VOLUME IV

CORRECTIVE ACTION
Facility Investigation
J. Background Reports and Studies (cont.)

5) Report: Soil Resampling and Analysis Program, prepared by BCM Eastern, Inc., 02/85. P. 922-991.

6) Report: Landfill Geophysical Investigation Magnetic Survey Report, Rohm and Haas Company, Bristol, Pennsylvania, prepared by BCM Eastern, Inc., 02/85. P. 992-1274.

7) Report: Landfill Geophysical Investigation Terrain Conductivity Report, Rohm and Haas Company, Bristol, Pennsylvania, prepared by BCM Eastern, Inc., 02/85. P. 1275-1426.

8) Report: Landfill Geophysical Investigation, Ground-Penetrating Radar Survey, prepared by GeoSight and BCM Eastern, Inc., 02/85. P. 1427-1468.

9) Report: Confirmation Test Pit Investigation, prepared by BCM Eastern, Inc., 02/85. P. 1469-1492. A handwritten table entitled "Test Pits with Drums" is attached.

ROHM AND HAAS DELAWARE VALLEY INC.
CORRECTIVE ACTION/Facility Investigation
Background Reports and Studies

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J.5

SOIL RESAMPLING AND ANALYSIS PROGRAM

PREPARED FOR

ROHM AND HAAS COMPANY
BRISTOL, PENNSYLVANIA

FEBRUARY 1985

BCM PROJECT NO. 00-4061-08

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TABLE 1

ROHM AND HAAS

FORMER BUCKS COUNTY MOSQUITO CONTROL COMMISSION SITE

SOIL ANALYSIS RESULTS - JUNE 1984

Grid No.	Concentration (ppm)* DDT	DDE	DDD	Detection Limit
1	1.7	0.45	0.19	0.10
2	42.0	1.7	0.66	0.20
3	2.0	0.38	0.17	0.10
4	51.0	7.90	4.0	0.50
5	2.7	0.96	0.30	0.20
6	0.040	0.014	0.017	0.010
7	1.4	0.62	2.2	0.20
8	12.0	1.6	1.1	0.30
9	0.092	0.036	BDL**	0.020
10	0.26	0.10	0.10	0.050
11	0.039	0.012	0.003	0.002
12	0.019	0.007	0.002	0.001
13	0.040	0.025	0.024	0.020
14	BDL	BDL	BDL	0.002
15	0.006	0.002	BDL	0.002
16	0.027	0.011	0.005	0.002
17	0.006	0.004	BDL	0.002
18	0.008	0.003	BDL	0.002
19	0.020	0.006	BDL	0.002
20	0.008	0.008	BDL	0.002
21	BDL	BDL	BDL	0.002
22	0.46	0.20	0.059	0.050
23	0.048	0.029	BDL	0.010
24	1.3	BDL	BDL	0.10
28	0.13	0.028	0.022	0.010
29	60.0	4.2	10.0	1.25
30	0.56	0.20	0.087	0.050
31	BDL	BDL	BDL	0.002
32	0.10	0.056	0.018	0.010
33	0.08	0.090	0.22	0.020
34	0.068	0.044	0.021	0.010
35	BDL	BDL	BDL	0.020
(Control)	0.047	0.019	BDL	0.010

*ppm = parts per million on as-received basis
**BDL = below detection limit

Source: BCM Eastern Inc.

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TABLE 2

SOILS FROM LANDFILL PERIMETER AREAS

ETHYL ACRYLATE ANALYSIS*

Location/ Description**	April 1984 Report		July 1984 Resampling		
	Sample I.D.	Concentration	Sample I.D.	Concentration (BCM Data)	Concentration (Independent Analysis)
Mary Devine School					
	MDS-1	1.9	MD1	0.2	<3
	MDS-2	1.9	MD2	<0.1	<3
Baseball Field					
	BBF-1	1.1	BF1	<0.1	<3
	BBF-2	<0.1	BF2	<0.1	<3
Northern Perimeters					
	NP-A	2.5	NA	<0.1	<3
	NP-B	6.3	NB	<0.1	<3
	NP-C	2.8	NC	0.2	<3
	NP-D	2.5	ND	0.2	<3
Maple Beach East (Control)	MBE COMP	4.6	MBE	<0.1	<3
Maple Beach West	MBW COMP	<0.1	MBW	<0.1	<3
Distant Control (Phila. Art Museum)	N/A	--	DCPS	0.4	<3
Manufacturing Area (Control)	N/A	--	N/A	<0.1	<3
Spike	N/A	--	N/A	<0.1	<3

* All data reported as milligrams per kilogram (ppm) on as-received basis
** See Figure 2
*** Sample not collected and/or analyzed

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APPENDICES

Appendix A Perimeter Area Soil Sampling Protocol

Appendix B GC/MS Pesticide Data

Appendix C Soil Boring Logs and Sample Compositing Diagram

Appendix D Lab Procedure for Ethyl Acrylate

Appendix E BCM Ethyl Acrylate Lab Analysis

Appendix F Independent Ethyl Acrylate Lab Analysis

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TABLES

Table 1 Former Bucks County Control Commission Site - Soil Analysis Results

Table 2 Soils From Landfill Perimeter Areas - Ethyl Acrylate Analysis

FIGURES

Figure 1 Grid Layout for Soil Analysis

Figure 2 Soil Sampling Area

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1.0 EXECUTIVE SUMMARY

In April, 1984, BCM Eastern Inc. (BCM) prepared a report for Rohm and Haas Company (Rohm and Haas) entitled "Report on Landfill Investigation." The report contained the results of a comprehensive study of environmental conditions within, and in the vicinity of, the inactive Rohm and Haas industrial landfill located in Bristol Township, Bucks County, Pennsylvania. The report concluded that the landfill did not present an imminent threat to human health or the environment.

An important topic within the report was the environmental condition of soils in the area. In that regard, the report found no soil contamination with the exception of: DDT at the former Mosquito Control Commission property; volatile organic compounds beneath the property of the Bristol Township Sewage Treatment Plant; and polynuclear aromatic compounds in the Maple Beach West area. Of these findings, the presence of DDT warranted further investigation as to the quantity and extent of contamination. In addition, ethyl acrylate was generally detected throughout the area; however, because the levels were at or near the limit of analytical detection, the results were suspect and required additional verification.

Samples of surface soil were collected from the former Bucks County Mosquito Control Commission site along River Road and analyzed for DDT and its derivatives. The results showed that most of the surface soil on the approximately 7-acre tract contains low levels of pesticide residues. The greatest observed concentration was 60 parts per million of DDT, at a location near a concrete pad in the southwest corner of the site.

why? The levels detected in the soil pose no threat to either human health or the environment. As an additional precaution, BCM has recommended that site access be limited by passive means, such as encouraging brushy undergrowth, and that a soil berm be placed along River Road to discourage refuse dumping on the site.

The evaluation of analytical results for ethyl acrylate presented in BCM's April 1984 report and the July 1984 resampling of landfill perimeter area soils reveals that the reported ethyl acrylate data in the April 1984 report appear to be false positives. BCM has recommended that no further consideration be given to the apparent presence of ethyl acrylate in the perimeter area soils.

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2.0 INTRODUCTION

Analysis conducted during the fall 1983 initial landfill perimeter area investigation program indicated that detectable levels of DDT (plus its metabolites DDD and DDE) and ethyl acrylate were observed in soil samples collected from certain areas. Samples from soil borings on the former Bucks County Mosquito Control Commission (BCMCC) site contained measurable levels of DDT, while the data indicated that most surface soil samples from the other perimeter areas contained ethyl acrylate, a compound used in considerable quantities at the Bristol plant.

Because the 1983 analytical data indicated the presence of these compounds, further investigation was initiated to include:

1. A more detailed soil sampling program with analysis for DDT and its metabolites at the former BCMCC site

2. A soil resampling program for the other perimeter areas with analysis of the samples for ethyl acrylate

This report summarizes results of a detailed soil sampling and analysis program at the former BCMCC site and the perimeter area soil resampling and analysis for ethyl acrylate.

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3.0 SAMPLING METHODOLOGY

Collection and analysis of soil samples from both the former BCMCC site and other perimeter areas were performed in general accordance with a work plan dated May 30, 1984.

3.1 FORMER BCMCC SITE

How long ago

The former BCMCC site is located on land owned by Rohm and Haas between River Road and the west branch of Hog Run Creek, as shown in Figure 1. The site covers approximately 7 acres. With the exception of small areas adjacent to River Road, the site is occupied by weeds, heavy underbrush, and, towards Hog Run Creek, relatively open woodland. Rohm and Haas representatives have indicated that the site will remain undeveloped for the foreseeable future. Due to illegal public dumping, small areas containing miscellaneous refuse are scattered around the site.

Topographically, the site is relatively flat adjacent to River Road with slopes gradually grading to the northern and eastern boundaries toward Hog Run Creek. Surficial soils on the more level parts of the site range from sand and gravel to sandy, gravelly loam in areas where the site has not been disturbed. Soil in the wooded areas is typically the Fallsington gravelly silt loam with a silt loam surface.

In June 1984, the grid network depicted in Figure 1 was established at the site. Survey stakes were placed at the corners of Grids 1 through 35. Due to extremely dense underbrush and/or swampy conditions, Grids 25 through 27 and 36 through 39 were not established.

Four grab samples of soil were collected from each grid and composited for analysis. Grab sample locations were determined using the geometric pattern proposed in the work plan; i.e., one grab sample from each quadrant of each grid. In several grids, thick undergrowth necessitated deviation from the pattern and sample locations were slightly modified.

why composite.

Grab samples were collected with a stainless steel trowel from the top 6 inches of soil. Each sample was graded and uniformly mixed, and a portion was set aside in a clean, 5-gallon plastic bucket. This was then composited with equal parts of soil from the three similarly prepared remaining grab samples in the grid. An aliquot of the composited soil was placed in an amber pint glass bottle with a teflon-lined lid and transported to BCM's laboratory in Norristown, Pennsylvania. A portion of each grab sample was placed in an amber glass pint bottle and delivered to Rohm and Haas for possible future analysis.

Sampling equipment was cleaned thoroughly using a methanol and a distilled water rinse between each grab or composite sample, as appropriate.

A control sample was collected on the opposite side from the site of Hog Run Creek approximately 700 feet northwest of River Road. This sample was collected and analyzed in the same manner as all the other samples.

3.2 PERIMETER AREAS

Surface soil samples were collected in July 1984 from most of the landfill perimeter areas sampled in October and November 1983. Sampling locations are depicted in Figure 2 (shown as Figure 3-3 in the April 1984 BCM report).

Soil samples were collected in the same manner (and generally by the same personnel) used during the 1983 sampling program. Manually operated 3-inch-diameter stainless steel bucket augers were used to collect individual grab samples to a depth of 6 inches. Details of the soil sample collection procedures are presented in Appendix A.

A control sample was collected from the lawn of the Philadelphia Art Museum in July 1984. This location was chosen at random due to logistical convenience, and samples were obtained utilizing the same equipment and procedures as those utilized for the landfill perimeter area sampling.

In addition, a soil sample was collected from a lawn area just outside the main plant gate in August 1984. This sample was collected in order to determine if soil closer to the potential source of ethyl acrylate (i.e., the plant) was contaminated with the compound. A soil sample spiked with ethyl acrylate was prepared by Rohm and Haas and submitted to BCM for analysis.

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4.0 RESAMPLING RESULTS

Analytical results from the resampling program are presented and compared, where appropriate, to the 1983 data in this section.

4.1 FORMER BCMCC SITE SOILS

A gas chomatograph/mass spectrometer (GC/MS) scan for 18 pesticides was conducted on each composite soil sample. A complete list of the analytical data appears in Appendix B.

Table 1 summarizes the results of the analyses. These data show that, with the exception of the composite sample from Grid No. 20, only DDT and its metabolites (DDD and DDE) were detected. A concentration of 3.4 parts per billion (ppb) of Beta-Endosulfan was detected in the sample from Grid No. 20.

Samples from Grid Nos. 2, 4, and 29 contained the greatest observed concentrations of DDT, with 42, 51, and 60 parts per million (ppm), respectively. With the exception of Grid Nos. 14, 21, 31, and 35 (at which no compounds were detected), samples from the remaining grids contained DDT concentrations ranging from 0.006 to 12 ppm.

Because the soil boring samples collected in October 1983 were not collected from the surface 6 inches of soil only, as were the most recent samples, a direct comparison of these results is not appropriate. However, a composite sample of soil formed from material collected in October 1983 from the upper 2 feet in two borings advanced near the concrete pad (see Figure 1) had a DDT concentration of 0.88 ppm. Both of these borings (MCB-1 and MCB-4) are located in Grid No. 5, which had a surface soil (0 to 6 inches) composite DDT concentration of 2.7 ppm, as shown in Table 1.

A similar composite sample (0 to 2 feet) from Borings MCB-2 and MCB-3 was reported (as MCB-D) to contain 2 ppb of DDT in the April 1984 report. From Figure 1, Boring MCB-2 lies within Grid No. 3 and Boring MCB-3 within Grid No. 6. The surface soil resampling data of Table 1 show that Grid No. 3 contains 2.0 ppm of DDT, while Grid No. 6 has 0.04 ppm.

Therefore, the results of the two sampling programs are consistent and confirm the presence and distribution of DDT at the site.

Boring logs and compositing diagrams for Borings MCB-1 through MCB-4 are presented in Appendix C.

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4.2 PERIMETER AREA SOILS

Samples collected under the resampling program were analyzed for ethyl acrylate by BCM in accordance with a gas chromatograph method developed jointly by BCM and Rohm and Haas. This method, as described in Appendix D, was used to analyze perimeter area soils from both the October/November 1983 and July 1984 samplings. Analytical results are summarized in Table 2.

4.3 DISCUSSION

4.3.1 Former BCMCC Site

As expected, greater concentrations of DDT and its metabolites were found in samples from areas surrounding the concrete pad (Grid Nos. 2 and 4) because this apparently was the area with the greatest BCMCC activity. The 60 ppm DDT concentration observed in Grid No. 29 is more difficult to explain because this is not in the immediate vicinity of the pad. A 1974 aerial photograph of the area shows no truck or trailer activity on Grid No. 29. However, trucks may have used the dirt road passing through Grid No. 29, and pesticide residues may have been dumped and/or spilled in this area.

Both DDT and DDE were detected in the control sample (0.047 and 0.019 ppm, respectively). This indicates that the pesticide has been dispersed throughout the area, probably by spraying for insect control or by cleaning equipment.

The moderate amounts of DDT and its derivatives found throughout the site may exist because of the following reasons:

1. Runoff/erosion spreading pesticides
2. Spraying of area during BCMCC operation
3. Testing/cleaning of spray equipment
4. Tracking contamination around site on vehicle tires

In order to put the levels of DDT and its derivations found in perspective, the current regulations pertaining to these compounds were reviewed. The U.S. Environmental Protection Agency (EPA) handles two parts of the Food and Drug Administration (FDA) regulations (21 CFR Chapter 1) governing allowable levels of various pesticide residues in or on agricultural commodities. These are:

1. Part 193, Subpart A - Food Additives Permitted in Food for Human Consumption

   193.110 DDT:

   - 100 ppm in or on peppermint oil and spearmint oil
   - 80 ppm in or on dried hops
   - 6 ppm in crude soybean oil

   193.120 DDT and its related degradation products in manufactured dairy products on the milk fat base:

   - 1.25 ppm in manufactured dairy products (combination of DDT, DDD, and DDE)

2. Part 561 - Tolerances for Pesticides in Animal Feeds Administered by the EPA:

   561.120 DDT:

   - 100 ppm in or on dried tomato pumace to be used in dog or cat food at levels up to 5 percent by weight of the prepared food (combination of DDT and DDD).

For comparison, the greatest observed DDT concentration in the soil samples was 60 ppm (Grid No. 29 composite). This comparison does not make light of the fact that DDT and its metabolites are present in soil at the former BCMCC site; it merely indicates that, based on the current regulations governing allowable concentrations of the pesticide in food and feed, the concentrations observed do not pose a threat to human health or the environment.

4.3.2 Perimeter Areas

At first glance, the data presented in Table 2 appear to indicate the presence of ethyl acrylate in 8 of 10 perimeter soil samples collected in October-November 1983 (in accordance with the April 1984 report). Conversely, the July 1984 resampling data indicate the presence of ethyl acrylate (just above the detection limit) in only 4 of 13 samples. However, the data also indicate apparent contradictions in the concentrations observed in the control samples, i.e., none detected in the manufacturing area and the largest concentration in distant control. The observation compromises the reliability of the analytical technique at these low levels. Also, both the BCM-Rohm and Haas method (see Appendix E) and an independent GC analysis (see Appendix F) failed to confirm the presence of ethyl acrylate in a spiked sample prepared by Rohm and Haas at a concentration of one part per million.

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5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 FORMER BCMCC SITE

Analytical results from tests done on soil samples collected from the former BCMCC site in June 1984 lead to the following conclusions:

1. DDT and its metabolites are present in surface soil throughout most of the former BCMCC property.

2. The greatest concentrations appear in the southwest corner of the site in the vicinity of the concrete pad.

3. Based on current FDA (as administered by the EPA) tolerances for DDT and its metabolites in food intended for human consumption and in animal feed, the observed concentrations in the soil pose no threat to human health or the environment. This conclusion is drawn based upon the following information:

   a) No food or feed crops are now grown (or are intended to be grown) on the site.

   b) The site is, for the most part, densely vegetated with native weeds, brush, and tree species. This minimizes potential runoff of pesticide-containing sediment directly into Hog Run Creek.

   c) The potential for significant direct human contact with the soil is minimal due to the dense vegetation.

   d) No detectable levels (<200 ppb) of DDT or its metabolites were detected, as part of ongoing landfill site investigation work, in sediment samples collected from Hog Run Creek immediately upstream of the River Road bridge (downstream of the former BCMCC site) in November 1983 and in May 1984.

Accordingly, based upon findings of this sampling and analysis program, the following recommendations are made for the former BCMCC site:

1. The entire site should be left essentially undisturbed so that native vegetation can develop to its fullest extent. We suggest that the larger trees toward the north (toward Hog Run) be cut and removed in order to encourage growth of brushy species which will further limit access to these wooded areas.

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2. Following implementation of Step No. 1, we recommend that site access be further restricted from River Road through construction of a soil berm approximately 3 or 4 feet high along and parallel to River Road. This will effectively discourage the illegal refuse dumping by the public on the site that has taken place.

5.2 PERIMETER AREAS

The positive data reported for ethyl acrylate, both in the April 1984 report and from the July 1984 resampling effort, are likely to be false positives. The indicated concentrations of ethyl acrylate most probably do not occur in the soil. This conclusion is based upon the following facts:

1. The reported analytical data indicate that levels in the "background" (i.e., control) samples, from both the 1983 and 1984 sampling programs, were higher than most other sampled areas.

2. Independent GC analysis of the July 1984 samples has not confirmed the presence of ethyl acrylate in the samples collected.

3. Ethyl acrylate is relatively biodegradable and would be assimilated by naturally-occurring soil bacteria at the concentrations reported.

Accordingly, we recommend that no further consideration be given the ethyl acrylate issue in landfill perimeter area soil evaluations.

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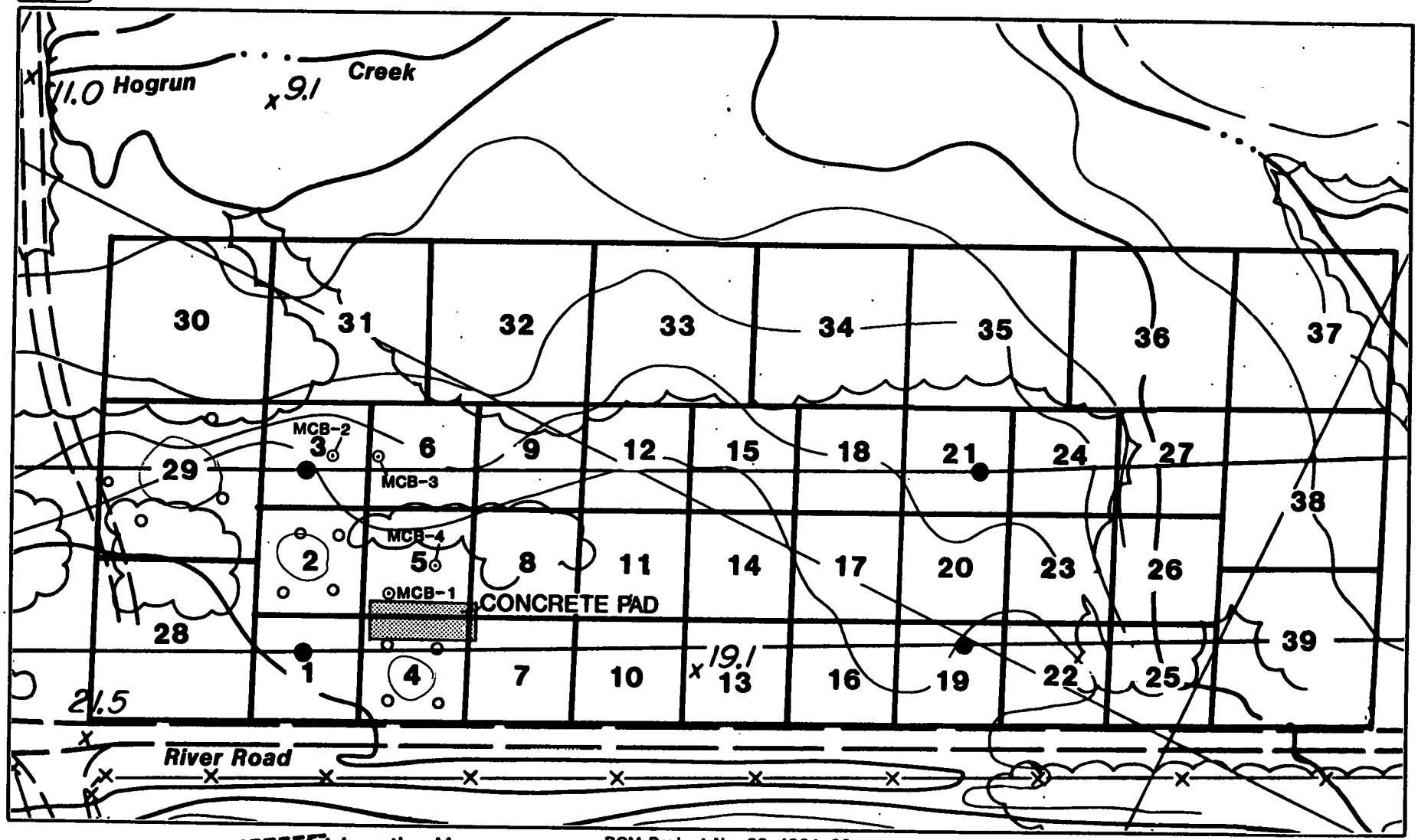

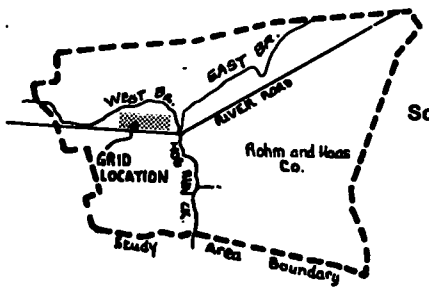

Location Map

0 100 feet
Scale

N

BCM Project No. 00-4061-08

Legend

1 GRID DESIGNATION

○ GRAB SAMPLE LOCATIONS IN SELECTED AREAS

⊙ SOIL BORING LOCATION-OCTOBER 1983

Figure 1
Rohm and Haas Company
MOSQUITO COMMISSION SITE
Bristol, Pennsylvania

GRID LAYOUT FOR SOIL ANALYSIS
JUNE/JULY, 1984

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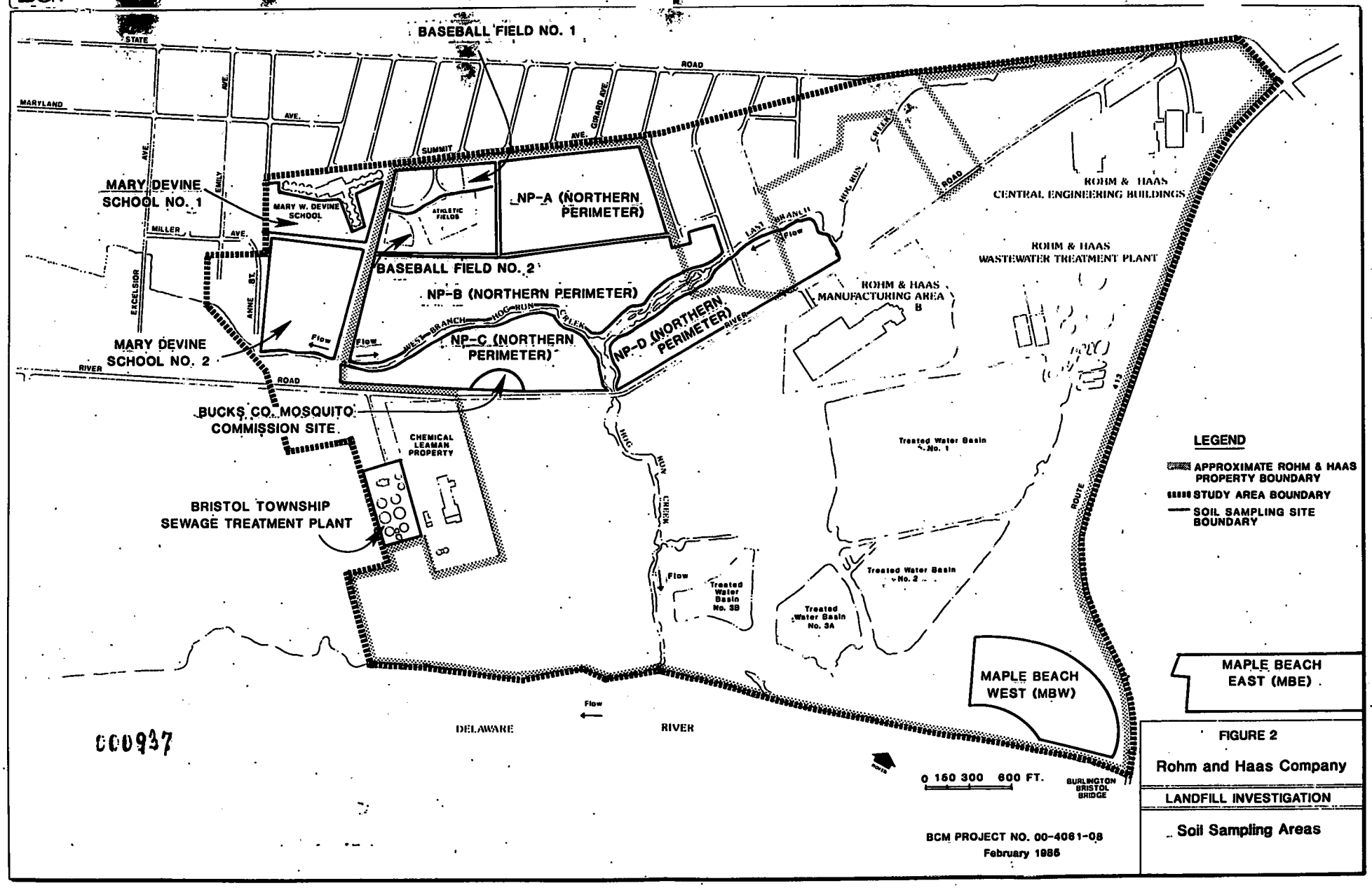
BCM
Engineers, Planners and Scientists
BASEBALL FIELD NO. 1
STATE
ROAD
MARYLAND
AVE.
GIRARD AVE.
SUMMIT
MARY DEVINE SCHOOL NO. 1
MARY W. DEVINE SCHOOL
ATHLETIC FIELDS
NP-A (NORTHERN PERIMETER)
MILLER
EMILY
EXCELSIOR
ANNE ST.
BASEBALL FIELD NO. 2
NP-B (NORTHERN PERIMETER)
WEST BRANCH
HOG RUN
CREEK
EAST BRANCH
Flow
NP-C (NORTHERN PERIMETER)
NP-D (NORTHERN PERIMETER)
RIVER
MARY DEVINE SCHOOL NO. 2
BUCKS CO. MOSQUITO COMMISSION SITE
CHEMICAL LEAMAN PROPERTY
BRISTOL TOWNSHIP SEWAGE TREATMENT PLANT
ROHM & HAAS CENTRAL ENGINEERING BUILDINGS
ROHM & HAAS WASTEWATER TREATMENT PLANT
ROHM & HAAS MANUFACTURING AREA B
Treated Water Basin No. 1
Treated Water Basin No. 2
Treated Water Basin No. 3A
Treated Water Basin No. 3B
ROUTE 13
MAPLE BEACH WEST (MBW)
MAPLE BEACH EAST (MBE)
DELAWARE
RIVER
NORTH
0 150 300 600 FT.
BURLINGTON BRISTOL BRIDGE
LEGEND
APPROXIMATE ROHM & HAAS PROPERTY BOUNDARY
STUDY AREA BOUNDARY
SOIL SAMPLING SITE BOUNDARY
BCM PROJECT NO. 00-4061-08
February 1985
FIGURE 2
Rohm and Haas Company
LANDFILL INVESTIGATION
Soil Sampling Areas

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APPENDIX A

PERIMETER AREA
SOIL SAMPLING PROTOCOL

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APPENDIX A

PERIMETER AREA SOIL SAMPLING PROTOCOL

Samples of surface soil were obtained using the following protocol:

1. The area to be sampled was surveyed for general features such as areas of apparent contamination, areas of stressed vegetation, or other unique or unusual surficial features.

2. Specific areas where grab samples were to be obtained were noted based upon the observations of No. 1 above.

3. Previously cleaned, manually operated 3-inch-diameter, stainless steel bucket augers were used to collect grab samples of surface soil from the surface to a depth of approximately 6 inches. Each grab sample obtained was placed in a previously cleaned white plastic 5-gallon bucket. A minimum of 12 such grab samples were placed into the 5-gallon bucket, which then represented a composite sample from each area designated for sampling.

4. Upon collection of the last grab sample, the contents of the 5-gallon bucket were thoroughly mixed using a previously cleaned stainless steel trowel.

5. After thorough mixing, aliquot portions of the mixed composite soil samples were placed in amber glass pint jars, which had been prepared by the BCM Laboratory for priority pollutant sample collection and fitted with Teflon lids. The appropriate number of aliquot samples were so collected to fit the analytical needs of the sampled areas.

6. Upon completion of the sample jar filling operation, the remaining portion of the composite soil sample was discarded and the 5-gallon bucket auger and trowel were thoroughly cleaned using a portable propane-fired high-pressure washer/steam cleaner.

7. This process was repeated for each soil sampling area.

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APPENDIX B

GC/MS PESTICIDE DATA

EXHIBIT II - COMPOUND LIST

FIELD # : M-1
SAMPLE IDENTIFIER: 10098
COMPUCHEM SAMPLE NUMBER: 30426

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	100.0
2P.	ALPHA-BHC	BDL	100.0
3P.	BETA-BHC	BDL	100.0
4P.	GAMMA-BHC	BDL	100.0
5P.	DELTA-BHC	BDL	100.0
6P.	CHLORDANE	BDL	100.0
7P.	4,4'-DDT	1700	100.0
8P.	4,4'-DDE	450	100.0
9P.	4,4'-DDD	190	100.0
10P.	DIELDRIN	BDL	100.0
11P.	ALPHA-ENDOSULFAN	BDL	100.0
12P.	BETA-ENDOSULFAN	BDL	100.0
13P.	ENDOSULFAN SULFATE	BDL	100.0
14P.	ENDRIN	BDL	100.0
15P.	ENDRIN ALDEHYDE	BDL	100.0
16P.	HEPTACHLOR	BDL	100.0
17P.	HEPTACHLOR EPOXIDE	BDL	100.0
18P.	PCB-1242	BDL	1000.0
19P.	PCB-1254	BDL	1000.0
20P.	PCB-1221	BDL	1000.0
21P.	PCB-1232	BDL	1000.0
22P.	PCB-1248	BDL	1000.0
23P.	PCB-1260	BDL	1000.0
24P.	PCB-1016	BDL	1000.0
25P.	TOXAPHENE	BDL	1000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 50:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-2
SAMPLE IDENTIFIER: 10099
COMPUCHEM SAMPLE NUMBER: 30427

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	200.0
2P.	ALPHA-BHC	BDL	200.0
3P.	BETA-BHC	BDL	200.0
4P.	GAMMA-BHC	BDL	200.0
5P.	DELTA-BHC	BDL	200.0
6P.	CHLORDANE	BDL	200.0
7P.	4,4'-DDT	42000	200.0
8P.	4,4'-DDE	1700	200.0
9P.	4,4'-DDD	660	200.0
10P.	DIELDRIN	BDL	200.0
11P.	ALPHA-ENDOSULFAN	BDL	200.0
12P.	BETA-ENDOSULFAN	BDL	200.0
13P.	ENDOSULFAN SULFATE	BDL	200.0
14P.	ENDRIN	BDL	200.0
15P.	ENDRIN ALDEHYDE	BDL	200.0
16P.	HEPTACHLOR	BDL	200.0
17P.	HEPTACHLOR EPOXIDE	BDL	200.0
18P.	PCB-1242	BDL	2000.0
19P.	PCB-1254	BDL	2000.0
20P.	PCB-1221	BDL	2000.0
21P.	PCB-1232	BDL	2000.0
22P.	PCB-1248	BDL	2000.0
23P.	PCB-1260	BDL	2000.0
24P.	PCB-1016	BDL	2000.0
25P.	TOXAPHENE	BDL	2000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 100:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-3
SAMPLE IDENTIFIER: 10100
COMPUCHEM SAMPLE NUMBER: 30428

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	100
2P.	ALPHA-BHC	BDL	100
3P.	BETA-BHC	BDL	100
4P.	GAMMA-BHC	BDL	100
5P.	DELTA-BHC	BDL	100
6P.	CHLORDANE	BDL	100
7P.	4,4'-DDT	2000	100
8P.	4,4'-DDE	380	100
9P.	4,4'-DDD	170	100
10P.	DIELDRIN	BDL	100
11P.	ALPHA-ENDOSULFAN	BDL	100
12P.	BETA-ENDOSULFAN	BDL	100
13P.	ENDOSULFAN SULFATE	BDL	100
14P.	ENDRIN	BDL	100
15P.	ENDRIN ALDEHYDE	BDL	100
16P.	HEPTACHLOR	BDL	100
17P.	HEPTACHLOR EPOXIDE	BDL	100
18P.	PCB-1242	BDL	1000
19P.	PCB-1254	BDL	1000
20P.	PCB-1221	BDL	1000
21P.	PCB-1232	BDL	1000
22P.	PCB-1248	BDL	1000
23P.	PCB-1260	BDL	1000
24P.	PCB-1016	BDL	1000
25P.	TOXAPHENE	BDL	1000

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 50:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-4
SAMPLE IDENTIFIER: 10101
COMPUCHEM SAMPLE NUMBER: 30429

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	500.0
2P.	ALPHA-BHC	BDL	500.0
3P.	BETA-BHC	BDL	500.0
4P.	GAMMA-BHC	BDL	500.0
5P.	DELTA-BHC	BDL	500.0
6P.	CHLORDANE	BDL	500.0
7P.	4,4'-DDT	51000	500.0
8P.	4,4'-DDE	7900	500.0
9P.	4,4'-DDD	4000	500.0
10P.	DIELDRIN	BDL	500.0
11P.	ALPHA-ENDOSULFAN	BDL	500.0
12P.	BETA-ENDOSULFAN	BDL	500.0
13P.	ENDOSULFAN SULFATE	BDL	500.0
14P.	ENDRIN	BDL	500.0
15P.	ENDRIN ALDEHYDE	BDL	500.0
16P.	HEPTACHLOR	BDL	500.0
17P.	HEPTACHLOR EPOXIDE	BDL	500.0
18P.	PCB-1242	BDL	5000.0
19P.	PCB-1254	BDL	5000.0
20P.	PCB-1221	BDL	5000.0
21P.	PCB-1232	BDL	5000.0
22P.	PCB-1248	BDL	5000.0
23P.	PCB-1260	BDL	5000.0
24P.	PCB-1016	BDL	5000.0
25P.	TOXAPHENE	BDL	5000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 250:1 dilution to properly eveluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD# : M-5
SAMPLE IDENTIFIER: 10102
COMPUCHEM SAMPLE NUMBER: 30430

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	200.0
2P.	ALPHA-BHC	BDL	200.0
3P.	BETA-BHC	BDL	200.0
4P.	GAMMA-BHC	BDL	200.0
5P.	DELTA-BHC	BDL	200.0
6P.	CHLORDANE	BDL	200.0
7P.	4,4'-DDT	2700	200.0
8P.	4,4'-DDE	960	200.0
9P.	4,4'-DDD	300	200.0
10P.	DIELDRIN	BDL	200.0
11P.	ALPHA-ENDOSULFAN	BDL	200.0
12P.	BETA-ENDOSULFAN	BDL	200.0
13P.	ENDOSULFAN SULFATE	BDL	200.0
14P.	ENDRIN	BDL	200.0
15P.	ENDRIN ALDEHYDE	BDL	200.0
16P.	HEPTACHLOR	BDL	200.0
17P.	HEPTACHLOR EPOXIDE	BDL	200.0
18P.	PCB-1242	BDL	2000.0
19P.	PCB-1254	BDL	2000.0
20P.	PCB-1221	BDL	2000.0
21P.	PCB-1232	BDL	2000.0
22P.	PCB-1248	BDL	2000.0
23P.	PCB-1260	BDL	2000.0
24P.	PCB-1016	BDL	2000.0
25P.	TOXAPHENE	BDL	2000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 100:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD# : M-6
SAMPLE IDENTIFIER: 10103
COMPUCHEM SAMPLE NUMBER: 30431

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	10.0
2P.	ALPHA-BHC	BDL	10.0
3P.	BETA-BHC	BDL	10.0
4P.	GAMMA-BHC	BDL	10.0
5P.	DELTA-BHC	BDL	10.0
6P.	CHLORDANE	BDL	10.0
7P.	4,4'-DDT	40	10.0
8P.	4,4'-DDE	14	10.0
9P.	4,4'-DDD	17	10.0
10P.	DIELDRIN	BDL	10.0
11P.	ALPHA-ENDOSULFAN	BDL	10.0
12P.	BETA-ENDOSULFAN	BDL	10.0
13P.	ENDOSULFAN SULFATE	BDL	10.0
14P.	ENDRIN	BDL	10.0
15P.	ENDRIN ALDEHYDE	BDL	10.0
16P.	HEPTACHLOR	BDL	10.0
17P.	HEPTACHLOR EPOXIDE	BDL	10.0
18P.	PCB-1242	BDL	100.0
19P.	PCB-1254	BDL	100.0
20P.	PCB-1221	BDL	100.0
21P.	PCB-1232	BDL	100.0
22P.	PCB-1248	BDL	100.0
23P.	PCB-1260	BDL	100.0
24P.	PCB-1016	BDL	100.0
25P.	TOXAPHENE	BDL	100.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 5:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-7
SAMPLE IDENTIFIER: 10138
COMPUCHEM SAMPLE NUMBER: 30432

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	200.0
2P.	ALPHA-BHC	BDL	200.0
3P.	BETA-BHC	BDL	200.0
4P.	GAMMA-BHC	BDL	200.0
5P.	DELTA-BHC	BDL	200.0
6P.	CHLORDANE	BDL	200.0
7P.	4,4'-DDT	1400	200.0
8P.	4,4'-DDE	620	200.0
9P.	4,4'-DDD	2200	200.0
10P.	DIELDRIN	BDL	200.0
11P.	ALPHA-ENDOSULFAN	BDL	200.0
12P.	BETA-ENDOSULFAN	BDL	200.0
13P.	ENDOSULFAN SULFATE	BDL	200.0
14P.	ENDRIN	BDL	200.0
15P.	ENDRIN ALDEHYDE	BDL	200.0
16P.	HEPTACHLOR	BDL	200.0
17P.	HEPTACHLOR EPOXIDE	BDL	200.0
18P.	PCB-1242	BDL	2000.0
19P.	PCB-1254	BDL	2000.0
20P.	PCB-1221	BDL	2000.0
21P.	PCB-1232	BDL	2000.0
22P.	PCB-1248	BDL	2000.0
23P.	PCB-1260	BDL	2000.0
24P.	PCB-1016	BDL	2000.0
25P.	TOXAPHENE	BDL	2000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 100:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-8
SAMPLE IDENTIFIER: 10139
COMPUCHEM SAMPLE NUMBER: 30433

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	300.0
2P.	ALPHA-BHC	BDL	300.0
3P.	BETA-BHC	BDL	300.0
4P.	GAMMA-BHC	BDL	300.0
5P.	DELTA-BHC	BDL	300.0
6P.	CHLORDANE	BDL	300.0
7P.	4,4'-DDT	12000	300.0
8P.	4,4'-DDE	1600	300.0
9P.	4,4'-DDD	1100	300.0
10P.	DIELDRIN	BDL	300.0
11P.	ALPHA-ENDOSULFAN	BDL	300.0
12P.	BETA-ENDOSULFAN	BDL	300.0
13P.	ENDOSULFAN SULFATE	BDL	300.0
14P.	ENDRIN	BDL	300.0
15P.	ENDRIN ALDEHYDE	BDL	300.0
16P.	HEPTACHLOR	BDL	300.0
17P.	HEPTACHLOR EPOXIDE	BDL	300.0
18P.	PCB-1242	BDL	3000.0
19P.	PCB-1254	BDL	3000.0
20P.	PCB-1221	BDL	3000.0
21P.	PCB-1232	BDL	3000.0
22P.	PCB-1248	BDL	3000.0
23P.	PCB-1260	BDL	3000.0
24P.	PCB-1016	BDL	3000.0
25P.	TOXAPHENE	BDL	3000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 150:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-9
SAMPLE IDENTIFIER: 10140
COMPUCHEM SAMPLE NUMBER: 30434

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	20.0
2P.	ALPHA-BHC	BDL	20.0
3P.	BETA-BHC	BDL	20.0
4P.	GAMMA-BHC	BDL	20.0
5P.	DELTA-BHC	BDL	20.0
6P.	CHLORDANE	BDL	20.0
7P.	4,4'-DDT	92	20.0
8P.	4,4'-DDE	36	20.0
9P.	4,4'-DDD	BDL	20.0
10P.	DIELDRIN	BDL	20.0
11P.	ALPHA-ENDOSULFAN	BDL	20.0
12P.	BETA-ENDOSULFAN	BDL	20.0
13P.	ENDOSULFAN SULFATE	BDL	20.0
14P.	ENDRIN	BDL	20.0
15P.	ENDRIN ALDEHYDE	BDL	20.0
16P.	HEPTACHLOR	BDL	20.0
17P.	HEPTACHLOR EPOXIDE	BDL	20.0
18P.	PCB-1242	BDL	100.0
19P.	PCB-1254	BDL	100.0
20P.	PCB-1221	BDL	100.0
21P.	PCB-1232	BDL	100.0
22P.	PCB-1248	BDL	100.0
23P.	PCB-1260	BDL	100.0
24P.	PCB-1016	BDL	100.0
25P.	TOXAPHENE	BDL	100.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 10:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-10
SAMPLE IDENTIFIER: 10141
COMPUCHEM SAMPLE NUMBER: 30435

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	50.0
2P.	ALPHA-BHC	BDL	50.0
3P.	BETA-BHC	BDL	50.0
4P.	GAMMA-BHC	BDL	50.0
5P.	DELTA-BHC	BDL	50.0
6P.	CHLORDANE	BDL	50.0
7P.	4,4'-DDT	260	50.0
8P.	4,4'-DDE	110	50.0
9P.	4,4'-DDD	100	50.0
10P.	DIELDRIN	BDL	50.0
11P.	ALPHA-ENDOSULFAN	BDL	50.0
12P.	BETA-ENDOSULFAN	BDL	50.0
13P.	ENDOSULFAN SULFATE	BDL	50.0
14P.	ENDRIN	BDL	50.0
15P.	ENDRIN ALDEHYDE	BDL	50.0
16P.	HEPTACHLOR	BDL	50.0
17P.	HEPTACHLOR EPOXIDE	BDL	50.0
18P.	PCB-1242	BDL	500.0
19P.	PCB-1254	BDL	500.0
20P.	PCB-1221	BDL	500.0
21P.	PCB-1232	BDL	500.0
22P.	PCB-1248	BDL	500.0
23P.	PCB-1260	BDL	500.0
24P.	PCB-1016	BDL	500.0
25P.	TOXAPHENE	BDL	500.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 25:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD# : M-11
SAMPLE IDENTIFIER: 10142
COMPUCHEM SAMPLE NUMBER: 30436

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	39	2.0
8P.	4,4'-DDE	12	2.0
9P.	4,4'-DDD	3.1	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD# : M-12
SAMPLE IDENTIFIER: 10143
COMPUCHEM SAMPLE NUMBER: 30437

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	1.0
2P.	ALPHA-BHC	BDL	1.0
3P.	BETA-BHC	BDL	1.0
4P.	GAMMA-BHC	BDL	1.0
5P.	DELTA-BHC	BDL	1.0
6P.	CHLORDANE	BDL	1.0
7P.	4,4'-DDT	19.	1.0
8P.	4,4'-DDE	7.1	1.0
9P.	4,4'-DDD	2.1	1.0
10P.	DIELDRIN	BDL	1.0
11P.	ALPHA-ENDOSULFAN	BDL	1.0
12P.	BETA-ENDOSULFAN	BDL	1.0
13P.	ENDOSULFAN SULFATE	BDL	1.0
14P.	ENDRIN	BDL	1.0
15P.	ENDRIN ALDEHYDE	BDL	1.0
16P.	HEPTACHLOR	BDL	1.0
17P.	HEPTACHLOR EPOXIDE	BDL	1.0
18P.	PCB-1242	BDL	10.0
19P.	PCB-1254	BDL	10.0
20P.	PCB-1221	BDL	10.0
21P.	PCB-1232	BDL	10.0
22P.	PCB-1248	BDL	10.0
23P.	PCB-1260	BDL	10.0
24P.	PCB-1016	BDL	10.0
25P.	TOXAPHENE	BDL	10.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD# : M-13
SAMPLE IDENTIFIER: 10287
COMPUCHEM SAMPLE NUMBER: 30769

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	20.0
2P.	ALPHA-BHC	BDL	20.0
3P.	BETA-BHC	BDL	20.0
4P.	GAMMA-BHC	BDL	20.0
5P.	DELTA-BHC	BDL	20.0
6P.	CHLORDANE	BDL	20.0
7P.	4,4'-DDT	40	20.0
8P.	4,4'-DDE	25	20.0
9P.	4,4'-DDD	24	20.0
10P.	DIELDRIN	BDL	20.0
11P.	ALPHA-ENDOSULFAN	BDL	20.0
12P.	BETA-ENDOSULFAN	BDL	20.0
13P.	ENDOSULFAN SULFATE	BDL	20.0
14P.	ENDRIN	BDL	20.0
15P.	ENDRIN ALDEHYDE	BDL	20.0
16P.	HEPTACHLOR	BDL	20.0
17P.	HEPTACHLOR EPOXIDE	BDL	20.0
18P.	PCB-1242	BDL	200.0
19P.	PCB-1254	BDL	200.0
20P.	PCB-1221	BDL	200.0
21P.	PCB-1232	BDL	200.0
22P.	PCB-1248	BDL	200.0
23P.	PCB-1260	BDL	200.0
24P.	PCB-1016	BDL	200.0
25P.	TOXAPHENE	BDL	200.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 10:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD# : M-14
SAMPLE IDENTIFIER: 10288
COMPUCHEM SAMPLE NUMBER: 30771

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	BDL	2.0
8P.	4,4'-DDE	BDL	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-15
SAMPLE IDENTIFIER: 10289
30772

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	6.3	2.0
8P.	4,4'-DDE	2.2	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-16
SAMPLE IDENTIFIER: 10290
COMPUCHEM SAMPLE NUMBER: 30773

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	27	2.0
8P.	4,4'-DDE	11	2.0
9P.	4,4'-DDD	5.3	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-17
SAMPLE IDENTIFIER: 10291
COMPUCHEM SAMPLE NUMBER: 30774

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	5.9	2.0
8P.	4,4'-DDE	4.2	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-18
SAMPLE IDENTIFIER: 10292
COMPUCHEM SAMPLE NUMBER: 30775

PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P. ALDRIN	BDL	2.0
2P. ALPHA-BHC	BDL	2.0
3P. BETA-BHC	BDL	2.0
4P. GAMMA-BHC	BDL	2.0
5P. DELTA-BHC	BDL	2.0
6P. CHLORDANE	BDL	2.0
7P. 4,4'-DDT	8.0	2.0
8P. 4,4'-DDE	2.6	2.0
9P. 4,4'-DDD	BDL	2.0
10P. DIELDRIN	BDL	2.0
11P. ALPHA-ENDOSULFAN	BDL	2.0
12P. BETA-ENDOSULFAN	BDL	2.0
13P. ENDOSULFAN SULFATE	BDL	2.0
14P. ENDRIN	BDL	2.0
15P. ENDRIN ALDEHYDE	BDL	2.0
16P. HEPTACHLOR	BDL	2.0
17P. HEPTACHLOR EPOXIDE	BDL	2.0
18P. PCB-1242	BDL	20.0
19P. PCB-1254	BDL	20.0
20P. PCB-1221	BDL	20.0
21P. PCB-1232	BDL	20.0
22P. PCB-1248	BDL	20.0
23P. PCB-1260	BDL	20.0
24P. PCB-1016	BDL	20.0
25P. TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-19
SAMPLE IDENTIFIER: 10293
COMPUCHEM SAMPLE NUMBER: 30778

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	20	2.0
8P.	4,4'-DDE	5.8	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD# : M-20
SAMPLE IDENTIFIER: 10294
COMPUCHEM SAMPLE NUMBER: 30779

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	8.0	2.0
8P.	4,4'-DDE	8.3	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	3.4	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-21
SAMPLE IDENTIFIER: 10295
COMPUCHEM SAMPLE NUMBER: 30780

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	BDL	2.0
8P.	4,4'-DDE	BDL(1)	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
†See Data Report Notice

(1)Confirmed to be present but slightly below the reportable detection limit.

EXHIBIT II - COMPOUND LIST

FIELD # : M-22
SAMPLE IDENTIFIER: 10296
COMPUCHEM SAMPLE NUMBER: 30781

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	50.0
2P.	ALPHA-BHC	BDL	50.0
3P.	BETA-BHC	BDL	50.0
4P.	GAMMA-BHC	BDL	50.0
5P.	DELTA-BHC	BDL	50.0
6P.	CHLORDANE	BDL	50.0
7P.	4,4'-DDT	460	50.0
8P.	4,4'-DDE	200	50.0
9P.	4,4'-DDD	59	50.0
10P.	DIELDRIN	BDL	50.0
11P.	ALPHA-ENDOSULFAN	BDL	50.0
12P.	BETA-ENDOSULFAN	BDL	50.0
13P.	ENDOSULFAN SULFATE	BDL	50.0
14P.	ENDRIN	BDL	50.0
15P.	ENDRIN ALDEHYDE	BDL	50.0
16P.	HEPTACHLOR	BDL	50.0
17P.	HEPTACHLOR EPOXIDE	BDL	50.0
18P.	PCB-1242	BDL	500.0
19P.	PCB-1254	BDL	500.0
20P.	PCB-1221	BDL	500.0
21P.	PCB-1232	BDL	500.0
22P.	PCB-1248	BDL	500.0
23P.	PCB-1260	BDL	500.0
24P.	PCB-1016	BDL	500.0
25P.	TOXAPHENE	BDL	500.0

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 25:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II

SAMPLE IDENTIFIER: 10297
COMPUCHEM SAMPLE NUMBER: 30782

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	10.0
2P.	ALPHA-BHC	BDL	10.0
3P.	BETA-BHC	BDL	10.0
4P.	GAMMA-BHC	BDL	10.0
5P.	DELTA-BHC	BDL	10.0
6P.	CHLORDANE	BDL	10.0
7P.	4,4'-DDT	48	10.0
8P.	4,4'-DDE	29	10.0
9P.	4,4'-DDD	BDL	10.0
10P.	DIELDRIN	BDL	10.0
11P.	ALPHA-ENDOSULFAN	BDL	10.0
12P.	BETA-ENDOSULFAN	BDL	10.0
13P.	ENDOSULFAN SULFATE	BDL	10.0
14P.	ENDRIN	BDL	10.0
15P.	ENDRIN ALDEHYDE	BDL	10.0
16P.	HEPTACHLOR	BDL	10.0
17P.	HEPTACHLOR EPOXIDE	BDL	10.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 5:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-24
SAMPLE IDENTIFIER: 10298
COMPUCHEM SAMPLE NUMBER: 30787

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	100.0
2P.	ALPHA-BHC	BDL	100.0
3P.	BETA-BHC	BDL	100.0
4P.	GAMMA-BHC	BDL	100.0
5P.	DELTA-BHC	BDL	100.0
6P.	CHLORDANE	BDL	100.0
7P.	4,4'-DDT	1300	100.0
8P.	4,4'-DDE	BDL	100.0
9P.	4,4'-DDD	BDL	100.0
10P.	DIELDRIN	BDL	100.0
11P.	ALPHA-ENDOSULFAN	BDL	100.0
12P.	BETA-ENDOSULFAN	BDL	100.0
13P.	ENDOSULFAN SULFATE	BDL	100.0
14P.	ENDRIN	BDL	100.0
15P.	ENDRIN ALDEHYDE	BDL	100.0
16P.	HEPTACHLOR	BDL	100.0
17P.	HEPTACHLOR EPOXIDE	BDL	100.0
18P.	PCB-1242	BDL	1000.0
19P.	PCB-1254	BDL	1000.0
20P.	PCB-1221	BDL	1000.0
21P.	PCB-1232	BDL	1000.0
22P.	PCB-1248	BDL	1000.0
23P.	PCB-1260	BDL	1000.0
24P.	PCB-1016	BDL	1000.0
25P.	TOXAPHENE	BDL	1000.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 10:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-28
SAMPLE IDENTIFIER: 10969
COMPUCHEM SAMPLE NUMBER: 31568

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	10
2P.	ALPHA-BHC	BDL	10
3P.	BETA-BHC	BDL	10
4P.	GAMMA-BHC	BDL	10
5P.	DELTA-BHC	BDL	10
6P.	CHLORDANE	BDL	10
7P.	4,4'-DDT	130	10
8P.	4,4'-DDE	28	10
9P.	4,4'-DDD	22	10
10P.	DIELDRIN	BDL	10
11P.	ALPHA-ENDOSULFAN	BDL	10
12P.	BETA-ENDOSULFAN	BDL	10
13P.	ENDOSULFAN SULFATE	BDL	10
14P.	ENDRIN	BDL	10
15P.	ENDRIN ALDEHYDE	BDL	10
16P.	HEPTACHLOR	BDL	10
17P.	HEPTACHLOR EPOXIDE	BDL	10
18P.	PCB-1242	BDL	100
19P.	PCB-1254	BDL	100
20P.	PCB-1221	BDL	100
21P.	PCB-1232	BDL	100
22P.	PCB-1248	BDL	100
23P.	PCB-1260	BDL	100
24P.	PCB-1016	BDL	100
25P.	TOXAPHENE	BDL	100

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 5:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD# M-29
SAMPLE IDENTIFIER: 10970
COMPUCHEM SAMPLE NUMBER: 31570

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	1250
2P.	ALPHA-BHC	BDL	1250
3P.	BETA-BHC	BDL	1250
4P.	GAMMA-BHC	BDL	1250
5P.	DELTA-BHC	BDL	1250
6P.	CHLORDANE	BDL	1250
7P.	4,4'-DDT	60000	1250
8P.	4,4'-DDE	4200	1250
9P.	4,4'-DDD	10000	1250
10P.	DIELDRIN	BDL	1250
11P.	ALPHA-ENDOSULFAN	BDL	1250
12P.	BETA-ENDOSULFAN	BDL	1250
13P.	ENDOSULFAN SULFATE	BDL	1250
14P.	ENDRIN	BDL	1250
15P.	ENDRIN ALDEHYDE	BDL	1250
16P.	HEPTACHLOR	BDL	1250
17P.	HEPTACHLOR EPOXIDE	BDL	1250
18P.	PCB-1242	BDL	12500
19P.	PCB-1254	BDL	12500
20P.	PCB-1221	BDL	12500
21P.	PCB-1232	BDL	12500
22P.	PCB-1248	BDL	12500
23P.	PCB-1260	BDL	12500
24P.	PCB-1016	BDL	12500
25P.	TOXAPHENE	BDL	12500

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 625:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-30
SAMPLE IDENTIFIER: 10971
COMPUCHEM SAMPLE NUMBER: 31577

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	50
2P.	ALPHA-BHC	BDL	50
3P.	BETA-BHC	BDL	50
4P.	GAMMA-BHC	BDL	50
5P.	DELTA-BHC	BDL	50
6P.	CHLORDANE	BDL	50
7P.	4,4'-DDT	560	50
8P.	4,4'-DDE	200	50
9P.	4,4'-DDD	87	50
10P.	DIELDRIN	BDL	50
11P.	ALPHA-ENDOSULFAN	BDL	50
12P.	BETA-ENDOSULFAN	BDL	50
13P.	ENDOSULFAN SULFATE	BDL	50
14P.	ENDRIN	BDL	50
15P.	ENDRIN ALDEHYDE	BDL	50
16P.	HEPTACHLOR	BDL	50
17P.	HEPTACHLOR EPOXIDE	BDL	50
18P.	PCB-1242	BDL	500
19P.	PCB-1254	BDL	500
20P.	PCB-1221	BDL	500
21P.	PCB-1232	BDL	500
22P.	PCB-1248	BDL	500
23P.	PCB-1260	BDL	500
24P.	PCB-1016	BDL	500
25P.	TOXAPHENE	BDL	500

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 25:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-31
SAMPLE IDENTIFIER: 10478
COMPUCHEM SAMPLE NUMBER: 30788

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	2.0
2P.	ALPHA-BHC	BDL	2.0
3P.	BETA-BHC	BDL	2.0
4P.	GAMMA-BHC	BDL	2.0
5P.	DELTA-BHC	BDL	2.0
6P.	CHLORDANE	BDL	2.0
7P.	4,4'-DDT	BDL	2.0
8P.	4,4'-DDE	BDL	2.0
9P.	4,4'-DDD	BDL	2.0
10P.	DIELDRIN	BDL	2.0
11P.	ALPHA-ENDOSULFAN	BDL	2.0
12P.	BETA-ENDOSULFAN	BDL	2.0
13P.	ENDOSULFAN SULFATE	BDL	2.0
14P.	ENDRIN	BDL	2.0
15P.	ENDRIN ALDEHYDE	BDL	2.0
16P.	HEPTACHLOR	BDL	2.0
17P.	HEPTACHLOR EPOXIDE	BDL	2.0
18P.	PCB-1242	BDL	20.0
19P.	PCB-1254	BDL	20.0
20P.	PCB-1221	BDL	20.0
21P.	PCB-1232	BDL	20.0
22P.	PCB-1248	BDL	20.0
23P.	PCB-1260	BDL	20.0
24P.	PCB-1016	BDL	20.0
25P.	TOXAPHENE	BDL	20.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample

EXHIBIT II - COMPOUND LIST

FIELD # : M-32
SAMPLE IDENTIFIER: 10479
COMPUCHEM SAMPLE NUMBER: 30789

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	10.0
2P.	ALPHA-BHC	BDL	10.0
3P.	BETA-BHC	BDL	10.0
4P.	GAMMA-BHC	BDL	10.0
5P.	DELTA-BHC	BDL	10.0
6P.	CHLORDANE	BDL	10.0
7P.	4,4'-DDT	100	10.0
8P.	4,4'-DDE	56	10.0
9P.	4,4'-DDD	18	10.0
10P.	DIELDRIN	BDL	10.0
11P.	ALPHA-ENDOSULFAN	BDL	10.0
12P.	BETA-ENDOSULFAN	BDL	10.0
13P.	ENDOSULFAN SULFATE	BDL	10.0
14P.	ENDRIN	BDL	10.0
15P.	ENDRIN ALDEHYDE	BDL	10.0
16P.	HEPTACHLOR	BDL	10.0
17P.	HEPTACHLOR EPOXIDE	BDL	10.0
18P.	PCB-1242	BDL	100.0
19P.	PCB-1254	BDL	100.0
20P.	PCB-1221	BDL	100.0
21P.	PCB-1232	BDL	100.0
22P.	PCB-1248	BDL	100.0
23P.	PCB-1260	BDL	100.0
24P.	PCB-1016	BDL	100.0
25P.	TOXAPHENE	BDL	100.0

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 5:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-33
SAMPLE IDENTIFIER: 10480
COMPUCHEM SAMPLE NUMBER: 30790

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	20.0
2P.	ALPHA-BHC	BDL	20.0
3P.	BETA-BHC	BDL	20.0
4P.	GAMMA-BHC	BDL	20.0
5P.	DELTA-BHC	BDL	20.0
6P.	CHLORDANE	BDL	20.0
7P.	4,4'-DDT	80	20.0
8P.	4,4'-DDE	90	20.0
9P.	4,4'-DDD	220	20.0
10P.	DIELDRIN	BDL	20.0
11P.	ALPHA-ENDOSULFAN	BDL	20.0
12P.	BETA-ENDOSULFAN	BDL	20.0
13P.	ENDOSULFAN SULFATE	BDL	20.0
14P.	ENDRIN	BDL	20.0
15P.	ENDRIN ALDEHYDE	BDL	20.0
16P.	HEPTACHLOR	BDL	20.0
17P.	HEPTACHLOR EPOXIDE	BDL	20.0
18P.	PCB-1242	BDL	200.0
19P.	PCB-1254	BDL	200.0
20P.	PCB-1221	BDL	200.0
21P.	PCB-1232	BDL	200.0
22P.	PCB-1248	BDL	200.0
23P.	PCB-1260	BDL	200.0
24P.	PCB-1016	BDL	200.0
25P.	TOXAPHENE	BDL	200.0

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 10:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-34
SAMPLE IDENTIFIER: 10481
COMPUCHEM SAMPLE NUMBER: 30791

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	10.0
2P.	ALPHA-BHC	BDL	10.0
3P.	BETA-BHC	BDL	10.0
4P.	GAMMA-BHC	BDL	10.0
5P.	DELTA-BHC	BDL	10.0
6P.	CHLORDANE	BDL	10.0
7P.	4,4'-DDT	68	10.0
8P.	4,4'-DDE	44	10.0
9P.	4,4'-DDD	21	10.0
10P.	DIELDRIN	BDL	10.0
11P.	ALPHA-ENDOSULFAN	BDL	10.0
12P.	BETA-ENDOSULFAN	BDL	10.0
13P.	ENDOSULFAN SULFATE	BDL	10.0
14P.	ENDRIN	BDL	10.0
15P.	ENDRIN ALDEHYDE	BDL	10.0
16P.	HEPTACHLOR	BDL	10.0
17P.	HEPTACHLOR EPOXIDE	BDL	10.0
18P.	PCB-1242	BDL	100.0
19P.	PCB-1254	BDL	100.0
20P.	PCB-1221	BDL	100.0
21P.	PCB-1232	BDL	100.0
22P.	PCB-1248	BDL	100.0
23P.	PCB-1260	BDL	100.0
24P.	PCB-1016	BDL	100.0
25P.	TOXAPHENE	BDL	100.0

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 5:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

EXHIBIT II - COMPOUND LIST

FIELD # : M-35
SAMPLE IDENTIFIER: 10482
COMPUCHEM SAMPLE NUMBER: 30792

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION† LIMIT (UG/KG)
1P.	ALDRIN	BDL	20.0
2P.	ALPHA-BHC	BDL	20.0
3P.	BETA-BHC	BDL	20.0
4P.	GAMMA-BHC	BDL	20.0
5P.	DELTA-BHC	BDL	20.0
6P.	CHLORDANE	BDL	20.0
7P.	4,4'-DDT	BDL	20.0
8P.	4,4'-DDE	BDL	20.0
9P.	4,4'-DDD	BDL	20.0
10P.	DIELDRIN	BDL	20.0
11P.	ALPHA-ENDOSULFAN	BDL	20.0
12P.	BETA-ENDOSULFAN	BDL	20.0
13P.	ENDOSULFAN SULFATE	BDL	20.0
14P.	ENDRIN	BDL	20.0
15P.	ENDRIN ALDEHYDE	BDL	20.0
16P.	HEPTACHLOR	BDL	20.0
17P.	HEPTACHLOR EPOXIDE	BDL	20.0
18P.	PCB-1242	BDL	200.0
19P.	PCB-1254	BDL	200.0
20P.	PCB-1221	BDL	200.0
21P.	PCB-1232	BDL	200.0
22P.	PCB-1248	BDL	200.0
23P.	PCB-1260	BDL	200.0
24P.	PCB-1016	BDL	200.0
25P.	TOXAPHENE	BDL	200.0

BDL=BELOW DETECTION LIMIT
†See Data Report Notice. Additionally, sample analyzed using a 10:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

BCM

APPENDIX C

SOIL BORING LOGS
AND
SAMPLE COMPOSITING DIAGRAM

OCTOBER 1983

EXHIBIT II - COMPOUND LIST

FIELD# M-40 CONTROL
SAMPLE IDENTIFIER: 11402
COMPUCHEM SAMPLE NUMBER: 31822

	PESTICIDES/PCB'S	CONCENTRATION (UG/KG)	DETECTION* LIMIT (UG/KG)
1P.	ALDRIN	BDL	10.0
2P.	ALPHA-BHC	BDL	10.0
3P.	BETA-BHC	BDL	10.0
4P.	GAMMA-BHC	BDL	10.0
5P.	DELTA-BHC	BDL	10.0
6P.	CHLORDANE	BDL	10.0
7P.	4,4'-DDT	47	10.0
8P.	4,4'-DDE	19	10.0
9P.	4,4'-DDD	BDL	10.0
10P.	DIELDRIN	BDL	10.0
11P.	ALPHA-ENDOSULFAN	BDL	10.0
12P.	BETA-ENDOSULFAN	BDL	10.0
13P.	ENDOSULFAN SULFATE	BDL	10.0
14P.	ENDRIN	BDL	10.0
15P.	ENDRIN ALDEHYDE	BDL	10.0
16P.	HEPTACHLOR	BDL	10.0
17P.	HEPTACHLOR EPOXIDE	BDL	10.0
18P.	PCB-1242	BDL	100.0
19P.	PCB-1254	BDL	100.0
20P.	PCB-1221	BDL	100.0
21P.	PCB-1232	BDL	100.0
22P.	PCB-1248	BDL	100.0
23P.	PCB-1260	BDL	100.0
24P.	PCB-1016	BDL	100.0
25P.	TOXAPHENE	BDL	100.0

BDL=BELOW DETECTION LIMIT
*Detection limits based on processing 50g of as-received sample. Additionally, sample analyzed using a 10:1 dilution to properly evaluate the GC Chromatogram, thus the higher than normal detection limits.

BCM

SOIL BORING SAMPLE COMPOSITING PROTOCOL
OCTOBER 1983

FORMER BUCKS COUNTY MOSQUITO CONTROL COMMISSION SITE

Composite Designation		Boring No. & Split Spoon Sample Depth Range (ft)			
MCB-A	=	MCB-1	(0-1) + (1-2)	+	MCB-4 (0-2)
MCB-B	=	MCB-1	(2-3)(3-4)(4-5) (5-6)(6-8)(8-9)	+	MCB-4 (2-4)(4-6) (6-7)(7-8)
MCB-C	=	MCB-1	(9-10)(10-12)	+	MCB-4 (8-10)(10-12)
MCB-D	=	MCB-2	(0-1)(1-2)	+	MCB-3 (0-1)(1-2)
MCB-E	=	MCB-2	(2-4)(4-5)(5-6)	+	MCB-3 (2-3)(3-4)(4-6)
MCB-F	=	MCB-2	(6-8) (8-9) (9-10)(10-12)	+	MCB-3 (6-8)(8-10)

Source: BCM Eastern Inc.

BCM

Drilling Log

Client: Rchm&H225 Former BCMCC Site

Well No.: Boring MCB-1.

Project No.: 00-4061-08

Well Location:

Driller/Company:

Date(s) Drilled: 10/26/93

Drilling Method:

Hole Diameter:

Sample Type: Split spoon

Sample Interval: 2'

Elevation Datum:

Ground Elevation:

Outer Casing Elevation:

Inner Casing Elevation:

Static Water Table Depth (w/reference):

(outer casing top)

Water Table Elevation:

Total Well Depth:

Casing:

Cased Interval(s):

Screening:

Screened Interval(s):

Grouting:

Grouted Interval:

Packing:

Packed Interval:

Bentonite Pellet Seal:

Development Method:

Development Time:

Logged By:

Approximate Well Yield:

Comments: Revert used after 8'

Depth Scale	Sample	Spoon Blows	Description of Materials
0-1'	0-2	3,6,10,11	Brown, medium-coarse grained sand, gravel, with some cobbles
1'-2'	2-4	14,19,41,32	Brown, gravelly, sandy silt. Gravel is rounded, Sand is fine-medium grain
2'-14'	4-6	20,23,35,32	Brown, fine-coarse grained sand, with rounded fine-coarse gravel, traces of silt
	6-8	20,36,30,49	whiter in some places
	8-10	8,34,32,33	
	10-12	14,18,12,11	
	12-14	5,6,7,10	

000973

BCM

Drilling Log

Well No.: Boring MCB-2

Client: Rohm & Haas Former BCMCC Site

Project No.: 00.40161.03

Well Location:

Driller/Company:

Date(s) Drilled: 10/27/83

Drilling Method:

Hole Diameter:

Sample Type: Split spoon

Sample Interval: 2'

Elevation Datum:

Ground Elevation:

Outer Casing Elevation:

Inner Casing Elevation: (outer casing top)

Static Water Table Depth (w/reference):

Water Table Elevation:

Total Well Depth:

Casing:

Cased Interval(s):

Screening:

Screened Interval(s):

Grouting:

Grouted Interval:

Packing:

Packed Interval:

Bentonite Pellet Seal:

Development Method:

Development Time:

Logged By:

Approximate Well Yield:

Comments: Revert used after 10'

000974

Depth Scale	Sample	Spoon Blows	Description of Materials
0-3'	0-2	3,3,2,3	Brownish-black, fine-grained sandy micaceous silt. Sewage odor similar to treatment plant.
3'-12'	2-4	6,11,25,22	Brown, fine-medium grained sand with fine-coarse gravel, silty in some places
	4-6	17,13,40,24	
	6-8	24,12,16,44	Encountered water table at 6-7'
	8-10	11,10,8,4	
	10-12	4,8,10,10	

BCM

Drilling Log

Well No.: Boring MCB-3

Client: Rohm & Haas Former BCMCC Site

Project No.: OC.4061.08

Well Location:

Driller/Company:

Date(s) Drilled: 10/27/83

Drilling Method:

Hole Diameter:

Sample Type: Split spoon

Sample Interval: 2'

Elevation Datum:

Ground Elevation:

Outer Casing Elevation:

Inner Casing Elevation: (outer casing top)

Static Water Table Depth (w/reference):

Water Table Elevation:

Total Well Depth:

Casing:

Cased Interval(s):

Screening:

Screened Interval(s):

Grouting:

Grouted Interval:

Packing:

Packed Interval:

Bentonite Pellet Seal:

Development Method:

Development Time:

Logged By:

Approximate Well Yield:

Comments: No water used.

000975

Depth Scale	Sample	Spoon Blows	Description of Materials
0-0.5'	0-2	1,1,1,2	Brown, medium grained micaceous sand
0.5'-3'	2-4	5,2,18,25	Brown-black sandy silt with cut
			fragments. Bright blue material,
			bad odor.
3'-8'	4-6	55,35,22,20	Tan-black-brown sand and gravel with
	6-8	10,14,20,28	traces of silt. Sand is fine-coarse
			grained. Water table encountered at 4'.
8'-10'	8-10	20,20,12,7	Brown silty sand and gravel.
			Sand is fine-coarse grained; gravel is
			mostly coarse grained with rounded
			pebbles

BCM

Drilling Log

Well No.: Boring MCB-4

Client: Rohm & Haas Former BCMCC Site

Project No.: 00.4041.08

Well Location:

Driller/Company:

Date(s) Drilled: 10/27/83

Drilling Method:

Hole Diameter:

Sample Type: Split spoon

Sample Interval: 2'

Elevation Datum:

Ground Elevation:

Outer Casing Elevation:

Inner Casing Elevation: (outer casing top)

Static Water Table Depth (w/reference):

Water Table Elevation:

Total Well Depth:

Casing:

Cased Interval(s):

Screening:

Screened Interval(s):

Grouting:

Grouted Interval:

Packing:

Packed Interval:

Bentonite Pellet Seal:

Development Method:

Development Time:

Logged By:

Approximate Well Yield:

Comments: Reverse used after 8'

000976

Depth Scale	Sample	Spoon Blows	Description of Materials
0-2'	0-2	4,11,19,15	Brown, slightly gravelly, slightly sandy silt
2'-12'	2-4	11,20,27,24	Brown, fine-coarse grained sand and fine-medium grained gravel. Gravel is well rounded.
	4-6	17,20,25,25	Increased gravel from 4'-7'
	6-8	20,21,21,24	Silty from 6'-7'
	8-10	12,18,27,25	
	10-12	16,13,7,10	Very silty from 10'-12'

BCM

APPENDIX D

LAB PROCEDURE FOR ETHYL ACRYLATE

Betz • Converse • Murdoch • Inc.

ANALYSIS: Rohm and Haas Acrylates

INSTRUMENT: Hewlett Packard 5840

DETECTOR: FID

COLUMN: Supelco 3% SP-1000 on 80/120 mesh Carbopack B, 10 foot by 1/8 inch Stainless Steel (catalog #1-1813, vol 22 p.28).

INITIAL TEMP: 70 degrees C

FINAL TEMP: 235 degrees C

RATE: 8 degrees C per minute

INITIAL HOLD: 0 minutes

FINAL HOLD: 20 minutes

STOP TIMER: 40 minutes

AREA REJECT: 100 a.u.

SLOPE SENS.: 0.5 or 0.8

ATTN.: between 6 and 8

INJECTION VOL.: 5 ul

SAMPLE PREP: none (direct injection)

REFERENCES: Supelco Newsletter vol 1, no 5.

DETECTOR TEMP.: 200 degrees C

INJECTION TEMP.: 200 degrees C

STD. CONC.: Ethyl Acrylate - 500 mg/l, Methyl Methacrylate - 1000 mg/l, Butyl Acrylate - 1000 mg/l.

ELUTION ORDER: Ethyl Acrylate approx. 18 min.,Methyl Methacrylate approx 18 min., Butyl acrylate approx 29 min. (N.B. Ethyl Acrylate and Methyl Methacrylate may be better separated by decreasing the rate to 6 or 7 degrees C per minute.)

SOLVENT: DI water

BCM

APPENDIX E

BCM ETHYL ACRYLATE LAB ANALYSIS

977a

BCM

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

ROHM & HAAS
ATTN BOB BROD
BCM MALL
PA

00-701352 2/14/85

FINAL REPORT REF: 00-4061-12

This is the final report for the samples shown below. If you have questions concerning this report please call 215-825-0447.

BCM NUMBER		N413345	N413346
CLIENT SAMPLE ID		MAPS	SKS
DATE SAMPLED		8/9/84	8/15/84
DATE RECEIVED		8/15/84	8/15/84
TEST AND UNITS	(ANAL. METH.)		
STUDY (GC) MT.DY		12.5	12.5
STUDY (PASST)		<3	<3

REMARKS

BCM SAMPLE NO: N413345

1 : ETHYL ACRYLATE <0.1 MG/KG.

BCM SAMPLE NO: N413346

1 : ETHYL ACRYLATE <0.1 MG/KG.

000978

LAB CERT. : EPA/PA-#38007, NJ-#77175, AL- #40300, EPA BULK ASBESTOS QC-#3339
AIHA/NIOSH - # 241/19401

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

ROHM & HAAS 00-701352

** END OF REPORT **

000979

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

ROHM & HAAS
ATTN JIM HUSTED
BCM MALL
PA

00-701352 9/21/84

FINAL REPORT REF: 00-4061-08 PAGE 1

This is the final report for the samples shown below. If you have questions concerning this report please call 215-825-0447.

BCM NUMBER	N411406	N411407	N411408	N411409
CLIENT SAMPLE ID	MBW	MBE	BF-1	BF-2
DATE SAMPLED	7/16/84	7/17/84	7/17/84	7/17/84
DATE RECEIVED	7/17/84	7/17/84	7/17/84	7/17/84
TEST AND UNITS (ANAL. METH.)				
STUDY (GC) MT.DY	8.14	8.14	8.14	8.14
STUDY (PASST)	<3	<3	<3	<3

REMARKS

BCM SAMPLE NO: N411406

1 : ETHYL ACRYLATE <0.1 MG/KG.

BCM SAMPLE NO: N411407

1 : ETHYL ACRYLATE <0.1 MG/KG.

BCM SAMPLE NO: N411408

1 : ETHYL ACRYLATE <0.1 MG/KG.

000980

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

FINAL REPORT

ROHM & HAAS 00-701352

BCM SAMPLE NO: N411409

1 : ETHYL ACRYLATE <0.1 MG/KG.

000981

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

FINAL REPORT

CLIENT

ROHM & HAAS 00-701352

BCM NUMBER	N411410	N411411
CLIENT SAMPLE ID	MD-1	MD-2
DATE SAMPLED	7/17/84	7/17/84
DATE RECEIVED	7/17/84	7/17/84
TEST AND UNITS (ANAL. METH.)		
STUDY (GC) MT.BT	8.14	8.14
STUDY (PASST)	<3	<3

REMARKS

BCM SAMPLE NO: N411410

1 : ETHYL ACRYLATE 0.2 MG/KG.

BCM SAMPLE NO: N411411

1 : ETHYL ACRYLATE <0.1 MG/KG.

000982

LAB CERT. : EPA/PA-#38007, NJ-#77175, AL- #40300, EPA BULK ASBESTOS G-#3339
AIHA/NIOSH-# 241/19401

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

ROHM & HAAS 00-701352

END OF REPORT

000983

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

ROHM & HAAS
ATTN JIM HUSTED
BCM MALL
PA

00-701352 9/26/84

FINAL REPORT REF: 00-4061-08 PAGE 1

This is the final report for the samples shown below. If you have questions concerning this report please call 215-825-0447.

BCM NUMBER	N411819	N411820	N411621	N411622
CLIENT SAMPLE ID	DCPS	NA	NB	NC
DATE SAMPLED	7/24/84	7/24/84	7/24/84	7/24/84
DATE RECEIVED	7/24/84	7/24/84	7/24/84	7/24/84
TEST AND UNITS (ANAL. METH.)				
STUDY (GC) MT.DY	8.14	8.14	8.14	8.14
STUDY (PASST)	<3	<3	<3	<3

REMARKS

BCM SAMPLE NO: N411819

1 : ETHYL ACRYLATE 0.4 MG/KG.

BCM SAMPLE NO: N411820

1 : ETHYL ACRYLATE <0.1 MG/KG.

BCM SAMPLE NO: N411821

1 : ETHYL ACRYLATE <0.1 MG/KG.

000984

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

CLIENT

ROHM & HAAS 00-701352

BCM SAMPLE NO: N411822

1. : ETHYL ACRYLATE 0.2 MG/KG.

000985

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM Laboratory Division
521 W. GERMANTOWN PIKE
NORRISTOWN, PA 19401
215-825-0447

PLEASE REMIT CHECKS TO:
BCM Eastern Inc.
1 PLYMOUTH MEETING
PLYMOUTH MEETING, PA 19462
215-825-3800

FINAL REPORT 9/26/84 PAGE 3

CLIENT

ROHM & HAAS 00-701352

BCM NUMBER	N411823
CLIENT SAMPLE ID	ND
DATE SAMPLED	7/24/84
DATE RECEIVED	7/24/84

TEST AND UNITS	(ANAL. METH.)	
STUDY (GC) MT.DY		8.14
STUDY (PASST)		<3

REMARKS

BCM SAMPLE NO: N411823

1 : ETHYL ACRYLATE 0.2 MG/KG.

LAB CERT. : EPA/PA-#38007, NJ-#77175, AL- #40300, EPA BULK ASBESTOS Q-#3339
AIHA/NIOSH-# 241/19401

END OF REPORT

000986

PAYMENT IS DUE UPON RECEIPT OF INVOICE. PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE OF 18% PER ANNUM.

BCM

APPENDIX F

INDEPENDENT ETHYL ACRYLATE LAB ANALYSIS

Princeton Service Center
U.S. Route 1
(609) 452-9050
Tlx-84-3942

princeton testing laboratory

P.O. Box 3108, Princeton, N.J. 08540

September 13, 1984

Betz Converse Murdoch Inc.-Eastern
521 W. Germantown Pike
Norristown Pa 19401

ATTENTION: T. Fecik

JOB #: 34739

AUTHORIZATION: PO 6830

ANALYSIS REQUESTED: Ethyl acrylate in soil

SAMPLES: #13345 (MAPS), #13346 (SKS)

METHOD: The soils were extracted by sonication with methanol, and the extract was analyzed by GC/FID.

RESULTS:

SAMPLE ID	Ethyl Acrylate, mg/kg (as provided)
Detection limit	3
13345 (MAPS)	ND
13346 (SKS)	ND

ND=not detected

Brian Janke, Manager
Organic Laboratory

BJ:na

000987

Princeton Service Center
U.S. Route 1
(609) 452-9050
Tlx-84-3942

princeton testing laboratory

P.O. Box 3108, Princeton, N.J. 08540

September 13, 1984

Betz,Converse,Murdoch Inc.
521 W. Germantown Pike
Norristown Pa 19401

ATTENTION: T. Fecik

JOB #: 34175

AUTHORIZATION: PO #6707

ANALYSIS REQUESTED: Ethyl acrylate in soil

METHOD: The soils were extracted by sonication with methanol, and the extract was analyzed by GC/FID.

RESULTS:

SAMPLE ID	Ethyl Acrylate, mg/kg (as provided)
Detection limit	3
11406 (MBW)	ND
11407 (MBE)	ND
11408 (BF-1)	ND
11409 (BF-2)	ND
11410 (MD-1)	ND
11411 (MD-2)	ND

ND=not detected

000988

Brian Janke,Manager
Organic Laboratory

BJ:na

princeton testing laboratory

Princeton Service Center
U.S. Route 1
609-452-9050

Box 3108, Princeton, N.J. 08540

Job # 341
Analyst MK
Date 9-13-84

QUALITY CONTROL REPORT

B. DUPLICATE ANALYSIS

MATRIX CODE: SO

COMPOUND (Including Surrogates)			CONCENTRATION (mg/kg)		Relative Percent Difference (RPD)*
Sample ID	COMPOUND NAME	METHOD	Run - 1 (D_1)	Run 2 (D_2)	
11407					
(MBE)	Ethyl Acrylate	3550/GC-FID	ND	ND	---

$$*RPD = \frac{(D_1 - D_2)}{\left[(D_1 + D_2)/2\right]} \times 100$$

000089

Princeton Service Center
U.S. Route 1
(609) 452-9050
Tlx-84-3942

princeton testing laboratory

P.O. Box 3108, Princeton, N.J. 08540

September 13, 1984

Betz,Converse,Murdoch Inc.
521 W. Germantown Pike
Norristown Pa 19401

ATTENTION: T. Fecik

JOB #: 34256

AUTHORIZATION: 6715

ANALYSIS REQUESTED: Ethyl acrylate in soil

METHOD: The soils were extracted by sonication with methanol, and the extract was analyzed by GC/FID.

RESULTS:

SAMPLE ID	Ethyl Acrylate,mg/kg (as provided)
Detection limit	3
11819 (DCPS)	ND
11820 (NA)	ND
11821 (NB)	ND
11822 (NC)	ND
11823 (ND)	ND

ND=not detected

Brian Janke, Manager
Organic Laboratory

000990

BJ:na

princeton testing laboratory

Princeton Service Center
U.S. Route 1
609-452-9050

P.O. Box 3108, Princeton, N.J. 08540

Job # 256
Analyst MK
Date 9-13-84
MATRIX CODE SO

QUALITY CONTROL REPORT

A. MATRIX SPIKE ANALYSIS

COMPOUND (Including Surrogates)			CONCENTRATION (ug/l)			%
Sample ID	COMPOUND NAME	METHOD	Sample Result (SR)	Spiked Sample Result (SSR)	Spike Added (SA)	Recovery*
11822-NC	Ethyl acrylate	3550/GC-FID	ND	850	910	93

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*% Recovery = $\frac{(SSR - SR)}{(SA)} \times 100$

Matrix Codes:
Soil SO
Sludge SL
Drinking water DW
Air AIR

J.6

LANDFILL GEOPHYSICAL INVESTIGATION
MAGNETIC SURVEY REPORT

ROHM AND HAAS COMPANY
BRISTOL, PENNSYLVANIA

FEBRUARY 1985

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1.0 EXECUTIVE SUMMARY

1.1 OVERVIEW OF THE PROJECT

This report presents the findings of a magnetic survey conducted over the inactive Rohm and Haas Company (Rohm and Haas) industrial landfill, located in Bristol Township, Bucks County, Pennsylvania. The purpose of this survey was to locate buried ferromagnetic materials within, and in the vicinity of, the landfill.

1.2 APPROACH

The magnetic survey was conducted over 52 acres of landfilled area and 22 acres of adjacent area using a proton precession magnetometer.

A grid system was established over the areas surveyed and measurements were taken along a series of parallel traverse lines and on reconnaissance traverses. Measurements of the total magnetic field were taken at 10-feet intervals on traverse lines. Traverse lines were separated by 50-feet intervals within grid systems.

Data taken in the field were transferred electronically from the magnetometer into BCM's mainframe computer. Data from traverse lines were plotted by computer as magnetic field profiles. Data from selected traverse lines were used to produce computer-plotted contour maps of the total magnetic field.

Spatial changes in the magnetic field (anomalies), which represented concentrations of ferromagnetic objects in the subsurface environment, were identified on traverse profiles and magnetic field contour maps. Survey grid areas were separated into strongly magnetic zones, weakly magnetic zones, and nonmagnetic zones, based on the occurrence of magnetic anomalies. Magnetic zones were delineated on a site plan of the landfill.

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1.3 PRINCIPAL FINDINGS

Principal findings are discussed by grid system in the following sections. Grid locations are depicted in Figure 1.

Grid A-1 - Section 1

Strongly magnetic zones occupy 38 percent of this section of the grid system. These zones, which may represent trenches of buried ferromagnetic material, generally trend southwest to northeast. One possible trench paralleled River Road along the entire northwestern boundary of the grid. Depth estimates indicate that ferromagnetic materials identified within magnetic zones contained in this section of the grid system are buried at depths of 2 to 12 feet. Forty-two percent of the grid is within weakly magnetic zones, which contain minor and scattered deposits of ferromagnetic material. Twenty percent of the grid is within nonmagnetic zones, which do not contain buried ferromagnetic material.

Grid A-1 - Section 2

Strongly magnetic zones occupy 16 percent of this section of the grid system. Two of these zones are continuous with zones identified in Grid A-1, Section 1. The remaining strongly magnetic zones are scattered throughout the northeastern and northwestern portions of the grid. These zones may represent individual burial areas for ferromagnetic materials. Depth estimates indicate that most ferromagnetic materials identified within magnetic zones contained in this section of the grid system are buried at depths of 2 to 7 feet. Forty-four percent of the grid is within weakly magnetic zones. Forty percent of the grid is within nonmagnetic zones, which do not contain buried ferromagnetic material.

Grid A-2

Strongly magnetic zones occupy 32 percent of this grid system. These zones are generally linear, trending southwest to northeast, and may represent buried trenches of ferromagnetic material. Depth estimates indicate that ferromagnetic materials identified within magnetic zones are buried at depths ranging from 2 to 17 feet. The majority of the materials are buried at depths ranging from 2 to 7 feet. Thirty-eight percent of the grid is within weakly magnetic zones, generally in proximity to the strongly magnetic zones. Thirty percent of the grid, comprising the area adjacent to the dredge spoil disposal area, is nonmagnetic.

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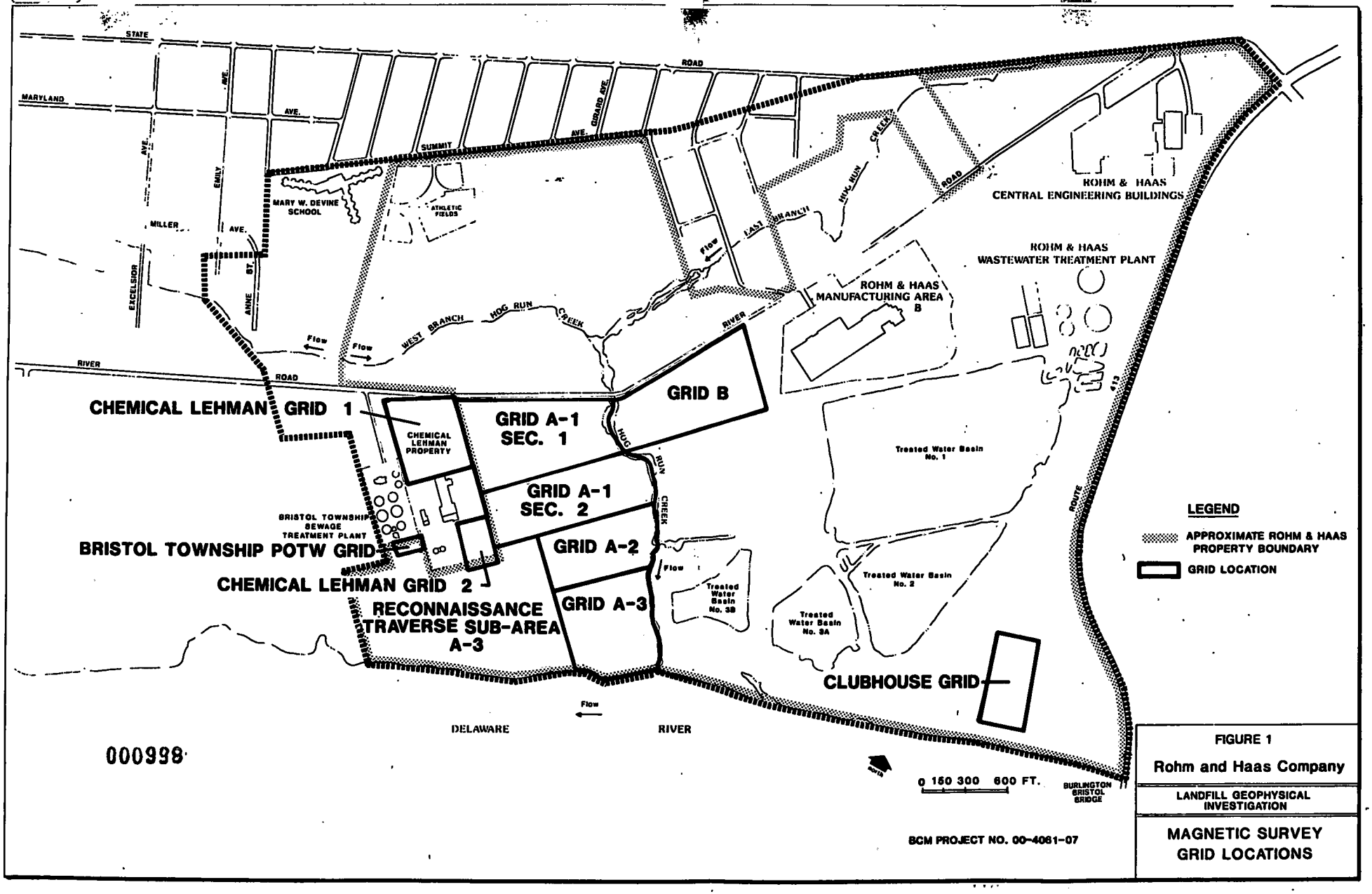

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FIGURE 1

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC SURVEY GRID LOCATIONS

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Grid A-3

Strongly magnetic zones occupy 33 percent of this grid system. These zones are linear, trending southwest to northeast, and may represent trenches of buried ferromagnetic material. Weakly magnetic zones occupy 48 percent of the grid in proximity to the strongly magnetic zones. Depth estimates indicate that ferromagnetic materials identified within magnetic zones are buried at depths ranging from 2 to 4 feet. Nineteen percent of the grid, which comprises the area underlain by the dredge spoil disposal area, is nonmagnetic.

Grid B

Strongly magnetic zones occupy 16 percent of the grid system. These zones may represent trenches of buried ferromagnetic material, trending southeast to northwest. Depth estimates indicate that ferromagnetic materials identified within magnetic zones are buried at depths ranging from 2 to 7 feet. Thirty-five percent of the grid is weakly magnetic. Forty-eight percent of the grid comprising the northwestern portion is nonmagnetic.

Clubhouse Grid

No strongly magnetic zones were identified in this grid. A linear series of anomalies was detected crossing several traverse lines. These anomalies may represent a pipeline or other buried ferromagnetic object.

Chemical Lehman Grid - Section 1

A strongly magnetic zone, comprising 8 percent of the grid, was detected trending southwest to northeast, parallel to River Road. This zone may represent a trench of buried ferromagnetic material. Depth estimates indicate that ferromagnetic materials identified within this magnetic zone are buried at depths ranging from 2 to 7 feet. Twenty percent of the grid is contained within a weakly magnetic zone, also trending southwest to northeast. Seventy-three percent of the grid is nonmagnetic.

Chemical Lehman Grid - Section 2

A minor, strongly magnetic zone was detected occupying 9 percent of the grid. This zone represents a shallow burial area for a small amount of ferromagnetic material. Ninety-one percent of the grid is nonmagnetic. A depth estimate indicates that ferromagnetic material is buried within the upper 10 feet of the subsurface within the strongly magnetic zone.

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Bristol Township POTW

This entire grid system is nonmagnetic. Magnetic surveying was not possible in major areas of the POTW, due to the presence of buildings, fences, and powerlines.

Reconnaissance Traverses - Subarea A-3

This entire area, comprising a dredge spoil disposal site, is nonmagnetic.

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2.0 INTRODUCTION

As part of an ongoing study of environmental conditions, BCM Eastern Inc. (BCM) conducted a magnetic survey over portions of the inactive Rohm and Haas industrial landfill in Bristol Township, Bucks County, Pennsylvania. The purpose of this survey was to locate buried ferromagnetic materials. Fieldwork for the survey was conducted during March, April, and May 1984.

Rohm and Haas operated the landfill adjacent to its Bristol and Croydon manufacturing facilities from 1952 to 1975. The landfill was a repository for selected Rohm and Haas-generated wastes, as well as refuse from Bristol Township resulting from several community cleanup/fix up campaigns. A more detailed description of the Bristol landfill study area is contained within the Report on Landfill Investigation prepared for Rohm and Haas by BCM in April, 1984.

Information regarding past disposal operations at the landfill was used in the planning of the magnetic survey. Magnetic survey study areas were conducted at locations formerly used for waste disposal, as well as some adjacent areas. Fifty-two acres of landfilled area and 22 acres of adjacent area were included within the magnetic survey.

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3.0 FIELD MEASUREMENT TECHNIQUES

3.1 MAGNETIC SURVEYING THEORY

The Earth's magnetic field resembles that of a uniformly polarized sphere. The two poles of the sphere are located near the geographical north and south poles. The unit commonly used in magnetic field measurements is the gamma (1 gamma = 10^{-9} webers/m^2). The intensity of the magnetic field varies, being twice as large at the poles than at the equator (60,000 and 30,000 gammas, respectively). The intensity of the magnetic field in the vicinity of Bristol, Pennsylvania is approximately 55,000 gammas.

The objective of a magnetic survey is to identify spatial changes (anomalies) in the Earth's magnetic field. In this survey, the changes ranged from a few gammas to several thousand gammas. These variations are caused by the anomalous distribution of magnetic minerals, manmade objects containing ferromagnetic materials, and electrical conductors in proximity to the magnetometer.

A magnetic survey entails conducting a series of measurements of the magnetic field. Measurements are taken at intervals along successive parallel traverse lines, which together form a grid. Spatial changes in the field are identified by two methods: examination of two-dimensional graphs of the magnetic field along traverse lines, and examination of contour maps of the magnetic field produced for survey grids.

Two-dimensional graphs of total magnetic field intensity disturbances (anomalies) are highly variable in shape and amplitude. They are always asymmetrical due to the dipole nature of the field (i.e., they have both positive and negative components). A significant characteristic of the profile of a magnetic anomaly is its variation with depth; the deeper the source, the larger the period (or the broader the anomaly). It is this property that allows the determination from profiles of approximate depth to the magnetic source without prior information regarding the source. Anomaly shape and amplitude also may be affected by the shape of the source, and by the orientation of the source in the Earth's magnetic field. As a result, anomalies sometimes appear complex, even from simple dipole sources.

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3.2 INSTRUMENTATION

Magnetic surveying at the Rohm and Haas study area was accomplished through the use of a proton precession magnetometer. The proton precession magnetometer uses the precession of spinning protons in a sample of hydrocarbon fluid to measure the total magnetic field intensity. Briefly described, the protons behave as small, spinning dipole magnets. These protons are temporarily aligned by application of a current in a coil of wire. When the current is removed, the spin of the protons causes them to precess about the direction of the Earth's magnetic field, similar to the way a spinning top will precess about the gravity field. The precessing protons generate a small signal in the same coil used to polarize them. The frequency of this signal is precisely proportional to the total magnetic field intensity at the point of measurement.

A portable Model G856 magnetometer, manufactured by EG&G Geometrics of Sunnyvale, California, was utilized in this survey. In the mode in which it was utilized, the magnetometer had a sensitivity capable of measuring the absolute value of the Earth's magnetic field with an accuracy of 0.2 gammas. Therefore, with a total field intensity of 55,000 gammas, the sensitivity of the instrument made it possible to record variations in the Earth's magnetic field to an accuracy of two parts in 550,000.

The instrument was portable, battery operated, and had a digital LED display and a memory capable of storing 1,000 readings. The memory was transferred electronically to a computer for data processing.

3.3 SURVEY METHODOLOGY

The Rohm and Haas landfill and the adjacent area were divided into a number of subareas during the landfill investigation conducted by BCM in April 1984. These subareas and known waste disposal areas are depicted in Figure 2.

To allow accurate location of field measurements during the magnetic survey, a coordinate system was established at the Rohm and Haas landfill by a surveying subcontractor hired by BCM. The coordinates were established as a 100-feet by 100-feet grid system covering landfill subareas A-1, A-2, A-3, A-4, and B. This system was further subdivided by BCM into individual magnetic survey grids. Magnetic survey grid locations are depicted in Figure 3.

Measurements of the magnetic field were conducted on lines designated as traverse lines. Groups of traverse lines were combined to form grids. In addition, in some areas, measurements were conducted on reconnaissance

traverse lines which were not incorporated into grids. Magnetic survey grids and traverses were plotted on a site plan of the landfill and are depicted in Figure 4. Information regarding grids and traverses is summarized in Table 1.

Measurements of the magnetic field were conducted at 10-feet intervals along the traverse lines. As a means of decreasing interference caused by surficial or shallow-buried magnetic objects, the magnetometer was mounted on an 8-foot staff so that, in effect, measurements were made 8 feet above the ground surface at the site. Since the variation of magnetic field intensity with distance is expressed as an inverse cube relationship ($1/r^3$) for the type of magnetic sources found at the site, the elevation of the magnetometer sensor contributed to the elimination of "noise" from surface objects on traverse profiles and magnetic field contour maps.

Measurements were taken in the field and automatically recorded in the magnetometer memory. At each measurement station, the following information was automatically recorded: traverse line number, date, measurement station number, and total magnetic field intensity. In addition, field notes were taken which recorded location, start and stop stations on traverse lines, and the location of fences, power lines, and other surface items.

In order to maintain quality assurance and quality control, daily base stations were maintained within major grids. These stations were used to check for natural, daily variation in the magnetic field which might affect data quality. Daily base station data are contained in Appendix K. An analysis of these data indicates that daily variations were minimal during the survey. The maximum variations encountered were during the survey of grids A-2 amd A-3 (76.1 gammas and 78.0 gammas, respectively). Daily variations were well below the amplitude of anomalies detected during the survey, and the data indicates that the magnetic field was not disturbed by magnetic storms during the survey.

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TABLE 1

LANDFILL GEOPHYSICAL INVESTIGATION
MAGNETIC SURVEY GRID INFORMATION

Grid Designation	Date(s) Surveyed	Traverse Lines in Grid	Number of Magnetic Field Measurements	Grid Area (acres)	Remarks
A-1 - Section 1	3/16, 3/20,3/22	30 through 47	918	10.5	
A-1 - Section 2	3/22, 3/25,3/27	48 through 68	830	8.9	
A-2	3/27,4/2	69 through 83	588	7.0	
A-3	4/3	84 through 94	589	7.4	
B	3/8,3/12	10 through 29	977	10.2	
Clubhouse	3/7	3 through 9	366	4.7	No contour map produced
Chemical Lehman - Section 1	4/20	106 through 113	408	4.0	
Chemical Lehman - Section 2	4/17	100 through 104, and 114	224	2.5	Lines 101 and 102 reconnaissance traverses Lines 100, 103, 104 and 114 used in contour map
Bristol Township POTW	5/2	115 through 119	103	1.6	Line 115 reconnaissance traverse Lines 116 through 120 used in contour map
Reconnaissance Traverses Sub-area A-3	4/10	95 through 99	675	17.3	No contour map produced

Source: BCM Eastern Inc.

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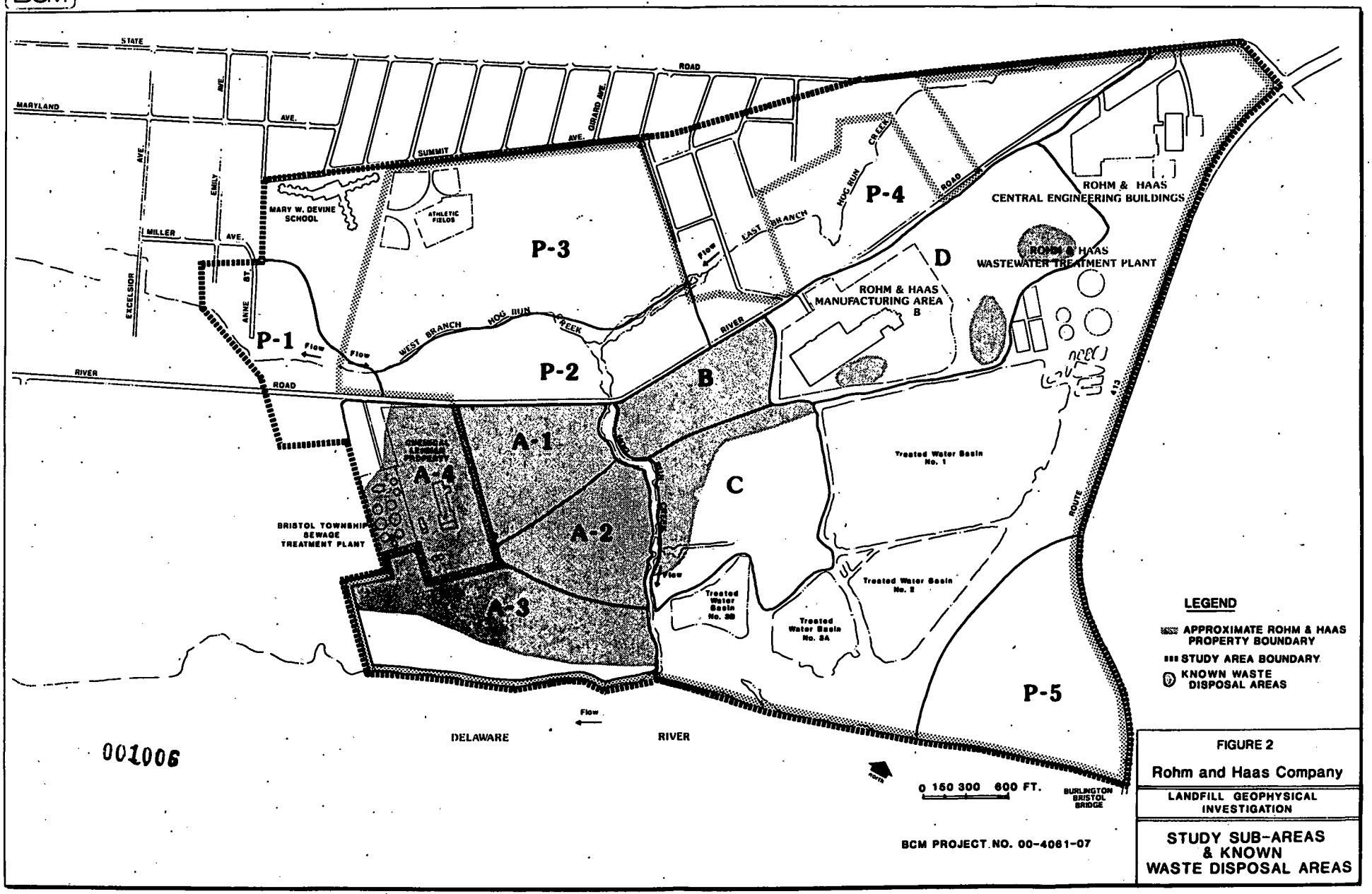

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FIGURE 2

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

STUDY SUB-AREAS & KNOWN WASTE DISPOSAL AREAS

BCM PROJECT NO. 00-4061-07

BCM Engineers Plan

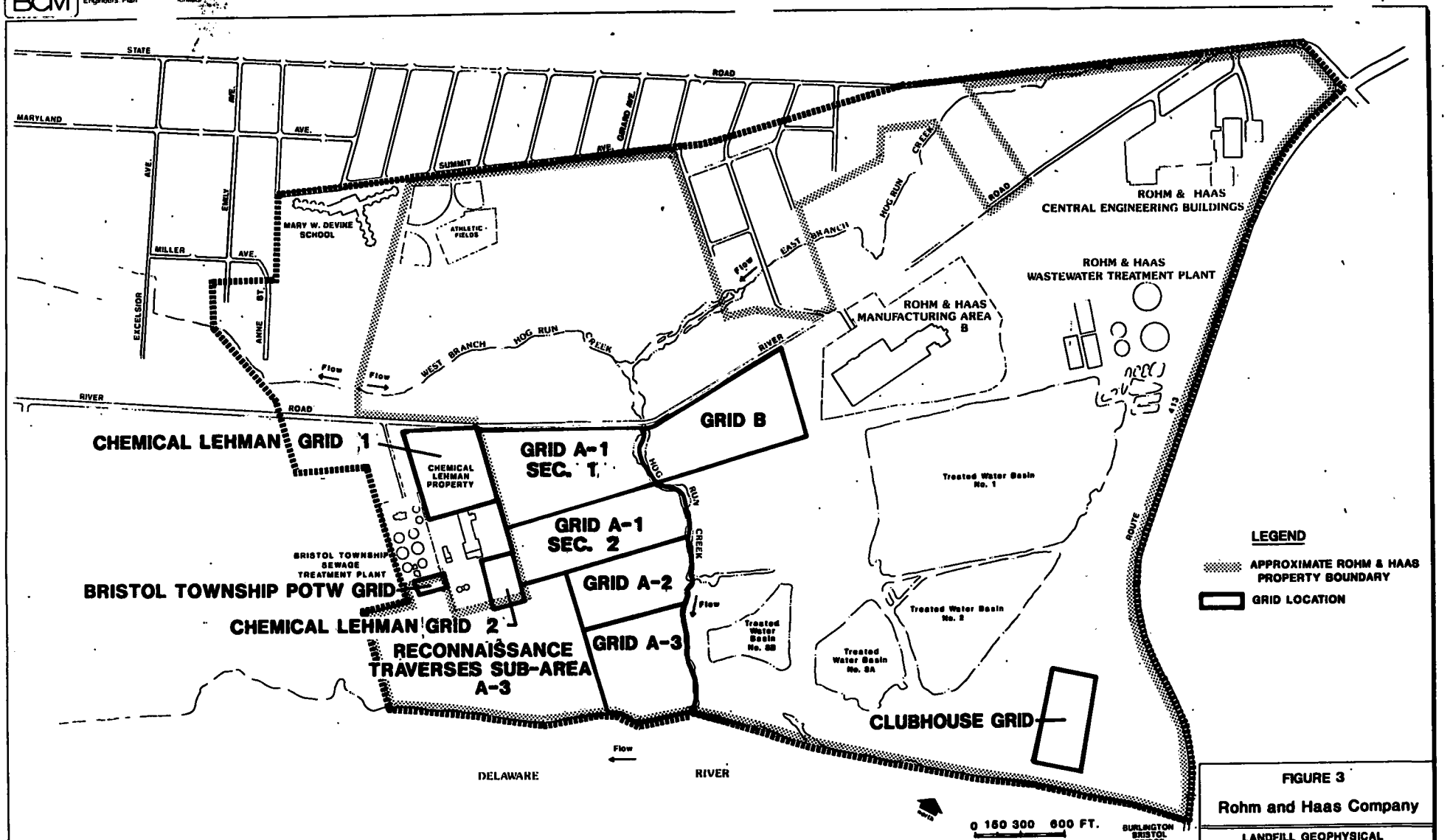

FIGURE 3

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC SURVEY GRID LOCATIONS

BCM PROJECT NO. 00-4061-07

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The configuration of traverse lines and grid systems is discussed individually, as follows:

Grid A-1 Section 1

This grid was located in study subarea A-1. Measurements were conducted on 18 traverse lines designated as lines 30 through 47. Traverse lines were oriented 42 degrees west of north and were separated by 50-feet intervals. Measurement stations were conducted from southeast to northwest on the traverse lines.

Grid A-1 Section 2

This grid was located in study subareas A-1 and A-2. Measurements were conducted on 21 traverse lines designated as lines 48 through 68. Traverse lines were oriented 42 degrees west of north and were separated by 50-feet intervals. Measurement stations were conducted from southeast to northwest on the traverse lines.

Grid A-2

This grid was located in study subarea A-2. Measurements were conducted on 15 traverse lines designated as lines 69 through 83. Traverse lines were oriented 42 degrees west of north and were separated by 50-feet intervals. Measurement stations were conducted from southeast to northwest on the traverse lines.

Grid A-3

This grid was located in study subareas A-2 and A-3. The major portion of the grid was located in subarea A-3. Measurements were made on 11 traverse lines designated as lines 84 through 94. Traverse lines were oriented 42 degrees west of north and were separated by 50-feet intervals. Measurement stations were conducted from southeast to northwest on the traverse lines.

Grid B

This grid was located in study subarea B. Measurements were conducted on 19 traverse lines designated 10 through 29. Traverse lines 10 through 28 were oriented 42 degrees west of north and were separated by 50-feet intervals. Traverse line 29 was a reconnaissance traverse oriented 47 degrees east of north. Measurement stations were conducted from southwest to northeast on traverse line 29. Measurement stations were conducted from southeast to northwest on traverse line 29.

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Clubhouse Grid

This grid was located in study subarea P-5. Measurements were conducted on seven traverse lines designated 3 through 9. The fence around the former product testing area was used for surveying control during the location of the traverse lines. Traverse lines 3 through 8 were oriented approximately north-south parallel to the testing area fence and were separated by 50-feet intervals. Traverse line 9 was oriented approximately east-west, also parallel to, and 75 feet south of, the testing area fence.

Chemical Lehman - Section 1

This grid was located in study subarea A-4, northwest of the Chemical Lehman building and southeast of River Road. Measurements were conducted on eight traverse lines designated as lines 106 through 113. Traverse lines were oriented 42 degrees west of north and were separated by 50-feet intervals. Measurement stations were conducted from southeast to northwest on the traverse lines.

Chemical Lehman - Section 2

This grid was located in study subarea A-4, southeast of the Chemical Lehman building and northeast of the Chemical Lehman filtration tanks. Measurements were conducted on six traverse lines designated as lines 100 through 104 and line 114. Lines 100, 103, 104, and 114 were oriented 42 degrees west of north and were separated by 50-feet intervals. Measurement stations were conducted from southeast to northwest on traverse lines 100, 103, 104, and 114. Lines 101 and 102 were oriented 47 degrees east of north and were separated by 20 feet. Measurement stations were conducted from southwest to northeast on traverse lines 101 and 102.

Bristol Township POTW

This grid was located in study subarea A-4, southeast of the POTW. Measurements were conducted on five traverse lines. Traverse line 115 was oriented 42 degrees west of north, and extended from the southeastern property boundary northwest until it encountered a building. Traverse lines 116 through 119 were oriented 47 degrees east of north and were separated by 20-feet intervals.

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Reconnaissance Traverses - Subarea A-3

These traverses were located in study subarea A-3. Measurements were conducted on five traverse lines designated as lines 95 through 99. Traverse lines were oriented 47 degrees east of north and were separated by 200-feet intervals. Measurement stations were conducted from southwest to northeast on the traverse lines.

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4.0 DATA REDUCTION AND INTERPRETATION METHODOLOGY

Over 5,600 measurements of the magnetic field were taken during the magnetic survey. In addition, 440 measurements were taken at base stations to check for daily variation of the magnetic field and magnetic storm interferences. Steps used in reduction and interpretation of the data are summarized as follows:

1. Data taken in the field were transferred electronically from the magnetometer into BCM's mainframe computer system. As a result, the possibility of transcription errors was eliminated.

2. Data from traverse lines were plotted by computer as magnetic field profiles, with magnetic field as the ordinate and distance in feet as the abcissa.

3. Data from selected traverse lines were used to produce computer-plotted contour maps of the total magnetic field.

4. Anomalies which represented concentrations of ferromagnetic objects within the subsurface environment were identified on profiles and contour maps.

5. Anomalies caused by surficial objects (well casings, fences, ferromagnetic debris) and power lines were identified by reference to field notes taken during the survey.

6. Survey grids were separated into strongly magnetic zones, weakly magnetic zones, and nonmagnetic zones based on interpretation of profiles and contour maps. Magnetic zones were defined as follows:

   Strongly magnetic zones - Areas where concentrations of ferromagnetic objects are located in the shallow subsurface, as indicated by a high density of magnetic anomalies

   Weakly magnetic zones - Areas where few and scattered ferromagnetic objects are located in the shallow subsurface, as indicated by a lower density of magnetic anomalies

   Nonmagnetic zones - Areas where there are no ferromagnetic objects in the shallow subsurface

7. Identified magnetic zones were depicted on a site plan of the landfill.

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5.0 GRID DESCRIPTIONS AND SURVEY RESULTS

5.1 INTRODUCTION

Included in the following sections are descriptions of the magnetic survey grids and a discussion of survey results within each grid. Included in each section, if applicable, is a magnetic field contour map of the grid. Information contained on the contour maps, including the location of identified magnetic zones, has been plotted on a site plan of the landfill area and is included at the end of this report as Figure 4. Magnetic survey data and traverse profiles are included within Appendices A through J. Table 2 contains a summary of survey results.

5.2 GRID A-1 SECTION 1

5.2.1 Grid Description

Grid A-1, section 1, covered the northwestern portion of landfill subarea A-1. The grid was bounded by Hog Run Creek on the northeast, River Road on the northwest, and the Chemical Lehman property on the southwest. Traverse lines were begun at distances ranging from 370 feet (traverse 30) to 600 feet (traverse 47) southeast of River Road. Traverses were ended where they encountered a chain link fence on the northwest boundary of the landfill.

The landfill surface in this area is relatively flat, with elevations ranging from 15.2 feet above mean sea level at the southeast to 22.7 feet above mean sea level at the northwest. A drainage ditch parallels River Road on the northwestern perimeter of the landfill.

5.2.2 Survey Results

Traverses 30 through 47 were incorporated into a magnetic field contour map of Grid A-1, Section 1, depicted in Figure 5.

This grid contains a high density of magnetic anomalies. These anomalies have been grouped into strongly magnetic zones, weakly magnetic zones, and nonmagnetic zones depicted on the site plan of the landfill (Figure 4) and magnetic field contour map (Figure 5).

The strongly magnetic zones are linear in form and generally trend southwest to northeast. One strongly magnetic zone parallels River Road along almost the entire northwestern border of the landfill. Depth estimates

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TABLE 2

LANDFILL GEOPHYSICAL INVESTIGATION
SUMMARY OF MAGNETIC SURVEY RESULTS

	Total Area (acres)	Area of Strongly Magnetic Zones (acres)	Area of Weakly Magnetic Zones (acres)	Area of Nonmagnetic Zones (acres)	Remarks
A-1, Section 1	10.5	4.0	4.4	2.1	Strongly magnetic zones linear, trending southwest to northeast, may represent trenches of buried ferromagnetic material. One trench parallel to River Road entire length of grid. Depth of burial 2 to 12 feet.
A-1, Section 2	8.9	1.4	3.9	3.6	Two strongly magnetic zones continuous with Grid A-1, Section 1, may represent shallow burial areas for ferromagnetic waste. Scattered strongly magnetic zones in northeastern and northwestern portions of the grid. Depth of burial 2 to 7 feet. Forty percent of the grid is nonmagnetic.
A-2	7.0	2.2	2.7	2.1	Strongly magnetic zones linear, trending southwest to northeast, may represent trenches of ferromagnetic material. Depth of burial 2 to 17 feet. Majority of material 2 to 7 feet. Southwestern portion of grid adjacent to dredge spoil area nonmagnetic.
A-3	7.4	2.4	3.6	1.4	Strongly magnetic zones linear, trending southwest to northeast, may represent trenches of buried ferromagnetic material. Depth of burial 2 to 4 feet. Portion of the grid underlain by dredge spoil area, nonmagnetic.

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TABLE 2 (Continued).

	Total Area (acres)	Area of Strongly Magnetic Zones (acres)	Area of Weakly Magnetic Zones (acres)	Area of Nonmagnetic Zones (acres)	Remarks
B	10.2	1.7	4.9	3.6	Strongly magnetic zones linear, trending southeast to northwest, may represent trenches of ferromagnetic material buried 2 to 7 feet deep. Northwestern portion of grid nonmagnetic.
Club House	4.7	0	0	4.7	No highly magnetic zones detected. Pipeline or linear ferromagnetic object crossing traverses 6, 7, and 8.
Chemical Lehman Section 1	4.0	.3	.8	2.9	Strongly magnetic zone linear, trending southwest to northeast, parallel to River Road, may represent trench of ferromagnetic material continuous with trench detected in Grid A-1, Section 1. Depth of burial 2 to 7 feet. Seventy-three percent of grid nonmagnetic.
Chemical Lehman Section 2	2.5	.2	0	2.3	Minor, strongly magnetic zone detected on traverse lines 104 and 114. Ferromagnetic material buried within upper 10 feet of subsurface. Ninety-one percent of grid nonmagnetic.
Bristol POTW	1.6	0	0	1.6	Entire grid nonmagnetic.
Reconnaissance traverses Subarea A-3	17.3	0	0	17.3	Entire grid nonmagnetic.

Source: BCM Eastern Inc.

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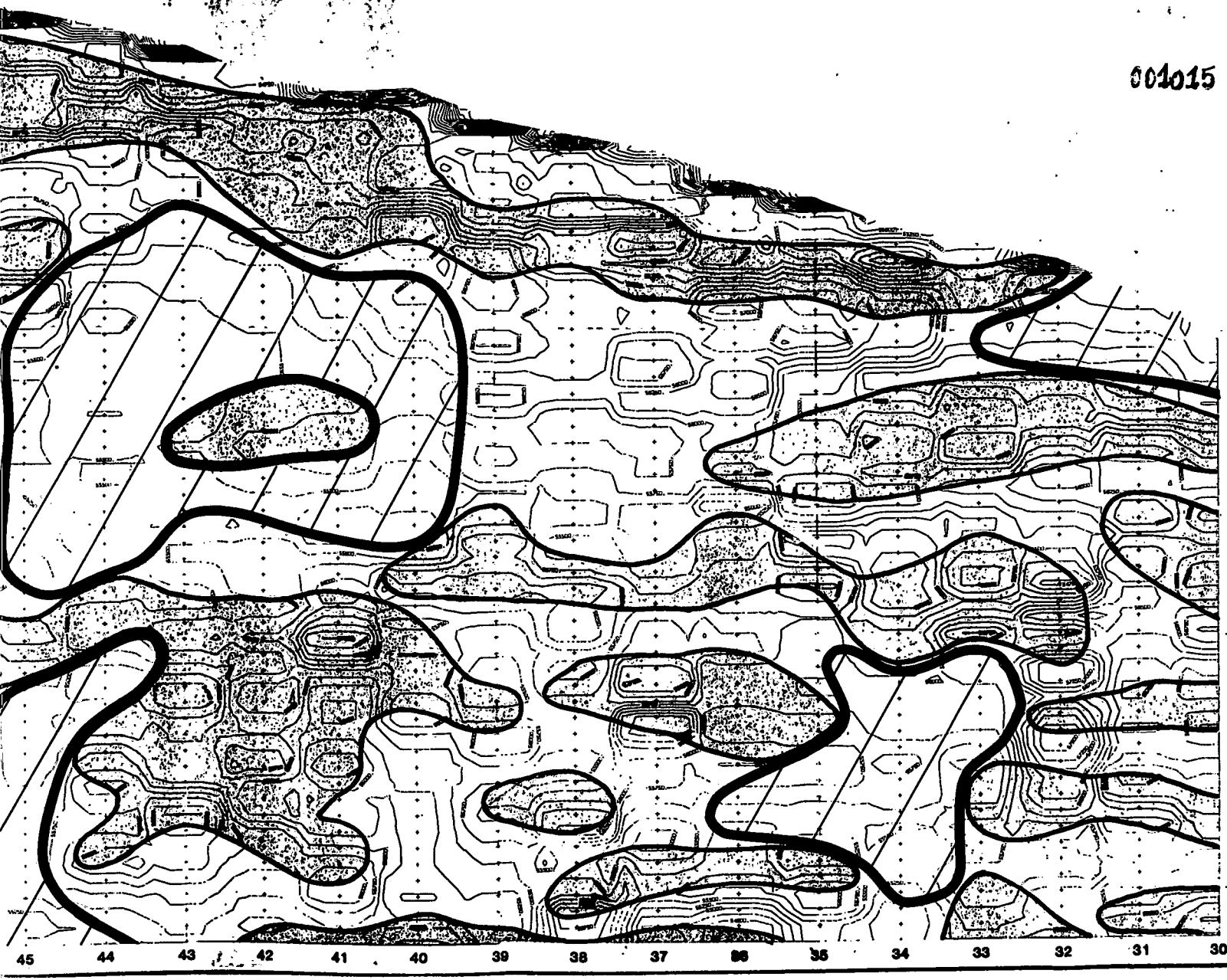

LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 5400.— MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE
- CONTOUR INTERVAL 500 GAMMAS

Feet
0 60

BCM PROJECT NO. 00-4061-07

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FIGURE 5

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP

GRID A-1
SECTION 1

indicate that magnetic sources within this zone range from 2 to 12 feet deep. The majority of the sources are approximately 2 feet deep. The elongate strongly magnetic zone parallel to River Road may represent a buried trench of ferromagnetic materials.

Although most of this grid is underlain by shallow buried ferromagnetic material, 20 percent of the grid is nonmagnetic. Four nonmagnetic zones are depicted in the magnetic field contour map and site plan.

5.3 GRID A-1 SECTION 2

5.3.1 Grid Description

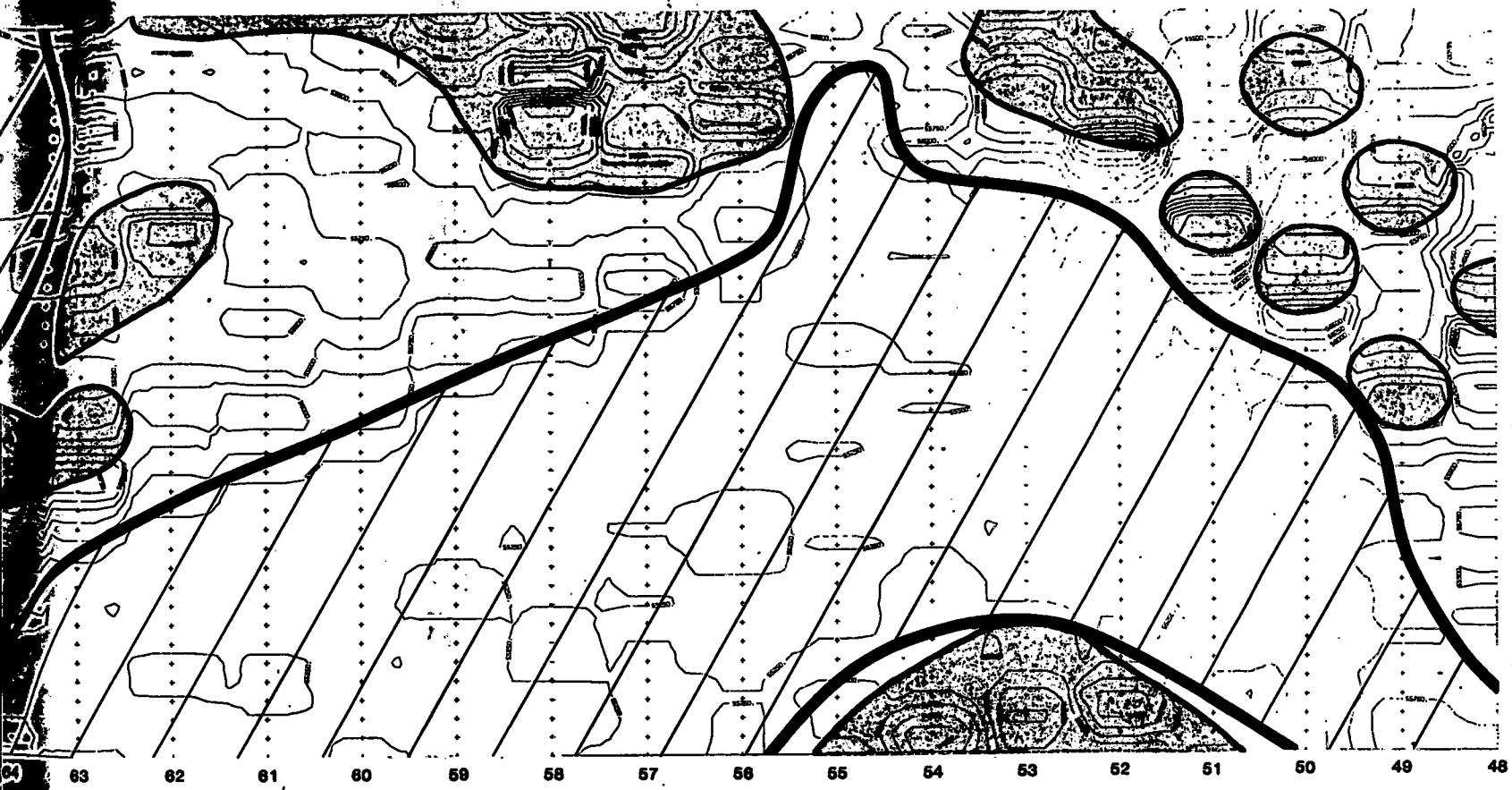
This grid was a continuation of Grid A-1 Section 1 and covered portions of landfill subarea A-1 and A-2. The grid was bounded by Hog Run Creek on the northeast, Grid A-1 Section 1 on the northwest, and the Chemical Lehman property on the southwest. Traverse lines 48, 49 and 50 were 280, 360, and 430 feet long, respectively. The remaining traverse lines within the grid (51 through 68) were 390 feet long.

The landfill surface in this area is relatively flat, ranging from 19.3 feet above mean sea level at the northeast to 22.4 feet above mean sea level at the southwest. There is little surface debris present on the landfill. A drainage ditch is located parallel to the northwestern boundary of the grid.

5.3.2 Survey Results

Traverses 48 through 68 were incorporated into a magnetic field contour map of Grid A-1, Section 2, depicted in Figure 6.

Grid A-1, Section 2, contains a much lower density of magnetic anomalies than Grid A-1, Section 1. Forty percent of the grid area is contained within nonmagnetic zones. Nonmagnetic zones occupy the southwestern, central, and northeastern portions of the grid. There are also several strongly magnetic zones, including two which are continuous with strongly magnetic zones identified in Grid A-1 Section 1. These two zones may represent shallow burial areas of ferromagnetic materials. The remaining strongly magnetic zones within this grid are located in the northeastern and northwestern portions of the grid. These areas represent individual burial areas of ferromagnetic materials. Depth estimates indicate that most ferromagnetic materials identified within magnetic zones contained in this section of the grid system are buried at depths of 2 to 7 feet.



LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 54500.— MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE
- CONTOUR INTERVAL 500 GAMMA

N

Feet 0 60

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FIGURE 6

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP

GRID A-1

SECTION 2

In addition to the nonmagnetic and strongly magnetic zones, 44 percent of Grid A-1 Section 2 is composed of weakly magnetic zones, where scattered and relatively minor deposits of ferromagnetic material are located within the upper 10 to 15 feet of the subsurface.

5.4 GRID A-2

5.4.1 Grid Description

This grid was a continuation of Grid A-1 Section 2 and covered the central portion of landfill subarea A-2. The grid was bounded by Hog Run Creek on the northeast, Grid A-1 Section 2 on the northwest, and landfill subarea A-3 (a dredge spoil disposal area) on the southwest. All of the traverse lines in the grid were 390 feet long.

The landfill surface in this area is flat, ranging from 21.7 feet above mean sea level in the northeast to 21.4 feet above mean sea level in the southwest. There is little surface debris present on the landfill.

5.4.2 Survey Results

Traverses 69 through 83 were incorporated into a magnetic field contour map of Grid A-2, depicted in Figure 7.

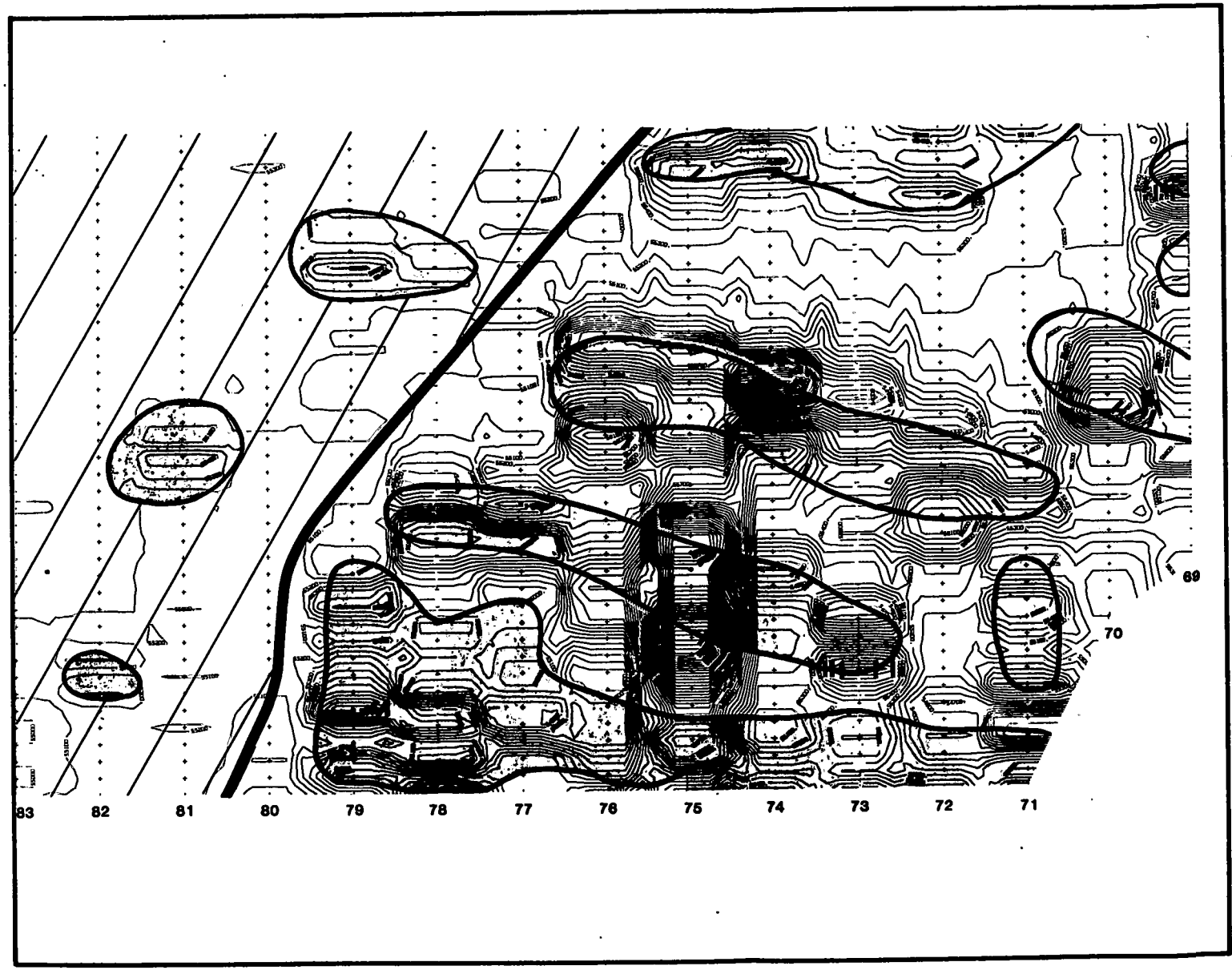
Thirty percent of this grid is contained within nonmagnetic zones. Nonmagnetic zones occupy the southwestern portion of the grid. Generally, it appears that the area of the grid which is adjacent to the dredge spoil area is nonmagnetic.

The northeastern portion of this grid contains several strongly magnetic zones; the remainder of the northeastern portion is a weakly magnetic zone. Generally, the strongly magnetic zones identified within this grid trend southwest to northeast. These zones may represent shallow trenches of ferromagnetic material. Weakly magnetic zones represent areas in proximity to these trenches which may contain minor amounts of ferromagnetic material. Depth estimates indicate that ferromagnetic materials identified within magnetic zones are buried at depths ranging from 2 to 17 feet. The majority of the ferromagnetic materials are buried at depths ranging from 2 to 7 feet.

5.5 GRID A-3

5.5.1 Grid Description

This grid was a continuation of Grid A-2. The grid covered a small portion of landfill subarea A-2 and the northeastern portion of landfill subarea A-3. The grid was bounded by Hog Run Creek on the northeast,



LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 54500 — MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE
- CONTOUR INTERVAL 500 GAMMAS

N

Feet 0 60

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FIGURE 7

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LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP

GRID A-2

Grid A-2 on the northwest, the dredge spoil disposal area on the southwest, and the Delaware River on the southeast. Traverse lines began at the southeastern extent of the grid adjacent to the Delaware River. Traverses 84 through 87 ranged from 550 to 570 feet long. Traverses 88 through 91 in the central portion of the grid were 590 feet long. Traverses 92, 93, and 94 were begun on the northwestern (landward) side of the gravel berm which surrounds the dredge spoil area. These traverses were offset 200 feet northwest of the starting stations of traverses 88 through 91 and were 400 feet long.

The landfill surface beneath the northeastern portion of this grid is relatively flat, ranging in elevation from 16.3 feet above mean sea level at the southeast to 21.0 feet above mean sea level at the northwest. The southeastern boundary of the grid is bordered by a relatively steep, 5- to 6-feet high embankment along the Delaware River. A 6- to 8-feet high gravel berm, which extends around the perimeter of the dredge spoil area, crosses traverse lines 90 and 91 in the southeastern portion of the grid.

5.5.2 Survey Results

Traverses 84 through 94 were incorporated into a magnetic field contour map of Grid A-3, depicted in Figure 8.

Eighty-eight percent of this grid is contained within strongly and weakly magnetic zones. These zones represent a continuation of magnetic zones detected in the northeastern portion of grid A-2. The strongly magnetic zones trend southwest to northeast and are linear in nature. These zones may represent shallow trenches of buried ferromagnetic material. Relatively minor amounts of ferromagnetic material may be found within the weakly magnetic zones located in proximity to the strongly magnetic zones. Depth estimates indicate that ferromagnetic materials identified within magnetic zones are buried at depths ranging from 2 to 4 feet.

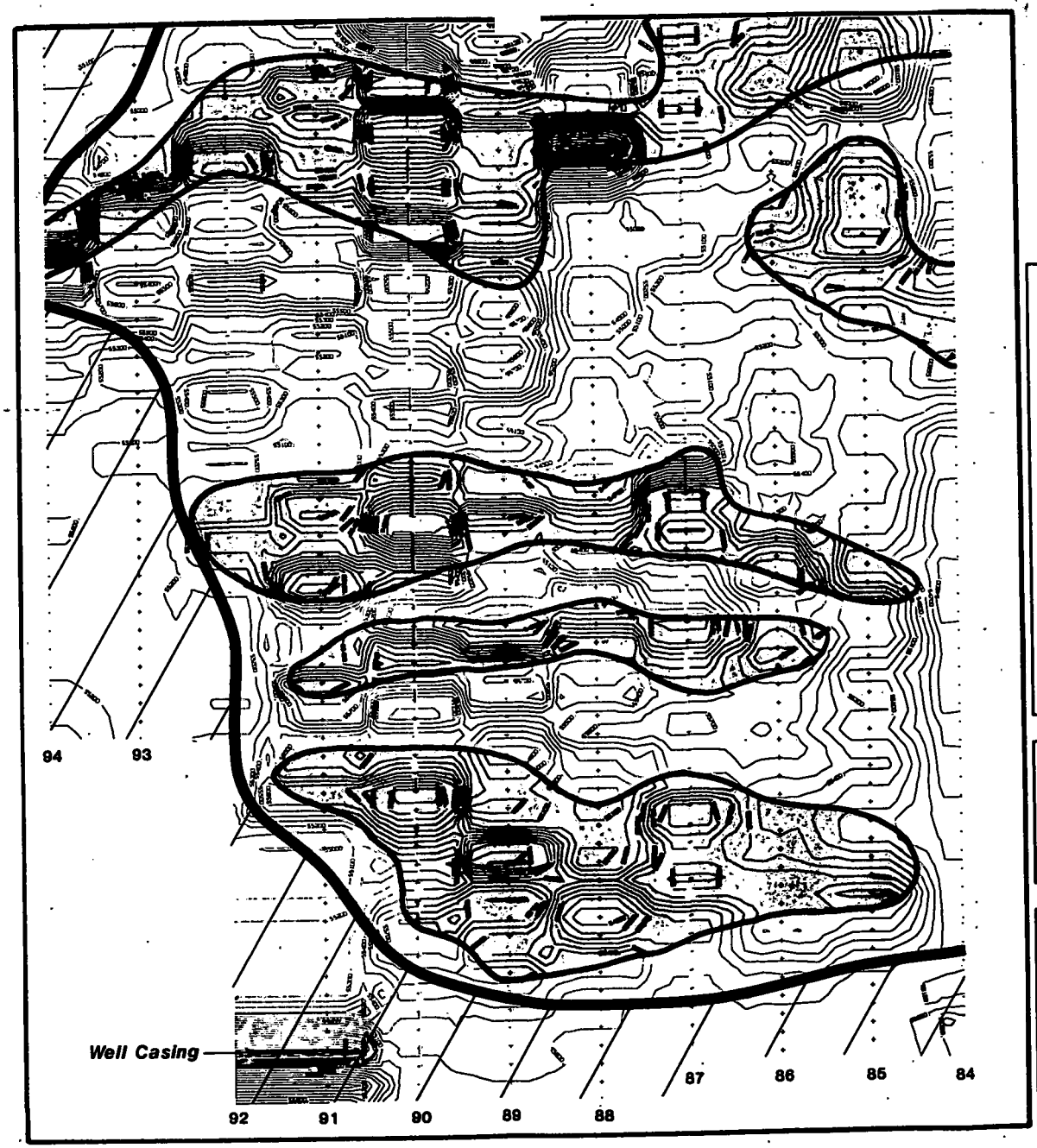
Data indicates that the portion of the grid underlain by the dredge spoil area does not contain buried ferromagnetic material.

It is interesting to note the effect of the metal well casing located at the second measurement station on traverse 91. This steel well casing produced a strong anomaly on the traverse profiles and the magnetic field contour map.

5.6 GRID B

5.6.1 Grid Description

This grid covered landfill subarea B. The grid was bounded by Rohm and Haas manufacturing area B on the northeast, River Road on the northwest, Hog Run Creek on the southwest, and landfill subarea C on the southeast.



LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 54500.— MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE
- CONTOUR INTERVAL: 500 GAMMAS

N

Feet 0 60

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FIGURE 8

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP

GRID A-3

Traverse lines were begun at distances ranging from 550 feet (Traverse 10) to 340 feet (Traverse 28) southeast of River Road. Traverses were ended where they encountered a chain link fence on the northwestern boundary of the landfill.

The southeastern portion of the landfill in this area is elevated above the natural land surface by 4 to 6 feet. The surface of the landfill is relatively flat, ranging from 25.7 feet above mean sea level in the northeast to 23.7 feet above mean sea level in the southwest. A shallow, 2-feet deep drainage ditch bisects the landfill, trending southwest to northeast.

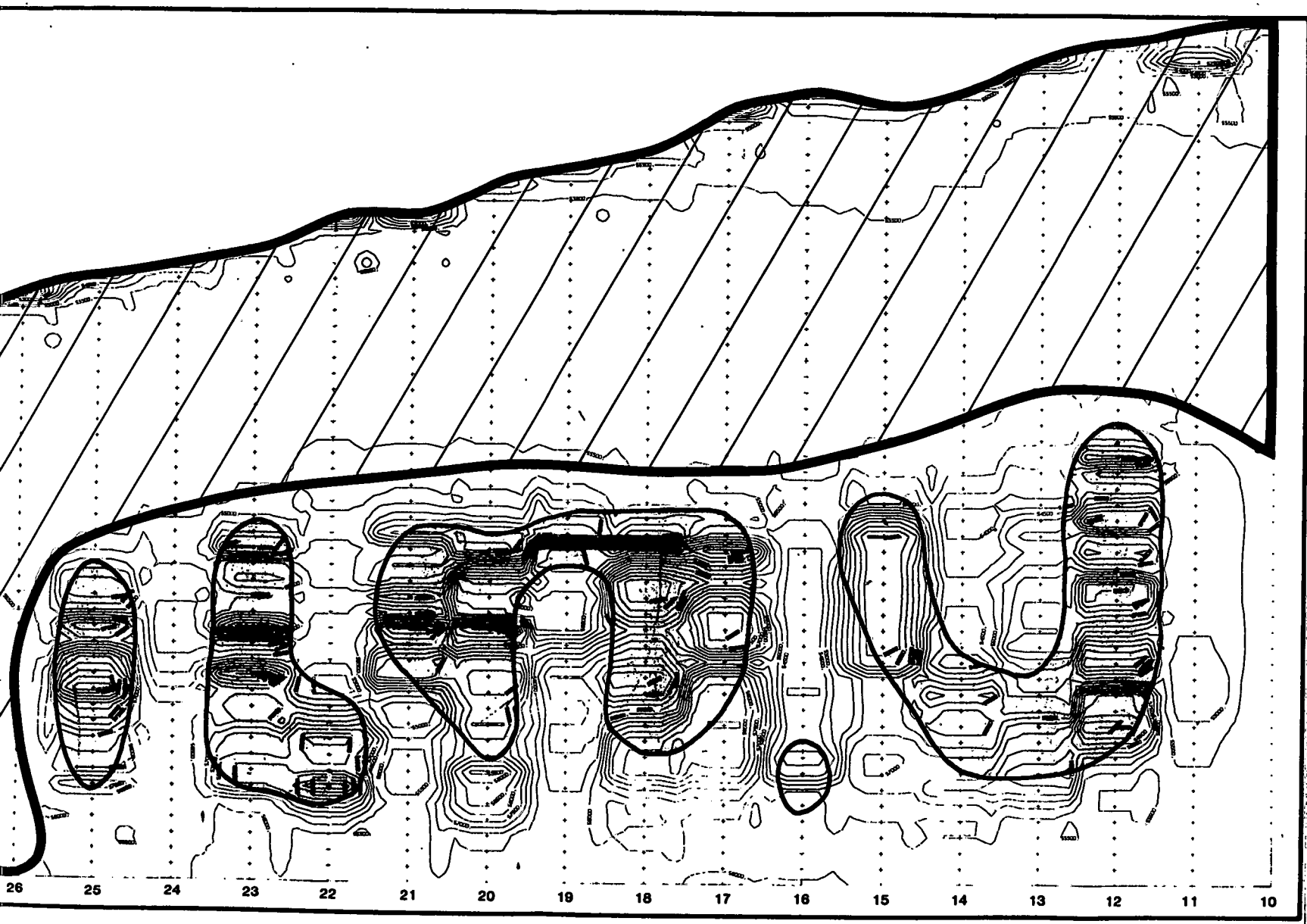
5.6.2 Survey Results

Traverses 10 through 28 were incorporated into a magnetic field contour map of Grid B, depicted in Figure 9.

