APPLICATION FOR CLOSURE

PERMIT FOR THE CITRUS

COUNTY CENTRAL LANDFILL

4009C00086

JANUARY 1989

5009-111795

WACS 39859

BOARD OF COUNTY COMMISSIONERS
CITRUS COUNTY
NEW CITRUS COUNTY COURTHOUSE
110 North Apopka Avenue
Inverness, Florida 32650

(904) 726-8500

Reply To:

Dept. Technical Services
Solid Waste Management
Landfill Section
P. O. Box 440
Lecanto, FL 32661-0440
(904) 746-2694

December 29, 1988

Mr. Kim Ford
Environmental Specialist
Solid Waste Section
Dept. of Environmental Regulation
7601 Highway 301 North
Tampa, FL 33637-9544

RE: CITRUS COUNTY CENTRAL LANDFILL, PERMIT #S009-111795, APPLICATION FOR CLOSURE PERMIT

Dear Mr. Ford:

As requested by your office, please find attached information necessary to complete an application to close the 60 acre site of the Citrus County Central Landfill. It should be noted that all of the additional information requested in your memo dated August 18, 1988 is included in this application package.

Should further assistance be required, do not hesitate to contact this office.

Sincerely,

James E. Barker, Jr.,
Dir. Div. Solid Waste Management

JEB:RM:cmh

cc: James W. Pinkerton, Dir. Dept. Technical Services
Richard A. Berg, Dir. Div. of Engineering
Larry M. Haag, County Attorney

BOARD OF COUNTY COMMISSIONERS
CITRUS COUNTY
NEW CITRUS COURTHOUSE
110 North Apopka Avenue
Inverness, Florida 32650-4290

(904) 726-8500

Reply To:

January 09, 1989

To Whom It May Concern:

This is to authorize James E. Barker, Jr., Director of Solid Waste Management Division, Department of Technical Services, to act as agent for the project known as Landfill Closure permit acquisition.

James W. Pinkerton, P.E., Director
Department of Technical Services

Sworn before me to be a true and accurate document.

This 09th day of January 1989.

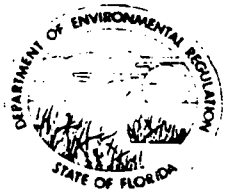
Notary Public
Notary Public, State of Florida at Large
My Commission Expires March 29, 1991

TABLE OF CONTENTS

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION FOR PERMIT TO CLOSE A SOLID WASTE RESOURCE RECOVERY AND MANAGEMENT FACILITY

GENERAL REQUIREMENTS

Solid Waste Resource Recovery and Management Facilities must be permitted pursuant to Section 403.707, Florida Statutes. Separate permit applications for each type of facility, six copies each, should be submitted to the District office of the Department of Environmental Regulation. Complete appropriate sections of the application for the type of facility involved.

Applicant has the responsibility to provide copies of the application to appropriate city, county and/or regional pollution control agencies, established pursuant to Section 403.182, Florida Statutes. Applicant shall also submit the application through appropriate local planning agencies. Comments from any the these agencies shall be forwarded with the application to the Department.

The permit application shall include all information necessary to evaluate the proposed closure plan to insure the landfill will pose no significant threat to public health or the environment. All entries should be typed or printed in ink. If additional space is needed, separate, properly identified sheets of paper may be attached. All blanks shall be filled or marked as not applicable.

Facility Type:

Sanitary Landfill:
- [X] Class I, more than 50 cy or 20 tons waste/day
- [ ] Class II, less than 50 cy or 20 tons waste/day
- [ ] Class III:
  - [ ] trash/yard trash

Volume Reduction:
- [ ] Composting
- [ ] Transfer Station
- [ ] Shredder
- [ ] Incinerator/Trench Burner
- [ ] Resource Recovery: __Energy __Materials

Sludge Landspreading:
- [ ] Grade II

FACILITY NAME: CITRUS COUNTY LANDFILL / ID number

FACILITY LOCATION (main entrance): S.R. 44

S1 section, T 19 township, R 18 range / Latitude ___° ___' ___" Longitude ___° ___' ___"

Applicant Name (operating authority): CITRUS COUNTY DIV. OF SOLID WASTE MANAGEMENT

Street Address (include P. O. Box): P. O. BOX 440 LECANTO, CITRUS 32661
city county zip

Contact Person: JAMES E. BARKER, JR. (904)746-2694
Name phone number

Authorized Agent/Consultant: JAMES E. BARKER, JR. (904) 746-2694
Name phone number

Mailing Address: P. O. BOX 440,

LECANTO CITRUS 32661
city county zip

Contact Person: ____
name phone number

Landowner (if different than applicant): STATE DIVISION OF FORESTRY

Address of Landowner: TALLAHASSEE, FL
street, P. O. Box city state zip

REQUIRED ATTACHEMENTS FOR CLOSURE OF A RESOURCE RECOVERY AND MANAGEMENT FACILITY

LANDFILL:
Permit applications and supporting information shall include the following (17-7.030(2), F.A.C.):

	Completeness Check
1. A letter of transmittal to the Department; (17-7.030(3)(a), F.A.C.)	X
2. A table of contents listing the main sections of the application: (17-7.030(3)(a), F.A.C.)	X
3. The permit fee specified in Florida Aministrative Code Rule 17-4.05 in check or money order payable to the Department: (17-7.030(3)(c), F.A.C.)	N/A
4. Six copies, at minimum, of the completed application form, all supporting data, and reports; (17-7.030(2), F.A.C.)	X
5. Engineer certification; (17-7.030(3)(g), and 17-7.073(8), F.A.C.)	X .....Closure Plan
6. Engineer's letter of appointment if applicable; (17-7.030(3)(e), F.A.C.	N/A
7. Closure plan as required in Florida Administrative Code Rule 17-7.073. A copy of a Department letter of approval of the landfill groundwater monitoring plan, or a copy of the letter of transmittal of the groundwater monitoring plan to the Department may be included in the closure plan in lieu of the groundwater monitoring plan document.	X .....pages 5-8
8. Copy of any lease agreement, transfer of property agreement with right of entry for long-term care, or any other agreement between operator and property owner by which the closing and long-term care of the facility may be affected; (17-7.030(3)(h) and 17-7.075(3)(4), F.A.C.)	X .....page 62

ATTACHMENT ITEMS

The following information items must be included in the application or an explanation given if they are not applicable.
CLOSURE PLAN REQUIREMENTS (17-7.073), F.A.C.)

1. General Landfill Information Report (17-7.073(1), Florida Administrative Code)

a. Identification of the landfill(17-7.073(1)(a), F.A.C.)	X
b. Name, address, and phone number of primary contact person. (17-7.073(1)(b), F.A.C.)	X
c. Name of persons or consultants preparing closure plan (17-7.073(1)(c), F.A.C.)	X
d. Name of landfill property owners and landfill operator (17-7.073(1)(d), F.A.C.)	X
e. Locations of main entrance or operators office of the landfill by: township, range, and section and latitude and longitude. (17-7.073(1)(e), F.A.C.)	X
f. Total acreage: of waste disposal area and landfill property (17-7.073(1)(f), F.A.C.)	X
g. Legal Description of landfill property (17-7.073(1)(g), F.A.C.)	X
h. History of landfill construction and operations (17-7.073(1)(h), F.A.C.)	X
i. Identity of types of waste disposal of in completed landfill (17-7.073(1)(i), F.A.C.)	X

2. Area Information Report (17-7.073(2), F.A.C.)

	Completeness Check
a. Topogrpahy (17-7.073(2)(a), F.A.C.)	X
b. Hydrology (17-7.073(2)(b), F.A.C.)	X
c. Geology (17-7.073(2)(c), F.A.C.)	X
d. Hydrogeology (17-7.073(2)(d), F.A.C.)	X
e. Ground and surface water quality (17-7.073(2)(e), F.A.C.)	X
f. Land use information (17-7.073(2)(f), F.A.C.)	X

3. Groundwater Monitoring Plan Containing Site Specific Information (17-7.073(3) and 17-4.245(6)(d), F.A.C.) X

4. Gas Migration Investigation (17-7.073(4), F.A.C.) X

5. Assessment of the Effectiveness of Existing Landfill Design and Operation (17-7.073(5), F.A.C.)

a. Effectiveness and results of groundwater investigation (17-7.073(5)(a), F.A.C.)	X
b. Effects of surface water runoff, drainage patterns and existing storm water controls (17-7.073(5)(b), F.A.C.)	X
c. Extent and effects of methane gas migration(17-7.073(5)(c), F.A.C.)	X
d. Type and condition of existing cover and effectiveness as leachate control mechanism. (17-7.073(5)(d), F.A.C.)	X
e. Nature and characteristics of wastes disposed of at the landfill. (17-7.073(5)(e), F.A.C.)	X

6. Closure Design Plan (17-7.073(6), F.A.C.)

a. Phasing of site closing. (17-7.073(6)(a), F.A.C)	X
b. Existing topography and proposed final grades. (17-7.073(6)(b), F.A.C.)	X
c. Final cover installation plans. (17-7.073(6)(c), F.A.C.)	X
d. Proposed method of leachate control. (17-7.073(6)(c), F.A.C.)	X
e. Compliance with groundwater protection requirements of 17-4.245 and 17-4.246, F.A.C. (17-7.073(6)(e), F.A.C.)	X
f. Proposed method of gas and odor control. (17-7.073(6)(f), F.A.C.)	X
g. Proposed method of stormwater control. (17-7.073(6)(g), F.A.C.)	X
h. Proposed method of access control. (17-7.073(6)(h), F.A.C.)	X
i. Proposed final use of landfill property. (17-7.073(6)(i), F.A.C.)	X

7. Closure Operation Plan
(17-7.073(7), F.A.C.)

	Completeness Check
a. Describe actions which will be taken to close the landfill. (17-7.073(7)(a), F.A.C.)	X
b. Time schedule for completion of closure and long term care. (17-7.073(7)(b), F.A.C.)	X
c. Proposed method of demonstrating financial responsibility for long term monitoring and maintenance. (17-7.073(7)(d), and 17-7.077(2)(i), F.A.C.)	X
d. Equipment and personnel needs to complete closure. (17-7.073(7)(e), F.A.C.)	X

REQUIREMENTS FOR LONG TERM CARE (17-7.075, F.A.C.)

1. Establish Long Term Care Period From Date of Closing.
(17-7.075(1) and 17-7.074(5), F.A.C.) X

2. Acquire Right of Access Agreement Between Operator and Property Owner for Closing and Long-Term Care.
(17-7.075(3) and 17-7.077(2)(h), F.A.C.) X

REQUIREMENTS FOR PROOF OF FINANCIAL RESPONSIBILITY (17-7.076, F.A.C)

1. Closure Cost Estimates
(17-7.076(1), F.A.C.) X

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of an
Application for Permit by: DER File NO.: SO09-111795

Mr. James W. Pinkerton, County Engineer
Citrus County Board of County Commissioners
110 North Apopka Avenue
Inverness, Florida 32650

INTENT TO ISSUE

The Division of Environmental Permitting hereby gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above. The Division is issuing this Intent to Issue for the reasons stated below.

The applicant, James W. Pinkerton, County Engineer, Citrus County Board of County Commissioners, applied on October 30, 1985, to the Department of Environmental Regulation for a permit to operate a solid waste Class I sanitary landfill (approximately 50 acres), referred to as Citrus County Central Class I Sanitary Landfill, subject to the specific conditions attached, disposing of solid waste, near S.R. 44, 3 miles east of Lecanto, Citrus County, Florida.

The Department has permitting jurisdiction under Chapters 17-4.07, 17-7.030, and 17-7.070, Florida Administrative Code. The project is not exempt from permitting procedures. The Department has determined that a solid waste operation permit is required for the proposed work.

The Department intends to issue this permit based on its

SPECIFIC CONDITIONS (cont'd)

14. At least 90 days prior to the date when wastes will no longer be accepted for active portions of the landfill, the landfill owner or operator shall submit a closure permit application to the Department. The final cover shall be placed over the entire surface of each completed portion of the filled areas within 180 days after final waste deposit date.

15. The landfill owner or operator shall submit a closure permit application to the Department for inactive portions of the landfill not having final cover prior to July 1, 1985, and that will no longer receive waste. this closure permit application shall be submitted within 90 days following issuance of this permit.

16. In accordance with Chapter 17-4, Florida Administrative Code (F.A.C.), the permittee has installed and placed into operation a Groundwater Monitoring System. The Groundwater Monitoring System is designed and constructed in accordance with the plans submitted on June 24, 1985 by Seaburn and Robertson, Inc. and the additional information submitted August 29, 1985.

17. The groundwater monitoring wells are located as follows:

Well Number	Aquifer	Location
MW-A	Upper Floridan	Reference Permit Figure 1. Approximately in the center of the west property line.
MW-B	Upper Floridan (background)	Reference Permit Figure 1. Southeast corner
MW-C	Upper Floridan	Reference Permit Figure 1. Approximately 375 ft. north of the southwest corner.
MW-D	Upper Floridan (supply well)	Reference Permit Figure 1. Northwest corner of landfill.

18. If any monitoring well becomes damaged or inoperable, the permittee shall submit a written report to the Department within fourteen (14) days of discovery of the problem. Any well in which a water sample cannot be taken is considered inoperable. The report shall detail what has occurred and shall include the corrective measures performed to restore the damaged well to its initial state. All monitor well design and replacement shall be approved by the Department prior to installation.

SPECIFIC CONDITIONS (cont'd)

19. Sixty (60) days prior to the renewal of this permit, the permittee shall sample all groundwater monitor wells for the Primary and Secondary Drinking Water parameters included in Chapter 17-22, Florida Administrative Code, Public Drinking Water Systems. The specific parameters to be sampled and analyzed for are the Primary (17-22.104(1) and Secondary (17-22.104(2)) Drinking Water Standards listed in Part II, Quality Standards, Analytical Methods, Sampling.

20. All groundwater monitor wells shall be sampled Quarterly for the following parameters. However, additional sample(s), well(s) and parameter(s) may be required based upon the subsequent analysis.

PRIMARY STANDARDS

Nitrate (as Nitrogen)	mg/L
Sodium	mg/L
Turbidity	NTU
8 Volatile Organic Compounds (VOC)*	ug/L

SECONDARY STANDARDS

Chloride	mg/L
Color	color units
Copper	mg/L
Corrosivity	Langelier Index
Iron	mg/L
Manganese	mg/L
Odor	mg/L
pH	std. units
Sulfate	mg/L
TDS	mg/L
Zinc	mg/L

OTHERS

Temperature	°C
Total Organic Carbon (TOC)	mg/L
Specific Conductance	mhos
Water Levels	N.G.V.D.
Fecal Coliform	cts/100 ml
TKN	mg/L

*One time only for MW-A

SPECIFIC CONDITIONS (cont'd)

21. The field testing, sample collection and preservation and laboratory testing, including quality control procedures, shall be in accordance with methods approved by the Department in accordance with Chapter 17-4.246 and 17-3.401, F.A.C. Approved methods as published by the Department or as published in Standard Methods, A.S.T.M. or EPA methods shall be used. Approved methods for chemical analyses are summarized in the Federal Register, December 1, 1976 (41FR52780) except that turbidity shall be measured by the Nephelometric Method.

22. All groundwater monitoring analyses shall be reported on the Department Form 17-1.216(2), Quarterly Report on Groundwater Monitoring. The permittee shall submit to the Department the results of the groundwater monitoring well water quality analysis no later than the fifteenth (15) day of the month immediately following the end of the sampling period. The results shall be sent to the Department of Environmental Regulation, Southwest District Office, 7601 Highway 301 North, Tampa, Florida 33637-9544.

23. The permittee shall ensure that the water quality standards for Class G-II groundwaters will not be exceeded at the boundary of the zone of discharge according to Sections 17-3.402 and 17-3.404, F.A.C.

24. The permittee shall ensure that the minimum criteria for groundwater specified in Section 17-3.402, F.A.C. shall not be violated within the zone of discharge.

GENERAL LANDFILL INFORMATION REPORT

A) IDENTIFICATION OF THE LANDFILL:

The landfill referenced in this permit application is identified as the Citrus County Central Landfill located in the center of Citrus County near Lecanto, Florida.

B) NAME, ADDRESS, AND PHONE NUMBER OF PRIMARY CONTACT PERSON:

The primary contact person for this operation is:

Mr. James E. Barker, Jr.,
Dir. Div. Solid Waste Management
P. O. Box 440
Lecanto, FL 32661-0440
(904) 746-2694

C) NAME OF PERSONS OR CONSULTANTS PREPARING CLOSURE PLAN:

The closure plan has been prepared by the Citrus County Division of Engineering under the direction of Mr. Richard A. Berg, P.E., Dir., Div. of Engineering.

D) NAME OF LANDFILL PROPERTY OWNERS AND LANDFILL OPERATOR:

The landfill property is owned by the Florida Department of Agriculture and Consumer Services, and is leased from the Division of Forestry by Citrus County Board of County Commissioners. Citrus County is the operator of the landfill site.

E) LOCATION OF MAIN ENTRANCE OR OPERATORS OFFICE OF THE LANDFILL BY: TOWNSHIP, RANGE, AND SECTION AND LATITUDE AND LONGITUDE:

The 60 acre site is legally described as being in the Southeast Quarter of Section 1, Township 19 South, Range 18 East at latitude 28 51′ 08", longitude 82 26′ 38".

F) TOTAL ACREAGE: OF WASTE DISPOSAL AREA AND LANDFILL PROPERTY:

The landfill is situated on a total 60 acre site, although the waste disposal areas actually take up approximately 45 acres of the total landfill site.

G) LEGAL DESCRIPTION OF LANDFILL PROPERTY:

A portion of Section 1, Township 19 South, Range 18 East being more particularly described as follows: Commence at the Southwest Corner of Lot 9, Block A, New Mayfield Acres as recorded in Plat Book 2, Page 42, Public Records of Citrus County, Florida, thence N 89° 13' 46" E on an Easterly projection of the South line of said Lot 9, Block A, a distance of 640.22 feet, thence S 0° 46' 14" E a distance of 76.67 feet to a point that is 150 feet from, measured at a right angle to, the Centerline of State Road No. 44, said point also being the Point of Beginning, thence continue S 0° 46' 14" E a distance of 2151.70 feet, thence S 89 ° 13' 46" W a distance of 1320 feet, thence N 0° 46' 14" W a distance of 1808.78 feet to a point that is 150 feet from, measured at a right angle to, the Centerline of said State Road No. 44, thence N 74° 40' 03" E, parallel to and 150 feet from the Centerline of State Road No. 44 a distance of 1363.81 feet to the Point of Beginning:

TOGETHER WITH an Easement for ingress and egress over the following described lands: Commence at the Southwest Corner of Lot 9, Block A, New Mayfield Acres, as recorded in Plat Book 2, Page 42, Public Records of Citrus County, Florida, thence N 89 ° 13' 46" E on an Easterly projection of the South line of said Lot 9, Block A, a distance of 640.22 feet, thence S 0° 46' 14" E a distance of 76.67 feet to a point that is 150 feet from, measured at a right angle to, the Centerline of State Road No. 44, said point also being the Point of Beginning, thence S 74° 40' 03" W, parallel to and 150 feet from the Centerline of State Road No. 44, a distance of 1363.81 feet, thence N 0° 46' 14" W a distance of 101.33 feet to the Southerly right-of-way line of State Road No. 44, thence N 74° 40' 03" E along said right-of-way line a distance of 1265.77 feet, thence N 89° 13' 46" E a distance of 94.90 feet, thence S 0° 46' 14" E a distance of 76.67 feet to the Point of Beginning.

