SOIL AND FOUNDATION STUDY
SPEC BUILDING SITE – PARCEL B
INDUSTRIAL PARK
CROSSETT, ARKANSAS

Report
To

MR. MIKE SMITH
CROSSETT ECONOMIC DEVELOPMENT FOUNDATION
125 MAIN STREET
CROSSETT, ARKANSAS 71635

by

GARNER ENGINEERING P.A.
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March 5, 2004

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March 05, 2004

Mr. Mike Smith
Crossett Economic Development Foundation
125 Main Street
Crossett, Arkansas 71635

Subject: Soil and Foundation Study
Spec Building Site – Parcel B
Industrial Park
Crossett, Arkansas

Dear Mr. Smith:

Presented herein are the results of the soil and foundation study performed on the site of the proposed new 50,000 sq. ft Spec Building in Crossett, Arkansas. The Spec Building will be located on Parcel B in the Crossett Industrial Park south of US Hwy 82 (East). This study was performed in accordance with our discussions and proposal.

The primary purposes of this study were to:

(a) Establish basic subsurface soil conditions on the site;

(b) Develop pertinent engineering properties of the soil strata; and

(c) Prepare recommendations to aid in selection and design of a safe and economical foundation system and pavement structure, as well as to identify site factors of consequence to site grading planning and cost.

For this report, the following preliminary criteria were utilized.

Building Type:	Single story preengineered steel frame structure with slab on grade and shallow foundation system.
Foundation Loading:	Columns – 40 kips.
	Exterior Walls – 2000 lb./linear ft or less
Site Grading:	Fill thickness of 2 to 3 ft possible under floor slab.
Pavement:	Low volume tractor-trailer traffic and light duty parking. Asphalt or concrete pavement. Fill thickness of 1 to 2 ft possible.

General Site Features

The project site is an undeveloped previously wooded tract which has been cleared. At the time of the field study, December 2, 2003, the site was mostly covered with grass and weed which had been mowed. A few scattered small hardwoods were also present. The surface soils were relatively stable due to the low precipitation in the proceeding Fall months.

Topographically, the site is nearly flat lying with low mound like undulations and swale areas. Surface drainage is considered to be rather poor except for the mounds. Some evidence of shallow ponding was also noted.

The near surface foundation soils in the project area are typically loessial plain deposits comprised of windblown silts. Surficial soils are grouped in the Calloway soil series according to USDA Soil Survey of Ashley County 1977. These soils characteristically exhibit low plasticity and moderate to high moisture sensitivity.

SOIL CONDITIONS

The subsurface conditions were investigated by six (6) sample borings drilled at the approximate locations shown on Plate 1. The stratigraphy encountered in the borings and results of field and laboratory testing are presented on the Log of Borings, Plates 2 through 7. A Key to Terms and Symbols is included as Plate 8. Groundwater conditions observed during the field study are also noted on the log forms.

The borings were drilled with an ATV rubber tired drill rig using auger and wash boring procedures. The site was accessible to the equipment.

Representative samples of the soils were obtained from the borings using the Standard Penetration Test (SPT) procedure and equipment. N-values were recorded from the SPT and are tabulated on the log forms in the Blows Per Foot column. N-values may be correlated with the strength and compressibility of the foundation soils. Estimated cohesive shear strength of samples were also obtained with a calibrated hand penetrometer. Cohesion estimates in Tons Per Sq. Ft (TSF) are plotted at appropriate depths on the logs as small circles filled with an "x".

To verify soil classification and establish basic volumetric stability, Atterberg Limits were performed in the laboratory. The Atterberg Limits are plotted on the logs using the scale shown in the upper right corner. Natural water content tests were also performed and are plotted on the log forms.

The site is underlain predominantly by loessial deposits overlying deeper alluvial clay soils. The stratigraphy encountered in the borings may be summarized as follows:

Stratum I: The surficial topsoil zone consisted typically of about 0.5 ft of dark brown silt and fine sandy silt, ML, with rootlets and organics. These soils were seasonally moist.

