moist				
5'					
7.0'	(FILL) Gray shale with rock fragments - damp				
10'					
15'	Bottom of boring at 15.0'				
20'					
25'					
30'	NOTE: Set 4" PVC pipe 15.0' deep with locking steel cover				

METHOD: 8" SOLID AUGER	**WATER OBSERVATIONS**	**TYPE SAMPLER:**	
TECHNICIAN: DH-GJ	**INITIAL DEPTH:** None	____ A.	SPLIT SPOON
JOB NO.: 28070 (bw)	**COMPLETION DEPTH:** None	____ B.	
	DEPTH AFTER: ____ **HRS.** ____	____ C.	SHELBY TUBE

BOWSER – MORNER

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APPENDIX I

TEST PIT EXCAVATION PROGRAM

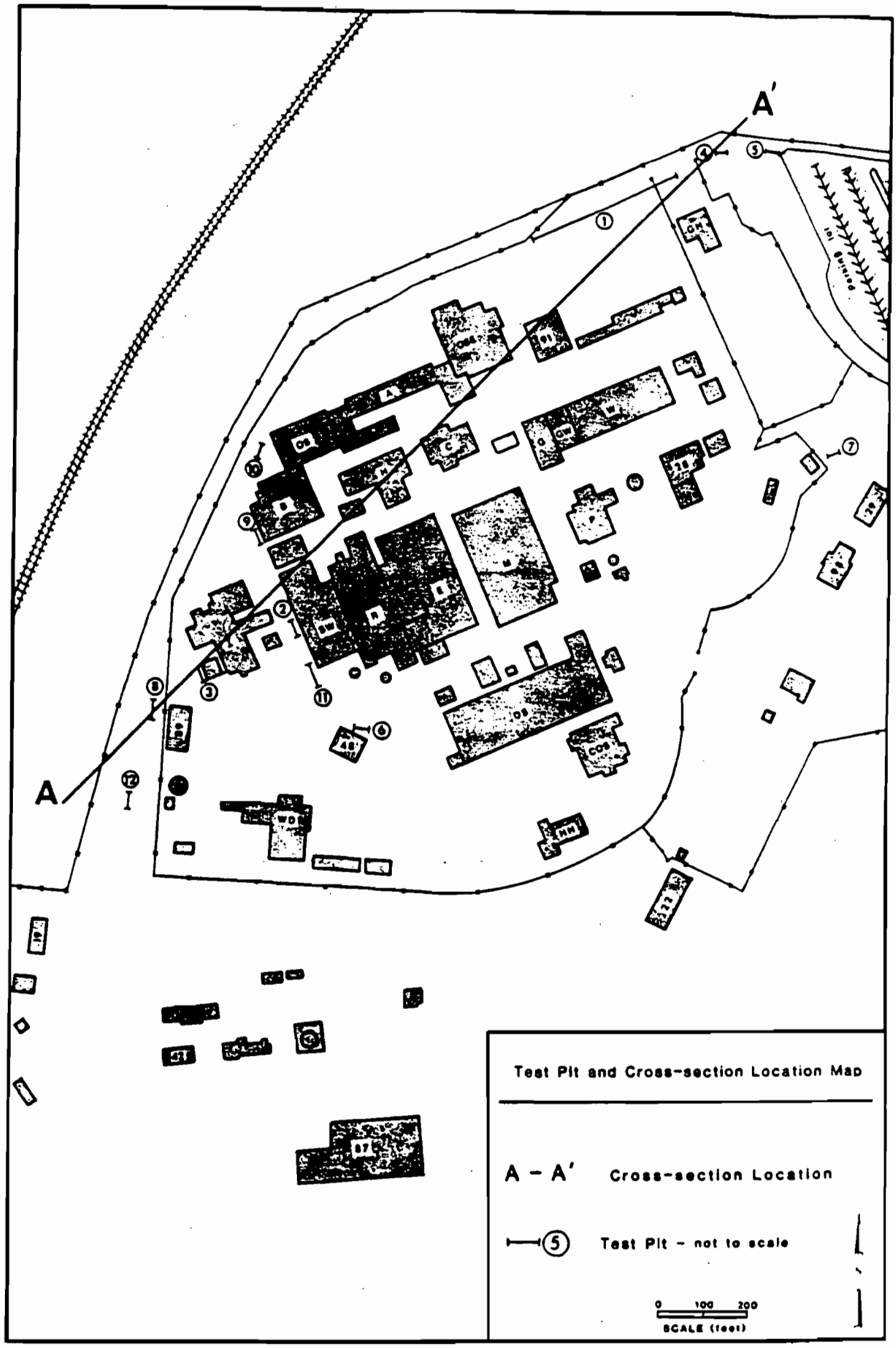
A
A'
Test Pit and Cross-section Location Map
A – A' Cross-section Location
Test Pit – not to scale
0 100 200
SCALE (feet)

