

SUBSURFACE SOIL EXPLORATION  
INFILTRATION TESTS  
SOUTHEAST LANDFILL  
PICNIC, FLORIDA  
PSI PROJECT NO. 775-45109



**Professional Service Industries, Inc.**

Construction Testing and Quality Control • Dedicated Project Testing and Inspection • Materials Testing and Certification  
Nondestructive Examination and Testing • Roof and Pavement Consulting • Geotechnical Engineering  
Environmental Management • Asbestos Management • Analytical • Training Programs



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**Professional Service Industries, Inc.**

April 27, 1994

**Hillsborough County  
Department of Solid Waste  
P.O. Box 1110  
Tampa, Florida 33601**

Attention: Mr. John Johnson  
Engineer I

RE: Subsurface Soil Exploration  
**Infiltration Tests**  
**Southeast Landfill**  
Picnic, Florida  
**PSI Project No. 775-45109**

Dear Mr. Johnson:

Professional Service Industries, Inc. (PSI), has completed our geotechnical services at the subject project site. The geotechnical engineering services were authorized by Mr. John Johnson. The subsurface exploration program was conducted in general accordance with PSI Proposal No. 039427.137, dated March 14, 1994. This exploration program consisted of performing one Double Ring Infiltration Test (DRIT) and one hand auger in each basin for a total of seven (7) basins within the Hillsborough County Southeast Landfill Facility.

Infiltration results obtained, soil types encountered and groundwater level measured at each basin location are presented in this report.

Hillsborough County  
Department of Solid Waste  
**PSI Project No. 775-45109**  
Page 2 of 8

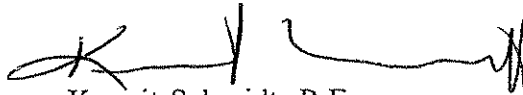
PSI, Inc., appreciates the opportunity to be of service to Hillsborough County on this project.  
If we can be of any further assistance, please contact this office.

Sincerely,

Professional Service Industries, Inc.  
JAMMAL DIVISION



Shan Subramanian, Ph.D.  
Staff Geotechnical Engineer



Kermit Schmidt, P.E.  
Senior Geotechnical Engineer  
Fla. Registration No. 45603



Henri V. Jean  
Department Manager  
Geotechnical Services

SS/KS/HVJ/sdk/cjb:77545109.G01

Attachment: Plates 1 through 7  
Sheet 1 of 1



### PROJECT INFORMATION

The project, as we understand it, is located in Picnic, Florida. Specifically, the project is located at 15960 County Road 672 in Picnic, Florida. Our services were requested to perform seven infiltration tests within the project area.

### PURPOSE AND SCOPE OF SERVICES

The objective of our study was to determine average infiltration rates of the soils encountered in the project area. We performed the following services in order to achieve the preceding objective:

1. Completed seven (7) Double Ring Infiltration Tests (DRIT) at locations provided to us by Mr. John Johnson of Hillsborough County, Florida.
2. Completed seven (7) hand augers in order to determine the depth of the groundwater table at each DRIT location. The required depth of these borings varied between locations, but they did not extend more than eight (8) feet at any location.
3. Collected groundwater level measurements and estimated normal seasonal high groundwater table levels.
4. Determined average infiltration rates for each DRIT location based on data recovered from the DRIT
5. Prepared a formal report summarizing our course of study, the results of the subsurface exploration, and the average infiltration rates for each DRIT location.



## ENGINEERING EVALUATIONS

Double Ring Infiltration Tests (DRIT) were performed in shallow hand excavated pits near the hand augers HA-A through HA-G in basins A through G. The test locations are shown in Sheet 1 of 1. The tests were performed in general accordance with ASTM procedures, using a 36-inch diameter outer ring and a 12 inch diameter inner ring. A constant head of 6 inches was maintained in both rings with the volume necessary to maintain the head in the inner ring measured over time. Plates 1 through 7 show a graphical representation of elapsed time versus infiltration rate for each test performed.

Seasonal high water tables were estimated for Basin A through G and are presented below. The estimates were based on the soil stratigraphy, soil stain lines, measured groundwater levels in the hand auger borings HA-A through HA-G and our past experience with similar soil conditions. Fluctuations in the groundwater depth may occur due to rainfall patterns, post-construction effects and other factors.

Results obtained in our geotechnical exploration program for each basin are summarized and presented below.

### BASIN "A"

- Groundwater table depth could not be determined due to presence of clayey soils to depths of 6 feet.
- In our opinion, seasonal high water table depth is about 3 feet.
- From DRIT test at a depth of 1 feet, average infiltration rate = 0.08 inches/hour.



