

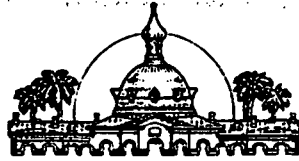
# HILLSBOROUGH COUNTY

Florida

Office of the County Administrator  
Frederick B. Karl

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41193

SC29-199393  
4029C30075  
October 17, 1994

**Mr. Steven G. Morgan**  
Section Supervisor  
Solid Waste Compliance/Enforcement  
Florida Department of Environmental Protection  
3804 Coconut Palm Drive  
Tampa, Florida 33619

**RE: Southeast County Landfill - DEP September 27, 1994 Correspondence Regarding  
September 16, 1994 Site Inspection**

Dear Mr. Morgan:

This correspondence is to serve as the Hillsborough County Department of Solid Waste's (DSW) response to the Florida Department of Environmental Protection's (DEP) referenced letter concerning the County's Southeast County Landfill (Landfill).

In order to sufficiently respond to the DEP's concerns, the DSW requested that their landfill engineering consultant, SCS Engineers, prepare a response to the issues. A copy of SCS Engineers' responses are attached for your review.

SCS Engineers has adequately addressed the first and second statements in the DEP's September 27, 1994 letter regarding the leachate management plan for the Landfill. The DSW would only like to add that the County is committed to placing the Leachate Treatment Facility (Facility) in full operation as soon as possible. As indicated by the schedule submitted to Kim Ford on September 27, 1994, all construction activities will be completed by January 1995. The Facility contractor is currently performing testing and startup procedures. In addition, the County intends to continue off-site leachate disposal during the first few months that the Facility is in operation in order to continue to lower leachate levels in the Landfill. The DSW feels that the County is being proactive in recognizing the leachate management situation and implementing a program which will adequately manage the leachate generated from the Landfill.

**Mr. Steven Morgan**

**October 17, 1994**

**Page Two**

With regard to the DEP statement pertaining to the 30,000 gallon leachate storage tank, the DSW was unaware of the applicability of the requirement to retrofit the tank to meet the new requirements of Section 62-701.400(6)(a) since it was intended to discontinue the use of this tank once the leachate Facility came on line. As of October 6, 1994, the tank was decommissioned and all leachate has since been pumped from the tank. Prior to the end of the year, the tank will be removed and stored for possible future use in the Solid Waste Management System. With respect to the repairs performed to the tank by the County's landfill contractor, Waste Management Inc. of Florida (WMI), the DSW is providing, as an attachment to this letter, all file correspondence concerning the repairs and contamination assessment records for this maintenance activity. Although the DSW believes that the Hillsborough County Environmental Protection Commission was made aware of this repair work, the DSW cannot locate any correspondence in the files to support this claim. Therefore, the DSW is providing the information requested by Kim Ford of the DEP as part of the additional information required for the Landfill permit renewal.

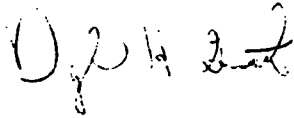
Regarding item numbers 36 and 43 of the DEP inspection report pertaining to erosion of the sideslope of Phase III, the DSW required that WMI provide a response to the DSW on this issue. WMI has indicated that heavy rains eroded the intermediate cover on a ditch area in Phase III which was recently constructed and not yet fully established in vegetative cover. WMI initiated and completed repairs to the area the same day as the DEP inspection. WMI placed rip-rap as an additional preventative measure to hold the area until vegetation is firmly established.

With regard to the DEP's September 27, 1994 correspondence, the DSW believes that reasonable measures are being taken to correct any deficiencies noted by the DEP. The DSW is being responsive and is committed to operating and maintaining a landfill which complies with State regulations. The DSW does not believe it is necessary for the issues to be handled through the enforcement arena. The DSW has always been open and upfront about the Landfill's operation and will continue to work with the DEP to resolve any issues related to the Landfill.

**Steven Morgan**  
**October 17, 1994**  
**Page Three**

**Should you have any questions regarding this correspondence or require additional information, please contact me at 276-2900.**

**Sincerely,**



**Daryl H. Smith**  
**Director**  
**Department of Solid Waste**

**Attachment**

**xc: Patricia V. Berry, DSW**  
**Kim Ford, DEP**  
**Steve Hamilton, SCS**  
**Paul Schipfer, EPC**

**SCS ENGINEERS**

October 14, 1994  
File No. 0990018.35

**RECEIVED**

**OCT 17 1994**

**by Solid Waste Department**

Ms. Patricia V. Berry  
Hillsborough County  
Department of Solid Waste  
P. O. Box 1110  
Tampa, Florida 33601

**Subject: Response to the Florida Department of Environmental Protection dated September 27, 1994, Southeast County Landfill, Hillsborough County, Florida, Permit No. S029-158504 and No. SC29-199393.**

Dear Patty:

As requested SCS Engineers (SCS) has reviewed the referenced letter from the Florida Department of Environmental Protection (FDEP). We believe the following responses address the questions raised by the FDEP. Each comment is restated followed by our response.

*S029-158504*

**FDEP Statement 1** - Inspection of the leachate collection sump and leachate stand pipes in both Phase III and Phase IV revealed that approximately 5 to 6 feet of leachate was maintained over the liner in those Phases. Specific Condition #12 of your existing operation permit requires that no greater than 1 foot of leachate be maintained over the liner. In your pending permit renewal application, you are attempting to demonstrate that a level of 3.6 feet of leachate can be maintained over the liner. The levels found during the inspection exceeds both values.

**Response** - On March 16, 1994 the HCDSW notified the FDEP of this condition. The HCDSW, FDEP, Environmental Protection Commission (EPC), and SCS have met on several occasions to discuss this issue. As requested by the FDEP, SCS submitted water balance calculations on June 10, 1994 to Kim Ford. In our meeting on May 12, 1994, with Mr. Kim Ford from FDEP and Mr. Paul Schipfer from EPC, the FDEP and EPC suggested that HCDSW redefine the landfill sump. In correspondence to the Hillsborough County Department of Solid Waste (HCDSW) dated June 24, 1994 (Attachment 1) and in the pending permit renewal application, SCS provided sufficient information to define the entire landfill footprint as the sump for the SELF (excluding the sidewalls of the perimeter berms with synthetic liner) and establishing a target maximum leachate level over the liner of 3.6 feet. Additional information currently is being prepared by SCS on this issue to be submitted to Kim Ford as part of the permit renewal request for information responses.

