June 5, 2024
Job No. 24-0017

Little Rock Port Authority
10600 Industrial Harbor Drive
Little Rock, Arkansas 72206

Attn: Mr. Bryan Day

RE: INTERIM RESULTS - GEOTECHNICAL INVESTIGATION
LITTLE ROCK INDUSTRIAL PORT 1000+ ACRE SITE
LITTLE ROCK, PULASKI COUNTY, ARKANSAS

INTRODUCTION

This interim report presents the initial results of the geotechnical feasibility investigation being performed for the 1000+ acre site at the Little Rock Industrial Port in Little Rock, Arkansas. These services were authorized on behalf of the Little Rock Port Authority by Mr. Bryan Day on January 19, 2024. This study is being performed in general accordance with our proposal of November 28, 2023 (GHBW Proposal 23-072). The field studies have been performed as permitted by landowner access permission and weather-related site access.

We understand that the subject site is a potential development or developments on an approximately 1000-acre site. The site includes multiple tracts at the Little Rock Industrial Port, southwest of the Welspun Pipes facility and north of Harper Road. Currently, the project site is a mixture of open pasture, crop and grass fields, and stands of trees. Specific information on site layout and development structures or details has not been developed at this time.

SUBSURFACE EXPLORATION

Subsurface conditions have been explored to date by drilling four (4) sample borings to depths of 60 to 85 feet. The site vicinity is shown on Plate 1. The approximate locations of the completed borings are shown on the Plan of Borings, Plate 2. Preliminary boring logs, presenting descriptions of the subsurface strata encountered and results of field and completed laboratory tests, are included as Plates 3 through 8. The approximate ground surface elevation, as inferred from available, published topographic information, is also shown on the logs. It must be recognized that the elevations shown are approximate and actual elevations may vary. A key to the terms and symbols used on the logs is presented as Plate 9.

The borings were drilled with a track-mounted CME-55 rotary-drilling rig using a combination of dry-auger and rotary-wash drilling procedures. Samples were typically obtained using a 2-inch-diameter split-barrel sampler driven into the strata by blows of a 140-lb automatic hammer dropped 30 inches, in accordance with Standard Penetration Test (SPT) procedures. The number of blows required to drive the standard split-barrel sampler the final 12 inches of an 18-inch total drive, or portion thereof, is defined as the Standard Penetration Number (N). Recorded N-values are shown on the boring logs in the "Blows Per Ft" column.

Selected undisturbed samples of cohesive soils were obtained using a 3-in.-diameter thin-walled tube hydraulically advanced into the soil. Undrained shear strength of the cohesive soils was estimated in the field using a calibrated hand penetrometer. Estimated shear strength values are plotted on the log forms, in tons per sq ft, as circles enclosing an "x".

All samples were removed from sampling tools in the field, examined and visually classified by the field geologist. Samples were then placed in appropriate containers to prevent moisture loss and/or change in condition during transfer to our laboratory for further examination and testing.

The borings were advanced using dry-auger drilling procedures to the extent possible to facilitate groundwater observations. Observations regarding groundwater are noted in the lower-right portion of each log and are discussed in subsequent sections of this report.

The results of completed laboratory tests are shown on the logs at the appropriate depth. The water contents are plotted in accordance with the scale and symbols contained in the legend in the upper-right portion of the log forms. The Atterberg limits test results are plotted on the boring logs as pluses connected with a dashed line using the water content scale. The percent of soil passing through the No. 200 sieve is noted in the "Minus No. 200" column on the appropriate log forms.

GENERAL SITE and SUBSURFACE CONDITIONS

Site Conditions

The project site areas drilled to date are located south of Thibault Road and the Welspun Tubular plant at the Little Rock Industrial Port in Little Rock, Arkansas. The site is presently open and undeveloped. The open site has a mixed ground surface cover predominantly comprised of fallow fields, agricultural tracts, high weeds, crops, and scattered areas of mature trees. The surrounding properties are composed of a similar mixture of open fields, cropland, and scattered trees. The Arkansas River is located to the east, with a wetlands area and an existing flood control levee. A prominent drainage ditch extends southwest from the intersection of Thibault Road and Frazier Pike, turning west about 2700 ft south of the east-west roadway alignment. Some wooded and wet areas are locally on the north side of the ditch. Ditches are common along roadways to facilitate surface drainage. The site terrain is predominantly flat. Surface water drainage is considered very poor to poor.