- Soil Profile at hand auger location HA-A is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 4'	Light brown fine sand	SP
4' - 6'	Green clay	CH

BASIN "B"

- Groundwater table depth is 6½ feet.
- In our opinion, seasonal high water table depth is about 2 feet.
- From DRIT test at a depth of 0 feet, average infiltration rate = 0.5 inches/hour.
- Soil Profile at hand auger location HA-B is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 0.5'	White fine sand	SP
0.5' - 2'	Tan fine sand	SP
2' - 3.5'	Dark gray to gray fine sand	SP
3.5' - 7'	Brown fine sand	SP



BASIN "C"

- Groundwater table depth is 7 feet.
- In our opinion, seasonal high water table depth is about 3 feet.
- From DRIT test at a depth of 0 feet, average infiltration rate = 7.8 inches/hour.
- Soil Profile at hand auger location HA-C is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 8'	Light brown fine sand	SP

BASIN "D"

- Groundwater table depth is 3½ feet.
- In our opinion, seasonal high water table depth is about ½ foot.
- From DRIT test at a depth of 1 feet, average infiltration rate = 0.08 inches/hour.
- Soil Profile at hand auger location HA-D is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 4'	Gray to brown fine sand	SP



BASIN "E"

- Groundwater table depth is 6 feet.
- In our opinion, seasonal high water table depth is about 3 feet.
- From DRIT test at a depth of 0 feet, average infiltration rate = 1.1 inches/hour.
- Soil Profile at hand auger location HA-E is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 1'	White fine sand	SP
1' - 2'	Tan fine sand	SP
2' - 6'	Brown fine sand	SP

BASIN "F"

- Groundwater table depth is 7 feet.
- In our opinion, seasonal high water table depth is about 3 feet.
- From DRIT test at a depth of 1½ feet, average infiltration rate = 3.7 inches/hour.





- Soil Profile at hand auger location HA-F is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 1'	Gray fine sand	SP
1' - 2'	Light gray fine sand	SP
2' - 7'	Brown fine sand	SP

BASIN "G"

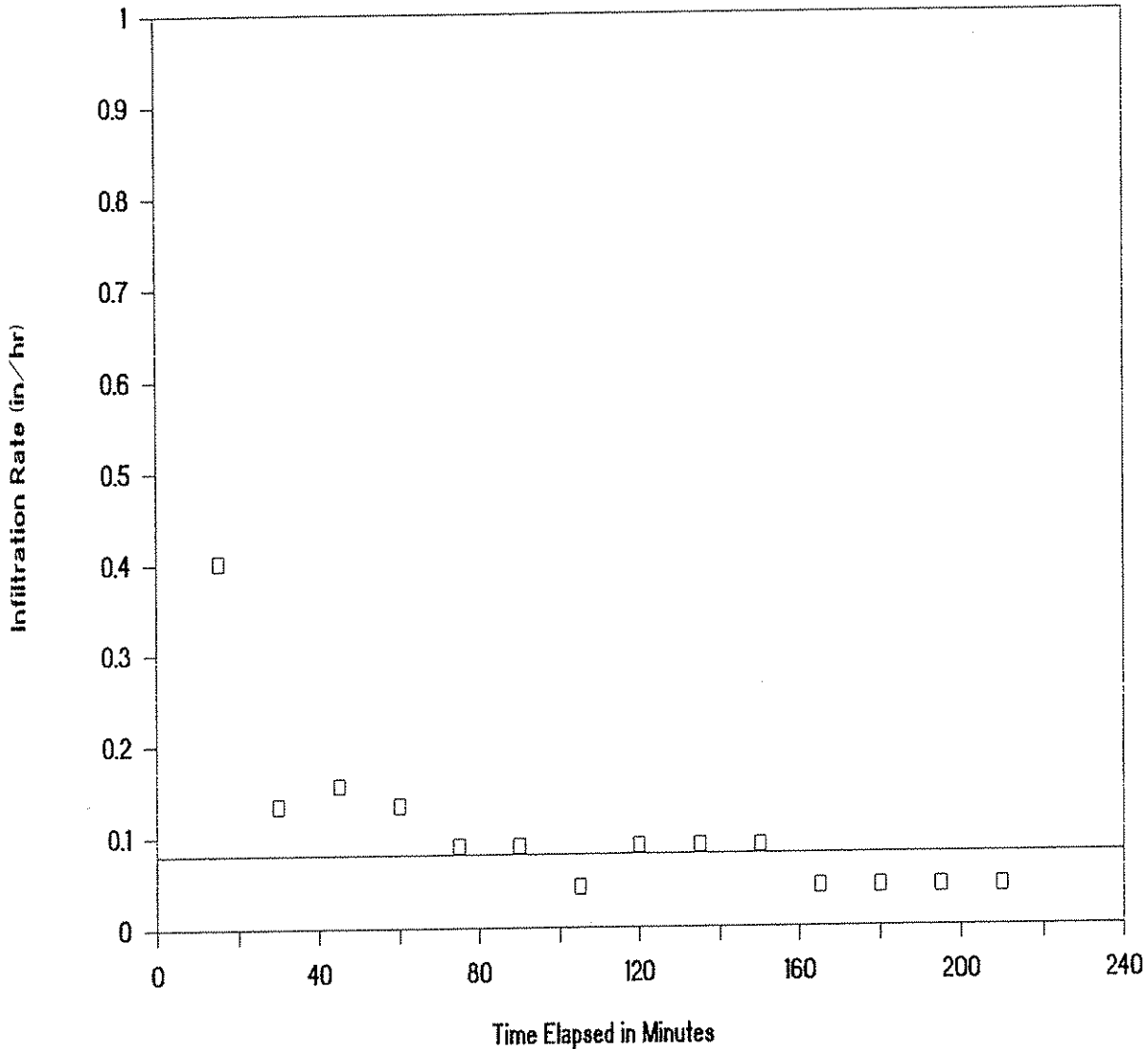
- Groundwater table depth is 6 feet.
- In our opinion, seasonal high water table depth is about 3 feet.
- From DRIT test at a depth of 1½ feet, average infiltration rate = 6.3 inches/hour.
- Soil Profile at hand auger location HA-G is presented in the table below.

