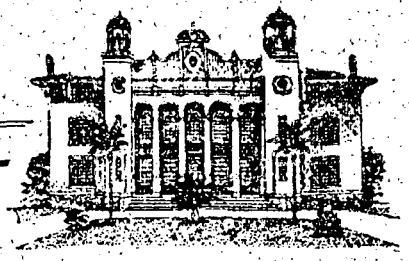
THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PERMIT TO OPERATE COMPOSTING FACILITY
PERMIT TO CONSTRUCT LEACHATE TREATMENT FACILITY
PERMIT TO OPERATE RESOURCE RECOVERY FACILITY
WASTE TIRE GENERAL PERMIT
AND
PERMIT TO MAINTAIN CLOSED CLASS I SANITARY LANDFILL
PREPARED FOR

Sumter County



BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
222 EAST McCOLLUM AVENUE
BUSHNELL, FLORIDA 33513

OCTOBER 2, 1992

92-1100.00

Springstead Engineering, inc.

Consulting Engineers — Planners — Surveyors
727 South 14th Street
Leesburg, Florida 34748
Lake (904) 787-1414
Sumter (904) 793-3639 Fax (904) 787-7221

THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
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PREPARED BY

Springstead Engineering, inc.

LEESBURG, FLORIDA

OCTOBER 2, 1992

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October 2, 1992

Mr. Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management
Florida Department of Environmental Regulation
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

RE: SUMTER COUNTY SOLID WASTE FACILITIES
PERMIT NO.:

SO60-211179 - SOLID WASTE COMPOSTING
WT60-211205 - WASTE TIRE STORAGE
SO60-211182 - M.R.F.
SF60-211255 - LONG-TERM CARE
SC60-211181 - LEACHATE TREATMENT
92-1100.00

Dear Mr. Ford:

We are in receipt of your letter dated August 26, 1992 in regards to the above referenced project. Please review the following responses:

1. Provide documentation of Sumter County's possession of an approved Comprehensive Quality Assurance Plan (CQAP) for the sampling and analysis as required for the referenced facility. Documentation must show that the QA plan approved also includes compost testing. You are requested to work directly with Ms. Sylvia Labie of the QA Section in Tallahassee to obtain approval of the quality assurance plan. Pending approval, current status is not adequate.

✓ **1. We have been in contact with Ms. Sylvia Labie, Florida Department of Environmental Regulation (FDER) Quality Assurance Officer and Mr. Andrew Tintle, the person responsible for the review of Springstead Engineering, Inc.'s CompQAP and the Compost QAPP. Mr. Tintle informed us of a backlog of CompQAP's to be reviewed. In the interim, prior to SEI's CompQAP approval, Envirolab Testing Laboratory (CompQAP No. 86-1098G) will perform the sampling and testing at the Sumter County Landfill.**

2. Provide updated financial responsibility cost estimates for long-term care of the closed landfill. The attached Financial Responsibility checklist is to be used for the cost estimates.

Cost estimates shall be reviewed by the District and upon approval will be forwarded to Mr. Fred Wick of the Solid Waste Section in Tallahassee. You are requested to work directly with him to obtain approval of Sumter County's financial responsibility documents.

2. **The County Commission approved an escrow account in the amount of $12,754.50 in the County Commission meeting on September 27, 1992. The final amount is subject to approval by Mr. Kim Ford and Mr. Fred Wick. The financial responsibility checklist and escrow agreement are included in Appendix A.**

3. Provide your response to Mary Yeargan's August 26, 1992 attached memorandum. Ms Yeargan may be contacted at (813) 620-6100, extension 376.

3.1. In our previous review, it was stated that the application should include a Groundwater Monitoring Plan that meets the requirements of Section 17-28.700, Florida Administrative Code, (F.A.C.). The Groundwater Monitoring Plan (GWMP) should be a complete document that can stand alone. Although geological information and analytical data for the last permitted period was summarized for this submittal there was no evaluation to determine whether the existing Groundwater Monitoring Plan is sufficient for this facility. A map that illustrates all three closed Class I landfill cells, the extend of the zone of discharge and the location of the monitor wells relative to the zone of discharge should be provided and the implication of the seasonally fluctuating groundwater flow direction should be evaluated. Until this evaluation is submitted to the Department, a complete review cannot be provided.

October 2, 1992

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3.1. With the pending expansion planned for this facility, it is our opinion that the present GWMP is sufficient at this time. The GWMP must be revised in regards to this expansion and new monitoring wells, one being near the present southeast corner shall be recommended or, if necessary, shall be constructed as a part of the current permit. The groundwater flow direction is discussed below.

3.2. The groundwater Elevation Contour Maps in Appendix C do not illustrate the Phase I, Phase II, and Phase III-Class I landfill areas, but it appears that there are no downgradient monitor wells to the south and southeast of the closed Class I areas. Recommendations for monitor wells in these areas should be proposed.

3.2. The Groundwater Elevation Maps previously submitted did not illustrate the Phase I, Phase II, and Phase III-Class I landfill areas. The maps have been redone showing these features and are presented in Appendix B.

It is our opinion that the direction of groundwater flow determined by the contours does not represent the regional groundwater flow direction but rather a groundwater fluctuations caused by stormwater runoff from the closed cells recharging the surface aquifer and the possible partially confined Floridan Aquifer at various locations of the stormwater management system. The data from MW-7 seems to be extreme and when used causes the apparent direction of groundwater flow to be toward the south.

The direction of groundwater flow was determined during the preparation of the GWMP, at a time previous to installation of the top liners, asphalt paving and other impervious surfaces. The use of

the monitor wells, which were located to provide water quality data from the background and the zone of discharge, should not be used as the groundwater elevations may possibly be influenced by mounding occurring due to the recharge of stormwater.

New construction is planned for the approximate forty (40) acre area south of and adjacent to the present permitted facility. The GWMP must be revised in regards to the addition and new monitoring wells, one being near the southeast corner of the present site.

3.3. It was noted in our previous review that monitor well MW-3 was installed through twenty feet of garbage which is in direct contact with a limestone unit. This was commented upon since this situation provides for potential degradation of the Floridan aquifer. Additionally, the Class I landfill cell may extend farther to the north then previously noted on the site map.

3.3. Based upon our review of well logs, it appears that the well logs for MW-3 and MW-6 may be switched, possibly due to misnumbering. The log previously submitted for MW-3 indicated substantial garbage was recovered during construction. Also, the log for MW-6 indicated no garbage. MW-6 was abandoned because it was located in a fill area slated for closure.

It is so noted that the log for MW-3 indicated garbage to the top of the limestone. The rotary drilling method was reported on the well completion report. This method does not provide substantially undisturbed samples such as those recovered using split-spoon or Shelby tube sampling methods. The transition between soils laden with garbage and

soils free of garbage may have been missed due to the blending of materials and the lack of significant change in other drilling parameters. The top of the limestone can be accurately determined, usually being picked based on drilling parameters in conjunction with sample descriptions. These indicators include, but are not limited to, bit bounce, rotary torque and the rate of penetration. Please note that all lithology changes were reported precisely at five (5) or ten (10) foot depth intervals.

We recommend that auger borings be made near the location of monitor well MW-3 to confirm the absence or presence of garbage in the underlying soils. If garbage is not detected, the potentially serious problem of garbage being in contact with limestones of the Floridan Aquifer does not exist. The absence of garbage in this boring would confirm the north edge of the closed cell to be south of the location of MW-3.

3.4. Monitor well MW-3 has been dry since installation, therefore, this well should be properly abandoned to protect the underlying aquifer.

3.4. Monitor well MW-3 has been dry since installation and shall be abandoned in accordance with the rules and regulations of the Southwest Florida Water Management District.

3.5. It was stated in this submittal that the lithologic information from the borings and monitor well installation reports, for this facility, was of insufficient quality to interpret on the geologic cross-sections. The purpose of the borings, prior to construction of a landfill, is to determine the lithology and the suitability of a site for land-

filling purposes. Although the spatial relationship are not correctly represented on these cross-sections, there are general geologic relationships that can be and should be discerned with some degree of reliability.

3.5. General cross-sections have been prepared and are enclosed in Appendix C. The borings denoted by the "TH" prefix were performed by drillers specializing in foundation engineering. These logs contain more detailed information than the logs prepared from data obtained from the monitor well completion reports.

3.6. The water table should be illustrated on the cross-sections. The most recent seasonal high and low water table as measured from the monitor wells should be used.

3.6. The highest and lowest groundwater elevations encountered during sampling events for the monitoring wells for the period beginning January 8, 1991 and ending April 7, 1992 are shown on the general cross-sections presented in Appendix C.

3.7. The analytical parameters for this permit should be expanded due to the inconsistencies in the monitoring data. A recommendation for additional parameters quarterly monitoring should be adequate.

3.7. EPA Method 601 and EPA Method 602 are currently being performed semiannually as per the present permit. We recommend that the following parameters be added and analyzed on a semiannual basis:

1. Mercury,
2. Ammonium,
3. Silver, and

4. Arsenic.

3.8. The issue of additional monitor wells associated with the new leachate collection system cannot be addressed until the groundwater monitoring evaluation is complete.

3.8. Additional monitor wells associated with the new leachate collection system are not necessary due to the high factors of safety resulting from the relatively low operating pressures in the proposed underground piping and the planned use of lined cells to attenuate leachate generated by precipitation.

3.9. As the CompQAP for Springstead Engineering, Inc. is approved pending and this status was to expire on August 7, 1992 if the plan was not resubmitted, the District should be provided with the Quality Assurance documentation by Springstead Engineering. The table of contents and the title page of the approved CompQAP, which meets the requirements of 17-160, should be submitted as documentation.

3.9. Please see question No. 1 of Kim Ford's letter, above. SEI's CompQAP has been resubmitted. Upon receipt, the title page and the table of contents will be submitted as documentation of approval of the CompQAP.

3.10. For future reference, depth to water measurements shall be reported in hundredth of a foot rather than in inches. Also, we had requested that groundwater elevations be provided as well as depth to water measurements.

3.10. The groundwater elevations and the depths to water shall be reported in hundredths of a foot as requested.

4. Provide a fire safety survey conducted and documented by the local fire protection authorities showing their satisfaction for the subject facilities.

4. The results of the fire safety survey are presented in Appendix D.

5. Provide water quality data for the leachate and treated effluent and design criteria and calculations for the design of the leachate treatment facility, filter, ozonation, and disinfection. What is the expected quality of the leachate after treatment? For example, indicate the maximum levels of BOD_5, TSS, TN, TP, Chlorides, TDS, heavy metals, fecal coliform, and TOC.

5. Sumter County is proposing to use the emergency lined combination storage cell in order to accommodate the runoff from a 100 year 24 hour rainfall event. This volume of runoff will be disposed of within a time period of two to five months as demonstrated in the Leachate Recirculation Report. Please refer to Appendix E. This will eliminate the need for the leachate treatment facility.

6. Provide data to show the quantity of leachate that can be reused to maintain the correct composting moisture for new, semi mature, and curing windrows.

6. Amerecycle supplied SEI with actual application data concerning moisture for the existing windrows. This includes new, semi-mature, and curing windrows. The data was supplied during the wet season of 1992. Please refer to the Leachate Recirculation Report in Appendix E for specific values and calculations.

7. Replace sprayheads with a type that will eliminate drift and drip off the compost pad.

7. Drift will be accommodated by the leachate application distribution network. Drip will be accommodated by pavement and curb being placed around the piping for each individual sprayhead. Please refer to the leachate recirculation system plan presented in Appendix E.

8. Revise the leachate pond design using a pipe boot through the side of the liner rather than through the bottom of the liner.

8. The intake suction piping has been revised to eliminate any breach of the existing liner.

9. Describe measures to correct settlement and ponding over the closed areas.

9. Earthwork is being performed over the closed areas to allow drainage as designed. Seeding and fertilizing of the repaired areas is currently being performed. Photographs of the earthwork operation are presented in Appendix F.

10. Please provide professional conclusions and recommendations regarding the evaluation of the landfill closure including the extent and effects of a recent gas migration investigation. Provide plans for further gas monitoring in and around buildings and the landfill including repairs to broken gas vents.

10. A gas migration study was conducted between August 25, 1992 and September 2, 1992. A copy of the report is attached and presented in Appendix G. Yearly methane monitoring will be performed in the building and landfill areas. Gas vents will be checked monthly to insure proper working conditions. Any vent not found to be in proper working condition will be prepared within 30 days from the date of discovery.

October 2, 1992

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92-1100.00

We hope that the provided information supplies the necessary information needed in order for FDER to issue the permits for the Sumter County Solid Waste Facility.

Should you have any questions, please feel free to contact our office.

Very truly yours,

SPRINGSTEAD ENGINEERING, INC.

John W. Springstead, P.E.
President
Florida Reg. 8579

James A. Dunaway, P.G.
Engineering Geologist
Florida Reg. No. 39

David W. Springstead
Geotechnical Engineer

Ralph W. Warnock, Jr., P.L.S.
Project Engineer
Florida Reg. No. 4322

Michael W. Springstead
Engineer

JWS/DWS/JAD/MWS/RWW/jal

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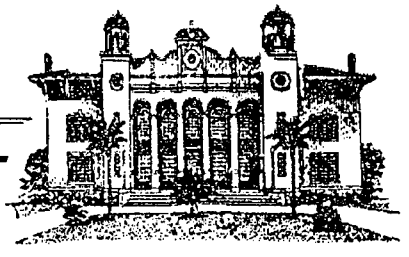

BOARD OF COUNTY COMMISSIONERS
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APPENDICES

PREPARED BY

Springstead Engineering, inc.

LEESBURG, FLORIDA

OCTOBER 2, 1992

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APPENDIX A

ESCROW AGREEMENT AND FINANCIAL RESPONSIBILITY

OCTOBER 2, 1992

92-1100.00

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
FINANCIAL RESPONSIBILITY CHECKLIST

I. GENERAL INFORMATION: ID No. 4060C00092

Facility Name: Sumter County Volume Reduction Permit No.: SF60-146475 Expiration Date: 6-1-92

Address (Main Entrance): CR 470, 3/4 mile east of I-75

Address (Mailing):

Permittee (Operating Authority): Sumter Co. Bd of County Commissioners Facility Lat/Long: 28°-44'-30"N 82°-05'-20"W Fill Acreage: 14.5

TYPE OF LANDFILL:

X Class I
Class II
Class III: Trash/Yard Trash
Exempt; Type of Exemption:

Closure Plan Approved:
X Yes
No

Reviewing Person (Include Title): Date:

II GENERAL SOLID WASTE LANDFILL:

A. Type of Financial Document Submitted to Ensure Financial Responsibility:

Trust Fund Agreement
Letter of Credit
Insurance Certificate
Standby Trust Fund Agreement
Performance Bond (only for landfills with an approved closure plan)
Financial Guarantee Bond
X Escrow Account
Other (Explain):

B. General Solid Waste Landfill Estimated Itemized Closure Cost for the Time Period in the Landfill Operation When the Extent and Manner of its Operation Makes Closing Most Expensive

C. General Solid Waste Landfill Estimated Itemized Annual Cost of Long Term Care.

	ITEM	UNIT COST	TOTAL ANNUAL COST	SOURCE OF ESTIMATE (Third Party Work)
1.	GROUNDWATER MONITORING Quality Sampling		$ 6180.00	(SEI) Springstead Enginee
2.	GAS MONITORING		800.00	SEI
3.	MAINTENANCE OF LEACHATE COLLECTION SYSTEM AND GROUNDWATER MONITORING WELLS		2000.00	SEI
4.	COLLECTION AND DISPOSAL/ TREATMENT OF LEACHATE		0.00	SEI
5.	BENCHMARK MAINTENANCE		260.00	SEI
6.	LANDSCAPE MAINTENANCE Mowing		1305.00	SEI
	Fertilizing			
	Sprinkling			
7.	MAINTENANCE OF COVER INTEGRITY AND SURFACE WATER CONTROLS		1050.00	SEI
8.	REMEDIAL ACTION		1159.50	SEI
	TOTAL ANNUAL COST OF LONG TERM CARE		12754.50	

DRAFT

REGULAR MEETING BOARD OF COUNTY COMMISSIONERS SEPTEMBER 29, 1992

The Board of County Commissioners convened in regular session on this Tuesday, September 29, 1992, at Bushnell, Sumter County, Florida, with the following Members present to wit: Jim Allen, District No. 2, Fran Palomeque, District No. 3, Tom Dixon, Chairman, District No. 1, John L. Stephens, Vice Chairman, District No. 4, Stanton Gideons, Jr., District No. 5. Bernard R. Shelnutt, Jr., Clerk & Auditor, Bernard Dew, County Administrator, Jan Kirkpatrick, Deputy Clerk, and Randall N. Thornton, Attorney for the Board, were also present and acting in their respective official capacities.

The meeting was called to order at 9:00 a.m. by Chairman Dixon with the devotional given by Mr. Dixon. All persons present gave the flag salute.

HOUSING

Mr. Gideons moved to approve the following Section 8 Housing matters as presented by Mary Jackson. The motion was seconded by Mr. Allen and carried. (INSERT).

GRANT - PUBLIC HEALTH

Mr. Stephens moved to authorize the Chairman to execute a mosquito control/waste tire abatement grant application. The motion was seconded by Mr. Allen and carried.

LANDFILL - BUDGET

Mr. Gideons moved to authorize an escrow account to be maintained for the sole purpose of long-term care of the Sumter County Landfill according to Rule 17-701.076 F.A.C., as required by the Department of Environmental Regulation. The motion was seconded by Mr. Stephens and carried.

BUDGET - LANDFILL

Mr. Gideons moved to approve an advance from Transportation Trust Fund to pay the August landfill billing. The motion was seconded by Mr. Allen and carried.

DEPARTMENT OF ENVIRONMENTAL REGULATION
LONG TERM CARE ESCROW AGREEMENT
SUMTER COUNTY LANDFILL

The Clerk of the Circuit Court of Sumter County - Finance Department has established an interest-bearing escrow account with the State Board of Administration, Agency Number _____. The beneficiaries of this account are (1) Sumter County Board of County Commissioners and (2) Secretary, Florida Department of Environmental Regulation. The trustee of this account shall be the Sumter County Clerk of the Circuit Court.

This account is an accumulative escrow account maintained for the sole purpose of long-term care of the Sumter County Landfill according to Rule 17-701.076 F.A.C. (1989). The total amount of money kept on deposit shall be determined by a Registered Professional Engineer with the State of Florida, and approved by the Department of Environmental Regulation.

Funds in this account will not be used for any other purpose other than landfill closure and long-term care, and disbursements from this escrow account shall be under the approval of the Finance Director - Clerk of the Circuit Court.

I have read this statement and fully understand its content.

