HEART HOUSE COMMUNITY CHURCH

CLERMONT

STORMWATER REPORT

prepared by:

350 North Sinclair Avenue ◆ Tavares, Florida 32778 ◆ Lake County
Phone (352) 343-8481 ◆ Fax (352) 343-8495
info@besandh.com ◆ www.besandh.com

111634-1

Contract No. 061108.0000 June, 2007

HEART HOUSE COMMUNITY CHURCH
JUNE, 2007
BESH #061108.0000

Booth, Ern, Straughan & Hiott, Inc.
350 North Sinclair Avenue
Tavares, Florida 32778
(352) 343-8481 - PH
(352) 343-8495 - FX

JUN 07 2007

Charles C. Hiott, P.E. #54813

111634-1

Stormwater Report
for
Heart House Ministries

Introduction

The project has a project area of 3.920 acres which consist of the construction of a building, parking lot, and a stormwater system. The project also has offsite drainage of 2.622 acres. Therefore the total drainage acreage for the project is 6.542 acres. The project is located south of Johns Lake Road and east of Hancock Road in Section 33, Township 22 south, Range 26 east.

The proposed development is comprised of 1 basin (P-1). The existing condition E-1 has a drainage area of 6.542 acres and drains towards the north edge of the property. In the proposed condition, basin P-1 has a drainage area of 6.542 acres (1.900 Ac. impervious), which consists of a parking lot, building, sidewalk, and a stormwater system. The stormwater for this project will be retained using a retention pond.

This application is for a 40C-42 permit, as the project is less than 40 acres, and has less than 12 acres total impervious. The requirement for 40C-42 is for the pond to hold the pollution abatement volume and to recover that volume in 72 hours, and for the total pond volume to recover in 14 days.

Since the pond holds the pollution abatement volume, and recovers in the stated timeframe, the criteria has been met. The recovery calculations were performed using the program PONDS Version 2.26.

The soils map shows Candler sand (AtB, AtD, SCS Type A) onsite. The project is not located within a 100 year flood zone (12069C0565D). There are no wetlands onsite.

Water Quality Requirement

Under the regulation for dry ponds, the required pollution abatement volume for the project area is ½ inch of runoff over the entire drainage area, or 1.25 inches times the impervious area (which ever is greater) plus ½ inch of runoff over the entire drainage area.

Dry Retention Basin P-1

The pollution abatement volume will be provided in the retention pond.

The pollution abatement volume required by St. Johns River Water Management District is:

Total area = 6.542 Ac.
Pervious area = 4.642 Ac.
Impervious area = 1.900 Ac.

(0.5"/12"/ft)*6.542 = 0.273 Ac-Ft
OR
(1.25"/12"/ft)*1.900 = 0.198 Ac-Ft

Impervious Area
Parking = 1.423 acres
Building = 0.455 acres
Sidewalk = 0.022 acres
Total Impervious = 1.900 acres

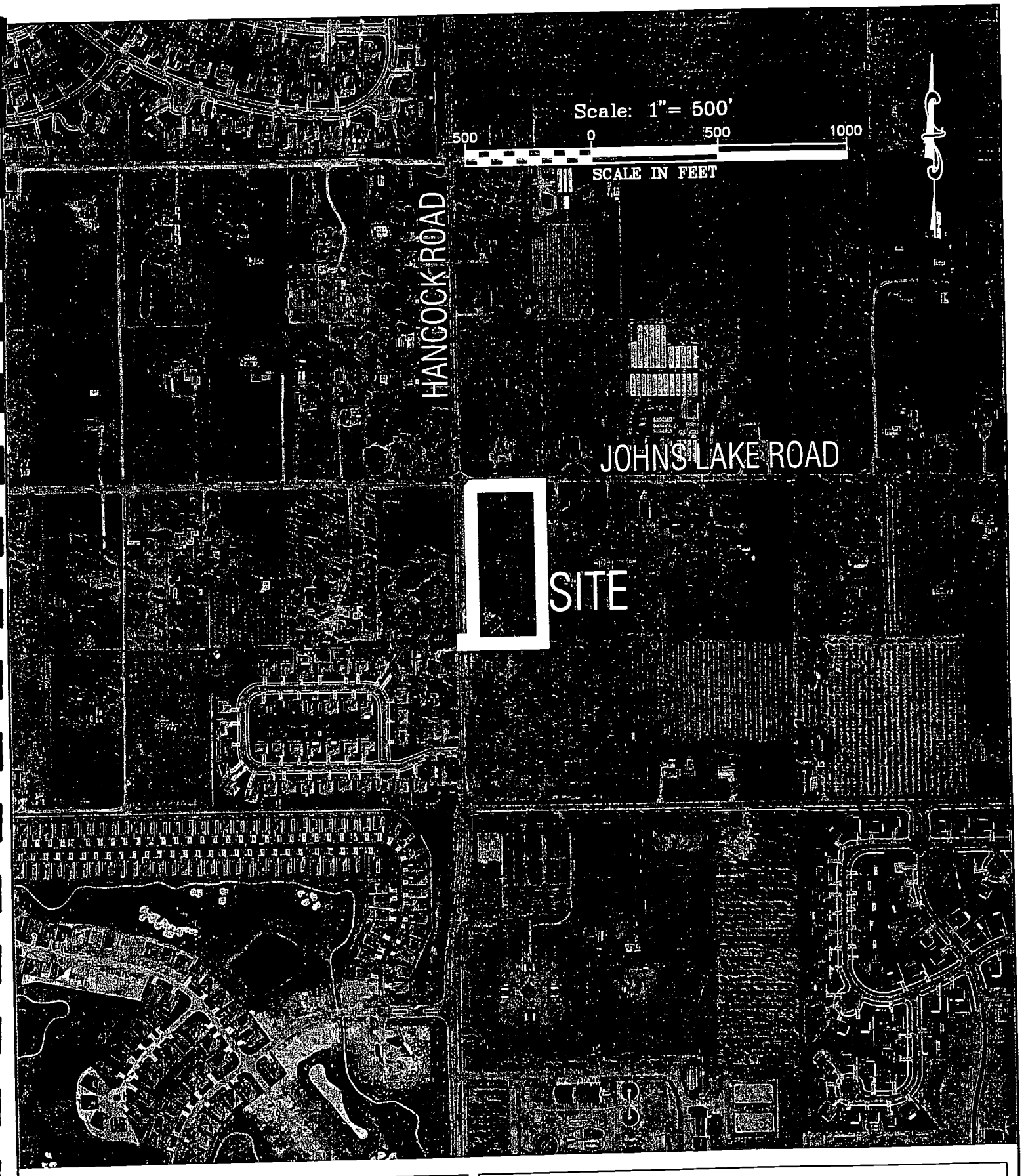
Therefore, St. Johns River Water Management District pollution abatement volume required is 0.273 + 0.273 = 0.546 Ac-Ft = 23,784 Cu.Ft.
Volume Provided = 0.724 Ac-Ft = 31,537 Cu.Ft.

Pollution Abatement Volume Recovery occurs in 0.47 days, or 11.28 hours.
Full Volume Recover occurs in 0.62 days.