DEPTH	SOIL DESCRIPTION	USCS SOIL CLASSIFICATION
0' - 0.5'	Light brown fine sand	SP
0.5' - 6.5'	Brown fine sand	SP



# Double Ring Infiltration Test

BASIN A



NOTES:

TEST DEPTH = 1 FEET  
 AVERAGE INFILTRATION RATE = 0.08 in./hr.

INFILTRATION Vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN A**  
 PICNIC, FLORIDA

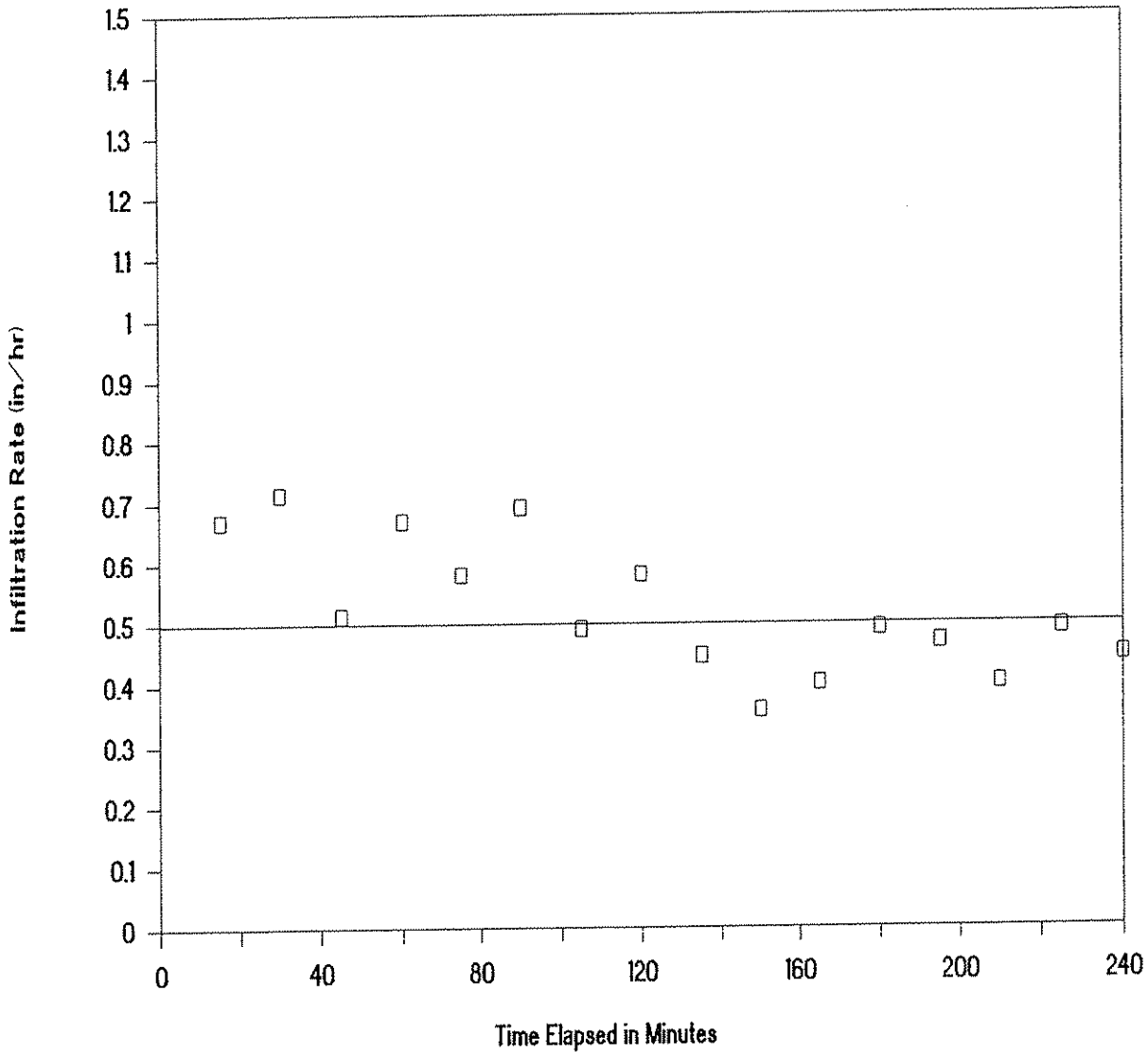


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DRAWN	KEK	SCALE	NOTED	PROJ. NO.	775-45109
CHECKED	SS	DATE	APR 94	PLATE	1

# Double Ring Infiltration Test

BASIN B



NOTES:

TEST DEPTH = 0 FEET

AVERAGE INFILTRATION RATE = 0.5 in./hr.