_____ Date: Sept. 29, 1992
Clerk of the Circuit Court

_____ Date: Sept 29, 1992
Finance Director

_____ Date: Sept 29, 1992
Director of Public Works

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PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
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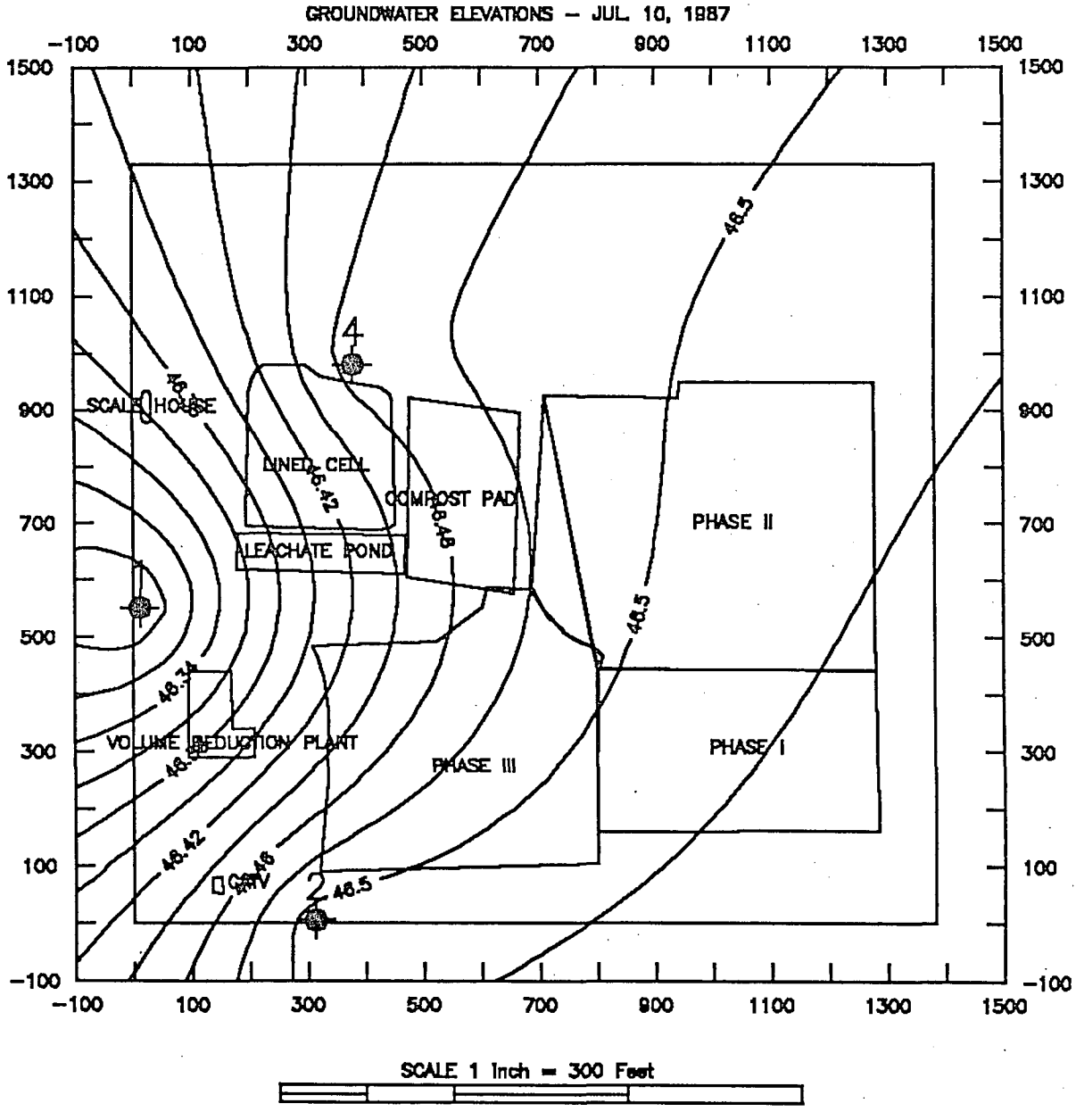
APPENDIX B

GROUNDWATER ELEVATION MAPS

OCTOBER 2, 1992

92-1100.00

SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



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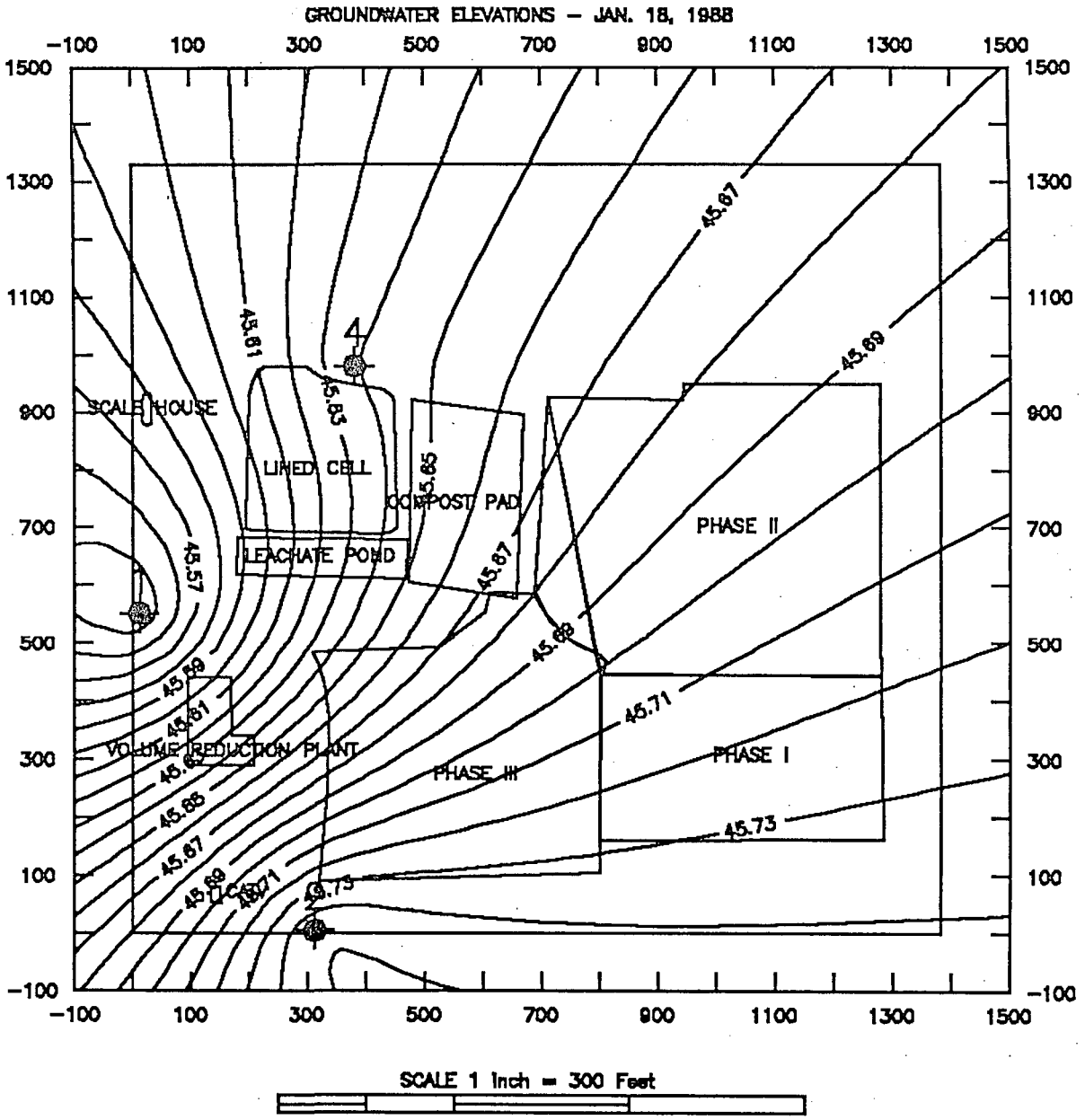

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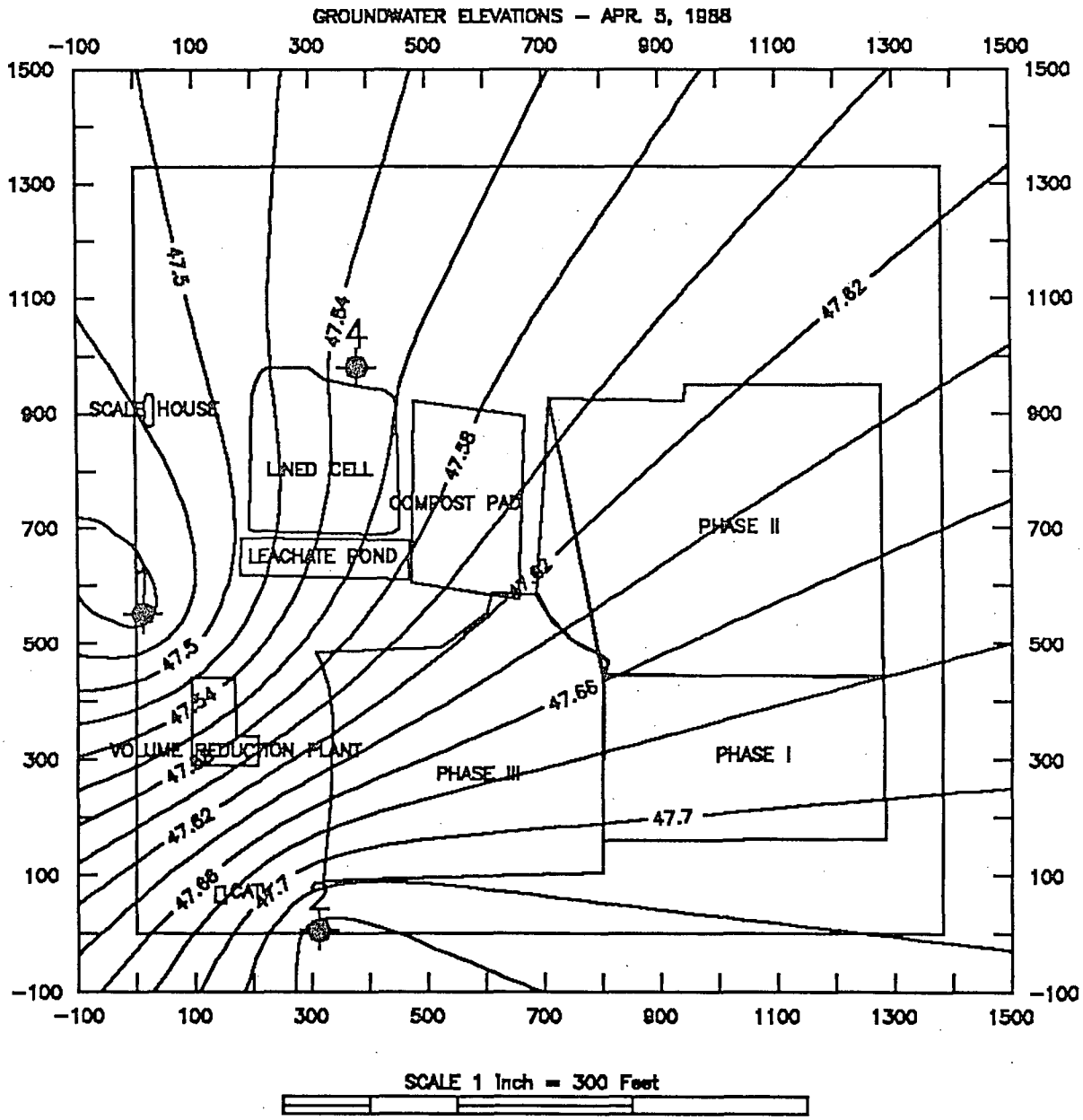

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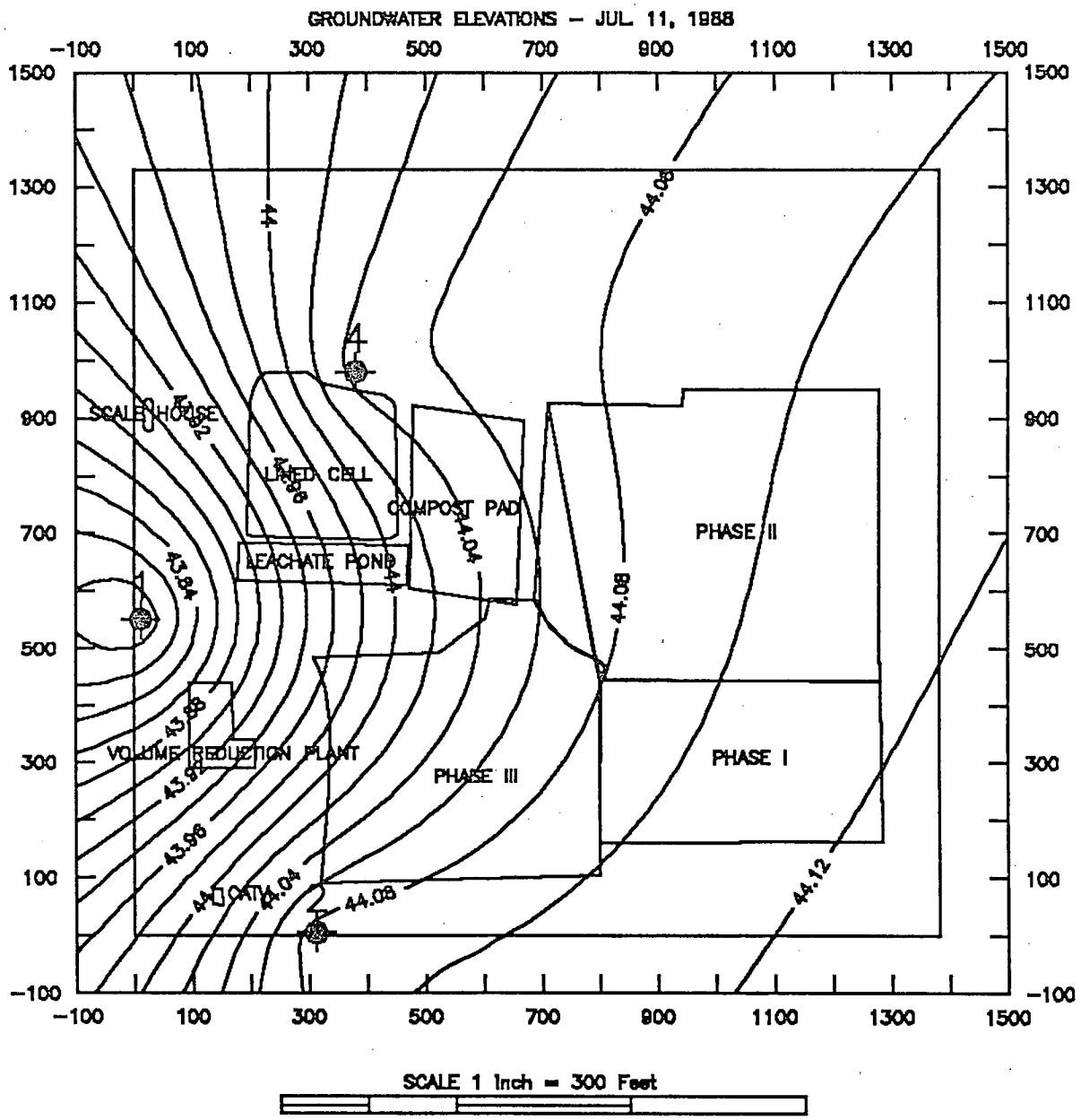

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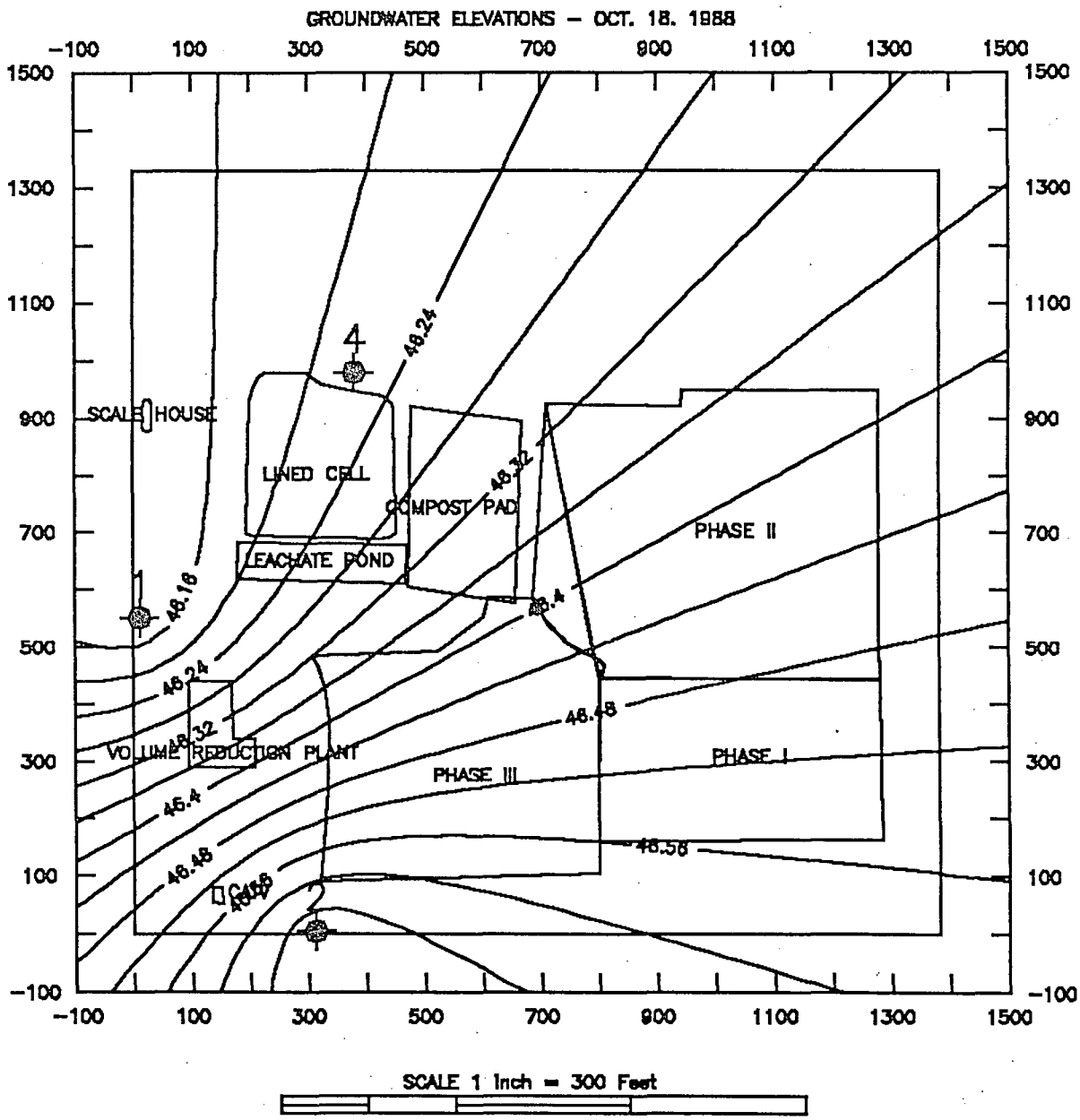

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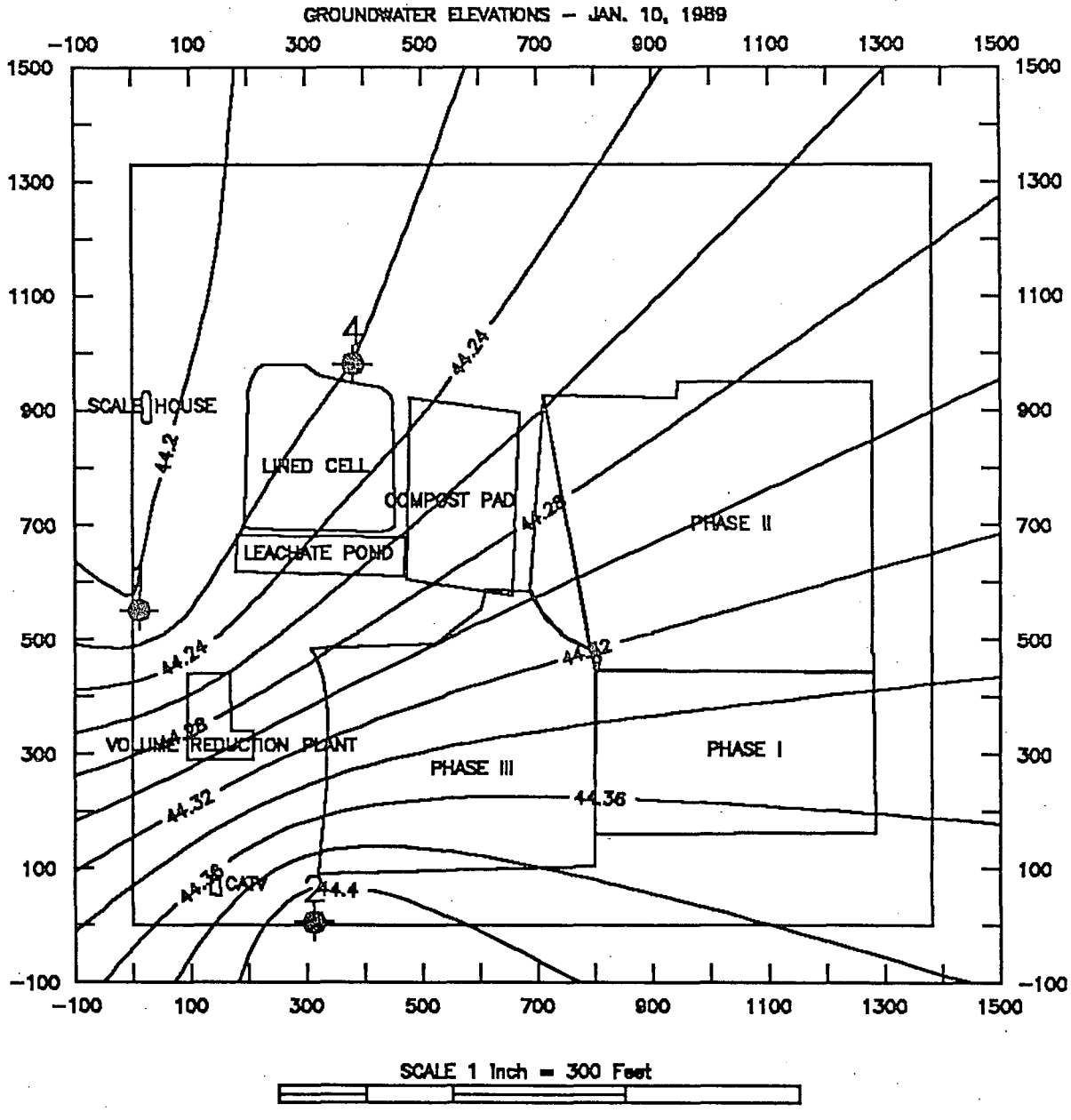