Storage

Pond P-1	Stage (Ft)	Area (Ac)	Vol (Ac-ft)	Cu.Vol (Ac-ft)
	206	0.037	0	0
	207	0.072	0.055	0.055
	208	0.114	0.093	0.148
	209	0.163	0.139	0.287
	210	0.217	0.190	0.477
	211	0.277	0.247	0.724

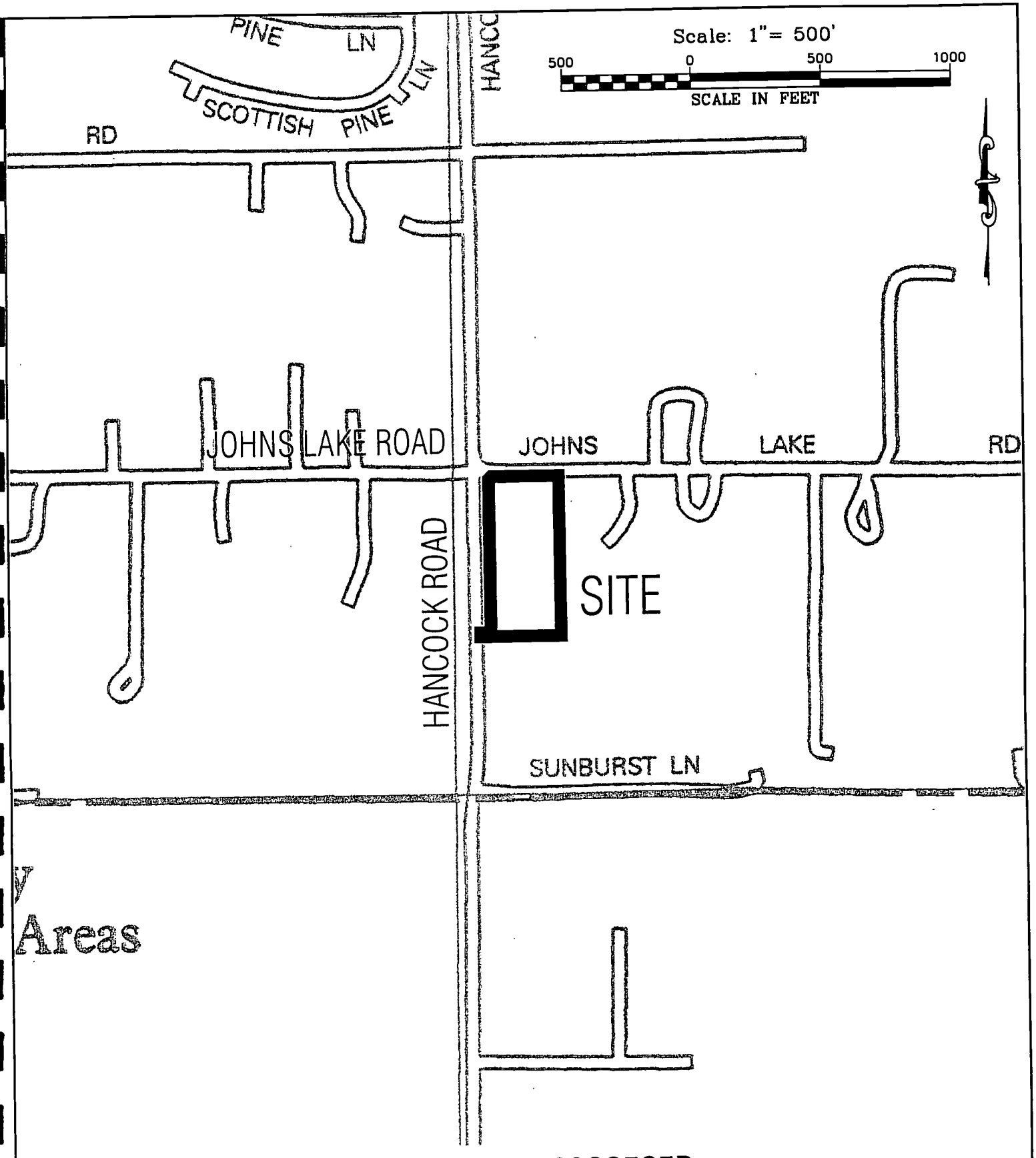
CN = (98(1.900) + 39(4.642)/6.542 = 56.13



HEART HOUSE MINISTRIES

AERIAL MAP

BESH
BOOTH ERN STRAUGHAN HOTT
ENGINEERS • SURVEYORS • LAND PLANNERS
350 North Sinclair Ave.
Tavares, Florida 32778
www.besandh.com
Office: 352.343.8481
Fax: 352.343.8495
Certificate of Authorization Number: 27029

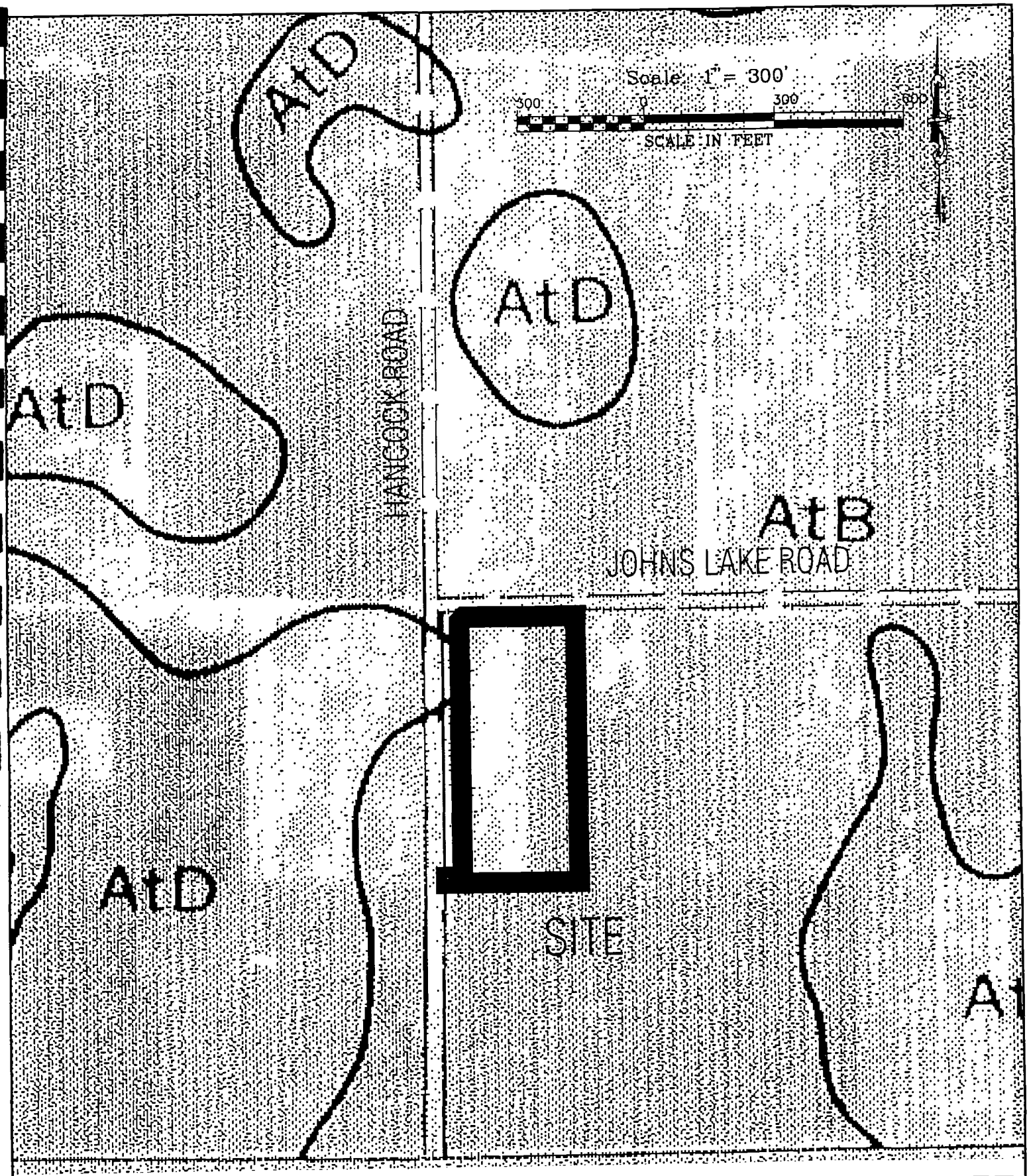


FLOOD PANEL #12069C0565D

HEART HOUSE MINISTRIES

FLOOD MAP

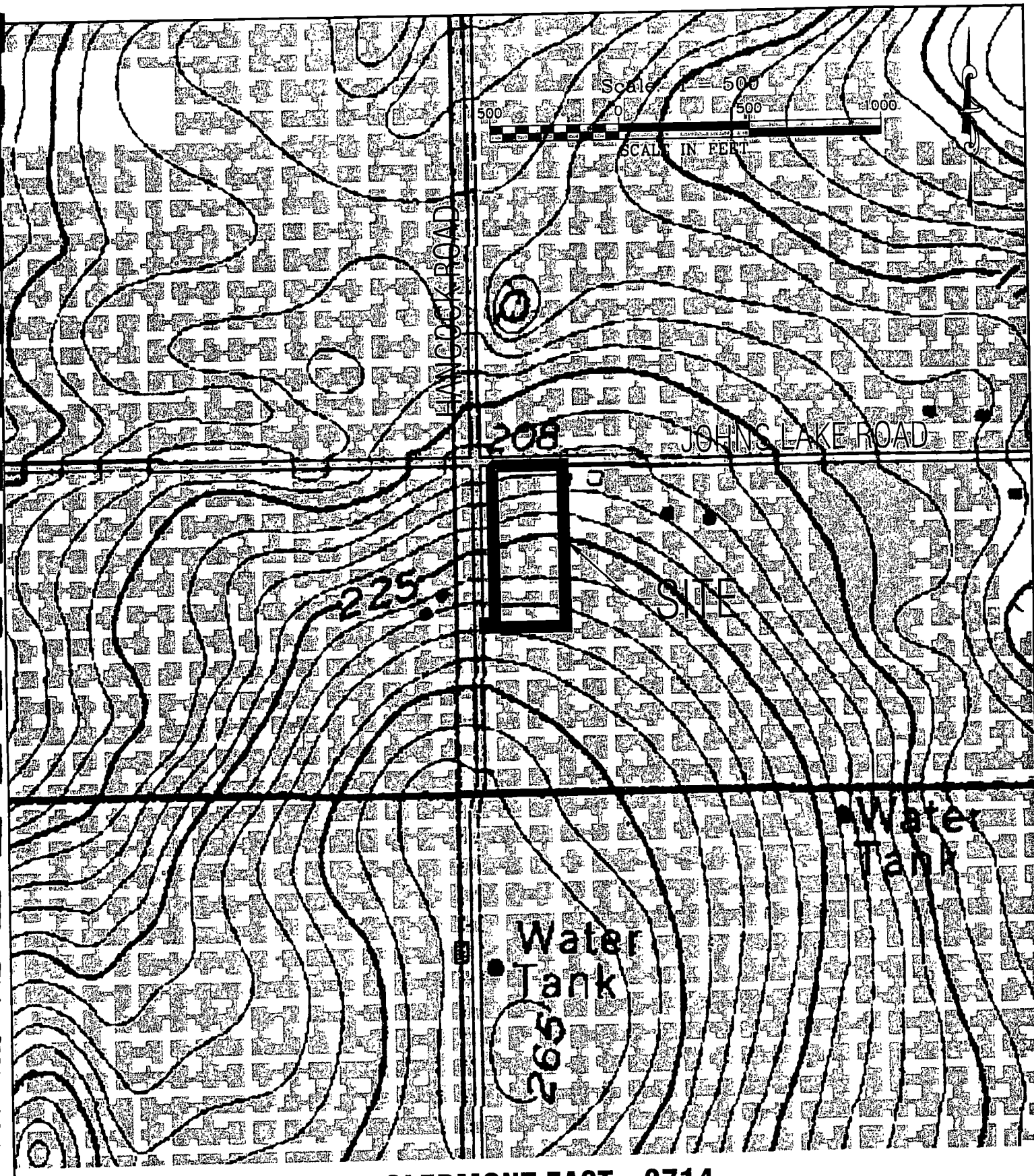
BESH
BOOTH ERN STRAUGHAN HOTT
ENGINEERS • SURVEYORS • LAND PLANNERS
350 North Sinclair Ave.
Tavares, Florida 32778
www.besandh.com
Office: 352.343.8481
Fax: 352.343.8495
Certificate of Authorization Number: 27029



HEART HOUSE MINISTRIES

SOILS MAP

BOOTH ERN STRAUGHAN HOTT
ENGINEERS • SURVEYORS • LAND PLANNERS
350 North Sinclair Ave.
Tavares, Florida 32778
www.besandh.com
Office: 352.343.8481
Fax: 352.343.8495
Certificate of Authorization Number: 27029



CLERMONT EAST - 3714

HEART HOUSE MINISTRIES

USGS MAP

BESH
BOOTH ERN STRAUGHAN HIOTT
ENGINEERS • SURVEYORS • LAND PLANNERS
350 North Sinclair Ave.
Tavares, Florida 32778
www.besandh.com
Office: 352.343.8481
Fax: 352.343.8495
Certificate of Authorization Number: 27029

Pond 1

Top of pond (ft)=	211.00
Top of Discharge(ft) =	211.00
Bottom of pond (ft)=	206.00
Pond Volume below discharge (ft^3)=	31,537
Pond Perimeter at discharge (ft) =	675
Pond Height (ft) =	5

$$L = \frac{\frac{P}{2} + \sqrt{\frac{P^2}{4} - \frac{4 \times V}{h}}}{2}$$

Effective Length = [P/2 +({P^2}/4 - {4 x V}/h)^0.5)]/2
= 318 ft

$$W = \frac{\frac{P}{2} - \sqrt{\frac{P^2}{4} - \frac{4 \times V}{h}}}{2}$$

Effective Width = [P/2 +({P^2}/4 - {4 x V}/h)^0.5)]/2
= 20 ft

PONDS - Version 2.26

Written By Devo Seereeram, Ph.D., P.E.
And Robert D. Casper

Retention Pond Recovery Analysis

I. Job Information

Job Name: HEART HOUSE CHURCH ABATEMENT VOLUME
Engineer: CHARLES C. HIOTT
Date: 6-6-07

II. Input Data

Equivalent Pond Length, [L] (ft):	318.00
Equivalent Pond Width, [W] (ft):	20.00
Pond Bottom Elevation, [PB] (ft above datum):	206.00
Porosity Of Material Within Pond, [p] (%):	100.00
Base Of Aquifer Elevation, [B] (ft above datum):	180.00
Water Table Elevation, [WT] (ft above datum):	181.00
Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day)	18.50
Fillable Porosity of Aquifer, [n] (%):	20.00
Vertical Unsaturated Infiltration, [Iv] (ft/day):	8.00
Runoff Volume, [V] (cubic feet)	23784.00
Percent Recovery Of Runoff Volume, [PV] (%)	100.00

III. Results

UNSATURATED FLOW

Recovery Time From Unsaturated Flow, [T1] (days):	0.4675
Recovered Volume From Unsaturated Flow, [V1] (ft^3):	23784.00

SATURATED FLOW

Recovery Time From Saturated Flow, [T2] (days):	0.0000
Recovered Volume From Saturated Flow, [V2] (ft^3):	0.00
Maximum Radius Of Influence, [R] (ft):	0.00
Maximum Driving Head, [Hmax] (ft):	0.000
Minimum Driving Head, [Hmin] (ft):	0.000

TOTAL

Total Recovery Time, [T] (days):	0.4675
Total Recovered Volume, [V] (ft^3):	23784.00

PONDS - Version 2.26

Written By Devo Seereeram, Ph.D., P.E.
And Robert D. Casper

Retention Pond Recovery Analysis

I. Job Information

Job Name: HEART HOUSE CHURCH TOTAL VOLUME
Engineer: CHARLES C. HIOTT
Date: 6-6-07

II. Input Data

Equivalent Pond Length, [L] (ft):	318.00
Equivalent Pond Width, [W] (ft):	20.00
Pond Bottom Elevation, [PB] (ft above datum):	206.00
Porosity Of Material Within Pond, [p] (%):	100.00
Base Of Aquifer Elevation, [B] (ft above datum):	180.00
Water Table Elevation, [WT] (ft above datum):	181.00
Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day)	18.50
Fillable Porosity of Aquifer, [n] (%):	20.00
Vertical Unsaturated Infiltration, [Iv] (ft/day):	8.00
Runoff Volume, [V] (cubic feet)	31537.00
Percent Recovery Of Runoff Volume, [PV] (%)	100.00

III. Results

UNSATURATED FLOW

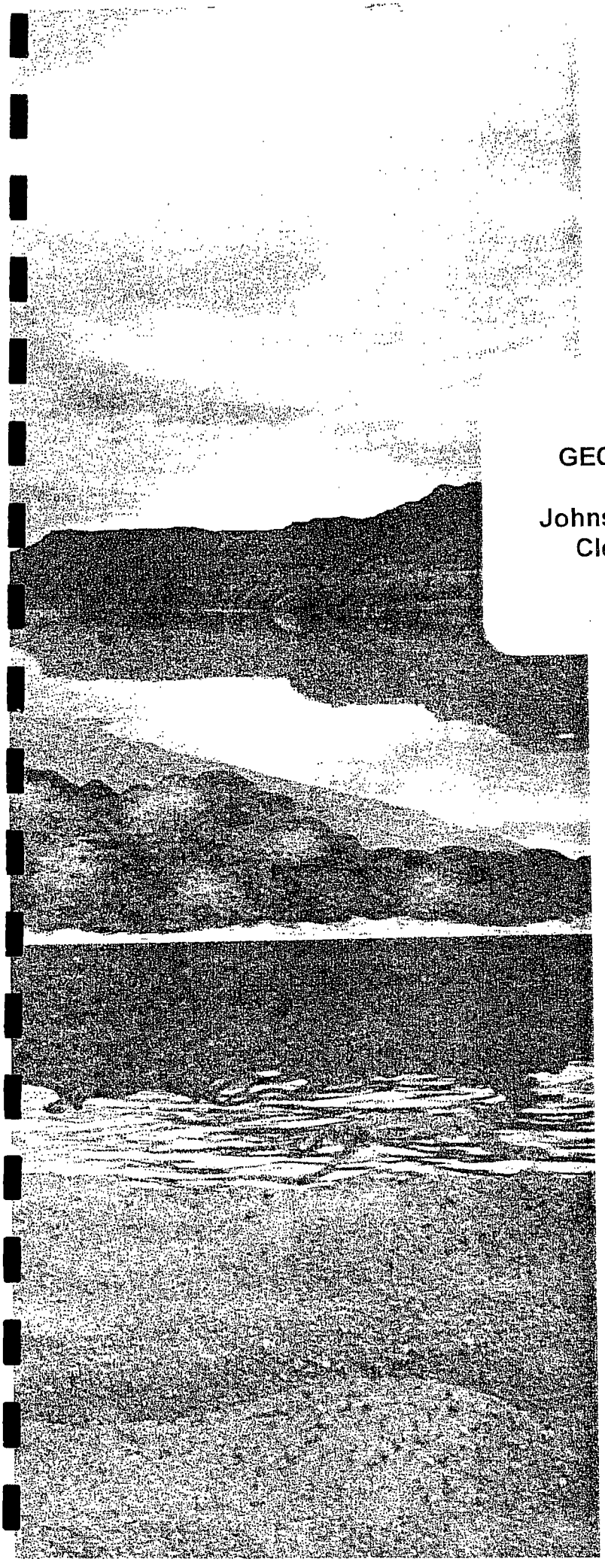
Recovery Time From Unsaturated Flow, [T1] (days):	0.6198
Recovered Volume From Unsaturated Flow, [V1] (ft^3):	31537.00

SATURATED FLOW

Recovery Time From Saturated Flow, [T2] (days):	0.0000
Recovered Volume From Saturated Flow, [V2] (ft^3):	0.00
Maximum Radius Of Influence, [R] (ft):	0.00
Maximum Driving Head, [Hmax] (ft):	0.000
Minimum Driving Head, [Hmin] (ft):	0.000

TOTAL

Total Recovery Time, [T] (days):	0.6198
Total Recovered Volume, [V] (ft^3):	31537.00



GEOTECHNICAL INVESTIGATION
Heart House Church
Johns Lake Road and Hancock Road
Clermont, Lake County, Florida

Andreyev Engineering, Inc.

- ▼ *Groundwater*
- ▼ *Environmental*
- ▼ *Geotechnical*
- ▼ *Materials Testing*

Andreyev Engineering, Inc.

CLERMONT OFFICE
1170 W. Minneola Avenue
Clermont, Florida 34711
352-241-0508
Fax: 352-241-0977

▼ Groundwater ▼ Environmental ▼ Geotechnical ▼ Construction Materials Testing

March 9, 2007
Project No. CPGT-07-036

TO: **Heart House Church**
1203 W. Hwy 50
Clermont, Florida 34711
Attention: Pastor Danny Hartzog

SUBJECT: **Geotechnical Investigation,** Heart House Church, Johns Lake Road and Hancock Road, Clermont, Lake County, Florida

Dear Pastor Hartzog:

In accordance with your request, Andreyev Engineering, Inc. has completed a geotechnical investigation and a retention area investigation for the proposed development referenced above. Our investigations consisted of soil and groundwater investigations and evaluations of the proposed 18,000 SF church building area, paved parking and roadway areas and storm water retention areas. The following report presents the results of our investigations, including results of soil and groundwater investigations, evaluations and geotechnical recommendations for design of the building foundation system, retention area and pavement section.

PROJECT DESCRIPTION

The subject property is located immediately southeast of the intersection of Johns Lake Road and Hancock Road in Section 34, Township 22S, Range 26E, Clermont, Lake County, Florida. The property is composed of approximately 4.5 acres of mostly undeveloped land with an existing single-story residence located in the southwestern portion of the property. Based on the topographic survey, the ground elevation on the property ranges from approximately +210 ft-NGVD to +240 ft-NGVD. A vicinity map showing the layout of the development is presented on the attached **Figure 1**.

PURPOSE AND SCOPE OF INVESTIGATION

The purposes of this study were to explore subsurface conditions at the proposed structure, stormwater retention areas and parking and roadway area, and provide recommendations for design and construction of the foundation system, retention ponds and pavement section. To accomplish this purpose, the following tasks were performed:

- Reviewed the available published data regarding the vicinity of the site including the U.S.G.S. topographic survey and the S.C.S. Soil Survey of Lake County, Florida.

- Drilled three (3) Standard Penetration Test borings to a depth of 30 feet within the proposed structure.
- Drilled four (4) auger borings to a depth of 7 feet along the proposed roadway and parking areas.
- Drilled two (2) auger borings to a depth of 15 feet within the proposed retention areas.
- Installed two (2) piezometers and conducted two (2) field permeability tests to determine the horizontal hydraulic conductivity of the soils underlying the retention areas.
- Conducted a visual classification of all collected soil samples and perform laboratory classification tests (moisture and -200) on select soil samples.
- Assessed the suitability of the site soils for construction of the proposed building. Recommendations will be provided on foundation design, bearing capacity and minimum bearing dimensions for footings.
- Prepared a geotechnical report including results of soil investigations in profile form, evaluation of encountered conditions, and geotechnical recommendations for use in design and incorporation into the project construction plans.

SCS SOIL SURVEY

The "Soil Survey of Lake County, Florida" published by the U.S. Department of Agriculture Soil Conservation Service (S.C.S.) was reviewed. The shallow soil types identified at the site are as follows:

- Candler (Astatula) sand, 0 to 5 percent slopes (AtB, 13). This soil is nearly level to gently sloping, excessively drained soil. The seasonal high groundwater table is at a depth of 72 inches or more. The permeability of Candler soil is very rapid in the surface and subsurface layers and moderately rapid in the subsoil. The hydrological group for Candler soil, 0 to 5 percent slopes is "A".
- Candler (Astatula) sand, 5 to 12 percent slopes (AtD, 15). This soil is gently to moderately sloping, excessively drained soil. The seasonal high groundwater table is at a depth of 72 inches or more. The permeability of Candler soil is very rapid in the surface and subsurface layers and moderately rapid in the subsoil. The hydrological group for Candler soil, 5 to 12 percent slopes is "A".

The attached **Figure 2** shows the subject property superimposed in the SCS Survey.

INVESTIGATION AND RESULTS

Soil Conditions

The test borings were drilled in February 2007. The boring locations are presented on **Figure 3** and the results of the borings are shown in profile form on **Figure 4**. Laboratory test results are shown at the appropriate depths adjacent to the profiles. Horizontal lines designating the interface between different materials on the profiles represent approximate boundaries. The transition between layers is typically gradual.

In general, the soils encountered in the borings consisted of a surficial layer of yellowish-brown to brown fine sand to depths of approximately 1.0 to 6.0 feet followed by brownish-yellow to reddish-yellow fine sand from 1.0 to 28.5 feet. The borings then encountered pale brown fine sand to the depth of termination at 30 feet.

Based on the SPT-N values, the soils were found to be in a generally loose state from the surface to a depth of approximately 10 feet then the soils became medium dense to the depth of termination at 20 feet.

Groundwater Conditions

The groundwater table was not encountered to the maximum depth of 30 feet below existing grade. The results of the groundwater table measurements are indicated adjacent to the associated soil profiles on **Figure 4**. Based on the observed soil conditions, SCS soil type and groundwater measurements the seasonal high groundwater table is estimated to be over 30 feet below existing grade.

Hydraulic Conductivity Test Results

Based on the test results, the saturated horizontal hydraulic conductivity is 27.0 feet per day at PB-1 and 41.1 feet per day at PB-2 in the water retention areas. The results of the hydraulic conductivity tests are presented adjacent to the soil profiles and at the tested depths on **Figure 4**.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the results of this investigation and our evaluation of the encountered subsurface conditions, it is our opinion that the property is generally suitable for the construction of the proposed development. No unsuitable conditions such as buried debris or excessively loose soils were found to the maximum boring depth.

Foundation Support

Using the results of soil borings and density readings, a foundation support analysis was conducted for the proposed building. Based on our evaluation of potential site densification improvements and analysis of foundation settlement tolerances, we conclude that the proposed structure can be supported on a conventionally designed shallow foundation system. Detailed recommendations for site soil preparation and minimum compaction efforts are included in **Attachment A** of this report. The recommendations in **Attachment A** must be strictly followed and a geotechnical engineer must be present during site soil preparation and densification efforts to assure that the soils are properly prepared and compacted.

Provided that the site soils have been properly prepared and compacted, as specified in this report, both of the proposed structures can be supported on conventional shallow foundations (i.e. shallow spread footers, isolated column footers and/or monolithic slab), sized on the basis of an allowable soil contact pressure of 2,000 pounds per square foot (psf).

For isolated column footings, a minimum footing width of 3 feet should be provided. For continuous load bearing wall footings, a minimum footing width of 2 feet should be provided. The bottom of individual column footings, if any, should be placed at a minimum of 24 inches below the lowest adjacent finished grade. The bottom of continuous wall footings should be placed a minimum of 20 inches below the lowest adjacent finished grade.

Water Retention Area

Based on the results of this investigation, the area for the retention system is underlain by well drained, highly permeable fine sand soils to a depth of 30 feet. The groundwater table was not encountered to the maximum boring depth.

These conditions are considered suitable for design of a dry retention ponds. If dry retention is selected, infiltration and recovery analysis must be performed for the subject ponds. For this purpose we recommend utilizing the shallow aquifer soil and groundwater parameters presented below.

Pond 1 (PB-1)

Estimated Average Ground Elevation at Borings (ft-NGVD)	209
Estimated Average Elevation of Confining Layer (ft-NGVD)	179
Estimated Average Elevation of Seasonal High Groundwater Table (ft-NGVD)	180
Horizontal Saturated Permeability (ft/day)	15
Vertical Unsaturated Permeability (ft/day)	7
Soil Storage Coefficient	0.2

Pond 2 (PB-2)

Estimated Average Ground Elevation at Borings (ft-NGVD)	211
Estimated Average Elevation of Confining Layer (ft-NGVD)	181
Estimated Average Elevation of Seasonal High Groundwater Table (ft-NGVD)	182
Horizontal Saturated Permeability (ft/day)	22
Vertical Unsaturated Permeability (ft/day)	9
Soil Storage Coefficient	0.2

Factors of safety have been assigned to the horizontal saturated and vertical unsaturated hydraulic conductivity values. Additional factors of safety are not required.

Pavement Design

In general, the existing shallow subsurface soils are considered suitable for support of a flexible (limerock), semi-flexible (soil-cement), or rigid (concrete) type pavement base after subgrade preparation. The use of one system over another is normally governed by the depth to the encountered and/or seasonal high groundwater table. Soil cement is typically used in areas where groundwater levels are within 1.5 feet of the proposed bottom of the base course. For this site the groundwater table is sufficiently deep so that any of the 3 pavement options are available. Limerock base would be the most practical alternative for this site.

The recommended minimum pavement sections are as follows:

Soil-Cement Base

- 1-1/2" asphaltic concrete wearing surface
- 6" soil-cement base designed and constructed in accordance with current Portland Cement Association recommended methods. Minimum 7 day compressive strength of 300psi.
- 12" subgrade consisting of free draining natural fine sand or fine sand fill. Subgrade to be compacted to a minimum density of 95 percent of the Modified Proctor Maximum Density (AASHTO T-180).

Limerock Base

- 1-1/2" asphaltic concrete wearing surface
- 6" limerock base course. quality of limerock to be in accordance with current Florida Department of Transportation specifications and compacted to a minimum density equivalent to 95 percent of the Modified Proctor (AASHTO T-180).
- 6" stabilized subbase with minimum Florida Bearing Value (FBV) of 50 PSI or (LBR) of 40 percent. The subbase should be compacted to a minimum density equivalent to 95 percent of the Modified Proctor Maximum Density (AASHTO T-180) for a depth of 1 foot below pavement subgrade.

Concrete

- 6" Portland Cement - designed and constructed in accordance with current Portland Cement Association recommended methods with a minimum compressive strength of 3,000 PSI. Provide contraction joints at a maximum spacing of 12 feet.
- 12" subgrade consisting of free draining natural fine sand or fine sand fill. Subgrade to be compacted to a minimum density of 95 percent of the Modified Proctor Maximum Density (AASHTO T-180).

Asphaltic wearing surface for the flexible and semi-flexible sections typically consists of Type S-1 or S-3, meeting current Florida Department of Transportation specifications. The wearing surface should be compacted to a minimum density of 95 percent of the Laboratory Density as determined by the Marshall Stability Test method for the approved job mix formula.

The recommendations presented above are minimum assuming normal light passenger car and pick-up truck traffic with occasional garbage or delivery trucks. Traffic should not be allowed on the subgrade prior to placement of the base to avoid rutting. The final pavement thickness design should be checked by the project civil engineer using data contained in this report and anticipated traffic conditions.

CLOSURE

We appreciate the opportunity to participate in this project and we trust that the information presented herein is sufficient for your immediate needs. Should you have any questions or comments concerning the contents of this report, please do not hesitate to contact the undersigned.

Sincerely,

ANDREYEV ENGINEERING, INC.

John E. Dye
Project Geologist

T. Scott Cavin, P.E.
Vice President
FL Registration No. 48125

ATTACHMENTS

ATTACHMENT A

Preparation of the foundation soil should proceed in a conventional manner, consisting of excavation or filling to the foundation elevation and densification of the soils. The foundation soils should be firm and unyielding. The following are our recommendations for overall site preparation work and mechanical densification. These recommendations, parts of which may be incorporated in the project general specifications, are made as a guide for the design engineer.

1. Clear and grub the structural footprint area, including a minimum perimeter margin of 10 feet, by removing any vegetation as well as any rubble, buried piping, etc.

2. The stripped ground should be thoroughly moistened to a damp condition with an ample supply of water and then compacted with overlapping passes of a large self-propelled vibratory drum roller or equivalent. The vibratory drum roller should have a minimum static drum weight of 20,000 lbs. and should be capable of exerting a minimum impact energy of 36,000 lbs. (DYNAPAC CA-25 or equivalent should provide acceptable results). Careful observations should be made during proof rolling of the over excavated subgrade area to identify any areas of soft yielding soils that may require over-excavation and replacement.

3. The compaction effort described above should be continued until a density equivalent to 95 percent of the Modified Proctor maximum dry density (ASTM D-1557) has been achieved for a minimum depth of 2 feet below the stripped ground.

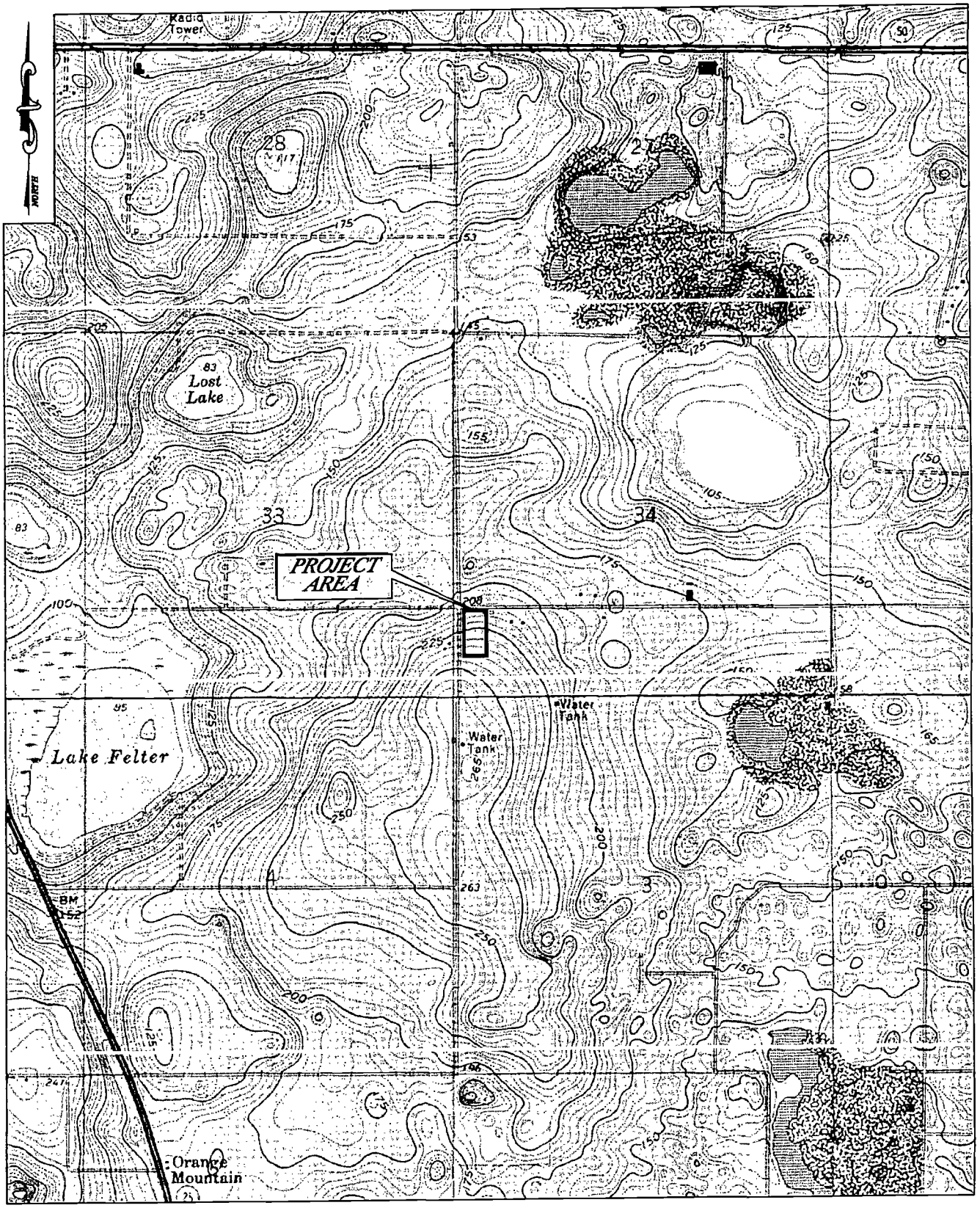
4. Any fill placement should be in maximum 12 inch loose lifts and should be compacted to 95 percent of the Modified Proctor maximum dry density between successive lifts. Silty and clayey sand materials should not be placed below structures and pavement areas.

5. If silty soils are exposed during mass grading and/or footer excavation, these soils should be overexcavated to a depth of 2 feet below the bottom of footers or slab. The overexcavated soil should then be replaced with clean fine sand having a maximum fines content of 8 percent passing the no. 200 sieve. The backfill should be placed in 8 inch maximum lifts and compacted to 95 percent of the Modified Proctor between each lift.

6. All backfill soils placed adjacent to footings or walls below grade should be carefully compacted with a light rubber-tired roller or vibratory plate compactor to avoid damaging the footings or walls. Approved sand fills placed in pipeline excavations should be placed in loose lifts not exceeding 12 inches and should be compacted to a minimum of 95% of the maximum Modified Proctor dry density (ASTM D-1557) for a minimum depth of 2 foot below footing bottom elevations.

A representative of Andreyev Engineering, Inc. should be retained to provide on-site inspections and testing of the compaction and so that proper documentation of the required minimum compaction and compliance with the recommendations above can be provided.

FIGURES



REFERENCE:
U.S.G.S. CLERMONT EAST, FLA.
QUADRANGLE MAP
DATED 1962
PHOTOREVISED 1980
SECTION 34
TOWNSHIP 22 SOUTH
RANGE 26 EAST

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION

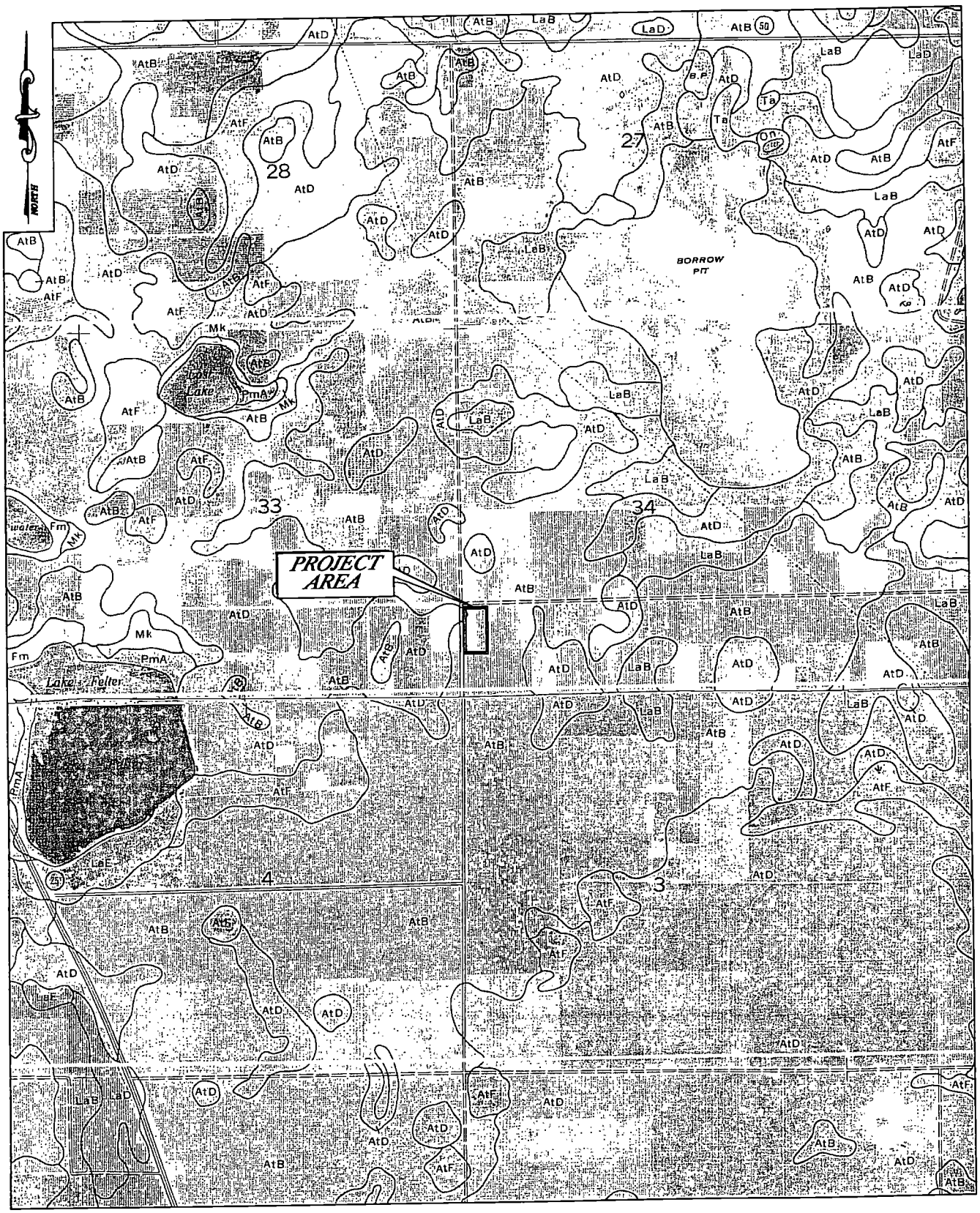
HEART HOUSE CHURCH

CLERMONT, LAKE COUNTY, FL.