INFILTRATION Vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN B**  
 PICNIC, FLORIDA

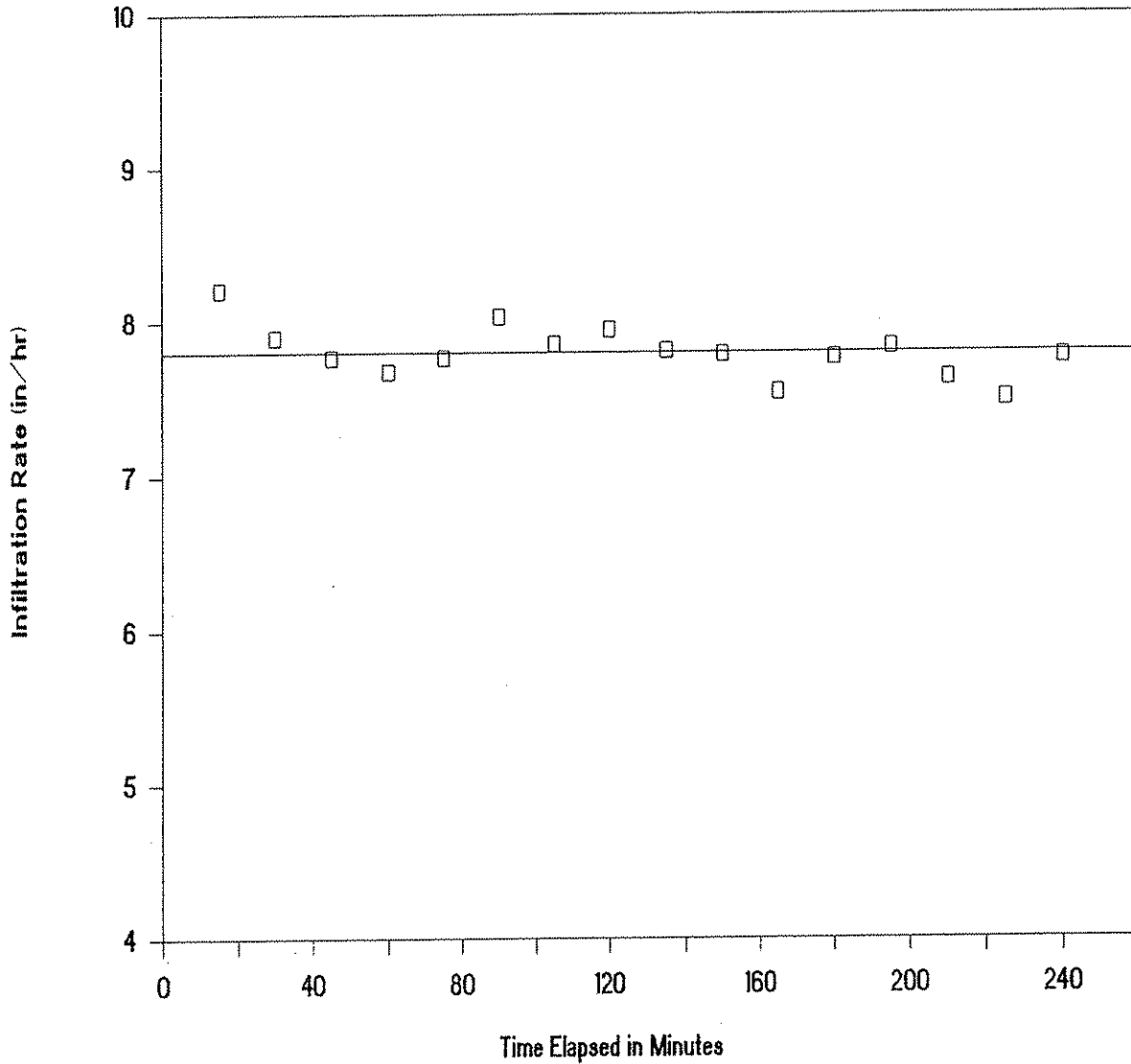


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DRAWN	KEK	SCALE	NOTED	PROJ. NO.	775-45109
CHECKED	SS	DATE	APR 94	PLATE 2	

# Double Ring Infiltration Test

BASIN C



NOTES:

TEST DEPTH = 0 FEET  
 AVERAGE INFILTRATION RATE = 7.8 in./hr.

INFILTRATION Vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN C**  
 PICNIC, FLORIDA