*2 \**



Ms. Patricia V. Berry  
October 14, 1994  
Page 2

The HCDSW has increased the quantities of leachate being trucked off site and disposed at county wastewater treatment facilities as shown in Table 1. Leachate recirculation at the site resumed in May 1994 in accordance with the current permit. The HCDSW continues to pump and dispose of leachate. Additionally, as of the date of this letter, the leachate treatment facility is under testing and startup. These actions have been taken to lower leachate levels in the landfill.

**TABLE 1. LEACHATE DISPOSAL  
SOUTHEAST LANDFILL, 1994**

Month	Total Transported (gal)	Total Recirculated (gal)
January	888,301	0
February	990,550	0
March	848,777	0
April	1,282,384	0
May	1,370,516	66,100
June	1,415,139	16,150
July	1,440,512	51,800
August	1,386,185	33,350
September	1,518,660	29,340

Source: Hillsborough County Department of Solid Waste

**FDEP Statement 2** - Inspection of the facility revealed that construction of the leachate treatment facility has not been completed. According to Specific Condition #1 of the construction permit for the leachate treatment facility, construction was to be completed by December 1, 1993. In a letter dated June 18, 1993, the County's consultant requested this deadline be extended to August 14, 1994. Construction has not been completed to date. Delay in construction of the leachate treatment plant appears to be contributing to the excess leachate storage problems at the landfill.

**Response** - The planned date for completion of construction activities for the leachate treatment and reclamation facility (LTRF) was December 1993. The 1 year operating and testing period was to begin at that time. As discussed in our letter to Mr. Kim Ford

Ms. Patricia V. Berry

October 14, 1994

Page 3

dated June 15, 1993 (Attachment 2), the notice to proceed date for construction of the project was initially delayed until June 1, 1993. This delay was due to an extended bidding process and County related permit review. Construction on the project did not begin until June 1993, which was 9 months after the original planned start date for the project. In our June 15, 1993 letter, SCS requested an extension of the construction completion date until August 14, 1994. In addition, several delays during construction have occurred. As indicated in our letter to the FDEP dated September 27, 1994 (Attachment 3), we anticipate construction (to include the 1 year operating and testing period) will be completed by January 1, 1996. SCS requested in our September 27, 1994 letter that the permit expiration date for the facility be changed to January 1, 1996 and that the construction activities deadline in Specific Condition No. 1 be changed to January 1, 1995.

During the construction period for the LTRF, the County has continued to truck leachate off site for disposal. In fact, the County substantially increased hauling during the rainy season this year. The County continues to haul and dispose leachate to the county wastewater treatment facilities at a rate averaging 48,800 gallons per day for 1994. In addition, leachate is recirculated on the active face of the landfill as shown in Table 1.

**FDEP Statement 3** - In the County's application for renewal, your consultant noted that the 30,000 gallon leachate tank at the landfill was found to be leaking in July 1993, and the leak was repaired. Discussions on this subject during the September 16th inspection confirmed this incident. Records do not indicate that the Department was notified of occurrence of this incident or of the details of the repair. Specific Condition #18 of the operation permit for the facility requires that the Department be notified immediately in the event of damage to, or failure of, any landfill system, and that a written detailed notification be submitted within one week following the incident. In addition, Florida Administrative Code Rule 62-701.400(6)(1) states that leachate storage tanks in use on January 6, 1993 are required to be retrofitted to comply with current leachate storage tank standards if leakage, corrosion or defects are found. Neither the inspection of the facility on September 16th, nor Department records, indicate that this has occurred.

**Response** - Section 62-701.400(6)(a), FAC, allows for leachate storage impoundments in use on January 6, 1993 to be replaced or modified to conform to this subsection by January 6, 1995. The existing 30,000 gallons tank will be removed before January 6, 1995.

**FDEP Statement 4** - You are advised that any activity at your facility that may be contributing to violations of the above described statutes and rules should cease immediately. Operation of a facility in violation of state statutes or rules may result in liability for damages and restoration, and the judicial imposition of civil penalties up to \$10,000 per violation per day pursuant to Sections 403.141 and 403.161, Florida Statutes. It is the Department's policy to typically initiate enforcement action and seek

Ms. Patricia V. Berry  
October 14, 1994  
Page 4

civil penalties for the above described violations. The decision to initiate enforcement action is made and penalties are calculated based on the degree of severity of the violations, cost avoidance or economic gained by the violation, the number of days the violation continues, and

**Response** - We hope the FDEP agrees that the SELF is a well operated and maintained facility. We are surprised that the FDEP is considering enforcement action on the subject issues since the County has taken reasonable steps (e.g., construction of a leachate treatment facility, continued hauling of leachate, recirculation of leachate) to address leachate disposal at the SELF. As such, we do not believe that potential imposition of civil penalties is appropriate, reasonable, or justifiable.

Please do not hesitate to call if you have any questions.

Very truly yours,

  
Larry E. Ruiz  
Project Engineer



Robert B. Gardner, P.E.  
Vice President  
SCS ENGINEERS

LER/RBG:ler

Attachments

**ATTACHMENT 1**  
**SUMP AREA DEFINITION (JUNE 24, 1994)**



**SCS ENGINEERS**

June 24, 1994  
File No. 0990018.34

Ms. Patricia V. Berry  
Hillsborough County  
Department of Solid Waste  
P. O. Box 1110  
Tampa, Florida 33601

**Subject: Definition of Sump Area, Southeast County Landfill, Hillsborough County, Florida, Permit No. S029-158504**

Dear Patty:

As requested SCS Engineers (SCS) has reviewed the available data concerning the sump, leachate levels, and the projected settlement of the landfill. SCS has concluded that the SELF liner system provides better protection than that required in Chapter, 17-701.400, of the Florida Administrative Code (FAC). A designated sump area for the landfill needs to be defined taking into account the unique nature of the landfill liner and foundation design. The purpose of this letter is to provide the necessary background information and technical justification to support the definition of a sump area at the Southeast County Landfill (SELF).

In December 1993, the Hillsborough County Department of Solid Waste (HCDSW) requested that SCS evaluate the leachate levels at the SELF. A survey of the leachate levels and a review of the as-built sump configuration was conducted (see Figure 1). At the time of the survey, the leachate levels were approximately 5 feet above the bottom of the existing temporary leachate sump in Phase VI, which collects leachate from Phases I, II, III and IV. In a letter to the Florida Department of Environmental Protection (FDEP) dated March 11, 1994, SCS presented the leachate level data and concluded that some areas of the landfill had leachate levels in excess of the maximum 12-inch depth specified in Chapter 17-701.400(3)(b), FAC.