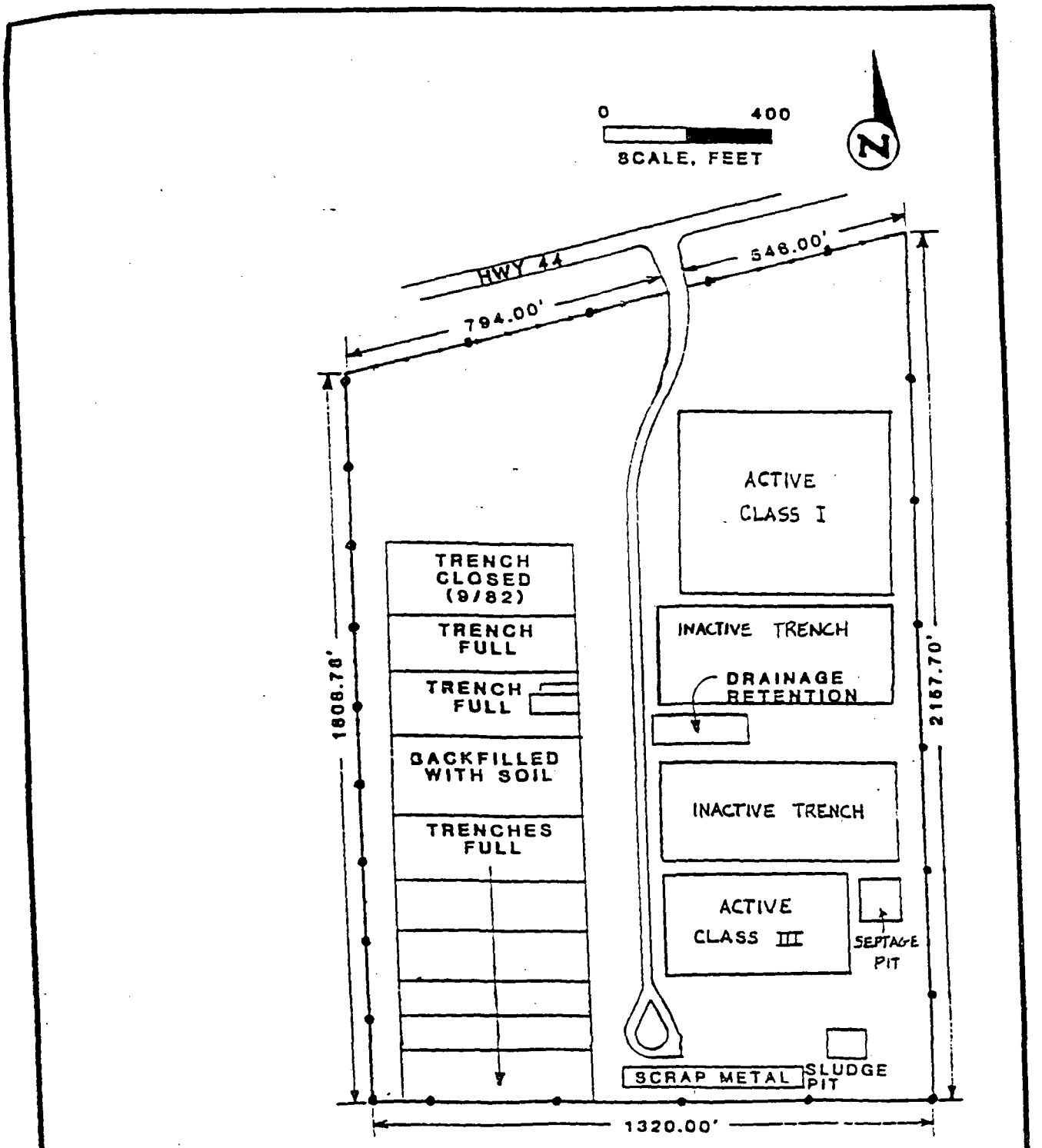
H) HISTORY OF LANDFILL CONSTRUCTION AND OPERATIONS

The Citrus County Central Landfill received its original operation permit from the State of Florida Department of Environmental Regulation (FDER Permit No. S009-0027) on November 12, 1975. The landfill has been filled with various approved types of waste; including brush, construction debris, white goods, tires, septic and animal debris, asbestos, and household garbage. The original trenches began at the Southwest corner of the property and new trenches were constructed North of and adjacent to existing trenches as they reached maximum capacity. Once the West side of the property was filled to approximately 600 feet from U.S. Highway 44, new trenches were constructed on the Eastern half of the property. A Class III trench and

three consecutive Class I trenches were constructed on this side of the property, along with two septic disposal pits (SEE ATTACHMENT I FOR GRAPHIC DESCRIPTION OF TRENCHES).

I) IDENTITY OF TYPES OF WASTE DISPOSED OF IN COMPLETED LANDFILL:

The Citrus County Central Landfill is properly permitted to accept brush, construction debris, white goods, tires, septic sludge, animal debris, asbestos, and household garbage.



TRENCH CONSTRUCTION

AREA INFORMATION REPORT

A) TOPOGRAPHY:

Attachment (II) is a copy of U.S. Geologic Survey Lecanto quadrangle showing the topography of the area in question.

B) HYDROLOGY:

Attachment (III) is a copy of the above with surface water drainage patterns shown. There are no hydrologic features within this area due to higher altitude and a high percolation rate.

C) GEOLOGY:

Attachment (IV) is a copy of soil bores taken on the present 60 acre site. The soil conditions encountered at the boring sites consisted of a dappled mixture of sands, clayey sands and silty sands varying in depth and density. The conditions at this site should be representative of the typical soil condition within a one mile radius of the landfill. The area in question should not contain unconsolidated deposits, major confining units or sinkholes.

D) HYDROGEOLOGY:

Attachment (V) is hydrogeologic information copied from the Groundwater Resource Availability Inventory for Citrus County supplied by the Southwest Florida Water Management District. The area in question is highlighted on each of the four copies. Included are thickness of the upper confining unit, depth to top of the Floridan aquifer, potable water zone thickness, and flow direction of the Floridan aquifer.

The groundwater table has been recorded at approximately 120 feet below ground elevation at the landfill site. This is representative of the area with topographic variations resulting in some changes. The groundwater typically flows from east to west. There is no recharge/discharge areas within one mile of the landfill site. There are numerous private wells north of the landfill and no public wells within the one mile radius.

E) GROUND AND SURFACE WATER QUALITY:

Groundwater quality is addressed following Tab 6, Section A EFFECTIVENESS AND RESULTS OF GROUNDWATER INVESTIGATION.

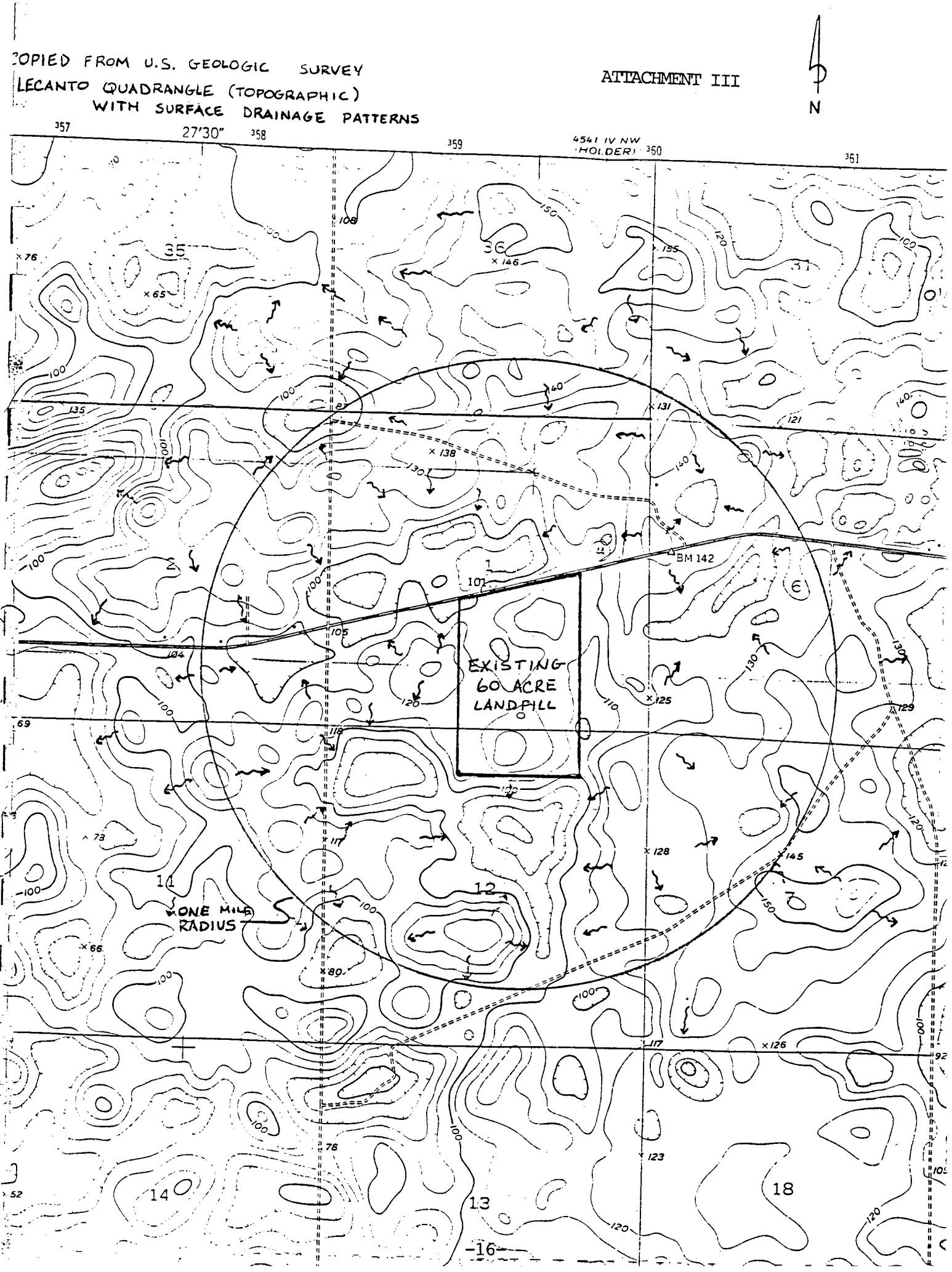
There are no surface water bodies within a one mile radius of the landfill, hence there is no surface water quality report.

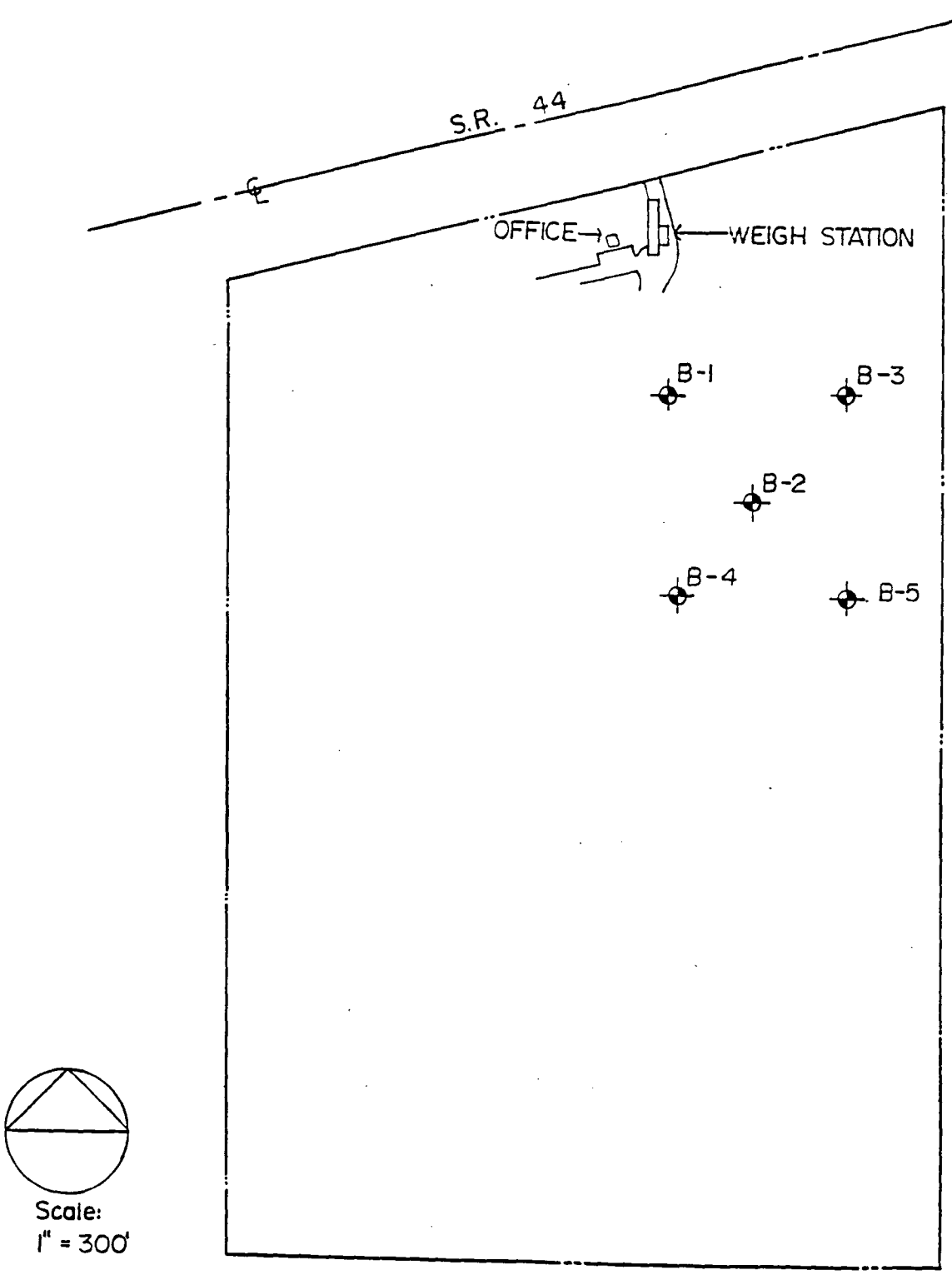
ATTACHMENT II

COPIED FROM U.S. GEOLOGIC SURVEY
LECANTO QUADRANGLE (TOPOGRAPHIC)

COPIED FROM U.S. GEOLOGIC SURVEY
LECANTO QUADRANGLE (TOPOGRAPHIC)
WITH SURFACE DRAINAGE PATTERNS

ATTACHMENT III





⌖ TEST BORING LOCATION

CITRUS COUNTY LANDFILL

PROJECT NO. T-5077

KEY TO CLASSIFICATIONS AND SYMBOLS

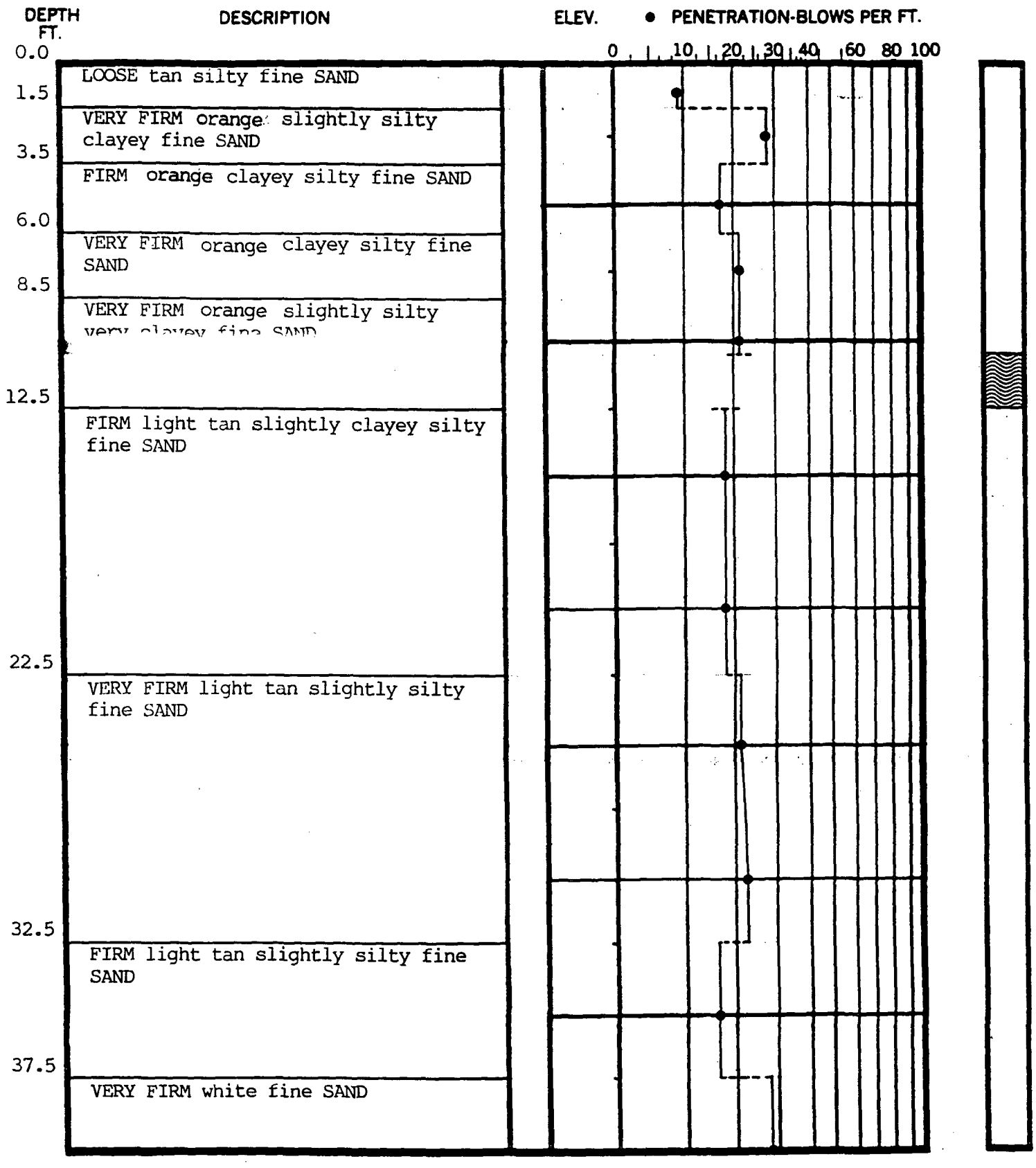
CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	NO. OF BLOWS, N	RELATIVE DENSITY
SAND	0 - 4	VERY LOOSE
	5 - 10	LOOSE
	11 - 20	FIRM
	21 - 30	VERY FIRM
	31 - 50	DENSE
	OVER 50	VERY DENSE

	NO. OF BLOWS, N	CONSISTENCY
SILTS AND CLAYS	0 - 1	VERY SOFT
	2 - 4	SOFT
	5 - 8	FIRM
	9 - 15	STIFF
	16 - 30	VERY STIFF
	31 - 50	HARD
	OVER 50	VERY HARD

SYMBOLS

		Undisturbed Sample (UD) Recovered
100/2"	-	Number of Blows (100) to Drive the Spoon a Number of Inches (2)
AX, BX, NX	-	Core Barrel Sizes Which Obtain Cores 1-1/8, 1-5/8 and 2-1/8 Inches in Diameter Respectively
65%	-	Percentage (65) of Rock Core Recovered
RQD	-	Rock Quality Designation - % of Core Segments 4 or More Inches Long
▼	-	Water Table At Least 24 Hours After Drilling
▽	-	Water Table One Hour or Less After Drilling
◀	-	Loss of Drilling Water
PP	-	Pocket Penetrometer Reading in TSF (kg/cm^2)
TV	-	Torvane Reading in TSF (kg/cm^2)



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

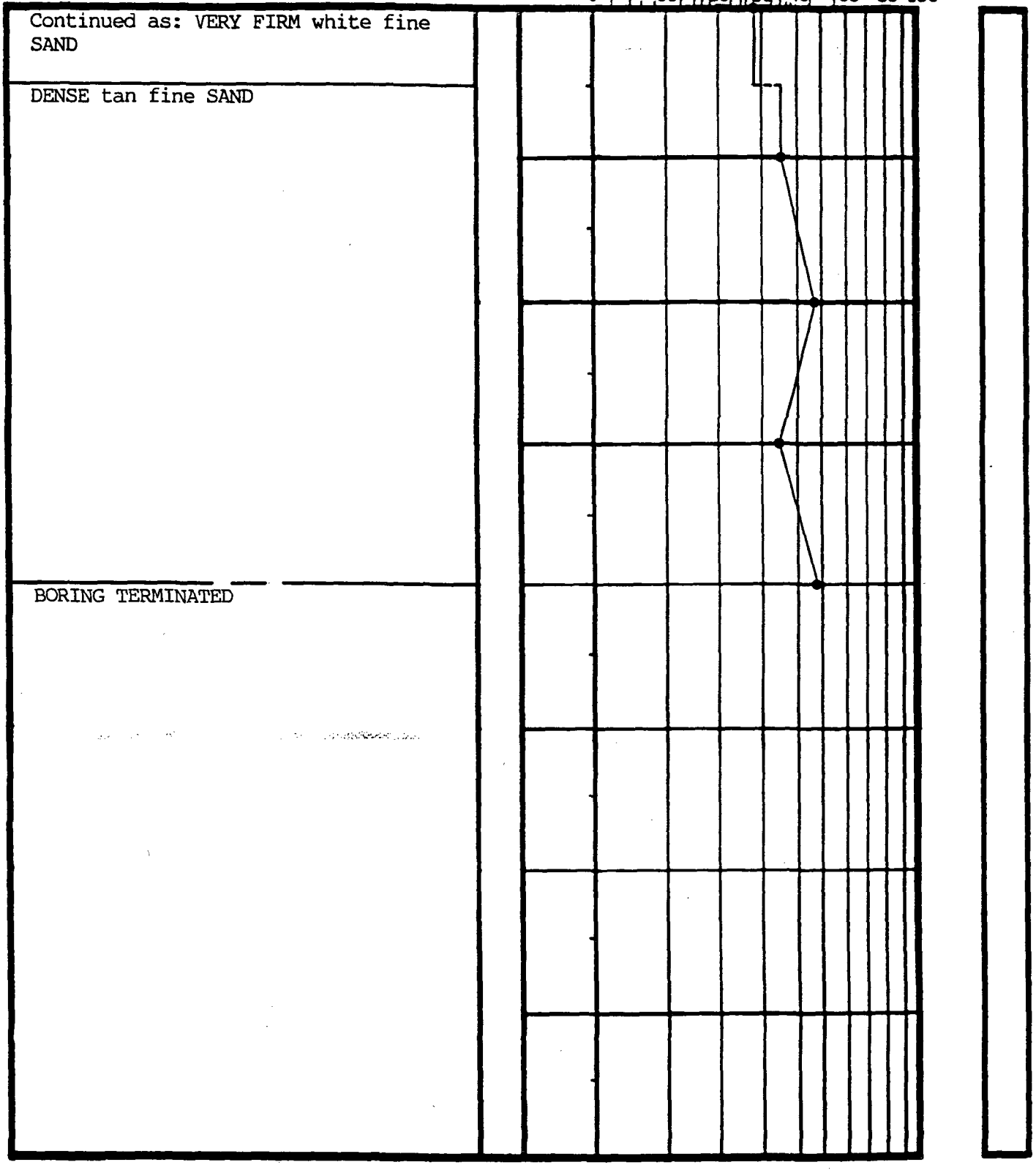
PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
C/O ROCK CORE RECOVERY
WATER TABLE, 24 HR.
WATER TABLE, TOB
LOSS OF DRILLING WATER

BORING NO. B-1
DATE DRILLED 12-10-86
JOB NO. T-5077
SHT. 1 OF 2

LAW ENGINEERING TESTING CO.