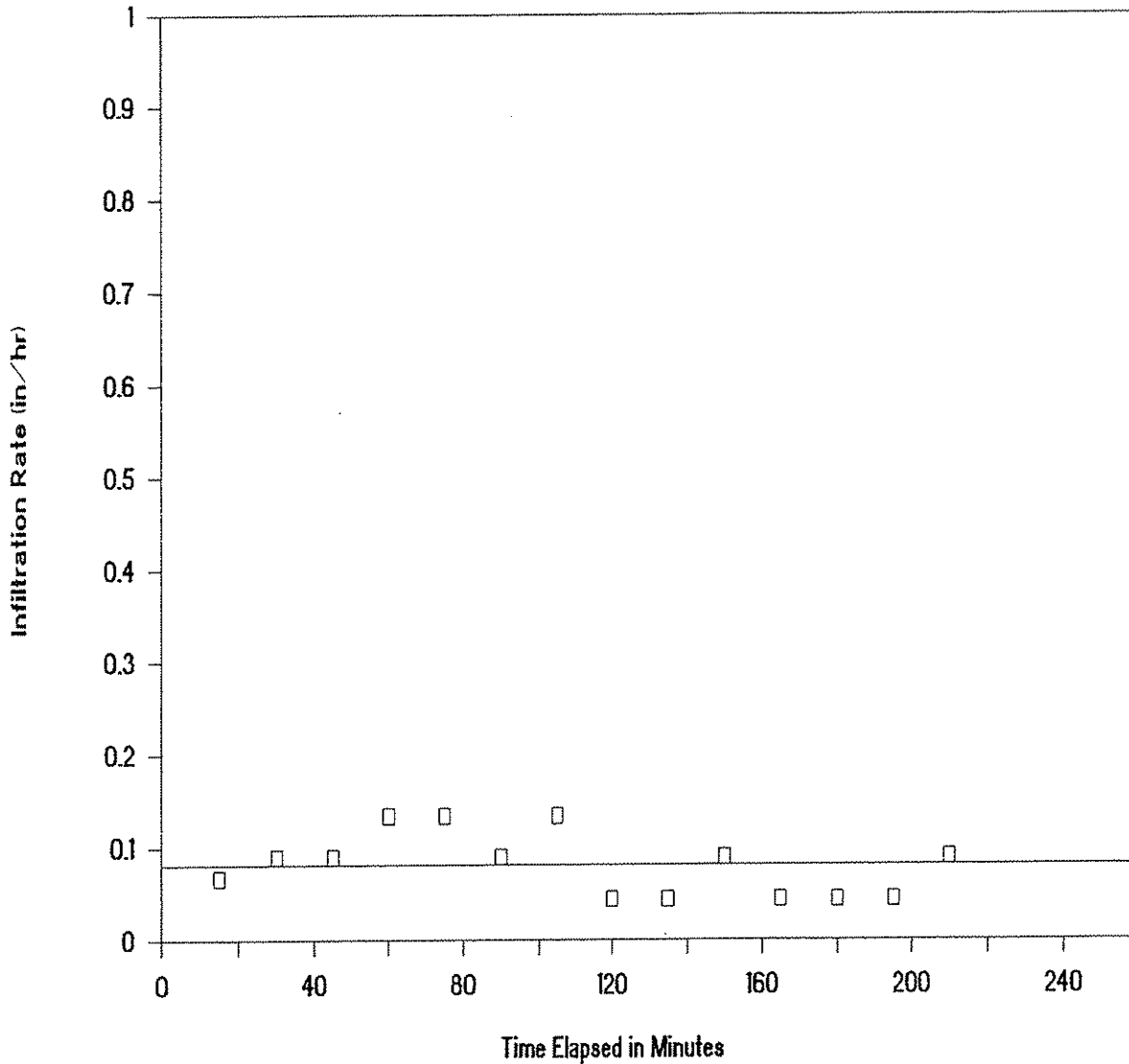


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DRAWN	KEK	SCALE	NOTED	PROJ. NO.	775-45109
CHECKED	SS	DATE	APR 94	PLATE 3	

# Double Ring Infiltration Test

BASIN D



NOTES:

TEST DEPTH = 1 FEET

AVERAGE INFILTRATION RATE = 0.08 in./hr.

INFILTRATION Vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN D**  
 PICNIC, FLORIDA