Grid B contained numerous high intensity anomalies in its northeastern and southeastern portions. These anomalies were grouped into strongly magnetic zones, which were linear and were oriented southeast to northwest. Depth estimates from profiles indicate that ferromagnetic materials within the strongly magnetic zones range from 2 to 7 feet deep. The intensity of the anomalies in these strongly magnetic zones indicates that these zones contain significant amounts of buried ferromagnetic material.

The effect of the ferromagnetic materials on the magnetic field may be observed by examination of profiles of the traverse lines. The profile of traverse line 10 indicates values of magnetic field intensity in an area free of ferromagnetic objects. The sharp drop in the magnetic field at measurement stations 53, 54, and 55 was a result of the magnetic field associated with the chain link fence encountered at station 55. The profile of traverse line 11, located 50 feet southwest of traverse line 10, began to indicate the effect of a magnetic source, as evidenced by the anomaly located between 100 and 150 feet. The full effect of the buried ferromagnetic materials on the magnetic field may be observed on the profile of traverse line 12.

To verify the location of identified anomalies, a reconnaissance traverse (line 29) was conducted perpendicular to traverse lines 10 through 28, crossing the identified highly magnetic zones. Examination of the profile for traverse 29 indicated that the magnetic field was undisturbed from measurement station 0 to 150 feet. This area was depicted as a non-magnetic zone on Figure 4. As the measurement stations approached the first highly magnetic zone, magnetic field intensity increased. The magnetic source responsible for the first anomaly identified on the profile of traverse 29 was located 220 feet from the beginning of the traverse



LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 54500.— MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE

CONTOUR INTERVAL 500 GAMMA

N

Feet 0 60

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FIGURE 9

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP

GRID B

line within an area which had been identified as a highly magnetic zone. In a similar manner, eight anomalies identified on the profile of traverse 29 were located within highly magnetic zones identified on the magnetic field contour map and traverse profiles for traverses 10 through 28. As measurement stations on traverse line 29 passed to the northeast of the identified highly magnetic zones, the magnetic field measurements returned to the undisturbed condition recorded at the beginning of the traverse line.

Examination of the magnetic field contour map for grid B, indicates that the northwestern portion of the grid does not contain buried ferromagnetic material. The magnetic field in this area is relatively undisturbed.

5.7 CLUBHOUSE GRID

5.7.1 Grid Description

This grid was located in subarea P-5. The grid was located east and south of the product testing area. It was conducted in a perimeter area of the landfill and did not cover an area where known waste disposal had occurred. Traverses 3 through 8 were conducted in a grid pattern in the open field east of the product testing area. Traverse 9 was conducted as a reconnaissance traverse parallel to the southern fence line of the testing area.

The land surface in this area is relatively flat, ranging from 7 feet above mean sea level in the south to 10.7 feet above mean sea level in the north.

5.7.2 Survey Results

A magnetic field contour map was not constructed for the Clubhouse grid. Due to the low density and intensity of anomalies detected in this area, it was possible to obtain survey results directly by the examination of traverse profiles.

Profiles in this grid were plotted with a vertical scale of 20 gammas per division, compared to vertical scale of 500 gammas per division (Grid B), to 200 gammas per division (Grid A-3) used for other grids. As a consequence, minor disturbances in the magnetic field were pronounced on the Clubhouse traverse profiles. A natural "regional" gradient from lower-to-higher magnetic field intensity was observed on traverse profiles 3 through 8 in this area.

A minor magnetic anomaly was detected within the Clubhouse grid on profiles of traverse lines 6, 7, and 8. The source of this anomaly was located approximately 150 feet north of the beginning of these traverse lines. This anomaly was represented by the magnetic low first observed on traverse line 6 at 150 feet. The anomaly became a magnetic high on traverse 7 and a more pronounced low on traverse 8. This anomaly may represent a shallow-buried pipeline or other linear ferromagnetic object which crosses traverse lines 6, 7, and 8 and is within the upper 10 feet of the subsurface.

5.8 CHEMICAL LEHMAN SECTION 1

5.8.1 Grid Description

This grid covered the northwestern portion of landfill subarea A-4. The grid was on property occupied by Chemical Lehman. It was bounded by the Chemical Lehman property line and landfill subarea A-1 on the northeast, River Road on the northwest, the Chemical Lehman property line on the southwest, and the Chemical Lehman office and shop buildings on the southeast.

The southeastern portion of this grid is a gravel parking lot used by Chemical Lehman. The northwestern portion of the grid is an open field, with some small trees and underbrush.

The area is relatively flat, ranging from 21.4 feet above mean sea level on the southeast to 19 feet above mean sea level on the northwest. A shallow drainage ditch extends across the northwestern portion of the grid parallel to River Road.

5.8.2 Survey Results

Traverses 106 through 113 were incorporated into a magnetic field contour map of Section 1 of the Chemical Lehman Grid, depicted in Figure 10.

This grid contains a linear, strongly magnetic zone which trends southwest to northeast. This zone parallels River Road and may represent a shallow trench of buried ferromagnetic material. Depth estimates indicate that ferromagnetic materials identified within this magnetic zone are buried at depths ranging from 2 to 7 feet.

The strongly magnetic zone is paralleled by a weakly magnetic zone which occurs further southeast. This zone contains relatively minor amounts of buried ferromagnetic material.

001025

Seventy-two percent of this grid is a nonmagnetic zone which does not contain buried ferromagnetic material.

Interferences which were caused by power lines may be observed on traverse lines 106 and 107 in the northwestern portion of the grid. These interferences precluded the exact location of magnetic zones in that area of the grid.

5.9 CHEMICAL LEHMAN GRID SECTION 2

5.9.1 Grid Description

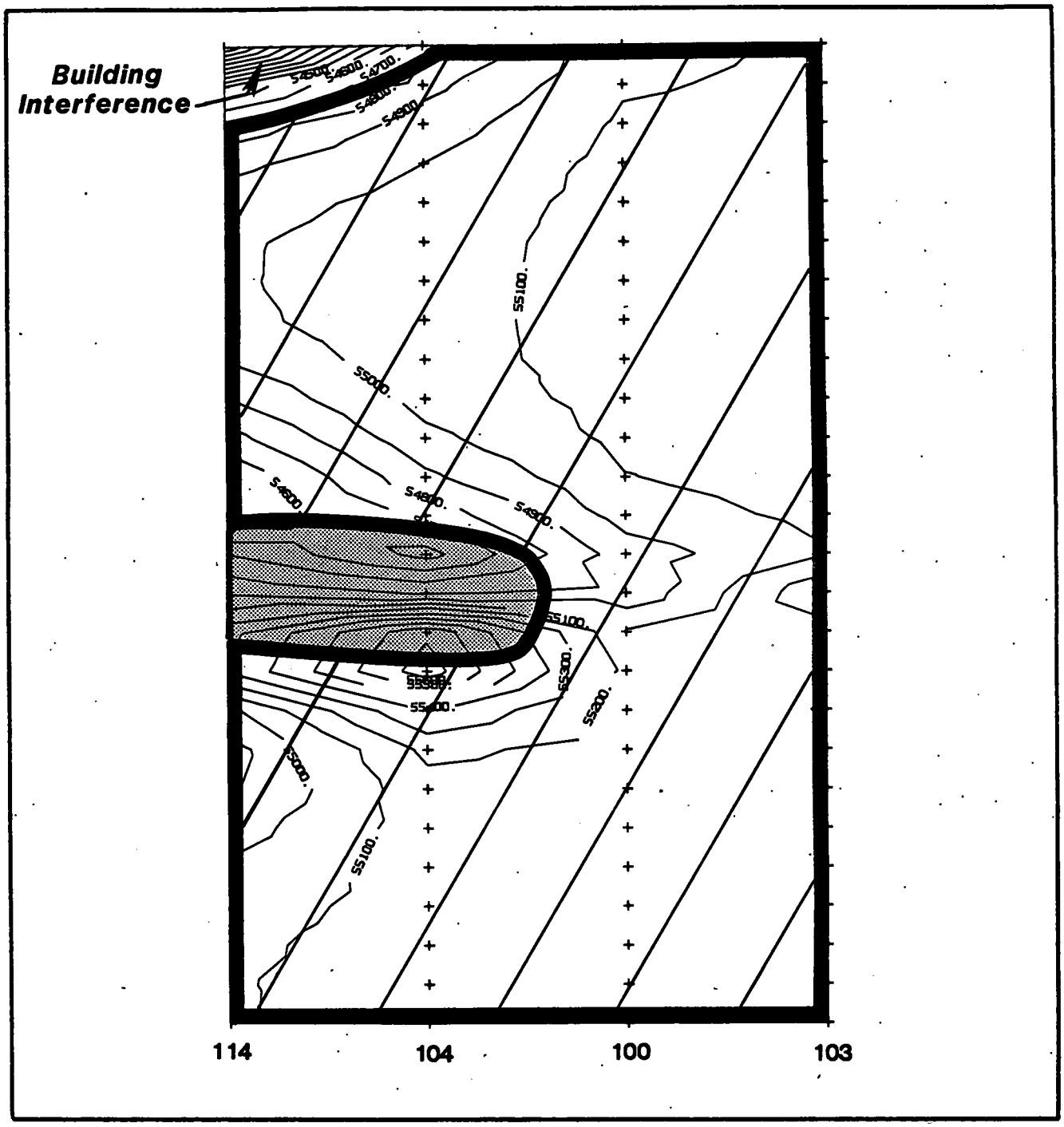
This grid covered the southeastern portion of landfill subarea A-4. The grid was bounded by landfill subareas A-1 and A-2 and the Chemical Lehman property boundary on the northeast, the Chemical Lehman office and shop buildings on the northwest, the Chemical Lehman filtration tanks on the southwest, and landfill subarea A-3 and the Chemical Lehman property boundary on the southeast. Traverse lines 100, 103, 104, and 114 were conducted in a grid system. Traverses 101 and 102 were reconnaissance traverses.

5.9.2 Survey Results

Traverses 100, 103, 104, and 114 were incorporated into a magnetic field contour map of Section 2 of the Chemical Lehman Grid, depicted in Figure 11.

Examination of the magnetic field contour map indicates that 91 percent of this grid is a nonmagnetic zone. An anomaly was detected on traverse lines 104 and 114, which may represent buried ferromagnetic material within the upper 10 feet of the subsurface. It should be noted that the map of the magnetic field for this grid is contoured at a 100-gamma interval. Contour maps for the other grid areas were contoured at a 500-gamma interval. As a consequence, the density of contour lines on this contour map is greater than the others, but this does not reflect a greater intensity of disturbances of the magnetic field. The anomaly detected within this grid has a total intensity of approximately 200 gammas, as compared to anomalies of several thousand gammas in other landfill areas. This anomaly represents a small volume of buried ferromagnetic material contained within a limited area.

Examination of profiles of traverses 101 and 102 indicates that these traverses overlie a nonmagnetic zone.



001027

LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 54500.— MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE
- CONTOUR INTERVAL 100 GAMMAS

N

Feet 0 40

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FIGURE 11

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LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP
CHEMICAL LEHMAN GRID
SECTION 2

5.10 BRISTOL TOWNSHIP POTW

5.10.1 Grid Description

Magnetic surveying within the Bristol Township POTW property (landfill subarea A-4) consisted of a reconnaissance traverse (115) conducted on the northeastern boundary of the property, and a small grid consisting of traverses 116 through 119 conducted southeast of the final clarifier tanks and chlorine contact building. Magnetic surveying was not possible in major portions of the Bristol Township POTW property, due to interferences caused by power lines and buildings.

5.10.2 Survey Results

Traverses 116 through 119 were incorporated into a magnetic field contour map of the Bristol Township POTW Grid, depicted in Figure 12.

Examination of the profile of reconnaissance traverse 115 indicates that this traverse overlies a nonmagnetic zone. The magnetic low, noted at the beginning of traverse 115, is caused by a chain link fence. The magnetic high encountered from 310 to 320 feet on traverse 115 is caused by the building located at 320 feet on the traverse line.

Examination of the magnetic field contour map indicates that there are no anomalies within this grid. The entire grid area is underlain by a nonmagnetic zone. The magnetic high along the northeastern portion of this grid was caused by a chain link fence.

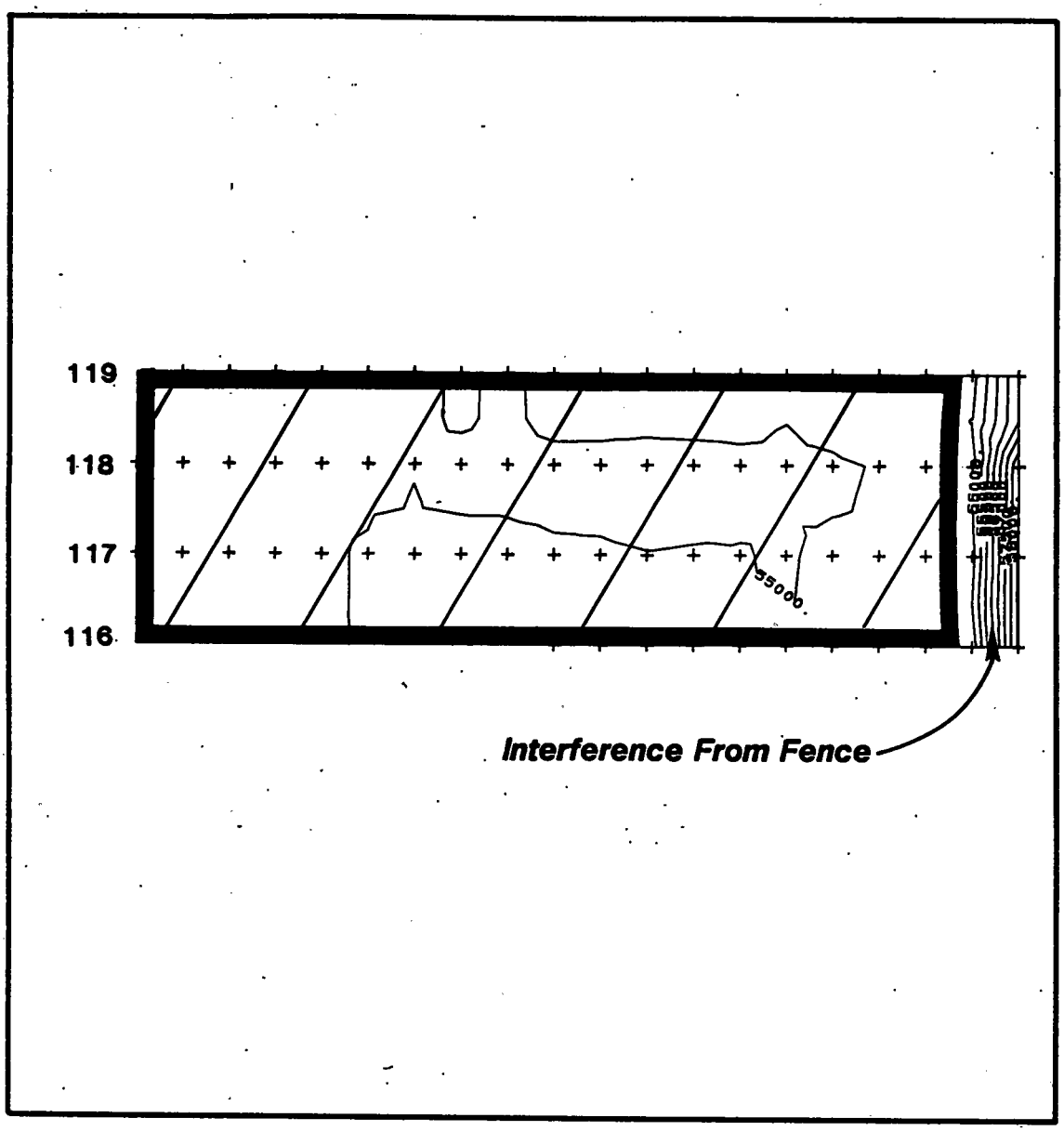
5.11 RECONNAISSANCE TRAVERSES SUBAREA A-3

5.11.1 Area Description

Five reconnaissance traverses were conducted in the southwestern portion of landfill subarea A-3. The area was bounded by grids A-2 and A-3 on the northeast, Chemical Lehman and the Bristol Township POTW on the northwest, the Rohm and Haas property boundary on the southwest, and the Delaware River on the southeast. This area was previously used for dredge spoil disposal.

5.11.2 Survey Results

A magnetic field contour map was not constructed for this area. Examination of traverse profiles indicated that the magnetic field was undisturbed, and the entire area was a nonmagnetic zone.



LEGEND

- MEASUREMENT STATIONS
- 10 TRAVERSE LINE NUMBER
- 54500.— MAGNETIC FIELD CONTOUR
- STRONGLY-MAGNETIC ZONE
- WEAKLY-MAGNETIC ZONE
- NON-MAGNETIC ZONE

CONTOUR INTERVAL 500 GAMMAS

N

Feet 0 40

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FIGURE 12

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LANDFILL GEOPHYSICAL INVESTIGATION

MAGNETIC FIELD CONTOUR MAP

BRISTOL TOWNSHIP POTW

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KEY TO MAGNETIC SURVEY DATA LISTINGS

Column Heading	Explanation
LINE #	Traverse line number
DAY	Julian day survey data collected
SITE #	Magnetometer memory location of measurement
FEET.	Feet from beginning of traverse line to point of measurement
EST.	The symbol "?" in this column indicates that the measurement was taken in an area of high magnetic field gradient. In these areas the magnetometer sensor signal collapses, or dies, before a complete measurement can be obtained. Readings marked with a "?" may be slightly less accurate than adjacent readings and have been examined in reference to adjacent readings during the interpretation process.
GAMMAS	Magnetic field measurement in gammas

001030

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APPENDICES

APPENDIX A - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-1, SECTION 1

APPENDIX B - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-1, SECTION 2

APPENDIX C - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-2

APPENDIX D - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-3

APPENDIX E - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID B

APPENDIX F - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
CLUBHOUSE GRID

APPENDIX G - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
CHEMICAL LEHMAN GRID, SECTION 1

APPENDIX H - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
CHEMICAL LEHMAN GRID, SECTION 2

APPENDIX I - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
BRISTOL TOWNSHIP POTW GRID

APPENDIX J - MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
RECONNAISSANCE TRAVERSE, SUBAREA A-3

APPENDIX K - DAILY BASE STATION DATA

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APPENDIX A

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-1, SECTION 1

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B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 30

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
30	76	340	0		55,708.0
30	76	341	10		56,033.0
30	76	342	20		55,752.2
30	76	343	30	?	55,074.6
30	76	344	40		55,392.0
30	76	345	50	?	56,154.8
30	76	346	60		55,751.0
30	76	347	70		55,649.8
30	76	348	80		55,377.0
30	76	349	90		55,201.6
30	76	350	100		55,485.4
30	76	351	110		55,741.4
30	76	352	120		56,045.4
30	76	353	130		56,277.4
30	76	354	140		55,977.8
30	76	355	150		55,662.0
30	76	356	160		55,725.2
30	76	357	170		55,920.4
30	76	358	180		56,669.2
30	76	359	190	?	57,044.2
30	76	360	200		56,721.8
30	76	361	210		56,164.0
30	76	362	220		55,941.8
30	76	363	230		55,923.6
30	76	364	240	?	56,326.6
30	76	365	250		56,010.0
30	76	366	260		55,659.8
30	76	367	270		55,922.6
30	76	368	280		56,334.4
30	76	369	290		56,233.6
30	76	370	300		55,867.4
30	76	371	310		55,618.8
30	76	372	320		55,119.2
30	76	373	330		54,989.8
30	76	374	340		55,160.6
30	76	375	350		55,417.8
30	76	376	360		55,577.6
30	76	377	370		55,669.2

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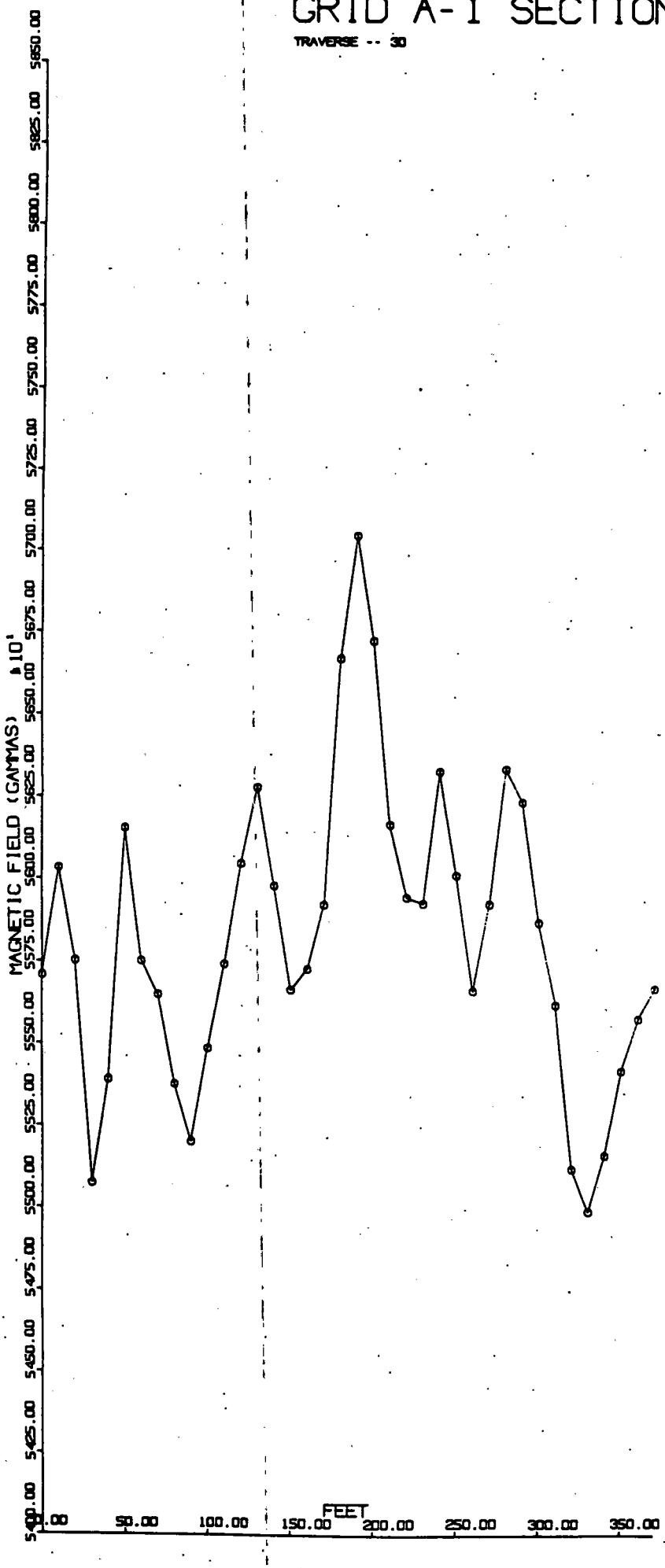
GRID A-1 SECTION 1

TRAVERSE -- 30



001032

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

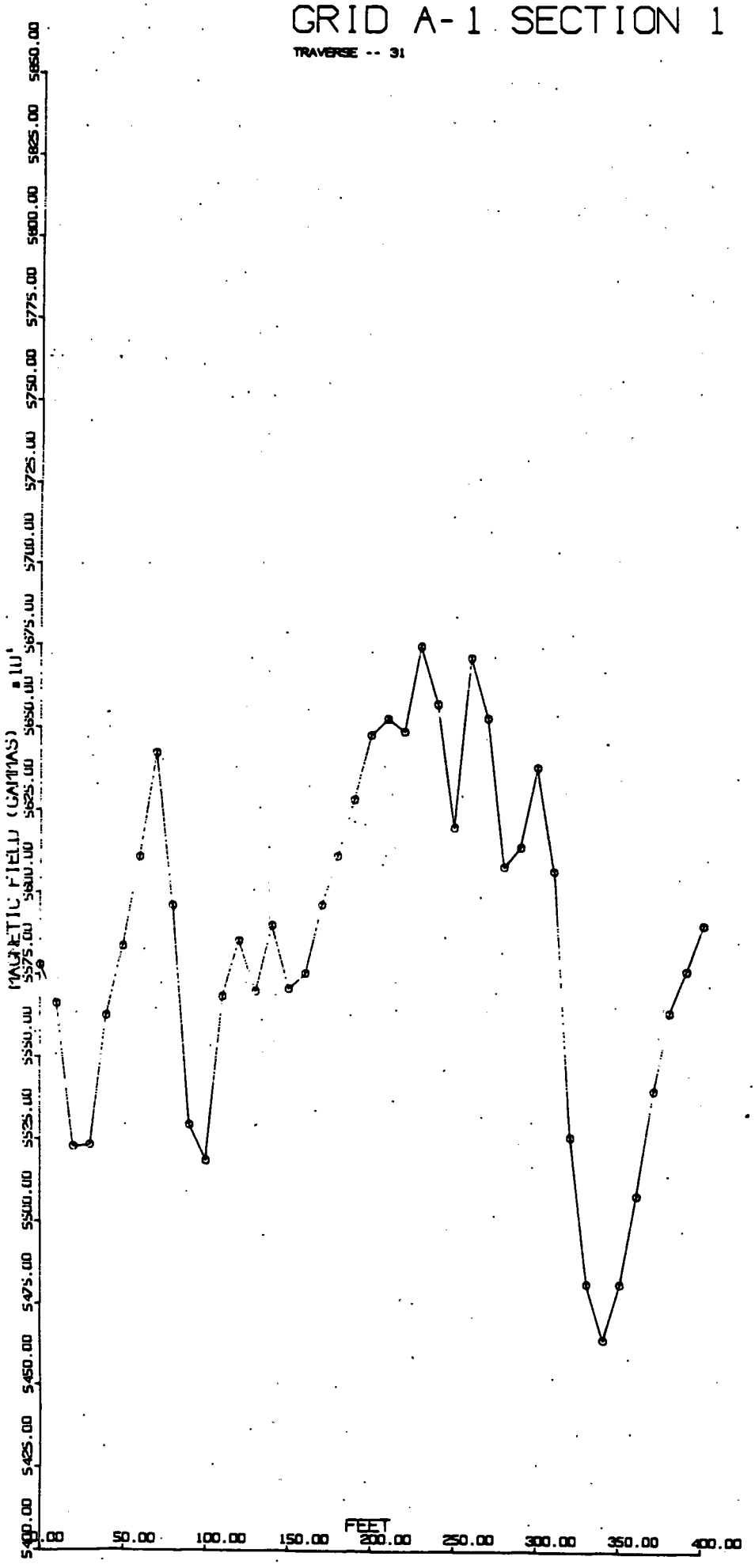
TRAVERSE LINE 31

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
31	76	298	0		55,779.2
31	76	299	10		55,663.2
31	76	300	20		55,228.8
31	76	301	30		55,234.2
31	76	302	40		55,628.6
31	76	303	50		55,838.2
31	76	304	60		56,109.6
31	76	305	70	?	56,423.8
31	76	306	80		55,961.8
31	76	307	90		55,297.0
31	76	308	100		55,187.8
31	76	309	110		55,687.4
31	76	310	120		55,856.0
31	76	311	130		55,702.2
31	76	312	140		55,903.0
31	76	313	150		55,710.6
31	76	314	160		55,756.4
31	76	315	170		55,964.2
31	76	316	180		56,113.8
31	76	317	190		56,285.2
31	76	318	200		56,479.0
31	76	319	210		56,528.4
31	76	320	220		56,489.2
31	76	321	230		56,747.6
31	76	322	240		56,573.0
31	76	323	250		56,201.2
31	76	324	260	?	56,713.4
31	76	325	270		56,531.0
31	76	326	280		56,083.0
31	76	327	290		56,142.4
31	76	328	300		56,383.6
31	76	329	310		56,069.4
31	76	330	320		55,263.4
31	76	331	330	?	54,819.8
31	76	332	340		54,651.4
31	76	333	350		54,819.4
31	76	334	360		55,086.8
31	76	335	370		55,404.0
31	76	336	380		55,643.4
31	76	337	390		55,768.0
31	76	338	400	?	55,906.0

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 31



001034

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

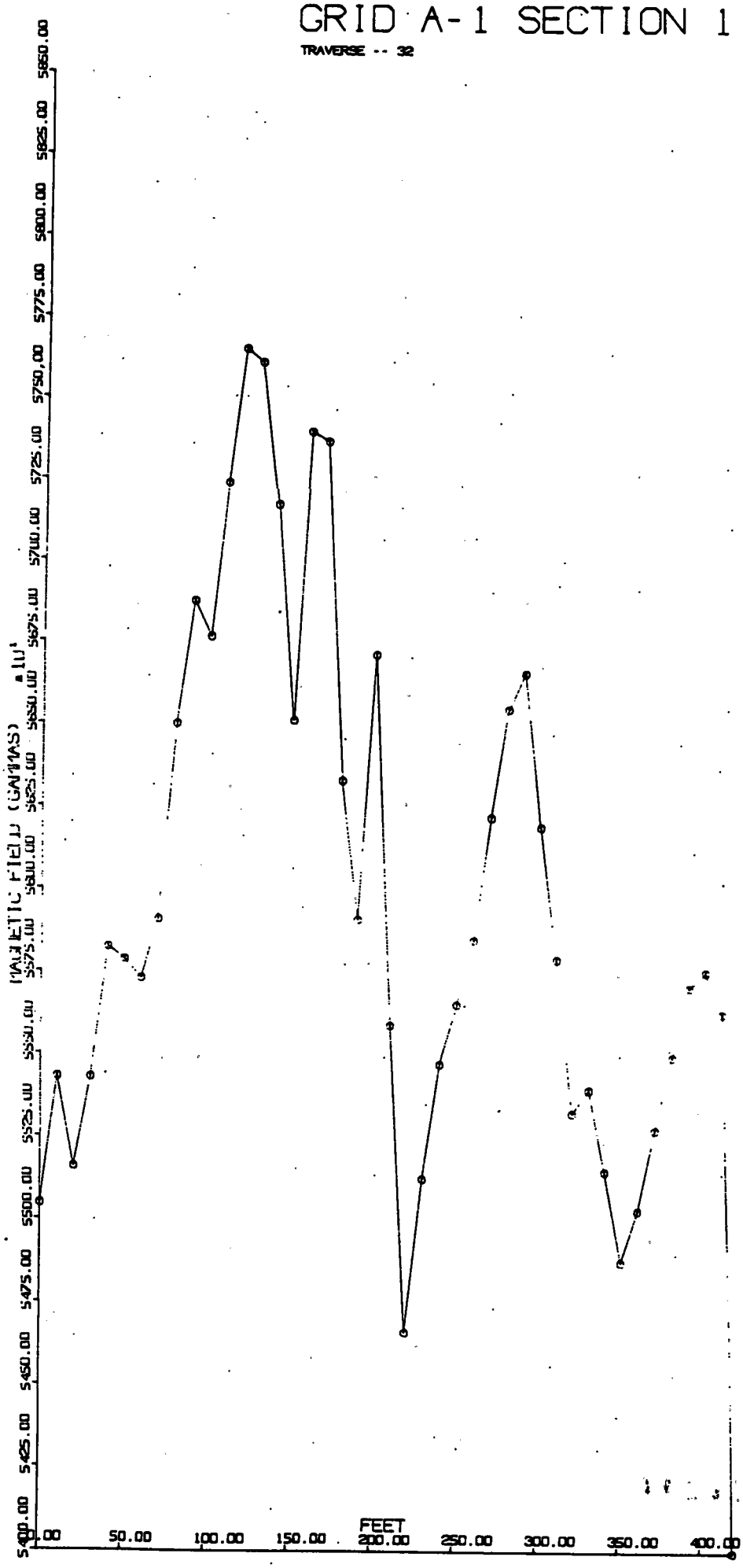
TRAVERSE LINE 32

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
32	76	255	0		55,047.0
32	76	256	10		55,429.8
32	76	257	20		55,157.8
32	76	258	30		55,427.8
32	76	259	40		55,824.2
32	76	260	50		55,785.8
32	76	261	60		55,728.2
32	76	262	70		55,907.4
32	76	263	80		56,499.4
32	76	264	90	?	56,871.8
32	76	265	100		56,762.4
32	76	266	110	?	57,236.0
32	76	267	120	?	57,646.4
32	76	268	130	?	57,605.4
32	76	269	140	?	57,168.2
32	76	270	150		56,510.6
32	76	271	160	?	57,393.8
32	76	272	170	?	57,364.4
32	76	273	180		56,328.8
32	76	274	190		55,909.0
32	76	275	200	?	56,710.0
32	76	276	210	?	55,587.6
32	76	277	220	?	54,664.6
32	76	278	230		55,126.0
32	76	279	240		55,470.8
32	76	280	250		55,652.4
32	76	281	260		55,848.0
32	76	282	270		56,219.6
32	76	283	280		56,546.4
32	76	284	290	?	56,655.4
32	76	285	300		56,191.6
32	76	286	310		55,790.6
32	76	287	320		55,325.2
32	76	288	330		55,396.6
32	76	289	340		55,150.6
32	76	290	350		54,878.6
32	76	291	360		55,033.6
32	76	292	370		55,276.4
32	76	293	380		55,497.2
32	76	294	390		55,708.8
32	76	295	400		55,756.2
32	76	296	410		55,630.2
32	76	297	420	?	53,533.4

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 32



001036

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

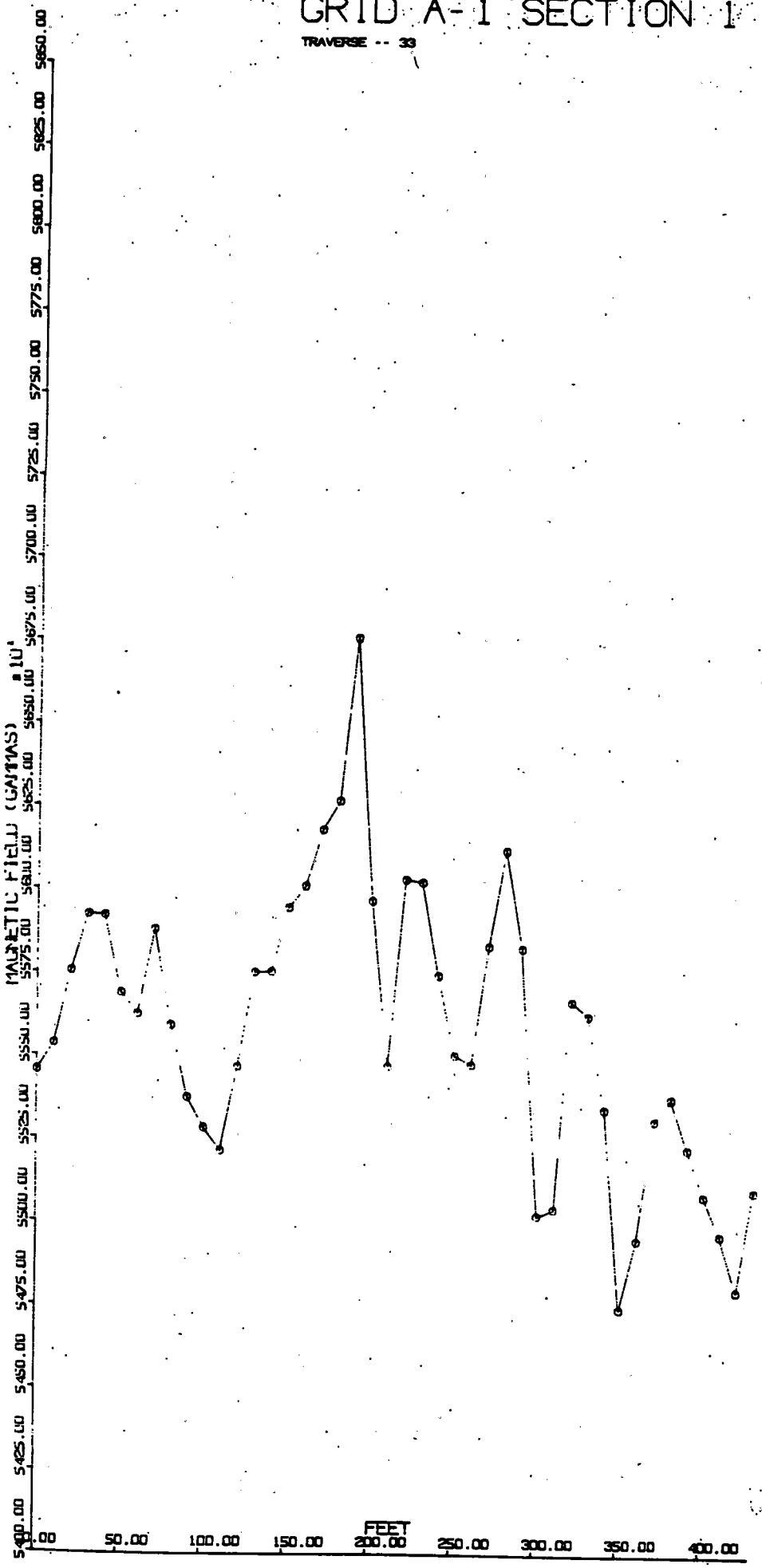
TRAVERSE LINE 33

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
33	76	211	0		55,454.2
33	76	212	10		55,534.8
33	76	213	20		55,753.2
33	76	214	30		55,922.8
33	76	215	40		55,920.0
33	76	216	50		55,687.6
33	76	217	60		55,624.2
33	76	218	70		55,878.0
33	76	219	80		55,590.8
33	76	220	90		55,372.6
33	76	221	100		55,281.0
33	76	222	110		55,212.8
33	76	223	120		55,466.8
33	76	224	130		55,752.8
33	76	225	140		55,755.0
33	76	226	150		55,946.8
33	76	227	160		56,012.4
33	76	228	170		56,182.6
33	76	229	180		56,269.8
33	76	230	190	?	56,759.8
33	76	231	200		55,970.2
33	76	232	210	?	55,474.2
33	76	233	220		56,034.8
33	76	234	230		56,027.6
33	76	235	240		55,748.2
33	76	236	250		55,508.2
33	76	237	260	?	55,480.6
33	76	238	270		55,837.0
33	76	239	280		56,124.6
33	76	240	290		55,831.0
33	76	241	300	?	55,028.8
33	76	242	310	?	55,049.0
33	76	243	320		55,673.2
33	76	244	330		55,630.2
33	76	245	340		55,349.2
33	76	246	350	?	54,750.8
33	76	247	360		54,957.2
33	76	248	370		55,315.8
33	76	249	380		55,383.4
33	76	250	390		55,231.4
33	76	251	400		55,091.2
33	76	252	410		54,973.4
33	76	253	420	?	54,808.4
33	76	254	430	?	55,106.8

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 33



001038

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

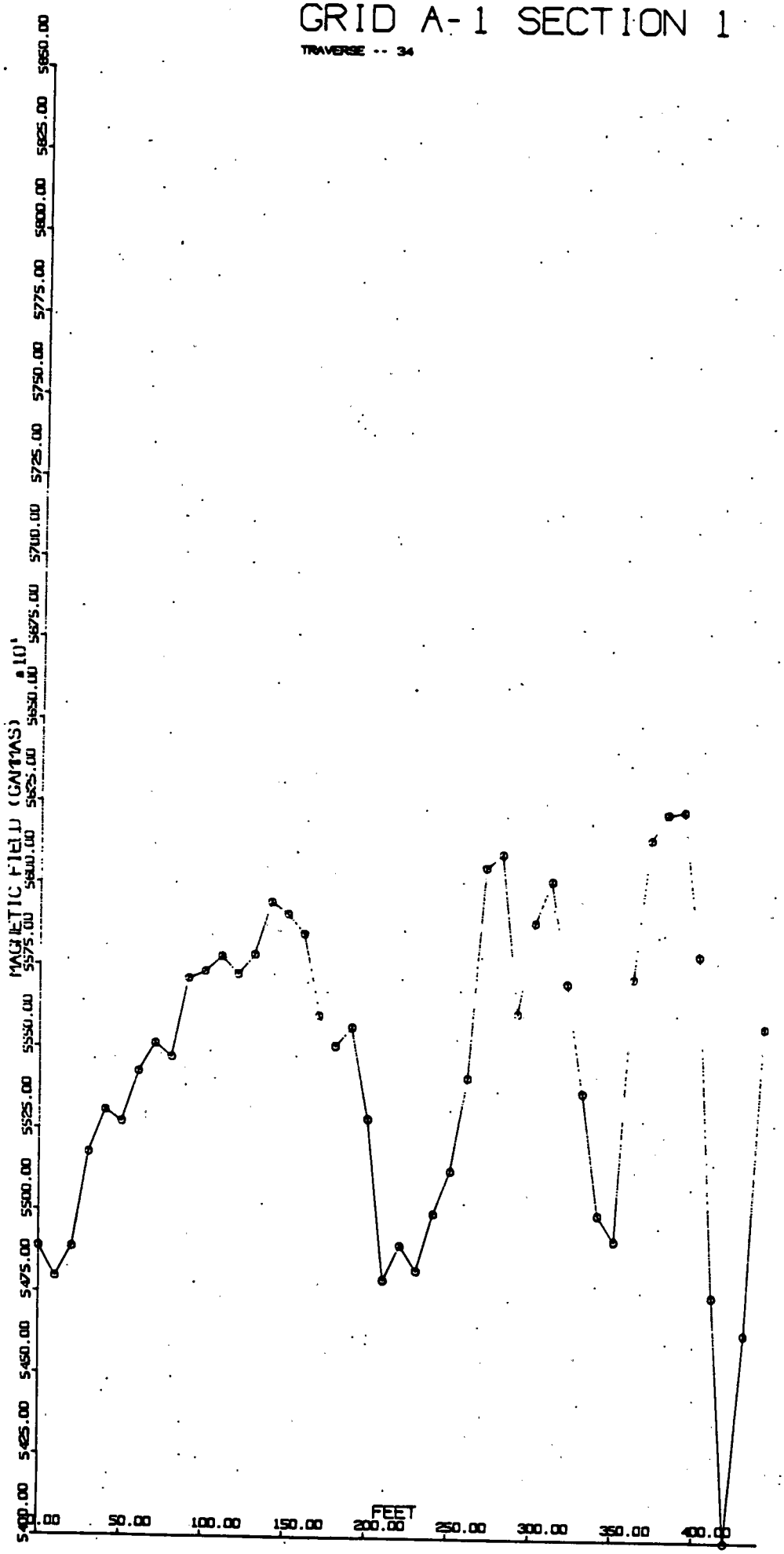
TRAVERSE LINE 34

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
34	76	166	0	?	54,888.4
34	76	167	10		54,795.4
34	76	168	20		54,886.8
34	76	169	30		55,176.8
34	76	170	40		55,307.4
34	76	171	50		55,271.2
34	76	172	60		55,425.4
34	76	173	70		55,511.8
34	76	174	80		55,470.0
34	76	175	90		55,710.4
34	76	176	100		55,732.0
34	76	177	110		55,778.8
34	76	178	120		55,724.2
34	76	179	130		55,784.4
34	76	180	140		55,945.6
34	76	181	150		55,909.2
34	76	182	160		55,849.2
34	76	183	170		55,600.0
34	76	184	180		55,507.6
34	76	185	190		55,566.2
34	76	186	200		55,286.4
34	76	187	210	?	54,796.0
34	76	188	220		54,901.8
34	76	189	230		54,824.8
34	76	190	240		54,999.6
34	76	191	250		55,131.2
34	76	192	260		55,414.6
34	76	193	270		56,056.8
34	76	194	280		56,099.6
34	76	195	290	?	55,613.0
34	76	196	300		55,869.6
34	76	197	310		56,018.0
34	76	198	320		55,705.6
34	76	199	330		55,373.0
34	76	200	340	?	54,999.8
34	76	201	350	?	54,922.0
34	76	202	360		55,723.4
34	76	203	370	?	56,148.0
34	76	204	380		56,227.0
34	76	205	390	?	56,235.8
34	76	206	400	?	55,794.4
34	76	207	410	?	54,754.2
34	76	208	420	?	53,826.8
34	76	209	430	?	54,640.6
34	76	210	440	?	55,579.0

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 34



001040

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 35

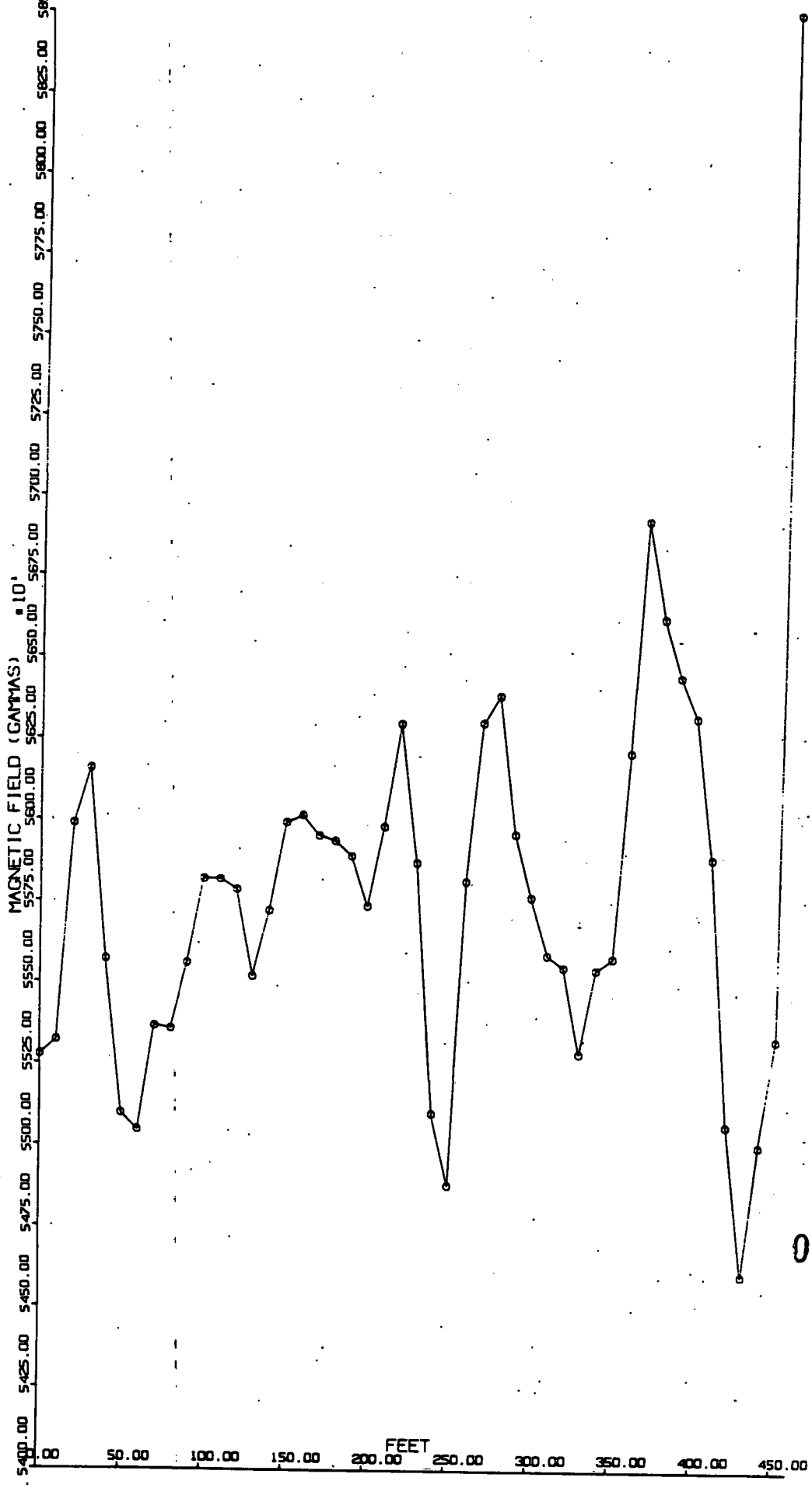
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
35	80	0	0		55,276.6
35	80	1	10		55,321.6
35	80	2	20	?	55,988.8
35	80	3	30	?	56,159.0
35	80	4	40		55,573.2
35	80	5	50		55,099.8
35	80	6	60		55,049.6
35	80	7	70		55,367.4
35	80	8	80		55,359.6
35	80	9	90		55,563.0
35	80	10	100		55,821.2
35	80	11	110		55,820.4
35	80	12	120		55,788.6
35	80	13	130		55,522.4
35	80	14	140		55,723.6
35	80	15	150		55,995.0
35	80	16	160		56,017.6
35	80	17	170		55,955.6
35	80	18	180		55,939.8
35	80	19	190		55,893.0
35	80	20	200		55,739.6
35	80	21	210		55,984.2
35	80	22	220	?	56,299.4
35	80	23	230		55,874.2
35	80	24	240		55,105.2
35	80	25	250	?	54,884.2
35	80	26	260		55,819.0
35	80	27	270		56,304.2
35	80	28	280		56,386.2
35	80	29	290		55,964.4
35	80	30	300		55,770.4
35	80	31	310		55,593.8
35	80	32	320		55,556.6
35	80	33	330	?	55,291.0
35	80	34	340		55,549.0
35	80	35	350		55,585.4
35	80	36	360		56,215.8
35	80	37	370	?	56,929.6
35	80	38	380		56,627.8
35	80	39	390		56,448.2
35	80	40	400		56,324.8
35	80	41	410		55,892.4
35	80	42	420		55,073.4
35	80	43	430	?	54,613.4
35	80	44	440		55,010.6
35	80	45	450		55,336.2
35	80	46	460	?	58,571.4

001041

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 35



001042

001042

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 36

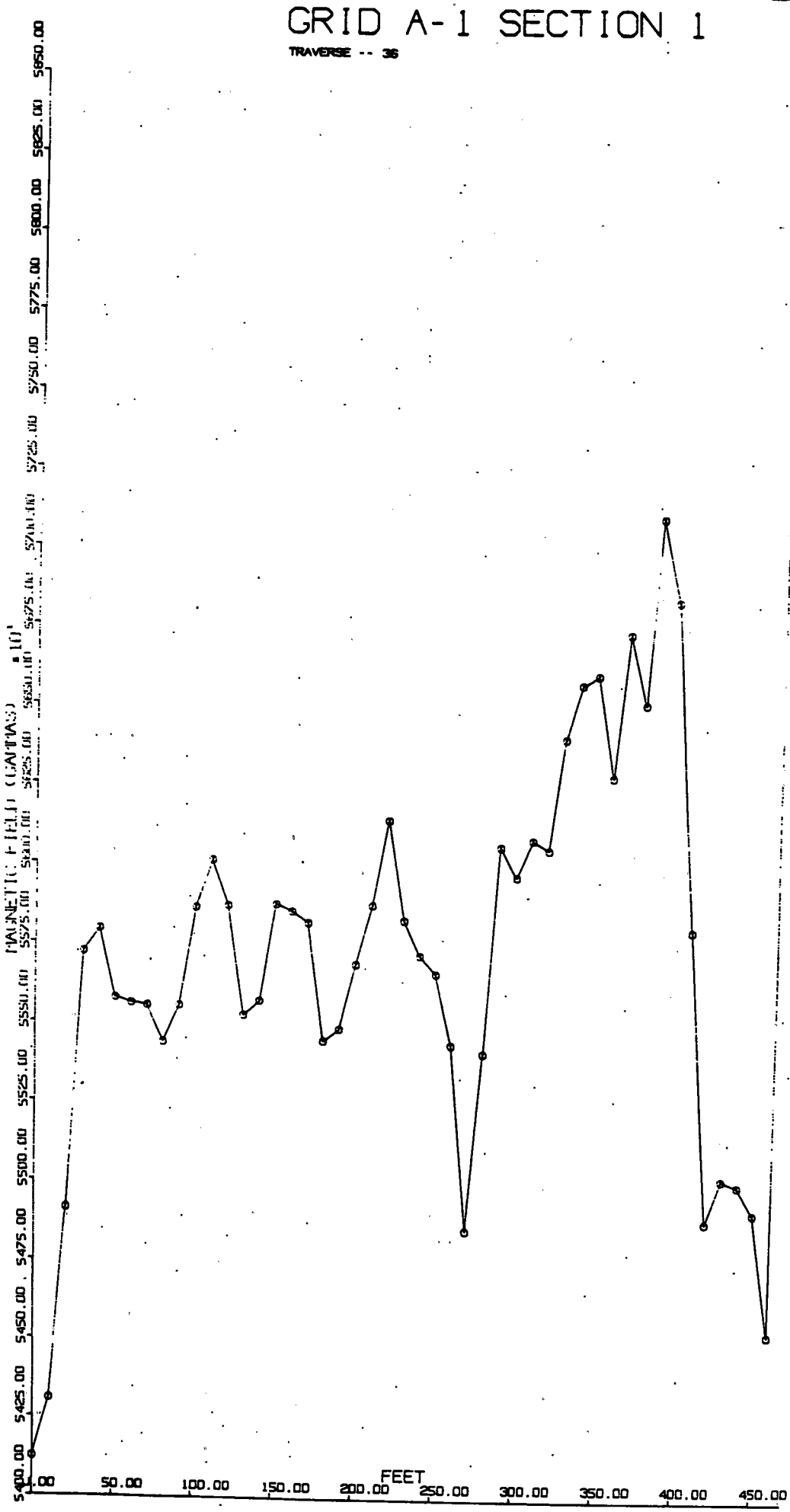
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
36	80	47	0		54,123.2
36	80	48	10		54,307.4
36	80	49	20		54,913.6
36	80	50	30		55,721.0
36	80	51	40		55,793.8
36	80	52	50		55,576.6
36	80	53	60		55,559.8
36	80	54	70		55,553.0
36	80	55	80		55,436.4
36	80	56	90		55,552.4
36	80	57	100		55,861.2
36	80	58	110		56,010.8
36	80	59	120		55,867.8
36	80	60	130		55,523.0
36	80	61	140		55,567.8
36	80	62	150		55,872.8
36	80	63	160		55,850.4
36	80	64	170		55,815.4
36	80	65	180		55,442.2
36	80	66	190		55,480.2
36	80	67	200		55,685.6
36	80	68	210		55,871.0
36	80	69	220	?	56,138.0
36	80	70	230		55,823.8
36	80	71	240		55,714.0
36	80	72	250		55,657.4
36	80	73	260		55,431.6
36	80	74	270	?	54,849.8
36	80	75	280		55,406.4
36	80	76	290		56,057.6
36	80	77	300		55,962.4
36	80	78	310		56,079.0
36	80	79	320		56,047.6
36	80	80	330		56,395.8
36	80	81	340	?	56,567.4
36	80	82	350	?	56,597.8
36	80	83	360		56,276.6
36	80	84	370	?	56,728.0
36	80	85	380		56,506.2
36	80	86	390	?	57,095.8
36	80	87	400	?	56,830.8
36	80	88	410		55,797.8
36	80	89	420	?	54,881.6
36	80	90	430		55,017.0
36	80	91	440		54,998.8
36	80	92	450		54,912.4
36	80	93	460	?	54,526.8
36	80	94	470	?	57,719.8

001043

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 36



CA0100

001044

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 37

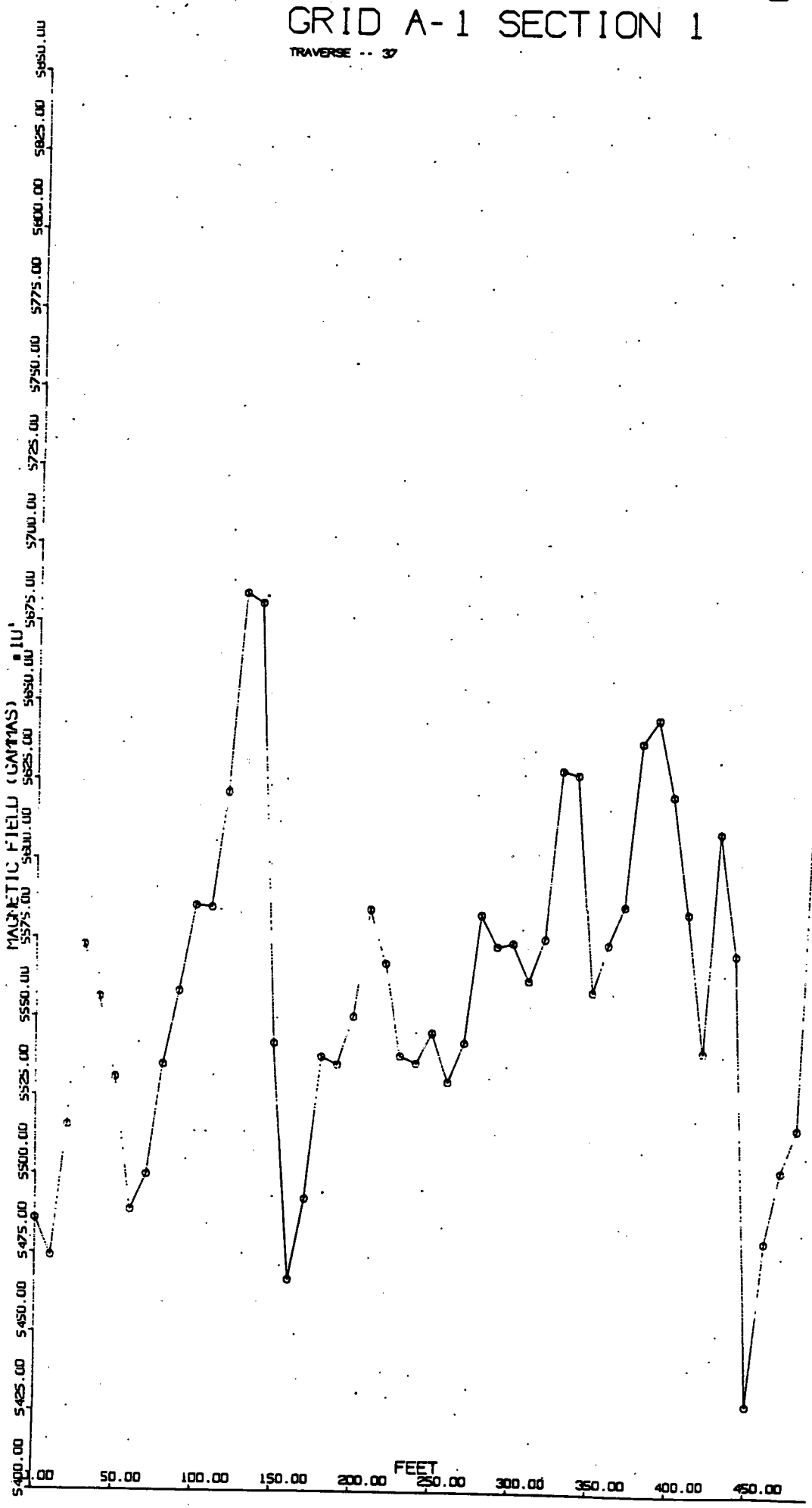
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
37	80	95	0		54,857.4
37	80	96	10	?	54,741.0
37	80	97	20		55,156.0
37	80	98	30		55,729.2
37	80	99	40		55,565.0
37	80	100	50		55,310.2
37	80	101	60		54,889.2
37	80	102	70		55,001.2
37	80	103	80		55,350.8
37	80	104	90		55,584.8
37	80	105	100		55,856.2
37	80	106	110		55,850.6
37	80	107	120		56,214.2
37	80	108	130	?	56,842.4
37	80	109	140	?	56,811.2
37	80	110	150	?	55,423.0
37	80	111	160	?	54,673.8
37	80	112	170		54,929.8
37	80	113	180		55,382.4
37	80	114	190		55,358.0
37	80	115	200		55,511.0
37	80	116	210		55,850.2
37	80	117	220		55,680.8
37	80	118	230		55,386.2
37	80	119	240		55,363.4
37	80	120	250		55,460.6
37	80	121	260		55,305.4
37	80	122	270		55,429.2
37	80	123	280		55,833.8
37	80	124	290		55,735.8
37	80	125	300		55,747.2
37	80	126	310		55,628.4
37	80	127	320		55,761.2
37	80	128	330		56,293.0
37	80	129	340		56,278.6
37	80	130	350		55,594.4
37	80	131	360		55,746.4
37	80	132	370		55,866.6
37	80	133	380		56,379.6
37	80	134	390		56,454.6
37	80	135	400		56,214.8
37	80	136	410		55,846.0
37	80	137	420		55,408.4
37	80	138	430	?	56,098.8
37	80	139	440	?	55,718.6
37	80	140	450	?	54,290.0
37	80	141	460		54,811.6
37	80	142	470		55,034.4
37	80	143	480	?	55,169.6
37	80	144	490	?	56,440.4

001045

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 37



001046

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 38

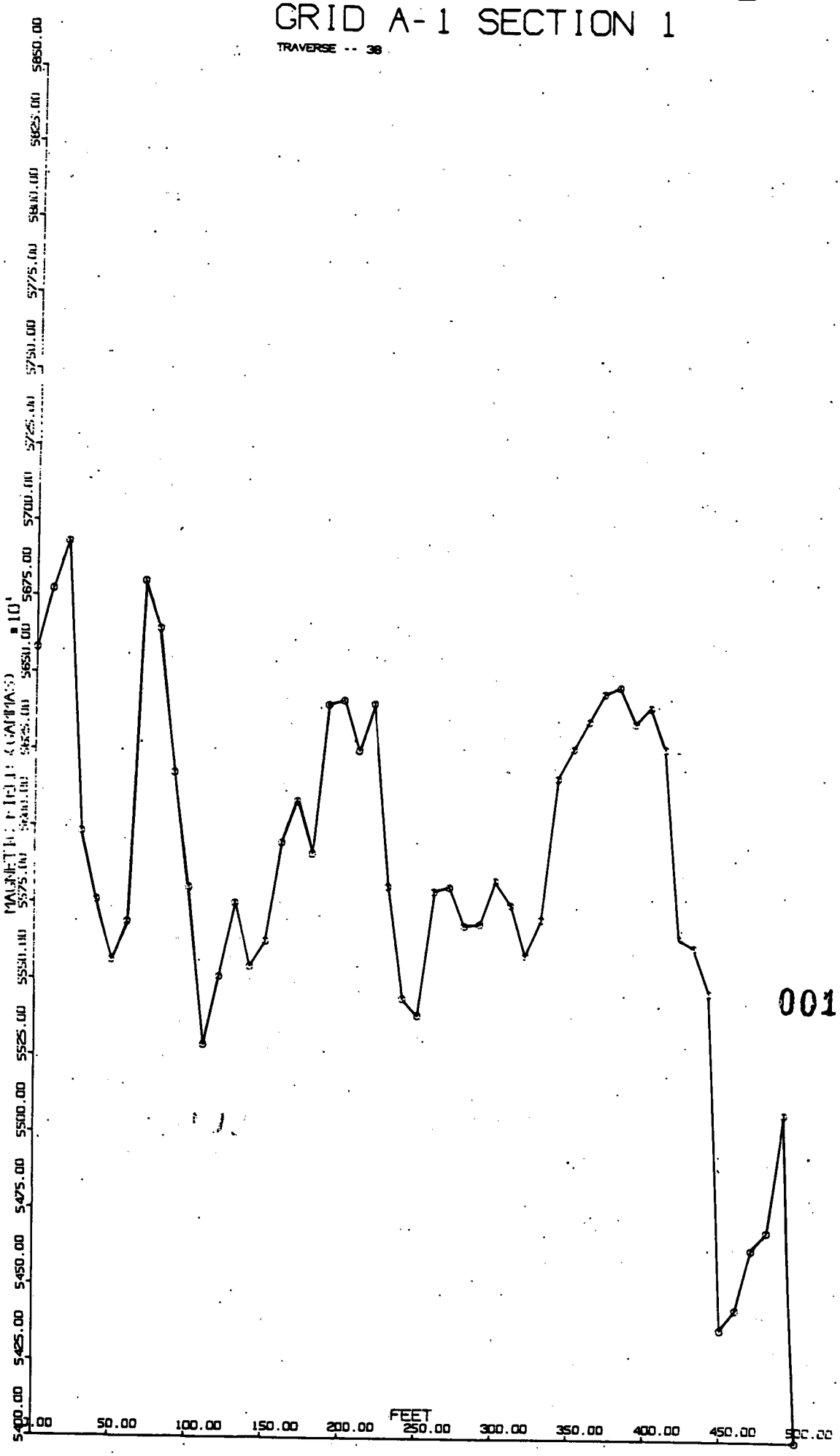
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
38	80	145	0		56,580.0
38	80	146	10	?	56,771.8
38	80	147	20	?	56,928.4
38	80	148	30		55,981.8
38	80	149	40		55,758.8
38	80	150	50		55,561.8
38	80	151	60		55,686.6
38	80	152	70	?	56,799.6
38	80	153	80	?	56,645.0
38	80	154	90		56,176.2
38	80	155	100		55,800.6
38	80	156	110		55,286.2
38	80	157	120		55,510.4
38	80	158	130		55,750.4
38	80	159	140		55,544.2
38	80	160	150		55,627.6
38	80	161	160		55,948.4
38	80	162	170		56,086.2
38	80	163	180		55,912.0
38	80	164	190	?	56,401.2
38	80	165	200		56,415.6
38	80	166	210		56,251.8
38	80	167	220	?	56,404.2
38	80	168	230		55,806.6
38	80	169	240		55,442.0
38	80	170	250		55,386.2
38	80	171	260		55,791.0
38	80	172	270		55,806.0
38	80	173	280		55,680.4
38	80	174	290		55,686.6
38	80	175	300		55,828.0
38	80	176	310		55,748.8
38	80	177	320		55,585.0
38	80	178	330		55,702.8
38	80	179	340		56,165.2
38	80	180	350		56,262.2
38	80	181	360		56,352.4
38	80	182	370		56,443.6
38	80	183	380		56,465.6
38	80	184	390		56,346.2
38	80	185	400		56,399.8
38	80	186	410		56,264.6
38	80	187	420	?	55,647.0
38	80	188	430	?	55,616.6
38	80	189	440		55,469.6
38	80	190	450	?	54,362.2
38	80	191	460		54,428.6
38	80	192	470		54,625.6
38	80	193	480		54,684.6
38	80	194	490	?	55,073.8
38	80	195	500	?	52,058.6

001047

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 38



001048

MAGNETIC SURVEY DATA

TRAVERSE LINE 39

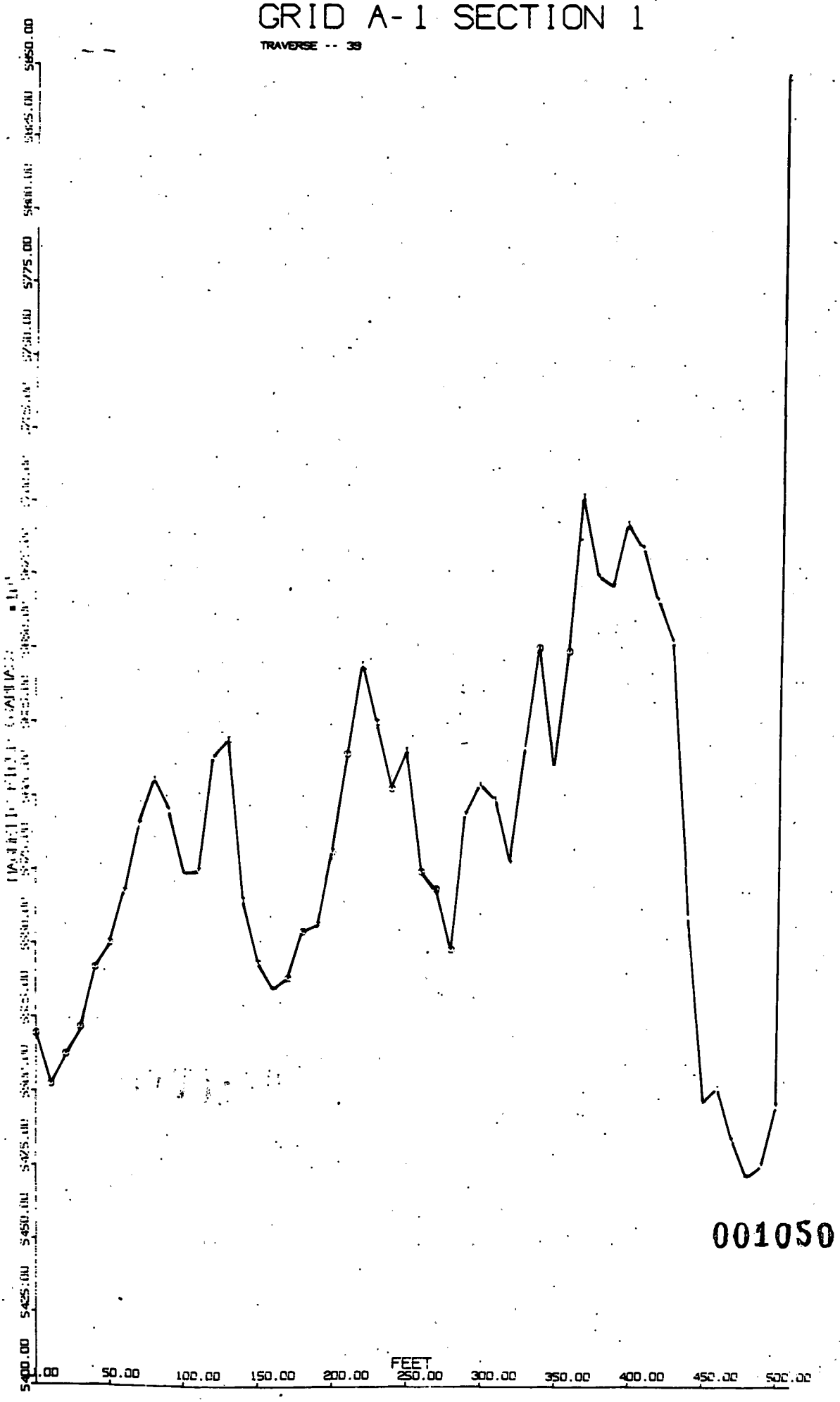
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
39	80	196	0		55,195.6
39	80	197	10		55,024.0
39	80	198	20		55,124.4
39	80	199	30		55,216.4
39	80	200	40		55,419.0
39	80	201	50		55,502.8
39	80	202	60		55,674.4
39	80	203	70		55,902.8
39	80	204	80		56,053.0
39	80	205	90		55,947.6
39	80	206	100		55,733.8
39	80	207	110		55,742.8
39	80	208	120	?	56,126.8
39	80	209	130	?	56,187.6
39	80	210	140		55,643.8
39	80	211	150		55,431.4
39	80	212	160		55,341.6
39	80	213	170		55,379.8
39	80	214	180		55,539.2
39	80	215	190		55,563.2
39	80	216	200		55,811.0
39	80	217	210		56,141.8
39	80	218	220		56,443.4
39	80	219	230		56,248.6
39	80	220	240		56,026.0
39	80	221	250	?	56,155.0
39	80	222	260		55,743.6
39	80	223	270		55,684.8
39	80	224	280		55,480.8
39	80	225	290		55,939.6
39	80	226	300		56,038.8
39	80	227	310		55,990.6
39	80	228	320	?	55,772.8
39	80	229	330		56,169.0
39	80	230	340		56,502.8
39	80	231	350		56,105.4
39	80	232	360		56,490.6
39	80	233	370	?	57,018.6
39	80	234	380		56,742.8
39	80	235	390		56,710.8
39	80	236	400		56,924.4
39	80	237	410		56,841.2
39	80	238	420		56,664.0
39	80	239	430	?	56,524.6
39	80	240	440		55,596.8
39	80	241	450	?	54,966.0
39	80	242	460		55,016.2
39	80	243	470		54,839.6
39	80	244	480		54,716.0
39	80	245	490		54,755.8
39	80	246	500		54,956.4
39	80	247	510	?	58,454.4

001049

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 39



001050

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 40

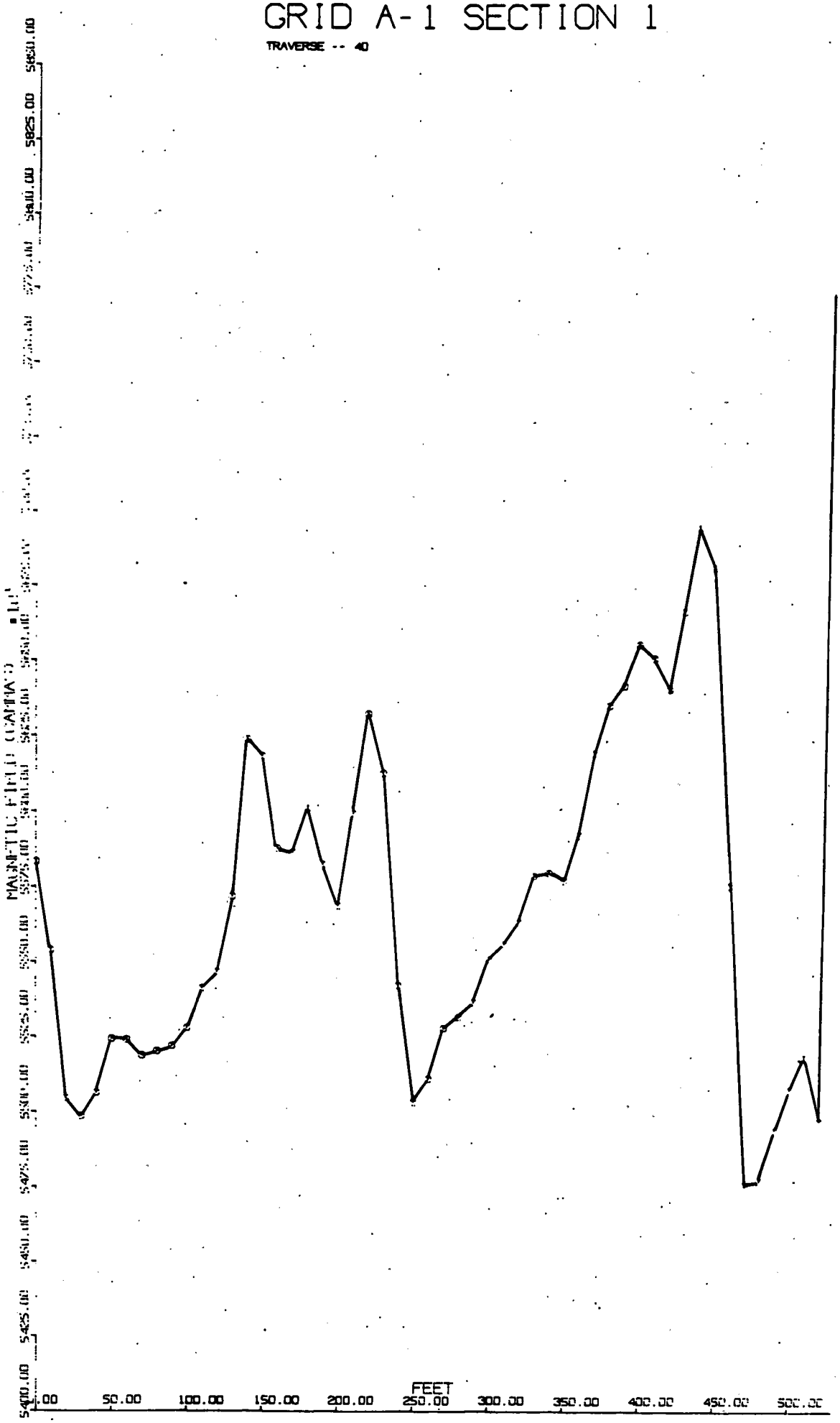
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
40	80	248	0		55,832.4
40	80	249	10		55,539.6
40	80	250	20		55,045.0
40	80	251	30		54,985.8
40	80	252	40		55,063.6
40	80	253	50		55,242.8
40	80	254	60		55,240.2
40	80	255	70		55,187.8
40	80	256	80		55,202.6
40	80	257	90		55,220.0
40	80	258	100		55,280.6
40	80	259	110		55,411.8
40	80	260	120		55,467.0
40	80	261	130		55,718.0
40	80	262	140	?	56,239.6
40	80	263	150		56,183.4
40	80	264	160		55,877.0
40	80	265	170		55,864.0
40	80	266	180		56,009.8
40	80	267	190		55,825.0
40	80	268	200		55,666.6
40	80	269	210		55,993.4
40	80	270	220		56,323.2
40	80	271	230		56,127.4
40	80	272	240		55,421.4
40	80	273	250		55,034.8
40	80	274	260		55,110.6
40	80	275	270		55,278.4
40	80	276	280		55,316.0
40	80	277	290		55,364.8
40	80	278	300		55,510.2
40	80	279	310		55,560.6
40	80	280	320		55,634.4
40	80	281	330		55,788.6
40	80	282	340		55,798.2
40	80	283	350		55,772.2
40	80	284	360		55,922.4
40	80	285	370		56,194.6
40	80	286	380		56,352.8
40	80	287	390		56,419.0
40	80	288	400		56,556.6
40	80	289	410		56,510.8
40	80	290	420		56,408.0
40	80	291	430		56,667.2
40	80	292	440	?	56,947.4
40	80	293	450	?	56,813.4
40	80	294	460		55,756.2
40	80	295	470	?	54,762.4
40	80	296	480		54,774.2
40	80	297	490		54,942.2
40	80	298	500		55,075.8
40	80	299	510		55,184.0
40	80	300	520		54,972.4
40	80	301	530	?	57,728.2

CC1051

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 40



001052

MAGNETIC SURVEY DATA

TRAVERSE LINE 41

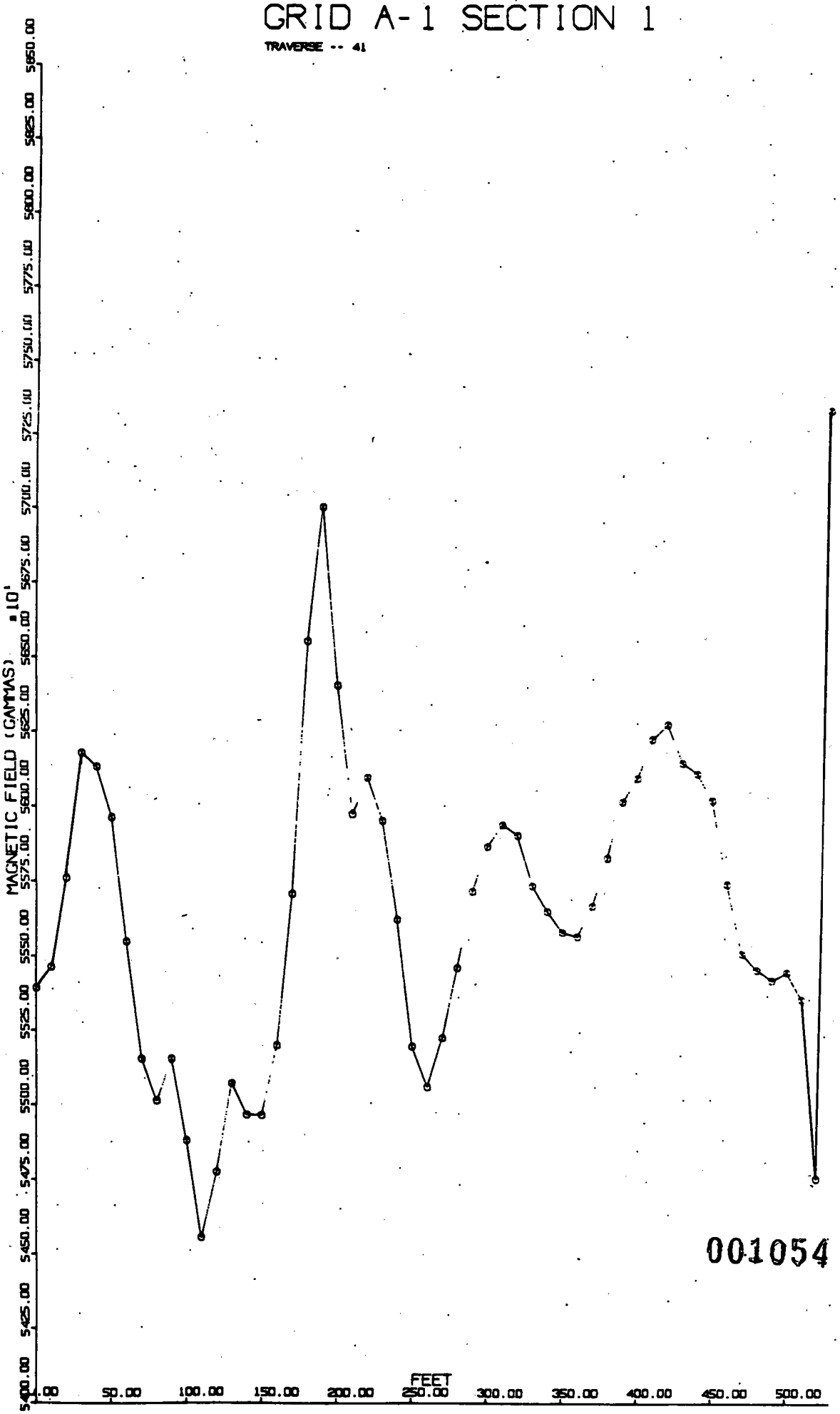
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
41	80	302	0		55,392.6
41	80	303	10		55,463.4
41	80	304	20		55,760.4
41	80	305	30		56,179.6
41	80	306	40		56,132.6
41	80	307	50		55,963.2
41	80	308	60		55,549.8
41	80	309	70	?	55,155.2
41	80	310	80		55,016.2
41	80	311	90		55,157.4
41	80	312	100		54,884.8
41	80	313	110	?	54,561.2
41	80	314	120		54,780.8
41	80	315	130		55,077.2
41	80	316	140		54,971.4
41	80	317	150		54,970.2
41	80	318	160		55,203.8
41	80	319	170		55,711.6
41	80	320	180	?	56,555.4
41	80	321	190	?	57,006.0
41	80	322	200		56,407.4
41	80	323	210		55,977.4
41	80	324	220		56,101.2
41	80	325	230		55,956.2
41	80	326	240		55,626.6
41	80	327	250		55,200.4
41	80	328	260		55,066.0
41	80	329	270		55,229.6
41	80	330	280		55,464.6
41	80	331	290		55,720.8
41	80	332	300		55,870.4
41	80	333	310		55,943.2
41	80	334	320		55,908.0
41	80	335	330		55,739.0
41	80	336	340		55,654.2
41	80	337	350		55,584.8
41	80	338	360		55,570.6
41	80	339	370		55,672.4
41	80	340	380		55,832.0
41	80	341	390		56,020.2
41	80	342	400		56,099.8
41	80	343	410		56,230.6
41	80	344	420		56,279.2
41	80	345	430		56,151.4
41	80	346	440		56,115.4
41	80	347	450		56,026.0
41	80	348	460		55,745.6
41	80	349	470		55,513.4
41	80	350	480		55,459.8
41	80	351	490		55,425.0
41	80	352	500		55,452.0
41	80	353	510		55,359.8
41	80	354	520	?	54,760.4
41	80	355	530	?	57,342.8

001053

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 41



001054

MAGNETIC SURVEY DATA

TRAVERSE LINE 42

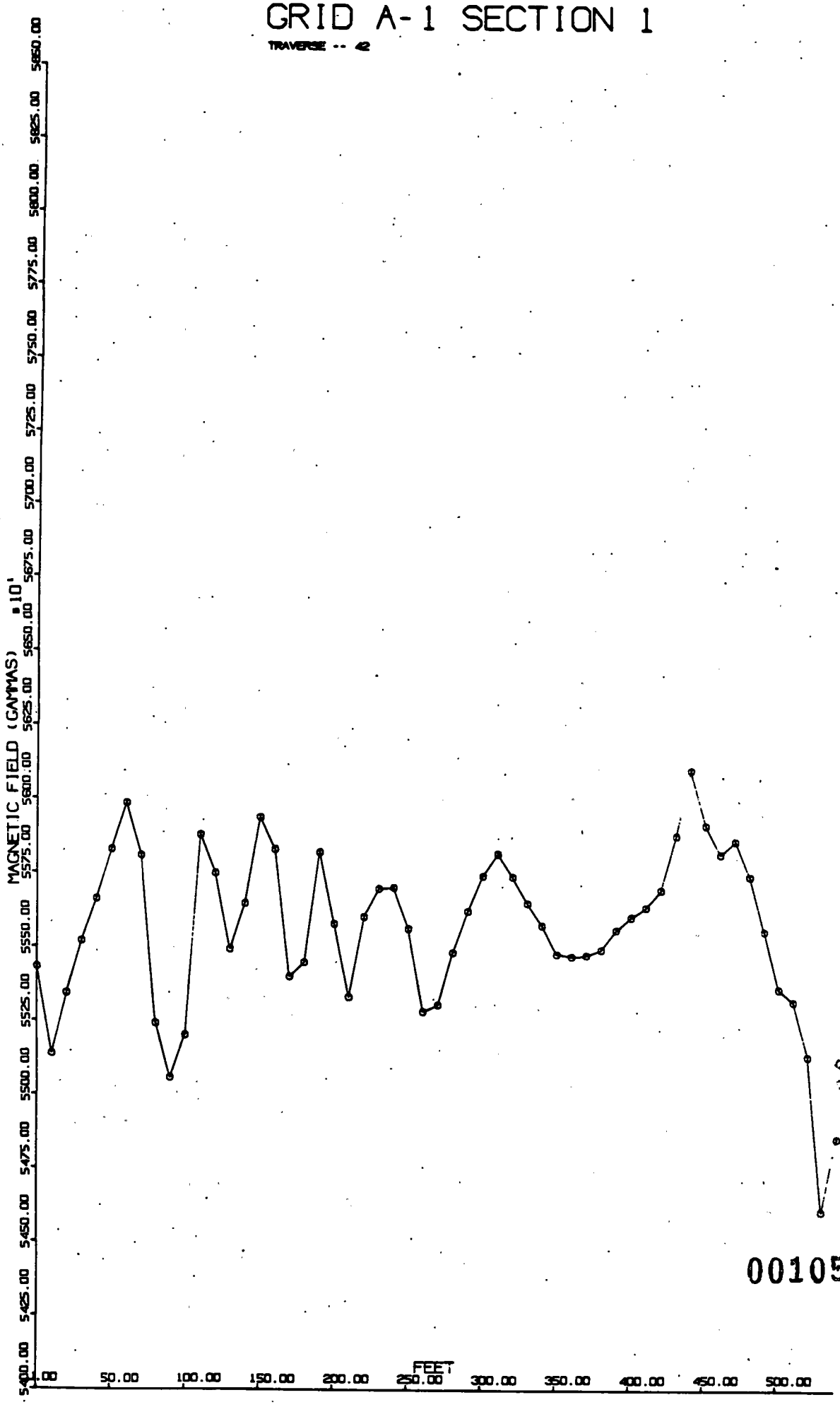
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
42	80	356	0		55,431.6
42	80	357	10		55,137.0
42	80	358	20		55,342.4
42	80	359	30		55,520.0
42	80	360	40		55,661.8
42	80	361	50		55,827.8
42	80	362	60		55,984.8
42	80	363	70		55,807.8
42	80	364	80		55,242.6
42	80	365	90	?	55,060.0
42	80	366	100		55,203.6
42	80	367	110		55,878.8
42	80	368	120		55,750.8
42	80	369	130		55,494.6
42	80	370	140		55,649.0
42	80	371	150		55,938.4
42	80	372	160		55,831.2
42	80	373	170		55,402.2
42	80	374	180		55,451.0
42	80	375	190		55,821.8
42	80	376	200		55,581.0
42	80	377	210		55,333.6
42	80	378	220		55,604.8
42	80	379	230		55,700.2
42	80	380	240		55,703.8
42	80	381	250		55,565.6
42	80	382	260		55,284.6
42	80	383	270		55,307.6
42	80	384	280		55,485.2
42	80	385	290		55,624.8
42	80	386	300		55,743.2
42	80	387	310		55,818.6
42	80	388	320		55,740.6
42	80	389	330		55,652.4
42	80	390	340		55,578.0
42	80	391	350		55,481.2
42	80	392	360		55,473.6
42	80	393	370		55,478.6
42	80	394	380		55,497.2
42	80	395	390		55,563.8
42	80	396	400		55,606.4
42	80	397	410		55,639.8
42	80	398	420		55,698.8
42	80	399	430		55,881.2
42	80	400	440		56,104.4
42	80	401	450		55,916.8
42	80	402	460		55,819.6
42	80	403	470		55,863.8
42	80	404	480		55,744.8
42	80	405	490		55,561.6
42	80	406	500		55,366.0
42	80	407	510		55,322.8
42	80	408	520		55,138.4
42	80	409	530	?	54,613.8
42	80	410	540	?	54,858.8

001055

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 42



001056

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 43

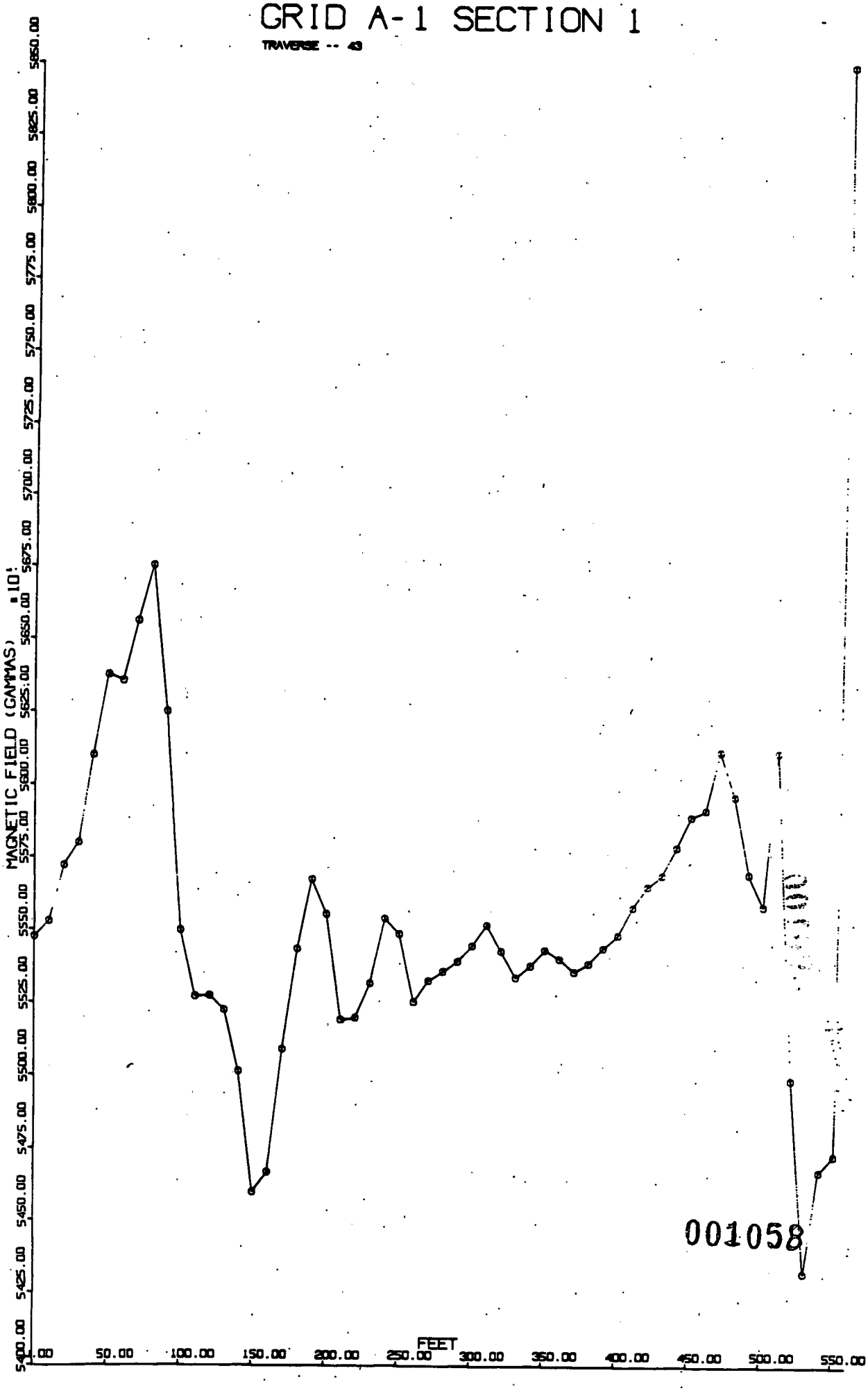
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
43	82	0	0		55,475.2
43	82	1	10		55,528.4
43	82	2	20		55,721.2
43	82	3	30		55,800.0
43	82	4	40		56,104.0
43	82	5	50		56,379.0
43	82	6	60		56,358.0
43	82	7	70		56,564.2
43	82	8	80	?	56,754.4
43	82	9	90		56,254.6
43	82	10	100		55,502.6
43	82	11	110		55,274.4
43	82	12	120		55,276.8
43	82	13	130		55,228.6
43	82	14	140		55,019.0
43	82	15	150		54,602.8
43	82	16	160		54,671.6
43	82	17	170		55,094.6
43	82	18	180		55,439.6
43	82	19	190		55,680.4
43	82	20	200		55,560.6
43	82	21	210		55,196.6
43	82	22	220		55,204.4
43	82	23	230		55,322.6
43	82	24	240		55,546.8
43	82	25	250		55,493.2
43	82	26	260		55,259.6
43	82	27	270		55,332.2
43	82	28	280		55,364.6
43	82	29	290		55,399.4
43	82	30	300		55,453.4
43	82	31	310		55,524.8
43	82	32	320		55,434.8
43	82	33	330		55,344.0
43	82	34	340		55,385.0
43	82	35	350		55,439.6
43	82	36	360		55,408.6
43	82	37	370		55,365.2
43	82	38	380		55,393.6
43	82	39	390		55,447.4
43	82	40	400		55,492.2
43	82	41	410		55,588.4
43	82	42	420		55,660.8
43	82	43	430		55,700.0
43	82	44	440		55,796.0
43	82	45	450		55,900.8
43	82	46	460		55,924.8
43	82	47	470		56,126.8
43	82	48	480		55,971.4
43	82	49	490		55,704.6
43	82	50	500		55,592.0
43	82	51	510	?	56,124.2
43	82	52	520	?	54,994.6
43	82	53	530	?	54,326.2
43	82	54	540		54,677.6
43	82	55	550	?	54,733.4
43	82	56	560	?	58,645.8

001057

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 43



001058

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 44

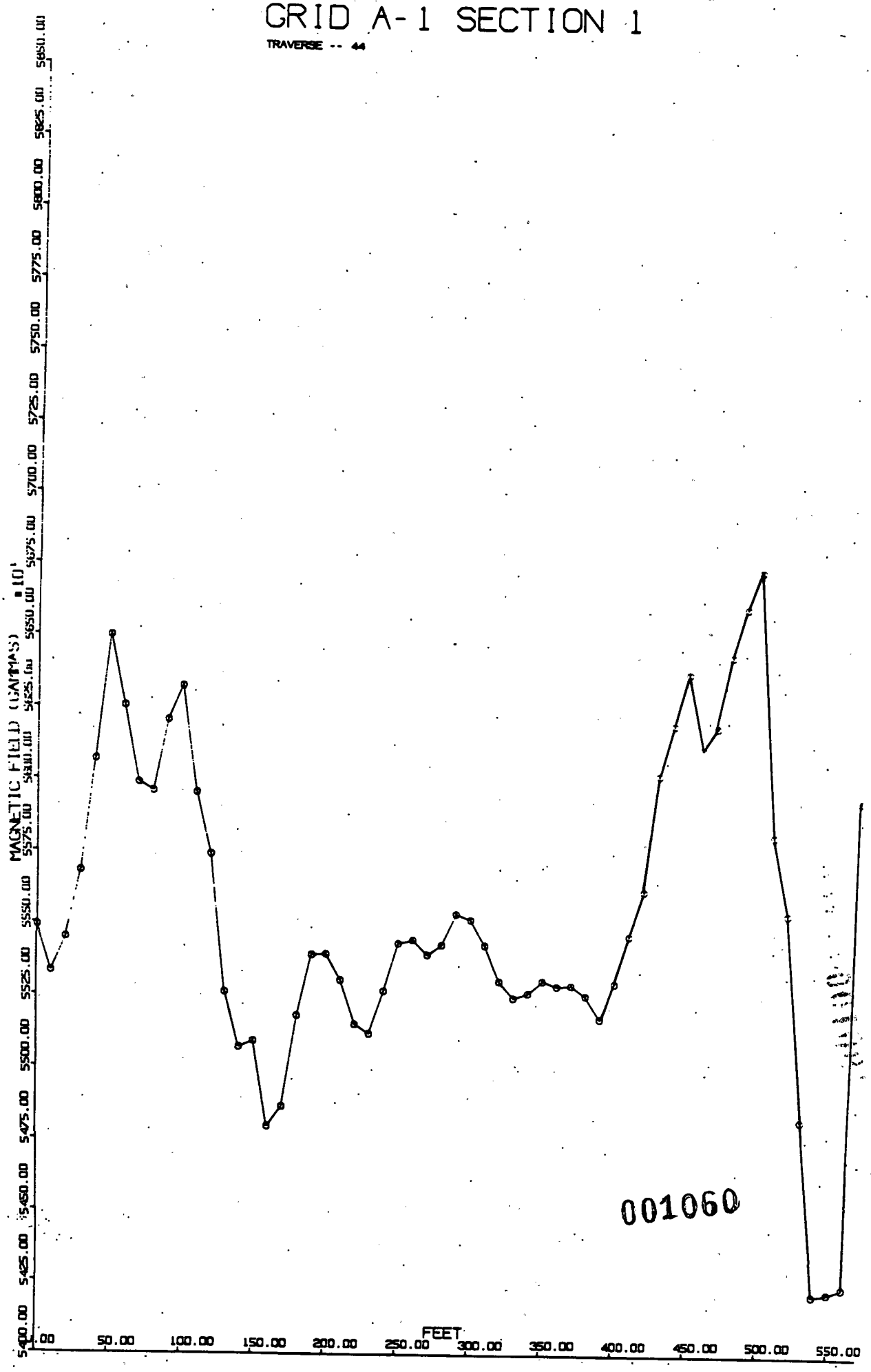
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
44	82	57	0.		55,491.2
44	82	58	10		55,330.8
44	82	59	20		55,448.6
44	82	60	30		55,681.2
44	82	61	40		56,067.8
44	82	62	50		56,496.8
44	82	63	60		56,253.4
44	82	64	70		55,987.4
44	82	65	80		55,958.4
44	82	66	90		56,204.6
44	82	67	100		56,322.0
44	82	68	110		55,953.4
44	82	69	120		55,741.6
44	82	70	130		55,262.2
44	82	71	140		55,071.6
44	82	72	150		55,092.8
44	82	73	160		54,797.6
44	82	74	170		54,866.0
44	82	75	180		55,180.8
44	82	76	190		55,392.6
44	82	77	200		55,395.0
44	82	78	210		55,304.4
44	82	79	220		55,152.2
44	82	80	230		55,119.4
44	82	81	240		55,267.6
44	82	82	250		55,433.4
44	82	83	260		55,445.8
44	82	84	270		55,394.2
44	82	85	280		55,428.2
44	82	86	290		55,537.8
44	82	87	300		55,517.8
44	82	88	310		55,428.0
44	82	89	320		55,303.8
44	82	90	330		55,246.6
44	82	91	340		55,263.0
44	82	92	350		55,305.6
44	82	93	360		55,287.8
44	82	94	370		55,291.0
44	82	95	380		55,255.4
44	82	96	390		55,175.0
44	82	97	400		55,298.4
44	82	98	410		55,463.2
44	82	99	420		55,620.2
44	82	100	430		56,020.6
44	82	101	440		56,194.8
44	82	102	450		56,372.8
44	82	103	460		56,113.6
44	82	104	470		56,187.8
44	82	105	480		56,434.6
44	82	106	490	?	56,603.4
44	82	107	500	?	56,733.8
44	82	108	510		55,812.2
44	82	109	520		55,540.8
44	82	110	530	?	54,824.6
44	82	111	540	?	54,217.2
44	82	112	550	?	54,226.0
44	82	113	560		54,242.8
44	82	114	570	?	55,935.0

001059

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 44



001060

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 45

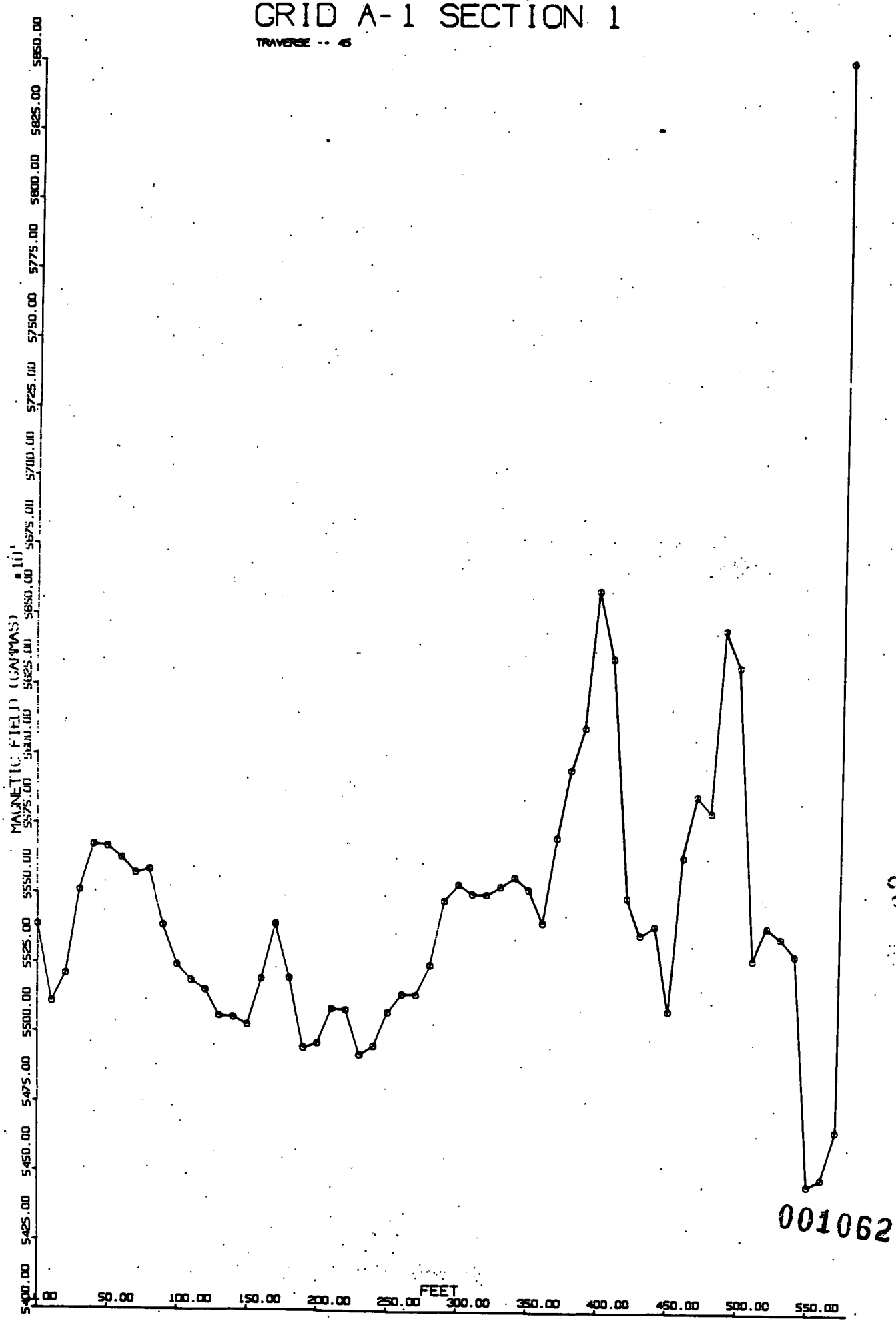
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
45	82	115	0		55,386.2
45	82	116	10		55,108.6
45	82	117	20		55,210.0
45	82	118	30		55,511.2
45	82	119	40		55,674.4
45	82	120	50		55,668.6
45	82	121	60		55,627.4
45	82	122	70		55,574.4
45	82	123	80		55,587.0
45	82	124	90		55,388.4
45	82	125	100		55,246.4
45	82	126	110		55,190.6
45	82	127	120		55,157.0
45	82	128	130		55,064.2
45	82	129	140		55,060.2
45	82	130	150		55,033.4
45	82	131	160		55,199.4
45	82	132	170		55,395.4
45	82	133	180		55,202.4
45	82	134	190		54,951.2
45	82	135	200		54,967.8
45	82	136	210		55,092.0
45	82	137	220		55,088.2
45	82	138	230		54,928.0
45	82	139	240		54,957.8
45	82	140	250		55,079.4
45	82	141	260		55,143.6
45	82	142	270		55,141.8
45	82	143	280		55,249.0
45	82	144	290		55,479.8
45	82	145	300		55,538.4
45	82	146	310		55,504.6
45	82	147	320		55,502.8
45	82	148	330		55,531.8
45	82	149	340		55,565.2
45	82	150	350		55,521.4
45	82	151	360		55,401.8
45	82	152	370		55,706.6
45	82	153	380		55,948.2
45	82	154	390		56,099.4
45	82	155	400	?	56,587.6
45	82	156	410		56,346.0
45	82	157	420		55,493.4
45	82	158	430		55,360.6
45	82	159	440		55,392.4
45	82	160	450	?	55,087.6
45	82	161	460		55,638.4
45	82	162	470		55,855.8
45	82	163	480		55,797.0
45	82	164	490		56,451.4
45	82	165	500		56,319.0
45	82	166	510	?	55,272.0
45	82	167	520		55,387.8
45	82	168	530		55,350.2
45	82	169	540		55,289.0
45	82	170	550	?	54,461.8
45	82	171	560		54,487.2
45	82	172	570		54,660.2
45	82	173	580	?	58,594.0

001061

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 45



001062

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 46

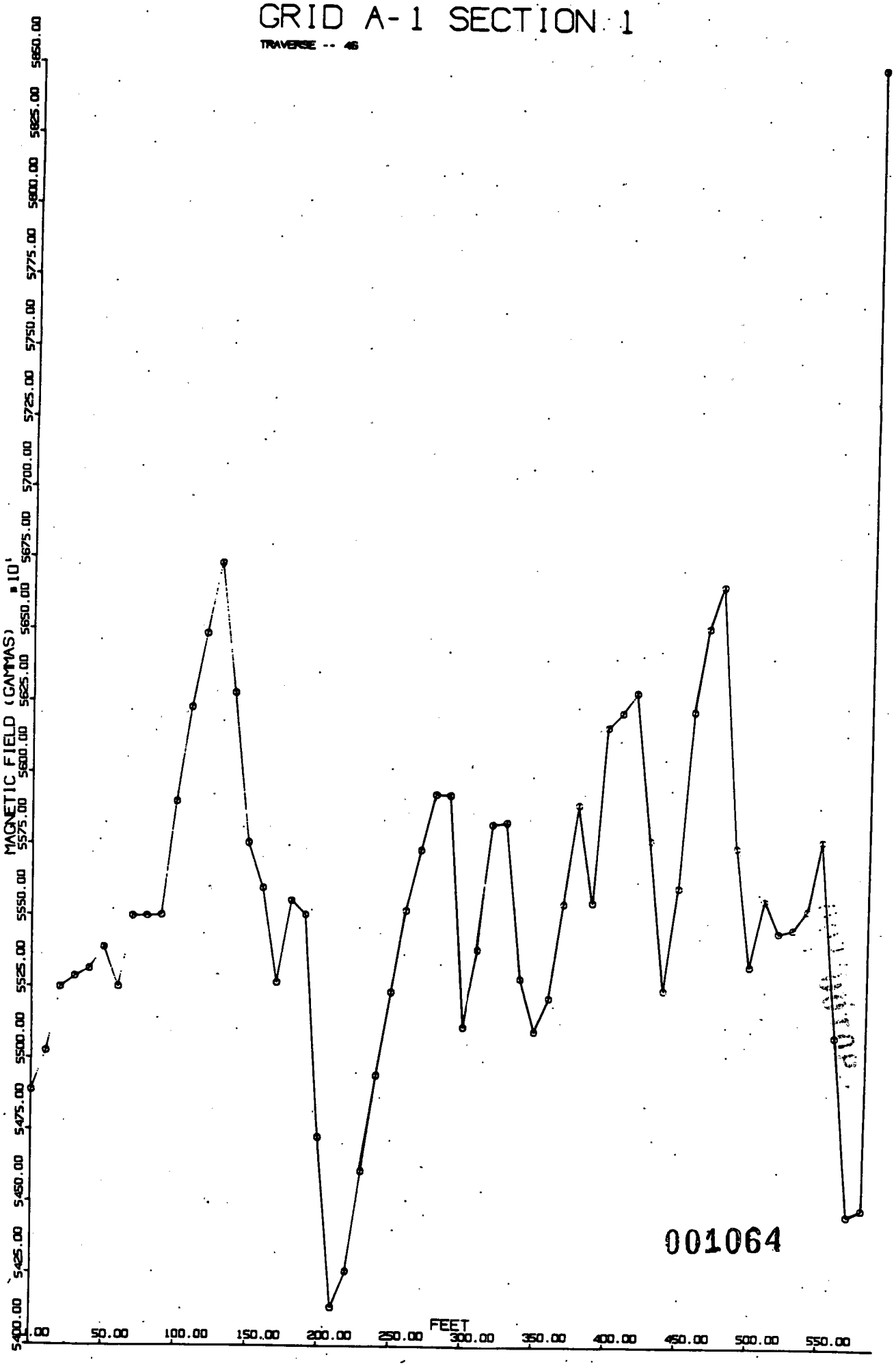
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
46	82	174	0		54,887.0
46	82	175	10		55,025.2
46	82	176	20		55,249.0
46	82	177	30		55,286.6
46	82	178	40		55,313.6
46	82	179	50		55,388.2
46	82	180	60		55,251.6
46	82	181	70		55,500.6
46	82	182	80		55,501.4
46	82	183	90		55,505.0
46	82	184	100		55,902.6
46	82	185	110		56,232.4
46	82	186	120		56,487.6
46	82	187	130	?	56,733.0
46	82	188	140		56,283.6
46	82	189	150		55,760.2
46	82	190	160		55,601.4
46	82	191	170		55,270.8
46	82	192	180		55,557.4
46	82	193	190		55,508.2
46	82	194	200		54,732.8
46	82	195	210		54,135.6
46	82	196	220		54,262.4
46	82	197	230		54,615.2
46	82	198	240		54,949.2
46	82	199	250		55,240.6
46	82	200	260		55,525.6
46	82	201	270		55,737.4
46	82	202	280		55,932.0
46	82	203	290		55,929.8
46	82	204	300	?	55,119.6
46	82	205	310		55,390.6
46	82	206	320		55,828.4
46	82	207	330		55,836.2
46	82	208	340		55,291.8
46	82	209	350		55,107.2
46	82	210	360		55,225.4
46	82	211	370		55,553.0
46	82	212	380	?	55,900.0
46	82	213	390		55,558.0
46	82	214	400		56,172.6
46	82	215	410		56,224.0
46	82	216	420		56,294.8
46	82	217	430		55,779.6
46	82	218	440	?	55,255.0
46	82	219	450		55,613.2
46	82	220	460		56,231.8
46	82	221	470		56,521.4
46	82	222	480	?	56,669.4
46	82	223	490		55,756.4
46	82	224	500		55,340.4
46	82	225	510		55,572.4
46	82	226	520		55,458.8
46	82	227	530		55,471.6
46	82	228	540		55,538.0
46	82	229	550	?	55,781.0
46	82	230	560		55,096.2
46	82	231	570	?	54,465.0
46	82	232	580	?	54,489.2
46	82	233	590	?	58,617.8

001063

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 46



001064

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 47

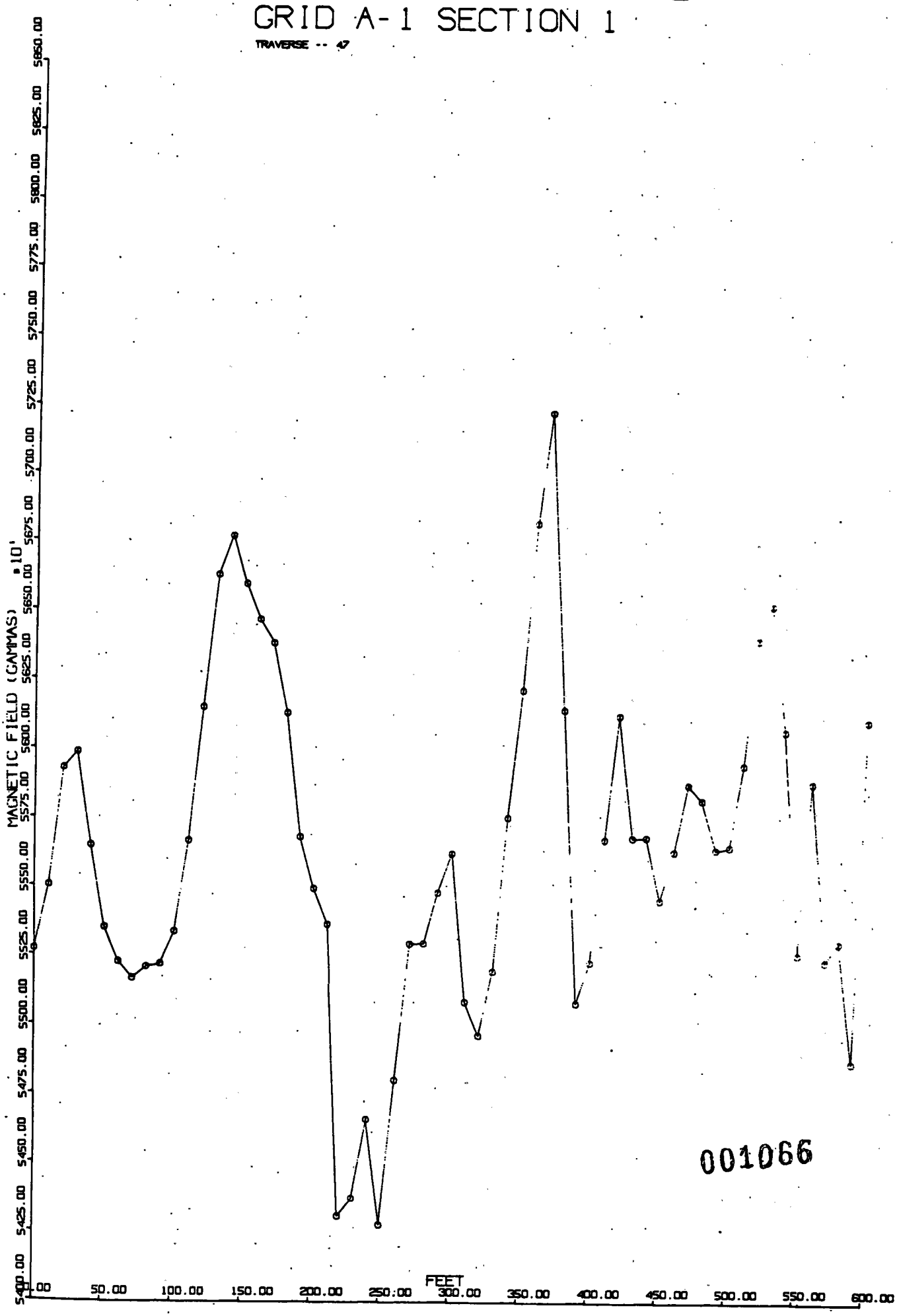
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
47	82	234	0		55,271.0
47	82	235	10		55,502.4
47	82	236	20		55,927.2
47	82	237	30		55,985.0
47	82	238	40		55,647.2
47	82	239	50		55,349.4
47	82	240	60		55,225.4
47	82	241	70		55,166.4
47	82	242	80		55,207.8
47	82	243	90		55,218.4
47	82	244	100		55,335.6
47	82	245	110		55,666.4
47	82	246	120		56,149.6
47	82	247	130		56,627.8
47	82	248	140		56,767.8
47	82	249	150		56,595.4
47	82	250	160		56,465.4
47	82	251	170		56,381.0
47	82	252	180		56,132.2
47	82	253	190		55,684.2
47	82	254	200		55,496.2
47	82	255	210		55,366.4
47	82	256	220	?	54,315.4
47	82	257	230	?	54,380.6
47	82	258	240		54,668.4
47	82	259	250	?	54,283.2
47	82	260	260		54,810.2
47	82	261	270		55,294.0
47	82	262	280		55,300.6
47	82	263	290		55,485.6
47	82	264	300		55,629.0
47	82	265	310		55,093.0
47	82	266	320		54,972.0
47	82	267	330		55,202.8
47	82	268	340		55,760.0
47	82	269	350		56,220.4
47	82	270	360		56,823.6
47	82	271	370	?	57,229.4
47	82	272	380		56,150.2
47	82	273	390	?	55,090.8
47	82	274	400		55,237.4
47	82	275	410		55,682.0
47	82	276	420	?	56,131.0
47	82	277	430		55,689.0
47	82	278	440		55,691.6
47	82	279	450		55,463.4
47	82	280	460		55,640.4
47	82	281	470		55,882.8
47	82	282	480		55,826.2
47	82	283	490		55,648.8
47	82	284	500		55,658.4
47	82	285	510		55,954.2
47	82	286	520		56,406.2
47	82	287	530	?	56,531.8
47	82	288	540	?	56,078.4
47	82	289	550		55,268.8
47	82	290	560	?	55,890.2
47	82	291	570		55,244.2
47	82	292	580		55,311.4
47	82	293	590	?	54,879.0
47	82	294	600	?	56,117.2

001065

ROHM AND HAAS

GRID A-1 SECTION 1

TRAVERSE -- 47



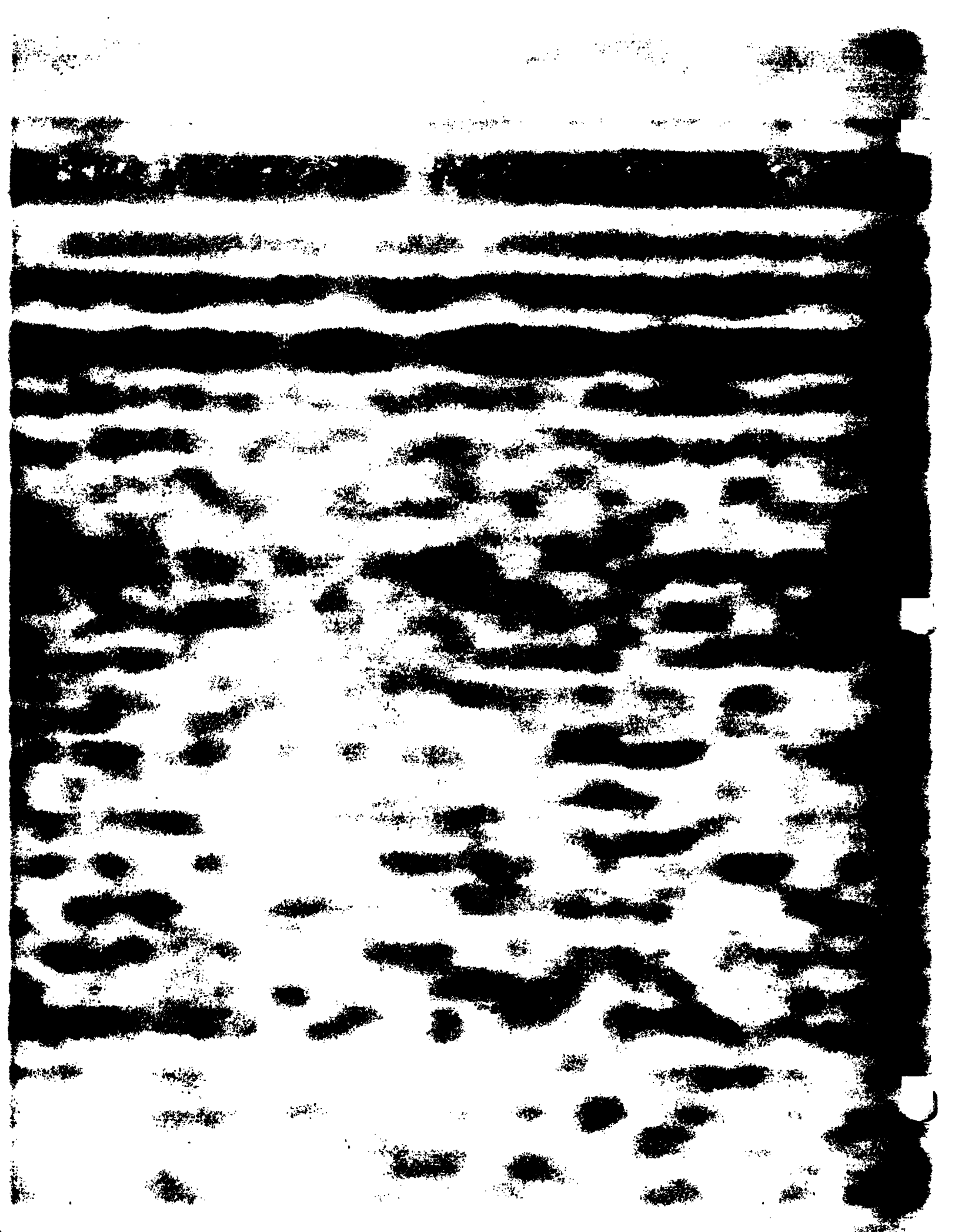
001066

BCM

APPENDIX B

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-1, SECTION 2

10666a



B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

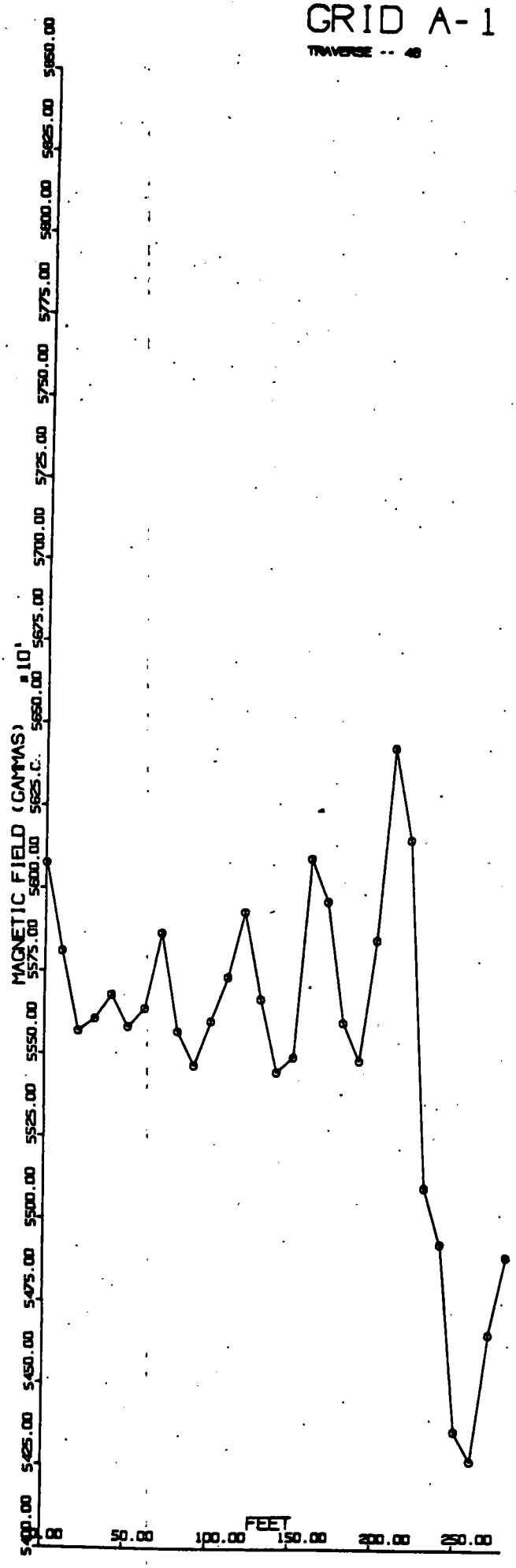
TRAVERSE LINE 48

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
48	82	295	0		56,076.4
48	82	296	10		55,809.6
48	82	297	20		55,568.2
48	82	298	30		55,605.4
48	82	299	40		55,678.0
48	82	300	50		55,580.4
48	82	301	60		55,636.2
48	82	302	70		55,865.4
48	82	303	80		55,566.6
48	82	304	90		55,464.0
48	82	305	100		55,598.8
48	82	306	110		55,733.8
48	82	307	120		55,932.2
48	82	308	130		55,668.2
48	82	309	140		55,447.0
48	82	310	150		55,493.6
48	82	311	160	?	56,097.8
48	82	312	170		55,967.6
48	82	313	180		55,599.8
48	82	314	190		55,484.6
48	82	315	200		55,851.6
48	82	316	210	?	56,433.8
48	82	317	220		56,157.4
48	82	318	230		55,103.6
48	82	319	240		54,932.6
48	82	320	250		54,361.0
48	82	321	260		54,271.0
48	82	322	270		54,659.0
48	82	323	280		54,896.8

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 48



001068

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

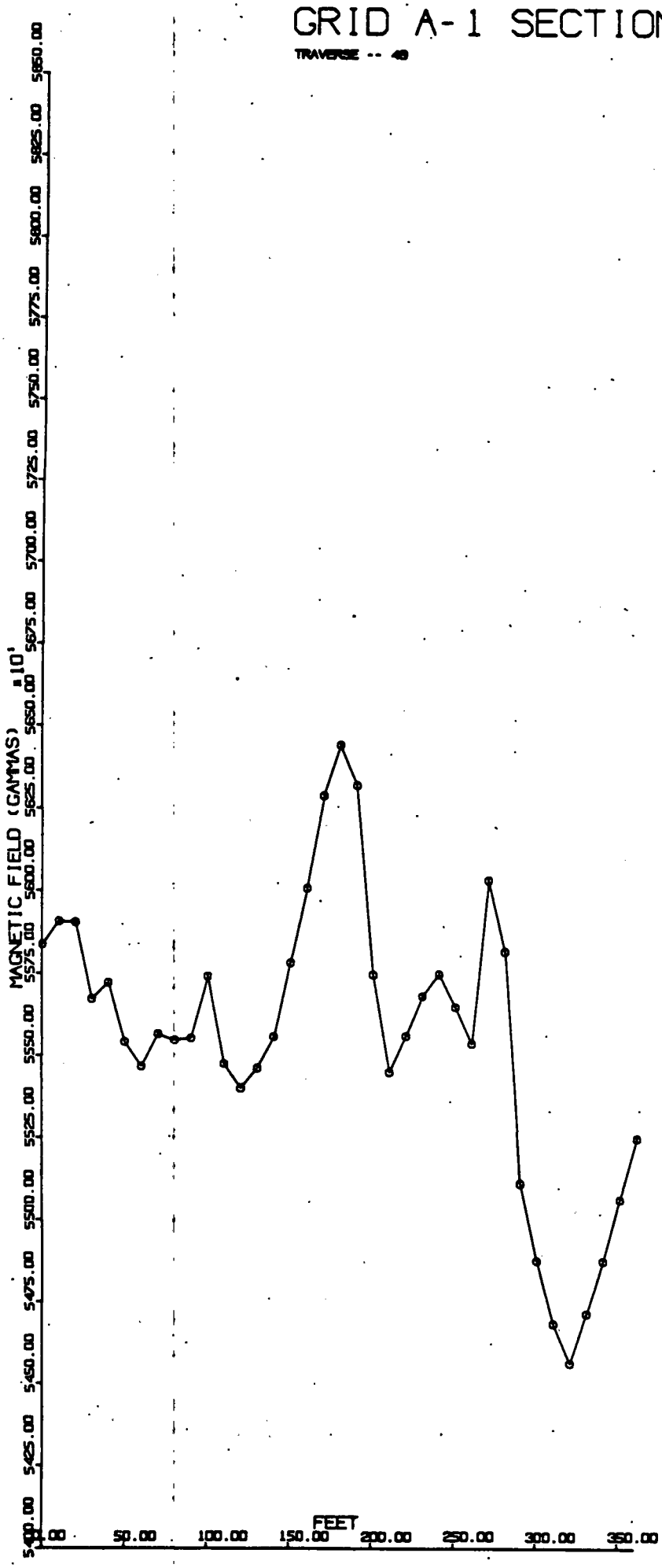
TRAVERSE LINE 49

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
49	82	324	0		55,838.2
49	82	325	10		55,908.0
49	82	326	20		55,905.6
49	82	327	30		55,673.6
49	82	328	40		55,724.0
49	82	329	50		55,542.6
49	82	330	60		55,467.8
49	82	331	70		55,568.2
49	82	332	80		55,549.2
49	82	333	90		55,555.2
49	82	334	100		55,743.8
49	82	335	110		55,476.4
49	82	336	120		55,402.8
49	82	337	130		55,463.2
49	82	338	140		55,560.0
49	82	339	150		55,785.8
49	82	340	160		56,011.6
49	82	341	170	?	56,291.6
49	82	342	180	?	56,445.0
49	82	343	190		56,323.0
49	82	344	200		55,749.8
49	82	345	210		55,451.4
49	82	346	220		55,562.8
49	82	347	230		55,685.0
49	82	348	240		55,751.6
49	82	349	250		55,651.8
49	82	350	260		55,540.2
49	82	351	270	?	56,037.0
49	82	352	280	?	55,820.8
49	82	353	290		55,116.4
49	82	354	300		54,884.0
49	82	355	310		54,695.0
49	82	356	320		54,575.0
49	82	357	330		54,725.4
49	82	358	340		54,882.6
49	82	359	350		55,068.0
49	82	360	360		55,253.0

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 49



001070

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B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

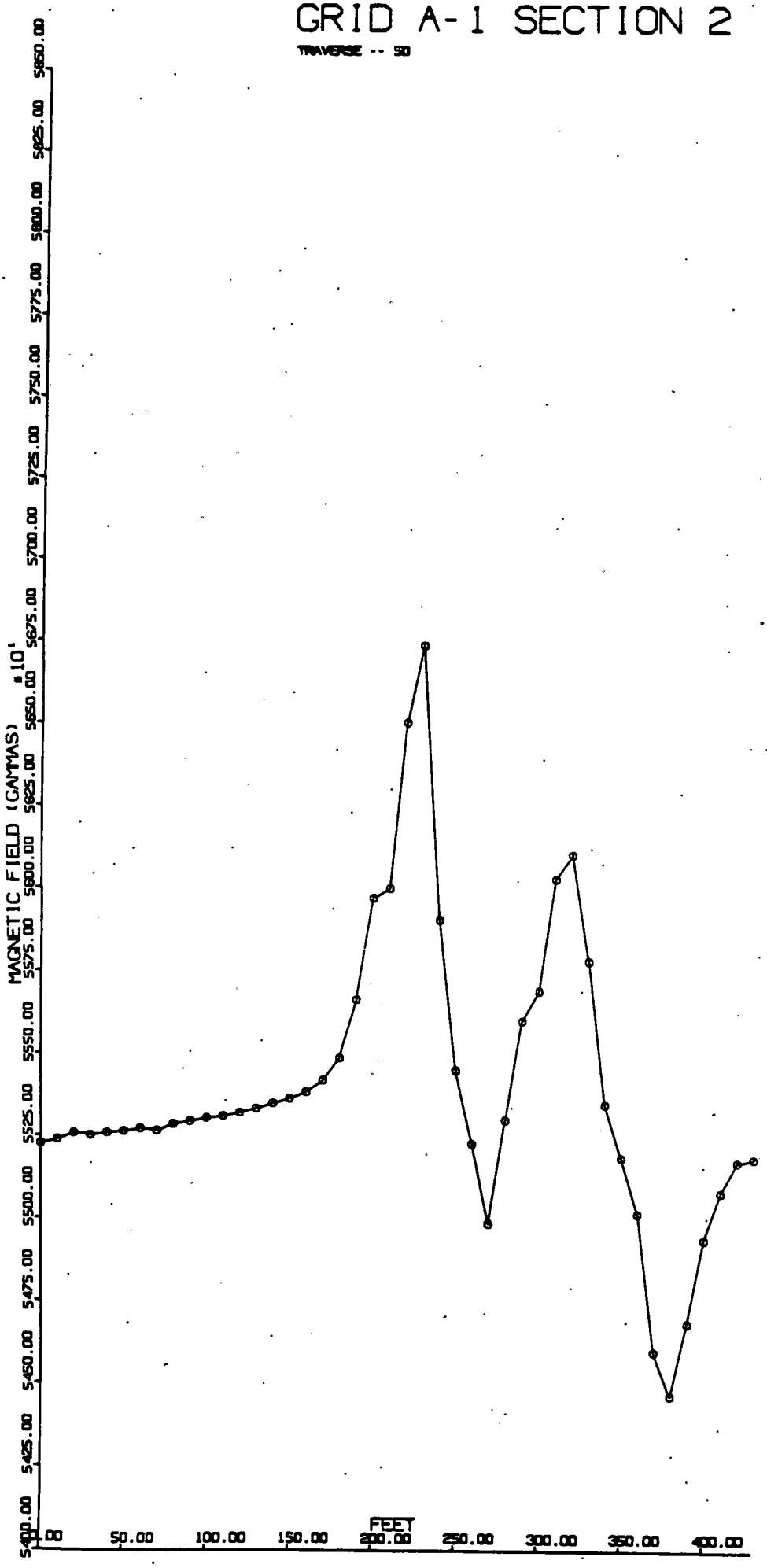
TRAVERSE LINE 50

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
50	82	361	0		55,226.6
50	82	362	10		55,238.6
50	82	363	20		55,258.4
50	82	364	30		55,251.6
50	82	365	40		55,259.2
50	82	366	50		55,264.4
50	82	367	60		55,272.8
50	82	368	70		55,266.8
50	82	369	80		55,287.4
50	82	370	90		55,296.8
50	82	371	100		55,307.0
50	82	372	110		55,313.8
50	82	373	120		55,324.6
50	82	374	130		55,337.2
50	82	375	140		55,353.8
50	82	376	150		55,368.6
50	82	377	160		55,388.2
50	82	378	170		55,423.6
50	82	379	180		55,491.4
50	82	380	190		55,667.6
50	82	381	200		55,973.2
50	82	382	210		56,002.6
50	82	383	220		56,504.4
50	82	384	230	?	56,738.8
50	82	385	240		55,908.2
50	82	386	250		55,454.0
50	82	387	260		55,231.4
50	82	388	270		54,990.6
50	82	389	280		55,304.0
50	82	390	290		55,605.2
50	82	391	300		55,695.4
50	82	392	310		56,031.8
50	82	393	320		56,105.0
50	82	394	330		55,785.4
50	82	395	340		55,352.6
50	82	396	350		55,191.6
50	82	397	360		55,022.8
50	82	398	370		54,608.4
50	82	399	380		54,474.8
50	82	400	390		54,694.4
50	82	401	400		54,944.0
50	82	402	410		55,086.4
50	82	403	420		55,177.4
50	82	404	430		55,188.0

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 50



001072

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

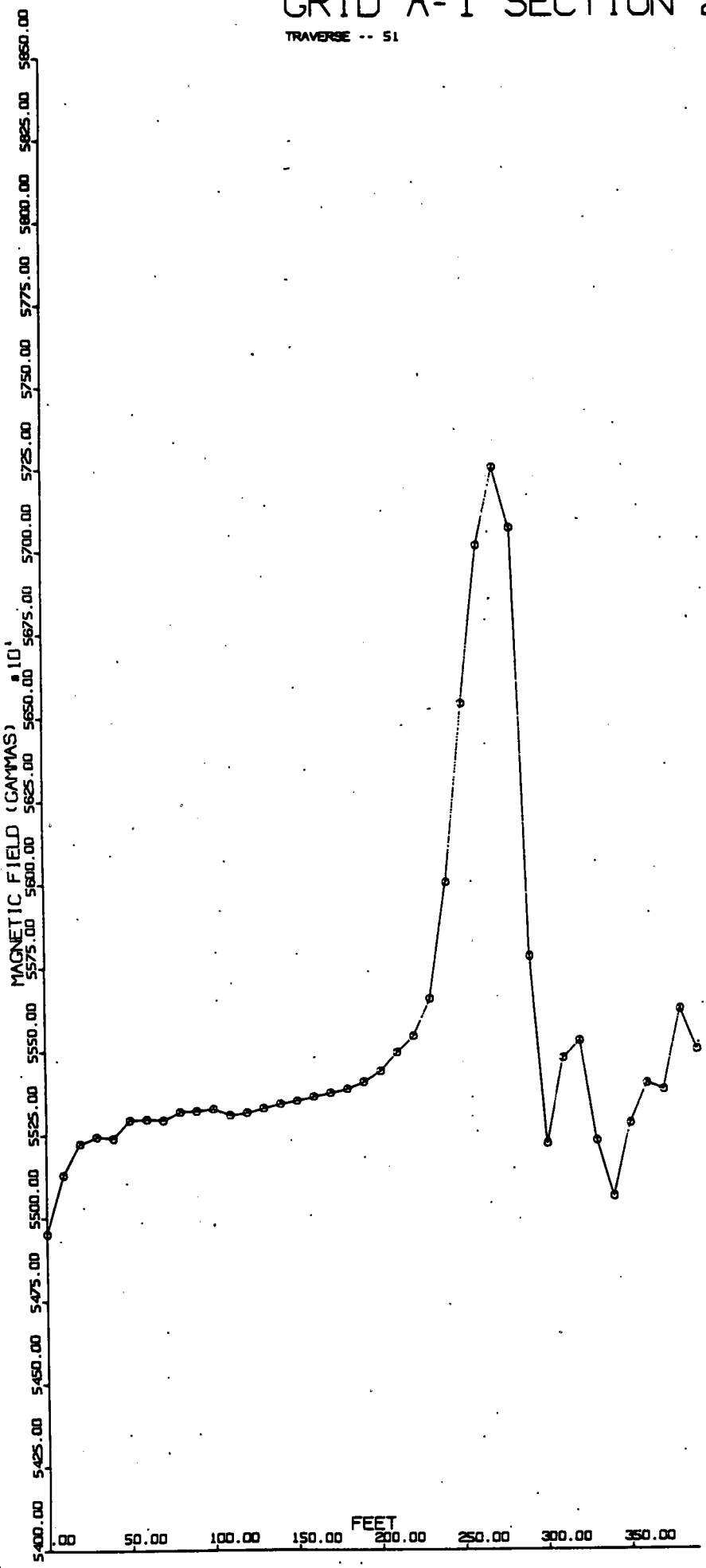
TRAVERSE LINE 51

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
51	82	405	0		54,952.8
51	82	406	10		55,129.8
51	82	407	20		55,223.8
51	82	408	30		55,244.6
51	82	409	40		55,239.6
51	82	410	50		55,294.8
51	82	411	60		55,297.4
51	82	412	70		55,294.8
51	82	413	80		55,320.2
51	82	414	90		55,323.4
51	82	415	100		55,329.4
51	82	416	110		55,311.2
51	82	417	120		55,318.8
51	82	418	130		55,332.0
51	82	419	140		55,344.6
51	82	420	150		55,353.8
51	82	421	160		55,365.8
51	82	422	170		55,377.2
51	82	423	180		55,387.8
51	82	424	190		55,408.6
51	82	425	200		55,440.4
51	82	426	210		55,497.0
51	82	427	220		55,545.6
51	82	428	230		55,657.0
51	82	429	240		56,005.6
51	82	430	250		56,542.0
51	82	431	260	?	57,018.4
51	82	432	270	?	57,256.6
51	82	433	280	?	57,072.8
51	82	434	290		55,783.6
51	82	435	300		55,221.8
51	82	436	310		55,476.8
51	82	437	320		55,528.8
51	82	438	330		55,229.8
51	82	439	340		55,062.6
51	82	440	350		55,282.6
51	82	441	360		55,401.0
51	82	442	370		55,381.4
51	82	443	380		55,622.4
51	82	444	390		55,501.8