DEPTH FT.	DESCRIPTION	ELEV.	● PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100
40.0	Continued as: VERY FIRM white fine SAND		
42.5	DENSE tan fine SAND		
60.0	BORING TERMINATED		



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

C/O ROCK CORE RECOVERY

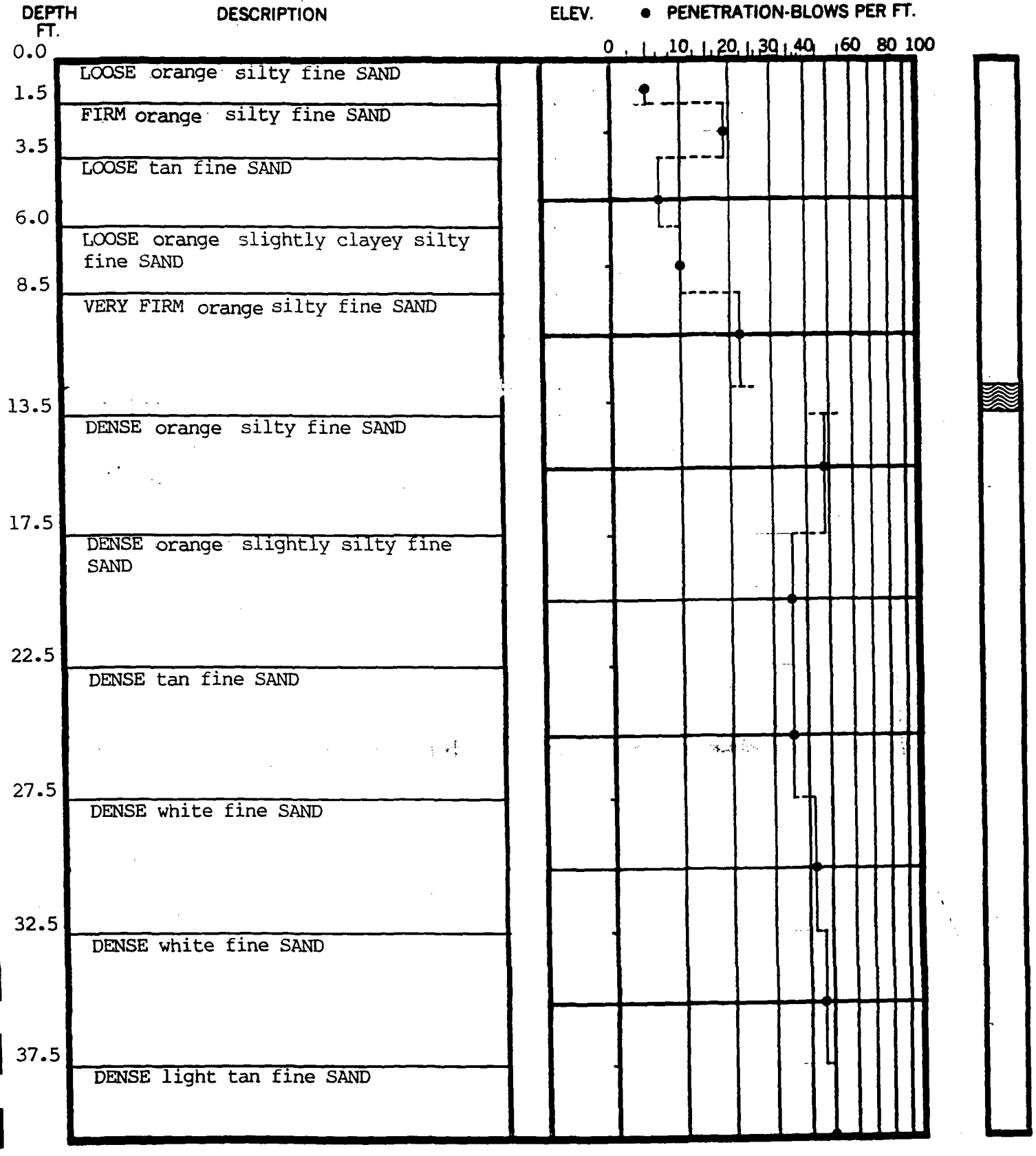
WATER TABLE, 24 HR.

WATER TABLE, TOB

LOSS OF DRILLING WATER

BORING NO. B-1
DATE DRILLED 12-10-86
JOB NO. T-5077
SHT. 2 OF 2

LAW ENGINEERING TESTING CO



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

C/O ROCK CORE RECOVERY

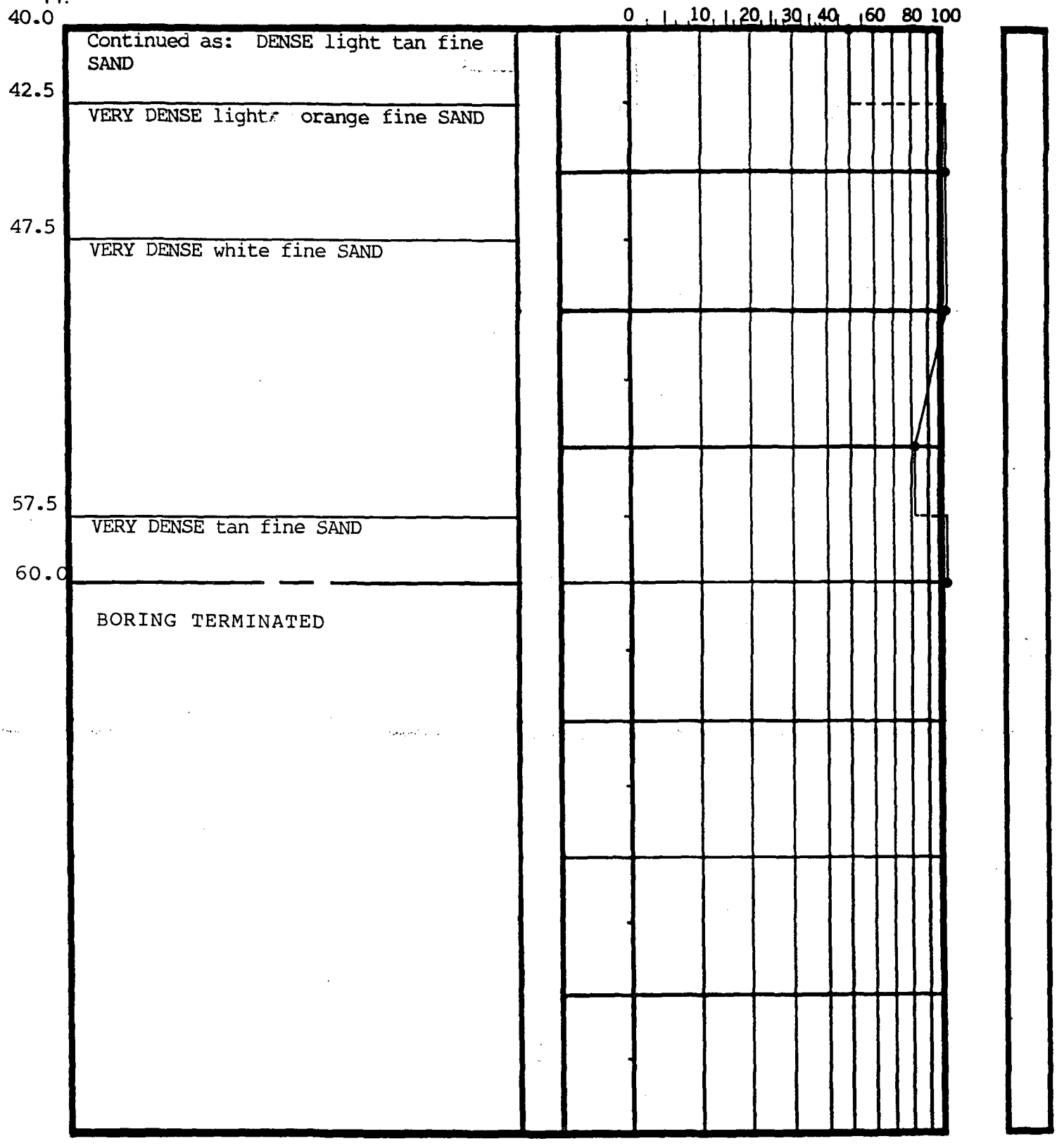
WATER TABLE, 24 HR.

WATER TABLE, TOB

LOSS OF DRILLING WATER

BORING NO. B-2
DATE DRILLED 12-11-86
JOB NO. T-5040
SHT. 1 OF 2

LAW ENGINEERING TESTING CO



TEST BORING RECORD

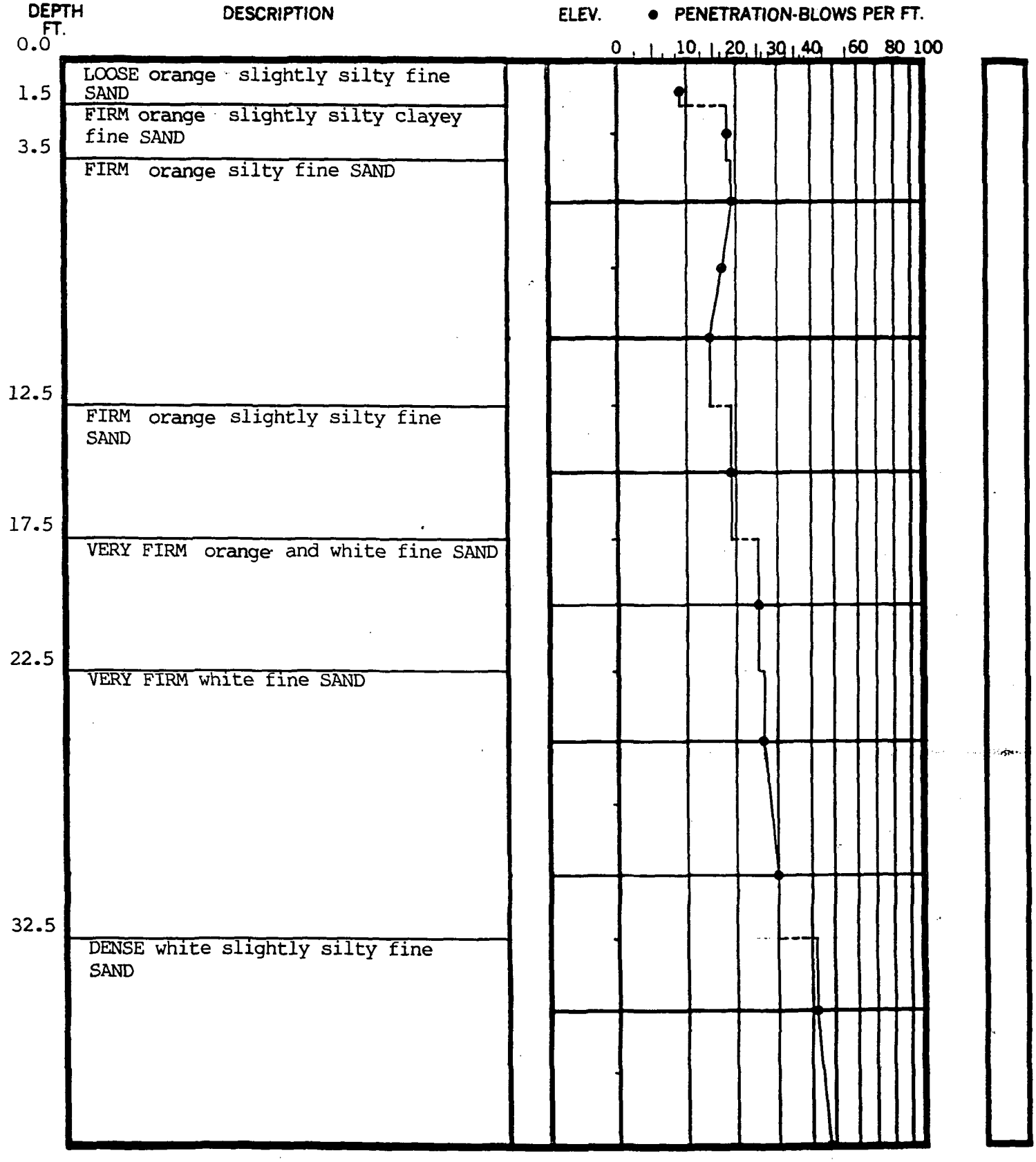
BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
C/O ROCK CORE RECOVERY
WATER TABLE, 24 HR.
WATER TABLE, TOB
LOSS OF DRILLING WATER

BORING NO. B-2
DATE DRILLED 12-11-86
JOB NO. T-5040
SHT. 2 OF 2

LAW ENGINEERING TESTING CO



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

C/O ROCK CORE RECOVERY

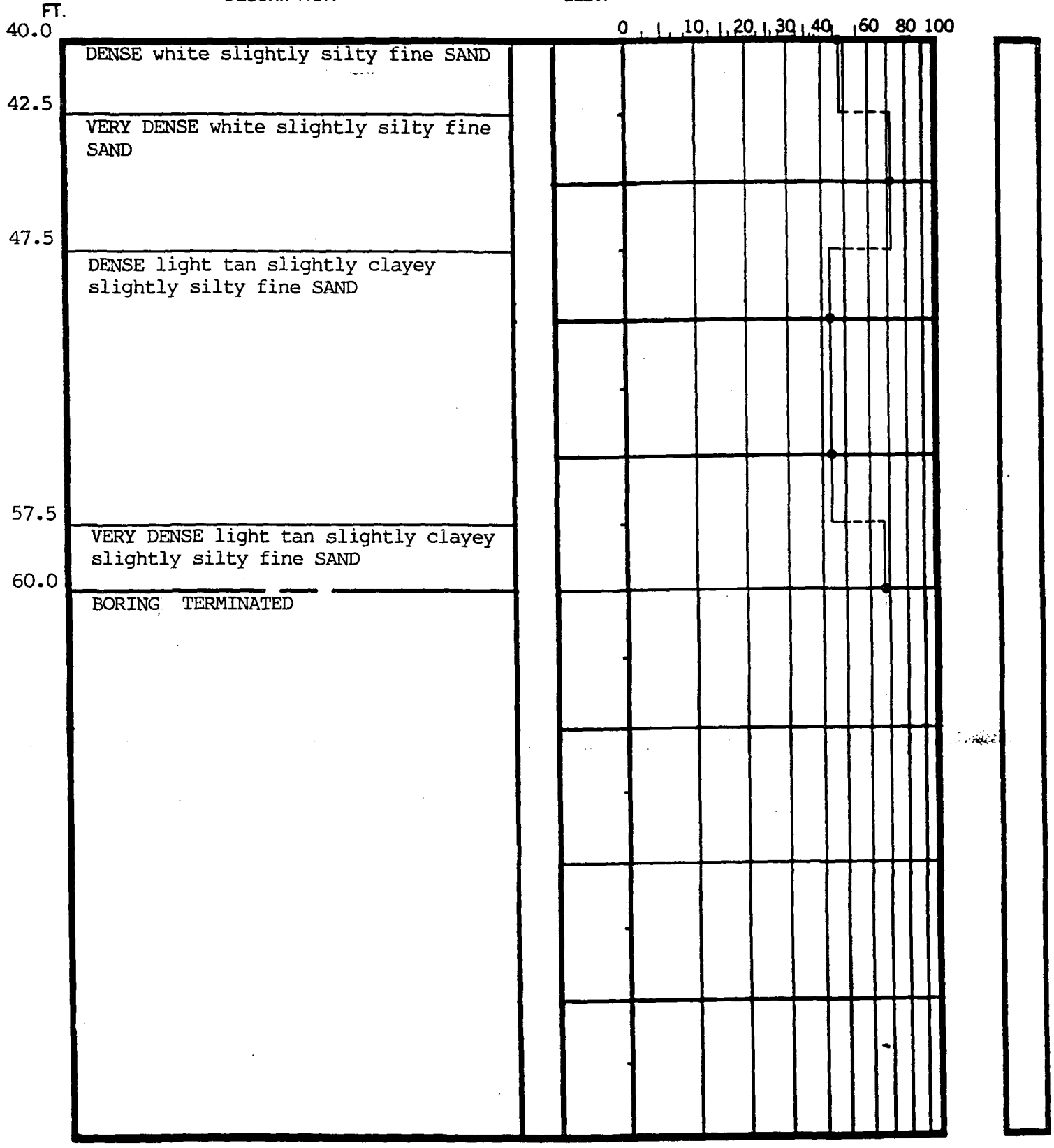
WATER TABLE, 24 HR.

WATER TABLE, TOB

LOSS OF DRILLING WATER

BORING NO. B-3
DATE DRILLED 12-12-86
JOB NO. T-5077
SHT. 1 OF 2

LAW ENGINEERING TESTING CO.



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

C/O ROCK CORE RECOVERY

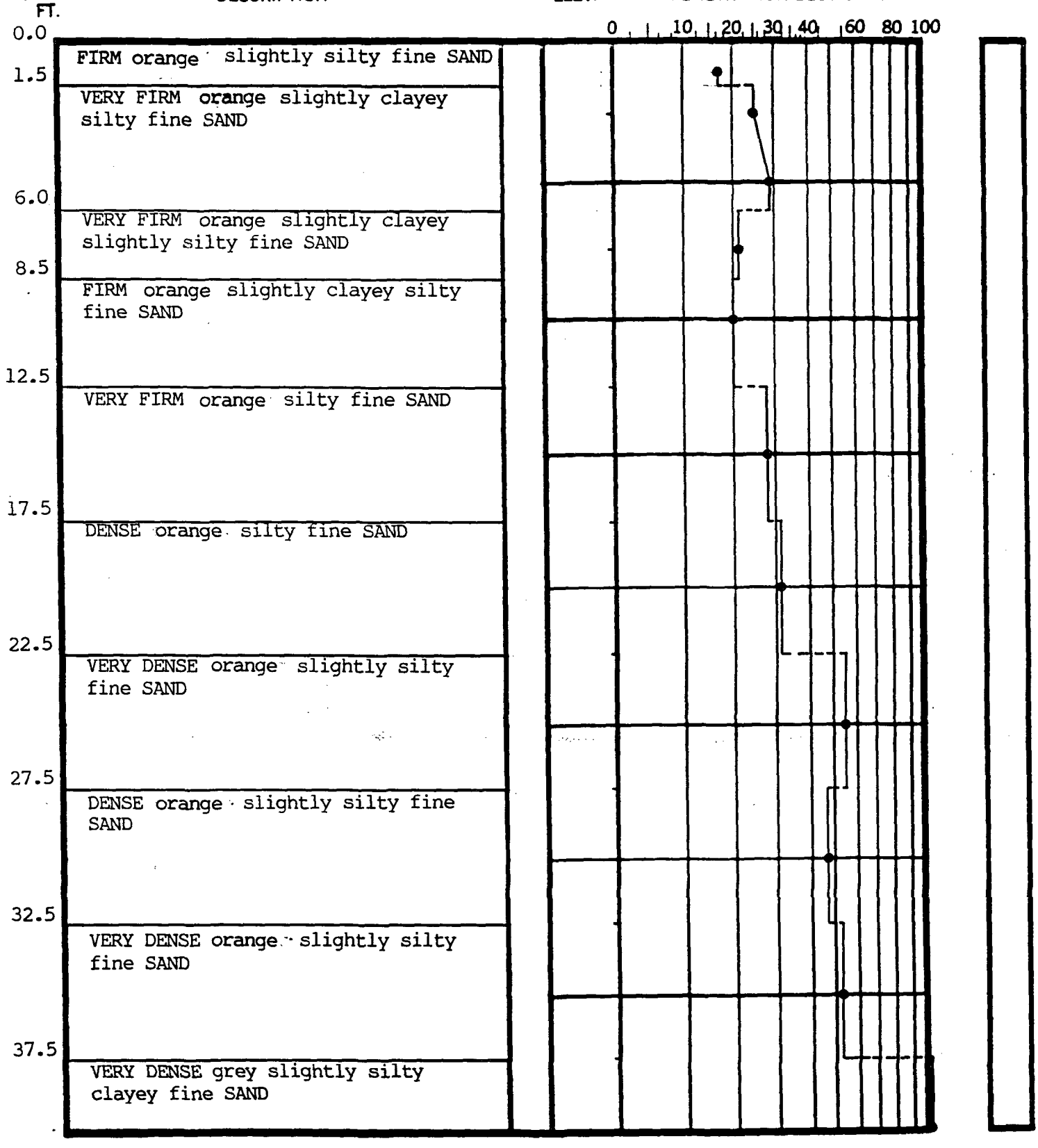
WATER TABLE, 24 HR.