Stratum II: An interval of firm and stiff brown and light brown clayey silt, ML-CL, and loose some medium dense fine sandy silt, ML, was encountered below Stratum I. These soils extended to near 3.5 to 4 ft. Apparent cohesion estimates were generally less than 0.5 tons per sq. ft. N-values ranged from 5 to 10 BPF. The soils possess low plasticity with low shrink swell potential. On the other hand, these silty soils exhibited moderate to locally high moisture sensitivity.

Stratum III: Below about 3.5 ft stiff and very stiff brown with gray silty clay and clayey silt was encountered to 6 to 9 ft. Cohesive estimates were in excess of 1.0 TSF and N-values ranged from 15 to 36 BPF, typically. These soils possess low plasticity and low shrink swell potential.

Stratum IV: Very stiff reddish brown some brown silty clay, CL, with trace clay, CH, was encountered below depths of 6 to 9 ft and extended to completion depths in Borings 1 and 5 and to near 13 to 16 ft in Borings 2, 3, 4 and 6. These soils possess moderate strength, low compressibility, low moisture sensitivity and generally low to moderate shrink-swell potential. Cohesion values exceeded 1.0 TSF with N-values of 14 to 37 BPF reflecting water content variation.

Stratum V: The basal unit found in Borings 2, 3, 4 and 6 consisted of medium dense reddish brown silts and fine sandy silt, SM, ML, with a few silty clay/clayey silt lenses and seams. N-values for these soils varied from 16 to 22 BPF.

At the time of the field study, free groundwater was not encountered in any boring. However, the potential exists for development of a shallow perched groundwater condition in the upper soils of Stratum II. The potential for perched groundwater and consequences are discussed further in subsequent sections of this report.

The properties and characteristics of the foundation soils and other site factors considered to be of primary consequence to site development and design of a safe and economical foundation are:

(a) The presence of about 0.5 ins. of organic silt topsoil and grass/weed vegetation on the site;

(b) The low strength and silty nature of the Stratum II soils and moderately high moisture sensitivity inherent to these soils found to depths of 3.5 to 4 ft;

(c) The moderate strength, low plasticity and low potential for shrinkage and swell exhibited by the silty clay/clayey silts, Stratum III;

(d) The high strength and low to moderate plasticity inherent to the silty clay soils, Stratum IV, found below depths of 6 to 9 ft; and

Alternatively, depending upon building type and final loading, consideration may be given to supporting the wall column and roof loads on short drilled piers extending into the very stiff silty clay, Stratum IV. Straight drilled and drilled and underreamed piers founded at a typical depth of 10 ft below existing grade in Stratum IV may be sized for a net allowable end bearing value of 5500 lbs. per sq. ft.

The allowable bearing pressures should provide a factor of safety on the order of 2.5 with respect to strength characteristics of properly compacted select fill. Based upon conditions encountered in the borings and proper implementation of criteria in Site Grading it is opined that total post construction total or differential settlement should be less than 0.5 ins.

Floor Slab

As noted, a slab on fill should be appropriate for the structure. The slab may be integral with or independent of, foundation elements. A minimum 4 in. layer of AHTD Class 7 base course, or clean, free draining coarse sand or gravel should be provided as a capillary barrier below the slab. The floor slab design may be based on a subgrade modulus value of 150 pci for the slab/granular fill/compacted fill subgrade condition.

A positive vapor barrier membrane should be placed between the slab and subgrade fill. Control joints should be provided in general accordance with ACI suggested practice or as dictated by slab geometry. A saw cut depth of at least 30 percent of the slab thickness is recommended.

Seismic Factors

Ashley County is located within Seismic Zone 1 "area of low anticipated seismic damage." Based on conditions encountered on the site and other geotechnical criteria available, it is concluded that the structure may be designed using a Soil Profile Type S 2 and a seismic Site Coefficient (S) of 1.0. Liquefaction potential is considered to be negligible for the foundation soils. As outlined in Act 1100 1991, structural design may be based on an Effective Peak Velocity Related Acceleration (A_V) of 0.10.