During a meeting on March 23, 1994 with Mr. Kim B. Ford (FDEP) and Mr. Paul Schifer of the Environmental Protection Commission (EPC), this topic was discussed. The FDEP requested additional evaluation of the leachate levels and definition of the SELF landfill sump. On May 12, 1994 the FDEP and EPC conducted an inspection of the SELF. During this inspection, the site inspection report indicated that the SELF was in violation of leachate head above the liner rule and that the FDEP would provide direction to the HCDSW upon further review.



Ms. Patricia V. Berry  
June 24, 1994  
Page 2

<u>Permit</u>	<u>Issued</u>	<u>Expires</u>
SC29-66321	2-22-84	
S029-158504	12-12-89	12-1-94

## BACKGROUND

### Site Description

The SELF is permitted by the FDEP as a Class I landfill. The SELF is located in southeastern Hillsborough County (see Figure 2) and has a permitted footprint of approximately 162 acres within the 2,030-acre Southeast County Solid Waste Facility Complex (see Figure 3). Waste Management of Florida, Inc. operates the landfill under contract with the HCDSW. The original permit SC29-66321 was issued by the FDEP on February 22, 1984. It was replaced by the current permit S029-158504, issued by the FDEP on December 12, 1989. The current permit expires on December 1, 1994.

### Landfill Construction

The bottom liner consists of on-site waste phosphatic clay deposits ranging in depths from 4 to 18 feet. Perimeter berms were constructed to establish the landfill footprint and provide a minimum 4-foot thick bottom liner. The interior sideslopes of the perimeter berms were lined with 36-mil, scrim reinforced, hypalon to complete the containment system. A typical cross section of the landfill is shown in Figure 4.

Six separate landfill cells were constructed, with internal berms separating the cells (See Figure 5). The cells are referred to as Phases in the various design and permit documents. The phases of the landfill that have received waste include Phases I through IV. Construction of Phases V and VI was completed in two stages. The first stage, which included construction of the perimeter berms and installation of the sand surcharge loads, was completed in September 1990. The second stage included installation of the leachate collection system and was completed in January 1992. No refuse has been placed in Phases V or VI.

The initial surface of the phosphatic clay deposits was relatively flat at an approximate elevation of 120 feet National Geodetic Vertical Datum (NGVD). Substantial settlement will occur as refuse is placed in the landfill. The projected final contours of the top of the phosphatic clay deposits is shown in Figure 6. Settlements of up to 10 feet are expected near the center of the landfill, where the thickest phosphatic clay deposits are found. The design of the leachate collection system and the phased development of the landfill was based upon the calculated settlement of phosphatic clay deposits.

### Leachate Collection and Disposal

The HCDSW is removing approximately 45,000 gallons per day of leachate from the SELF by tanker truck. The leachate is taken to two County wastewater treatment facilities for treatment. An on-site leachate treatment plant currently is under construction. The anticipated completion date for construction of the treatment plant is

Ms. Patricia V. Berry  
June 24, 1994  
Page 3

August 1994. This on-site treatment plant will allow the County to treat an average of 60,000 gallons per day of leachate with a peak flow rate of 120,000 gallons per day.

#### DEFINITION OF SUMP AREA

SCS believes that the landfill sump area should be defined as the entire footprint of the landfill for the following reasons:

- Hydraulic characteristics of the liner design: The initial hydraulic conductivity of the waste phosphatic clay deposits (i.e., before waste loading) was measured to be  $1 \times 10^{-7}$  cm/sec or less<sup>1</sup>. The post-consolidated hydraulic conductivity (i.e., after placement of 60 feet of solid waste and 95 percent consolidation is achieved) is projected to decrease to  $3 \times 10^{-8}$  cm/sec (Ardaman, 1983, p. 6-10).
- Performance of the liner design: As the landfill induced stresses consolidate the phosphatic clay deposits, an upward gradient is created by pore water being expressed upward into the sand leachate drainage layer. It is estimated that the liner will not be subjected to a downward gradient until 5 to 10 years after placement of the final cover (Ardaman, 1983, p. 6-10). Recent geotechnical investigations have confirmed that an upward gradient has developed in the waste phosphatic clay deposits, and the landfill foundation is consolidating at a rate consistent with the original estimates.<sup>2</sup> A copy of Ardaman's report is presented in Attachment 1.
- Equivalency analysis: Chapter 17-701.400(3)(b), FAC specifies the minimum thickness of the lower component of a composite liner system as a function of the maximum design hydraulic head and hydraulic conductivity of the soil barrier layer. The allowable liner design configurations were developed based on an equivalency analysis with the U.S. EPA Subtitle D liner design. The rule allows for thinner soil layers in the bottom component of the composite liner system with lower design leachate heads and lower hydraulic conductivities. In all cases, the rule assumes a downward gradient and an allowable leakage rate of approximately 0.008 to 0.41 gallons per day per acre from the bottom of the liner system. As stated above, the landfill liner system of the SELF should not experience a downward gradient until 5 to 10 years after the landfill closes and the final cover is installed. As such, the current liner design for the SELF far exceeds the minimum performance requirements of Chapter, 17-701.400 FAC.

i.e. designs for  
17-701 were  
compared to  
Subtitle D

<sup>1</sup> Ardaman and Associates, Inc., *Hydrogeological Investigation*, February 1983.

<sup>2</sup> Ardaman and Associates, Inc., *Geotechnical Investigation*, March 1994.

## MAXIMUM ALLOWABLE LEACHATE HEAD OVER THE LINER

The maximum allowable leachate head over the liner should be such that the performance based criteria in Chapter 17-701, FAC are not exceeded (i.e., maximum allowable leakage rate) and the consolidation and strengthening of the foundation deposits are not constrained. As the waste phosphatic clay deposits consolidate, the pore pressures will dissipate over time. As long as the induced pore pressures exceed the approximate static pore pressure, the consolidation of the waste phosphatic clay deposits should continue as designed. Additionally, under these assumed conditions, the upward gradient would continue, and leakage from the landfill would not result.

X This concept is illustrated in Figure 7. The figure was adapted from the most recent geotechnical investigation conducted by Ardaman and shows plots of the equilibrium pore pressures extrapolated from measured pore pressures in the field, the approximate static pore pressure line with 2 feet of leachate over the liner, and the equilibrium pressure line where induced pore pressures would be balanced by leachate head. The location of the test piezoprobe PP-2 (Phase 2 area) is representative of the anticipated worst case conditions after the 7-year consolidation period has occurred and most of the pore pressures have dissipated.