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 51



001074

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

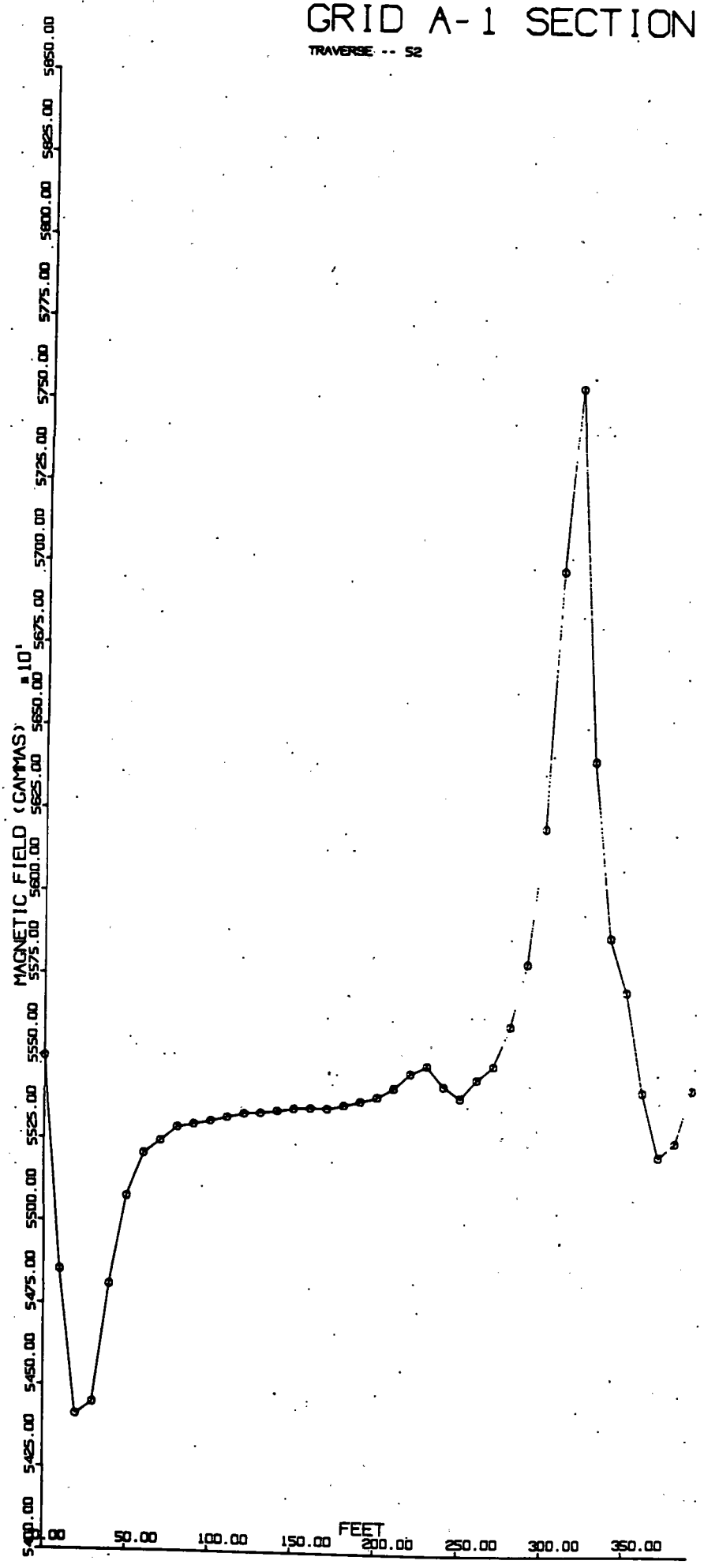
TRAVERSE LINE 52

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
52	82	445	0		55,497.4
52	82	446	10		54,853.2
52	82	447	20		54,411.8
52	82	448	30		54,449.4
52	82	449	40		54,811.2
52	82	450	50		55,076.8
52	82	451	60		55,206.8
52	82	452	70		55,245.8
52	82	453	80		55,286.0
52	82	454	90		55,295.4
52	82	455	100		55,304.8
52	82	456	110		55,316.2
52	82	457	120		55,327.0
52	82	458	130		55,329.2
52	82	459	140		55,335.4
52	82	460	150		55,342.4
52	82	461	160		55,344.2
52	82	462	170		55,343.0
52	82	463	180		55,353.2
52	82	464	190		55,364.8
52	82	465	200		55,378.6
52	82	466	210		55,405.4
52	82	467	220		55,450.0
52	82	468	230		55,474.0
52	82	469	240		55,411.2
52	82	470	250		55,376.4
52	82	471	260		55,432.8
52	82	472	270		55,474.8
52	82	473	280		55,597.4
52	82	474	290		55,787.0
52	82	475	300		56,197.6
52	82	476	310		56,978.6
52	82	477	320	?	57,540.0
52	82	478	330		56,401.8
52	82	479	340		55,869.4
52	82	480	350		55,706.4
52	82	481	360		55,401.8
52	82	482	370		55,206.6
52	82	483	380		55,249.8
52	82	484	390		55,410.4

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 52



001076

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

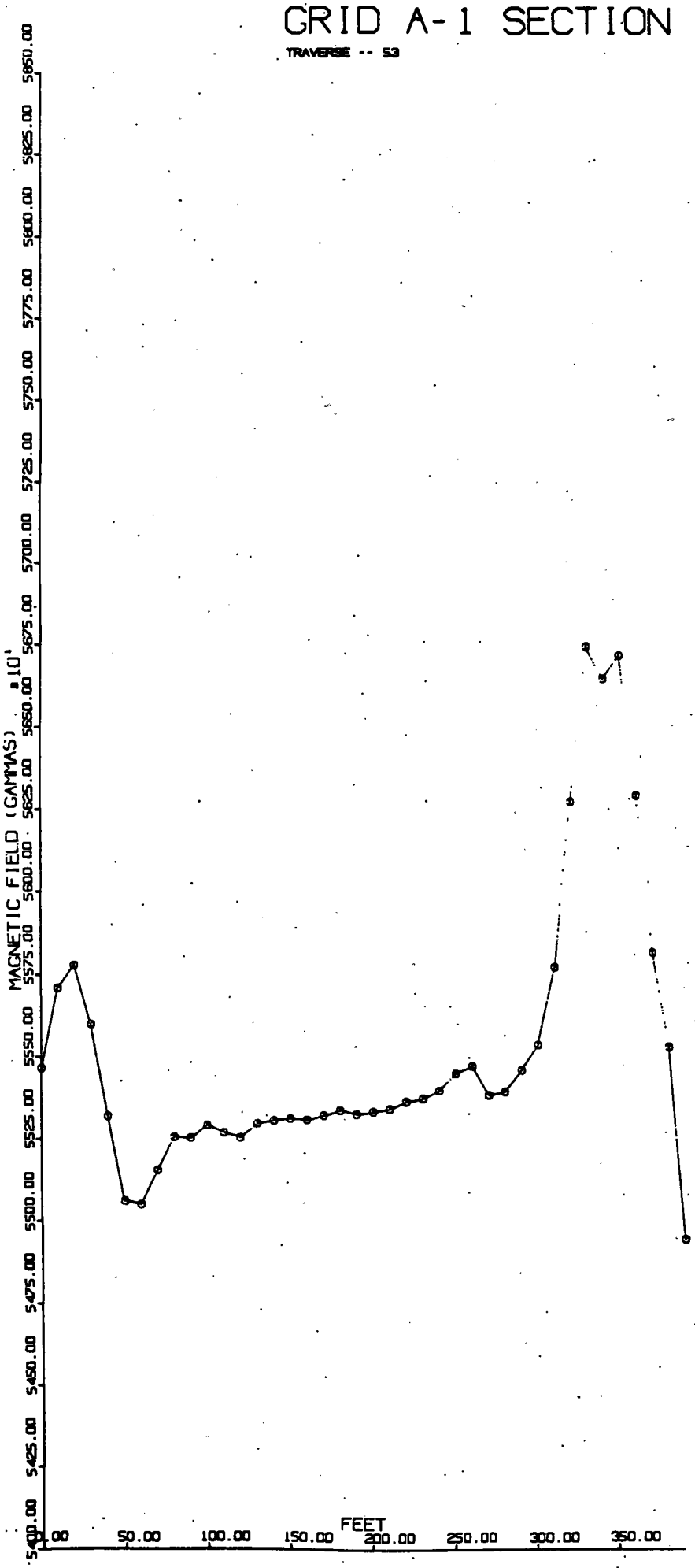
TRAVERSE LINE 53

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
53	82	485	0		55,464.8
53	82	486	10		55,710.0
53	82	487	20		55,779.4
53	82	488	30		55,600.8
53	82	489	40		55,320.6
53	82	490	50		55,063.0
53	82	491	60		55,052.8
53	82	492	70		55,157.0
53	82	493	80		55,257.6
53	82	494	90		55,255.4
53	82	495	100		55,293.2
53	82	496	110		55,271.4
53	82	497	120		55,256.6
53	82	498	130		55,299.6
53	82	499	140		55,308.6
53	82	500	150		55,314.0
53	82	501	160		55,309.8
53	82	502	170		55,322.2
53	82	503	180		55,337.2
53	82	504	190		55,325.0
53	82	505	200		55,332.4
53	82	506	210		55,340.6
53	82	507	220		55,362.0
53	82	508	230		55,371.8
53	82	509	240		55,394.6
53	82	510	250		55,447.4
53	82	511	260		55,469.6
53	82	512	270		55,381.0
53	82	513	280		55,391.8
53	82	514	290		55,457.2
53	82	515	300		55,535.0
53	82	516	310		55,771.0
53	82	517	320		56,272.4
53	82	518	330		56,744.4
53	82	519	340		56,646.0
53	82	520	350	?	56,717.8
53	82	521	360		56,292.2
53	82	522	370		55,816.4
53	82	523	380		55,528.2
53	82	524	390	?	54,943.4

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- S3



001078

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

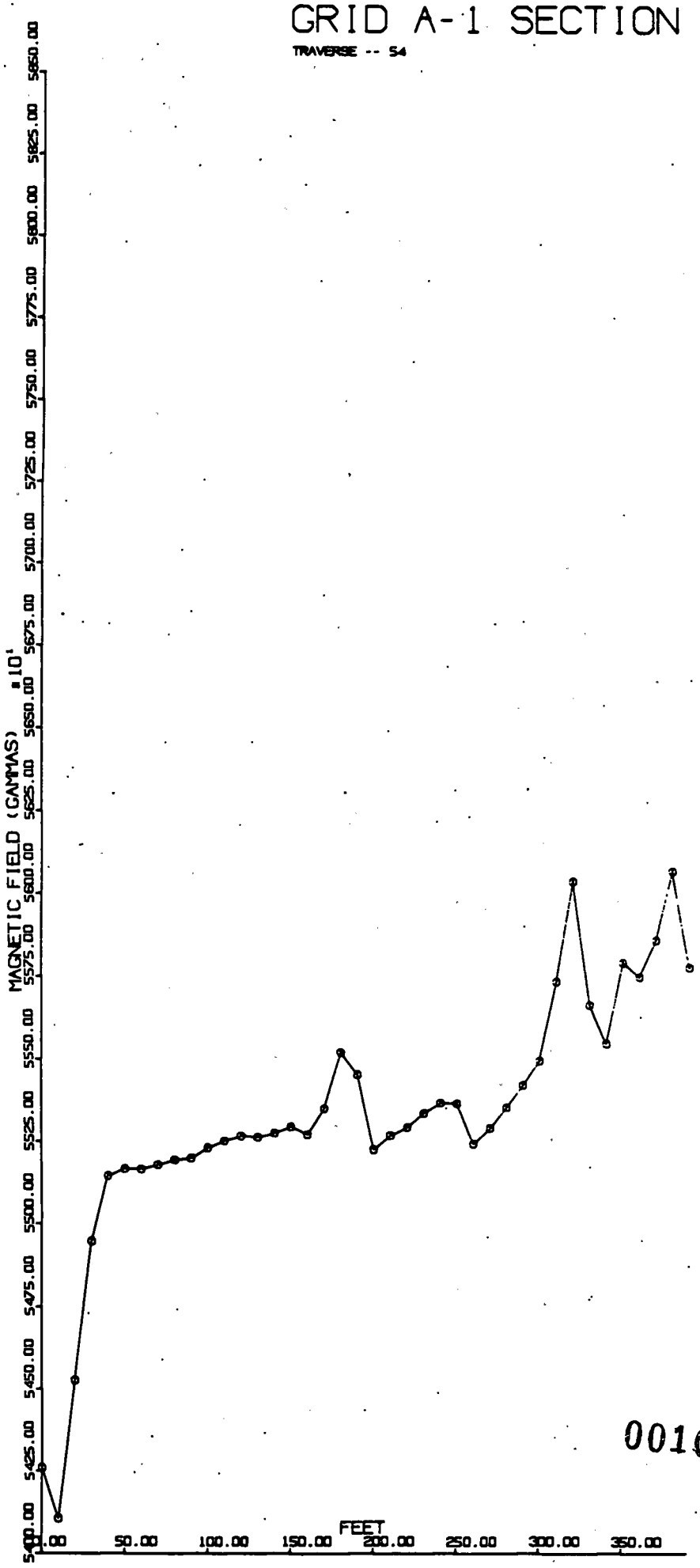
TRAVERSE LINE 54

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
54	86	0	0	?	54,260.6
54	86	1	10	?	54,105.8
54	86	2	20		54,526.8
54	86	3	30		54,948.2
54	86	4	40		55,147.0
54	86	5	50		55,168.6
54	86	6	60		55,167.4
54	86	7	70		55,180.8
54	86	8	80		55,195.8
54	86	9	90		55,201.8
54	86	10	100		55,233.0
54	86	11	110		55,254.2
54	86	12	120		55,268.8
54	86	13	130		55,265.2
54	86	14	140		55,278.4
54	86	15	150		55,297.2
54	86	16	160		55,273.0
54	86	17	170		55,352.0
54	86	18	180		55,522.8
54	86	19	190		55,456.2
54	86	20	200		55,228.6
54	86	21	210		55,272.2
54	86	22	220		55,296.4
54	86	23	230		55,338.6
54	86	24	240		55,370.6
54	86	25	250		55,369.0
54	86	26	260		55,246.2
54	86	27	270		55,294.2
54	86	28	280		55,357.2
54	86	29	290		55,425.8
54	86	30	300		55,500.0
54	86	31	310		55,737.8
54	86	32	320		56,039.4
54	86	33	330		55,668.2
54	86	34	340		55,551.6
54	86	35	350		55,794.2
54	86	36	360		55,751.2
54	86	37	370		55,862.0
54	86	38	380		56,070.6
54	86	39	390		55,779.8

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- S4



001080

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

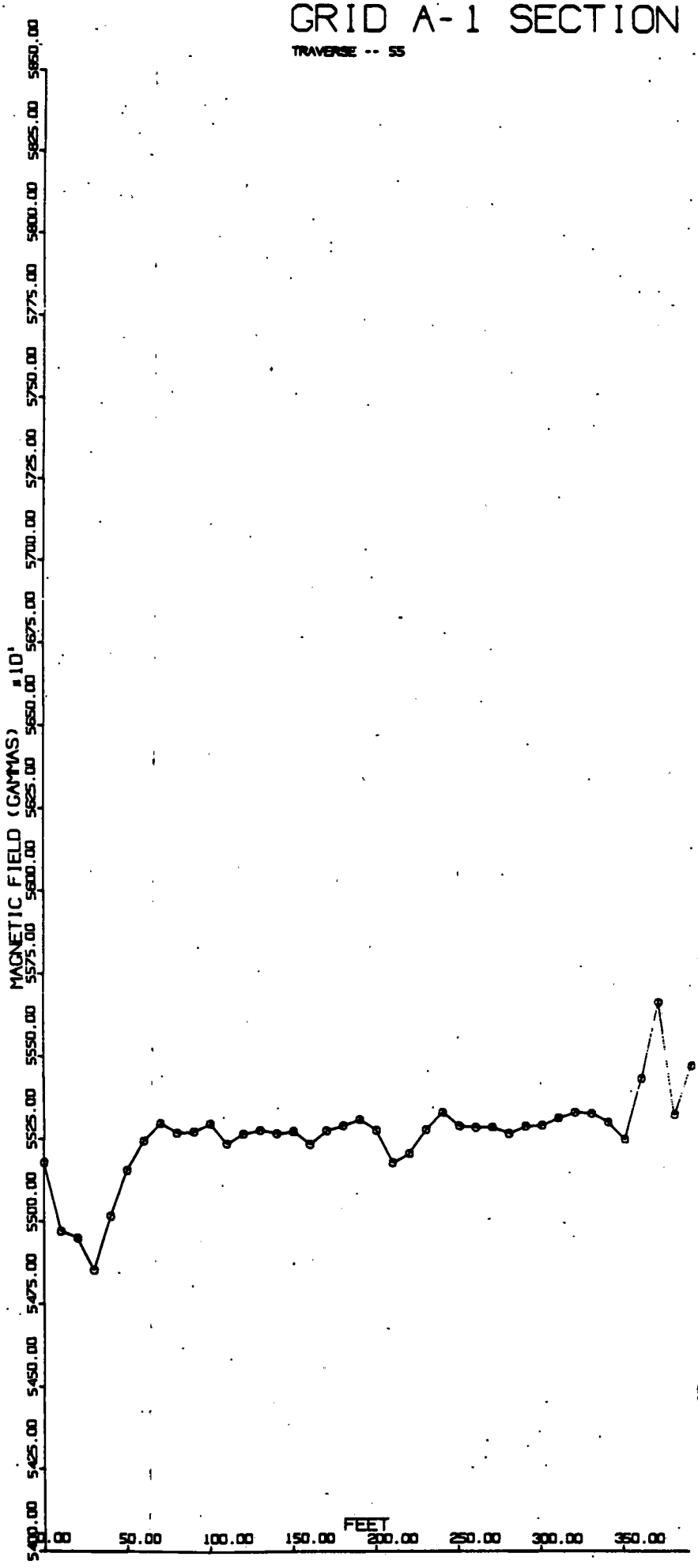
TRAVERSE LINE 55

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
55	86	40	0	55,178.6
55	86	41	10	54,971.0
55	86	42	20	54,949.8
55	86	43	30	54,852.4
55	86	44	40	55,017.0
55	86	45	50	55,156.0
55	86	46	60	55,244.8
55	86	47	70	55,297.8
55	86	48	80	55,269.0
55	86	49	90	55,272.2
55	86	50	100	55,295.8
55	86	51	110	55,236.2
55	86	52	120	55,266.6
55	86	53	130	55,277.6
55	86	54	140	55,267.8
55	86	55	150	55,275.0
55	86	56	160	55,236.0
55	86	57	170	55,277.6
55	86	58	180	55,292.6
55	86	59	190	55,311.2
55	86	60	200	55,279.0
55	86	61	210	55,181.4
55	86	62	220	55,209.6
55	86	63	230	55,281.8
55	86	64	240	55,334.2
55	86	65	250	55,293.2
55	86	66	260	55,289.0
55	86	67	270	55,289.8
55	86	68	280	55,271.0
55	86	69	290	55,293.0
55	86	70	300	55,296.2
55	86	71	310	55,318.6
55	86	72	320	55,335.6
55	86	73	330	55,332.2
55	86	74	340	55,305.6
55	86	75	350	55,254.2
55	86	76	360	55,437.6
55	86	77	370	55,668.8
55	86	78	380	55,329.0
55	86	79	390	55,476.2

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 55



001082

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

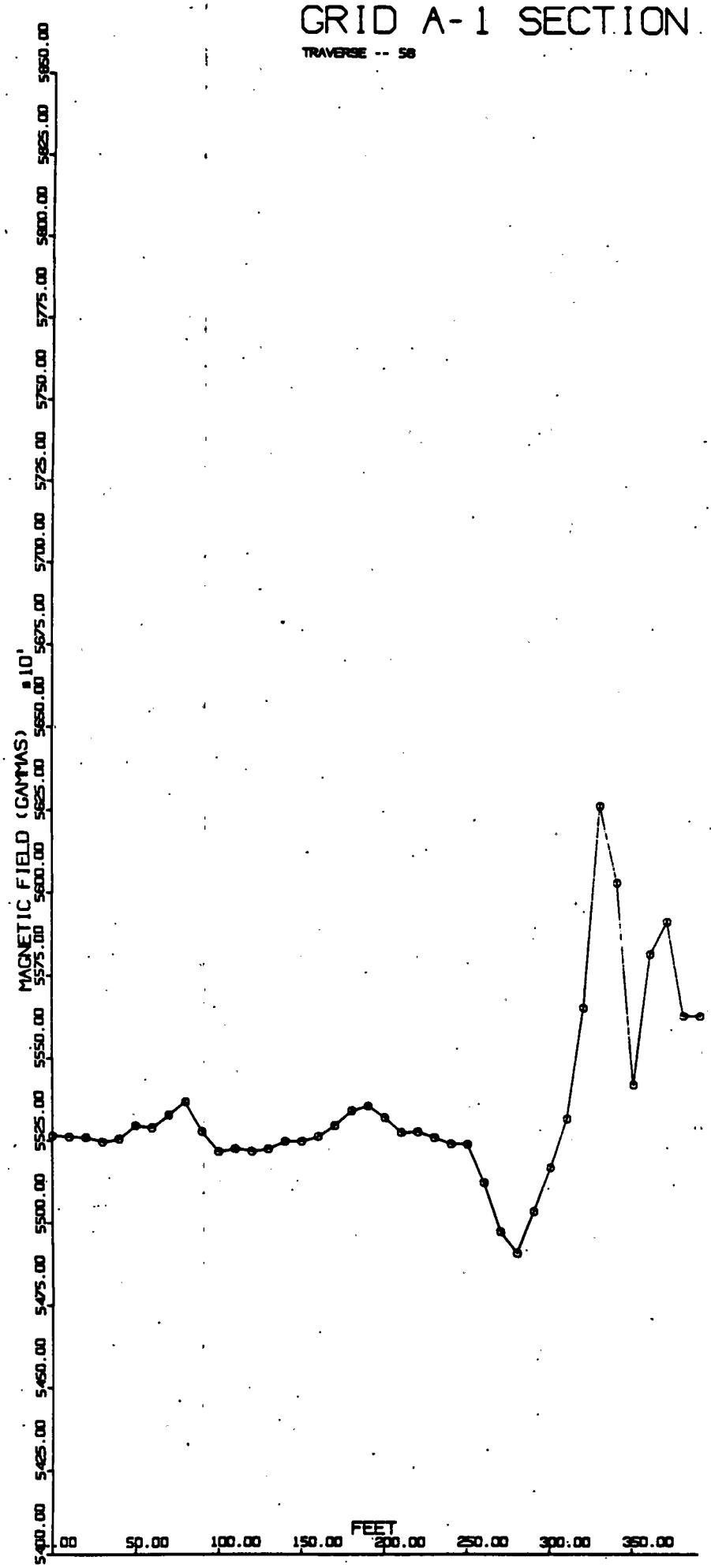
TRAVERSE LINE 56

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
56	86	80	0		55,264.8
56	86	81	10		55,261.6
56	86	82	20		55,260.2
56	86	83	30		55,246.4
56	86	84	40		55,255.8
56	86	85	50		55,296.0
56	86	86	60		55,290.2
56	86	87	70		55,329.2
56	86	88	80		55,370.0
56	86	89	90		55,280.2
56	86	90	100		55,220.0
56	86	91	110		55,229.6
56	86	92	120		55,221.8
56	86	93	130		55,229.2
56	86	94	140		55,251.8
56	86	95	150		55,252.2
56	86	96	160		55,266.8
56	86	97	170		55,299.0
56	86	98	180		55,343.4
56	86	99	190		55,358.4
56	86	100	200		55,323.2
56	86	101	210		55,278.8
56	86	102	220		55,280.6
56	86	103	230		55,263.4
56	86	104	240		55,245.0
56	86	105	250		55,244.0
56	86	106	260		55,128.4
56	86	107	270		54,980.4
56	86	108	280		54,915.8
56	86	109	290		55,041.6
56	86	110	300		55,173.8
56	86	111	310		55,320.8
56	86	112	320		55,656.8
56	86	113	330	?	56,266.4
56	86	114	340		56,034.6
56	86	115	350		55,424.0
56	86	116	360		55,819.8
56	86	117	370		55,916.8
56	86	118	380		55,632.2
56	86	119	390		55,632.2

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 58



001084

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

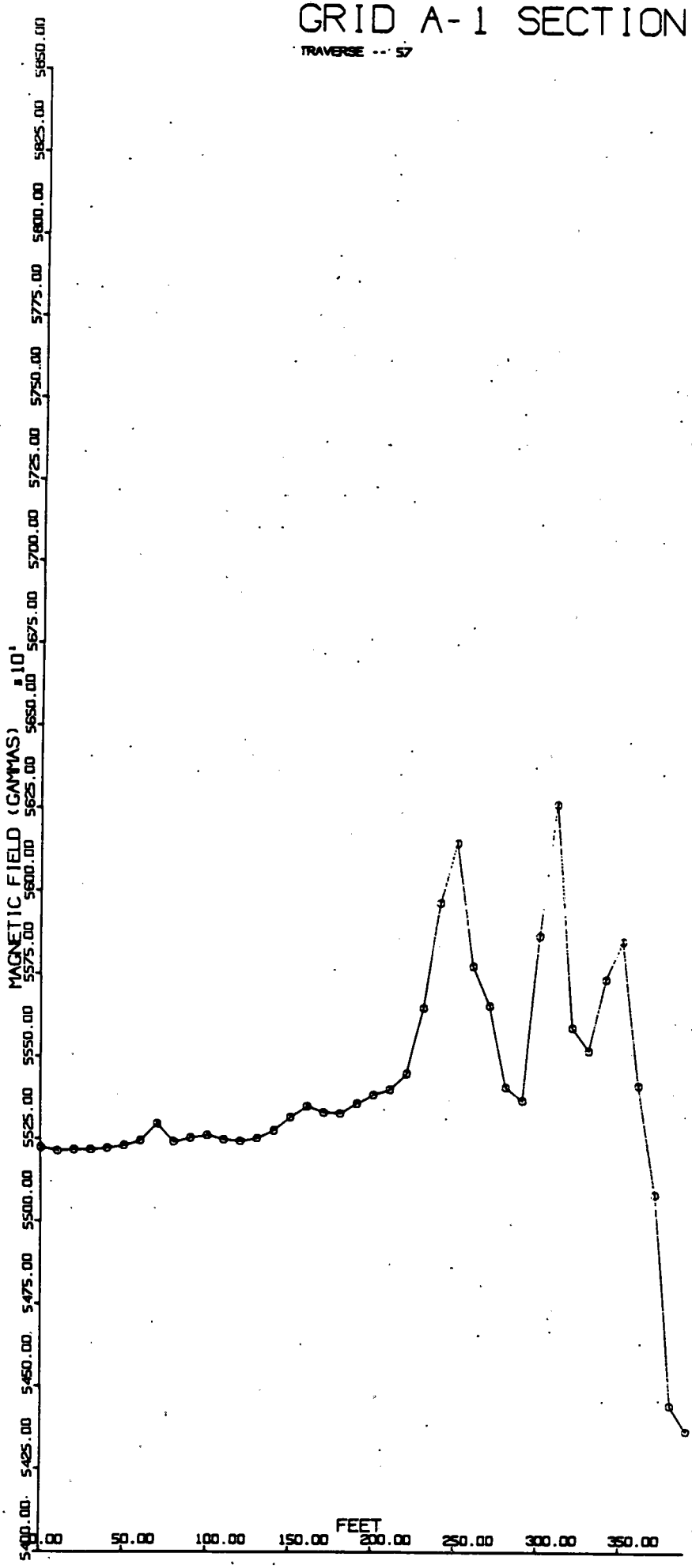
TRAVERSE LINE 57

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
57	86	120	0		55,223.6
57	86	121	10		55,214.0
57	86	122	20		55,218.0
57	86	123	30		55,218.6
57	86	124	40		55,223.8
57	86	125	50		55,232.4
57	86	126	60		55,247.8
57	86	127	70		55,299.2
57	86	128	80		55,245.0
57	86	129	90		55,257.2
57	86	130	100		55,265.4
57	86	131	110		55,252.4
57	86	132	120		55,248.0
57	86	133	130		55,257.0
57	86	134	140		55,280.2
57	86	135	150		55,321.4
57	86	136	160		55,354.2
57	86	137	170		55,335.6
57	86	138	180		55,333.4
57	86	139	190		55,363.2
57	86	140	200		55,389.4
57	86	141	210		55,405.8
57	86	142	220		55,454.0
57	86	143	230		55,654.4
57	86	144	240		55,972.8
57	86	145	250		56,153.2
57	86	146	260		55,782.6
57	86	147	270		55,663.4
57	86	148	280		55,415.8
57	86	149	290		55,376.0
57	86	150	300		55,875.2
57	86	151	310	?	56,271.6
57	86	152	320		55,598.0
57	86	153	330		55,527.6
57	86	154	340		55,744.8
57	86	155	350		55,860.2
57	86	156	360		55,422.8
57	86	157	370		55,094.4
57	86	158	380	?	54,455.2
57	86	159	390		54,375.0

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 57



001086

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

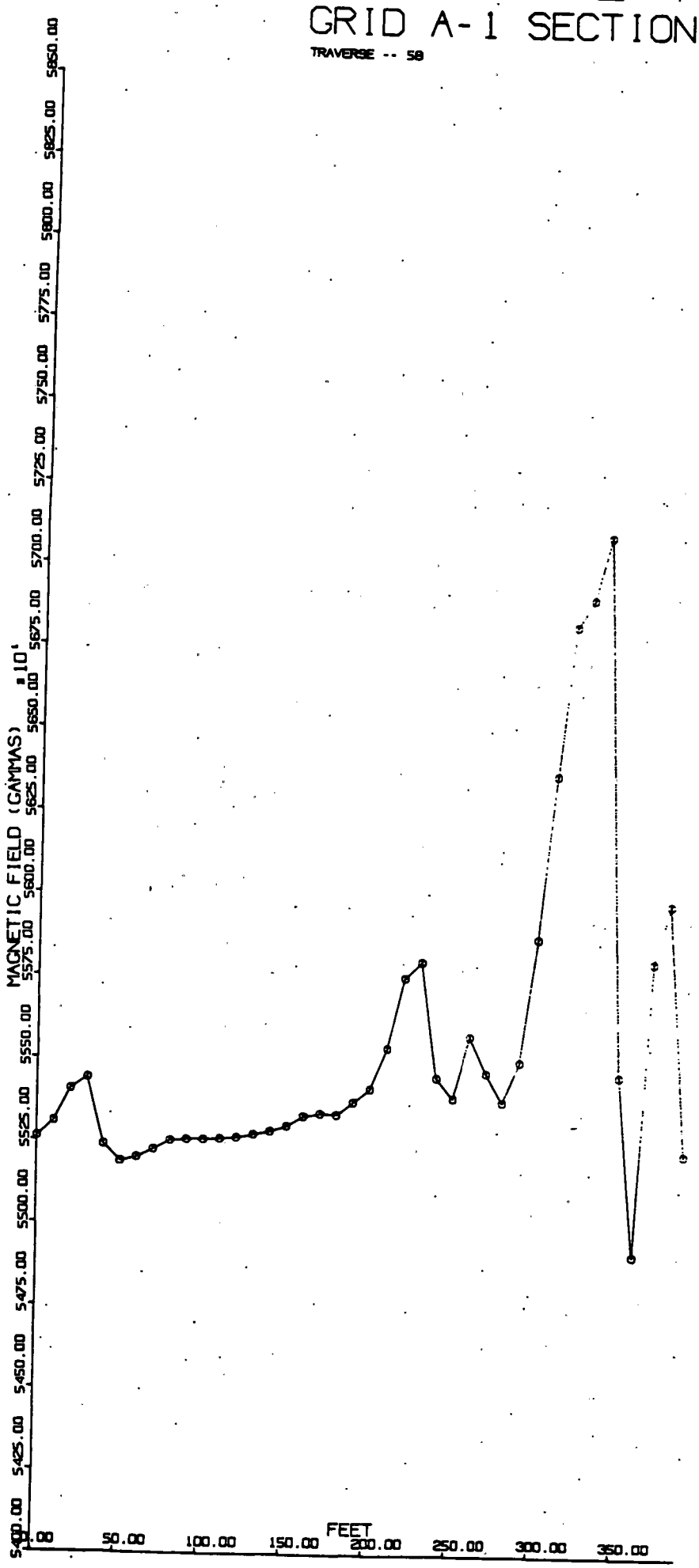
TRAVERSE LINE 58

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
58	86	160	0		55,262.2
58	86	161	10		55,308.6
58	86	162	20		55,406.8
58	86	163	30		55,442.2
58	86	164	40		55,240.8
58	86	165	50		55,189.6
58	86	166	60		55,202.0
58	86	167	70		55,226.0
58	86	168	80		55,253.4
58	86	169	90		55,257.2
58	86	170	100		55,258.2
58	86	171	110		55,261.0
58	86	172	120		55,265.0
58	86	173	130		55,275.0
58	86	174	140		55,285.4
58	86	175	150		55,301.4
58	86	176	160		55,331.2
58	86	177	170		55,339.4
58	86	178	180		55,337.0
58	86	179	190		55,375.6
58	86	180	200		55,416.4
58	86	181	210		55,540.8
58	86	182	220		55,752.8
58	86	183	230		55,802.4
58	86	184	240		55,453.4
58	86	185	250		55,392.2
58	86	186	260		55,580.6
58	86	187	270		55,470.0
58	86	188	280		55,382.4
58	86	189	290		55,504.4
58	86	190	300		55,875.6
58	86	191	310		56,370.8
58	86	192	320	?	56,822.0
58	86	193	330		56,905.2
58	86	194	340	?	57,098.6
58	86	195	350	?	55,464.8
58	86	196	360	?	54,921.8
58	86	197	370		55,808.4
58	86	198	380		55,983.6
58	86	199	390		55,230.2

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 58



001088

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 59

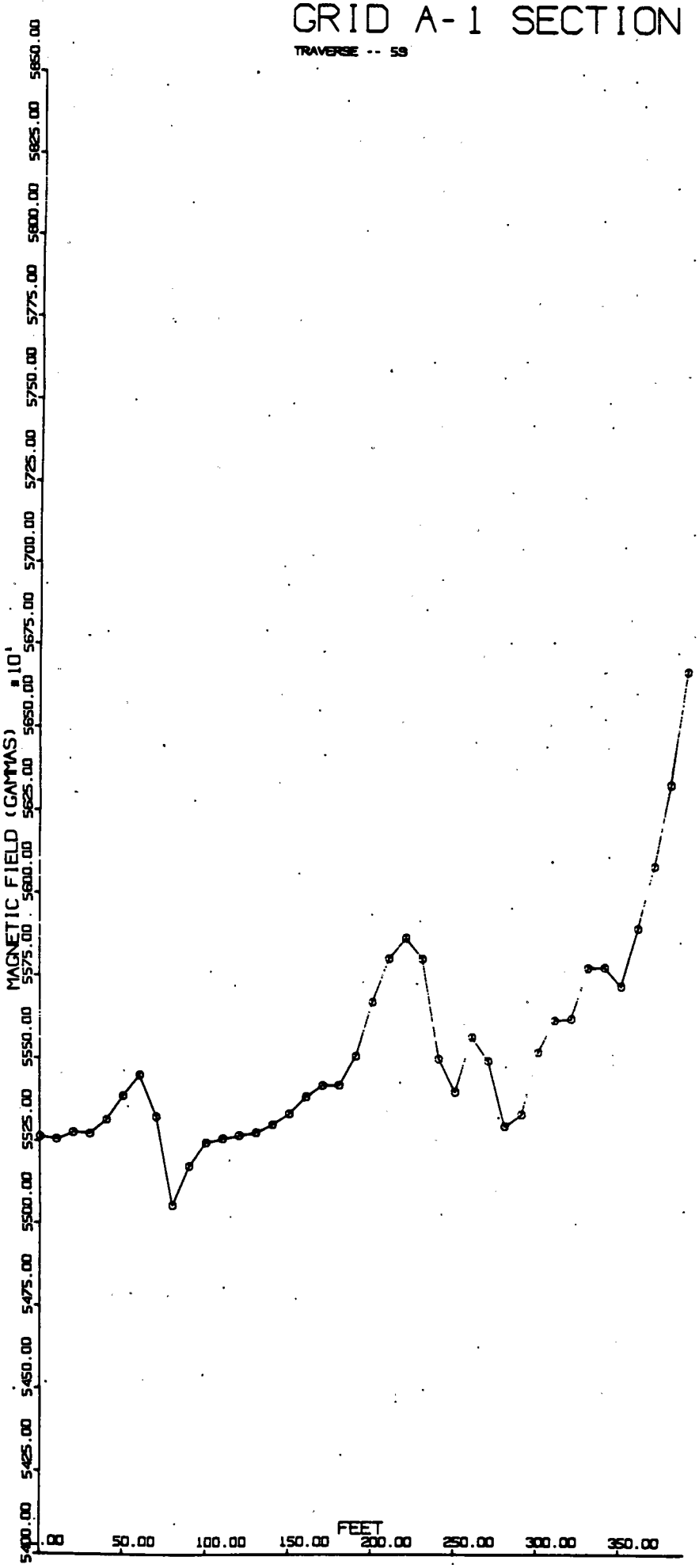
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
59	86	200	0		55,263.4
59	86	201	10		55,255.4
59	86	202	20		55,276.2
59	86	203	30		55,272.2
59	86	204	40		55,314.0
59	86	205	50		55,385.4
59	86	206	60		55,448.4
59	86	207	70		55,323.2
59	86	208	80		55,055.0
59	86	209	90		55,173.8
59	86	210	100		55,245.2
59	86	211	110		55,258.0
59	86	212	120		55,267.8
59	86	213	130		55,276.8
59	86	214	140		55,301.6
59	86	215	150		55,334.6
59	86	216	160		55,385.6
59	86	217	170		55,420.0
59	86	218	180		55,421.0
59	86	219	190		55,509.6
59	86	220	200		55,674.0
59	86	221	210		55,805.0
59	86	222	220		55,868.0
59	86	223	230		55,804.2
59	86	224	240		55,503.0
59	86	225	250		55,402.6
59	86	226	260		55,570.2
59	86	227	270		55,495.8
59	86	228	280		55,300.8
59	86	229	290		55,337.0
59	86	230	300		55,524.6
59	86	231	310		55,621.8
59	86	232	320		55,626.8
59	86	233	330		55,781.0
59	86	234	340		55,782.6
59	86	235	350		55,726.4
59	86	236	360		55,900.0
59	86	237	370		56,088.6
59	86	238	380		56,334.4
59	86	239	390	?	56,676.2

001089

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 59



001090

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

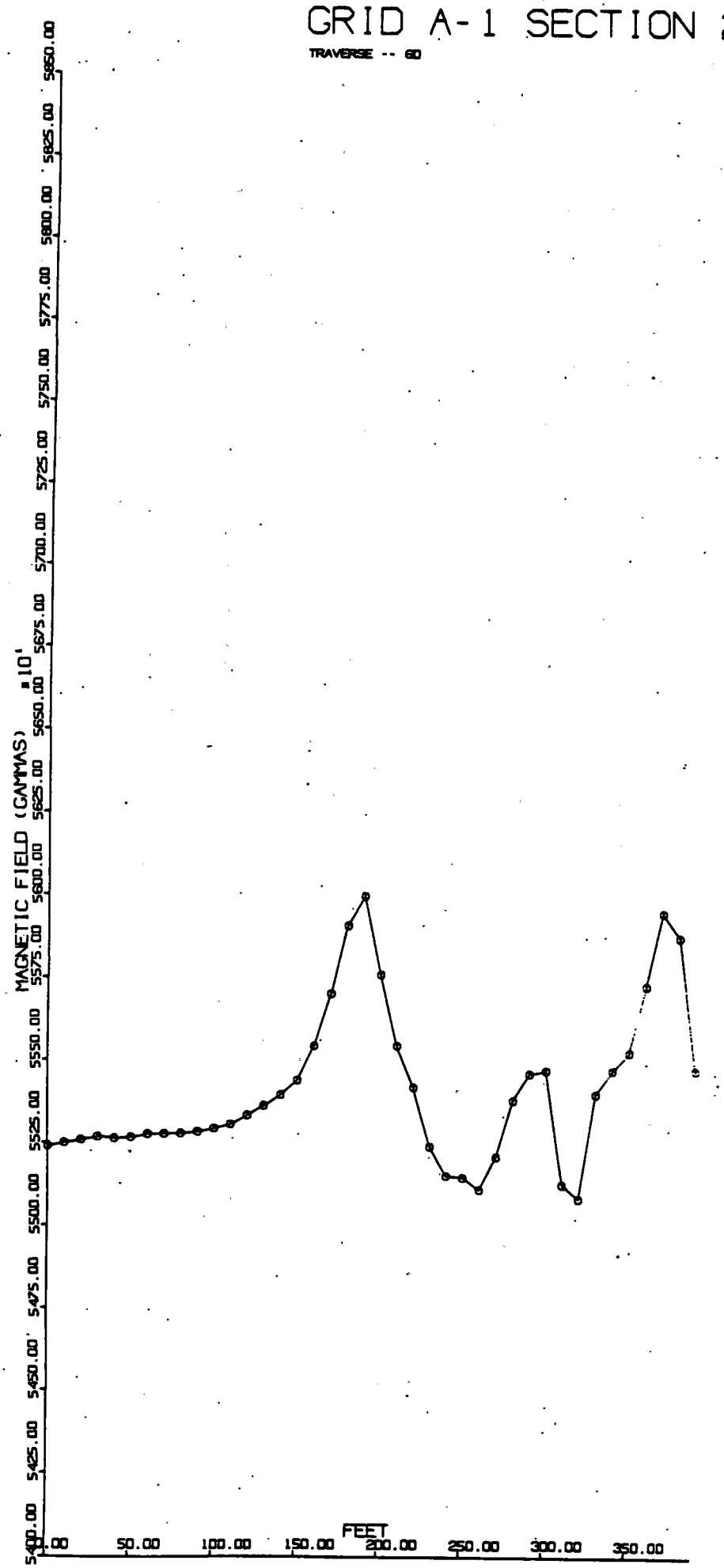
TRAVERSE LINE 60

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
60	86	240	0	55,240.2
60	86	241	10	55,250.0
60	86	242	20	55,258.6
60	86	243	30	55,268.2
60	86	244	40	55,263.8
60	86	245	50	55,267.4
60	86	246	60	55,277.0
60	86	247	70	55,278.8
60	86	248	80	55,280.6
60	86	249	90	55,286.0
60	86	250	100	55,296.8
60	86	251	110	55,310.0
60	86	252	120	55,338.0
60	86	253	130	55,367.0
60	86	254	140	55,399.6
60	86	255	150	55,444.4
60	86	256	160	55,549.6
60	86	257	170	55,707.8
60	86	258	180	55,914.0
60	86	259	190	56,002.8
60	86	260	200	55,765.8
60	86	261	210	55,550.0
60	86	262	220	55,423.4
60	86	263	230	55,246.4
60	86	264	240	55,158.6
60	86	265	250	55,153.8
60	86	266	260	55,117.4
60	86	267	270	55,216.4
60	86	268	280	55,386.0
60	86	269	290	55,467.4
60	86	270	300	55,477.4
60	86	271	310	55,133.8
60	86	272	320	55,091.6
60	86	273	330	55,405.6
60	86	274	340	55,478.2
60	86	275	350	55,533.2
60	86	276	360	55,737.6
60	86	277	370	55,955.2
60	86	278	380	55,882.4
60	86	279	390	55,479.6

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 60



001092

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

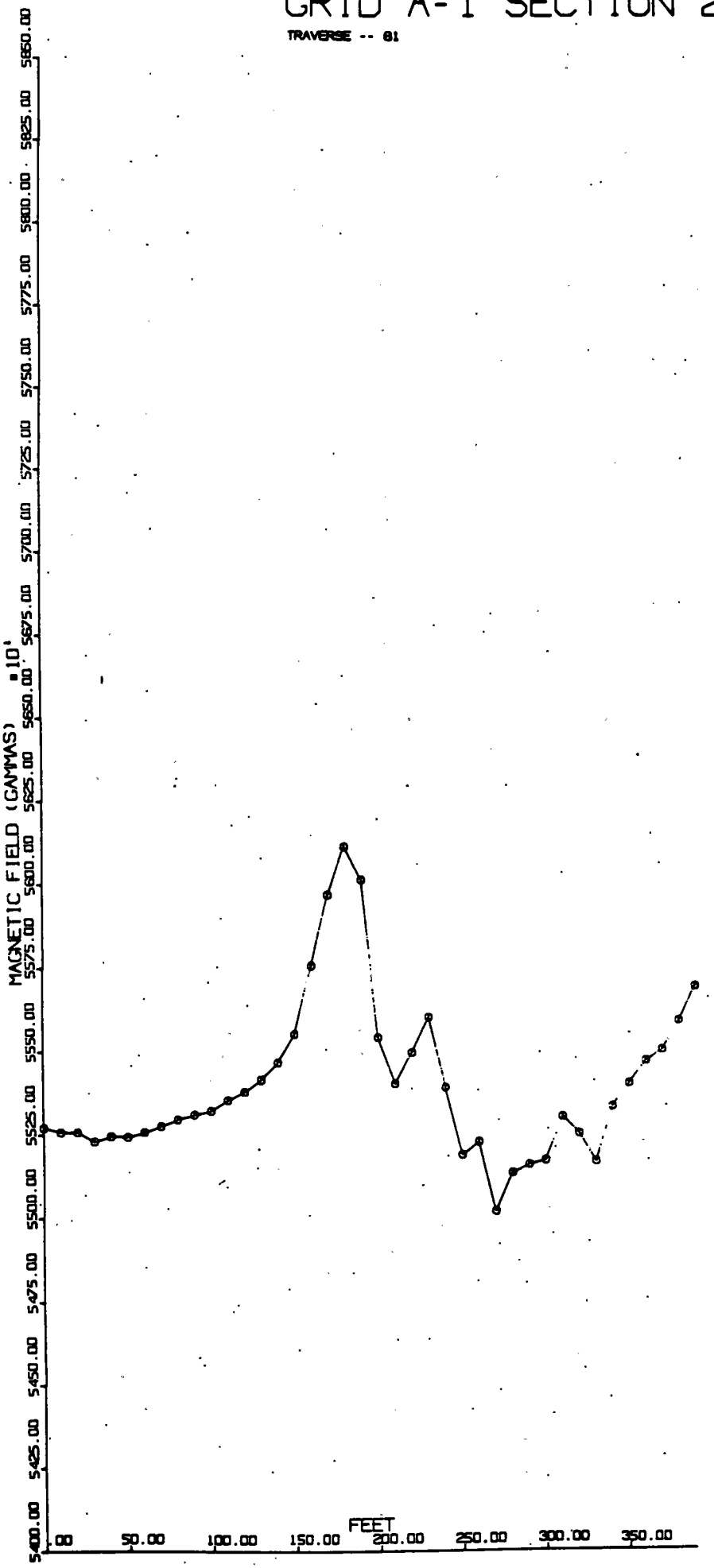
TRAVERSE LINE 61

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
61	86	280	0	55,271.0
61	86	281	10	55,257.4
61	86	282	20	55,257.4
61	86	283	30	55,229.8
61	86	284	40	55,245.2
61	86	285	50	55,243.2
61	86	286	60	55,257.8
61	86	287	70	55,275.6
61	86	288	80	55,295.4
61	86	289	90	55,309.2
61	86	290	100	55,320.0
61	86	291	110	55,350.8
61	86	292	120	55,376.2
61	86	293	130	55,412.0
61	86	294	140	55,462.8
61	86	295	150	55,549.8
61	86	296	160	55,757.2
61	86	297	170	55,967.0
61	86	298	180	56,109.8
61	86	299	190	56,011.2
61	86	300	200	55,538.8
61	86	301	210	55,400.2
61	86	302	220	55,493.4
61	86	303	230	55,599.8
61	86	304	240	55,389.6
61	86	305	250	55,186.0
61	86	306	260	55,225.8
61	86	307	270	55,016.8
61	86	308	280	55,133.4
61	86	309	290	55,158.2
61	86	310	300	55,170.8
61	86	311	310	55,301.8
61	86	312	320	55,251.6
61	86	313	330	55,167.2
61	86	314	340	55,331.8
61	86	315	350	55,401.4
61	86	316	360	55,468.4
61	86	317	370	55,501.8
61	86	318	380	55,589.0
61	86	319	390	55,691.8

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 81



001094

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 62

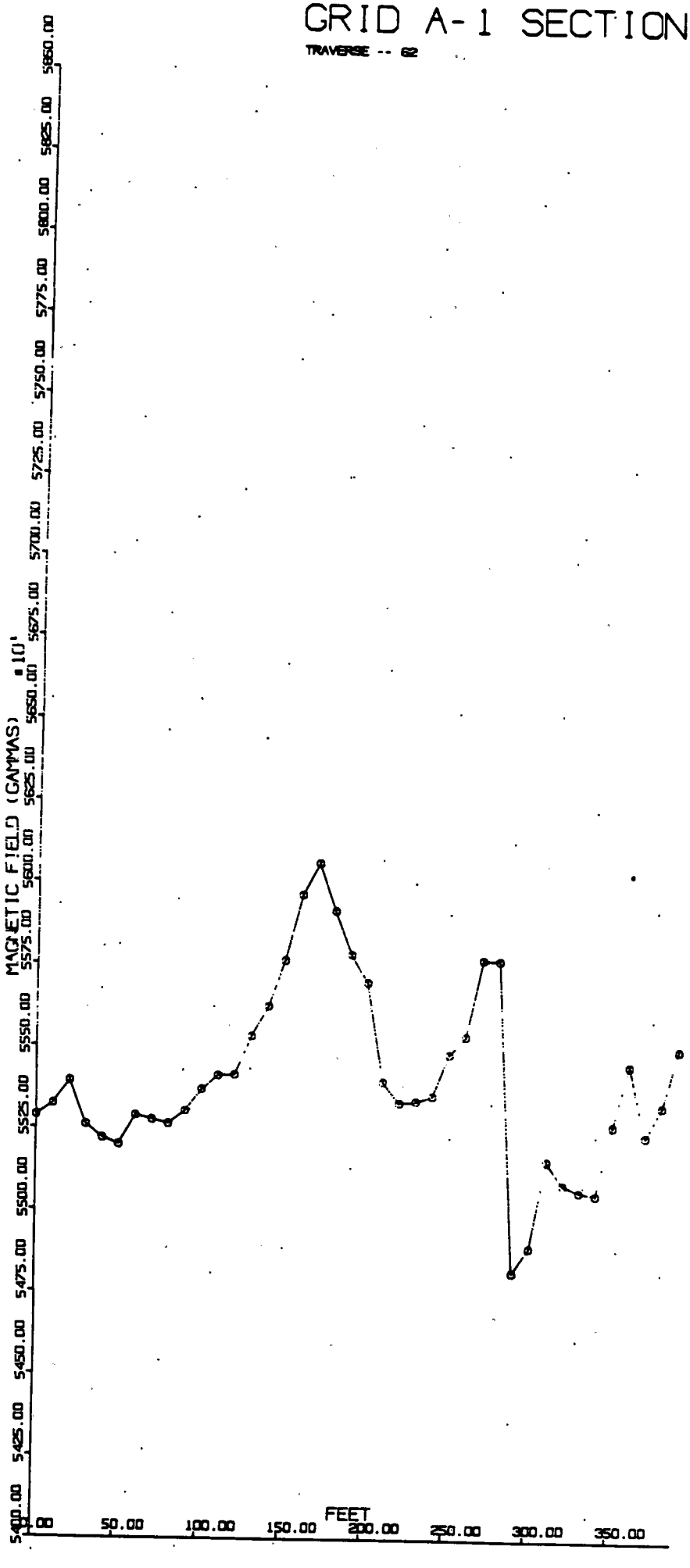
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
62	86	320	0		55,288.0
62	86	321	10		55,324.2
62	86	322	20		55,394.0
62	86	323	30		55,260.8
62	86	324	40		55,220.4
62	86	325	50		55,200.8
62	86	326	60		55,289.8
62	86	327	70		55,277.8
62	86	328	80		55,265.8
62	86	329	90		55,305.4
62	86	330	100		55,372.2
62	86	331	110		55,415.2
62	86	332	120		55,418.2
62	86	333	130		55,536.2
62	86	334	140		55,627.6
62	86	335	150		55,768.8
62	86	336	160		55,966.6
62	86	337	170		56,062.4
62	86	338	180		55,919.8
62	86	339	190		55,789.0
62	86	340	200		55,703.4
62	86	341	210		55,401.2
62	86	342	220		55,338.4
62	86	343	230		55,343.8
62	86	344	240		55,360.4
62	86	345	250		55,486.8
62	86	346	260		55,541.8
62	86	347	270		55,775.6
62	86	348	280		55,772.6
62	86	349	290	?	54,822.4
62	86	350	300		54,898.8
62	86	351	310		55,166.0
62	86	352	320		55,094.6
62	86	353	330		55,073.2
62	86	354	340		55,064.0
62	86	355	350		55,274.2
62	86	356	360		55,457.2
62	86	357	370		55,243.2
62	86	358	380		55,334.2
62	86	359	390		55,506.6

001095

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 62



001096

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 63

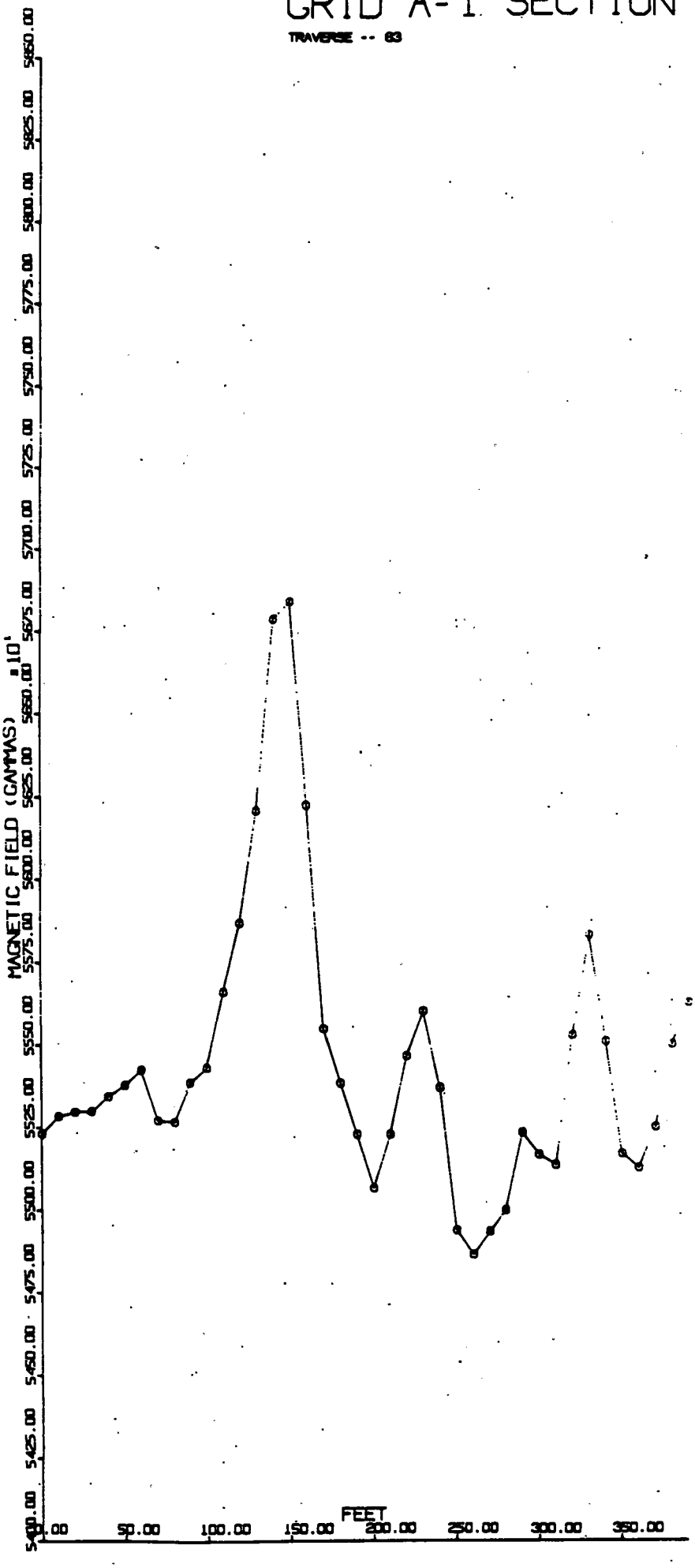
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
63	86	360	0		55,231.8
63	86	361	10		55,285.0
63	86	362	20		55,298.0
63	86	363	30		55,299.6
63	86	364	40		55,345.0
63	86	365	50		55,379.4
63	86	366	60		55,425.0
63	86	367	70		55,272.0
63	86	368	80		55,268.0
63	86	369	90		55,388.0
63	86	370	100		55,431.8
63	86	371	110		55,662.0
63	86	372	120		55,869.4
63	86	373	130		56,210.4
63	86	374	140	?	56,787.8
63	86	375	150	?	56,841.2
63	86	376	160		56,226.8
63	86	377	170		55,550.6
63	86	378	180		55,385.8
63	86	379	190		55,231.4
63	86	380	200		55,070.8
63	86	381	210		55,232.4
63	86	382	220		55,468.8
63	86	383	230		55,605.0
63	86	384	240		55,373.4
63	86	385	250		54,943.6
63	86	386	260		54,869.8
63	86	387	270		54,940.2
63	86	388	280		55,005.2
63	86	389	290		55,237.8
63	86	390	300		55,171.0
63	86	391	310		55,141.0
63	86	392	320		55,534.0
63	86	393	330		55,837.4
63	86	394	340		55,515.2
63	86	395	350		55,175.2
63	86	396	360		55,132.8
63	86	397	370		55,257.2
63	86	398	380		55,507.8
63	86	399	390		55,633.8

001097

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 63



001098

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

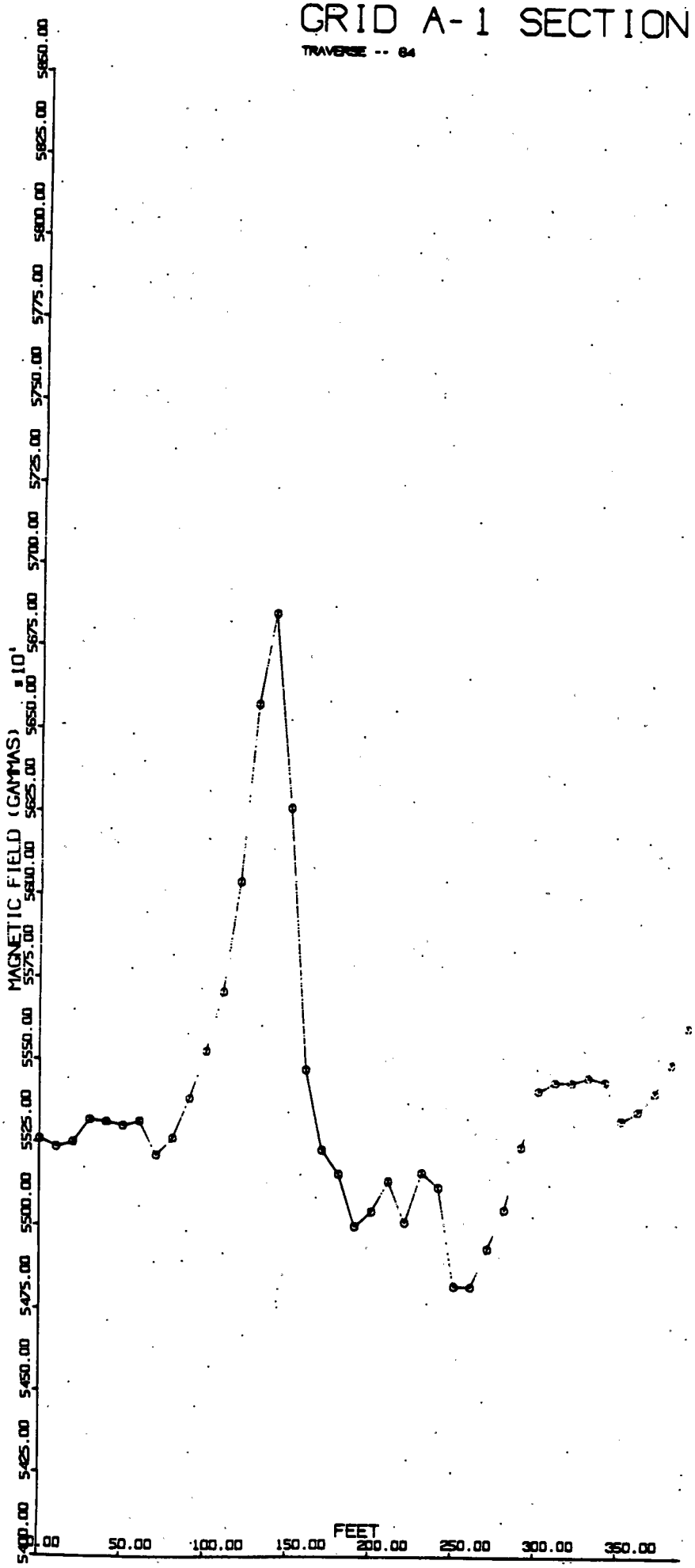
TRAVERSE LINE 64

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
64	86	400	0		55,260.0
64	86	401	10		55,235.4
64	86	402	20		55,250.0
64	86	403	30		55,317.2
64	86	404	40		55,310.8
64	86	405	50		55,299.0
64	86	406	60		55,313.2
64	86	407	70		55,211.2
64	86	408	80		55,263.0
64	86	409	90		55,383.0
64	86	410	100		55,525.8
64	86	411	110		55,707.0
64	86	412	120		56,039.0
64	86	413	130		56,574.8
64	86	414	140	?	56,849.2
64	86	415	150		56,263.0
64	86	416	160		55,472.2
64	86	417	170		55,232.8
64	86	418	180		55,161.4
64	86	419	190		55,005.4
64	86	420	200		55,050.6
64	86	421	210		55,141.6
64	86	422	220		55,018.8
64	86	423	230		55,168.4
64	86	424	240		55,124.6
64	86	425	250		54,825.4
64	86	426	260		54,823.6
64	86	427	270		54,938.8
64	86	428	280		55,057.4
64	86	429	290		55,246.4
64	86	430	300		55,415.8
64	86	431	310		55,442.2
64	86	432	320		55,442.0
64	86	433	330		55,457.2
64	86	434	340		55,444.4
64	86	435	350		55,327.6
64	86	436	360		55,356.0
64	86	437	370		55,410.8
64	86	438	380		55,498.0
64	86	439	390		55,609.6

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 84



001100

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

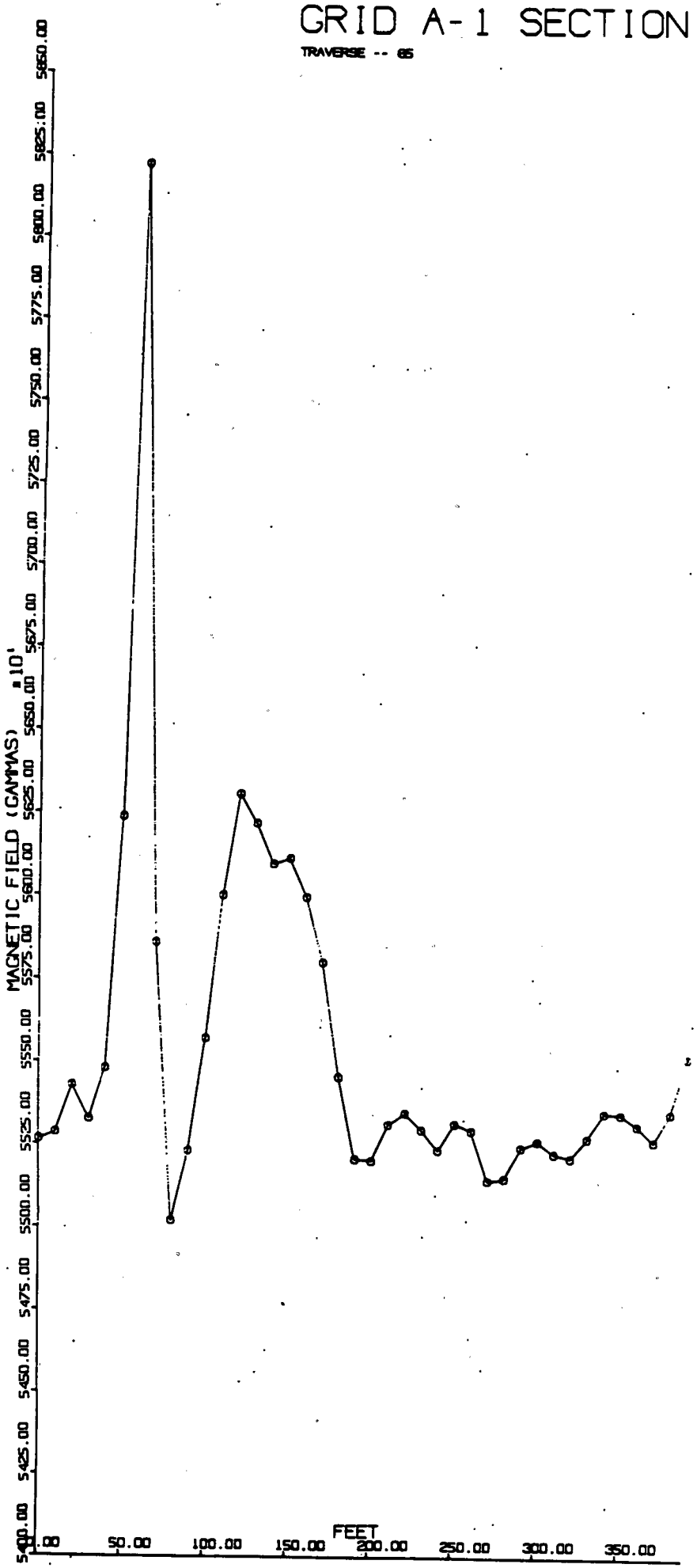
TRAVERSE LINE 65

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
65	87	507	0		55,265.4
65	87	508	10		55,285.4
65	87	509	20		55,428.6
65	87	510	30		55,326.0
65	87	511	40		55,479.4
65	87	512	50		56,235.4
65	87	513	60	?	58,219.2
65	87	514	70		55,858.0
65	87	515	80		55,021.0
65	87	516	90		55,231.4
65	87	517	100		55,571.2
65	87	518	110		56,001.2
65	87	519	120		56,305.0
65	87	520	130		56,217.4
65	87	521	140		56,096.0
65	87	522	150		56,113.2
65	87	523	160		55,994.8
65	87	524	170		55,800.4
65	87	525	180		55,454.6
65	87	526	190		55,207.6
65	87	527	200		55,202.6
65	87	528	210		55,311.6
65	87	529	220		55,346.4
65	87	530	230		55,296.2
65	87	531	240		55,234.6
65	87	532	250		55,314.2
65	87	533	260		55,293.6
65	87	534	270		55,144.0
65	87	535	280		55,150.6
65	87	536	290		55,243.2
65	87	537	300		55,263.2
65	87	538	310		55,225.0
65	87	539	320		55,212.6
65	87	540	330		55,271.6
65	87	541	340		55,348.6
65	87	542	350		55,344.8
65	87	543	360		55,310.8
65	87	544	370		55,263.2
65	87	545	380		55,348.0
65	87	546	390		55,517.6

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 65



001102

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

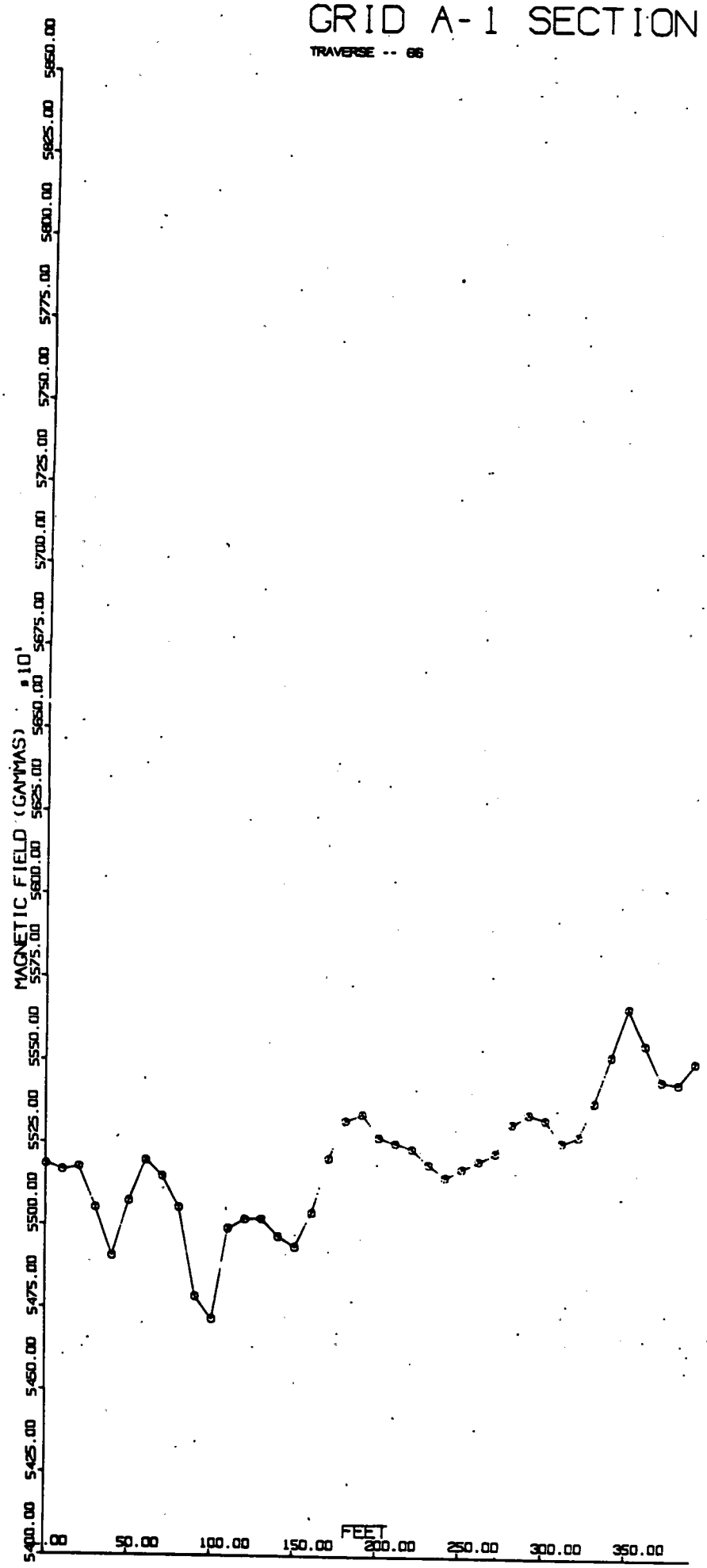
TRAVERSE LINE 66

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
66	87	547	0	55,184.4
66	87	548	10	55,166.8
66	87	549	20	55,176.6
66	87	550	30	55,052.6
66	87	551	40	54,907.6
66	87	552	50	55,074.8
66	87	553	60	55,198.2
66	87	554	70	55,149.6
66	87	555	80	55,055.0
66	87	556	90	54,786.2
66	87	557	100	54,717.2
66	87	558	110	54,993.2
66	87	559	120	55,021.6
66	87	560	130	55,022.0
66	87	561	140	54,969.6
66	87	562	150	54,938.4
66	87	563	160	55,041.6
66	87	564	170	55,206.4
66	87	565	180	55,320.6
66	87	566	190	55,340.6
66	87	567	200	55,270.4
66	87	568	210	55,254.0
66	87	569	220	55,237.6
66	87	570	230	55,190.8
66	87	571	240	55,153.2
66	87	572	250	55,179.0
66	87	573	260	55,203.4
66	87	574	270	55,227.8
66	87	575	280	55,315.6
66	87	576	290	55,344.4
66	87	577	300	55,328.4
66	87	578	310	55,261.2
66	87	579	320	55,279.2
66	87	580	330	55,383.2
66	87	581	340	55,520.8
66	87	582	350	55,665.2
66	87	583	360	55,556.2
66	87	584	370	55,448.0
66	87	585	380	55,439.6
66	87	586	390	55,503.6

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 66



00110A

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

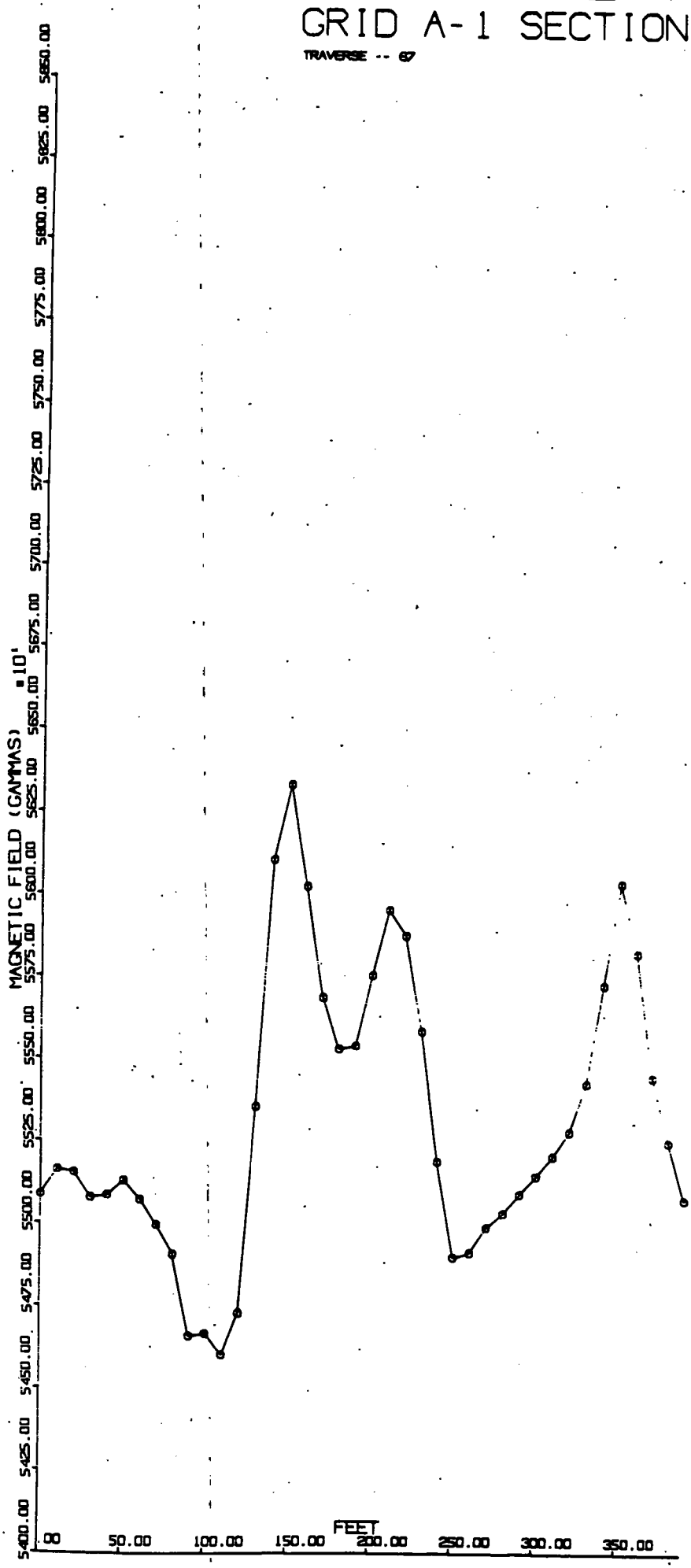
TRAVERSE LINE 67

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
67	87	587	0		55,088.0
67	87	588	10		55,162.2
67	87	589	20		55,153.2
67	87	590	30		55,077.4
67	87	591	40		55,084.6
67	87	592	50		55,128.0
67	87	593	60		55,070.6
67	87	594	70		54,993.6
67	87	595	80		54,905.2
67	87	596	90		54,655.6
67	87	597	100		54,664.4
67	87	598	110		54,601.2
67	87	599	120		54,729.2
67	87	600	130	?	55,357.8
67	87	601	140		56,107.2
67	87	602	150		56,334.2
67	87	603	160		56,026.8
67	87	604	170		55,690.8
67	87	605	180		55,534.8
67	87	606	190		55,544.8
67	87	607	200		55,758.8
67	87	608	210		55,957.0
67	87	609	220		55,879.6
67	87	610	230		55,590.2
67	87	611	240		55,197.0
67	87	612	250		54,907.0
67	87	613	260		54,922.2
67	87	614	270		54,998.4
67	87	615	280		55,041.4
67	87	616	290		55,100.0
67	87	617	300		55,153.8
67	87	618	310		55,214.4
67	87	619	320		55,289.0
67	87	620	330		55,434.8
67	87	621	340		55,733.6
67	87	622	350		56,042.4
67	87	623	360		55,830.2
67	87	624	370		55,454.0
67	87	625	380		55,258.8
67	87	626	390		55,085.0

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 67



001106

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

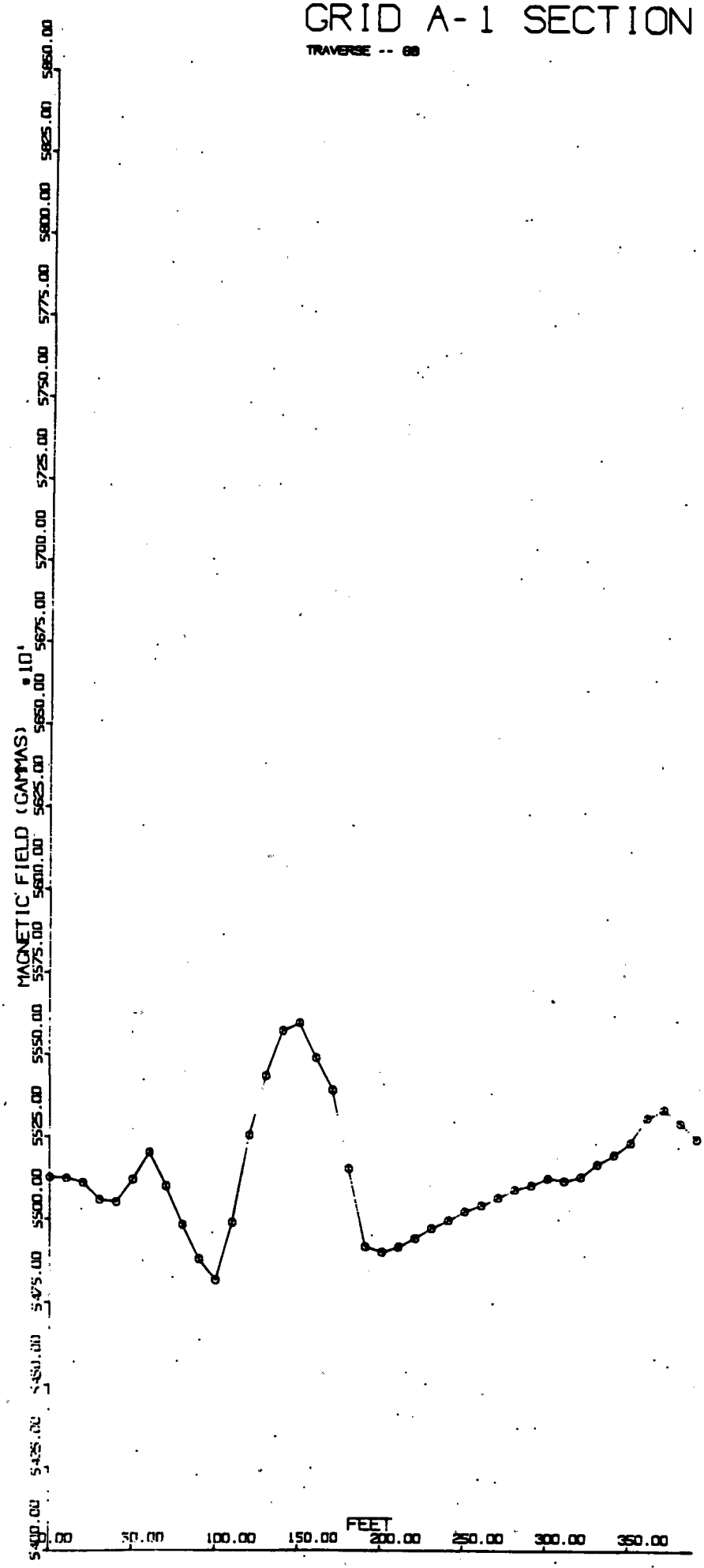
TRAVERSE LINE 68

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
68	87	627	0	55,127.0
68	87	628	10	55,124.6
68	87	629	20	55,111.2
68	87	630	30	55,060.6
68	87	631	40	55,054.2
68	87	632	50	55,122.6
68	87	633	60	55,205.6
68	87	634	70	55,103.4
68	87	635	80	54,987.6
68	87	636	90	54,885.2
68	87	637	100	54,822.0
68	87	638	110	54,995.2
68	87	639	120	55,262.0
68	87	640	130	55,440.8
68	87	641	140	55,577.6
68	87	642	150	55,602.4
68	87	643	160	55,496.4
68	87	644	170	55,398.6
68	87	645	180	55,163.0
68	87	646	190	54,926.6
68	87	647	200	54,910.8
68	87	648	210	54,926.8
68	87	649	220	54,953.0
68	87	650	230	54,983.4
68	87	651	240	55,008.0
68	87	652	250	55,035.2
68	87	653	260	55,053.6
68	87	654	270	55,076.2
68	87	655	280	55,100.4
68	87	656	290	55,113.2
68	87	657	300	55,134.0
68	87	658	310	55,126.4
68	87	659	320	55,138.8
68	87	660	330	55,176.6
68	87	661	340	55,206.0
68	87	662	350	55,242.4
68	87	663	360	55,318.8
68	87	664	370	55,343.6
68	87	665	380	55,302.0
68	87	666	390	55,254.0

ROHM AND HAAS

GRID A-1 SECTION 2

TRAVERSE -- 60



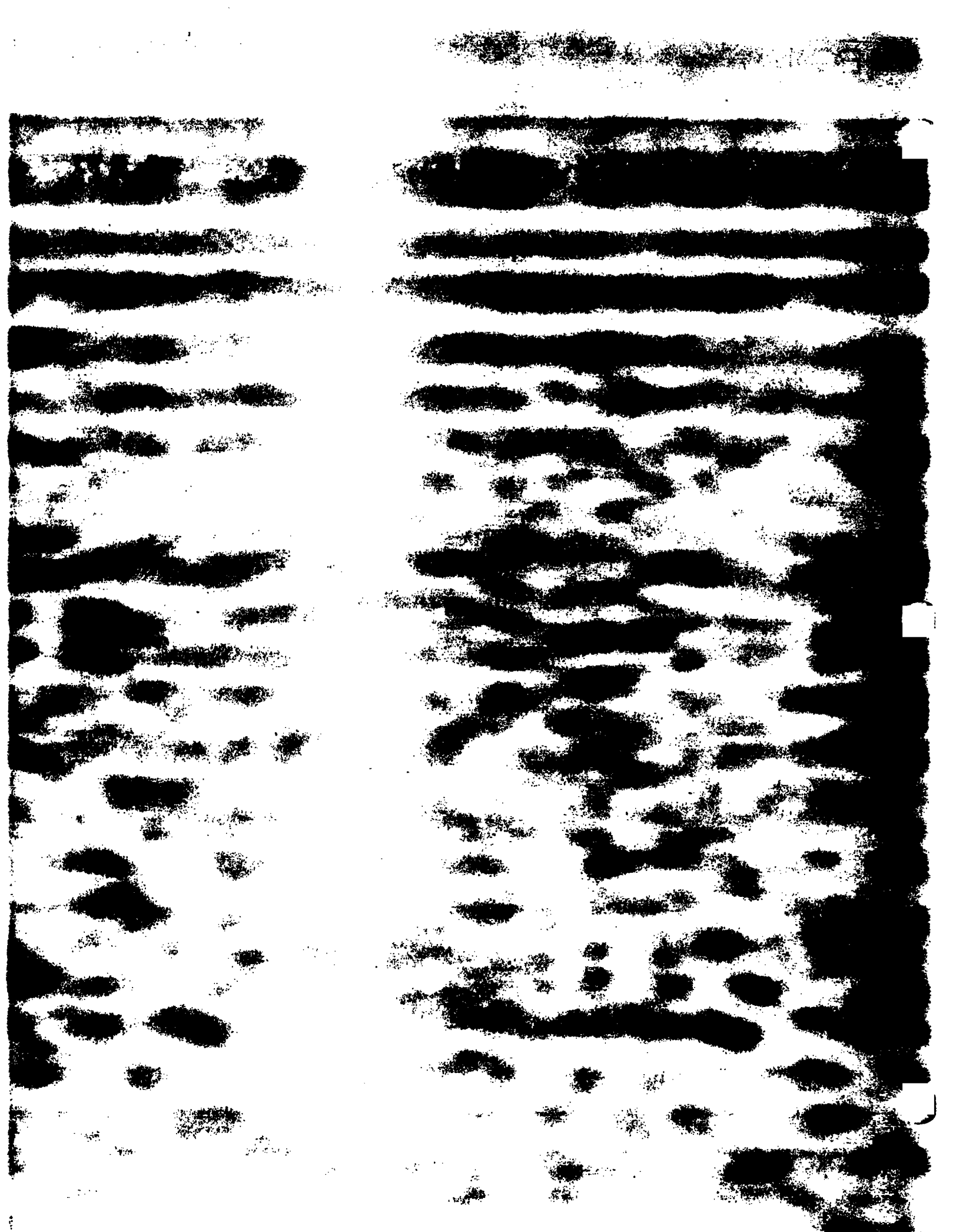
001108

BCM

APPENDIX C

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-2

1108a



B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

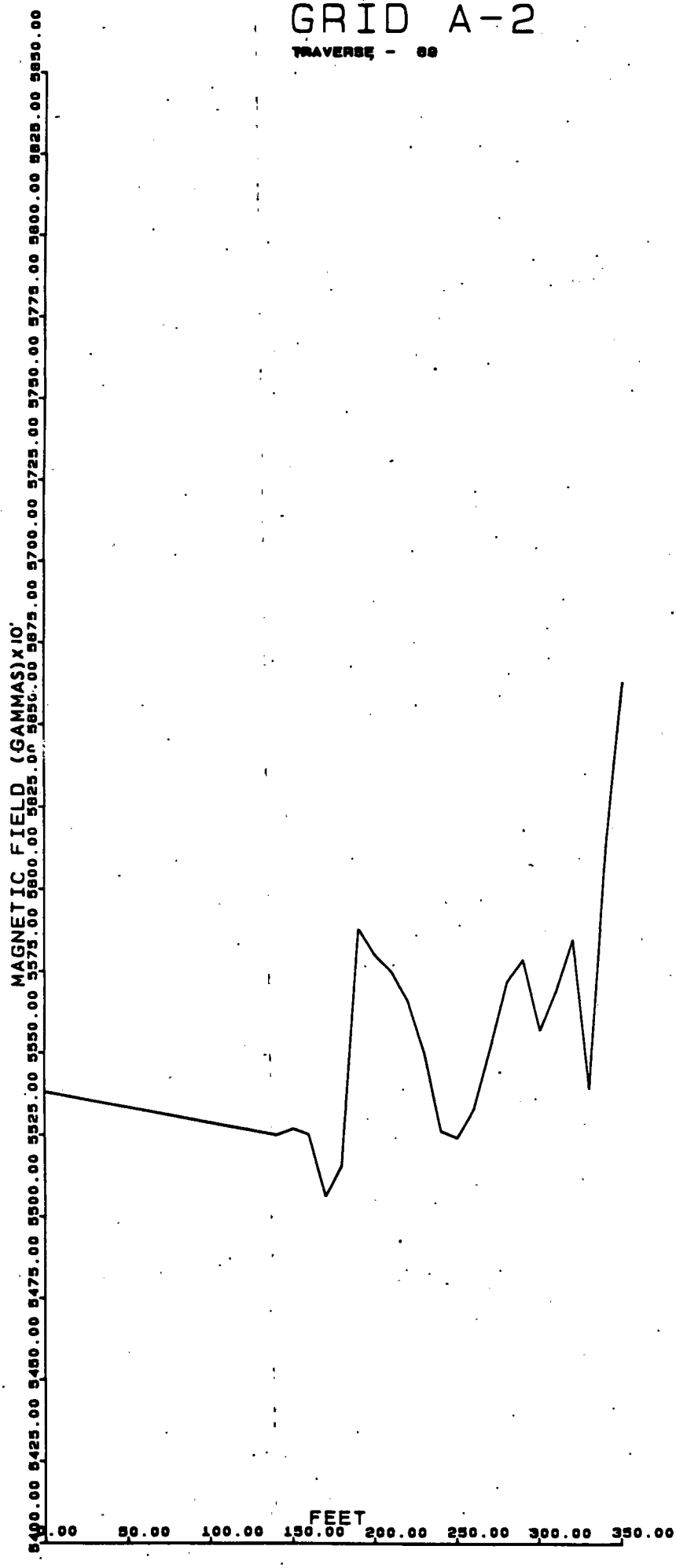
TRAVERSE LINE 69

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
69	87	480	130		55,380.2
69	87	481	140		55,253.0
69	87	482	150		55,273.4
69	87	483	160		55,254.0
69	87	484	170		55,067.8
69	87	485	180		55,158.3
69	87	486	190		55,880.8
69	87	487	200		55,800.4
69	87	488	210		55,751.2
69	87	489	220		55,661.0
69	87	490	230		55,502.6
69	87	491	240		55,263.0
69	87	492	250		55,242.8
69	87	493	260		55,331.0
69	87	494	270		55,513.4
69	87	495	280		55,718.8
69	87	496	290		55,786.2
69	87	497	300		55,571.4
69	87	498	310		55,691.4
69	87	499	320		55,846.6
69	87	500	330	?	55,392.8
69	87	501	340		56,123.8
69	87	502	350	?	56,632.0
69	87	503	360		55,859.0
69	87	504	370		55,634.6
69	87	505	380		55,654.6
69	87	506	390		55,694.4

ROHM & HAAS

GRID A-2

TRAVERSE - 88



001110
100

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 70

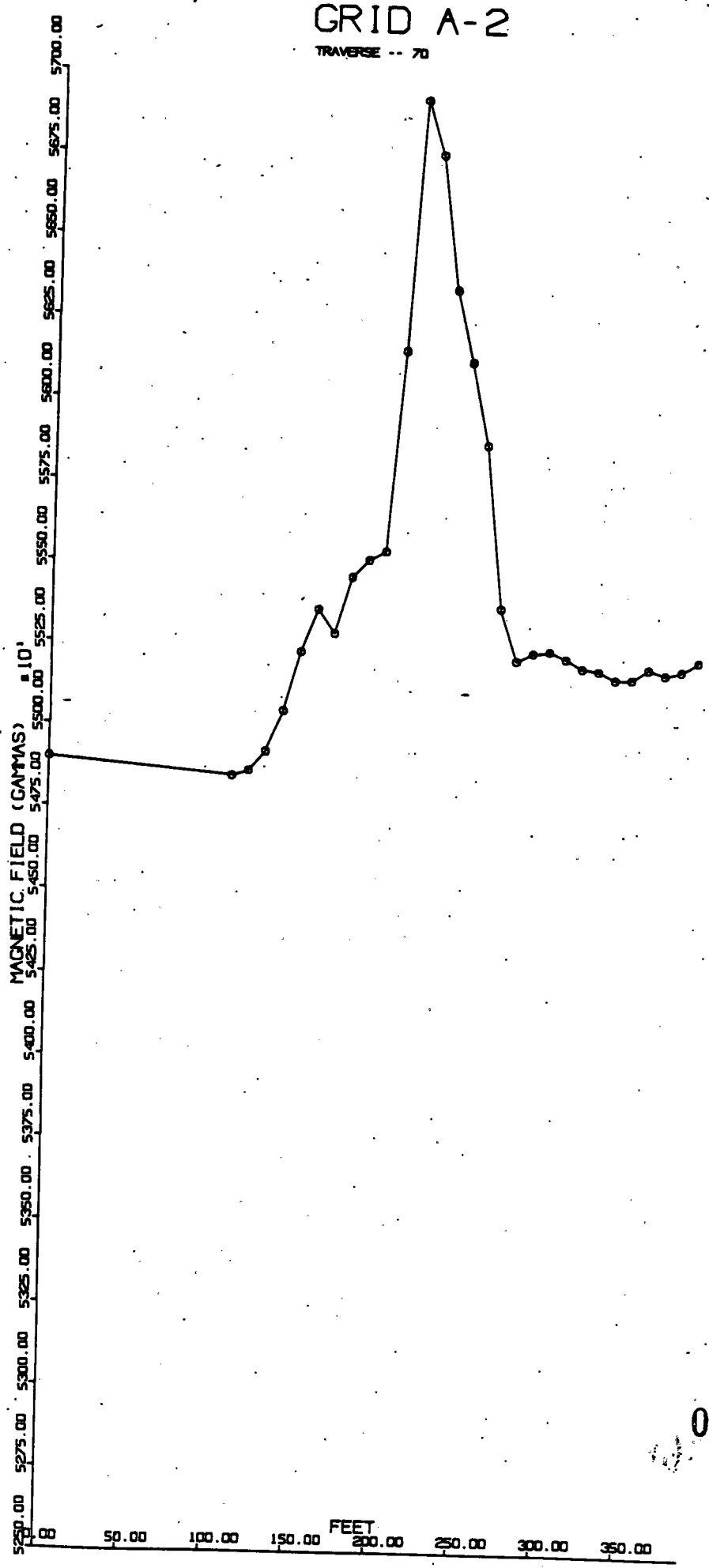
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
70	87	667	100		54,897.2
70	87	668	110		54,848.8
70	87	669	120		54,865.2
70	87	670	130		54,923.0
70	87	671	140		55,048.6
70	87	672	150		55,228.6
70	87	673	160		55,359.2
70	87	674	170		55,265.4
70	87	675	180		55,459.4
70	87	676	190		55,512.4
70	87	677	200		55,540.2
70	87	678	210		56,153.6
70	87	679	220	?	56,914.6
70	87	680	230		56,748.8
70	87	681	240		56,341.2
70	87	682	250		56,123.0
70	87	683	260		55,870.6
70	87	684	270		55,371.4
70	87	685	280		55,213.4
70	87	686	290		55,236.8
70	87	687	300		55,243.8
70	87	688	310		55,221.6
70	87	689	320		55,194.0
70	87	690	330		55,186.8
70	87	691	340		55,162.0
70	87	692	350		55,163.6
70	87	693	360		55,195.2
70	87	694	370		55,174.6
70	87	695	380		55,190.6
70	87	696	390		55,219.6

001111

ROHM AND HAAS

GRID A-2

TRAVERSE -- 70



001112

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

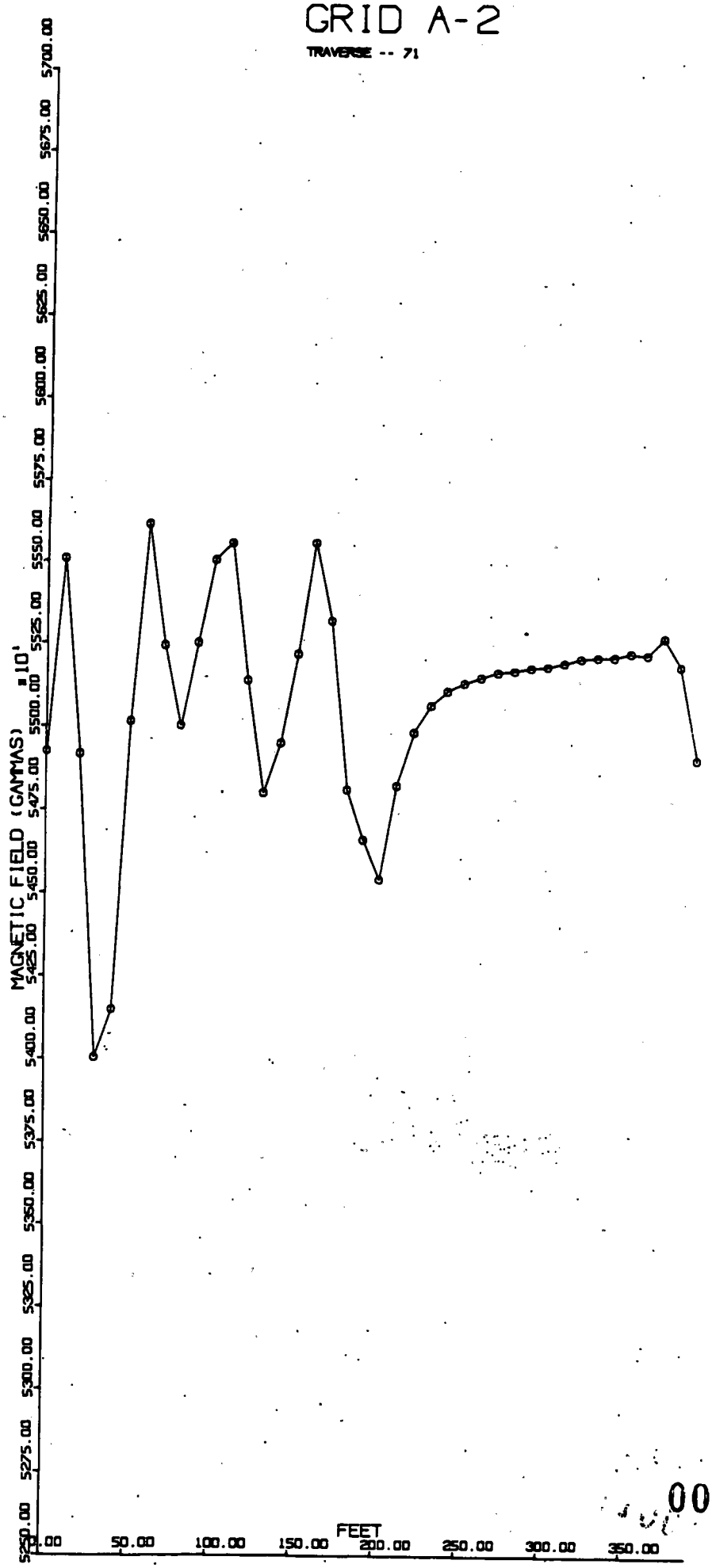
TRAVERSE LINE 71

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
71	87	697	0		54,925.8
71	87	698	10	?	55,508.6
71	87	699	20		54,918.2
71	87	700	30	?	54,005.0
71	87	701	40	?	54,149.6
71	87	702	50		55,018.0
71	87	703	60	?	55,615.0
71	87	704	70		55,246.0
71	87	705	80		55,006.8
71	87	706	90		55,255.8
71	87	707	100		55,509.6
71	87	708	110		55,560.8
71	87	709	120		55,145.2
71	87	710	130		54,807.6
71	87	711	140		54,957.8
71	87	712	150		55,225.2
71	87	713	160	?	55,563.4
71	87	714	170		55,325.6
71	87	715	180		54,816.8
71	87	716	190		54,669.2
71	87	717	200		54,549.8
71	87	718	210		54,831.8
71	87	719	220		54,993.0
71	87	720	230		55,074.0
71	87	721	240		55,118.0
71	87	722	250		55,142.0
71	87	723	260		55,158.8
71	87	724	270		55,174.0
71	87	725	280		55,179.4
71	87	726	290		55,189.0
71	87	727	300		55,193.4
71	87	728	310		55,204.8
71	87	729	320		55,218.2
71	87	730	330		55,222.6
71	87	731	340		55,223.4
71	87	732	350		55,236.2
71	87	733	360		55,231.2
71	87	734	370		55,262.6
71	87	735	380		55,197.6
71	87	736	390		54,917.8

ROHM AND HAAS

GRID A-2

TRAVERSE -- 71



001114

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

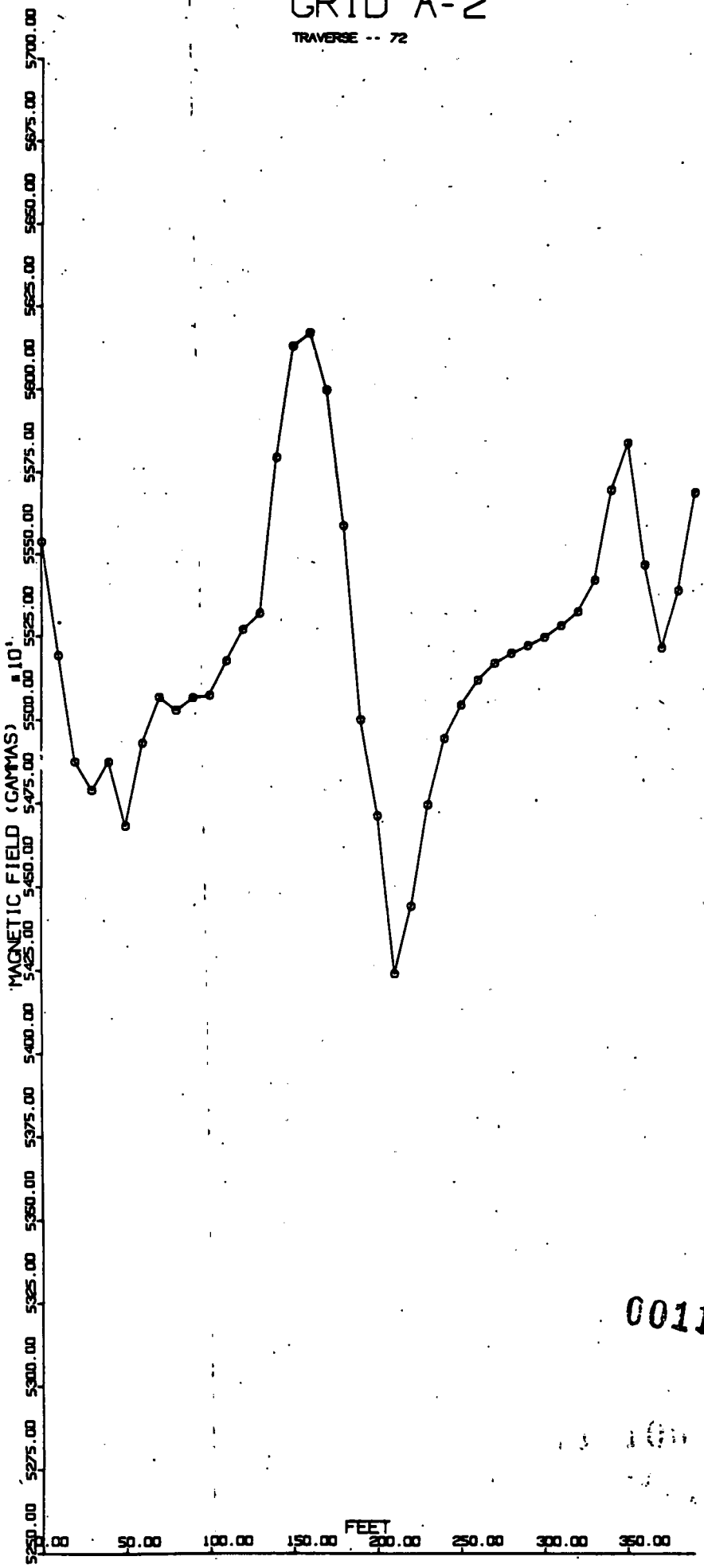
TRAVERSE LINE 72

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
72	87	737	0	55,537.2
72	87	738	10	55,194.2
72	87	739	20	54,873.8
72	87	740	30	54,789.8
72	87	741	40	54,874.2
72	87	742	50	54,683.6
72	87	743	60	54,930.6
72	87	744	70	55,069.6
72	87	745	80	55,030.8
72	87	746	90	55,069.2
72	87	747	100	55,076.6
72	87	748	110	55,179.4
72	87	749	120	55,272.6
72	87	750	130	55,322.0
72	87	751	140	55,796.2
72	87	752	150	56,131.6
72	87	753	160	56,171.4
72	87	754	170	55,999.8
72	87	755	180	55,588.2
72	87	756	190	55,002.4
72	87	757	200	54,715.2
72	87	758	210	54,241.8
72	87	759	220	54,444.6
72	87	760	230	54,748.0
72	87	761	240	54,946.0
72	87	762	250	55,047.6
72	87	763	260	55,122.2
72	87	764	270	55,173.0
72	87	765	280	55,202.4
72	87	766	290	55,225.4
72	87	767	300	55,250.0
72	87	768	310	55,284.6
72	87	769	320	55,327.0
72	87	770	330	55,422.2
72	87	771	340	55,695.6
72	87	772	350	55,839.8
72	87	773	360	55,468.2
72	87	774	370	55,217.8
72	87	775	380	55,391.0
72	87	776	390	55,687.8

ROHM AND HAAS

GRID A-2

TRAVERSE -- 72



001116

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

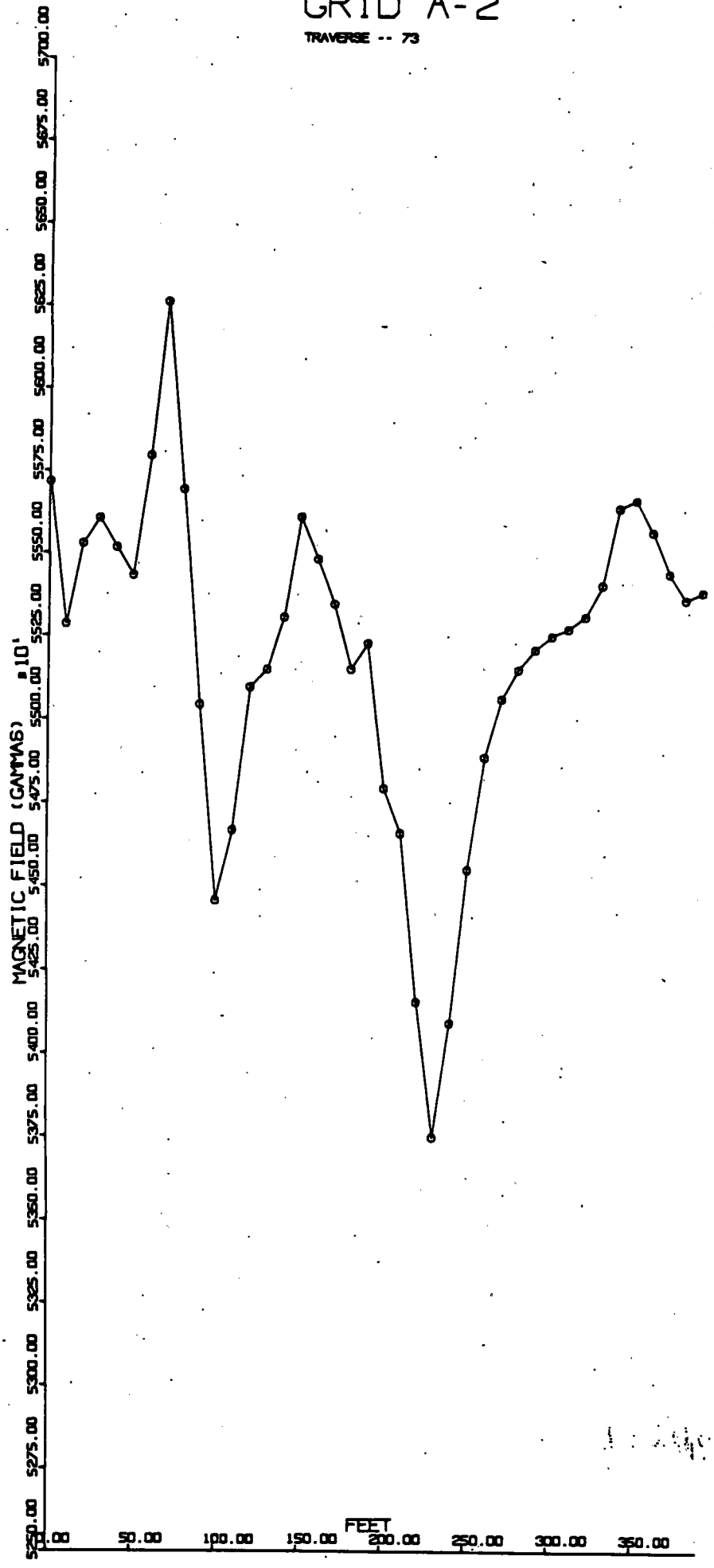
TRAVERSE LINE 73

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
73	87	777	0		55,718.2
73	87	778	10		55,286.0
73	87	779	20		55,531.2
73	87	780	30		55,607.6
73	87	781	40		55,519.6
73	87	782	50		55,434.6
73	87	783	60		55,798.2
73	87	784	70	?	56,262.8
73	87	785	80		55,696.2
73	87	786	90		55,044.8
73	87	787	100	?	54,458.6
73	87	788	110		54,669.2
73	87	789	120		55,098.2
73	87	790	130		55,151.0
73	87	791	140		55,307.6
73	87	792	150		55,612.0
73	87	793	160		55,483.8
73	87	794	170		55,347.2
73	87	795	180		55,152.0
73	87	796	190		55,229.0
73	87	797	200		54,794.6
73	87	798	210		54,660.8
73	87	799	220		54,157.8
73	87	800	230	?	53,749.8
73	87	801	240		54,094.2
73	87	802	250		54,552.6
73	87	803	260		54,888.2
73	87	804	270		55,063.8
73	87	805	280		55,152.0
73	87	806	290		55,212.0
73	87	807	300		55,252.4
73	87	808	310		55,273.6
73	87	809	320		55,311.2
73	87	810	330		55,407.4
73	87	811	340		55,641.2
73	87	812	350		55,664.2
73	87	813	360		55,569.0
73	87	814	370		55,442.2
73	87	815	380		55,362.4
73	87	816	390		55,386.8

ROHM AND HAAS

GRID A-2

TRAVERSE -- 73



001118

B. C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

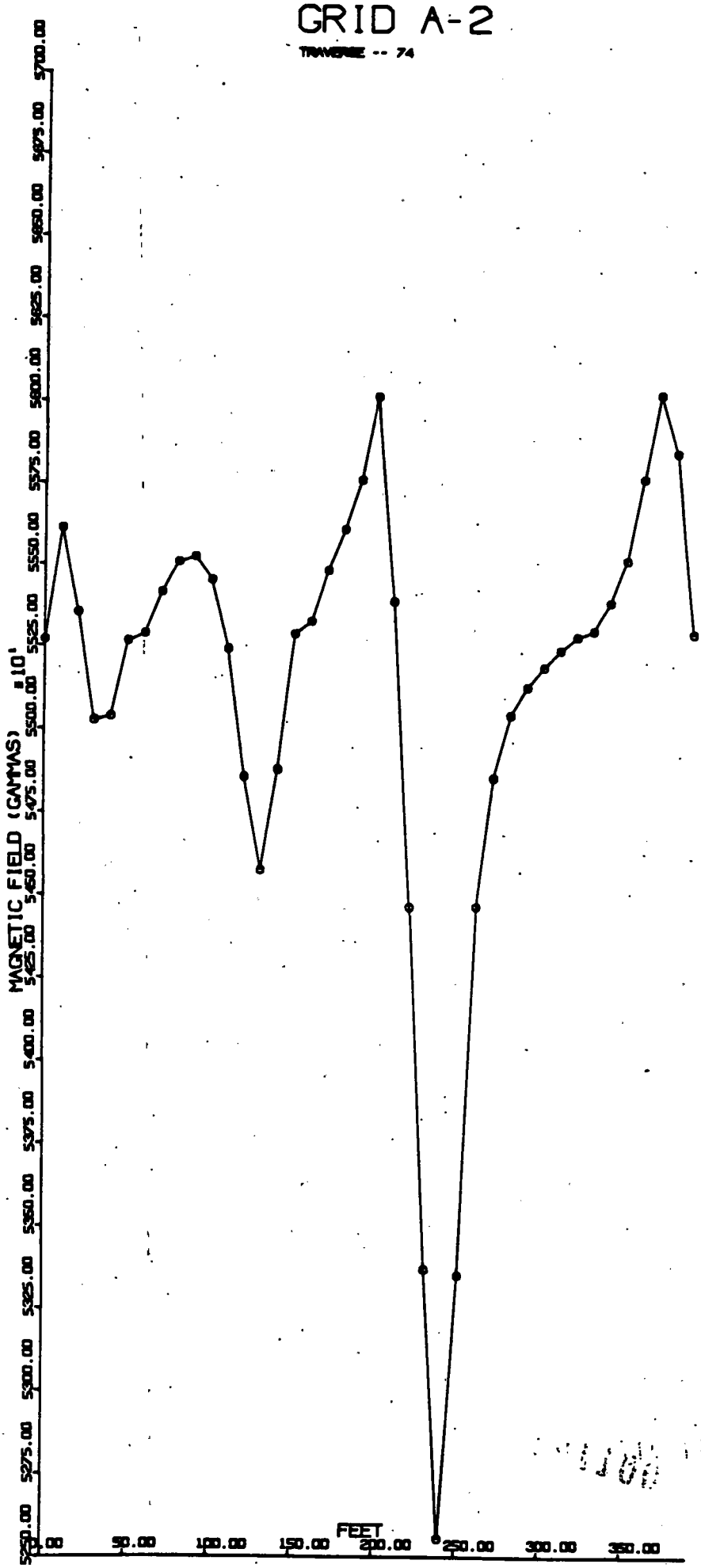
TRAVERSE LINE 74

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
74	93	0	0		55,268.0
74	93	1	10		55,611.6
74	93	2	20		55,352.6
74	93	3	30		55,027.2
74	93	4	40		55,040.2
74	93	5	50		55,266.2
74	93	6	60		55,289.2
74	93	7	70		55,417.4
74	93	8	80		55,511.0
74	93	9	90		55,527.6
74	93	10	100		55,455.2
74	93	11	110		55,243.6
74	93	12	120		54,860.0
74	93	13	130	?	54,579.4
74	93	14	140		54,881.8
74	93	15	150		55,289.2
74	93	16	160		55,328.4
74	93	17	170		55,485.6
74	93	18	180		55,611.6
74	93	19	190		55,764.4
74	93	20	200	?	56,017.4
74	93	21	210		55,391.6
74	93	22	220		54,469.4
74	93	23	230		53,376.4
74	93	24	240	?	52,555.4
74	93	25	250	?	53,359.0
74	93	26	260		54,471.0
74	93	27	270		54,859.4
74	93	28	280		55,047.4
74	93	29	290		55,131.6
74	93	30	300		55,191.4
74	93	31	310		55,243.0
74	93	32	320		55,283.8
74	93	33	330		55,303.0
74	93	34	340		55,390.0
74	93	35	350		55,520.2
74	93	36	360		55,770.6
74	93	37	370		56,026.8
74	93	38	380		55,850.6
74	93	39	390		55,295.0

ROHM AND HAAS

GRID A-2

TRAVERSE -- 74



001120

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

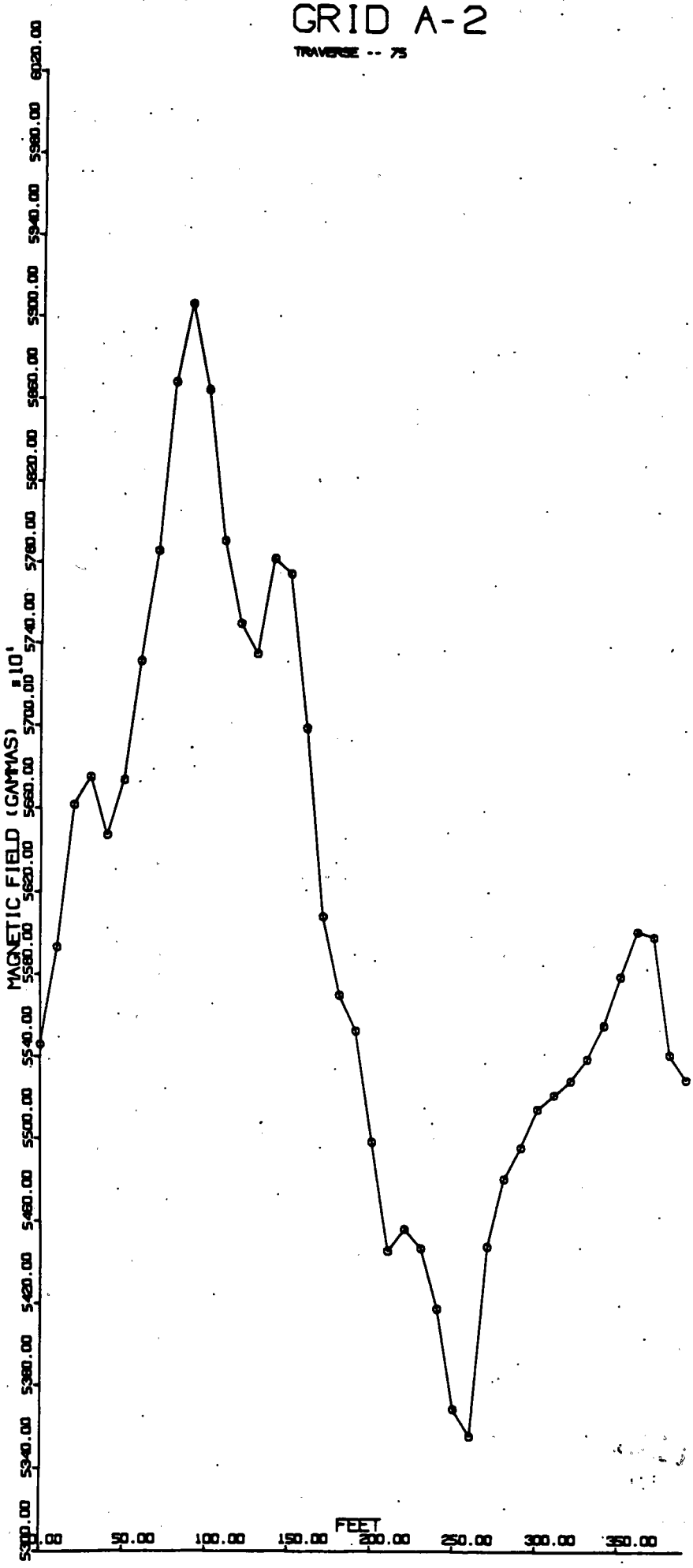
TRAVERSE LINE 75

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
75	93	40	0		55,459.0
75	93	41	10		55,930.8
75	93	42	20	?	56,618.2
75	93	43	30	?	56,754.2
75	93	44	40		56,475.4
75	93	45	50		56,740.6
75	93	46	60	?	57,317.4
75	93	47	70	?	57,860.0
75	93	48	80	?	58,683.8
75	93	49	90	?	59,064.6
75	93	50	100	?	58,647.8
75	93	51	110	?	57,911.4
75	93	52	120	?	57,503.0
75	93	53	130		57,355.8
75	93	54	140	?	57,825.8
75	93	55	150	?	57,749.6
75	93	56	160	?	56,995.6
75	93	57	170		56,085.8
75	93	58	180		55,706.6
75	93	59	190		55,533.6
75	93	60	200		54,993.0
75	93	61	210		54,467.6
75	93	62	220		54,574.6
75	93	63	230		54,462.2
75	93	64	240		54,189.2
75	93	65	250		53,696.4
75	93	66	260	?	53,562.6
75	93	67	270		54,490.8
75	93	68	280		54,817.2
75	93	69	290		54,967.0
75	93	70	300		55,154.4
75	93	71	310		55,223.6
75	93	72	320		55,292.2
75	93	73	330		55,399.2
75	93	74	340		55,563.0
75	93	75	350		55,800.2
75	93	76	360		56,019.4
75	93	77	370		55,994.4
75	93	78	380		55,421.2
75	93	79	390		55,298.8

ROHM AND HAAS

GRID A-2

TRAVERSE -- 75



001122

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

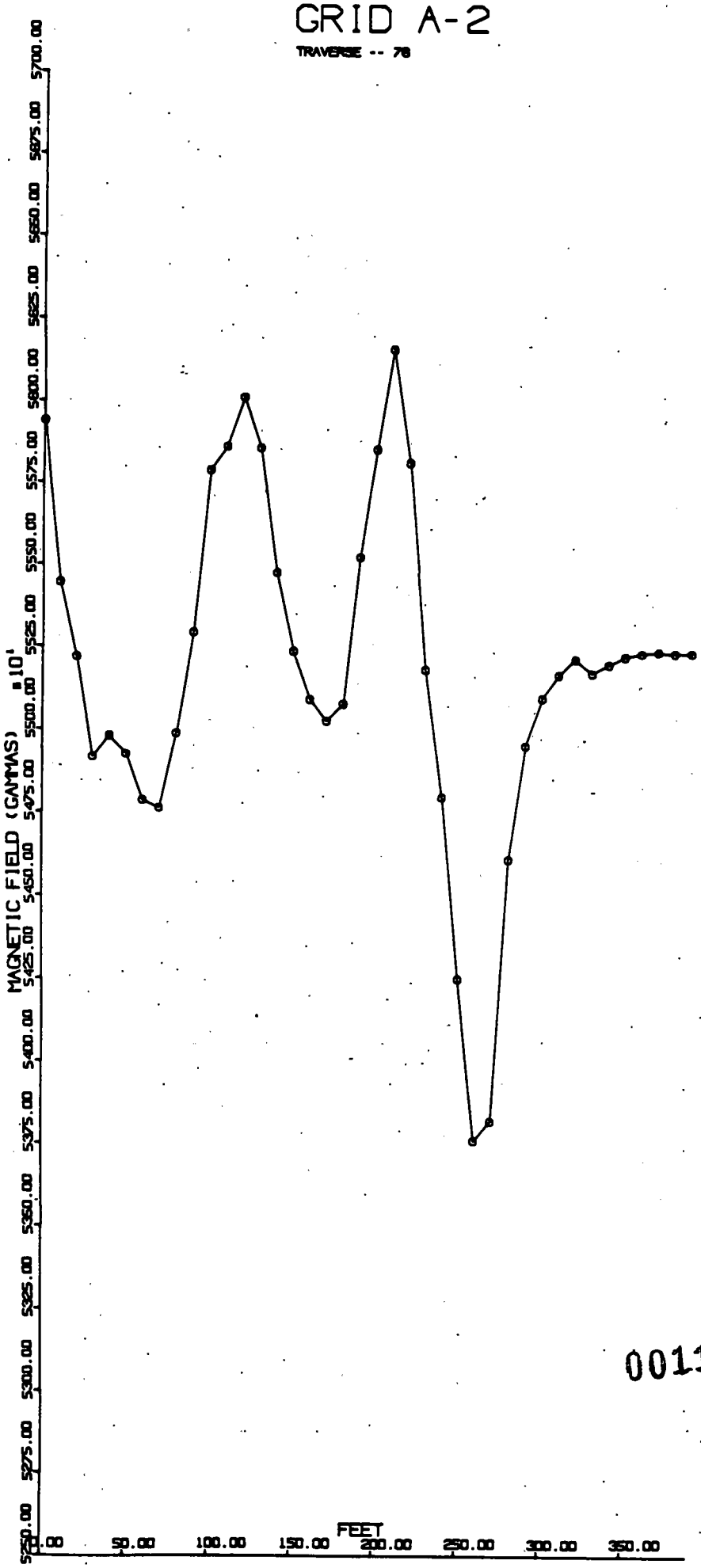
TRAVERSE LINE 76

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
76	93	80	0		55,939.2
76	93	81	10		55,445.2
76	93	82	20		55,220.0
76	93	83	30		54,917.0
76	93	84	40		54,981.2
76	93	85	50		54,926.2
76	93	86	60		54,787.4
76	93	87	70		54,763.4
76	93	88	80		54,989.2
76	93	89	90		55,294.0
76	93	90	100		55,791.2
76	93	91	110		55,863.0
76	93	92	120		56,012.4
76	93	93	130		55,858.0
76	93	94	140		55,476.6
76	93	95	150		55,238.6
76	93	96	160		55,093.0
76	93	97	170		55,027.4
76	93	98	180		55,079.6
76	93	99	190		55,523.8
76	93	100	200		55,854.2
76	93	101	210	?	56,158.0
76	93	102	220		55,813.8
76	93	103	230		55,182.8
76	93	104	240		54,797.6
76	93	105	250		54,251.0
76	93	106	260		53,761.6
76	93	107	270	?	53,820.0
76	93	108	280		54,611.0
76	93	109	290		54,954.0
76	93	110	300		55,097.6
76	93	111	310		55,168.2
76	93	112	320		55,216.0
76	93	113	330		55,173.6
76	93	114	340		55,199.8
76	93	115	350		55,223.6
76	93	116	360		55,233.6
76	93	117	370		55,239.0
76	93	118	380		55,234.6
76	93	119	390		55,235.2

ROHM AND HAAS

GRID A-2

TRAVERSE -- 78



001124

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

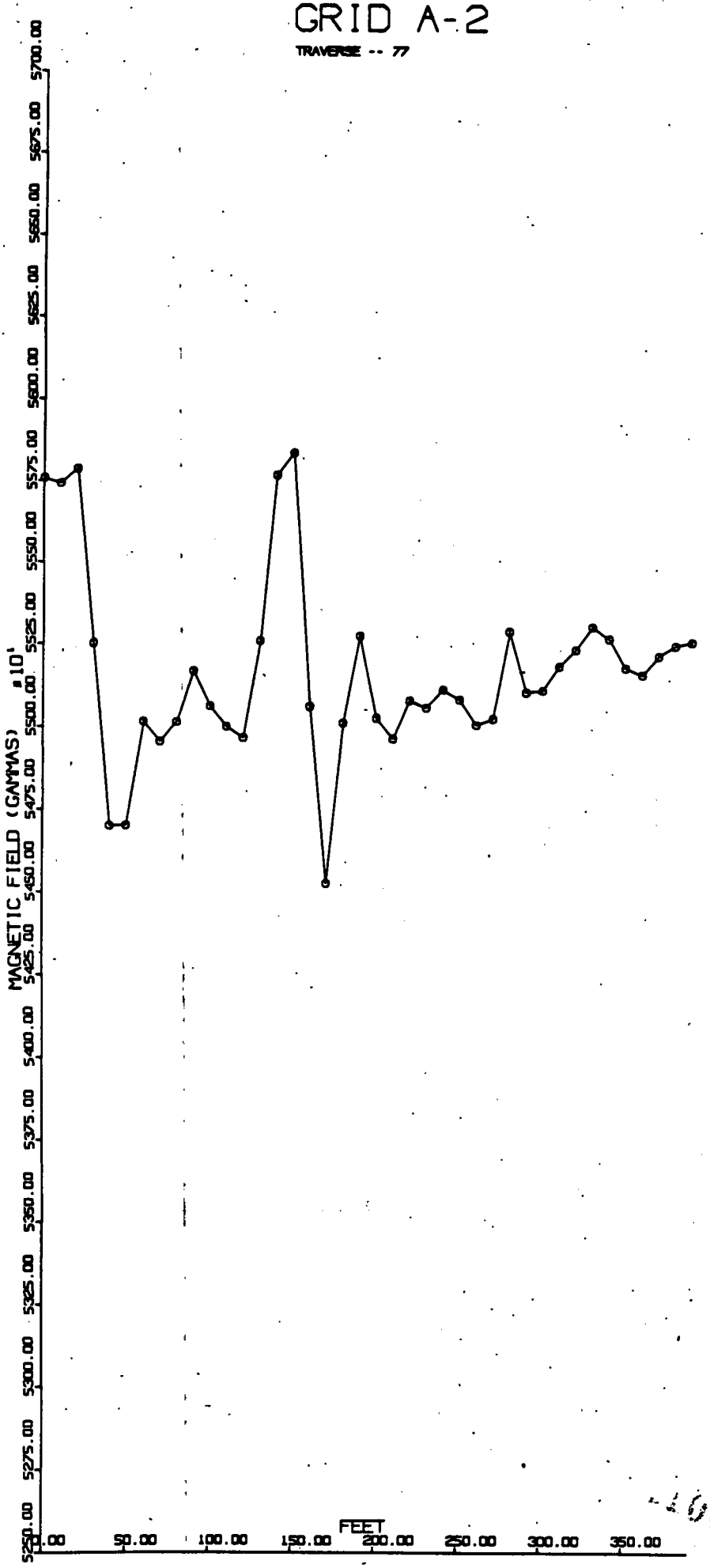
TRAVERSE LINE 77

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
77	93	120	0		55,759.8
77	93	121	10		55,743.8
77	93	122	20		55,786.4
77	93	123	30		55,252.8
77	93	124	40		54,702.2
77	93	125	50		54,704.2
77	93	126	60		55,018.0
77	93	127	70		54,957.0
77	93	128	80		55,017.0
77	93	129	90		55,171.0
77	93	130	100		55,065.0
77	93	131	110		55,004.0
77	93	132	120		54,969.4
77	93	133	130		55,262.8
77	93	134	140		55,772.0
77	93	135	150		55,840.4
77	93	136	160		55,063.6
77	93	137	170	?	54,532.0
77	93	138	180		55,015.4
77	93	139	190		55,276.6
77	93	140	200		55,029.8
77	93	141	210		54,967.6
77	93	142	220		55,082.6
77	93	143	230		55,061.0
77	93	144	240		55,116.0
77	93	145	250		55,085.6
77	93	146	260		55,009.6
77	93	147	270		55,028.8
77	93	148	280		55,291.8
77	93	149	290		55,108.6
77	93	150	300		55,114.8
77	93	151	310		55,187.6
77	93	152	320		55,237.6
77	93	153	330		55,306.6
77	93	154	340		55,270.8
77	93	155	350		55,183.4
77	93	156	360		55,162.6
77	93	157	370		55,219.6
77	93	158	380		55,250.2
77	93	159	390		55,261.4

ROHM AND HAAS

GRID A-2

TRAVERSE -- 77



001126

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 78

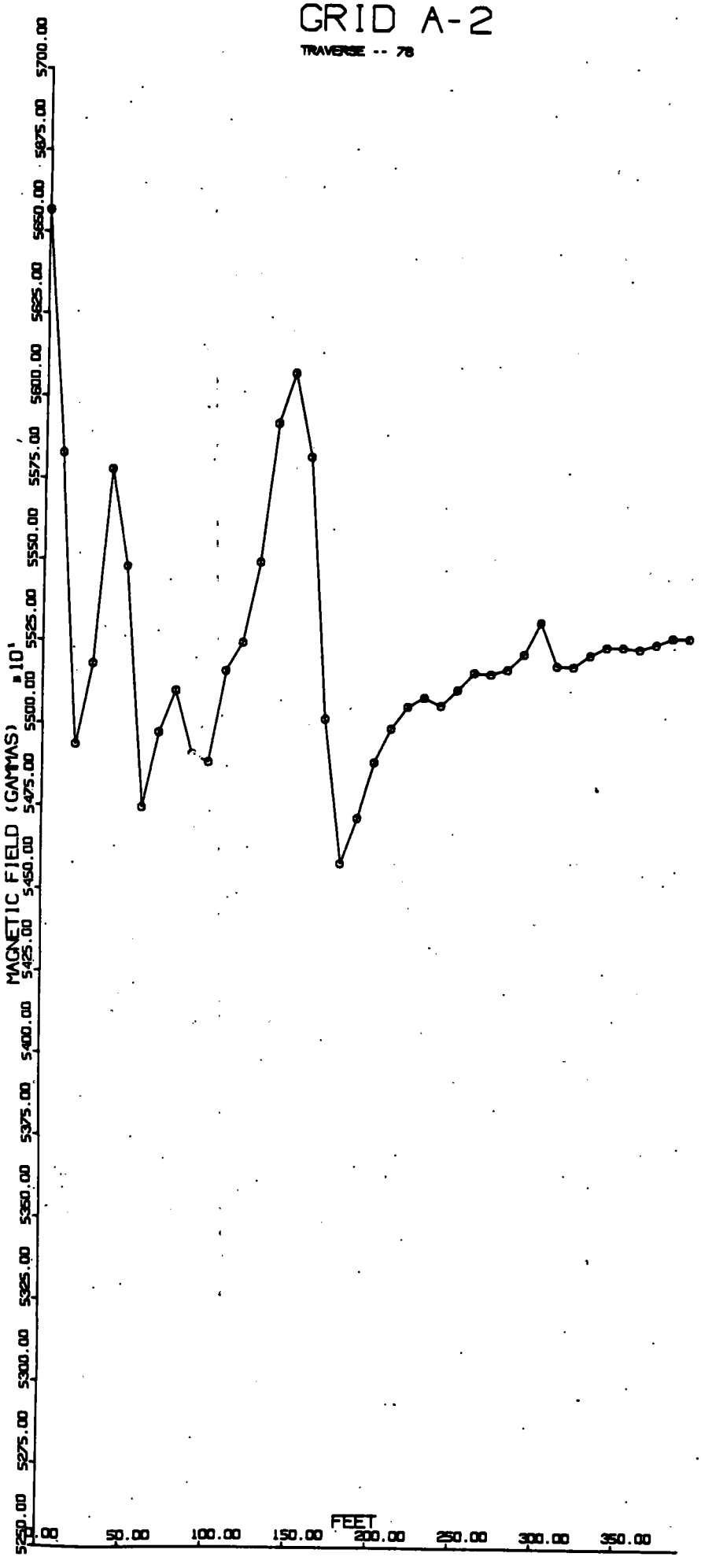
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
78	93	160	0	?	56,567.6
78	93	161	10		55,827.4
78	93	162	20	?	54,935.8
78	93	163	30		55,180.8
78	93	164	40		55,778.2
78	93	165	50		55,478.0
78	93	166	60	?	54,746.2
78	93	167	70		54,974.2
78	93	168	80		55,101.8
78	93	169	90		54,910.4
78	93	170	100		54,886.0
78	93	171	110		55,163.6
78	93	172	120		55,249.2
78	93	173	130		55,496.0
78	93	174	140		55,923.8
78	93	175	150		56,076.4
78	93	176	160		55,821.4
78	93	177	170		55,019.8
78	93	178	180		54,583.4
78	93	179	190		54,719.8
78	93	180	200		54,889.8
78	93	181	210		54,992.2
78	93	182	220		55,059.4
78	93	183	230		55,088.2
78	93	184	240		55,063.6
78	93	185	250		55,112.2
78	93	186	260		55,164.6
78	93	187	270		55,161.0
78	93	188	280		55,175.0
78	93	189	290		55,222.4
78	93	190	300		55,319.0
78	93	191	310		55,187.6
78	93	192	320		55,186.6
78	93	193	330		55,221.6
78	93	194	340		55,246.2
78	93	195	350		55,246.4
78	93	196	360		55,241.0
78	93	197	370		55,255.8
78	93	198	380		55,276.0
78	93	199	390		55,274.8

001127

ROHM AND HAAS

GRID A-2

TRAVERSE -- 78



001128

106

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 79

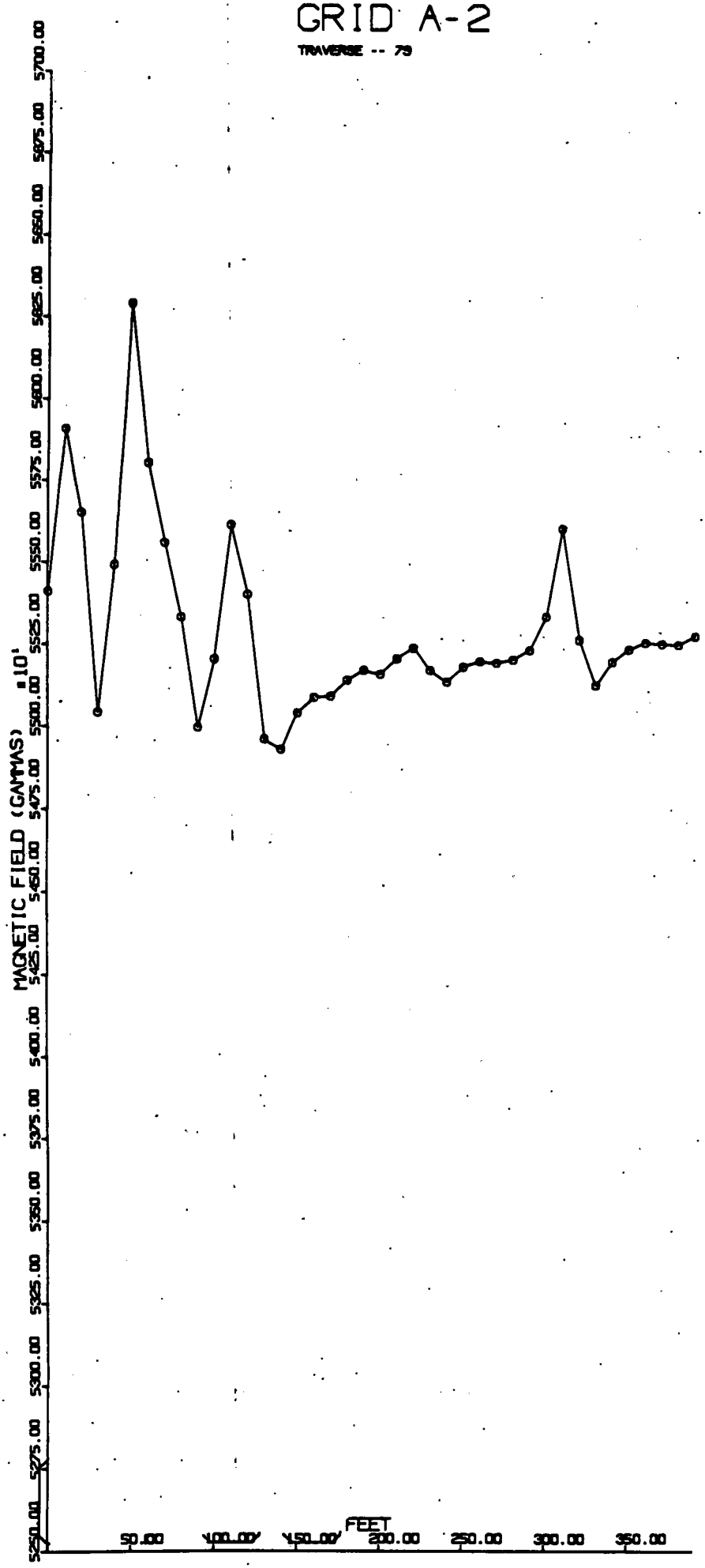
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
79	93	200	0		55,410.2
79	93	201	10	?	55,909.8
79	93	202	20		55,652.2
79	93	203	30		55,044.4
79	93	204	40		55,492.8
79	93	205	50	?	56,289.8
79	93	206	60		55,805.8
79	93	207	70		55,560.4
79	93	208	80		55,333.0
79	93	209	90		54,999.4
79	93	210	100		55,207.6
79	93	211	110		55,616.0
79	93	212	120		55,403.6
79	93	213	130		54,965.2
79	93	214	140		54,934.0
79	93	215	150		55,045.0
79	93	216	160		55,091.8
79	93	217	170		55,095.6
79	93	218	180		55,144.6
79	93	219	190		55,174.8
79	93	220	200		55,162.6
79	93	221	210		55,209.6
79	93	222	220		55,241.6
79	93	223	230		55,174.4
79	93	224	240		55,139.4
79	93	225	250		55,165.0
79	93	226	260		55,201.8
79	93	227	270		55,197.0
79	93	228	280		55,206.6
79	93	229	290		55,235.2
79	93	230	300		55,336.4
79	93	231	310	?	55,606.0
79	93	232	320		55,266.6
79	93	233	330		55,129.6
79	93	234	340		55,200.4
79	93	235	350		55,237.8
79	93	236	360		55,259.0
79	93	237	370		55,254.8
79	93	238	380		55,252.2
79	93	239	390		55,277.6

001129

ROHM AND HAAS

GRID A-2

TRAVERSE -- 79



001130

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

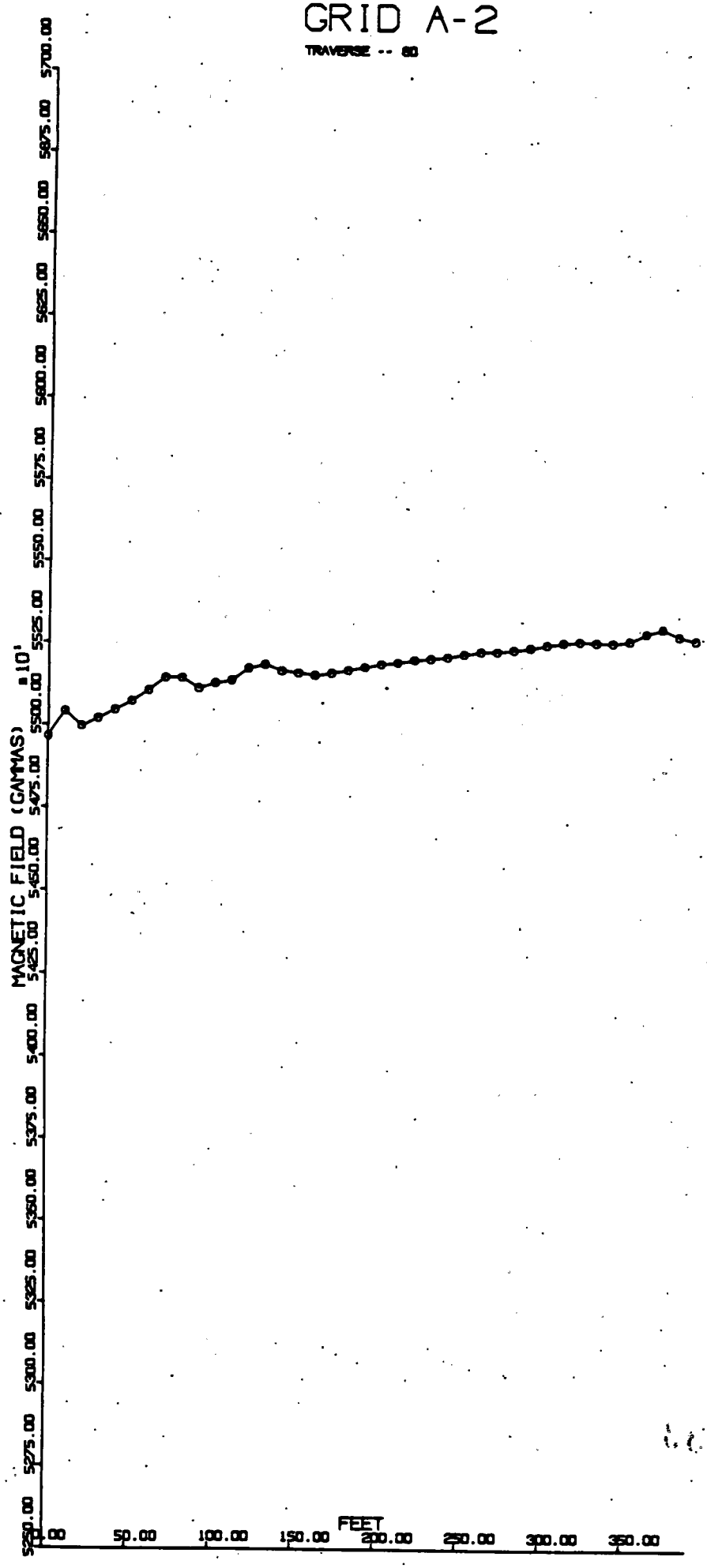
TRAVERSE LINE 80

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
80	93	240	0	54,966.2
80	93	241	10	55,041.6
80	93	242	20	54,997.0
80	93	243	30	55,021.2
80	93	244	40	55,047.0
80	93	245	50	55,073.8
80	93	246	60	55,106.6
80	93	247	70	55,145.8
80	93	248	80	55,145.2
80	93	249	90	55,114.2
80	93	250	100	55,130.4
80	93	251	110	55,139.6
80	93	252	120	55,175.8
80	93	253	130	55,188.0
80	93	254	140	55,168.2
80	93	255	150	55,162.6
80	93	256	160	55,155.8
80	93	257	170	55,163.0
80	93	258	180	55,172.0
80	93	259	190	55,181.2
80	93	260	200	55,191.0
80	93	261	210	55,196.4
80	93	262	220	55,204.4
80	93	263	230	55,208.8
80	93	264	240	55,213.8
80	93	265	250	55,223.2
80	93	266	260	55,230.6
80	93	267	270	55,231.2
80	93	268	280	55,237.2
80	93	269	290	55,243.8
80	93	270	300	55,253.2
80	93	271	310	55,260.4
80	93	272	320	55,264.0
80	93	273	330	55,261.2
80	93	274	340	55,260.2
80	93	275	350	55,267.0
80	93	276	360	55,289.6
80	93	277	370	55,304.4
80	93	278	380	55,281.8
80	93	279	390	55,269.8

ROHM AND HAAS

GRID A-2

TRAVERSE -- 80



001132

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

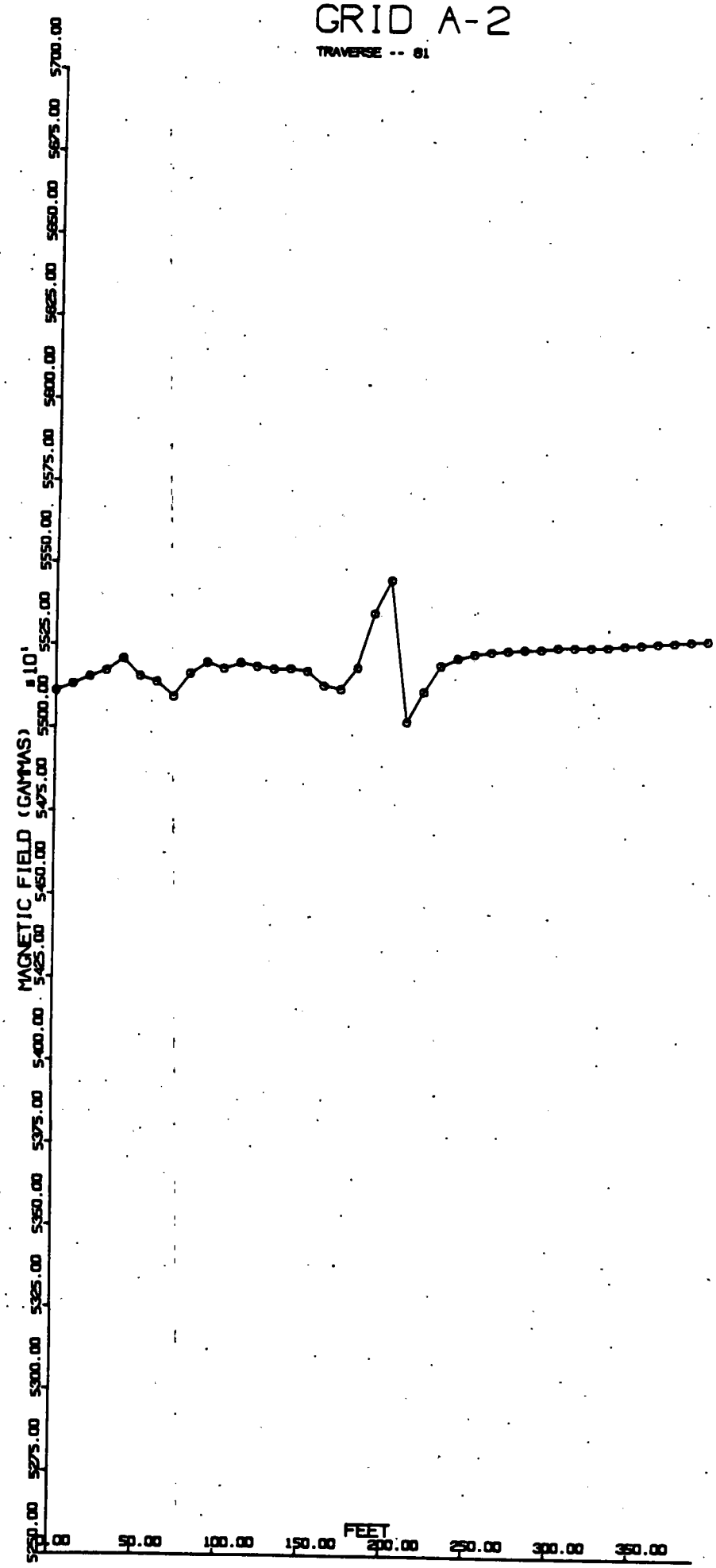
TRAVERSE LINE 81

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
81	93	280	0	55,110.2
81	93	281	10	55,131.6
81	93	282	20	55,154.6
81	93	283	30	55,173.0
81	93	284	40	55,208.8
81	93	285	50	55,157.4
81	93	286	60	55,140.6
81	93	287	70	55,097.0
81	93	288	80	55,166.4
81	93	289	90	55,199.6
81	93	290	100	55,182.4
81	93	291	110	55,200.0
81	93	292	120	55,190.0
81	93	293	130	55,182.2
81	93	294	140	55,184.2
81	93	295	150	55,177.2
81	93	296	160	55,134.0
81	93	297	170	55,124.0
81	93	298	180	55,189.0
81	93	299	190	55,354.0
81	93	300	200	55,455.0
81	93	301	210	55,027.8
81	93	302	220	55,118.8
81	93	303	230	55,197.8
81	93	304	240	55,220.6
81	93	305	250	55,233.6
81	93	306	260	55,240.8
81	93	307	270	55,245.2
81	93	308	280	55,249.0
81	93	309	290	55,250.6
81	93	310	300	55,257.2
81	93	311	310	55,257.4
81	93	312	320	55,258.4
81	93	313	330	55,259.8
81	93	314	340	55,265.8
81	93	315	350	55,268.8
81	93	316	360	55,273.0
81	93	317	370	55,276.0
81	93	318	380	55,280.6
81	93	319	390	55,283.2

ROHM AND HAAS

GRID A-2

TRAVERSE -- 81



001134

MAGNETIC SURVEY DATA

TRAVERSE LINE 82

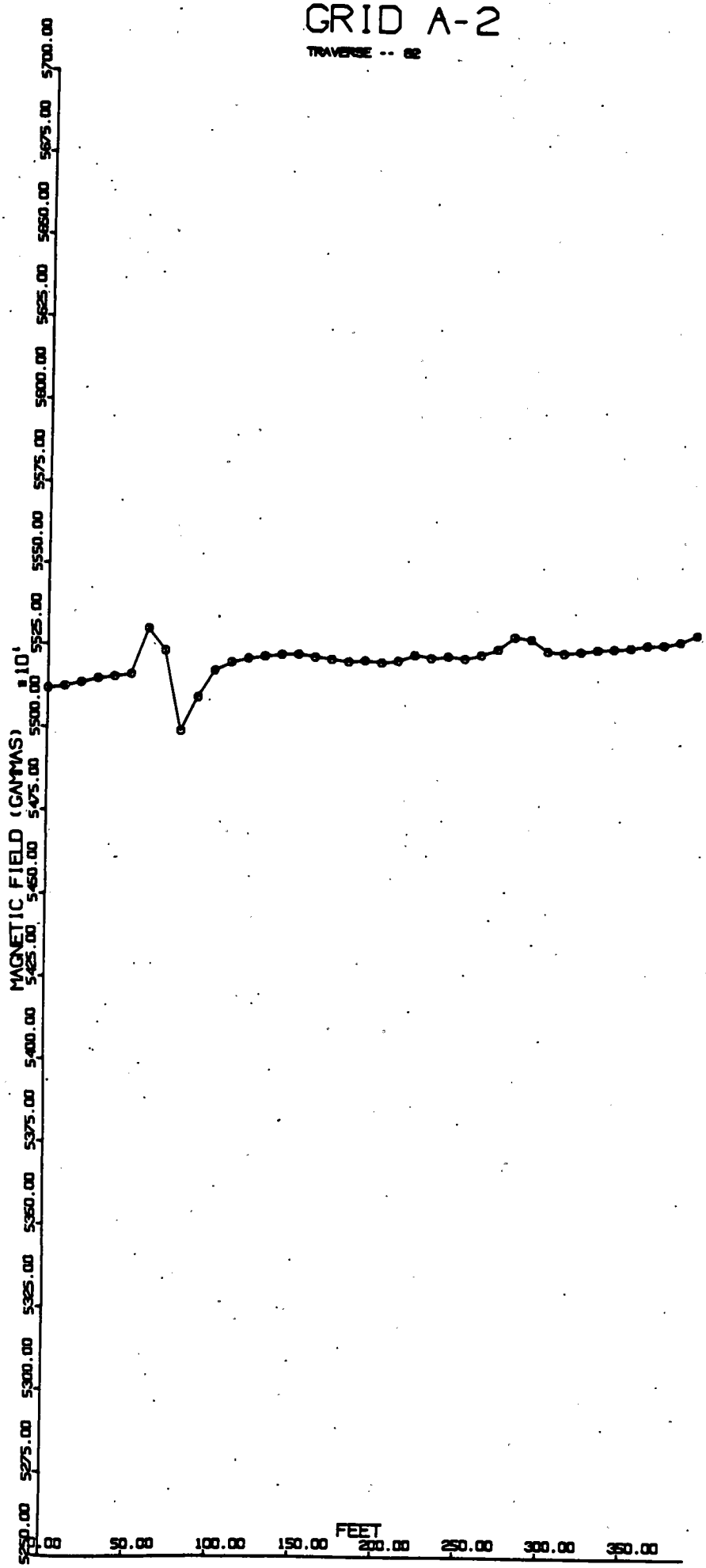
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
82	93	320	0	55,118.6
82	93	321	10	55,125.4
82	93	322	20	55,136.8
82	93	323	30	55,149.4
82	93	324	40	55,155.8
82	93	325	50	55,163.6
82	93	326	60	55,301.8
82	93	327	70	55,235.6
82	93	328	80	54,993.6
82	93	329	90	55,096.8
82	93	330	100	55,177.6
82	93	331	110	55,203.4
82	93	332	120	55,215.4
82	93	333	130	55,222.6
82	93	334	140	55,228.0
82	93	335	150	55,229.4
82	93	336	160	55,221.6
82	93	337	170	55,215.0
82	93	338	180	55,208.4
82	93	339	190	55,212.4
82	93	340	200	55,207.0
82	93	341	210	55,212.4
82	93	342	220	55,230.0
82	93	343	230	55,221.6
82	93	344	240	55,227.2
82	93	345	250	55,220.8
82	93	346	260	55,232.6
82	93	347	270	55,250.2
82	93	348	280	55,287.4
82	93	349	290	55,281.0
82	93	350	300	55,246.0
82	93	351	310	55,240.8
82	93	352	320	55,245.8
82	93	353	330	55,252.2
82	93	354	340	55,254.8
82	93	355	350	55,256.6
82	93	356	360	55,267.0
82	93	357	370	55,268.6
82	93	358	380	55,278.8
82	93	359	390	55,299.8

001135

ROHM AND HAAS

GRID A-2

TRAVERSE -- 82



001136

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 83

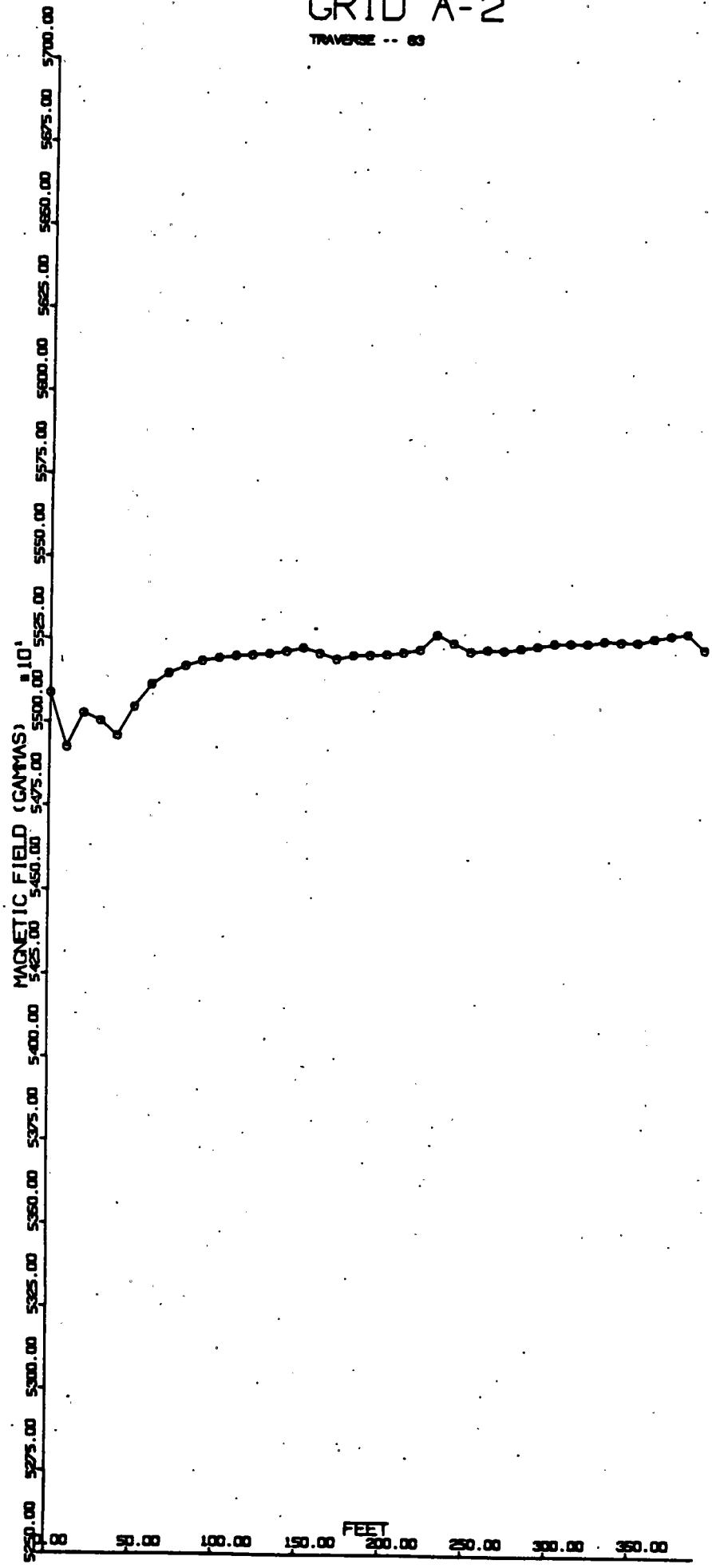
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
83	93	360	0	55,087.2
83	93	361	10	54,923.8
83	93	362	20	55,027.0
83	93	363	30	55,004.8
83	93	364	40	54,959.8
83	93	365	50	55,047.4
83	93	366	60	55,114.6
83	93	367	70	55,149.2
83	93	368	80	55,171.4
83	93	369	90	55,187.4
83	93	370	100	55,196.6
83	93	371	110	55,203.2
83	93	372	120	55,205.8
83	93	373	130	55,210.2
83	93	374	140	55,217.4
83	93	375	150	55,227.8
83	93	376	160	55,211.8
83	93	377	170	55,195.2
83	93	378	180	55,206.6
83	93	379	190	55,208.2
83	93	380	200	55,210.0
83	93	381	210	55,216.6
83	93	382	220	55,225.0
83	93	383	230	55,270.2
83	93	384	240	55,244.8
83	93	385	250	55,219.6
83	93	386	260	55,225.6
83	93	387	270	55,223.6
83	93	388	280	55,231.0
83	93	389	290	55,237.6
83	93	390	300	55,246.4
83	93	391	310	55,247.4
83	93	392	320	55,246.8
83	93	393	330	55,255.4
83	93	394	340	55,252.6
83	93	395	350	55,251.6
83	93	396	360	55,263.8
83	93	397	370	55,273.2
83	93	398	380	55,279.6
83	93	399	390	55,232.2

00437.