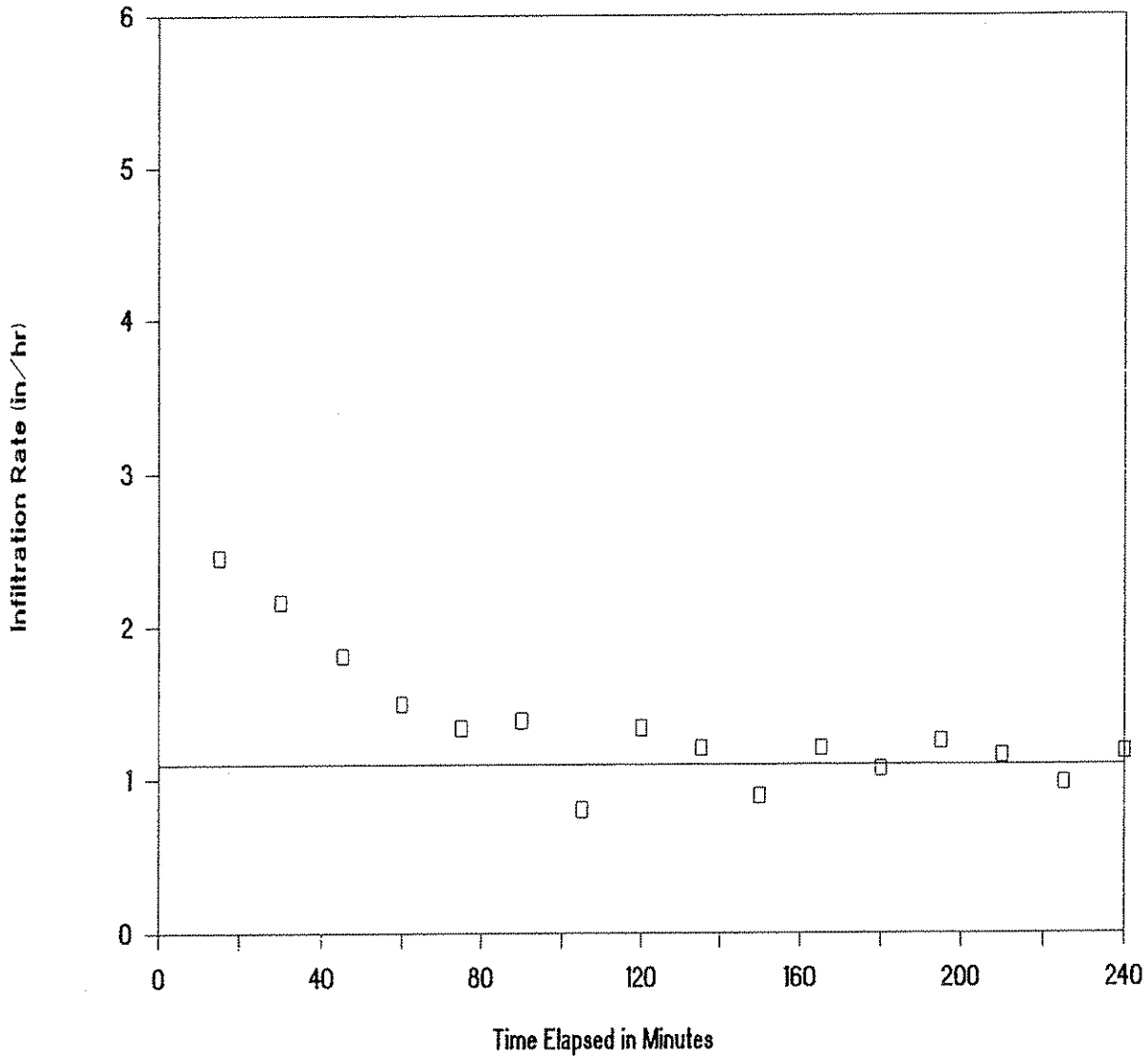


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DRAWN	KEK	SCALE	NOTED	PROJ. NO.	775-45109
CHECKED	SS	DATE	APR 94	PLATE 4	

# Double Ring Infiltration Test

BASIN E



NOTES:

TEST DEPTH = 0 FEET  
 AVERAGE INFILTRATION RATE = 1.1 in./hr.

INFILTRATION Vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN E**  
 PICNIC, FLORIDA