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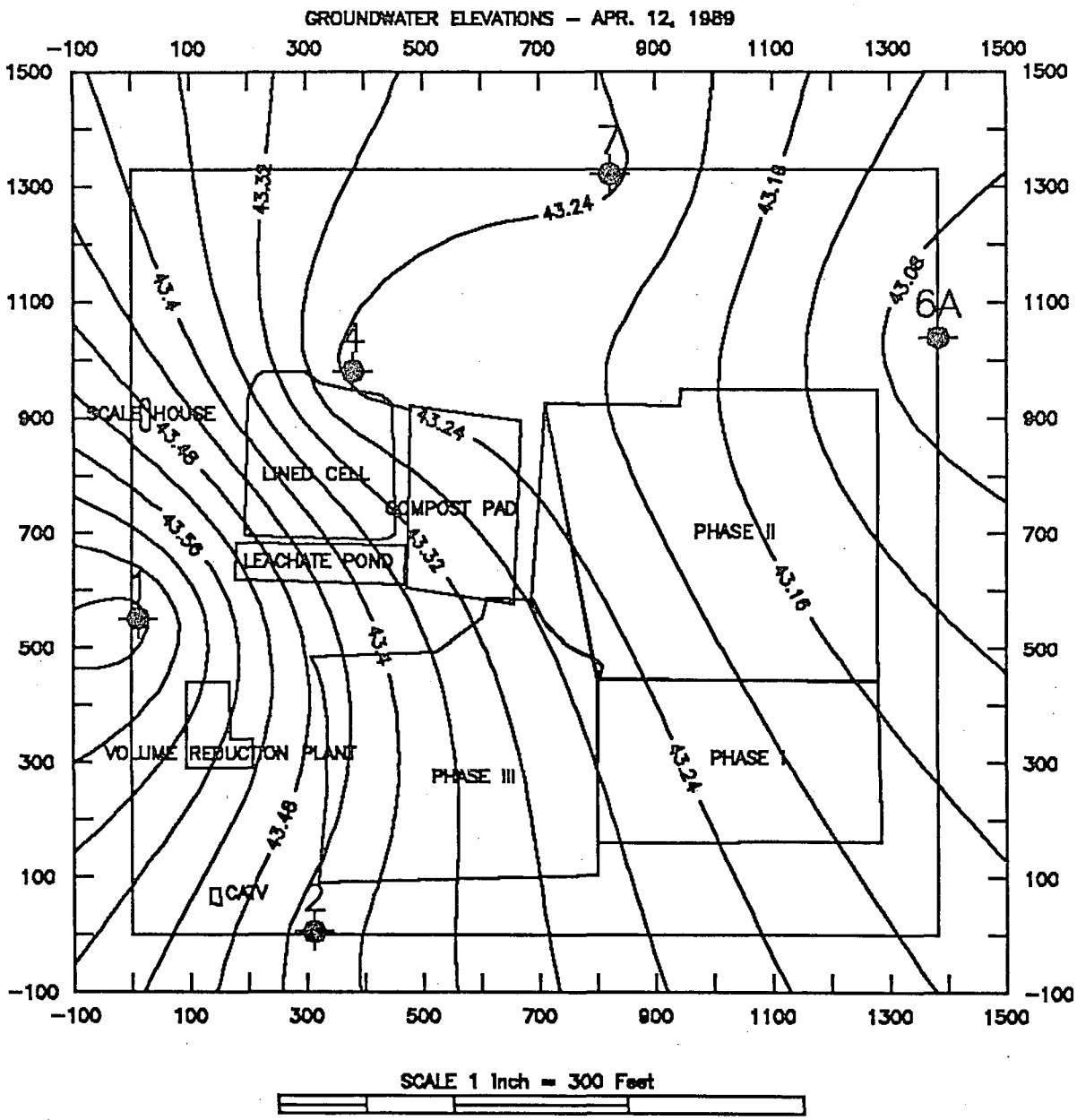

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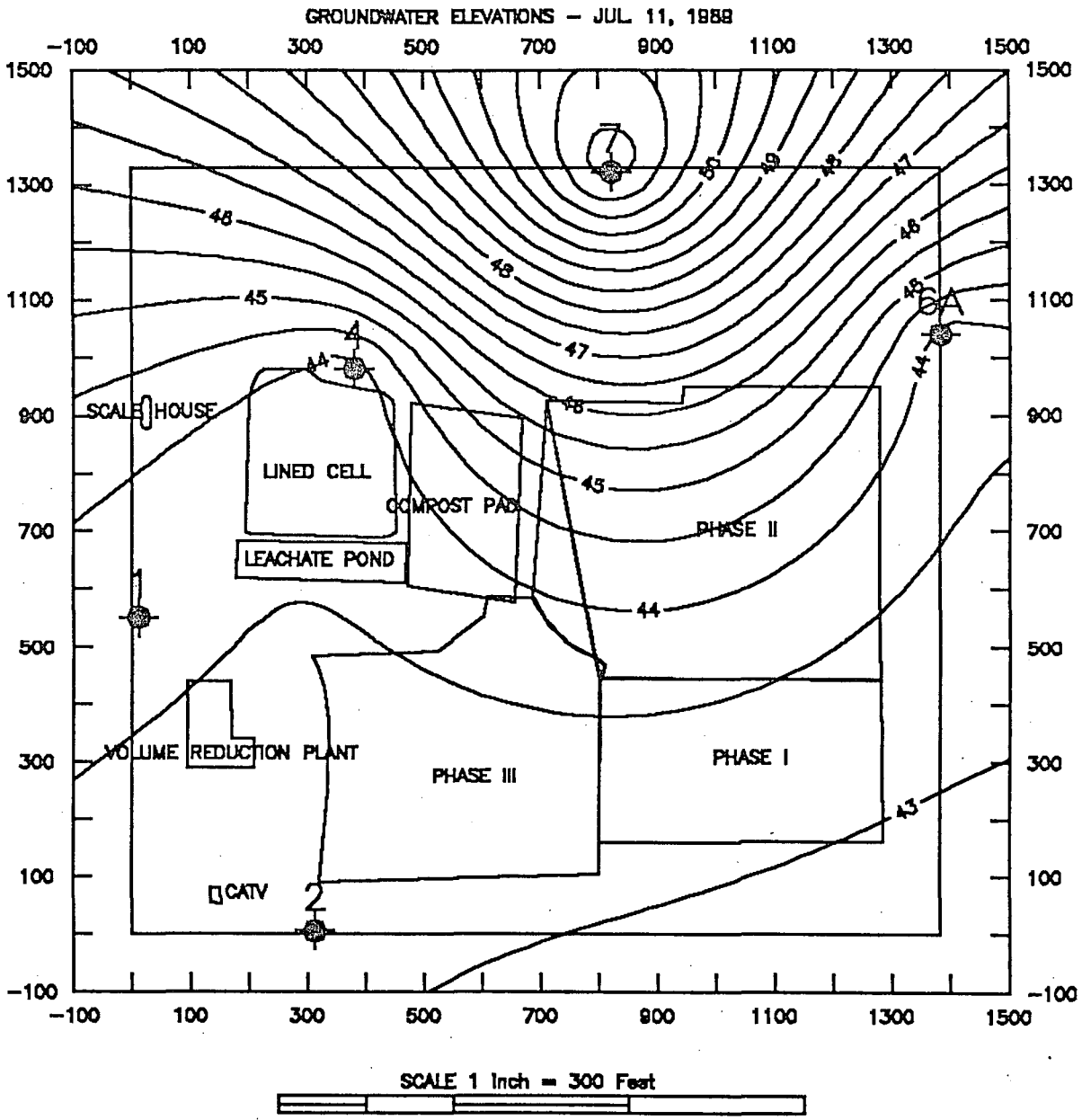

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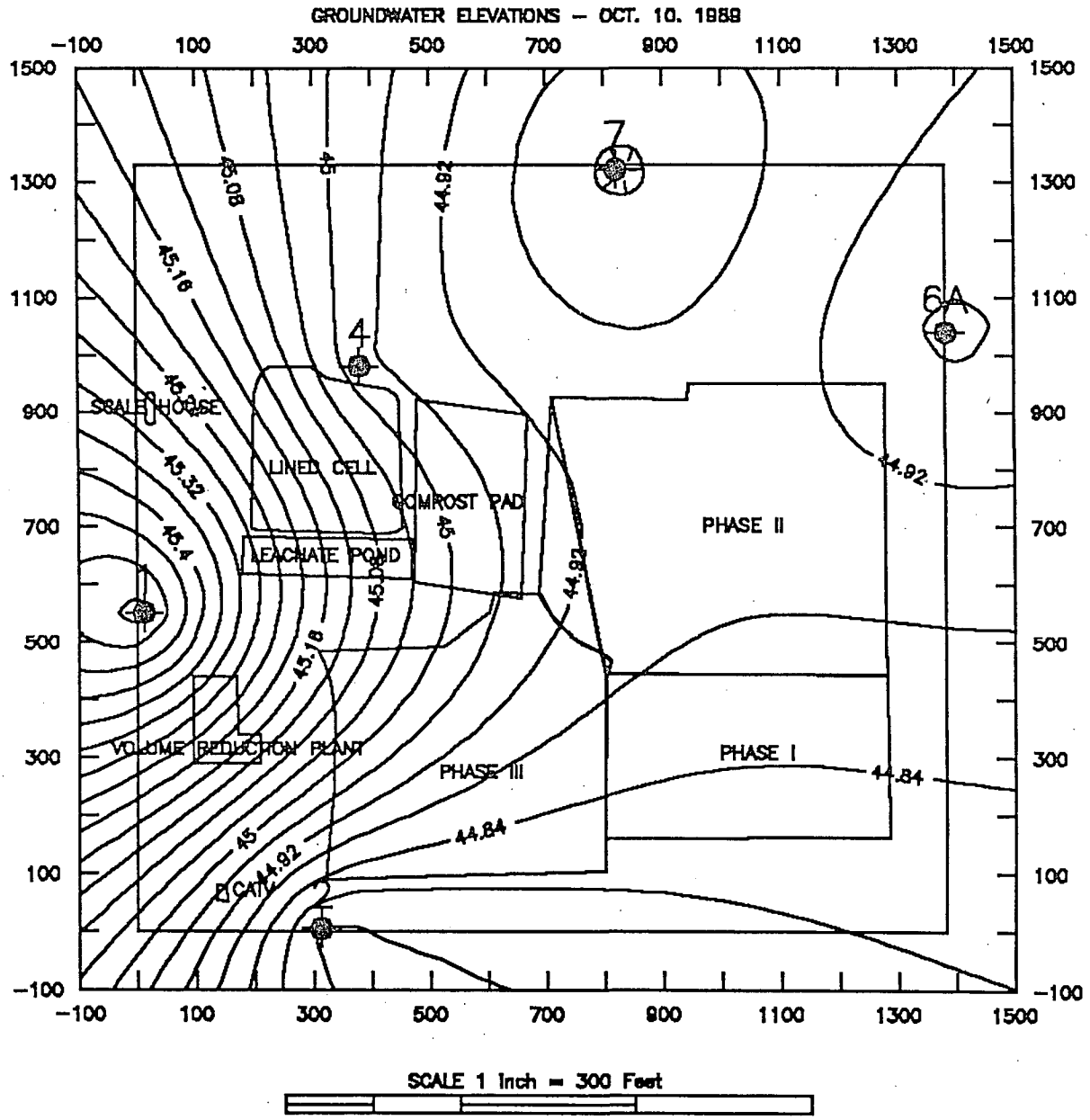

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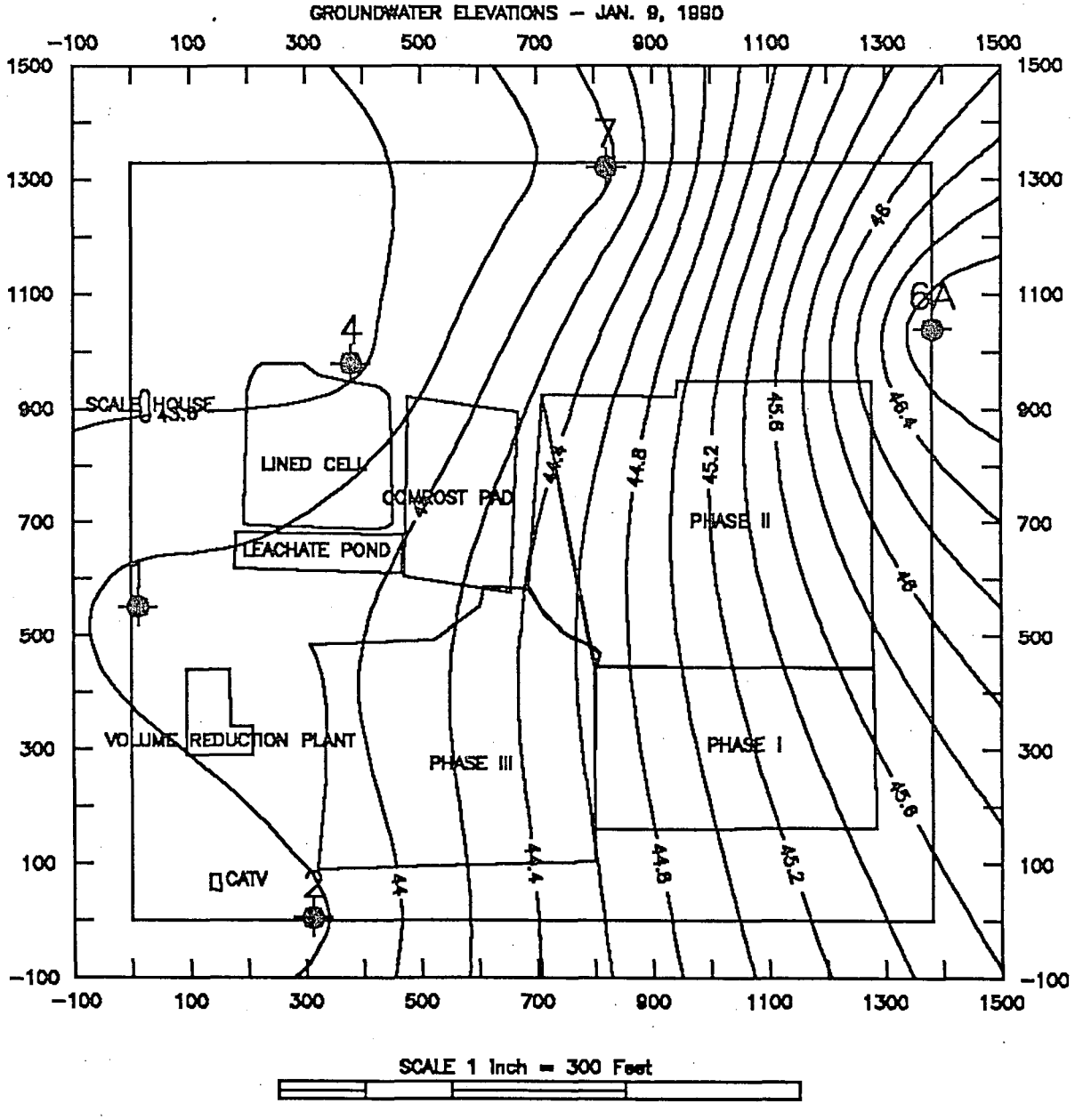

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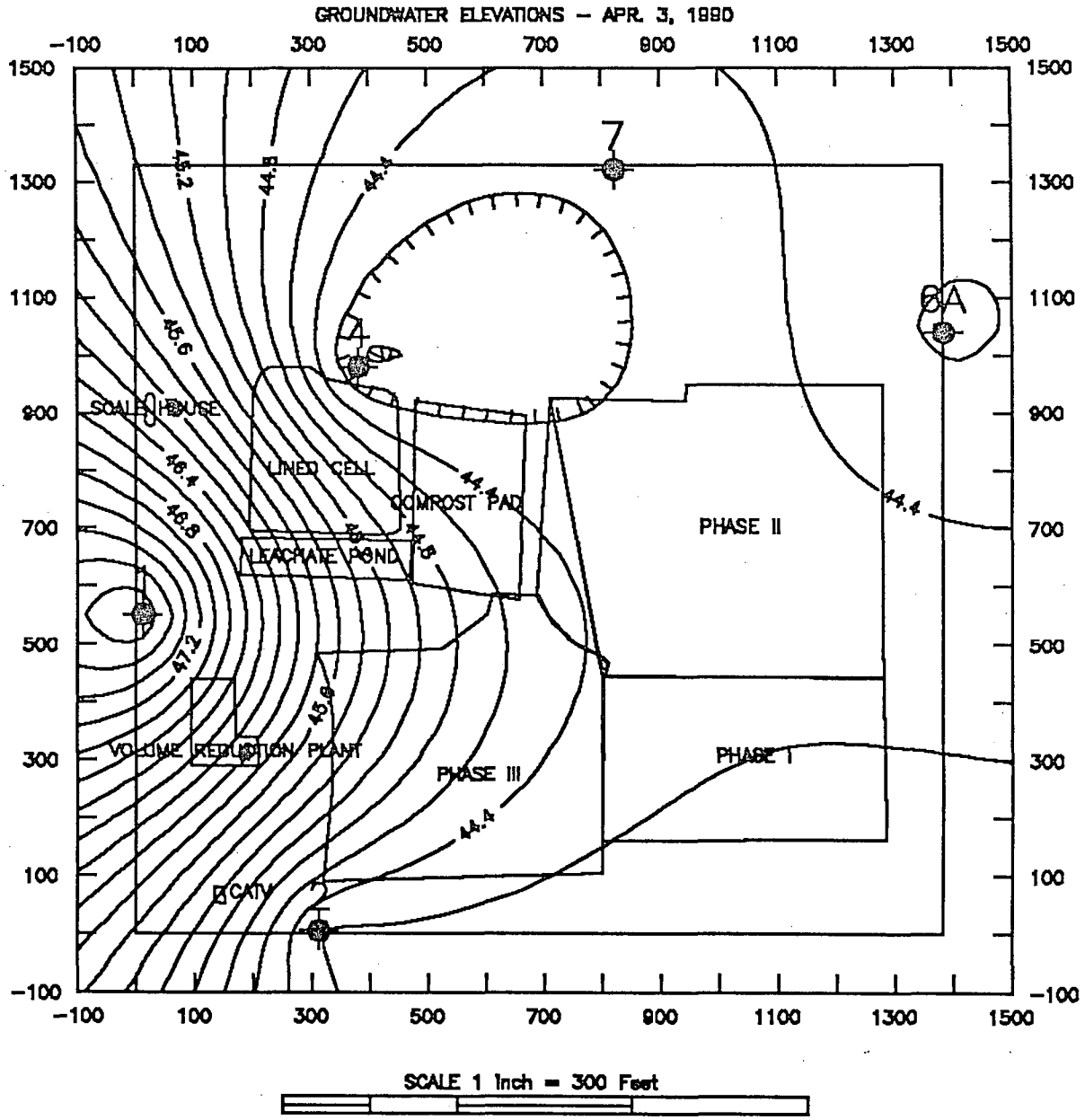

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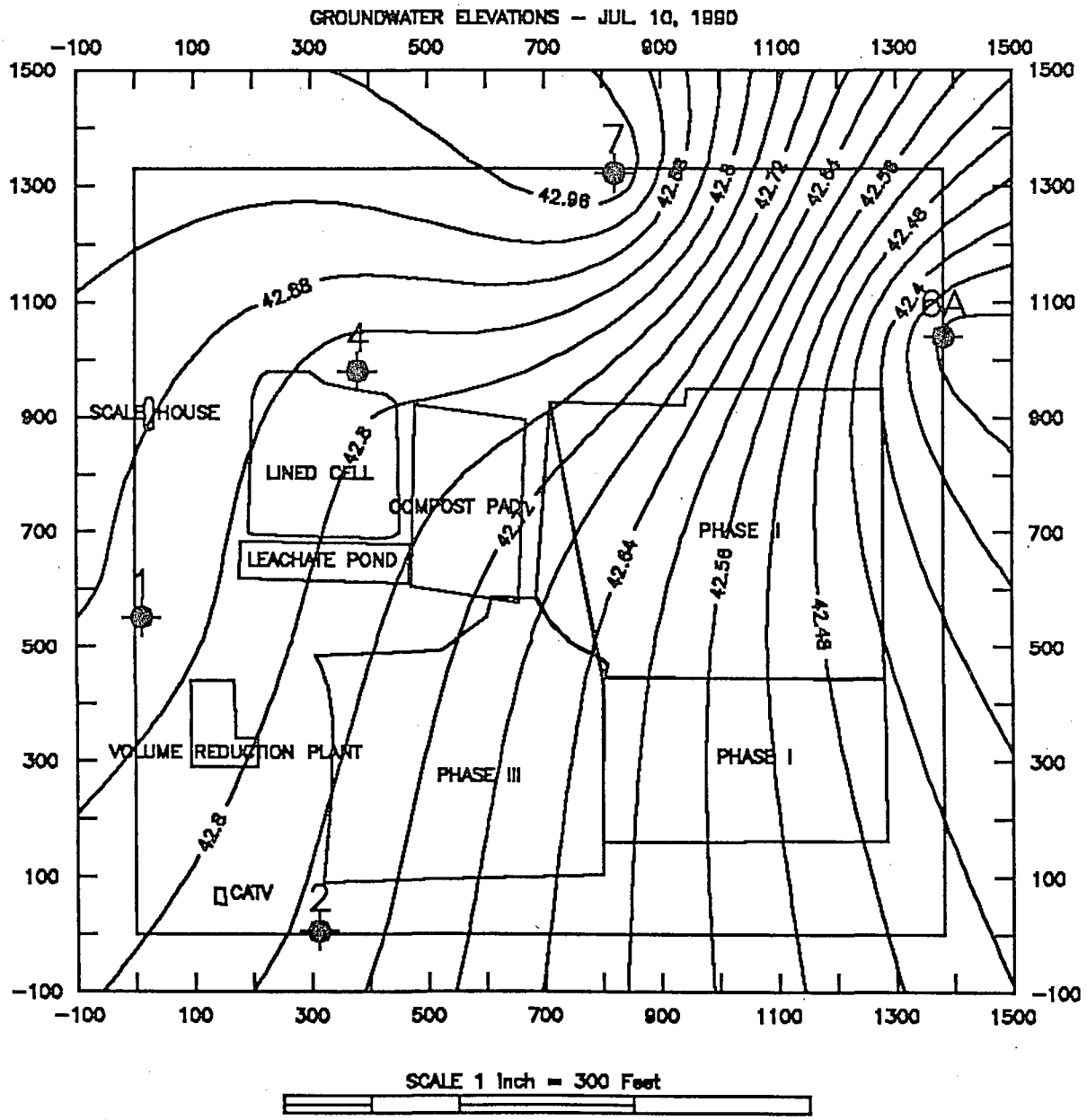