ROHM AND HAAS

GRID A-2

TRAVERSE -- 63



001138

BCM

APPENDIX D

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID A-3

1138a

MAGNETIC SURVEY DATA

TRAVERSE LINE 84

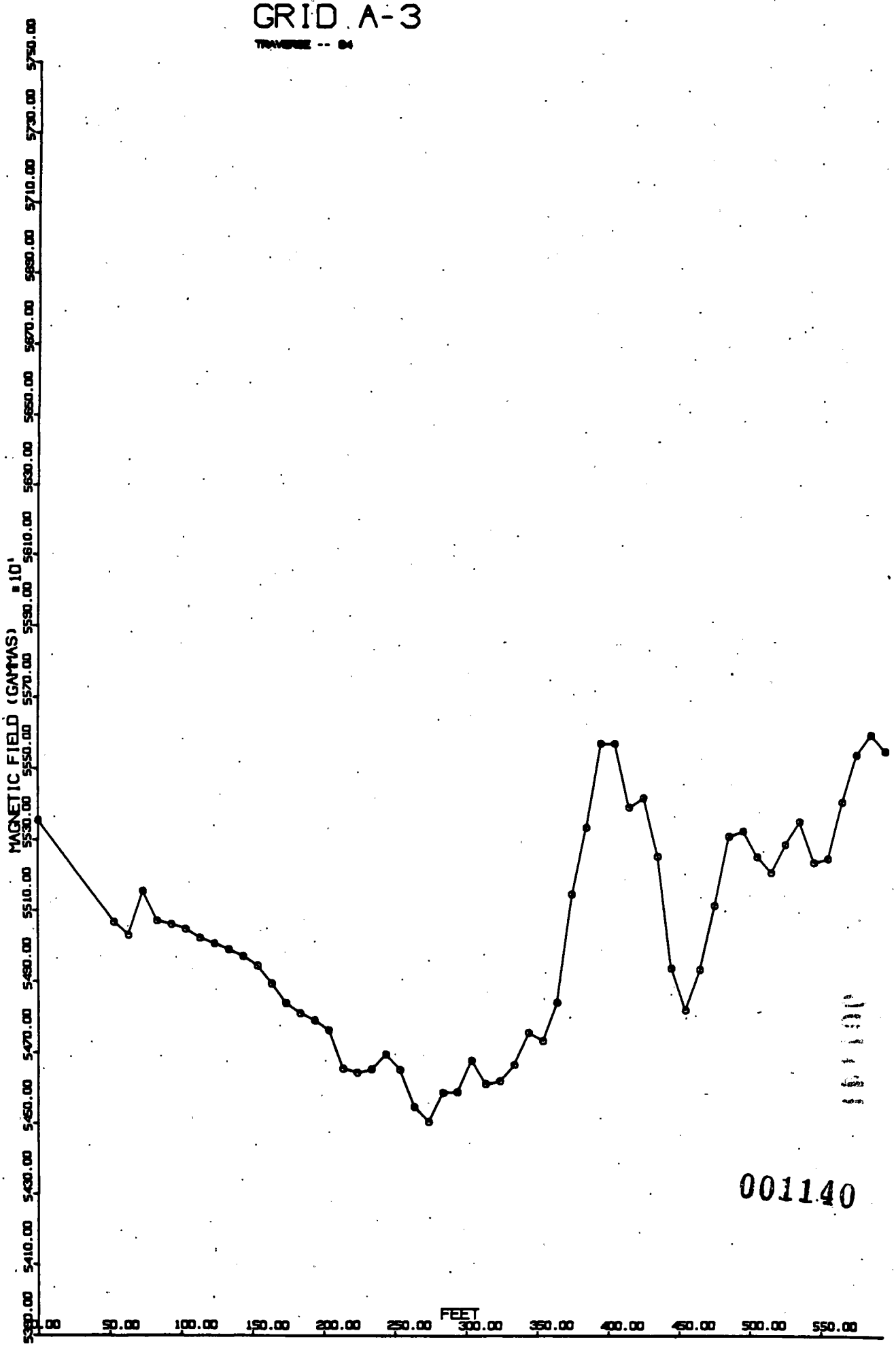
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
84	94	400	43	55,354.2
84	94	401	53	55,067.8
84	94	402	63	55,031.2
84	94	403	73	55,156.0
84	94	404	83	55,072.0
84	94	405	93	55,062.2
84	94	406	103	55,048.8
84	94	407	113	55,023.8
84	94	408	123	55,007.8
84	94	409	133	54,991.0
84	94	410	143	54,972.4
84	94	411	153	54,945.6
84	94	412	163	54,895.6
84	94	413	173	54,840.8
84	94	414	183	54,812.2
84	94	415	193	54,792.2
84	94	416	203	54,764.2
84	94	417	213	54,656.8
84	94	418	223	54,645.2
84	94	419	233	54,655.2
84	94	420	243	54,697.4
84	94	421	253	54,653.8
84	94	422	263	54,549.4
84	94	423	273	54,507.8
84	94	424	283	54,590.2
84	94	425	293	54,592.0
84	94	426	303	54,680.4
84	94	427	313	54,614.8
84	94	428	323	54,623.0
84	94	429	333	54,668.2
84	94	430	343	54,756.6
84	94	431	353	54,736.2
84	94	432	363	54,843.8
84	94	433	373	55,149.0
84	94	434	383	55,336.6
84	94	435	393	55,573.8
84	94	436	403	55,573.6
84	94	437	413	55,393.4
84	94	438	423	55,420.4
84	94	439	433	55,256.2
84	94	440	443	54,939.6
84	94	441	453	54,823.0
84	94	442	463	54,936.4
84	94	443	473	55,117.4
84	94	444	483	55,312.8
84	94	445	493	55,327.2
84	94	446	503	55,255.2
84	94	447	513	55,210.4
84	94	448	523	55,289.4
84	94	449	533	55,354.0
84	94	450	543	55,238.6
84	94	451	553	55,249.6
84	94	452	563	55,409.0
84	94	453	573	55,542.2
84	94	454	583	55,598.8
84	94	455	593	55,552.0

001139

ROHM AND HAAS

GRID A-3

TRAVERSE -- 04



001140

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 85

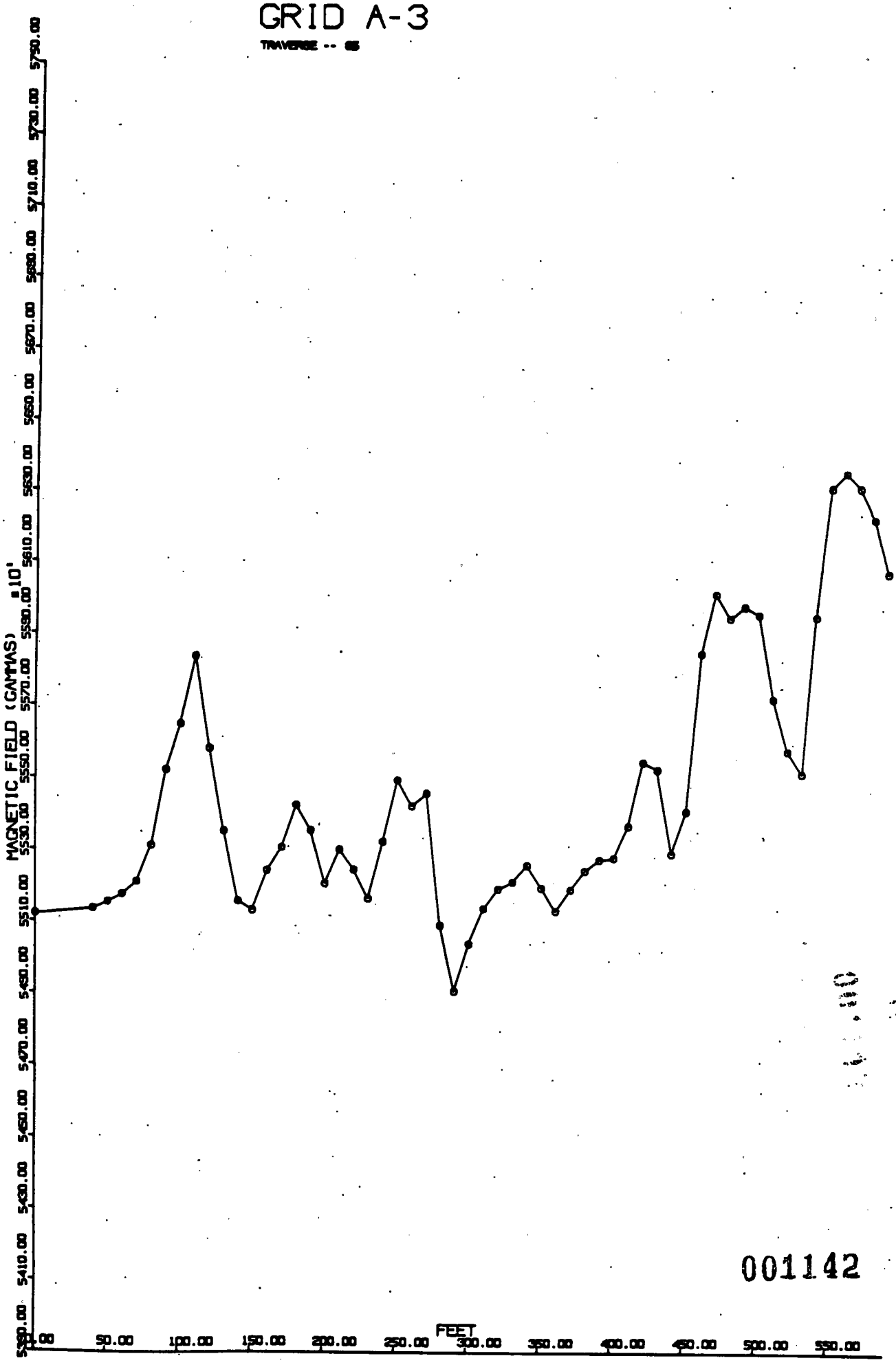
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
85	94	456	30	55,120.4
85	94	457	40	55,135.0
85	94	458	50	55,153.2
85	94	459	60	55,174.4
85	94	460	70	55,209.8
85	94	461	80	55,310.4
85	94	462	90	55,521.0
85	94	463	100	55,648.4
85	94	464	110	55,836.2
85	94	465	120	55,582.0
85	94	466	130	55,352.0
85	94	467	140	55,158.0
85	94	468	150	55,133.0
85	94	469	160	55,243.6
85	94	470	170	55,307.6
85	94	471	180	55,425.4
85	94	472	190	55,355.0
85	94	473	200	55,207.8
85	94	474	210	55,301.8
85	94	475	220	55,246.4
85	94	476	230	55,165.8
85	94	477	240	55,324.4
85	94	478	250	55,495.8
85	94	479	260	55,423.6
85	94	480	270	55,459.6
85	94	481	280	55,091.4
85	94	482	290	54,908.2
85	94	483	300	55,040.2
85	94	484	310	55,139.4
85	94	485	320	55,194.2
85	94	486	330	55,214.4
85	94	487	340	55,261.0
85	94	488	350	55,197.6
85	94	489	360	55,133.6
85	94	490	370	55,193.4
85	94	491	380	55,246.6
85	94	492	390	55,276.8
85	94	493	400	55,282.6
85	94	494	410	55,371.2
85	94	495	420	55,549.2
85	94	496	430	55,528.8
85	94	497	440	55,294.6
85	94	498	450	55,412.6
85	94	499	460	55,852.2
85	94	500	470	56,019.4
85	94	501	480	55,952.8
85	94	502	490	55,964.4
85	94	503	500	55,962.8
85	94	504	510	55,726.0
85	94	505	520	55,582.0
85	94	506	530	55,519.4
85	94	507	540	55,957.4
85	94	508	550	56,317.4
85	94	509	560	56,359.6
85	94	510	570	56,317.0
85	94	511	580	56,229.8
85	94	512	590	56,078.8

001141

ROHM AND HAAS

GRID A-3

TRAVERSE -- 65



001142

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 86

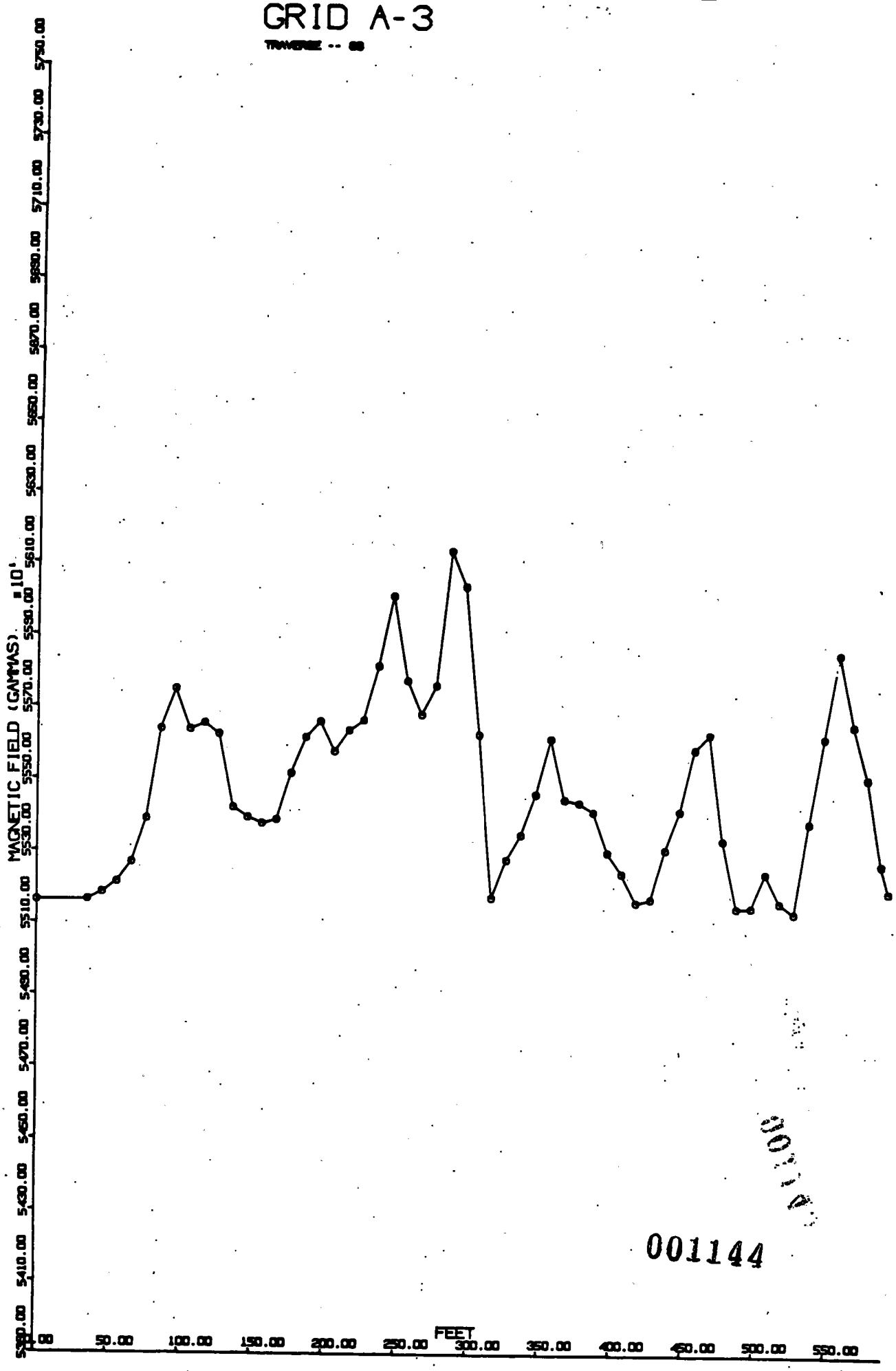
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
86	94	513	25		55,162.4
86	94	514	35		55,165.0
86	94	515	45		55,185.6
86	94	516	55		55,214.8
86	94	517	65		55,269.4
86	94	518	75		55,389.6
86	94	519	85		55,636.6
86	94	520	95		55,747.0
86	94	521	105		55,635.4
86	94	522	115		55,653.2
86	94	523	125		55,622.6
86	94	524	135		55,418.4
86	94	525	145		55,391.0
86	94	526	155		55,374.2
86	94	527	165		55,385.2
86	94	528	175		55,514.0
86	94	529	185		55,615.2
86	94	530	195		55,659.2
86	94	531	205		55,576.2
86	94	532	215		55,635.4
86	94	533	225		55,663.4
86	94	534	235		55,813.4
86	94	535	245		56,009.0
86	94	536	255		55,773.6
86	94	537	265		55,680.4
86	94	538	275		55,760.0
86	94	539	285	?	56,134.2
86	94	540	295		56,036.6
86	94	541	305		55,625.8
86	94	542	315		55,172.4
86	94	543	325		55,278.0
86	94	544	335		55,347.2
86	94	545	345		55,459.4
86	94	546	355		55,614.4
86	94	547	365		55,445.6
86	94	548	375		55,437.0
86	94	549	385		55,411.8
86	94	550	395		55,300.8
86	94	551	405		55,242.8
86	94	552	415		55,162.4
86	94	553	425		55,172.2
86	94	554	435		55,308.8
86	94	555	445		55,415.2
86	94	556	455		55,587.6
86	94	557	465		55,629.6
86	94	558	475		55,335.2
86	94	559	485		55,148.2
86	94	560	495		55,150.6
86	94	561	505		55,244.6
86	94	562	515		55,164.0
86	94	563	525		55,134.2
86	94	564	535		55,385.4
86	94	565	545		55,621.4
86	94	566	555		55,855.6
86	94	567	565		55,655.6
86	94	568	575		55,509.8
86	94	569	585		55,271.2
86	94	570	590		55,195.6

001143

ROHM AND HAAS

GRID A-3

TRAVERSE -- 68



001144

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 87

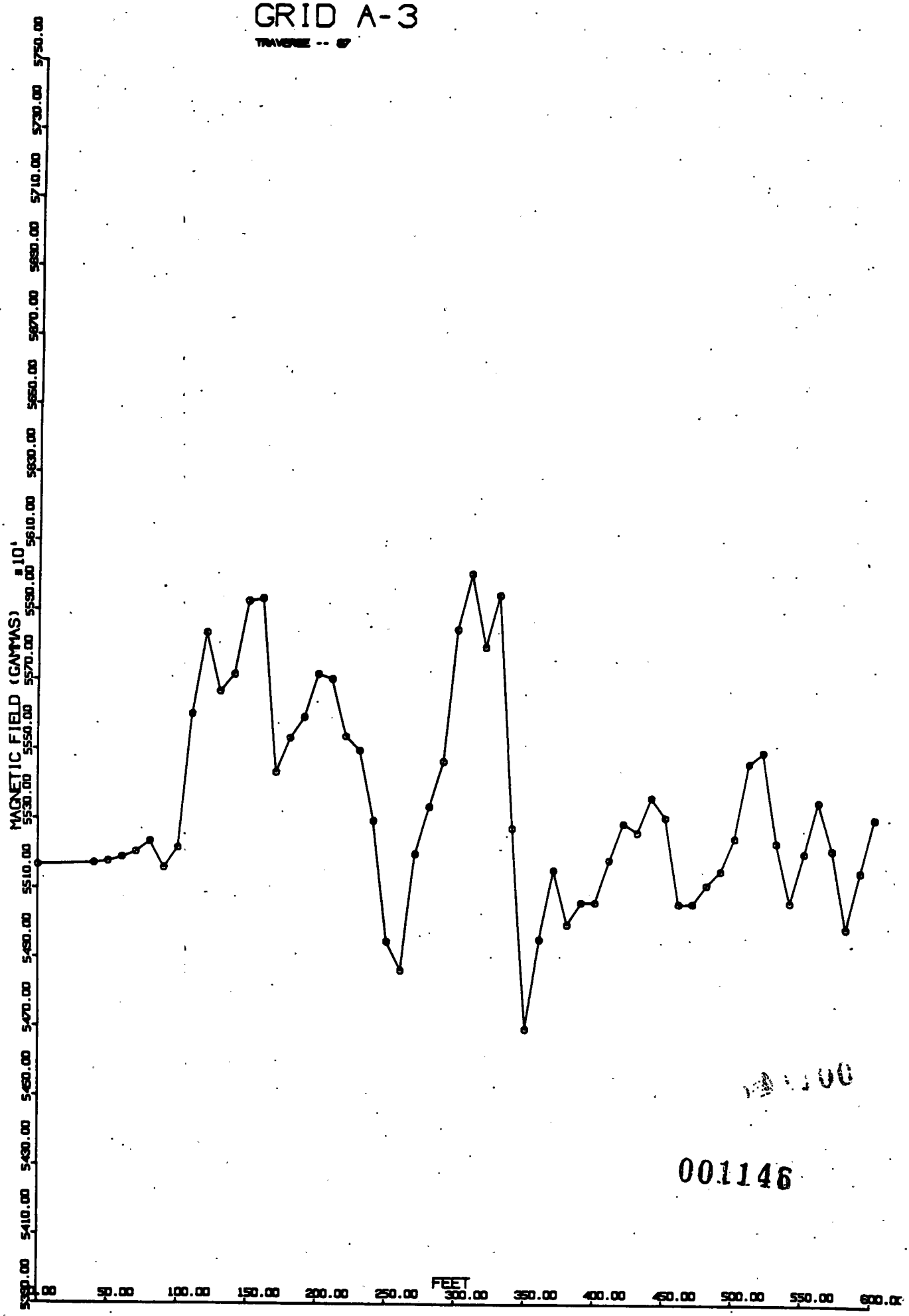
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
87	94	571	30		55,167.0
87	94	572	40		55,172.4
87	94	573	50		55,176.0
87	94	574	60		55,189.6
87	94	575	70		55,205.4
87	94	576	80		55,235.4
87	94	577	90		55,160.0
87	94	578	100		55,217.4
87	94	579	110		55,603.2
87	94	580	120		55,836.8
87	94	581	130		55,668.4
87	94	582	140		55,717.6
87	94	583	150		55,928.4
87	94	584	160		55,936.2
87	94	585	170		55,435.0
87	94	586	180		55,534.4
87	94	587	190		55,595.4
87	94	588	200		55,719.4
87	94	589	210		55,704.8
87	94	590	220		55,539.8
87	94	591	230		55,499.0
87	94	592	240		55,296.4
87	94	593	250		54,948.0
87	94	594	260		54,865.6
87	94	595	270		55,202.6
87	94	596	280		55,337.6
87	94	597	290		55,468.6
87	94	598	300		55,849.4
87	94	599	310	?	56,010.2
87	94	600	320		55,799.6
87	94	601	330	?	55,949.0
87	94	602	340		55,276.8
87	94	603	350		54,698.6
87	94	604	360		54,956.6
87	94	605	370		55,157.6
87	94	606	380		55,000.0
87	94	607	390		55,064.2
87	94	608	400		55,064.4
87	94	609	410		55,187.0
87	94	610	420		55,291.8
87	94	611	430		55,266.6
87	94	612	440		55,366.6
87	94	613	450		55,309.8
87	94	614	460		55,061.4
87	94	615	470		55,062.0
87	94	616	480		55,116.2
87	94	617	490		55,157.2
87	94	618	500		55,251.0
87	94	619	510		55,466.8
87	94	620	520		55,499.6
87	94	621	530		55,237.8
87	94	622	540		55,066.4
87	94	623	550		55,208.8
87	94	624	560		55,355.4
87	94	625	570		55,217.8
87	94	626	580		54,992.0
87	94	627	590		55,155.2
87	94	628	600		55,308.2

00145

ROHM AND HAAS

GRID A-3

TRAVERSE -- 67



001146

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 88

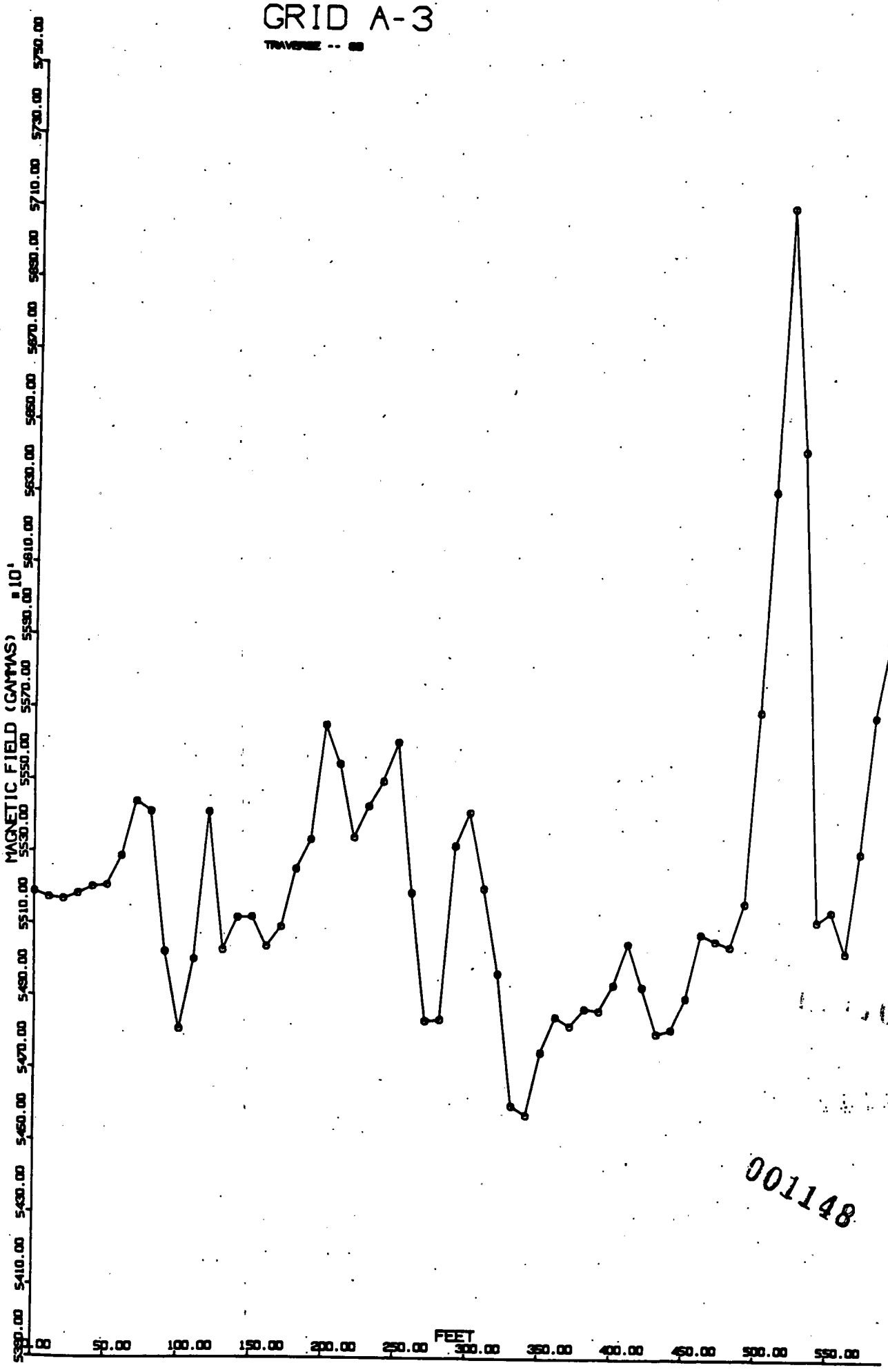
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
88	94	629	0		55,188.2
88	94	630	10		55,172.0
88	94	631	20		55,167.4
88	94	632	30		55,182.6
88	94	633	40		55,202.2
88	94	634	50		55,206.6
88	94	635	60		55,287.4
88	94	636	70		55,439.2
88	94	637	80		55,412.0
88	94	638	90		55,023.6
88	94	639	100		54,810.4
88	94	640	110		55,003.4
88	94	641	120		55,411.8
88	94	642	130		55,030.4
88	94	643	140		55,121.0
88	94	644	150		55,122.6
88	94	645	160		55,041.8
88	94	646	170		55,096.2
88	94	647	180		55,256.8
88	94	648	190		55,337.8
88	94	649	200		55,656.8
88	94	650	210		55,548.6
88	94	651	220		55,344.4
88	94	652	230		55,431.6
88	94	653	240		55,501.2
88	94	654	250		55,609.6
88	94	655	260		55,192.6
88	94	656	270		54,838.8
88	94	657	280		54,842.8
88	94	658	290		55,323.4
88	94	659	300		55,415.6
88	94	660	310		55,205.8
88	94	661	320		54,969.8
88	94	662	330		54,604.8
88	94	663	340		54,579.2
88	94	664	350		54,752.8
88	94	665	360		54,851.4
88	94	666	370		54,827.0
88	94	667	380		54,874.6
88	94	668	390		54,869.4
88	94	669	400		54,941.2
88	94	670	410		55,055.8
88	94	671	420		54,936.0
88	94	672	430		54,807.8
88	94	673	440		54,819.6
88	94	674	450		54,907.0
88	94	675	460		55,084.6
88	94	676	470		55,066.6
88	94	677	480		55,050.8
88	94	678	490		55,170.8
88	94	679	500		55,702.6
88	94	680	510		56,316.2
88	94	681	520	?	57,106.8
88	94	682	530	?	56,430.2
88	94	683	540	?	55,121.6
88	94	684	550		55,149.4
88	94	685	560		55,035.0
88	94	686	570		55,312.0
88	94	687	580		55,691.2
88	94	688	590		55,898.0

001147

ROHM AND HAAS

GRID A-3

TRAVERSE -- 88



001148

B C R E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 89

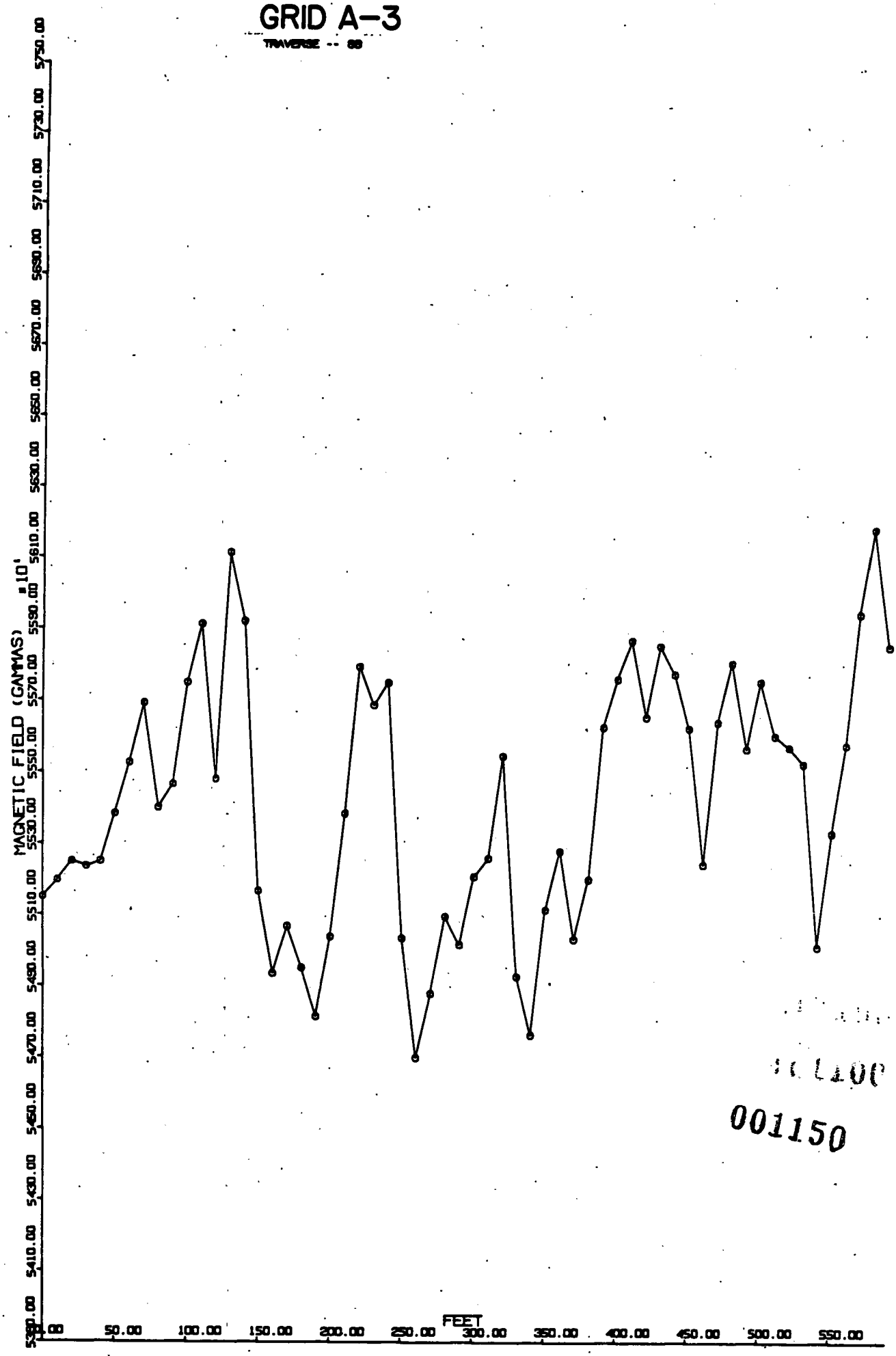
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
89	94	689	0		55,150.4
89	94	690	10		55,197.2
89	94	691	20		55,250.2
89	94	692	30		55,235.8
89	94	693	40		55,250.6
89	94	694	50		55,383.0
89	94	695	60		55,526.0
89	94	696	70		55,692.4
89	94	697	80		55,400.0
89	94	698	90		55,466.0
89	94	699	100		55,749.0
89	94	700	110	?	55,912.8
89	94	701	120		55,480.0
89	94	702	130	?	56,112.2
89	94	703	140		55,920.2
89	94	704	150		55,168.4
89	94	705	160		54,936.6
89	94	706	170		55,069.6
89	94	707	180		54,953.0
89	94	708	190		54,817.6
89	94	709	200		55,040.0
89	94	710	210		55,384.4
89	94	711	220		55,792.8
89	94	712	230		55,686.4
89	94	713	240	?	55,749.2
89	94	714	250		55,036.0
89	94	715	260		54,701.8
89	94	716	270		54,880.8
89	94	717	280		55,097.0
89	94	718	290		55,017.6
89	94	719	300		55,209.4
89	94	720	310		55,260.0
89	94	721	320		55,545.8
89	94	722	330		54,929.0
89	94	723	340		54,766.0
89	94	724	350		55,116.4
89	94	725	360		55,281.0
89	94	726	370		55,033.0
89	94	727	380		55,201.8
89	94	728	390		55,628.0
89	94	729	400		55,760.8
89	94	730	410		55,868.4
89	94	731	420		55,655.0
89	94	732	430		55,854.2
89	94	733	440		55,775.2
89	94	734	450		55,625.2
89	94	735	460		55,244.4
89	94	736	470		55,642.2
89	94	737	480		55,806.6
89	94	738	490		55,568.0
89	94	739	500		55,754.4
89	94	740	510		55,604.2
89	94	741	520		55,572.6
89	94	742	530		55,527.0
89	94	743	540	?	55,013.8
89	94	744	550		55,333.0
89	94	745	560		55,579.0
89	94	746	570		55,945.4
89	94	747	580	?	56,184.6
89	94	748	590		55,854.2

001149

ROHM AND HAAS

GRID A-3

TRAVERSE -- 88



001150

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 90

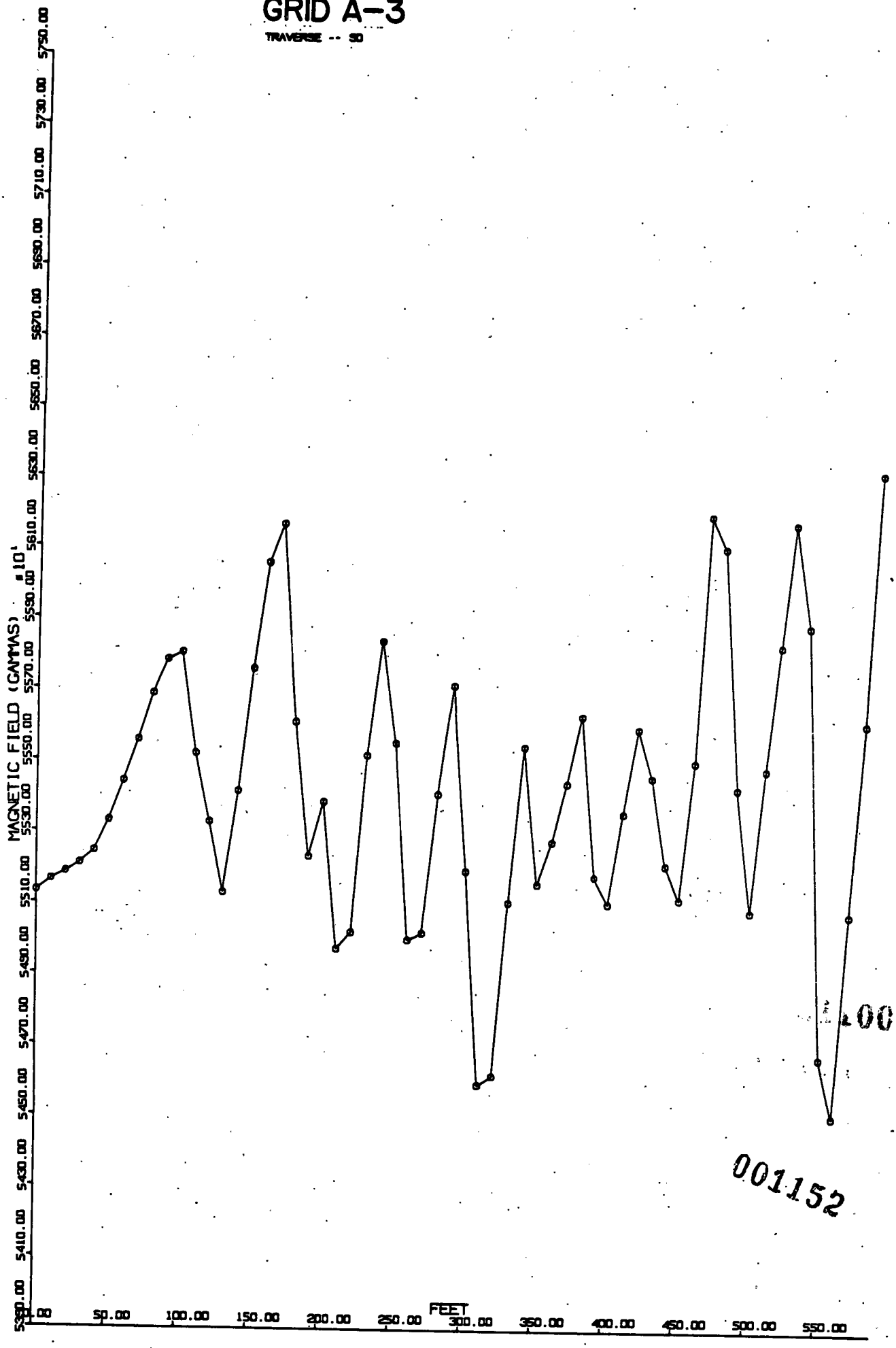
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
90	94	749	0		55,133.6
90	94	750	10		55,165.0
90	94	751	20		55,186.6
90	94	752	30		55,211.0
90	94	753	40		55,246.2
90	94	754	50		55,331.0
90	94	755	60		55,441.8
90	94	756	70		55,557.8
90	94	757	80		55,687.4
90	94	758	90		55,783.2
90	94	759	100		55,804.2
90	94	760	110		55,521.0
90	94	761	120		55,329.4
90	94	762	130		55,132.0
90	94	763	140		55,415.8
90	94	764	150		55,759.4
90	94	765	160		56,058.2
90	94	766	170		56,167.4
90	94	767	180		55,610.4
90	94	768	190		55,235.0
90	94	769	200		55,387.6
90	94	770	210		54,975.4
90	94	771	220		55,022.6
90	94	772	230		55,518.2
90	94	773	240		55,837.6
90	94	774	250		55,553.0
90	94	775	260		55,001.2
90	94	776	270		55,021.4
90	94	777	280		55,411.6
90	94	778	290		55,715.4
90	94	779	300		55,197.2
90	94	780	310	?	54,596.2
90	94	781	320		54,622.0
90	94	782	330		55,110.0
90	94	783	340		55,546.2
90	94	784	350		55,162.6
90	94	785	360		55,281.0
90	94	786	370		55,444.6
90	94	787	380		55,633.8
90	94	788	390		55,185.2
90	94	789	400		55,109.2
90	94	790	410		55,362.6
90	94	791	420		55,600.4
90	94	792	430		55,463.8
90	94	793	440		55,219.0
90	94	794	450		55,122.6
90	94	795	460		55,507.6
90	94	796	470	?	56,203.8
90	94	797	480	?	56,112.4
90	94	798	490		55,434.2
90	94	799	500		55,090.0
90	94	800	510		55,488.0
90	94	801	520		55,836.2
90	94	802	530	?	56,182.4
90	94	803	540	?	55,892.2
90	94	804	550	?	54,678.0
90	94	805	560	?	54,513.2
90	94	806	570		55,082.6
90	94	807	580		55,619.0
90	94	808	590	?	56,323.4

001151

ROHM AND HAAS

GRID A-3

TRAVERSE -- 90



001152

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 91

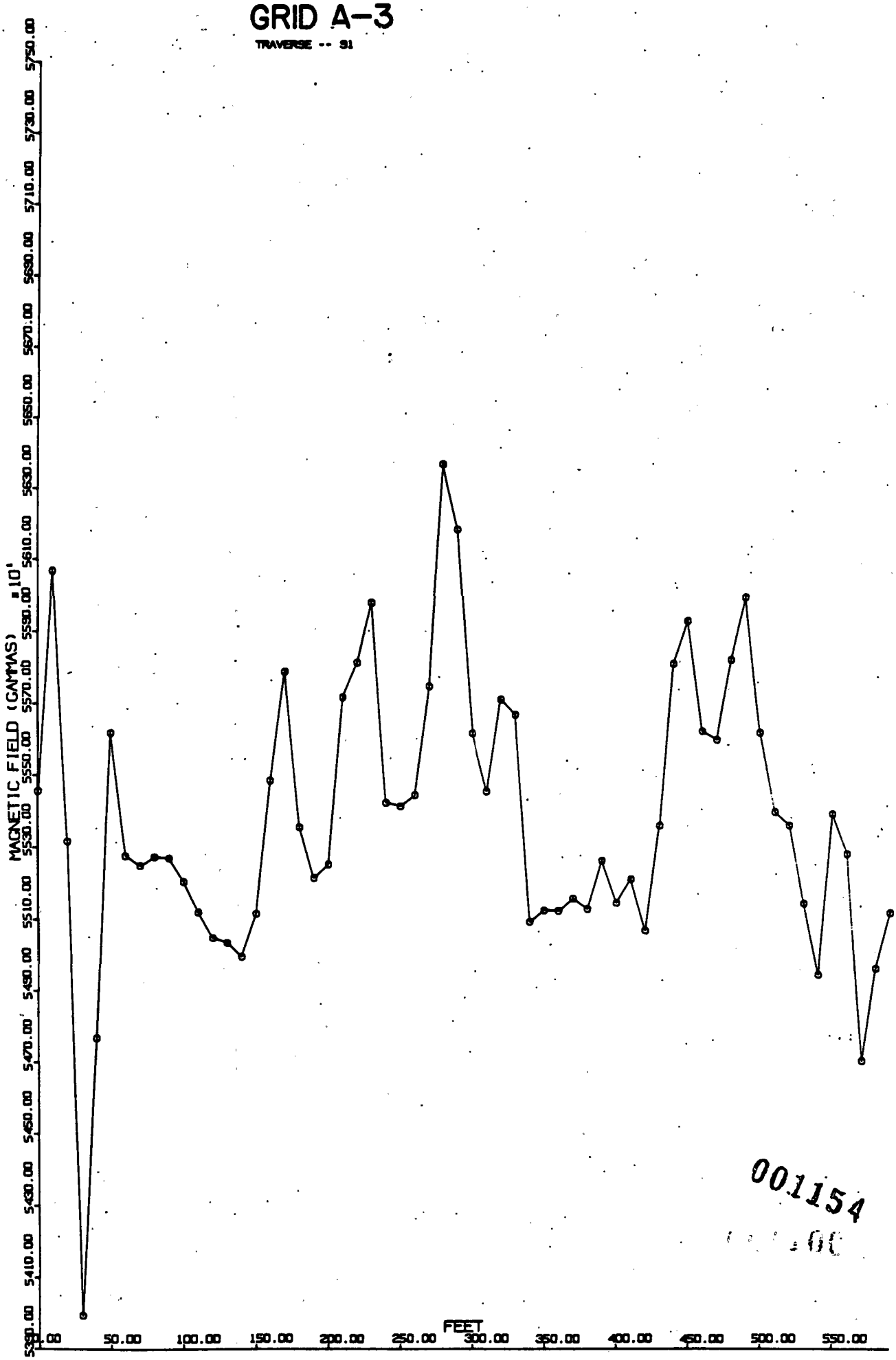
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
91	94	809	0		55,455.6
91	94	810	10	?	56,068.2
91	94	811	20		55,315.4
91	94	812	30	?	53,993.8
91	94	813	40	?	54,768.6
91	94	814	50		55,617.4
91	94	815	60		55,275.2
91	94	816	70		55,247.8
91	94	817	80		55,272.0
91	94	818	90		55,268.6
91	94	819	100		55,204.0
91	94	820	110		55,119.6
91	94	821	120		55,048.8
91	94	822	130		55,035.2
91	94	823	140		54,996.4
91	94	824	150		55,116.4
91	94	825	160		55,485.8
91	94	826	170	?	55,788.6
91	94	827	180		55,355.8
91	94	828	190		55,215.6
91	94	829	200		55,253.0
91	94	830	210		55,718.0
91	94	831	220		55,814.0
91	94	832	230	?	55,980.4
91	94	833	240		55,424.2
91	94	834	250		55,414.2
91	94	835	260		55,445.2
91	94	836	270		55,748.4
91	94	837	280	?	56,370.6
91	94	838	290		56,186.4
91	94	839	300		55,618.4
91	94	840	310		55,456.8
91	94	841	320		55,713.6
91	94	842	330		55,670.8
91	94	843	340		55,095.2
91	94	844	350		55,126.8
91	94	845	360		55,125.4
91	94	846	370		55,159.6
91	94	847	380		55,130.4
91	94	848	390		55,264.8
91	94	849	400		55,147.8
91	94	850	410		55,214.4
91	94	851	420		55,071.4
91	94	852	430		55,362.4
91	94	853	440		55,813.2
91	94	854	450		55,932.4
91	94	855	460		55,625.6
91	94	856	470		55,601.2
91	94	857	480		55,824.0
91	94	858	490		55,998.4
91	94	859	500		55,621.2
91	94	860	510		55,400.2
91	94	861	520		55,362.8
91	94	862	530		55,146.2
91	94	863	540		54,947.6
91	94	864	550		55,394.2
91	94	865	560		55,283.2
91	94	866	570		54,707.8
91	94	867	580		54,964.8
91	94	868	590		55,120.0

001153

ROHM AND HAAS

GRID A-3

TRAVERSE -- 91



001154

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

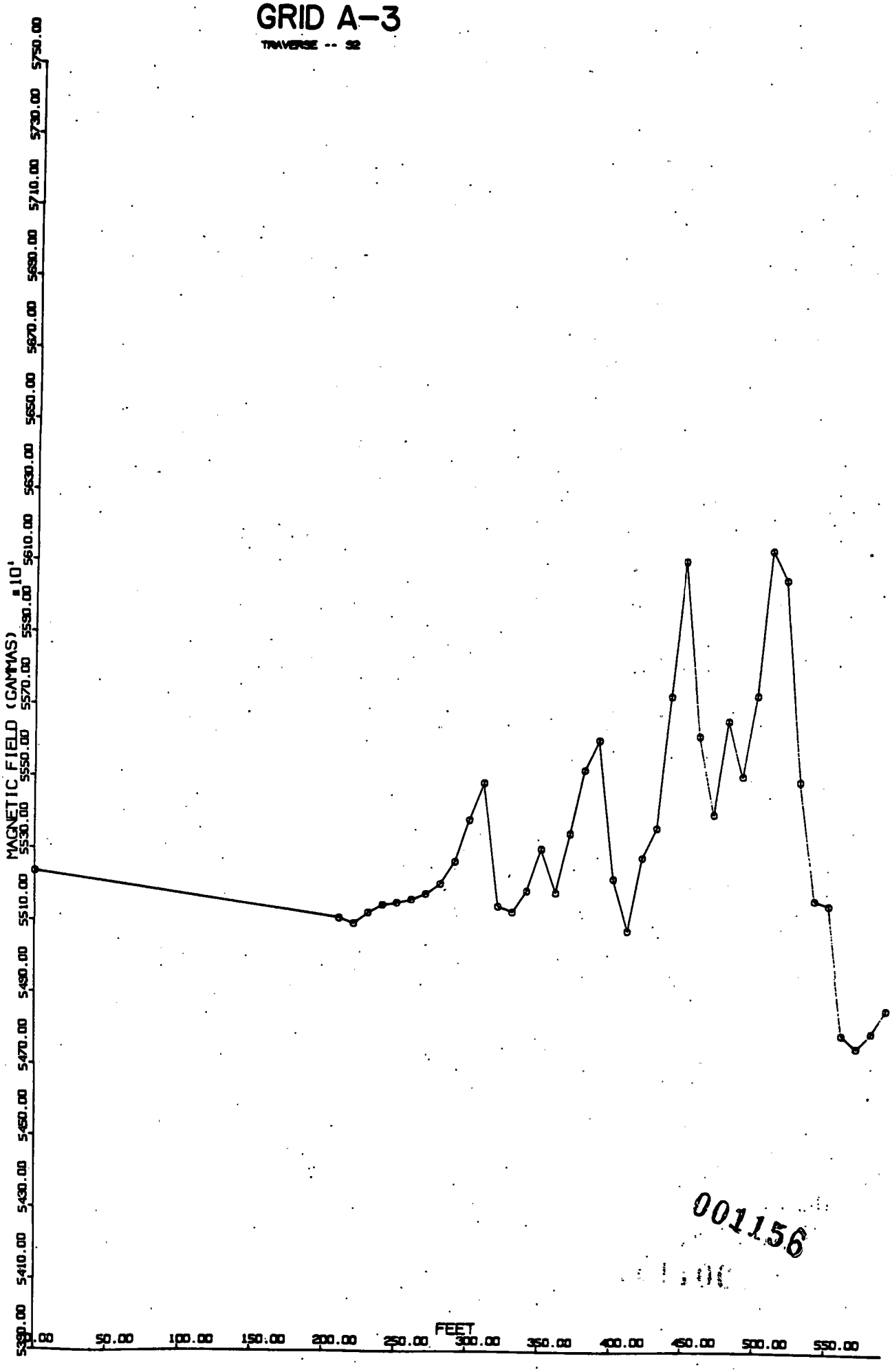
TRAVERSE LINE 92

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
92	94	869	200		55,234.6
92	94	870	210		55,110.0
92	94	871	220		55,095.0
92	94	872	230		55,124.6
92	94	873	240		55,146.8
92	94	874	250		55,152.8
92	94	875	260		55,161.8
92	94	876	270		55,178.6
92	94	877	280		55,207.0
92	94	878	290		55,268.2
92	94	879	300		55,384.2
92	94	880	310		55,487.8
92	94	881	320		55,145.0
92	94	882	330		55,129.2
92	94	883	340		55,188.8
92	94	884	350		55,305.6
92	94	885	360		55,183.4
92	94	886	370		55,347.2
92	94	887	380		55,525.4
92	94	888	390		55,609.0
92	94	889	400		55,222.4
92	94	890	410		55,078.6
92	94	891	420		55,281.4
92	94	892	430		55,364.6
92	94	893	440		55,732.8
92	94	894	450	?	56,108.4
92	94	895	460		55,624.0
92	94	896	470		55,405.2
92	94	897	480		55,667.2
92	94	898	490		55,511.2
92	94	899	500		55,737.0
92	94	900	510		56,139.8
92	94	901	520		56,058.2
92	94	902	530		55,497.8
92	94	903	540		55,165.4
92	94	904	550		55,151.6
92	94	905	560		54,793.0
92	94	906	570		54,758.2
92	94	907	580		54,799.6
92	94	908	590		54,863.6

ROHM AND HAAS

GRID A-3

TRAVERSE -- S2



001156

MAGNETIC SURVEY DATA

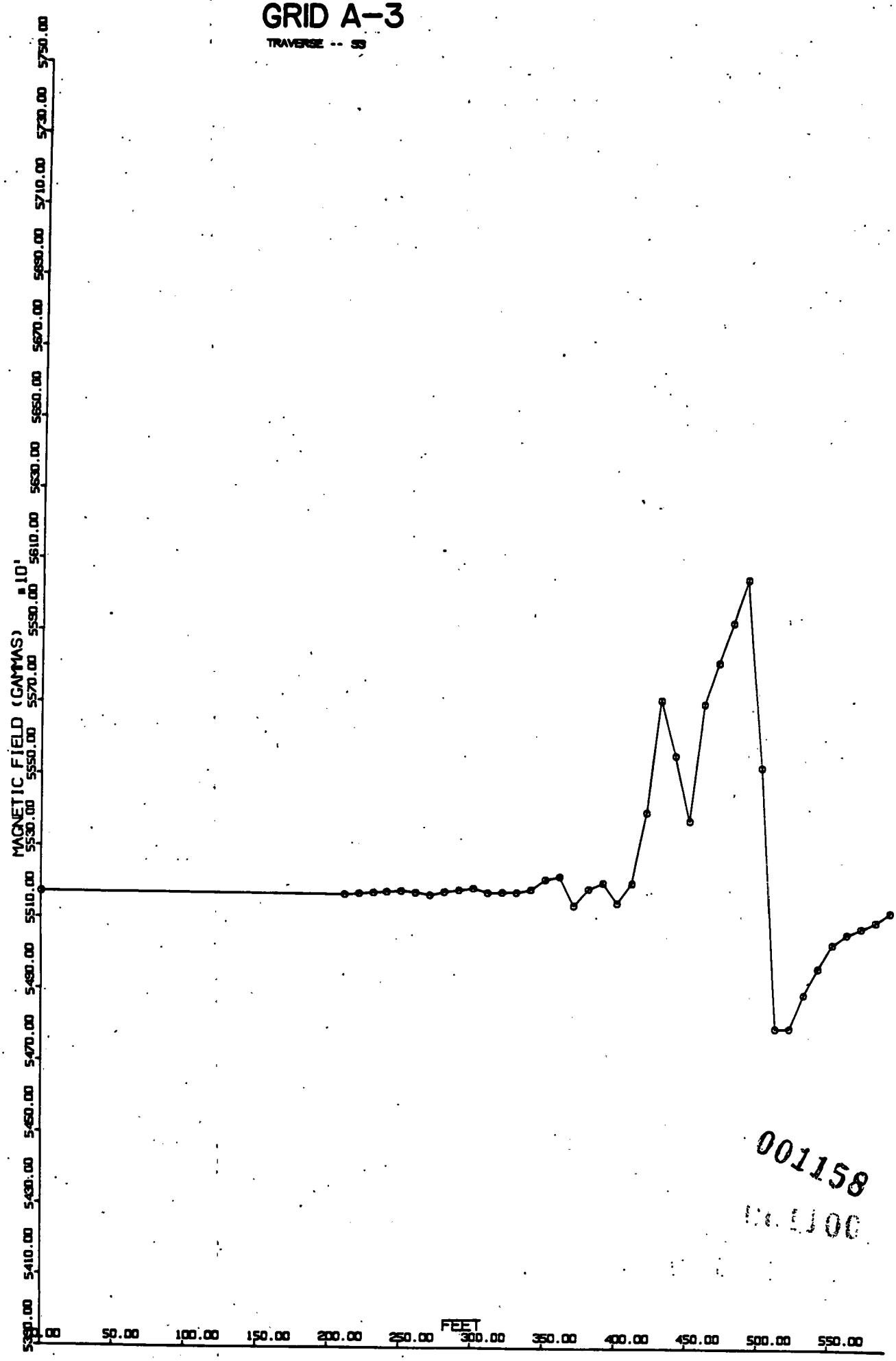
TRAVERSE LINE 93

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
93	94	909	200		55,171.4
93	94	910	210		55,167.8
93	94	911	220		55,170.6
93	94	912	230		55,173.2
93	94	913	240		55,176.2
93	94	914	250		55,178.8
93	94	915	260		55,174.4
93	94	916	270		55,167.6
93	94	917	280		55,177.2
93	94	918	290		55,182.4
93	94	919	300		55,187.8
93	94	920	310		55,175.2
93	94	921	320		55,176.8
93	94	922	330		55,176.4
93	94	923	340		55,184.8
93	94	924	350		55,213.0
93	94	925	360		55,221.8
93	94	926	370		55,140.6
93	94	927	380		55,187.4
93	94	928	390		55,205.4
93	94	929	400		55,148.8
93	94	930	410		55,204.4
93	94	931	420		55,402.8
93	94	932	430		55,714.8
93	94	933	440		55,561.8
93	94	934	450		55,380.0
93	94	935	460		55,704.4
93	94	936	470		55,819.4
93	94	937	480		55,931.6
93	94	938	490	?	56,053.8
93	94	939	500		55,529.6
93	94	940	510		54,801.4
93	94	941	520		54,802.0
93	94	942	530		54,895.6
93	94	943	540		54,968.8
93	94	944	550		55,035.8
93	94	945	560		55,065.0
93	94	946	570		55,081.6
93	94	947	580		55,099.6
93	94	948	590		55,126.4

ROHM AND HAAS

GRID A-3

TRAVERSE -- 59



001158

001158

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 94

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
94	94	949	200	55,332.0
94	94	950	210	55,291.8
94	94	951	220	55,230.6
94	94	952	230	55,207.8
94	94	953	240	55,181.8
94	94	954	250	55,174.6
94	94	955	260	55,182.2
94	94	956	270	55,188.8
94	94	957	280	55,192.8
94	94	958	290	55,193.8
94	94	959	300	55,196.4
94	94	960	310	55,201.2
94	94	961	320	55,201.2
94	94	962	330	55,194.6
94	94	963	340	55,191.0
94	94	964	350	55,186.6
94	94	965	360	55,193.0
94	94	966	370	55,202.2
94	94	967	380	55,240.6
94	94	968	390	55,354.8
94	94	969	400	55,411.2
94	94	970	410	55,395.6
94	94	971	420	55,631.6
94	94	972	430	55,736.4
94	94	973	440	55,781.2
94	94	974	450	56,413.4
94	94	975	460	56,293.2
94	94	976	470	55,226.6
94	94	977	480	54,527.4
94	94	978	490	54,478.4
94	94	979	500	54,695.8
94	94	980	510	54,932.2
94	94	981	520	55,007.4
94	94	982	530	55,068.8
94	94	983	540	55,068.0
94	94	984	550	55,070.6
94	94	985	560	55,109.0
94	94	986	570	55,109.4
94	94	987	580	55,114.2
94	94	988	590	55,121.8

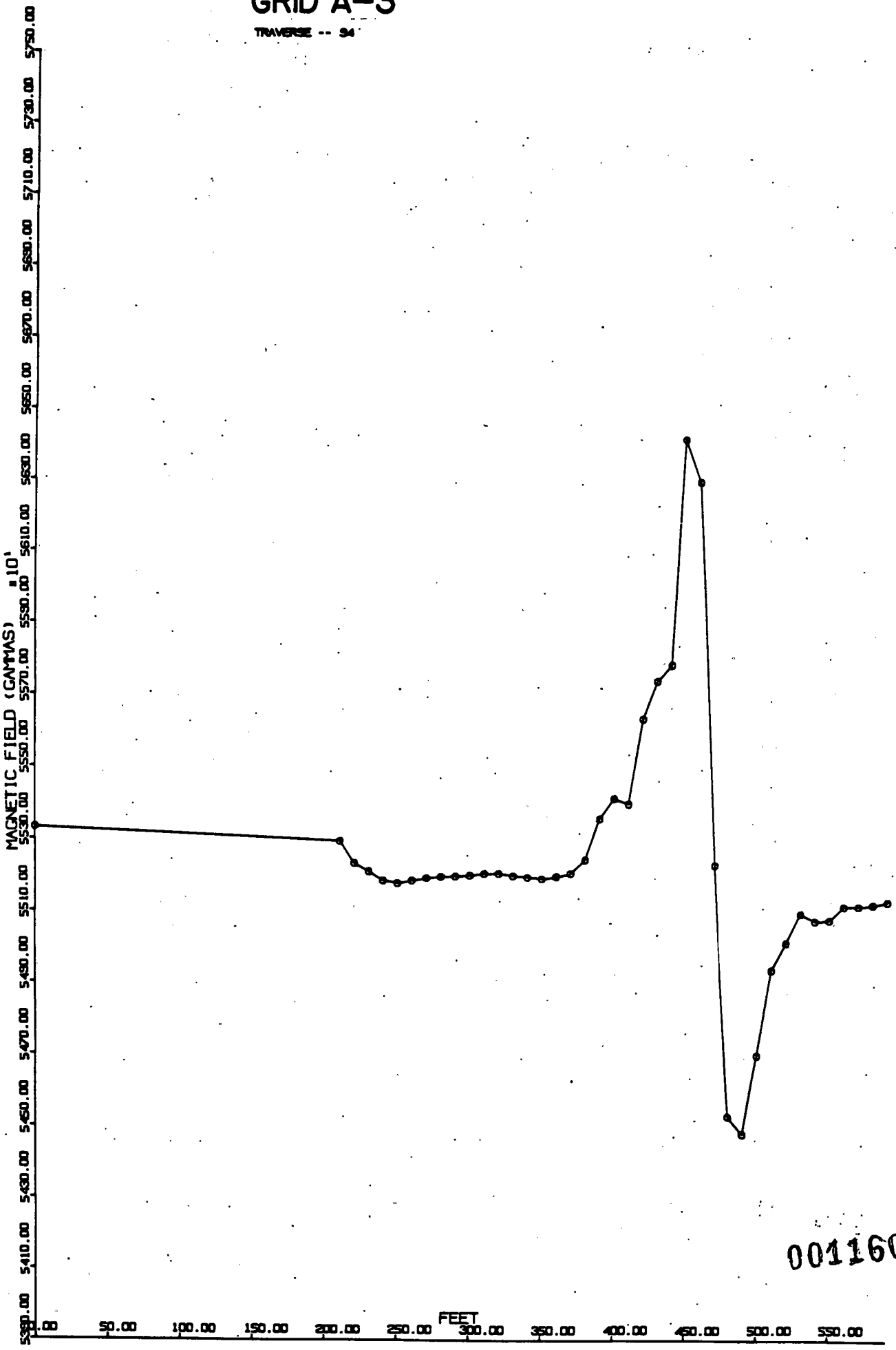
001159

309

ROHM AND HAAS

GRID A-3

TRAVERSE -- 94



001160

BCM

APPENDIX E

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
GRID B

00111

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 10

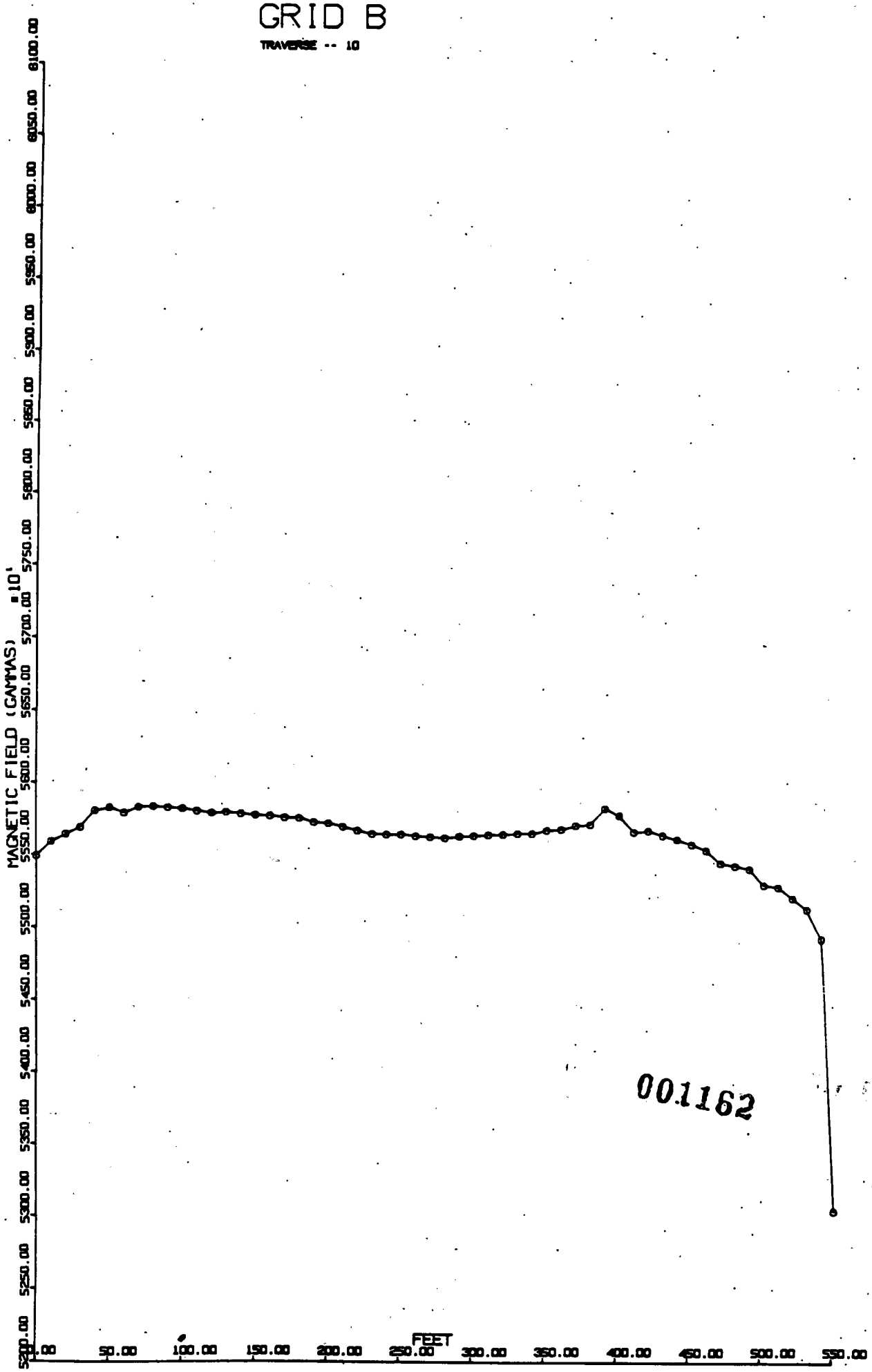
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
10	68	0	0	55,494.6
10	68	1	10	55,592.6
10	68	2	20	55,644.8
10	68	3	30	55,692.0
10	68	4	40	55,807.4
10	68	5	50	55,829.0
10	68	6	60	55,793.6
10	68	7	70	55,834.8
10	68	8	80	55,839.0
10	68	9	90	55,832.0
10	68	10	100	55,827.0
10	68	11	110	55,810.8
10	68	12	120	55,798.2
10	68	13	130	55,804.6
10	68	14	140	55,794.4
10	68	15	150	55,785.8
10	68	16	160	55,782.0
10	68	17	170	55,769.4
10	68	18	180	55,765.8
10	68	19	190	55,737.4
10	68	20	200	55,729.6
10	68	21	210	55,706.0
10	68	22	220	55,679.8
10	68	23	230	55,657.8
10	68	24	240	55,654.6
10	68	25	250	55,654.6
10	68	26	260	55,643.4
10	68	27	270	55,637.0
10	68	28	280	55,629.8
10	68	29	290	55,642.2
10	68	30	300	55,647.2
10	68	31	310	55,653.6
10	68	32	320	55,657.8
10	68	33	330	55,663.4
10	68	34	340	55,664.6
10	68	35	350	55,688.0
10	68	36	360	55,695.2
10	68	37	370	55,722.6
10	68	38	380	55,730.4
10	68	39	390	55,841.4
10	68	40	400	55,792.6
10	68	41	410	55,678.2
10	68	42	420	55,688.6
10	68	43	430	55,655.8
10	68	44	440	55,628.0
10	68	45	450	55,593.6
10	68	46	460	55,554.2
10	68	47	470	55,465.8
10	68	48	480	55,447.2
10	68	49	490	55,426.8
10	68	50	500	55,316.6
10	68	51	510	55,302.0
10	68	52	520	55,224.6
10	68	53	530	55,147.6
10	68	54	540	54,945.2
10	68	55	550	53,054.8

001161

ROHM AND HAAS

GRID B

TRAVERSE -- 10



001162

100

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 11

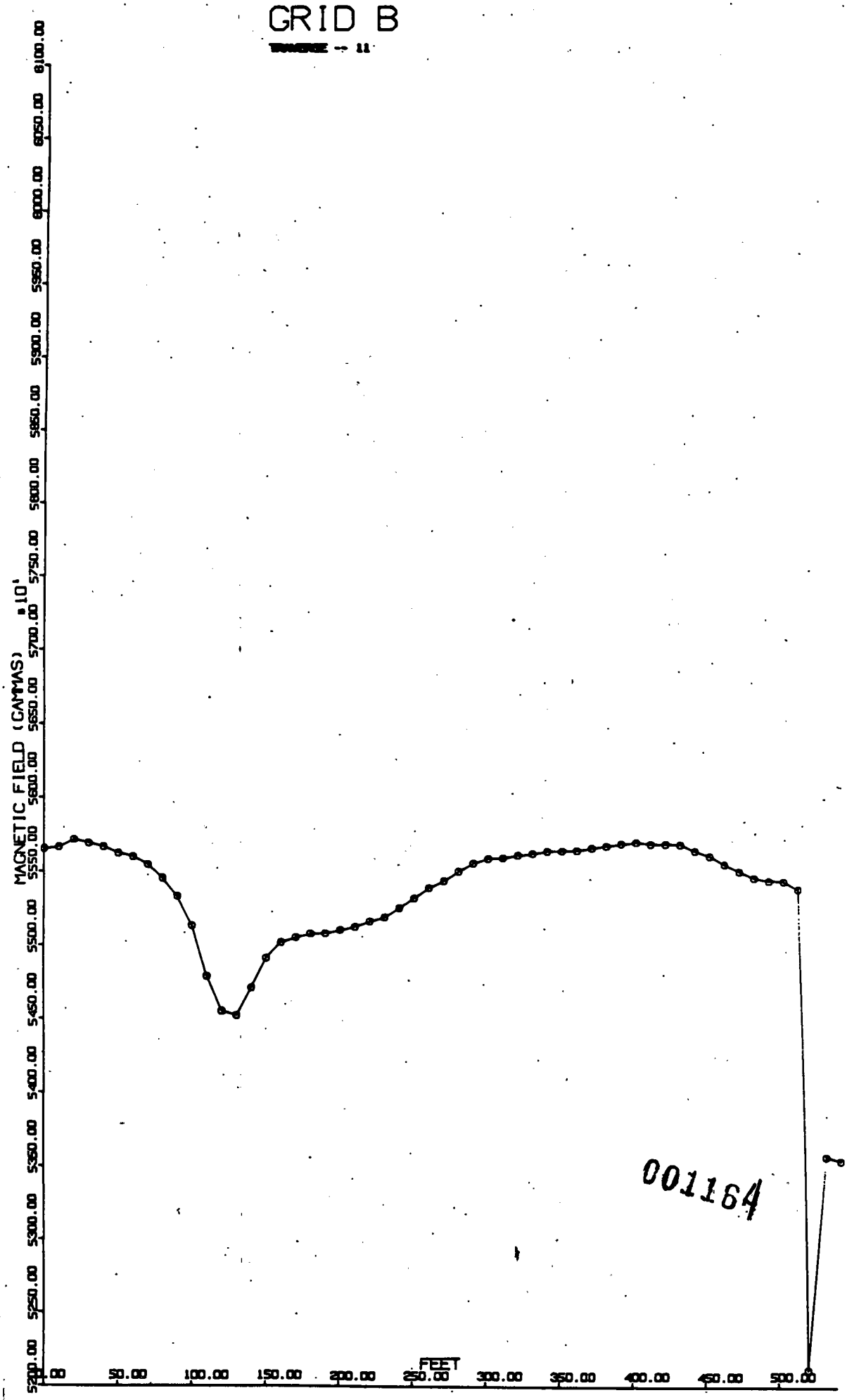
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
11	68	56	0	55,654.6
11	68	57	10	55,666.8
11	68	58	20	55,717.8
11	68	59	30	55,692.8
11	68	60	40	55,668.2
11	68	61	50	55,625.6
11	68	62	60	55,602.6
11	68	63	70	55,548.4
11	68	64	80	55,458.6
11	68	65	90	55,335.0
11	68	66	100	55,136.8
11	68	67	110	54,793.2
11	68	68	120	54,556.4
11	68	69	130	54,526.2
11	68	70	140	54,716.0
11	68	71	150	54,917.4
11	68	72	160	55,025.4
11	68	73	170	55,059.0
11	68	74	180	55,084.0
11	68	75	190	55,086.2
11	68	76	200	55,109.2
11	68	77	210	55,130.2
11	68	78	220	55,168.2
11	68	79	230	55,195.4
11	68	80	240	55,259.2
11	68	81	250	55,325.8
11	68	82	260	55,397.0
11	68	83	270	55,445.2
11	68	84	280	55,508.8
11	68	85	290	55,564.2
11	68	86	300	55,596.0
11	68	87	310	55,602.0
11	68	88	320	55,620.4
11	68	89	330	55,631.4
11	68	90	340	55,647.8
11	68	91	350	55,650.2
11	68	92	360	55,653.2
11	68	93	370	55,670.4
11	68	94	380	55,684.0
11	68	95	390	55,699.6
11	68	96	400	55,709.6
11	68	97	410	55,697.8
11	68	98	420	55,699.0
11	68	99	430	55,695.4
11	68	100	440	55,652.4
11	68	101	450	55,617.4
11	68	102	460	55,561.2
11	68	103	470	55,514.2
11	68	104	480	55,471.0
11	68	105	490	55,452.4
11	68	106	500	55,449.2
11	68	107	510	55,396.0
11	68	108	520	52,119.1
11	68	109	530	53,580.8
11	68	110	540	53,551.6

001163

ROHM AND HAAS

GRID B

TRAVERSE -- 11



001164

1100

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 12

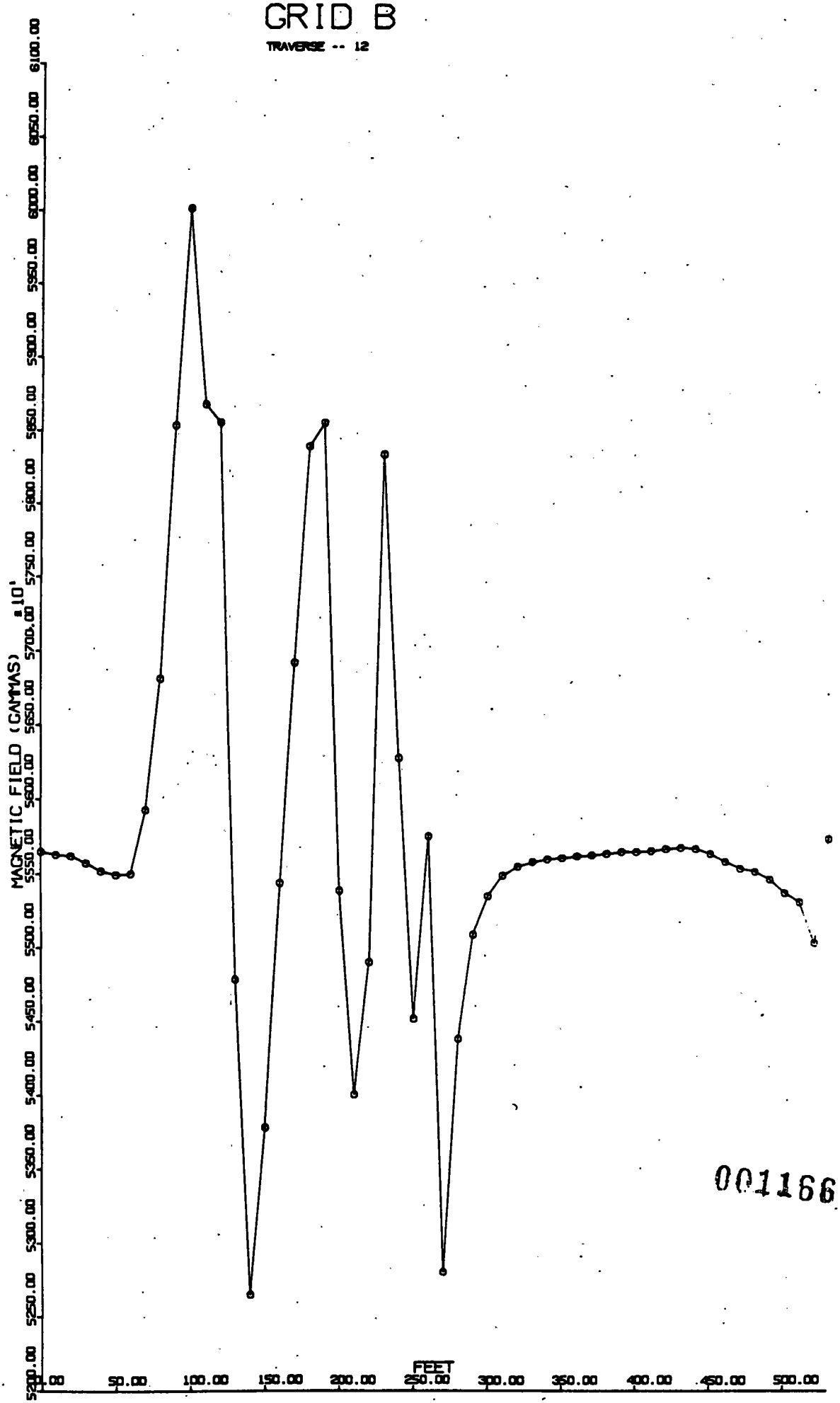
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
12	68	111	0	55,649.8
12	68	112	10	55,629.0
12	68	113	20	55,620.4
12	68	114	30	55,572.8
12	68	115	40	55,518.6
12	68	116	50	55,493.2
12	68	117	60	55,499.2
12	68	118	70	55,928.2
12	68	119	80	56,816.4
12	68	120	90	58,538.2
12	68	121	100	60,013.0
12	68	122	110	58,682.8
12	68	123	120	58,561.4
12	68	124	130	54,788.6
12	68	125	140	52,656.4
12	68	126	150	53,793.2
12	68	127	160	55,443.2
12	68	128	170	56,929.8
12	68	129	180	58,397.6
12	68	130	190	58,562.0
12	68	131	200	55,393.8
12	68	132	210	54,019.2
12	68	133	220	54,908.8
12	68	134	230	58,343.8
12	68	135	240	56,288.4
12	68	136	250	54,529.6
12	68	137	260	55,757.2
12	68	138	270	52,819.8
12	68	139	280	54,394.8
12	68	140	290	55,095.8
12	68	141	300	55,355.4
12	68	142	310	55,494.6
12	68	143	320	55,554.0
12	68	144	330	55,585.6
12	68	145	340	55,603.8
12	68	146	350	55,611.8
12	68	147	360	55,623.2
12	68	148	370	55,630.6
12	68	149	380	55,641.2
12	68	150	390	55,653.0
12	68	151	400	55,654.0
12	68	152	410	55,660.2
12	68	153	420	55,674.2
12	68	154	430	55,681.4
12	68	155	440	55,673.8
12	68	156	450	55,642.4
12	68	157	460	55,589.0
12	68	158	470	55,543.6
12	68	159	480	55,523.6
12	68	160	490	55,471.4
12	68	161	500	55,380.8
12	68	162	510	55,320.8
12	68	163	520	55,044.6
12	68	164	530	55,742.4

001165

ROHM AND HAAS

GRID B

TRAVERSE -- 12



001166

MAGNETIC SURVEY DATA

TRAVERSE LINE 13

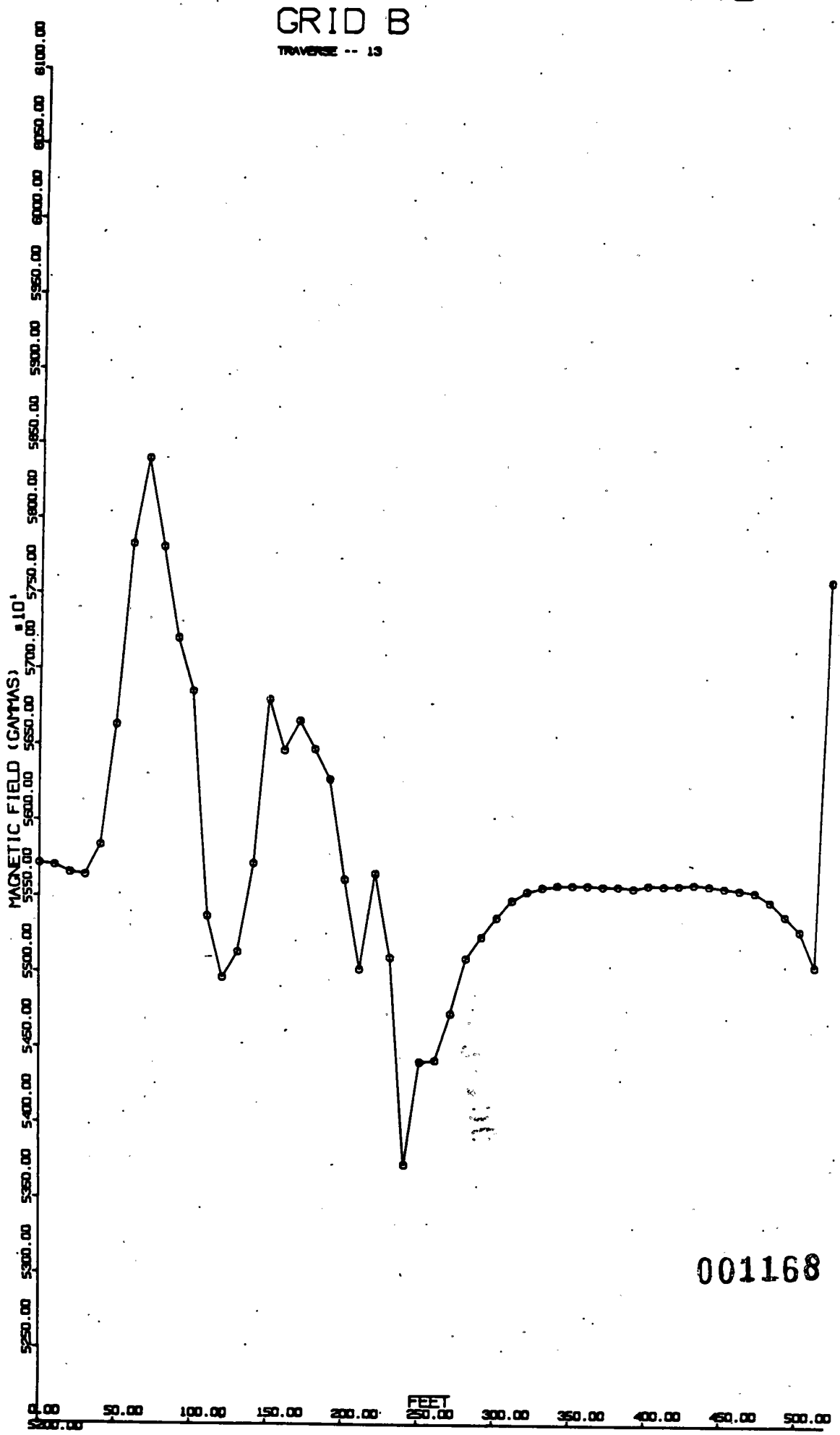
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
13	68	165	0	55,713.8
13	68	166	10	55,701.2
13	68	167	20	55,654.4
13	68	168	30	55,639.0
13	68	169	40	55,836.6
13	68	170	50	56,630.6
13	68	171	60	57,825.6
13	68	172	70	58,399.8
13	68	173	80	57,806.0
13	68	174	90	57,202.0
13	68	175	100	56,853.0
13	68	176	110	55,371.0
13	68	177	120	54,967.6
13	68	178	130	55,136.8
13	68	179	140	55,715.2
13	68	180	150	56,800.4
13	68	181	160	56,463.6
13	68	182	170	56,658.6
13	68	183	180	56,474.2
13	68	184	190	56,274.6
13	68	185	200	55,614.2
13	68	186	210	55,025.4
13	68	187	220	55,653.0
13	68	188	230	55,102.0
13	68	189	240	53,733.4
13	68	190	250	54,413.2
13	68	191	260	54,423.4
13	68	192	270	54,730.2
13	68	193	280	55,097.2
13	68	194	290	55,239.6
13	68	195	300	55,367.4
13	68	196	310	55,482.0
13	68	197	320	55,539.6
13	68	198	330	55,567.4
13	68	199	340	55,581.2
13	68	200	350	55,582.2
13	68	201	360	55,581.6
13	68	202	370	55,575.8
13	68	203	380	55,576.4
13	68	204	390	55,564.2
13	68	205	400	55,586.2
13	68	206	410	55,582.0
13	68	207	420	55,586.0
13	68	208	430	55,594.0
13	68	209	440	55,585.2
13	68	210	450	55,570.8
13	68	211	460	55,558.2
13	68	212	470	55,544.4
13	68	213	480	55,484.0
13	68	214	490	55,389.6
13	68	215	500	55,291.0
13	68	216	510	55,054.4
13	68	217	520	57,602.6

001167

ROHM AND HAAS

GRID B

TRAVERSE -- 13



001168

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 14

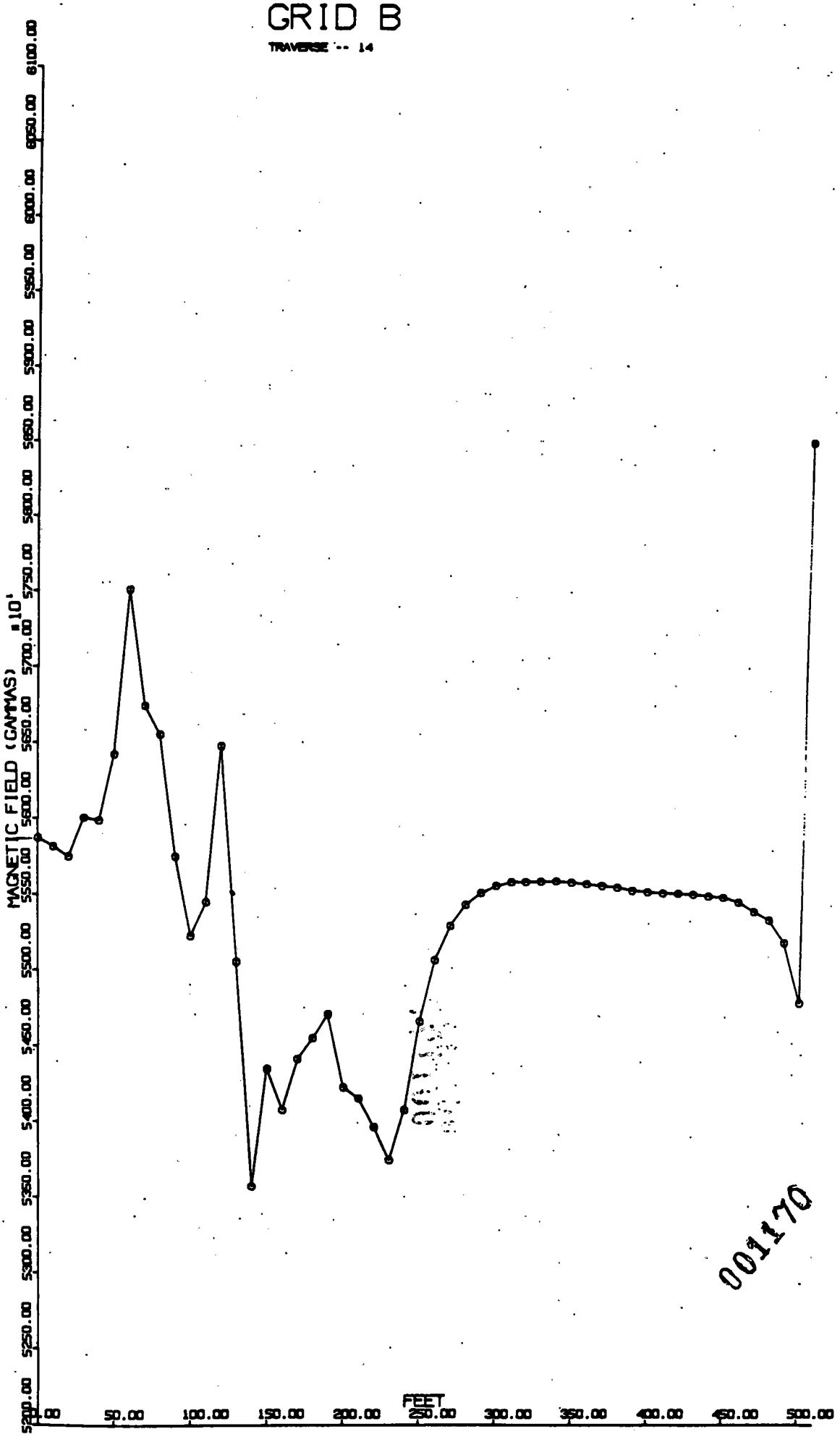
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
14	68	218	0	55,872.4
14	68	219	10	55,815.6
14	68	220	20	55,747.6
14	68	221	30	56,003.4
14	68	222	40	55,984.8
14	68	223	50	56,422.6
14	68	224	60	57,506.4
14	68	225	70	56,740.0
14	68	226	80	56,551.8
14	68	227	90	55,748.2
14	68	228	100	55,223.8
14	68	229	110	55,448.8
14	68	230	120	56,479.8
14	68	231	130	55,054.6
14	68	232	140	53,575.4
14	68	233	150	54,353.0
14	68	234	160	54,080.2
14	68	235	170	54,418.6
14	68	236	180	54,556.4
14	68	237	190	54,713.4
14	68	238	200	54,232.8
14	68	239	210	54,158.8
14	68	240	220	53,970.4
14	68	241	230	53,752.4
14	68	242	240	54,085.4
14	68	243	250	54,667.6
14	68	244	260	55,070.4
14	68	245	270	55,297.2
14	68	246	280	55,436.4
14	68	247	290	55,514.0
14	68	248	300	55,560.4
14	68	249	310	55,585.8
14	68	250	320	55,589.4
14	68	251	330	55,592.8
14	68	252	340	55,595.6
14	68	253	350	55,586.8
14	68	254	360	55,576.2
14	68	255	370	55,565.4
14	68	256	380	55,554.4
14	68	257	390	55,535.0
14	68	258	400	55,526.6
14	68	259	410	55,519.6
14	68	260	420	55,516.2
14	68	261	430	55,510.8
14	68	262	440	55,500.6
14	68	263	450	55,490.0
14	68	264	460	55,458.4
14	68	265	470	55,397.4
14	68	266	480	55,340.8
14	68	267	490	55,192.0
14	68	268	500	54,797.0
14	68	269	510	58,503.2

001160

ROHM AND HAAS

GRID B

TRAVERSE -- 14



001170

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 15

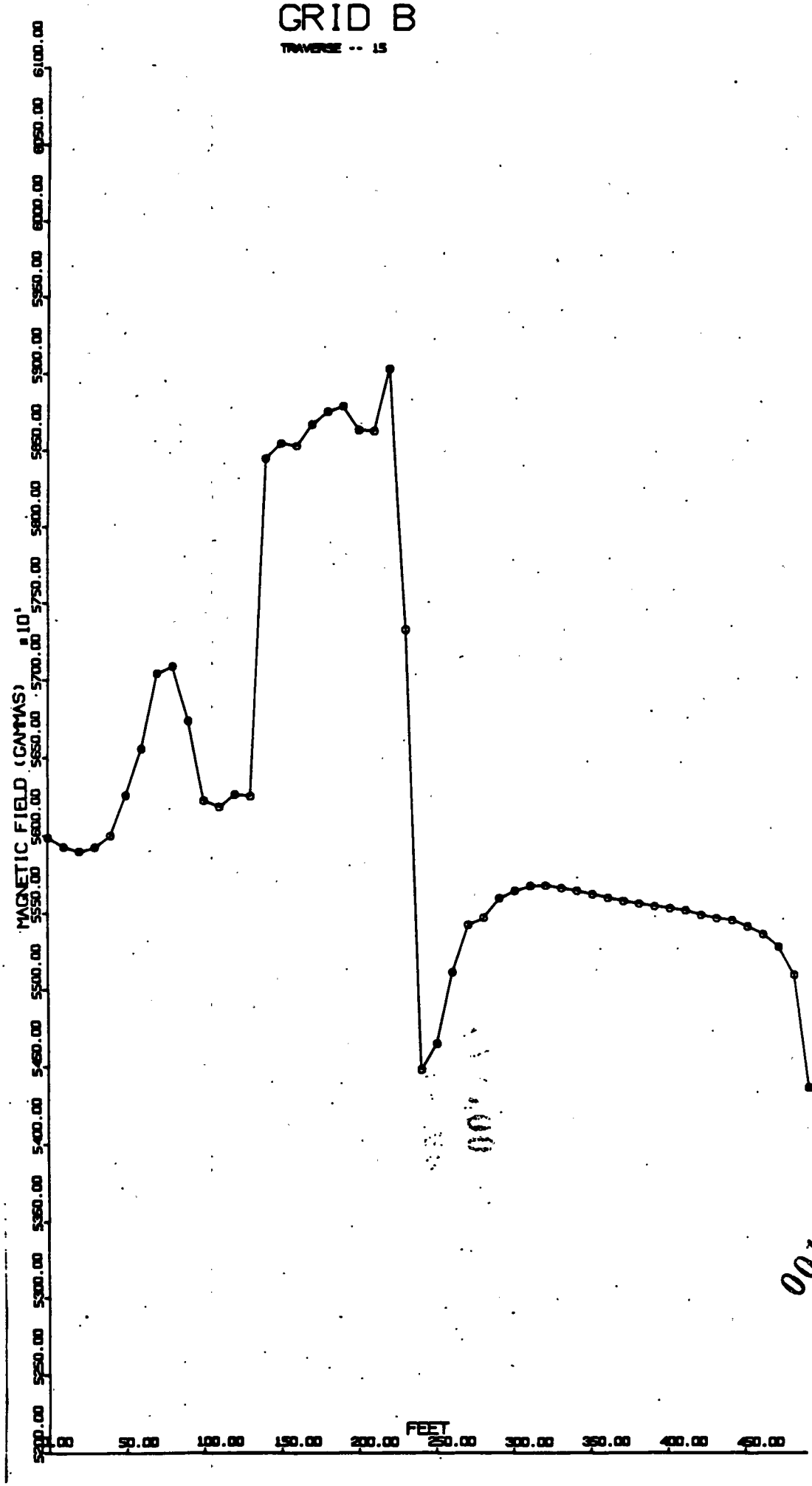
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
15	68	270	0	55,985.4
15	68	271	10	55,924.8
15	68	272	20	55,896.6
15	68	273	30	55,924.2
15	68	274	40	55,999.0
15	68	275	50	56,260.0
15	68	276	60	56,559.8
15	68	277	70	57,047.2
15	68	278	80	57,093.6
15	68	279	90	56,742.6
15	68	280	100	56,230.4
15	68	281	110	56,188.4
15	68	282	120	56,269.2
15	68	283	130	56,258.4
15	68	284	140	58,449.2
15	68	285	150	58,552.2
15	68	286	160	58,533.4
15	68	287	170	58,675.4
15	68	288	180	58,758.6
15	68	289	190	58,795.6
15	68	290	200	58,642.0
15	68	291	210	58,634.0
15	68	292	220	59,039.2
15	68	293	230	57,334.4
15	68	294	240	54,490.4
15	68	295	250	54,656.6
15	68	296	260	55,120.4
15	68	297	270	55,429.0
15	68	298	280	55,475.6
15	68	299	290	55,600.6
15	68	300	300	55,649.4
15	68	301	310	55,681.8
15	68	302	320	55,684.2
15	68	303	330	55,667.2
15	68	304	340	55,650.6
15	68	305	350	55,628.4
15	68	306	360	55,605.4
15	68	307	370	55,585.6
15	68	308	380	55,568.8
15	68	309	390	55,553.2
15	68	310	400	55,539.8
15	68	311	410	55,526.6
15	68	312	420	55,496.6
15	68	313	430	55,475.8
15	68	314	440	55,462.8
15	68	315	450	55,422.6
15	68	316	460	55,373.8
15	68	317	470	55,291.4
15	68	318	480	55,108.2
15	68	319	490	54,375.6

001171

ROHM AND HAAS

GRID B

TRAVERSE -- 15



001172

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 16

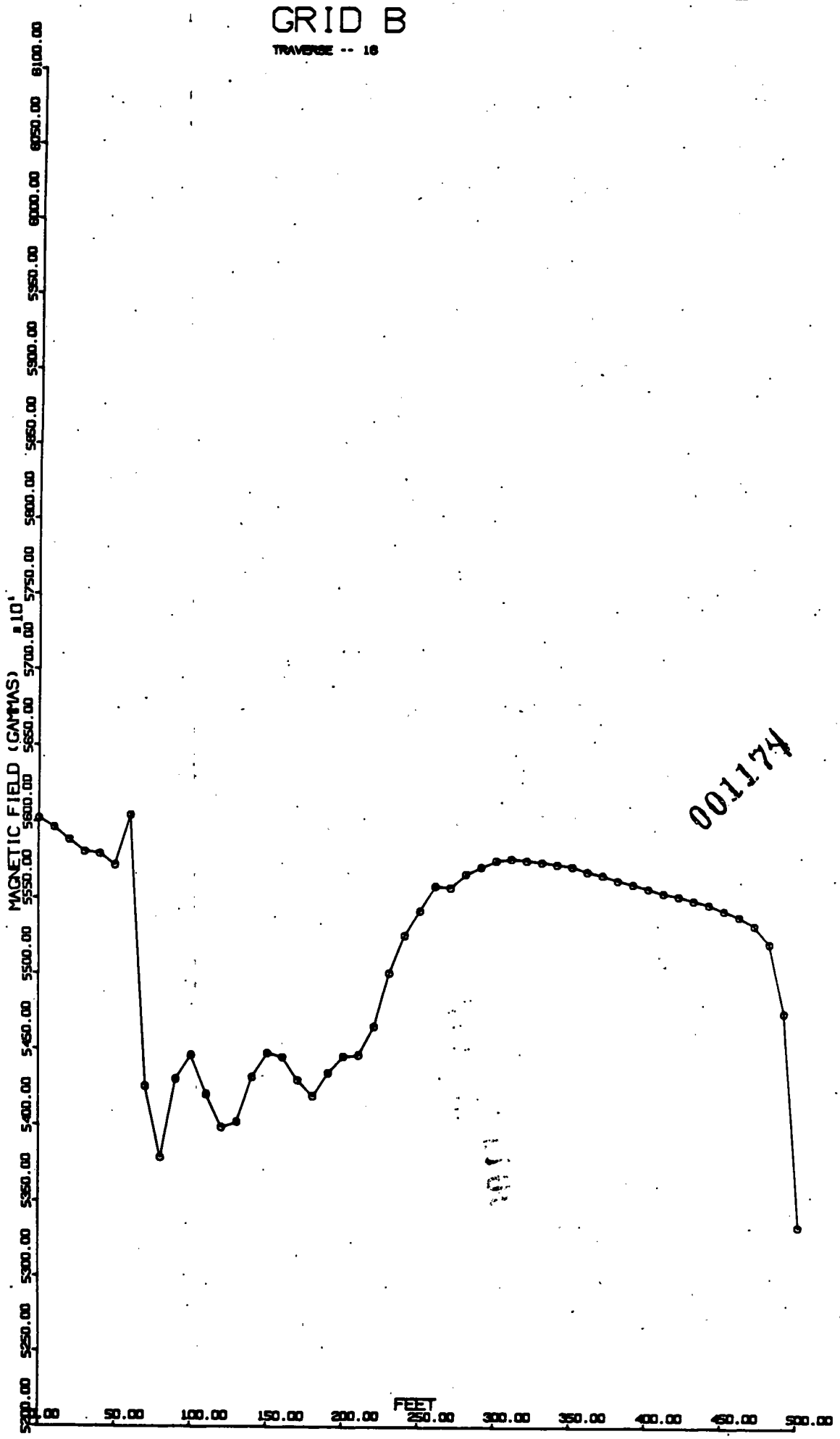
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
16	68	320	0	56,020.4
16	68	321	10	55,960.4
16	68	322	20	55,879.8
16	68	323	30	55,802.0
16	68	324	40	55,789.0
16	68	325	50	55,713.8
16	68	326	60	56,042.0
16	68	327	70	54,252.6
16	68	328	80	53,786.8
16	68	329	90	54,302.4
16	68	330	100	54,461.8
16	68	331	110	54,204.4
16	68	332	120	53,986.4
16	68	333	130	54,023.6
16	68	334	140	54,317.6
16	68	335	150	54,476.2
16	68	336	160	54,448.2
16	68	337	170	54,297.6
16	68	338	180	54,194.6
16	68	339	190	54,344.4
16	68	340	200	54,455.0
16	68	341	210	54,464.8
16	68	342	220	54,652.0
16	68	343	230	55,008.0
16	68	344	240	55,258.4
16	68	345	250	55,421.4
16	68	346	260	55,583.2
16	68	347	270	55,573.4
16	68	348	280	55,663.4
16	68	349	290	55,710.2
16	68	350	300	55,752.2
16	68	351	310	55,764.4
16	68	352	320	55,753.0
16	68	353	330	55,742.2
16	68	354	340	55,728.6
16	68	355	350	55,714.6
16	68	356	360	55,680.8
16	68	357	370	55,658.8
16	68	358	380	55,625.2
16	68	359	390	55,600.4
16	68	360	400	55,571.2
16	68	361	410	55,541.6
16	68	362	420	55,522.2
16	68	363	430	55,494.8
16	68	364	440	55,468.4
16	68	365	450	55,428.6
16	68	366	460	55,389.6
16	68	367	470	55,331.2
16	68	368	480	55,212.0
16	68	369	490	54,750.4
16	68	370	500	53,340.2

001173

ROHM AND HAAS

GRID B

TRAVERSE -- 16



001174

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 17

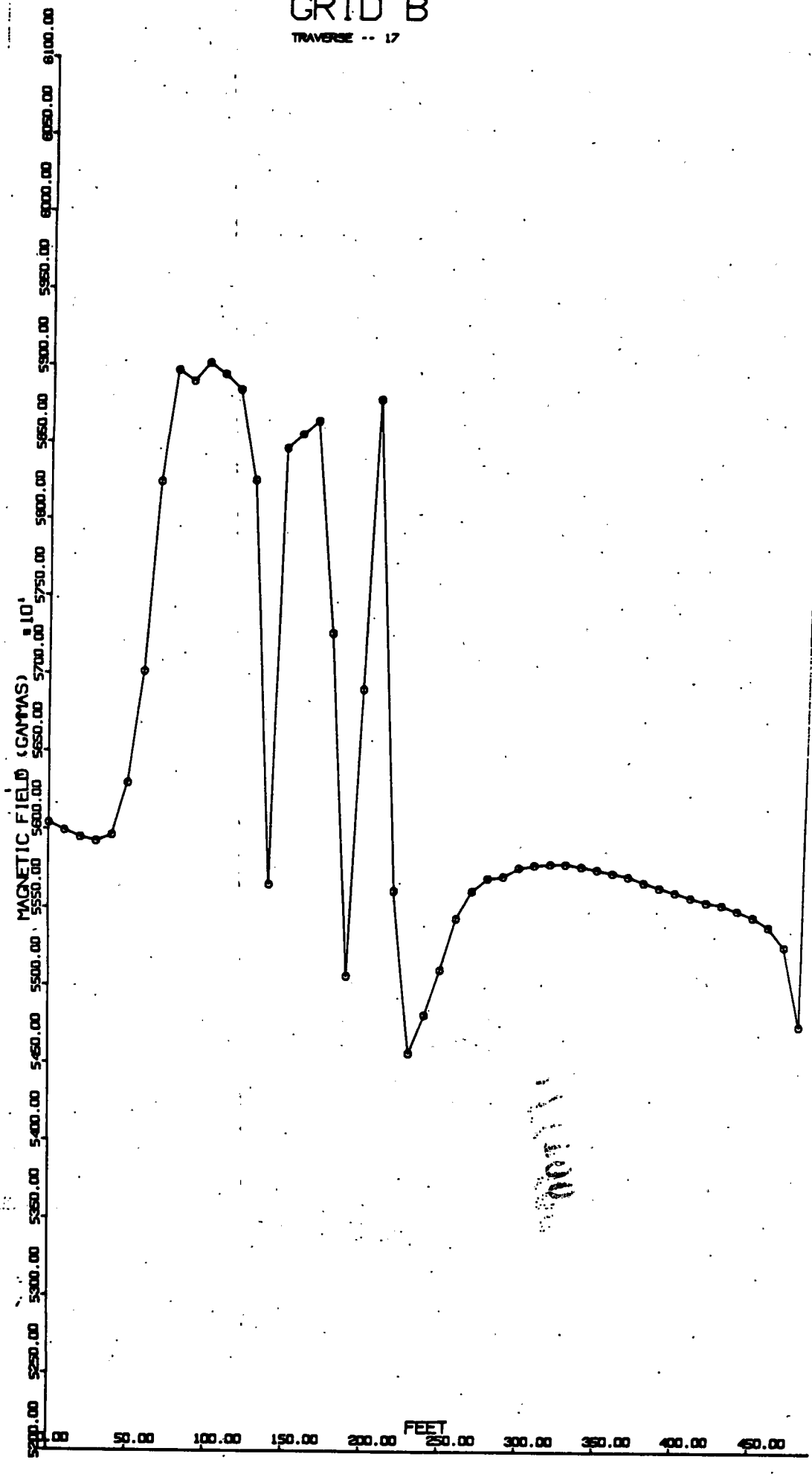
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
17	68	371	0	56,039.4
17	68	372	10	55,990.8
17	68	373	20	55,946.8
17	68	374	30	55,923.0
17	68	375	40	55,963.2
17	68	376	50	56,297.6
17	68	377	60	57,013.6
17	68	378	70	58,241.4
17	68	379	80	58,970.8
17	68	380	90	58,898.8
17	68	381	100	59,018.6
17	68	382	110	58,944.6
17	68	383	120	58,845.4
17	68	384	130	58,255.2
17	68	385	140	55,650.2
17	68	386	150	58,464.6
17	68	387	160	58,556.8
17	68	388	170	58,645.8
17	68	389	180	57,267.0
17	68	390	190	55,064.0
17	68	391	200	56,906.2
17	68	392	210	58,787.6
17	68	393	220	55,611.2
17	68	394	230	54,569.4
17	68	395	240	54,814.4
17	68	396	250	55,107.2
17	68	397	260	55,437.6
17	68	398	270	55,613.2
17	68	399	280	55,693.8
17	68	400	290	55,708.0
17	68	401	300	55,764.6
17	68	402	310	55,782.0
17	68	403	320	55,789.8
17	68	404	330	55,789.4
17	68	405	340	55,774.4
17	68	406	350	55,754.6
17	68	407	360	55,732.2
17	68	408	370	55,711.8
17	68	409	380	55,674.8
17	68	410	390	55,642.8
17	68	411	400	55,612.6
17	68	412	410	55,580.0
17	68	413	420	55,551.8
17	68	414	430	55,535.0
17	68	415	440	55,499.0
17	68	416	450	55,459.0
17	68	417	460	55,397.2
17	68	418	470	55,269.6
17	68	419	480	54,754.8
17	68	420	490	58,597.2

001175

ROHM AND HAAS

GRID B

TRAVERSE -- 17



001176

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 18

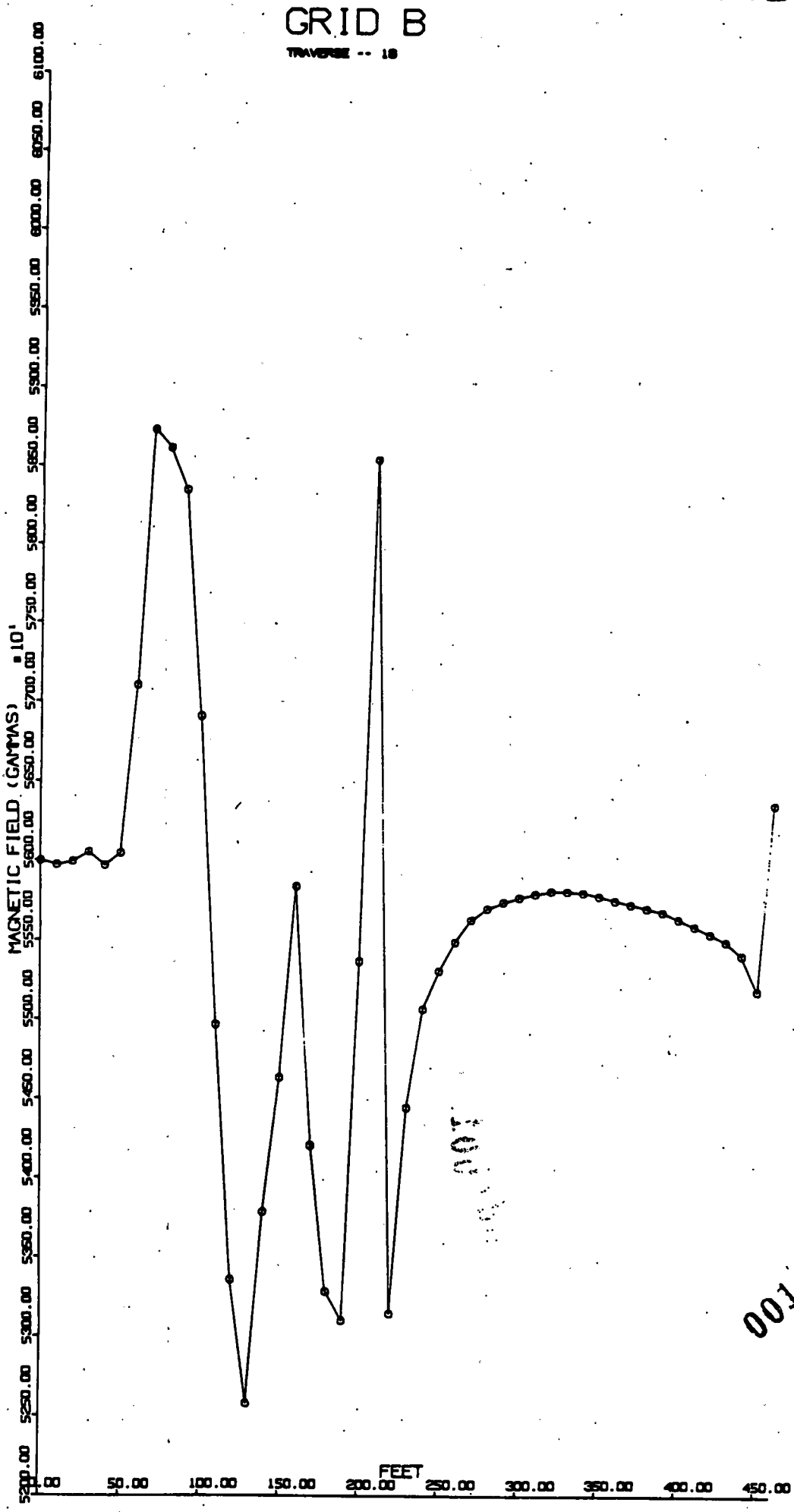
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
18	68	421	0	55,997.4
18	68	422	10	55,972.2
18	68	423	20	55,994.2
18	68	424	30	56,053.2
18	68	425	40	55,969.4
18	68	426	50	56,048.6
18	68	427	60	57,105.8
18	68	428	70	58,732.8
18	68	429	80	58,619.0
18	68	430	90	58,350.6
18	68	431	100	56,915.6
18	68	432	110	54,973.0
18	68	433	120	53,370.8
18	68	434	130	52,586.4
18	68	435	140	53,797.0
18	68	436	150	54,642.6
18	68	437	160	55,846.6
18	68	438	170	54,215.4
18	68	439	180	53,302.0
18	68	440	190	53,118.4
18	68	441	200	55,375.2
18	68	442	210	58,546.6
18	68	443	220	53,160.2
18	68	444	230	54,456.4
18	68	445	240	55,075.0
18	68	446	250	55,314.8
18	68	447	260	55,498.2
18	68	448	270	55,636.6
18	68	449	280	55,708.8
18	68	450	290	55,750.2
18	68	451	300	55,779.6
18	68	452	310	55,802.8
18	68	453	320	55,821.0
18	68	454	330	55,818.8
18	68	455	340	55,811.0
18	68	456	350	55,789.6
18	68	457	360	55,763.0
18	68	458	370	55,738.4
18	68	459	380	55,715.0
18	68	460	390	55,690.2
18	68	461	400	55,646.4
18	68	462	410	55,601.4
18	68	463	420	55,554.8
18	68	464	430	55,505.4
18	68	465	440	55,420.0
18	68	466	450	55,195.6
18	68	467	460	56,369.4

001177

ROHM AND HAAS

GRID B

TRAVERSE -- 18



001178

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 19

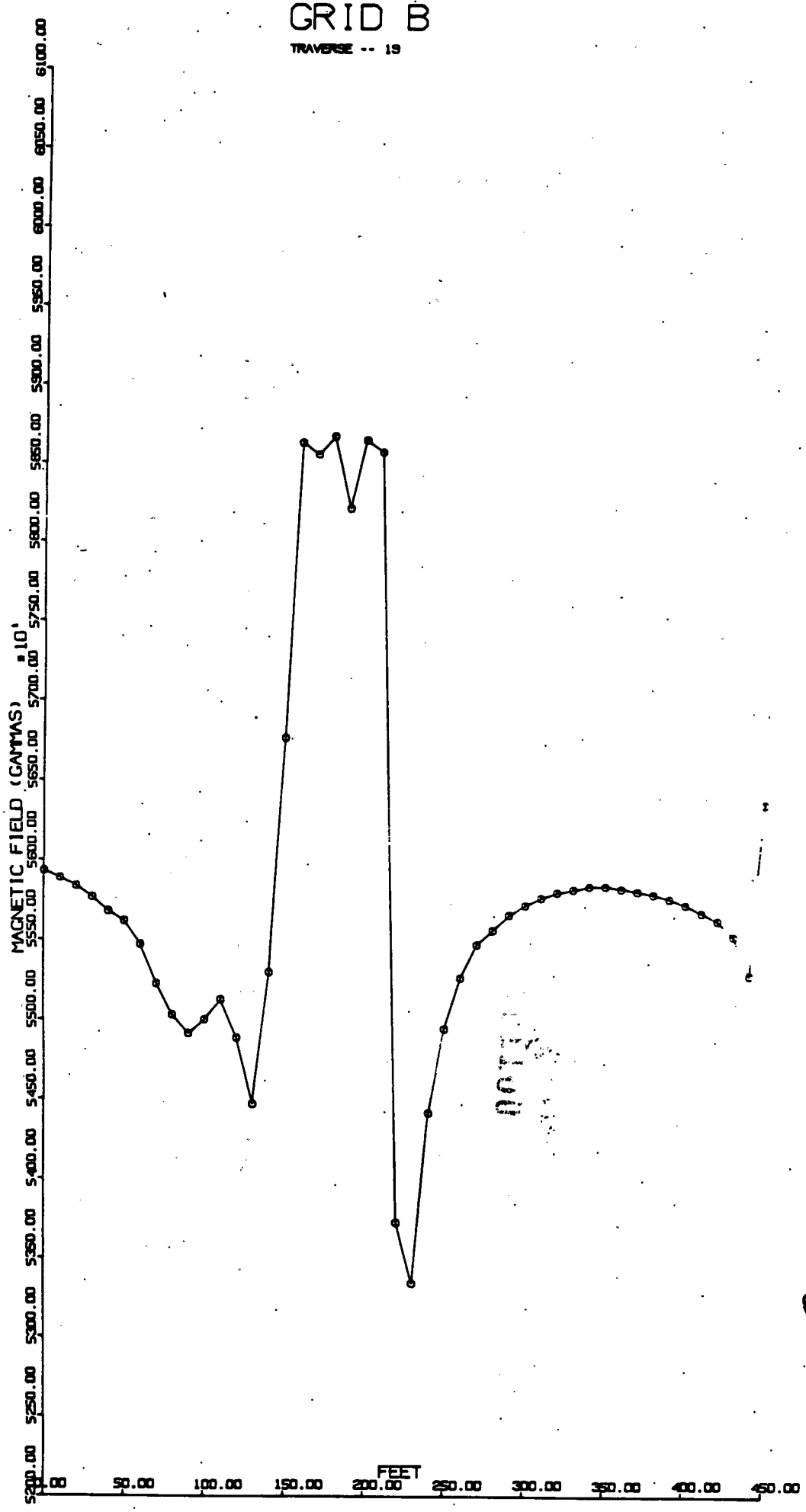
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
19	68	468	0		55,934.0
19	68	469	10		55,888.8
19	68	470	20		55,838.2
19	68	471	30		55,768.4
19	68	472	40		55,681.2
19	68	473	50		55,619.4
19	68	474	60		55,471.6
19	68	475	70		55,225.8
19	68	476	80		55,028.6
19	68	477	90		54,910.6
19	68	478	100		54,998.4
19	68	479	110		55,126.0
19	68	480	120		54,884.0
19	68	481	130		54,471.2
19	68	482	140		55,298.8
19	68	483	150		56,768.8
19	68	484	160		58,640.0
19	68	485	170		58,560.4
19	68	486	180		58,677.2
19	68	487	190		58,220.0
19	68	488	200		58,656.4
19	68	489	210		58,577.6
19	68	490	220		53,731.0
19	68	491	230		53,351.0
19	68	492	240		54,420.4
19	68	493	250		54,945.8
19	68	494	260		55,265.6
19	68	495	270		55,473.2
19	68	496	280		55,564.0
19	68	497	290		55,660.0
19	68	498	300		55,721.0
19	68	499	310		55,768.6
19	68	500	320		55,803.6
19	68	501	330		55,821.8
19	68	502	340		55,841.6
19	68	503	350		55,841.6
19	68	504	360		55,826.4
19	68	505	370		55,809.8
19	68	506	380		55,791.2
19	68	507	390		55,763.8
19	68	508	400		55,725.8
19	68	509	410		55,676.0
19	68	510	420		55,627.4
19	68	511	430		55,529.0
19	68	512	440		55,286.2
19	68	513	450		56,363.2

001179

ROHM AND HAAS

GRID B

TRAVERSE -- 19



001180

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 20

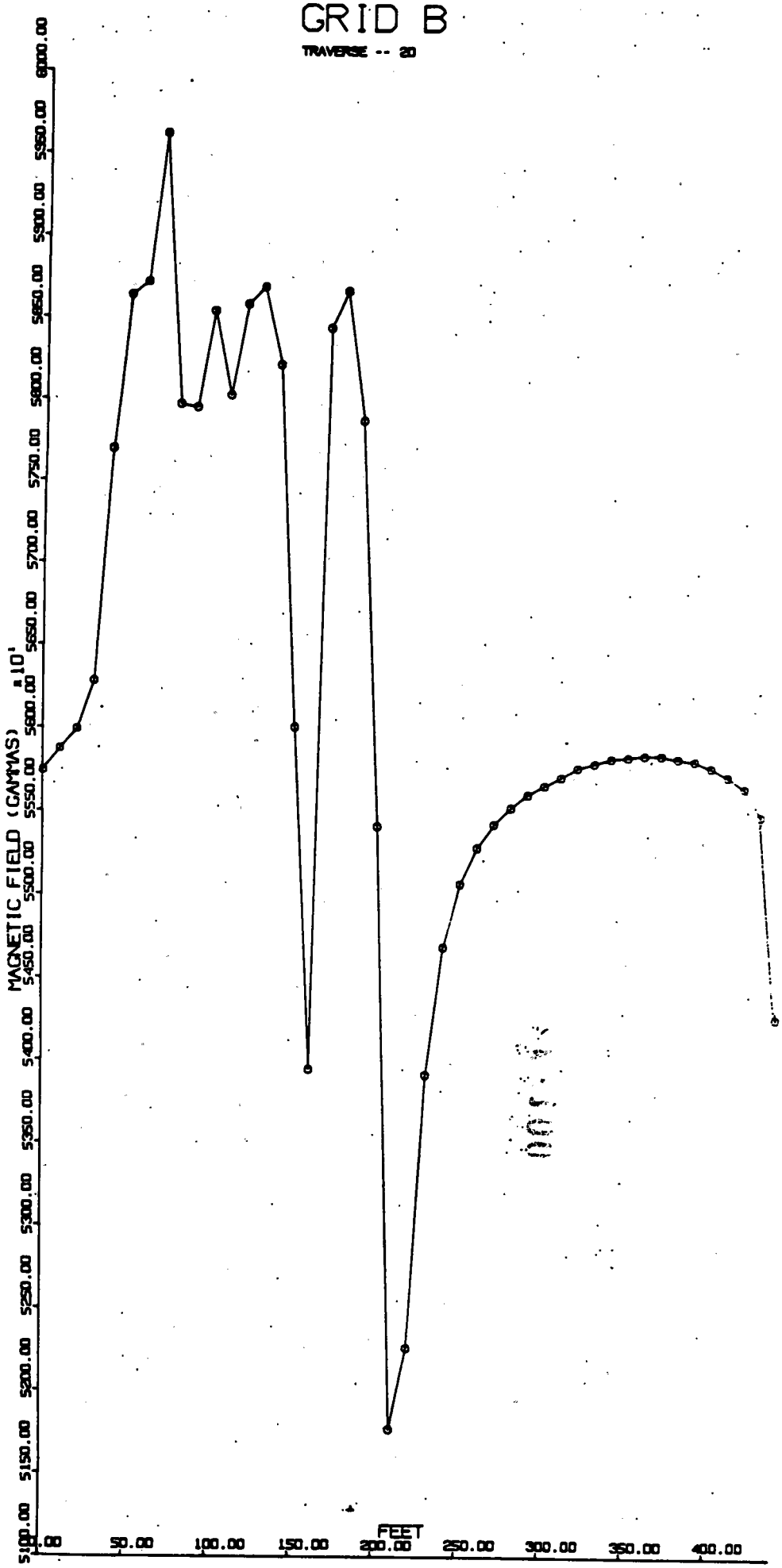
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
20	68	514	0	55,744.4
20	68	515	10	55,874.0
20	68	516	20	55,992.6
20	68	517	30	56,283.2
20	68	518	40	57,700.6
20	68	519	50	58,634.4
20	68	520	60	58,714.4
20	68	521	70	59,622.4
20	68	522	80	57,972.2
20	68	523	90	57,953.0
20	68	524	100	58,537.0
20	68	525	110	58,026.4
20	68	526	120	58,578.6
20	68	527	130	58,683.4
20	68	528	140	58,214.8
20	68	529	150	56,012.2
20	68	530	160	53,950.0
20	68	531	170	58,438.6
20	68	532	180	58,661.4
20	68	533	190	57,880.2
20	68	534	200	55,418.4
20	68	535	210	51,777.0
20	68	536	220	52,277.1
20	68	537	230	53,922.8
20	68	538	240	54,694.6
20	68	539	250	55,075.2
20	68	540	260	55,293.0
20	68	541	270	55,434.0
20	68	542	280	55,534.6
20	68	543	290	55,612.6
20	68	544	300	55,667.8
20	68	545	310	55,718.6
20	68	546	320	55,775.2
20	68	547	330	55,803.2
20	68	548	340	55,833.0
20	68	549	350	55,842.0
20	68	550	360	55,853.4
20	68	551	370	55,853.8
20	68	552	380	55,835.6
20	68	553	390	55,821.6
20	68	554	400	55,781.4
20	68	555	410	55,728.8
20	68	556	420	55,659.4
20	68	557	430	55,491.0
20	68	558	440	54,271.6

001181

ROHM AND HAAS

GRID B

TRAVERSE -- 20



001182

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 21

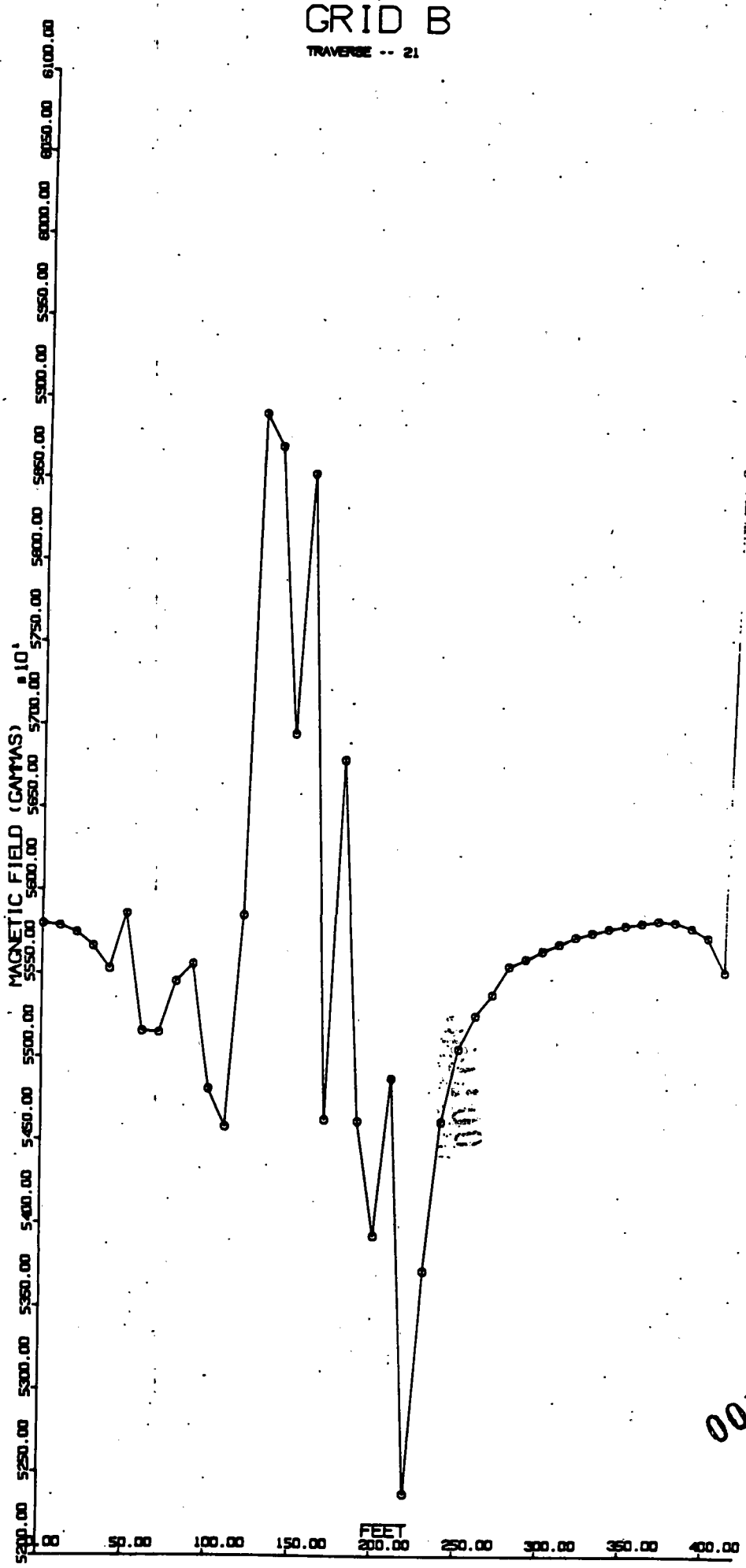
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
21	68	559	0		55,795.8
21	68	560	10		55,784.8
21	68	561	20		55,745.6
21	68	562	30		55,665.2
21	68	563	40		55,532.0
21	68	564	50		55,862.8
21	68	565	60		55,161.2
21	68	566	70		55,154.4
21	68	567	80		55,461.0
21	68	568	90		55,565.6
21	68	569	100		54,815.2
21	68	570	110		54,587.2
21	68	571	120		55,860.4
21	68	572	130		58,908.6
21	68	573	140		58,706.0
21	68	574	150		56,956.2
21	68	575	160		58,537.4
21	68	576	170		54,632.2
21	68	577	180		56,800.0
21	68	578	190		54,624.4
21	68	579	200		53,937.2
21	68	580	210		54,885.0
21	68	581	220		52,377.8
21	68	582	230		53,729.8
21	68	583	240		54,624.8
21	68	584	250		55,067.2
21	68	585	260		55,267.8
21	68	586	270		55,395.4
21	68	587	280		55,565.0
21	68	588	290		55,609.6
21	68	589	300		55,658.6
21	68	590	310		55,700.8
21	68	591	320		55,745.0
21	68	592	330		55,772.0
21	68	593	340		55,797.4
21	68	594	350		55,818.2
21	68	595	360		55,833.4
21	68	596	370		55,848.4
21	68	597	380		55,840.4
21	68	598	390		55,806.0
21	68	599	400		55,749.0
21	68	600	410		55,544.2
21	68	601	420		58,586.8