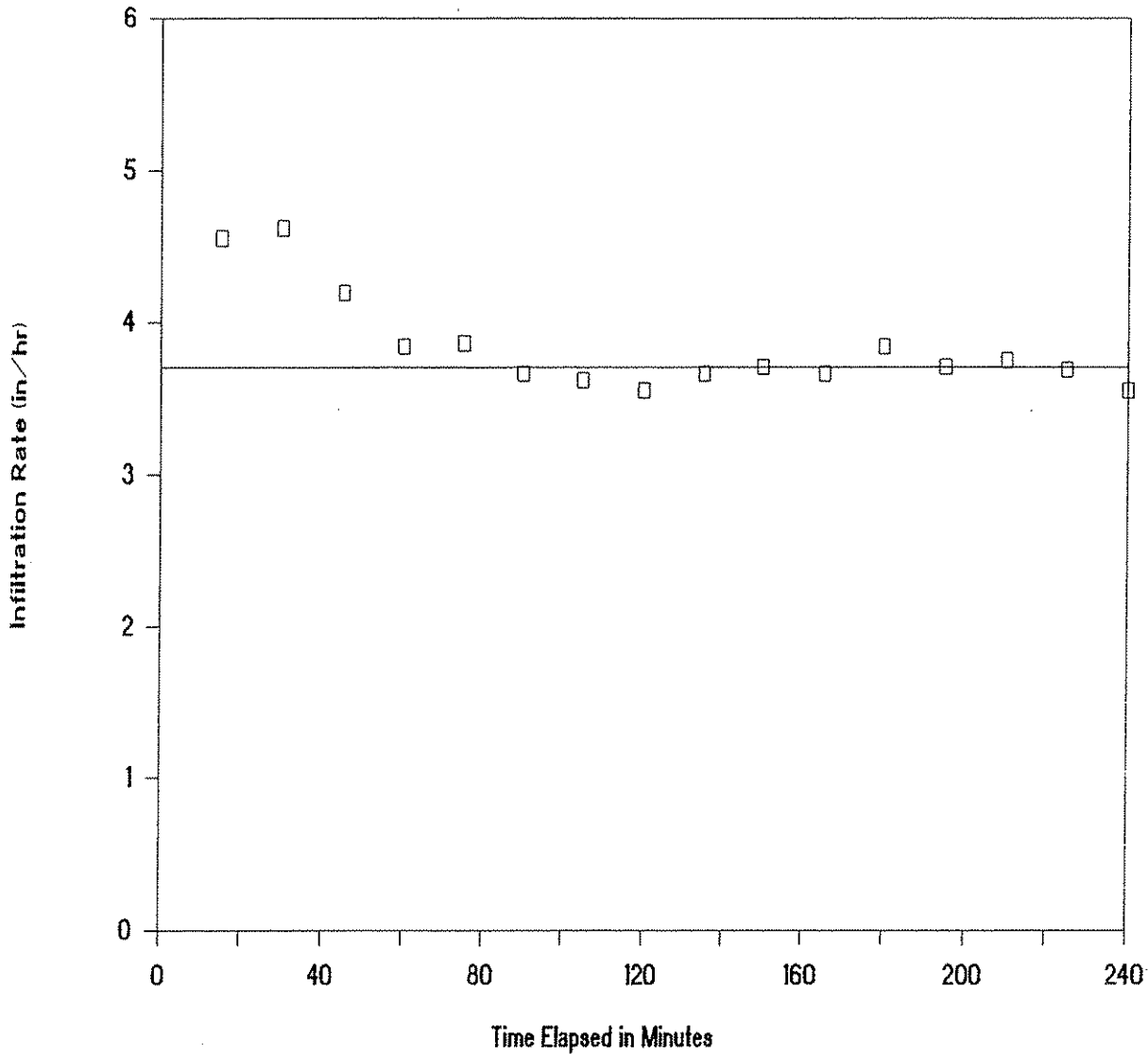


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DRAWN	KEK	SCALE	NOTED	PROJ. NO.	775-45109
CHECKED	SS	DATE	APR 94	PLATE 5	

# Double Ring Infiltration Test

BASIN F



NOTES:

TEST DEPTH = 1.5 FEET  
 AVERAGE INFILTRATION RATE = 3.7 in./hr.

INFILTRATION Vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN F**  
 PICNIC, FLORIDA

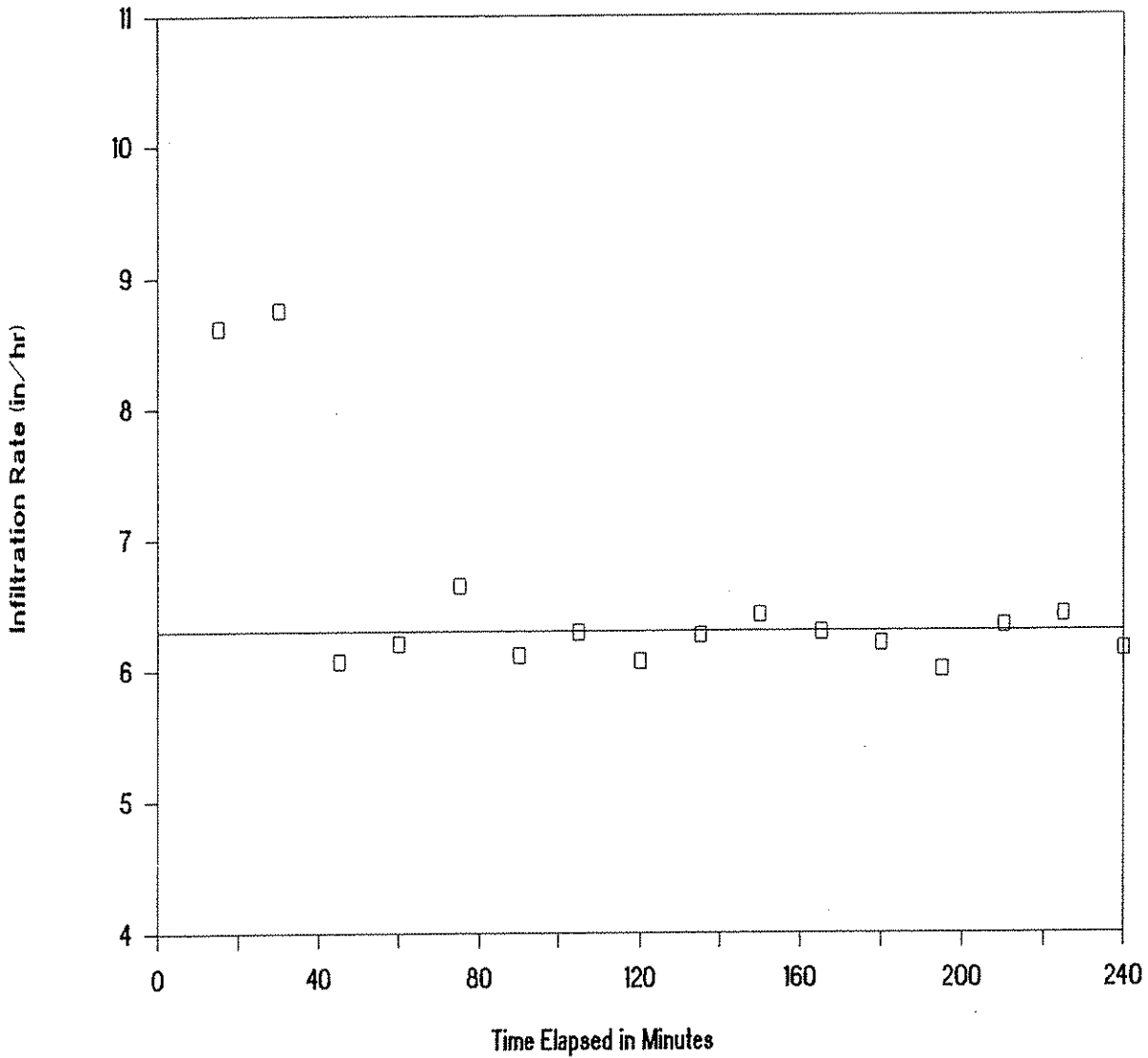


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DRAWN	KEK	SCALE	NOTED	PROJ. NO.	775-45109
CHECKED	SS	DATE	APR 94	PLATE	6

# Double Ring Infiltration Test

BASIN G



NOTES:

TEST DEPTH = 1.5 FEET

AVERAGE INFILTRATION RATE = 6.3 in./hr.