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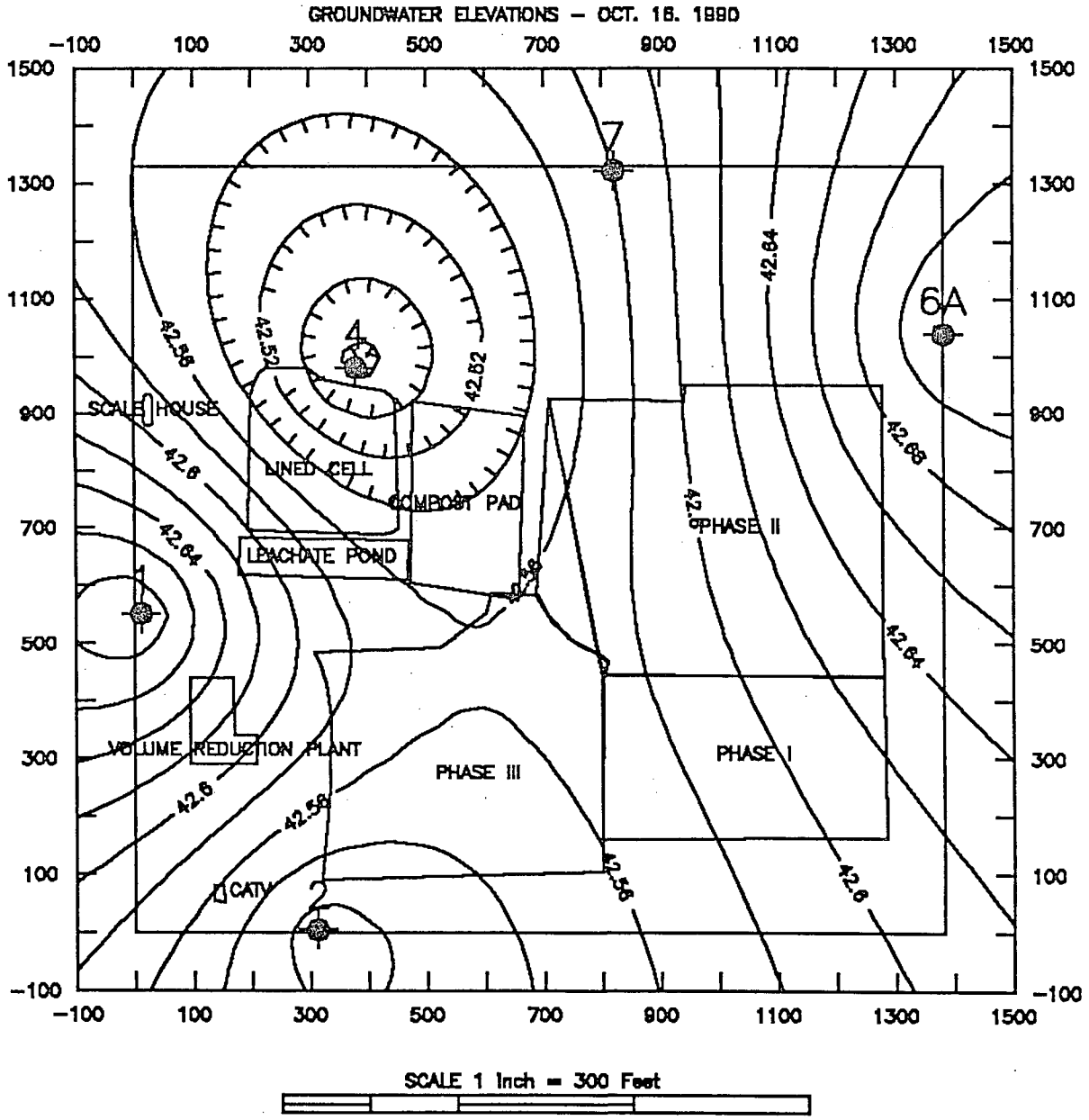

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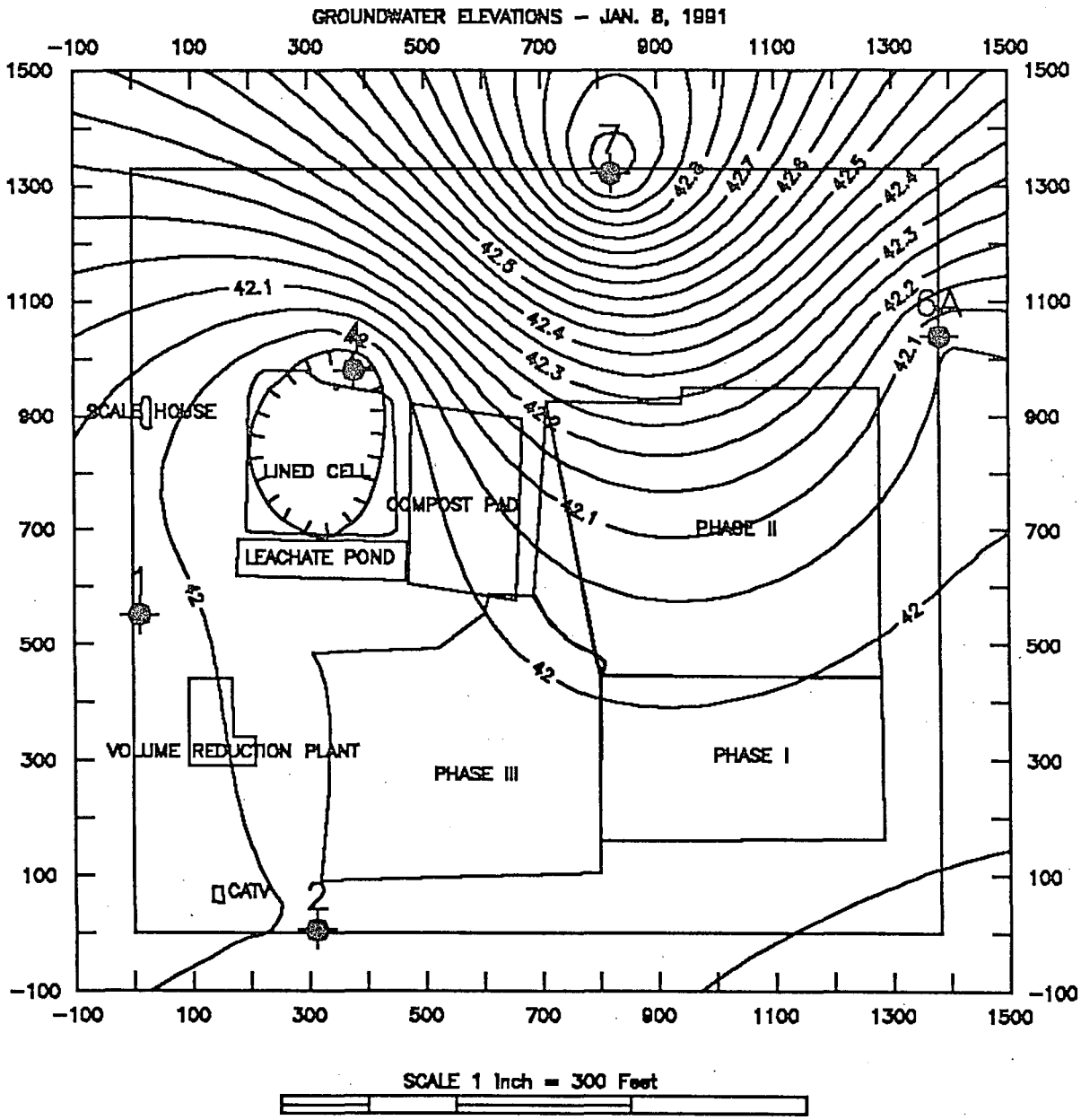
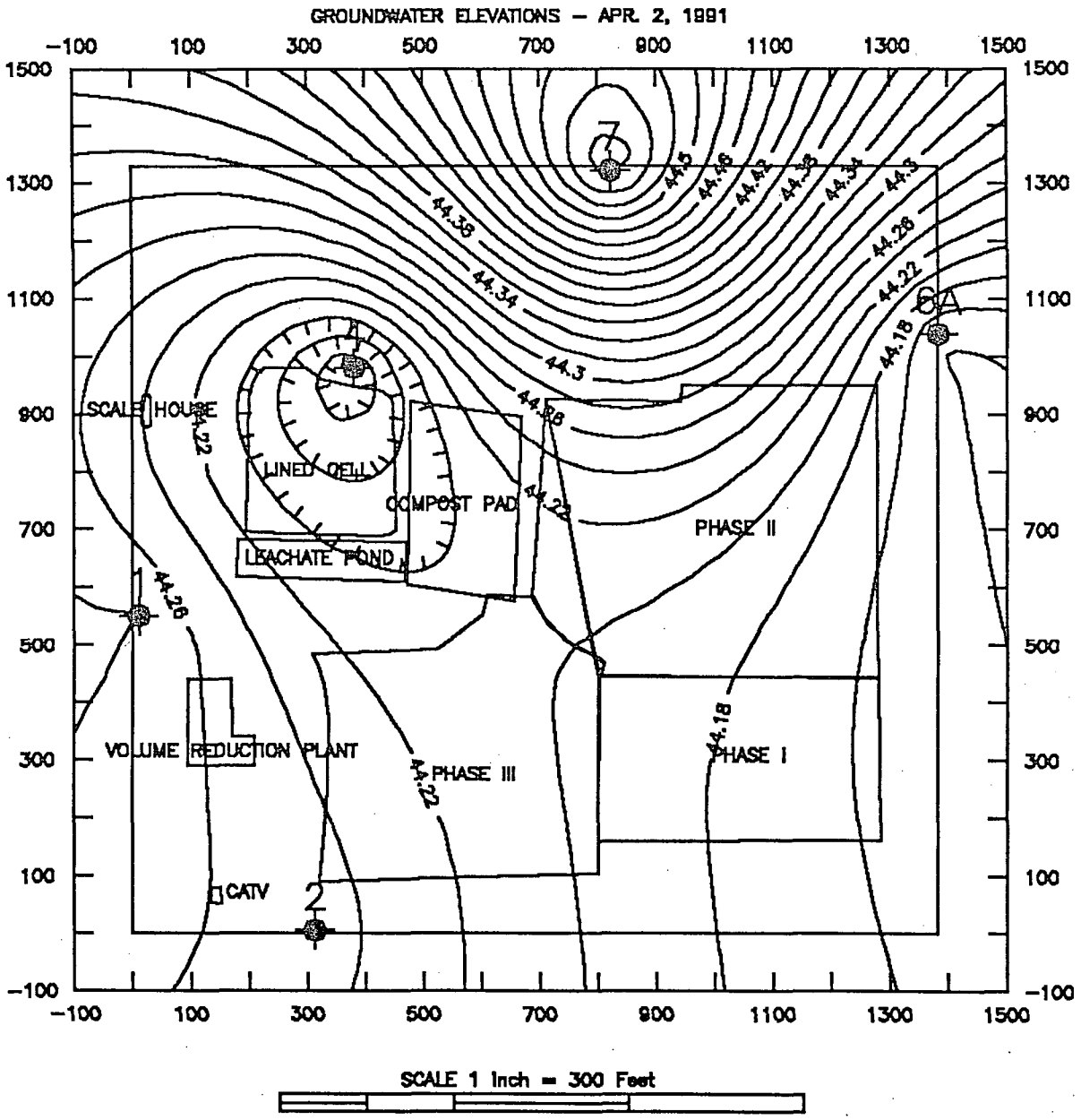
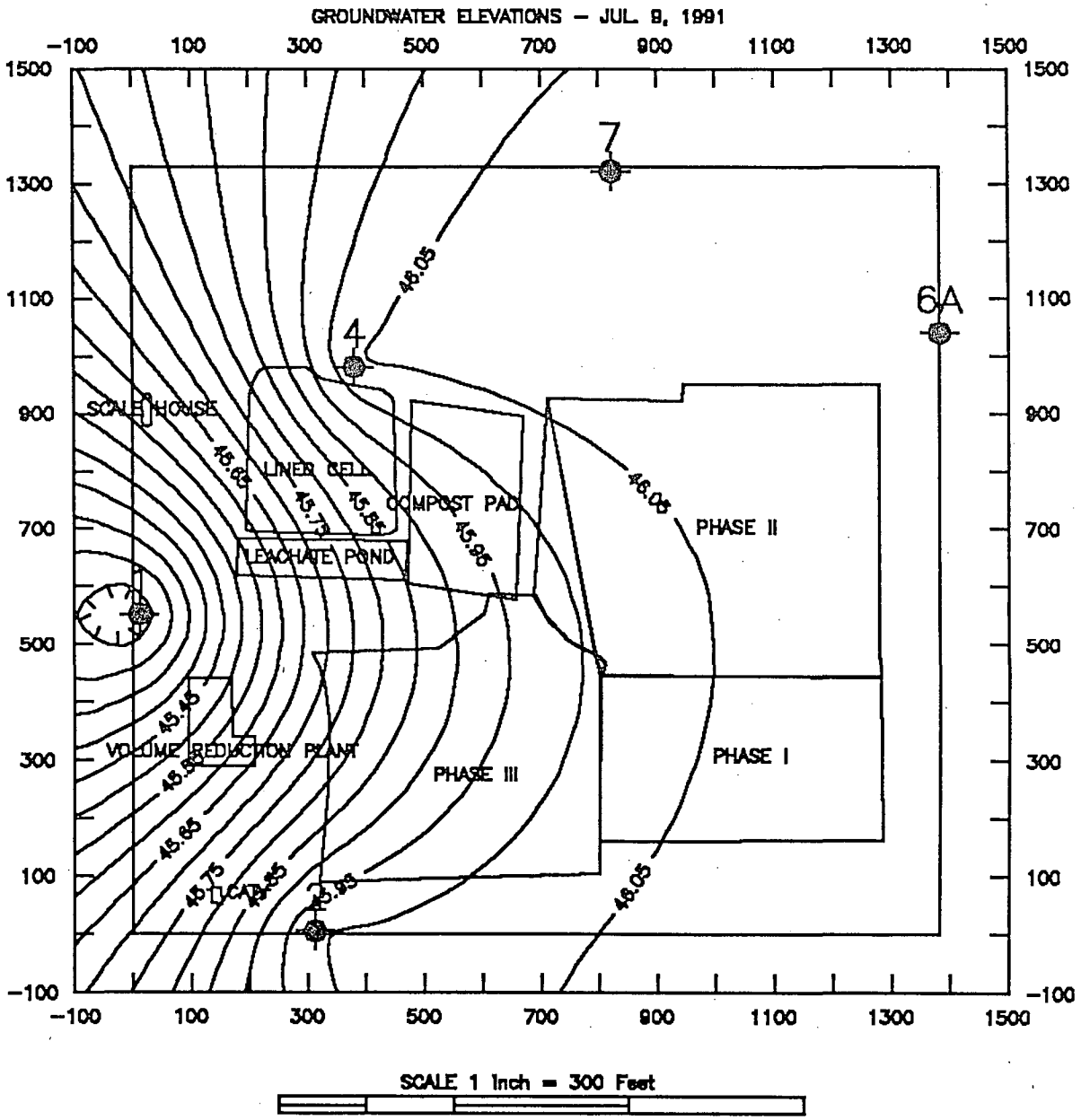


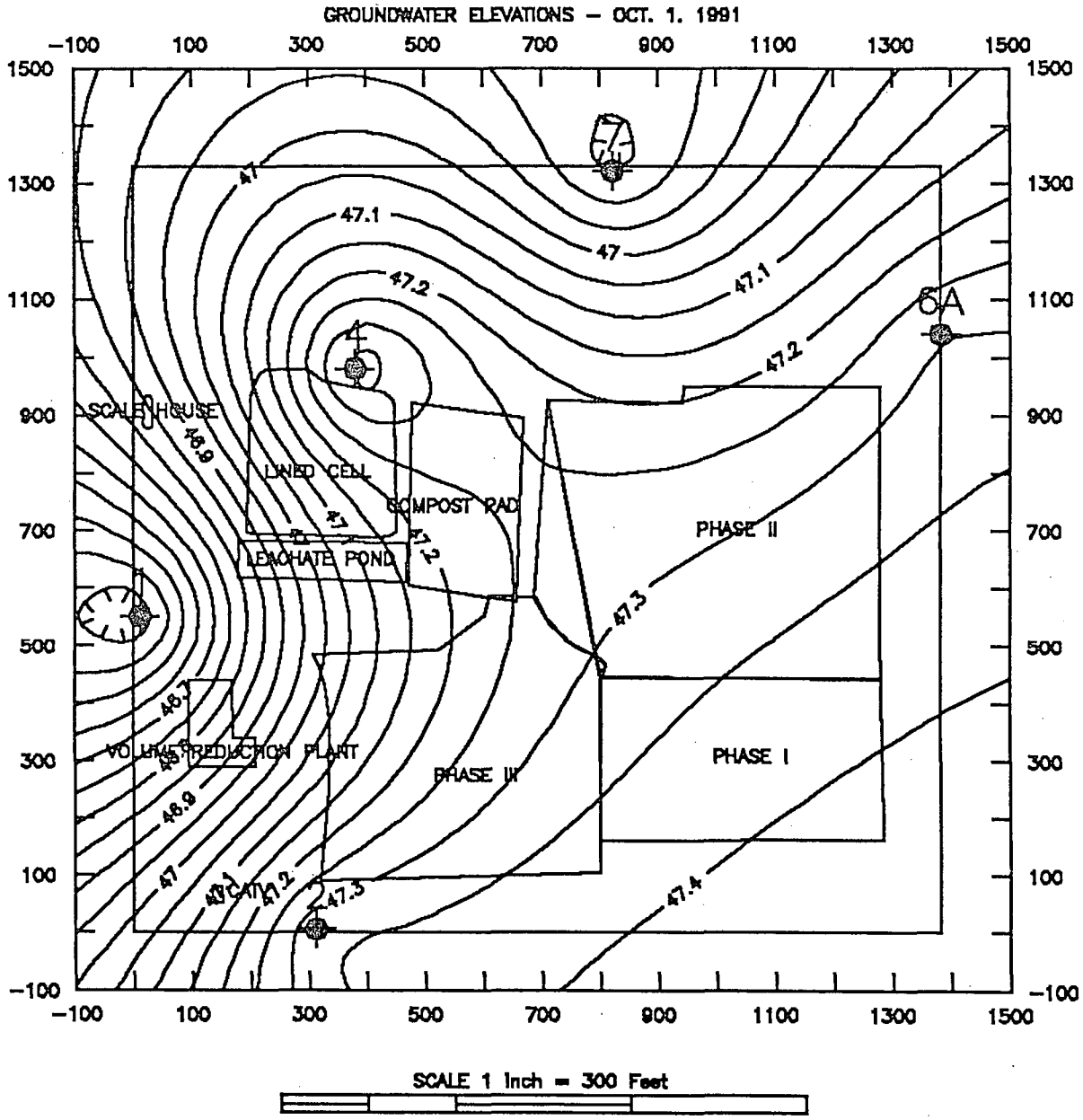
SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



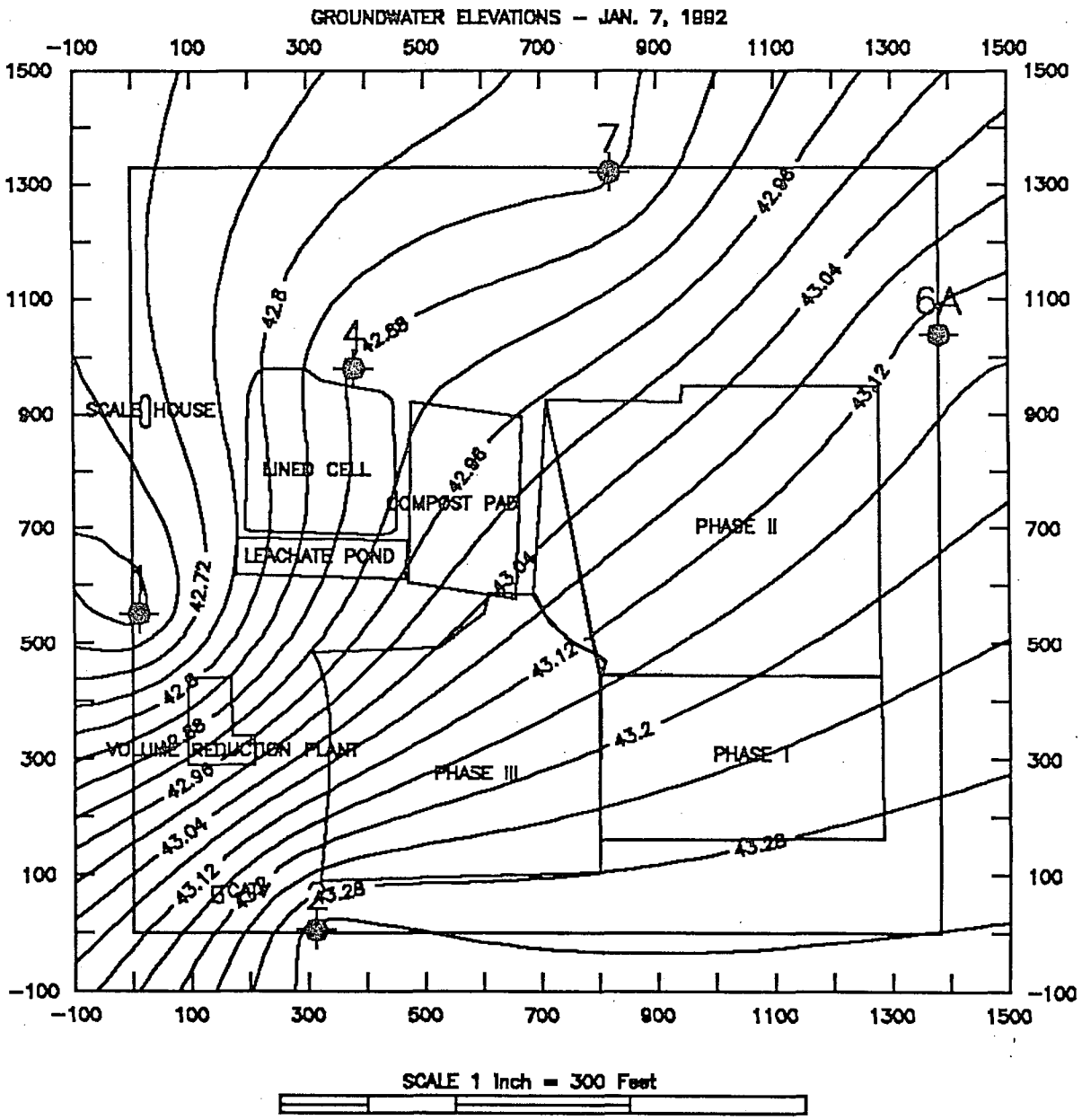
SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