Seismic design under current Arkansas Fire Code required IBC 2000 criteria may be based on Site Class D.

Pavement Design

Drives and parking would be constructed for the facility but location and traffic criteria is not available at this writing. It is understood that either asphalt or concrete pavement may be utilized. The pavement structure(s) will likely be subject predominately to both truck and light vehicle traffic. The following preliminary pavement designs were developed on the basis of compacted select fill subgrade exhibiting a CBR of at least 5. The design is also based on positive surface and subsurface drainage away from the completed pavement structure.

Moderate Truck Traffic : 4-18 kip single axle trucks per day

Component		Thickness
Hot Mixed Asphaltic Concrete (HMAC)	:	3.5 ins. AHTD Type 1 or 2
Crushed Stone Base AHTD Class 7	:	10 ins. 95 percent Modified Proctor Compaction
or		
Cement Treated Base Course	:	8 ins. installed per AHTD Specification
Compacted Subgrade	:	8 ins. minimum. Compacted to 90 percent Modified Proctor Compaction
Alternatively,		
Concrete – PCCP f$\bar{c}$ = 4000 psi	:	6 ins.
Crushed Stone Base AHTD Class 7	:	6 ins.
or		
Cement Treated Base Course	:	4 ins. minimum
Compacted Subgrade	:	8 ins. minimum compacted as noted above

Light Vehicle Traffic

Component		Thickness
Hot Mixed Asphaltic Concrete (HMAC)	:	2 ins. AHTD Type 1 or 2
Crushed Stone Base AHTD Class 7	:	7 ins. 95 percent Modified Proctor Compaction
or		
Cement Treated Base Course	:	6 ins. installed per AHTD Specification
Compacted Subgrade	:	8 ins. 90 percent Modified Proctor Compaction

Cement treated base should be constructed with a low plasticity sand/gravel, clayey sand or silty sand blend. The percentage of cement should be determined by laboratory testing when material type is selected. For preliminary planning, a cement content of 8 percent may be utilized.

The final pavement structure deign must be based on the site grading plan, as well as specific traffic volume and wheel load criteria. Particular attention should be given to joint design for concrete pavements in truck traffic and dock areas. Doweling is recommended for joint load transfer in truck traffic areas.

Site Grading

On-site evaluation of actual conditions should be performed by the Geotechnical Engineer prior to and during initial stages of site work. Final decisions on bridging and/or undercutting should be determined on the basis of this evaluation, as well as fill depths and fill soil type.

The project site is primarily grass/weed covered with a few small trees and will require rather conventional stripping and localized grubbing. This activity should be scheduled for typically drier summer and early fall months to reduce disturbance of the moisture sensitive silty soils and reduce cost. In the event, wet season site work is required due to project schedule, all parities should be aware of the potential for general undercutting to depths of 3 ft. Site grading should be performed with low ground pressure, LGP, equipment to reduce disturbance.

Prior to placing new fill, loose or organic-containing surface soils, Stratum I and II, should be removed from the structure and pavement area. The location and extent of weak or unstable soil zones or old stump holes may be established by observations during clearing, grubbing and stripping or by proofrolling with a minimum 20,000 lb. pneumatic-tired roller, loaded dump truck, or similar equipment. Based on conditions encountered in the borings, the required stripping/undercut depth is anticipated to be less than 0.5 ft during drier seasons. On the other hand, undercut could be required, as noted, during wetter seasons.

Fill required for backfill or to raise existing grade in the pavement and building areas should consist of select sandy clay (CL), clayey sand (SC) or gravelly blends thereof, having a Liquid Limit less than 40. Select fill within the building area should be compacted to at least 95 percent of maximum Modified Proctor dry density (ASTM D-1557). Placement and compaction should be performed within a water content range of minus 2 to plus 4 percent of Optimum Water Content. Lift thickness should typically be less that 8 ins. or as dictated by compaction equipment type and size except where controlled bridging is specifically approved by the Soils Engineer.