Figure 1

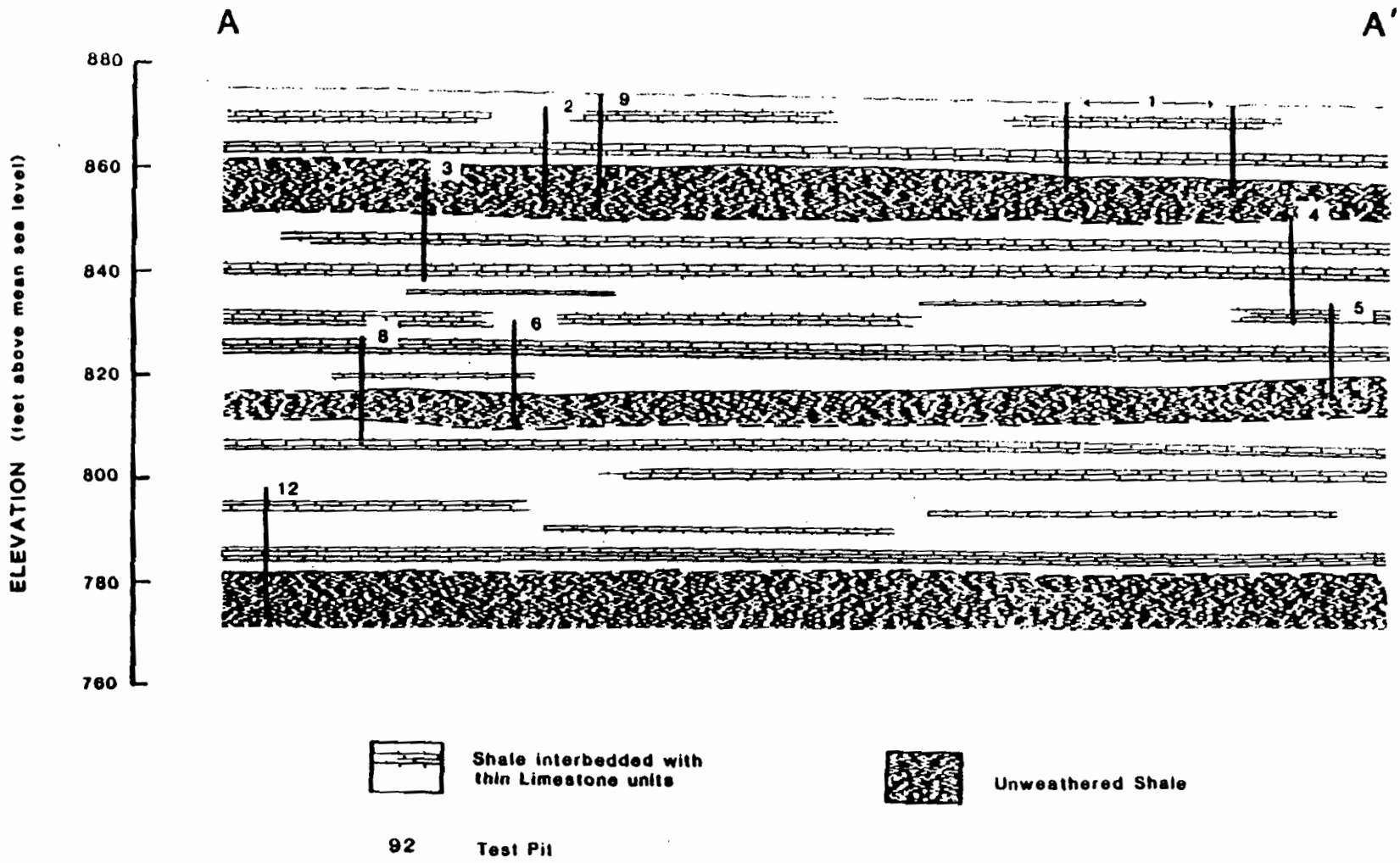

Figure 2. Generalized Geologic Cross-section Through Test Pits at Monsanto Research Corporation's Mound Facility.

TEST PIT LOG

INSTALLATION ID Pit 1
LOCATION ID Mound Lab
LOCATION TYPE TP
LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 960 WEST 2,200-2,740
SURFACE ELEVATION (FTMSL) ave. 872.5
EXCAVATOR CODE
CONSTRUCTION METHOD T
DATE STARTED
DATE COMPLETED
DEPTH (FT) 23

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation near Building 91 and GH at northern edge of property boundary. Pit dimensions approximately 4'wide X 650' long.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-1.5					Concrete and fill material.
1.5-15					Brown clayey shale interbedded with thin
					units of gray crystalline limestone.
15-21					Gray clayey shale interbedded with thin
					units of gray crystalline limestone.
21-23					Gray-blue clayey shale
					Seeps are only on south face of trench,
					north face is dry. Seepage zone is at
					weathered interface. Largest seep
					flows from small crack estimated to
					be less than 500ml/min.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 2
LOCATION ID Mound Lab
LOCATION TYPE TP
LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,580 WEST 3,410