001183

ROHM AND HAAS

GRID B

TRAVERSE -- 21



001184

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 22

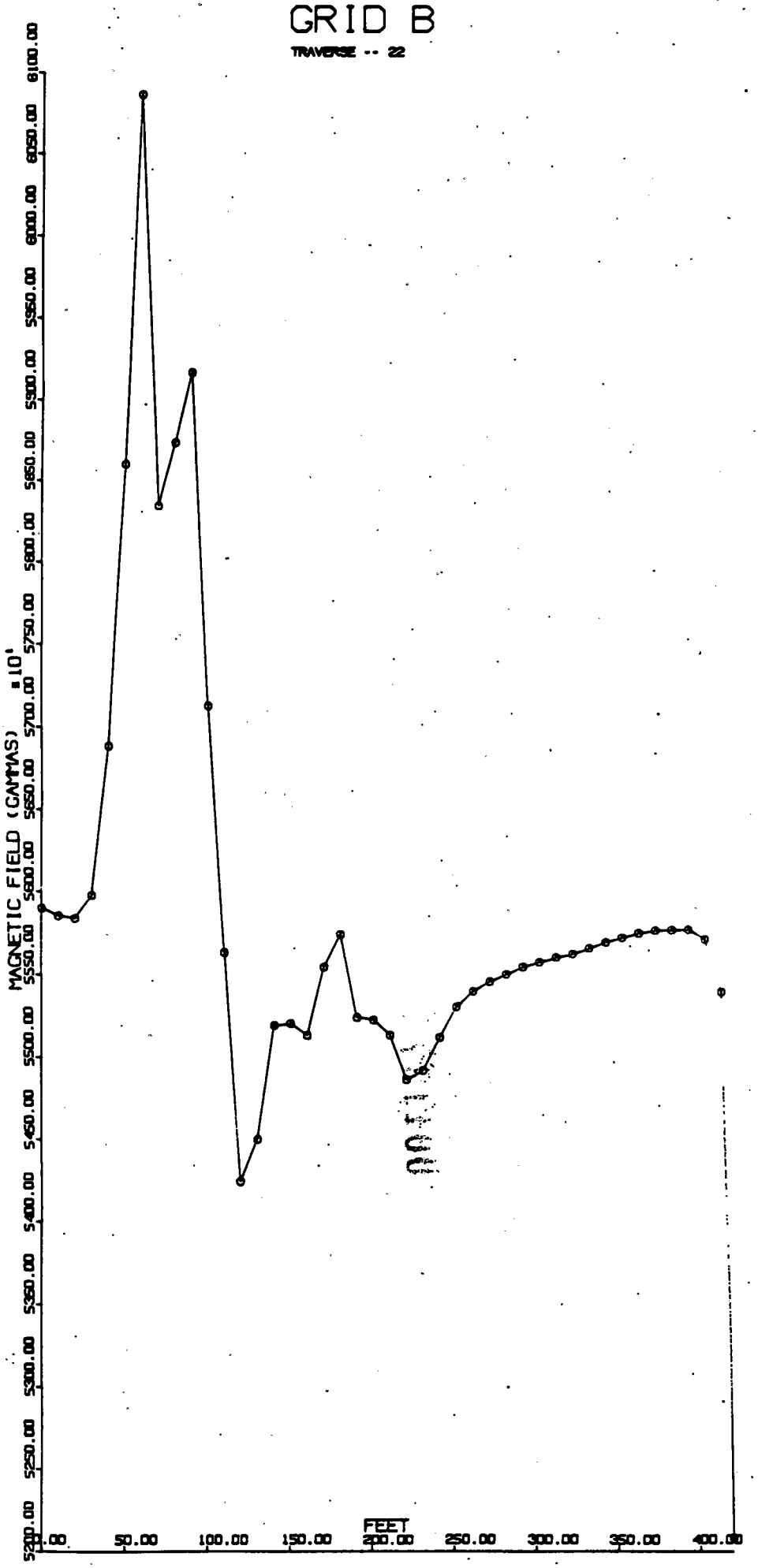
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
22	72	0	0	55,900.6
22	72	1	10	55,854.4
22	72	2	20	55,838.8
22	72	3	30	55,977.2
22	72	4	40	56,884.8
22	72	5	50	58,608.2
22	72	6	60	60,861.2
22	72	7	70	58,350.4
22	72	8	80	58,740.8
22	72	9	90	59,170.2
22	72	10	100	57,131.8
22	72	11	110	55,635.2
22	72	12	120	54,249.8
22	72	13	130	54,506.2
22	72	14	140	55,195.6
22	72	15	150	55,207.6
22	72	16	160	55,135.6
22	72	17	170	55,549.0
22	72	18	180	55,747.8
22	72	19	190	55,245.2
22	72	20	200	55,230.0
22	72	21	210	55,139.4
22	72	22	220	54,868.6
22	72	23	230	54,925.0
22	72	24	240	55,125.8
22	72	25	250	55,312.0
22	72	26	260	55,406.6
22	72	27	270	55,465.4
22	72	28	280	55,508.8
22	72	29	290	55,554.0
22	72	30	300	55,583.0
22	72	31	310	55,612.4
22	72	32	320	55,633.4
22	72	33	330	55,667.4
22	72	34	340	55,703.8
22	72	35	350	55,731.4
22	72	36	360	55,759.6
22	72	37	370	55,776.2
22	72	38	380	55,779.4
22	72	39	390	55,781.8
22	72	40	400	55,724.4
22	72	41	410	55,405.8
22	72	42	420	52,083.5

001185

ROHM AND HAAS

GRID B

TRAVERSE -- 22



001186

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 23

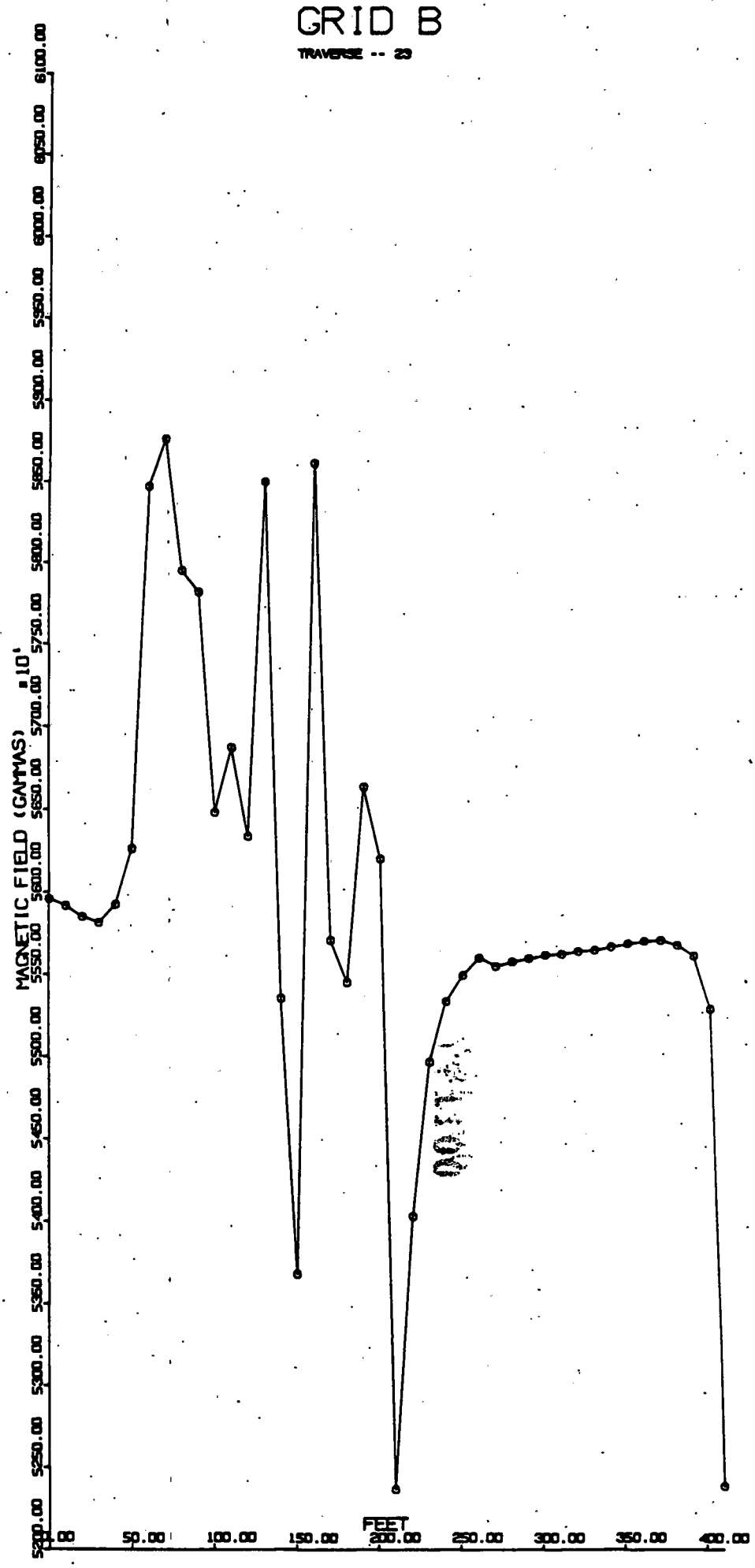
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
23	72	43	0	55,956.4
23	72	44	10	55,915.2
23	72	45	20	55,848.4
23	72	46	30	55,812.4
23	72	47	40	55,922.6
23	72	48	50	56,263.2
23	72	49	60	58,469.8
23	72	50	70	58,765.8
23	72	51	80	57,952.4
23	72	52	90	57,821.2
23	72	53	100	56,484.6
23	72	54	110	56,877.2
23	72	55	120	56,341.0
23	72	56	130	58,502.4
23	72	57	140	55,357.2
23	72	58	150	53,682.4
23	72	59	160	58,620.4
23	72	60	170	55,707.6
23	72	61	180	55,452.6
23	72	62	190	56,640.8
23	72	63	200	56,206.4
23	72	64	210	52,371.1
23	72	65	220	54,034.2
23	72	66	230	54,969.6
23	72	67	240	55,339.4
23	72	68	250	55,497.2
23	72	69	260	55,603.2
23	72	70	270	55,552.8
23	72	71	280	55,581.0
23	72	72	290	55,601.8
23	72	73	300	55,621.4
23	72	74	310	55,628.0
23	72	75	320	55,645.6
23	72	76	330	55,654.4
23	72	77	340	55,675.4
23	72	78	350	55,693.6
23	72	79	360	55,708.4
23	72	80	370	55,714.4
23	72	81	380	55,683.6
23	72	82	390	55,619.8
23	72	83	400	55,297.0
23	72	84	410	52,388.6

001187

ROHM AND HAAS

GRID B

TRAVERSE -- 23



001188

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 24

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
24	72	85	0	56,016.6
24	72	86	10	56,014.2
24	72	87	20	56,005.0
24	72	88	30	56,015.6
24	72	89	40	56,052.0
24	72	90	50	56,049.6
24	72	91	60	56,221.6
24	72	92	70	56,354.0
24	72	93	80	56,467.6
24	72	94	90	56,396.4
24	72	95	100	56,375.6
24	72	96	110	56,065.6
24	72	97	120	55,561.8
24	72	98	130	55,015.4
24	72	99	140	54,596.2
24	72	100	150	54,230.0
24	72	101	160	54,153.4
24	72	102	170	54,360.4
24	72	103	180	54,619.2
24	72	104	190	54,838.0
24	72	105	200	55,017.8
24	72	106	210	55,150.6
24	72	107	220	55,295.0
24	72	108	230	55,537.4
24	72	109	240	55,556.6
24	72	110	250	55,643.6
24	72	111	260	55,684.0
24	72	112	270	55,878.0
24	72	113	280	55,701.0
24	72	114	290	55,674.6
24	72	115	300	55,673.6
24	72	116	310	55,672.6
24	72	117	320	55,667.4
24	72	118	330	55,665.0
24	72	119	340	55,660.0
24	72	120	350	55,650.6
24	72	121	360	55,636.2
24	72	122	370	55,600.2
24	72	123	380	55,462.6
24	72	124	390	53,940.8

001189

ROHM AND HAAS

GRID B

TRAVERSE -- 24

001190

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 25

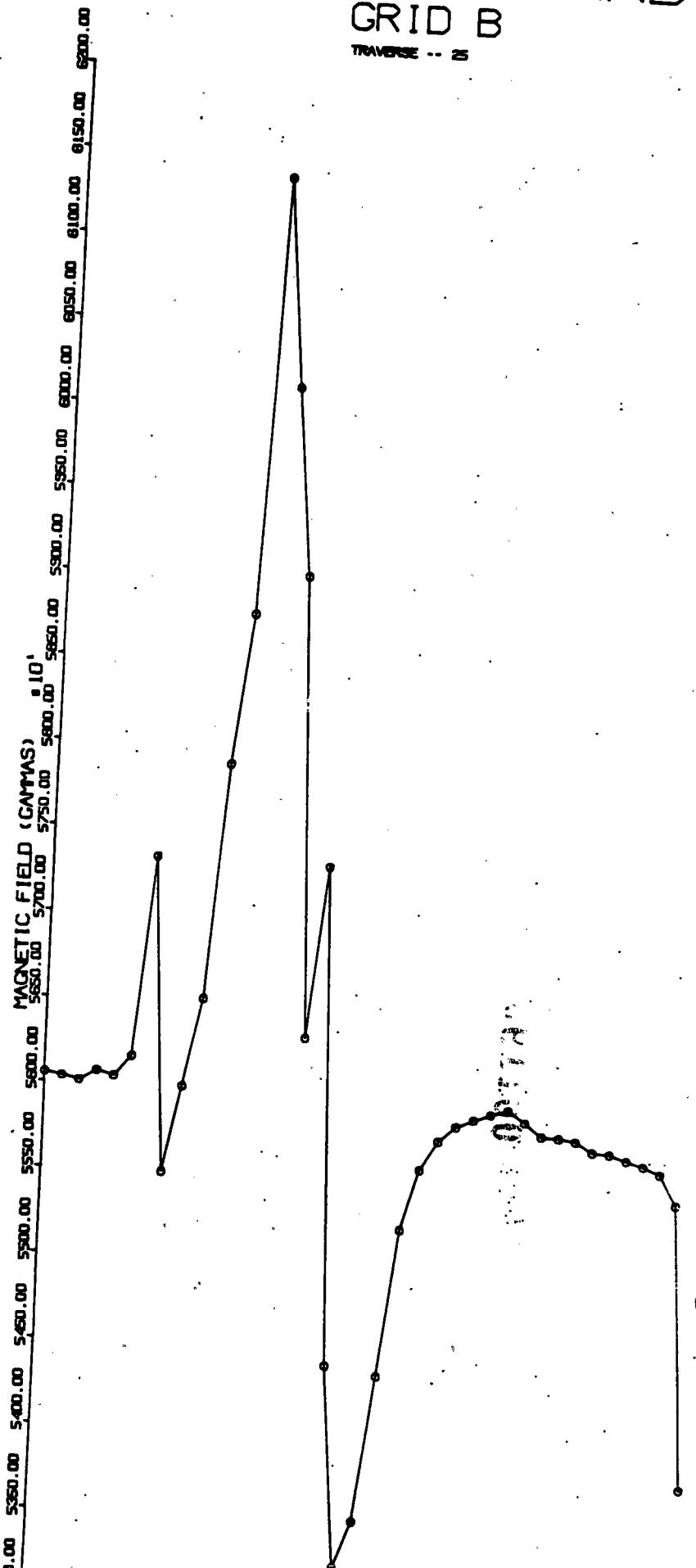
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
25	72	125	0	56,055.6
25	72	126	10	56,036.6
25	72	127	20	56,013.6
25	72	128	30	56,074.4
25	72	129	40	56,046.2
25	72	130	50	56,166.2
25	72	131	60	57,335.0
25	72	132	70	55,495.4
25	72	133	80	56,002.2
25	72	134	90	56,520.0
25	72	135	100	57,891.2
25	72	136	110	58,773.0
25	72	137	120	61,353.8
25	72	138	130	60,124.6
25	72	139	140	59,008.6
25	72	140	150	56,314.4
25	72	141	160	57,317.2
25	72	142	170	54,413.2
25	72	143	180	53,213.4
25	72	144	190	53,493.6
25	72	145	200	54,364.4
25	72	146	210	55,219.4
25	72	147	220	55,571.6
25	72	148	230	55,741.4
25	72	149	240	55,830.4
25	72	150	250	55,876.0
25	72	151	260	55,912.0
25	72	152	270	55,941.8
25	72	153	280	55,873.0
25	72	154	290	55,796.0
25	72	155	300	55,791.6
25	72	156	310	55,776.6
25	72	157	320	55,719.0
25	72	158	330	55,712.0
25	72	159	340	55,679.4
25	72	160	350	55,650.4
25	72	161	360	55,609.0
25	72	162	370	55,434.2
25	72	163	380	53,770.2

001191

ROHM AND HAAS

GRID B

TRAVERSE -- 25



001192

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 26

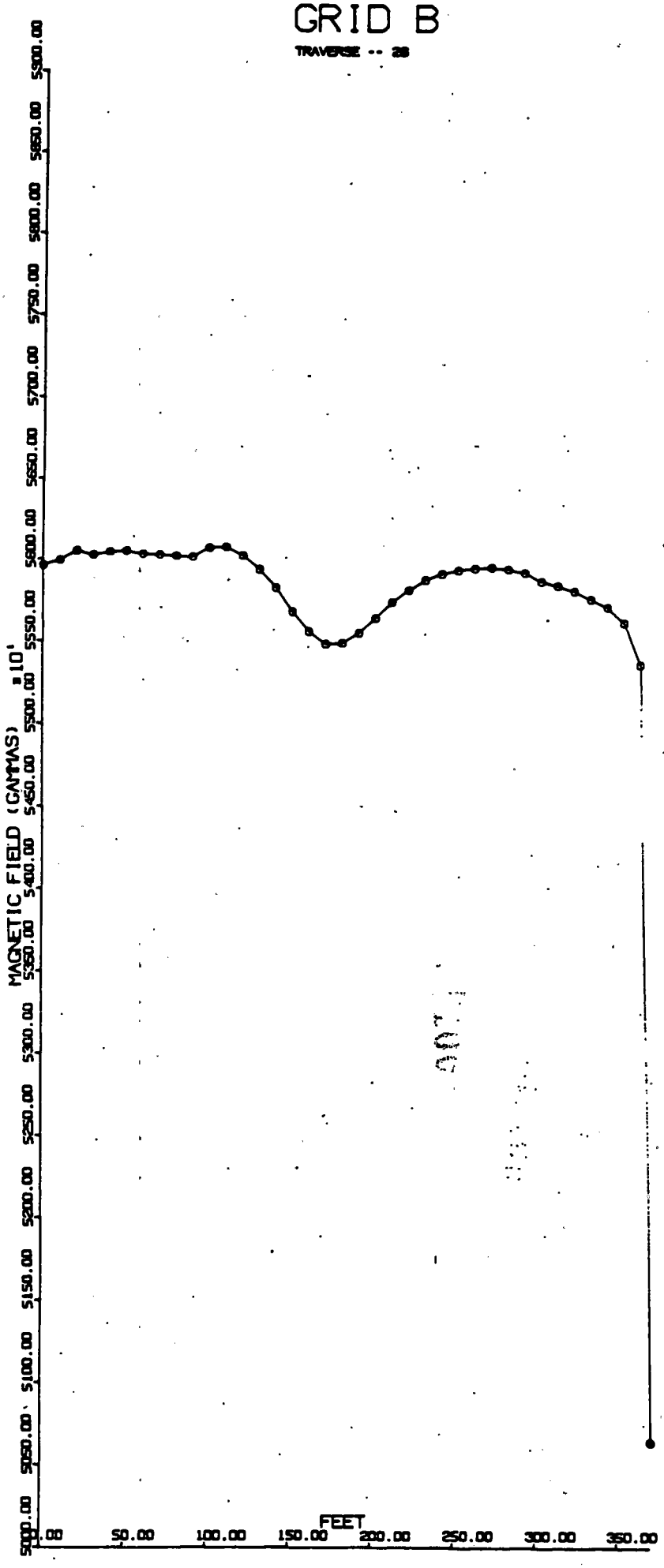
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
26	72	164	0	55,960.2
26	72	165	10	55,993.8
26	72	166	20	56,053.2
26	72	167	30	56,026.4
26	72	168	40	56,047.2
26	72	169	50	56,053.0
26	72	170	60	56,035.0
26	72	171	70	56,030.4
26	72	172	80	56,023.0
26	72	173	90	56,018.6
26	72	174	100	56,072.0
26	72	175	110	56,078.8
26	72	176	120	56,025.4
26	72	177	130	55,942.0
26	72	178	140	55,830.0
26	72	179	150	55,683.4
26	72	180	160	55,564.6
26	72	181	170	55,489.8
26	72	182	180	55,496.2
26	72	183	190	55,556.6
26	72	184	200	55,646.8
26	72	185	210	55,745.4
26	72	186	220	55,820.0
26	72	187	230	55,883.2
26	72	188	240	55,921.0
26	72	189	250	55,942.4
26	72	190	260	55,955.0
26	72	191	270	55,961.4
26	72	192	280	55,951.6
26	72	193	290	55,931.2
26	72	194	300	55,878.6
26	72	195	310	55,853.4
26	72	196	320	55,820.4
26	72	197	330	55,770.4
26	72	198	340	55,722.0
26	72	199	350	55,628.6
26	72	200	360	55,376.4
26	72	201	370	50,652.1

001193

ROHM AND HAAS

GRID B

TRAVERSE -- 28



001194

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 27

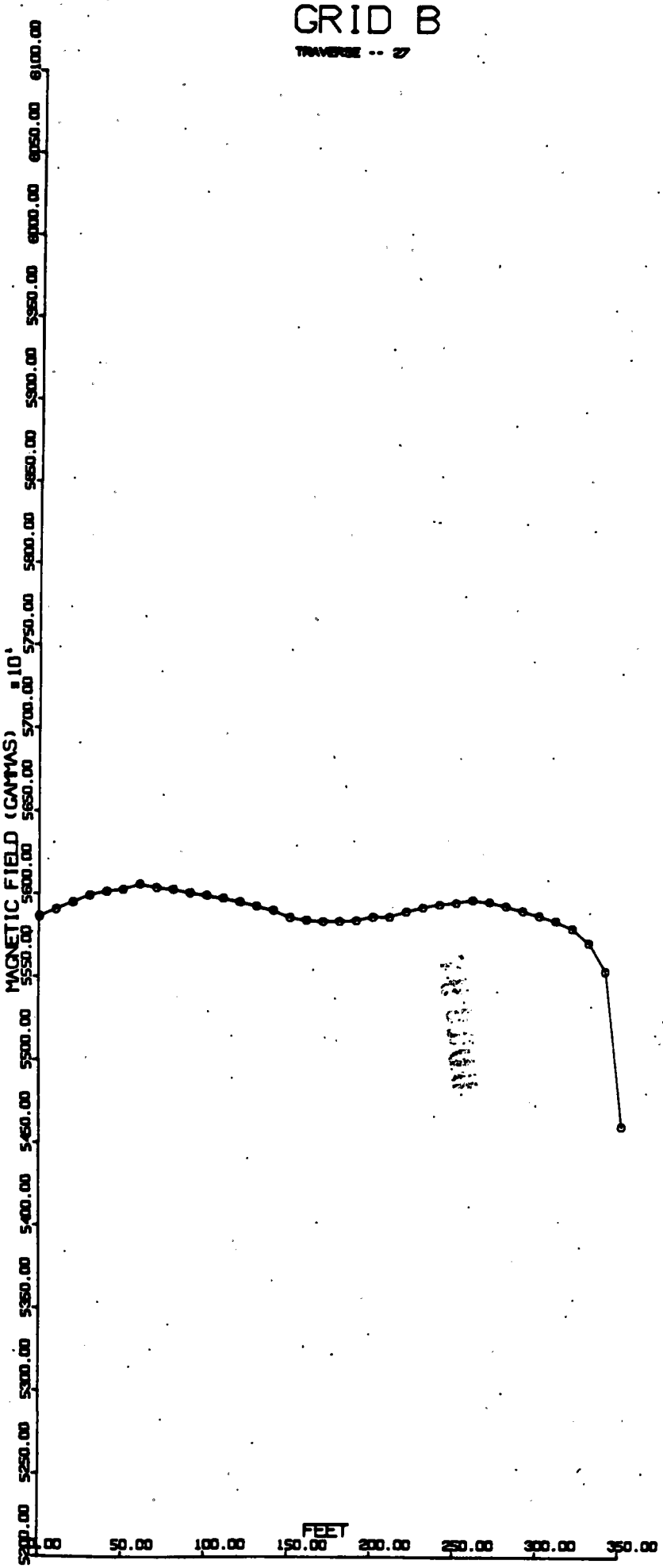
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
27	72	202	0		55,866.2
27	72	203	10		55,906.6
27	72	204	20		55,951.6
27	72	205	30		55,992.6
27	72	206	40		56,015.0
27	72	207	50		56,027.2
27	72	208	60		56,061.4
27	72	209	70		56,041.0
27	72	210	80		56,030.2
27	72	211	90		56,010.6
27	72	212	100		55,996.8
27	72	213	110		55,980.8
27	72	214	120		55,959.6
27	72	215	130		55,935.2
27	72	216	140		55,909.8
27	72	217	150		55,867.8
27	72	218	160		55,851.8
27	72	219	170		55,844.6
27	72	220	180		55,846.0
27	72	221	190		55,850.2
27	72	222	200		55,872.8
27	72	223	210		55,873.8
27	72	224	220		55,905.6
27	72	225	230		55,930.6
27	72	226	240		55,948.6
27	72	227	250		55,960.2
27	72	228	260		55,977.4
27	72	229	270		55,966.8
27	72	230	280		55,942.0
27	72	231	290		55,913.8
27	72	232	300		55,884.4
27	72	233	310		55,854.2
27	72	234	320		55,808.2
27	72	235	330		55,721.0
27	72	236	340		55,549.8
27	72	237	350		54,615.6

001195

ROHM AND HAAS

GRID B

TRAVERSE -- 27



001196

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 28

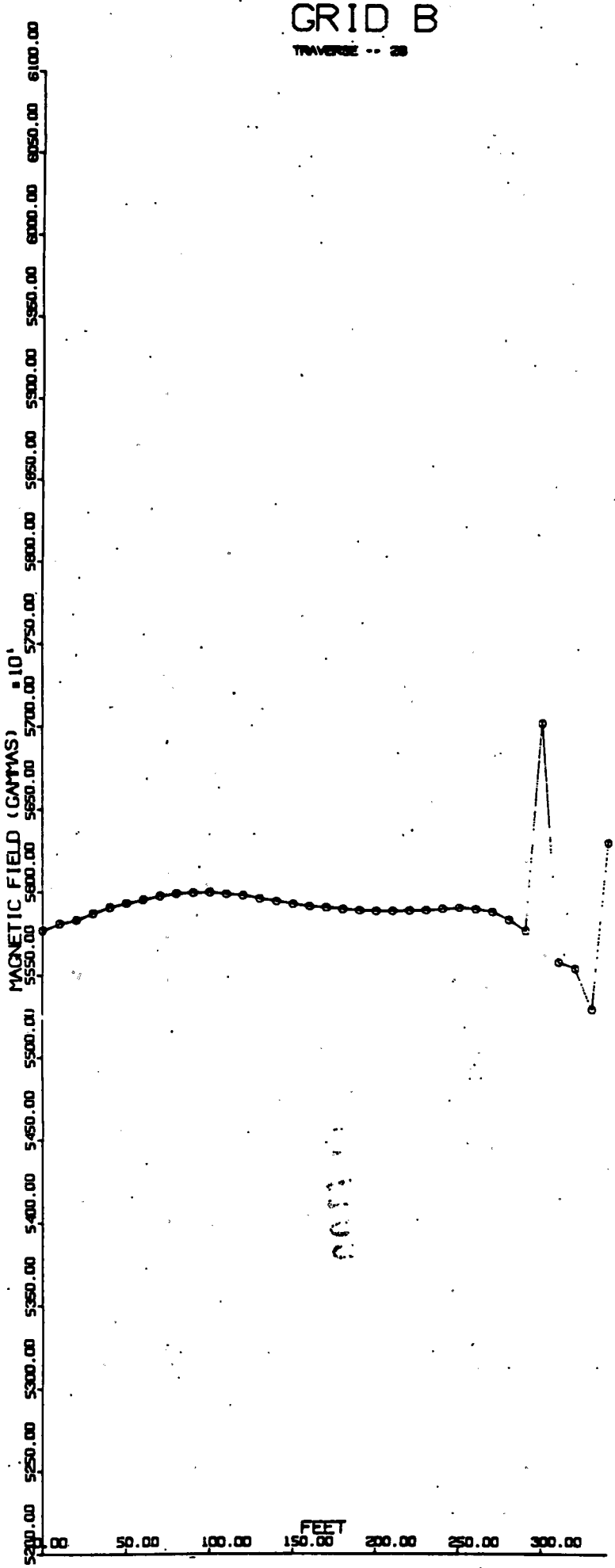
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
28	72	238	0	55,769.6
28	72	239	10	55,811.6
28	72	240	20	55,833.6
28	72	241	30	55,874.6
28	72	242	40	55,910.8
28	72	243	50	55,937.0
28	72	244	60	55,959.6
28	72	245	70	55,982.8
28	72	246	80	55,997.4
28	72	247	90	56,004.0
28	72	248	100	56,007.6
28	72	249	110	55,997.0
28	72	250	120	55,990.0
28	72	251	130	55,970.8
28	72	252	140	55,955.2
28	72	253	150	55,939.2
28	72	254	160	55,925.4
28	72	255	170	55,918.8
28	72	256	180	55,908.8
28	72	257	190	55,901.2
28	72	258	200	55,897.4
28	72	259	210	55,897.0
28	72	260	220	55,900.8
28	72	261	230	55,902.4
28	72	262	240	55,912.4
28	72	263	250	55,917.2
28	72	264	260	55,909.6
28	72	265	270	55,893.8
28	72	266	280	55,845.2
28	72	267	290	55,777.6
28	72	268	300	57,030.8
28	72	269	310	55,585.6
28	72	270	320	55,548.6
28	72	271	330	55,300.8
28	72	272	340	56,310.4

001197

ROHM AND HAAS

GRID B

TRAVERSE -- 28



001198

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 29

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
29	72	273	0	55,950.4
29	72	274	10	55,962.2
29	72	275	20	55,978.4
29	72	276	30	55,984.2
29	72	277	40	55,991.6
29	72	278	50	55,997.0
29	72	279	60	56,003.2
29	72	280	70	55,999.6
29	72	281	80	55,998.0
29	72	282	90	55,995.8
29	72	283	100	55,993.2
29	72	284	110	55,992.4
29	72	285	120	55,998.2
29	72	286	130	55,998.4
29	72	287	140	56,032.0
29	72	288	150	56,064.2
29	72	289	160	56,285.6
29	72	290	170	56,766.6
29	72	291	180	57,508.2
29	72	292	190	57,763.8
29	72	293	200	57,771.2
29	72	294	210	58,386.2
29	72	295	220	57,579.6
29	72	296	230	55,822.4
29	72	297	240	55,747.4
29	72	298	250	56,486.4
29	72	299	260	58,708.8
29	72	300	270	58,541.4
29	72	301	280	61,102.6
29	72	302	290	57,641.4
29	72	303	300	56,603.2
29	72	304	310	57,571.8
29	72	305	320	55,908.0
29	72	306	330	55,229.2
29	72	307	340	58,542.0
29	72	308	350	57,323.8
29	72	309	360	54,809.4
29	72	310	370	54,926.2
29	72	311	380	55,803.2
29	72	312	390	57,031.8
29	72	313	400	55,027.2
29	72	314	410	54,850.2
29	72	315	420	55,387.2
29	72	316	430	57,150.8
29	72	317	440	58,954.4
29	72	318	450	58,068.0
29	72	319	460	56,111.6
29	72	320	470	55,934.0
29	72	321	480	55,640.0
29	72	322	490	54,395.6
29	72	323	500	55,495.6
29	72	324	510	58,736.0
29	72	325	520	59,311.4
29	72	326	530	57,038.8
29	72	327	540	57,425.4
29	72	328	550	58,468.6
29	72	329	560	57,314.6
29	72	330	570	53,970.8
29	72	331	580	53,758.6
29	72	332	590	54,969.6
29	72	333	600	56,480.0
29	72	334	610	58,902.6
29	72	335	620	58,844.0
29	72	336	630	58,194.0
29	72	337	640	56,684.4
29	72	338	650	56,279.8
29	72	339	660	54,469.2
29	72	340	670	54,689.2
29	72	341	680	55,001.4
29	72	342	690	55,232.0

001199

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

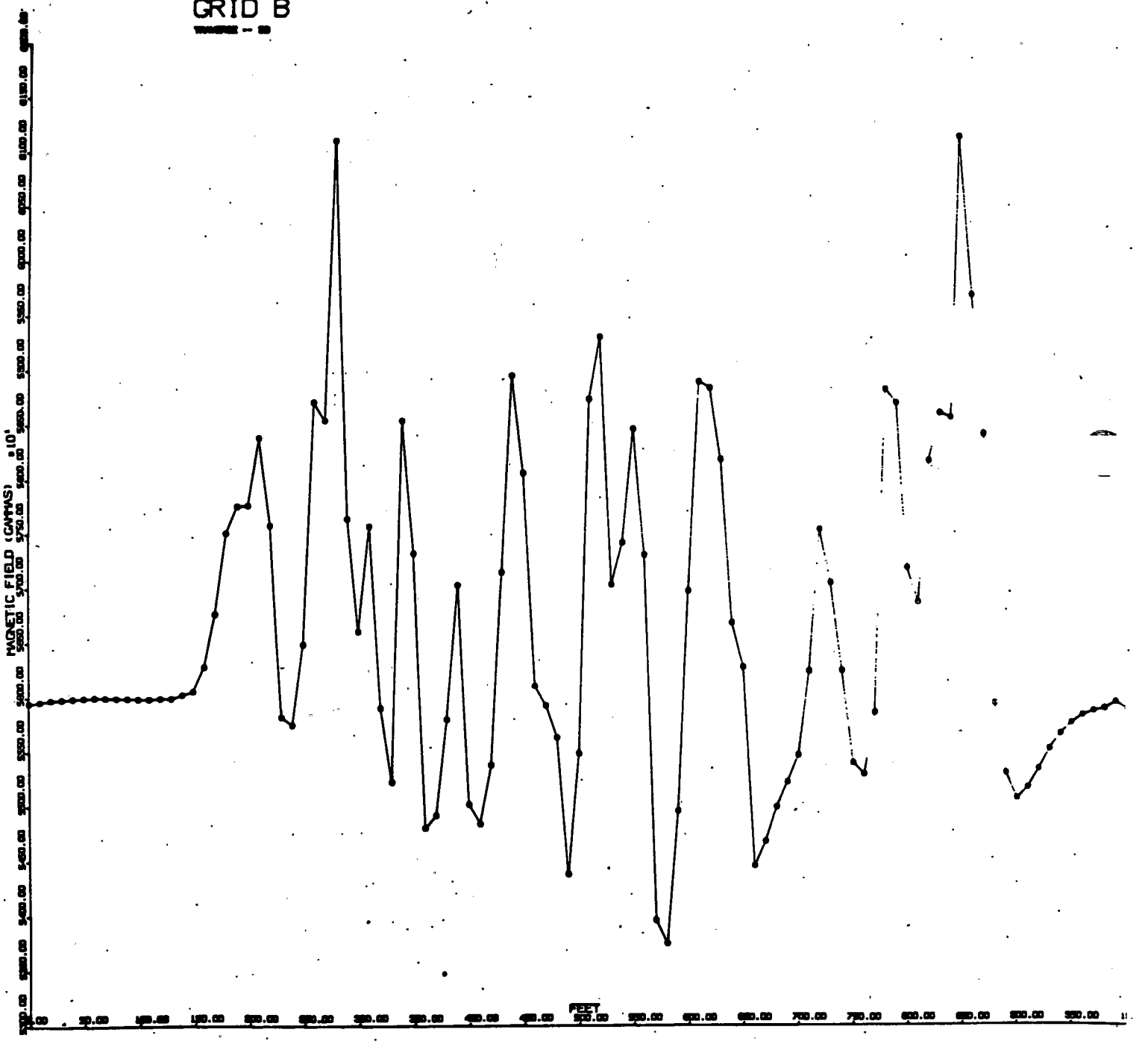
TRAVERSE LINE 29

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
29	72	343	700	55,479.0
29	72	344	710	56,243.6
29	72	345	720	57,547.2
29	72	346	730	57,055.0
29	72	347	740	56,248.4
29	72	348	750	55,405.2
29	72	349	760	55,299.4
29	72	350	770	55,867.0
29	72	351	780	58,831.8
29	72	352	790	58,705.6
29	72	353	800	57,192.8
29	72	354	810	56,876.0
29	72	355	820	58,180.8
29	72	356	830	58,618.0
29	72	357	840	58,574.6
29	72	358	850	61,149.8
29	72	359	860	59,699.8
29	72	360	870	58,423.4
29	72	361	880	55,949.8
29	72	362	890	55,310.8
29	72	363	900	55,078.2
29	72	364	910	55,177.0
29	72	365	920	55,347.8
29	72	366	930	55,534.0
29	72	367	940	55,670.0
29	72	368	950	55,769.2
29	72	369	960	55,841.4
29	72	370	970	55,861.6
29	72	371	980	55,904.6
29	72	372	990	55,962.8
29	72	373	1000	55,898.4
29	72	374	1010	55,911.8

001200

001200

ROHM AND HAAS
GRID B

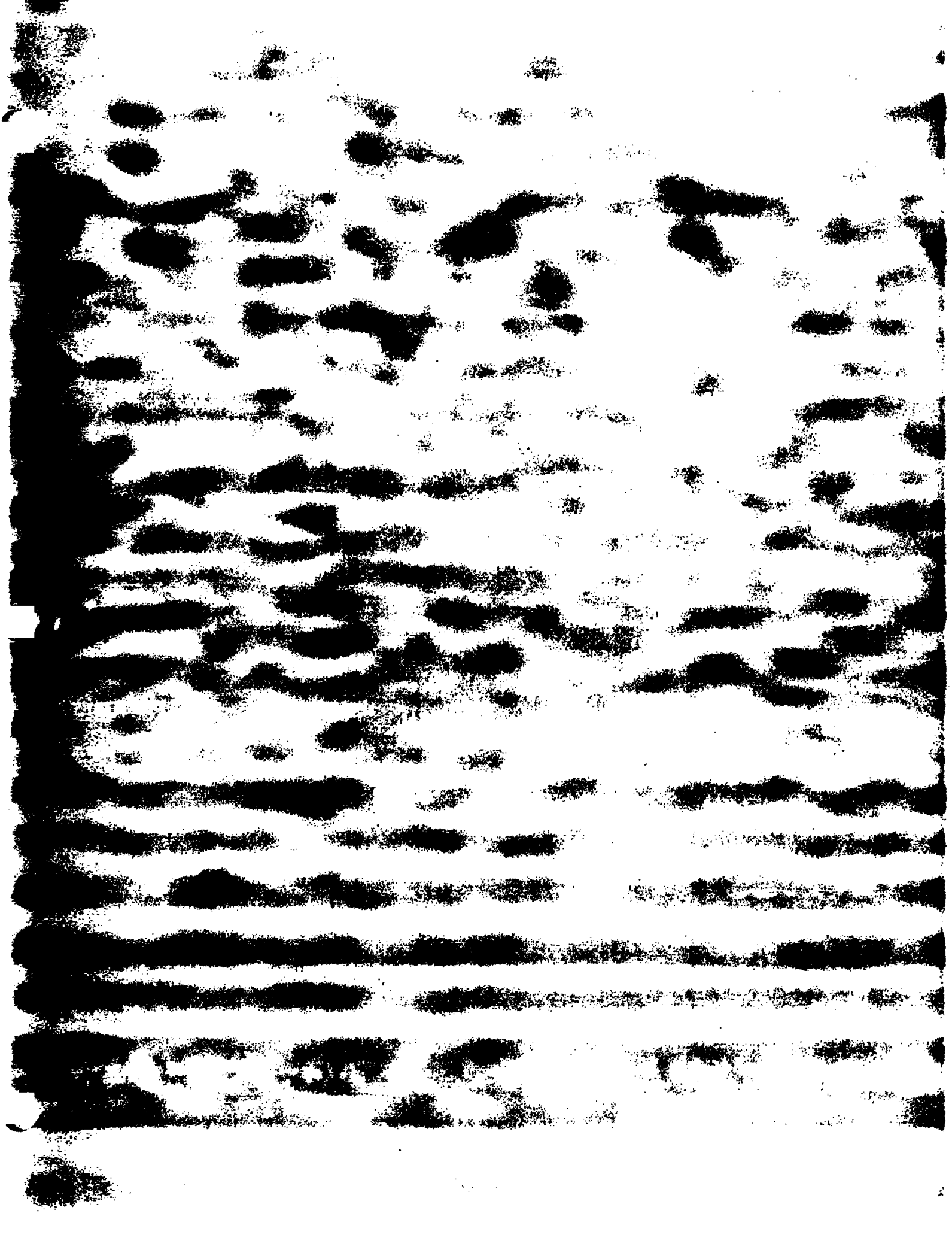


1201

BCM

APPENDIX F

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
CLUBHOUSE GRID



B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 3

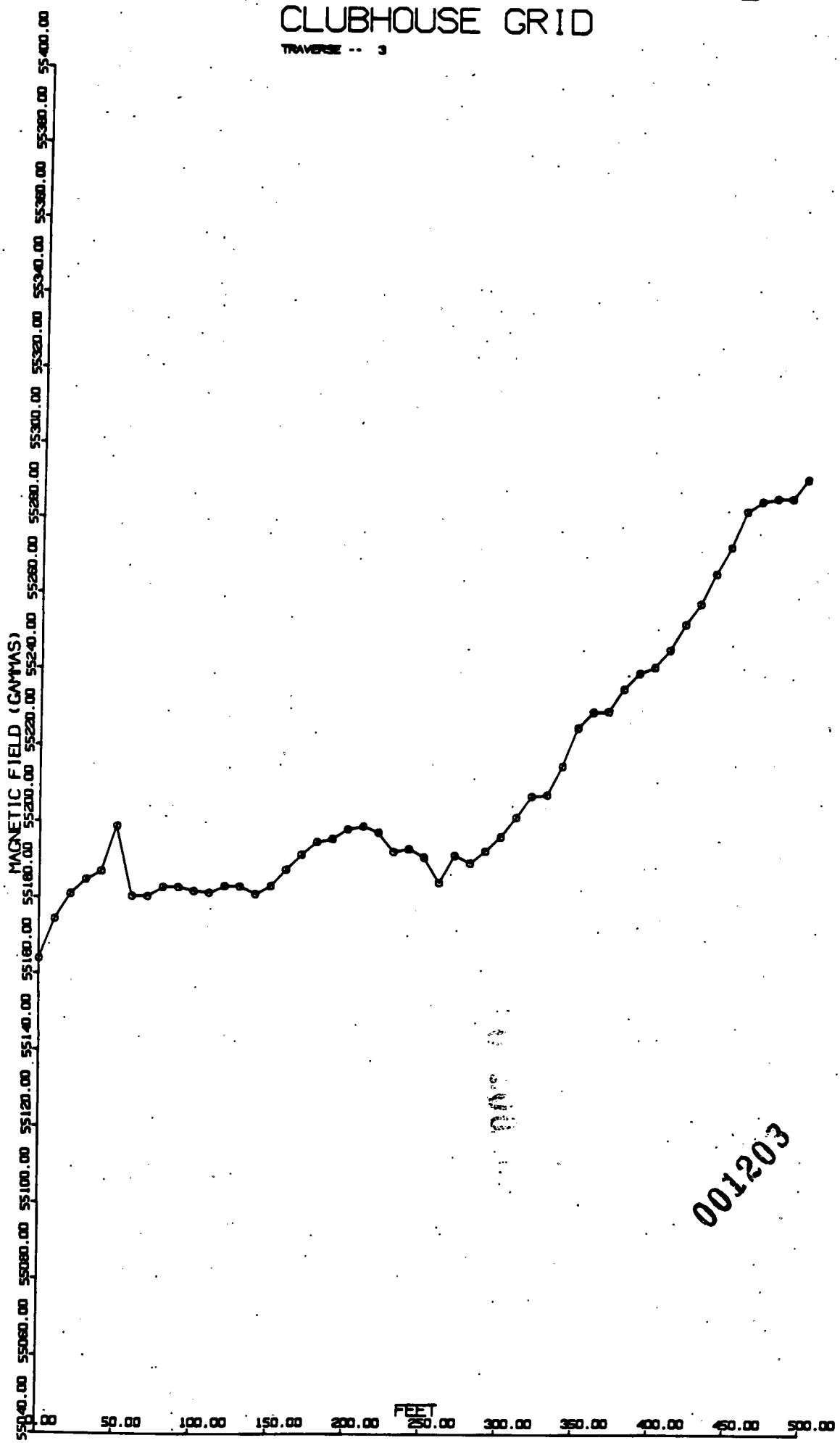
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
3	67	372	0	55,164.0
3	67	373	10	55,174.4
3	67	374	20	55,181.0
3	67	375	30	55,184.8
3	67	376	40	55,187.0
3	67	377	50	55,198.8
3	67	378	60	55,180.4
3	67	379	70	55,180.4
3	67	380	80	55,182.8
3	67	381	90	55,182.8
3	67	382	100	55,181.8
3	67	383	110	55,181.4
3	67	384	120	55,183.2
3	67	385	130	55,183.2
3	67	386	140	55,181.2
3	67	387	150	55,183.4
3	67	388	160	55,187.8
3	67	389	170	55,191.8
3	67	390	180	55,195.2
3	67	391	190	55,196.0
3	67	392	200	55,198.6
3	67	393	210	55,199.4
3	67	394	220	55,197.8
3	67	395	230	55,192.8
3	67	396	240	55,193.6
3	67	397	250	55,191.4
3	67	398	260	55,184.8
3	67	399	270	55,192.0
3	67	400	280	55,190.0
3	67	401	290	55,193.2
3	67	402	300	55,197.0
3	67	403	310	55,202.2
3	67	404	320	55,207.8
3	67	405	330	55,208.2
3	67	406	340	55,215.8
3	67	407	350	55,225.8
3	67	408	360	55,230.0
3	67	409	370	55,230.2
3	67	410	380	55,236.2
3	67	411	390	55,240.4
3	67	412	400	55,242.0
3	67	413	410	55,246.6
3	67	414	420	55,253.4
3	67	415	430	55,258.8
3	67	416	440	55,266.8
3	67	417	450	55,274.0
3	67	418	460	55,283.6
3	67	419	470	55,286.4
3	67	420	480	55,287.2
3	67	421	490	55,287.2
3	67	422	500	55,292.4

001202

ROHM AND HAAS

CLUBHOUSE GRID

TRAVERSE -- 3



001203

B C, M E A S T E R N , I N C

MAGNETIC SURVEY DATA

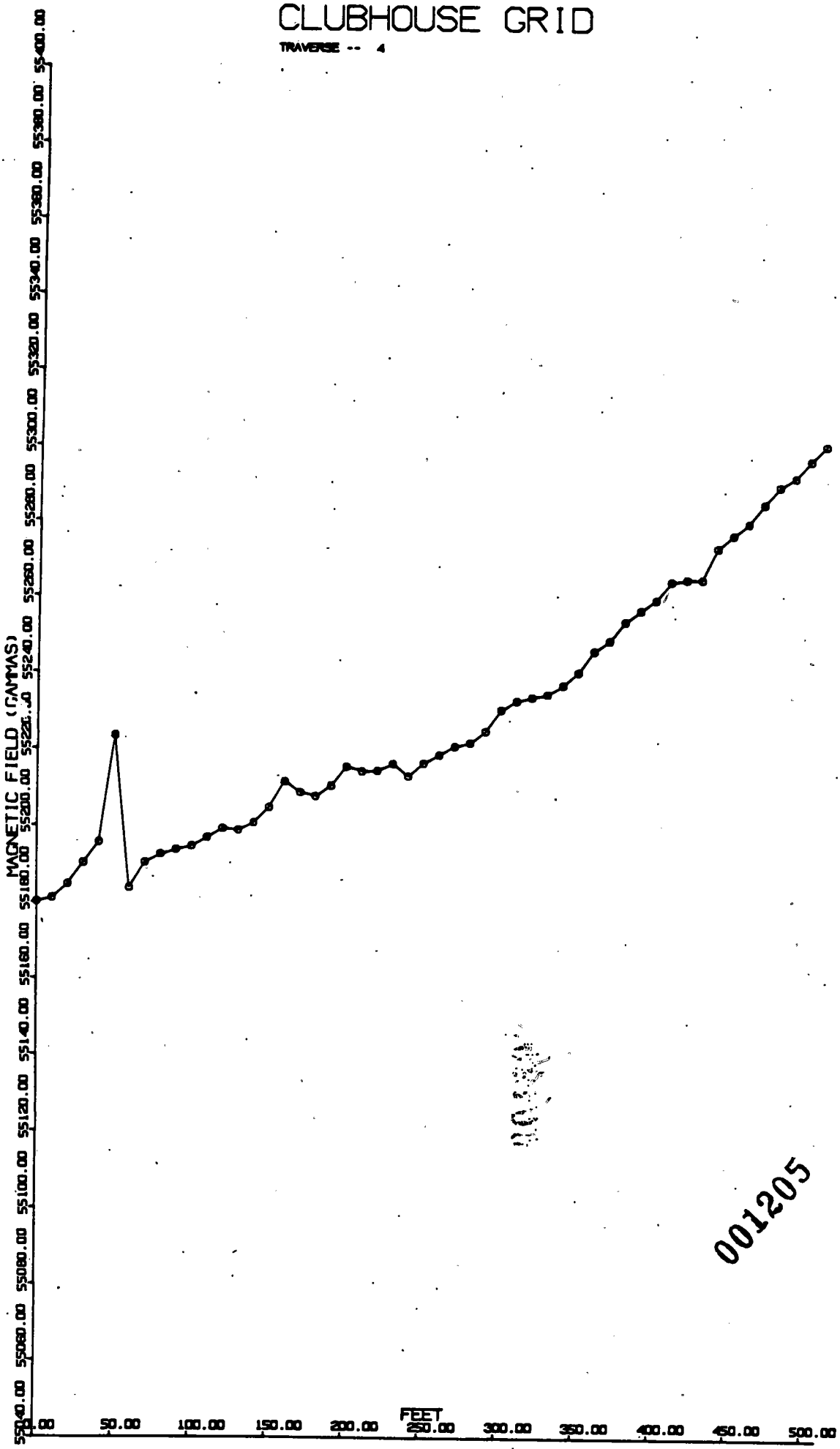
TRAVERSE LINE 4

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
4	67	320	0		55,180.2
4	67	321	10		55,181.2
4	67	322	20		55,184.8
4	67	323	30		55,190.4
4	67	324	40		55,195.8
4	67	325	50		55,223.6
4	67	326	60		55,184.0
4	67	327	70		55,190.6
4	67	328	80		55,192.8
4	67	329	90		55,194.0
4	67	330	100		55,195.0
4	67	331	110		55,197.2
4	67	332	120		55,199.6
4	67	333	130		55,199.2
4	67	334	140		55,201.2
4	67	335	150		55,205.2
4	67	336	160		55,212.0
4	67	337	170		55,209.2
4	67	338	180		55,208.2
4	67	339	190		55,211.0
4	67	340	200		55,216.0
4	67	341	210		55,214.8
4	67	342	220		55,215.0
4	67	343	230		55,216.8
4	67	344	240		55,213.6
4	67	345	250		55,217.0
4	67	346	260		55,219.2
4	67	347	270		55,221.4
4	67	348	280		55,222.4
4	67	349	290		55,225.4
4	67	350	300		55,231.0
4	67	351	310		55,233.4
4	67	352	320		55,234.4
4	67	353	330		55,235.2
4	67	354	340		55,237.6
4	67	355	350		55,241.0
4	67	356	360		55,246.6
4	67	357	370		55,249.4
4	67	358	380		55,254.4
4	67	359	390		55,257.4
4	67	360	400		55,260.2
4	67	361	410		55,265.0
4	67	362	420		55,265.6
4	67	363	430		55,265.6
4	67	364	440		55,274.0
4	67	365	450		55,277.4
4	67	366	460		55,280.6
4	67	367	470		55,285.8
4	67	368	480		55,290.4
4	67	369	490		55,292.8
4	67	370	500		55,297.2
4	67	371	510		55,301.2

001204

ROHM AND HAAS
CLUBHOUSE GRID

TRAVERSE -- 4



001205

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 5

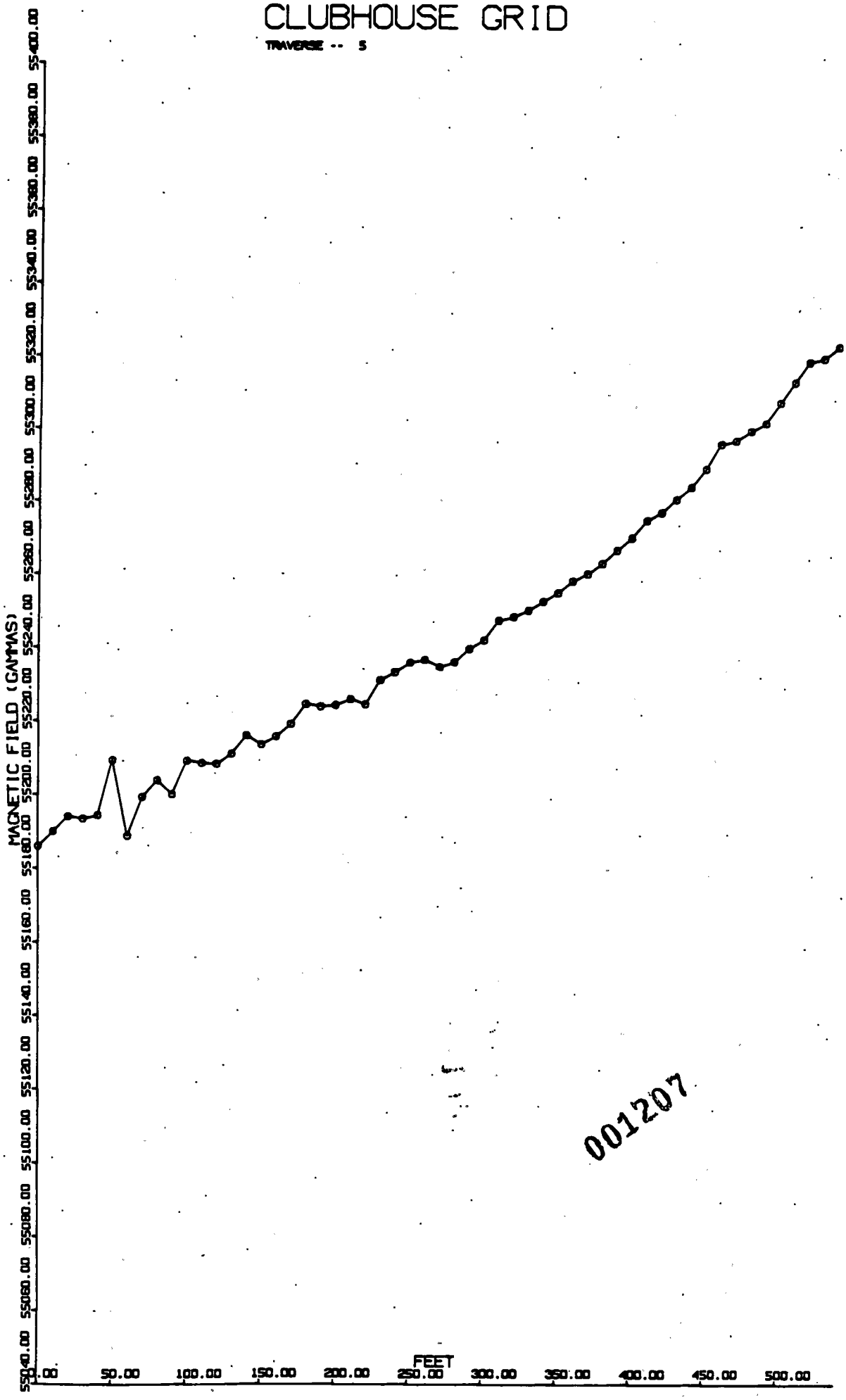
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
5	67	423	0		55,186.0
5	67	424	10		55,190.0
5	67	425	20		55,194.0
5	67	426	30		55,193.4
5	67	427	40		55,194.4
5	67	428	50		55,209.4
5	67	429	60		55,188.8
5	67	430	70		55,199.4
5	67	431	80		55,204.0
5	67	432	90		55,200.2
5	67	433	100		55,209.4
5	67	434	110		55,208.8
5	67	435	120		55,208.6
5	67	436	130		55,211.4
5	67	437	140		55,216.4
5	67	438	150		55,214.0
5	67	439	160		55,216.2
5	67	440	170		55,219.6
5	67	441	180		55,225.0
5	67	442	190		55,224.4
5	67	443	200		55,224.8
5	67	444	210		55,226.4
5	67	445	220		55,225.0
5	67	446	230		55,231.6
5	67	447	240		55,233.8
5	67	448	250		55,236.4
5	67	449	260		55,237.2
5	67	450	270		55,235.2
5	67	451	280		55,236.6
5	67	452	290		55,240.2
5	67	453	300		55,242.6
5	67	454	310		55,248.0
5	67	455	320		55,249.0
5	67	456	330		55,250.8
5	67	457	340		55,253.2
5	67	458	350		55,255.6
5	67	459	360		55,258.8
5	67	460	370		55,260.8
5	67	461	380		55,263.6
5	67	462	390		55,267.2
5	67	463	400		55,270.6
5	67	464	410		55,275.4
5	67	465	420		55,277.6
5	67	466	430		55,281.2
5	67	467	440		55,284.6
5	67	468	450		55,289.6
5	67	469	460		55,296.4
5	67	470	470		55,297.4
5	67	471	480		55,300.0
5	67	472	490		55,302.2
5	67	473	500		55,308.0
5	67	474	510		55,313.6
5	67	475	520		55,319.2
5	67	476	530		55,320.2
5	67	477	540		55,323.4

001206

ROHM AND HAAS

CLUBHOUSE GRID

TRAVERSE -- 5



001207

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 6

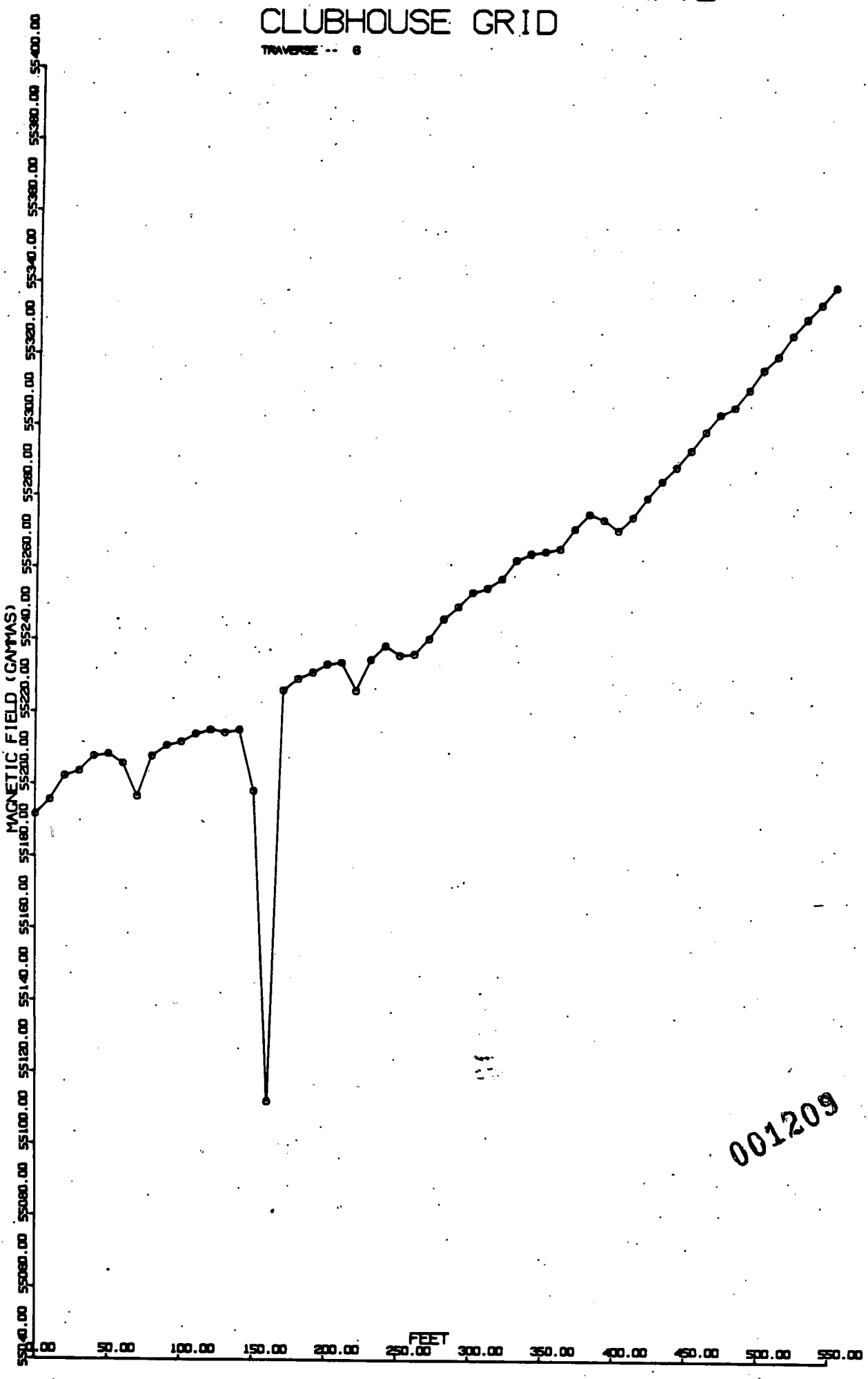
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
6	67	478	0	55,191.6
6	67	479	10	55,195.6
6	67	480	20	55,202.2
6	67	481	30	55,203.6
6	67	482	40	55,207.8
6	67	483	50	55,208.4
6	67	484	60	55,205.8
6	67	485	70	55,196.6
6	67	486	80	55,207.8
6	67	487	90	55,210.8
6	67	488	100	55,211.8
6	67	489	110	55,214.0
6	67	490	120	55,215.2
6	67	491	130	55,214.4
6	67	492	140	55,215.2
6	67	493	150	55,198.2
6	67	494	160	55,112.2
6	67	495	170	55,226.2
6	67	496	180	55,229.4
6	67	497	190	55,231.2
6	67	498	200	55,233.4
6	67	499	210	55,234.0
6	67	500	220	55,226.2
6	67	501	230	55,234.6
6	67	502	240	55,238.6
6	67	503	250	55,236.0
6	67	504	260	55,236.4
6	67	505	270	55,240.6
6	67	506	280	55,246.2
6	67	507	290	55,249.6
6	67	508	300	55,253.6
6	67	509	310	55,254.8
6	67	510	320	55,257.4
6	67	511	330	55,262.6
6	67	512	340	55,264.4
6	67	513	350	55,265.0
6	67	514	360	55,265.8
6	67	515	370	55,271.4
6	67	516	380	55,275.6
6	67	517	390	55,274.0
6	67	518	400	55,271.0
6	67	519	410	55,274.8
6	67	520	420	55,280.2
6	67	521	430	55,285.0
6	67	522	440	55,289.0
6	67	523	450	55,293.8
6	67	524	460	55,299.0
6	67	525	470	55,304.0
6	67	526	480	55,306.0
6	67	527	490	55,311.0
6	67	528	500	55,316.6
6	67	529	510	55,320.4
6	67	530	520	55,326.2
6	67	531	530	55,330.8
6	67	532	540	55,334.8
6	67	533	550	55,339.6

001208

ROHM AND HAAS

CLUBHOUSE GRID

TRAVERSE -- 6



001209

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 7

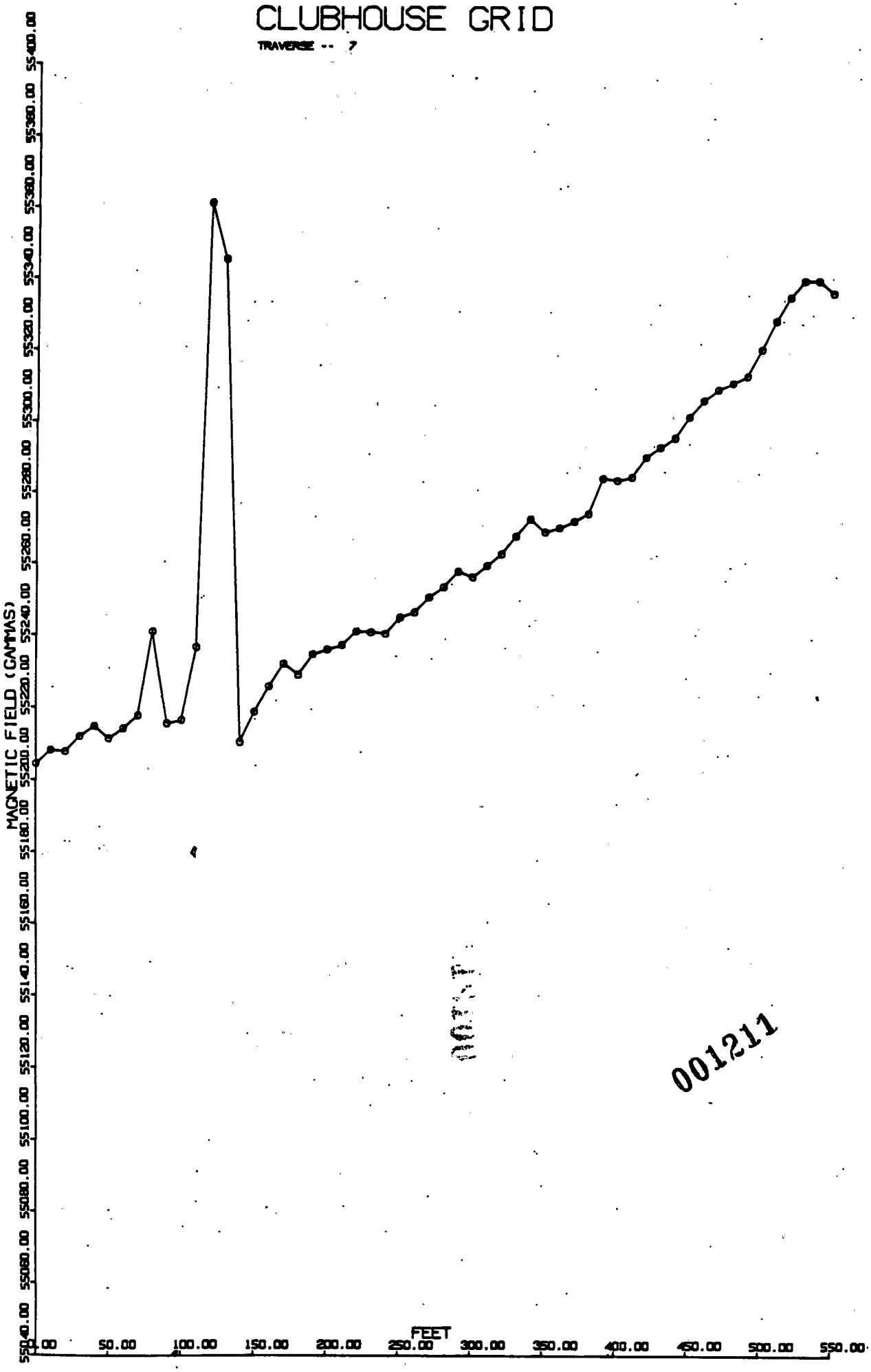
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
7	67	534	0	55,204.4
7	67	535	10	55,208.2
7	67	536	20	55,207.8
7	67	537	30	55,212.0
7	67	538	40	55,214.8
7	67	539	50	55,211.4
7	67	540	60	55,214.2
7	67	541	70	55,217.8
7	67	542	80	55,241.0
7	67	543	90	55,215.6
7	67	544	100	55,216.6
7	67	545	110	55,236.8
7	67	546	120	55,361.2
7	67	547	130	55,345.4
7	67	548	140	55,210.8
7	67	549	150	55,219.2
7	67	550	160	55,226.2
7	67	551	170	55,232.4
7	67	552	180	55,229.4
7	67	553	190	55,235.0
7	67	554	200	55,236.4
7	67	555	210	55,237.6
7	67	556	220	55,241.4
7	67	557	230	55,241.2
7	67	558	240	55,240.8
7	67	559	250	55,245.4
7	67	560	260	55,246.8
7	67	561	270	55,251.0
7	67	562	280	55,253.8
7	67	563	290	55,258.2
7	67	564	300	55,256.6
7	67	565	310	55,259.8
7	67	566	320	55,263.0
7	67	567	330	55,268.0
7	67	568	340	55,272.8
7	67	569	350	55,269.2
7	67	570	360	55,270.4
7	67	571	370	55,272.2
7	67	572	380	55,274.4
7	67	573	390	55,284.4
7	67	574	400	55,283.8
7	67	575	410	55,284.8
7	67	576	420	55,290.4
7	67	577	430	55,293.2
7	67	578	440	55,295.8
7	67	579	450	55,301.8
7	67	580	460	55,306.4
7	67	581	470	55,309.4
7	67	582	480	55,311.2
7	67	583	490	55,313.2
7	67	584	500	55,320.6
7	67	585	510	55,328.6
7	67	586	520	55,335.2
7	67	587	530	55,339.8
7	67	588	540	55,339.6
7	67	589	550	55,336.4

001210

ROHM AND HAAS

CLUBHOUSE GRID

TRAVERSE -- 7



001211

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 8

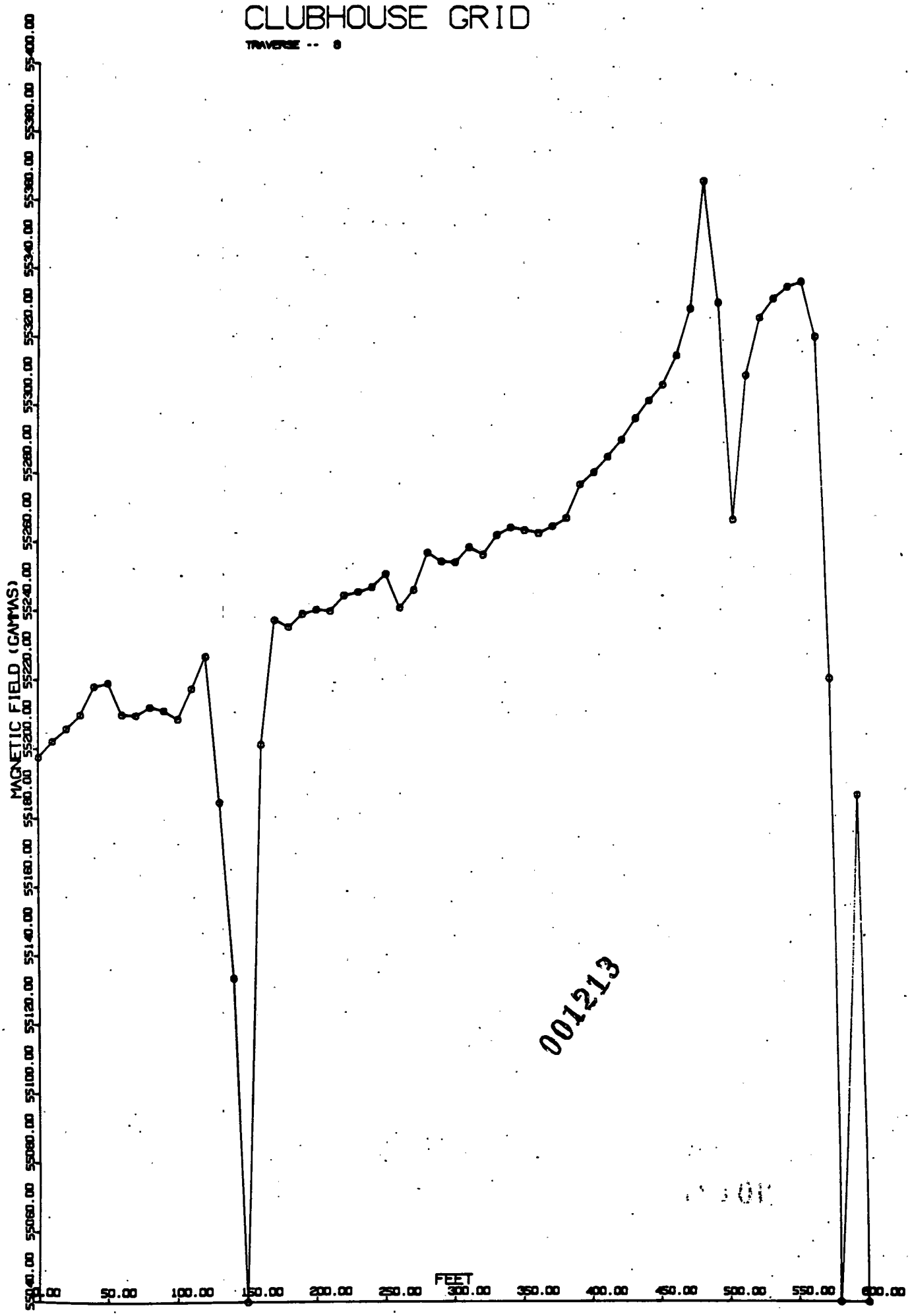
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
8	67	590	0	55,197.6
8	67	591	10	55,202.2
8	67	592	20	55,205.8
8	67	593	30	55,209.8
8	67	594	40	55,218.0
8	67	595	50	55,219.0
8	67	596	60	55,209.8
8	67	597	70	55,209.6
8	67	598	80	55,212.0
8	67	599	90	55,211.0
8	67	600	100	55,208.6
8	67	601	110	55,217.4
8	67	602	120	55,226.8
8	67	603	130	55,184.6
8	67	604	140	55,133.6
8	67	605	150	54,872.0
8	67	606	160	55,201.6
8	67	607	170	55,237.6
8	67	608	180	55,235.6
8	67	609	190	55,239.4
8	67	610	200	55,240.6
8	67	611	210	55,240.2
8	67	612	220	55,244.8
8	67	613	230	55,245.8
8	67	614	240	55,247.2
8	67	615	250	55,251.0
8	67	616	260	55,241.2
8	67	617	270	55,246.4
8	67	618	280	55,257.2
8	67	619	290	55,254.6
8	67	620	300	55,254.4
8	67	621	310	55,258.8
8	67	622	320	55,256.6
8	67	623	330	55,262.2
8	67	624	340	55,264.4
8	67	625	350	55,263.6
8	67	626	360	55,262.8
8	67	627	370	55,264.8
8	67	628	380	55,267.2
8	67	629	390	55,277.0
8	67	630	400	55,280.6
8	67	631	410	55,285.2
8	67	632	420	55,290.2
8	67	633	430	55,296.4
8	67	634	440	55,301.8
8	67	635	450	55,306.4
8	67	636	460	55,315.0
8	67	637	470	55,328.6
8	67	638	480	55,365.6
8	67	639	490	55,330.4
8	67	640	500	55,266.8
8	67	641	510	55,309.2
8	67	642	520	55,326.0
8	67	643	530	55,331.6
8	67	644	540	55,335.0
8	67	645	550	55,336.6
8	67	646	560	55,320.6
8	67	647	570	55,220.8
8	67	648	580	54,994.8
8	67	649	590	55,187.2
8	67	650	600	54,879.0

001212

ROHM AND HAAS

CLUBHOUSE GRID

TRAVERSE -- 8



001213

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

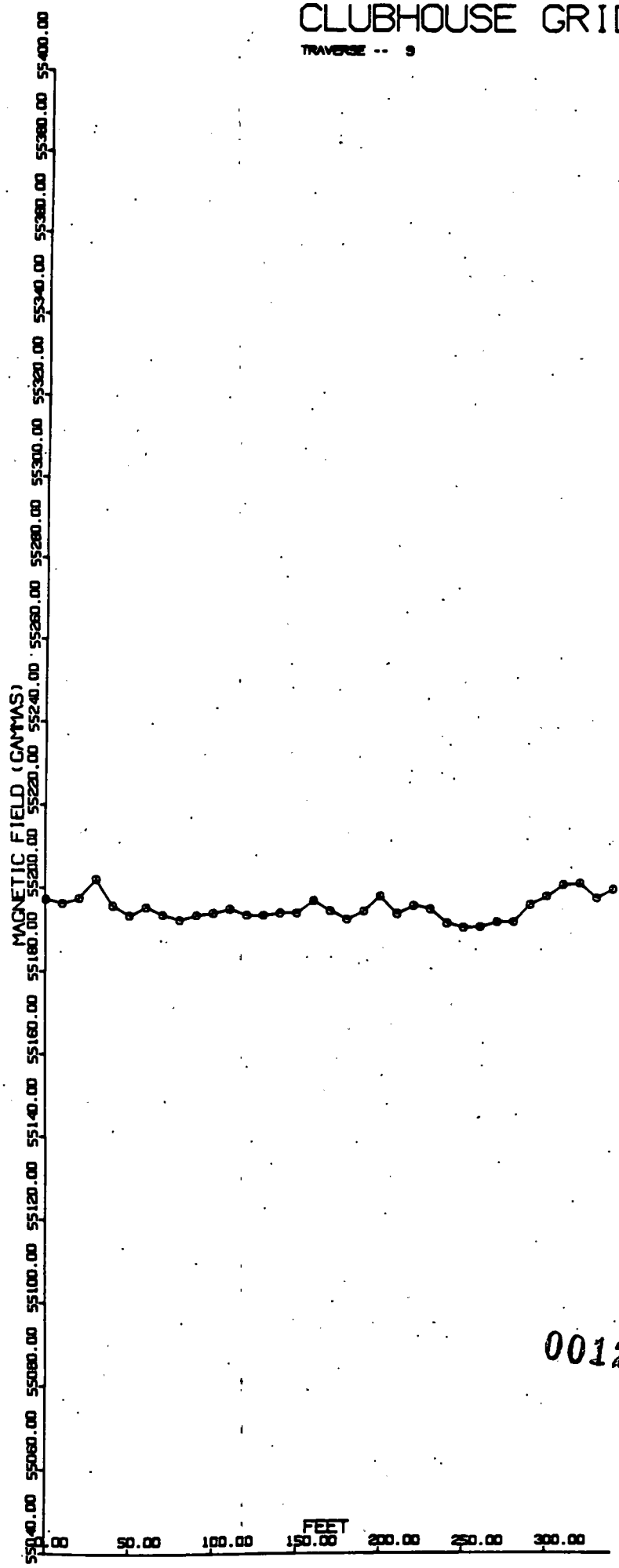
TRAVERSE LINE 9

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
9	67	651	0	55,197.2
9	67	652	10	55,196.2
9	67	653	20	55,197.4
9	67	654	30	55,202.0
9	67	655	40	55,195.6
9	67	656	50	55,193.2
9	67	657	60	55,195.2
9	67	658	70	55,193.4
9	67	659	80	55,192.2
9	67	660	90	55,193.4
9	67	661	100	55,194.0
9	67	662	110	55,195.0
9	67	663	120	55,193.6
9	67	664	130	55,193.6
9	67	665	140	55,194.2
9	67	666	150	55,194.2
9	67	667	160	55,197.2
9	67	668	170	55,194.8
9	67	669	180	55,192.8
9	67	670	190	55,194.8
9	67	671	200	55,198.4
9	67	672	210	55,194.2
9	67	673	220	55,196.2
9	67	674	230	55,195.4
9	67	675	240	55,192.0
9	67	676	250	55,191.0
9	67	677	260	55,191.2
9	67	678	270	55,192.4
9	67	679	280	55,192.4
9	67	680	290	55,196.6
9	67	681	300	55,198.6
9	67	682	310	55,201.4
9	67	683	320	55,201.8
9	67	684	330	55,198.2
9	67	685	340	55,200.4

ROHM AND HAAS

CLUBHOUSE GRID

TRAVERSE -- 9



001215

BCM

APPENDIX G

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
CHEMICAL LEHMAN GRID
SECTION 1

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 106

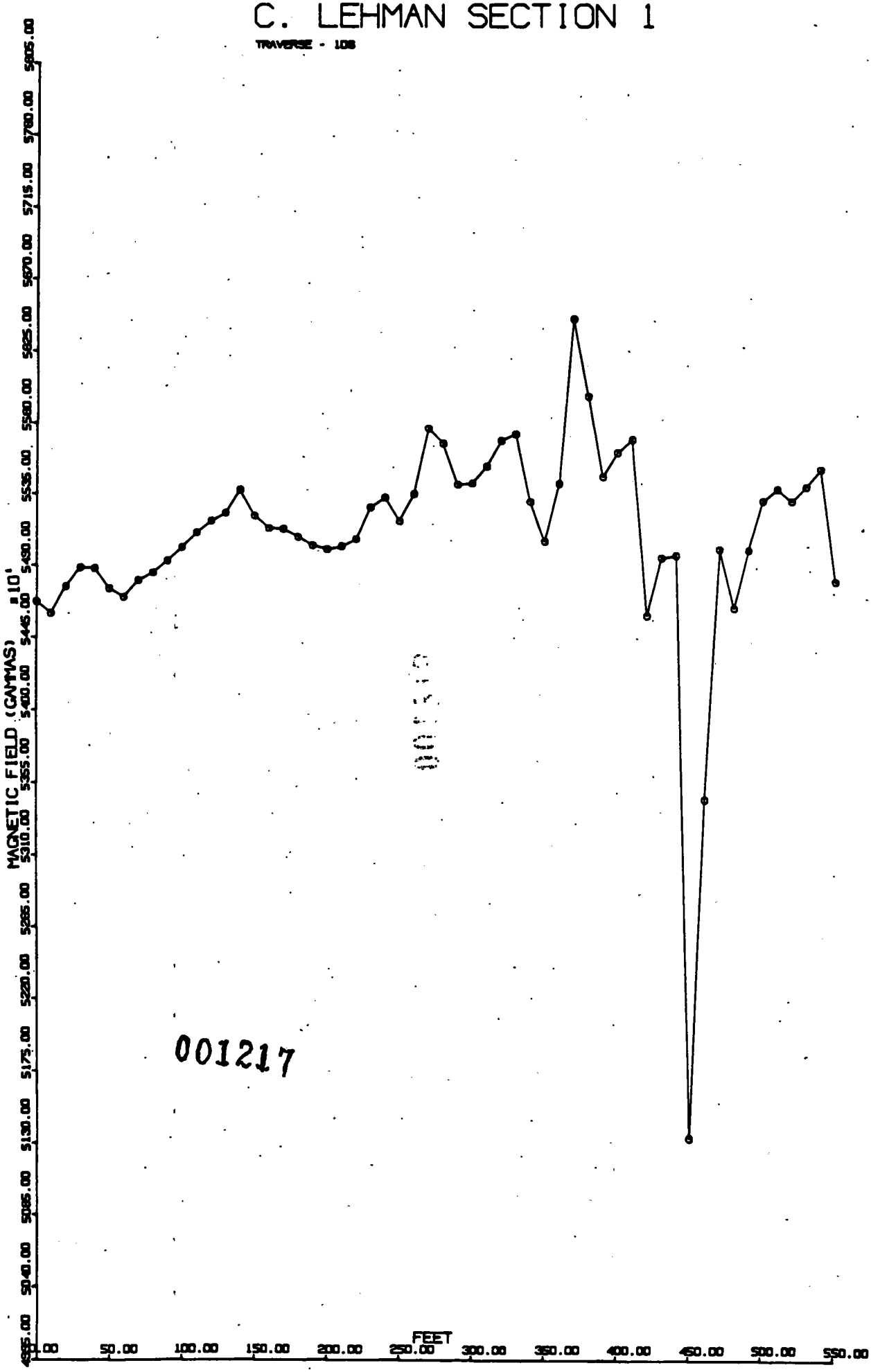
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
106	111	0	0		54,674.8
106	111	1	10		54,602.4
106	111	2	20		54,769.0
106	111	3	30		54,886.4
106	111	4	40		54,883.6
106	111	5	50		54,757.8
106	111	6	60		54,704.6
106	111	7	70		54,809.4
106	111	8	80		54,857.0
106	111	9	90		54,932.2
106	111	10	100		55,016.4
106	111	11	110		55,109.8
106	111	12	120		55,183.4
106	111	13	130		55,234.0
106	111	14	140		55,380.8
106	111	15	150		55,216.2
106	111	16	160		55,138.4
106	111	17	170		55,133.6
106	111	18	180		55,082.6
106	111	19	190		55,030.0
106	111	20	200		55,005.4
106	111	21	210		55,023.4
106	111	22	220		55,068.2
106	111	23	230		55,270.0
106	111	24	240		55,333.2
106	111	25	250		55,184.0
106	111	26	260		55,355.6
106	111	27	270		55,767.4
106	111	28	280		55,672.0
106	111	29	290		55,415.0
106	111	30	300		55,423.8
106	111	31	310		55,529.8
106	111	32	320		55,689.2
106	111	33	330		55,731.4
106	111	34	340	?	55,305.4
106	111	35	350	?	55,055.6
106	111	36	360	?	55,420.2
106	111	37	370	?	56,451.8
106	111	38	380	?	55,968.0
106	111	39	390	?	55,463.8
106	111	40	400	?	55,614.6
106	111	41	410	?	55,696.0
106	111	42	420	?	54,592.6
106	111	43	430	?	54,952.2
106	111	44	440	?	54,968.2
106	111	45	450	?	51,347.0
106	111	46	460	?	53,452.0
106	111	47	470	?	55,006.2
106	111	48	480	?	54,639.4
106	111	49	490	?	54,999.4
106	111	50	500	?	55,310.8
106	111	51	510	?	55,386.4
106	111	52	520	?	55,309.2
106	111	53	530		55,399.4
106	111	54	540	?	55,510.8
106	111	55	550	?	54,805.0

001216

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 108



001217

MAGNETIC SURVEY DATA

TRAVERSE LINE 107

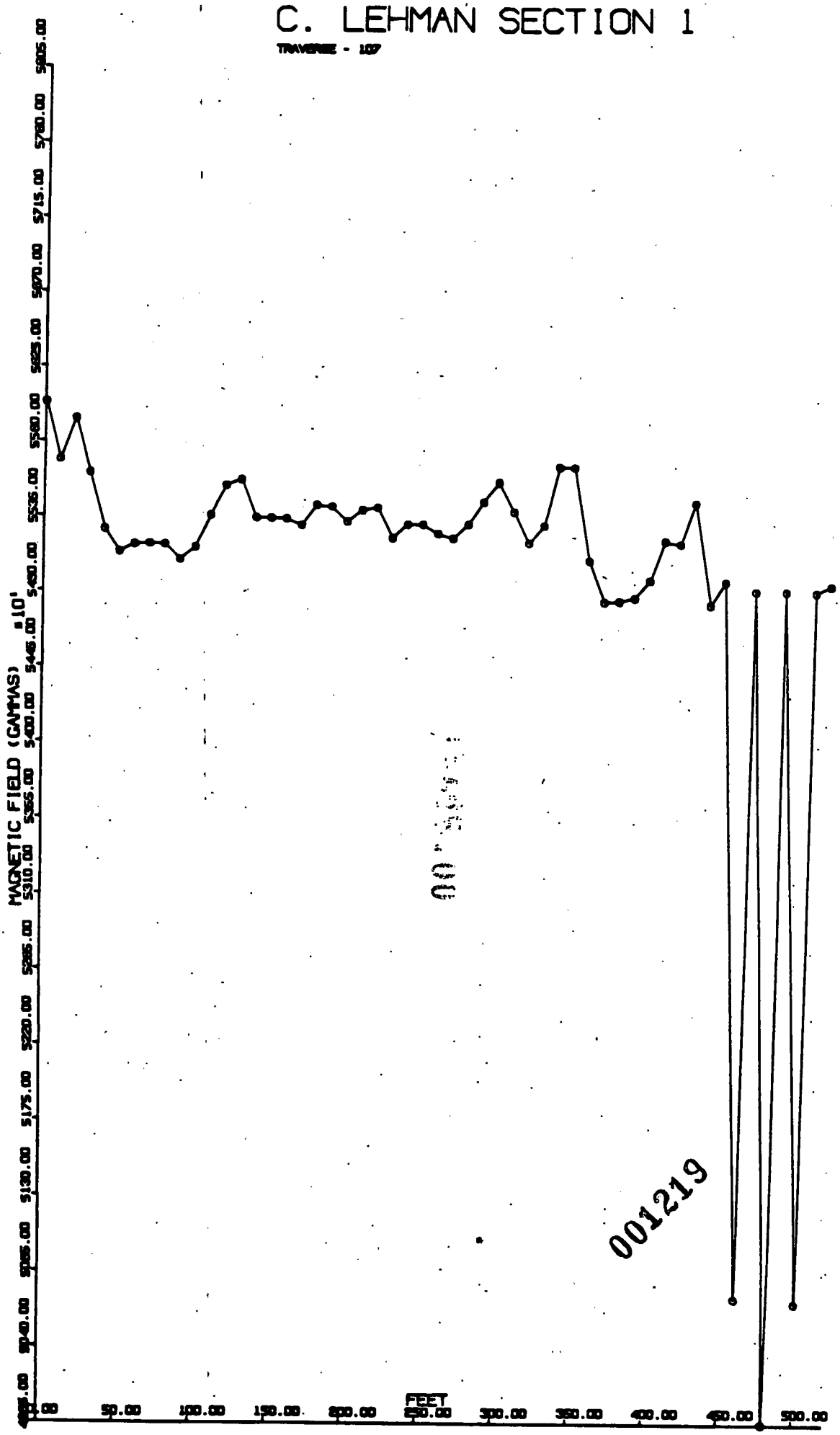
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
107	111	56	0	?	56,034.2
107	111	57	10		55,694.8
107	111	58	20		55,937.4
107	111	59	30		55,609.6
107	111	60	40		55,271.6
107	111	61	50		55,134.2
107	111	62	60		55,180.2
107	111	63	70		55,183.8
107	111	64	80		55,180.2
107	111	65	90		55,087.2
107	111	66	100		55,163.2
107	111	67	110		55,358.6
107	111	68	120		55,539.6
107	111	69	130		55,573.4
107	111	70	140		55,345.8
107	111	71	150		55,345.0
107	111	72	160		55,341.8
107	111	73	170		55,302.2
107	111	74	180		55,424.6
107	111	75	190		55,414.6
107	111	76	200		55,325.6
107	111	77	210		55,394.6
107	111	78	220		55,410.0
107	111	79	230		55,227.0
107	111	80	240		55,310.4
107	111	81	250		55,310.4
107	111	82	260		55,255.6
107	111	83	270		55,226.8
107	111	84	280		55,312.6
107	111	85	290		55,447.2
107	111	86	300		55,566.6
107	111	87	310		55,389.0
107	111	88	320		55,202.4
107	111	89	330		55,307.8
107	111	90	340		55,661.0
107	111	91	350	?	55,658.2
107	111	92	360	?	55,097.8
107	111	93	370	?	54,852.2
107	111	94	380	?	54,855.6
107	111	95	390	?	54,876.4
107	111	96	400	?	54,982.2
107	111	97	410	?	55,218.6
107	111	98	420	?	55,202.2
107	111	99	430	?	55,449.8
107	111	100	440	?	54,838.0
107	111	101	450	?	54,976.0
107	111	102	460	?	50,707.8
107	111	103	470	?	54,921.4
107	111	104	480	?	49,952.4
107	111	105	490	?	54,922.6
107	111	106	500	?	50,679.4
107	111	107	510	?	54,916.2
107	111	108	520	?	54,956.0

001218

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 107



001219

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 108

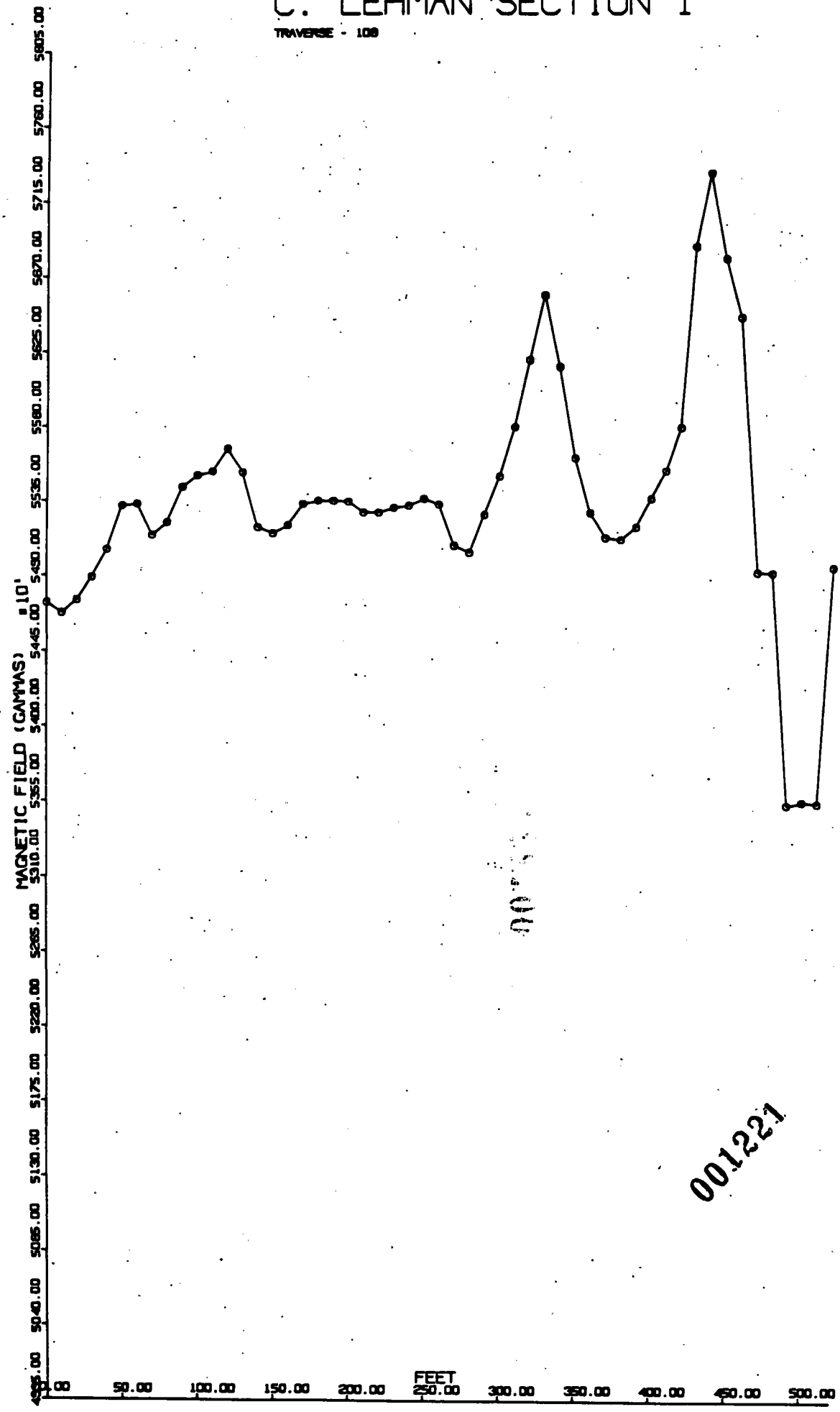
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
108	111	109	0		54,738.2
108	111	110	10		54,677.8
108	111	111	20		54,754.0
108	111	112	30		54,889.4
108	111	113	40		55,054.0
108	111	114	50		55,318.0
108	111	115	60		55,329.4
108	111	116	70		55,140.4
108	111	117	80		55,216.2
108	111	118	90		55,430.8
108	111	119	100		55,501.4
108	111	120	110		55,525.2
108	111	121	120		55,662.4
108	111	122	130		55,520.4
108	111	123	140		55,186.4
108	111	124	150		55,151.8
108	111	125	160		55,201.0
108	111	126	170		55,330.6
108	111	127	180		55,350.8
108	111	128	190		55,350.0
108	111	129	200		55,345.2
108	111	130	210		55,278.8
108	111	131	220		55,278.8
108	111	132	230		55,308.0
108	111	133	240		55,322.0
108	111	134	250		55,363.2
108	111	135	260		55,328.0
108	111	136	270		55,079.2
108	111	137	280		55,037.4
108	111	138	290		55,266.2
108	111	139	300		55,499.0
108	111	140	310		55,799.0
108	111	141	320		56,204.2
108	111	142	330	?	56,591.8
108	111	143	340	?	56,164.2
108	111	144	350		55,610.8
108	111	145	360		55,277.2
108	111	146	370		55,128.0
108	111	147	380	?	55,117.0
108	111	148	390	?	55,191.6
108	111	149	400	?	55,364.4
108	111	150	410	?	55,533.2
108	111	151	420	?	55,796.2
108	111	152	430	?	56,878.0
108	111	153	440	?	57,315.8
108	111	154	450	?	56,805.6
108	111	155	460	?	56,458.8
108	111	156	470	?	54,921.2
108	111	157	480	?	54,917.0
108	111	158	490	?	53,530.8
108	111	159	500	?	53,550.4
108	111	160	510	?	53,539.8
108	111	161	520	?	54,949.0

001220

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 108



001221

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 109

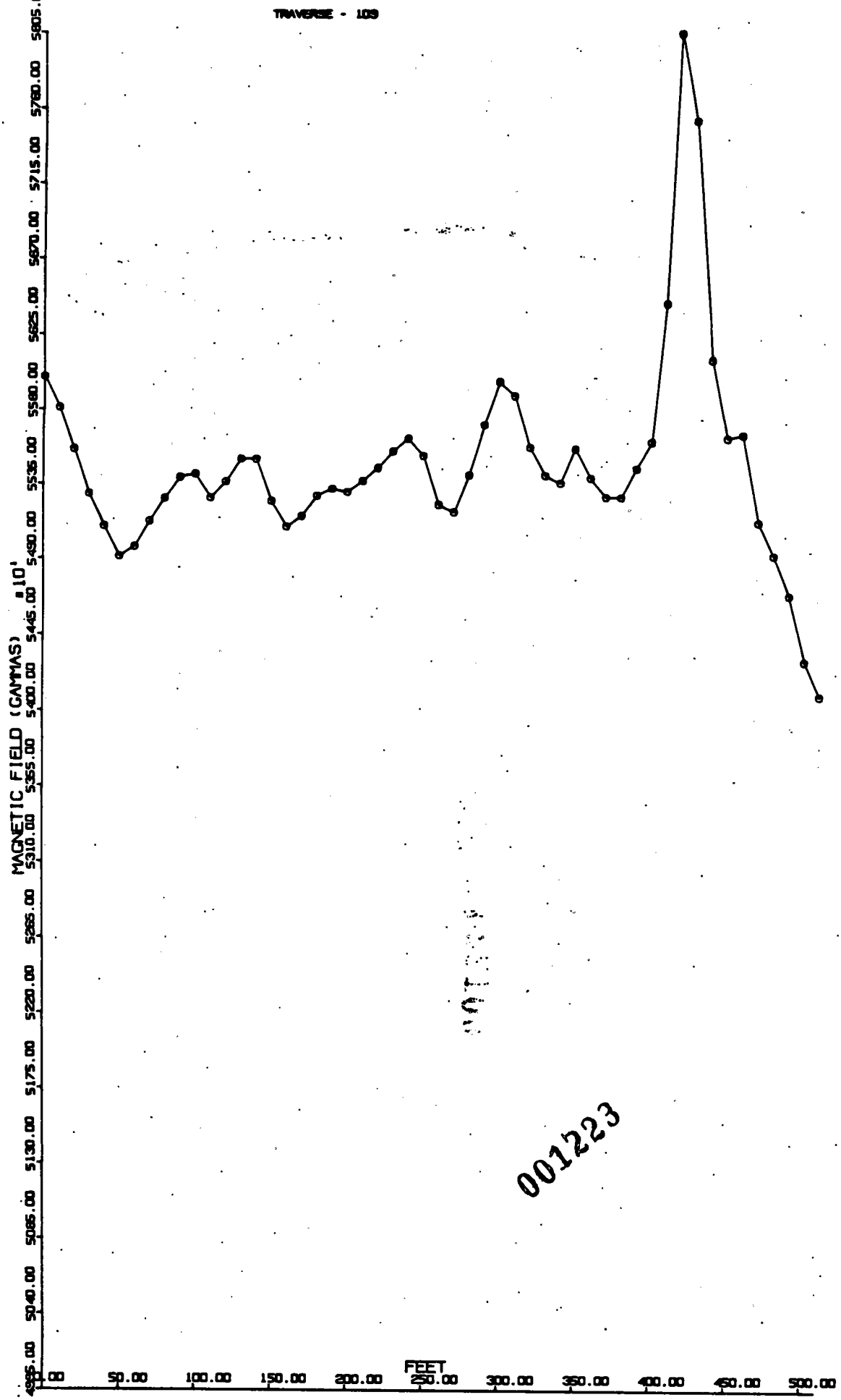
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
109	111	162	0		55,995.2
109	111	163	10		55,813.0
109	111	164	20		55,561.2
109	111	165	30		55,288.4
109	111	166	40		55,093.0
109	111	167	50		54,913.0
109	111	168	60		54,970.8
109	111	169	70		55,125.0
109	111	170	80		55,262.4
109	111	171	90		55,390.2
109	111	172	100		55,410.4
109	111	173	110		55,264.2
109	111	174	120		55,364.0
109	111	175	130		55,502.0
109	111	176	140		55,501.6
109	111	177	150		55,246.6
109	111	178	160		55,090.8
109	111	179	170		55,156.0
109	111	180	180		55,277.8
109	111	181	190		55,321.8
109	111	182	200		55,301.8
109	111	183	210		55,369.4
109	111	184	220		55,448.6
109	111	185	230		55,549.6
109	111	186	240		55,626.2
109	111	187	250		55,522.8
109	111	188	260		55,226.4
109	111	189	270		55,181.6
109	111	190	280		55,406.8
109	111	191	290		55,709.2
109	111	192	300		55,971.2
109	111	193	310		55,885.6
109	111	194	320		55,575.6
109	111	195	330		55,406.2
109	111	196	340		55,360.2
109	111	197	350		55,568.4
109	111	198	360		55,390.6
109	111	199	370		55,274.0
109	111	200	380		55,272.6
109	111	201	390		55,448.0
109	111	202	400	?	55,608.0
109	111	203	410	?	56,438.2
109	111	204	420	?	58,165.6
109	111	205	430	?	57,525.0
109	111	206	440	?	56,099.6
109	111	207	450	?	55,627.0
109	111	208	460	?	55,647.6
109	111	209	470	?	55,119.0
109	111	210	480	?	54,920.6
109	111	211	490	?	54,686.6
109	111	212	500	?	54,295.2
109	111	213	510	?	54,091.0

001222

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 109



001223

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 110

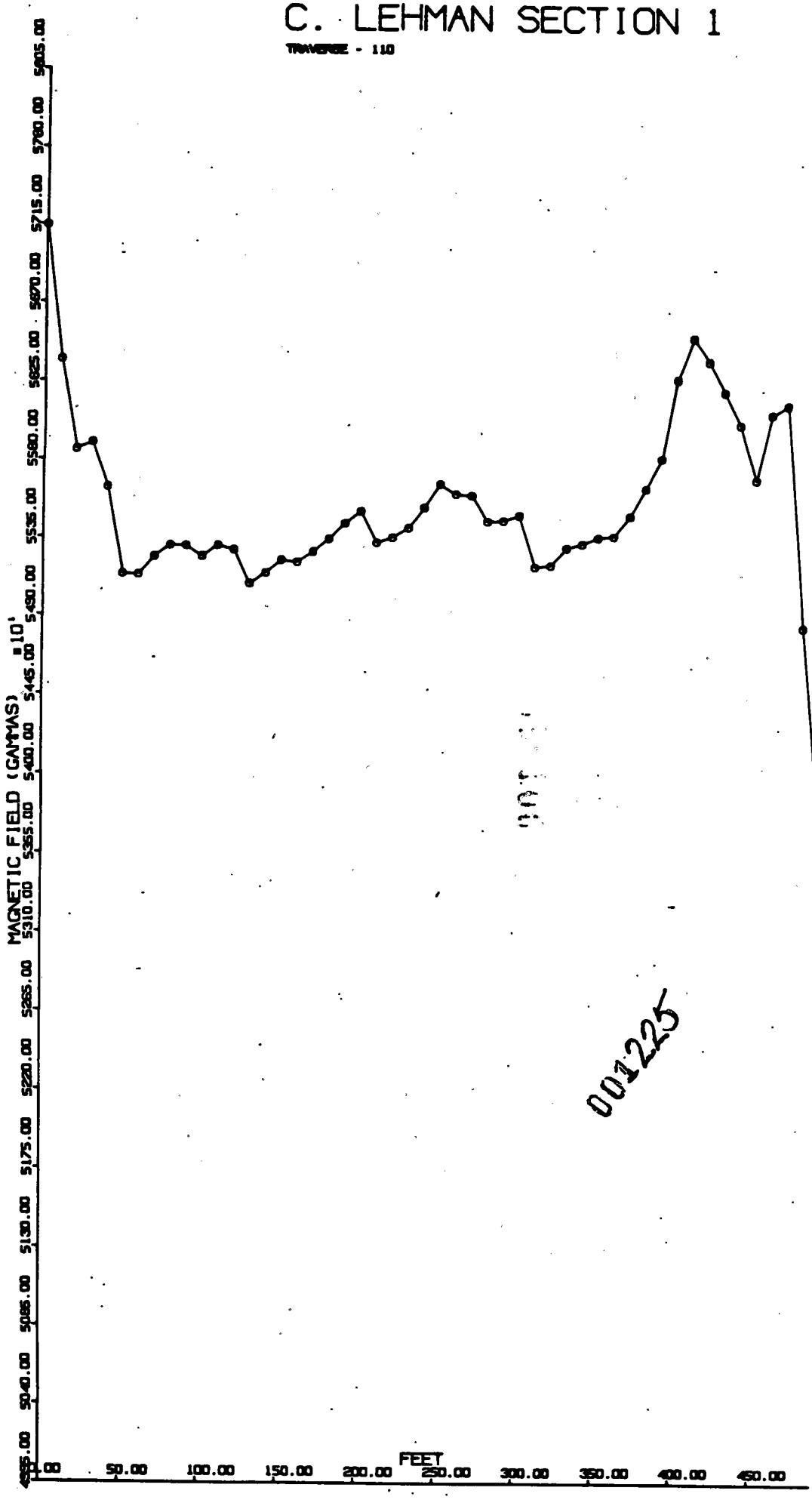
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
110	111	214	0		57,148.0
110	111	215	10		56,375.0
110	111	216	20		55,859.6
110	111	217	30		55,900.0
110	111	218	40		55,640.8
110	111	219	50		55,136.6
110	111	220	60		55,133.2
110	111	221	70		55,237.4
110	111	222	80		55,302.4
110	111	223	90		55,300.8
110	111	224	100		55,238.8
110	111	225	110		55,303.6
110	111	226	120		55,278.4
110	111	227	130		55,082.4
110	111	228	140		55,146.4
110	111	229	150		55,222.2
110	111	230	160		55,210.8
110	111	231	170		55,270.2
110	111	232	180		55,346.6
110	111	233	190		55,439.0
110	111	234	200		55,508.6
110	111	235	210		55,324.6
110	111	236	220		55,357.2
110	111	237	230		55,413.8
110	111	238	240		55,531.2
110	111	239	250		55,668.2
110	111	240	260		55,611.0
110	111	241	270		55,602.4
110	111	242	280		55,452.2
110	111	243	290		55,458.0
110	111	244	300		55,487.8
110	111	245	310		55,189.0
110	111	246	320		55,199.8
110	111	247	330		55,300.0
110	111	248	340		55,324.4
110	111	249	350		55,361.8
110	111	250	360		55,370.2
110	111	251	370		55,487.8
110	111	252	380		55,648.4
110	111	253	390		55,822.4
110	111	254	400		56,278.4
110	111	255	410		56,515.8
110	111	256	420		56,381.8
110	111	257	430		56,207.2
110	111	258	440		56,019.6
110	111	259	450		55,701.6
110	111	260	460	?	56,080.6
110	111	261	470	?	56,132.8
110	111	262	480	?	54,851.0
110	111	263	490	?	53,818.8

001224

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 110



001225

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 111

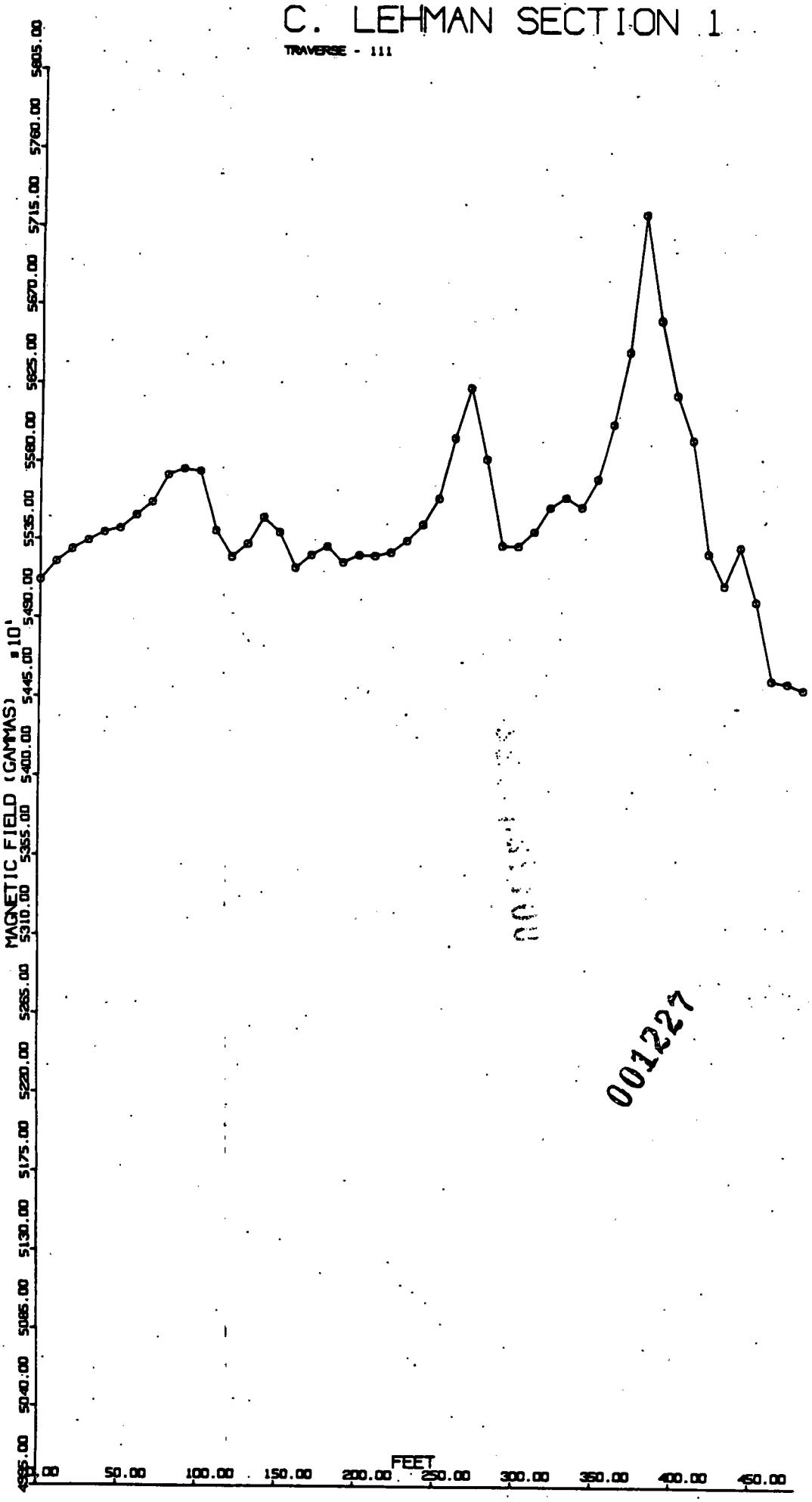
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
111	111	264	0		55,115.4
111	111	265	10		55,221.8
111	111	266	20		55,292.8
111	111	267	30		55,344.0
111	111	268	40		55,392.2
111	111	269	50		55,415.8
111	111	270	60		55,490.6
111	111	271	70		55,565.8
111	111	272	80		55,722.0
111	111	273	90		55,759.4
111	111	274	100		55,745.8
111	111	275	110		55,404.4
111	111	276	120		55,252.8
111	111	277	130		55,328.2
111	111	278	140		55,483.0
111	111	279	150		55,398.0
111	111	280	160		55,193.2
111	111	281	170		55,267.2
111	111	282	180		55,317.0
111	111	283	190		55,226.0
111	111	284	200		55,268.4
111	111	285	210		55,265.2
111	111	286	220		55,285.2
111	111	287	230		55,353.4
111	111	288	240		55,449.0
111	111	289	250		55,598.2
111	111	290	260		55,946.2
111	111	291	270	?	56,235.8
111	111	292	280		55,828.4
111	111	293	290		55,327.6
111	111	294	300		55,324.8
111	111	295	310		55,409.2
111	111	296	320		55,548.2
111	111	297	330		55,606.6
111	111	298	340		55,551.0
111	111	299	350		55,711.2
111	111	300	360		56,029.6
111	111	301	370		56,447.2
111	111	302	380	?	57,232.4
111	111	303	390		56,628.8
111	111	304	400		56,199.0
111	111	305	410		55,942.0
111	111	306	420	?	55,288.0
111	111	307	430	?	55,103.8
111	111	308	440		55,325.0
111	111	309	450	?	55,012.8
111	111	310	460	?	54,564.4
111	111	311	470	?	54,548.0
111	111	312	480	?	54,511.8

001226

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 111



001227

B C M F A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 112

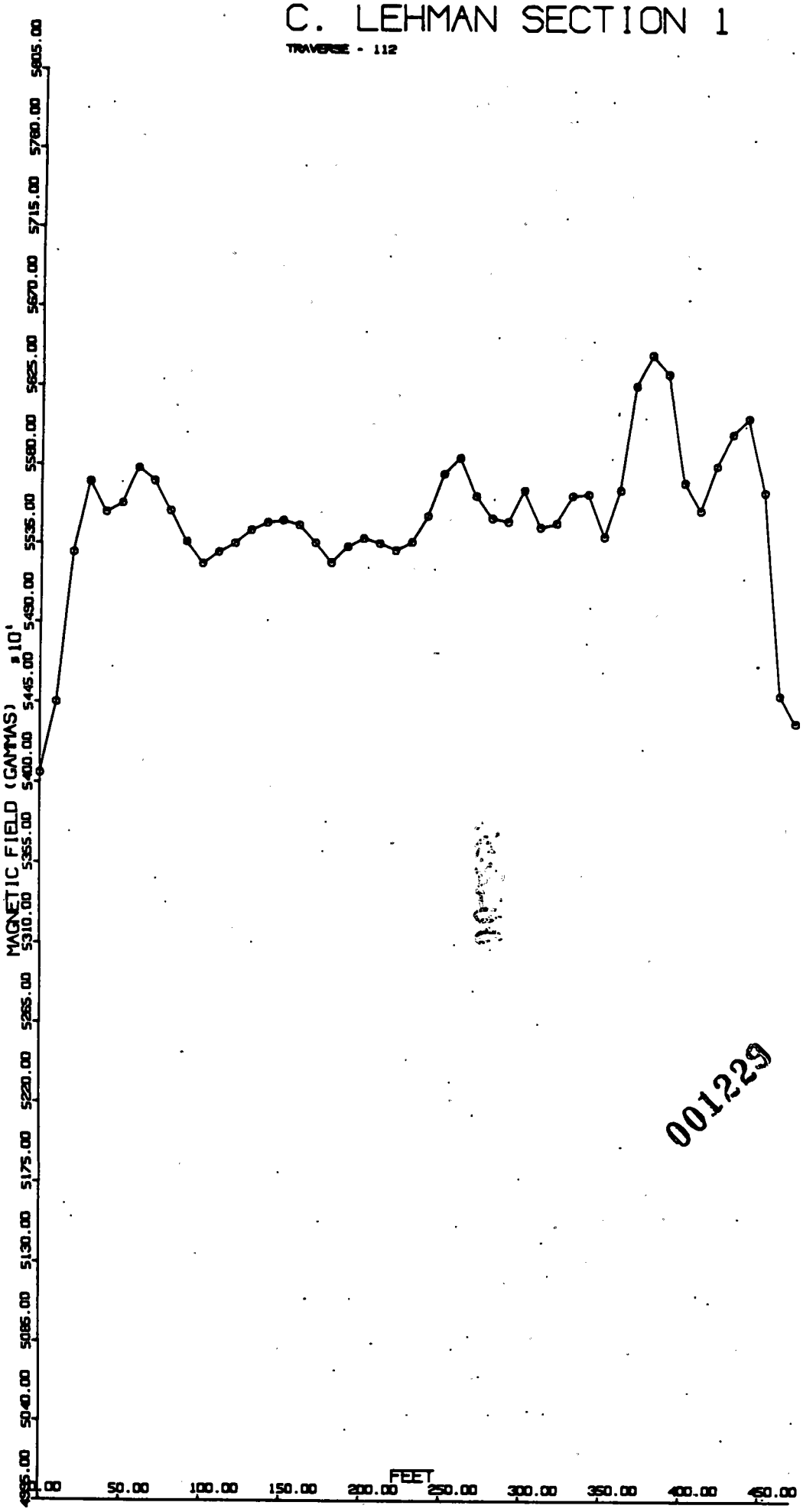
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
112	111	313	0	?	54,054.0
112	111	314	10		54,451.6
112	111	315	20		55,295.4
112	111	316	30		55,700.2
112	111	317	40		55,527.4
112	111	318	50		55,579.2
112	111	319	60		55,781.2
112	111	320	70		55,704.8
112	111	321	80		55,535.8
112	111	322	90		55,358.4
112	111	323	100		55,234.4
112	111	324	110		55,300.6
112	111	325	120		55,352.2
112	111	326	130		55,428.2
112	111	327	140		55,470.8
112	111	328	150		55,485.2
112	111	329	160		55,458.0
112	111	330	170		55,357.2
112	111	331	180		55,242.2
112	111	332	190		55,335.0
112	111	333	200		55,383.4
112	111	334	210		55,354.6
112	111	335	220		55,314.4
112	111	336	230		55,363.0
112	111	337	240		55,513.2
112	111	338	250		55,753.4
112	111	339	260		55,850.2
112	111	340	270		55,630.4
112	111	341	280		55,501.4
112	111	342	290		55,482.8
112	111	343	300		55,662.6
112	111	344	310		55,452.2
112	111	345	320		55,476.2
112	111	346	330		55,634.8
112	111	347	340		55,644.4
112	111	348	350		55,399.8
112	111	349	360		55,668.6
112	111	350	370		56,264.8
112	111	351	380		56,440.0
112	111	352	390		56,331.4
112	111	353	400		55,711.4
112	111	354	410		55,553.2
112	111	355	420		55,808.8
112	111	356	430		55,992.2
112	111	357	440	?	56,083.8
112	111	358	450	?	55,659.0
112	111	359	460	?	54,505.4
112	111	360	470	?	54,349.2

001228

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 112



001229

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 113

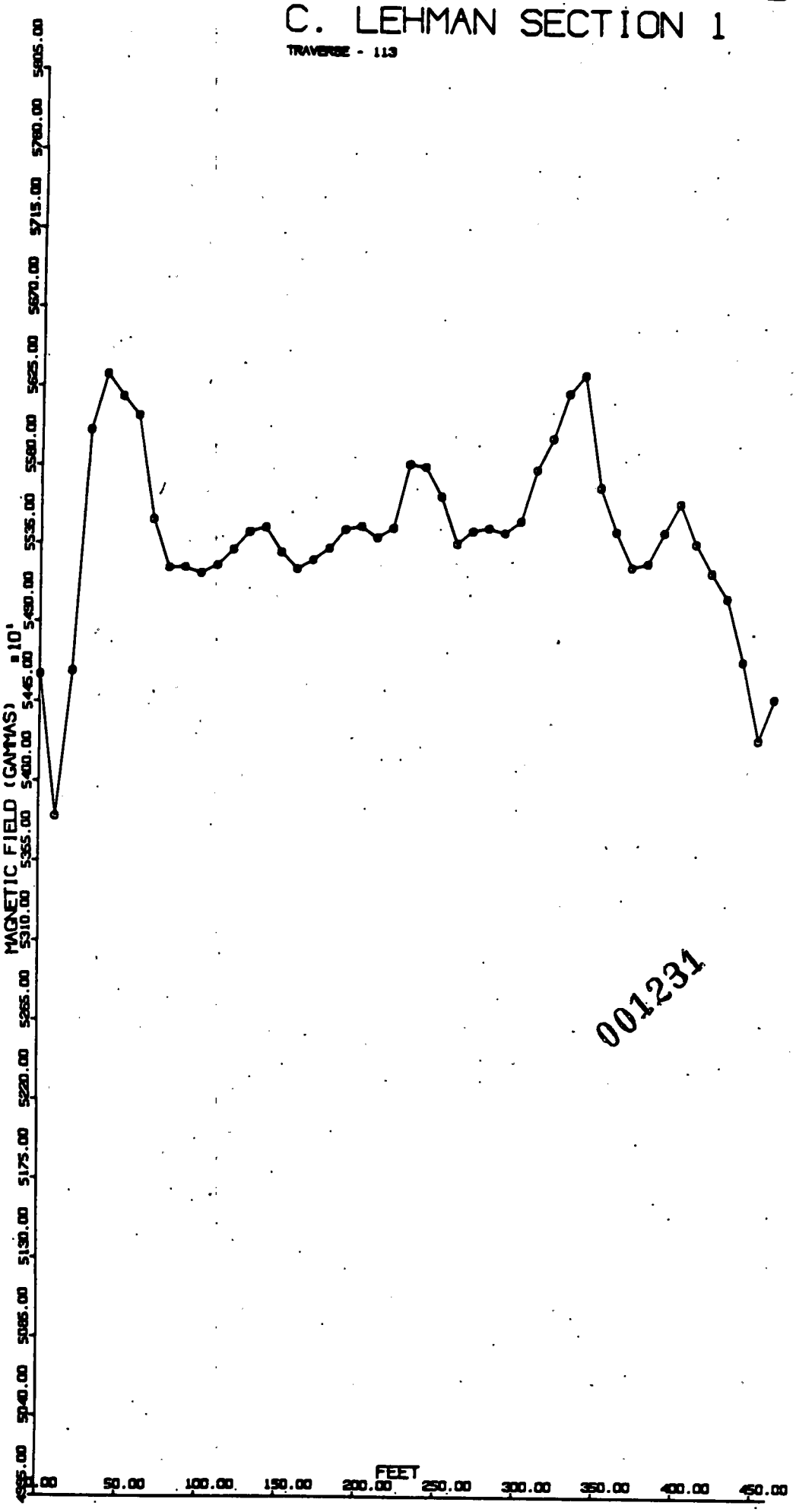
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
113	111	361	0		54,603.2
113	111	362	10	?	53,801.2
113	111	363	20	?	54,621.6
113	111	364	30	?	56,000.8
113	111	365	40		56,320.2
113	111	366	50		56,192.4
113	111	367	60		56,083.6
113	111	368	70		55,489.6
113	111	369	80		55,210.8
113	111	370	90		55,214.8
113	111	371	100		55,181.0
113	111	372	110		55,228.4
113	111	373	120		55,320.6
113	111	374	130		55,423.6
113	111	375	140		55,451.2
113	111	376	150		55,307.6
113	111	377	160		55,211.0
113	111	378	170		55,264.8
113	111	379	180		55,332.6
113	111	380	190		55,441.8
113	111	381	200		55,460.2
113	111	382	210		55,395.0
113	111	383	220		55,451.8
113	111	384	230		55,821.8
113	111	385	240		55,806.2
113	111	386	250		55,633.8
113	111	387	260		55,363.4
113	111	388	270		55,437.4
113	111	389	280		55,454.6
113	111	390	290		55,428.0
113	111	391	300		55,496.4
113	111	392	310		55,793.0
113	111	393	320		55,973.0
113	111	394	330		56,230.0
113	111	395	340	?	56,334.8
113	111	396	350		55,690.0
113	111	397	360		55,439.6
113	111	398	370		55,234.2
113	111	399	380		55,257.8
113	111	400	390		55,435.8
113	111	401	400		55,603.0
113	111	402	410		55,373.0
113	111	403	420		55,205.8
113	111	404	430		55,061.4
113	111	405	440	?	54,705.0
113	111	406	450	?	54,259.6
113	111	407	460	?	54,495.4

001230

ROHM AND HAAS

C. LEHMAN SECTION 1

TRAVERSE - 113



001231

BCM

APPENDIX H

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
CHEMICAL LEHMAN GRID
SECTION 2

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 100

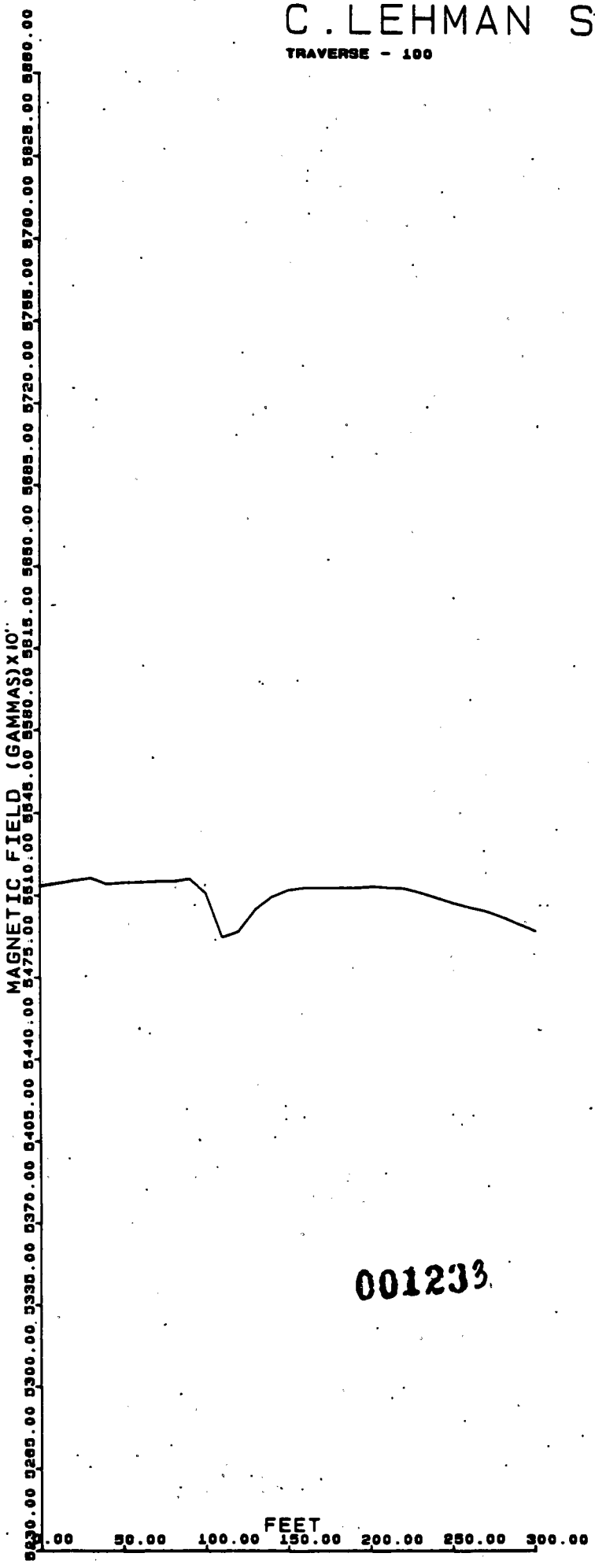
LINE #	DAY	SITE #	FEET. EST.	GAMMAS
100	108	0	0	55,140.6
100	108	1	10	55,155.0
100	108	2	20	55,165.8
100	108	3	30	55,174.8
100	108	4	40	55,151.0
100	108	5	50	55,155.6
100	108	6	60	55,159.4
100	108	7	70	55,162.0
100	108	8	80	55,161.8
100	108	9	90	55,175.2
100	108	10	100	55,110.0
100	108	11	110	54,924.6
100	108	12	120	54,950.6
100	108	13	130	55,042.6
100	108	14	140	55,096.6
100	108	15	150	55,125.6
100	108	16	160	55,135.6
100	108	17	170	55,134.6
100	108	18	180	55,134.2
100	108	19	190	55,135.4
100	108	20	200	55,139.0
100	108	21	210	55,135.0
100	108	22	220	55,130.2
100	108	23	230	55,113.0
100	108	24	240	55,089.2
100	108	25	250	55,067.4
100	108	26	260	55,050.0
100	108	27	270	55,032.0
100	108	28	280	55,008.0
100	108	29	290	54,976.8
100	108	30	300	54,949.2

001232

ROHM & HAAS

C.LEHMAN SECTION 2

TRAVERSE - 100



001233

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

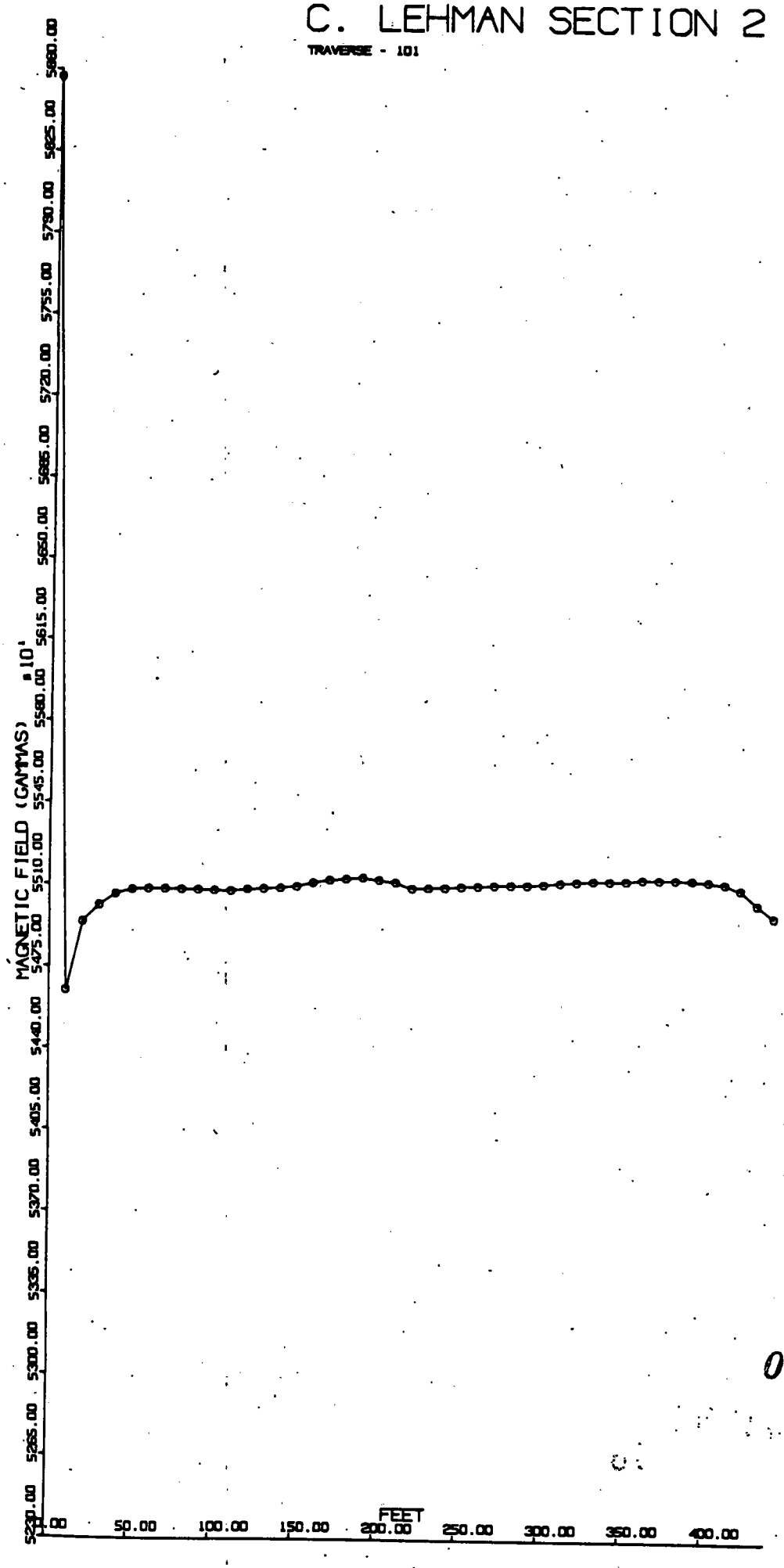
TRAVERSE LINE 101

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
101	108	108	0	?	58,569.4
101	108	109	10	?	54,647.4
101	108	110	20		54,942.2
101	108	111	30		55,011.6
101	108	112	40		55,060.0
101	108	113	50		55,079.8
101	108	114	60		55,083.0
101	108	115	70		55,083.6
101	108	116	80		55,082.4
101	108	117	90		55,081.6
101	108	118	100		55,079.6
101	108	119	110		55,078.6
101	108	120	120		55,086.2
101	108	121	130		55,089.8
101	108	122	140		55,093.0
101	108	123	150		55,099.8
101	108	124	160		55,116.0
101	108	125	170		55,128.0
101	108	126	180		55,133.8
101	108	127	190		55,139.4
101	108	128	200		55,129.8
101	108	129	210		55,120.4
101	108	130	220		55,095.2
101	108	131	230		55,098.2
101	108	132	240		55,099.4
101	108	133	250		55,104.4
101	108	134	260		55,107.2
101	108	135	270		55,111.0
101	108	136	280		55,112.6
101	108	137	290		55,113.4
101	108	138	300		55,117.4
101	108	139	310		55,124.4
101	108	140	320		55,129.0
101	108	141	330		55,133.0
101	108	142	340		55,132.8
101	108	143	350		55,134.2
101	108	144	360		55,141.8
101	108	145	370		55,141.2
101	108	146	380		55,141.8
101	108	147	390		55,140.2
101	108	148	400		55,135.0
101	108	149	410		55,125.6
101	108	150	420		55,101.6
101	108	151	430		55,039.4
101	108	152	440	?	54,986.0

ROHM AND HAAS

C. LEHMAN SECTION 2

TRAVERSE - 101



001235

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

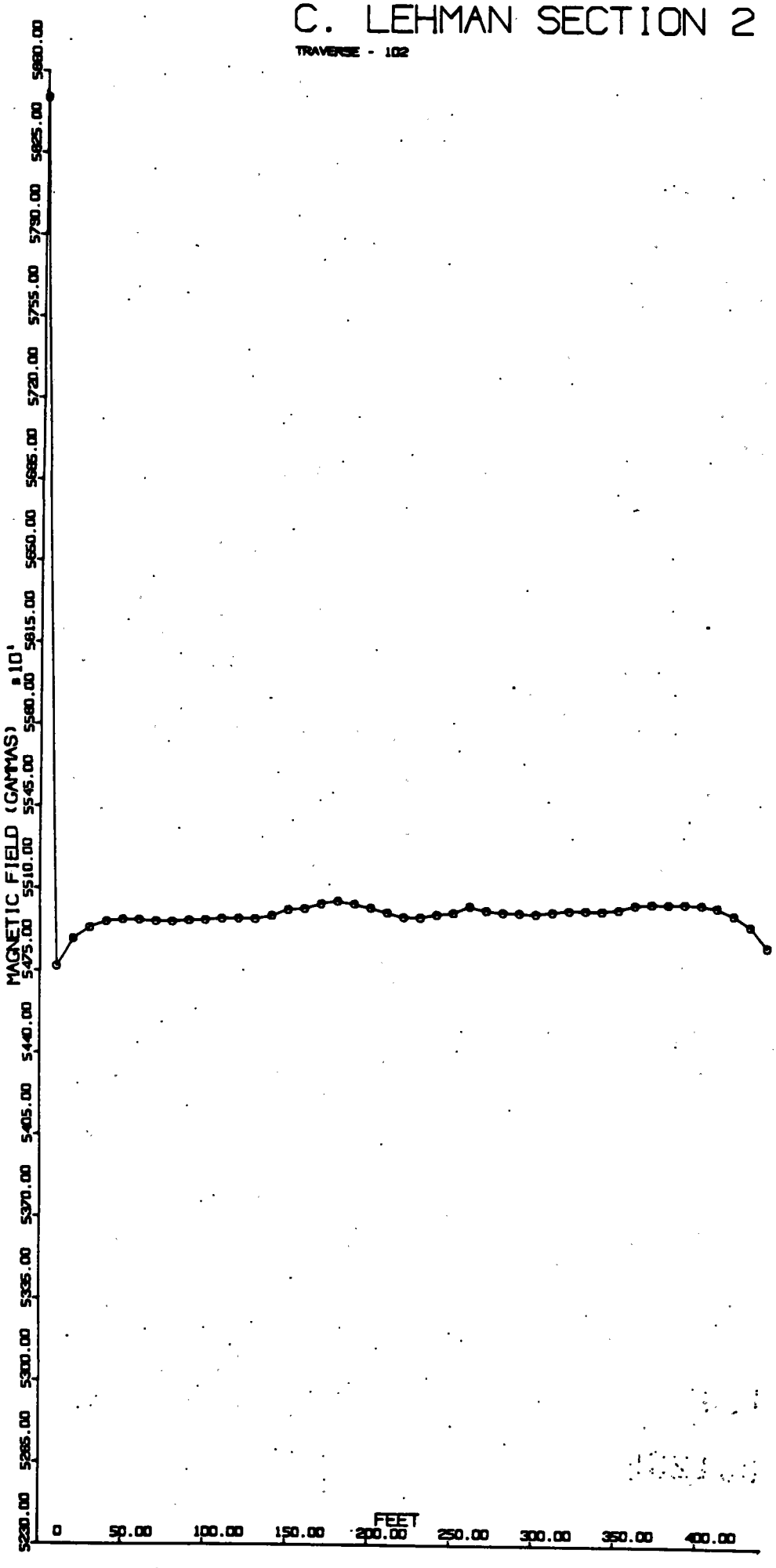
TRAVERSE LINE 102

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
102	108	153	0	?	58,487.8
102	108	154	10		54,769.8
102	108	155	20		54,887.4
102	108	156	30		54,935.2
102	108	157	40		54,962.0
102	108	158	50		54,970.4
102	108	159	60		54,969.8
102	108	160	70		54,964.2
102	108	161	80		54,963.4
102	108	162	90		54,969.0
102	108	163	100		54,971.8
102	108	164	110		54,977.6
102	108	165	120		54,979.2
102	108	166	130		54,977.6
102	108	167	140		54,991.2
102	108	168	150		55,017.0
102	108	169	160		55,021.4
102	108	170	170		55,042.0
102	108	171	180		55,054.0
102	108	172	190		55,042.4
102	108	173	200		55,026.0
102	108	174	210		55,007.0
102	108	175	220		54,988.4
102	108	176	230		54,987.2
102	108	177	240		54,999.4
102	108	178	250		55,006.6
102	108	179	260		55,035.2
102	108	180	270		55,017.8
102	108	181	280		55,009.6
102	108	182	290		55,007.8
102	108	183	300		55,004.2
102	108	184	310		55,012.2
102	108	185	320		55,018.4
102	108	186	330		55,019.2
102	108	187	340		55,017.4
102	108	188	350		55,024.0
102	108	189	360		55,043.8
102	108	190	370		55,048.8
102	108	191	380		55,047.2
102	108	192	390		55,049.2
102	108	193	400		55,045.6
102	108	194	410		55,033.4
102	108	195	420		55,002.6
102	108	196	430		54,956.4
102	108	197	440	?	54,869.8