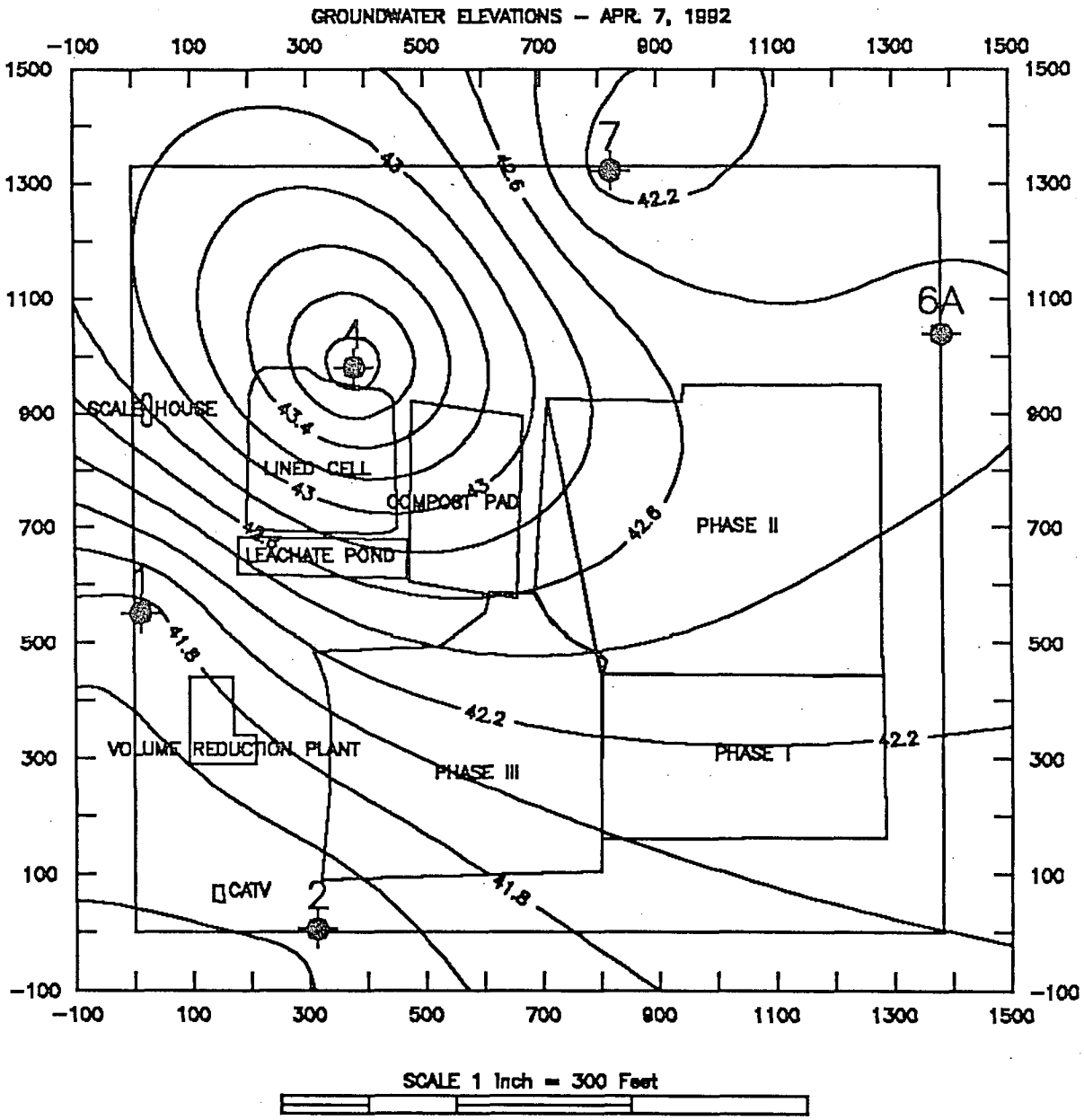
SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



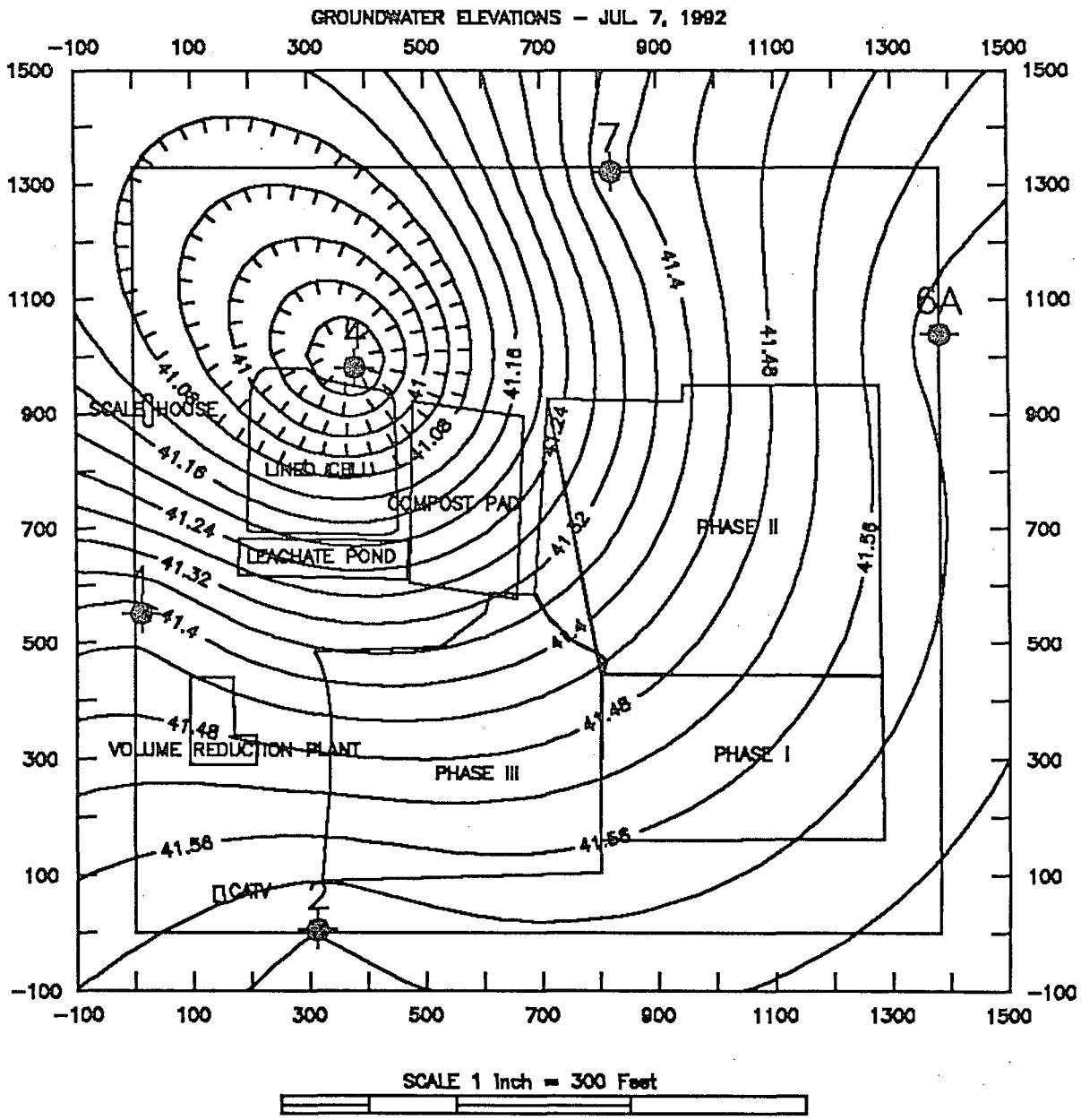
SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY



THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PERMIT TO OPERATE COMPOSTING FACILITY
PERMIT TO OPERATE RESOURCE RECOVERY FACILITY
WASTE TIRE GENERAL PERMIT
AND
PERMIT TO MAINTAIN CLOSED CLASS I SANITARY LANDFILL
PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
222 EAST McCOLLUM AVENUE
BUSHNELL, FLORIDA 33513

APPENDIX C

LITHOLOGIC INFORMATION GENERAL CROSS-SECTIONS LOGS OF MONITOR WELLS AND TEST HOLES

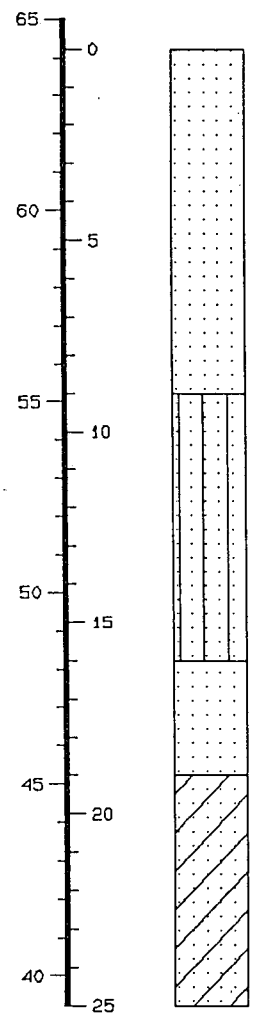
OCTOBER 2, 1992

92-1100.00

BORING LOG

BORING NO. TH1

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: TH1 ELEV.: 64.23 DATE: 4-18-84
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 440' NORTH, 375' EAST
BORING METHOD: ASTM D 1452 DRILLER: OPSHAL
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NONE DEPTH OF COLLAPSE: NONE

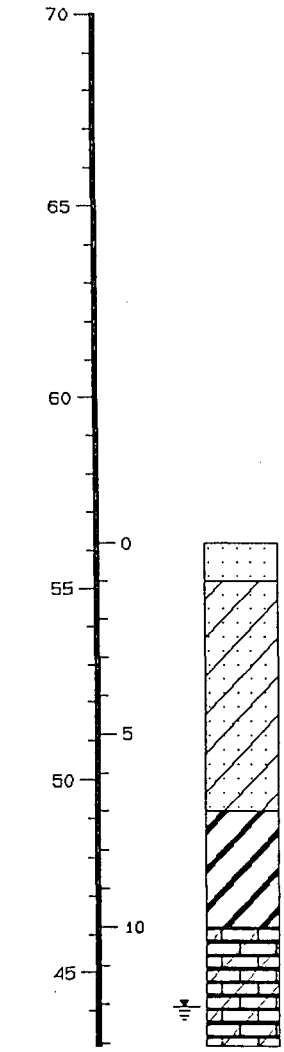


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
		POORLY GRADED SANDS OR GRAVELLY SANDS LITTLE OR NO FINES	GRAYISH BROWN TO YELLOWISH BROWN SAND
			PERMEABILITY K = 1.40E-02 ft/min
		SILTY SANDS SAND-SILT MIXES	@ 9' BROWN SILTY SAND
			PERMEABILITY K = 5.37E-04 ft/min
		POORLY GRADED SANDS OR GRAVELLY SANDS LITTLE OR NO FINES	@ 15' LIGHT BROWN SAND
		CLAYEY SANDS SAND-CLAY MIXES	@ 19' WHITE CLAYEY SAND

BORING LOG

BORING NO. TH2

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: TH2 ELEV.: 56.19 DATE: 5-25-84
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 1220' NORTH, 1065' EAST
BORING METHOD: ASTM D 1452 DRILLER: OPSHAL
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: 12.06 DEPTH OF COLLAPSE: NONE



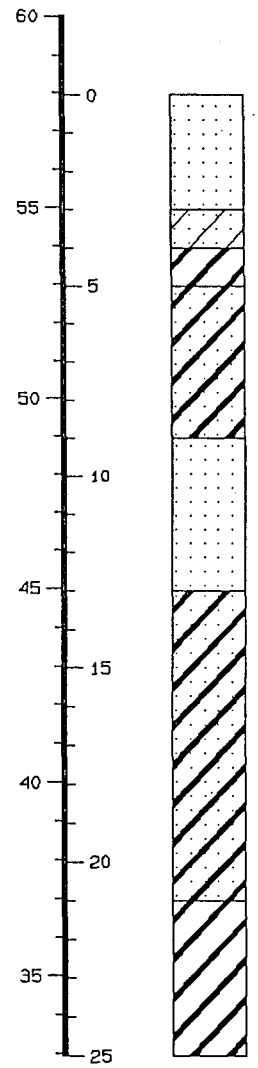
ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
0		POORLY GRADED SANDS OR GRAVELLY SANDS LITTLE OR NO FINES	BROWN SAND
1		CLAYEY SANDS SAND-CLAY MIXES	@ 1' BLUEISH-GRAY SANDY CLAY
7		INORGANIC CLAYS OF HIGH PLASTICITY	@ 7' BLUEISH-GRAY CLAY
10		CLAY WITH LIMESTONE FRAGMENTS	@ 10 BLUEISH CLAY WITH LIMESTONE FRAGMENTS

DEPTH TO GROUNDWATER TABLE MEASURED JANUARY 1984.

BORING LOG

BORING NO. TH3

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: TH3 ELEV.: 57.94 DATE: 5-25-84
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 20' SOUTH, 1310' EAST
BORING METHOD: ASTM D 1452 DRILLER: OPSHAL
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NONE DEPTH OF COLLAPSE: NONE

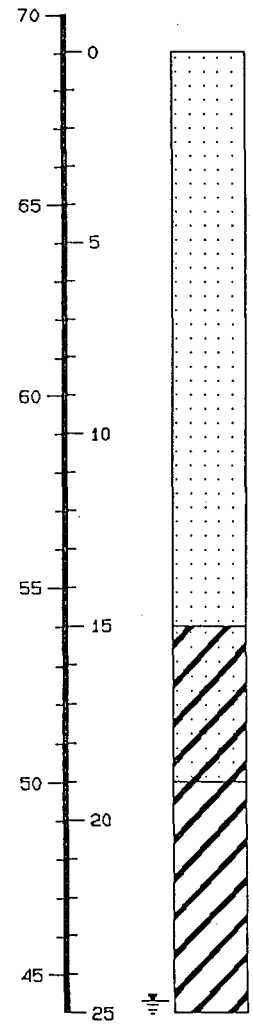


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
		POORLY GRADED SANDS	DARK BROWN SAND
		CLAYEY SANDS	@ 3' GRAY CLAYEY SAND
		CLAY	@ 4' RED CLAY
		SANDY CLAY	@ 5' LIGHT BROWN SANDY CLAY
		POORLY GRADED SANDS	@ 9' LIGHT BROWN SAND
		SANDY CLAY	@ 13' PINK SANDY CLAY
		CLAY	PINK CLAY

BORING LOG

BORING NO. TH4

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: TH4 ELEV.: 69.04 DATE: 5-25-84
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 940' NORTH, 100' EAST
BORING METHOD: ASTM D 1452 DRILLER: OPSHAL
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: 24.68 DEPTH OF COLLAPSE: NONE

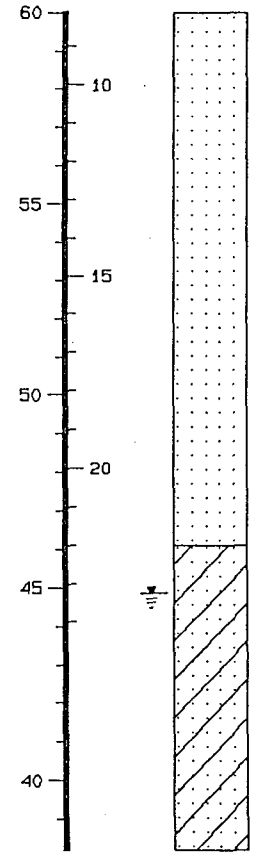


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
0		POORLY GRADED SANDS	FINE SAND
15		SANDY CLAY	SANDY CLAY
20		CLAY	GRAY CLAY

BORING LOG

BORING NO. TH5

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: TH5 ELEV.: 68.11 DATE: 5-25-84
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 25' NORTH, 275' EAST
BORING METHOD: ASTM D 1452 DRILLER: OPSHAL
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: 23.25 DEPTH OF COLLAPSE: NONE

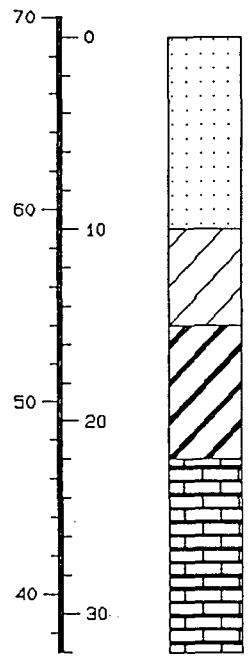


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
		CLAYEY SANDS	CLAYEY SAND

BORING LOG

BORING NO. MW1

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW1 ELEV.: 69 DATE: 9-18-85
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 550' NORTH
BORING METHOD: ROTARY DRILLER: SIGLIN / TOWNSEND
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

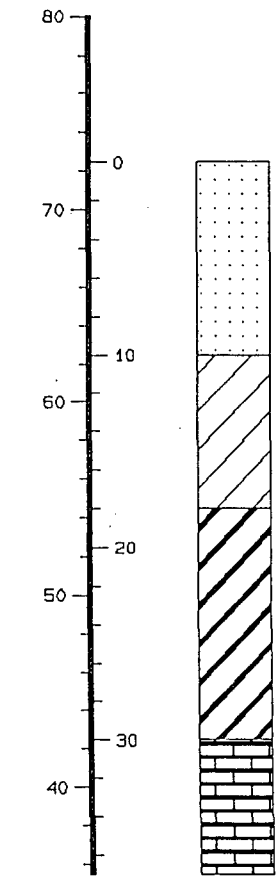


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYNBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
		POORLY GRADED SANDS	BROWN SAND
		SANDY CLAY	@ 10' BROWN SANDY CLAY
		CLAY	@ 15' BROWN CLAY
		LIMESTONE	@ 22' WHITE LIMESTONE

BORING LOG

BORING NO. MW2

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW2 ELEV.: 72.47 DATE: 9-19-85
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 15' NORTH, 330' EAST
BORING METHOD: ROTARY DRILLER: SIGLIN / TOWNSEND
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

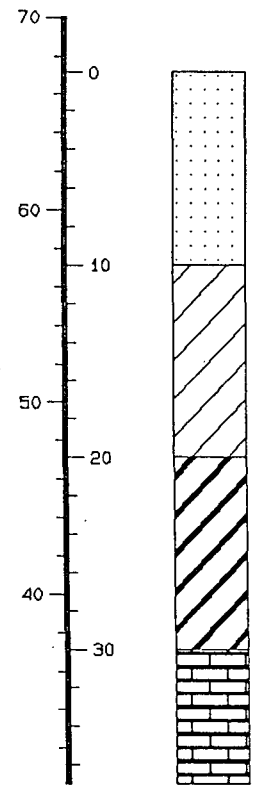


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
0		POORLY GRADED SANDS	BROWN SAND
10		SANDY CLAY	@ 10' BROWN SANDY CLAY
20		CLAY	@ 18' BROWN CLAY
30		LIMESTONE	@ 30' WHITE LIMESTONE

BORING LOG

BORING NO. MW3

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW3 ELEV.: 67.14 DATE: 9-20-85
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 1010' NORTH, 900' EAST
BORING METHOD: ROTARY DRILLER: SIGLIN / TOWNSEND
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

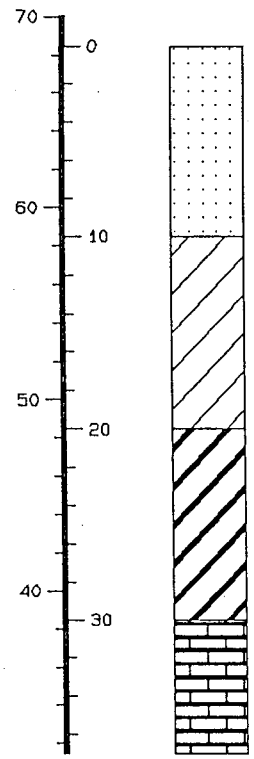


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
70 / 0		POORLY GRADED SANDS	BROWN SAND
60 / 10		SANDY CLAY	@ 10' BROWN SANDY CLAY
50 / 20		CLAY	@ 20' BROWN CLAY
40 / 30		LIMESTONE	@ 30 WHITE LIMESTONE

BORING LOG

BORING NO. MW4

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW4 ELEV.: 68.48 DATE: 9-20-85
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 1000' NORTH, 365' EAST
BORING METHOD: ROTARY DRILLER: SIGLIN / TOWNSEND
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

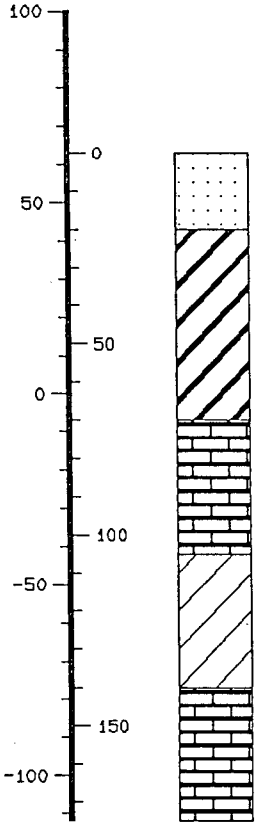


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
0		POORLY GRADED SANDS	BROWN SAND
10		SANDY CLAY	@ 10' BROWN SANDY CLAY
20		CLAY	@ 20' BROWN CLAY
30		LIMESTONE	@ 30' WHITE LIMESTONE