Based on the theoretical performance of the waste phosphatic clay deposits and the measured pore pressures in the field, leachate levels in the landfill up to 3.6 feet are acceptable.

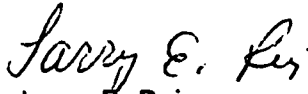
## CURRENT SITUATION

As stated in previous correspondence, the current leachate head over the liner varies from 4.83 feet at the temporary leachate sump located adjacent to Phase IV to 2 feet nearer some areas along the perimeter of the landfill. The HCDSW recently has increased the quantities of leachate being trucked and disposed of at County wastewater treatment facilities and has resumed leachate recirculation in accordance with its current permit. These actions have been taken to lower the leachate levels in the landfill. In addition, we anticipate that construction of the leachate treatment facility will be completed in the next two months, which will provide additional capacity for removal, treatment, storage, and disposal of leachate.


Ms. Patricia V. Berry  
June 24, 1994  
Page 5

Please do not hesitate to call if you have any questions.

Very truly yours,



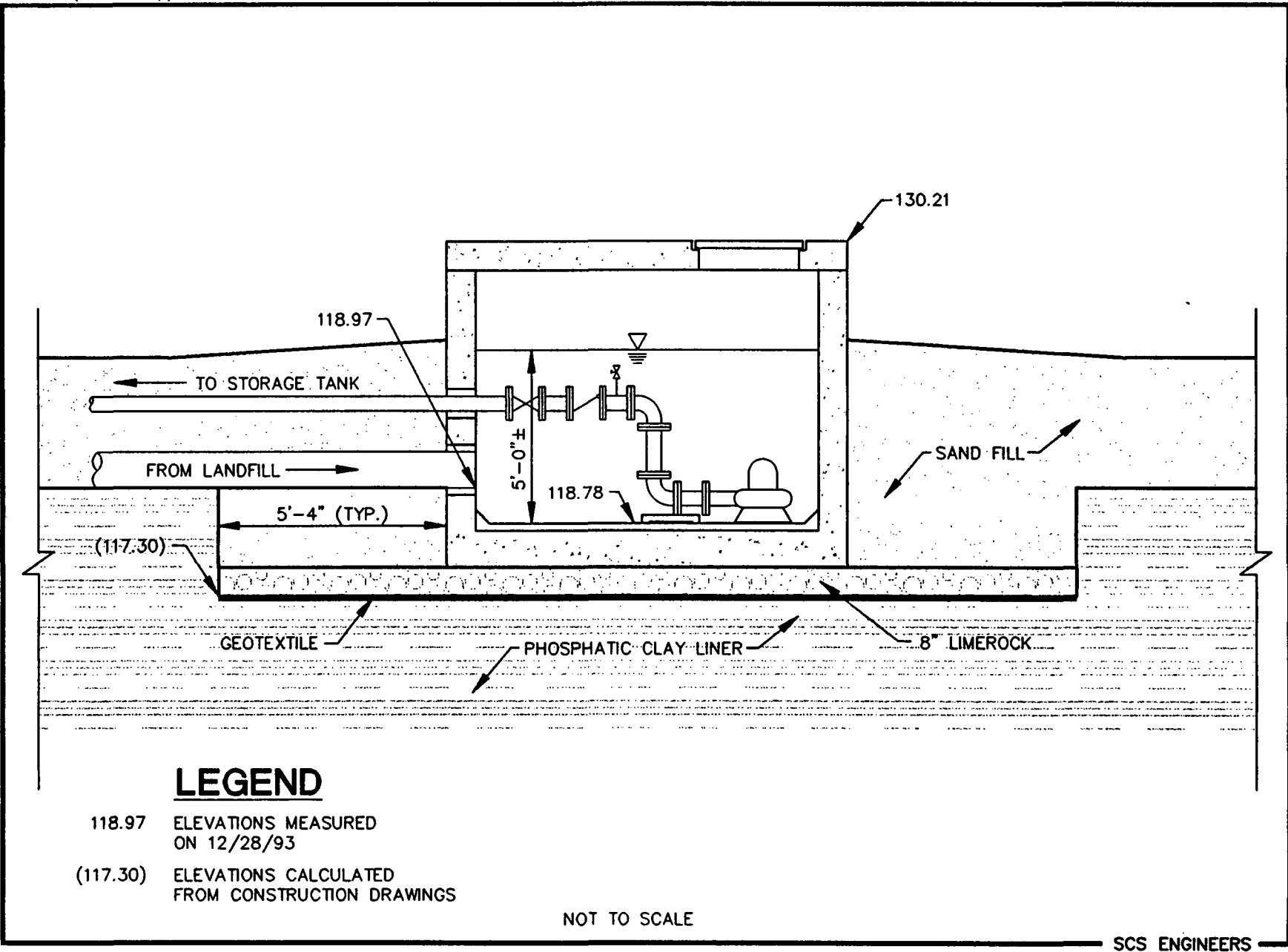
Larry E. Ruiz  
Project Engineer



Robert B. Gardner, P.E.  
Vice President  
SCS ENGINEERS

LER/RBG:ler

Attachments



**LEGEND**

118.97 ELEVATIONS MEASURED ON 12/28/93

(117.30) ELEVATIONS CALCULATED FROM CONSTRUCTION DRAWINGS

NOT TO SCALE

SCS ENGINEERS

Figure 1. Existing Temporary Sump in Phase VI.