ROHM AND HAAS

C. LEHMAN SECTION 2

TRAVERSE - 102



001237

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

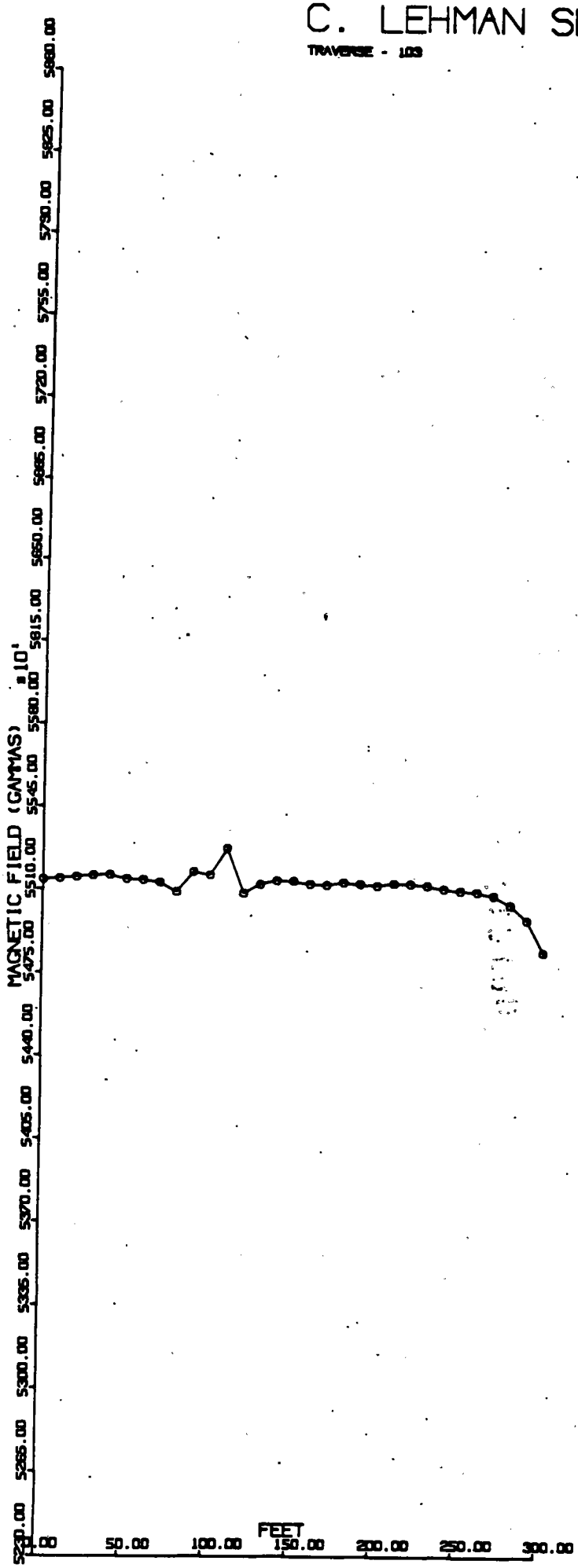
TRAVERSE LINE 103

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
103	108	198	0	55,140.4
103	108	199	10	55,145.6
103	108	200	20	55,152.6
103	108	201	30	55,159.2
103	108	202	40	55,162.6
103	108	203	50	55,146.4
103	108	204	60	55,143.4
103	108	205	70	55,133.8
103	108	206	80	55,094.6
103	108	207	90	55,180.8
103	108	208	100	55,167.4
103	108	209	110	55,280.4
103	108	210	120	55,092.0
103	108	211	130	55,130.8
103	108	212	140	55,147.8
103	108	213	150	55,146.2
103	108	214	160	55,134.2
103	108	215	170	55,131.4
103	108	216	180	55,143.6
103	108	217	190	55,137.4
103	108	218	200	55,129.0
103	108	219	210	55,139.4
103	108	220	220	55,138.4
103	108	221	230	55,132.2
103	108	222	240	55,119.8
103	108	223	250	55,111.6
103	108	224	260	55,107.2
103	108	225	270	55,092.2
103	108	226	280	55,054.8
103	108	227	290	54,991.8
103	108	228	300	54,858.0

ROHM AND HAAS

C. LEHMAN SECTION 2

TRAVERSE - 103



001239

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 104

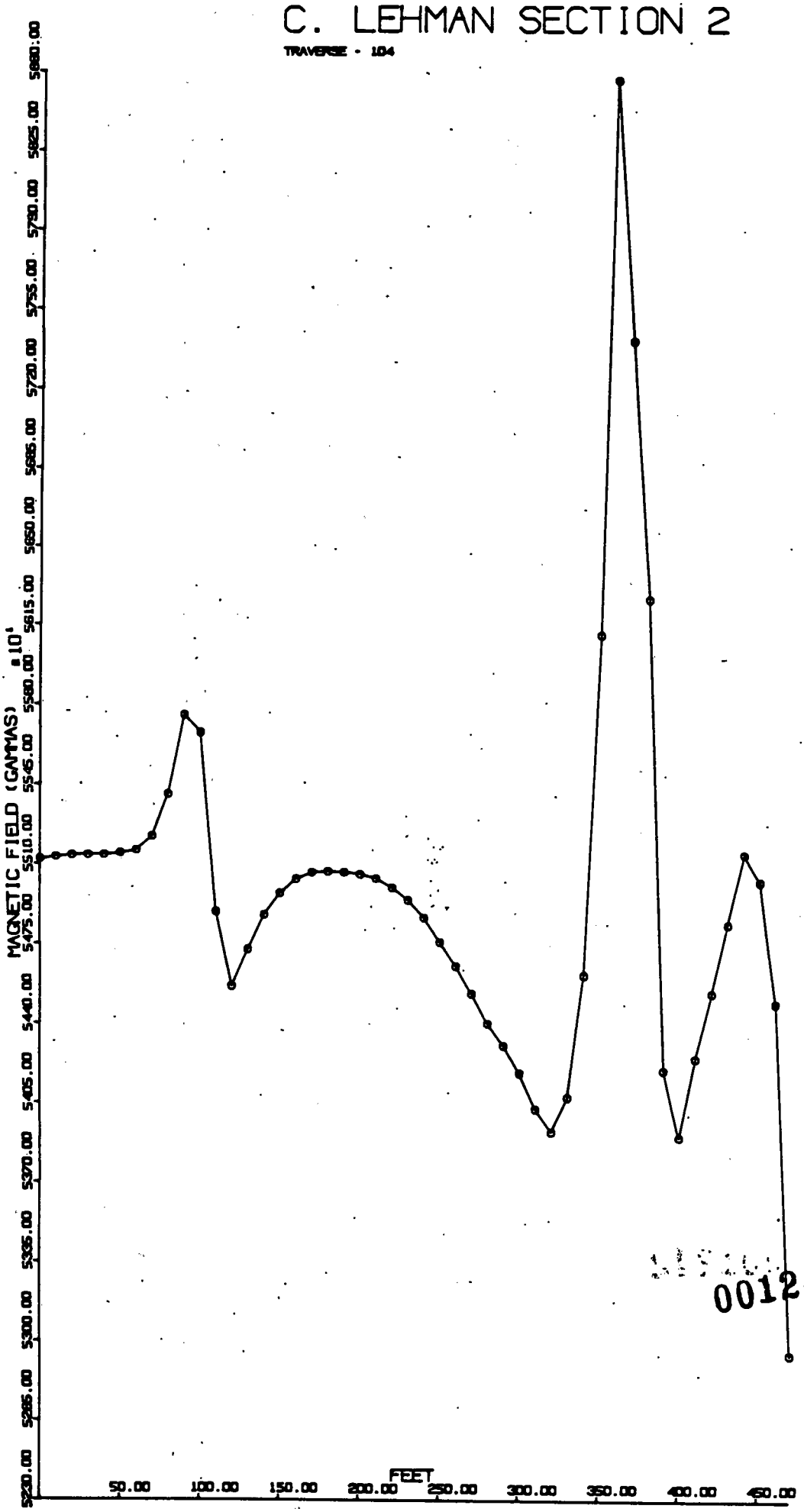
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
104	108	229	0		55,121.8
104	108	230	10		55,132.0
104	108	231	20		55,139.4
104	108	232	30		55,140.8
104	108	233	40		55,141.6
104	108	234	50		55,149.4
104	108	235	60		55,162.8
104	108	236	70		55,224.2
104	108	237	80		55,409.8
104	108	238	90		55,755.6
104	108	239	100		55,680.2
104	108	240	110		54,891.2
104	108	241	120		54,566.2
104	108	242	130		54,726.8
104	108	243	140		54,878.8
104	108	244	150		54,974.4
104	108	245	160		55,037.8
104	108	246	170		55,066.8
104	108	247	180		55,070.8
104	108	248	190		55,067.4
104	108	249	200		55,058.0
104	108	250	210		55,039.6
104	108	251	220		55,000.2
104	108	252	230		54,945.0
104	108	253	240		54,867.6
104	108	254	250		54,761.0
104	108	255	260		54,656.8
104	108	256	270		54,536.4
104	108	257	280		54,405.2
104	108	258	290		54,308.8
104	108	259	300		54,188.8
104	108	260	310		54,032.0
104	108	261	320		53,931.0
104	108	262	330		54,082.6
104	108	263	340		54,618.0
104	108	264	350	?	56,109.2
104	108	265	360	?	58,560.8
104	108	266	370	?	57,410.8
104	108	267	380	?	56,266.6
104	108	268	390	?	54,200.4
104	108	269	400		53,907.2
104	108	270	410		54,253.2
104	108	271	420		54,539.4
104	108	272	430		54,840.4
104	108	273	440		55,149.2
104	108	274	450		55,027.8
104	108	275	460		54,496.0
104	108	276	470	?	52,950.0

001240

ROHM AND HAAS

C. LEHMAN SECTION 2

TRAVERSE - 104



001241

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

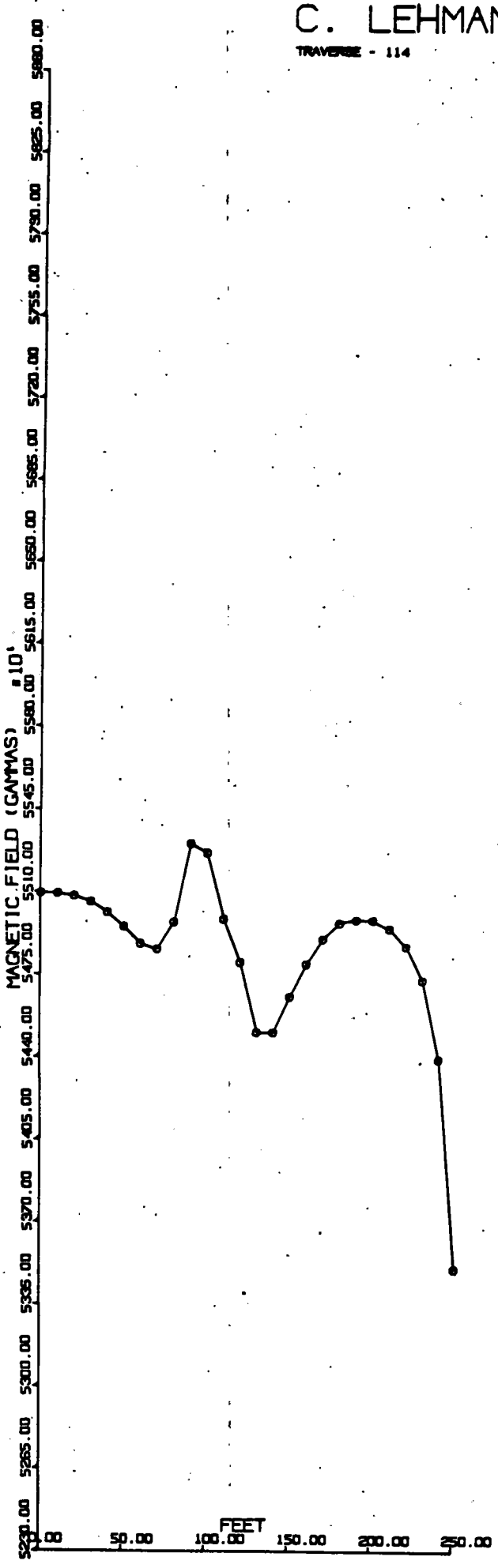
TRAVERSE LINE 114

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
114	111	408	0	55,095.8
114	111	409	10	55,095.0
114	111	410	20	55,084.2
114	111	411	30	55,058.8
114	111	412	40	55,014.6
114	111	413	50	54,954.2
114	111	414	60	54,882.0
114	111	415	70	54,858.6
114	111	416	80	54,973.2
114	111	417	90	55,307.4
114	111	418	100	55,269.0
114	111	419	110	54,986.8
114	111	420	120	54,802.8
114	111	421	130	54,507.2
114	111	422	140	54,507.2
114	111	423	150	54,658.6
114	111	424	160	54,796.2
114	111	425	170	54,903.6
114	111	426	180	54,971.0
114	111	427	190	54,985.2
114	111	428	200	54,984.2
114	111	429	210	54,948.2
114	111	430	220	54,872.8
114	111	431	230	54,729.8
114	111	432	240	54,395.8
114	111	433	250	53,508.2

ROHM AND HAAS

C. LEHMAN SECTION 2

TRAVERSE - 114



001243

BCM

APPENDIX I

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
BRISTOL TOWNSHIP POTW GRID

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 115

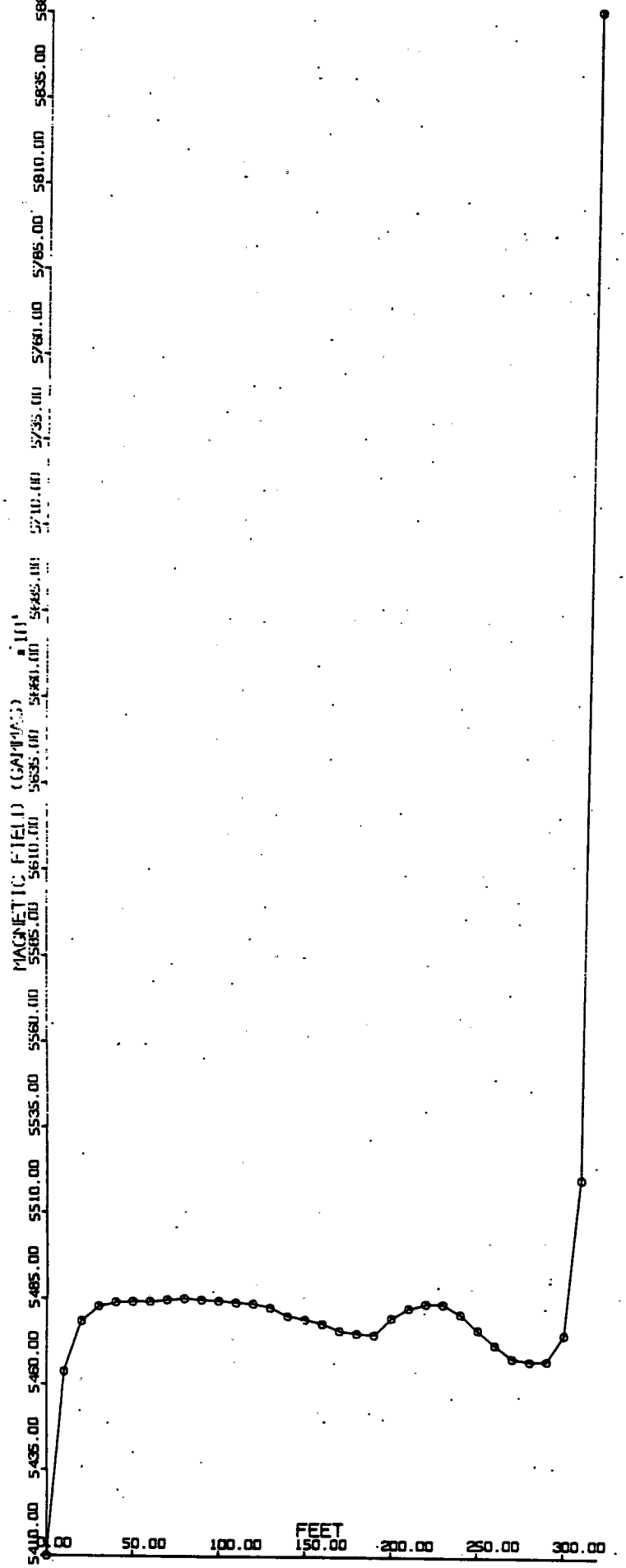
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
115	123	0	0	?	54,083.8
115	123	1	10		54,638.2
115	123	2	20		54,785.8
115	123	3	30		54,829.8
115	123	4	40		54,842.0
115	123	5	50		54,844.2
115	123	6	60		54,845.0
115	123	7	70		54,851.0
115	123	8	80		54,855.0
115	123	9	90		54,851.4
115	123	10	100		54,849.0
115	123	11	110		54,844.6
115	123	12	120		54,841.8
115	123	13	130		54,831.2
115	123	14	140		54,806.4
115	123	15	150		54,797.0
115	123	16	160		54,785.0
115	123	17	170		54,764.8
115	123	18	180		54,757.4
115	123	19	190		54,753.2
115	123	20	200		54,802.2
115	123	21	210		54,830.6
115	123	22	220		54,843.8
115	123	23	230		54,842.4
115	123	24	240		54,813.0
115	123	25	250		54,767.2
115	123	26	260		54,722.8
115	123	27	270		54,684.2
115	123	28	280		54,675.0
115	123	29	290		54,676.0
115	123	30	300	?	54,752.6
115	123	31	310	?	55,203.8
115	123	32	320	?	58,609.2

001244

ROHM AND HAAS

GRID BRISTOL TOWNSHIP POTW

TRAVERSE - 115



001245

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

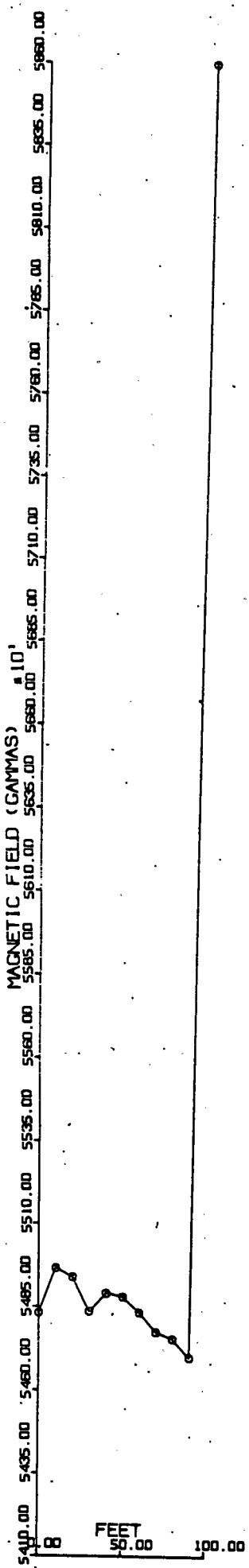
TRAVERSE LINE 116

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
116	123	33	0		54,832.4
116	123	34	10		54,966.8
116	123	35	20		54,939.0
116	123	36	30		54,837.0
116	123	37	40		54,891.8
116	123	38	50		54,881.0
116	123	39	60		54,834.2
116	123	40	70		54,776.2
116	123	41	80		54,756.4
116	123	42	90		54,701.0
116	123	43	100	?	58,592.4

ROHM AND HAAS

GRID BRISTOL TOWNSHIP POTW

TRAVERSE - 116



001247

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 117

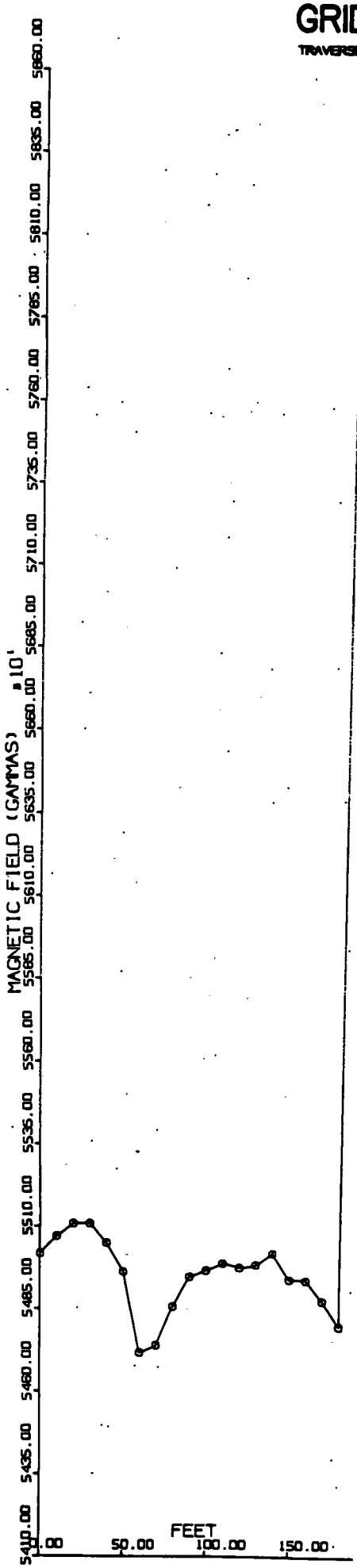
LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
117	123	44	0		55,018.6
117	123	45	10		55,070.8
117	123	46	20		55,109.4
117	123	47	30		55,110.4
117	123	48	40		55,051.6
117	123	49	50		54,965.0
117	123	50	60		54,720.8
117	123	51	70		54,743.4
117	123	52	80		54,860.4
117	123	53	90		54,951.2
117	123	54	100		54,971.6
117	123	55	110		54,993.2
117	123	56	120		54,980.6
117	123	57	130		54,988.8
117	123	58	140		55,024.4
117	123	59	150		54,943.6
117	123	60	160		54,941.6
117	123	61	170		54,879.4
117	123	62	180	?	54,801.6
117	123	63	190	?	58,591.0

001248

ROHM AND HAAS

GRID BRISTOL TOWNSHIP POTW

TRAVERSE - 117



001249

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

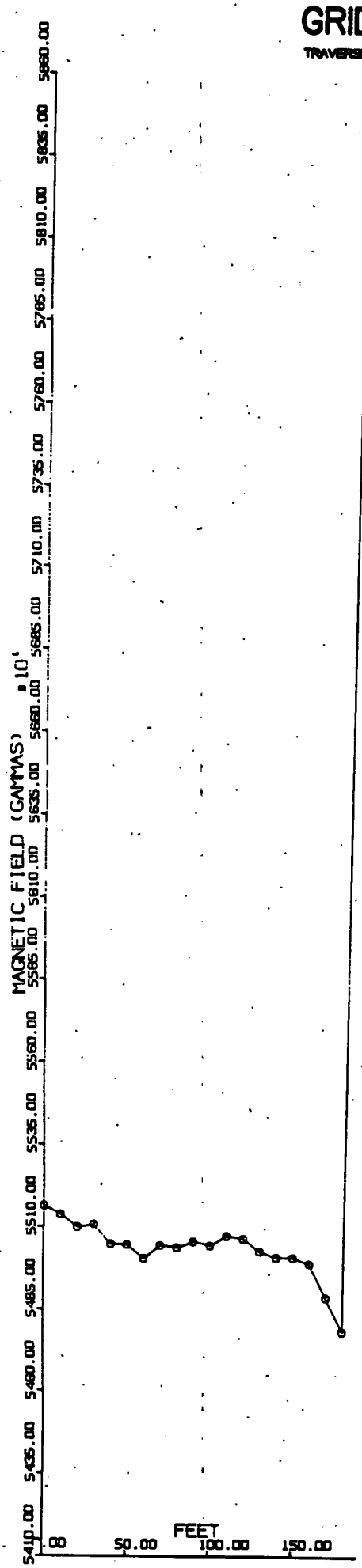
TRAVERSE LINE 118

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
118	123	64	0		55,163.8
118	123	65	10		55,137.6
118	123	66	20		55,099.8
118	123	67	30		55,108.6
118	123	68	40		55,048.4
118	123	69	50		55,046.8
118	123	70	60		55,006.4
118	123	71	70		55,045.4
118	123	72	80		55,039.6
118	123	73	90		55,057.8
118	123	74	100		55,046.2
118	123	75	110		55,075.8
118	123	76	120		55,068.8
118	123	77	130		55,030.8
118	123	78	140		55,012.6
118	123	79	150		55,012.6
118	123	80	160		54,994.6
118	123	81	170		54,891.6
118	123	82	180	?	54,788.0
118	123	83	190	?	58,484.6

ROHM AND HAAS

GRID BRISTOL TOWNSHIP POTW

TRAVERSE - 118



001251

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

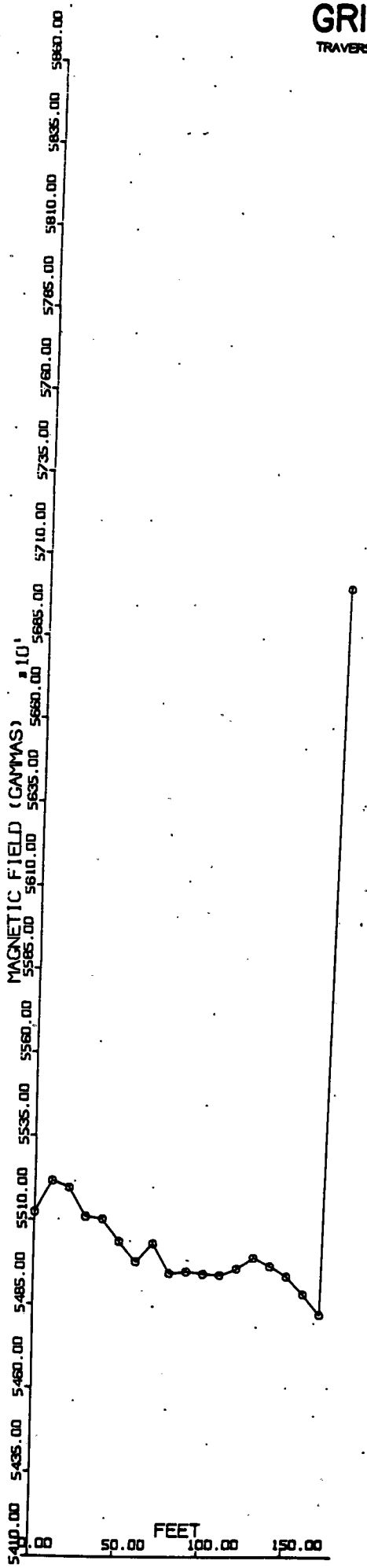
TRAVERSE LINE 119

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
119	123	84	0		55,123.4
119	123	85	10		55,216.8
119	123	86	20		55,197.0
119	123	87	30		55,110.6
119	123	88	40		55,103.6
119	123	89	50		55,037.4
119	123	90	60		54,977.6
119	123	91	70		55,032.0
119	123	92	80		54,944.4
119	123	93	90		54,950.0
119	123	94	100		54,943.8
119	123	95	110		54,941.2
119	123	96	120		54,961.4
119	123	97	130		54,996.0
119	123	98	140		54,971.2
119	123	99	150		54,941.8
119	123	100	160		54,890.2
119	123	101	170		54,829.0
119	123	102	180	?	57,007.6

ROHM AND HAAS

GRID BRISTOL TOWNSHIP POTW

TRAVERSE - 119



001253

BCM

APPENDIX J

MAGNETIC SURVEY DATA AND TRAVERSE PROFILES
RECONNAISSANCE TRAVERSES
SUBAREA A-3

1253a

B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 95

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
95	101	0	0	55,164.8
95	101	1	10	55,151.0
95	101	2	20	55,162.2
95	101	3	30	55,181.4
95	101	4	40	55,176.6
95	101	5	50	55,179.0
95	101	6	60	55,189.8
95	101	7	70	55,213.2
95	101	8	80	55,122.2
95	101	9	90	55,159.0
95	101	10	100	55,164.8
95	101	11	110	55,161.4
95	101	12	120	55,165.8
95	101	13	130	55,169.4
95	101	14	140	55,171.2
95	101	15	150	55,169.8
95	101	16	160	55,173.6
95	101	17	170	55,173.6
95	101	18	180	55,174.4
95	101	19	190	55,176.0
95	101	20	200	55,176.0
95	101	21	210	55,174.4
95	101	22	220	55,178.0
95	101	23	230	55,174.8
95	101	24	240	55,176.2
95	101	25	250	55,176.2
95	101	26	260	55,178.2
95	101	27	270	55,174.0
95	101	28	280	55,180.8
95	101	29	290	55,181.2
95	101	30	300	55,181.6
95	101	31	310	55,180.0
95	101	32	320	55,178.8
95	101	33	330	55,177.2
95	101	34	340	55,172.4
95	101	35	350	55,175.8
95	101	36	360	55,176.0
95	101	37	370	55,177.4
95	101	38	380	55,181.0
95	101	39	390	55,183.2
95	101	40	400	55,178.8
95	101	41	410	55,169.0
95	101	42	420	55,151.4
95	101	43	430	55,153.6
95	101	44	440	55,253.0
95	101	45	450	55,293.8
95	101	46	460	55,273.0
95	101	47	470	55,211.2
95	101	48	480	55,178.8
95	101	49	490	55,150.8
95	101	50	500	55,135.2
95	101	51	510	55,126.6
95	101	52	520	55,113.4
95	101	53	530	55,122.8
95	101	54	540	55,172.2
95	101	55	550	55,218.4
95	101	56	560	55,106.6
95	101	57	570	54,939.8
95	101	58	580	54,863.6
95	101	59	590	55,015.0
95	101	60	600	55,239.4
95	101	61	610	55,602.4
95	101	62	620	55,596.2
95	101	63	630	55,410.6
95	101	64	640	55,231.2
95	101	65	650	55,316.4
95	101	66	660	55,264.2
95	101	67	670	55,091.2
95	101	68	680	55,220.2
95	101	69	690	55,284.6

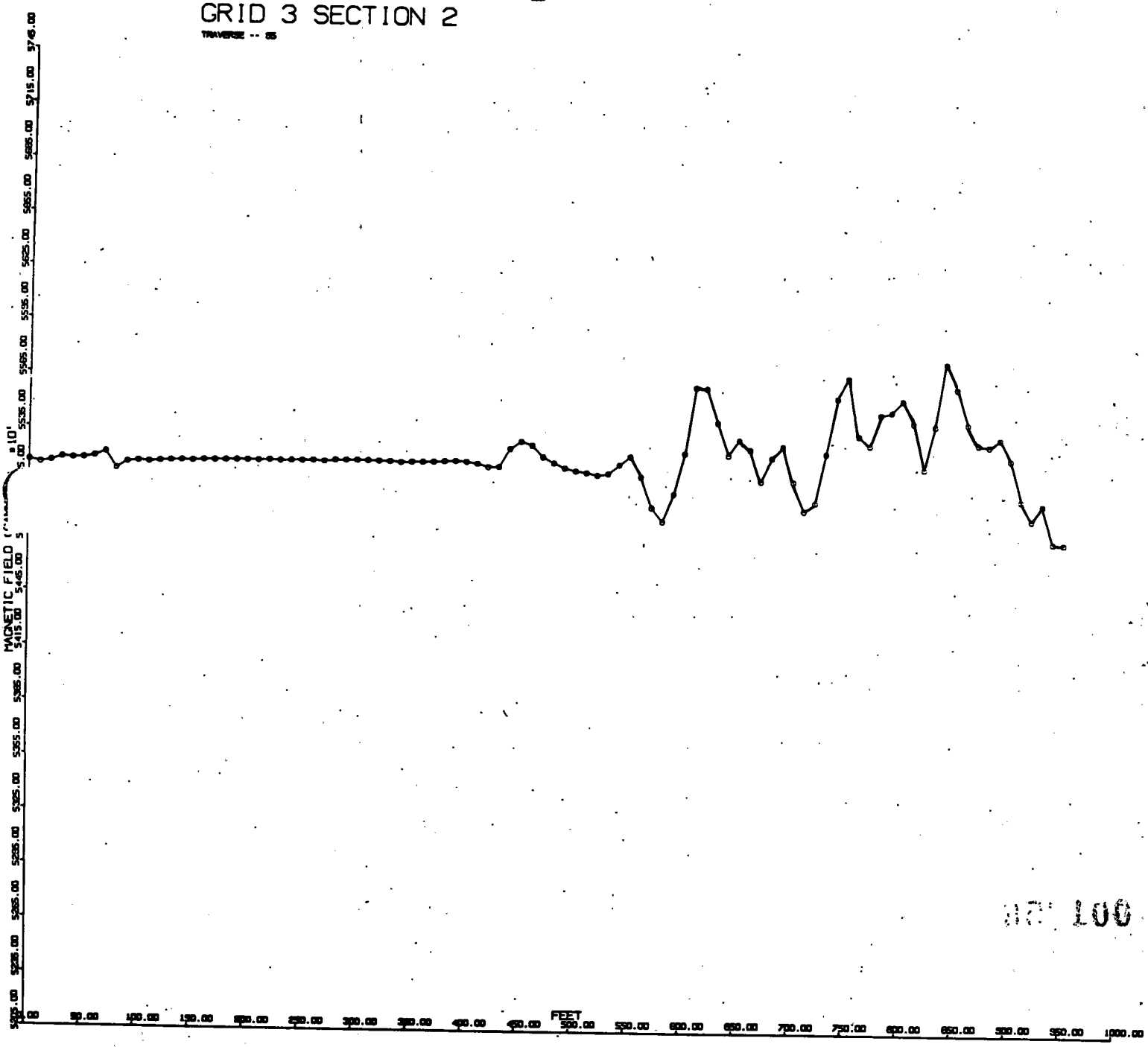
MAGNETIC SURVEY DATA

TRAVERSE LINE 95

LINE #	DAY	SITE #	FEET. EST.	GAMMAS
95	101	70	700	55,089.6
95	101	71	710	54,930.0
95	101	72	720	54,976.0
95	101	73	730	55,246.8
95	101	74	740	55,552.0
95	101	75	750	55,663.0
95	101	76	760	55,346.4
95	101	77	770	55,294.4
95	101	78	780	55,464.2
95	101	79	790	55,479.8
95	101	80	800	55,544.6
95	101	81	810	55,421.4
95	101	82	820	55,167.0
95	101	83	830	55,404.4
95	101	84	840	55,750.4
95	101	85	850	55,610.6
95	101	86	860	55,417.4
95	101	87	870	55,305.2
95	101	88	880	55,295.8
95	101	89	890	55,336.2
95	101	90	900	55,222.6
95	101	91	910	54,997.6
95	101	92	920	54,889.8
95	101	93	930	54,974.6
95	101	94	940	54,765.8
95	101	95	950	54,761.6

ROHM AND HAAS
GRID 3 SECTION 2

TRAVERSE -- 85



001255

B C M E A S T E R N , I N C

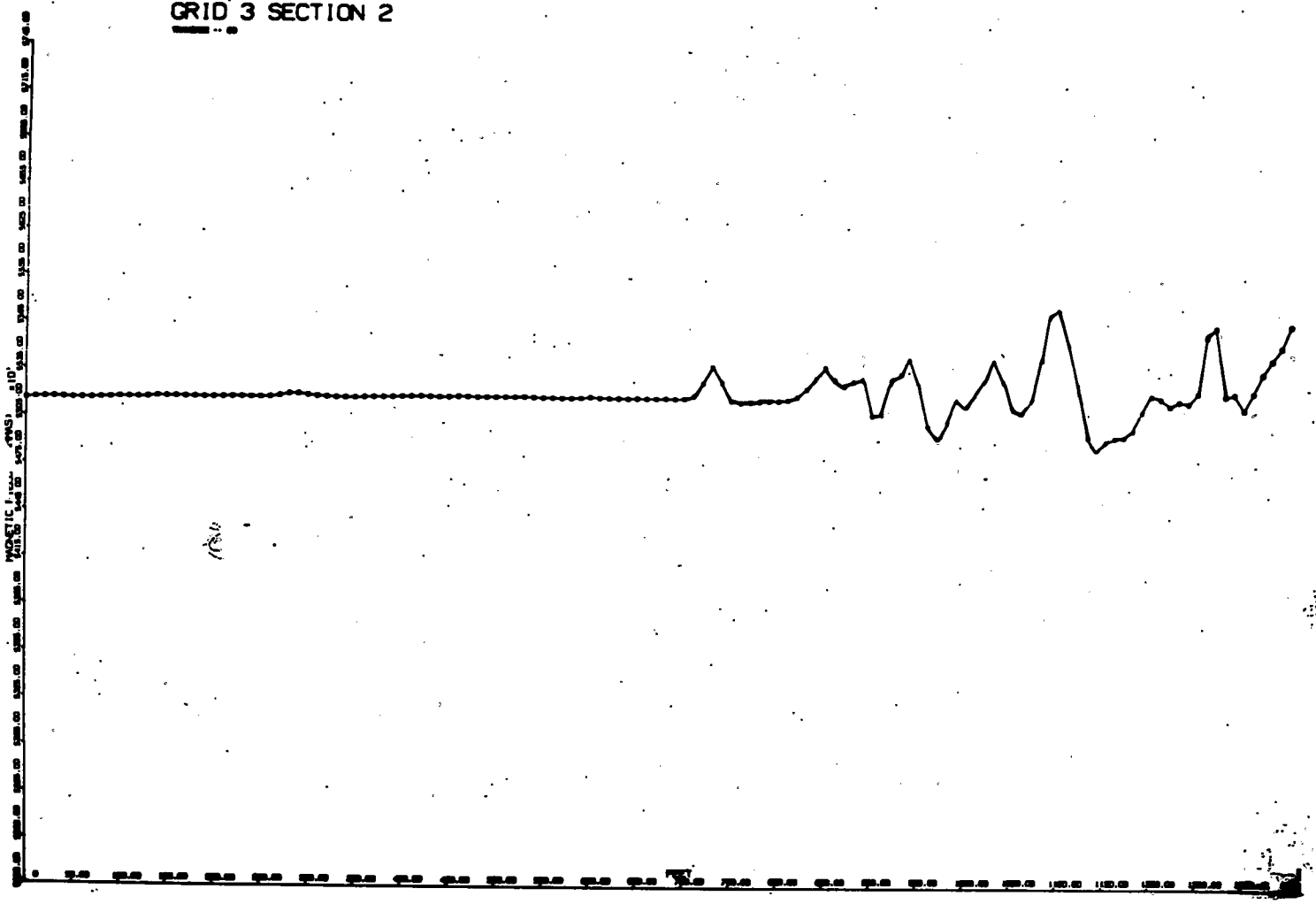
MAGNETIC SURVEY DATA

TRAVERSE LINE 96

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
96	101	96	0		55,158.4
96	101	97	10		55,164.2
96	101	98	20		55,165.0
96	101	99	30		55,165.8
96	101	100	40		55,164.0
96	101	101	50		55,161.2
96	101	102	60		55,161.4
96	101	103	70		55,160.8
96	101	104	80		55,163.4
96	101	105	90		55,165.6
96	101	106	100		55,168.4
96	101	107	110		55,168.2
96	101	108	120		55,167.8
96	101	109	130		55,169.4
96	101	110	140		55,175.0
96	101	111	150		55,173.0
96	101	112	160		55,174.0
96	101	113	170		55,171.8
96	101	114	180		55,171.0
96	101	115	190		55,169.6
96	101	116	200		55,170.2
96	101	117	210		55,171.4
96	101	118	220		55,173.2
96	101	119	230		55,172.2
96	101	120	240		55,171.8
96	101	121	250		55,170.4
96	101	122	260		55,172.6
96	101	123	270		55,181.0
96	101	124	280		55,193.4
96	101	125	290		55,193.8
96	101	126	300		55,185.4
96	101	127	310		55,178.0
96	101	128	320		55,174.6
96	101	129	330		55,171.8
96	101	130	340		55,170.0
96	101	131	350		55,170.0
96	101	132	360		55,172.4
96	101	133	370		55,173.6
96	101	134	380		55,173.8
96	101	135	390		55,175.8
96	101	136	400		55,177.4
96	101	137	410		55,178.6
96	101	138	420		55,180.0
96	101	139	430		55,177.4
96	101	140	440		55,175.2
96	101	141	450		55,175.8
96	101	142	460		55,180.4
96	101	143	470		55,179.4
96	101	144	480		55,175.4
96	101	145	490		55,175.6
96	101	146	500		55,176.0
96	101	147	510		55,177.0
96	101	148	520		55,177.2
96	101	149	530		55,179.0
96	101	150	540		55,175.6
96	101	151	550		55,173.0
96	101	152	560		55,172.4
96	101	153	570		55,170.6
96	101	154	580		55,170.6
96	101	155	590		55,172.4
96	101	156	600		55,178.6
96	101	157	610		55,173.6
96	101	158	620		55,171.6
96	101	159	630		55,172.2
96	101	160	640		55,170.8
96	101	161	650		55,172.4
96	101	162	660		55,170.2
96	101	163	670		55,171.0
96	101	164	680		55,172.2
96	101	165	690		55,169.8
96	101	166	700		55,172.0
96	101	167	710		55,189.4
96	101	168	720		55,271.4
96	101	169	730		55,375.6
96	101	170	740		55,277.4
96	101	171	750		55,159.4
96	101	172	760		55,148.4
96	101	173	770		55,154.0
96	101	174	780		55,159.4
96	101	175	790		55,162.2
96	101	176	800		55,162.0
96	101	177	810		55,167.8
96	101	178	820		55,190.2
96	101	179	830		55,237.8
96	101	180	840		55,308.2
96	101	181	850		55,380.0
96	101	182	860		55,301.6
96	101	183	870		55,257.6
96	101	184	880		55,290.0
96	101	185	890		55,306.4
96	101	186	900		55,073.0
96	101	187	910		55,085.0
96	101	188	920		55,286.4
96	101	189	930		55,337.6
96	101	190	940		55,432.8
96	101	191	950		55,269.4
96	101	192	960		55,004.4
96	101	193	970		54,919.6
96	101	194	980		55,035.6
96	101	195	990		55,178.4
96	101	196	1000		55,126.0
96	101	197	1010		55,215.4
96	101	198	1020		55,298.6
96	101	199	1030		55,427.2
96	101	200	1040		55,293.8
96	101	201	1050		55,119.0
96	101	202	1060		55,095.4
96	101	203	1070		55,178.0
96	101	204	1080		55,435.8
96	101	205	1090		55,713.0
96	101	206	1100		55,766.2
96	101	207	1110		55,533.2
96	101	208	1120		55,234.6
96	101	209	1130		54,947.8
96	101	210	1140		54,857.6
96	101	211	1150		54,918.4
96	101	212	1160		54,941.6
96	101	213	1170		54,947.4
96	101	214	1180		54,991.0
96	101	215	1190		55,110.4
96	101	216	1200		55,213.0
96	101	217	1210		55,194.6
96	101	218	1220		55,147.0
96	101	219	1230		55,179.2
96	101	220	1240		55,165.4
96	101	221	1250		55,231.2
96	101	222	1260		55,592.2
96	101	223	1270		55,652.2
96	101	224	1280		55,214.8
96	101	225	1290		55,227.4
96	101	226	1300		55,128.4
96	101	227	1310		55,234.8
96	101	228	1320		55,356.4
96	101	229	1330		55,445.0
96	101	230	1340		55,527.4
96	101	231	1350		55,666.0

001256

ROHM AND HAAS
GRID 3 SECTION 2



001257

MAGNETIC SURVEY DATA

TRAVERSE LINE 97

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
97	101	302	700		55,181.4
97	101	303	710		55,181.6
97	101	304	720		55,179.2
97	101	305	730		55,181.0
97	101	306	740		55,178.8
97	101	307	750		55,178.6
97	101	308	760		55,180.6
97	101	309	770		55,182.2
97	101	310	780		55,184.8
97	101	311	790		55,184.2
97	101	312	800		55,186.6
97	101	313	810		55,182.8
97	101	314	820		55,183.8
97	101	315	830		55,184.6
97	101	316	840		55,187.2
97	101	317	850		55,182.6
97	101	318	860		55,185.0
97	101	319	870		55,182.0
97	101	320	880		55,180.2
97	101	321	890		55,179.6
97	101	322	900		55,182.4
97	101	323	910		55,182.6
97	101	324	920		55,184.6
97	101	325	930		55,184.4
97	101	326	940		55,185.0
97	101	327	950		55,184.2
97	101	328	960		55,184.6
97	101	329	970		55,185.8
97	101	330	980		55,185.8
97	101	331	990		55,188.0
97	101	332	1000		55,186.0
97	101	333	1010		55,187.4
97	101	334	1020		55,186.8
97	101	335	1030		55,185.4
97	101	336	1040		55,185.2
97	101	337	1050		55,188.4
97	101	338	1060		55,186.0
97	101	339	1070		55,182.6
97	101	340	1080		55,183.8
97	101	341	1090		55,182.6
97	101	342	1100		55,185.8
97	101	343	1110		55,185.2
97	101	344	1120		55,183.0
97	101	345	1130		55,180.4
97	101	346	1140		55,181.0
97	101	347	1150		55,176.8
97	101	348	1160		55,174.0
97	101	349	1170		55,172.6
97	101	350	1180		55,164.6
97	101	351	1190		55,164.4
97	101	352	1200		55,163.8
97	101	353	1210		55,166.0
97	101	354	1220		55,175.8
97	101	355	1230		55,238.6
97	101	356	1240		55,381.0
97	101	357	1250		55,365.0
97	101	358	1260		55,028.8
97	101	359	1270		54,923.4
97	101	360	1280		55,140.0
97	101	361	1290		55,077.2
97	101	362	1300		55,068.6
97	101	363	1310		55,088.6
97	101	364	1320		55,096.4
97	101	365	1330		55,092.6
97	101	366	1340		55,088.2
97	101	367	1350		55,082.2
97	101	368	1360		55,077.2
97	101	369	1370		55,062.0
97	101	370	1380		55,044.8
97	101	371	1390		55,005.6

B C M E A S T E R N

MAGNETIC SURVEY DATA

TRAVERSE LINE 97

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
97	101	232	0		55,111.2
97	101	233	10		55,123.2
97	101	234	20		55,133.0
97	101	235	30		55,140.8
97	101	236	40		55,144.0
97	101	237	50		55,151.6
97	101	238	60		55,154.0
97	101	239	70		55,154.8
97	101	240	80		55,158.2
97	101	241	90		55,159.6
97	101	242	100		55,162.2
97	101	243	110		55,164.6
97	101	244	120		55,163.8
97	101	245	130		55,160.4
97	101	246	140		55,160.0
97	101	247	150		55,162.6
97	101	248	160		55,166.2
97	101	249	170		55,168.8
97	101	250	180		55,165.2
97	101	251	190		55,165.0
97	101	252	200		55,165.4
97	101	253	210		55,166.6
97	101	254	220		55,167.0
97	101	255	230		55,167.6
97	101	256	240		55,171.0
97	101	257	250		55,170.4
97	101	258	260		55,170.2
97	101	259	270		55,168.6
97	101	260	280		55,169.8
97	101	261	290		55,168.8
97	101	262	300		55,172.4
97	101	263	310		55,169.4
97	101	264	320		55,166.6
97	101	265	330		55,169.6
97	101	266	340		55,169.6
97	101	267	350		55,169.2
97	101	268	360		55,168.8
97	101	269	370		55,173.2
97	101	270	380		55,171.0
97	101	271	390		55,171.8
97	101	272	400		55,172.4
97	101	273	410		55,172.6
97	101	274	420		55,173.8
97	101	275	430		55,174.4
97	101	276	440		55,169.8
97	101	277	450		55,172.0
97	101	278	460		55,174.4
97	101	279	470		55,175.0
97	101	280	480		55,177.2
97	101	281	490		55,181.0
97	101	282	500		55,180.8
97	101	283	510		55,180.6
97	101	284	520		55,180.8
97	101	285	530		55,180.0
97	101	286	540		55,181.6
97	101	287	550		55,180.8
97	101	288	560		55,183.4
97	101	289	570		55,184.4
97	101	290	580		55,182.0
97	101	291	590		55,181.0
97	101	292	600		55,172.2
97	101	293	610		55,174.4
97	101	294	620		55,175.6
97	101	295	630		55,177.0
97	101	296	640		55,178.0
97	101	297	650		55,176.8
97	101	298	660		55,180.0
97	101	299	670		55,178.6
97	101	300	680		55,178.4
97	101	301	690		55,180.0

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B C M E A S T E R N , I N C

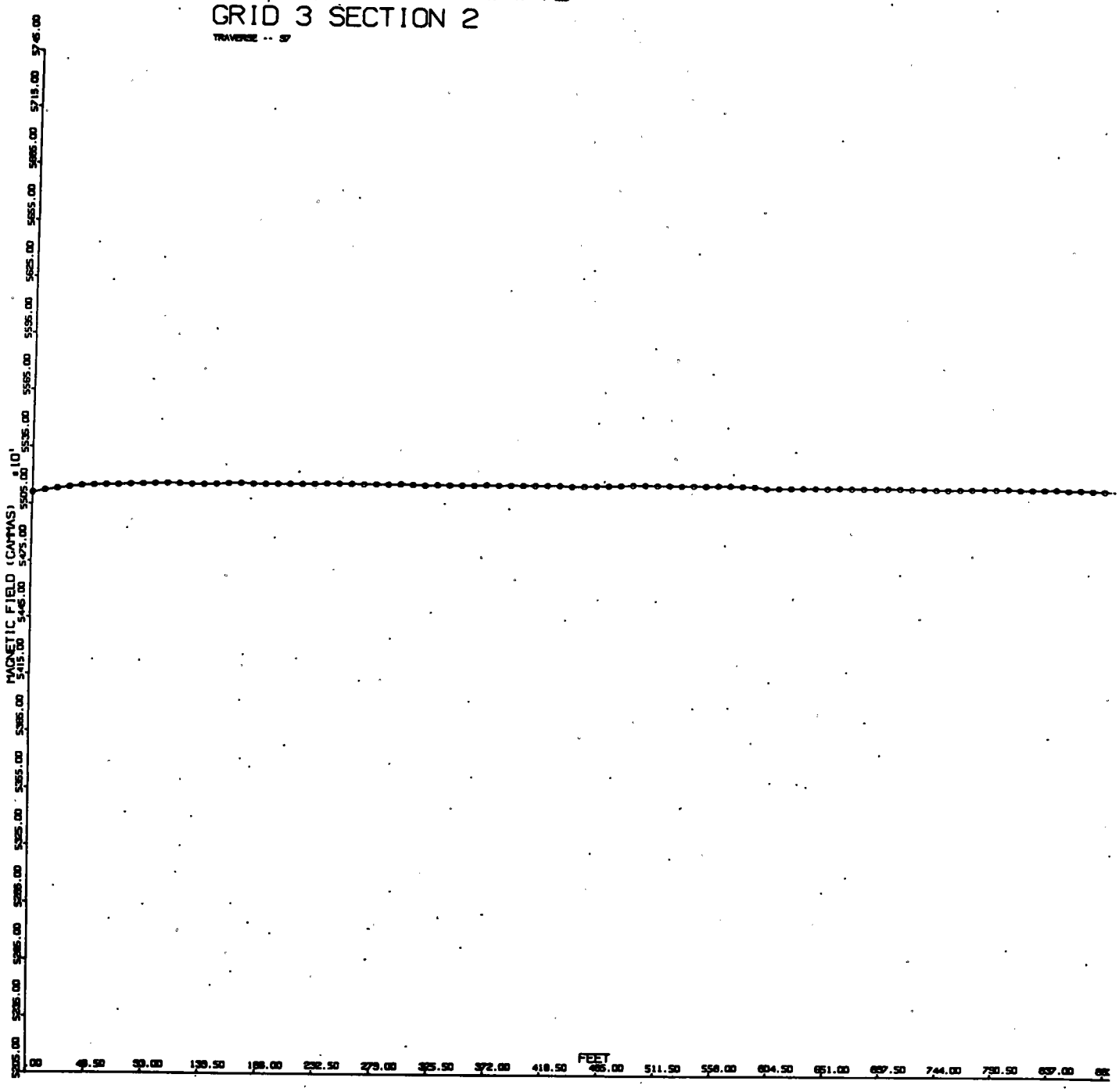
MAGNETIC SURVEY DATA

TRAVERSE LINE 97

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
97	101	372	1400		54,977.2
97	101	373	1410		54,944.2
97	101	374	1420		54,845.8
97	101	375	1430		54,887.2
97	101	376	1440		55,307.6
97	101	377	1450		55,638.0
97	101	378	1460		55,440.6
97	101	379	1470		55,029.8
97	101	380	1480		55,387.8
97	101	381	1490		56,079.2
97	101	382	1500	?	56,460.4
97	101	383	1510	?	56,521.6
97	101	384	1520	?	56,159.8
97	101	385	1530		55,678.8
97	101	386	1540		55,452.8
97	101	387	1550		55,220.0
97	101	388	1560		55,749.0
97	101	389	1570		55,848.6
97	101	390	1580		55,666.0
97	101	391	1590		55,091.6
97	101	392	1600		55,293.4
97	101	393	1610		55,920.6
97	101	394	1620		56,125.8
97	101	395	1630		56,910.0
97	101	396	1640	?	57,439.6
97	101	397	1650		56,179.0
97	101	398	1660		55,453.4
97	101	399	1670		55,254.4
97	101	400	1680		55,138.6
97	101	401	1690		55,080.8
97	101	402	1700		55,098.6
97	101	403	1710		55,277.8
97	101	404	1720		55,430.6
97	101	405	1730		55,590.0
97	101	406	1740		55,731.4
97	101	407	1750		55,814.8
97	101	408	1760		55,652.0
97	101	409	1770	?	55,024.4
97	101	410	1780		55,202.8
97	101	411	1790		55,579.0
97	101	412	1800		55,564.8
97	101	413	1810		55,532.4
97	101	414	1820		55,476.8
97	101	415	1830		55,217.2
97	101	416	1840		54,936.4
97	101	417	1850		54,996.0
97	101	418	1860		54,935.4

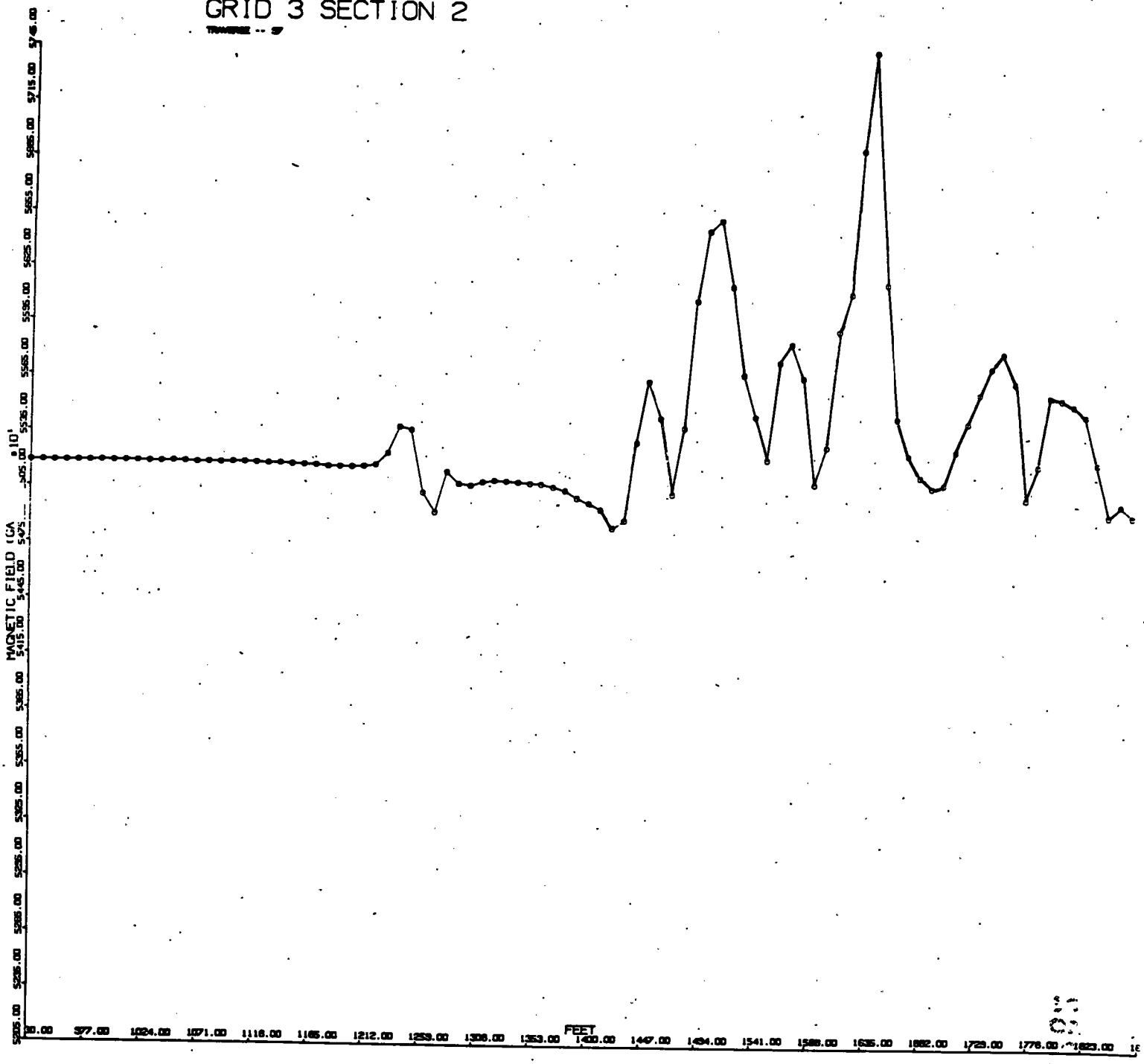
ROHM AND HAAS
GRID 3 SECTION 2

TRAVERSE -- S7



001260

ROHM AND HAAS
GRID 3 SECTION 2



001261

B C M E A S T E R N , B C M E A S T E R N ,

MAGNETIC SURVEY DATA

TRAVERSE LINE 98

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
98	101	419	0		55,006.2
98	101	420	10		55,068.0
98	101	421	20		55,090.6
98	101	422	30		55,120.2
98	101	423	40		55,135.4
98	101	424	50		55,151.6
98	101	425	60		55,155.6
98	101	426	70		55,161.4
98	101	427	80		55,164.2
98	101	428	90		55,170.6
98	101	429	100		55,164.2
98	101	430	110		55,166.4
98	101	431	120		55,245.2
98	101	432	130		55,203.2
98	101	433	140		55,207.6
98	101	434	150		55,243.4
98	101	435	160		55,165.4
98	101	436	170		55,190.0
98	101	437	180		55,177.4
98	101	438	190		55,178.0
98	101	439	200		55,171.6
98	101	440	210		55,186.6
98	101	441	220		55,187.8
98	101	442	230		55,182.6
98	101	443	240		55,179.8
98	101	444	250		55,183.8
98	101	445	260		55,185.4
98	101	446	270		55,185.4
98	101	447	280		55,186.6
98	101	448	290		55,185.2
98	101	449	300		55,189.2
98	101	450	310		55,192.4
98	101	451	320		55,191.0
98	101	452	330		55,190.8
98	101	453	340		55,191.6
98	101	454	350		55,188.4
98	101	455	360		55,188.4
98	101	456	370		55,191.6
98	101	457	380		55,192.8
98	101	458	390		55,189.0
98	101	459	400		55,192.6
98	101	460	410		55,192.2
98	101	461	420		55,190.0
98	101	462	430		55,188.8
98	101	463	440		55,194.4
98	101	464	450		55,191.2
98	101	465	460		55,192.4
98	101	466	470		55,194.0
98	101	467	480		55,194.2
98	101	468	490		55,192.8
98	101	469	500		55,196.0
98	101	470	510		55,196.4
98	101	471	520		55,199.2
98	101	472	530		55,198.4
98	101	473	540		55,196.2
98	101	474	550		55,198.0
98	101	475	560		55,200.0
98	101	476	570		55,200.6
98	101	477	580		55,199.8
98	101	478	590		55,198.4
98	101	479	600		55,198.6
98	101	480	610		55,199.0
98	101	481	620		55,199.2
98	101	482	630		55,199.8
98	101	483	640		55,198.4
98	101	484	650		55,200.4
98	101	485	660		55,199.8
98	101	486	670		55,199.6
98	101	487	680		55,199.6
98	101	488	690		55,200.8

MAGNETIC SURVEY DATA

TRAVERSE LINE 98

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
98	101	489	700		55,199.8
98	101	490	710		55,199.2
98	101	491	720		55,196.6
98	101	492	730		55,201.2
98	101	493	740		55,202.2
98	101	494	750		55,203.6
98	101	495	760		55,204.6
98	101	496	770		55,205.2
98	101	497	780		55,205.0
98	101	498	790		55,206.0
98	101	499	800		55,205.8
98	101	500	810		55,205.2
98	101	501	820		55,204.0
98	101	502	830		55,199.6
98	101	503	840		55,199.2
98	101	504	850		55,202.6
98	101	505	860		55,217.6
98	101	506	870		55,262.0
98	101	507	880		55,314.2
98	101	508	890		55,325.4
98	101	509	900		55,271.6
98	101	510	910		55,224.0
98	101	511	920		55,210.8
98	101	512	930		55,200.2
98	101	513	940		55,196.6
98	101	514	950		55,197.2
98	101	515	960		55,195.0
98	101	516	970		55,196.6
98	101	517	980	?	55,196.2
98	101	518	990		55,195.0
98	101	519	1000		55,196.0
98	101	520	1010		55,201.2
98	101	521	1020		55,204.8
98	101	522	1030		55,204.2
98	101	523	1040		55,209.4
98	101	524	1050		55,210.8
98	101	525	1060		55,212.2
98	101	526	1070		55,212.4
98	101	527	1080		55,212.0
98	101	528	1090		55,213.4
98	101	529	1100		55,215.6
98	101	530	1110		55,216.0
98	101	531	1120		55,215.8
98	101	532	1130		55,218.8
98	101	533	1140		55,218.2
98	101	534	1150		55,217.0
98	101	535	1160		55,219.6
98	101	536	1170		55,216.2
98	101	537	1180		55,217.4
98	101	538	1190		55,216.0
98	101	539	1200		55,218.6
98	101	540	1210		55,223.4
98	101	541	1220		55,225.0
98	101	542	1230		55,221.8
98	101	543	1240		55,222.6
98	101	544	1250		55,223.6
98	101	545	1260		55,212.6
98	101	546	1270		55,210.4
98	101	547	1280		55,212.6
98	101	548	1290		55,208.2
98	101	549	1300		55,205.2
98	101	550	1310		55,193.0
98	101	551	1320		55,199.0
98	101	552	1330		55,202.6
98	101	553	1340		55,202.8
98	101	554	1350		55,197.8
98	101	555	1360		55,198.2
98	101	556	1370		55,201.4
98	101	557	1380		55,288.0
98	101	558	1390	?	55,872.4

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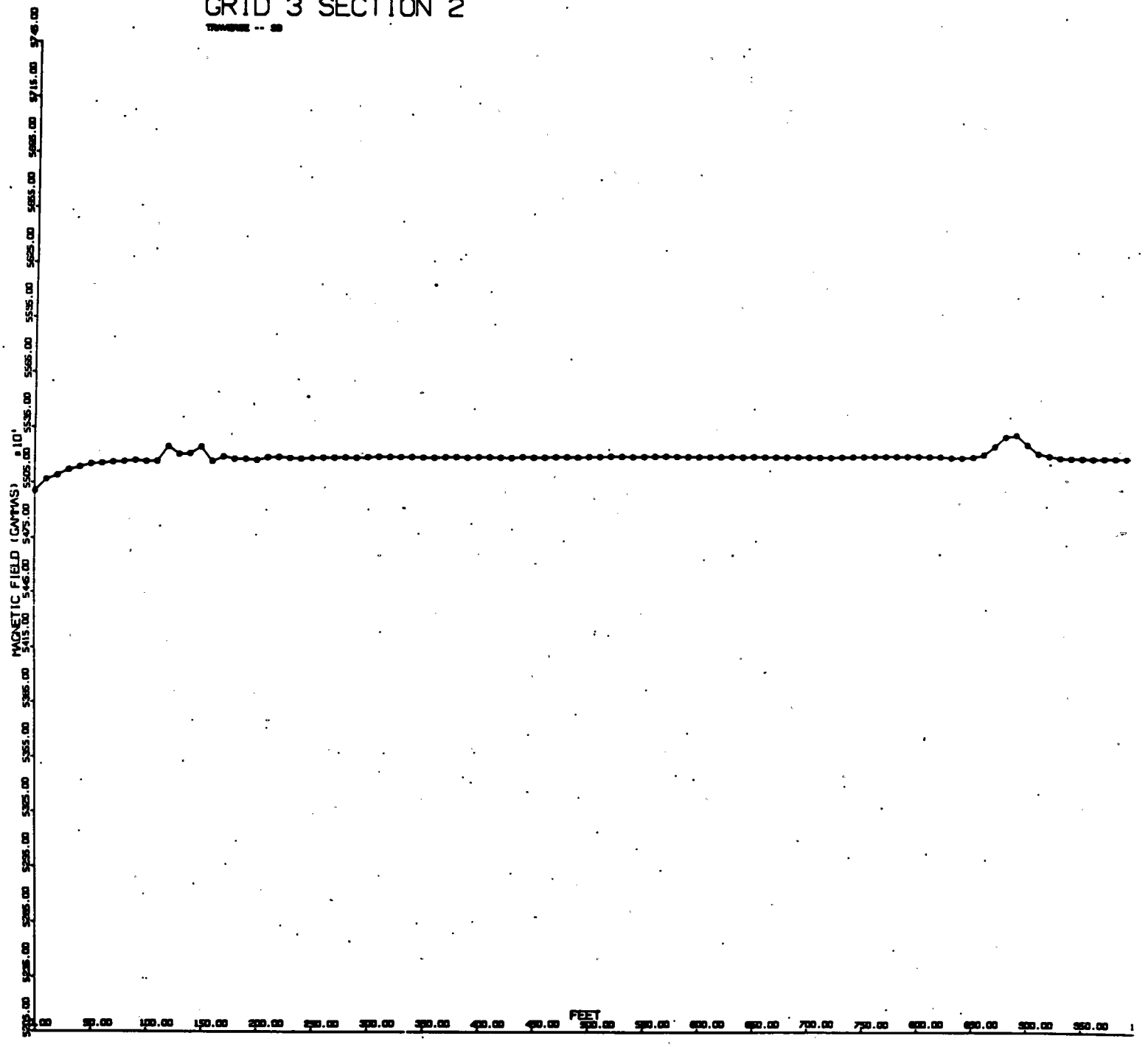
MAGNETIC SURVEY DATA

TRAVERSE LINE 98

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
98	101	559	1400		55,468.8
98	101	560	1410		55,107.4
98	101	561	1420		55,147.0
98	101	562	1430		55,167.2
98	101	563	1440		55,175.0
98	101	564	1450		55,168.0
98	101	565	1460		55,158.4
98	101	566	1470		55,150.4
98	101	567	1480		55,138.8
98	101	568	1490		55,139.6
98	101	569	1500		55,155.6
98	101	570	1510		55,090.6
98	101	571	1520		55,063.6
98	101	572	1530		55,021.8
98	101	573	1540		54,937.0
98	101	574	1550		54,639.4
98	101	575	1560		54,730.6
98	101	576	1570		54,663.2
98	101	577	1580		54,650.2
98	101	578	1590		54,869.0
98	101	579	1600		55,110.0
98	101	580	1610		55,525.6
98	101	581	1620		55,440.6
98	101	582	1630		55,728.4
98	101	583	1640		55,681.8
98	101	584	1650		55,732.8
98	101	585	1660		55,502.0
98	101	586	1670		54,817.4
98	101	587	1680	?	54,580.6
98	101	588	1690		55,214.4
98	101	589	1700		55,052.4
98	101	590	1710		54,740.4
98	101	591	1720		54,832.8
98	101	592	1730		55,475.2
98	101	593	1740	?	55,935.0
98	101	594	1750	?	56,030.8
98	101	595	1760	?	56,034.0
98	101	596	1770	?	55,922.4
98	101	597	1780		55,717.0
98	101	598	1790		55,093.0
98	101	599	1800		54,828.0
98	101	600	1810		54,917.2
98	101	601	1820		54,992.0
98	101	602	1830		54,781.0
98	101	603	1840		54,701.8
98	101	604	1850		54,731.0
98	101	605	1860		54,633.4
98	101	606	1870		54,268.4
98	101	607	1880		54,314.2
98	101	608	1890		54,483.2
98	101	609	1900		54,565.0
98	101	610	1910		54,853.6
98	101	611	1920		55,063.0
98	101	612	1930		55,237.2
98	101	613	1940		55,392.6
98	101	614	1950		55,680.0
98	101	615	1960		55,925.0
98	101	616	1970		56,136.8
98	101	617	1980		56,026.4
98	101	618	1990		55,894.6
98	101	619	2000		55,754.6

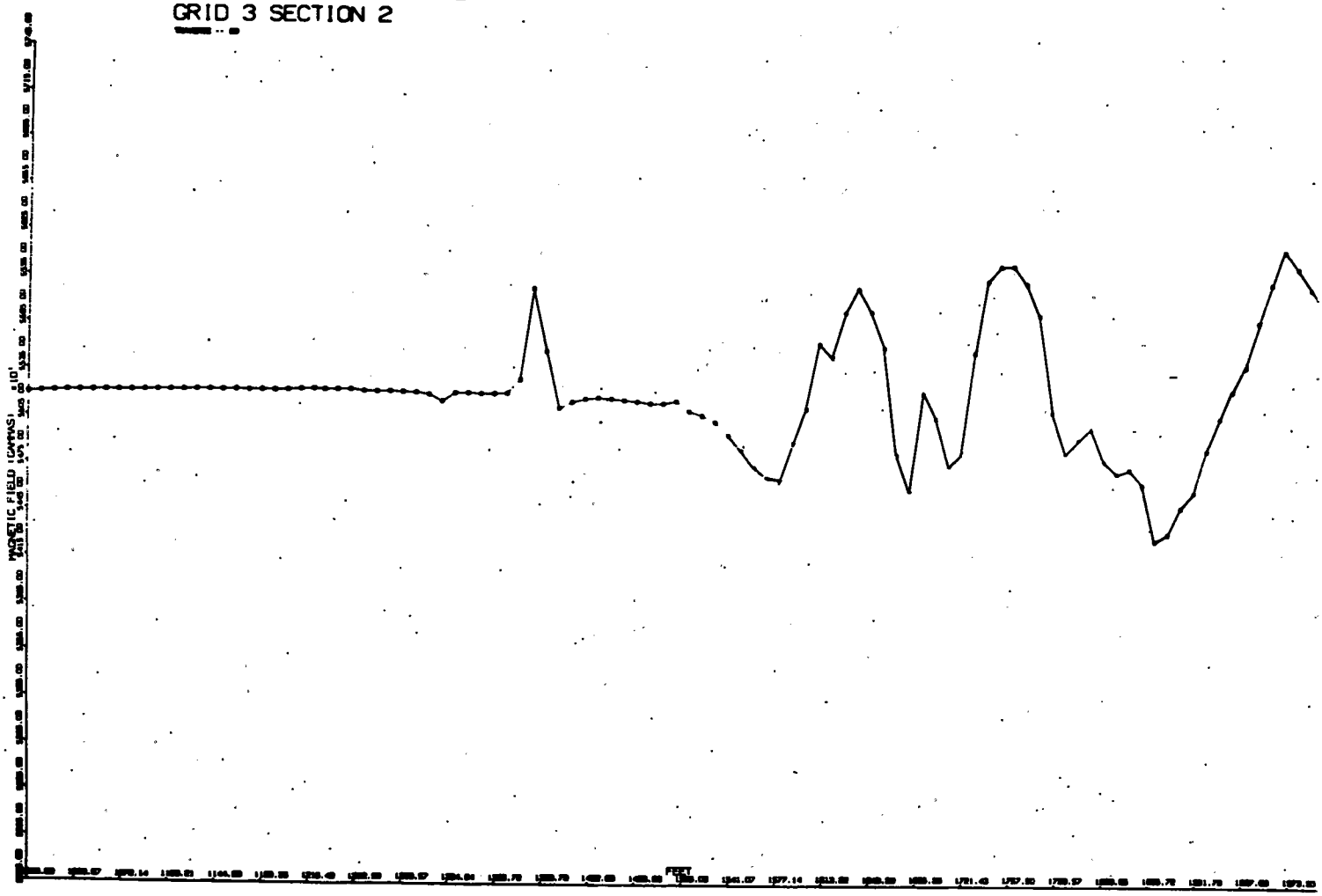
ROHM AND HAAS

GRID 3 SECTION 2



001264

ROHM AND HAAS
GRID 3 SECTION 2



B C M E A S T E R N , I N C

MAGNETIC SURVEY DATA

TRAVERSE LINE 99

LINE #	DAY	SITE #	FEET.	EST.	GAMMAS
99	101	620	0		54,566.2
99	101	621	10		54,891.4
99	101	622	20		55,017.2
99	101	623	30		55,076.4
99	101	624	40		55,110.8
99	101	625	50		55,127.0
99	101	626	60		55,141.8
99	101	627	70		55,151.2
99	101	628	80		55,160.6
99	101	629	90		55,165.8
99	101	630	100		55,169.6
99	101	631	110		55,175.4
99	101	632	120		55,177.6
99	101	633	130		55,185.6
99	101	634	140		55,187.0
99	101	635	150		55,186.4
99	101	636	160		55,180.6
99	101	637	170		55,173.4
99	101	638	180		55,154.6
99	101	639	190		55,150.8
99	101	640	200		55,158.0
99	101	641	210		55,171.0
99	101	642	220		55,181.4
99	101	643	230		55,191.6
99	101	644	240		55,199.2
99	101	645	250		55,188.0
99	101	646	260		55,187.8
99	101	647	270		55,192.4
99	101	648	280		55,198.6
99	101	649	290		55,201.4
99	101	650	300		55,200.0
99	101	651	310		55,198.2
99	101	652	320		55,196.4
99	101	653	330		55,192.4
99	101	654	340		55,192.6
99	101	655	350		55,192.4
99	101	656	360		55,193.4
99	101	657	370		55,197.0
99	101	658	380		55,198.6
99	101	659	390		55,194.8
99	101	660	400		55,196.6
99	101	661	410		55,197.8
99	101	662	420		55,199.0
99	101	663	430		55,203.0
99	101	664	440		55,211.4
99	101	665	450		55,229.8
99	101	666	460		55,265.6
99	101	667	470		55,302.4
99	101	668	480		55,312.0
99	101	669	490		55,258.6
99	101	670	500		55,192.6
99	101	671	510		55,186.0
99	101	672	520		55,084.8
99	101	673	530		54,849.0
99	101	674	540	?	54,669.2
99	101	675	550	?	52,031.2

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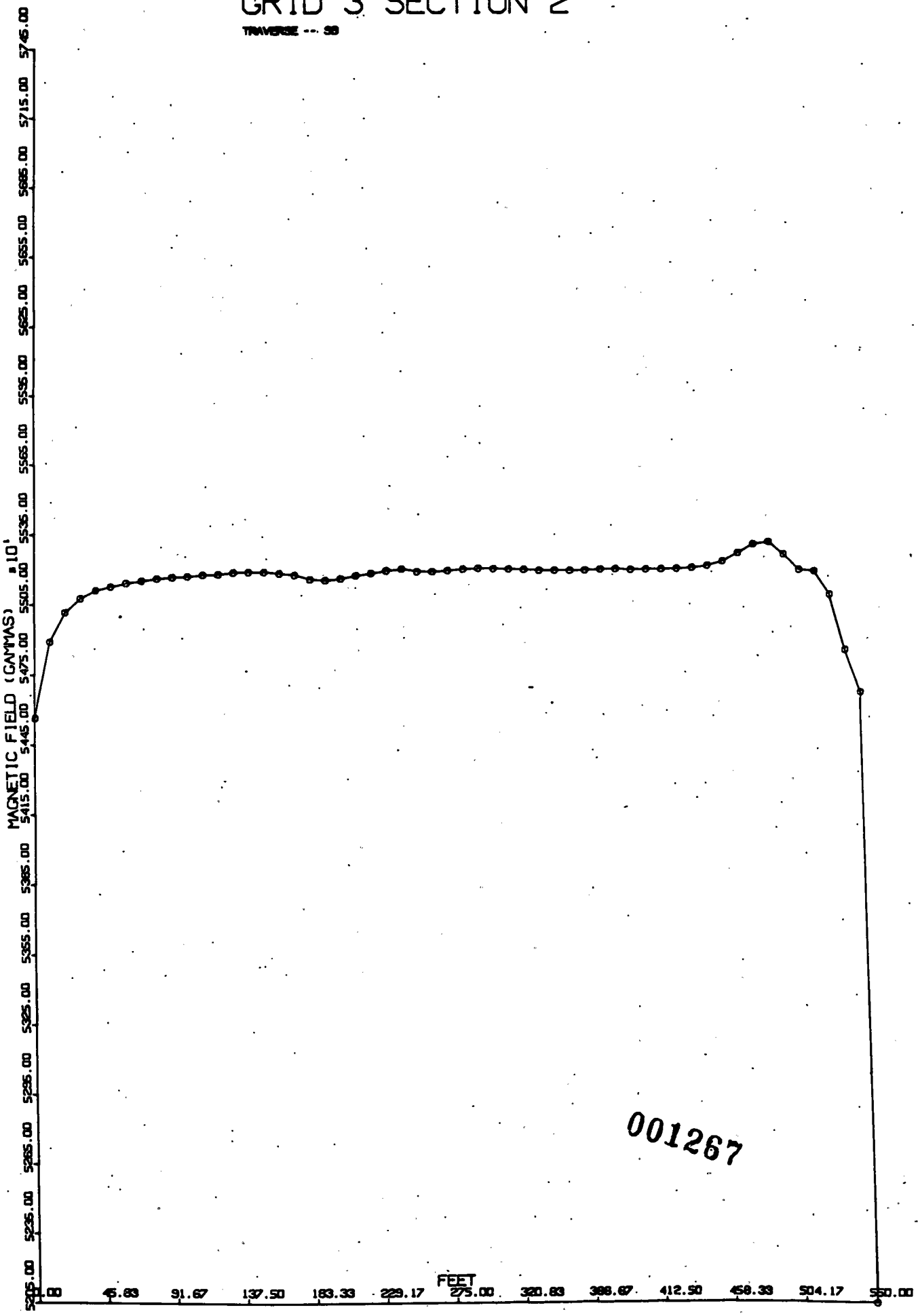
ROHM AND HAAS

GRID 3 SECTION 2

TRAVERSE -- 58



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APPENDIX K

DAILY BASE STATION DATA

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DAILY BASE STATION DATA

Date (1984)	Time (24-hour Clock)	Total Magnetic Field (Average of Five Readings) (Gammas)
	GRID A-1 SECTION 1 Base Station S-5, W-14	
3-16	10:18	55731.3
3-16	10:34	55733.9
3-16	10:49	55750.3
3-16	11:04	55737.5
3-20	14:29	55745.6
3-20	14:39	55744.2
3-20	14:57	55746.7
3-20	15:21	55745.7
3-20	15:45	55746.8
3-20	16:34	55743.7
3-20	16:58	55744.2
3-20	17:16	55744.8
3-20	17:33	55745.2
3-22	10:19	55708.5
3-22	10:38	55712.7
3-22	11:17	55702.1
3-22	12:08	55717.1
3-26	9:15	55716.9
3-26	9:53	55711.2
3-26	10:15	55713.8

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DAILY BASE STATION DATA

Date (1984)	Time (24-hour Clock)	Total Magnetic Field (Average of Five Readings) (Gammas)
	GRID A-1 SECTION 2 Base Station S-10, W-16	
3-22	13:58	55272.9
3-22	14:22	55289.9
3-22	15:32	55297.9
3-26	8:54	55255.6
3-26	9:18	55258.5
3-26	9:57	55255.8
3-26	10:22	55251.8
3-26	11:06	55268.1
3-26	11:40	55261.6
3-26	12:00	55261.2
3-26	12:28	55270.5
3-26	13:55	55271.4
3-26	14:47	55281.5
3-26	15:07	55284.0
3-26	15:33	55299.2
3-27	10:39	55260.0
3-27	10:56	55264.6
3-27	11:31	55265.1
3-27	11:48	55264.9

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DAILY BASE STATION DATA

Date (1984)	Time (24-hour Clock)	Total Magnetic Field (Average of Five Readings) (Gammas)
	GRID A-2 Base Station S-14, W-15	
3-27	13:17	55700.4
3-27	13:36	55714.1
3-27	14:11	55723.5
3-27	14:25	55716.8
4-2	9:43	55710.6
4-2	9:57	55726.2
4-2	12:33	55705.7
4-2	12:49	55697.2
4-2	13:20	55754.2
4-2	13:44	55749.8
4-2	14:17	55773.3
4-2	15:35	55755.2
4-2	15:48	55753.7
4-2	16:16	55734.8

BCM

DAILY BASE STATION DATA

Date (1984)	Time (24-hour Clock)	Total Magnetic Field (Average of Five Readings) (Gammas)
	GRID A-3 Base Station S-19, W-14	
4-3	9:23	55779.5
4-3	10:12	55766.4
4-3	10:40	55763.6
4-3	11:02	55782.9
4-3	11:27	55803.1
4-3	11:49	55801.8
4-3	13:46	55805.4
4-3	14:06	55816.6
4-3	15:06	55815.5
4-3	15:30	55823.7
4-3	16:00	55842.2
4-10	9:55	55794.6
4-10	13:31	55790.9
4-10	15:23	55798.0
4-10	16:01	55828.4

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DAILY BASE STATION DATA

Date (1984)	Time (24-hour Clock)	Total Magnetic Field (Average of Five Readings) (Gammas)
	GRID B Base Station S-3, W-2	
3-8	08:43	55351.0
3-8	08:51	55353.1
3-8	09:31	55343.0
3-8	10:00	55334.5
3-8	10:21	55347.4
3-8	10:58	55352.0
3-8	11:15	55356.0
3-8	13:47	55377.0
3-8	14:08	55359.7
3-8	14:40	55385.8
3-8	14:55	55366.2
3-8	15:20	55395.9
3-8	15:32	55366.4
	Base Station S-3, W-7	
3-12	13:25	55622.6
3-12	13:41	55619.3
3-12	13:58	55618.3
3-12	14:19	55617.6
3-12	14:57	55616.3
3-12	15:10	55623.6
3-12	15:25	55618.8

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DAILY BASE STATION DATA

Date (1984)	Time (24-hour Clock)	Total Magnetic Field (Average of Five Readings) (Gammas)
	CHEMICAL LEHMAN SECTION 1 Base Station S-11, W-23	
4-20	10:23	55465.7
4-20	11:02	55461.9
4-20	12:55	55457.1
4-20	14:41	55452.6
4-20	15:08	55487.0
4-20	15:34	55485.5
4-20	16:17	55494.8
4-20	16:47	55490.9
4-20	17:15	55483.5

J.7

LANDFILL GEOPHYSICAL INVESTIGATION
TERRAIN CONDUCTIVITY REPORT

ROHM AND HAAS COMPANY
BRISTOL, PENNSYLVANIA

FEBRUARY 1985

BCM PROJECT NO. 00-4061-07

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1.0 EXECUTIVE SUMMARY

1.1 OVERVIEW OF PROJECT

This report presents the findings of a terrain conductivity survey conducted within, and in the vicinity of, the inactive Rohm and Haas Company (Rohm and Haas) industrial landfill in Bristol Township, Bucks County, Pennsylvania. The purpose of this survey was to identify possible effects of landfill wastes on the local groundwater system through the surface measurement of apparent terrain conductivity.

1.2 METHODOLOGY

The terrain conductivity survey was conducted adjacent to known waste disposal areas and in an area adjacent to the west branch of Hog Run Creek. A direct-reading terrain conductivity instrument was used to make the measurements.

Measurements were conducted on a grid system established over the areas surveyed and along profile lines. Measurements within the grids were conducted at 50- and 100-feet intervals. Measurements along profile lines were conducted at 50-feet intervals.

Contour maps of terrain conductivity were produced for grid systems at two separate depths of exploration. Two-dimensional graphs of conductivity variations by distance were produced for profile lines. Spatial changes in terrain conductivity (anomalies) were identified by examination of conductivity contour maps and conductivity profiles.

1.3 PRINCIPAL FINDINGS

Principal findings are discussed by grid system in the following sections. Grid locations are depicted in Figure 1.

1.3.1 Subarea D Grid

Conductivity northwest of the Rohm and Haas wastewater treatment plant (WWTP) settling basins was elevated above natural (background) conditions. Areas of elevated conductivity correlated with areas where Rohm and Haas reported disposing of ammonium sulfate waste.

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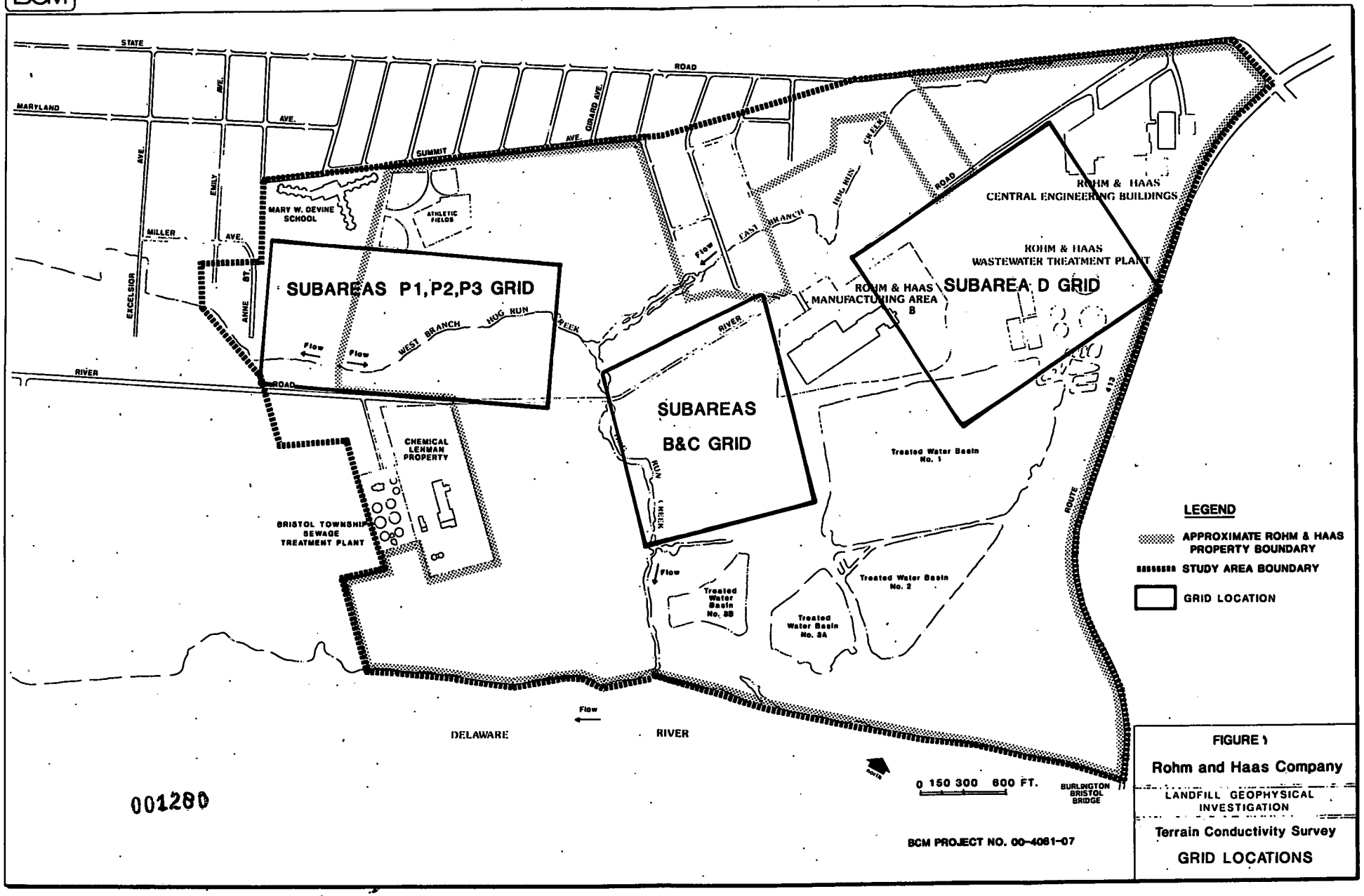

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FIGURE 1

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Terrain Conductivity Survey

GRID LOCATIONS

A gradient of elevated conductivity was identified extending to the north from the area of ammonium sulfate waste disposal. Conductivity data and correlation with existing groundwater quality data indicated a possible plume of dissolved electrolytes contained within the deeper portions of the saturated zone. This plume extended several hundred feet north of the ammonium sulfate waste disposal area.

1.3.2 Subareas B and C Grid

Elevated conductivity within landfill area B correlated with areas of the landfill where ferromagnetic material was suspected. This elevated conductivity may be the result of buried ferromagnetic material and dissolved electrolytes within the groundwater system.

An area of elevated conductivity was identified within landfill area C. This elevated conductivity may represent the effect of dissolved electrolytes within the groundwater system, or the effect of naturally occurring silts and clays.

1.3.3 Subareas P1, P2, and P3 Grid

Most profile lines within this grid did not exhibit areas of elevated conductivity. Slightly elevated conductivities were measured on the western portion of several profile lines. These conductivities correlated with areas where more highly conductive clays were identified in the subsurface strata. In addition, a nearby 36-inch public sewer line which bisects the western portion of the grid may also be contributing dissolved electrolytes to the groundwater system, which may also contribute to elevated conductivity levels.

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2.0 INTRODUCTION

To further define environmental conditions, BCM Eastern Inc. (BCM) conducted a terrain conductivity survey within and in the vicinity of the inactive Rohm and Haas Company industrial landfill in Bristol Township, Bucks County, Pennsylvania. The purpose of the survey was to identify possible effects of landfill wastes on the local groundwater system through the surface measurement of apparent terrain conductivity. Fieldwork for the survey was conducted during May and June, 1984.

Rohm and Haas operated the landfill on the property adjacent to their Bristol and Croydon manufacturing facilities from 1952 to 1975. The landfill was a repository for selected Rohm and Haas-generated wastes as well as refuse from Bristol Township resulting from several community cleanup/fixup campaigns. A more detailed description of the Bristol landfill study area is contained within the Report On Landfill Investigation prepared for Rohm and Haas by BCM in April, 1984.

The terrain conductivity survey was conducted northeast of Rohm and Haas Manufacturing Area B within landfill areas B and C, and along the west branch of Hog Run Creek.

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3.0 FIELD MEASUREMENT TECHNIQUES

3.1 TERRAIN CONDUCTIVITY THEORY

Terrain conductivity surveying utilizes the application of inductive electromagnetic techniques for the direct measurement of apparent terrain conductivity. The term "apparent conductivity" is used because the measured value is a surface and/or depth-weighted average of conductivity beneath the measurement point. For convenience throughout this report, apparent terrain conductivity is referred to simply as terrain conductivity.

The surveying technique utilizes a small transmitter coil, which is situated at the earth's surface. An alternating current is applied to the terminals of this coil. This current generates an alternating magnetic field, which causes electrical currents to be induced in the earth. The induced currents in the earth generate a secondary magnetic field, which is detected by a receiver coil located near the transmitter coil. Currents are not induced in the air, which is effectively infinitely resistive. When the energizing frequency is sufficiently low, the magnetic field generated is linearly proportional to ground conductivity. The more conductive the ground, the larger the current flow, and the larger the resultant secondary magnetic field measured. Terrain conductivity meters are instruments which measure resultant magnetic fields and are calibrated to read ground conductivity directly.

Terrain conductivity is dependent upon the nature of the soil, subsurface porosity, hydraulic permeability, moisture content, depth to and type of bedrock, and the concentration of dissolved electrolytes. The presence of such objects as electric lines, wire, pipes, buildings, tanks, buried metal, fences, and foundations may also influence conductivity.

Most physical constituents of a soil are electrical insulators, which do not allow appreciable current flow through them. The medium which does allow current flow is the relatively conductive interstitial moisture. Water conductivity is determined mainly by ionic content; therefore, variations in soil conductivity can be used to define areas where groundwater may contain a higher concentration of dissolved electrolytes.

In general, the conductivity of the earth varies with depth. In a typical vertical profile, the conductivity will initially increase with depth due to increasing soil moisture becoming constant at the water table due to saturation. If the bedrock underlying soils has a low porosity, the conductivity within this bedrock medium will decrease. In addition, an increased clay content can affect conductivity because of a surface conduction phenomenon which occurs in clay.

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Since both geological and hydrogeological factors can affect conductivity surveys, surveys intended to delineate a contaminant area must include a sufficient density of measurements both over the suspect region and also beyond into the surrounding area, so that the possible influence of any of the above-mentioned factors can be determined. Furthermore, these factors must be considered when the data are interpreted.

The actual magnitude of conductivity values measured is less important than the trends and anomalies in the measurements. To be meaningful, survey results must be correlated with known subsurface conditions from test borings and wells.

A terrain conductivity survey consists of a series of measurements of earth conductivity taken within a grid system or along profile lines. Spatial changes in terrain conductivity are identified by two means: examination of conductivity contour maps constructed for grid systems; or examination of two-dimensional graphs of conductivity variations by distance, known as conductivity profiles.

3.2 INSTRUMENTATION

Terrain conductivity surveying at the Rohm and Haas study area was accomplished through the use of an EM 34-3 Terrain Conductivity Meter manufactured by Geonics Limited of Mississauga, Ontario, Canada.

The EM 34-3 is a two-person portable unit which has two coils connected by flexible cables. The instrument is calibrated by the manufacturer to read terrain conductivity directly by the prinicples discussed in Section 3.1.

Exploration depth for the EM 34-3 is controlled by intercoil spacing. The instrument is calibrated to allow several intercoil spacings and several consequent exploration depths. Intercoil spacings of 10 meters (33 feet) and 20 meters (66 feet) were used at Rohm and Haas.

The EM 34-3 coils may be operated in a vertical configuration or may be laid flat on the ground surface during measurements. Coil configuration effects exploration depth. When the coils are held vertically, the secondary magnetic field is perpendicular to the plane of the receiver coil. This configuration is known as the horizontal dipole mode. When the coils are held horizontally, the secondary magnetic field is oriented at approximately a 45-degree angle to the horizontal. This configuration is known as the vertical dipole mode. Both horizontal and vertical coil configurations were used at Rohm and Haas.

At Rohm and Haas the coils were usually carried with their planes vertical (horizontal dipole mode) since in this configuration the measurement

was relatively insensitive to misalignment of the coils. Table 1 summarizes exploration depths used at Rohm and Haas.

TABLE 1

EM 34-3 EXPLORATION DEPTHS

Intercoil Spacing		Exploration Depth	
Meters (m)	Feet (ft)	Horizontal Dipoles	Vertical Dipoles
10 m	(33 ft)	7.5 (25 ft)	15.0 m (49 ft)
20 m	(66 ft)	15.0 (49 ft)	

Source: BCM Eastern Inc.

3.3 SURVEY METHODOLOGY

The Rohm and Haas landfill and the adjacent area were divided into a number of subareas as part of the landfill investigation reported by BCM in April, 1984. These subareas and known waste disposal areas are depicted in Figure 2.

The terrain conductivity survey was conducted in three study areas, referred to as grids. These grids are depicted in Figure 3. Measurements of terrain conductivity were conducted at grid points which had been physically located and marked by a surveyor. Measurements taken in the field were transferred to site plans for construction of contour maps of terrain conductivity. In addition, some measurements were entered into BCM's computer system for automated plotting as terrain conductivity profiles.

3.4 QUALITY CONTROL

In order to maintain data quality assurance and quality control, certain measurement stations were repeated during the course of the survey. In addition, the terrain conductivity instrument was electronically nulled prior to each day's data collection to remove any variations in the output circuitry. Battery levels were closely monitored and a daily receiver compensation and gain check was performed in accordance with the manufacturer's instructions.

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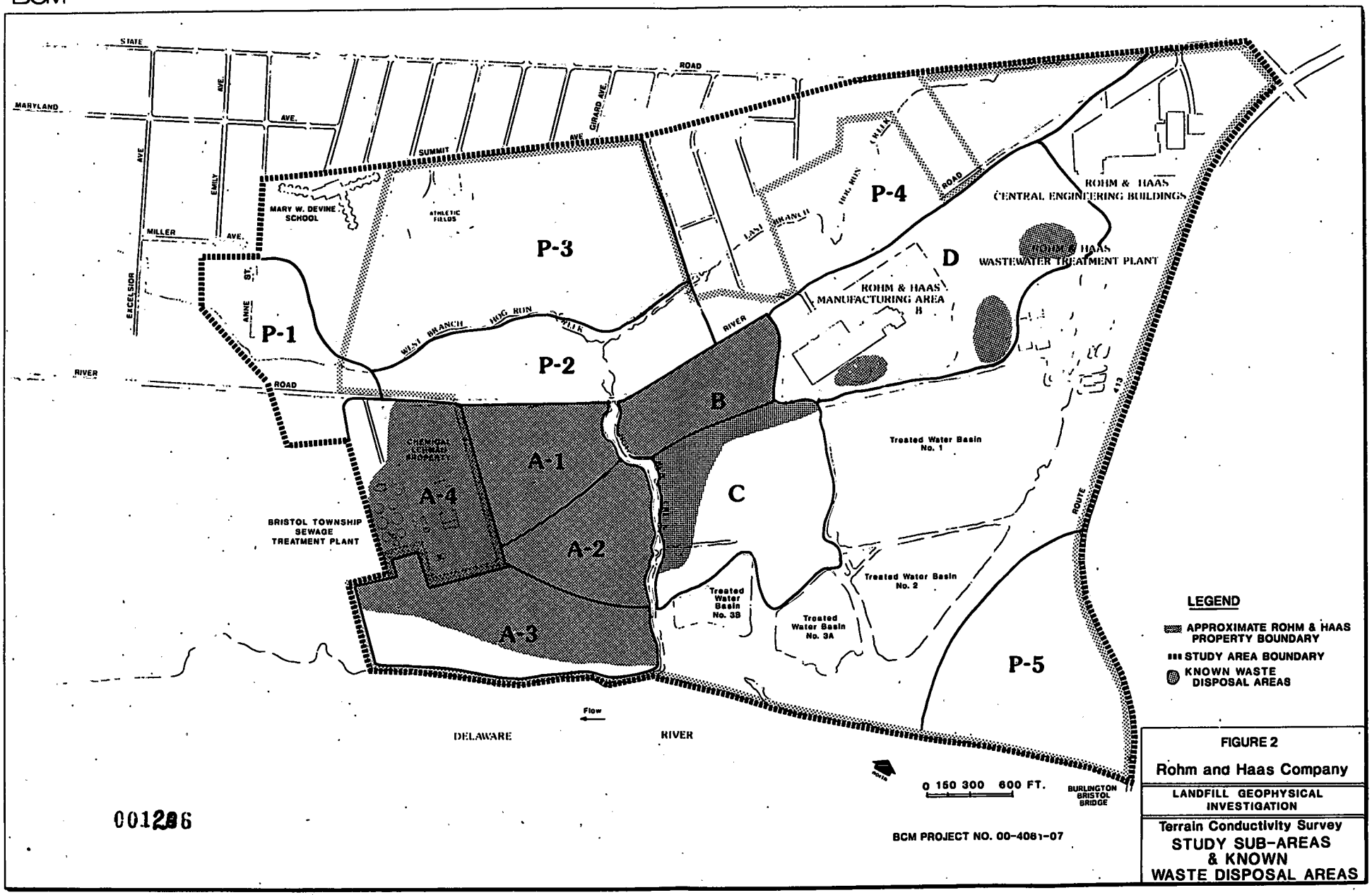

FIGURE 2

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Terrain Conductivity Survey

STUDY SUB-AREAS & KNOWN WASTE DISPOSAL AREAS

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BCM Engineers, Planners and Scientists

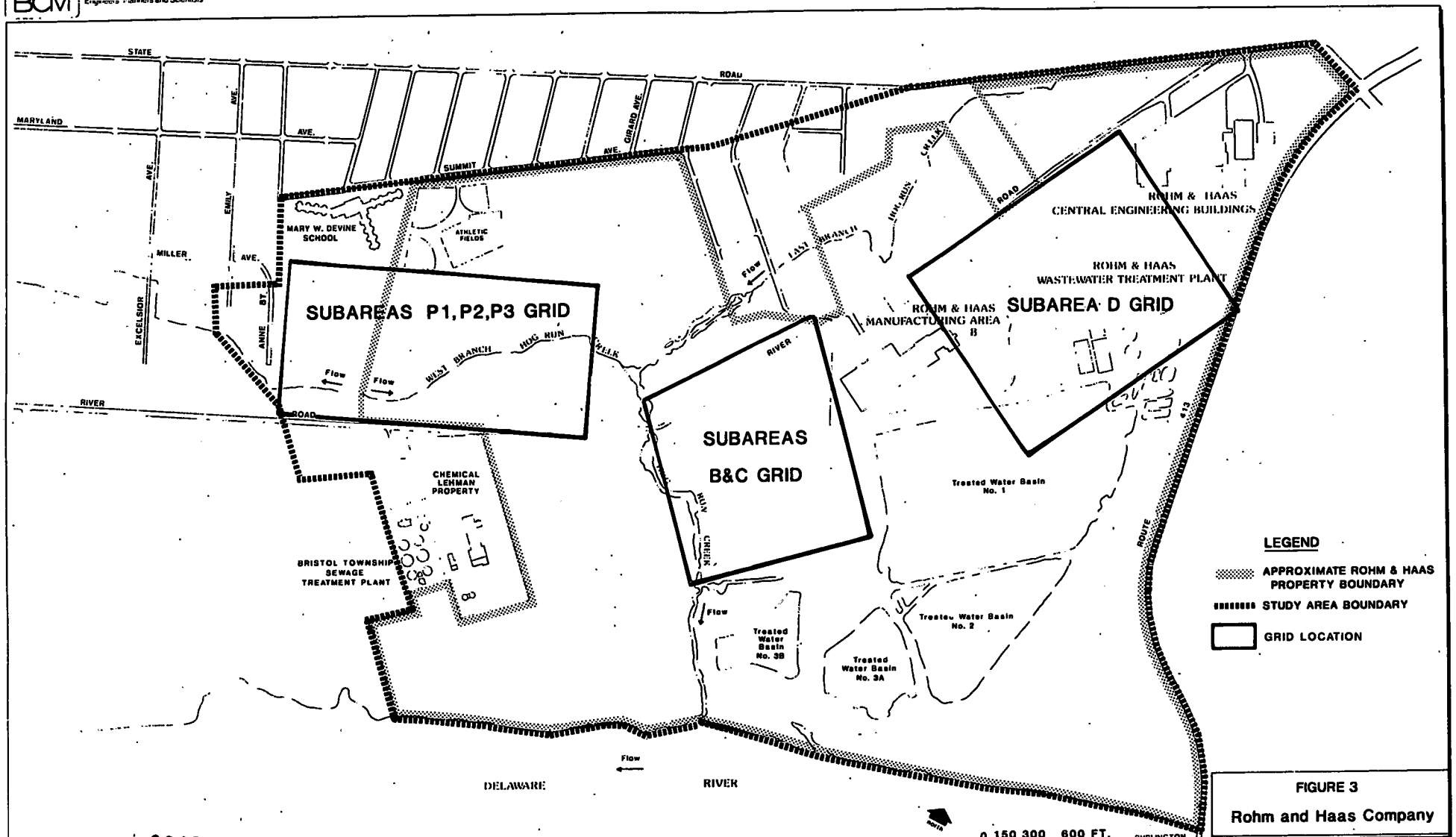

FIGURE 3

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Terrain Conductivity Survey

GRID LOCATIONS

BCM PROJECT NO. 00-4061-07

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3.5 GRID DESCRIPTIONS

Individual terrain conductivity grid systems are discussed in the following sections:

- Subarea D Grid

  This grid was established northeast of Rohm and Haas Manufacturing Area B, south of River Road, and west of Route 413. Measurements were conducted at the 10-meter (33 feet) and 20-meter (66 feet) coil separations in the horizontal dipole configuration. Effective exploration depths were 25 feet for the 10-meter, and 49 feet for the 20-meter separations.

  A total of 247 measurements were conducted at the 10-meter coil separation. A total of 238 measurements were conducted at the 20-meter coil separation. Measurements were conducted at 50-feet and 100-feet grid spacings.

- Subareas B and C Grid

  This grid encompassed portions of landfill areas B and C with the major portion of the grid within landfill area C. Measurements were conducted at the 10-meter (33 feet) and 20-meter (66 feet) coil separations in the horizontal dipole configuration. Effective exploration depths were 25 feet for the 10-meter separations, and 49 feet for the 20-meter separations.

  A total of 226 measurements were conducted; 113 of these measurements were conducted at each coil separation. Measurements were conducted at 50-feet and 100-feet grid spacings and along existing landfill access roads.

- Subareas P1, P2, and P3 Grid

  A series of terrain conductivity profile lines was established in this area parallel to the west branch of Hog Run Creek. One line was established perpendicular to the creek on an existing access road. Measurements were conducted at 50-feet intervals along these profile lines. A 10-meter (33 feet) coil separation was utilized with both the horizontal and vertical dipole configurations. Effective exploration depths were 25 feet for the horizontal configuration, and 49 feet for vertical dipole configuration.

  A total of 281 measurements of terrain conductivity were conducted in this area on 6,800 linear feet of survey line.

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4.0 DATA REDUCTION AND INTERPRETATION METHODOLOGY

Over 900 measurements of terrain conductivity were conducted during the survey.

Interpretation of terrain conductivity was accomplished by the examination of terrain conductivity contour maps and terrain conductivity profiles. Maps and profiles were examined for the existence of elevated and/or lowered conductivities that could not be attributed to known naturally existing subsurface conditions or manmade features.

Terrain conductivity data were correlated with water quality data and variations in subsurface strata. In addition, descriptions of past waste disposal activities and results obtained during a magnetic survey conducted by BCM in March, April, and May, 1984 were used in the interpretation.

Typical values of terrain conductivity measured at Rohm and Haas are contained in Table 2.

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TABLE 2

MEASURED APPARENT CONDUCTIVITIES
ROHM AND HAAS STUDY AREA

Location	Conductivity (millimhos/meter)	Medium/Interpretation
Subarea D (Manufacturing Area B)	5-10	Sand and gravel partially saturated background conductivity
Subarea D (Manufacturing Area B)	10-40	Sand and gravel partially saturated elevated conductivity
Subarea D (Manufacturing Area B)	70-120	Ammonium sulfate waste area
Landfill area B	6-12	Sand and gravel partially saturated background conductivity
Landfill area B	24-40	Sand and gravel partially saturated elevated conductivity
Landfill area B	40-80	Sand and gravel partially saturated with metallic objects and contaminated groundwater
Subareas P1, P2 and P3	6-15	Sand and gravel partially saturated background conductivity
Subareas P1, P2 and P3	15-25	Silt, clay, sand, and gravel partially saturated slightly elevated conductivity clay area

Source: BCM Eastern Inc.

5.0 SURVEY RESULTS

5.1 INTRODUCTION

Included within the following sections are descriptions of results of the survey within each grid system.

5.2 SUBAREA D GRID

5.2.1 Introduction

Terrain conductivity data for the subarea D grid are contained in Appendices A and B. Terrain conductivity maps for the 10-meter and 20-meter coil separations are depicted in Figures 4 and 5, contained in rear pockets of this report.

Information obtained from Rohm and Haas indicated that the portion of the subarea D grid west of the WWTP settling basins was used for the disposal of ammonium sulfate waste.

5.2.2 Analysis of Survey Data

An analysis of contour maps of terrain conductivity constructed for the two effective depths of exploration indicated that there were distinct areas of elevated conductivity contained within the subarea D grid. Areas of elevated conductivity were identified west of the WWTP and immediately north of the WWTP trickling filter. In addition, a gradient of elevated conductivity was identified extending several hundred feet north of the WWTP.

Examination of the 10-meter coil separation contour map (25-feet effective exploration depth, Figure 4) indicated three distinct areas of elevated conductivity located northwest of the WWTP settling basins. Conductivity values within these anomalies ranged from 70- to 120 millimhos per meter (mm/m). In addition, conductivity values immediately adjacent to these anomalies were elevated, with values ranging from 20 to 40 mm/m. Natural (background) conductivity for this grid and effective exploration depth (25 feet) was 5 to 10 mm/m. Background values were recorded in the northern portion of the grid system.

A distinct area of elevated conductivity also was identified northwest of the WWTP trickle filter. Conductivity within this anomaly was 35 mm/m.

There was a conductivity gradient extending to the north across the grid ranging from 20 mm/m immediately north of the WWTP settling basins to 5 mm/m (background conditions) 200 feet farther north.

The effect of manmade features on conductivity measurements was observed along the northern boundary of the subarea D grid between coordinates E5 and E9. The elevated conductivity at that location was caused by the electric power transmission lines which border the grid system.

Examination of the 20-meter coil separation contour map (49-feet exploration depth, Figure 5) provided confirmation of the areas of elevated conductivity identified on the 10-meter contour map. Distinct areas of elevated conductivity were located west of the WWTP settling basins. Conductivity values within these anomalies ranged from 70 to 110 mm/m. Conductivity immediately adjacent to these anomalies was also elevated with measured values ranging from 40 to 70 mm/m. Natural (background) conductivity for this grid and effective exploration depth (49 feet) ranged from 5.5 to 10 mm/m. Background values were recorded in the northern portion of the grid system.

A conductivity gradient was identified at the 49-feet exploration depth extending north several hundred feet from the WWTP. Conductivity was 40 mm/m 100 feet north of the WWTP settling basins. The gradient extended 150 feet north from the 40 mm/m contour to the 10 mm/m contour.

The power transmission lines north of the grid also caused elevated conductivity at the 20-meter coil separation between coordinates E5 and E9.

5.2.3 Correlation of Survey Results with Water Quality Data

Water quality data from previously installed monitoring wells were correlated with measured terrain conductivity in the subarea D grid.

A geologic cross section was constructed from northwest to southeast through the grid. Included within this cross section were groundwater monitoring wells CR-18-55, CR-21-27, CR-21-17, CR-21-38, CR-4-50, CR-4-20, CR-4-90, CR-20-38, CR-20-22, CR-3-45, CR-3-22, and CR-3-70. The location of the cross section (designated B-B') is depicted in Figure 8. The cross section itself is depicted in Figure 9.

An analysis of specific conductance data depicted on cross section B-B' indicated that specific conductance was elevated in the deeper wells. This fact, when correlated with measured terrain conductivity, indicated that dissolved electrolytes may have been present within the deeper portion of the groundwater system.

5.2.4 Conclusions

Conclusions based on the conductivity survey in subarea D are:

1. Conductivity within the portion of the subarea D grid west of the WWTP settling basins was elevated above background

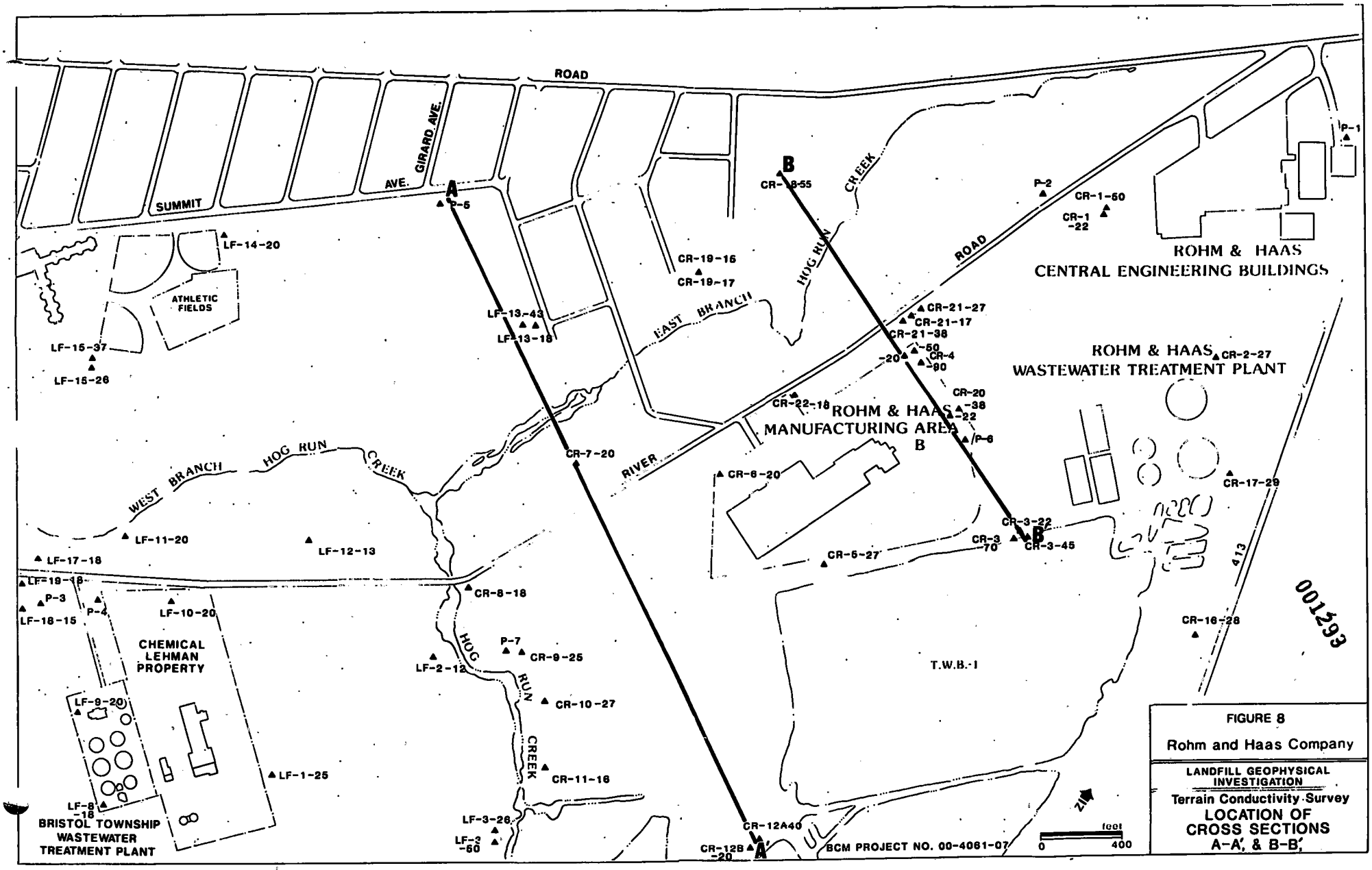

FIGURE 8

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Terrain Conductivity Survey

LOCATION OF CROSS SECTIONS A-A', & B-B'

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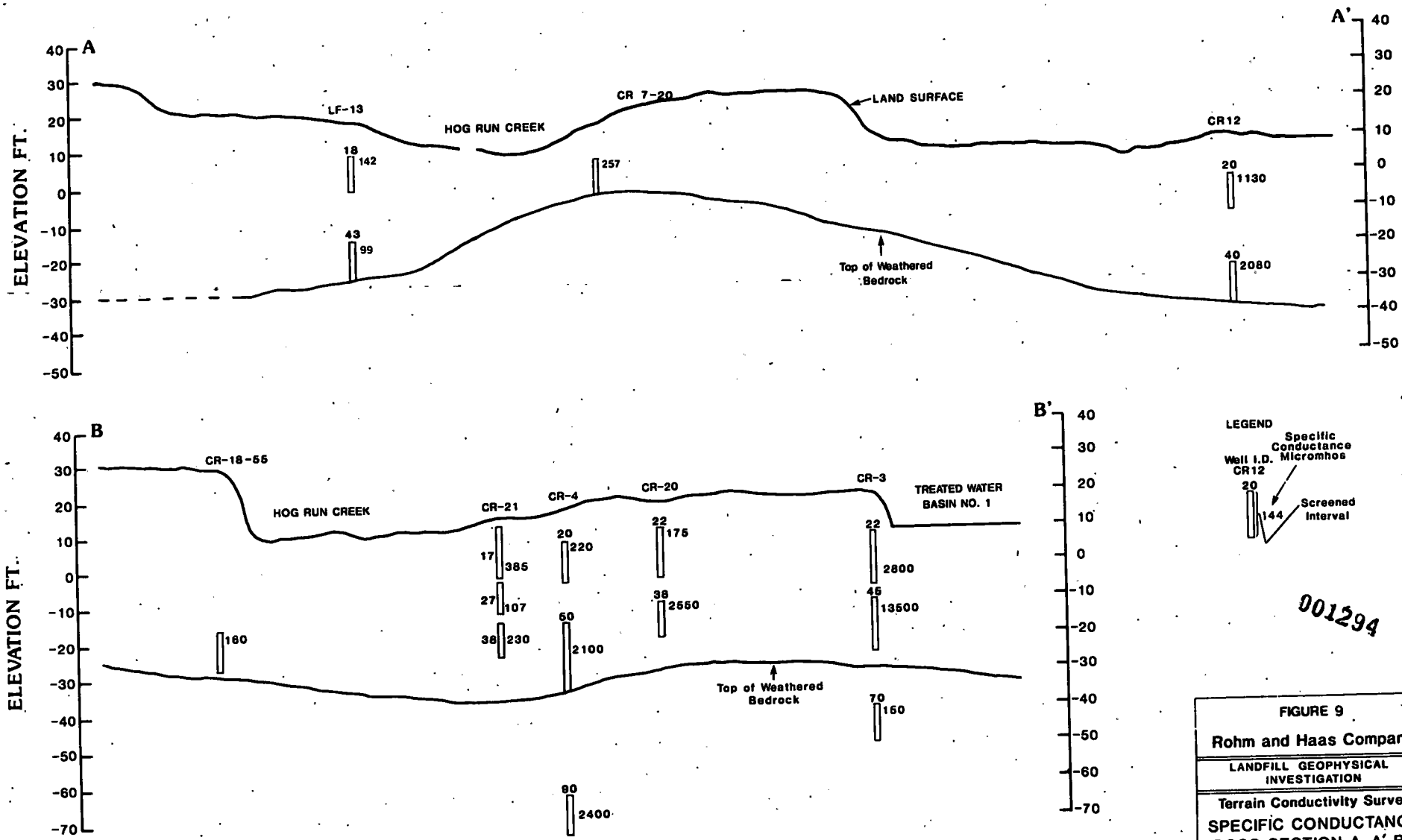

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FIGURE 9

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Terrain Conductivity Survey

SPECIFIC CONDUCTANCE, CROSS SECTION A-A', B-B'

BCM PROJECT NO. 00-4061-07

conditions. This elevated conductivity is associated with the ammonium sulfate waste disposed of in that area. Conductivity may also be elevated due to the effect of dissolved electrolytes contained within the groundwater system.

2. A gradient of elevated conductivity was identified extending several hundred feet north from the area of ammonium sufate waste disposal. The conductivity gradient was much more pronounced at the 49-feet exploration depth than at the 25-feet exploration depth, indicating higher concentrations of dissolved electrolytes contained within the deeper portion of the saturated zone.

3. An area of elevated conductivity was identified northwest of the WWTP trickling filter. It is possible that this anomaly may represent the effect of a conductive pipeline or buried metallic object, or it may represent the effect of dissolved electrolytes contained within the groundwater system.

5.3 SUBAREAS B AND C GRID

5.3.1 Introduction

Terrain conductivity data for the subareas B and C grid are contained in Appendices C and D. Terrain conductivity maps for the 10-meter and 20-meter coil separations are depicted in Figures 6 and 7 contained in rear pockets of this report. Terrain conductivity profiles for profile lines G, H, and I, conducted along landfill access roads within this grid, are contained in Appendix E.

The majority of the conductivity measurements conducted within this grid were in landfill area C.

5.3.2 Analysis of Survey Data

An analysis of contour maps of terrain conductivity for the two depths of exploration indicated that there were distinct areas of elevated conductivity within the grid system. Areas of elevated conductivity were identified within landfill area B and landfill area C. An area of slightly elevated conductivity was identified between Hog Run Creek and landfill area B.

Examination of the 10-meter coil separation contour map (25 feet effective exploration depth, Figure 6) indicated a distinct area of elevated conductivity within landfill area B centered at coordinates W7, S5. Conductivity within this anomaly ranged from 18- to 80-mm/m. This area

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was a portion of landfill area B, where buried ferromagnetic materials were previously detected during a magnetic survey. Natural (background) conductivity values, measured north of the landfill, ranged from 5.5 to 6.5 mm/m.

Measured conductivities for the portion of landfill area B adjacent to Hog Run Creek were slightly elevated above background conductivity. Measured values were 12 to 16 mm/m. Elevated conductivity in this area may be the result of minor concentrations of dissolved electrolytes within the local groundwater system, or these elevated conductivities may be the result of subsurface silts and clays.

A distinct area of elevated conductivity was identified in landfill area C centered at coordinates W7, S9. Measured conductivity within this anomaly ranged from 22 to 40 mm/m. The anomaly was approximately 200 feet long by 100 feet wide, and was elongated in a southeasterly direction. Natural (background) conductivity, measured in the southeastern portion of grid C, was approximately 10 to 15 mm/m.

Examination of the 20-meter coil separation contour map (45 feet effective exploration depth, Figure 9) confirmed the location of conductivity anomalies detected at the 10-meter coil separation. There was a distinct area of elevated conductivity within landfill area B at coordinates W7, S5. Conductivity within this anomaly ranged from 25 to 60 mm/m. Background conductivity values, measured within the area of the landfill south of River Road, were approximately 8 to 10 mm/m.

Conductivity of the portion of landfill area B adjacent to Hog Run Creek was slightly elevated above background, ranging from 16 to 18 mm/m.

An area of elevated conductivity was identified in landfill area C centered at coordinates W7, S9. Conductivity within this anomaly ranged from 20 to 28 mm/m. The anomaly was approximately 200 feet long by 100 feet wide, and was elongated in a southeasterly direction.

Natural (background) conductivity values, measured in the southeast portion of grid C, were 10 to 12 mm/m.

Conductivity profiles were constructed for terrain conductivity measurements conducted along landfill access roads within landfill areas B and C. These conductivity profiles were designated lines G, H, and I, and are depicted in Figures 5 and 6. Conductivity profiles for lines G, H, and I are contained in Appendix E.

Examination of the conductivity profile for line G, located along the access road southeast of landfill area B, indicated an slightly elevated conductivity along the entire length of the profile line. Conductivity

measured on profile line H represents natural (background) conditions. Examination of the conductivity profile for line I, located between landfill area B and Hog Run Creek, indicated conductivities slightly elevated above natural (background) conditions.

5.3.3 Correlation of Survey Results with Water Quality Data

As part of the interpretation of terrain conductivity data within subareas B and C, water quality data from previously installed monitoring wells were correlated with measured terrain conductivity.

A geologic cross section was constructed through the area. Included within this cross section were groundwater monitoring wells LF-13-43, LF-13-18, CR-7-20, CR-12-40, and CR-12-20. The location of the cross section (designated A-A') is depicted in Figure 8. The cross section itself is depicted in Figure 10.

An analysis of specific conductance data depicted on cross section A-A' indicated elevated specific conductance within the groundwater system in the area south of landfill areas B and C. These data correlate with elevated terrain conductivity measured in landfill area C.

5.3.4 Conclusions

Conclusions based on the conductivity survey in subareas B and C are:

1. Elevated conductivity within landfill area B correlated with areas of the landfill where ferromagnetic material was suspected. The elevated conductivity may be the result of the ferromagnetic material as well as possible dissolved electrolytes within the groundwater system.

2. Conductivity between landfill area B and Hog Run Creek was slightly elevated above natural (background) conditions. This may represent minor concentrations of dissolved electrolytes contained within the groundwater system, or may represent the effect of naturally occurring silts and clays.

3. An area of elevated conductivity was identified within landfill area C. This conductivity anomaly may represent the effect of dissolved electrolytes within the groundwater system, or may represent the effect of naturally occurring silts or clays. The elevated conductivity does correlate with elevated specific conductance measured in monitoring wells in this area suggesting dissolved electrolytes as the cause of elevated terrain conductivity.

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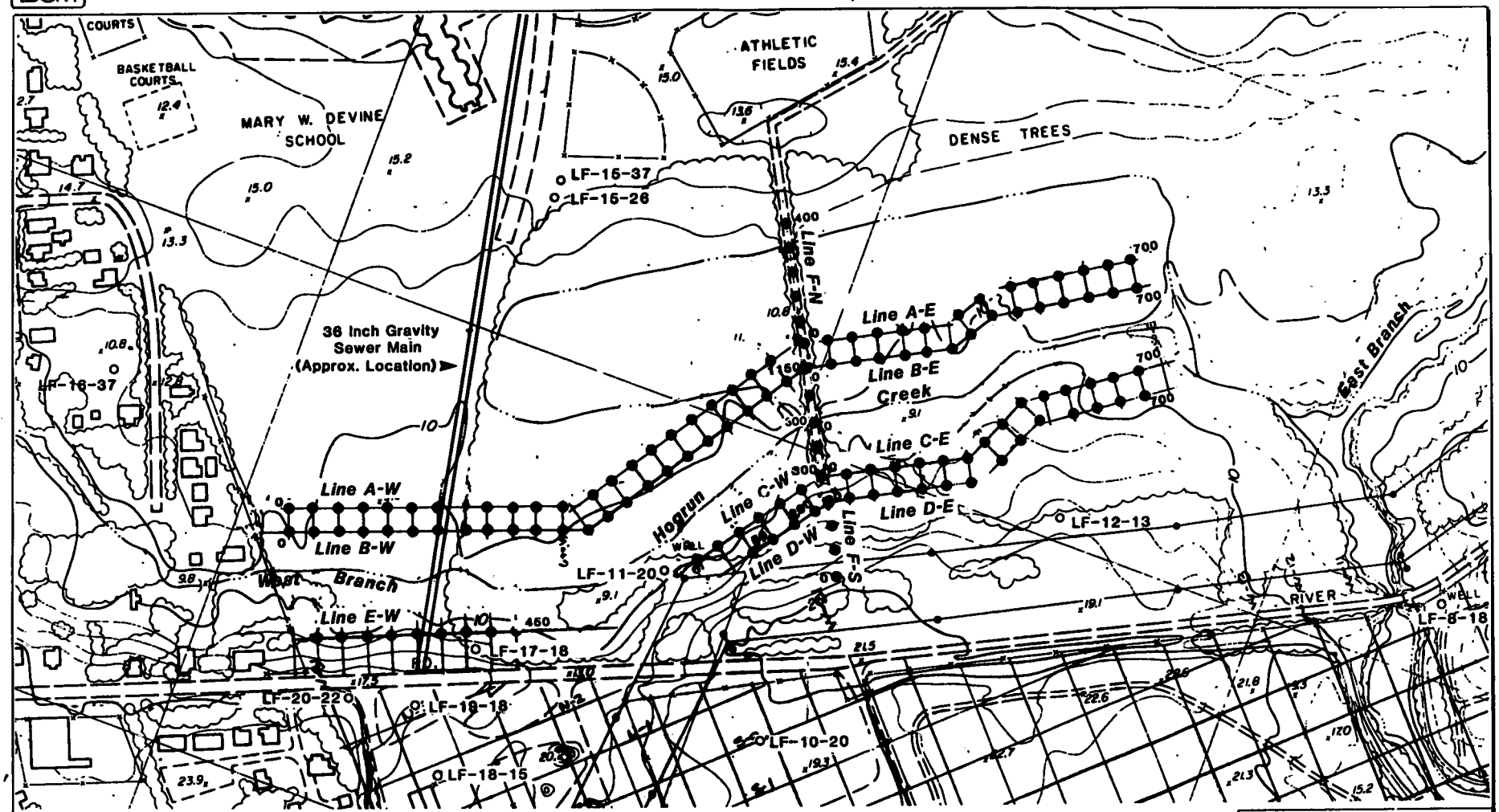

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LEGEND

GEOPHYSICAL MEASUREMENT POINT

TERRAIN CONDUCTIVITY PROFILE LINE.

o MONITORING WELL

0 200' 400FT.

BCM PROJECT NO. 00-4061-07

FIGURE 10

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Terrain Conductivity Survey

SUBAREAS P-1, P-2, P-3 GRID

5.4 SUBAREAS P1, P2, AND P3 GRID

5.4.1 Introduction

Terrain conductivity data for the subareas P1, P2, and P3 grid are contained in Appendix F. Terrain conductivity profiles for the grid are contained in Appendix G. The location of profile lines and geophsyical measurement points is depicted in Figure 10.

Profile lines within this grid system were conducted parallel to the west branch of Hog Run Creek on the north and south sides of the Creek. The area where the profile lines were conducted was heavily wooded and swampy in places.

Terrain conductivity contour maps were not constructed for this grid. The interpretation of survey results was obtained from examination of conductivity profiles. The 10-meter coil separation was used in the horizontal and vertical dipole configurations. Effective depths of exploration were 25 and 49 feet, respectively. It was observed that the vertical dipole configuration was much more susceptible to spurious readings than the horizontal dipole configuration due to the effect of nearby power lines.

5.4.2 Analysis of Survey Data

Following is a discussion of survey results for individual profile lines.

1. Profile Line AE

   There were no conductivity anomalies identified on this profile line. Mean conductivity in the horizontal dipole configuration (25 feet exploration depth) was 6.7 mm/m. Mean conductivity in the verical dipole configuration (49 feet exploration depth) was 9.2 mm/m.

2. Profile Line BE

   There were no conductivity anomalies identified on this profile line. Mean conductivity in the horizontal dipole configuration (25 feet exploration depth) was 6.3 mm/m. Mean conductivity in the vertical dipole configuration (49 feet exploration depth) was 8.9 mm/m.

3. Profile Line CE

   A conductivity anomaly was identified 150 feet from the start of this profile line. This anomaly was evident at both the 25 feet and 49 feet exploration depths. The

6. Profile Line BW

Profile line BW exhibited a decreasing conductivity towards the eastern end of the profile line similar to conductivities measured on profile line AW. The portion of the profile line from 0 to 600 feet had a mean conductivity of 17.3 mm/m at the horizontal dipole configuration (25 feet exploration depth) and a mean conductivity of 22.1 mm/m at the vertical dipole configuration (49 feet exploration depth). The mean conductivity on the eastern end of the line (650 feet to 1,150 feet) was 5.3 mm/m in the horizontal dipole configuration (25 feet exploration depth) and 7.8 mm/m in the vertical dipole configuration (49 feet exploration depth). There was a positive conductivity anomaly identified at 300 feet at both exploration depths. This anomaly may represent the effect of subsurface clay or the public sewer line.

7. Profile Line CW

Profile line CW exhibited the effect of the power transmission line encountered near the beginning of the line. The power line caused a positive anomaly at both the 25 feet and 49 feet exploration depths. The remainder of the profile line did not contain any conductivity anomalies. Removing the power line anomaly from the data, the mean conductivity for the horizontal dipole configuration (25 feet exploration depth) was 6.2 mm/m. The mean conductivity for the vertical dipole configuration (49 feet exploration depth) was 6.6 mm/m.

8. Profile Line DW

Profile line DW exhibited the effect of the power transmission line encountered at the beginning of the line. The power line caused a strong positive anomaly at the 25 feet exploration depth. The remainder of the profile line did not contain any anomalies and had a mean conductivity of 6.6 mm/m in the horizontal dipole configuration (25 feet exploration depth). The vertical dipole configuration on this profile line exhibited a wide fluctuation in readings caused by the power line, and, as a consequence, it was not possible to interpret the measured conductivity data.