VICINITY MAP

APPROXIMATE SCALE:	DATE: 03/12/07	ENGINEER: JD
1"=2000'	PN: CPGT-07-036	DRAWN BY: DLS

FIGURE 1



REFERENCE:
SOIL SURVEY OF LAKE COUNTY, FLORIDA
MAP SHEET NO. 60

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION

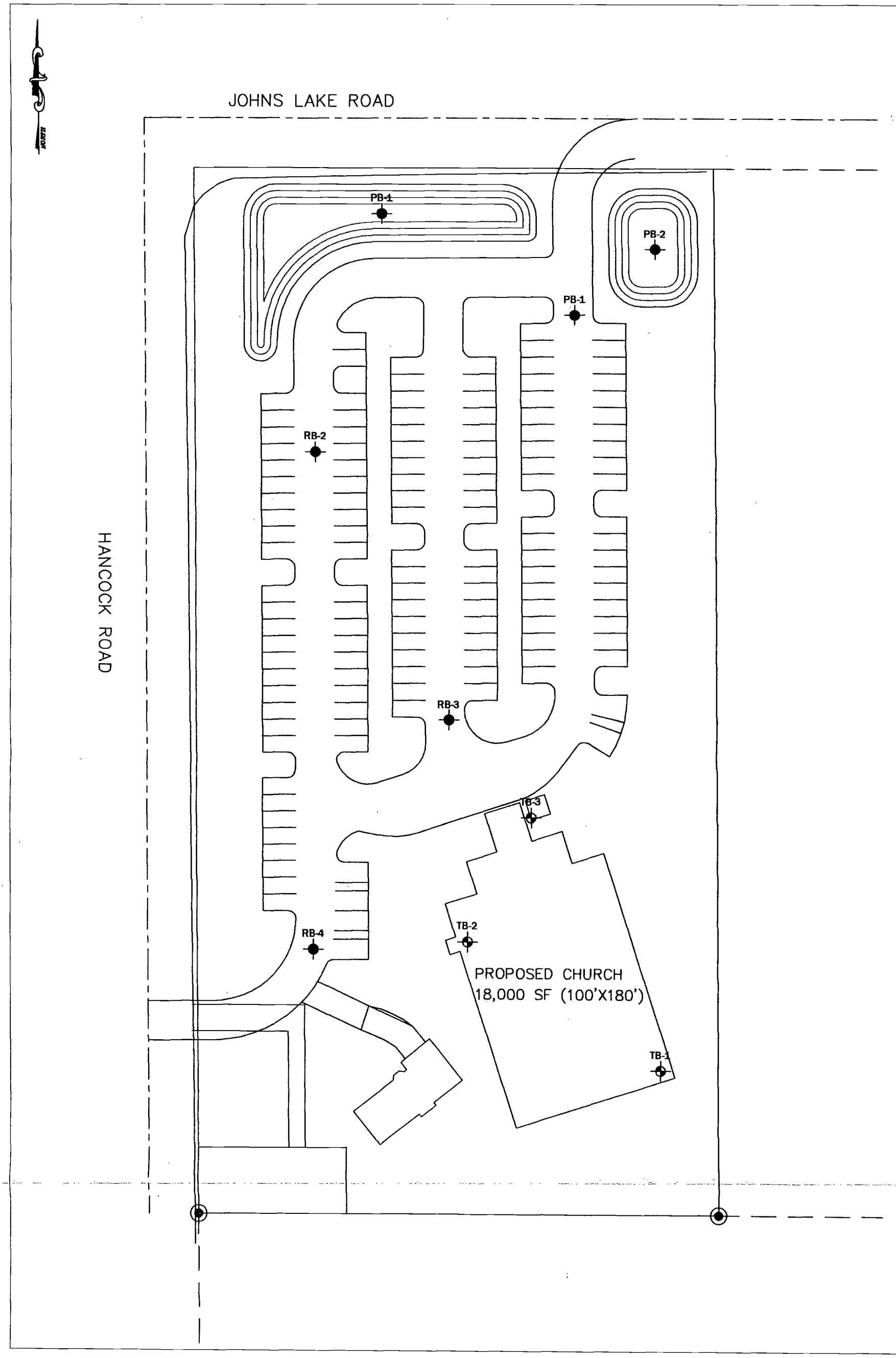
HEART HOUSE CHURCH

CLERMONT, LAKE COUNTY, FL.

SCS SOIL SURVEY

FIGURE 2

APPROXIMATE SCALE:	DATE: 03/12/07	ENGINEER: JD
1"=2000'	PN: CPGT-07-036	DRAWN BY: DLS



LEGEND:

- LOCATION OF SPT BORING
- LOCATION OF AUGER BORING

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION

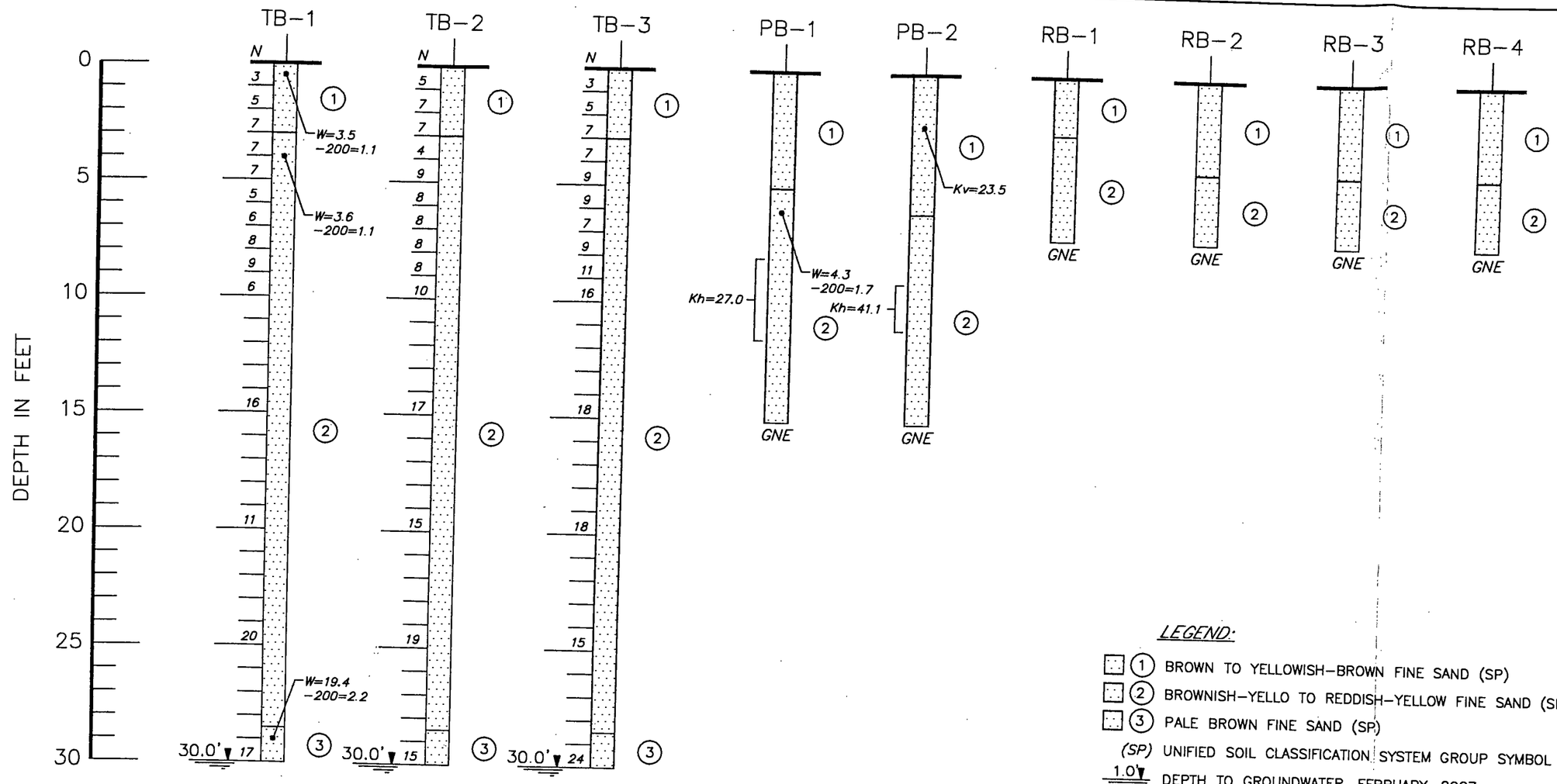
HEART HOUSE CHURCH

CLERMONT, LAKE COUNTY, FL.

LOCATION PLAN

FIGURE 3

APPROXIMATE SCALE:	DATE: 03/12/07	ENGINEER: JD
1"=60'	PN: CPGT-07-D36	DRAWN BY: DLS



LEGEND:

- (1) BROWN TO YELLOWISH–BROWN FINE SAND (SP)
- (2) BROWNISH–YELLO TO REDDISH–YELLOW FINE SAND (SP)
- (3) PALE BROWN FINE SAND (SP)
- *(SP)* UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL
- 1.0' ▼ DEPTH TO GROUNDWATER, FEBRUARY, 2007
- *GNE* GROUNDWATER NOT ENCOUNTERED
- *W* MOISTURE CONTENT, IN PERCENT
- *–200* PERCENT OF FINES PASSING THE U.S. No. 200 SIEVE
- *N* STANDARD PENETRATION RESISTANCE, IN BLOWS PER FOOT
- *Kv* VERTICAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY
- *Kh* HORIZONTAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
HEART HOUSE CHURCH
CLERMONT, LAKE COUNTY, FL.

APPROXIMATE SCALE:	DATE: 03/12/07	ENGINEER: JD
1"=5'	PN: CPGT–07–036	DRAWN BY: DLS

SOIL PROFILES

FIGURE 4