BORING LOG

BORING NO. MW5

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW5 ELEV.: 63.10 DATE: 9-30-85
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 2600' NORTH, 640' EAST
BORING METHOD: ROTARY DRILLER: RABOLD / TOWNSEND
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

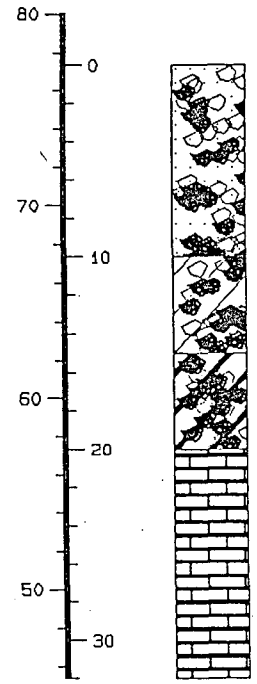


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
		POORLY GRADED SANDS	DARK GRAY SAND
		CLAY	@ 20' DARK GRAY AND WHITE CLAY
		LIMESTONE	@ 70' HARD WHITE LIME-STONE @ 80 SOFT BROWN LIME-STONE
		SANDY CLAY	@ 105' BLACK SANDY CLAY @ 120' BROWN SANDY CLAY
		LIMESTONE	@ 140' BROWN LIMESTONE @ 149' BROWN AND WHITE HARD LIMESTONE @ 159 BROWN AND WHITE SOFT LIMESTONE

BORING LOG

BORING NO. MW6

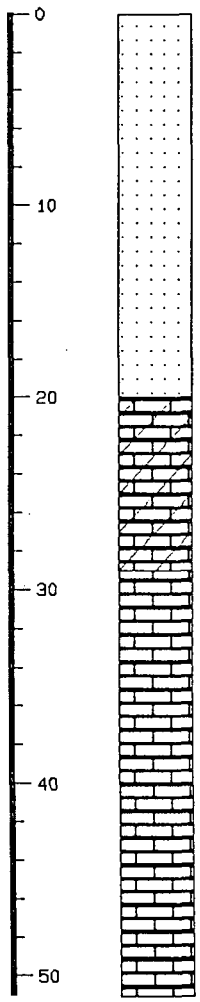
PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW6 ELEV.: 77.36 DATE: 9-85
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 450' NORTH, 1135' EAST
BORING METHOD: ROTARY DRILLER: RABOLD / TOWNSEND
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
80 / 0		SAND, GARBAGE, METAL, GLASS AND ETC	BROWN SAND WITH GARBAGE
70 / 10		SANDY CLAY AND GARBAGE	@ 10' BROWN SANDY CLAY AND GARBAGE
		CLAY AND GARBAGE	@ 15' BROWN CLAY AND GARBAGE
60 / 20		LIMESTONE	@ 20' WHITE LIMESTONE
50 / 30			

BORING LOG

BORING NO. MW6A

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW6A ELEV.: 0 DATE: 5-4-89
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 1020' NORTH, 1380' EAST
BORING METHOD: ROTARY DRILLER: STURDEVANT
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE

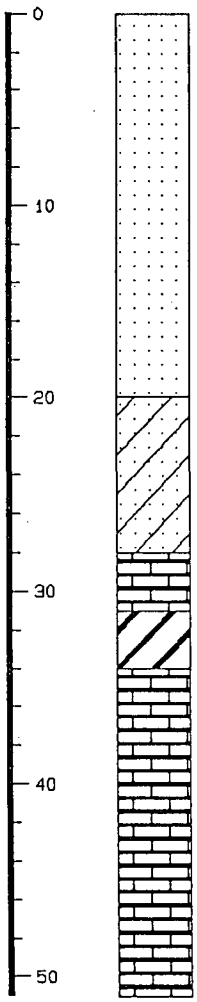


ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
0		POORLY GRADED SANDS	TAN SAND
20		CLAY WITH LIMESTONE FRAGMENTS	@ 20' GRAY CLAY AND LIMESTONE
30		LIMESTONE	@ 29 LIMESTONE

BORING LOG

BORING NO. MW7

PROJECT: SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY, SUMTER CO., FL
BORING NO.: MW7 ELEV.: 0 DATE: 5-3-89
BORING LOCATION: FROM SW CORNER, APPROXIMATELY 1330' NORTH, 900' EAST
BORING METHOD: ROTARY DRILLER: STURDEVANT
CLIENT: THE SUMTER COUNTY BOARD OF COUNTY COMMISSIONERS
DEPTH TO - Water: NOT NOTED DEPTH OF COLLAPSE: NONE



ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	FIELD CLASSIFICATION	DETAILS
0		POORLY GRADED SANDS	TAN SAND
20		CLAYEY SANDS	@ 20' TAN SAND AND CLAY
			@ 25' WHITE CLAY AND SAND
		LIMESTONE	@ 28 LIMESTONE
30		CLAY	@ 31 GRAY CLAY
		LIMESTONE	@ 34' LIMESTONE

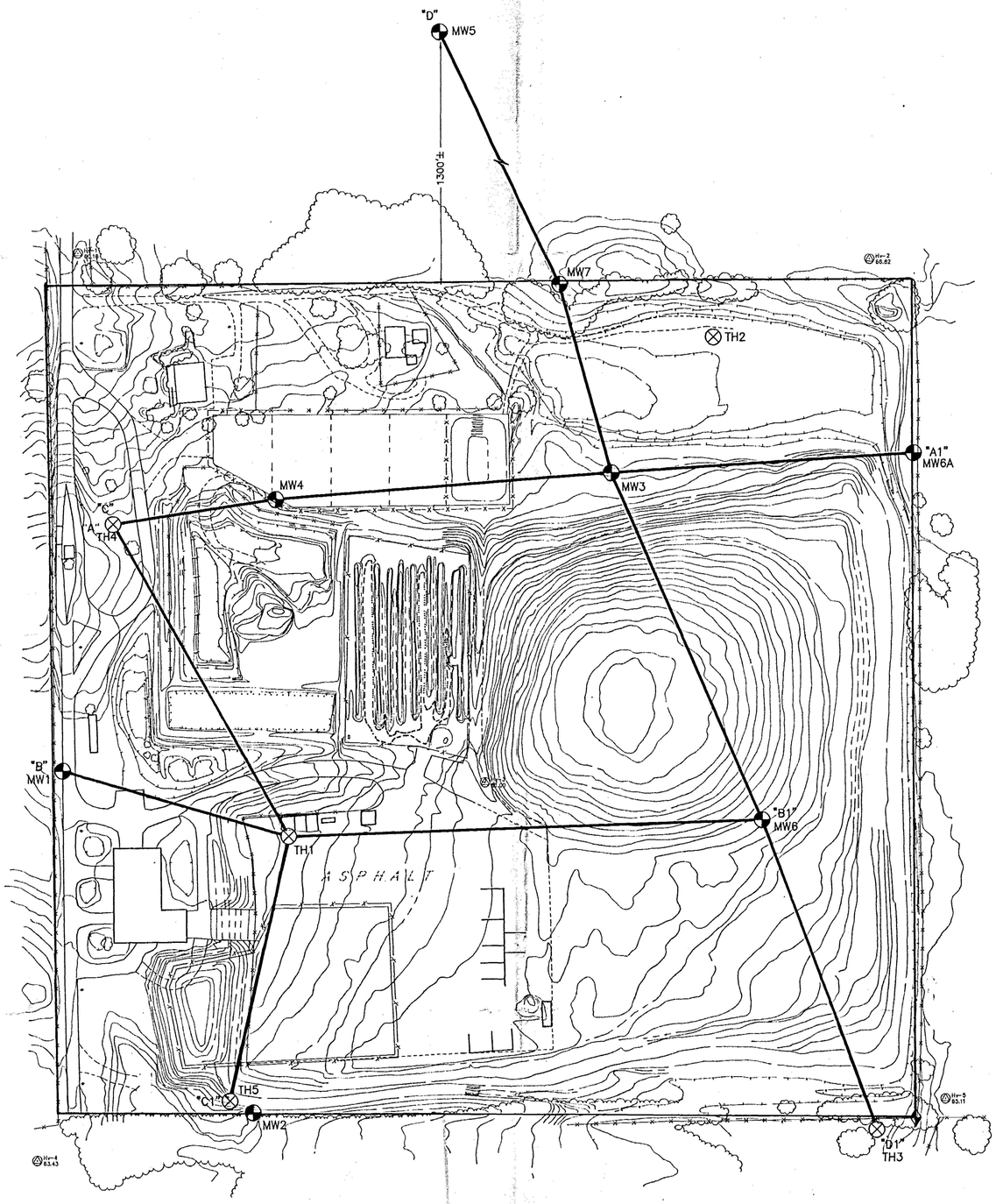
Legend:

Symbol:	Description:	Symbol:	Description:
	POORLY GRADED SANDS OR GRAVELLY SANDS LITTLE OR NO FINES		SILTY SANDS SAND-SILT MIXES
	CLAYEY SANDS SAND-CLAY MIXES		CLAY
	SANDY CLAY		CLAY WITH LIMESTONE FRAGMENTS
	SANDY CLAY		LIMESTONE
	SAND, GARBAGE, METAL, GLASS AND ETC		SANDY CLAY AND GARBAGE
	CLAY AND GARBAGE		GROUNDWATER TABLE MEASURED AT COMPLETION OF BORING

Notes:

1. BORINGS DRAFTED FROM BORING LOGS SUBMITTED WITH GROUNDWATER MONITORING PLAN DATED JUNE 14, 1984 AND FROM BORING LOGS SUBMITTED WITH THE MONITORING WELL PERMITS.

952902
(1)



N

SCALE: 1" = 100'

LEGEND:

"D" = CROSS-SECTION DESIGNATION
MW5 = MONITOR WELL DESIGNATION
= MONITOR WELL LOCATION
= CROSS-SECTION LINE
= TEST HOLE LOCATION
TH3 = TEST HOLE DESIGNATION
"D1" = CROSS-SECTION DESIGNATION

REV. BY:	DESCRIPTION:	DATE:	DRAWN:

Springstead Engineering, Inc.

Consulting Engineers
Planners
Surveyors

MONITOR WELL & TEST HOLE LOCATIONS

SUMTER COUNTY
SOLID WASTE
MANAGEMENT FACILITY

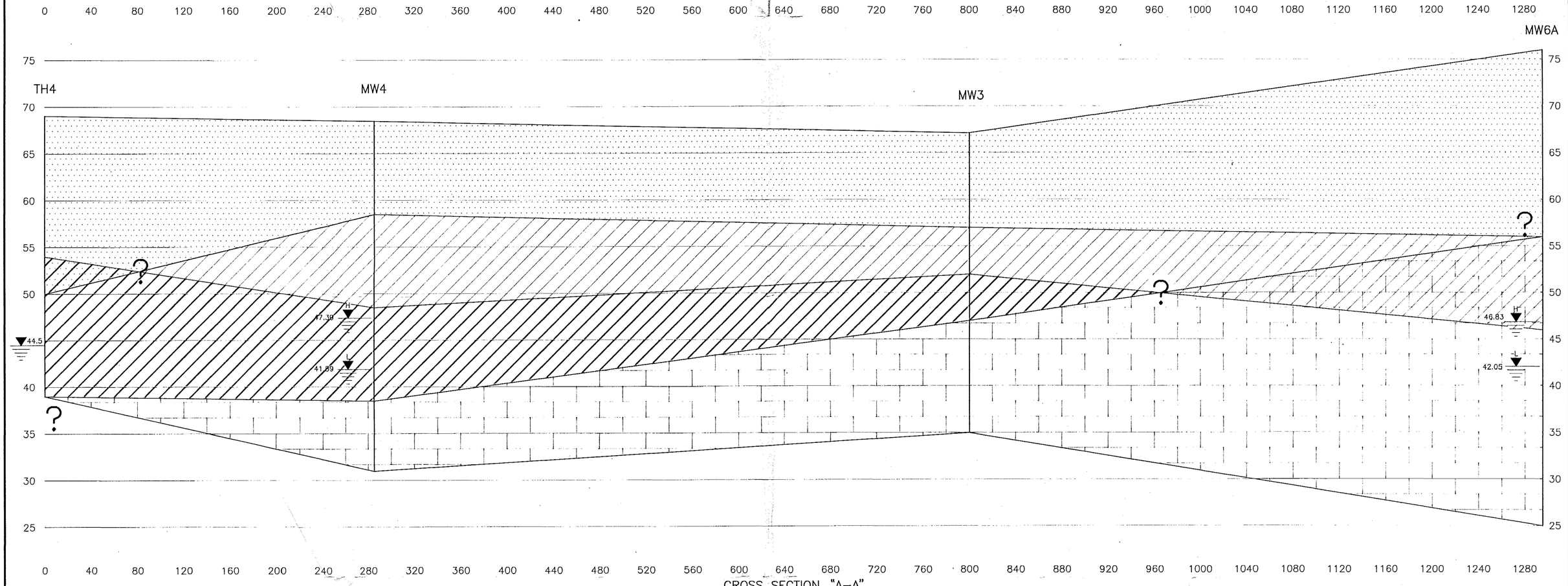
SUMTER COUNTY, FL.

DATE:	SCALE:	FILE:	JOB NO.:
09/30/92	1" = 100'	X-S-CTL	921100.00

DESIGN:	DRAWN:	CHECKED:	SHEET:
N/A			OF:

OCT 0 2 1992

2



CROSS SECTION "A–A"

SCALE:
Horizontal: 1" = 40'
Vertical: 1" = 5'

LEGEND:

SAND | SANDY CLAY | CLAY with LIMESTONE | SAND–CLAY MIX | CLAY | LIMESTONE

47.39 H = HIGH GROUNDWATER with ELEVATION

41.89 L = LOW GROUNDWATER with ELEVATION

44.5 = GROUNDWATER TABLE, COMPLETION OF BORING with ELEVATION

REV. BY:	DESCRIPTION:	DATE:	DRAWN:

Springstead Engineering, inc.

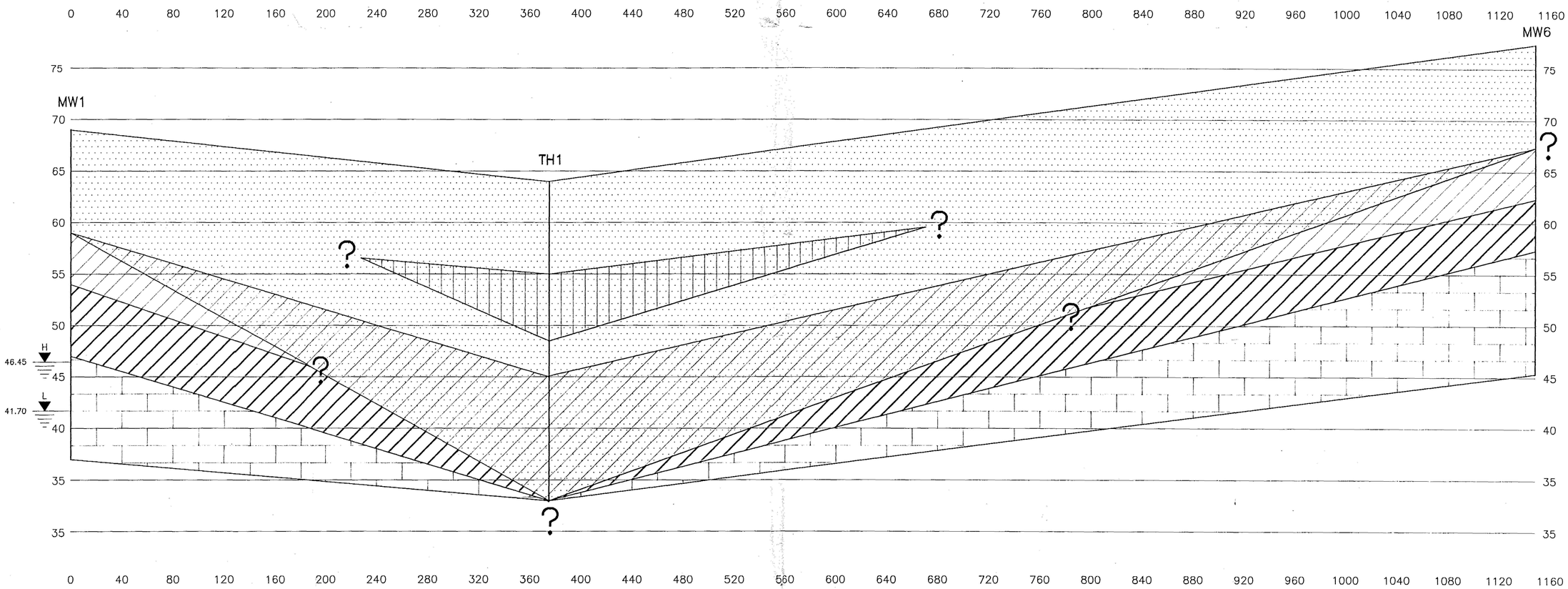
Consulting Engineers
Planners
Surveyors

BORING CROSS–SECTIONS SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY SUMTER COUNTY, FL.

DATE:	SCALE:	FILE:	JOB NO.:
09/22/92	AS SHOWN	BOR–1	921100.00
DESIGN:	DRAWN:	CHECKED:	SHEET:
N/A			OF:

OCT 0 2 1992

3



CROSS SECTION "B–B"

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL

LEGEND:

SAND | SANDY CLAY | SILTY SAND | CLAYEY SANDS | CLAY | LIMESTONE

H 46.45 = HIGH GROUND WATER with ELEVATION

L 41.70 = LOW GROUND WATER with ELEVATION

REV. BY:	DESCRIPTION:	DATE:	DRAWN:

Springstead Engineering, Inc.

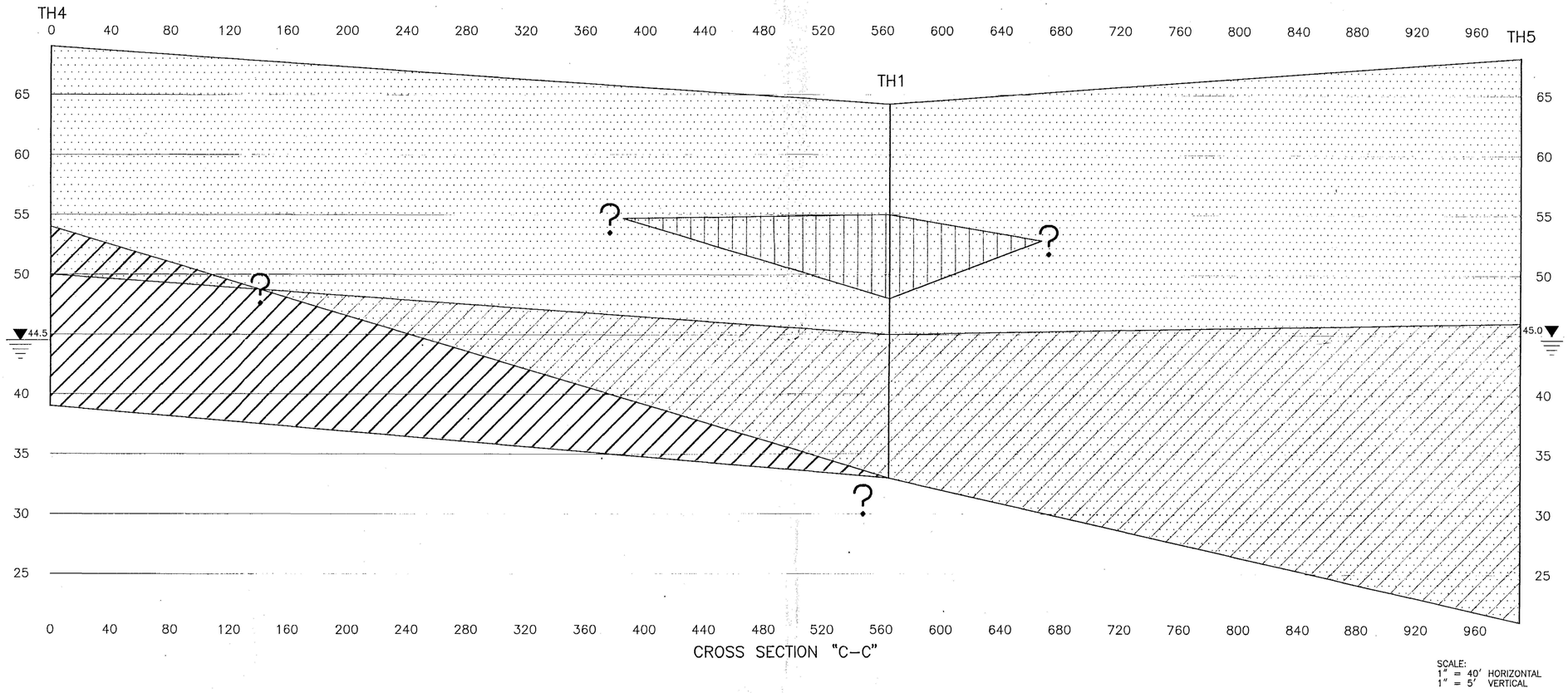
Consulting Engineers
Planners
Surveyors

BORING CROSS-SECTIONS SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY SUMTER COUNTY, FL.