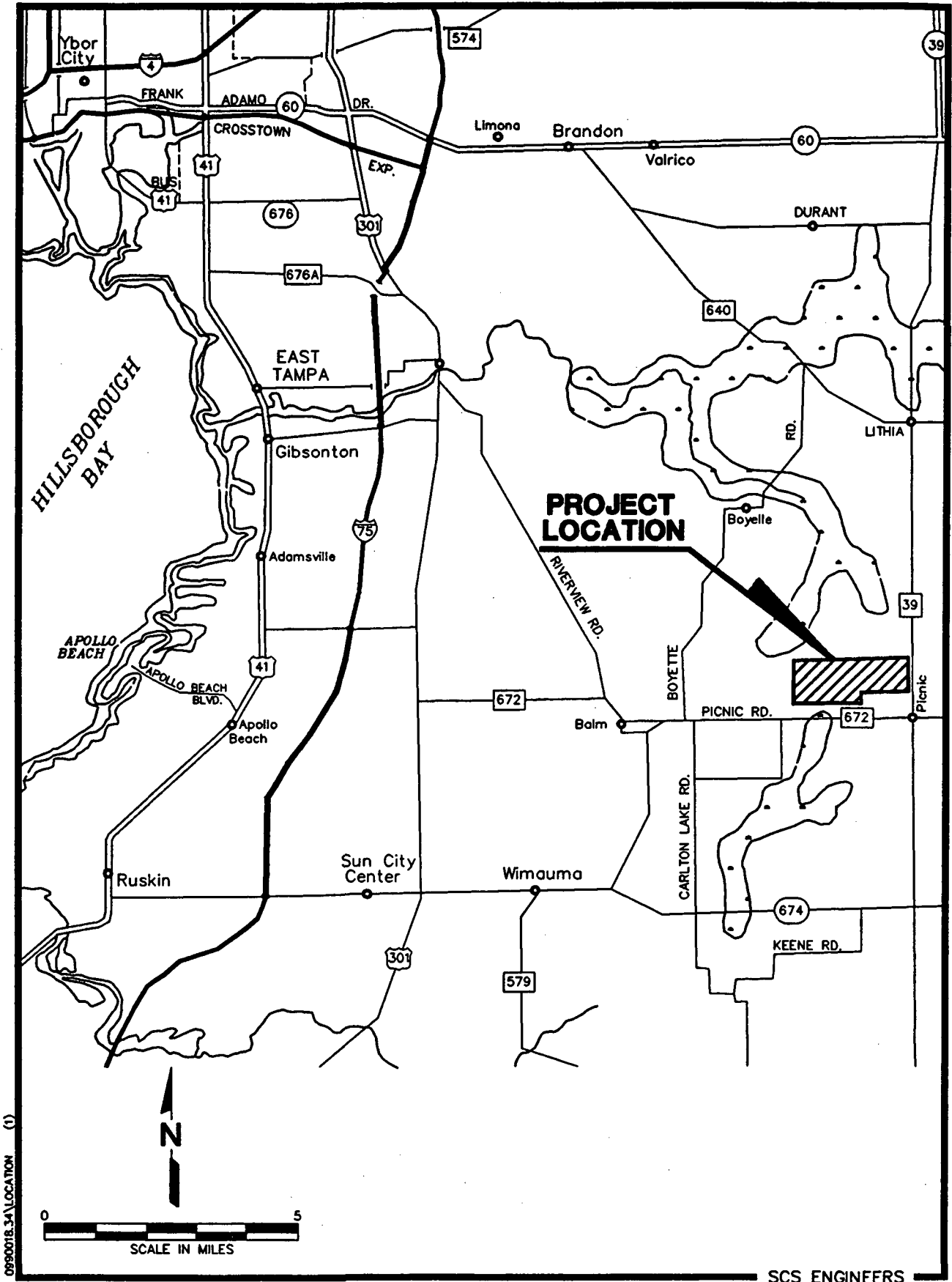


Figure 2. Location Map.

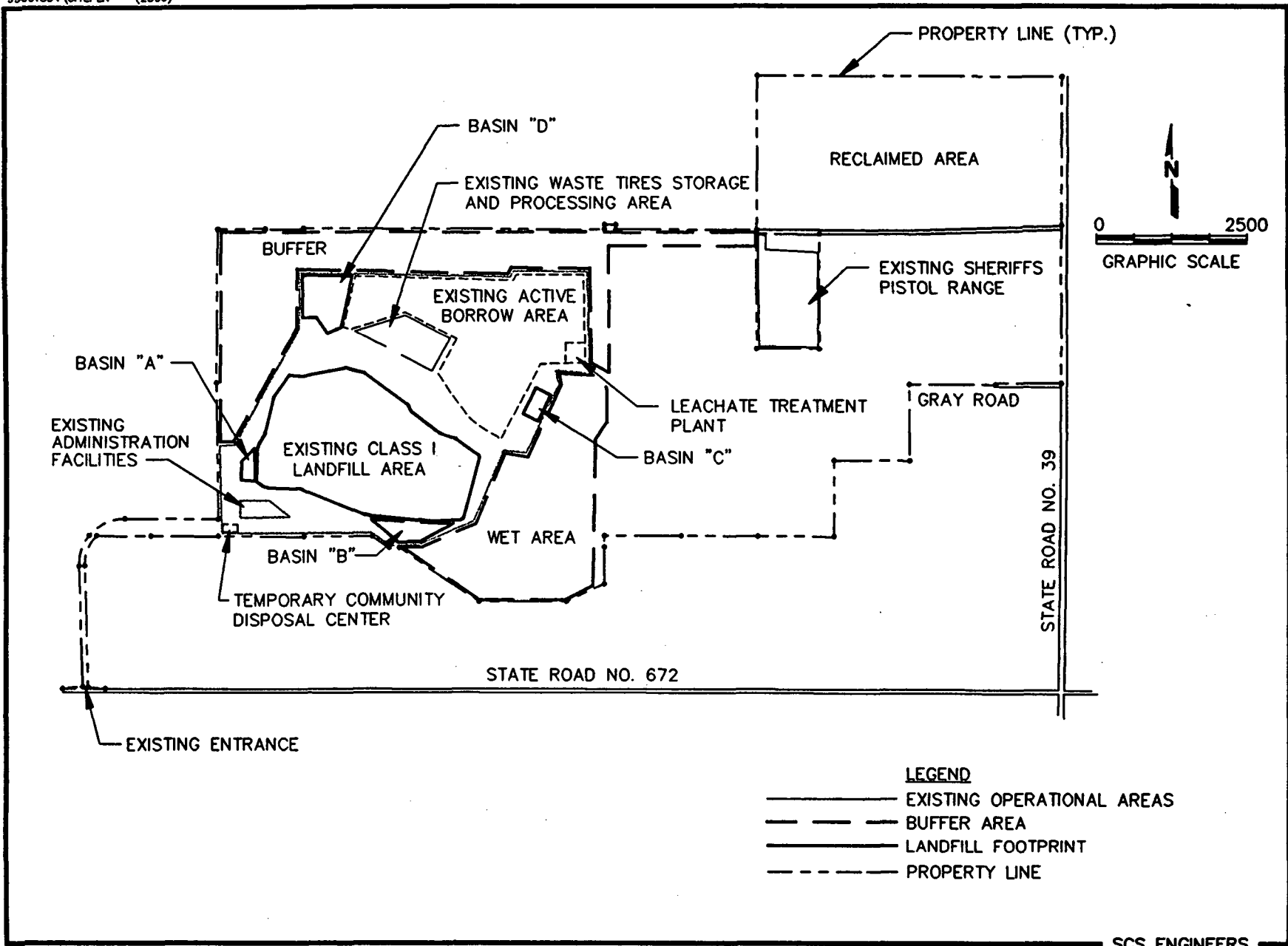


Figure 3. Site Plan.



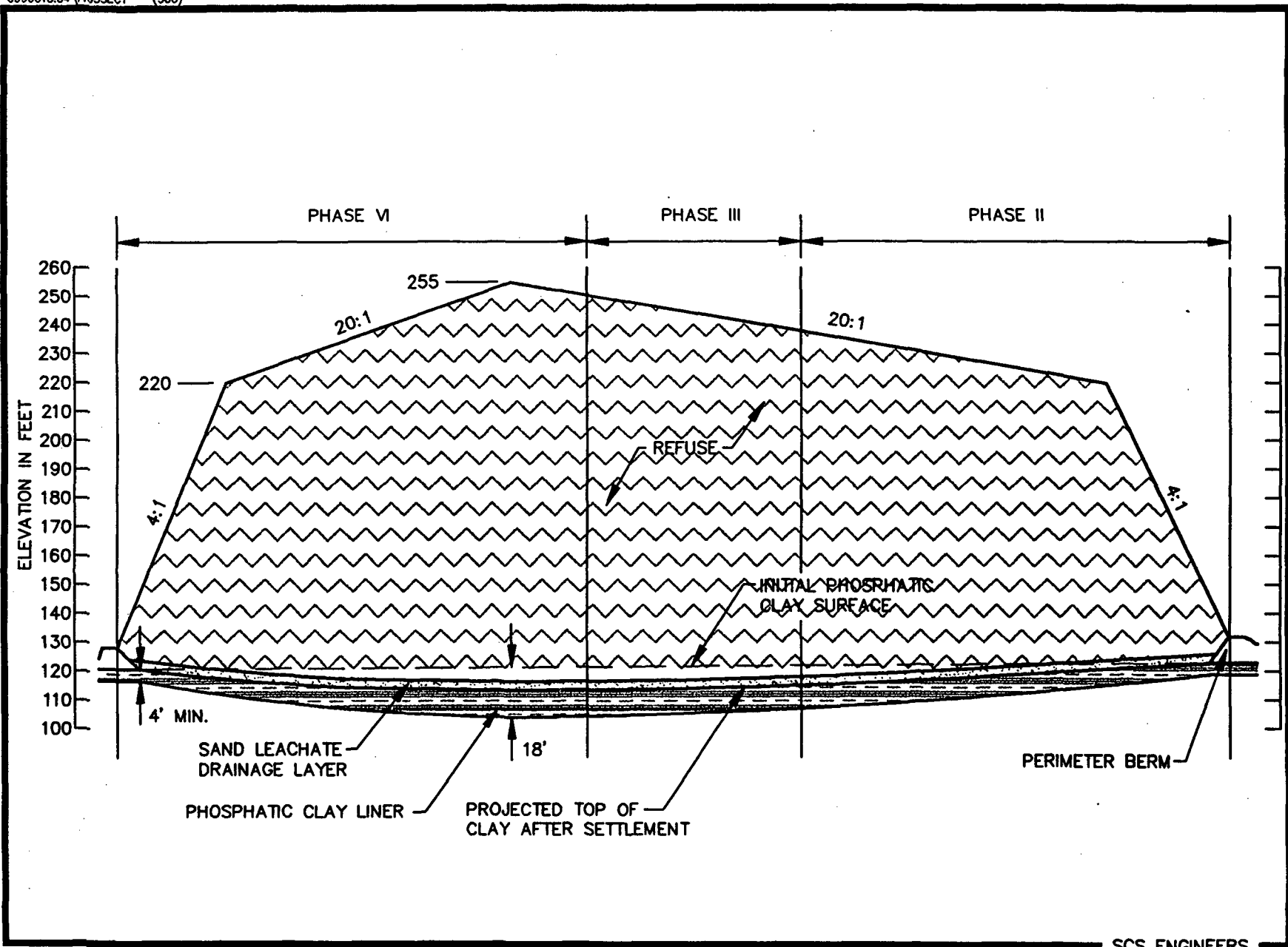


Figure 4. Typical Landfill Cross Section.

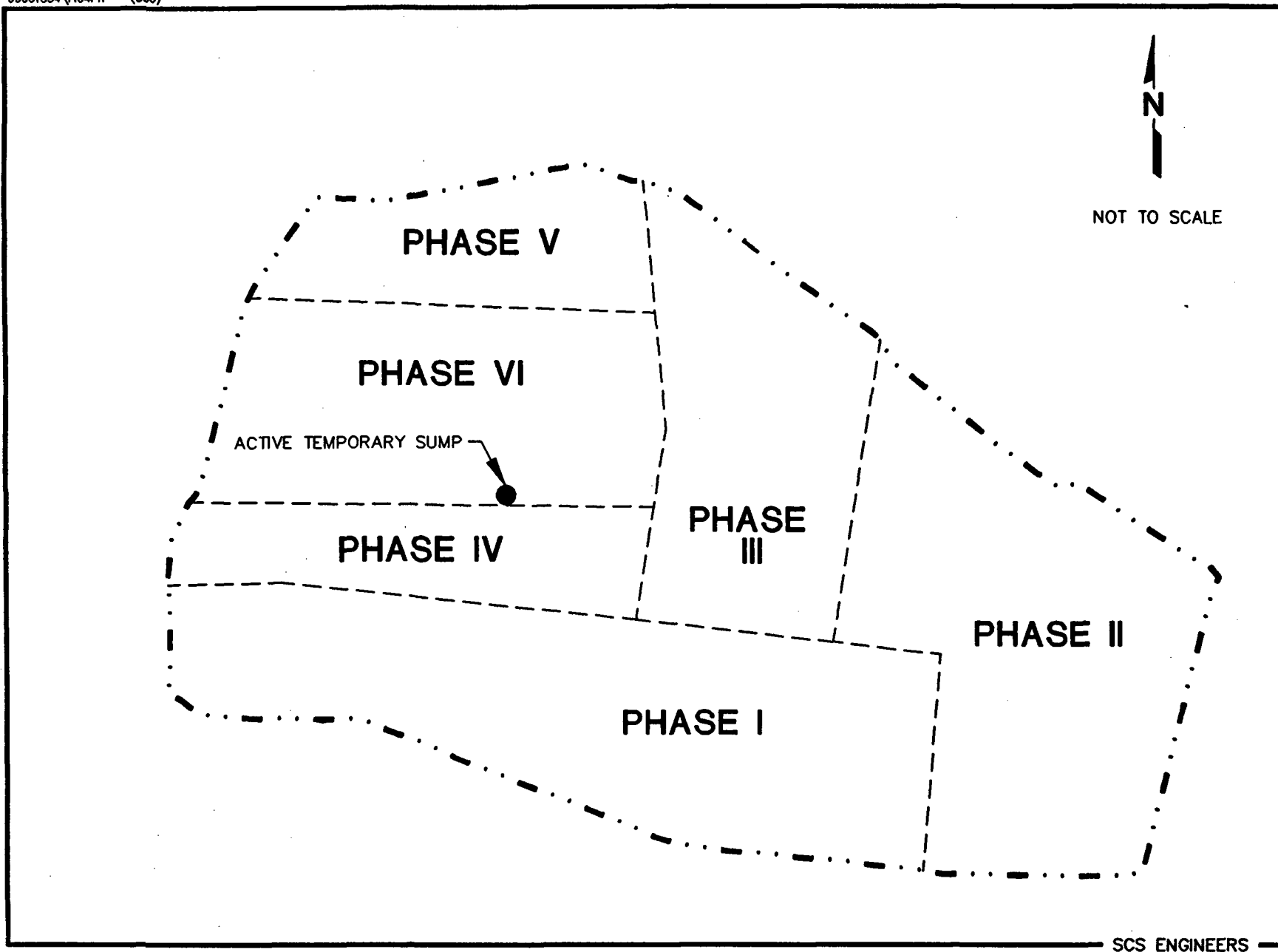


Figure 5. Landfill Phases.

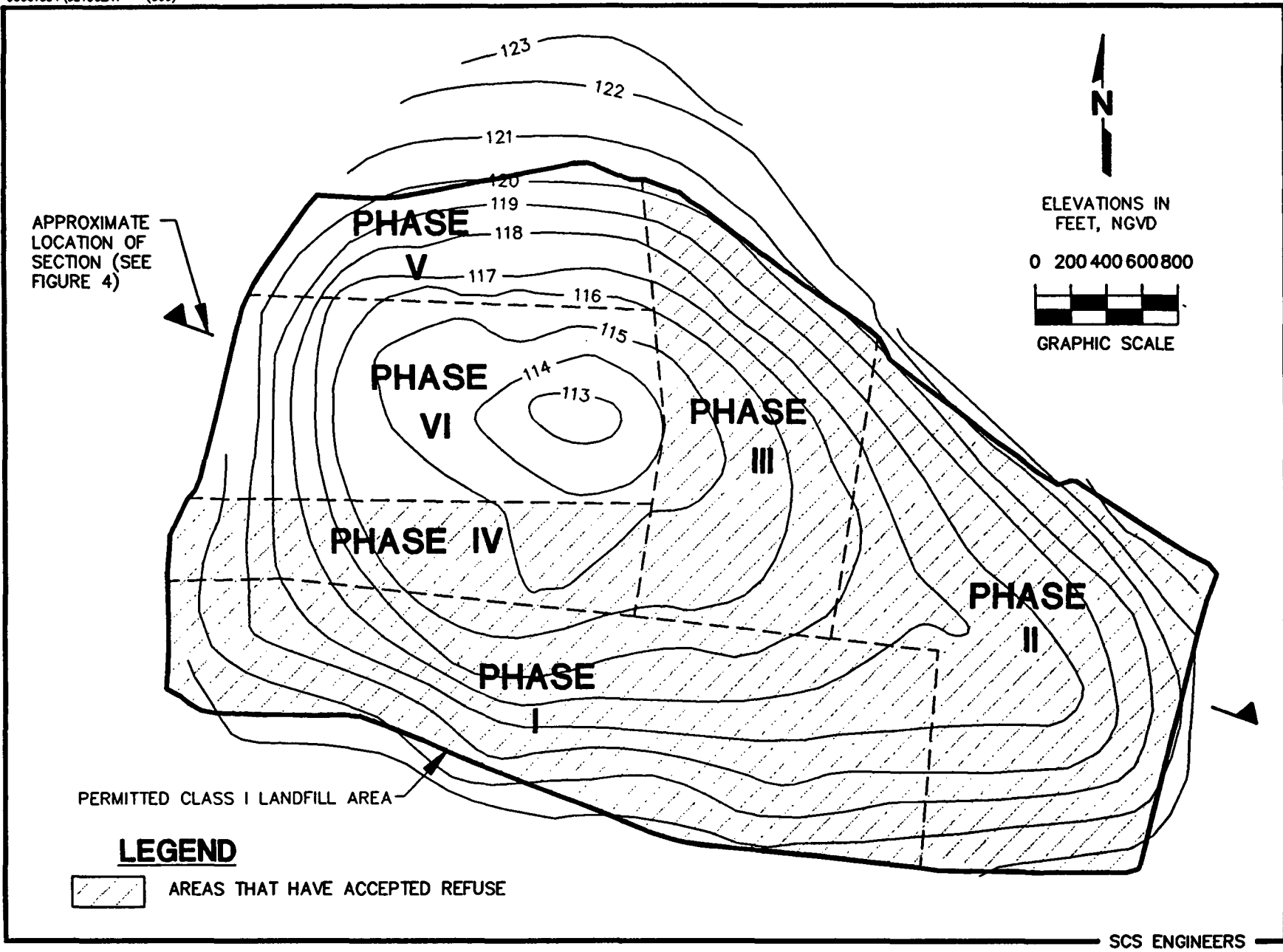
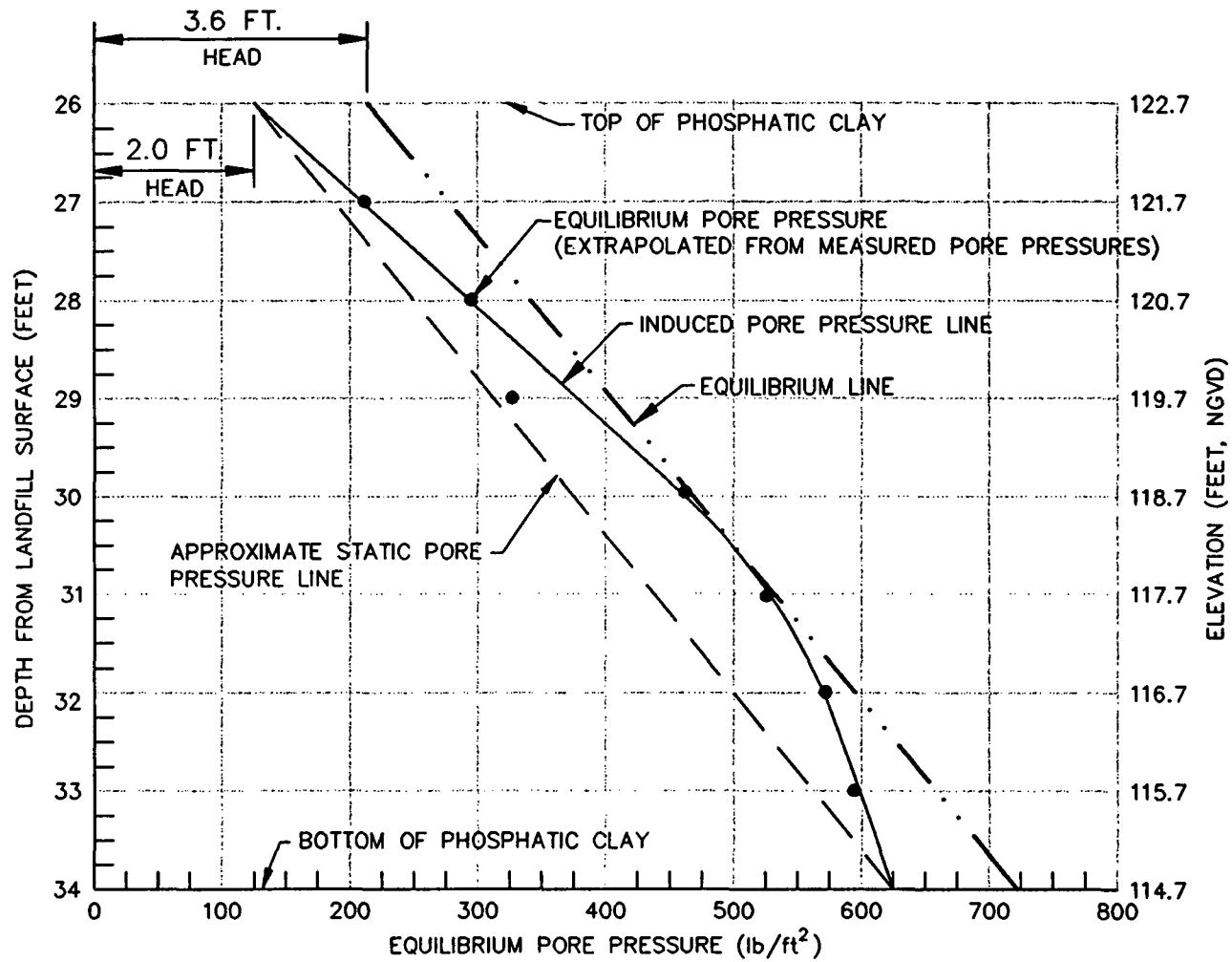