SURFACE ELEVATION (FTMSL) 872.5
EXCAVATOR CODE
CONSTRUCTION METHOD T
DATE STARTED 11/8/86
DATE COMPLETED 11/8/86
DEPTH (FT) 19.4 ft.

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)
11/8/86	1215	858.25 msl

LOCATION DESCRIPTION
Excavation at SW Building. Lithology described on north-east face of pit.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-1					Concrete and fill material.
1-4					Brown clay w/limestone regolith (fill).
4-7					Interbedded weathered limestone and
					limey brown clay; Ls units 2-6" thick.
7-9					Weathered limestone and clay; Ls units
					6-8" thick.
9-12.5					Massive limestone w/thin partings;
					brown weathering ends and water
					seepage starts at 12.5 ft.
12.5-17					Blue shaley limestone w/some water
					seepage from partings.
17-19.4					Very hard blocky limestone; water
					flowing along bedding planes.
					First seep at 12 feet below grade in
					weathered Ls.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 3
LOCATION ID Mound Lab
LOCATION TYPE TP
LOCATION PROXIMITY I
COORDINATES (FT) SOUTH 1,580 WEST 3,640
SURFACE ELEVATION (FTMSL) 859.5
EXCAVATOR CODE
CONSTRUCTION METHOD T
DATE STARTED 11/21/86
DATE COMPLETED 11/21/86
DEPTH (FT) 21