DATE:	SCALE:	FILE:	JOB NO.:
09/23/92	AS SHOWN	BOR-3	921100.00
DESIGN: N/A	DRAWN:	CHECKED:	SHEET: OF:

OCT 0 2 1992

4



CROSS SECTION "C–C"

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL

LEGEND:

SAND | SANDY CLAY | SILTY SAND | CLAYEY SAND | CLAY

44.5 = GROUNDWATER TABLE AT COMPLETION OF BORING with ELEVATION

REV. BY:	DESCRIPTION:	DATE:	DRAWN:

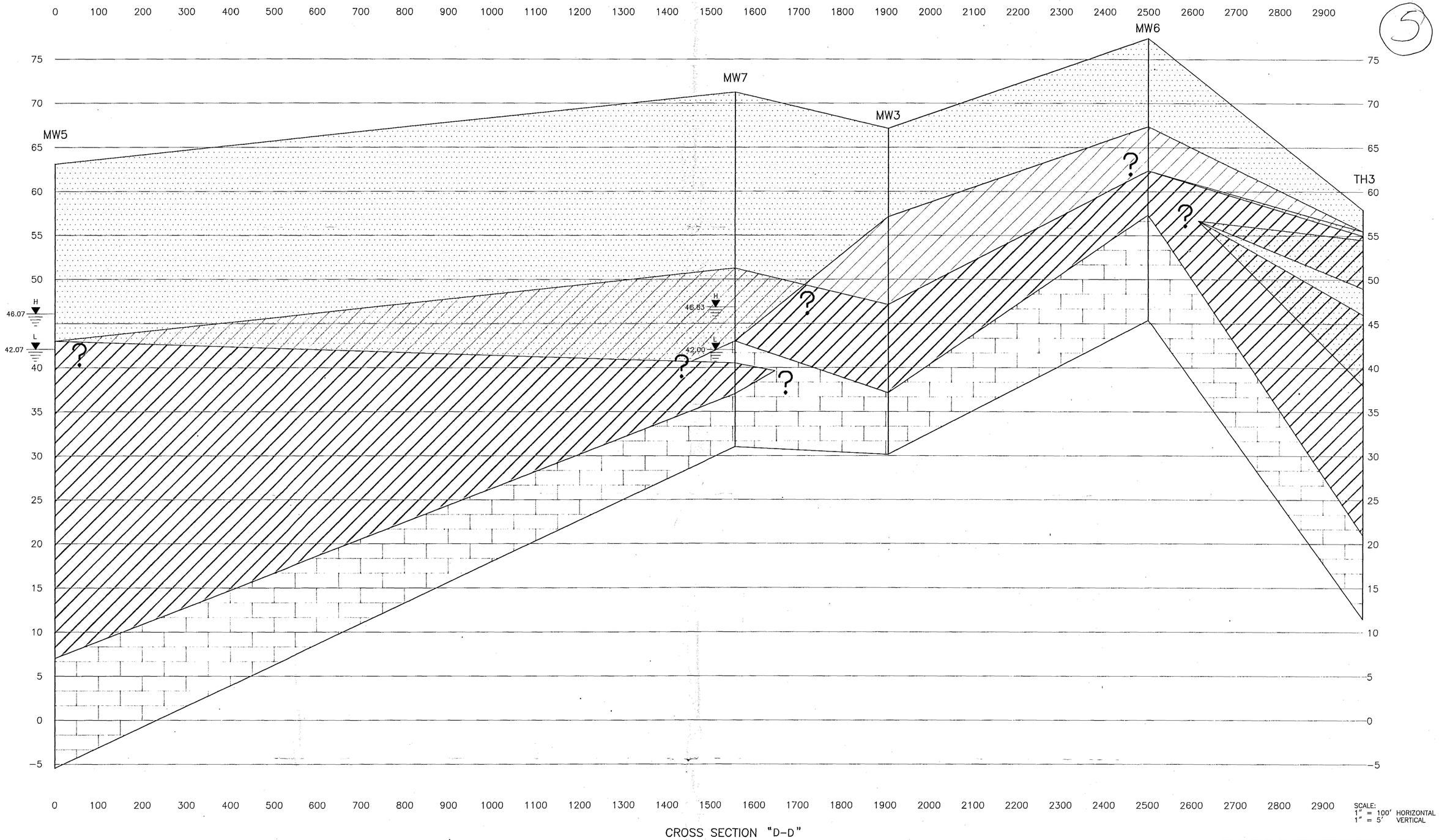
Springstead Engineering, Inc.

Consulting Engineers
Planners
Surveyors

BORING CROSS–SECTIONS SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY SUMTER COUNTY, FL.

DATE:	SCALE:	FILE:	JOB NO.:
09/22/92	AS SHOWN	BOR–2	921100.00
DESIGN:	DRAWN:	CHECKED:	SHEET:
N/A			OF:

OCT 0 2 1992



SCALE:
1" = 100' HORIZONTAL
1" = 5' VERTICAL

CROSS SECTION "D-D"

LEGEND:

SAND | SANDY CLAY | SANDY CLAY | INORGANIC CLAY | CLAYEY SAND | LIMESTONE

H 46.07 = HIGH GROUND WATER with ELEVATION

L 42.07 = LOW GROUND WATER with ELEVATION

REV. BY:	DESCRIPTION:	DATE:	DRAWN:

Springstead Engineering, inc.

Consulting Engineers
Planners
Surveyors

BORING CROSS-SECTIONS SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY SUMTER COUNTY, FL.

DATE:	SCALE:	FILE:	JOB NO.:
09/23/92	AS SHOWN	BOR-4	921100.00
DESIGN:	DRAWN:	CHECKED:	SHEET:
N/A			OF:

OCT 0 2 1992

THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PERMIT TO OPERATE COMPOSTING FACILITY
PERMIT TO OPERATE RESOURCE RECOVERY FACILITY
WASTE TIRE GENERAL PERMIT
AND
PERMIT TO MAINTAIN CLOSED CLASS I SANITARY LANDFILL
PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
222 EAST McCOLLUM AVENUE
BUSHNELL, FLORIDA 33513

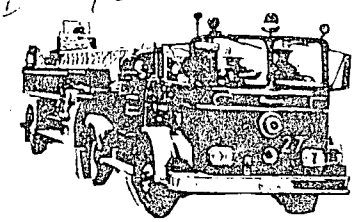
APPENDIX D

FIRE SAFETY SURVEY

OCTOBER 2, 1992

92-1100.00

File 92-110



P.O. Box 506 708
33538

Lake Panasoffkee Protection Association

September 17, 1992

RECEIVED
SEP 21 1992
SFI

Mr. Garry Breeden
Director of Public Works
222 E. McCollum Avenue
Bushnell, Fla. 33513

Re: Fire Department Satisfaction with current conditions at the Sumter County Solid Waste Disposal Facility

Dear Garry:

Based on the May 26, 1992 fire safety survey conducted by Fire Department personnel at the Sumter County Solid Waste Disposal Facility, the Lake Panasoffkee Fire Department is satisfied with the current conditions.

In the future, additional water supply and access would enhance conditions, however, current operating procedures are satisfactory.

Very truly yours,

Robert Klien

Robert Klien, Chief

RK/lk

THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PERMIT TO OPERATE COMPOSTING FACILITY
PERMIT TO OPERATE RESOURCE RECOVERY FACILITY
WASTE TIRE GENERAL PERMIT
AND
PERMIT TO MAINTAIN CLOSED CLASS I SANITARY LANDFILL
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DEPARTMENT OF PUBLIC WORKS
222 EAST McCOLLUM AVENUE
BUSHNELL, FLORIDA 33513

APPENDIX E

LEACHATE RECIRCULATION REPORT

OCTOBER 2, 1992

92-1100.00

SUMTER COUNTY SOLID WASTE FACILITY

LEACHATE RECIRCULATION REPORT

INTRODUCTION

Leachate is the product of rainwater runoff that has been in direct contact with compost or other types of refuse. Proper disposal of the leachate must be accomplished in order to minimize adverse effects on the public and the environment. Sumter County Solid Waste Facility (SCSWF) is proposing a leachate recirculation system that will reclaim and dispose of the leachate that is produced from a 100 year 24 hour rainfall event. The calculations for disposal will be conducted within the average normal rainy season (six months, May to October).

PURPOSE

The purpose of this report is to expound on the design and analysis of the leachate recirculation system. A discussion of the hydrology and hydraulics of this design will be provided along with detailed maps, tables, calculations, and graphs in order to better illustrate this design. Conclusions and recommendations will also be provided.

DISCUSSION

Leachate at the SCSWF is rainwater runoff that has come into direct contact with the windrow compost pads or rainwater that is directly deposited into the leachate retention ponds or the emergency lined combination storage cell. There are three existing windrow compost pads and three existing leachate retention ponds. Only one of the existing pad and pond combination is in production at this time. The location of the pads and ponds are shown on the site plan included in Appendix A. In order to properly dispose of the leachate at the SCSWF, Springstead Engineering, Inc. (SEI) has designed a proposed leachate recirculation process. Components of the process include collection, distribution, application, and recirculation of the leachate.

Collection

The first element of the process is the production of leachate from a 100 year 24 hour rainfall event. The rainfall amount for the 100 year 24 hour event is 10.7 inches (2). After a 100 year 24 hour rainfall event, the leachate from each individual windrow composting pad is collected into a leachate retention pond. The runoff from the windrow composting pads is directed by gravity flow into leachate retention ponds. Each leachate retention pond is designed to hold the volume of leachate produced from the rainfall on the area of the windrow compost pad and the pond. Runoff from the 100 year 24 hour rainfall event was assumed to be 100% of the rainfall.

SEI proposes to pump the leachate from the north and south leachate retention ponds into the final leachate retention pond adjacent to the emergency lined combination storage cell. The leachate will then weir flow into the emergency lined combination storage cell. Leachate will be recirculated from the final leachate retention pond on to the windrow compost pads. A normal pool elevation of 68.00 feet MSL will be kept in the final leachate retention pond. With a weir crest elevation of 69.65, the final leachate retention pond will have the available storage to accommodate 90% of all rainfall events. Please refer to example calculation # 7. In the event of an extreme rainfall event, storage will be available in the emergency lined combination storage cell. A stage-storage graphical representation is provided for the emergency lined combination storage cell. The emergency lined combination storage cell will have the capacity to hold the runoff from the rainfall over it's own area, the area of the three windrow compost pads, and the area of the three leachate retention ponds assuming 100% impervious surface area.

Distribution/Application

Windrow compost at the SCSWF requires water to be added in order to maintain the optimum moisture content. The leachate recirculation process involves the application of the leachate onto the windrow compost. The application process will operate eight hours per day, five days per week. This application is accomplished by pumping and distributing the leachate to the windrow composting area at a constant rate of 500 gallons per minute. Two irrigation guns rated at 250 gallons per minute will be utilized simultaneously. This application will be directed to the windrow compost through a distribution system designed to regulate the location of the reapplication as required in order to control moisture content and application drift off the windrow compost pads. Complete control of the application will be accomplished due to the distribution system. Please refer to Appendix A.

Recirculation

A hydrologic balance has been prepared in order to show the excess or deficiency trend of the leachate within a time period of 6 months. This time period was chosen because it is reasonable and relates to one half of the normal recycle time of a one year limit. The highest rainfall months were chosen in order to show a worst case scenario during the average year. The calculations of the hydrologic balance are tabulated within the leachate recirculation summation table. Specific items are calculated and totaled for each month. The totals represent the excess or deficiency within that month.

Calculations are provided for the complete hydrologic balance of the leachate recirculation process. The first two items included into the hydrologic balance are average wet season rainfall and average wet season evaporation (3). The proposed application process introduces two additional depleting sources to the hydrologic balance. These are compost absorption and evaporation due to application. In addition to the sources/depletions, the runoff from the 100 year 24 hour rainfall event is superimposed.

The values in the leachate recirculation summation table are calculated in inches. These values represent volume distributed over the total area. All values are based on depth in units of inches.

Rainfall

The rainfall is distributed over the total area of the windrow compost pads, the leachate retention ponds, and the emergency lined combination storage cell. Please refer to the site plan in Appendix A for the areas.

Evaporation

The evaporation volume is calculated using the total surface water area. This includes the water surface area of the emergency lined combination storage cell at the corresponding elevation, the water surface area of the final leachate retention pond at the normal pool elevation, and the water surface area of the two remaining leachate retention ponds at a depth of one foot. A second case was calculated where evaporation from the emergency lined combination storage cell's water surface area was neglected.

In order to maintain consistent units, the volume must be distributed over the total area in each case. Please refer to example calculations # 2 and # 2a.

Irrigation Evaporation

The evaporation due to irrigation is calculated using an empirical factor that is applied to the irrigation volume (4). This factor represents the amount of losses due to the evaporation from application. This factor has a value for daytime (0.25) and nighttime (0.1) irrigation. SEI proposes using an average of the two factors (0.175) for calculation purposes. SCSWF is proposing to recirculate and irrigate during the daytime only, therefore, SEI believes that this is an added factor of safety and a conservative estimate.

Compost Absorption

The compost absorption rate (CAR) is a value that represents the volume of water that can be applied to the compost in order to maintain the optimum moisture content and the correct void ratio. The CAR used for the calculation is a value provided by Amerecycle for the actual existing volume application rate on a composite of new, semi-mature, and curing windrows on the existing pad. This value was obtained during the rainy season months of 1992. SEI proposes to use this CAR over the proposed windrow compost pads. The calculation was executed by applying the CAR (gal/day/acre) over the proposed windrow compost pads.

The evaporation from irrigation and the compost absorption are volumes that need to be distributed over the total area in order to maintain consistent units. Please refer to example calculations # 3 and # 4.

The values totaled in the leachate recirculation summation table show a deficiency for each month for case 1 and an excess in one month for case 2. The total for the month of August is the least deficient value for case 1 and the excess value for case 2. This tends to be expected due to the high amount of average rainfall relative to the other months. Data produced from the hydrologic balance is used to show trends by graphical representation.

GRAPHICAL INTERPRETATION

The graph entitled 100 yr 24 hr Runoff Volume Recovery is a depiction of the depletion of the total volume from the 100 year 24 hour rainfall event. The two cases for evaporation are shown on this graph. This graph is produced from the volume depleted during each month of the hydrologic balance. During the June, July, and August months, using up or recovering the volume of runoff is at an decreased rate relative to the May, September, and October months. This is to be expected due to the increased average rainfall during the June, July, and August months. Complete recovery of the runoff from the 100 year 24 hour rainfall event is determined to occur during the middle of the second month for case 1 and during the beginning of the forth month for case 2.

The graph entitled Existing Lined Cell Elevation vs. Time, is a depiction of the depletion of the total leachate from the 100 year 24 hour rainfall event for the emergency lined combination storage cell. This graph is produced from the depleted volume at each month of the hydrologic balance. The two cases for evaporation are shown on this graph. The base or bottom of the lined cell is defined at a stage that is three feet above the existing liner. This was chosen due to the fact that there is a minimum of two feet of sand cover over the existing liner. At the beginning of May the lined cell has the volume of runoff from the 100 year 24 hour rainfall event over the total area of the windrow compost pads, the leachate retention ponds, and the emergency lined combination storage cell. The weir crest elevation shown is the hydraulic connection between the emergency lined combination storage cell and the adjacent final leachate retention pond. The reduction in stage is shown with a final base stage occurring during the middle of the second month for case 1 and during the beginning of the forth month for case 2.

The graph entitled Emergency Lined Cell Storage is a depiction of the available storage in acre-feet of the emergency lined combination storage cell.

CONCLUSIONS

Based on the combination of the analysis performed and the existing records of the SCSWF, it can be concluded that for this application rate, the leachate recirculation system can store and recover the volume of runoff produced from a 100 year 24 hour rainfall event within the six month average rainy season. Specifically, it has been shown that during a normal hydroperiod, the leachate recirculation process should be able to dispose of the leachate from a 100 year 24 hour rainfall event in a time range between the second and fifth months. It is SEI's opinion that the data used in this analysis is the best available information obtainable at this time. On behalf of the SCSWF, SEI is asking The Department of Environmental Regulation to accept this proposal along with all conclusions and recommendations.

SPRINGSTEAD ENGINEERING
727 SOUTH 14TH ST.
LEESBURG, FL. 34748

JOB #_____
SHEET_____
DATE_____

SUMTER COUNTY SOLID WASTE FACILITY

HYDROLOGIC BALANCE
LEACHATE RECIRCULATION SUMMATION TABLE

(CASE 1)
USING THE EVAPORATION FROM THE EMERGENCY
LINED COMBINATION STORAGE CELL

WATER	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	TOTAL
NORMAL RAINFALL (in.)	4.51	6.56	6.93	7.67	6.30	2.04	34.01
EVAPORATION (PONDS ONLY) (in.)	-1.43	-1.19	-0.99	-0.93	-0.74	-0.66	-5.94
EVAPORATION (IRRIGATION) (in.)	-4.41	-4.41	-4.41	-4.41	-4.41	-4.41	-26.46
COMPOST ABSORPTION RATE (in.)	-4.26	-4.26	-4.26	-4.26	-4.26	-4.26	-25.56
RAINFALL (100YR 24HR) (in.)	1.78	1.78	1.78	1.78	1.78	1.78	10.70
TOTAL (in.)	-3.81	-1.52	-0.95	-0.15	-1.33	-5.51	-13.25

NOTES:
1. Values are calculated assuming the emergency lined combination storage cell is being used as a holding basin for the runoff from the windrow compost pads, the leachate retention ponds, and the emergency lined combination storage cell for a 100 year 24 hour rainfall event.
2. All values are based on the total area of the windrow compost pads, the leachate retention ponds, and the emergency lined combination storage cell.
3. Rainfall for the 100 year 24 hour storm is included as additional rainfall to the average normal rainfall to be recirculated in a six month period during the average rainy season.

HYDROLOGIC BALANCE
LEACHATE RECIRCULATION SUMMATION TABLE

(CASE 2)
USING NO EVAPORATION FROM THE EMERGENCY
LINED COMBINATION STORAGE CELL

WATER	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	TOTAL
NORMAL RAINFALL (in.)	4.51	6.56	6.93	7.67	6.30	2.04	34.01
EVAPORATION (PONDS ONLY) (in.)	-0.41	-0.40	-0.39	-0.37	-0.29	-0.26	-2.12
EVAPORATION (IRRIGATION) (in.)	-4.41	-4.41	-4.41	-4.41	-4.41	-4.41	-26.46
COMPOST ABSORPTION RATE (in.)	-4.26	-4.26	-4.26	-4.26	-4.26	-4.26	-25.56
RAINFALL (100YR 24HR) (in.)	1.78	1.78	1.78	1.78	1.78	1.78	10.70
TOTAL (in.)	-2.79	-0.73	-0.35	0.41	-0.88	-5.11	-9.43

NOTES:
1. Values are calculated assuming the emergency lined combination storage cell is being used as a holding basin for the runoff from the windrow compost pads, the leachate retention ponds, and the emergency lined combination storage cell for a 100 year 24 hour rainfall event.
2. All values are based on the total area of the windrow compost pads, the leachate retention ponds, and the emergency lined combination storage cell.
3. Rainfall for the 100 year 24 hour storm is included as additional rainfall to the average normal rainfall to be recirculated in a six month period during the average rainy season.

EXAMPLE CALCULATIONS FOR THE MONTH OF MAY

1. Rainfall amounts were taken from NOAA data (3), and adjusted by weighted average for the location of the Sumter County Solid Waste Facility.

2. Evaporation values were taken from NOAA data (3), and adjusted by weighted average for the location of the Sumter County Solid Waste Facility. Data was then adjusted for the evaporation of the lined cell at the corresponding elevation, the final leachate retention pond at the weir crest elevation, and the remaining leachate retention ponds at a depth of one foot. (CASE 1).

$$\text{EVAPORATION AMOUNT} = \frac{\text{NOAA DATA (MAY)} * \text{SURFACE WATER AREA}}{\text{AREA OF WINDROW PADS, LEACHATE PONDS AND LINED CELL. (TOTAL AREA)}}$$

EVAP (MAY) = -7.14 in.
S.W. AREA = 61248 SQ.FT.
TOTAL AREA = 305574 SQ.FT.

EVAPORATION AMOUNT = -1.43 in.

2a. Evaporation values were taken from NOAA data (3), and adjusted by weighted average for the location of the Sumter County Solid Waste Facility. Data was then adjusted for the evaporation of the final leachate retention pond at the weir crest elevation and the remaining leachate retention ponds at a depth of one foot. (CASE 2).

$$\text{EVAPORATION AMOUNT} = \frac{\text{NOAA DATA (MAY)} * \text{SURFACE WATER AREA}}{\text{(TOTAL AREA)}}$$

EVAP (MAY) = -7.14 in.
S.W. AREA = 17567 SQ.FT.
TOTAL AREA = 305574 SQ.FT.

EVAPORATION AMOUNT = -0.41 in.

3. Evaporation from irrigation is calculated assuming an irrigation pumping rate of 500 gallons per minute, multiplied by a irrigation loss factor (ILF) of 0.175 (4).

$$\text{IRRIGATION EVAPORATION} = \frac{\text{PUMPING RATE} * \text{ILF} * 60 \text{ MIN/HR} * 8 \text{ HR/DAY} * 5 \text{ DAY/WK} * 4 \text{ WK/MO} * 12 \text{ IN/FT}}{\text{TOTAL AREA} * 7.48 \text{ GAL/CU.FT}}$$

PUMPING RATE = 500 GAL/MIN
ILF = -0.175
TOTAL AREA = 305574 SQ.FT.

IRRIGATION EVAPORATION = -4.41 in.

4. The compost absorption rate (CAR) is a value provided by Amerecycle for an actual existing composite of new, semi-mature, and curing windrows on the pad during the rainy season months of 1992. This value (GAL/DAY/AC) was used for calculating the total CAR of all three windrow compost pads.