9. Profile Line EW

Profile line EW exhibited elevated conductivity along the entire profile length. Mean conductivity at the horizontal dipole configuration (25 feet exploration depth) was 19.8

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APPENDIX A

TERRAIN CONDUCTIVITY DATA
SUBAREA D GRID
10-METER COIL SEPARATION

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 0 + 50	S6	23.0	
	S6 + 50	27.5	
	S7	36.0	
	S7 + 50	34.0	
	S8	47.0	
	S8 + 50	27.0	
	S9	25.5	
	S9 + 50	37.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 1	S7	22.0	
	S7 + 50	34.0	
	S8	50.0	
	S8 + 50	27.0	
	S9	27.1	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 1 + 50	S8	24.4	
	S8 + 50	31.0	
	S9	25.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 2	S8 + 50	28.0	
	S9	62.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
EO	S0 + 50	21.0	
	S1	18.0	
	S1 + 50	22.0	
	S2	27.0	
	S2 + 50	30.0	
	S3	23.0	
	S3 + 50	32.0	
	S4	25.0	
	S5 + 50	21.0	
	S6	22.5	
	S6 + 50	27.5	
	S7	76.0	
	S7 + 50	48.0	
	S8	31.0	
	S8 + 50	20.5	
	S9	24.5	
	S9 + 50	26.0	
	S10	23.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E0 + 50	S0 + 50	8.7	
	S1	11.3	
	S1 + 50	13.5	
	S2	18.0	
	S2 + 50	19.5	
	S3	19.3	
	S3 + 50	19.5	
	S5	19.0	
	S5 + 50	19.0	
	S6	22.0	
	S6 + 50	39.0	
	S7	73.0	
	S7 + 50	39.0	
	S8	37.0	
	S8 + 50	29.0	
	S9	27.5	
	S9 + 50	38.0	
	S10	52.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E 1	S0 + 50	4.4	
	S1	5.6	
	S1 + 50	9.0	
	S2	13.7	
	S2 + 50	17.0	
	S3	18.2	
	S3 + 50	13.9	
	S4	18.3	
	S5	32.0	
	S5 + 50	21.0	
	S6	23.0	
	S6 + 50	44.0	
	S7	33.0	
	S7 + 50	44.0	
	S8	48.0	
	S8 + 50	66.0	
	S9	52.0	
	S9 + 50	56.0	
	S10	31.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E1 + 50	S0 + 50	8.5	
	S1	3.8	
	S1 + 50	6.6	
	S2	12.0	
	S2 + 50	15.0	
	S3	17.8	
	S3 + 50	19.0	
	S5	28.5	
	S5 + 50	23.0	
	S6	22.5	
	S6 + 50	25.8	
	S7	45.0	
	S7 + 50	122.0	
	S8	49.0	
	S8 + 50	92.0	
	S9	81.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E2	S0 + 50	2.0	
	S1	2.8	
	S1 + 50	2.8	
	S2	5.7	
	S2 + 50	11.0	
	S3	16.0	
	S3 + 50	18.5	
	S4	6.0	
	S5 + 50	62.0	
	S6	22.0	
	S6 + 50	22.0	
	S7	28.0	
	S7 + 50	44.0	
	S8	67.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E2 + 50	S0 + 50	3.4	
	S1	3.6	
	S1 + 50	4.0	
	S2	4.2	
	S2 + 50	5.3	
	S3	10.5	
	S3 + 50	17.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E3	S0 + 50	3.9	
	S1	4.0	
	S1 + 50	2.8	
	S2	3.7	
	S2 + 50	4.4	
	S3	4.5	
	S3 + 50	13.0	
	S4	15.5	
	S5	21.0	
	S6	80.0	
	S7	18.9	
	S8	23.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E3 + 50	S0 + 50	2.0	
	S1	3.8	
	S1 + 50	3.5	
	S2	3.7	
	S2 + 50	4.1	
	S3	7.1	
	S3 + 50	13.0	
	S6	28.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E4	S0 + 50	5.0	
	S1	3.0	
	S1 + 50	2.0	
	S2	3.5	
	S2 + 50	3.7	
	S3	6.0	
	S3 + 50	10.5	
	S4	13.0	
	S5	17.5	
	S5 + 50	17.0	
	S6	20.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E4 + 50	S0 + 50	2.0	
	S1	3.0	
	S1 + 50	3.8	
	S2	3.0	
	S2 + 50	3.9	
	S3	5.5	
	S3 + 50	9.0	
	S6	19.5	
	S6 + 50	21.9	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E5	S0 + 50	9.5	
	S1	4.3	
	S1 + 50	3.2	
	S2	3.0	
	S2 + 50	2.8	
	S3	4.6	
	S3 + 50	10.0	
	S4	15.0	
	S5	15.5	
	S6	18.5	
	S6 + 50	21.9	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E5 + 50	S6	16.5	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E6	S0	37.0	
	S1	8.0	
	S2	5.6	At S2
	S3	6.0	RX Coil East 5.6
	S4	9.5	RX Coil West 5.2
	S5	13.5	RX Coil North 5.0
	S6	19.0	RX Coil South 5.0
	S6 + 50	18.0	
	S7	26.1	
	S7 + 50	13.5	
	S8	14.0	
	S8 + 50	15.0	
	S9	15.7	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E6 + 50	S6 + 50	14.5	
	S7	20.0	
	S7 + 50	16.7	
	S8	14.0	
	S8 + 50	14.0	
	S9	14.5	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E7	S0	23.0	
	S1	7.0	
	S2	4.8	
	S3	4.9	
	S4	6.0	
	S5	9.8	
	S6	16.0	
	S6 + 50	23.0	
	S7	20.5	
	S7 + 50	15.0	
	S8	15.0	
	S8 + 50	15.0	
	S9	15.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E7 + 50	S6 + 50	16.7	
	S7	20.0	
	S7 + 50	14.5	
	S8	26.0	
	S8 + 50	26.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E8	S0	6.5	
	S1	5.0	At S1
	S2	4.3	RX Coil East 5.0
	S3	4.1	RX Coil North 2.0 - 3.0
	S4	5.0	
	S5	7.7	
	S6	10.9	
	S7	36.0	
	S7 + 50	25.0	
	S8	15.0	

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APPENDIX B

TERRAIN CONDUCTIVITY DATA
SUBAREA D GRID
20-METER COIL SEPARATION

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E8 + 50	S7	5.8	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E9	S0	5.5	
	S1	4.0	
	S2	4.0	
	S3	4.0	
	S4	4.3	
	S5	5.0	
	S6	6.4	
	S7	21.2	
	S7 + 50	16.0	
	S8	13.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E9 + 50	S8	54.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E10	S0	5.0	
	S1	4.0	
	S3	3.6	
	S4	4.5	
	S5	4.5	
	S6	4.4	
	S7	9.0	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E11	S0	5.5	
	S1	4.0	
	S2	5.0	
	S3	4.0	
	S4	2.2	
	S5	3.2	
	S6	6.0	
	S7	5.2	
	S8	7.4	
	S9	7.2	
	S10	8.5	
	S11	6.8	
	S12	6.6	

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TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E12	S7	5.4	
	S8	11.0	
	S9	6.8	
	S10	4.0	
	S11	24.0	
	S12	8.1	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 0 + 50	S6 + 50	50.0	
	S7	60.0	
	S7 + 50	64.0	
	S8	68.0	
	S8 + 50	62.0	
	S9	64.0	
	S9 + 50	82.0	

001330

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 1	S7	40.0	
	S7 + 50	47.0	
	S8	58.0	
	S8 + 50	52.0	
	S9	50.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 1 + 50	S8	43.0	
	S8 + 50	44.0	
	S9	42.0	

001332

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 2	S8 + 50	40.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E0	S0 + 50	24.0	
	S1	29.0	
	S1 + 50	34.0	
	S2	50.0	
	S2 + 50	48.0	
	S3	41.0	
	S3 + 50	54.0	
	S4	53.0	
	S5 + 50	47.0	
	S6	51.0	
	S6 + 50	63.0	
	S7	85.0	
	S7 + 50	74.0	
	S8	74.0	
	S8 + 50	72.0	
	S9	74.0	
	S9 + 50	69.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E0 + 50	S0 + 50	14.5	
	S1	23.0	
	S1 + 50	28.0	
	S2	38.0	
	S3	42.0	
	S3 + 50	42.0	
	S5	40.0	
	S5 + 50	44.0	
	S6	49.0	
	S6 + 50	65.0	
	S7	80.0	
	S7 + 50	78.0	
	S8	82.0	
	S8 + 50	86.0	
	S9	82.0	
	S9 + 50	87.0	
	S10	100.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E1	S0 + 50	8.0	
	S1	11.2	
	S1 + 50	16.8	
	S2	25.0	
	S2 + 50	34.0	
	S3	38.0	
	S3 + 50	39.0	
	S4	39.0	
	S5	41.0	
	S5 + 50	44.0	
	S6	84.0	
	S6 + 50	66.0	
	S7	62.0	
	S7 + 50	80.0	
	S8	88.0	
	S8 + 50	93.0	
	S9	90.0	
	S9 + 50	92.0	
	S10	78.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E1 + 50	S0 + 50	6.0	
	S1	8.0	
	S1 + 50	11.8	
	S2	20.0	
	S2 + 50	33.0	
	S3	38.0	
	S3 + 50	41.0	
	S5	38.0	
	S5 + 50	50.0	
	S6	52.0	
	S6 + 50	49.0	
	S7	52.0	
	S7 + 50	111.0	
	S8	78.0	
	S8 + 50	105.0	
	S9	88.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E2	S0 + 50	6.2	
	S1	6.5	
	S1 + 50	8.0	
	S2	11.0	
	S2 + 50	19.5	
	S3	30.0	
	S3 + 50	38.0	
	S4	46.0	
	S5 + 50	50.0	
	S6	54.0	
	S6 + 50	48.0	
	S7	52.0	
	S7 + 50	72.0	
	S8	81.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E2 + 50	S0 + 50	5.0	
	S1	5.9	
	S1 + 50	6.2	
	S2	6.8	
	S2 + 50	15.0	
	S3	17.0	
	S3 + 50	31.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E3	S0 + 50	6.5	
	S1	6.5	
	S1 + 50	6.5	
	S2	7.0	
	S2 + 50	15.0	
	S3	17.0	
	S3 + 50	31.0	
	S4	42.0	
	S5	54.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E3 + 50	S0 + 50	8.0	
	S1	6.0	
	S1 + 50	6.1	
	S2	7.0	
	S2 + 50	7.0	
	S3	15.0	
	S3 + 50	20.2	
	S6	62.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E4	S0 + 50	10.8	
	S1	7.4	
	S1 + 50	6.2	
	S2	5.8	
	S2 + 50	7.1	
	S3	9.9	
	S3 + 50	16.8	
	S4	33.0	
	S5	50.0	
	S6	61.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E4 + 50	S0 + 50	10.5	
	S1	7.5	
	S1 + 50	6.3	
	S2	6.7	
	S2 + 50	6.6	
	S3	8.2	
	S3 + 50	3.8	
	S6	52.0	
	S6 + 50	52.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E5	S0 + 50	12.0	
	S1	8.2	
	S1 + 50	6.6	
	S2	5.3	
	S2 + 50	6.2	
	S3	8.0	
	S3 + 50	14.0	
	S4	27.0	
	S5	41.0	
	S6	53.0	
	S6 + 50	56.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E5 + 50	S6	54.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E6	S0	3.6	
	S1	13.0	
	S2	8.0	
	S3	8.1	
	S4	14.5	
	S5	32.0	
	S6	52.0	
	S6 + 50	62.0	
	S7	62.0	
	S7 + 50	53.0	
	S8	52.0	
	S8 + 50	54.0	
	S9	55.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E6 + 50	S6 + 50	50.0	
	S7	50.0	
	S7 + 50	47.0	
	S8	49.0	
	S8 + 50	50.0	
	S9	50.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E7	S0	19.5	
	S1	9.0	
	S2	7.0	
	S3	7.2	
	S4	8.5	
	S5	18.2	
	S6	36.0	
	S6 + 50	48.0	
	S7	47.0	
	S7 + 50	41.0	
	S8	44.0	
	S8 + 50	46.0	
	S9	46.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E7 + 50	S6 + 50	47.0	
	S7	33.9	
	S7 + 50	38.0	
	S8	38.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E8	S0	6.0	
	S1	6.5	
	S2	6.0	
	S3	6.4	
	S4	6.5	
	S5	15.5	
	S6	22.0	
	S7	82.0	
	S7 + 50	36.0	
	S8	32.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E8 + 50	S7 + 50	19.5	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E9	S0	5.5	
	S1	6.0	
	S2	5.5	
	S3	6.0	
	S4	6.3	
	S5	8.3	
	S6	12.0	
	S7	26.9	
	S7 + 50	21.0	
	S8	22.5	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company

Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E9 + 50	S8	44.0	

001353

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E10	S0	5.5	
	S1	5.5	
	S3	6.0	
	S4	6.3	
	S5	7.0	
	S6	7.5	
	S7	14.9	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E11	S0	4.0	
	S1	6.0	
	S2	5.5	
	S3	5.9	
	S4	5.0	
	S5	5.5	
	S6	7.9	
	S7	7.5	
	S8	11.0	
	S9	9.5	
	S10	12.0	
	S11	7.6	
	S12	7.2	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
E12	S7	7.0	
	S8	10.5	
	S9	8.8	
	S10	5.9	
	S11	11.0	
	S12	8.8	

BCM

APPENDIX C

TERRAIN CONDUCTIVITY DATA
SUBAREAS B AND C GRID
10-METER COIL SEPARATION

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 2	S3	12.0	

001357

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 3	S3	5.5	

001358

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 4	S3	5.3	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 5	S3	6.5	
	S12	11.0	

001360

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 5 + 50	S9	19.2	
	S11	19.5	
	S12	9.0	

001361

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 6	S2	5.3	
	S3	7.0	
	S6	16.3	
	S6 + 50	45.0	
	S7	25.0	
	S7 + 50	19.0	
	S8	23.0	
	S9	16.0	
	S10	20.0	
	S11	19.5	
	S12	10.5	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 6 + 50	S9	26.0	
	S10	25.0	
	S11	14.9	
	S12	11.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 7	S2	7.0	
	S2 + 50	6.5	
	S3	7.8	
	S3 + 50	11.0	
	S4	22.0	
	S4 + 50	52.0	
	S5	85.0	
	S5 + 50	32.0	
	S6	19.3	
	S6 + 50	19.0	
	S7	19.8	
	S7 + 50	22.6	
	S8	22.5	
	S8 + 50	40.0	
	S9	35.5	
	S9 + 50	34.0	
	S10	20.3	
	S10 + 50	18.5	
	S11	14.8	
	S11 + 50	12.0	
	S12	11.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 7 + 50	S9	23.2	
	S10	21.0	
	S11	16.0	
	S12	10.5	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 8	S6	16.6	
	S6 + 50	17.0	
	S7	8.2	
	S7 + 50	17.5	
	S8	19.3	
	S8 + 50	19.0	
	S9	18.0	
	S10	18.0	
	S10 + 50	17.4	
	S11	14.0	
	S11 + 50	10.5	
	S12	10.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 8 + 50	S6	16.0	
	S9	16.0	
	S10	17.5	
	S11	16.4	
	S12	11.6	

001367

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 9	S3	17.0	
	S3 + 50	12.0	
	S4	12.0	
	S4 + 50	12.0	
	S5	14.0	
	S5 + 50	15.0	
	S6	16.5	
	S11	13.3	
	S11 + 50	12.8	
	S12	12.5	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
G	0	19.5	
G	0 + 50	14.0	
G	1	13.6	
G	1 + 50	13.5	
G	2	13.5	
G	2 + 50	14.5	
G	3	16.5	
G	3 + 50	17.8	
G	4	19.0	
G	4 + 50	17.0	
G	5	18.0	
G	5 + 50	20.0	
G	6	10.0	
G	6 + 50	20.6	
G	7	20.0	
G	7 + 50	20.0	
G	8	18.5	
G	8 + 50	18.5	
G	9	20.0	
G	9 + 50	17.2	
G	10	14.0	
G	10 + 50	13.0	
G	11	14.0	
G	11 + 50	15.0	
G	12	14.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
H	0	13.3	
H	0 + 50	11.0	
H	1	10.0	
H	1 + 50	10.3	
H	2	10.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 10 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
I	0 + 50	12.0	centerline
	1	12.5	of road
	1 + 50	14.5	southwest
	2	15.5	of
	2 + 50	15.2	landfill
	3	16.0	
	3 + 50	13.5	
	4	14.5	

BCM

APPENDIX D

TERRAIN CONDUCTIVITY DATA
SUBAREAS B AND C GRID

20-METER COIL SEPARATION

1371a

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 2	S3	11.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 3	S3	9.0	

001373

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 4	S3	7.5	

001374

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 5	S3	7.5	
	S12	10.3	

001375

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 5 + 50	S9	17.5	
	S11	17.0	
	S12	10.5	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 6	S2	8.0	
	S3	7.8	
	S6	18.5	
	S6 + 50	21.0	
	S7	22.8	
	S7 + 50	18.5	
	S8	21.0	
	S9	16.5	
	S10	18.5	
	S11	17.8	
	S12	12.5	

001377

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 6 + 50	S9	24.5	
	S10	21.5	
	S11	13.8	
	S12	10.8	

001378

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 7	S2	9.0	
	S2 + 50	10.0	
	S3	9.5	
	S3 + 50	13.5	
	S4	22.0	
	S4 + 50	36.0	
	S5	62.0	
	S5 + 50	36.0	
	S6	19.8	
	S6 + 50	18.0	
	S7	19.5	
	S7 + 50	21.3	
	S8	20.3	
	S8 + 50	29.5	
	S9	24.8	
	S9 + 50	27.0	
	S10	20.1	
	S10 + 50	15.0	
	S11	13.9	
	S11 + 50	12.8	
	S12	11.0	

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 7 + 50	S9	18.5	
	S10	17.0	
	S11	14.5	
	S12	11.3	

001380

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 8	S6	16.8	
	S6 + 50	16.8	
	S7	16.5	
	S7 + 50	16.5	
	S8	19.5	
	S8 + 50	16.3	
	S9	18.5	
	S10	15.1	
	S10 + 50	11.8	
	S11	14.5	
	S11 + 50	5.0	
	S12	11.0	

001381

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 8 + 50	S6	17.5	
	S9	10.0	
	S10	14.8	
	S11	15.0	
	S12	12.0	

001382

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
W 9	S3	20.0	
	S3 + 50	16.3	
	S4	13.5	
	S4 + 50	15.0	
	S5	16.0	
	S5 + 50	16.0	
	S6	19.0	
	S11	11.4	
	S11 + 50	12.0	
	S12	11.4	

001383

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
G	0	17.0	
G	0 + 50	13.5	
G	1	13.5	
G	1 + 50	15.0	
G	2	16.5	
G	2 + 50	17.5	
G	3	18.8	
G	3 + 50	21.0	
G	4	22.5	
G	4 + 50	17.0	
G	5	19.8	
G	5 + 50	22.0	
G	6	20.0	
G	6 + 50	17.5	
G	7	17.3	
G	7 + 50	16.5	
G	8	16.0	
G	8 + 50	16.0	
G	9	15.5	
G	9 + 50	14.0	
G	10	12.0	
G	10 + 50	12.0	
G	11	13.0	
G	11 + 50	13.5	
G	12	13.0	

001384

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
H	0	13.0	
H	0 + 50	12.0	
H	1	11.0	
H	1 + 50	11.0	
H	2	11.0	

001385

BCM

TERRAIN CONDUCTIVITY DATA

CLIENT: Rohm and Haas Company Project No.: 00-4061-07

PROJECT: Geophysical Investigation

INSTRUMENT: Geonics EM 34-3

COIL SEPARATION: 20 Meters

DIPOLE CONFIGURATION: Horizontal

MEASUREMENT STATION		CONDUCTIVITY (millimhos/meter)	REMARKS
LINE	STATION		
I	0 + 50	16.5	centerline
	1	16.0	of road
	1 + 50	16.5	southwest
	2	17.5	of
	2 + 50	16.5	landfill
	3	15.5	
	3 + 50	14.5	
	4	15.5	

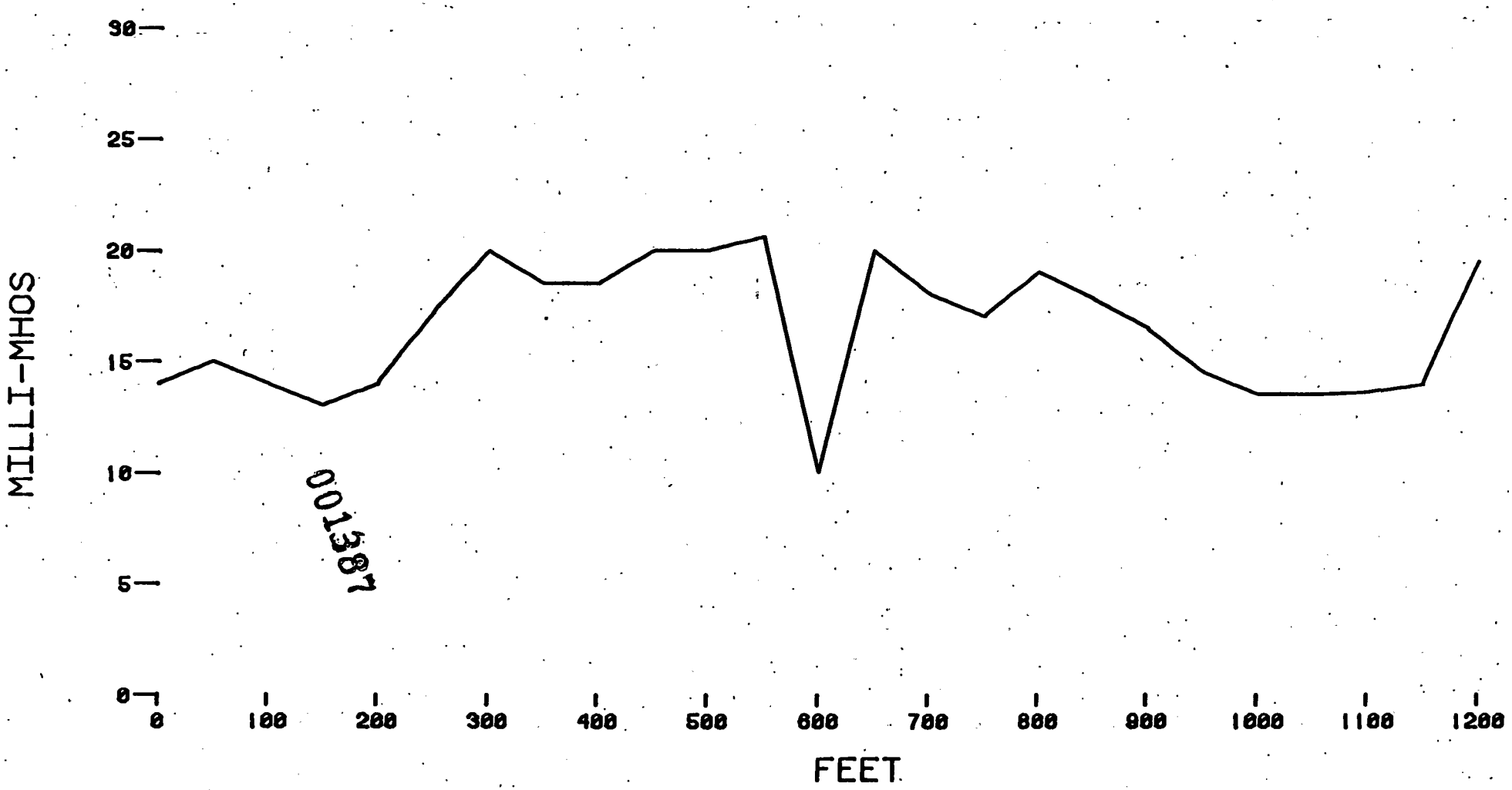
001386

BCM

APPENDIX E

TERRAIN CONDUCTIVITY PROFILES
SUBAREAS B AND C GRID

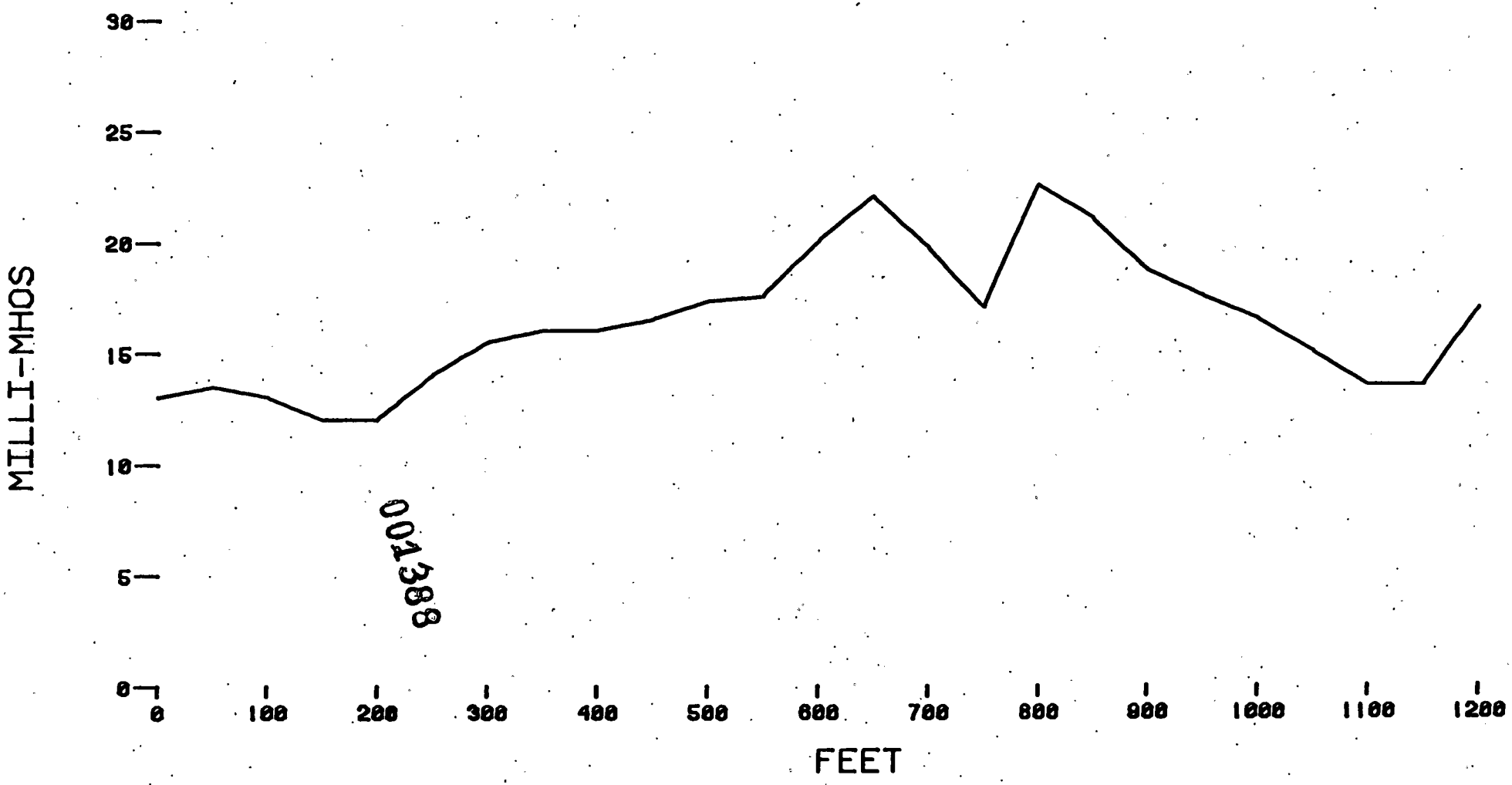
LINE G CONDUCTIVITY SOUTH TO NORTH 10M HDP



001387

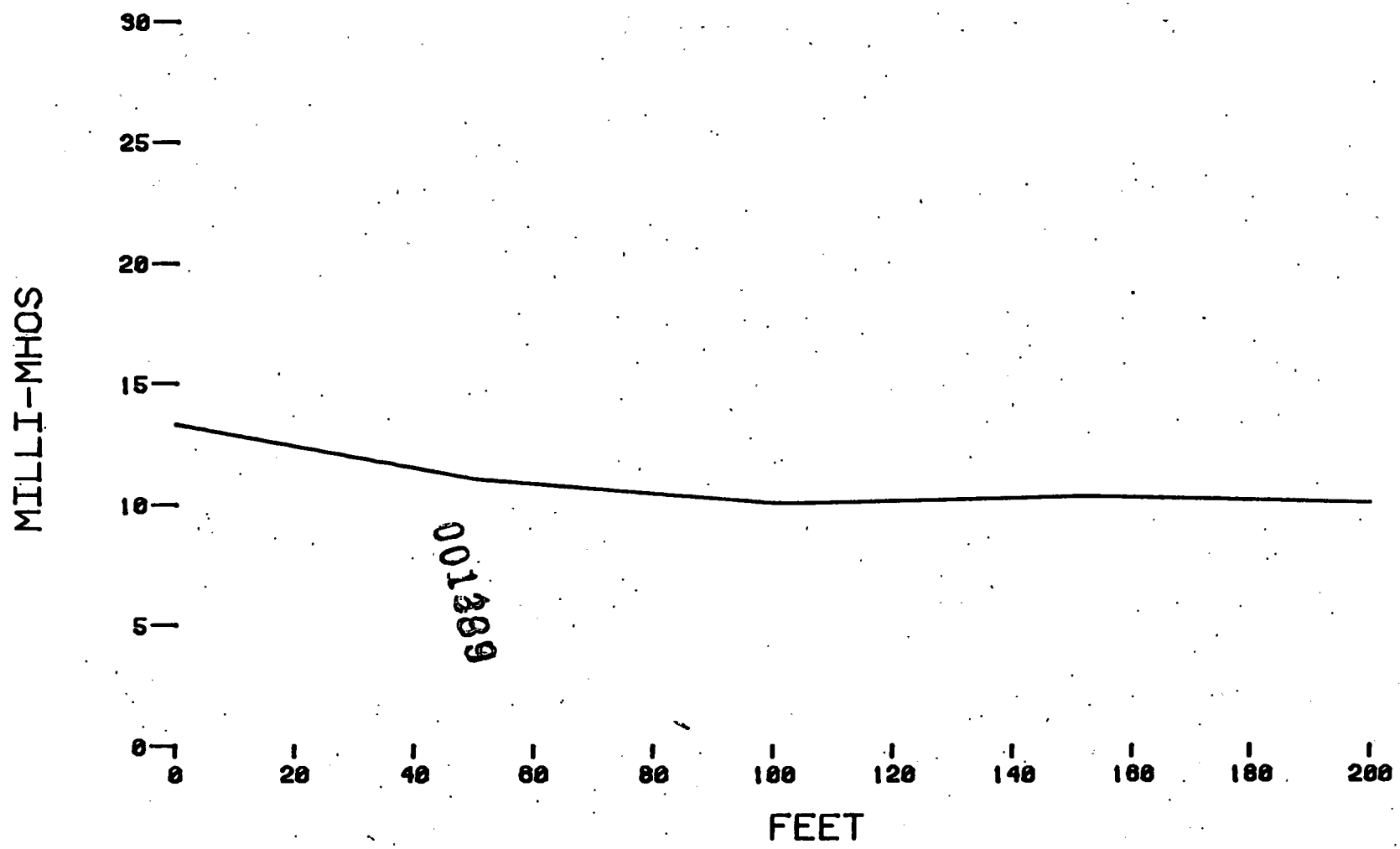
2-1

LINE G CONDUCTIVITY SOUTH TO NORTH 20M HDP



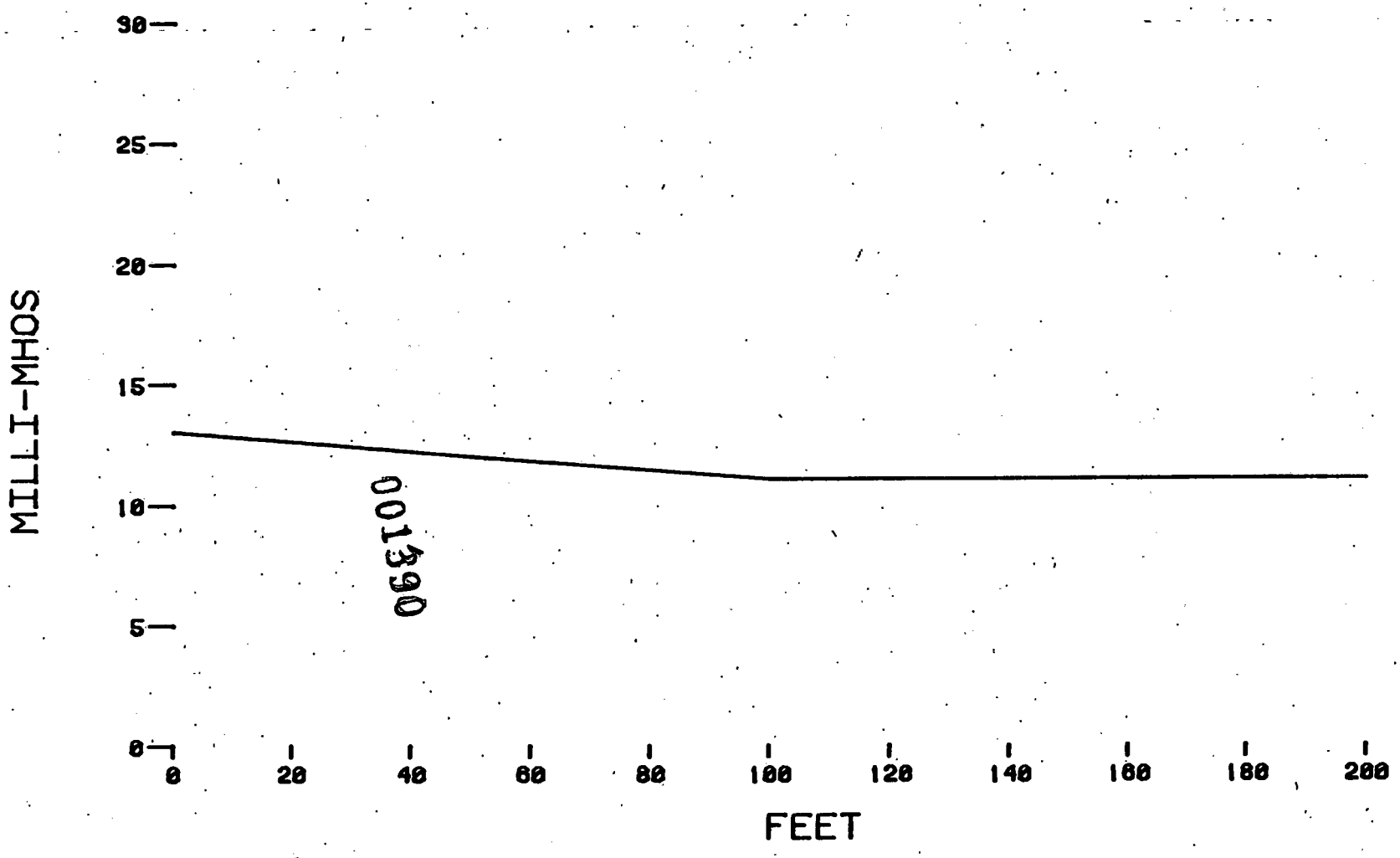
001388

LINE H CONDUCTIVITY WEST TO EAST 10M HDP



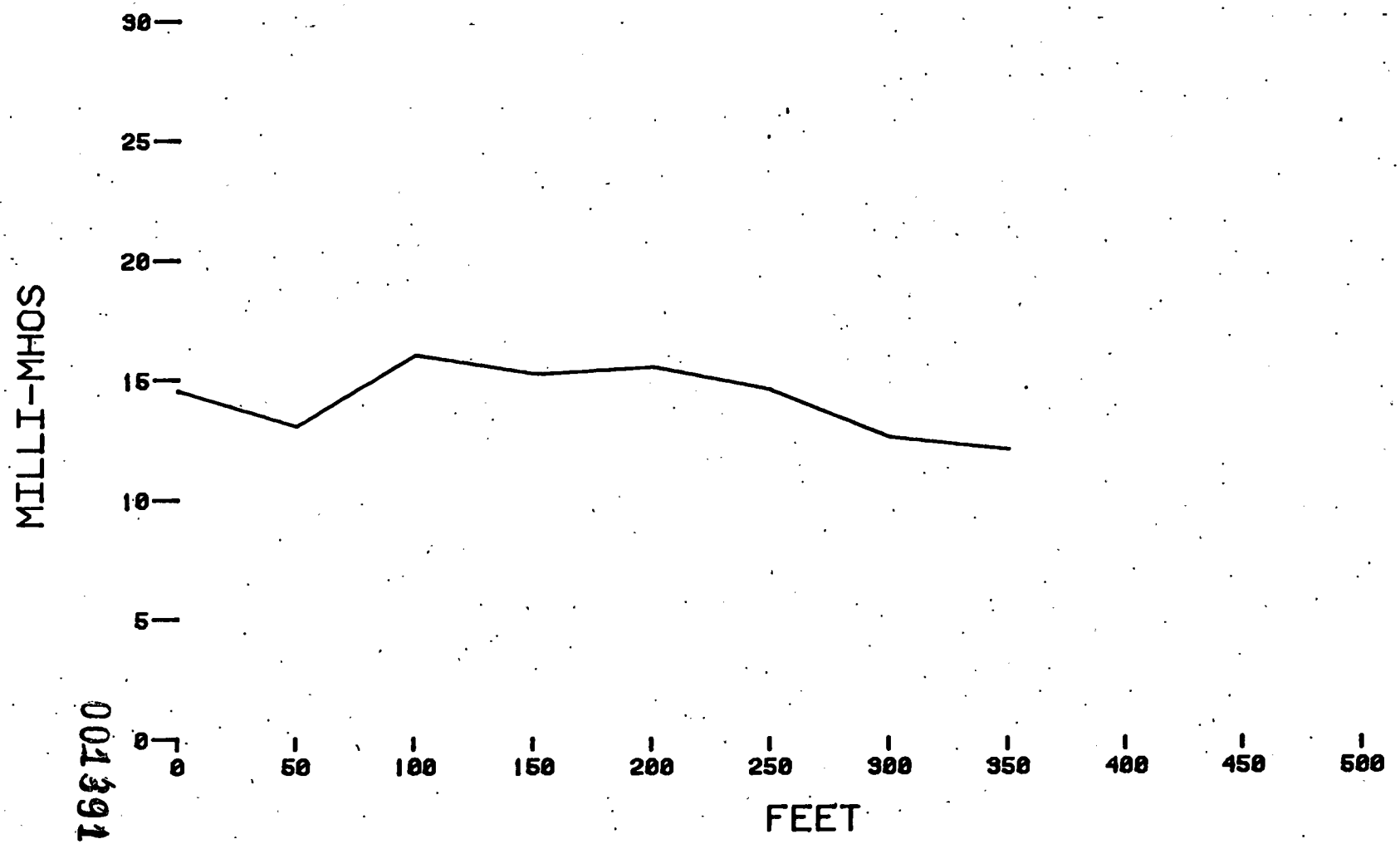
001369

LINE H CONDUCTIVITY WEST TO EAST 20M HDP



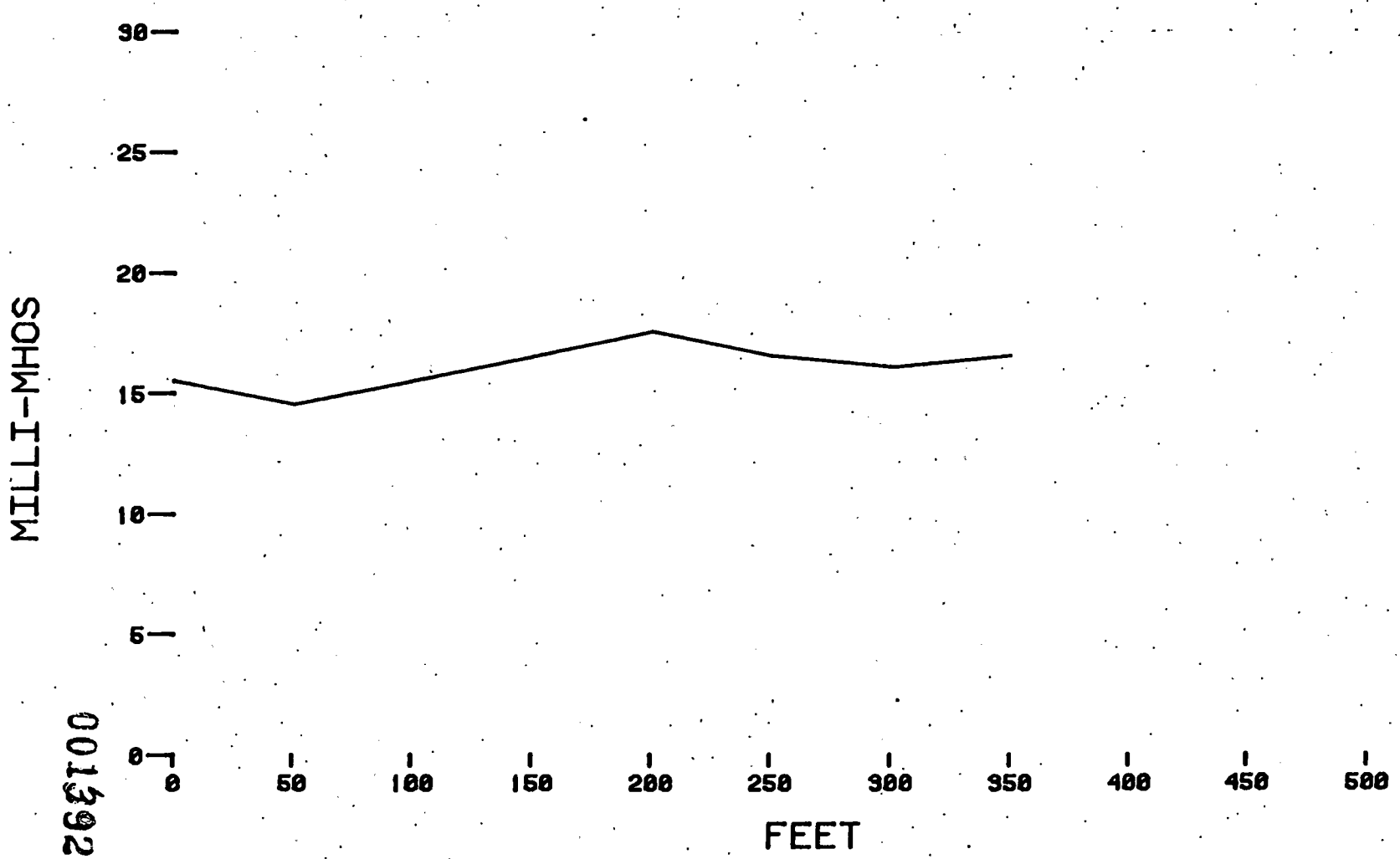
001390

LINE I CONDUCTIVITY SOUTH TO NORTH 10M HDP



001391

LINE I CONDUCTIVITY SOUTH TO NORTH 20M HDP



001392

BCM

APPENDIX F

TERRAIN CONDUCTIVITY DATA
SUBAREAS P1, P2, AND P3 GRID

1392a

```
LINE A-E CONDUCTIVITY WEST TO EAST 10M VDP
0,9.1
50,8.5
100,8.5
150,9.5
200,9.0
250,9.5
350,9.4
400,8.0
450,10.0
500,9.0
550,9.1
600,9.0
650,9.9
700,10.1
0,0
LINE A-E CONDUCTIVITY WEST TO EAST 10M HDP
0,5.5
50,7.5
100,7.0
150,6.9
200,6.0
250,6.0
350,5.9
400,6.0
450,7.1
500,7.0
550,7.0
600,8.0
650,6.0
700,7.0
0,0
LINE A-W CONDUCTIVITY WEST TO EAST 10M HDP
0,16.5
50,16.5
100,16.5
150,16.5
200,18.0
250,18.0
300,16.0
350,15.5
400,7.7
450,8.3
500,10.5
550,6.9
650,7.0
700,6.0
750,5.2
800,4.8
850,3.2
900,4.0
950,5.5
1000,7.0
1050,7.0
1100,6.5
1150,8.0
0,0
```

001393

```
58    LINE A-B CONDUCTIVITY WEST TO EAST 10M VDP
59    0,22.5
60    50,21.0
61    100,20.0
62    150,21.0
63    200,22.5
64    250,23.9
65    300,23.0
66    350,14.2
67    400,11.0
68    450,3.8
69    500,14.5
70    550,15.5
71    650,11.0
72    700,8.0
73    750,6.0
74    800,6.0
75    850,6.5
76    900,4.0
77    950,6.5
78    1000,7.0
79    1100,8.0
80    1150,7.2
81    1200,9.1
82    0,0
83    LINE B-E CONDUCTIVITY WEST TO EAST 10M VDP
84    0,8.0
85    50,9.0
86    100,8.0
87    150,9.0
88    200,7.0
89    250,8.0
90    300,6.9
91    350,6.0
92    400,8.5
93    450,9.3
94    500,9.8
95    550,8.8
96    600,9.5
97    650,11.3
98    700,12.0
99    0,0
100   LINE B-E CONDUCTIVITY WEST TO EAST 10M HDP
101   0,5.0
102   50,6.0
103   100,7.0
104   150,6.0
105   200,5.0
106   250,4.0
107   300,6.0
108   350,6.5
109   400,6.5
110   450,7.0
111   500,7.0
112   550,6.5
113   600,7.0
114   650,7.2
```

00139A

```
700,8.0
0,0
LINE H-W CONDUCTIVITY WEST TO EAST 10M VDP
0,18.0
50,21.5
100,18.0
150,21.0
200,20.5
250,26.8
300,31.0
350,21.5
400,23.0
450,22.0
500,22.1
550,20.0
600,22.0
650,12.0
700,7.5
750,5.0
800,3.5
850,5.5
900,4.5
950,4.3
1000,3.5
1050,7.2
1100,8.5
1150,10.0
0,0
LINE H-W CONDUCTIVITY WEST TO EAST 10M HDP
0,11.0
50,16.0
100,17.2
150,16.0
200,20.0
250,23.8
300,23.5
350,20.0
400,18.0
450,15.0
500,14.5
550,14.5
600,15.5
650,8.0
700,5.0
750,4.0
800,2.5
850,6.0
900,4.0
950,4.5
1000,5.5
1050,6.5
1100,7.0
1150,8.0
0,0
LINE C-E CONDUCTIVITY WEST TO EAST 10M VDP
0,4.5
50,6.0
```

001395

```
100,5.5
150,1.5
200,8.0
250,8.8
300,5.0
350,5.5
400,6.5
450,5.5
500,6.0
550,6.5
600,6.0
650,6.0
700,6.0
0,0
LINE C-E CONDUCTIVITY WEST TO EAST 10M HDP
0,6.2
50,6.0
100,7.0
150,21.5
200,11.0
250,9.1
300,9.0
350,7.0
400,5.0
450,6.1
500,7.0
550,5.5
600,6.0
650,6.0
700,7.1
0,0
LINE C-W CONDUCTIVITY WEST TO EAST 10M VDP
0,17.0
50,6.0
100,6.0
150,5.0
200,7.0
250,7.0
300,9.0
0,0
LINE C-W CONDUCTIVITY WEST TO EAST 10M HDP
0,19.0
50,2.0
100,7.0
150,6.0
200,5.0
250,7.0
300,6.0
0,0
LINE D-E CONDUCTIVITY WEST TO EAST 10M VDP
0,8.0
50,9.0
100,3.0
150,10.0
200,5.0
250,8.0
300,7.5
```

001396

```
229     350,10.0
230     400,7.0
231     450,6.5
232     550,4.0
233     600,4.5
234     650,6.0
235     700,7.0
236     0,0
237     LINE D-F CONDUCTIVITY WEST TO EAST 10M HDP
238     0,6.0
239     50,4.0
240     100,6.5
241     150,7.5
242     200,9.0
243     250,5.5
244     300,10.2
245     350,8.5
246     400,7.5
247     450,6.5
248     550,6.2
249     600,6.0
250     650,6.0
251     700,7.5
252     0,0
253     LINE D-W CONDUCTIVITY WEST TO EAST 10M VDP
254     50,4.0
255     100,8.0
256     150,2.0
257     200,3.0
258     0,0
259     LINE D-W CONDUCTIVITY WEST TO EAST 10M HDP
260     50,28.0
261     100,7.0
262     150,7.0
263     200,6.0
264     0,0
265     LINE E-W CONDUCTIVITY WEST TO EAST 10M HDP
266     50,19.5
267     100,21.0
268     150,20.5
269     200,17.0
270     250,18.0
271     300,21.0
272     350,20.5
273     400,19.0
274     450,22.0
275     0,0
276     LINE E-W CONDUCTIVITY WEST TO EAST 10M VDP
277     50,26.5
278     100,25.5
279     150,24.5
280     200,25.5
281     250,23.2
282     300,20.5
283     350,26.5
284     400,27.0
285     450,24.5
```

001397

```
0,0
LINE F-S CONDUCTIVITY SOUTH TO NORTH 10M HDP
0,5.0
50,4.5
100,7.0
150,7.0
200,6.0
250,6.5
300,7.0
0,0
LINE F-S CONDUCTIVITY SOUTH TO NORTH 10M VDP
0,6.0
50,5.0
100,8.0
150,3.5
200,3.0
250,2.0
300,6.5
0,0
LINE F-N CONDUCTIVITY SOUTH TO NORTH 10M VDP
0,6.5
50,8.5
100,9.5
150,9.0
200,8.1
250,8.8
300,6.9
350,6.5
400,8.0
0,0
LINE F-N CONDUCTIVITY SOUTH TO NORTH 10M HDP
0,7.0
50,6.1
100,6.1
150,6.5
200,6.1
250,6.5
300,6.0
350,5.5
400,3.1
0,0
LINE G CONDUCTIVITY SOUTH TO NORTH 10M HDP
0,14.0
50,15.0
100,14.0
150,13.0
200,14.0
250,17.2
300,20.0
350,18.5
400,18.5
450,20.0
500,20.0
550,20.6
600,10.0
650,20.0
700,18.0
```

001398

```
750,17.0
800,19.0
850,17.8
900,16.5
950,14.5
1000,13.5
1050,13.5
1100,13.6
1150,14.0
1200,19.5
0,0
LINE G CONDUCTIVITY SOUTH TO NORTH 20M HDP
0,13.0
50,13.5
100,13.0
150,12.0
200,12.0
250,14.0
300,15.5
350,16.0
400,16.0
450,16.5
500,17.3
550,17.5
600,20.0
650,22.0
700,19.7
750,17.0
800,22.5
850,21.0
900,18.7
950,17.5
1000,16.5
1050,15.0
1100,13.5
1150,13.5
1200,17.0
0,0
LINE H CONDUCTIVITY WEST TO EAST 10M HDP
0,13.3
50,11.0
100,10.0
150,10.3
200,10.0
0,0
LINE H CONDUCTIVITY WEST TO EAST 20M HDP
0,14.0
50,12.0
100,11.0
150,11.0
200,11.0
0,0
LINE I CONDUCTIVITY SOUTH TO NORTH 20M HDP
0,15.5
50,14.5
100,15.5
150,16.5
```

001399

```
400     200,17.5
401     250,16.5
402     300,16.0
403     350,16.5
404     0,0
405     LINE 1 CONDUCTIVITY SOUTH TO NORTH 10M MDP
406     0,14.5
407     50,13.0
408     100,16.0
409     150,15.2
410     200,15.5
411     250,14.5
412     300,12.5
413     350,12.0
414     0,0
```

001400

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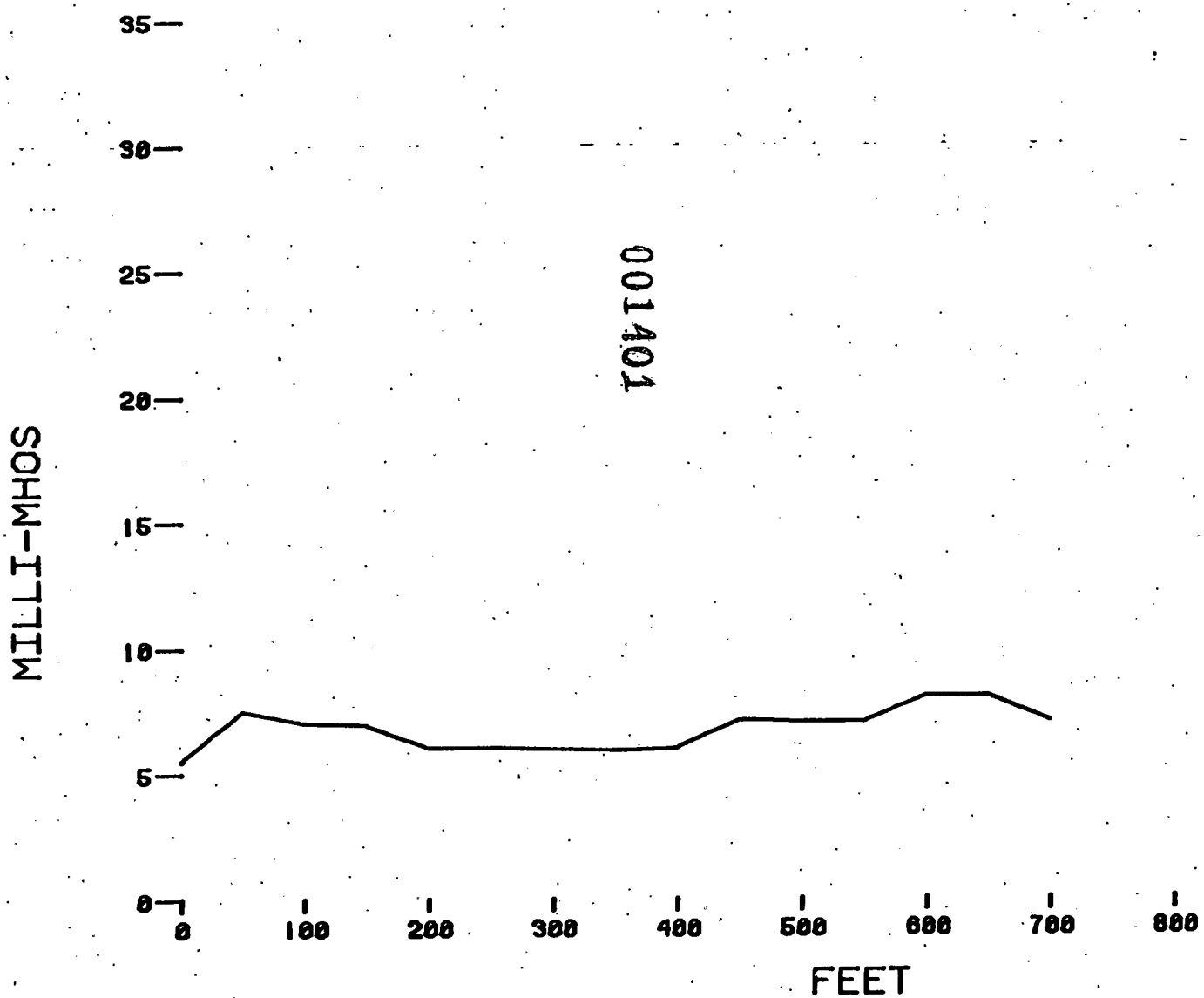
APPENDIX G

TERRAIN CONDUCTIVITY PROFILES
SUBAREAS P1, P2, AND P3 GRID

LINE A-E CONDUCTIVITY WEST TO EAST 10M HDP



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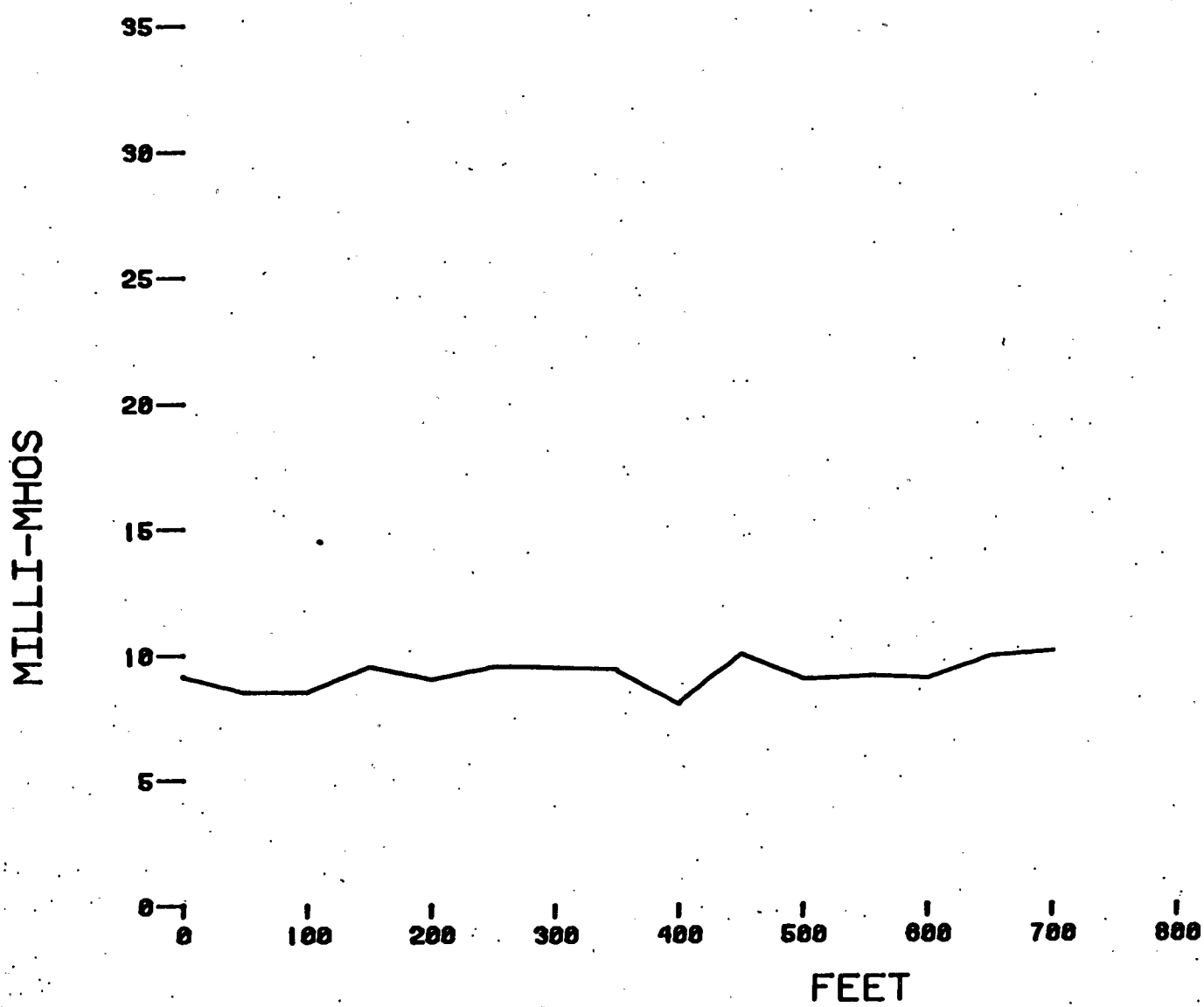
LINE A-E CONDUCTIVITY WEST TO EAST 10M VDP



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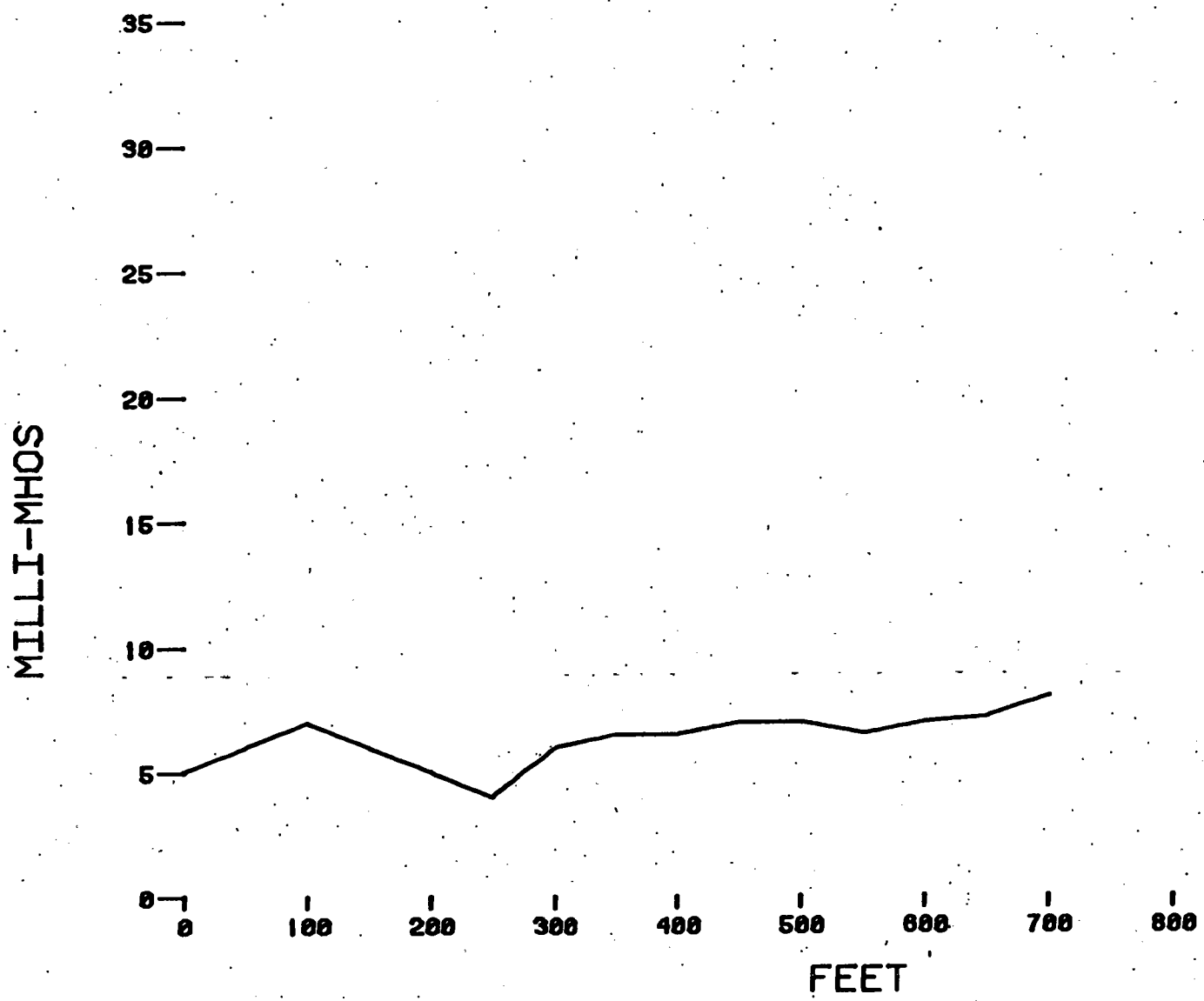

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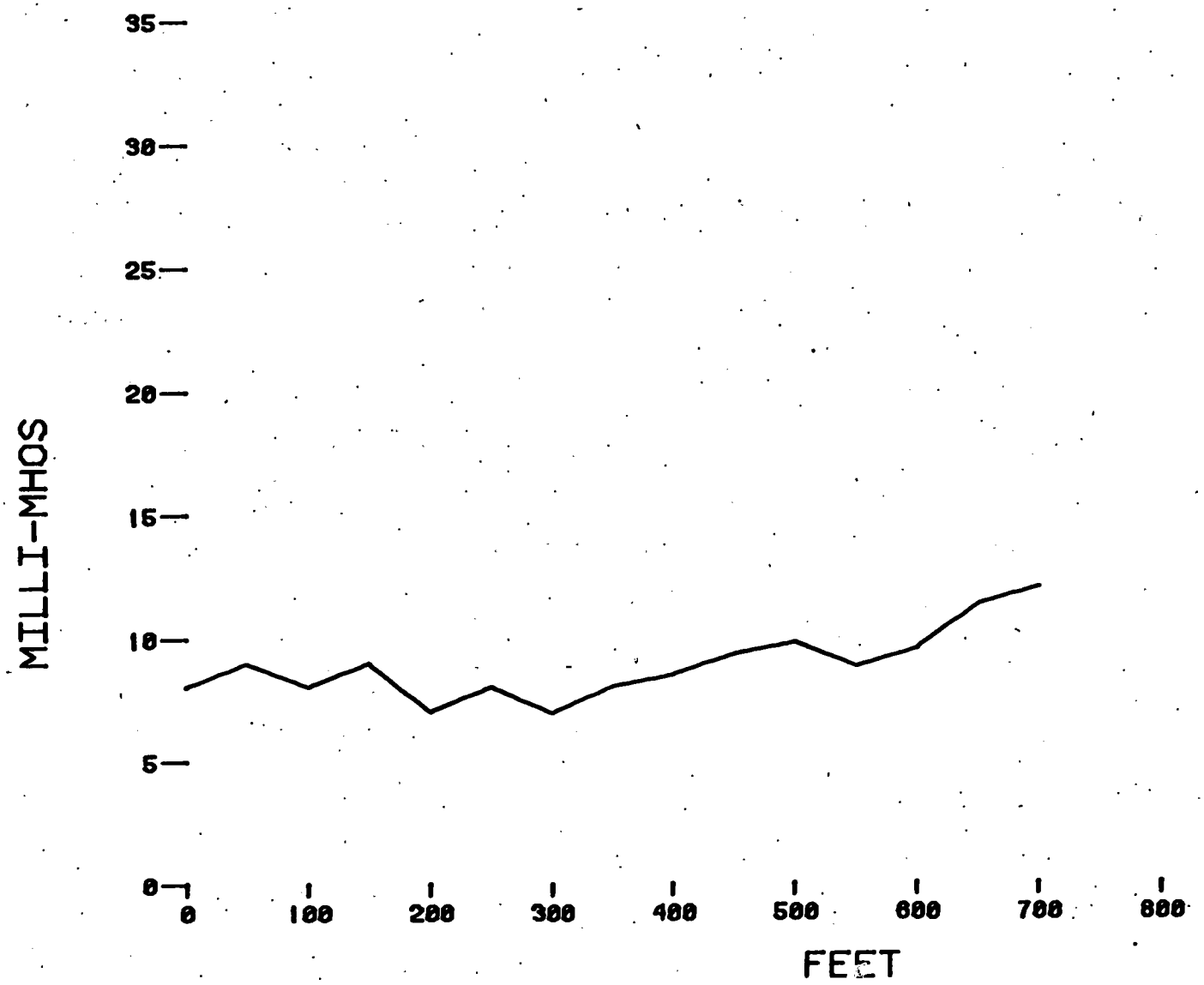

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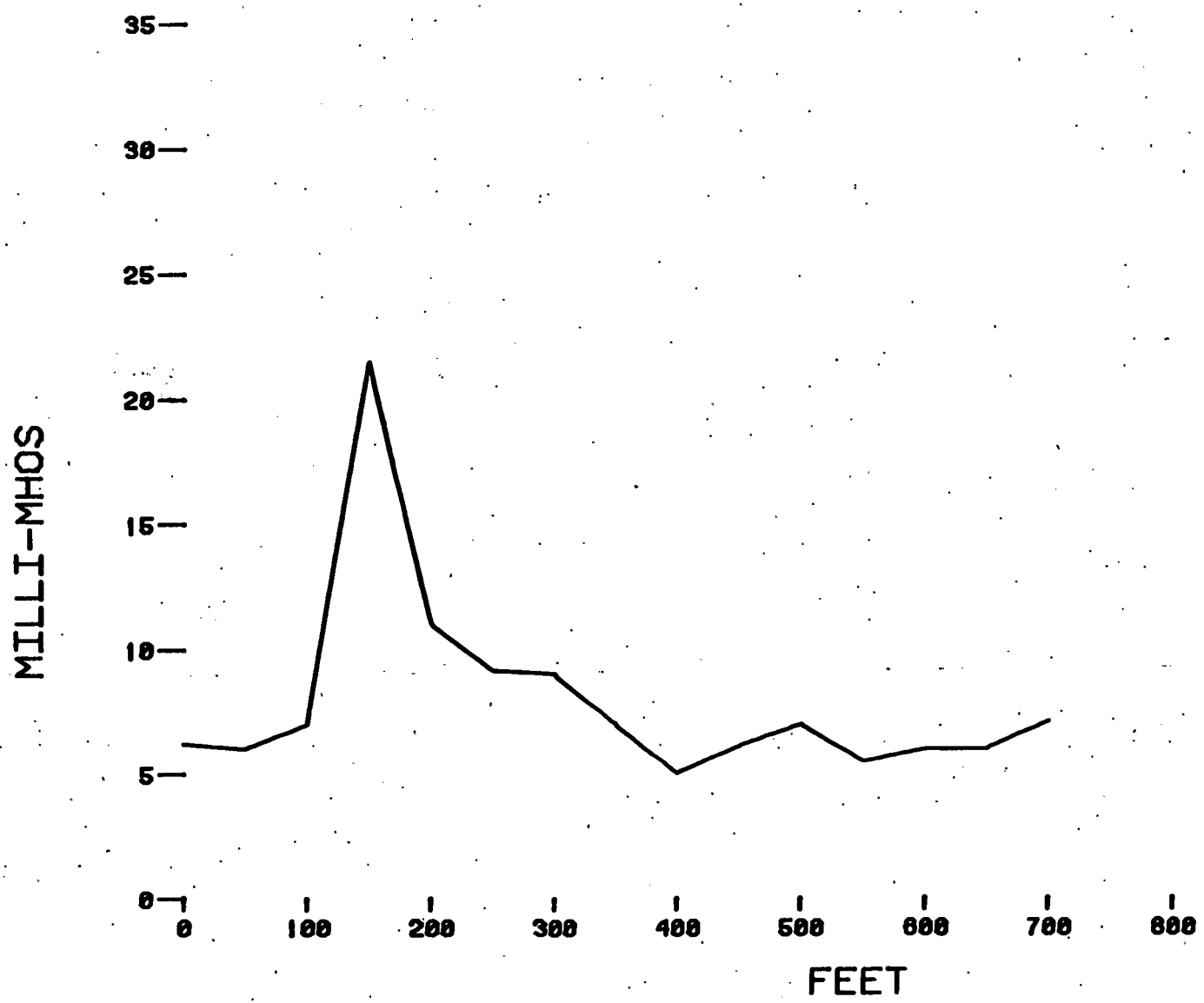

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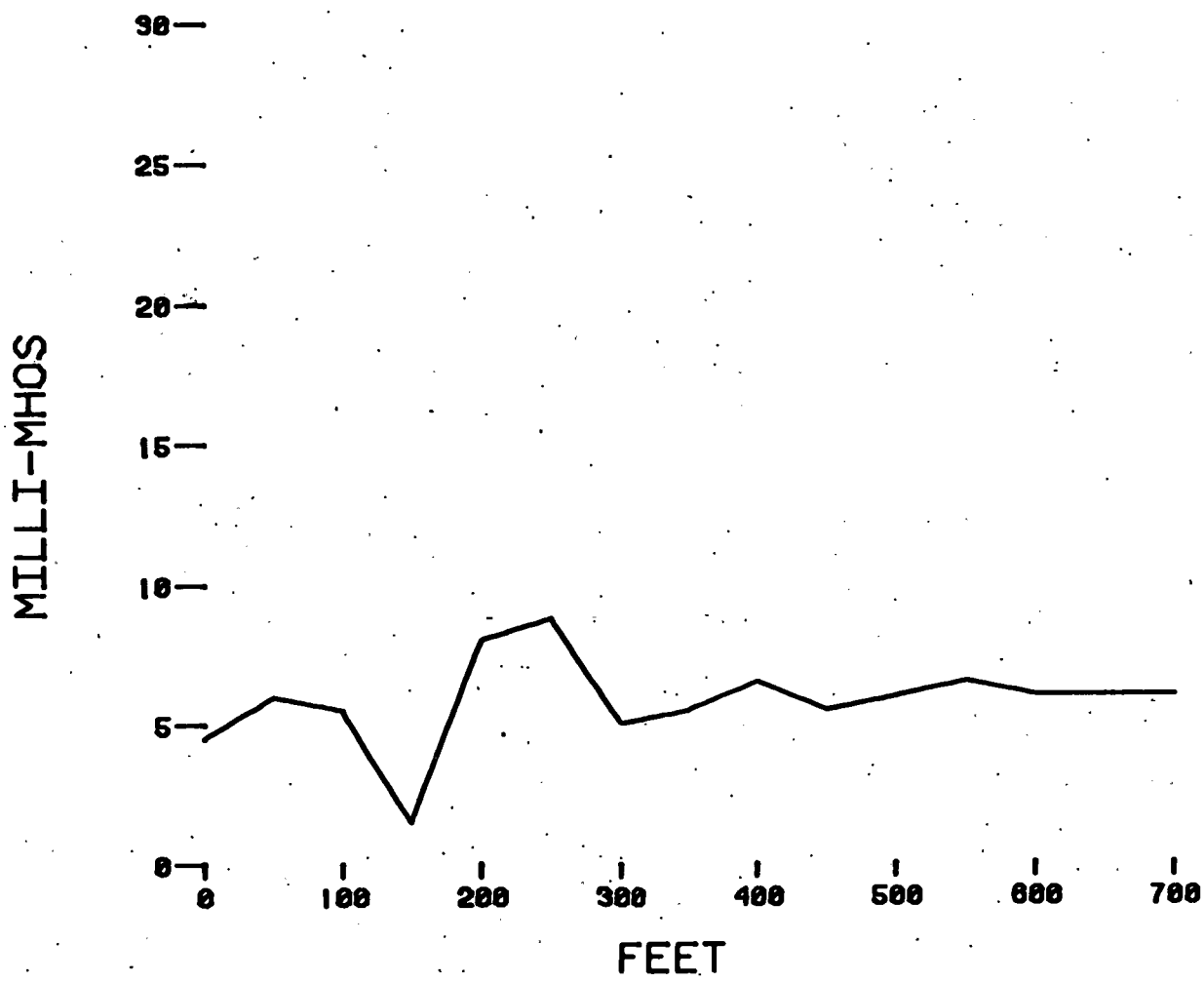

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LINE D-E CONDUCTIVITY WEST TO EAST 10M HDP

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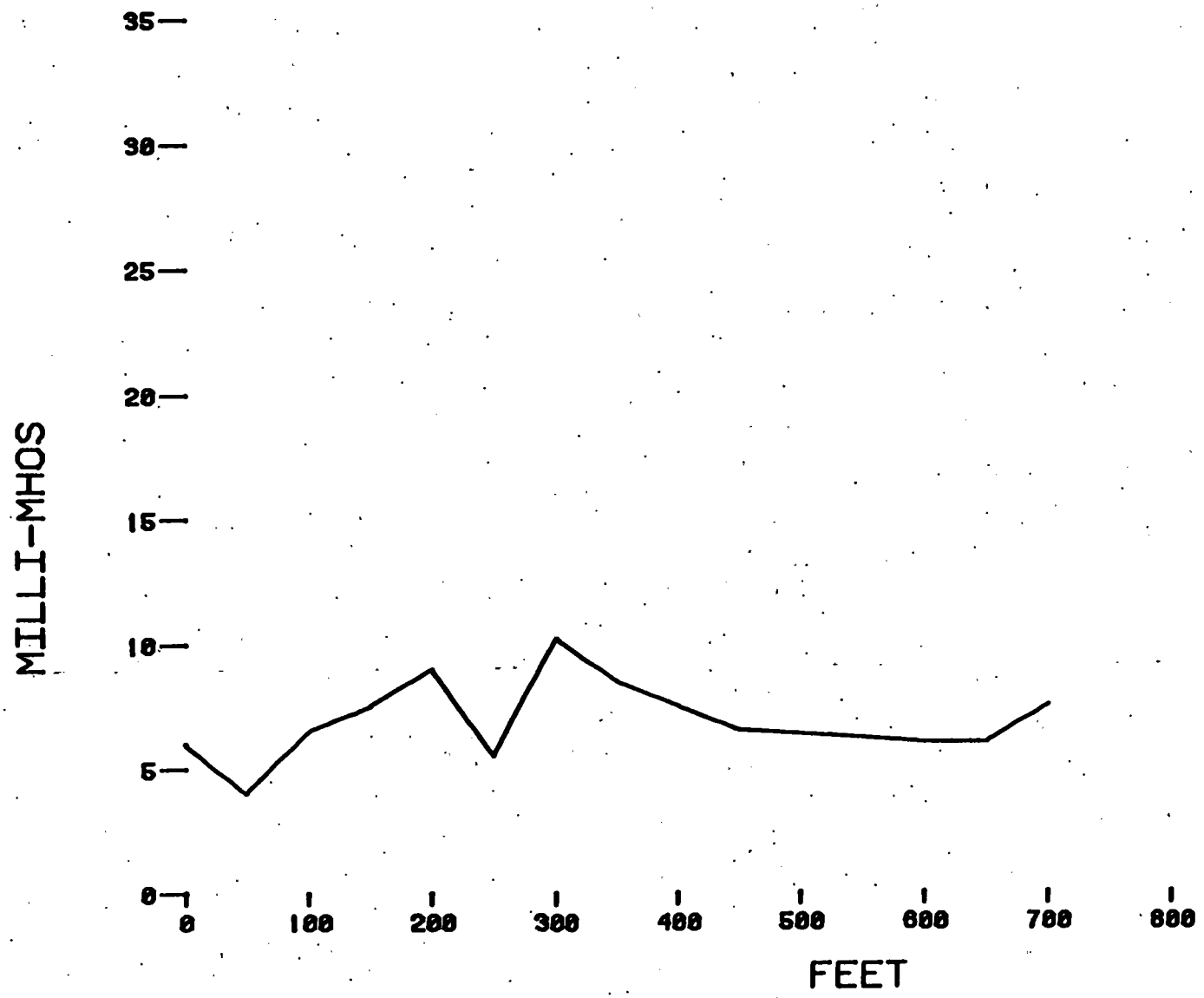

LINE D-E CONDUCTIVITY WEST TO EAST 10M VDP

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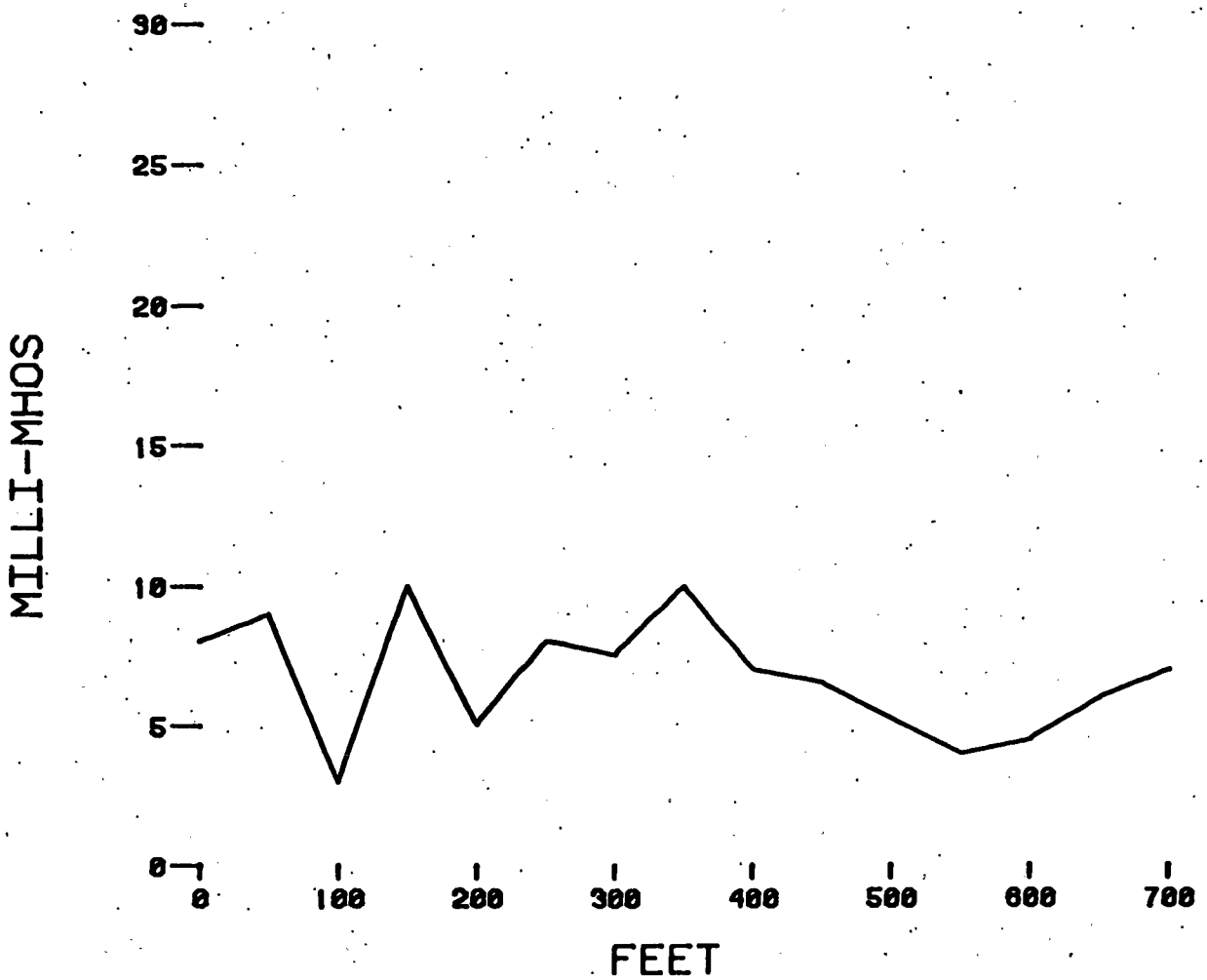

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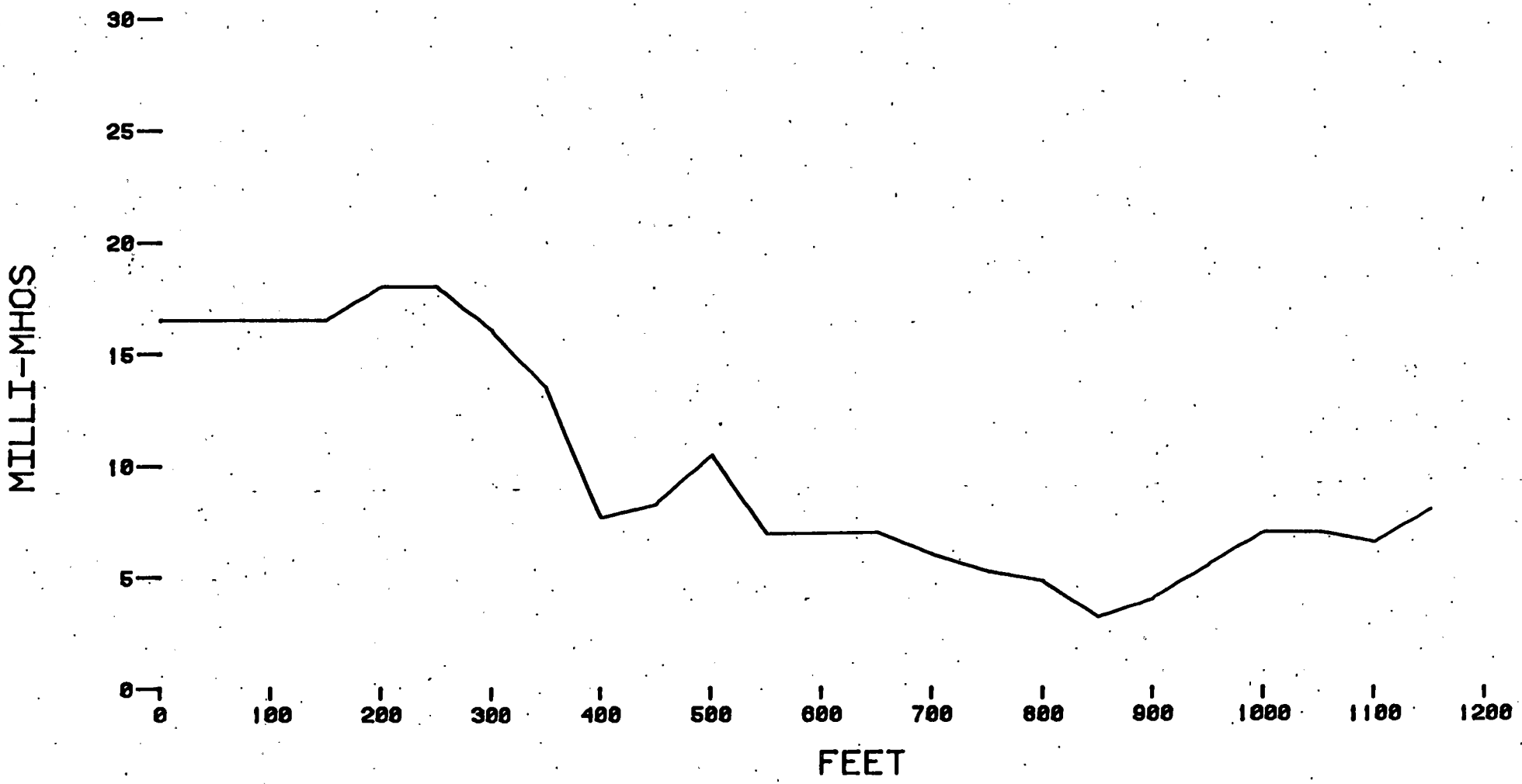

LINE A-W CONDUCTIVITY WEST TO EAST 10M VDP

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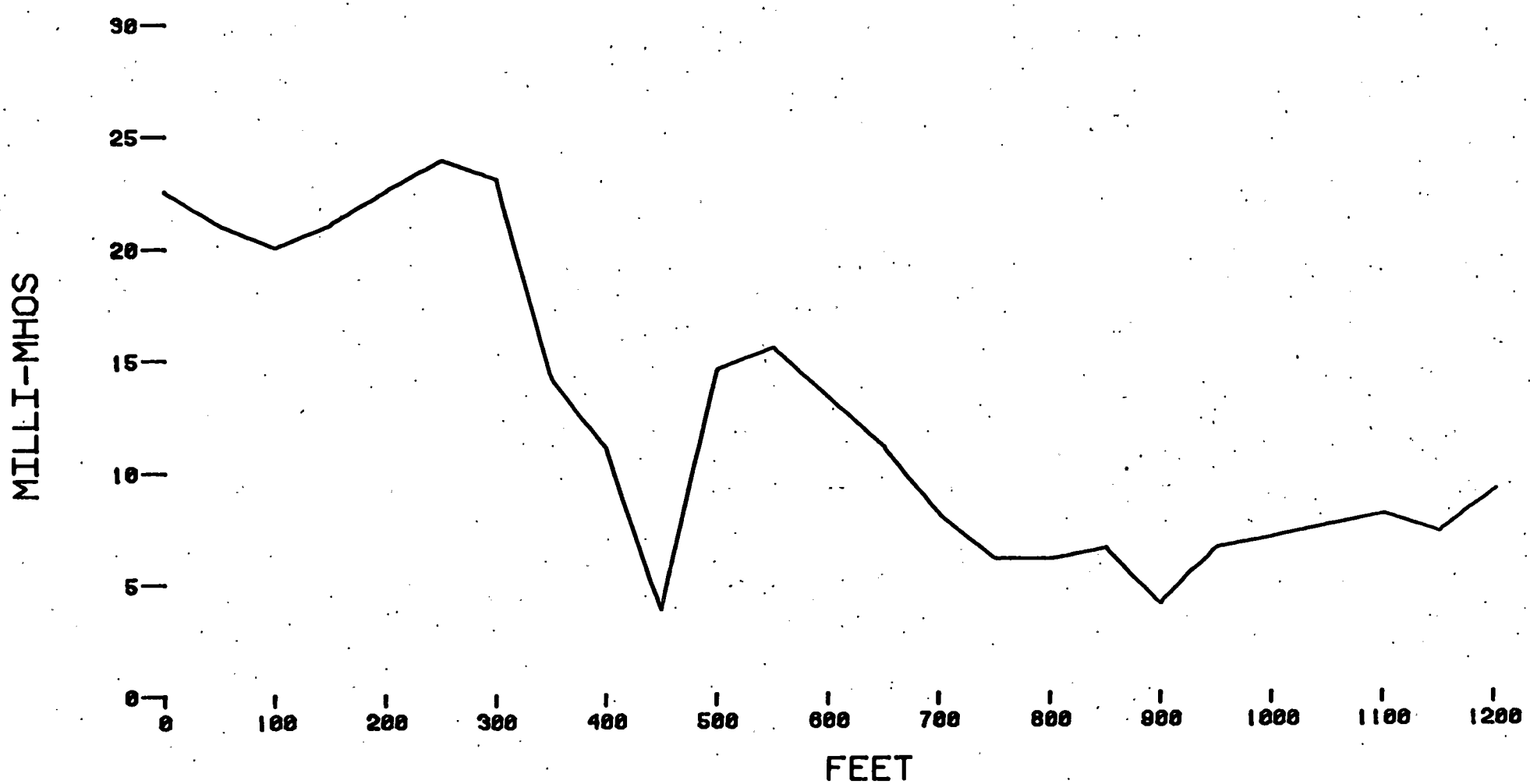

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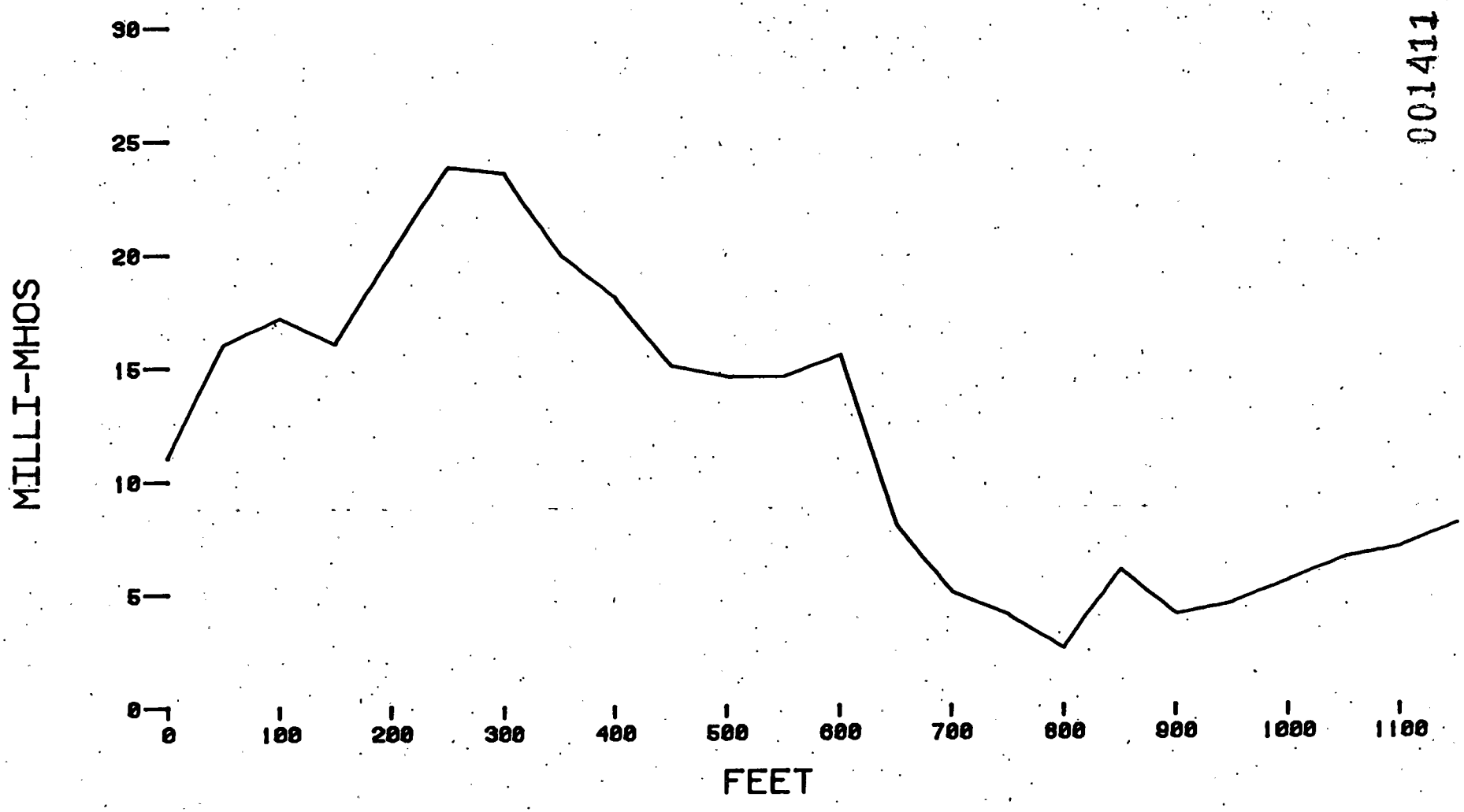

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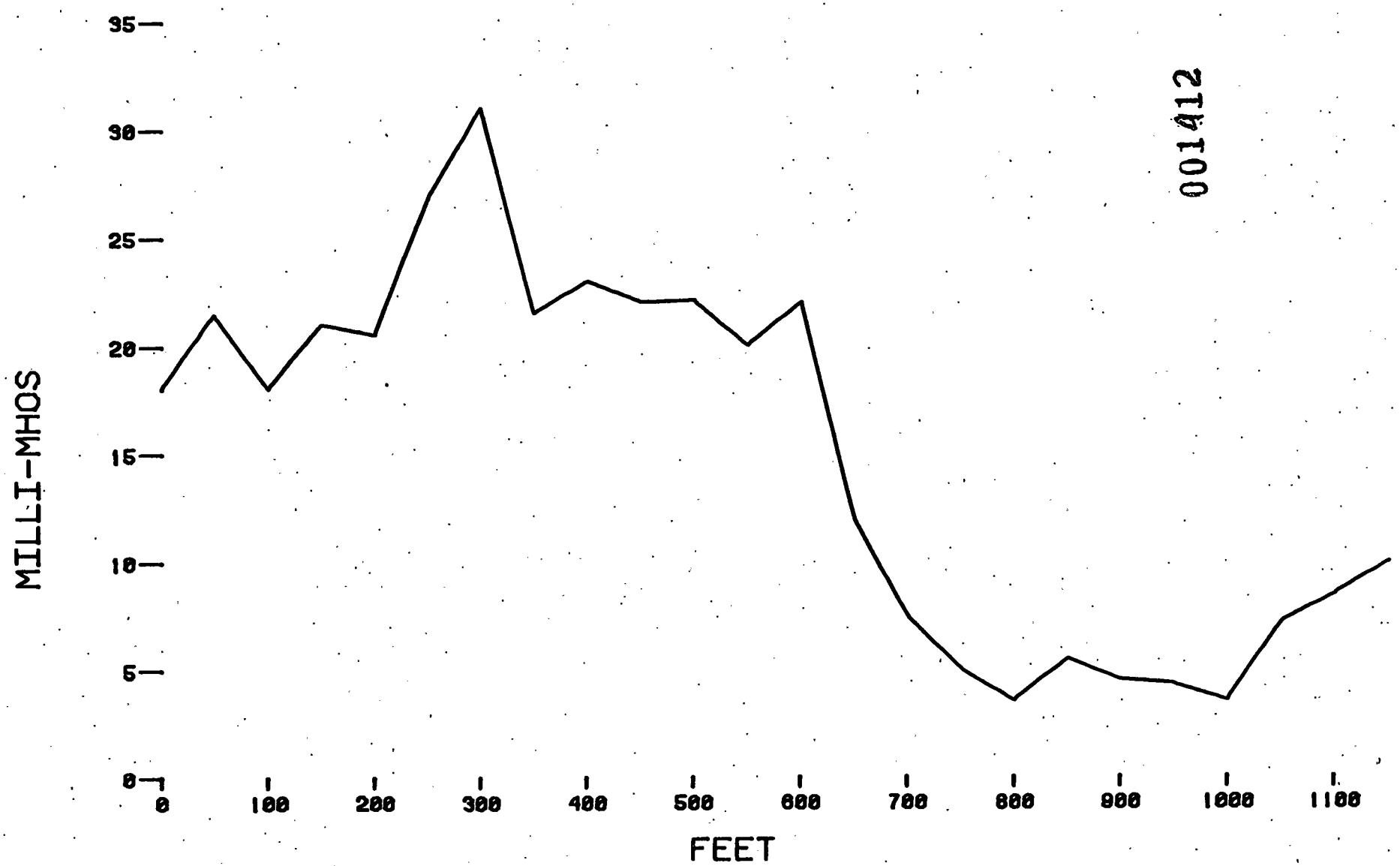

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LINE C-W CONDUCTIVITY WEST TO EAST 10M HDP

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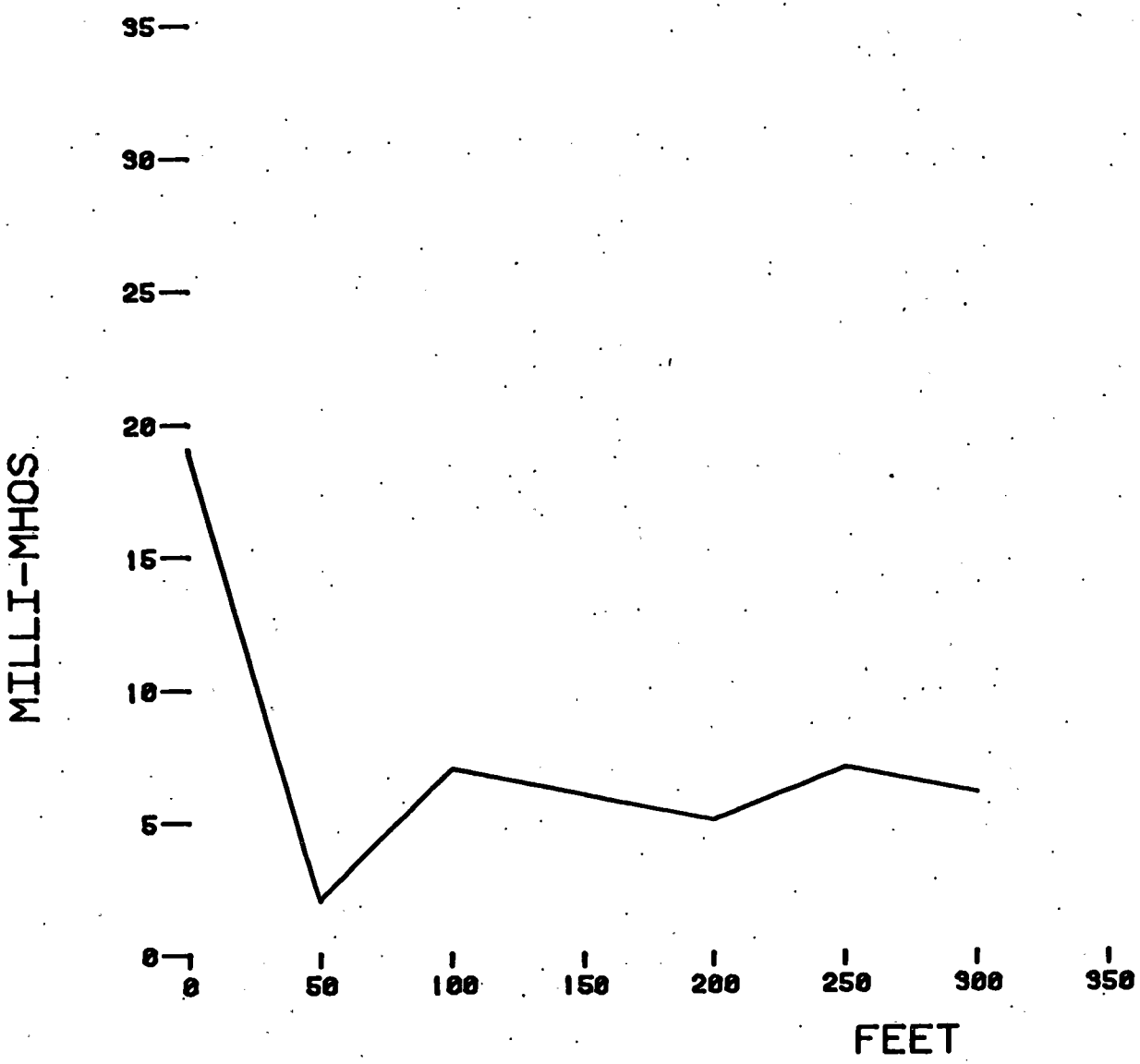

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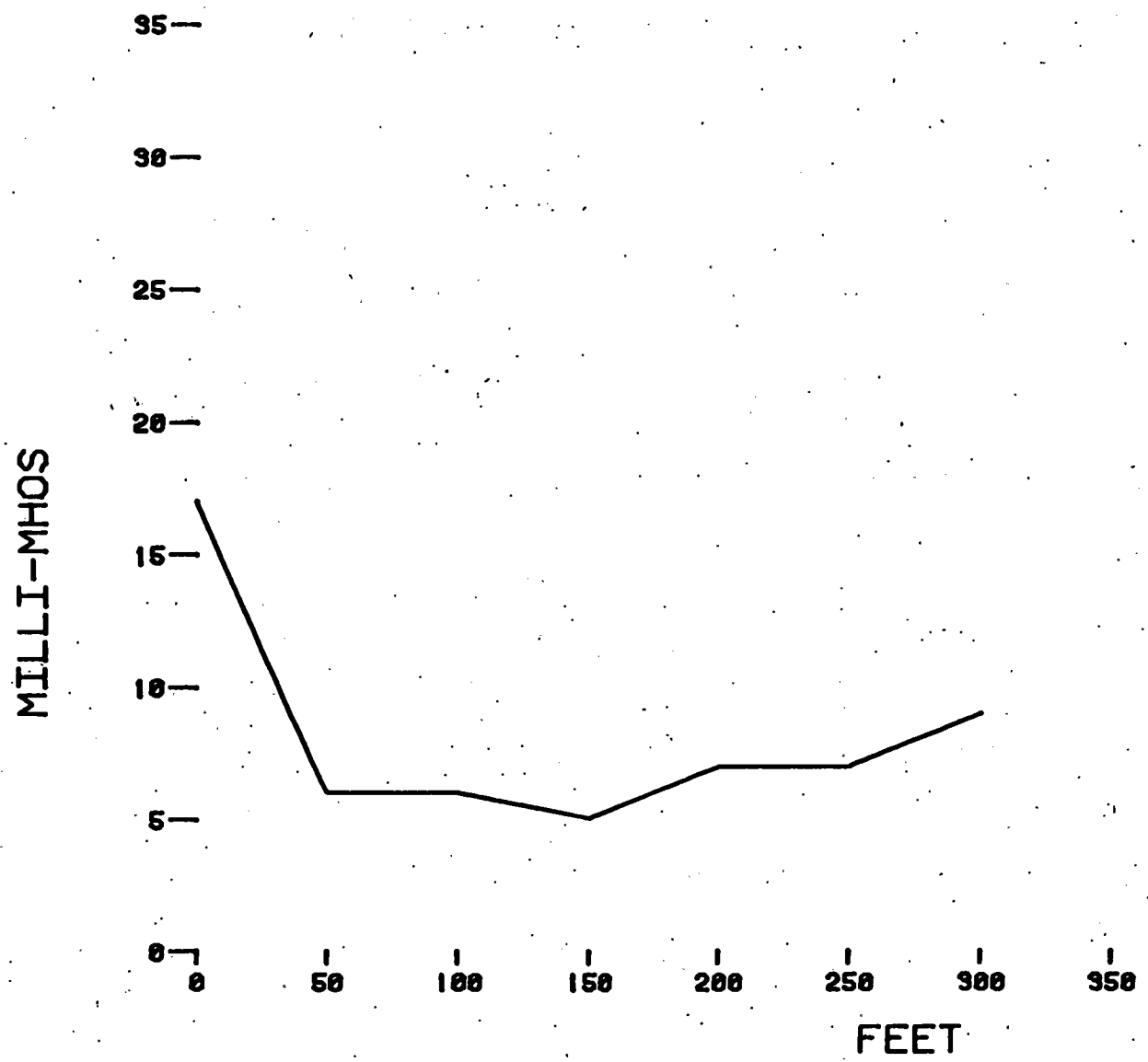

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LINE D-W CONDUCTIVITY WEST TO EAST 10M HDP

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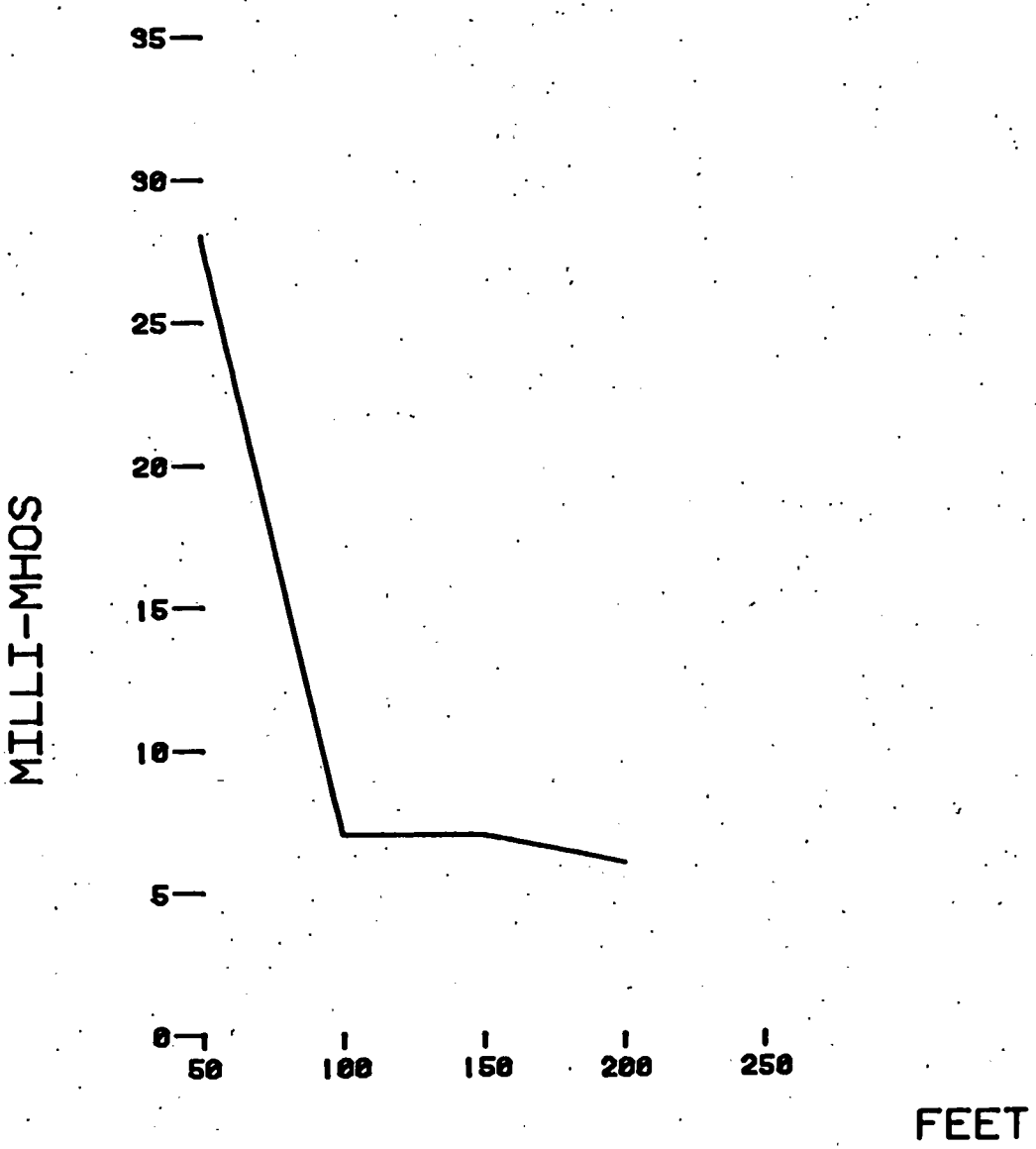

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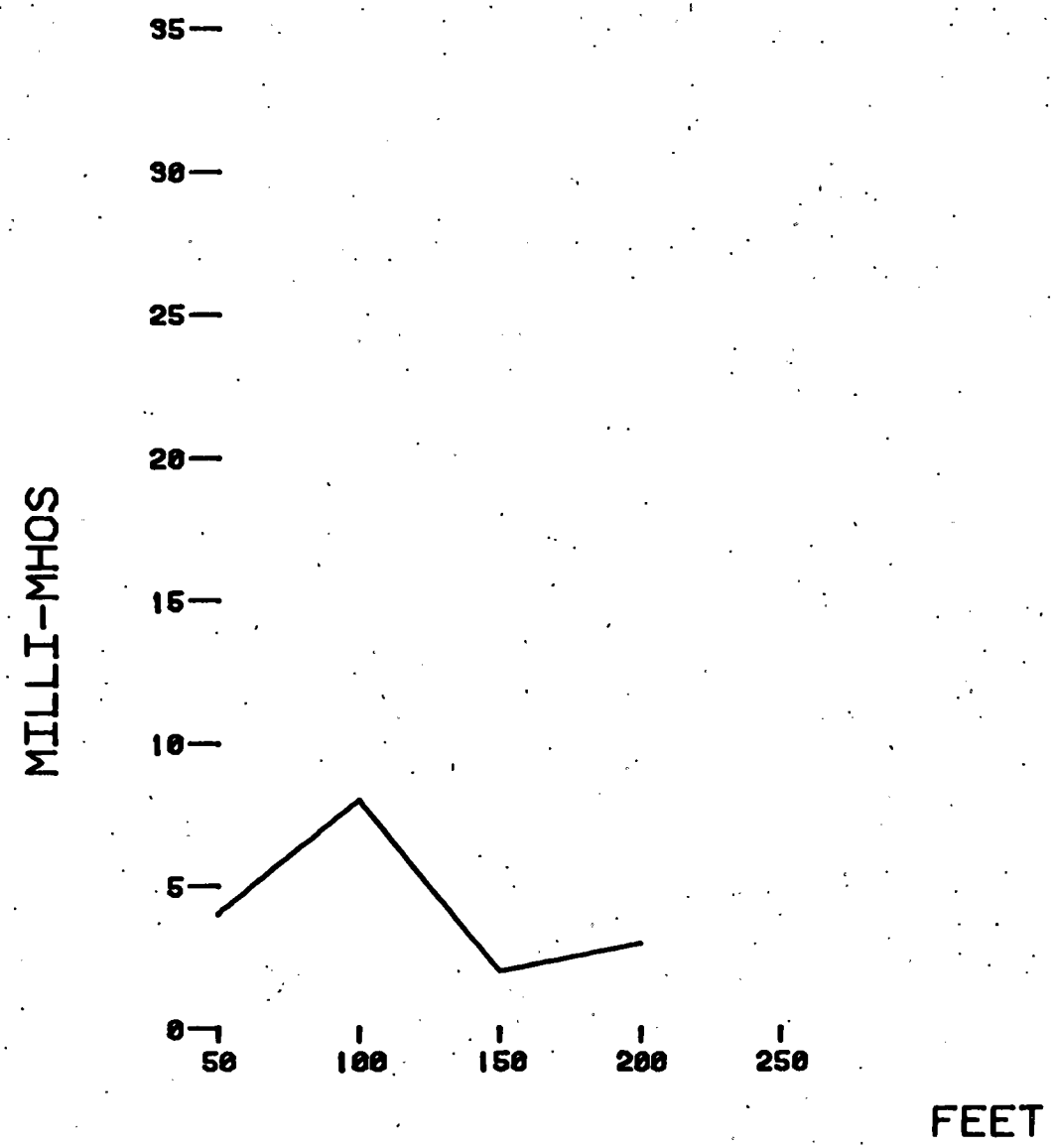

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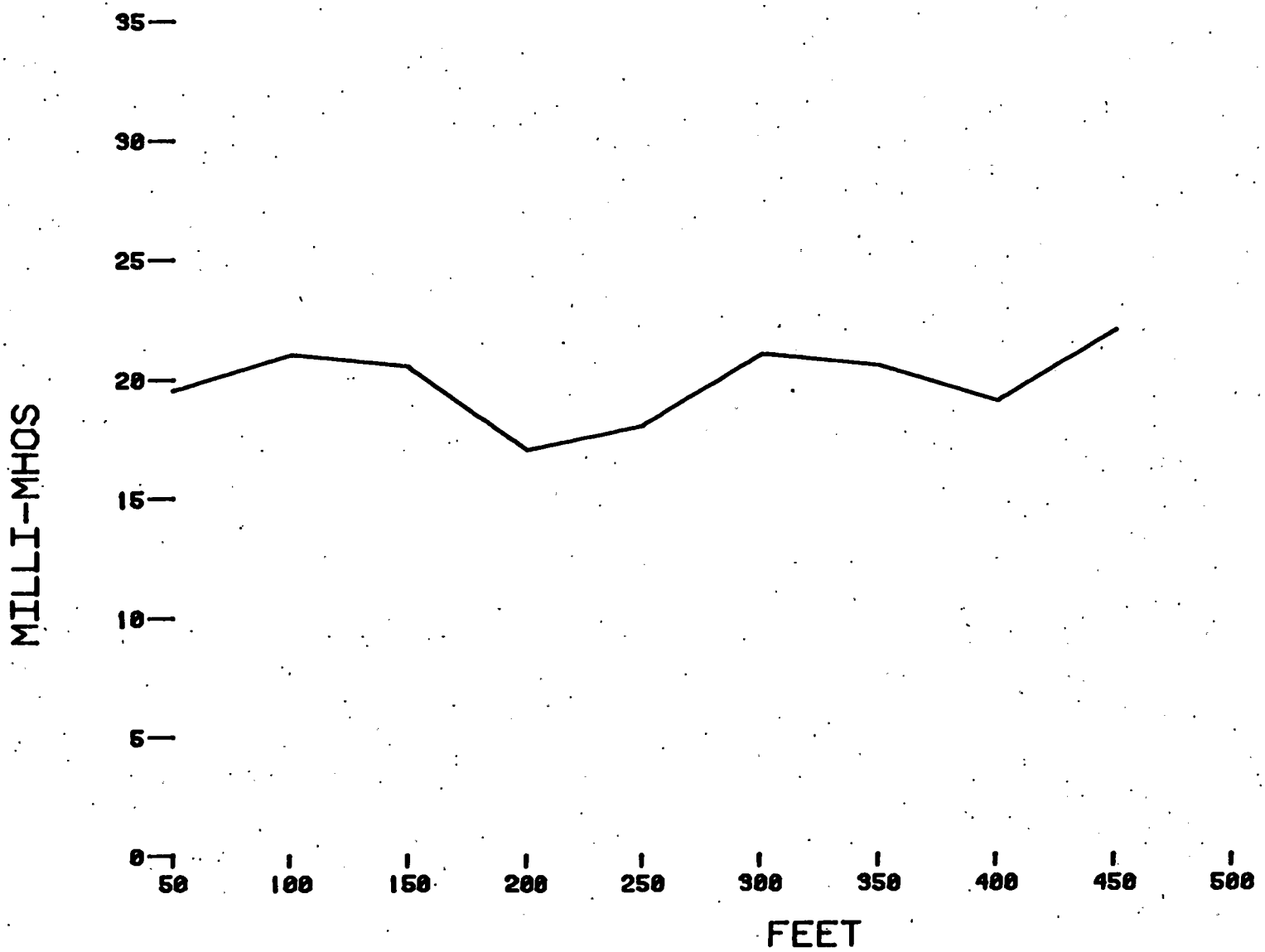
LINE E-W CONDUCTIVITY WEST TO EAST 10M HDP



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LINE E-W CONDUCTIVITY WEST TO EAST 10M VDP

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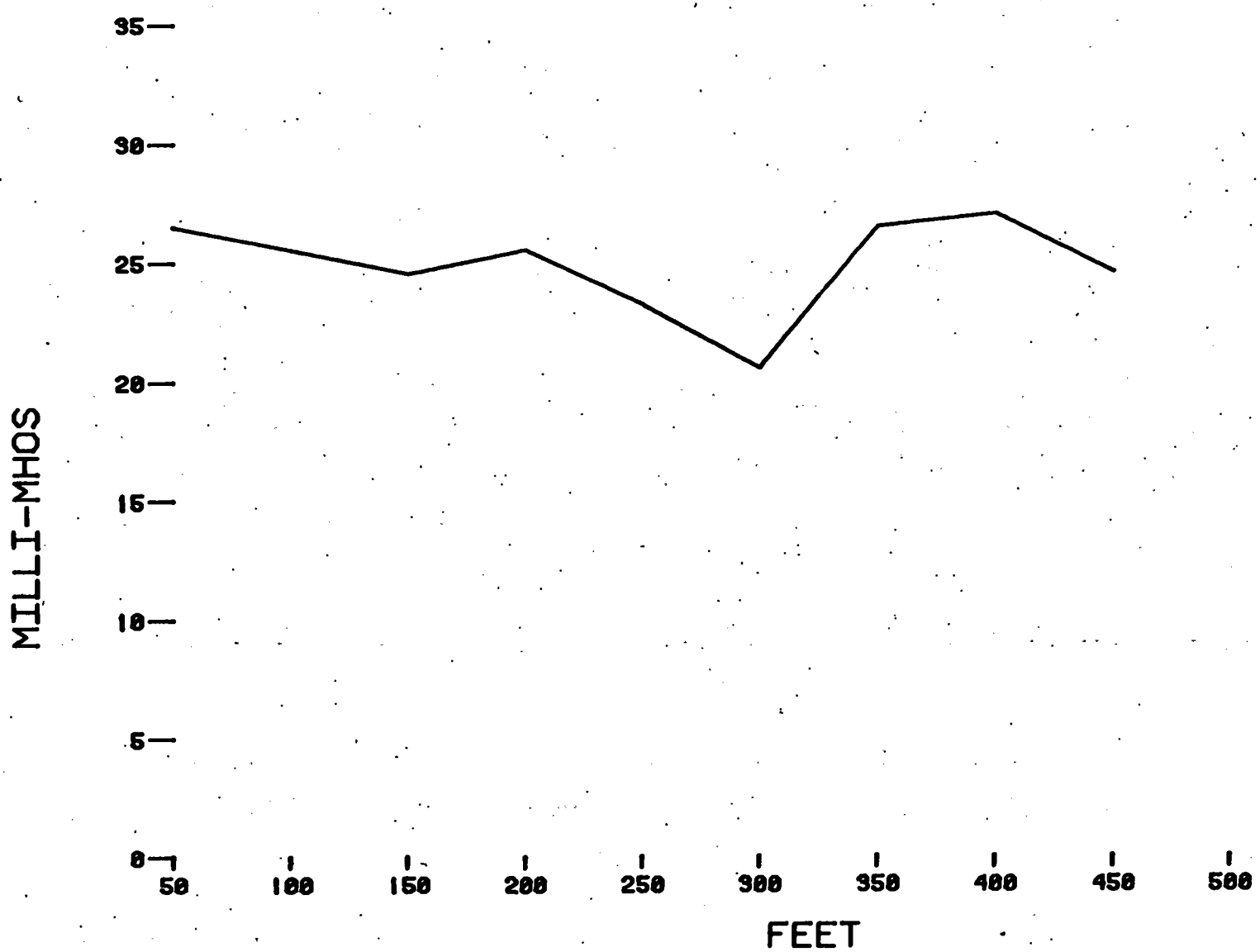

LINE F-N CONDUCTIVITY SOUTH TO NORTH 10M HDP

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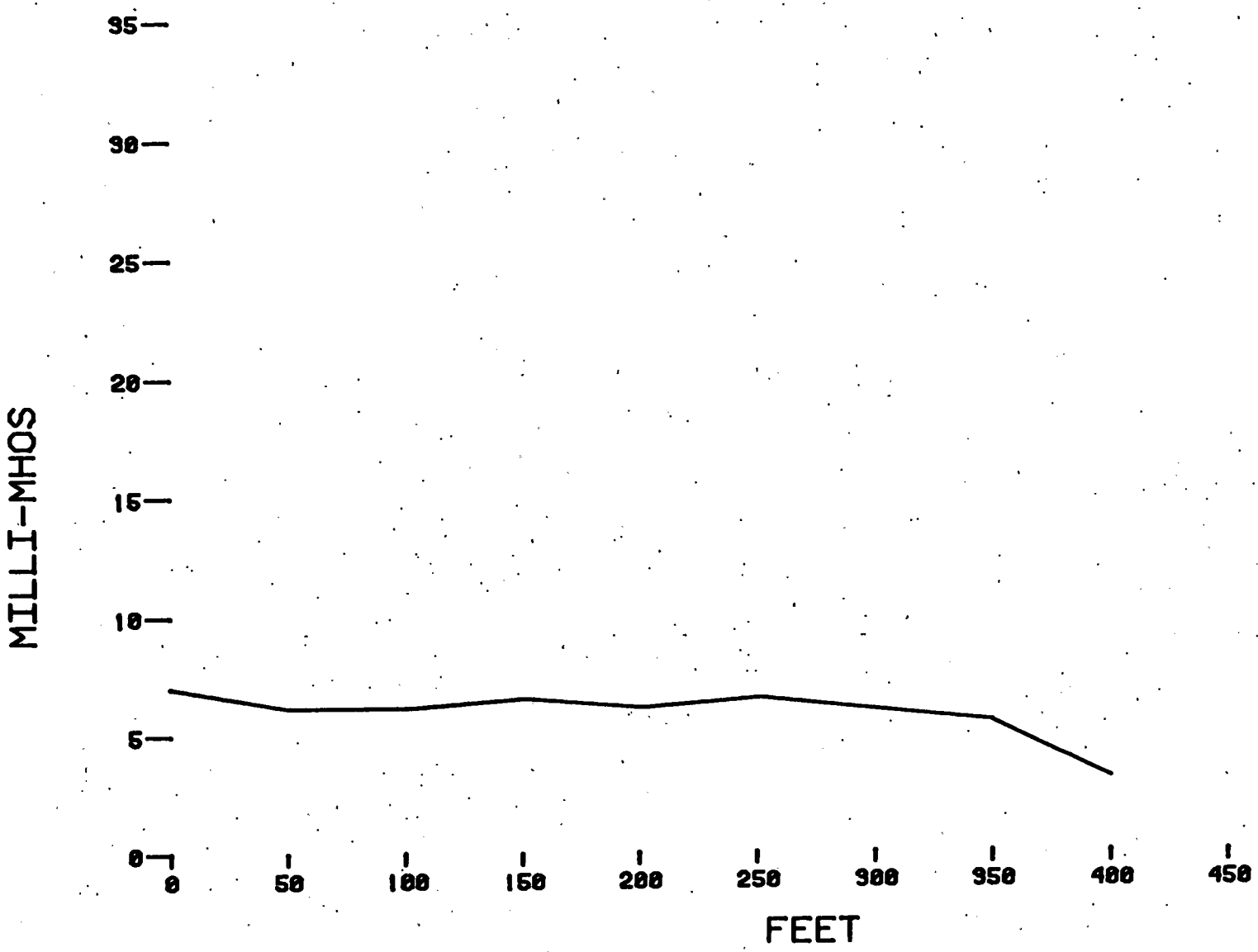

LINE F-N CONDUCTIVITY SOUTH TO NORTH 10M VDP

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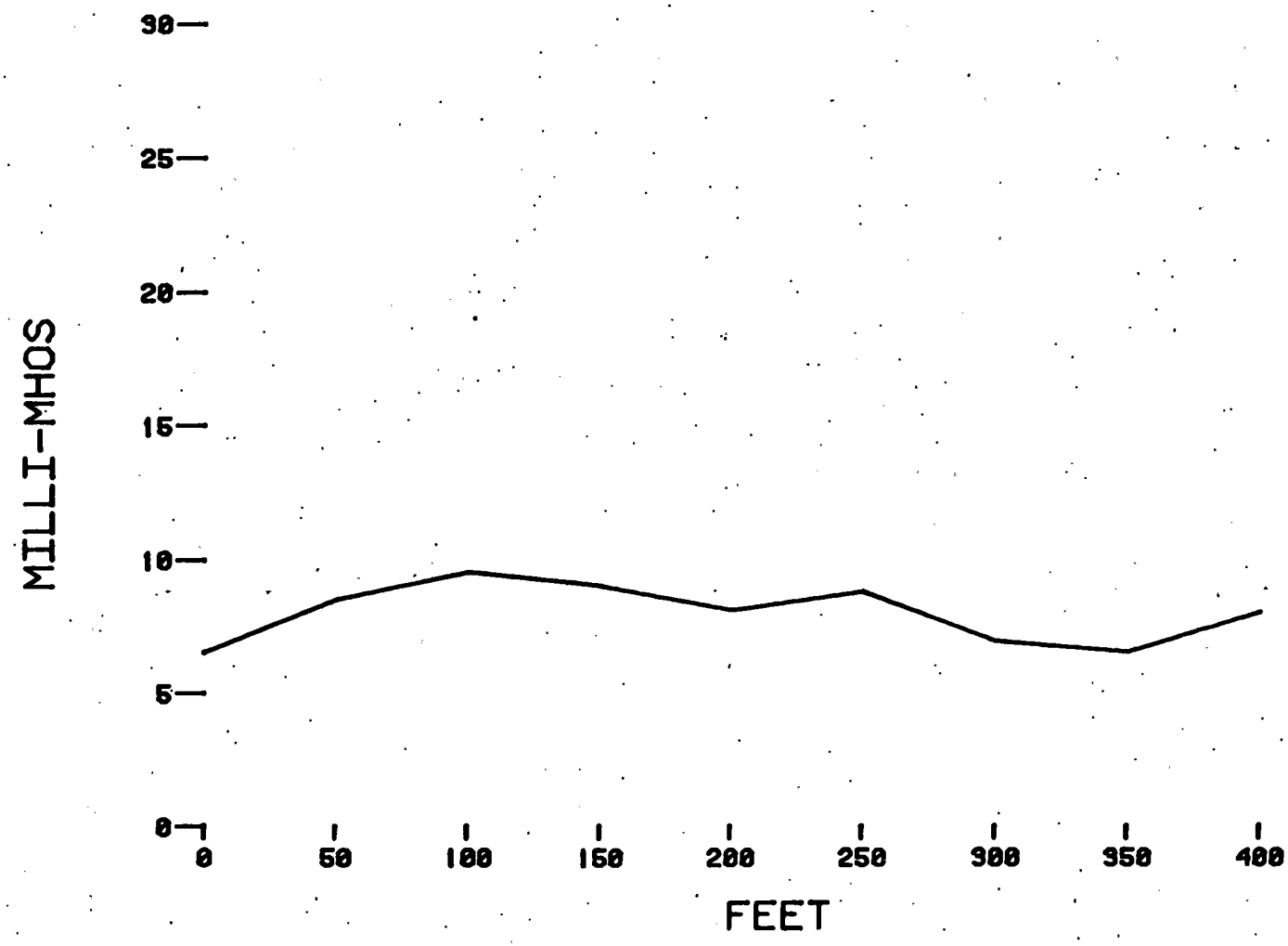
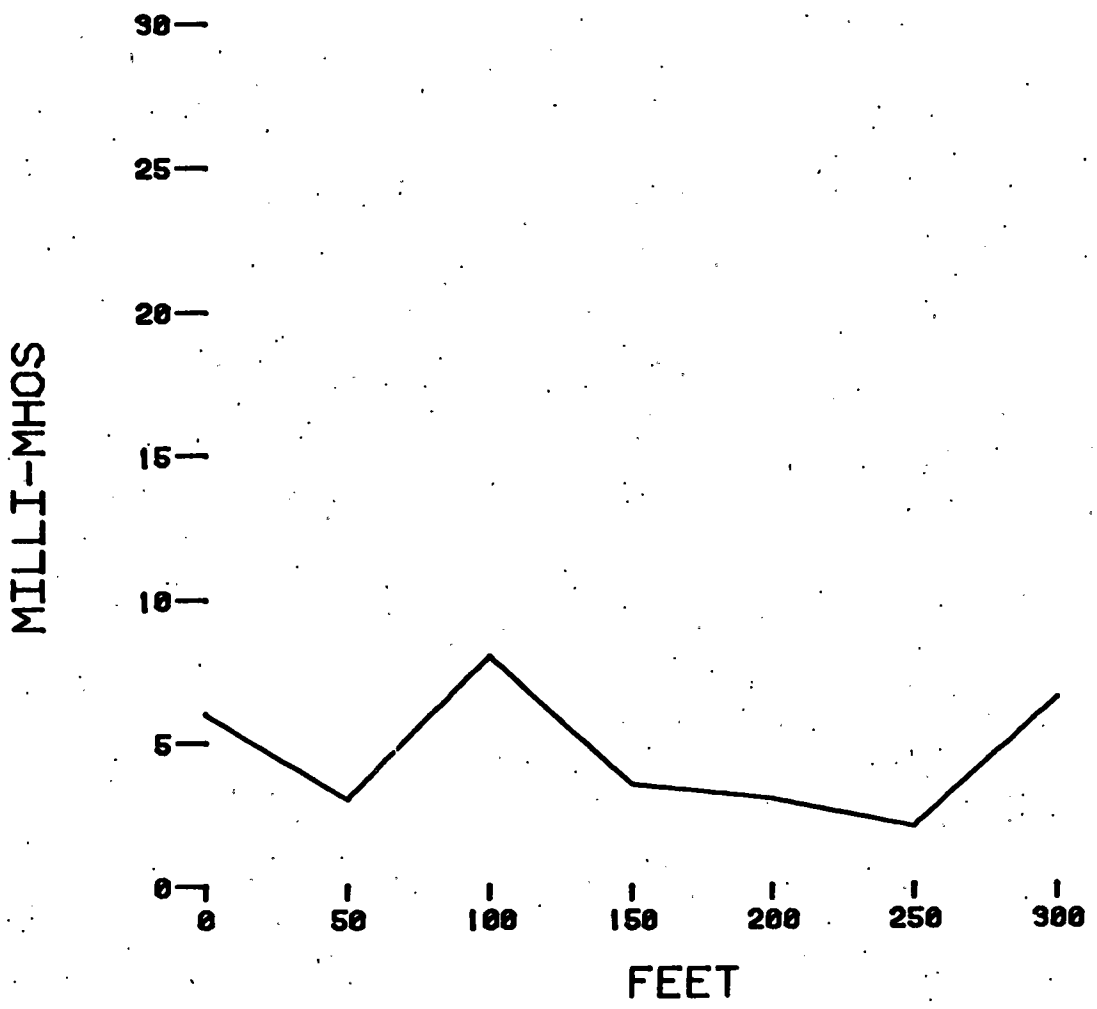


LINE F-S CONDUCTIVITY SOUTH TO NORTH 10M VDP



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LINE F-S CONDUCTIVITY SOUTH TO NORTH 10M HDP

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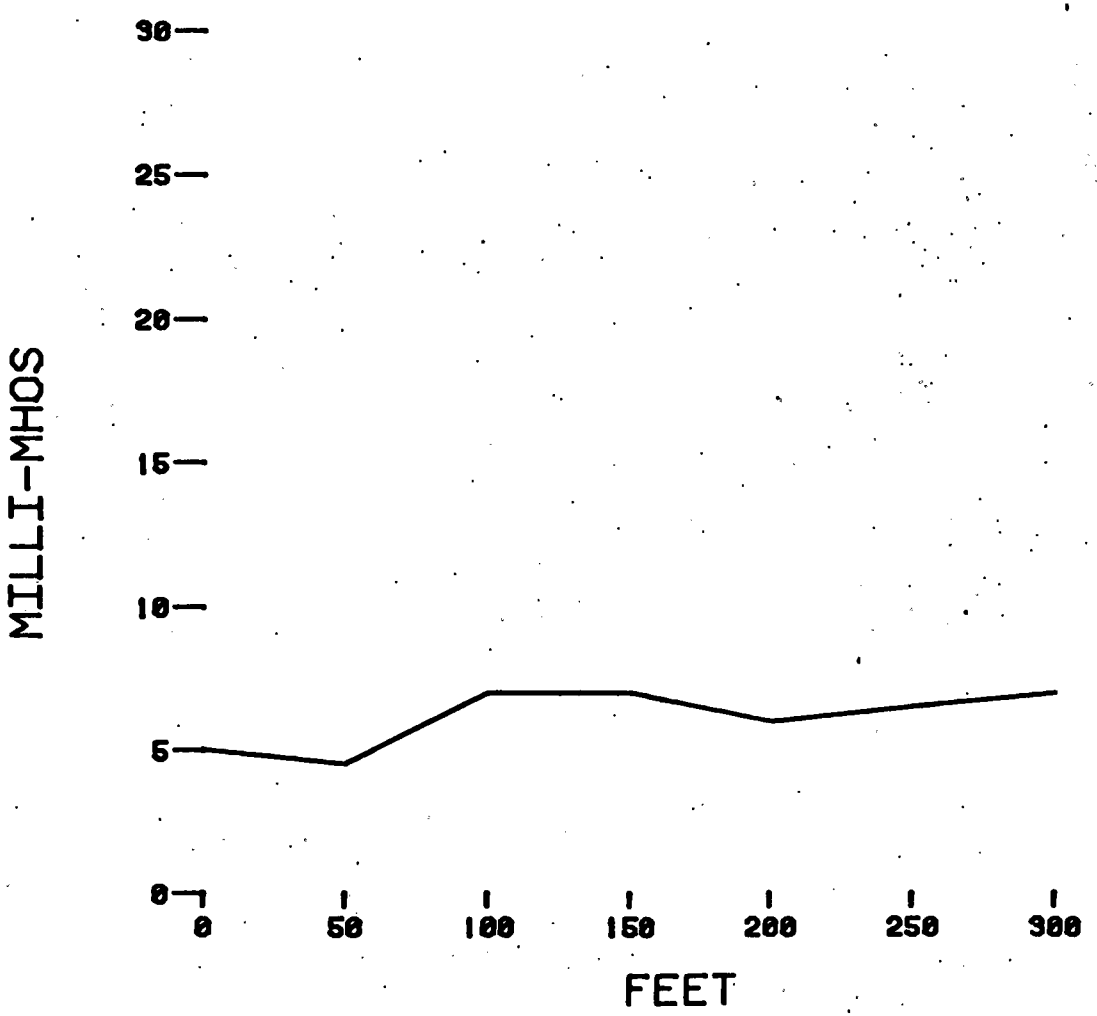

LANDFILL GEOPHYSICAL INVESTIGATION

GROUND-PENETRATING RADAR SURVEY

FEBRUARY 1985

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BRISTOL, PENNSYLVANIA

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BCM

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1.0 EXECUTIVE SUMMARY

1.1 OVERVIEW OF THE PROJECT

This report presents the findings of a ground-penetrating radar survey conducted over portions of the inactive Rohm and Haas Company (Rohm and Haas) industrial landfill, located in Bristol Township, Bucks County, Pennsylvania. The purpose of this survey was to characterize subsurface conditions at the landfill and to confirm and enlarge upon results of previously conducted geophysical surveys including a magnetic survey and a terrain conductivity survey. The ground-penetrating radar survey report follows this executive summary as Appendix A.

1.2 APPROACH

The radar survey was conducted for BCM Eastern Inc. (BCM) by Geosite of Pitman, New Jersey during the period from September 5 to September 12, 1984. The survey was conducted in landfill areas A2, A3 and B to supplement information obtained during a magnetic survey conducted by BCM during March, April and May, 1984 in those areas. Geosite also conducted an electromagnetic induction (terrain conductivity) survey in landfill areas A2, A3 and B to supplement information obtained during the magnetic and ground-penetrating radar surveys (see Figure 1).

Approximately 20 acres of landfill area were surveyed during the radar survey. A total length of 3.13 miles of profile line were surveyed on 76 separate profile lines. In addition, 282 pairs of terrain conductivity measurements were made in the landfill areas.

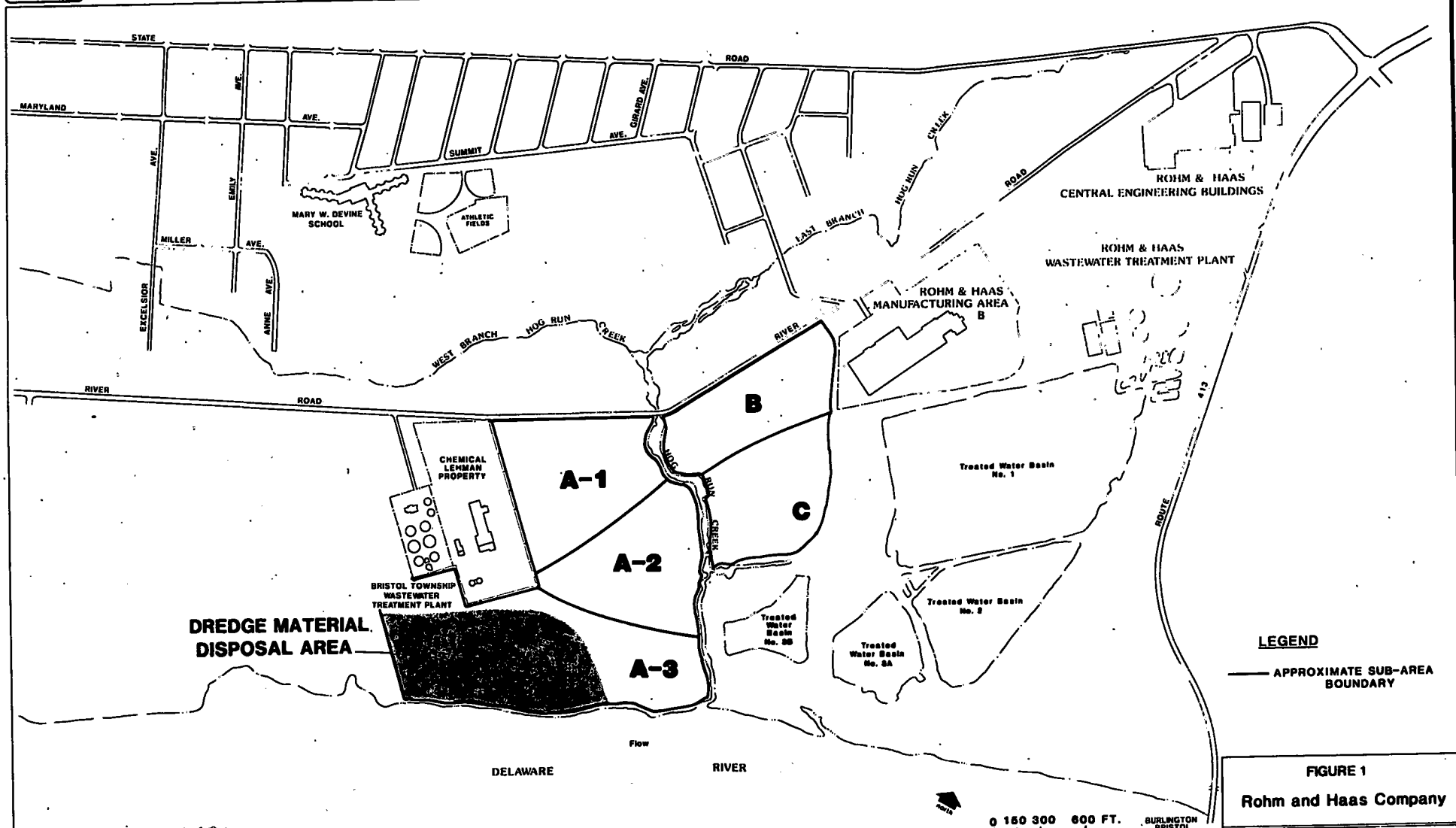
1.3 PRINCIPAL FINDINGS

The radar survey proved generally effective in delineating those areas in which the subsurface strata had not been disturbed or where sediments dredged from the Delaware River had been deposited. In other filled areas, the radar could not, in all cases, differentiate between disturbed soils and waste materials. A detailed discussion of survey findings is contained in Appendix A and is summarized below.

Landfill Areas A2 and A3

1. The radar detected complex subsurface strata, highly conductive zones, and buried metallic and nonmetallic objects within these landfill areas. The data confirm that these landfill areas contain buried waste materials.

BCM ... gineers, Planners and Scientists



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BCM PROJECT NO. 00-4061-13

FIGURE 1

Rohm and Haas Company

LANDFILL GEOPHYSICAL INVESTIGATION

Ground-Penetrating Radar Survey Study Area

However, in some landfill areas, the radar could not differentiate between possible clean fill deposited in a random manner and waste debris.

2. Areas with little subsurface debris were detected on the southwest side of the landfill near the dredge disposal area, along the extreme southeastern portion of landfill area A3, and in some central portions of landfill area A2. These findings confirmed the results of the magnetic survey.

3. Dipping subsurface strata which may be associated with subsurface waste materials were found within landfill area A3.

4. An area of planar subsurface strata was detected in landfill area A2. Subsequent test pits revealed this to be clean gravel.

5. The radar survey provided information beyond that found in the magnetic survey. Several areas of possible nonmagnetic waste were located.

Landfill Area B Results

1. The radar data better defined the location of the northeastern and southwestern boundaries of the waste trenches. Clean areas with little subsurface debris were detected on the northeast and southwest corners of this section.

2. Generally, within the landfill, the radar did not distinguish between areas where subsurface metal was detected during the magnetic survey and possible clean areas between the trenches. The data may indicate that the entire area is capped by conductive material which attenuate the radar signal or that the entire area is randomly filled with wastes. Subsequent borings and wells constructed in this area between several suspected burial trenches did not detect buried waste materials.

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APPENDIX A

GROUND-PENETRATING RADAR SURVEY REPORT

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A GROUND-PENETRATING RADAR SURVEY

AT THE ROHM & HAAS BRISTOL LANDFILL

20 September 1984

prepared for:

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by: Bruce Bevan
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A Ground-Penetrating Radar Survey at the Rohm & Haas Bristol Landfill

This survey mapped areas of contrast between buried materials at this landfill. In some areas, the radar appears to have profiled to a depth of greater than 11 ft; the radar revealed regular, moderately planar strata there. These areas probably have relatively clean sand underground and contain little or no buried debris; this sand could be dredged fill or it could be geologically-placed material.

Distinct, very flat strata were profiled in a few areas of the landfill and one area was found to have dipping strata. These patterns result from the filling procedures at the landfill. Conductive, near-surface layers were also found; this material could be silty or clayey earth or it could be chemicals. Because of the high attenuation of these materials, the radar could profile to a depth of a few feet or less in these areas.

The radar also mapped regions where the subsurface materials were complex. Some of these areas of chaotic stratification are the result of debris in the soil, including metals and plastics. Other areas may be caused by debris also, but could also be a result of miscellaneous fill which may not be discarded waste material.

The Site

The area of survey is part of a Rohm and Haas Company manufacturing plant in Bristol, Pennsylvania. This landfill is southwest of Manufacturing Area B; it was used for waste disposal during the period 1952 to 1975. Excavations in this landfill have revealed that it contains metal barrels, plastic products, chemicals, cinders, brick, glass, paper, and other materials to a depth of possibly 10-15 ft. Relatively clean sands, a few feet thick, overlie these deposits. Sand dredged from the adjacent Delaware River appears to have been pumped to settling basins in parts of the landfill; the thickness of these fill sands could be as much as 20 ft.

The surface of the landfill is fairly flat and has some stepped plateaus with a rise of 3-5 ft. The weeds which cover the area were mown for easy access for the geophysical equipment.

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A chain link fence encloses the site and high voltage power lines are within a hundred feet of some survey areas.

Much of the site has already been examined by BCM Eastern with a magnetic survey and an electromagnetic survey, with a Geonics EM34. The area designations and coordinate systems from those survey have been also used for this survey.

The Surveys

The ground-penetrating radar was a SIR System-7, manufactured by Geophysical Survey Systems. The radar antenna was a model 3105, having a peak amplitude at a frequency of about 180 MHz.

The radar antenna is mounted in the bottom of a box about 2 ft by 3 ft in size. The electronics for the radar's transmitter and receiver are also enclosed in the antenna box. An electrical cable about 175 ft long connects the antenna to control and recording equipment; this equipment is heavy and sensitive to dust and so is kept in a van. A gasoline-powered generator provides the 300W of electricity required for the radar.

The radar antenna was pulled along lines of traverse at a speed of about 0.32 mile per hour. As it moves, the radar sends short electromagnetic pulses into the earth. Abrupt contrasts in earth materials cause part of this pulse to be reflected back to the receiver. The echo patterns which are generated form an approximate profile or cross-section of the earth which is displayed on a paper chart recorder. Radar echoes can result from metals, air voids, chemicals, glass, stone, contrasts between soil strata, and sometimes the water table. While the radar profiles can reveal a wide variety of buried materials, they do not necessarily allow the different materials to be distinguished except by their three-dimensional form.

The radar profiles are displayed with the vertical axis being the delay time for the echoes; the maximum echo time was set to be about 107 ns for this work. This time scale can be converted to approximate distance or depth by estimating the velocity of the radar pulse in the earth. Small buried objects can cause echo profiles in the form of hyperbolic arcs and a geometrical analysis of these shapes has provided the data in Figure 1.

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From this, an average pulse velocity of 0.32 ft/ns has calibrated the radar profiles here. The radar pulse travels much slower in water than most other earth materials; below the water table, depths will be overestimated on the radar profile. This decrease of velocity with depth is suggested in Figure 1.

The radar survey was done on September 5-7, 10, and 12, 1984. During this span the weather was cool and negligible rain fell. A total length of 16,550 ft (3.13 miles) was profiled on 76 lines over about 4 3/4 days.

Tests were also done on the site with an electromagnetic induction meter, a Geonics EM31 Terrain Conductivity Meter. This instrument is related to the EM34 previously used by BCM at this site. The EM31 resembles a 15 ft long bar which is carried horizontally at waist height for the measurements. It indicates the surface-weighted apparent conductivity of the earth (in millisiemens per meter or, equivalently, millimhos per meter) to a maximum depth of about 20 ft. On September 7 and 12, 1984, a total of 282 pairs of measurements were made with this instrument.

Survey Results, Grid A

Figure 2 is an example of a radar profile. The 200 ft horizontal dimension is indicated by tick marks at 5 ft intervals. The depth scale is derived from an estimated value for the radar pulse velocity. Note that the horizontal scale is greatly compressed relative the the vertical; this causes slopes to be exaggerated.

This profile is from grid A and this area will be discussed first. Much of the land in this area has probably been built up with dredged fill. The profile of Figure 2 shows three different stratigraphic regions: Planar strata in the possible water-deposited dredge fill; complex strata in the gravelly retaining embankment; and somewhat planar strata in the lower basin, where the mode of earth placement is uncertain. The materials on the right hand side of this profile are probably fill sands also and the radar can profile quite deeply into them.

Extensions of this profile are illustrated in Figure 3; the middle segment is the same as Figure 2. An electromagnetic (EM)

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profile was also made along the same line as the radar profile. It shows low conductivity in the midsection, which translates into low radar pulse attenuation and deep profiling for the radar. The fill sands on the left are seen to have a somewhat higher conductivity and a lesser profiling depth.

The high conductivity on the right probably is the result of debris in the soil. A pair of EM readings were made at each point, with the instrument's bar oriented in perpendicular directions. A large difference in these readings appears to indicate sharp lateral contrasts in the buried materials; this effect is shown on the graph of the directionality of conductivity.

This debris is indicated in the radar profile of Figure 3 by the complex pattern at the right hand side and also by the fact that the profile only goes to a shallow depth, evidentally due to attenuation of the radar pulse by the debris. Asterisks at the bottom of the profile mark where near-surface metal causes an extended reverberation of the radar pulse; the points are also indicated as high conductivity on the EM profile.

Profiles such as that in Figure 3 were made along parallel lines with a spacing of 50 ft. An overview of all of these profiles is provided in Figure 4. For this illustration, the top half of all the profiles have been cut off and placed in strips; the north-south scale is somewhat extended relative to the east-west scale and there are other length variations along each profile. The bottom halves of these profiles are given in Figure 5. The echoes which appear in this figure are usually deep echoes from areas having little or no debris to attenuate the radar pulse. However, when metal objects and other sharp contrasts are shallow, the radar pulse reverberates in time, giving the false appearance of greater depth extent. This effect appears in some areas of Figure 5. Nevertheless, Figures 4 and 5 provide a quick overview of the approximate spatial patterns at this landfill.

A summary of the radar echoes found in grid A is included as Figure 6, with different symbols used to distinguish the echo patterns. In much of the landfill, the radar detects moderately complex earth strata. These areas could be the result of clean

fill deposited in a complex pattern, or they could be caused by waste debris in the soil. It does not appear that these two conditions can be reliably distinguished in many areas. The symbols in Figure 6 mark areas in which the indications are more positive.

On the west central side of the landfill, the radar could profile to the greatest depth. These areas, which also have a regular and relatively planar stratification, are marked with undulating lines in Figure 6. An example profile is given in Figure 7. The depth of echoes in the profile means that there can be little conductive material in the earth; therefore there must be little or no silts, clays, or conductive chemicals underground. The relatively planar strata mean that there can be little in the way of complex debris in the soil.

In Figure 7, there is indicated an area around S10+40 where conductive materials in the earth block deeper echoes. The pattern of this attenuation band is seen in Figure 4 as an east-west arc near S11. While this pattern is near a road, it is probably not caused by the road.

Also in Figure 7, the stratification shift near S10 is due to the surface topography. The relief in the vicinity of the profile in Figure 8 is small, so that the dipping strata have a subsurface origin, possibly related to the deposition of fill and debris at the landfill.

Near-surface layers of contrasting materials can cause a reverberation of the radar pulse. Figures 9 and 10 give examples. In Figure 9, sand and gravel layers which begin at the suface cause extended echoes. A shallow basin or lens of very different material is revealed in Figure 10. Some planar strata such as at W15S13 and W14S11 appear to be relatively nonmagnetic areas as determined from the previous magnetic survey.

In some areas the planar layers were buried. The planar interface revealed in Figure 11 appears to extend east-west along line S11 as seen in Figure 6. A resistivity sounding was done to investigate this further. Figure 12 suggests that the radar echo is caused by a low resistivity layer below a high resistivity layer. The high resistivity layer could be sand and Figure 11

shows that it could contain a few objects. The layer below could be silty soil or other moderately conductive material. An EM profile was made along the line of the radar profile of Figure 11 and this showed constant low conductivity in the area of the planar echo. These data are plotted in Figure 13, which also has magnetic data from BCM which reveal no buried iron near S11+25. The EM data do indicate unusually high conductivity between S13 and S16. these values are higher than would typically be expected from normal earth materials, even clays. It is likely that buried chemicals cause these high conductivity readings. While there could be some metal in the earth, it would not be the principal cause of these high readings. The radar provides no additional information on this area.

The radar profiles do indicate some objects intrusive in the earth. In Figure 14, it is possible that an object is indicated at the bottom of a refilled hole, which is suggested by the V-shaped strata above. This object does not appear to cause a magnetic anomaly. The buried debris revealed in Figure 15 had a clear dipolar magnetic anomaly on the survey by BCM. The pattern at S13+30 is clearly caused by discarded iron in the earth. The radar does not reveal the depth extent of this trash because of pulse reverberation. A similar example of buried debris is seen in Figure 16, although this radar anomaly does not appear to have a distinct magnetic anomaly. Also, there are many cases in which clear magnetic anomalies have no distinctive radar anomaly. A magnetic anomaly on line W17 at S11+90 is indicated only weakly by the radar. In some of these cases, the iron source of the magnetic anomaly could be 10 ft or more to the left or right of the radar and magnetic traverse lines. It would then not be detected by the radar. In other cases, the buried iron could be hidden by other non-ferrous debris on the radar profiles or conductive materials could block the radar pulse above the iron. These effects could be illustrated in Figure 17. The strong magnetic anomaly at S13+40 is probably associated with the complex strata. The other two magnetic anomalies appear to have no correlation on the radar profile.

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Grid B Results

The results from the survey of grid B are somewhat similar to those from grid A. Relatively planar strata were detected at the edges of the landfill. These are seen on the left side of Figure 18. These areas cannot contain much debris and may be composed of clean, sandy earth. The depth and planarity of the echoes is a good clue to this situation.

Sometimes, as in Figure 19, the evidence is not conclusive. The midsection of this profile could be indicating clean earth or fill, but the choes are somewhat too weak and irregular to be sure. In this grid also, reverberations provide misleading indications of greater echo depth. The repetition of echoes with apparent depth in Figure 20 suggests that these are reverberations.

A complete set of small scale profiles from grid B is given as Figure 21. This indicates the deeper stratification which is particularly apparent at the east and west edges of the survey area. These strata are mapped in Figure 22. Within the landfill boundary, the radar signal was strongly attenuated and little in the way of reliable contrasts could be detected. In Figure 21, lines at the top of the profiles mark segments where strong magnetic anomalies were found; there is usually no distinctive radar pattern in those areas.

An EM survey was done on the western side of the landfill, with results presented in Figures 23 and 24. The area of high conductivity and high directionality of conductivity at W8S4+40 is surely due to buried metallic trash, for a magnetic anomaly was found here also.

The conductivity low at S3+80W9+20 in Figure 23 further defines a similar anomaly found by BCM's EM34 survey. Its cause could be sandy or gravelly soil or possibly low conductivity chemicals in the earth.

The high conductivity zone caused a sharp attenuation of the radar signal, as illustrated in Figure 25. The planar echo at a depth of 6 ft on this profile is possibly from the water table; this pattern can be detected only when the soils are quite porous and are not complex. The water table could also be indicated in Figure 26, but in Figure 27 it cannot be isolated.

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The planar echo in Figure 27 at a depth of $4\frac{1}{2}$ ft is possibly from a buried soil layer.

Conclusions

The radar survey has provided vastly different information from the prior magnetic survey. While this means that it is difficult to correlate individual features on the two surveys, it also means that the two survey have not wastefully duplicated their results. The magnetic survey has been a sensitive indicator of buried iron, while the radar survey has suggested that some areas could be free of waste debris, ferrous or plastic.

The radar and electromagentic surveys have provided good guides to some of the spatial contrasts within the landfill. This will help to select areas for excavation tests.

Conductive earth materials have limited the profiling depth of the radar in some areas. It is felt that moderately complex fill, even though clean of debris, cannot always be distinguished from areas dense with debris. In particular, no bands of unexcavated materials could be detected within the landfill area of grid B.