CONSTRUCTION PROCEDURES

The soils encountered to depths of 3 ft or locally greater are subject to strength loss with saturation and may develop pumping and rutting, thus increasing construction difficulties. Therefore, we recommend that clearing, grubbing and site grading be conducted during drier seasons of the year, if possible. Positive surface drainage should be established during initial site work and maintained to reduce potential difficulties. Temporary surface drainage should be provided to the extent practical. If construction is initiated during wetter seasons of the year, perched groundwater may be present.

Excavations for shallow spread footings should be accomplished with conventional excavation equipment. Prolonged exposure or inundation may result in significant changes in strength and compressibility characteristics of the bearing stratum. Therefore, foundation

excavations, steel placement, and forming should be completed promptly to reduce the possibility of changes in conditions. Foundation strata disturbed due to exposure or saturation from rainfall or seepage should be undercut to unaltered strata.

If utilized, drilled piers should be installed with medium duty drilling equipment and standard auger tools. During wet season construction, some minor seepage could be experienced. However, volume should be low and temporary casing should not be required with coordination of drilling and concrete placement operations.

Site grading work and foundation installation should be monitored by the Engineer or his representative. Although the conditions observed on the site are considered to be generally representative, local variations in soil type, strength and compressibility may exist within the loessial soils. Consequently, subsurface conditions significantly at variance with those encountered in the borings should be brought to the attention of the Geotechnical Engineer and work delayed pending evaluation and/or preparation of additional recommendations, if warranted.

The following illustrations are attached and complete this report:

Plate 1	Plan of Borings
Plate 2 through 7	Log of Borings
Plate 8	Key to Terms and Symbols

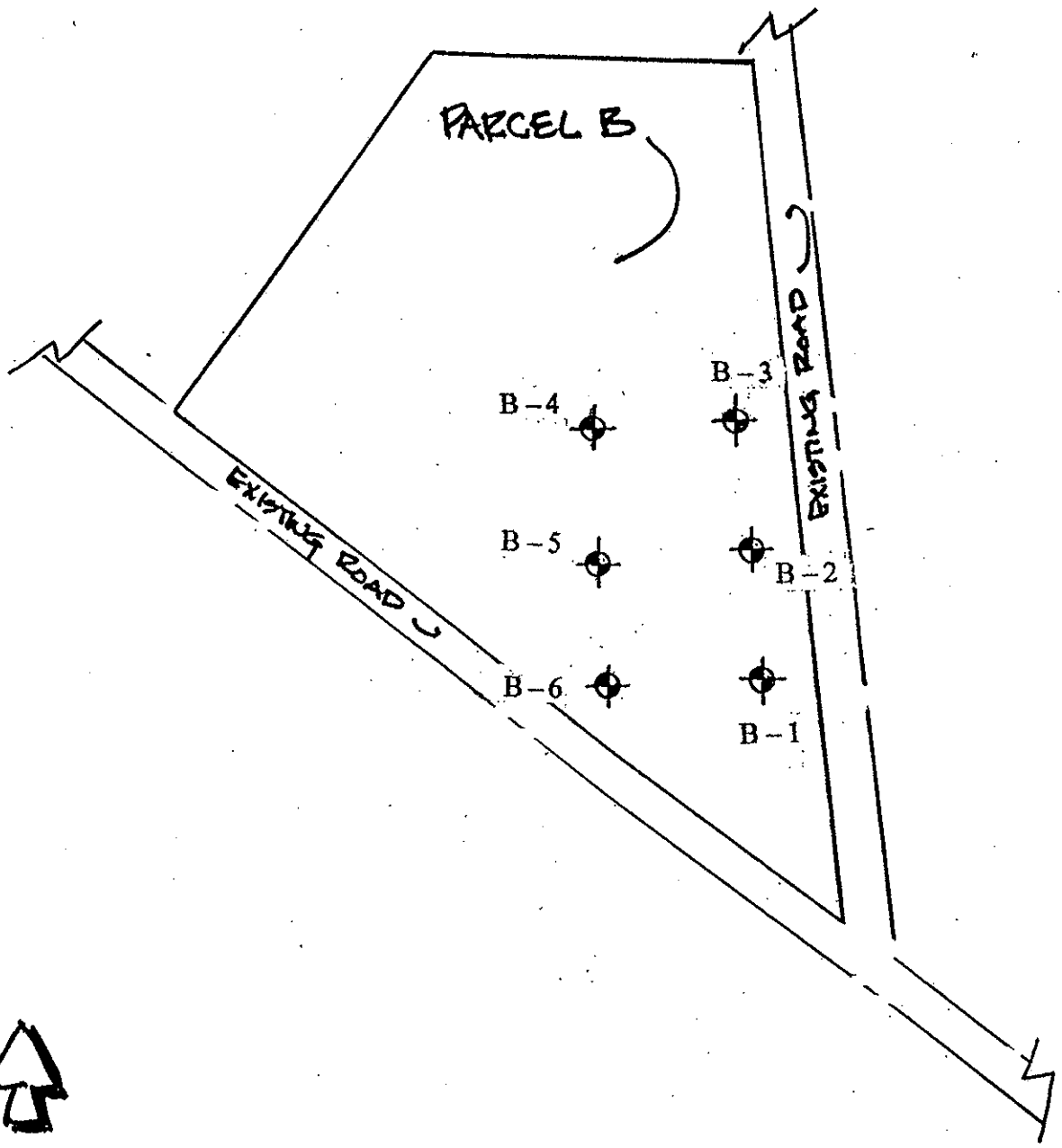
We have appreciated the opportunity to be of service to you on this predesign phase of the project. If we may be of additional assistance in review of these initial conclusions and recommendations for final design and/or construction, please contact us.

Very truly yours,
Garner Engineering PA

Carl W. Garner P.E.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3818
CARL W. GARNER

Cc: Crossett Economic Development Foundation
Attn: Mr. Mike Smith



NORTH
N.T.S.

PLAN OF BORINGS
INDUSTRIAL SITE
CROSSETT, ARKANSAS

LOG OF BORING NO 1

INDUSTRIAL SITE
CROSSETT, ARKANSAS

Type: AUGER/SPT

Location: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURF EL:	BLOWS PER FT	UNIT DRY WT LB/CU FT
			DARK BROWN FINE SANDY SILT WITH ORGANICS	10	
			STIFF BROWN CLAYEY SILT, SILTY CLAY, ML-CL	7	
5			STIFF BROWN FINE SANDY SILT AND CLAYEY SILT	15	
			VERY STIFF REDDISH BROWN AND BROWN FINE SANDY SILT WITH FERROUS NODULES	40	
			VERY STIFF REDDISH BROWN SLIGHTLY SILTY CLAY, CL	25	
10					
				30	
15					
20					
25					

COHESION, TON/SQ FT
0.2 0.4 0.6 0.8 1.0 1.2 1.4

PLASTIC LIMIT — WATER CONTENT, % — LIQUID LIMIT
10 20 30 40 50 60 70

% NO 200

COMPLETION DEPTH: 15.0 FT
DATE: 12-2-03

DEPTH TO WATER IN BORING: NO WATER

DATE: 12-2-03

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PLATE 2

LOG OF BORING NO 2

INDUSTRIAL SITE
CROSSETT, ARKANSAS

Type: AUGER/SPT

Location: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURF EL:	BLOWS PER FT	UNIT DRY WT LB/CU FT
			DARK BROWN ORGANIC SILT		
			FIRM TO STIFF BROWN FINE SANDY SILT SLIGHTLY CLAYEY, ML-CL	6	
				8	
5			VERY STIFF BROWN CLAYEY SILT,SILTY CLAY, CL-ML	23	
			WITH TAN	22	
10			STIFF REDDISH BROWN SILTY CLAY, CLAYEY SILT, ML-CL	14	
15			MEDIUM DENSE REDDISH BROWN SILTY FINE SAND, SM, WITH OCCASIONAL CLAYEY SILT LENSES	26	
				17	
20					
25					

COHESION, TON/SQ FT
0.2 0.4 0.6 0.8 1.0 1.2 1.4

PLASTIC LIMIT — WATER CONTENT, % — LIQUID LIMIT
10 20 30 40 50 60 70

NON-PLASTIC

COMPLETION DEPTH: 20.0 FT
DATE: 12-2-03

DEPTH TO WATER IN BORING: NO WATER
DATE: 12-2-03

GARNER ENGINEERING PA

PLATE 3

LOG OF BORING NO 3

INDUSTRIAL SITE
CROSSETT, ARKANSAS

Type: AUGER/SPT

Location: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT (0.2 0.4 0.6 0.8 1.0 1.2 1.4) / PLASTIC LIMIT — WATER CONTENT, % — LIQUID LIMIT (10 20 30 40 50 60 70)	% NO 200
			SURF EL:				
			DARK BROWN FINE SANDY SILT				
			STIFF BROWN FINE SANDY SILT, ML, DRY	13			
			LESS FINE SAND WITH SOME FERROUS NODULES	16			
5			VERY STIFF BROWN SOME TAN SILTY CLAY, CL-ML, DRY	36			
				68			
			VERY STIFF REDDISH BROWN SILTY CLAY, CL, WITH TRACE SILT LENSES, DRY	37			
10							
			MEDIUM DENSE REDDISH BROWN FINE SANDY SILT, ML-SM, WITH SILTY CLAY LENSES	25			
15							
20							
25							

COMPLETION DEPTH: 15.0 FT
DATE: 12-2-03

DEPTH TO WATER IN BORING: NO WATER

DATE: 12-2-03

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PLATE 4

LOG OF BORING NO 4

INDUSTRIAL SITE
CROSSETT, ARKANSAS

Type: AUGER/SPT

Location: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURF EL:	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT 0.2 0.4 0.6 0.8 1.0 1.2 1.4 PLASTIC LIMIT — WATER CONTENT, % — LIQUID LIMIT 10 20 30 40 50 60 70	% NO 200
			DARK BROWN SOME GRAY SILT WITH ORGANICS	6			
			LOOSE LIGHT BROWN FINE SANDY SILT, ML				
			- MOSTLY SILT, ML	5			
5			STIFF BROWN TRACE GRAY CLAYEY SILT, CL-ML	20			
			- MORE TAN	26			
10			STIFF REDDISH BROWN SOME BROWN SILTY CLAY, CL	19			
			- SLIGHTLY BLOCKY, CL	23			
15							
			MEDIUM DENSE REDDISH BROWN FINE SANDY SILT, ML-SM, WITH SOME SILTY CLAY SEAMS, DRY	20			
20							
25							

COMPLETION DEPTH: 20.0 FT
DATE: 12-2-03

DEPTH TO WATER IN BORING: NO WATER

DATE: 12-2-03

GARNER ENGINEERING PA

PLATE 5

LOG OF BORING NO 5

INDUSTRIAL SITE
CROSSETT, ARKANSAS

Type: AUGER/SPT

Location: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT
			SURF EL:		
			DARK BROWN SILT WITH ORGANICS		
			LOOSE LIGHT BROWN SILT SLIGHTLY CLAYEY, ML	5	
			- SOME TAN, ML-CL	6	
5			VERY STIFF BROWN SILTY CLAY, CL-ML	21	
			- TRACE FINE SAND WITH GRAY	24	
			- MOSTLY GRAY	25	
10					
			STIFF REDDISH BROWN CLAYEY SILT, ML-CL, WITH SILTY CLAY, CL	22	
15					
20					
25					

COHESION, TON/SQ FT
0.2 0.4 0.6 0.8 1.0 1.2 1.4

PLASTIC LIMIT — WATER CONTENT, % — LIQUID LIMIT
10 20 30 40 50 60 70

COMPLETION DEPTH: 15.0 FT
DATE: 12-2-03

DEPTH TO WATER IN BORING: NO WATER
DATE: 12-2-03

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PLATE 6

LOG OF BORING NO 6

INDUSTRIAL SITE
CROSSETT, ARKANSAS

Type: AUGER/SPT

Location: SEE PLATE 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURF EL:	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT 0.2 0.4 0.6 0.8 1.0 1.2 1.4 PLASTIC LIMIT — WATER CONTENT, % — LIQUID LIMIT 10 20 30 40 50 60 70	- NO 200 , %
			DARK BROWN SILT, ML, WITH ORGANICS	13			
			MEDIUM DENSE BROWN FINE SANDY SILT, ML	8			
			BROWN WITH GRAY CLAYEY SILT, ML-CL				
5			STIFF BROWN AND GRAY CLAYEY SILT, ML-CL	17			
			-SILTY CLAY, CL	17			
			VERY STIFF REDDISH BROWN SILTY CLAY, CL	25			
10							
15				11			
			MEDIUM DENSE REDDISH BROWN FINE SANDY SILT, ML-SM, DRY	16			
20							
25							

COMPLETION DEPTH: 20.0 FT
DATE: 12-2-03

DEPTH TO WATER IN BORING: NO WATER

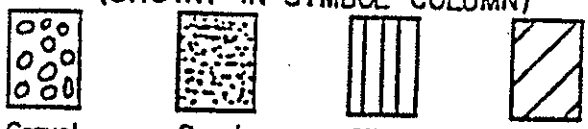
DATE: 12-2-03

GARNER ENGINEERING PA

PLATE 7

SYMBOLS AND TERMS USED ON BORING LOGS

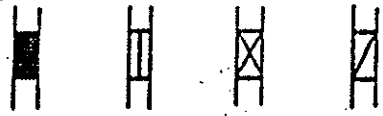
SOIL TYPES
(SHOWN IN SYMBOL COLUMN)



Gravel | Sand | Silt | Clay

Predominant type shown heavy

SAMPLER TYPES
(SHOWN ON SAMPLES COLUMN)



Shelby Tube | Rock Core | Split Spoon | No Recovery

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS(major portion retained on. No. 200 sieve): Includes (1) clean gravels and sands, and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as determined by laboratory tests.

DESCRIPTIVE TERM	N-VALUE	RELATIVE DENSITY
VERY LOOSE	0-4	0-15%
LOOSE	4-10	15-35%
MEDIUM DENSE	10-30	35-65%
DENSE	30-50	65-85%
VERY DENSE	50 And above	85-100%

FINE GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests.

DESCRIPTIVE TERM	UNCONFINED COMPRESSIVE STRENGTH TON/SQ. FT.
VERY SOFT	Less than 0.25
SOFT	0.25 - 0.50
FIRM	0.50 - 1.00
STIFF	1.00 - 2.00
VERY STIFF	2.00 - 4.00
HARD	4.00 and higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes of weakness or cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED — having inclined planes of weakness that are slick and glossy in appearance.

FISSURED — containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

LAMINATED — composed of thin layers of varying color and texture.

INTERBEDDED — composed of alternate layers of different soil types.

CALCAREOUS — containing appreciable quantities of calcium carbonate.

WELL GRADED — having wide range in grain sizes and substantial amounts of all intermediate particle sizes.

POORLY GRADED — predominantly of one grain size, or having a range of sizes with some intermediate sizes missing.

Terms used in this report for describing soils according to their texture or grain size distribution are in accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM, as described in Technical Memorandum No.3-357, Waterways Experiment Station; March 1953.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Soil meets the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	9 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50
2	9 inches	31 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50
3	31 inches	60 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.20 Min: 0.06	Max: 5.50 Min: 4.50
4	60 inches	80 inches	silt	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.60 Min: 0.20	Max: 7.80 Min: 5.10

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: No Other Soil Types

Surficial Soil Types: No Other Soil Types

Shallow Soil Types: silty clay loam

Deeper Soil Types: silt loam
silty clay loam

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	ART000234	1/2 - 1 Mile WSW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		