EXIST APP RATE = 15000 GAL/DAY
EXIST PAD AREA = 1.4 AC
CAR EXIST PAD = 15000 GAL/DAY / 1.4 AC.
CAR EXIST PAD = 10714 GAL/DAY/AC

COMPOST
ABSORP RATE = CAR (EXIST PAD) * AREA PADS * 5 DAY/WK * 4 WK/MO * 12 IN/FT

TOTAL AREA * 7.48 GAL/CU.FT

CAR EXIST PAD = -10714 GAL/DAY/AC
AREA (PADS) = 3.79 AC.
TOTAL AREA = 305574 SQ.FT.

COMPOST
ABSORP RATE = -4.26 in.

5. The value for the rainfall amount of the 100 year 24 hour rainfall event (2), is devided into six month portions in order to compare the hydrologic balance on a monthly basis.

100 YR 24 HR RAINFALL = 10.7 IN.

MONTHLY RAINFALL = 1.7833 IN.
(6 MONTHS)

6. The total rainfall runoff volume is 10.7 in. of rainfall over the total area.

TOTAL VOLUME = RAINFALL * TOTAL AREA
---
12 IN/FT * 43560 SQ.FT./ACRE

RAINFALL (100 YR 24 HR) = 10.7 IN.
TOTAL AREA = 305574 SQ.FT.

TOTAL VOLUME = 6.26 ACRE-FT.

7. Final leachate retention pond stage-storage.

Bottom elev. = 65.40
Weir crest elev. = 69.65

ELEV	AREA (SQ-FT)
65.40	6900
66.00	7849
67.00	9488
68.00	11199
69.00	12983
69.65	14180

V = H/3[A1+A2+SQRT(A1*A2)]

STAGE (ft)	AREA (sq.ft.)	INC. VOLUM (cu.ft.)	TOTAL VOLUME (cu.ft	(ac.ft.)
68.00	11199			
		12079.99		
69.00	12983		12079.99	0.2773
		8825.05		
69.65	14180		20905.04	0.4799

Required volume is equal to one inch of rainfall over the surface area of the three composting pads and the leachate retention ponds assuming 100% impervious surface. This volume has been statistically accepted to cover 90 percent of all rainfall events.

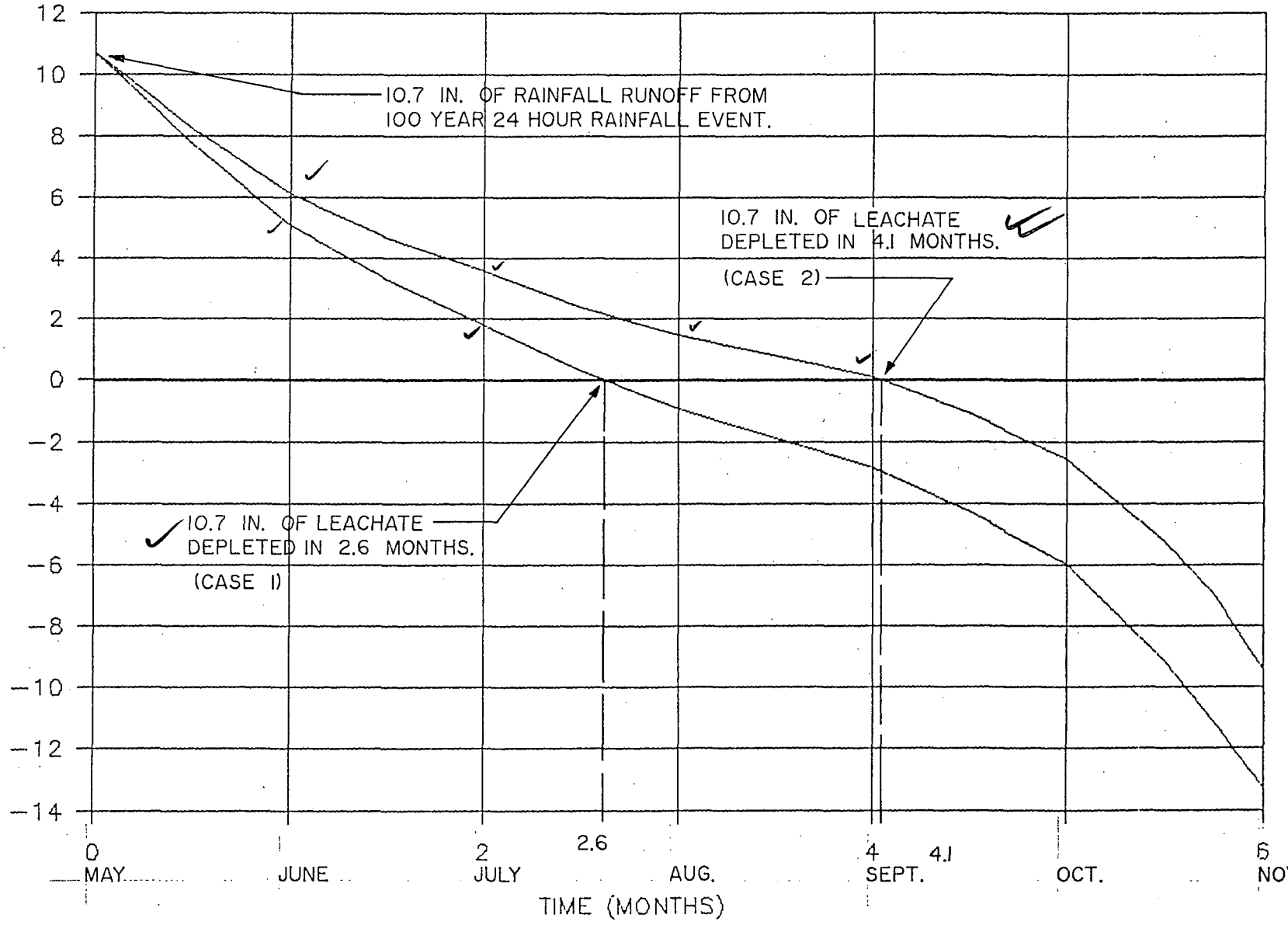
$$\text{REQ'D VOLUME} = \frac{\text{AREA (PADS \& PONDS)} * 1\text{" OF RAINFALL}}{12 \text{ INCHES/FOOT} * 43560 \text{ SQ-FT/ACRE}}$$

PAD & POND
TOTAL AREA = 222417 SQ-FT
5.11 ACRES

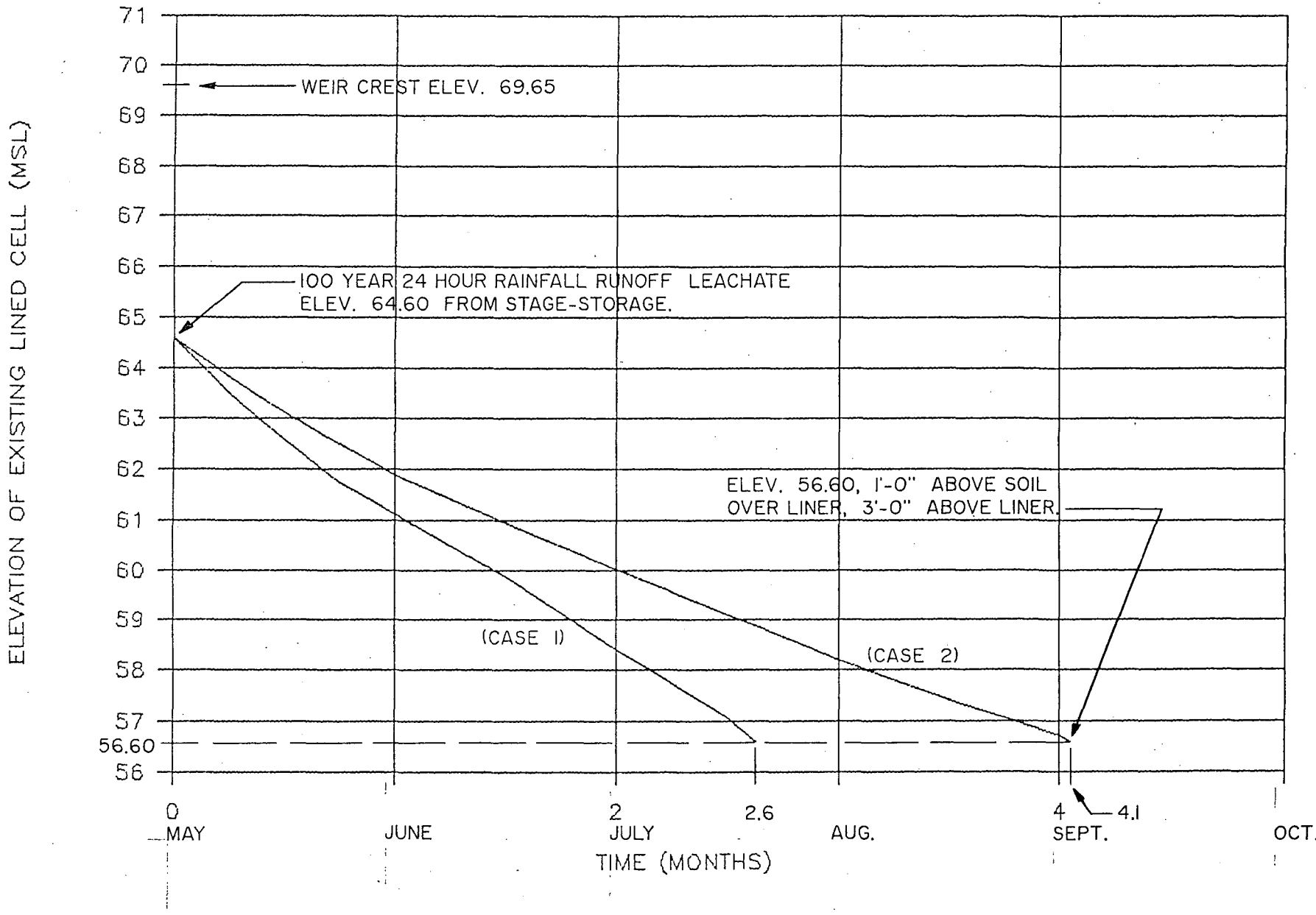
REQ'D VOLUME = 0.43 ACRE-FT.

AVAIL. VOLUME = 0.48 ACRE-FT.

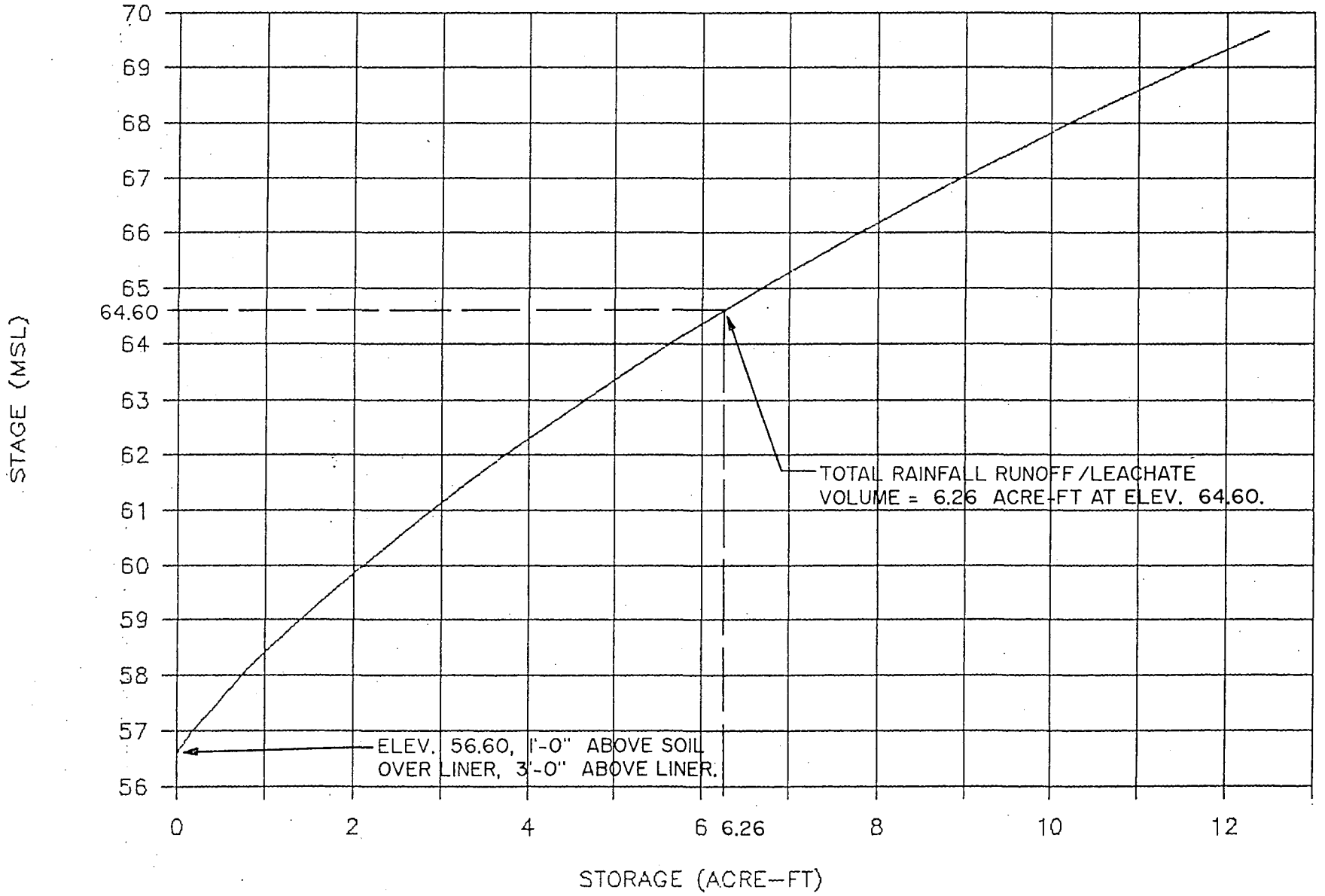
100 YR 24 HR RUNOFF VOLUME RECOVERY



EXISTING LINED CELL ELEVATION vs. TIME



EMERGENCY LINED CELL STORAGE



REFERENCES

1. Goldstein, J.: "The Art and Science of Composting", The JG Press, Inc. Emmaus, Pennsylvania, (1991).

2. Hershfield, D. W.: "Technical Paper #40, Rainfall Frequency Atlas of the United States", Soil Conservation Service, U.S. Department of Agriculture, (1961).

3. National Oceanic and Atmospheric Administration (NOAA), "Climatological Data, Florida, May-October. Volume 95, Number 5-10", (1991).

4. Southwest Florida Water Management District, "Agricultural Consumptive Use Explained", Hydroscope, South West Florida Water Management District, Brooksville, Florida. (October 1975).

THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PERMIT TO OPERATE COMPOSTING FACILITY
PERMIT TO OPERATE RESOURCE RECOVERY FACILITY
WASTE TIRE GENERAL PERMIT
AND
PERMIT TO MAINTAIN CLOSED CLASS I SANITARY LANDFILL
PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
222 EAST McCOLLUM AVENUE
BUSHNELL, FLORIDA 33513

APPENDIX F

PHOTOGRAPHS OF EARTH-WORK OPERATIONS

OCTOBER 2, 1992

92-1100.00

PHOTOGRAPHS OF RECENTLY COMPLETED EARTH-WORK CORRECTING PONDING ON CLOSED FILL AREAS AT THE SUMTER COUNTY SOLID WASTE MANAGEMENT FACILITY

EAST FILL AREA

EAST FILL AREA

WEST FILL AREA

WEST FILL AREA

THIRD RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PERMIT TO OPERATE COMPOSTING FACILITY
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PREPARED FOR

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DEPARTMENT OF PUBLIC WORKS
222 EAST McCOLLUM AVENUE
BUSHNELL, FLORIDA 33513

APPENDIX G

GAS MIGRATION STUDY

OCTOBER 2, 1992

92-1100.00

CENTRAL TESTING LABORATORY

ENGINEERING AND MATERIALS TESTING

SOILS, CONCRETE, SOIL CEMENT, ASPHALT, AND SUB-SURFACE INVESTIGATIONS
WATER AND WASTEWATER ANALYSIS
ENVIRONMENTAL TESTING

P.O. BOX 883
FLORAL CITY, FLORIDA 34436
PHONE (904) 726-6447

727 S. 14TH STREET
LEESBURG, FLORIDA 34748
PHONE (904) 787-1268

HERNANDO COUNTY
PHONE (904) 796-0035

SUMTER COUNTY
PHONE (904) 793-3639

J.W. SPRINGSTEAD, P.E.
FL. REG. ENG. 8579

October 2, 1992

Mr. Garry Breeden, Director of Public Works
Sumter County Public Works
222 East McCollum Avenue
Bushnell, Florida 33513

RE: Methane Gas Migration Study
Gas Monitoring in and Around Buildings
Sumter County Solid Waste Management Facility
92-1100.00

Dear Mr. Breeden:

Central Testing Laboratory (CTL), a division of Springstead Engineering, Inc. (SEI) has performed a methane gas migration study at the above referenced facility. Additionally, air sampling was performed at selected locations inside the Volume Reduction Building.

The initial investigation was made on August 25, 1992. Test holes were prepared a minimum of one (1) hour in advance of the monitoring event. The site was visited again on September 2, 1992 and the holes prepared during the August 25, 1992 visit were again analyzed.

A Foxboro Organic Vapor Analyzer (OVA), Model 128, Serial Number A41775, was used to analyze the gases emanating from the test holes. The meter on the OVA was visually monitored and the maximum reading obtained over a fifteen (15) to twenty (20) second time period was recorded. The OVA was calibrated using air and 100 ppm methane (CH_4) in air. The approximate locations of the test holes are shown on the attached aerial photograph. The results of the investigations are attached.

The interior of the Volume Reduction Building was surveyed for methane. The highest reading was observed in the pit below the conveyer and was 68 ppm. This reading was taken at the floor drain. Garbage was noted in the drain. The pit beneath the flail mill was also surveyed. A maximum reading of 12 ppm was recorded in this area. Readings ranging from 0.2 to 0.4 ppm were recorded in the truck bay.

CONCLUSIONS:

The purpose of measuring methane gas generated at the Sumter County Solid Waste Management Facility was to determine if landfill gas was moving laterally, possibly causing a threat of explosion due to a buildup of gas in nearby structures or migration to off-site locations.

Porous soils formerly used for daily cover in the closed portions of the landfill allow generated gas to easily move vertically. These soils do not indicate the possibility for the creation of a trap or seal forcing the generated gas to move laterally.

In conjunction with the closure process, a passive gas venting system was designed and installed to allow the vertical release of any gases generated. This system is working satisfactory at this time.

October 2, 1992
Methane Gas Migration Study
Gas Monitoring in and Around Buildings
Sumter County Solid Waste Management Facility
92-1100.00

In cases where methane was detected, garbage was noted to either in the hole or in the excavated soil and/or the hole was located downwind from the lined cell or the composting pad. Relocating the hole a few feet further away from the closed landfill resulted in zero readings. Based on this information and the use of the porous soils for cover, it is concluded that gases being generated by decomposing materials are being liberated vertically through porous soils and not migrating laterally.

The methane gas detected in the Volume Reduction Building is, in our opinion, due to garbage decomposing in the building rather than the result of gas migrating laterally through the soil.

CLOSURE:

CTL hopes that the provided information meets your needs at the present time. Should you have any additional questions, or if you require additional information, please contact our office.

Very truly yours,

CENTRAL TESTING LABORATORY

John W. Springstead, P.E.
President
Florida Reg. No. 8579

10-2-1992

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JWS/JAD/jal

METHANE GAS MIGRATION SURVEY - AUGUST 25, 1992

TEST HOLE NO.	METHANE ppm	REMARKS
G1-1	0	
G1-2	68	DOWN WIND FROM LINED CELL
G1-3	20	EDGE OF FILL
G1-4	0	
G1-5	0	
G1-6	0	
G1-7	0	
G1-8	0	
G1-10	> 1000	HEAVY GARBAGE IN SOIL
G1-15	> 1000	HEAVY GARBAGE IN SOIL
G1-18	> 1000	HEAVY GARBAGE IN SOIL
G1-18 (20′ E)	.1	
G1-19	0	
G1-20	32	GARBAGE IN SOIL
G1-21	0	
G1-22	0	
G1-23	710	ORGANIC MATERIAL IN SOIL
G1-23 (60′ S)	0	
G1-23A	> 1000	HEAVY GARBAGE IN SOIL
G1-23A (60′ S)	0	
G1-24	0	
G1-25	512	GARBAGE IN SOIL
G1-25 (40′ W)	.1	
G1-26	.2	

METHANE GAS MIGRATION SURVEY - SEPTEMBER 2, 1992

TEST HOLE NO.	METHANE ppm	REMARKS
G1-1	0	
G1-2	1.0	DOWN WIND FROM LINED CELL
G1-3	.6	
G1-4	0.2	
G1-5	N/A	HOLE CAVED
G1-6	3.0	
G1-7	N/A	HOLE CAVED
G1-8	0	
G1-10	630	HEAVY GARBAGE IN SOIL
G1-15	500	HEAVY GARBAGE IN SOIL
G1-18	> 1000	HEAVY GARBAGE IN SOIL
G1-18 (20′ E)	0	
G1-19		
G1-20	.2	
G1-21	0	
G1-22	0	
G1-23	1.0	
G1-23 (60′ S)	0	
G1-23A	7.0	
G1-23A (60′ S)	N/A	HOLE FLOODED
G1-24	N/A	HOLE FLOODED
G1-25	> 1000	GARBAGE IN SOIL
G1-25 (40′ W)	1.4	
G1-26	3.0	