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation between Building 92 and road.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-1					Topsoil
1-7					Fill material; Brown clayey till w/
					gray limestone (small seep at 7 ft.)
7-11					Dark brown clayey fill w/black bands
					(anoxic or burn zone from 10-11 ft.)
11-13					Brown sandy silty clay fill.
13-14					Wire fence, soft brown clay.
14-16					Weathered shale (base of fill).
16-17					Fractured weathered limestone.
17-20					Weathered shale and thin limestone.
20-21					Blue shale (clayey); water seeping
					at top of shale.
					*Seeps begin at bottom 2 ft. of
					excavation.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 4 LOCATION ID Mound Lab
LOCATION TYPE TP LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 950 WEST 2,100
SURFACE ELEVATION (FTMSL) 852.89
EXCAVATOR CODE CONSTRUCTION METHOD T
DATE STARTED 11/25/86 DATE COMPLETED 11/25/86
DEPTH (FT) 21

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation near lower parking lot. Parking lot pit "A".

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-2					Interbedded weathered shale (clay) and
					blocky limestone.
2-4					Limestone units.
4-6					Interbedded weathered shale and
					blocky limestone.
6-6.5					Limestone unit.
6.5-8					Brown shaley clay.
8-8.5					Limestone unit.
8.5-11					Weathered brown shale (crumbly).
11-14					Olive-brown blocky shale.
14-14.5					Limestone unit (water staining).
14.5-16					Brown clayey shale w/iron staining.
16-19					Blocky limestone w/iron staining (6-8" layers)
19-21					Blue clayey shale w/thin limestone units
					water seeping at top of shale.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 5
LOCATION ID Mound Lab
LOCATION TYPE TP
LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,040 WEST 1,940
SURFACE ELEVATION (FTMSL) 835.75
EXCAVATOR CODE
CONSTRUCTION METHOD T
DATE STARTED 11/25/86
DATE COMPLETED 11/25/86
DEPTH (FT) 19.5

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
At corner of lower parking lot. Parking lot pit "B".

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-5					Very blocky clayey brown shale.
5-6					Limestone unit.
6-9					Blue clay w/iron staining.
9-9.5					Limestone unit.
9.5-15					Blue clayey shale w/interbeds of
					massive limestone.
15-19.5					Limey blue shale w/thin limestone lenses.
					Excavation was dry.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 6
LOCATION ID Mound Lab
LOCATION TYPE TP
LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,840 WEST 3,370
SURFACE ELEVATION (FTMSL) 831.5
EXCAVATOR CODE
CONSTRUCTION METHOD T
DATE STARTED
DATE COMPLETED 12/3/86
DEPTH (FT) 21

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation between buildings 48 and WS. Referred to as Pit 48.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-6					Brown clayey fill w/broken limestone.
6-10					Clay and limestone fill; 3" waste line
					on 6" of wet sand.
10-12					Weathered limestone.
12-15					Weathered limestone, 2-4" layers
					w/shale between.
15-21					Blue limey shale (wet).
					-Shale was totally dry while digging,
					water appeared after 1 hr.
					*Clay smeared on both sides of trench.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 7 LOCATION ID Mound Lab

LOCATION TYPE TP LOCATION PROXIMITY I

COORDINATES (FT): SOUTH 1,670 WEST 2,130

SURFACE ELEVATION (FTMSL) 831.04

EXCAVATOR CODE _____ CONSTRUCTION METHOD T

DATE STARTED 12/6/86 DATE COMPLETED 12/6/86

DEPTH (FT) 23

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation north of building 29 and east of building 45.

LITHOLOGIC LOG

LOGGER CODE _____

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-.5					Topsoil.
.5-7					Brown weathered shale w/thin limestone
					units, some clay seams.
7-9					Gray-green clay w/shale
9-10					Limestone unit.
10-18					Gray-blue shale w/thin limestone partings.
18-18.5					Limestone unit.
18.5-23					Blue shale w/limestone partings.
					Water seeping most around limestone
					partings.