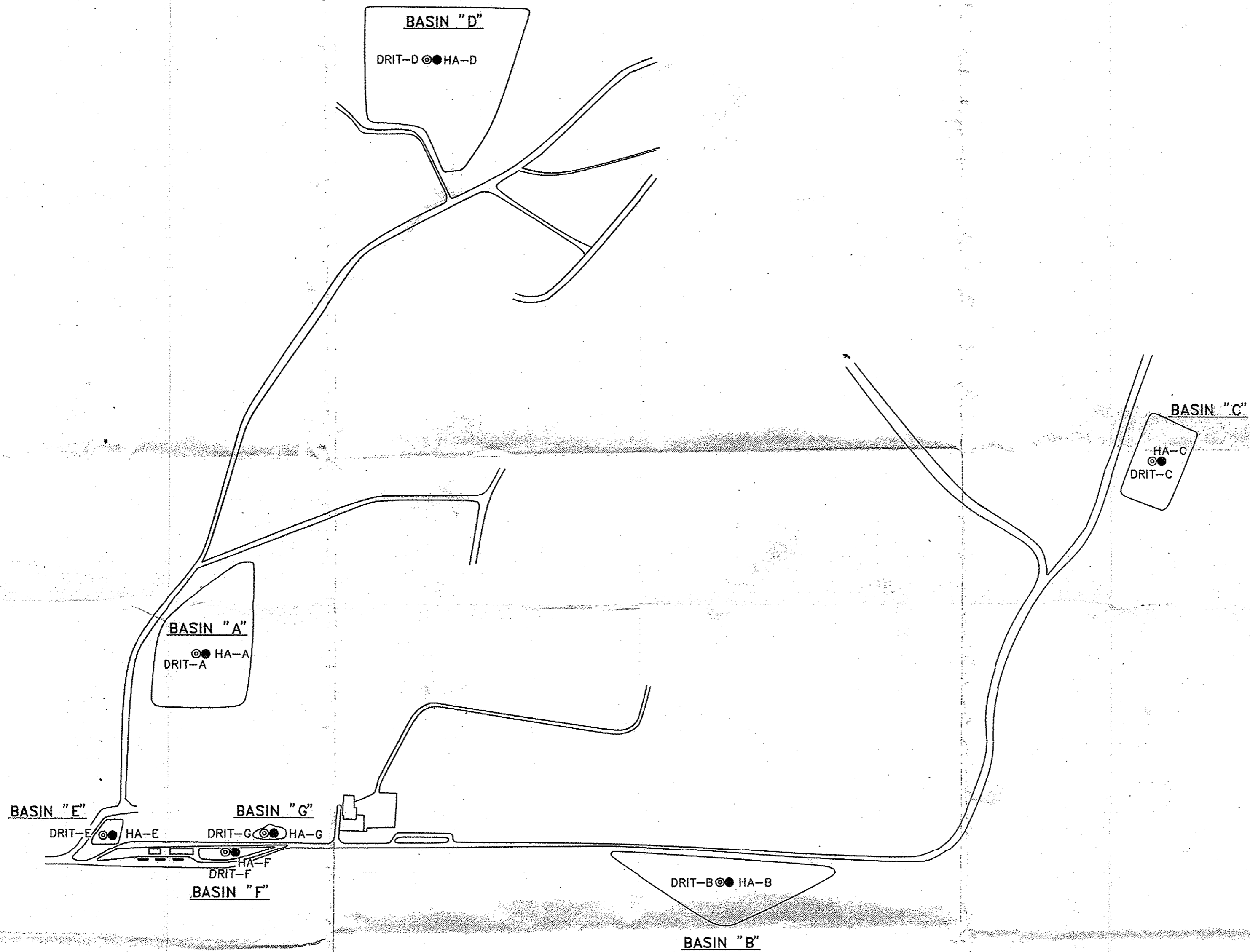
INFILTRATION vs. TIME  
**SOUTHEAST LANDFILL**  
**BASIN G**  
 PICNIC, FLORIDA



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**BORING LOCATION PLAN**

SCALE: 1" = 400'



**LEGEND**

- Approximate Hand Auger boring location
- ⊙ Approximate Double Ring Infiltrometer Test location

DATE	BY	REVISION

FIELD	
DRAWN	KT
CHECKED	SS
APPROVED	HV.J
HORIZONTAL SCALE	NOTED
VERTICAL SCALE	NOTED

GEOTECHNICAL SERVICES  
**SOUTHEAST COUNTY LANDFILL**  
**BASINS A - G**  
 PICNIC, FLORIDA

**Jammal & Associates, Inc.**  
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DATE APR 94	PROJ NO 775-45109	SHEET 1 OF 1	②
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