Figure 6. Projected Top of Clay Liner After Settlement.



SOURCE: GEOTECHNICAL INVESTIGATION BY ARDAMAN & ASSOCIATES, INC.  
 DATED MARCH 7, 1994.

SCS ENGINEERS

Figure 7. Pore Pressure Versus Depth Relationship From Piezoprobe Test Results at PP-2.

**ATTACHMENT 2**  
**CONSTRUCTION DELAY NOTIFICATION (JUNE 15, 1993)**

**SCS ENGINEERS**

June 15, 1993  
File No. 0990018.43

Mr. Kim Ford  
Florida Department of Environmental Protection  
4520 Oak Fair Blvd.  
Tampa, Florida 33610-7347

Subject: Permit Number SC29-199393  
Leachate Treatment and Reclamation Facility  
Southeast County Facility, Hillsborough County, Florida

Dear Mr. Ford:

On behalf of the Hillsborough County Department of Solid Waste (HCDSW), SCS Engineers (SCS) hereby notifies the Florida Department of Environmental Protection (FDEP) that construction of the subject project is scheduled to begin within the next month. HCDSW, the Owner, issued Great Monument Construction Company, the Contractor, a Notice-to-Proceed effective June 1, 1993. Actual construction activities are scheduled to begin on or about July 1, 1993.

Specific Condition No. 1 of the permit states that construction shall be completed by December 1, 1993. Please note that with the delay of the construction start date, the estimated construction completion date for the project is August 14, 1994. Accordingly, SCS requests that the FDEP modify this condition to reflect a construction completion date of August 14, 1994.

If you have any questions or if we can be of any assistance, please do not hesitate to call.

Very truly yours,

  
Ken Whitehead, P.E.  
Senior Project Engineer

  
Steven M. Hamilton, R.E.P.  
Project Manager  
SCS ENGINEERS

KW/SMH:kw

cc: Ms. Patricia V. Berry, HCDSW



**ATTACHMENT 3**  
**CONSTRUCTION COMPLETION DATE EXTENSION REQUEST (SEPTEMBER 27, 1994)**

**SCS ENGINEERS**

September 27, 1994  
File No. 0990018.44

Mr. Kim Ford, P.E.  
Florida Department of Environmental Protection  
Southwest District  
Solid Waste Division  
3804 Coconut Palm Drive  
Tampa, Florida 33619

Subject: Leachate Treatment and Reclamation Facility, Southeast County Facility,  
Hillsborough County, Florida, Permit Number SC29-199393


Dear Kim:


The construction permit for the Leachate Treatment and Reclamation Facility (LTRF) expires on December 1, 1994. Specific Condition No. 1 requires that construction activities approved as part of the permit be completed by December 1, 1993. SCS Engineers (SCS) request that the permit expiration date be changed to January 1, 1996. SCS also requests that the construction activities deadline in Specific Condition No. 1 be changed to January 1, 1995. The Hillsborough County Department of Solid Waste (HCDSW) has already forwarded the \$50.00 fee required for a time extension request.

The HCDSW originally hoped to complete construction activities for the LTRF by December 1993, and begin the one year operating and testing period at that time. As we discussed in our letter to you dated June 15, 1993, the project was initially delayed due to an extended bidding process and County related permit review. Construction on the project did not begin until June 1993, which was 9 months after the original planned start date for the project. In addition, several delays during construction have occurred, and as indicated above, we anticipate construction (to include the one year operating and testing period) will be completed by January 1, 1996.

Should you have any questions or comments, please do not hesitate to call.

Very truly yours,

  
Ken Whitehead, P.E.  
Senior Project Engineer  
SCS ENGINEERS

  
Robert B. Gardner, P.E.  
Vice President  
SCS ENGINEERS

RBG/KW/kw

cc: Patricia V. Berry, Hillsborough County Department of Solid Waste





## Leachate Tank Repair Documentation

Lavy took this section  
to include in the permit  
renewal report.

10/25/94

JGZ