CONSTRUCTION METHODS

A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS

B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY

I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 8 LOCATION ID Mound Lab
LOCATION TYPE TP LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,600 WEST 3,820
SURFACE ELEVATION (FTMSL) 827.9
EXCAVATOR CODE CONSTRUCTION METHOD T
DATE STARTED 12/15/86 DATE COMPLETED 12/16/86
DEPTH (FT) 21.5

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation on hillside at north-west side of building 89.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-2					Topsoil.
2-8.5					Brown clay w/thin interbedded limestone
					layers; weathered;dry.
8.5-10.5					Gray shale w/8 inch massive limestone
					near bottom.
10.5-21.5					Gray shale w/three 2-6 inch limestone
					interbeds; water seeps.
21.5					Limestone bed.
					*Water seeping into trench from sides
					and bottom.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 9
LOCATION ID Mound Lab
LOCATION TYPE TP
LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,350 WEST 3,410
SURFACE ELEVATION (FTMSL) 874.70
EXCAVATOR CODE
CONSTRUCTION METHOD T
DATE STARTED 2/12/87
DATE COMPLETED 2/12/87
DEPTH (FT) 22.5

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation west of "B" building in road.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-2					Concrete and brown fill material.
2-4					Gray clay w/scattered limestone pieces.
4-9					Brown clay w/interbedded limestone units.
9-10					Thin limestone layers.
10-13					Brown weathered shale w/a few thin
					limestone layers.
13-22.5					Blue shale w/a few massive (6-8") limestone
					layers; shale is blocky in places.
					*Section is wet from 12 ft. on down.

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 11 LOCATION ID Mound Lab
LOCATION TYPE TP LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,680 WEST 3,410
SURFACE ELEVATION (FTMSL) 876.25
EXCAVATOR CODE CONSTRUCTION METHOD T
DATE STARTED DATE COMPLETED 2/26/87
DEPTH (FT) 22.6

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation in road at south corner of SW Building.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-1					Pavement, concrete and base fill.
1-6					Brown clay and limestone fill material.
6-15.5					Weathered brown shale and limestone,
					thinly interbedded.
15.5-18					Unweathered soft gray shale.
18-18.5					Massive limestone bed, stained, wet.
18.5-20.5					Unweathered soft gray shale, seeps.
20.5-21					Massive limestone bed.
21-22.6					Unweathered soft gray shale, seeps.
					*Only section of pit around newly
					installed manhole showed seeps. Both
					ends of trench were dusty dry.
					Top of shale - 860.67

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK

LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

TEST PIT LOG

INSTALLATION ID Pit 12 LOCATION ID Mound Lab
LOCATION TYPE TP LOCATION PROXIMITY I
COORDINATES (FT): SOUTH 1,700 WEST 3,900
SURFACE ELEVATION (FTMSL) ave. - 798
EXCAVATOR CODE CONSTRUCTION METHOD T
DATE STARTED 3/2/87 DATE COMPLETED 3/3/87
DEPTH (FT) 24.5

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)

LOCATION DESCRIPTION
Excavation located on hillside approximately 300 feet northeast of building #19. Approximate size is 10 ft x 18 ft.

LITHOLOGIC LOG

LOGGER CODE

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE METHOD	SAMPLE ID	USCS	VISUAL DESCRIPTION
0-1.5					Topsoil.
1.5-4.5					Brown clay w/broken limestone (fill).
4.5-13					Brown clayey shale interbedded with thin
					limestone units; weathered, some staining.
13-15					Brown clayey shale interbedded w/thin gray
					clayey shale & thin limestone units; wet.
15-19					Blocky gray clayey shale w/few thin
					(1-2 inch) limestone units; wet.
19-24.5					Gray clayey shale w/very few thin limestone
					units; wet.
					* 6-8 ft. of water collected in pit over-
					night.
					Top of shale at 785.13

CONSTRUCTION METHODS
A - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
H - HYDRAULIC-ROTARY
J - JETTED
P - AIR-PERCUSSION
R - REVERSE ROTARY
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH
Z - OTHER (SPECIFY)

SAMPLE METHODS
B - UNDISTURBED BLOCK
D - DISTURBED BULK CROSS
LOCATION PROXIMITY
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION