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Report
Preliminary Site Assessment
Proposed Elementary School "L" Pond Site
South of Koa Street
Poinciana, Osceola County, Florida
PSI Project No. 757-75048

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March 15, 2007

The School District of Osceola County
817 Bill Beck Boulevard
Kissimmee, Florida 34744

Attention: Ms. Linda Beumel
Facilities Planning Specialist

RE: Report
Preliminary Site Assessment
Proposed Elementary School "L" Pond Site
South of Koa Street
Poinciana, Osceola County, Florida
PSI Project No.: 757-75048

Dear Ms. Beumel:

In accordance with our proposal (PSI Proposal No. 757-7-018R) dated January 19, 2007, Professional Service Industries, Inc. (PSI) has completed a preliminary pond assessment at the site of the referenced project. The subsurface exploration was conducted to provide a preliminary evaluation of the proposed pond on the subject property.

Project Information

The proposed pond is located along the eastern edge of the proposed Elementary School "L" property, which is within the boundary of the future proposed Avatar's Fieldstone residential development in Poinciana, Osceola County, Florida. The subject property is located in Section 11, Township 27 South, Range 28 East, as referred to on the USGS "Lake Tohopekaliga, Florida" quadrangle map. The pond site is approximately 7.5± acres of undeveloped land generally consisting of cleared land with some scattered trees and underbrush. A site plan with the proposed pond location was provided to PSI for our use in preparing this report.

If any of the noted information is incorrect or has changed, PSI should be notified so appropriate modifications can be made to our report.

Scope of Geotechnical Services

The purpose of this study was to obtain information on the subsurface conditions at the proposed pond site. The subsurface materials encountered were evaluated with respect to the available project characteristics. In this regard, preliminary geotechnical engineering recommendations for the proposed pond were formulated.

The following services were provided in order to achieve the preceding objectives:

1. Reviewed readily available published geologic and topographic information. The published information was obtained from the "Lake Tohopekaliga, Florida" quadrangle map published by the United States Geological Survey (USGS) and the "Soil Survey of Osceola County, Florida" published by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS).

2. Executed a program of subsurface sampling and field testing. PSI performed two (2) auger borings to depths of 20 feet within the proposed pond footprint. The borings were staked and labeled after completion for survey control.

3. Visually classified and stratified representative soil samples in the laboratory using the Unified Soil Classification System. Identified soil conditions at each boring location and formed an opinion of the site soil stratigraphy. Performed two laboratory falling-head permeability tests on samples collected in the proposed area.

5. The results of the field exploration and laboratory tests were used in the engineering analysis and in the formulation of our preliminary geotechnical recommendations for the pond. The results of the subsurface exploration, including the recommendations and the data on which they are based, are presented in this report.

PUBLISHED INFORMATION

USGS Quadrangle Map

Based on our review of the USGS quadrangle map entitled "Lake Tohopekaliga, Florida," the natural ground surface elevation in the project vicinity is about +75 feet NGVD. Refer to **Figure 2** for an excerpt of the USGS map of the project area. No site-specific topographic information was provided to us to compare to the USGS data.

SCS Soil Survey

The "Soil Survey of Osceola County, Florida", published by the USDA Soil Conservation Service (SCS), was reviewed for general near surface (i.e. upper 80 inches) soil information in the project vicinity (refer to **Figure 2**). This information indicates that there are two (2) primary mapping units in the area of the proposed pond. A brief summary of the surficial soils mapped by the SCS in the project vicinity are as follows.

Soil Map Unit	USCS Soil Types	USDA High Water Table Depth (feet)
27 – Ona Fine Sand	SP, SP-SM, SM	0 to 1.0
42 – Smyrna Fine Sand	SP, SP-SM, SM	0 to 1.0

FIELD EXPLORATION

General

The approximate locations of the borings are shown on **Sheet 1** in the **Appendix**. The borings were performed in general accordance with the procedures of ASTM D-1452. The soil types encountered at the specific boring locations are presented in the form of soil profiles on **Sheet 2**. Included with the boring profiles is a legend describing the encountered soils in USCS format, laboratory test results, and the measured stabilized groundwater levels recorded in the borings at the time of our fieldwork. The stratification presented is based on visual observation of the recovered soil samples, laboratory testing, and the interpretation of field logs by a geotechnical engineer.

Soil Conditions

In general, the borings disclosed reasonably consistent subsurface conditions at the site. The borings typically encountered a series of fine sands grading relatively clean to slightly silty and silty in composition (i.e. SP, SP-SM, and SM materials) to the boring termination depths. The cleaner sands (i.e. SP and SP-SM materials) were observed in the upper 8 to 12 feet. The silty sands (SM materials) were encountered below this depth. A detailed description of the individual borings is shown on the soil profiles on **Sheet 2** in the **Appendix**.

Groundwater

The measured groundwater table in the borings ranged from about 4 to 5.3 feet below the existing ground surface at the time of our fieldwork. Based on a review of the SCS data, the borings completed for the study, and our past experience, we estimate the normal seasonal high groundwater table to be within 1 foot of the natural ground surface. The normal seasonal low groundwater level is estimated to be approximately 4.5 feet below natural grade.

It should be noted the estimated normal seasonal high groundwater level is not intended to define a limit or ensure that future seasonal fluctuations in groundwater levels will not exceed the estimated levels. Post-development groundwater levels could exceed the estimated normal seasonal high groundwater levels as a result of a series of rainfall events; changed conditions at the site that alter surface water drainage characteristics; and/or variations in duration, intensity, or total volume of rainfall.

Permeability Testing

PSI conducted two laboratory permeability tests on undisturbed soil samples obtained from the locations of PB-1 and PB-2 as depicted on **Sheet 1**. The laboratory tests were completed in a permeameter following standard falling-head procedures. The Shelby tube samples were collected from the upper sands of borings PB-1 and PB-2 at depths of approximately 5 feet below existing grades. The results of our laboratory permeability tests indicate a coefficient of vertical permeability of 8 feet per day and 11 feet per day at the locations of PB-1 and PB-2, respectively. The horizontal coefficient of permeability may be taken as 1.5 times the vertical rate for design purposes.

It should be noted that the coefficient of vertical permeability is not an infiltration rate. The recovery of a given stormwater system is dependent on the soil permeability as well as the groundwater table, pond bottom elevation, pond geometry, confining layer and water level in the pond. We recommend a commercially available computer program such as PONDS or MODRET be used by an engineer experienced in groundwater modeling to evaluate the proposed stormwater system. The system should be designed and constructed in accordance with Water Management District requirements. We recommend an appropriate safety factor be applied to the permeability rate used in the stormwater pond model.

Preliminary Design Recommendation

Based on the results of the soil borings performed and the estimated seasonal high groundwater levels, it is our opinion the site would be best suited for wet-bottom pond design. The proposed ponds should be designed and constructed in accordance with South Florida Water Management District (SFWMD) criteria. The normal water level of a wet pond should be set between the seasonal high and low water levels to minimize water level fluctuation.

LIMITATIONS

Our professional services have been performed, our findings obtained, and our preliminary recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on this data. No other warranties are implied or expressed.

The scope of this investigation was intended to evaluate in a preliminary manner the relatively shallow soil conditions in the proposed pond area and does not include an evaluation of potential deep soil problems such as sinkholes. The analysis and preliminary recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated.

The scope of our services presented herein does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

CLOSURE

PSI appreciates the opportunity to provide our services to the School District of Osceola County on this project. If you have any questions, or if we may be of further service, please contact the undersigned.

Very truly yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.
Certificate of Authorization No. 3684

Andrew F. Wilson, E.I.
Staff Engineer

Robert A. Trompke, P.E.
Geotechnical Department Manager
FL License No. 55456

Jeremy A. Sewell, P.E.
Project Engineer
FL License No. 62951

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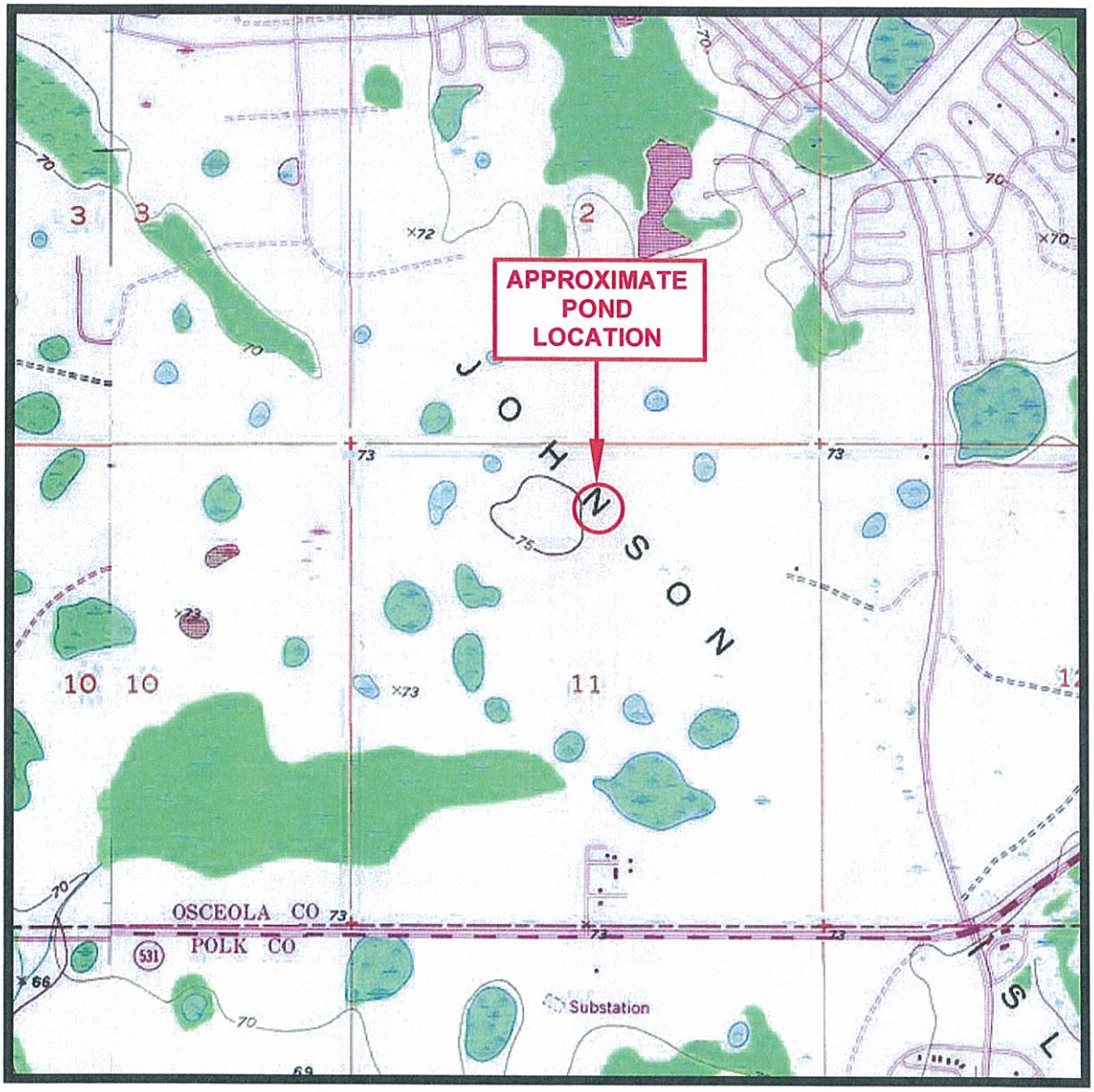
Attachments

- Figure 1 – USGS Map
- Figure 2 – SCS Map
- Sheet 1 – Boring Location Plan
- Sheet 2 – Boring Profiles

APPENDIX



REFERENCE: U.S.G.S. "LAKE TOHOPEKALIGA, FLORIDA" QUADRANGLE MAP
SECTION: 11
TOWNSHIP: 27 SOUTH
RANGE: 28 EAST
ISSUED: 1956
PHOTOREVISED: 1980
SCALE: 1" = 2000'

VICINITY MAP

PROPOSED ELEMENTARY SCHOOL "L" POND
SOUTH OF KOA STREET
POINCIANA, OSCEOLA COUNTY, FLORIDA

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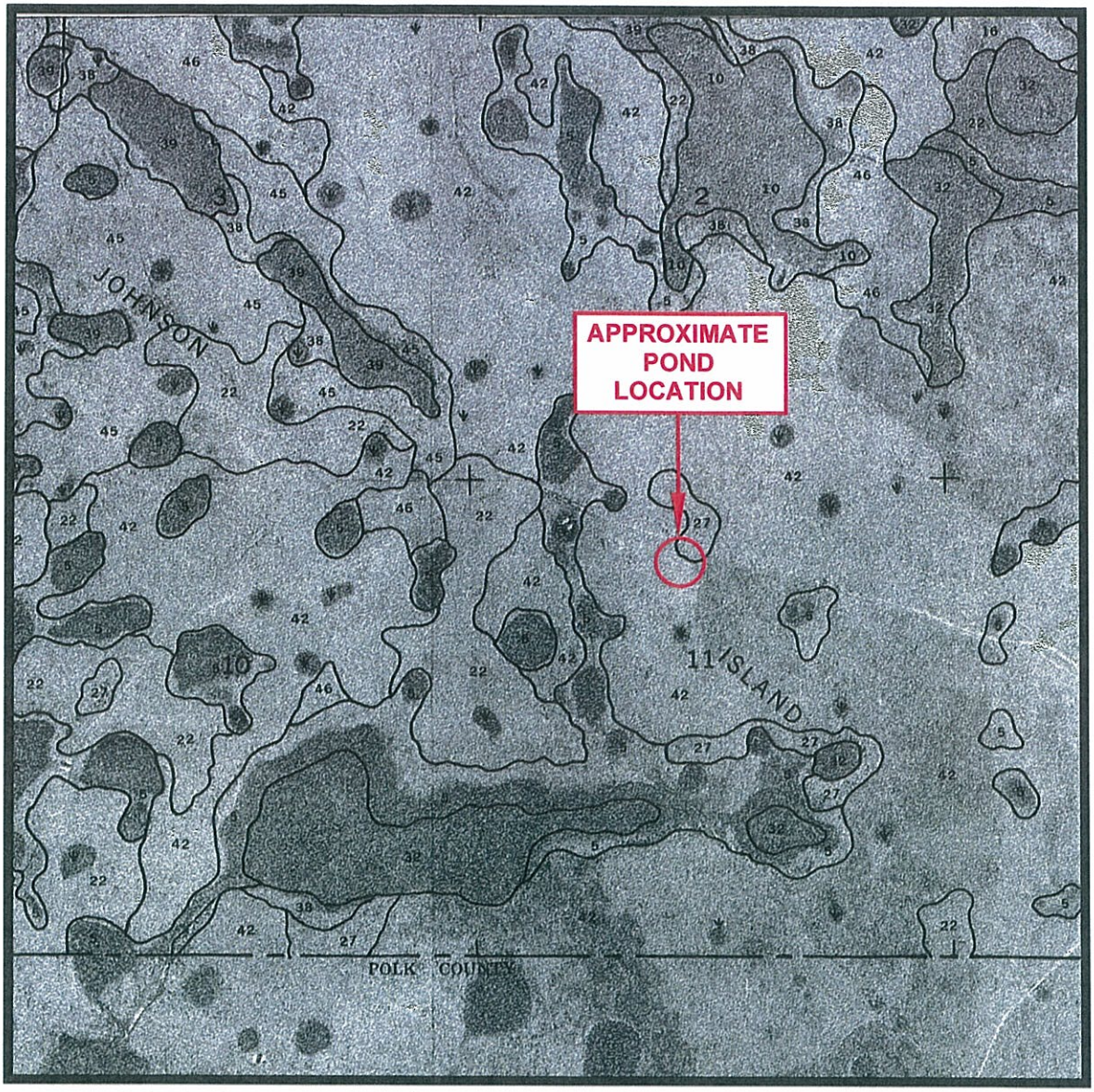
DRAWN:	DJW	SCALE:	NOTED	PROJ. NO:	757-75048
CHKD:	JAS	DATE:	2-27-07	FIGURE:	1



REFERENCE: U.S.D.A.–S.C.S. "OSCEOLA COUNTY, FLORIDA" SOILS MAP

SECTION: 11
TOWNSHIP: 27 SOUTH
RANGE: 28 EAST

ISSUED: APRIL 1979
SCALE: 1"=2000'

SOILS LEGEND

27 ONA FINE SAND

42 SMYRNA FINE SAND

SOILS MAP

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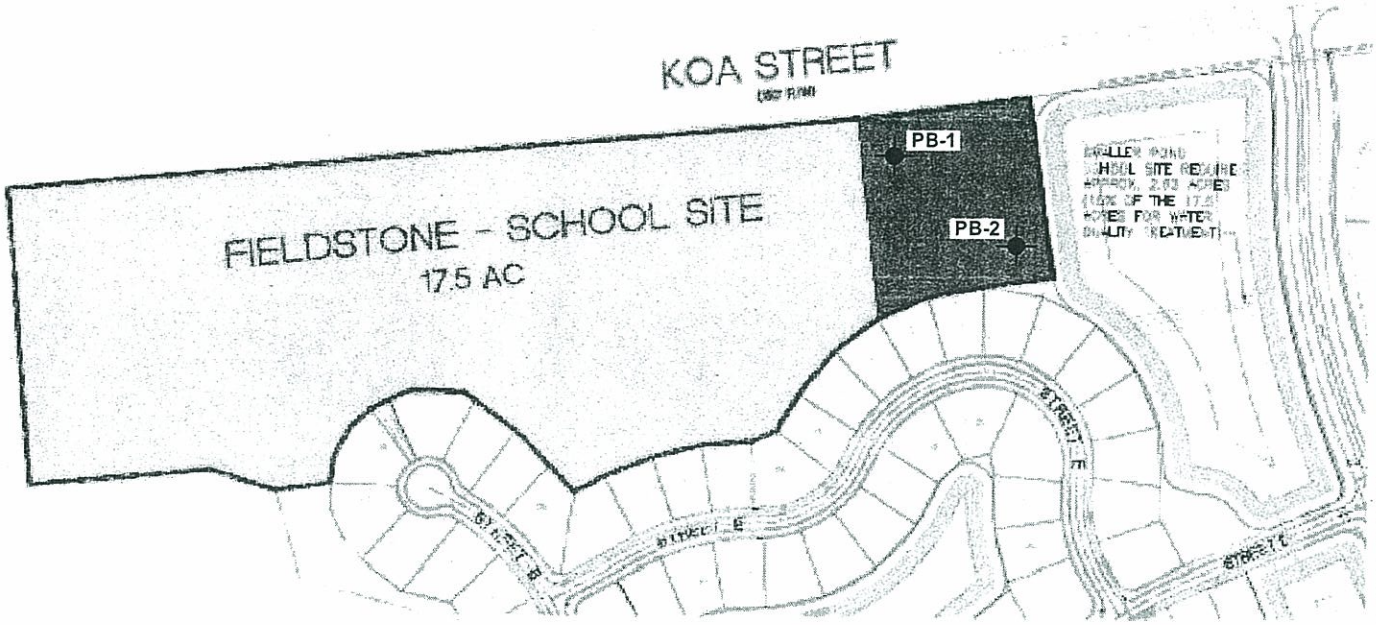

LOCATION PLAN
SCALE: 1"=300'

LEGEND

APPROXIMATE LOCATION OF AUGER BORING

GEOTECHNICAL ENGINEERING SERVICES

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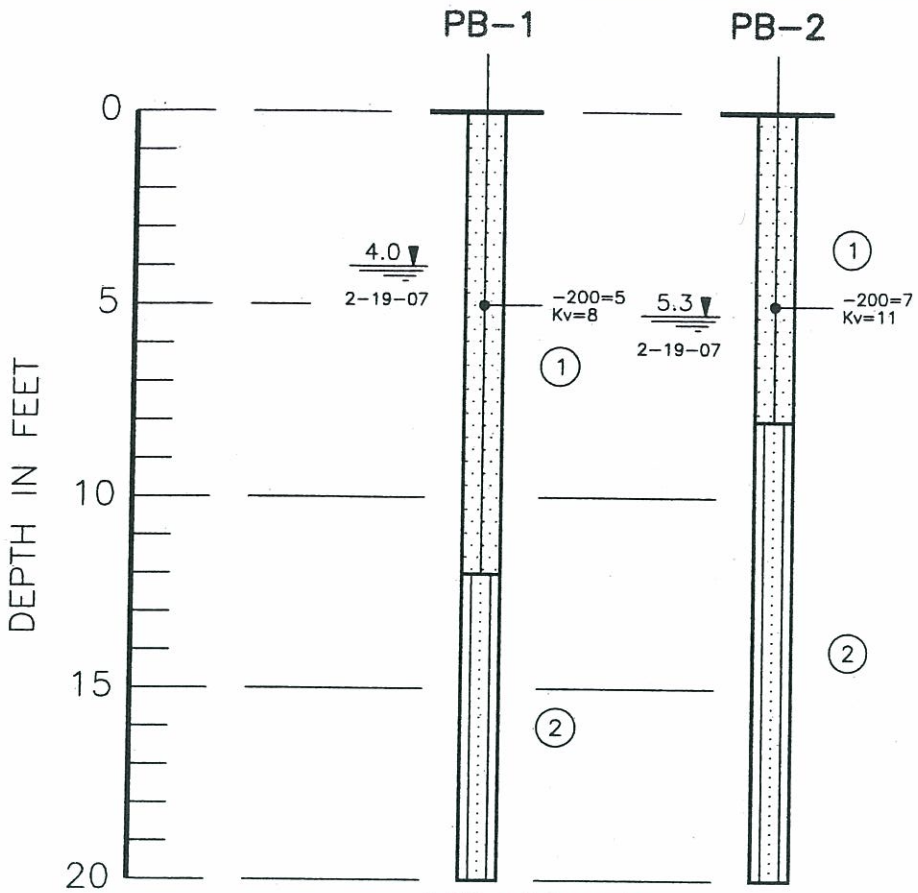

SOIL PROFILES

SCALE: 1"=5'

LEGEND

①	LIGHT BROWN TO DARK BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM)
②	LIGHT BROWN TO ORANGE-BROWN SILTY FINE SAND, (SM)
(SP)	UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
4.0 ▼ 2-19-07	DEPTH TO GROUNDWATER LEVEL IN FEET WITH DATE OF READING
-200	FINES PASSING #200 SIEVE IN PERCENT
Kv	COEFFICIENT OF VERTICAL PERMEABILITY IN FEET PER DAY

GEOTECHNICAL ENGINEERING SERVICES

PROPOSED ELEMENTARY SCHOOL "L" POND
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