WATER TABLE, TOB

LOSS OF DRILLING WATER

BORING NO. B-3
DATE DRILLED 12-12-86
JOB NO. T-5077
SHT. 2 OF 2

LAW ENGINEERING TESTING CO



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

C/O ROCK CORE RECOVERY

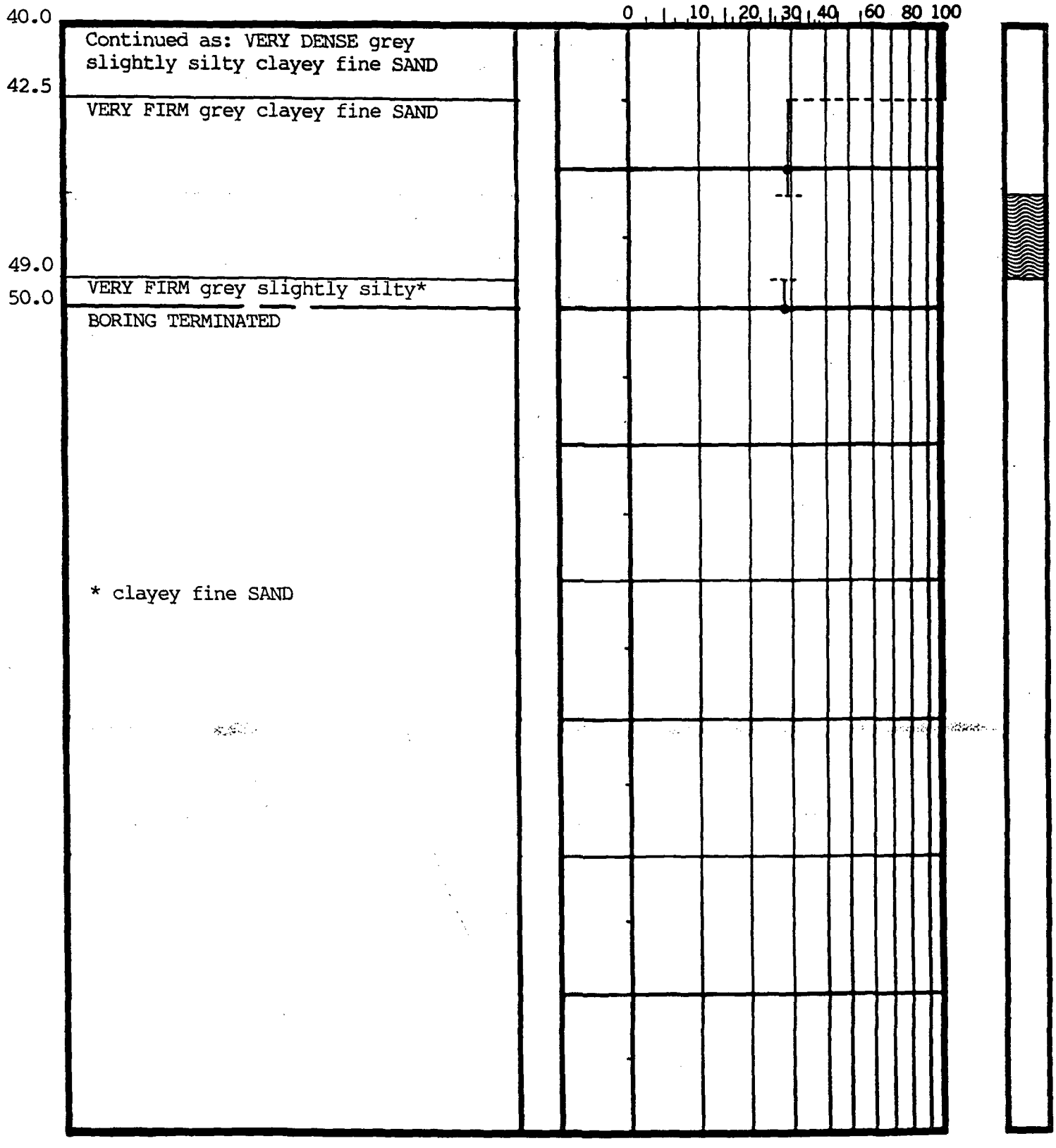
WATER TABLE, 24 HR.

WATER TABLE, TOB

LOSS OF DRILLING WATER

BORING NO. B-4
DATE DRILLED 12-15-86
JOB NO. T-5077
SHT. 1 OF 2

LAW ENGINEERING TESTING CO



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

C/O ROCK CORE RECOVERY

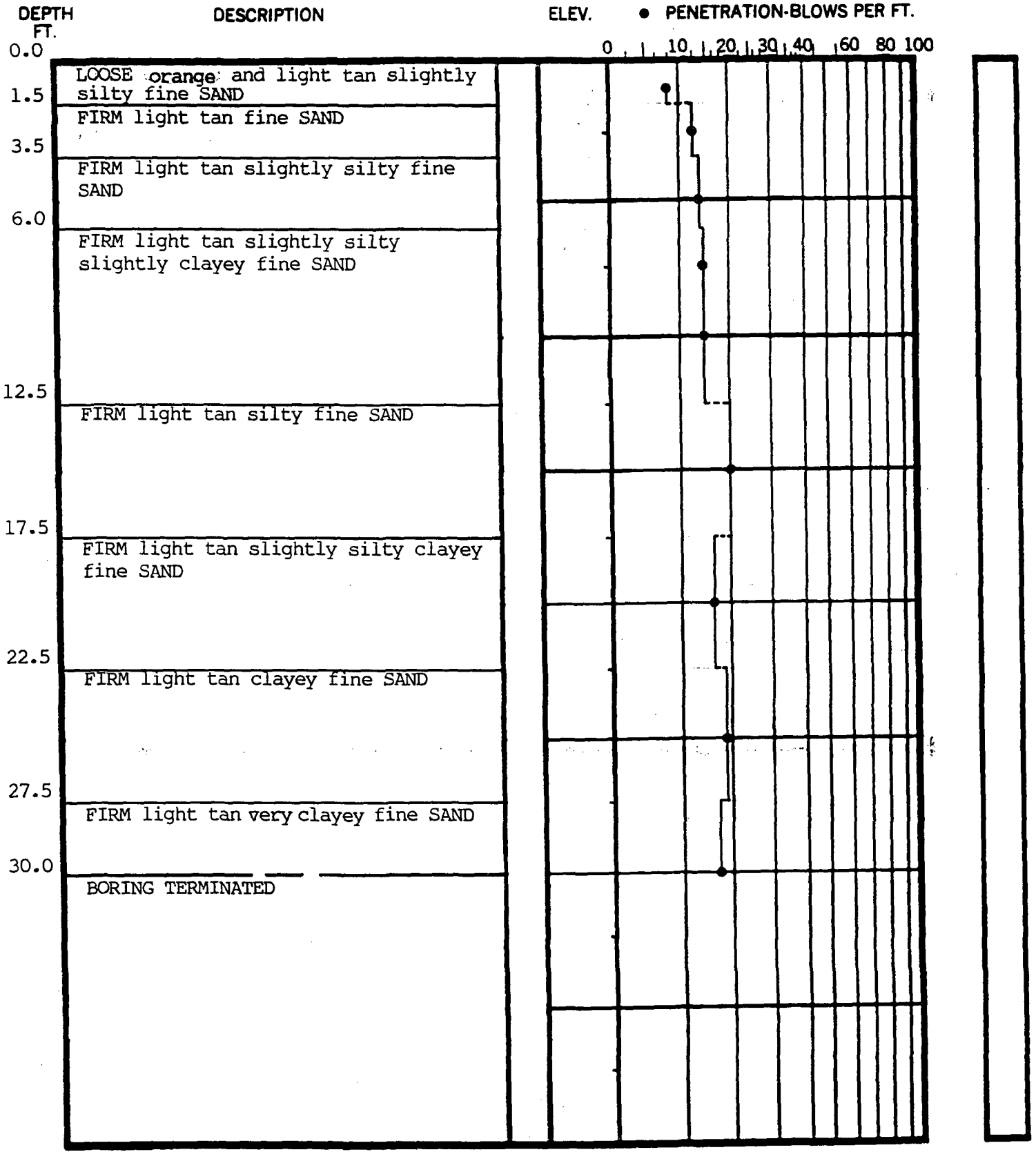
WATER TABLE, 24 HR.

WATER TABLE, TOB

LOSS OF DRILLING WATER

BORING NO. B-4
DATE DRILLED 12-15-86
JOB NO. T-5077
SHT. 2 OF 2

LAW ENGINEERING TESTING CO.



TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D—1586
CORE DRILLING MEETS ASTM D—2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

BORING NO. B-5
DATE DRILLED 12-15-86
JOB NO. T-5077

WATER TABLE, 24 HR.
WATER TABLE, TOB
UNDISTURBED SAMPLE
C/O ROCK CORE RECOVERY
LOSS OF DRILLING WATER

LAW ENGINEERING TESTING CO.

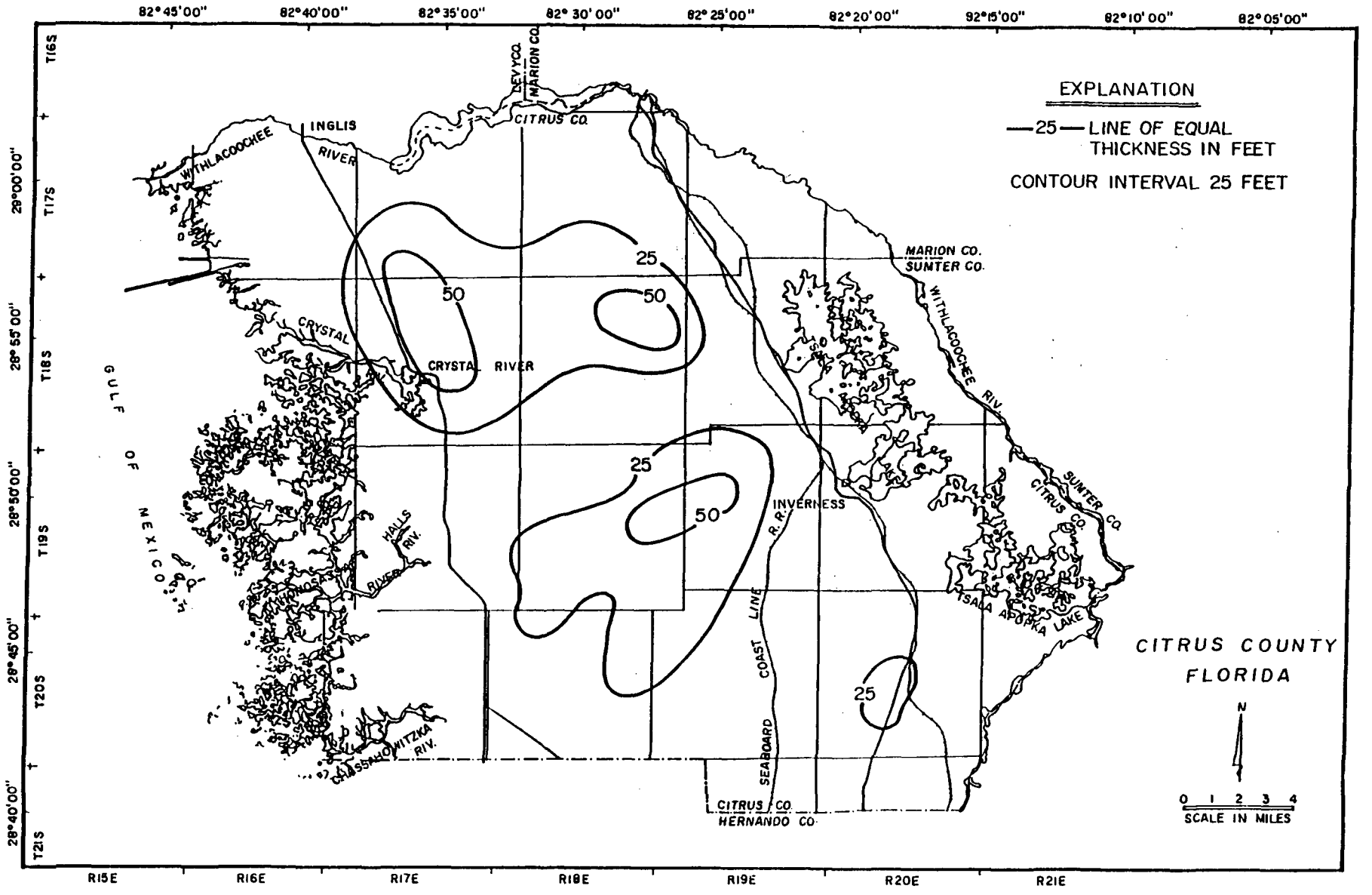


Figure 38. Thickness of the upper Confining Unit in Citrus County (from Buono and others, 1970).

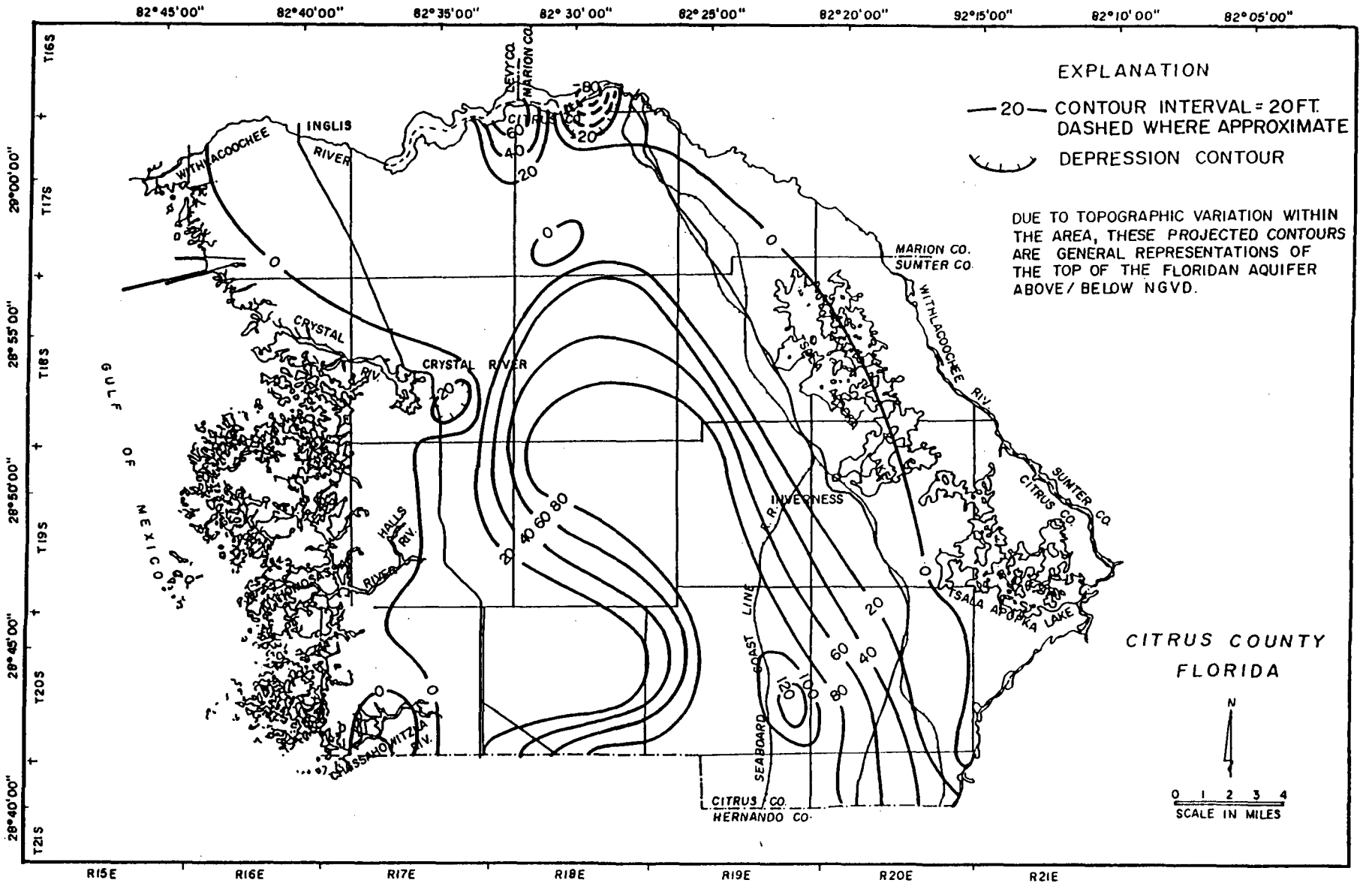


Figure 39. Structure Contour Map of the Top of the Floridan Aquifer Above/Below NGVD.

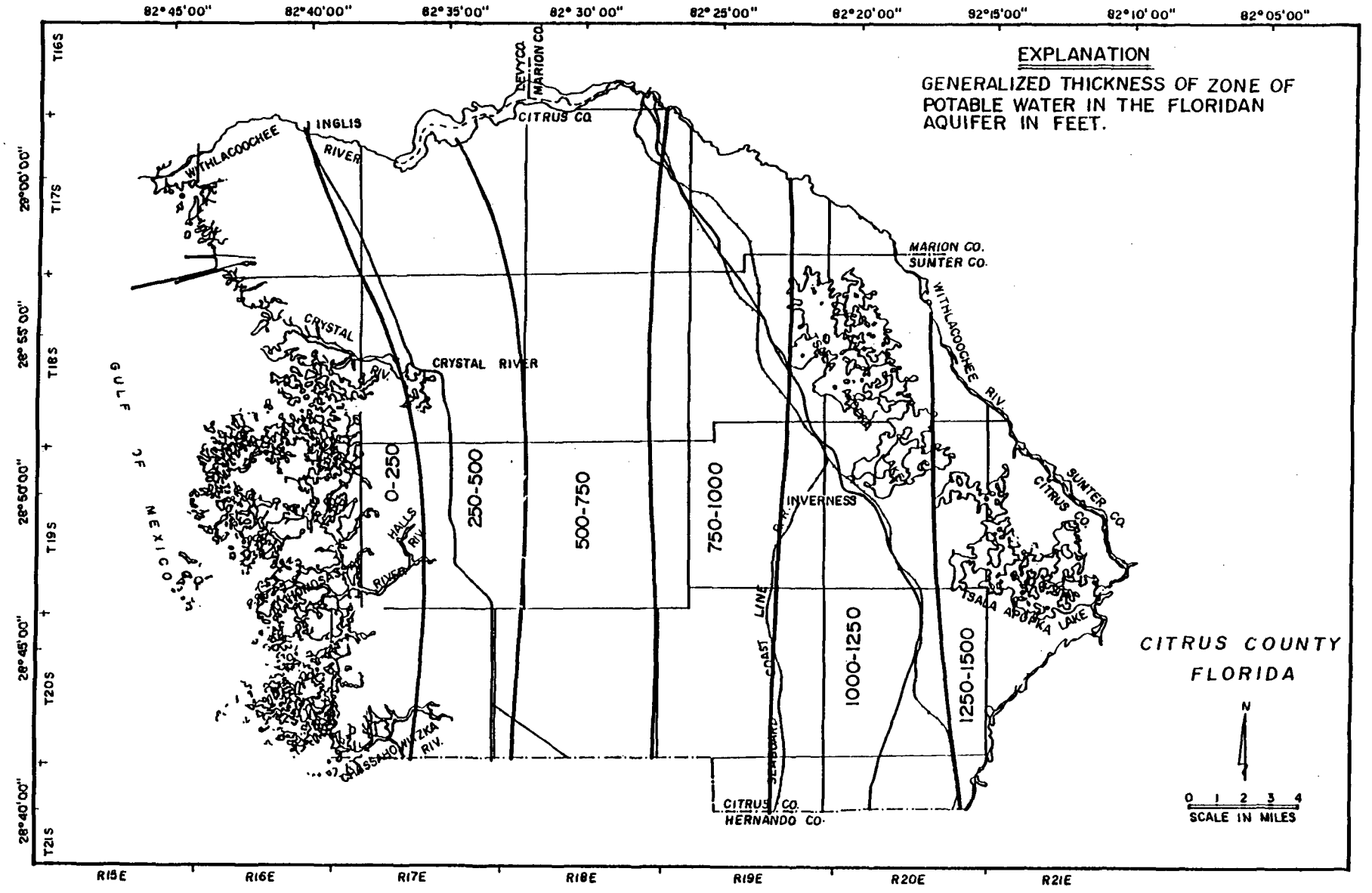


Figure 40. Thickness of the Zone of Potable Water in the Upper Floridan Aquifer (from Causey and Leve, 1976).

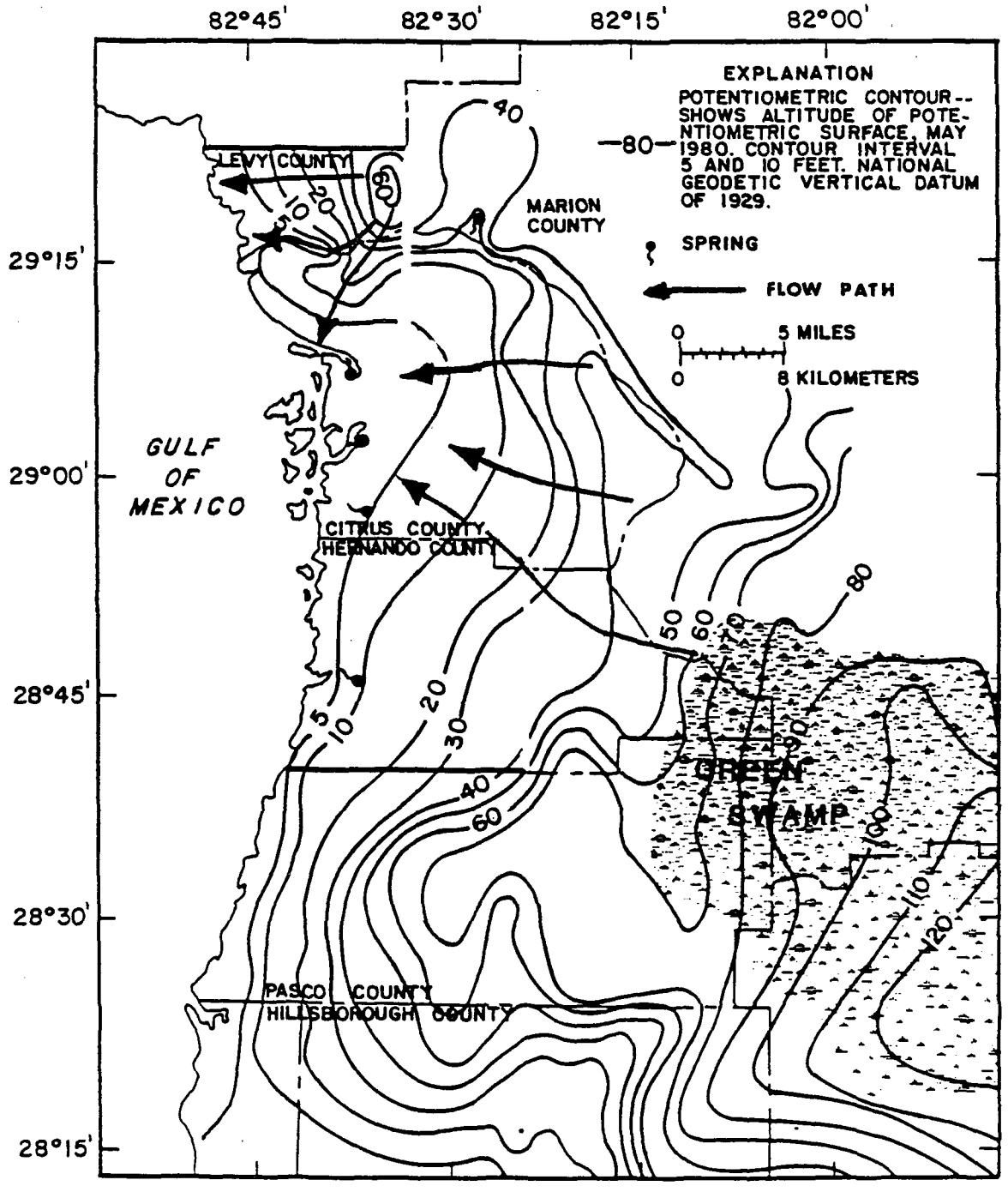


Figure 42. Potentiometric Surface of the Upper Floridan Aquifer Near Citrus County Showing Flow Paths, May 1980 (modified from Yobbi and others, 1980).

F) LAND USE INFORMATION:

Land use information is as follows:

Attachment (VI) shows highlighted adjacent properties with ownerships being:

Lot 13000, Garland Pottersfield Estate
Union Building
Charleston, VA 25301

Lot 12350, Henry Johansky & Florence Pitt
280 Malcolm Ave.
Garfield, NJ 07026

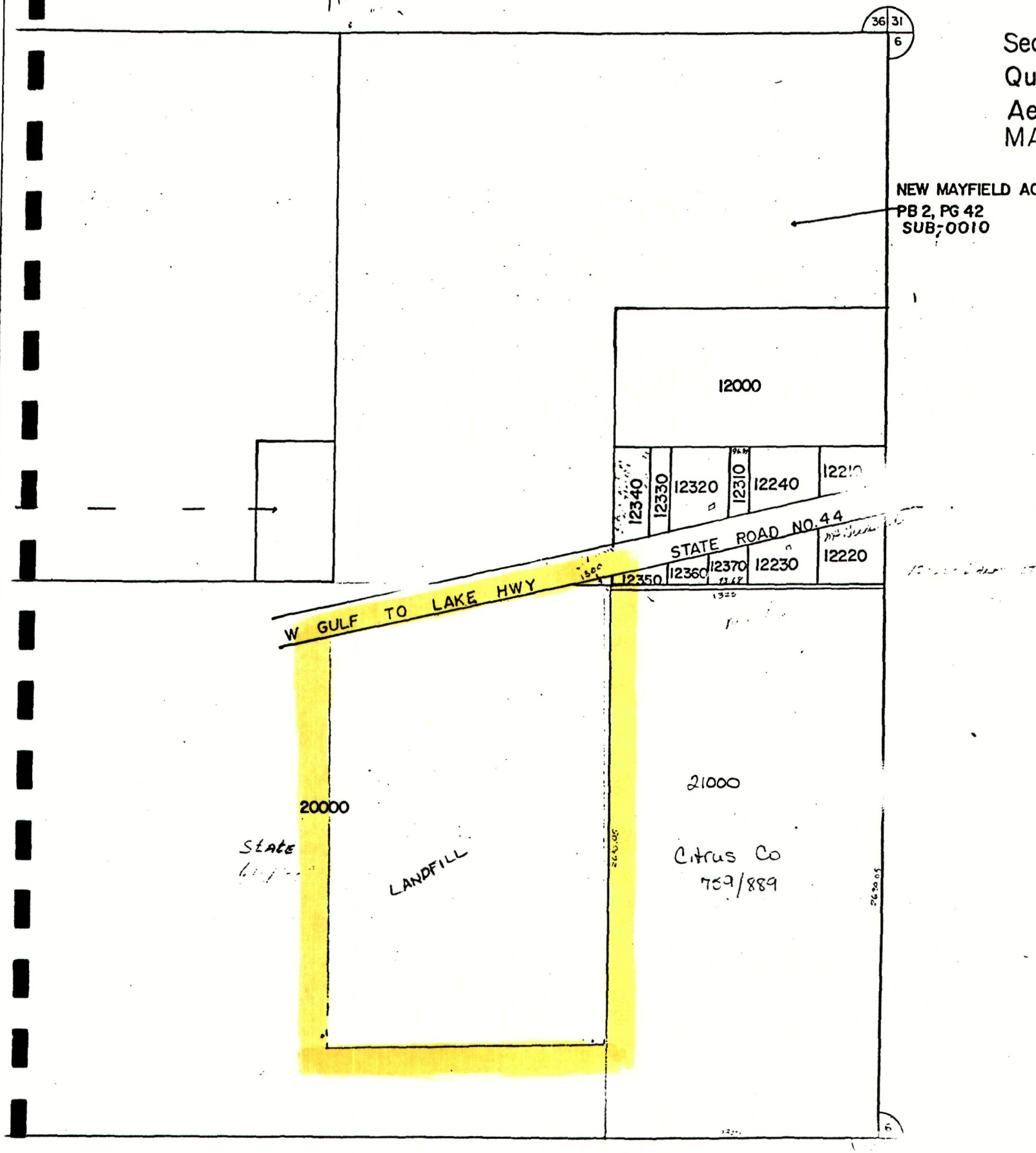
80 acres of land along the eastern border is owned by Citrus County.

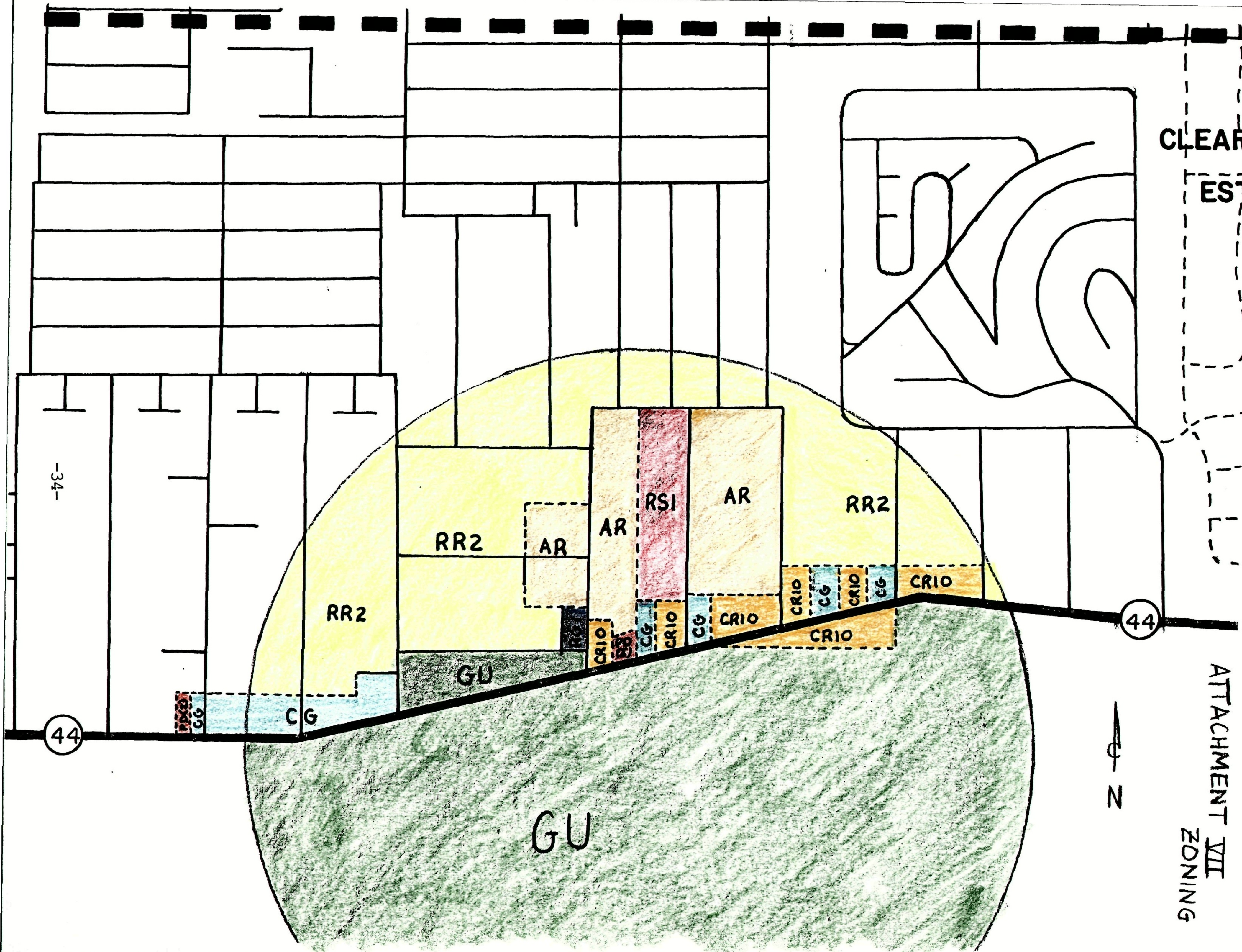
Land along south and west perimeters is property of U.S. Department of Agriculture and Consumer Services.

Florida Department of Transportation owns land immediately adjacent to landfill on north side.

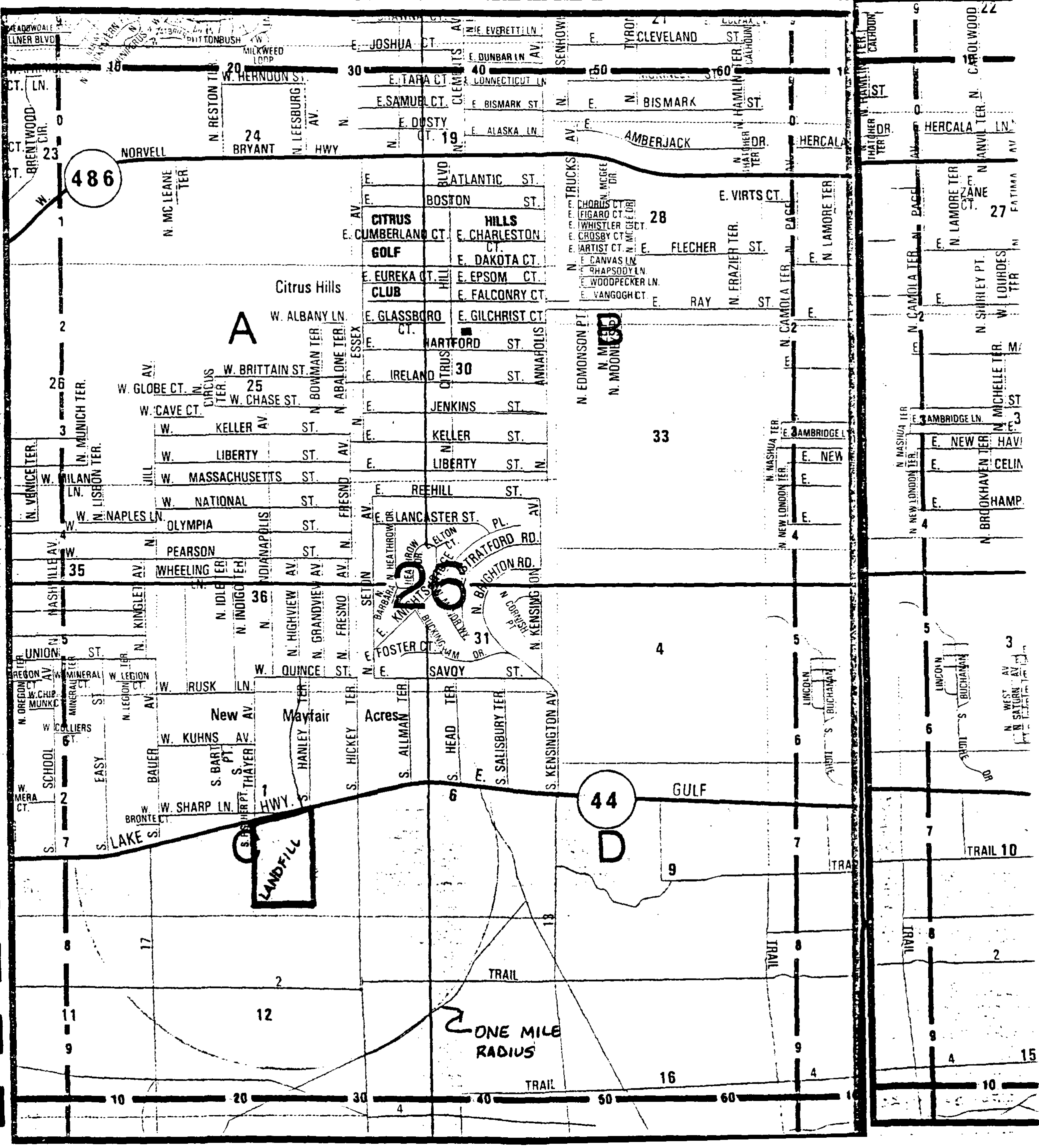
Attachment (VII) indicates present zoning classifications of lands within a one mile radius of the landfill. The adjacent lands are used for light industrial, single family residential, and government (forestry) purposes.

Attachment (VIII) shows all roads and highways within the prescribed area.


36
31
6
NEW MAYFIELD AC
PB 2, PG 42
SUB-0010
12000
12340
12330
12320
12310
12240
12210
STATE ROAD NO. 44
W GULF TO LAKE HWY
12350
12360
12370
12230
12220
20000
LANDFILL
21000
Citrus Co
759/889
6



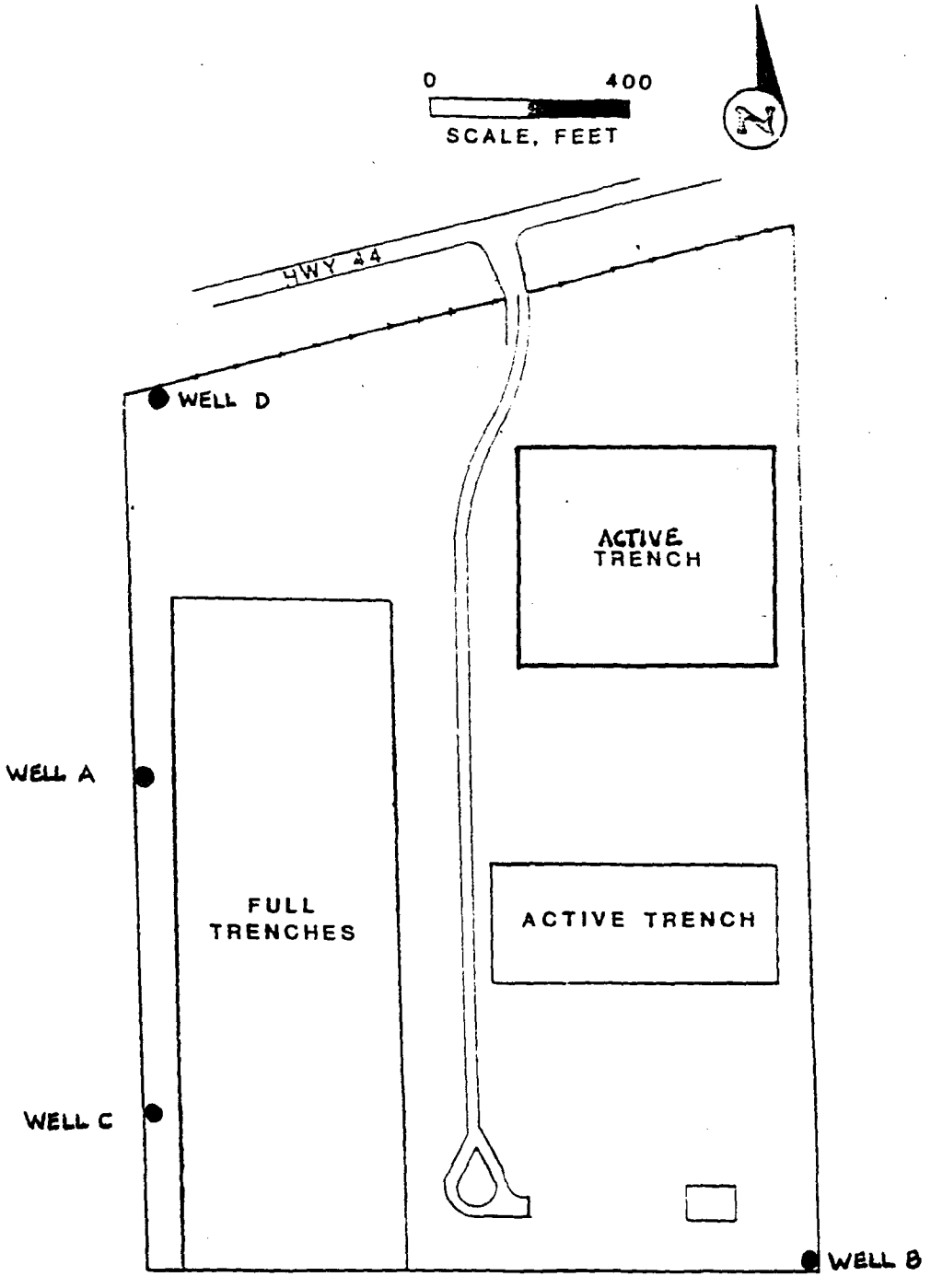
ATTACHMENT VII
ZONING



GROUNDWATER MONITORING PLAN CONTAINING SITE SPECIFIC INFORMATION

The landfill presently has four monitoring wells in place (Attachment IX) for frequent sampling of groundwater. Groundwater samples are collected and analyzed for the parameters in Attachment X as required in our Groundwater Monitoring Plan as approved by F.D.E.R. in June 1975 (Permit No. SO-09-30672).