001441

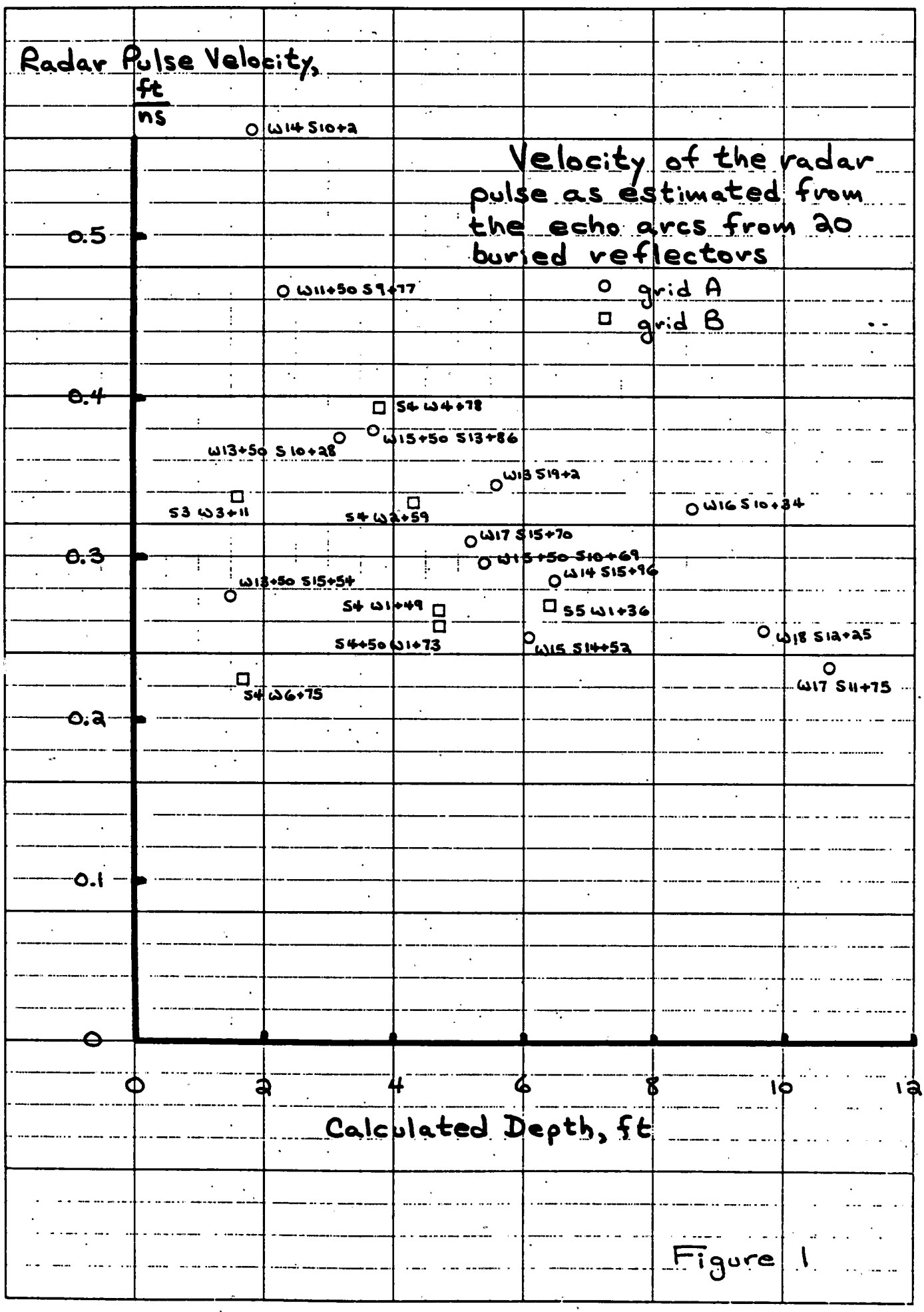
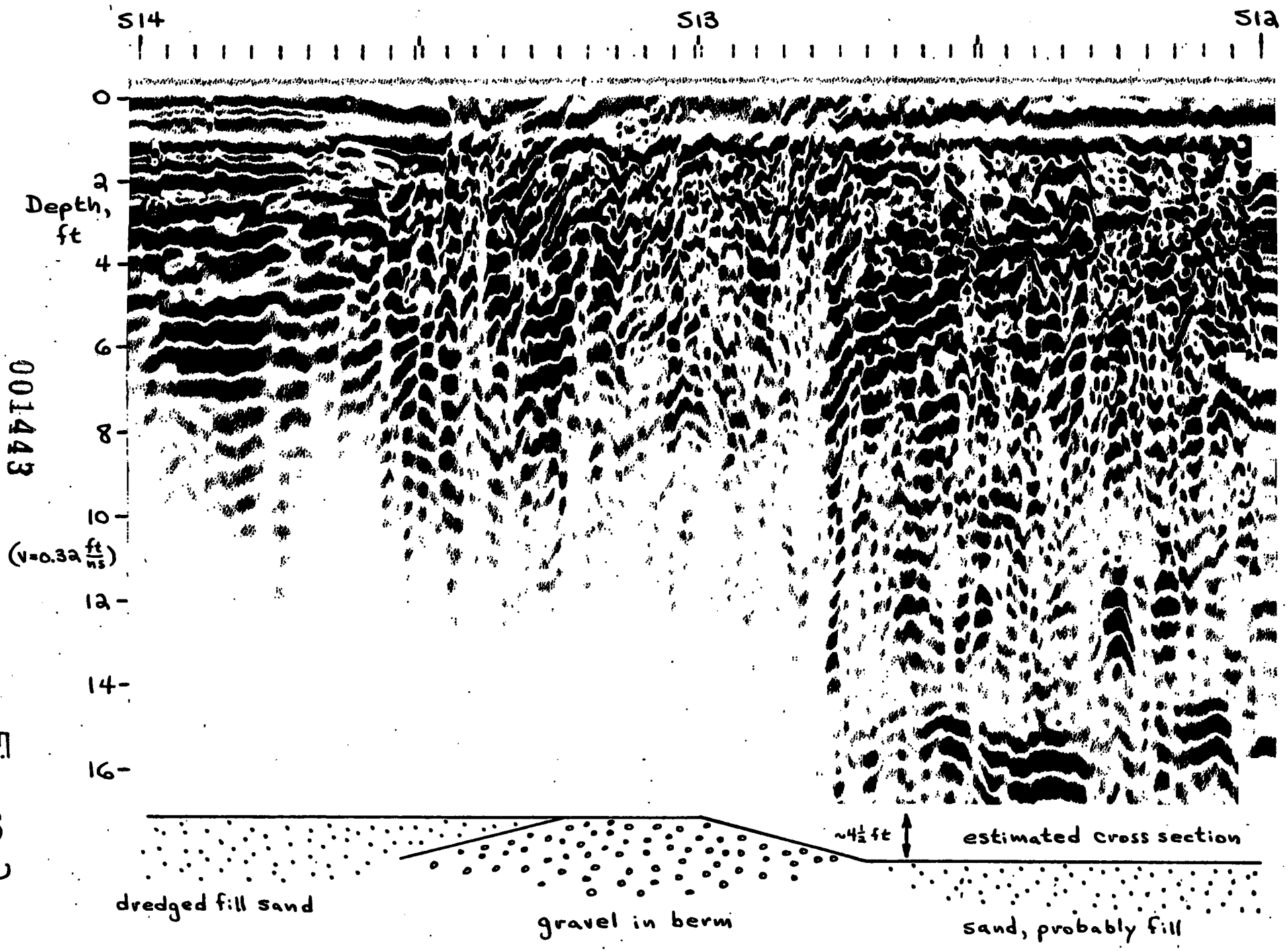


Figure 1

901442

grid A, line W18, markers at 5ft intervals, model 3105 (180MHz) antenna, survey 6 Sep84



001443

Figure 2

001444

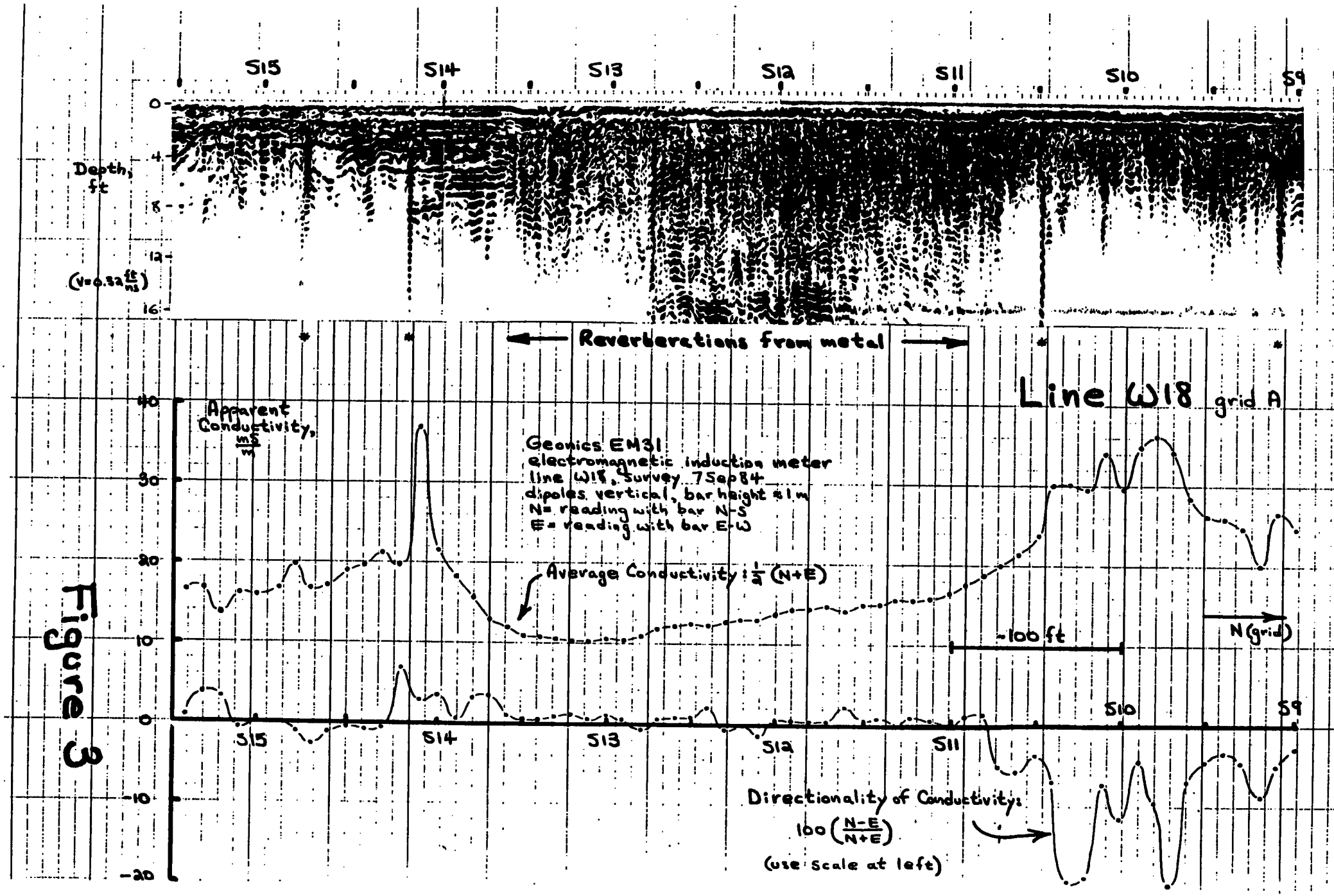
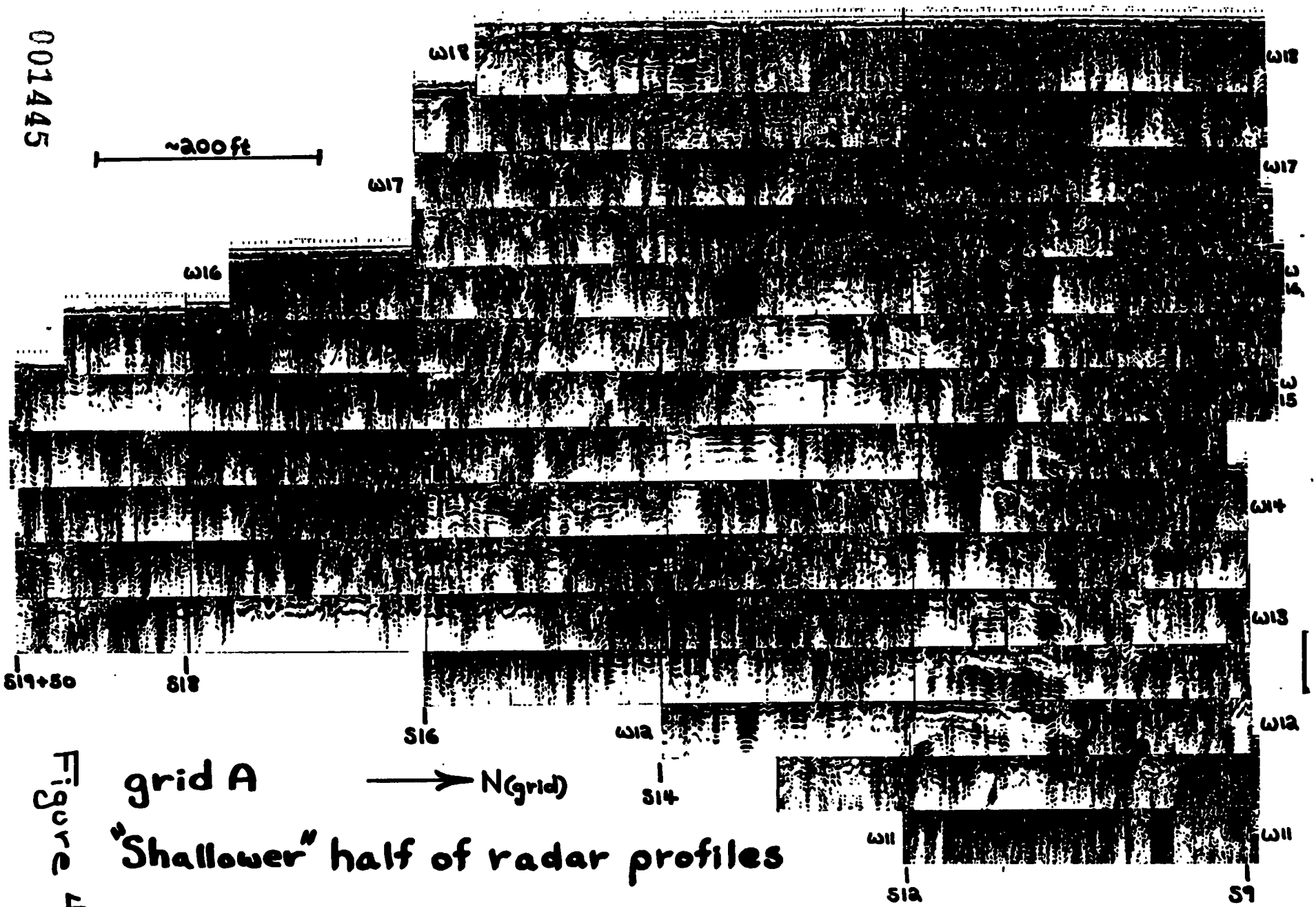


Figure 3

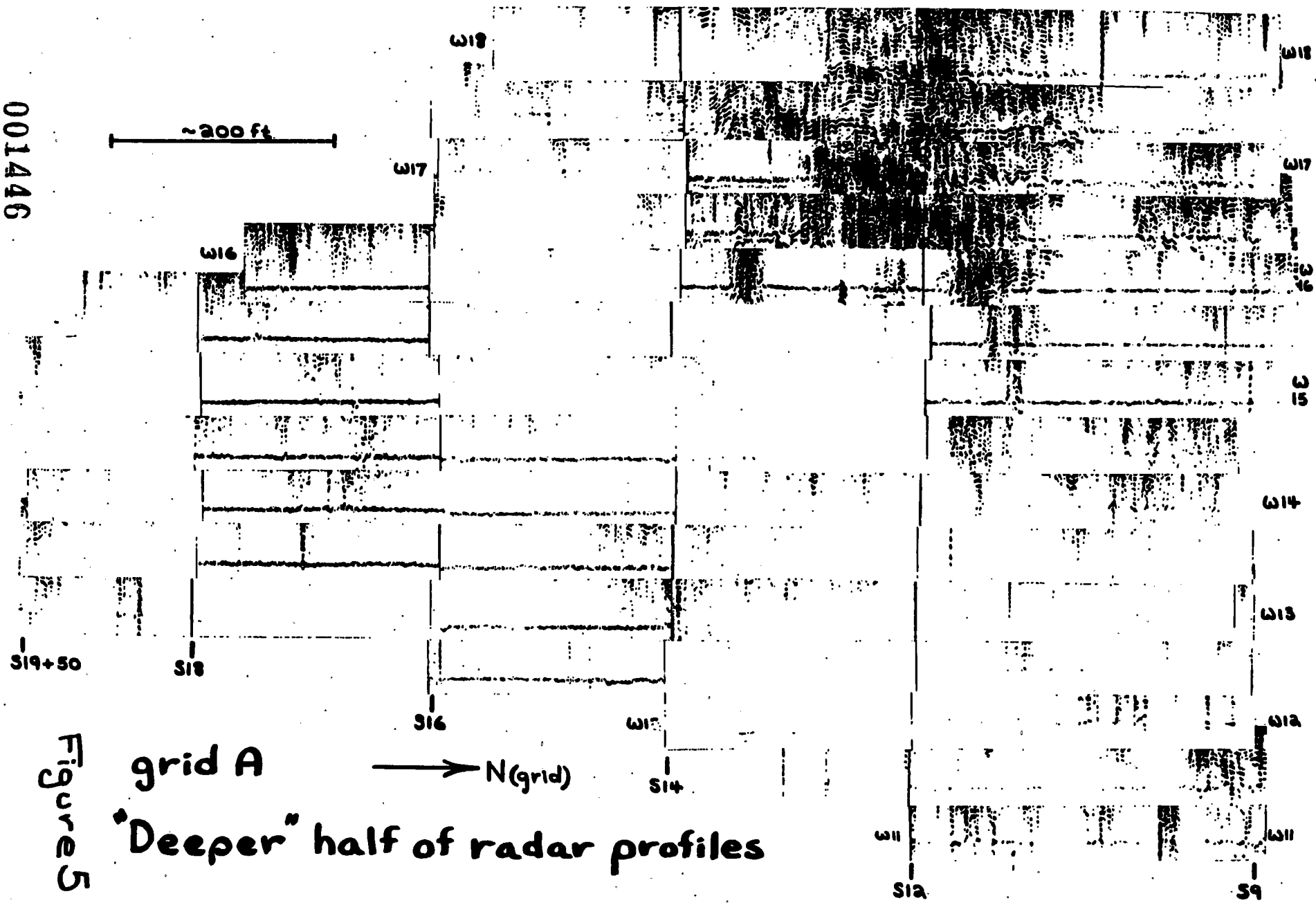
001445



grid A

"Shallower" half of radar profiles

Figure 4



grid A

"Deeper" half of radar profiles

Figure 5

001446

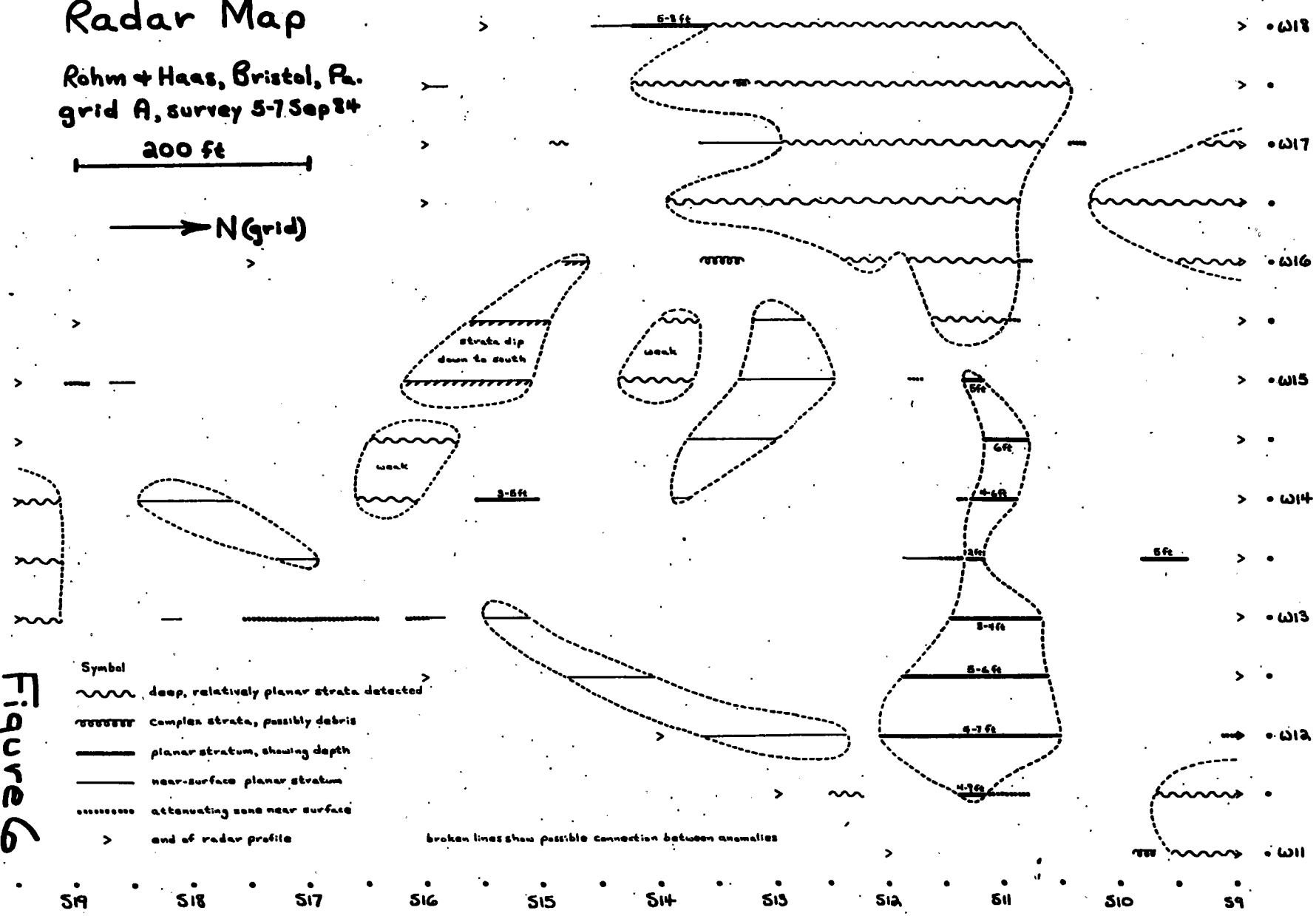
Radar Map

Rohm + Haas, Bristol, Pa.
grid A, survey 5-7 Sep 84

200 ft

N (grid)

SIR System-7 radar and model 8105 (150 MHz) antenna, parallel spacing = 50 ft, traverse → N



Symbol

- deep, relatively planar strata detected
- complex strata, possibly debris
- planar stratum, showing depth
- near-surface planar stratum
- attenuating zone near surface
- > end of radar profile

broken lines show possible connection between anomalies

Figure 6

001447

grid A, line W17, markers at 5 ft intervals, model 3105 (180 MHz) antenna, survey 7 Sep 84

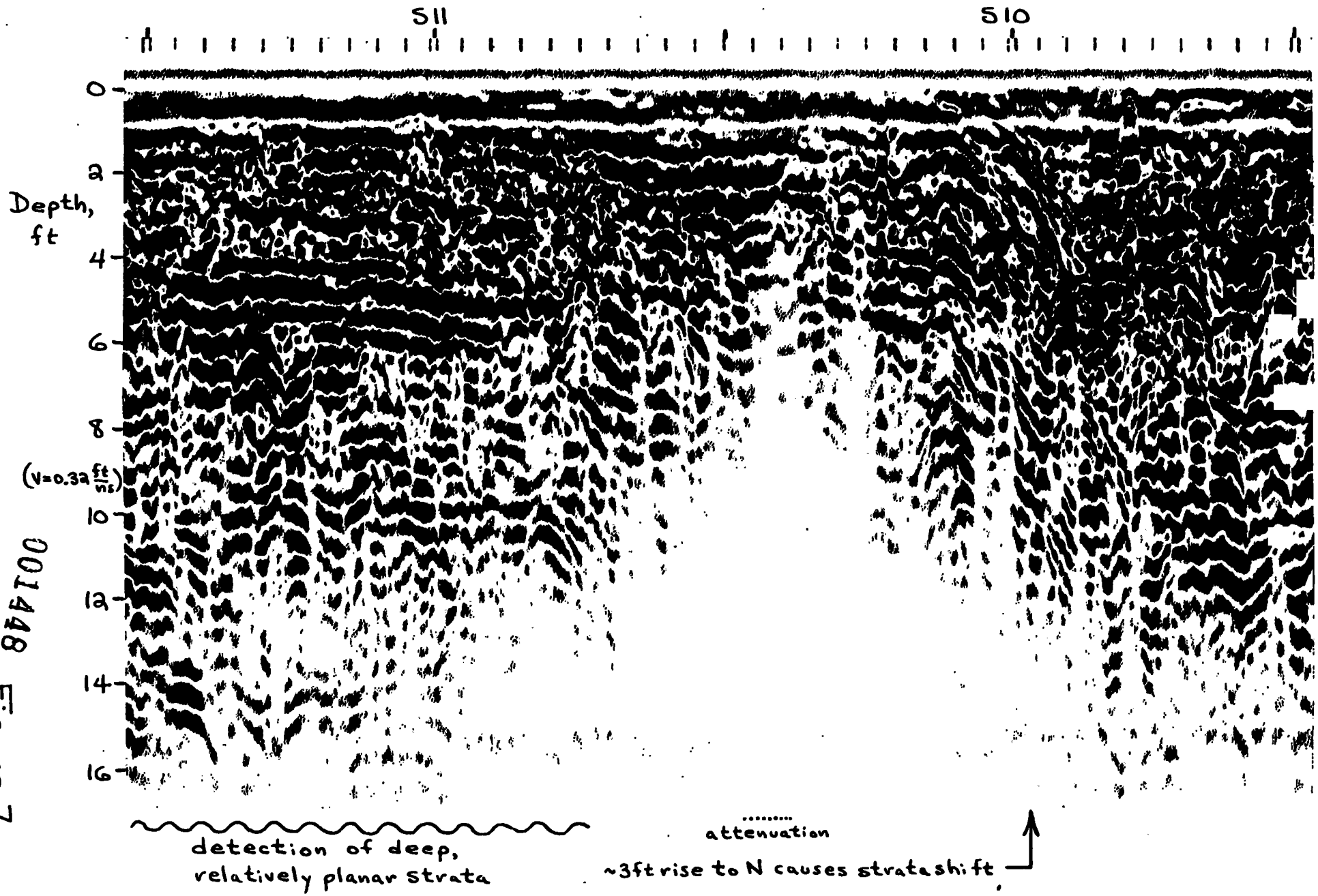
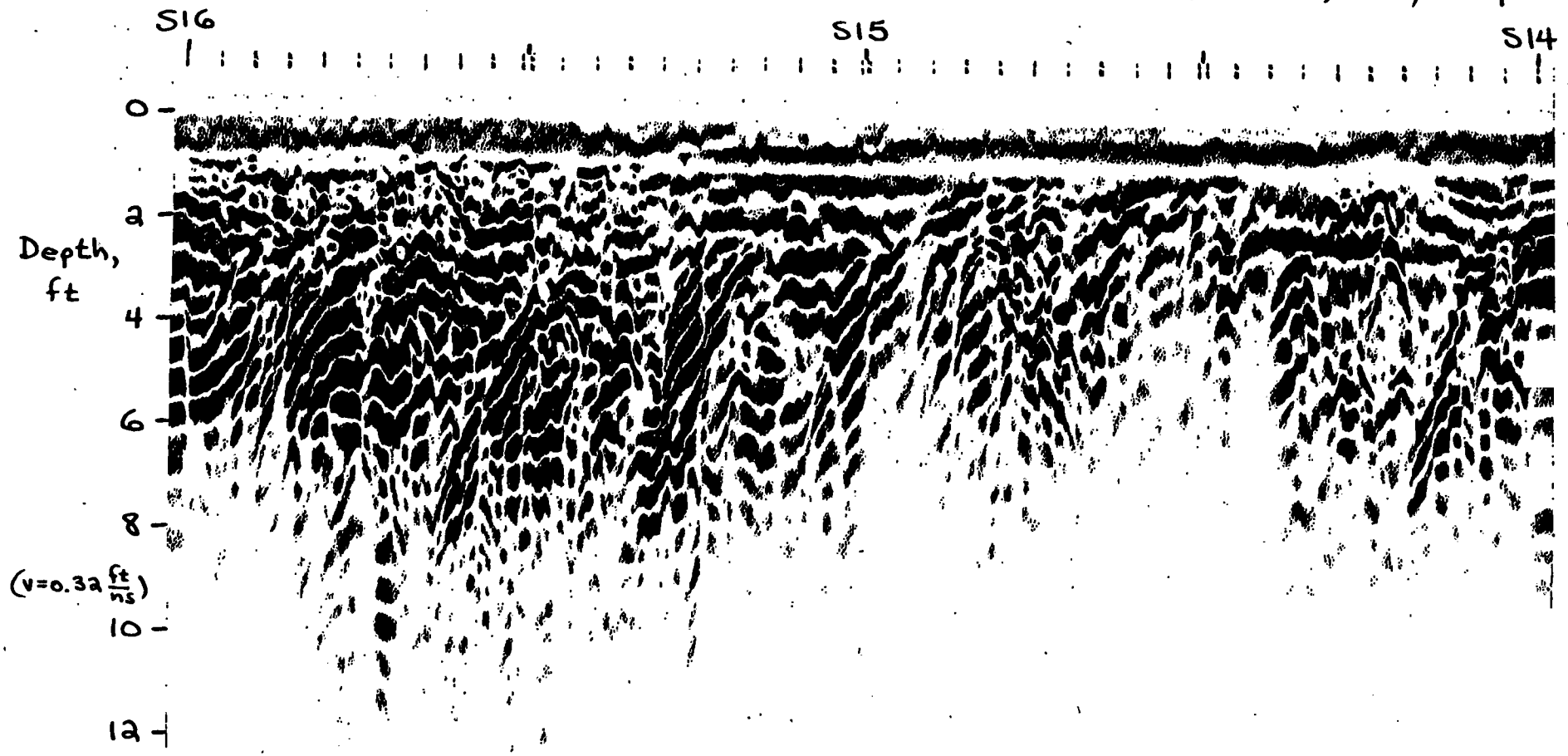


Figure 7

001448

grid A, line W15+50, markers at 5 ft intervals, model 3105 (180 MHz) antenna, survey 5 Sep 84



strata dip down toward the south

Figure 8

grid B, line W12
markers at 5 ft intervals
model 3105 (180 MHz) antenna
survey 6 Sep 84

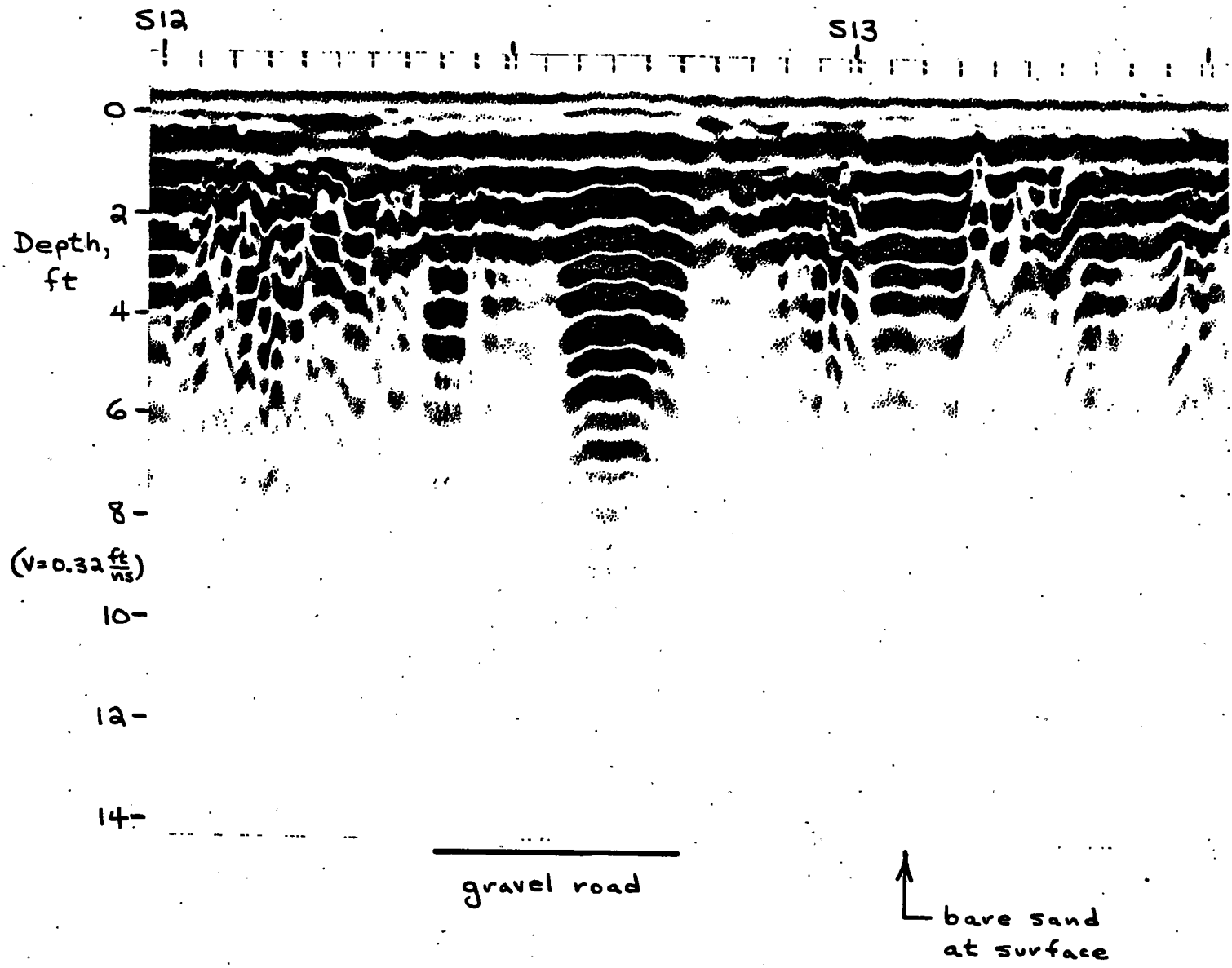
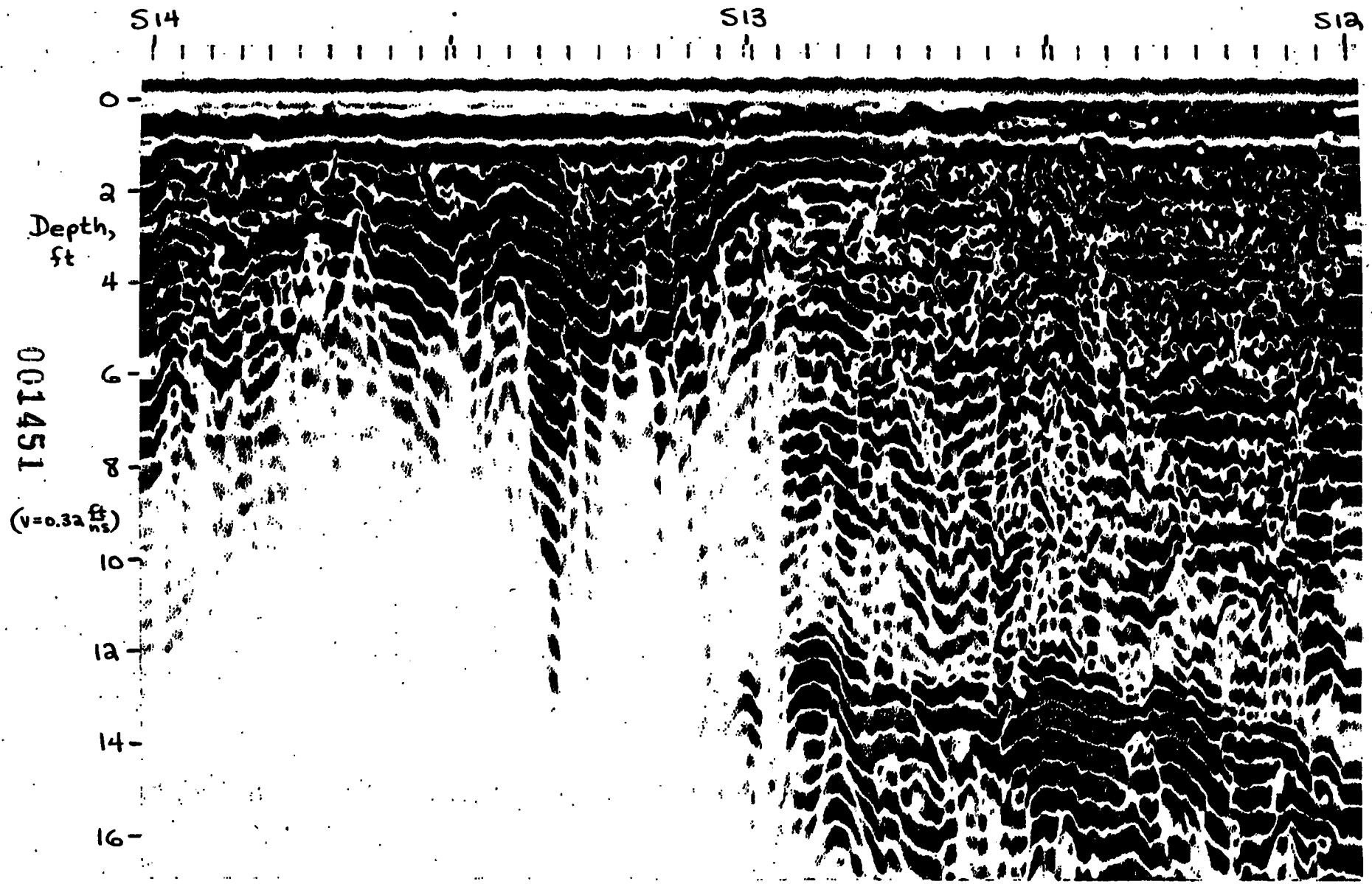


Figure 9

grid A, line W17, markers at 5ft intervals, model 3105 (180MHz) antenna, survey 6 Sep84



near-surface planar stratum strongly reflects and attenuates radar pulse

Figure 10

001451

grid A, line W12+50, markers at 5 ft intervals, model 3105 (180 MHz) antenna, survey 7 Sep 84

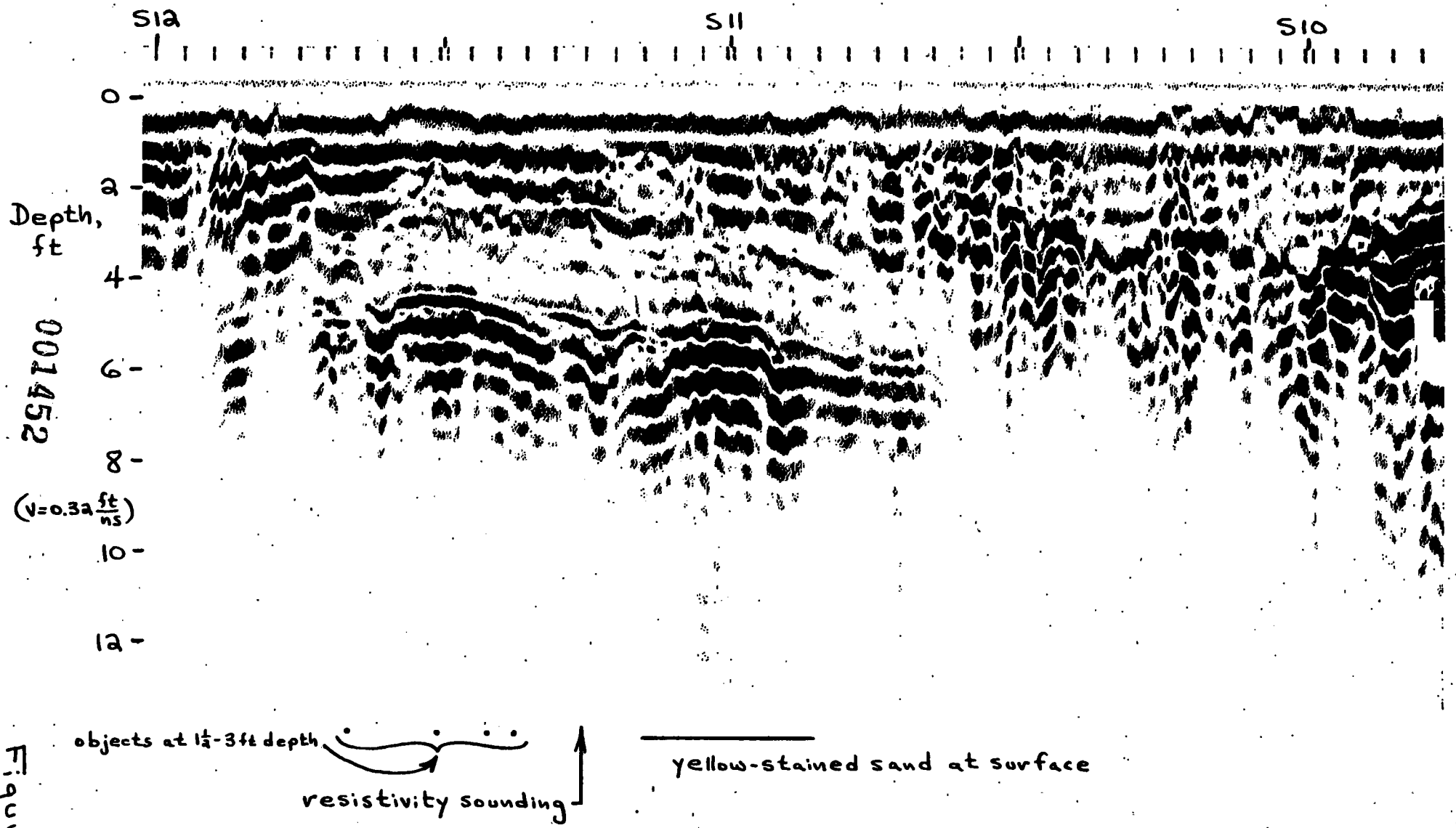
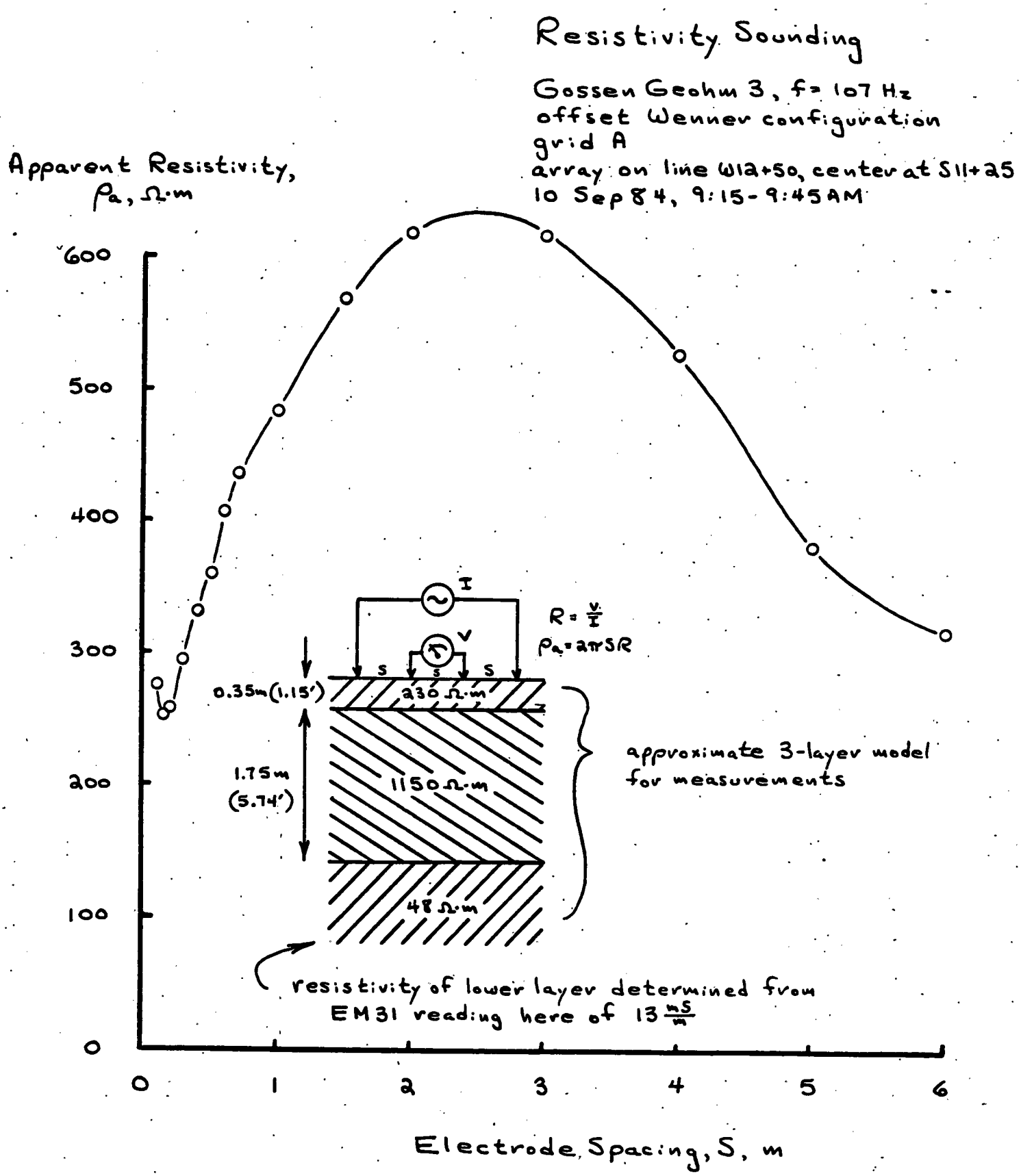


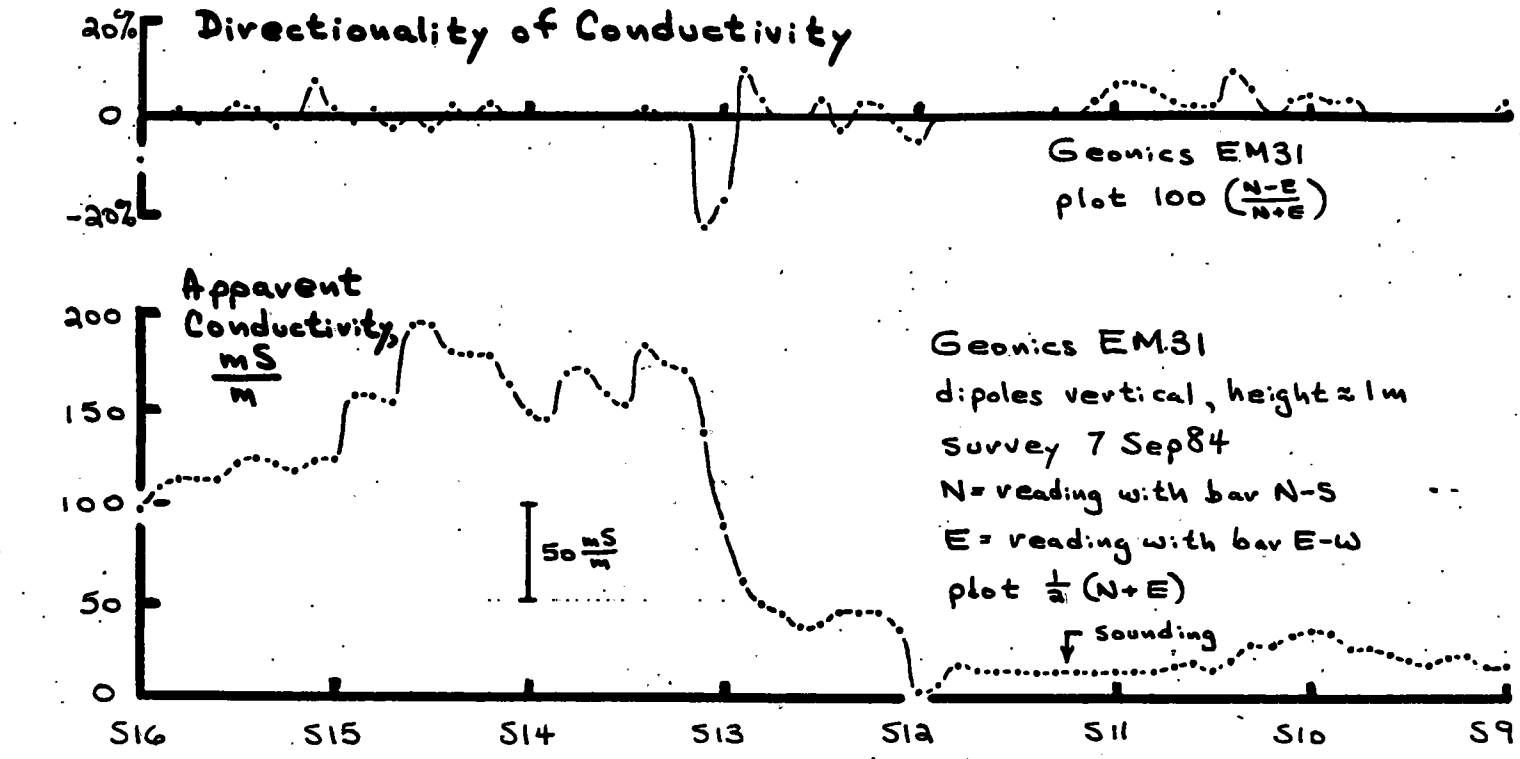
Figure 11

001452



001453

Figure 12



Geophysical Profiles, line W12+50

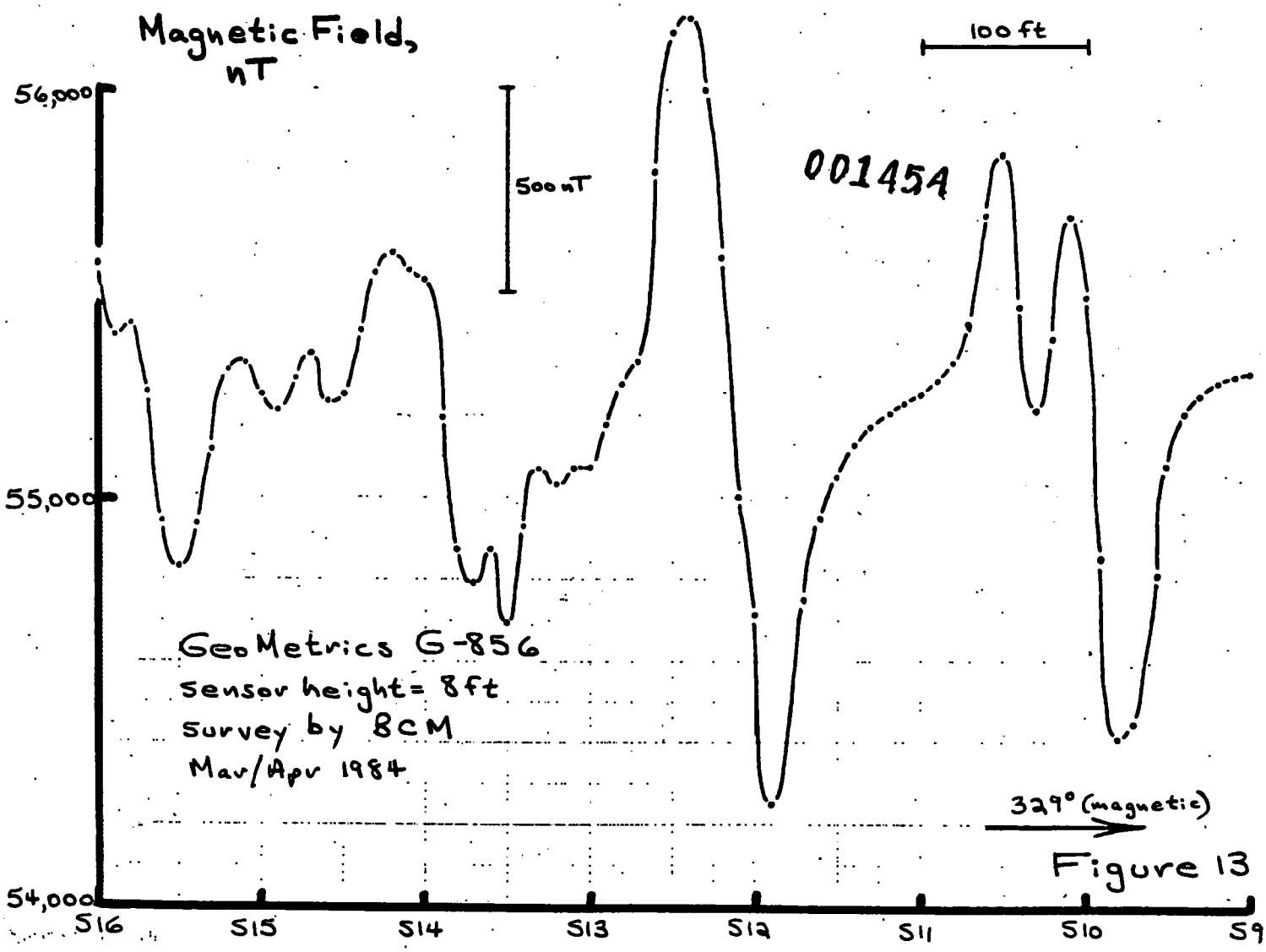


Figure 13

grid A, line W16+50, markers at 5 ft intervals, model 3105 (180 MHz) antenna, survey 7 Sep 84

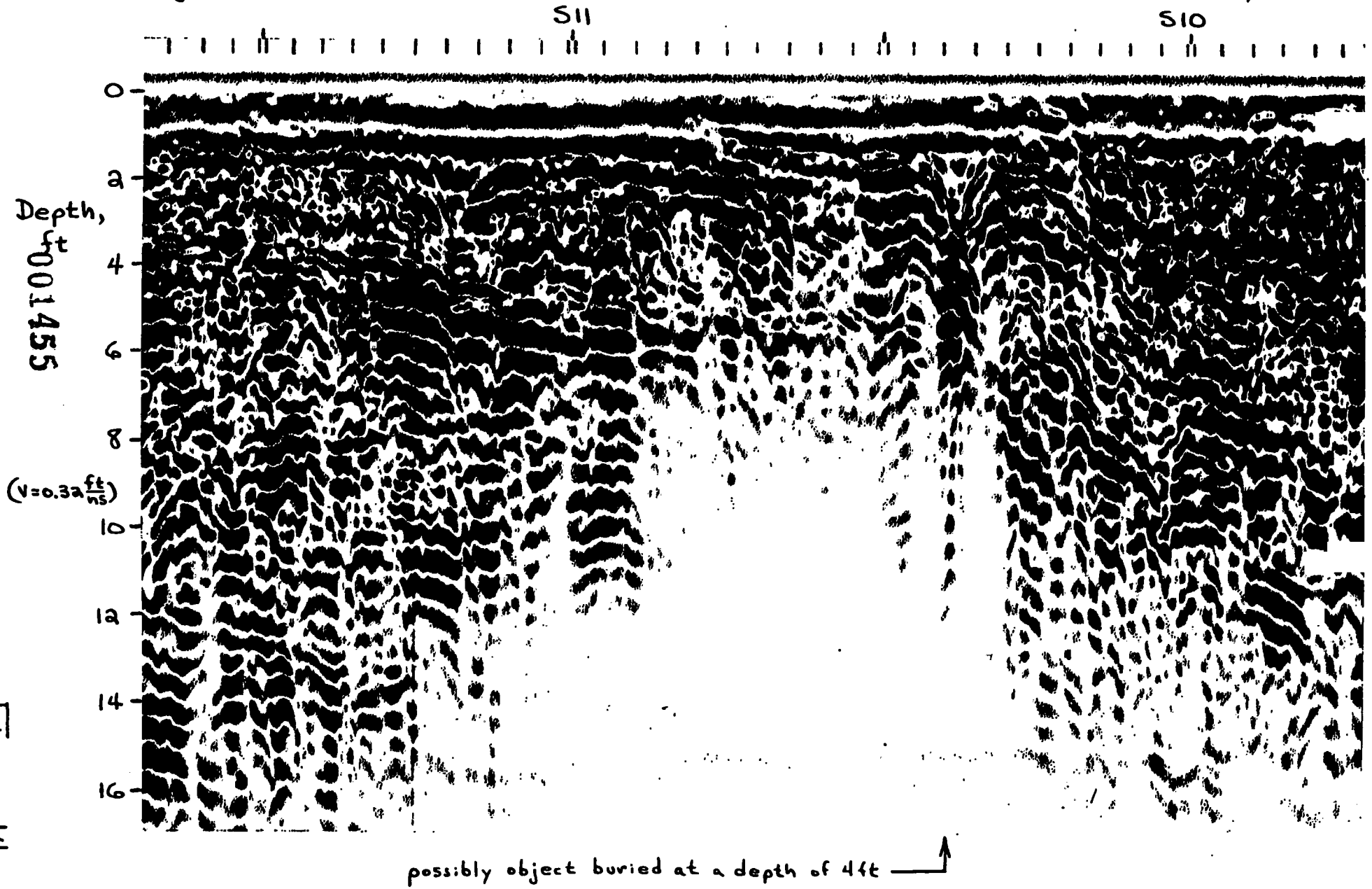
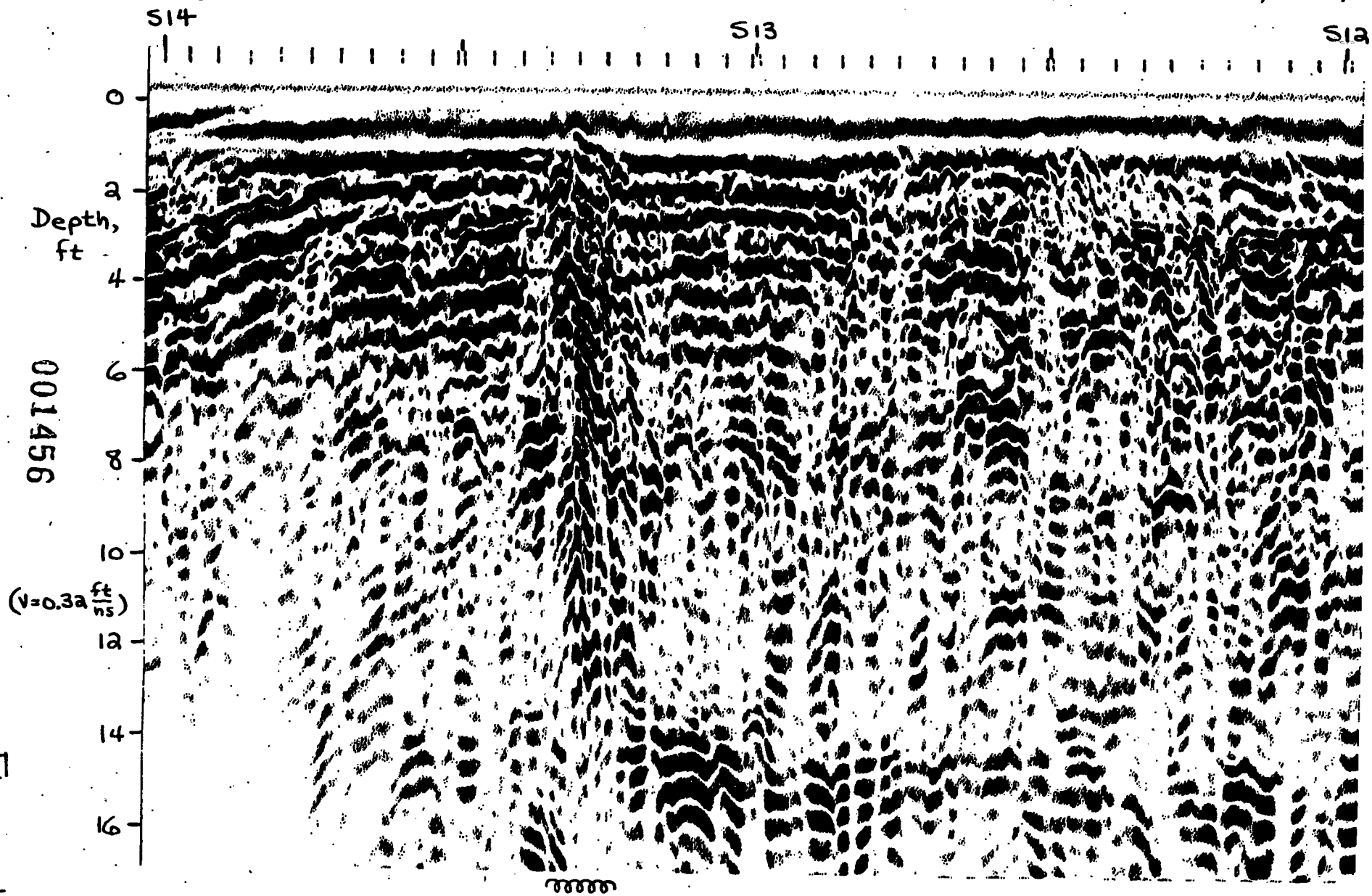


Figure 14

001455

grid A, line W17+50, markers at 5ft intervals, model 3105 (180 MHz) antenna, Survey 6 Sep 84

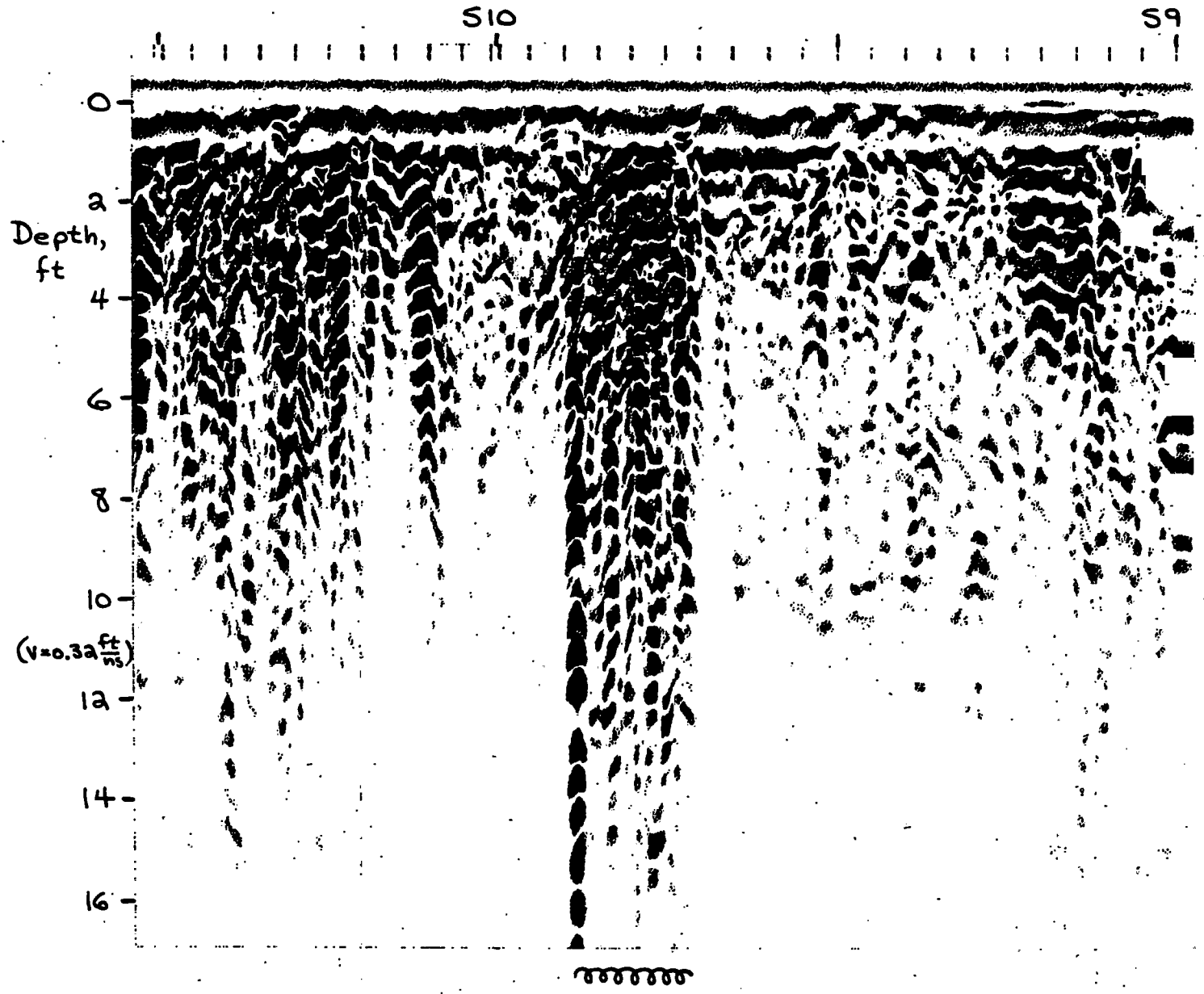


zone of buried debris
causes 150 nT magnetic anomaly at height of 8 ft

Figure 15

001456

grid A, line W11
markers at 5 ft intervals
model 3105 (180 MHz) antenna
survey 6 Sep 84



complex strata with reverberation
probably metal at depth of 1ft

001457

Figure 16

grid A, line W16, markers at 5 ft intervals, model 3105 (180 MHz) antenna, survey 6 Sep 84

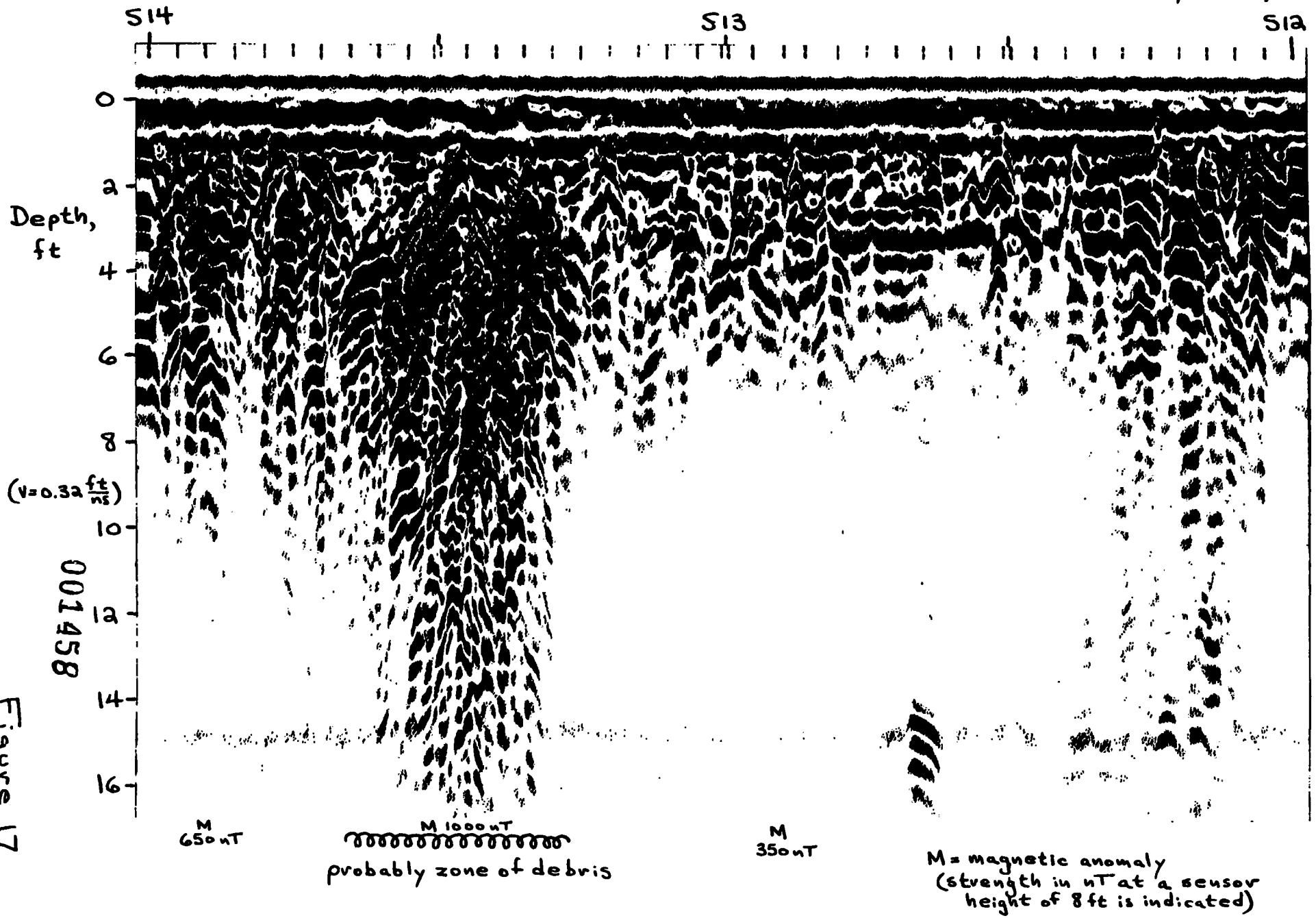


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Figure 17

grid B, line 55+20
markers at 5 ft intervals
model 3105 (180 MHz) antenna)
survey 12 Sep84

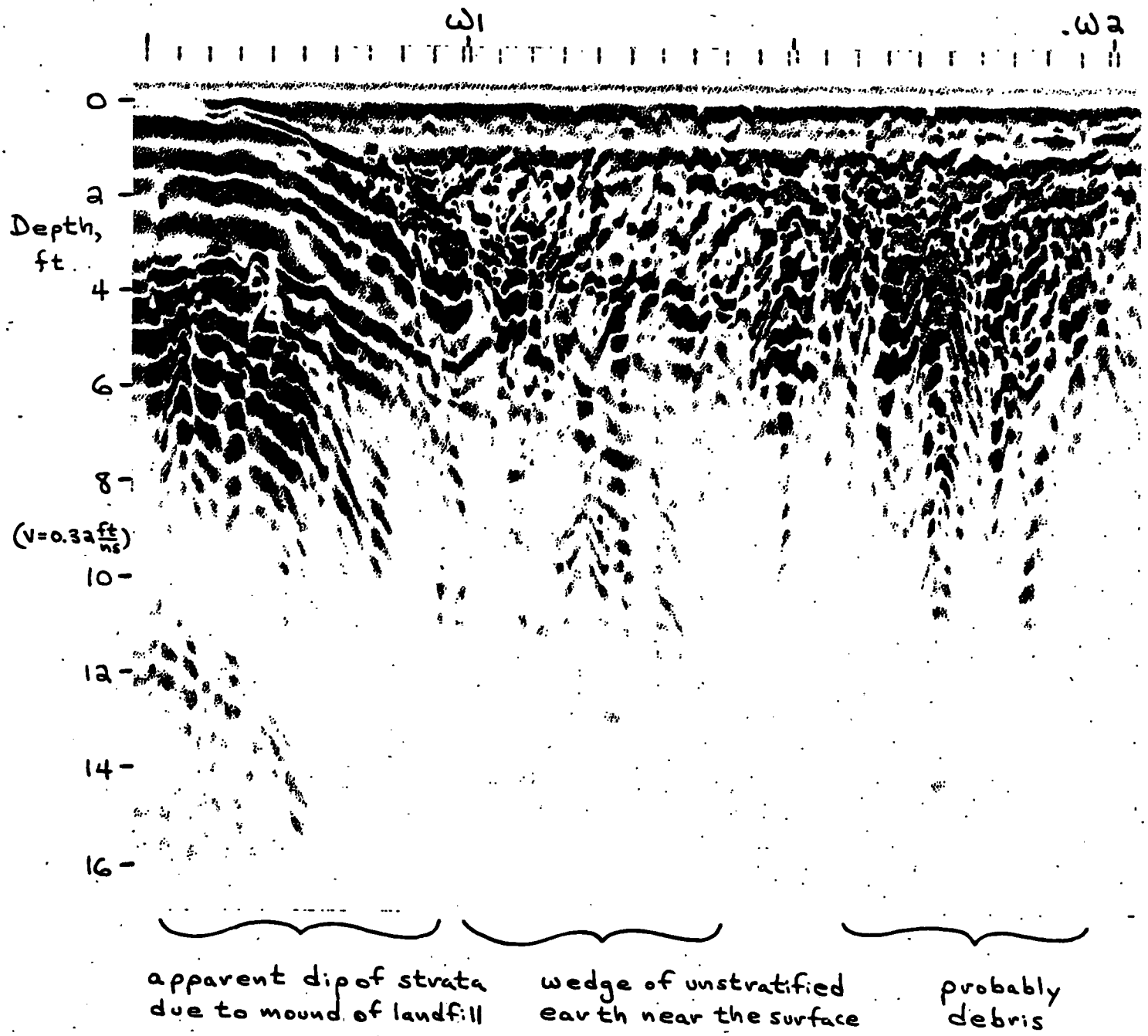

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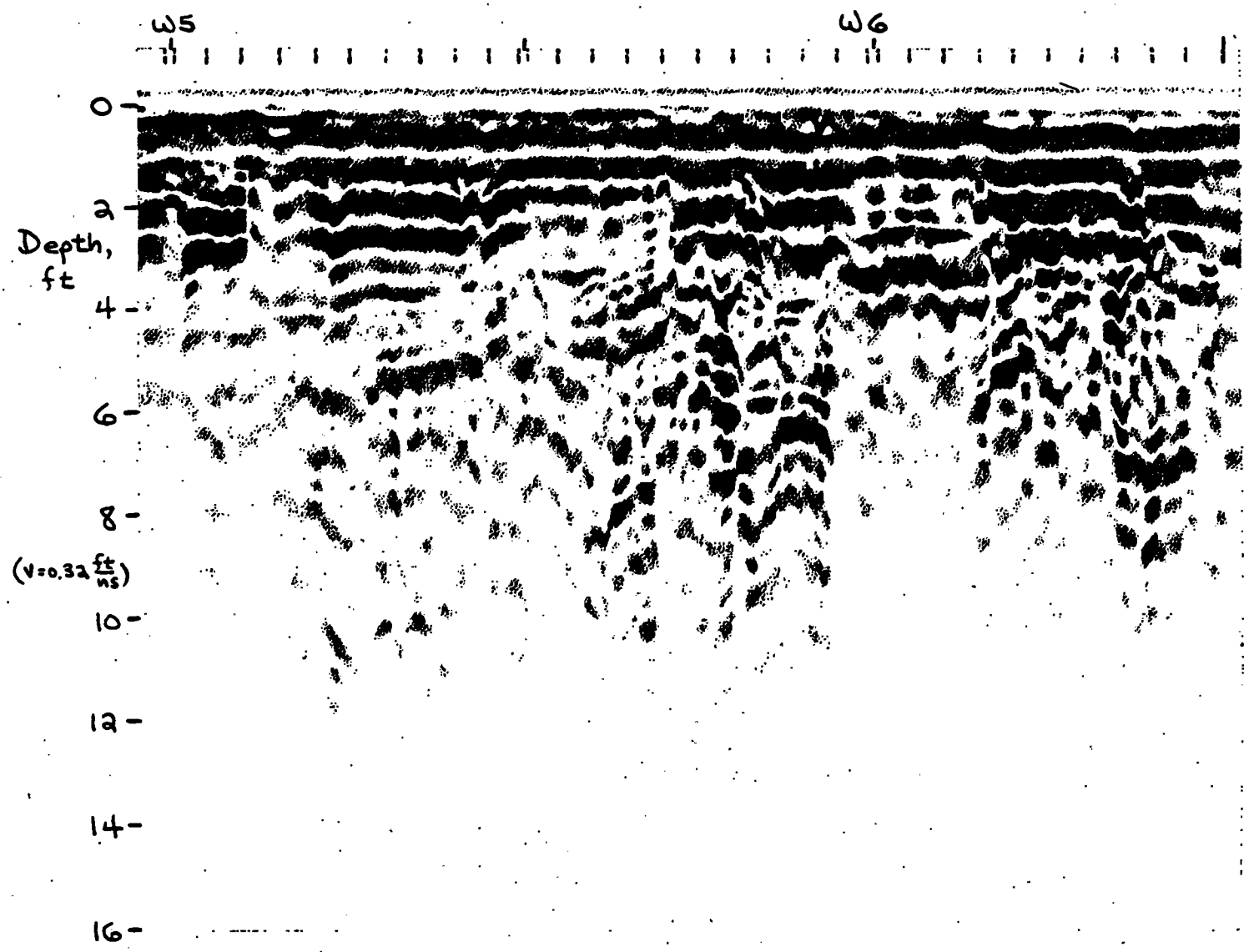
Figure 18

grid B, line 53+50
markers at 5 ft intervals
model 3105 (180 MHz) antenna
survey 10 Sep 84

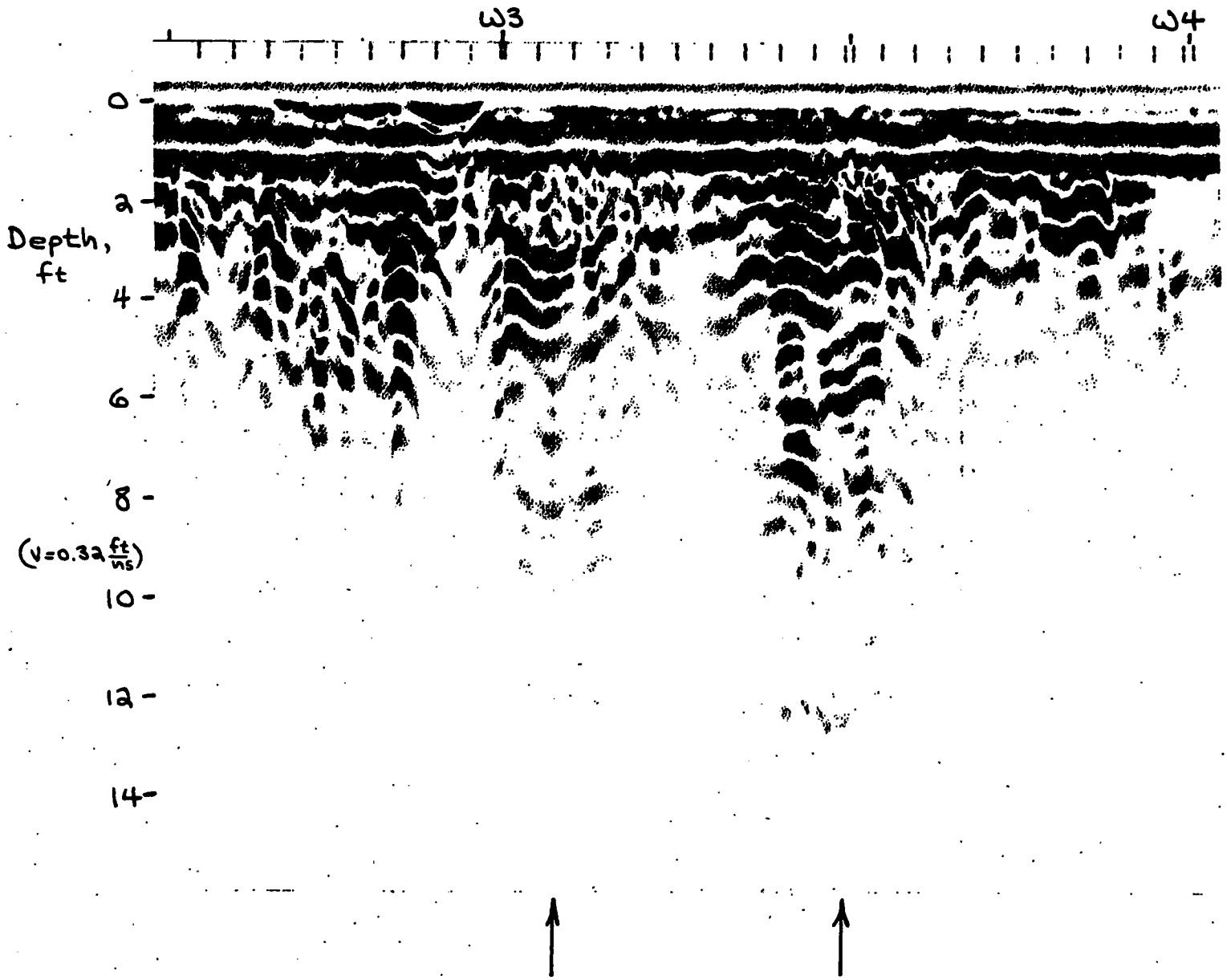


possibly relatively uniform strata
to a greater depth in this area

001460

Figure 19

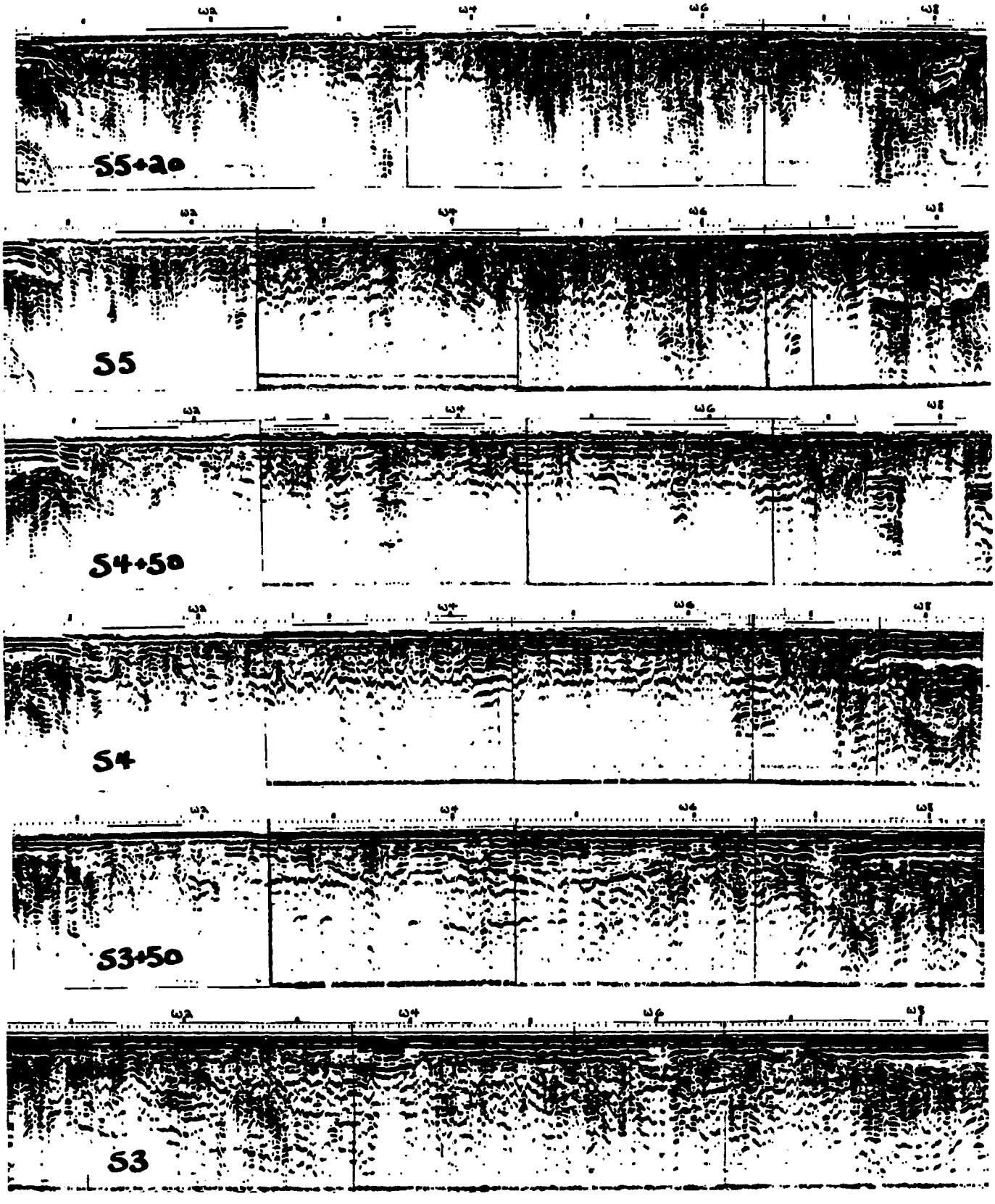
grid B, line 54+50
markers at 5 ft intervals
model 3105 (180 MHz) antenna
survey 10 Sep 84



strata at an apparent depth of greater than 6 ft are probably due to reverberations from a near-surface layer

001461

Figure 20



Rohm and Haas, Bristol, Pa., grid B radar profil s

Survey 10, 12 Sep 84

grid N

~100 ft

Figure 21

001462

Summary of radar echoes

grid B, Rohm and Haas, Bristol, Pa
survey 10,12 Sep84 with model 3105 (180MHz) antenna

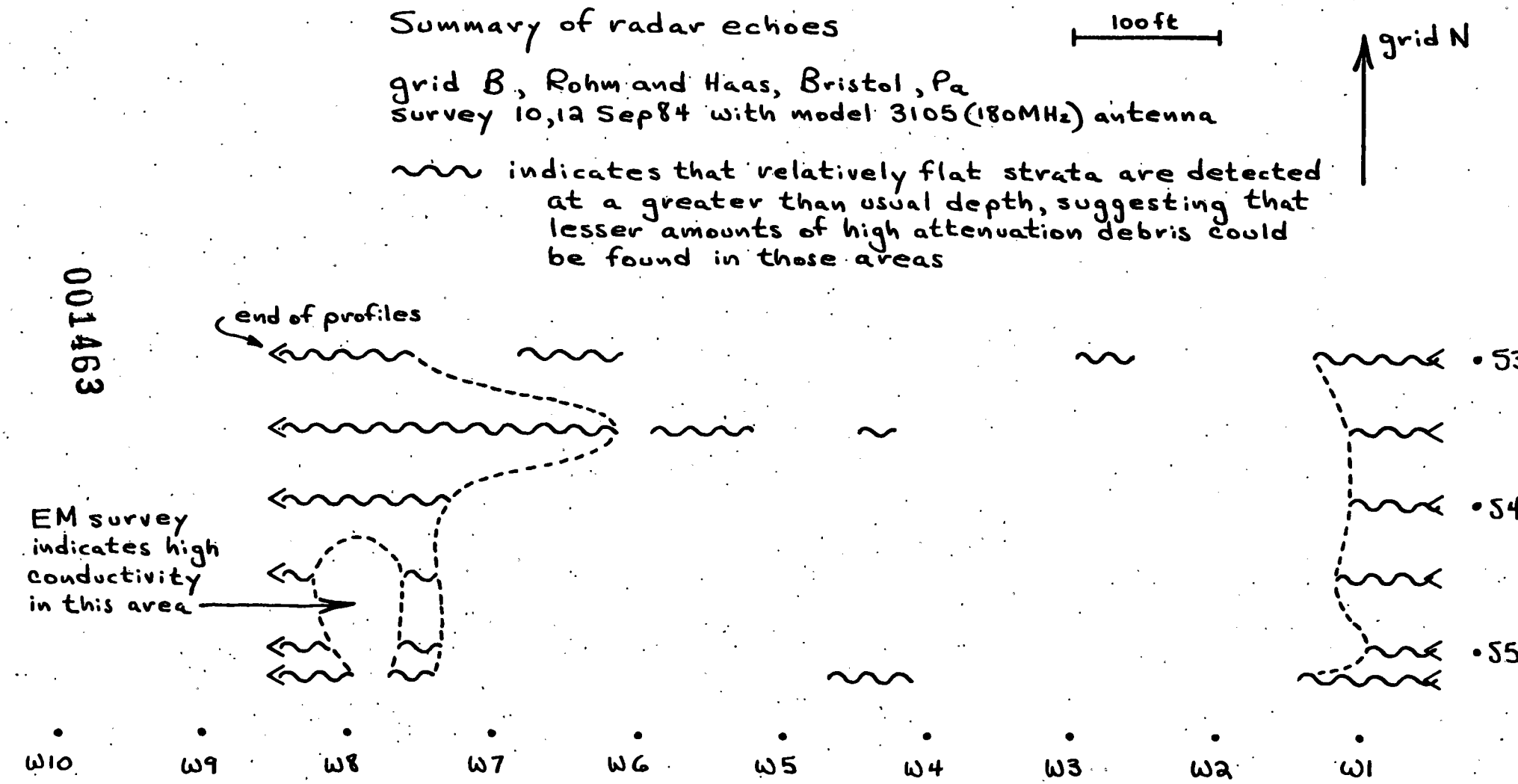


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Figure 22

Conductivity Map

Rohm & Haas, Bristol, Pa., grid B
contour interval = 1 $\frac{mS}{m}$
Geonics EM31 electromagnetic induction meter
survey 12 Sep 84, ~1:15PM - 3:30PM
dipoles vertical, bar height ≈ 1 m
N = reading with bar N-S, E = reading with bar E-W
numbers are average conductivity: $\frac{1}{2}(N+E)$, in $\frac{mS}{m}$
measurement spacing = 20 ft

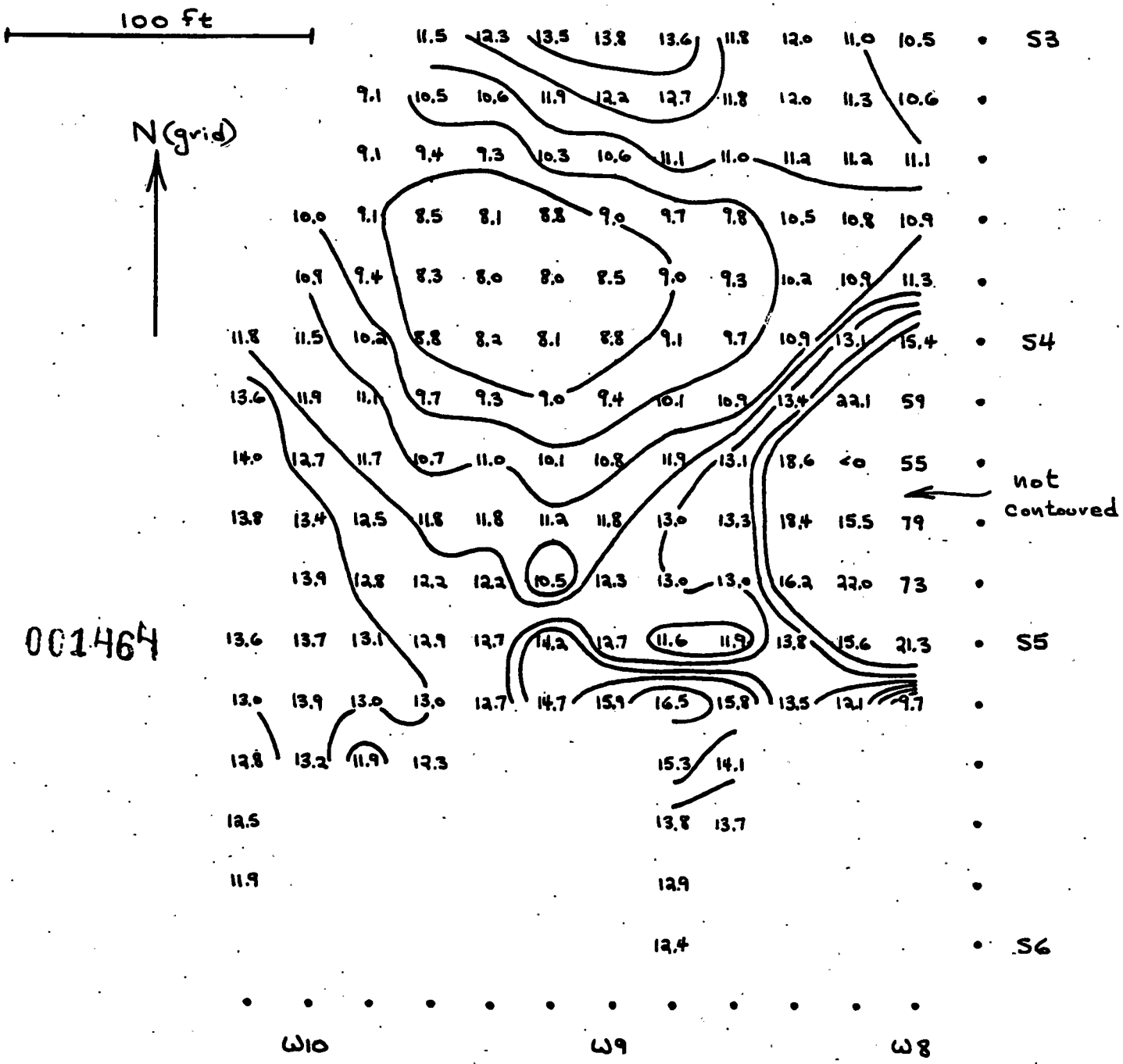

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Figure 23

Directionality of Conductivity

Rohm + Haas, Bristol, Pa., grid B
contour interval = 20%
Geonics EM31, bar height ≈ 1m, dipoles vertical
survey 12 Sep 84
numbers are directionality of conductivity: $100\left(\frac{N-E}{N+E}\right)$, in %
where N = reading with bar N-S
E = reading with bar E-W

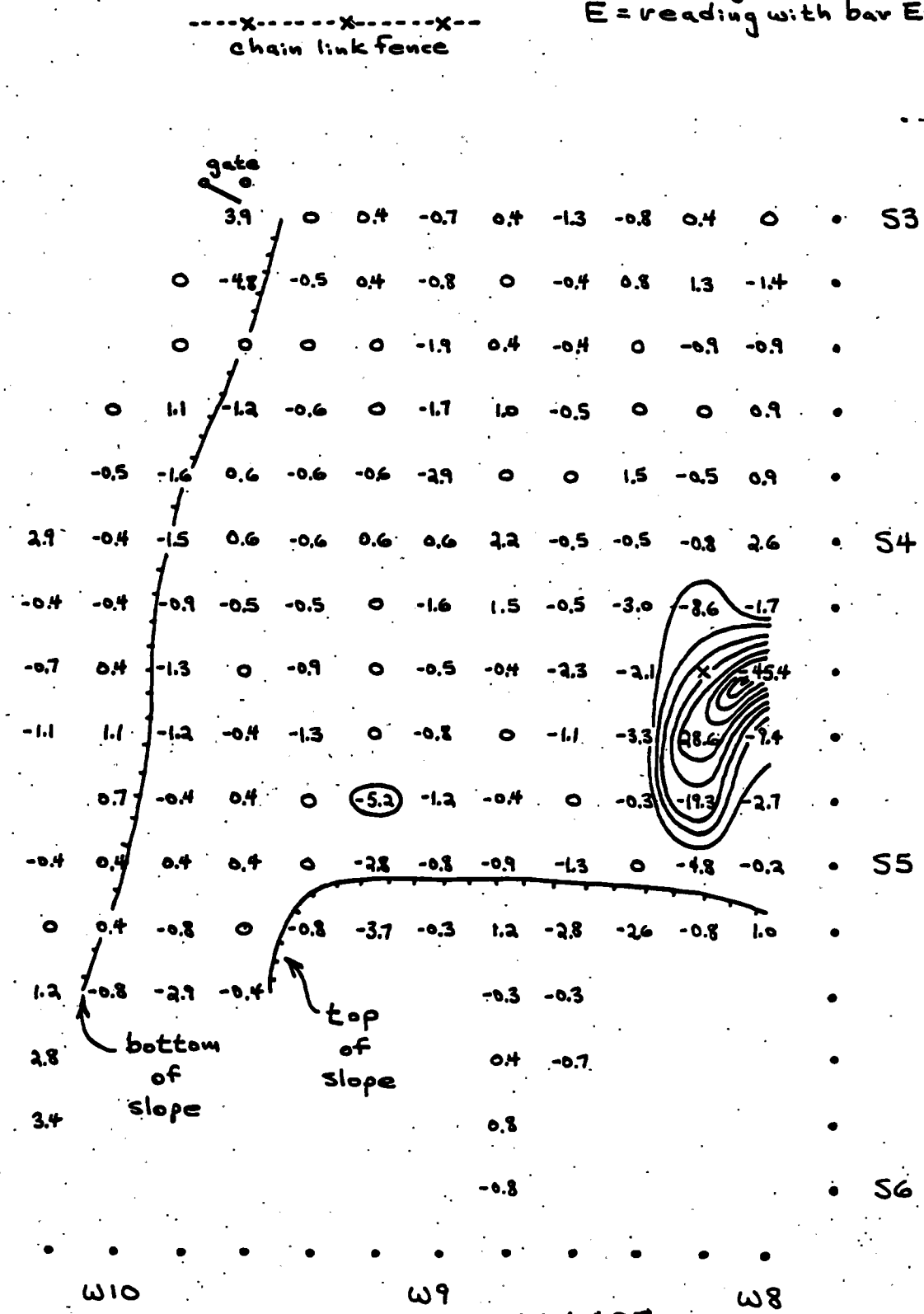

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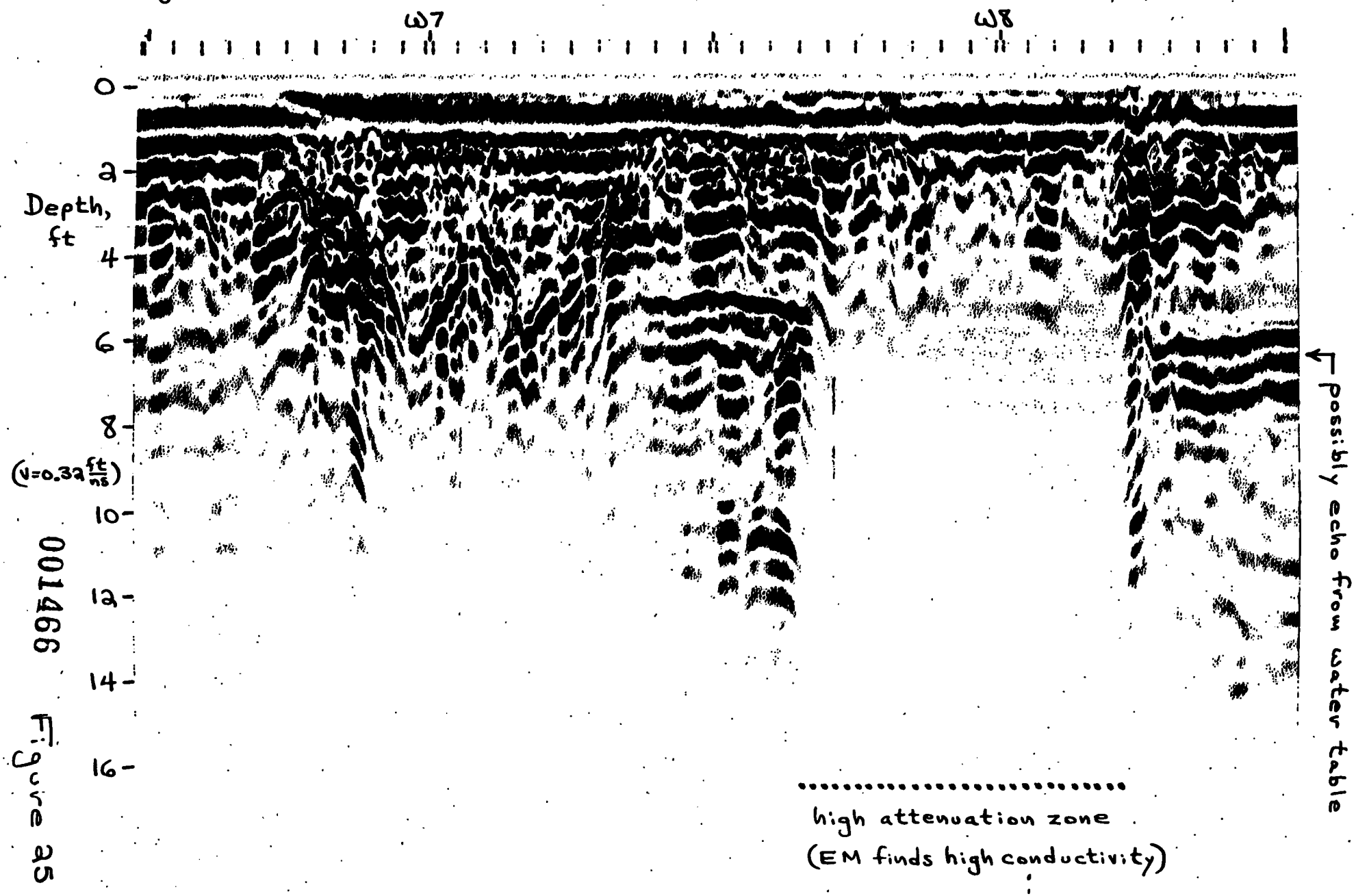
Figure 24

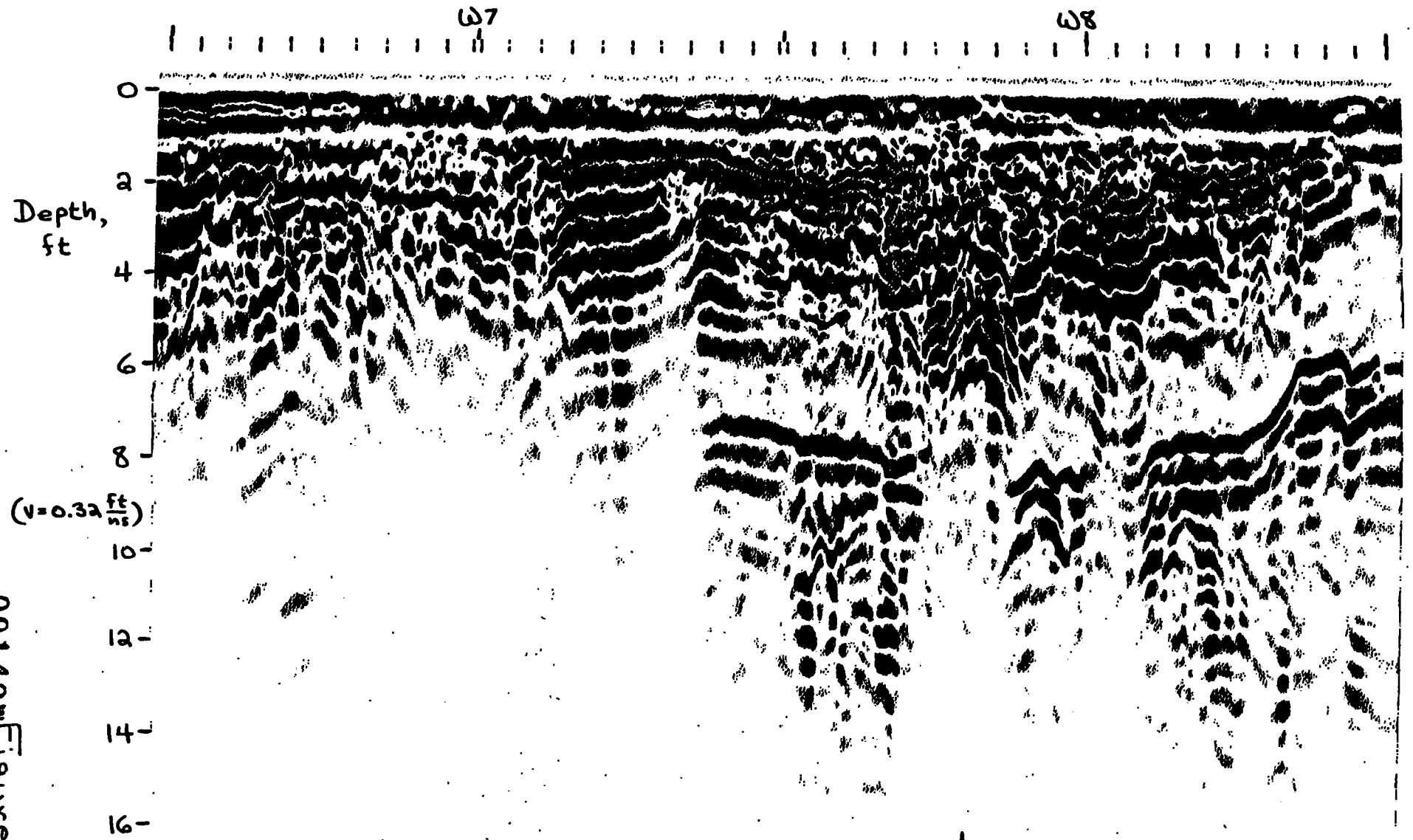
grid B, line S4+50, markers at 5ft intervals, model 3105 (180MHz) antenna, survey 10Sep84



001466

Figure 25

grid B, line S5, markers at 5 ft intervals, model 3105 (180 MHz) antenna, survey 10 Sep 84



probably debris at a depth of 1-4 ft which blocks echoes from deeper interfaces

001467 Figure 26

grid B, line 54, markers @ 5 ft intervals, model 3105 (180 MHz) antenna, survey 10 Sep 84

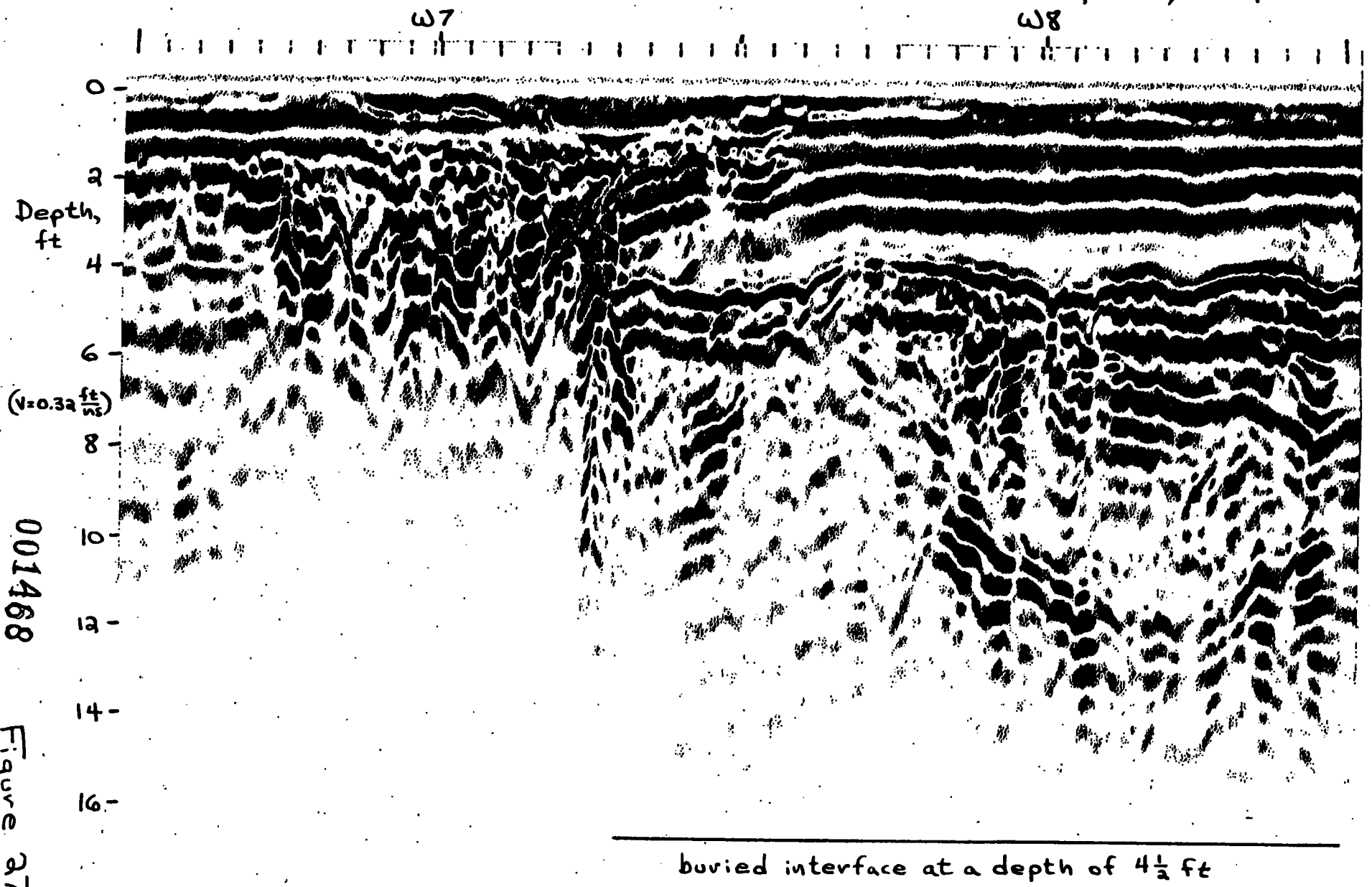


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Figure 27

ROHM AND HAAS DELAWARE VALLEY, INC.
BRISTOL, PENNSYLVANIA

CONFIRMATION TEST PIT INVESTIGATION

BCM PROJECT NO. 00-4061-13

PREPARED BY:

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J.9

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2.2 Magnetic Survey Test Pits 2
2.3 Terrain Conductivity Survey Test Pits 2
2.4 Radar Survey Test Pits 2
2.5 Test Pits Within Magnetic Survey and Radar Anamolies 2

3.0 TEST PITS - LANDFILL BOUNDARY DETERMINATION 3

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Table 1 Test Pit Investigation Summary of Results

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Figure 1 Test Pit Locations And Magnetic Anamolies

Figure 2 Test Pit Locations And Terrain Conductivity Results - Areas B and C

Figure 3 Test Pit Locations And Ground-Penetrating Radar Anamolies

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1.0 INTRODUCTION

Rohm and Haas Delaware Valley, Inc. (Rohm and Haas) retained BCM Eastern Inc. (BCM) to conduct a comprehensive study of environmental conditions within, and in the vicinity of, the inactive Rohm and Haas landfill located in Bristol Township, Bucks County, Pennsylvania. As part of the landfill study, BCM conducted a three-phase geophysical investigation of the landfill and adjacent areas. This multi-phase geophysical investigation was composed of three surveys, each survey building upon knowledge obtained from the previous one.

The three surveys were: a magnetic survey of the landfill and adjacent areas, a terrain conductivity survey, and a ground-penetrating radar survey of landfill areas containing buried ferromagnetic material(s) highlighted in the magnetic survey.

To confirm findings of the geophysical investigations and to provide additional information concerning the deposition patterns and condition of wastes within the landfill, fifty (50) test pits were constructed in and around the Rohm and Haas landfill. The objectives for constructing the test pits were:

1. To support or confirm the findings reported as a result of the geophysical investigations

2. To determine the location of deposited waste materials with respect to the existing water table

3. To characterize the soil/waste profile

4. To determine deposited waste boundaries

The test pits were constructed during November 1984. Each pit was constructed with a Case Model 508 "Extendahoe" Backhoe capable of excavating to an overall depth of 16 feet. During the construction of all test pits, air within the immediate area (25-foot radius) was monitored with an HNU photoionization detector by a BCM safety specialist. All BCM personnel and sub-contractor personnel were required to don appropriate safety equipment during the excavation activities.

Debris from the pits was placed next to each pit for later backfilling. Clean fill and debris were stockpiled separately. All pits were backfilled prior to the end of each working day. Clean fill which had been stockpiled separately was backfilled last. In addition, clean fill was imported from a nearby dredged material basin to cover any pit where sufficient clean backfill material was not available. Each test pit was characterized by a BCM engineer/geologist prior to backfilling.

2.0 CONFIRMATION TEST PITS - GEOPHYSICAL INVESTIGATION

2.1 INTRODUCTION

A series of test pits were constructed at the landfill to provide confirmatory data to the previously conducted geophysical surveys. Included were test pits constructed within anomalous areas detected by the magnetic survey, the terrain conductivity survey, and the ground-penetrating radar survey. In addition, several test pits were constructed on the perimeter of identified anomalous areas and within areas indicated as clean of landfill debris by the geophysical surveys. Results of the confirmation test pits are summarized in Table 1. Test pit locations are depicted in Figures 1, 2, and 3. Test pits specific to each geophysical methodology are discussed in the following sections.

2.2 MAGNETIC SURVEY TEST PITS

Eleven (11) test pits were constructed within identified magnetic field anomalies. Included were test pits 1, 2, 18, 21, 22, 31, 32, 33, 34, 35 and 36. Test pits 6, 39, 40, 41, 42, 43 and 44 were dug on the perimeter of identified magnetic survey anomalies or within areas identified as clean of ferromagnetic debris. Test pits 18, 21, 22, 31, 32, 33, 34, 35 and 36 were dug within landfill area A (Figure 1). All of these test pits encountered miscellaneous waste and ferromagnetic debris including 55-gallon steel drums, steel drum lids, steel bases of fiber drums, wire, metal strapping, metal pipes, scrap metal, and miscellaneous scrap iron and steel materials.

Test pits 39, 40, 41, 43 and 44 were constructed within the dredged material disposal area adjacent to landfill area A. These test pits encountered layered gravels, sands, silts and peats. A magnetic reconnaissance survey of this area had indicated that the subsurface was clean of ferromagnetic debris.

Test pit 42 was dug within an identified nonmagnetic zone in landfill area A (Figure 1). This test pit detected layered sands and gravels.

Test pits 1 and 2 were dug within landfill area B at locations of magnetic survey anomalies. These test pits encountered ferromagnetic material consisting mostly of 55-gallon steel drums. Test pit 6 was dug within landfill area B in an area identified during the magnetic survey as a nonmagnetic zone. This test pit encountered silty sand and silty sandy gravel with cobbles.

2.3 TERRAIN CONDUCTIVITY SURVEY TEST PITS

Test pits were constructed within landfill areas B and C, within identified terrain conductivity anomalies (Figure 2).

Test pits 3 and 4 were constructed within landfill area B. Test pit 3 was constructed within an area of low terrain conductivity in the western portion of landfill area B. The test pit encountered silty sand, gravel and cobbles. Test pit 4 was constructed in an area of elevated conductivity, also located in the western portion of landfill area B. The test pit encountered sand, gravel and cobbles.

Test pits 11 and 12 were constructed within landfill area C in areas of elevated conductivity. Both of these test pits detected sand gravel and cobbles within the subsurface environment.

2.4 RADAR SURVEY TEST PITS

Test pits 23 and 24 were dug within identified ground-penetrating radar anomalies (Figure 2).

Test pit 23 was dug within an area where the radar survey detected planar strata at depths ranging from 3 to 7 feet below land surface. This test pit encountered layers of sand, gravel, cobbles and a trace of clay to a depth of 15 feet. The gravel or cobble layers are the probable subsurface reflectors which were indicated as planar strata by the ground-penetrating radar.

Test pit 24 was dug within an area where the ground-penetrating radar survey detected a signal attenuating zone located directly below land surface. This test pit detected waste material within the interval from 1 to 13 feet below land surface. Waste material consisted of powder, scrap plastic debris, plastic sheets, plastic pipes, wood and paper. The waste was very compact.

2.5 TEST PITS WITHIN MAGNETIC SURVEY AND RADAR ANOMALIES

Test pits 19 and 20 were dug within areas identified as containing anomalies common to both the magnetic and ground-penetrating radar surveys. Test pit 19 was dug within a magnetic survey anomaly and within an area identified by the radar as containing complex strata, possibly debris. The test pit encountered eight (8) crushed 55-gallon steel drums, black sludge and plastic bags of white powder.

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Test pit 20 was constructed within an area identified as a highly magnetic zone and an area where the ground-penetrating radar survey had detected buried strata inclined towards the south. The pit detected buried debris within the interval from 2.5 to 10.5 feet below land surface. Included were plastic waste, paper bags, strands of plastic waste, wood waste and approximately four (4) 55-gallon steel drums.

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3.0 TEST PITS - LANDFILL BOUNDARY DETERMINATION

Eighteen (18) test pits were constructed along landfill boundaries previously determined by visual observations. The purpose of these test pits was to determine if the visual observation(s) of the landfill surface were supported by subsurface observations. In addition, several test pits were constructed in areas adjacent to the landfill where waste(s) were not known or did not appear to be deposited to verify the historical and visual information. The boundary determining test pits included 7, 13A, 13B, 14, 15, 16, 17, 25A, 25B, 26, 27, 28, 29, 30, 37, 38, 45, and 46. Test pit locations are depicted in Figure 1. Test pit results are summarized in Table 1.

Six test pits, including 5A, 5B, 8, 9, 10A and 10B, were constructed in an area south of landfill area B. The purpose of these test pits was to locate a thin subsurface layer of emulsion material which had been reported by Rohm and Haas. A thin lens of emulsion material was encountered in test pit 10B. The approximately 2-inch layer was found at a depth of about 4.5 feet. The material appeared to be viscous in nature; however, no movement into the test pit was observed.

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TABLE I

ROHM AND HAAS COMPANY
BRISTOL, PA
FEBRUARY 1985
BCM PROJECT NO. 00-4061-13
TEST PIT INVESTIGATION
SUMMARY OF RESULTS

MAGNETIC SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-1	area B	12 feet	0 to 1 feet	Brown sand and gravel
			1 to 3 feet	Brown gravelly sandy silt with cobbles
			3 to 10 feet	Miscellaneous waste material and steel drummed waste
			10 to 12 feet	Green silty sand
TP-2	area B	8 feet	0 to 2 feet	Gravelly sandy silt
			2 to 8 feet	Steel drummed waste
TP-6	area B	16 feet	0 to 2 feet	Brown sandy silt
			2 to 3 feet	Orange red silty sand
			3 to 5 feet	Red silty sandy gravel, ocassional cobbles
			5 to 12 feet	Red silty sand with trace gravel
			12 to 16 feet	Light brown silty sand, trace clay
				Water entering pit at 16 feet
TP-18	area A	11 feet	0 to 1 feet	Brown silty sand, trace gravel
			1 to 1.5 feet	Black sandy gravel and cobbles, trace plastic waste
			1.5 to 11 feet	Miscellaneous waste material including: plastic sheeting, wood, rags, hose, plastic pellets, 55 gallon steel drum at 4.5 feet, trace emulsion material at 5 feet, section of steel chain-linked fence 2' X 3' at 5 feet

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MAGNETIC SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-21	area A	13 feet	0 to 1.5 feet	Brown silty sand, trace gravel
			1.5 to 5 feet	Miscellaneous waste material including: plastic sheeting, steel drum, steel drum lids, molding powder, tires, and wood
			5 to 7 feet	Gray and yellowish brown silty sand with trace gravel and black material
			7 to 13 feet	Gray silty sand, 1/2" laminations
TP-22	area A	14 feet	0 to 3.5 feet	Yellow brown sandy silt with gravel
			3.5 to 4.5	Gray sandy silt with gravel
			4.5 to 7 feet	Waste material including: steel drum lids, wire, plastic strands, clear and black plastic sheets, paper, wood, and plastic film
			7 to 10 feet	Black waste with cobbles
			10 to 14 feet	Gray silty sand, ocassional cobbles, wet at 14 feet
TP-31	area A	11 feet	0 to 1.5 feet	Brown silty sand
			1.5 to 11 feet	Miscellaneous waste material including: metal strapping, 55 gallon steel drums, wire reinforced hose, plastic sheets, fiber drums, black sludge. Water entering pit at 7 feet.
TP-32	area A	16 feet	0 to 1 feet	Brown sandy silt
			1 to 14 feet	Miscellaneous waste material including: wood, plastic film sheets, paper bags, white powder, scrap metal, fiber drums, rolls of plastic waste, metal pipe
			14 to 16 feet	Gravelly sand with ocassional cobbles

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MAGNETIC SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-33	area A	15 feet	0 to 1 feet	Brown sandy silt
			1 to 14 feet	Miscellaneous waste material including: plastic sheets, wire, wood, plastic pellets, paper, 55 gallon steel drums. Water entering pit at 14 feet
			14 to 15 feet	Brown gravelly silty sand with cobbles
TP-34	area A	14 feet	0 to 3 feet	Brown silty sand, trace gravel
			3 to 11 feet	Black sludge, white waste lenses, crushed 55 gallon steel drums, steel drum lids, steel pipe. Water entering pit at intervals between 2 and 8 feet
			11 to 14 feet	Brown-gray sandy silt, trace clay
TP-35	area A	14 feet	0 to 6 feet	Brown silty sand
			6 to 14 feet	Black waste, wood, plastic sheeting, glass jars, 55 gallon steel drum. Water entering pit at 11 feet
			14 feet	Gray mottled clay
TP-36	area A	9 feet	0 to 2 feet	Brown silty sandy gravel
			2 to 6 feet	Miscellaneous waste material including: plastic sheets, black sludge, emulsion, iron pipes and a large wooden tank
			6 to 9 feet	Black sludge. Pit ended at 9 feet
TP-39	area A	13 feet	0 to 5.5 feet	Gray brown silty sand
			5.5 to 5.9	Organic peat layer
			5.9 to 13 feet	Gray and yellowish brown silty sand, moist. Water in base of pit at 13 feet

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MAGNETIC SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-40	area A	13 feet	0 to 5 feet	Brown sand trace silt
			5 to 8 feet	Brown sand with interbedded gravel
			8 to 13 feet	Gray and yellowish brown sand with gravel and cobbles. Water entering pit at 13 feet
TP-41	area A	12 feet	0 to 3 feet	Gray silty sand
			3 to 3.5 feet	Black organic peat layer
			3.5 to 10 feet	Gray silty sand
			10 to 12 feet	Yellow brown silty sand. Water entering pit at 11 feet
TP-42	area A	12 feet	0 to 6 feet	Light brown silty sand, trace gravel
			6 to 12 feet	Dark gray sand. Water entering pit at 12 feet
TP-43	area A	16 feet	0 to 5 feet	Brown silty sand
			5 to 10 feet	Gray and yellow brown silty sand, finely laminated
			10 to 13 feet	Yellowish brown silty sand
			13 to 16 feet	Gray silty sand. Water entering pit at 15 feet
TP-44	area A	14 feet	0 to 3 feet	Silty sandy gravel with cobbles
			3 to 6 feet	Gray silty sand thinly laminated
			6 to 10 feet	Gray silty gravelly sand, crossbedded
			10 to 14 feet	Gray silty sand with trace peat and trace clay

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TERRAIN CONDUCTIVITY SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-3	area B	10.5 feet	0 to 1 feet	Brown silty sand with roots
			1 to 5 feet	Red silty sand
			5 to 6.5 feet	Red gravelly silty sand with cobbles
			6.5 to 9 feet	Yellowish brown silty sand
			9 to 10.5	Yellowish brown silty sand with cobbles
				Water entering pit at 10 feet
TP-4	area B	14 feet	0 to 2 feet	Brown-reddish brown gravelly sandy silt with cobbles
			2 to 5 feet	Brown silty sand
			5 to 8 feet	Brown gravelly silty sand with ocassional cobbles
			8 to 11 feet	Brown sandy silt
			11 to 14 feet	Brown gravelly sand.
				Water entering pit at 14 feet
TP-11	area C	5.5 feet	0 to 2.5 feet	Brown sandy gravel with cobbles
			2.5 to 3.5	Reddish brown sand sandy gravel
			3.5 to 5.5	Gray sand, with gravel and cobbles.
				Water entering pit at 4 feet
TP-12	area C	5 feet	0 to 1 feet	Tan sand with trace gravel
			1 to 1.5 feet	Dark brown sand with gravel
			1.5 to 3 feet	Reddish-orange stained gravelly sand with cobbles
			3 to 5 feet	Gray sand and gravel.
				Water entering pit at 4 feet.

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RADAR SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-23	area A	15 feet	0 to 3 feet	Brown sandy gravelly silt with cobbles
			3 to 7 feet	Silty sand with trace gravel, sand laminated in 1/4" layers
			7 to 11 feet	Silty sandy gravel with ocassional cobbles and lens of mottled clay
			11 to 15	Gray silty sand with trace gravel
TP-24	area A	13 feet	0 to 1 feet	Brown sand
			1 to 13 feet	Miscellaneous waste material including: gray and black waste powder, cardboard, clear and black plastic sheets, plastic pipes, hose, wood, and paper. Waste material very compact

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MAGNETIC SURVEY and RADAR SURVEY TEST PITS

Test Pit Number	Landfill Location	Overall Depth of Test Pit	Description	
TP-19	area A	14 feet	0 to 6 feet	Brown silty sand with gravel
			6 to 9 feet	Waste material including: black sludge, bags of white powder, and eight (8) 55-gallon steel drums
			9 to 14 feet	Gray silty sand, dark stained. Water entering pit at 7 feet
TP-20	area A	15 feet	0 to 1 feet	Brown silty sand with gravel
			1 to 2.5 feet	Brown silty sandy gravel
			2.5 to 8.5	Miscellaneous waste material including: four (4) 55-gallon steel drums, black, clear and green plastic sheeting, paper bags, plastic pellets, strands of plastic
			8.5 to 10.5	Waste wood material
			10.5 to 15	Gray silty sand with occasional gravel. Water entering pit at 14 feet

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LANDFILL BOUNDARY TEST PITS

Test Pit Number	Landfill Location	Depth of Pit	Description	
TP-7	area B	8 feet	0 to 4 feet	Brown silty sand with gravel, moist
			4 to 7 feet	Brown and gray silty sandy gravel with small amount of waste material present in the gravel
			7 to 8 feet	Gray silty sandy gravel; water entering pit.
TP-13A	area C	7 feet	0 to 5 feet	Brown gravelly sand with some cobbles
			5 to 7 feet	Black organic peat interlayered with gray silt
TP-13B	area C	9 feet	0 to 4 feet	Brown gravelly sand with some cobbles, iron staining at 3 feet
			4 to 7 feet	Black filter cake waste material
			7 to 9 feet	Black silty clay layer
TP-14	area C	4.5 feet	0 to 3 feet	Brown sandy silt with some cobbles, moist
			3 to 4.5 feet	Gray to black gravelly sand with cobbles, small pieces of white emulsion material within this layer, water entering pit at 4 feet
TP-15	area C	10 feet	0 to 8 inches	Brown sandy silt
			8 inches to 1.5 feet	Waste layer consisting of ferric chloride coagulated emulsion sludge
			1.5 to 3 feet	Interlayered brown sandy silt with some gravel
			3 to 3.5 feet	Waste layer of ferric chloride coagulated emulsion sludge

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LANDFILL BOUNDARY TEST PITS

Test Pit Number	Landfill Location	Depth of Pit	Description	
TP-15 (Cont'd)			3.5 to 6 feet	Brown sandy silt with some cobbles
			6 to 10 feet	Dark brown to black sandy silt layer, water entering pit at 10 feet.
TP-16	area C	9 feet	0 to 2 feet	Ferric chloride coagulated emulsion sludge layer
			2 to 4 feet	Light brown sand with gravel layer, root penetration depth to 4 feet
			4 to 9 feet	Brown silty sand compacted layer, water entering pit at 8.5 feet.
TP-17	area C	12 feet	0 to 1 feet	Brown gravelly sand with some cobbles
			1 to 5 feet	Ferric chloride coagulated emulsion sludge material
			5 to 10 feet	Brown sandy silt layer mixed with coagulated sludge material
			10 to 12 feet	Dark gray sandy silt layer, water entering pit at approximately 12 feet.
TP-25A	area A	5 feet	0 to 5 feet	Brown silty sand, slightly moist with some fiber drums and various manufacturing debris
TP-25B	area A	13 feet	0 to 2 feet	Dark brown sandy silt with some clay
			2 to 4 feet	Light brown sand mixed with plastic debris
			4 to 13 feet	Various fill layers consisting of tan and brown sands with some gravel and cobbles, deepest sands gray to black in color

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LANDFILL BOUNDARY TEST PITS

Test Pit Number	Landfill Location	Depth of Pit	Description	
TP-26	area A	14 feet	0 to 8 feet	Brown sand layer with some gravel and cobbles; metal drum excavated at 3 feet
			8 to 9.5 feet	Brown black sand, small amount of waste debris
			9.5 to 14 feet	Tan to gray sand layer with horizontal layers, water entering pit at approximately 13 feet
TP-27	area A	12 feet	0 to 4 feet	Brown sandy silt with ocassional gravel
			4 to 12 feet	Gray to tan colored sand with horizontal laminations, some plastic scrap excavated at 4 feet
TP-28	area A	10 feet	0 to 3 feet	Brown silty sand layer with some gravel
			3 to 8 feet	Grayish brown and tan sand
			8 to 10 feet	Gray silty sand layer, water entering pit at 9 feet
TP-29	area A	10 feet	0 to 3 feet	Brown silty sand layer with some gravel
			3 to 7 feet	Yellowish brown gravelly silty sand layer
			7 to 10 feet	Gray and yellowish brown silty sand, water entering pit at 8 feet
TP-30	area A	10 feet	0 to 5 feet	Yellowish brown silty sand gravel layer
			5 to 8 feet	Waste material including black sludge and gray to white sludge
			8 to 10 feet	Yellowish brown silty sand with some gravel
TP-37	Marsh area east of landfill area C	6 feet	0 to 6 feet	Light brown sand layer water entering pit at 3 feet

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LANDFILL BOUNDARY TEST PITS

Test Pit Number	Landfill Location	Depth of Pit	Description	
TP-38	Marsh area east of landfill area C	6.5 feet	0 to 1 feet	Surface debris consisting of pipe and wood
			1 to 6.5 feet	Gray silty sand layer with some darker or black layers, water entering pit at 3 feet
TP-45	Marsh area east of landfill area C	5 feet	0 to 4 feet	Brown sandy silt layer
			4 to 5 feet	Gray sandy silt, water entering pit at 4 feet
TP-46	Marsh area east of landfill Area C	4.5 feet	0 to 3 feet	Brown sandy silt
			3 to 4.5 feet	Black silty sand water entering pit at 3 feet

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TEST PITS TO CONFIRM WHITE EMULSION LAYER

Test Pit Number	Landfill Location	Depth of Pit	Description	
TP-5A	area B	8 feet	0 to 3 feet	Brown silty sand with some gravel and cobbles
			3 to 5 feet	Brown silty sand and gravel layer
			5 to 8 feet	Yellowish brown silty sand gravel layer with some cobbles, water entering pit at 7.5 feet.
TP-5B	area B	8.5 feet	0 to 4.5 feet	Grayish brown sandy silt with some cobbles
			4.5 to 7 feet	Reddish brown silty sand with distinct gravel layer
			7 to 8.5 feet	Yellowish brown silty sand gravel layer, water entering pit at 8 feet
TP-8	area B	9 feet	0 to 4 feet	Reddish brown gravelly sand layer with miscellaneous waste debris including pipes, tire bladders, wood, rubber piping, roll of black plastic, ceramic tile, cinder blocks, crushed metal drum
			4 to 6 feet	Dark gray silty sand layer with some black layers.
			6 to 9 feet	Sandy silt with gravel, water entering pit at approxiamtely 9 feet.
TP-9	area C	8 feet	0 to 3.5 feet	Reddish brown sand layer with some gravel
			3.5 to 8 feet	Dark brown gray colored sand with gravel and some cobbles, water entering pit at 7 feet.

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TEST PITS TO CONFIRM WHITE EMULSION LAYER

Test Pit Number	Landfill Location	Depth of Pit	Description	
TP-10A	area C	8.5 feet	0 to 5 feet	Brown silty sand and gravel layer and miscellaneous debris including office trash, cement, wood, pipes, and plastic sheets
			5 to 7.5 feet	Dark brown to gray colored silty sandy gravel with some cobbles
			7.5 to 8.5 feet	Gray stained sandy gravel, water entering pit at 8 feet.
TP-10B	area C	8 feet	0 to 4.5 feet	Silty sand with some gravel and cobbles, at 4.5 feet a thin, 2 inch layer, of white viscous material present
			4.5 to 6.5 feet	Silty sand with some cobbles and gravel
			6.5 to 8 feet	Brown silty sand with some gravel, root penetration to 6.5 feet

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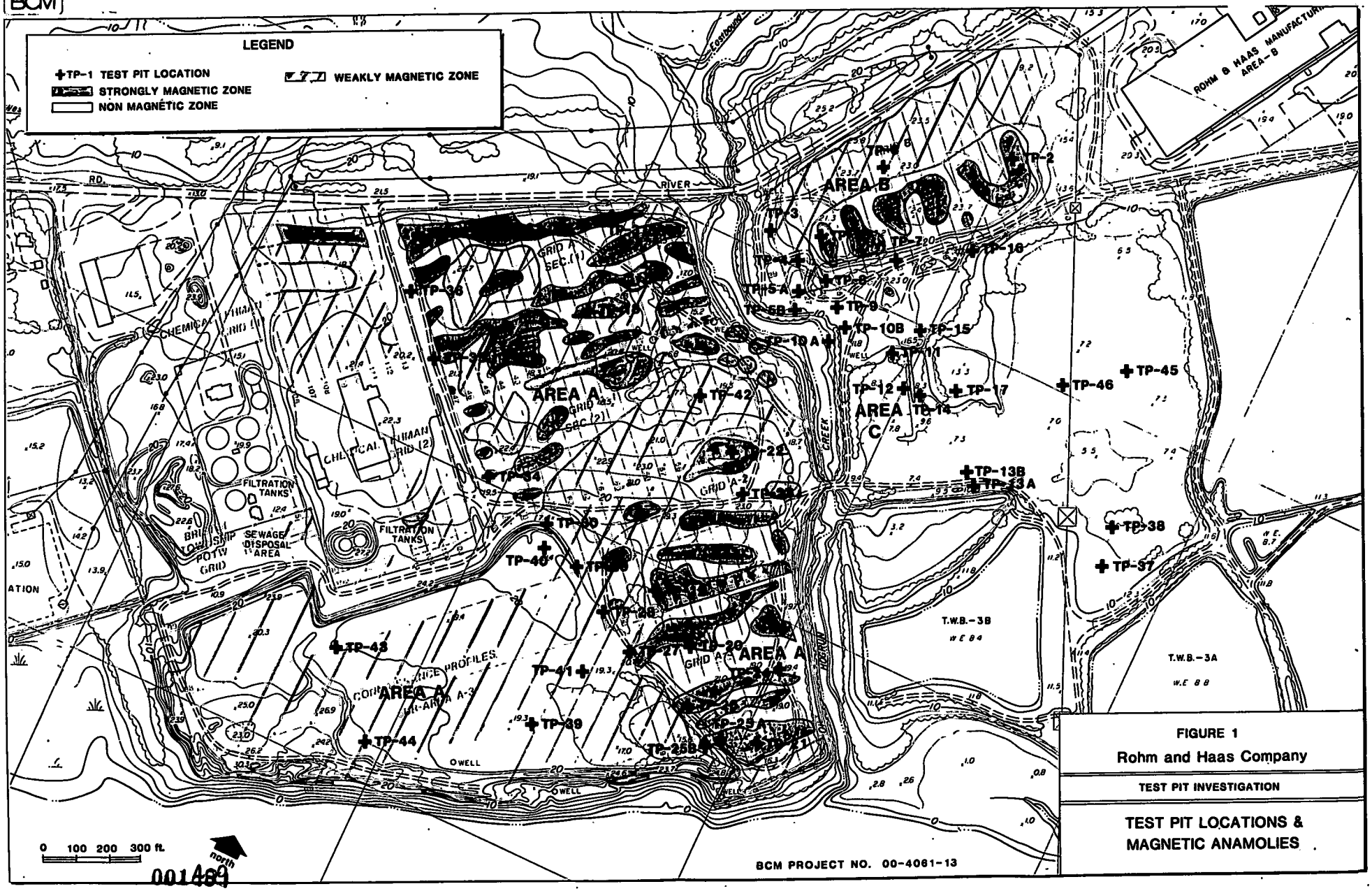

FIGURE 1

Rohm and Haas Company

TEST PIT INVESTIGATION

TEST PIT LOCATIONS & MAGNETIC ANAMOLIES

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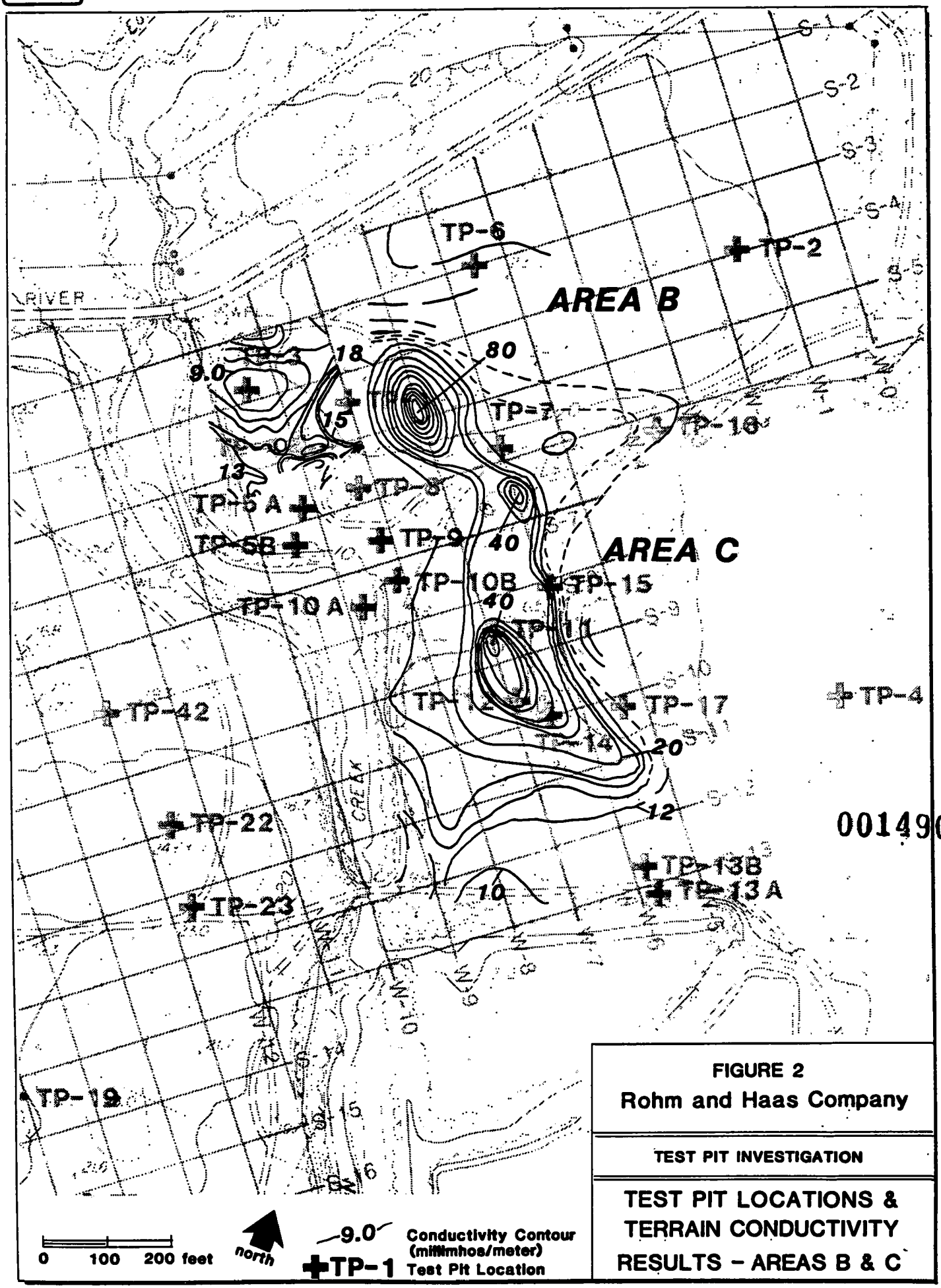

FIGURE 2
Rohm and Haas Company

TEST PIT INVESTIGATION

TEST PIT LOCATIONS & TERRAIN CONDUCTIVITY RESULTS – AREAS B & C

BCM PROJECT NO. 00-4061-13

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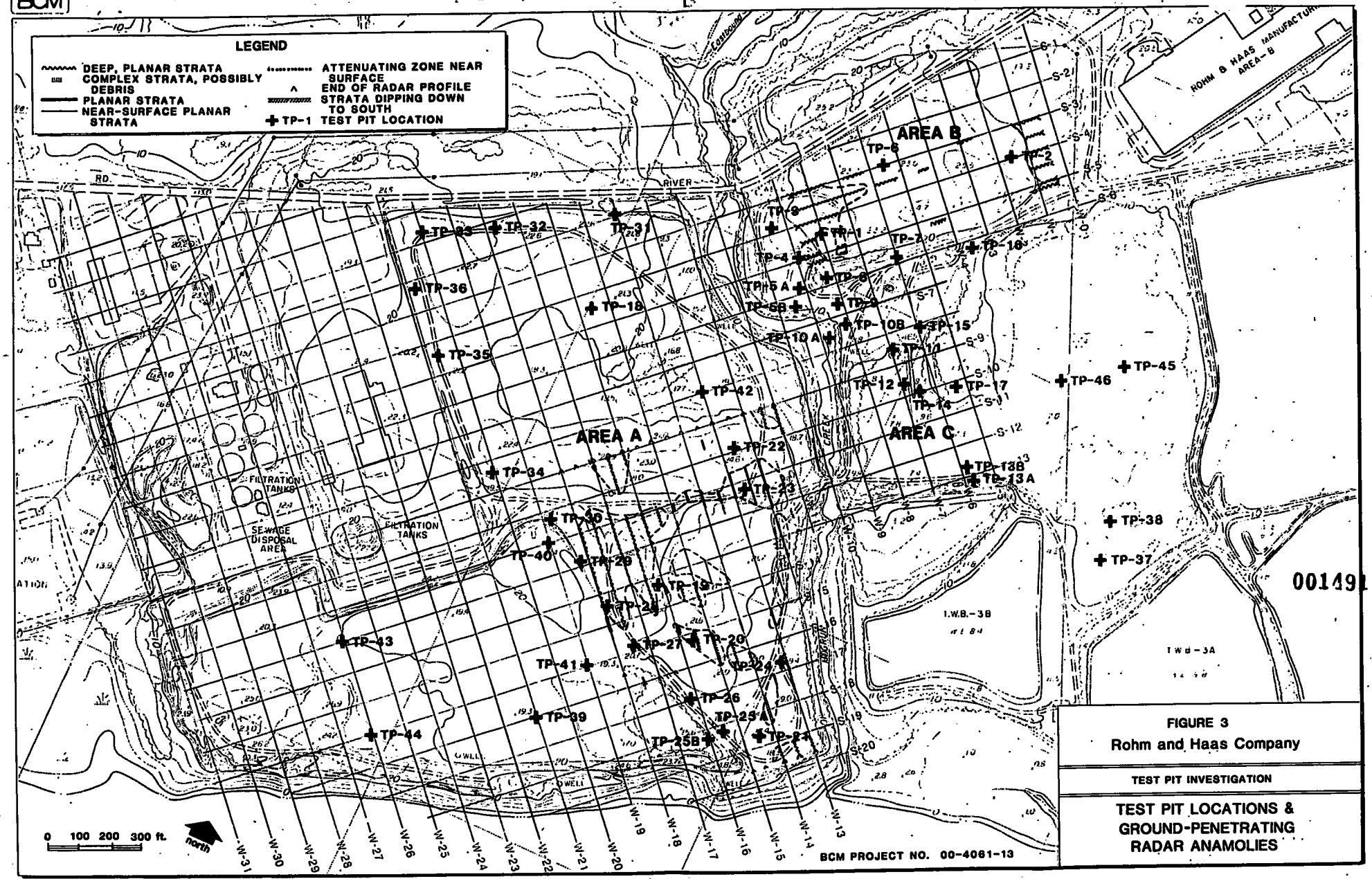

FIGURE 3
Rohm and Haas Company

TEST PIT INVESTIGATION

TEST PIT LOCATIONS & GROUND-PENETRATING RADAR ANAMOLIES

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✓ in water table

Test Pits w/ Drums

Pit	water table depth	# of drums	condition	Depth of Drums	SAMPLE?
TP-1	12'	3	intact, leaking	3', 4' + 5'	yes (of drum material)
TP-2	>8'	20	intact?	2' to 8'	No — (acid drums)
TP-8	>9'	1	empty	0-4'	NO
TP-18	8'	7	crushed	1.5' to 11' ✓	yes (not drum material)
TP-19	7'	8	crushed	3' to 9' ✓	Yes (white waste from drum?)
TP-20	14'	4	3 filled w/ solid material; 1 intact oozing liquid	2.5' to 8.5'	NO
21	13'	1	crushed	1.5' to 5'	NO
TP-22	>14'	1	?	4.5' to 7'	NO (Not of drum — Black sand)
TP-25B	11.5'	2	intact?	2'	NO
TP-26	13'	4+	crushed (Drums reburied)	3' (1); 8'-9.5' (3+)	NO
TP-31	4' (Perched)	2+	crushed	3.5' (1) ✓ 6' (1)	Yes (2) (Green powder white solid — of drum?)
TP-32	?	8	crushed	3'+	Yes (of drum material)
TP-33	14'	3+	crushed	10' to 14' ✓	Yes (Not drum)
TP-34	13'	several (?)	intact, filled w/ solidified white waste	3' to 11'	Yes (of drum material)
TP-35	11'	1+ (?)	rusted, broke open w/ Black viscous waste	6' to 14' ✓	yes (of drum material)