Please find attached additional information regarding well locations, well construction, sampling procedure, frequency and analyses, water quality, as well as a copy of our most recent analyses and sampling information.



SOURCE: CITRUS COUNTY

MONITOR WELL LOCATIONS

CITRUS COUNTY CENTRAL LANDFILL
WATER QUALITY SAMPLING DATA REPORT

INTRODUCTION

Citrus County continues to sample, analyze and report groundwater quality at all monitor wells at the Citrus County Central Landfill (see Figure 1) on a quarterly basis. This quarterly program is in compliance with specific conditions 5 and 6 of Florida Department of Environmental Regulation Permit Number MP09-112294. These specific conditions state that the permittee shall sample all groundwater monitoring wells annually for the Primary and Secondary Drinking Water Parameters included in Chapter 17-22, F.A.C. and sample quarterly for all Secondary Drinking Water Parameters with the addition of Nitrate, Sodium, Turbidity, Total Organic Carbon, Total Coliform, Temperature, Water Level (NGVD), Total Kjeldahl Nitrogen and Specific Conductance.

FIELD METHODS

The latest samples of groundwater were taken at each of the four monitor wells (see Figure 2) located at the county landfill near Lecanto on September 30, 1988. Prior to collection of water samples, groundwater levels were measured by Flowers Chemical Laboratories personnel. The volume of water in the well casing was calculated. Each well was pumped to remove stagnant water in the casing. Approximately 3.5 to 4.5 casing volumes were removed using permanently installed submersible pumps. The submersible pumps at Wells A, B and C were powered by a portable generator. The pump at Well D is permanently connected to power lines. Samples at Wells A, B and C were collected at the discharge valves located at the top of the wells (see Figure 3). Samples at Well D were collected at a discharge valve on the outside of the well pumphouse. Field pH, temperature and specific conductance were measured in the sample retained for analysis. Appropriate preservatives were placed in sample bottles prior to sampling by the laboratory as part of sample kit preparation, and all samples were chilled during transportation to the laboratory. The samples were promptly delivered to the water quality laboratory.

WATER QUALITY

Results of the chemical analysis of the groundwater by Flowers Chemical Laboratories, Inc., were received on November 4, 1988. The Appendix (8 pages) lists the results of analyses on the four samples for the list of parameters designated by the FDER in Permit Number MP09-112294 for annual monitoring.

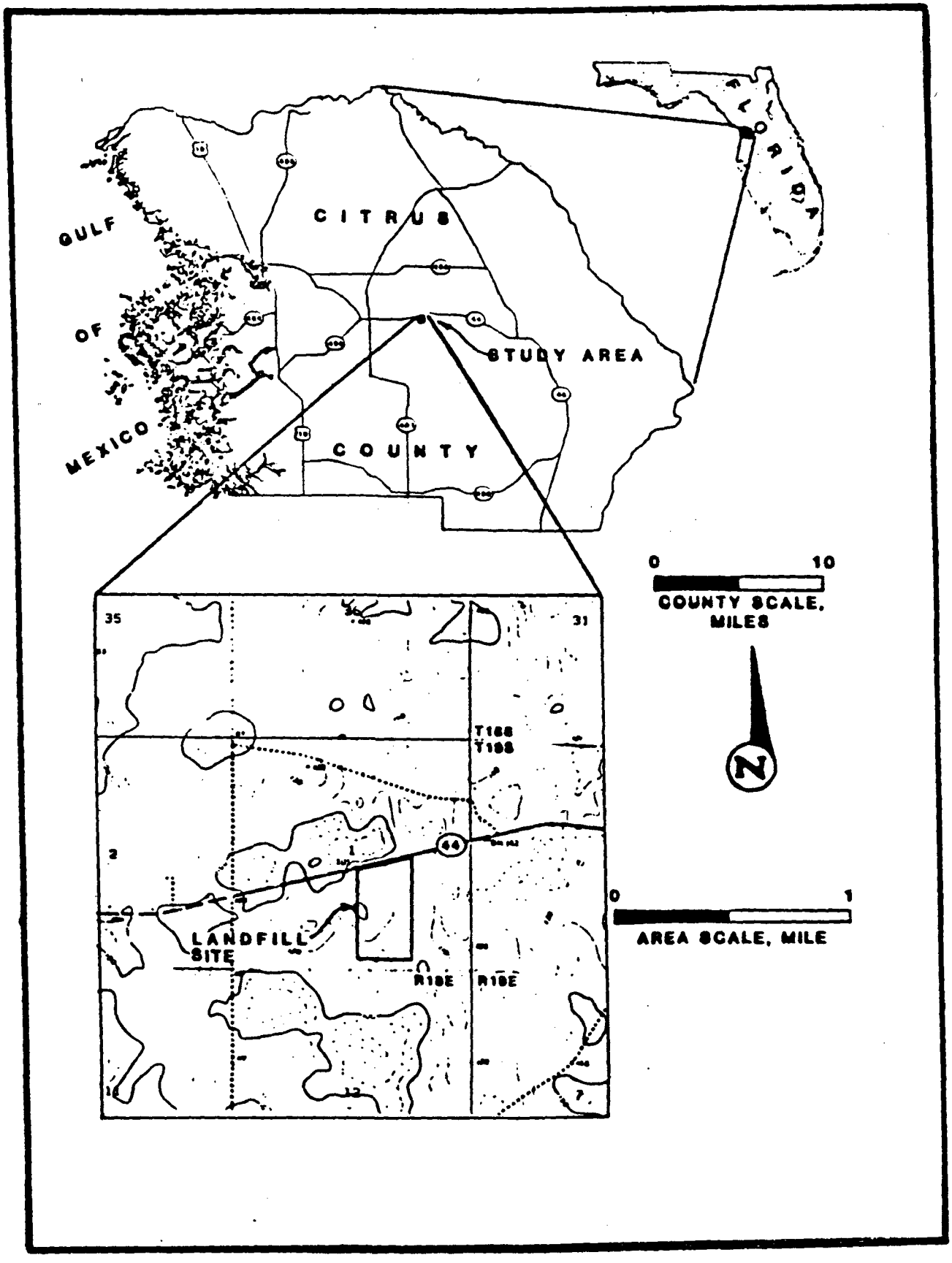


FIGURE 1.- LOCATION OF CITRUS COUNTY LANDFILL.

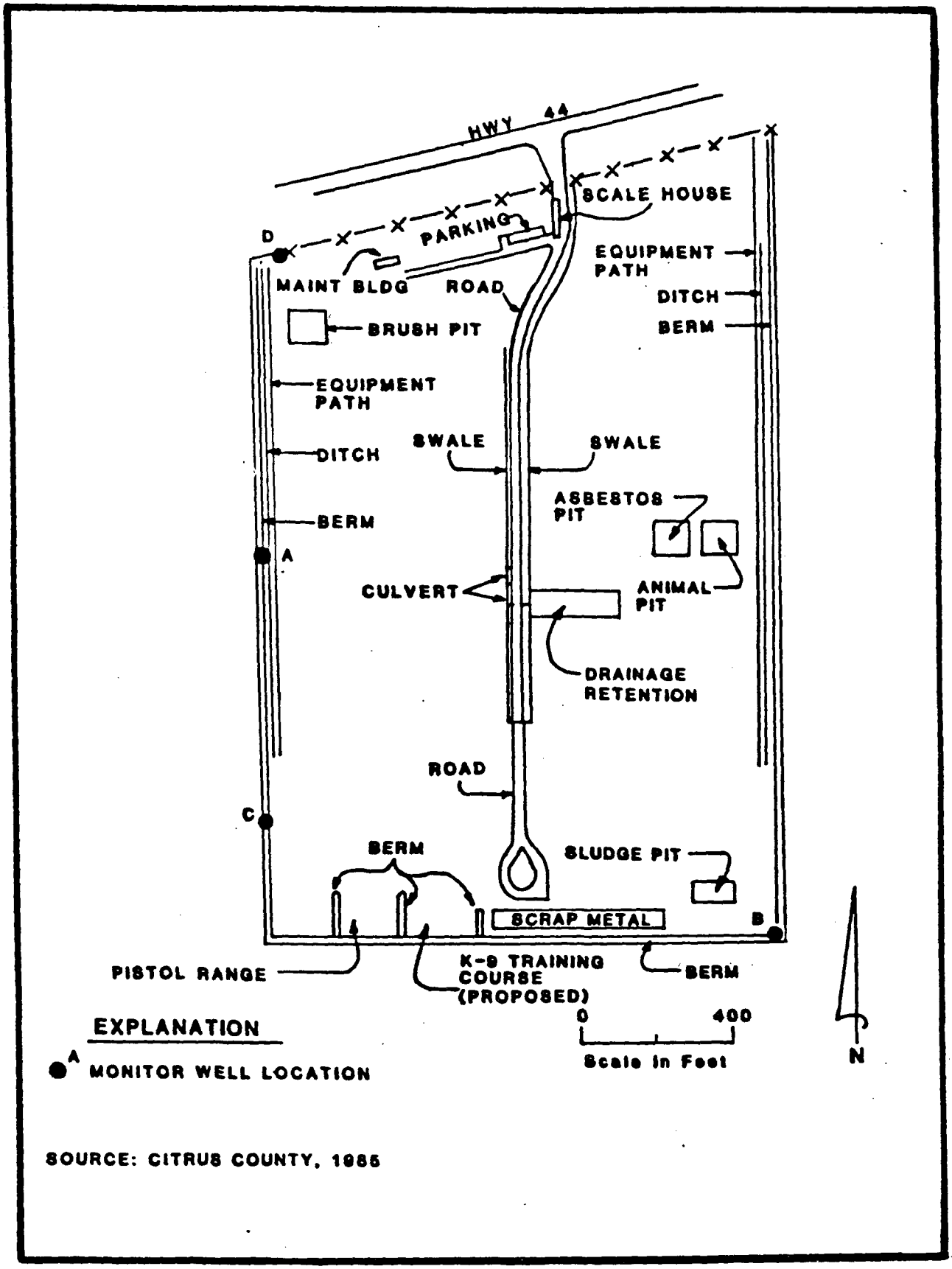


FIGURE 2.- LANDFILL LAYOUT AND LOCATION OF MONITOR WELLS IN OR NEAR CITRUS COUNTY LANDFILL.

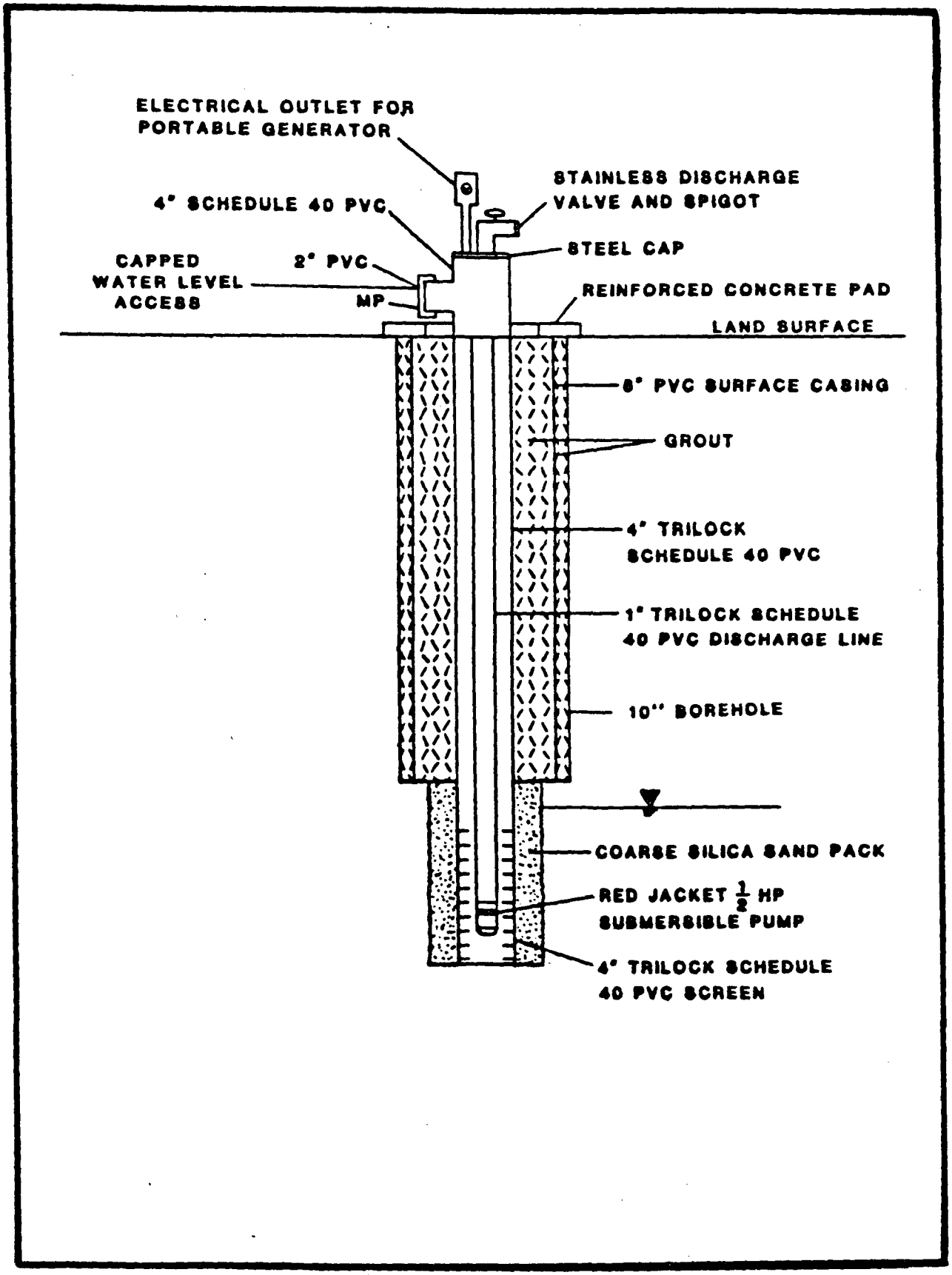


FIGURE 3.- TYPICAL MONITOR WELL CONSTRUCTION DETAILS.

WATER QUALITY (CON'T)

The only parameters which exceeded FDER drinking water standards in all four monitor wells were higher than standard iron concentrations and corrosivity. Based on the Langlier Index, acceptable limits between -0.2 and 0.2, samples taken at Monitor Wells A, C and D were somewhat alkaline while the sample taken at Monitor Well B was acidic. Well B also tested to have a pH value below minimum FDER standards. Manganese exceeded drinking water standards at Monitor Wells A and D. The specific conductance of the samples taken from Monitor Wells A and D exceeded FDER standards.

There was no trace of Vinyl Chloride in the samples taken from Monitor Wells A and D in our most recent groundwater analysis. This Volatile Organic Compound (VOC) has appeared in each groundwater sample from Well A since February of 1987, and first appeared in Well D in June of 1988. Benzene, another VOC, was initially detected in Monitor Well D during this recent analysis.

Abnormalities have been noted in the analysis of samples taken from Monitor Well D. Although the landfill does not have any wastes disposed upgradient to this well, high levels of certain drinking water parameters and the presence of Volatile Organic Compounds (VOC's) have been detected in these samples. Citrus County will continue to monitor the groundwater from wells A and D for volatiles on a quarterly basis in an attempt to determine more information concerning the influx of volatiles into the groundwater sampled from these wells.

Jefferson L. Flowers. Ph.D.
Jefferson S. Flowers. Ph.D.

Ph. (305) 339-5984

FLOWERS CHEMICAL LABORATORIES. INC.

ANALYTICAL & CONSULTING CHEMISTS

Received From:
Citrus County
PO Box 440
Lecanto,FL 32661

Date Reported: Nov 2 1988

DHRS Lab# : 83139
DER Lab# : E83018

For: SEC NO3 NA TB TOC TCOL TKN TEMP LIST1
Date Received: Sep30 1988 Lab Numbers: 18956-18959

Dupe

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	18956 A	18957 B	18958 C	18959 D
Color	PCU	5	-	-	<5	<5	5	<5 ✓
Odor	TON	1	-	-	<1	<1	<1	<1 ✓
Surfactants	mg/L	0.1	-	-	<0.10	<0.10	<0.10	<0.10 ✓
Hydrogen_Sulfide	mg/L	0.5			<0.50	<0.50	<0.50	<0.50 ✓
Chloride	mg/L	.015	102	2.10	6.41	3.8	18	10.5 ✓
Sulfate	mg/L	.206	101	2.40	8.3	3.24	10	4.91 ✓
Turbidity	NTU	0.05	-	-	0.67	0.59	0.26	0.42 ✓
Nitrate	mg/L	.013	101	1.00	.134	.164	.153	<.0130 ✓
Tot_Kjeldahl_Nitrogn	mg/L	0.1	99.9	0.0	0.2	<0.10	3.3	0.6
Total_Organic_Carbon	mg/L	1	98.8	4.12	51	<1	13	37
Sodium	mg/L	.002	102	0.00	12	4	2.3	6 ✓
Iron	mg/L	0.01	102	1.16	1.11	0.38	0.39	2.68
Manganese	mg/L	.005	101	0.39	0.53	.021	<.0050	2.103
Copper	mg/L	.005	101	0.39	.161	<.0050	0.17	0.18 ✓
Zinc	mg/L	.001	102	1.17	.075	0.15	.072	.131 ✓
Dilution_Factor		-	-	-	1	1	1	1 ✓
1,1,1-Trichlorethane	ug/L	1	98.2	1.60	<1	<1	<1	<1 ✓
1,1-Dichloroethylene	ug/L	1	97.7	10.8	<1	<1	<1	<1 ✓
1,2-Dichloroethane	ug/L	1	102	5.09	<1	<1	<1	<1 ✓
Carbon_Tetrachloride	ug/L	1	97.4	6.00	<1	<1	<1	<1 ✓
Trichloroethylene	ug/L	1	108	7.31	<1	<1	<1	<1 ✓
Tetrachloroethylene	ug/L	1	104	9.00	<1	<1	<1	<1 ✓
p-Dichlorobenzene	ug/L	0.5	98.3	13.5	<0.50	<0.50	<0.50	<0.50 ✓
Benzene	ug/L	0.5	106	3.15	1.14	<0.50	<0.50	<0.50
Vinyl_Chloride	ug/L	1	102	9.92	<1	<1	<1	<1 ✓
-		-	-	-	-	-	-	-

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Joel J. Gathers
Laboratory Manager

NEWBURYPORT & 2nd ST., P.O. BOX 597, ALTAMONTE SPRINGS, FLA. 32715-0597

Jefferson L. Flowers, Ph.D.
Jefferson S. Flowers, Ph.D.

Ph. (305) 339-5984

FLOWERS CHEMICAL LABORATORIES, INC.

ANALYTICAL & CONSULTING CHEMISTS

Received From:
Citrus County
PO Box 440
Lecanto,FL 32661

Date Reported: Nov 2 1988

DHRS Lab# : 83139
DER Lab# : E83018

For: SEC NO3 NA TB TOC TCOL TKN TEMP LIST1
Date Received: Sep30 1988 Lab Numbers: 18956-18959

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	18956 A	18957 B	18958 C	18959 D
Ethylene Bromide	ug/L	.005	97.5	1.90	<.0050	<.0050	<.0050	<.0050
Conductance	umhos/c	0.01	-	-	780	38	251	635
Calcium	mg/L	0.1	102	1.16	112	0.5	47.1	101
Magnesium	mg/L	0.01	98.5	1.19	6.00	0.25	3.66	6.03
TotalDissolvedSolids	mg/L	2.5	94	0	456	25	152.5	380
Total_Hardness	mg/L	0.1	102	1.16	304.3	2.3	132.6	277
Carbonate_Hardness	mg/L	0.1	102	1.16	304.3	2.3	132.6	277
N_Carbonate_Hardness	mg/L	0.1	102	1.16	<0.10	<0.10	<0.10	<0.10
Alkalinity	mg/L	0.1	-	-	460.8	8.1	133.4	376.3
Bicarb_Alkalinity	mg/L	0.1	-	-	460.3	8.1	133.0	375.6
Carbonate_Alkalinity	mg/L	0.1	-	-	0.6	-	0.3	0.7
Hydroxide_Alkalinity	mg/L	0.1	-	-	-	-	-	-
Carbon_Dioxide	mg/L	0.1	-	-	69.7	22.1	12.6	38.5
Stability_Index	pH	0.01	-	-	6.46	15.65	7.97	6.5
pH	pH	0.01	-	-	7.11	5.87	7.31	7.29
pH_saturation	pHs	0.01	-	-	6.79	10.75	7.64	6.88
Langelier_Index	LX	0.01	-	-	0.33	-4.88	-0.32	0.4
Temperature	oC	0.01	-	-	24.8	23.1	23.6	24.3

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.

Joel J Gathers
Laboratory Manager

NEWBURYPORT & 2nd ST., P.O. BOX 597, ALTAMONTE SPRINGS, FLA. 32715-0597

Jefferson L. Flowers, Ph. D.
Jefferson S. Flowers, Ph. D.

Ph. (305) 339-5984

FLOWERS CHEMICAL LABORATORIES, INC.

ANALYTICAL & CONSULTING CHEMISTS

CHAIN OF CUSTODY RECORD

Page ___ of ___

Client: Citrus County	Address:	Phone:
Project Name:	Required: Urgent ☐ Routine ☐ Date ___	

Sample Containers	Preservative						Plastic Containers								Glass Containers								
QTY	HNO3	H2SO4	HCl	Na2S2O3	Zn(C2H3O2)+NaOH	NaOH+Ascorbic	50 mL	125 mL	250 mL	500 mL	1 L	2 L	Whirl-Pak	40 mL Vial	250 mL	500 mL	1 L	2 L	4 L	NOTES
4											X									
8													X							
12														X						
4		X						X												
4						X										X				
4	X								X											

Kit Relinquished:	Kit Received:	Date:	Time:

Parameters: Sec NO_3 Na TB TOC TCol TKN (Temp, Cond)
LIST I

Laboratory Number	Client Identification/Description
18956	A
18957	B
18958	C
18959	D

		Date	Time
Sample Collection:			
Transportation:			
Lab Acceptance:		9/30/88	9:00

481 NEWBURYPORT AVE. P.O. BOX 597 ALTAMONTE SPRINGS, FLA. 32715-0597

CITRUS COUNTY LANDFILL
FIELD LOG SHEET

AMBIENT WEATHER CONDITIONS:

AIR TEMP: 27.9
WIND CONDITIONS:

Sunny - wind 10-15 MPH SE

SAMPLE SOURCE ID: Citrus Co. LandFill MW-A

pH Determinatios are made with a Cole-Parmer Model 5985-75
Reading #1: 7.68 std. pH units
Reading #2: 7.68 "
Reading #3: 7.69 "

Conductivity determinations made with YSI Model 33 S-C-T mtr.
Reading #1: 788 uMHOS
Reading #2: 791 uMHOS
Reading #3: 780 uMHOS

Temperature determinations made by H-B laboratory thermometer
Reading #1: 24.9 degrees centigrade
Reading #2: 24.9 degrees centigrade
Reading #3: 24.9 degrees cemtograde

Well Depth determinations made by Brainard-Kilman Model 2220
Reading #1: 93.9 feet from ground level
Reading #2: 93.7 feet from ground level
Reading #3: 93.7 feet from ground level

All reading taken at intervals during the sampling session to insure consistency of samples after well development.

Additional Field Notes:

CITRUS COUNTY LANDFILL
FIELD LOG SHEET

AMBIENT WEATHER CONDITIONS:

AIR TEMP:
WIND CONDITIONS:

Sunny - Wind @ 10→15 MPH from SE

SAMPLE SOURCE ID: Citrus Co. Landfill MW-B

pH Determinatios are made with a Cole-Parmer Model 5985-75
Reading #1: 5.58 std. pH units
Reading #2: 5.91 "
Reading #3: 5.89 "

Conductivity determinations made with YSI Model 33 S-C-T mtr.
Reading #1: 39 uMHOS
Reading #2: 39 uMHOS
Reading #3: 38 uMHOS

Temperature determinations made by H-B laboratory thermometer
Reading #1: 23.1 degrees centigrade
Reading #2: 23.1 degrees centigrade
Reading #3: 23.2 degrees cemtograde

Well Depth determinations made by Brainard-Kilman Model 2220
Reading #1: 100.9 feet from ground level
Reading #2: 100.7 feet from ground level
Reading #3: 100.7 feet from ground level

All reading taken at intervals during the sampling session to insure consistency of samples after well development.

Additional Field Notes:

CITRUS COUNTY LANDFILL
FIELD LOG SHEET

AMBIENT WEATHER CONDITIONS:

AIR TEMP: 27.9
WIND CONDITIONS:

Sunny - Wind 10-15 MPH SE

SAMPLE SOURCE ID: Citrus Co. Landfill MW-C

pH Determinatios are made with a Cole-Parmer Model 5985-75
Reading #1: 7.11 std. pH units
Reading #2: 7.14 "
Reading #3: 7.13 "

Conductivity determinations made with YSI Model 33 S-C-T mtr.
Reading #1: 257 uMHOS
Reading #2: 250 uMHOS
Reading #3: 251 uMHOS

Temperature determinations made by H-B laboratory thermometer
Reading #1: 23.7 degrees centigrade
Reading #2: 23.6 degrees centigrade
Reading #3: 23.7 degrees cemtograde

Well Depth determinations made by Brainard-Kilman Model 2220
Reading #1: 101.5 feet from ground level
Reading #2: 101.4 feet from ground level
Reading #3: 101.4 feet from ground level

All reading taken at intervals during the sampling session to insure consistency of samples after well development.

Additional Field Notes:

CITRUS COUNTY LANDFILL
FIELD LOG SHEET

AMBIENT WEATHER CONDITIONS:

AIR TEMP: ~85.2
WIND CONDITIONS:

Sunny - Wind 8-12 MPH SE

SAMPLE SOURCE ID: Citrus County Landfill MW-D

pH Determinatios are made with a Cole-Parmer Model 5985-75
Reading #1: 6.71 std. pH units
Reading #2: 6.74 "
Reading #3: 6.73 "

Conductivity determinations made with YSI Model 33 S-C-T mtr.
Reading #1: 647 uMHOS
Reading #2: 639 uMHOS
Reading #3: 635 uMHOS

Temperature determinations made by H-B laboratory thermometer
Reading #1: 24.3 degrees centigrade
Reading #2: 24.5 degrees centigrade
Reading #3: 24.4 degrees cemtograde

Well Depth determinations made by Brainard-Kilman Model 2220
Reading #1: 101.9 feet from ground level
Reading #2: 102.2 feet from ground level
Reading #3: 102.7 feet from ground level

All reading taken at intervals during the sampling session to insure consistency of samples after well development.

Additional Field Notes:

Jefferson L. Flowers, Ph. D.
Jefferson S. Flowers, Ph. D.

Ph. (305) 339-5904

FLOWERS CHEMICAL LABORATORIES

ANALYTICAL & CONSULTING CHEMISTS

Drinking Water Bacteriological Analysis

DHRS Certification Number 83139
FDER Lab Number EL0098
AIHA Accreditation Number 253
Date and Time Analyzed 4/13/93 4:00

For Lab Use Only
Data Release Authorization
Caron Corkum

System Name _____ System ID No. _____ DER District _____
Address _____ County _____ Collector _____
Sample Site _____
Raw or Treated (circle one) Date and Time Collected __/__/__ ___:___
Type of Supply (circle one) Private well Swimming Pool Bottled Water
Community public water system Non-Community public water system Other public water system
Type of Sample (circle one) Compliance Recheck Main Clearance Other_____

Completed By Collector

Coll. No.	Sample Point	Cl2 Res'd	pH
	MW-A		
	MW-B		
	MW-C		
	MW-D		

Completed By LAB

Sample Number	Non Coliform	Coliform MF/100mL Total	Coliform MF/100mL Fecal	MPN 100mL
18956	MB	<1		
18957	MB	<1		
18958	MB	<1		
18959	MB	<1		

Name and Mailing Address of Person/Firm To Receive Report

Citrus County

Interpretations-Recommendations by FCL DER or HRS

Reviewing Offical _____

TITLE _____

( ) SATISFACTORY
( ) UNSATISFACTORY
( ) RE-SUBMIT

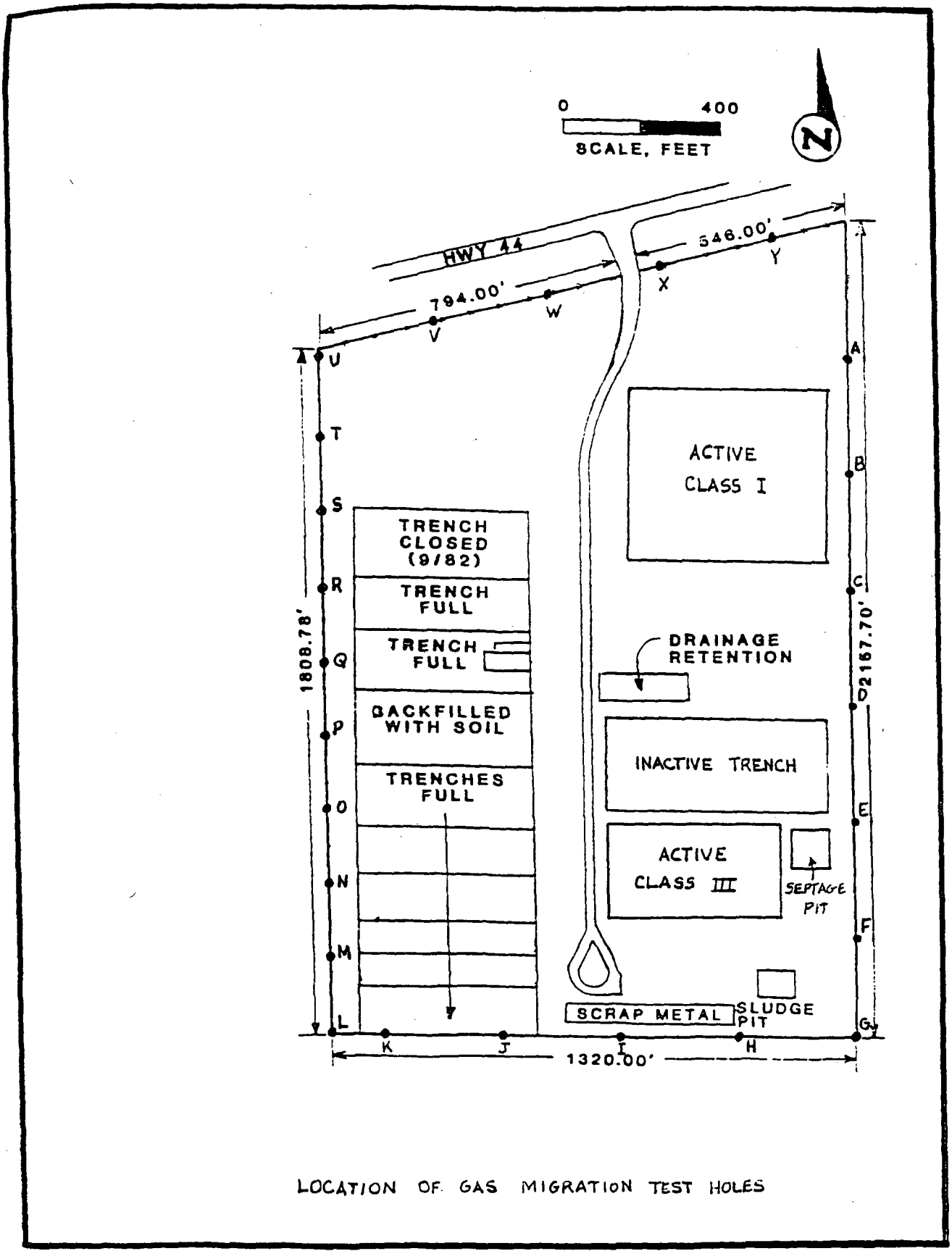
GAS MIGRATION INVESTIGATION

Tests were conducted on October 4, 1988 at the Citrus County Central Landfill to determine the extent and concentration of methane gas migration. The tests were conducted at 300 +/- foot intervals along the perimeter of the property, except for the west boundary which was tested at 200 +/- foot intervals due to the proximity of numerous inactive trenches.

A 3/4 inch hole at least three feet deep was plugged from the ground at each of the test points. A cover was positioned over each hole and allowed to stand undisturbed for a minimum of fifteen minutes. Readings were then taken at each test point, as indicated on attached sheet, with a Gastech Model #GP-204 combustible gas indicator. The maximum levels determined at each test point, as indicated by the meter, are noted in % LEL and are as follows:

TEST POINT	READING (%LEL)
A	0
B	0
C	0
D	60
E	0
F	0
G	0
H	0
I	0
J	0
K	100
L	0
M	100
N	0
O	10
P	3
Q	100
R	100
S	5
T	0
U	0
V	0
W	0
X	0
Y	0

The presence of methane gas along the perimeter of the landfill has indicated the need for gas vents. A total of 24 vents will be installed during the first phase of closure, and they will be placed in a grid pattern at approximately 190 foot intervals. Please refer to the Closure Plan for proposed specific locations.



LOCATION OF GAS MIGRATION TEST HOLES

ASSESSMENT OF THE EFFECTIVENESS OF EXISTING LANDFILL DESIGN AND OPERATION

A) EFFECTIVENESS AND RESULTS OF GROUNDWATER INVESTIGATION

Information regarding our most recent groundwater analysis and an assessment of the results can be found following TAB 4. Certain levels of parameters related to drinking water standards have been exceeded at each of the monitor wells. The final closure of the unlined and inactive trenches, using a geotextile liner as a cap, should help to minimize infiltration and the influx of these substances into the groundwater.

B) EFFECTS OF SURFACE WATER RUN-OFF, DRAINAGE PATTERNS AND EXISTING STORMWATER CONTROLS

The stormwater management system already in operation at the landfill is adequate to insure that no surface water run-off enters adjacent properties. Berms have been constructed along the property boundaries and retention areas are in place to retain the stormwater collected on the landfill site. All stormwater controls are functioning properly, although the stormwater management system will require revision as steps are taken to close the landfill site. Refer to the Closure Plan for information regarding proposed stormwater control systems.

C) EXTENT AND EFFECTS OF METHANE GAS MIGRATION

Information concerning our recent gas migration investigation can be found at TAB 5 of this permit application information package. Please note the table which indicates levels of methane detected at each of the test points. The results obtained indicate that a gas control system will be required to vent the gas and reduce the migration off-site.

The proposed gas control system shall be addressed in the Closure Plan and will show methane vents placed on approximately 190 ft. x 190 ft. centers in order to preclude methane buildup.

D) TYPE AND CONDITION OF EXISTING COVER AND EFFECTIVENESS AS LEACHATE CONTROL MECHANISM

The existing cover material in place over each of the inactive trenches varies from two to three feet deep. This soil has been analyzed and found to have a permeability of 1.2x10-4 cm/sec. Further discussion with your office on October 5, 1988 informed us that this silty-sand soil is inadequate for exclusive use as final cover material. The Closure Plan, therefore, provides for a 30 mil geotextile liner to prevent infiltration following closure of the west half of the landfill site.

E) NATURE AND CHARACTERISTICS OF WASTES DISPOSED OF AT THE LANDFILL

All wastes disposed of at the landfill have been properly disposed of in accordance with FDER regulations and requirements. These wastes are as follows:

Household garbage (organics, wrappings such as plastics, paper and metals)

Construction debris (wood, metals, asphalt products, stone, etc.)

Brush (tree trimmings, branches, logs, etc.)

White goods (appliances consisting of wood, metal, plastic, glass, etc.)

Asbestos (placed in FDER approved containers)

Tires

Animal Carcasses

The landfill is permitted to dispose of septic sludge in accordance with F.A.C. Section 17-7.540(6). Although the permit allows for the permanent disposal of septage under these guidelines, septage is being stored in a lined pit until FDER approval is obtained to allow off-site disposal at an approved wastewater treatment facility.

CLOSURE DESIGN PLAN

A) PHASING OF SITE CLOSING

This office is proposing the site closing to be accomplished in two (2) phases. The first phase will include the inactive trenches on the west half of the site as well as the mound of Class I refuse on the eastern side of the landfill known as Cell #2 just south of the DRA. The second phase will include the remainder of the eastern half including the area South of Cell #2 now used as the Class III cell, lined and unlined septage pit. Closure will commence in conjunction with the lined seven (7) acre trench in compliance with F.A.C. 17-7.

B) EXISTING TOPOGRAPHY AND PROPOSED FINAL GRADES

Please see Attachment XI (Existing Topography) and Attachment XII (proposed final grades). Full sized copies of each of these attachments is included in the Closure Plan.

C) FINAL COVER INSTALLATION PLANS

The final cover of the closed sections will consist of a 30 mil geotextile liner as a "cap", a minimum of 5.5 feet of clean fill, and six (6) inches of topsoil capable of supporting vegetative growth. Approximately 112,800 square yards of the 30 mil PVC will be used to "cap" the area, and a total of approximately 126,000 cubic yards of fill material will be used as cover. The final cover shall provide a minimum of six (6) feet of fill material above the refuse as required by the lease agreement with the Division of Forestry.

D) PROPOSED METHOD OF LEACHATE CONTROL

Leachate control shall be accomplished by placement of a 30 mil geotextile liner as a cap. Grading will also insure that surface water is diverted to proper conveyance and retention facilities.

Leachate from the seven (7) acre trench will be collected, pumped to a storage facility, and trucked off-site to a treatment facility. An ongoing leachate characterization program will be implemented in order to allow the establishment of a leachate treatment facility in the new 80 acre landfill expansion.

E) COMPLIANCE WITH GROUNDWATER PROTECTION REQUIREMENTS OF 17-4.245 AND 17-4.246, F.A.C.

Four Monitor wells are already in place at the landfill site and are sampled quarterly. Results of the quarterly sampling are sent to FDER for review. Closure grading, liner placement, and long-term maintenance will aid in the protection of the groundwater resources.

F) PROPOSED METHOD OF GAS AND ODOR CONTROL

Gas and odor control will be accomplished by a venting system consisting of twenty four (24) gas vents placed on centers of approximately 190 feet. The vents will be constructed of four (4) inch diameter PVC pipe extending approximately twenty-nine (29) feet into the ground. The lower twenty (20) feet of pipe will be perforated and encased in a two (2) foot diameter hole backfilled with coarse aggregate to allow gas accumulation. Additional details of the gas vents are described on sheet seven (7) of the Closure Plan.

G) PROPOSED METHOD OF STORMWATER CONTROL

Stormwater Control will be accomplished by proper grading to provide conveyance facilities to the retention areas. Stormwater will be retained on site and the facilities will meet Southwest Florida Water Management District guidelines.

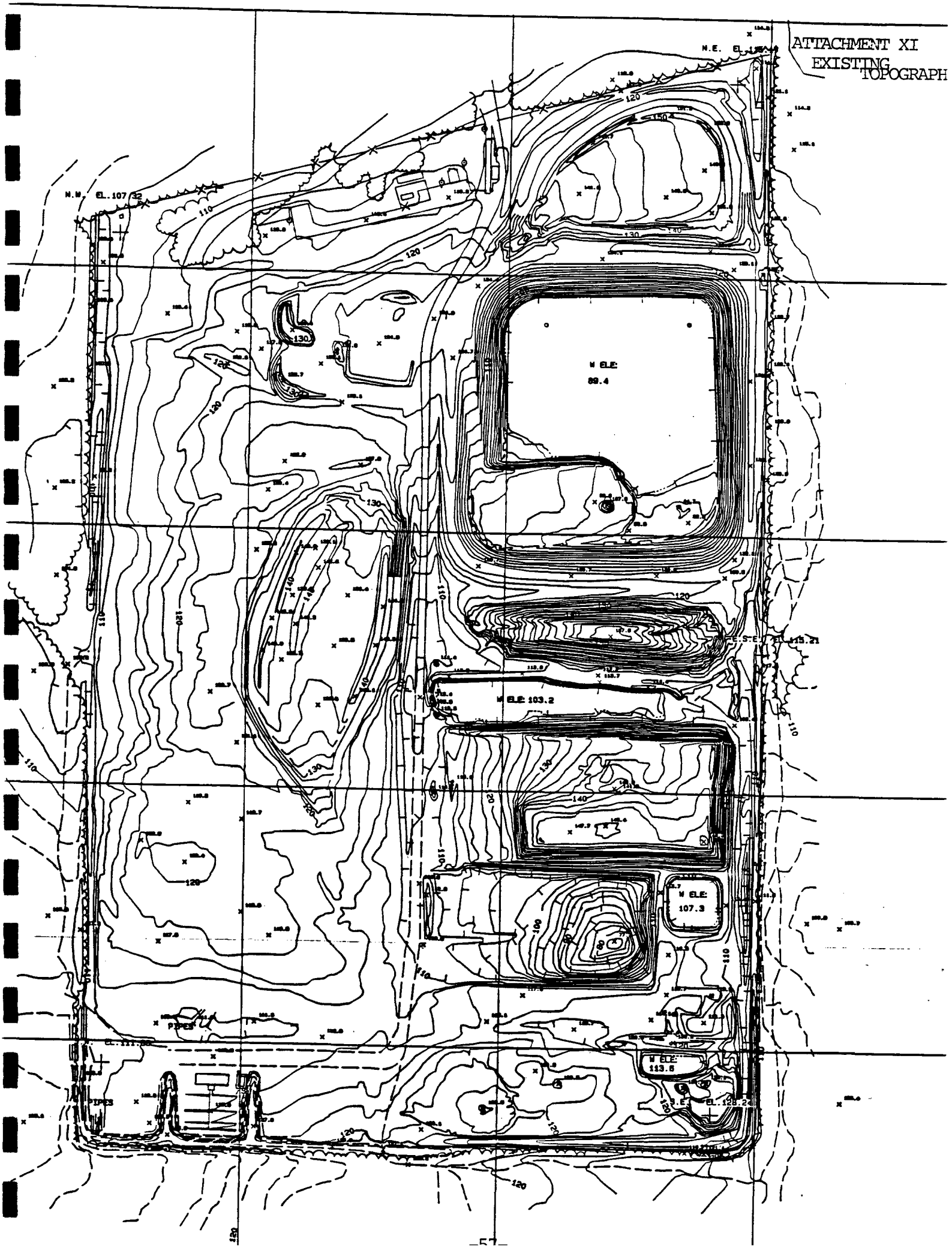
H) PROPOSED METHOD OF ACCESS CONTROL

Unauthorized access will be controlled by the existing fence along the northern boundary and by large berms along the three remaining sides.

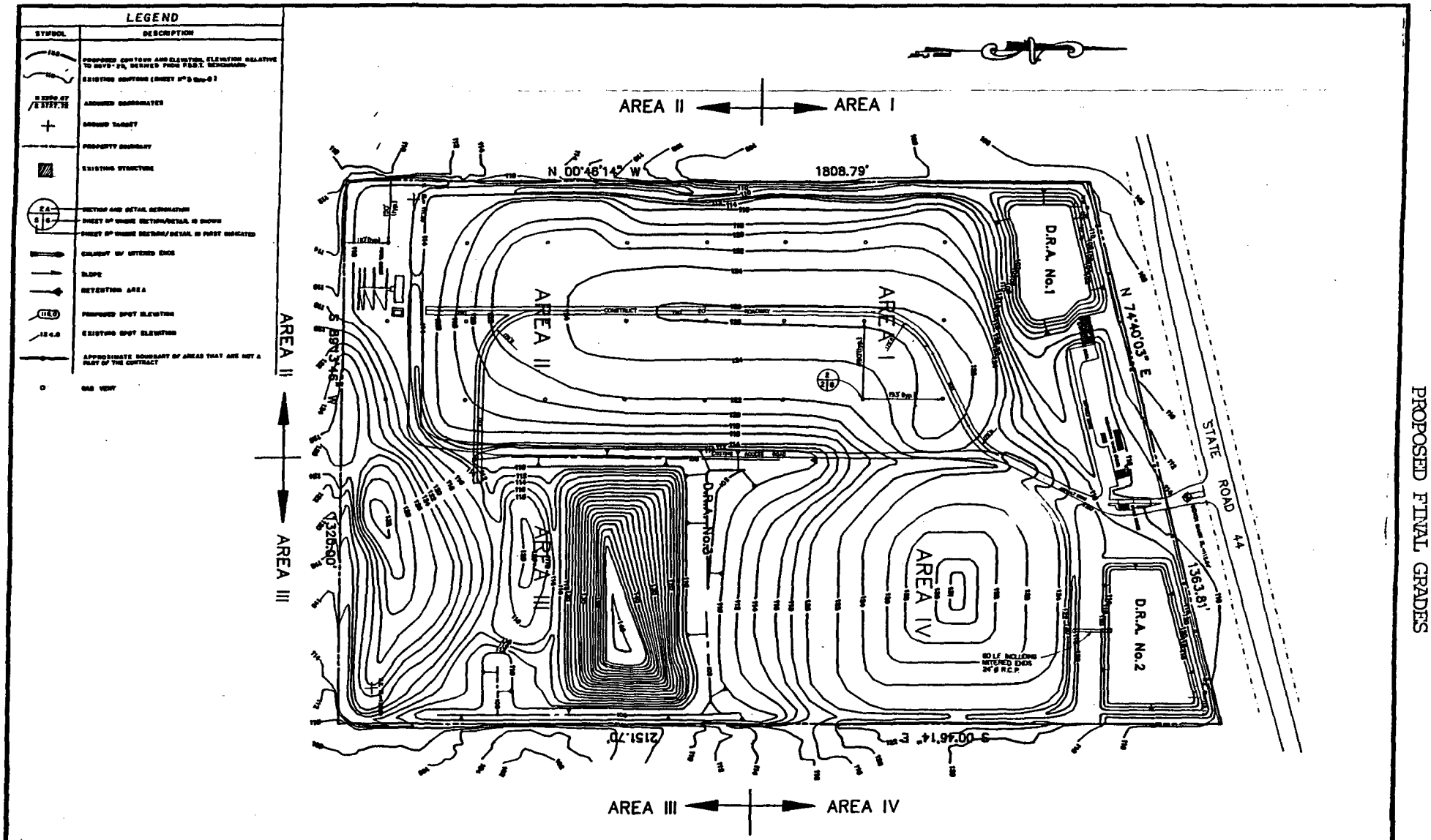
I) PROPOSED FINAL USE OF LANDFILL PROPERTY

The landfill property will be returned to the control of the Division of Forestry upon closure, although Citrus County is granted access to the land for groundwater monitoring and long-term care through a letter of agreement (see TAB 9) The property shall be maintained by Citrus County for a minimum of twenty (20) years in accordance with the Closure Plan. The Division of Forestry has stated that there is no specific final use of this land.

ATTACHMENT XI
EXISTING TOPOGRAPH



PROPOSED FINAL GRADES



REVISIONS						PRELIMINARY		DESIGN		DEPARTMENT OF TECHNICAL SERVICES	APPROVED BY:	60 Acre Sanitary Landfill Closure	PROJECT NUMBER	SHEET
BY		BY		BY		BY	DATE	BY	DATE	CITRUS COUNTY, FLORIDA		OVERALL SITE GRADING PLAN		2 OF 8
DATE		DATE		DATE		DRAWN		DESIGNED		ENGINEERING DIVISION			SCALE	
BY		BY		BY		CHECKED								
DATE		DATE		DATE										

CLOSURE OPERATION PLAN

(A) DESCRIBE ACTIONS WHICH WILL BE TAKEN TO CLOSE THE LANDFILL

Closure actions will commence upon receipt of a closure permit from FDER. The County bid procedure has been implemented for Phase I in order to select a contractor and the contracts will then be negotiated. Construction will begin with earthwork to take place in the phase one section of the closure. The grading, liner placement, and final fill material placement will take place in accordance with the approved Closure Plan. Methane gas vents will be installed and the completed area will be revegetated using standard seed and mulching techniques. Those areas prone to rapid erosion shall be sodded.

The second phase of closure will basically involve the same steps although it will take place upon reaching maximum capacity in the lined seven (7) acre trench.

(B) TIME SCHEDULE FOR COMPLETION OF CLOSURE AND LONG TERM CARE

The proposed time schedule for completion of closure of the first phase will require approximately 240 days from receipt of a closure permit from FDER. Closure of the second phase should require considerably less time due to a smaller overall area and less earthmoving required.

Long term care will commence immediately upon completion of closure of each phase and will continue for a minimum of twenty (20) years for each phase in accordance with F.A.C. 17-7.

(C) PROPOSED METHOD OF DEMONSTRATING FINANCIAL RESPONSIBILITY FOR LONG TERM MONITORING AND MAINTENANCE

The finances to maintain and monitor the landfill property is an item addressed on the County's annual budget approved by the Citrus County Board of County Commissioners. The County accepts all responsibilities for the long-term care and maintenance of the Citrus County Central Landfill for a period of not less than twenty years form date of closing in compliance with F.A.C. 17-7.

For additional financial responsibility information, please refer to TAB 10 of this package for the required Financial Responsibility Document.

(D) EQUIPMENT AND PERSONNEL NEEDS TO COMPLETE CLOSURE

The equipment and personnel necessary to complete closure of the landfill site will be the responsibility of the contractor to whom the construction contract is awarded. The actual amount of equipment and personnel will depend upon the time frame in which the contractor has to complete construction.

County personnel will be involved only by inspecting the construction to insure compliance with the Closure Plan.

REQUIREMENTS FOR LONG TERM CARE

A) ESTABLISH LONG TERM CARE PERIOD

The long term care period shall be for a period of twenty (20) years and shall commence upon completion of the closure process for each phase.

B) ACQUIRE RIGHT OF ACCESS AGREEMENT BETWEEN OPERATOR AND PROPERTY OWNER FOR CLOSING AND LONG TERM CARE

Please find attached a copy of the letter from Mr. W. R. Helm, Jr., Chief of Forest Management, Division of Forestry, dated October 11, 1988 granting Citrus County right of access for a minimum of 20 years after the lease extension terminates in December of 1990 (Attachment XIII).

STATE OF FLORIDA
DOYLE CONNER, COMMISSIONER

FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES

DIVISION OF FORESTRY ■ 3125 CONNER BLVD. ■ TALLAHASSEE, FLORIDA 32399-1650

6231.3
October 11, 1988

Mr. James Barker, Department
of Technical Services
Citrus County Engineering
Division
110 North Apopka Avenue
Inverness, Florida 32650

Dear Mr. Barker:

Reference is made to your recent telephone conversation with John O'Meara concerning access to the 60 acre Citrus County Landfill on Withlacoochee State Forest, after the current Extension Agreement terminates.

This letter confirms that for a minimum of 20 years, Citrus County will be granted continuous access to the entire 60 acre parcel for purposes of long term care and maintenance and for groundwater monitoring.

If you require additional information, please advise.

Sincerely,

W. R. Helm, Jr., Chief
Forest Management
Divison of Forestry
904/488-6611

cc: Bill Korn, Withlacoochee Forestry Center Manager

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
FINANCIAL RESPONSIBILITY CHECKLIST

I GENERAL INFORMATION: ID No. 4009C00086

Facility Name: Citrus County Central Landfill Permit No.: SO09-111795 Expiration Date: 6-1-92

Address (Main Entrance): 380 W. Gulf to Lake Hwy. Lecanto, FL 32661

Address (Mailing): P. O. Box 440 Lecanto, FL 32661

Permittee (Operating Authority): Citrus Co. Facility Lat/Long: 28° 51' 08" 82° 26' 38" Fill Acreage: Approx. 45

TYPE OF LANDFILL:

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

Closure Plan Approved:
Yes
X No

Reviewing Person (Include Title): Date:

II GOVERNMENT OWNED LANDFILL:

A. Type of Plan or Documentation Submitted to Ensure Financial Responsibility:

Enactment of County Ordinance or Special Act
Letter of Certification by the Board of County Commissioners
X Annual Funding Item in Approved County Budget
Sinking Fund
Resolution with a Plan by the Board of County Commissioners
Other (Explain):

B. Government Owned Landfill Estimated Itemized Closure Cost:

ITEM		COST
Monitoring Wells	INSTALLED.....	N/A
Slope and Fill Final Cover		285,000
Final Cover Material		310,000
Contour Grading and Surface Water Diversion (Stormwater Control)		250,000
Gas Migration Control		12,000
Revegetation		92,400
Security System	INSTALLED.....	N/A
Installation of Benchmarks	INSTALLED.....	N/A
Certification of Closure		5,000
	SUBTOTAL	954,600
	ADDITIONAL MISC....	95,400
	TOTAL CLOSURE COST.....	1,050,000

C. Government Owned Itemized Annual Cost of Long Term Care:

ITEM		ANNUAL COST
Groundwater Monitoring (Sampling and Testing)		20,000
Gas Monitoring	OPERATOR DUTY.....	N/A
Collection and Disposal or Treatment of Leachate		150,000
Maintenance of Cover Integrity Including Landscaping and Stormwater Controls		5,000
General Maintenance for Pumps, Wells, Fences, Etc.		10,000
Maintenance of Benchmarks		1,000
Remedial Action		5,000
	TOTAL ANNUAL COST OF LONG TERM CARE	191,000

III NON-GOVERNMENT OWNED 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
Escrow Account
Other (Explain):

B. Non-Government Owned 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

ITEM	UNIT COST	TOTAL COST	SOURCE OF ESTIMATE (Third Party Work)
1. MONITORING WELLS			
Borehole Excavation			
Backfill			
Gravel Pack			
Slotted Screen			
Casing			
Cap			
2. SLOPE AND FILL			

Prelim. Engineers Estimate

Bid Schedule -1 6

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENT for the listed unit prices shown in the BID SCHEDULE:

BID SCHEDULE

CITRUS COUNTY 60-ACRE SANITARY LANDFILL CLOSURE PLAN, PHASE I APPROXIMATELY 25 ACRES PROJECT NUMBER 89-64

ITEM NO.	DESCRIPTION	UNIT	EST. QUANTITY	UNIT PRICE	AMOUNT
1.	**MOBILIZATION**	L.S.	1	$50,000/LS	$ 50,000
2.	**CLEAR & GRUB** (24 AC including approx. .5AC trees)	L.S.	1	$3600/LS	$ 3600.00
3.	**EARTHWORK** (Approx. 93,000 c.y. cut approx. 126,000 c.y. fill off-site borrow 33,000 c.y.)	L.S. 1.00/yd. 2.00/yd.	1	$285,000/LS	$ 285,000
4.	**SOLID WASTE RELOCATION** (Approx. 34,000 c.y. cut @5.00/yd. Approx. 18,000 c.y. fill on exist. mound 16,000 c.y. fill to be placed in designated area. Approx. 40,000 c.y. fill required for cover (NOT INCLUDED IN ITEM 3).	L.S.	1	$250,000/LS	$ 250,000
5.	**30 MIL PVC LINER** (Complete)	S.Y.	112,800	$2.75/SY	$310,200
6.	**GAS VENTS** (4"PVC wells-complete)	EA.	24	$500/EA	$12,000
7.	**PISTOL RANGE** (Remove & Replace-Complete)	L.S.	1	$10,000/LS	$ 10,000
8.	**SOD**	S.Y.	49,500	$1.50/SY	$74,250
9.	**SEED & MULCH** (All disturbed areas - approx. 25 AC)	L.S.	1	$18,150/LS	$18,150
10.	**ASPHALT ROADWAY**	TON	295	$40.00/TN	$11,800

BID SCHEDULE
#89-64

11.	**LIMEROCK @ 6" DEPTH INCLUDE PRIME.**	S.Y.	5000	$ 5.00	/SY	$ 25,000

TOTAL AMOUNT $ 1,050,000

NOTE: ANY ITEMS THAT ARE SPECIFIED ON THE PLANS AND/OR CONTRACT DOCUMENTS AND ARE NOT LISTED IN THE BID SCHEDULE ARE CONSIDERED INCIDENTIAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE MADE.

(Seal, if bid is by a Corporation)

Respectfully Submitted,

_____
Contractor's Name

_____
Address

Attest: _____ by: Signature (Title)

CITRUS COUNTY, FLORIDA
1988 - 1989 BUDGET

FUND	DEPARTMENT	ACTIVITY	FUNCTION
LANDFILL	LANDFILL	GARBAGE/SOLID WASTE DISP	PHYSICAL ENVIRONMENT

ACCOUNT NUMBER: 401-5212-534

ACCOUNT DESCRIPTION	ACCOUNT NUMBER	1987 - 1988 BUDGET	DEPARTMENT BUDGET REQUEST	COUNTY ADMINISTRATOR BUDGET REQUEST	APPROVED BUDGET BOARD OF COUNTY COMMISSIONERS
REGULAR SALARIES & WAGES	1200	113,410.00	135,167.00	112,475.00	155,875.00
OVERTIME	1400	11,440.00	11,500.00	5,750.00	5,750.00
SPECIAL PAY	1500	5,000.00	5,000.00	5,000.00	5,000.00
FICA TAXES	2100	8,110.00	10,435.00	10,435.00	11,706.00
RETIREMENT CONTRIBUTIONS	2200	14,905.00	18,925.00	18,925.00	20,856.00
LIFE & HEALTH INSURANCE	2300	6,810.00	11,135.00	11,135.00	14,951.00
WORKMENS' COMPENSATION	2400	3,000.00	7,500.00	7,500.00	7,500.00
UNEMPLOYMENT COMPENSA	2500	500.00	500.00	500.00	500.00
OTHER CONTRACTUAL SERV	3400	105,000.00	500,000.00	100,000.00	100,000.00
TRAVEL & PER DIEM	4000	1,000.00	4,000.00	3,000.00	7,000.00
COMMUNICATIONS SERVICES	4100	1,700.00	1,700.00	1,700.00	2,450.00
POSTAGE	4201	240.00	1,000.00	250.00	750.00
UTILITY SERVICES	4300	2,000.00	2,000.00	2,000.00	2,000.00
RENTALS & LEASES	4400	9,143.00	10,000.00	10,000.00	10,000.00
EQUIPMENT RENTAL	4402	9,000.00	9,000.00	9,000.00	9,000.00
VEHICLE MAINTENANCE	4603	35,000.00	50,000.00	50,000.00	51,000.00

CITRUS COUNTY, FLORIDA
1988 - 1989 BUDGET

FUND	DEPARTMENT	ACTIVITY	FUNCTION
LANDFILL	LANDFILL	GARBAGE/SOLID WASTE DISP	PHYSICAL ENVIRONMENT

ACCOUNT NUMBER: 401-5212-534

ACCOUNT DESCRIPTION	ACCOUNT NUMBER	1987 - 1988 BUDGET	DEPARTMENT BUDGET REQUEST	COUNTY ADMINISTRATOR BUDGET REQUEST	APPROVED BUDGET BOARD OF COUNTY COMMISSIONERS
OFFICE SUPPLIES	5100	1,300.00	3,300.00	1,300.00	3,800.00
TOOLS, IMP.& SPEC. CLOTH	5201	800.00	1,500.00	800.00	800.00
UNIFORMS	5205	500.00	500.00	500.00	500.00
FUEL & LUBES	5208	41,000.00	54,530.00	50,000.00	51,000.00
MISC SUPPLIES	5210	2,000.00	2,000.00	2,000.00	2,000.00
SAFETY SUPPLIES	5226	1,000.00	1,000.00	1,000.00	1,000.00
DUES,BKS,SUBSCP,MEM,PUBL	5400	100.00	300.00	100.00	800.00
IMPROVE OTHER THAN BLDG.	6300	32,000.00	4,702,000.00	4,702,000.00	5,102,000.00
TRANSFER STATION	6328	50,000.00	50,000.00	.00	.00
MACHINERY & EQUIPMENT	6400	24,700.00	57,150.00	47,150.00	58,200.00
EQUIPMENT-LEASE-PURCHASE	6402	290,000.00	290,000.00	290,000.00	290,000.00
PRINCIPAL	7100	132,904.00	1,234,457.00	1,060,100.00	1,060,100.00
LAND AQUISITION-PTY	7101	46,800.00	.00	.00	.00
INTEREST	7200	32,627.00	420,116.00	458,450.00	458,450.00
LAND ACQUISITION-INT	7201	35,022.00	.00	.00	.00
TRANSFERS-ENGINEERING	9115	10,000.00	10,000.00	10,000.00	10,000.00