Site Geology

The project location is in the Mississippi Embayment Geophysical Province. The surface geology of this location is Recent (Quaternary) Alluvium of the Arkansas River flood plain. The alluvium is typically comprised of a mixture of silt, sandy silt, silty clay and clay with silty sand and sand at depth, a mixture of clastic materials eroded from upstream locations. The alluvium in the area is typically underlain by Tertiary deposits and locally by igneous rocks of a Cretaceous intrusion. Bedrock (Paleozoic rock) in this location is reported to be in excess of 200- to 300-ft depth.

Seismic Conditions

The Pulaski County, Arkansas site is located in Seismic Zone 1, noted by the Arkansas Building Authority (2005) as the zone of least anticipated seismic potential. The results of the completed borings and relevant borings from adjacent sites have been utilized to determine the seismic site class in accordance with the criteria of the Arkansas Fire Prevention Code Vol II and the International Building Code 2021 / ASCE 7-16. To supplement data on subsurface conditions at depths in excess of the maximum 85-ft exploration depths of the borings performed for this study phase, the results of prior borings near this location have been utilized.

Based on IBC 2021 and ASCE 7-16, a Seismic Site Class D (stiff soil profile) has preliminarily been determined. Preliminary liquefaction analyses have been performed to evaluate the liquefaction potential of the foundation soils. The analysis was performed utilizing the methodology and procedures proposed by Idriss and Boulanger[1] in 2008. For the purpose of liquefaction analysis, an earthquake Moment Magnitude (M_w) of 6.0 was utilized. This earthquake magnitude is roughly equivalent to a Modified Mercalli Intensity of VII, i.e., a very strong earthquake with general alarm and cracking of walls. The results of the preliminary liquefaction analyses are summarized in Attachment 1.

The preliminary liquefaction analysis results indicate a low potential for liquefaction triggering. It should be recognized the liquefaction potential may vary across the relatively large site area.

Subsurface Conditions

The results of the four (4) borings drilled at this time indicate that the surface and near-surface soils are comprised of very loose to medium dense silt, fine sandy silt, and silty fine sand to 13- to 15-ft depth. These fine-grained soils typically have low plasticity with very low to low shear strength and moderate to high compressibility. The predominantly silty soil units contain interbedded, localized and discontinuous seams, layers, and strata of clay and silty clay.

The upper silty soil units are underlain by very soft to stiff clay and silty clay strata to variable depths of 23- to 28-ft depth. The clay and silty clay units vary in thickness, consistency, and depth intervals. However, these clayey soils typically have low strength and moderate to high compressibility. Plasticity ranges from medium to high. The potential for shrink-swell activity is considered low due to the high *in-situ* water content and the depths of these units.

The clayey soils are typically underlain below about 23- to 28-ft depth by medium dense to very dense fine sand, silty fine to medium sand, and fine to coarse sand. This stratum generally grades from slightly silty fine-grained sand to increasingly medium to coarse sand and decreasing silt content. Relative density increases with depth and compressibility decreases.

Groundwater was encountered at 1.5 to 13 ft below existing grades in May 2024. The shallow water at 1.5 ft is considered localized perched groundwater associated with surface water infiltration. It is our experience that the groundwater levels at 12 to 13 ft are more typical of the Port area. Groundwater levels will vary with seasonal precipitation and surface runoff and infiltration.

Significant Conditions

The site and subsurface conditions considered significant to design and construction of structures and infrastructure on this site are summarized below.

a) The flat site terrain with poor to very poor surface water drainage.

b) The surficial moisture-sensitive silt and sandy silt commonly at the ground surface which will be subject to significant strength and stability reductions during wet seasons.

c) The predominant low shear strength and high to moderate compressibility of the on-site soils to 23- to 28-ft depth.

[1] "Soil Liquefaction during Earthquakes." Earthquake Engineering Research Institute, MNO-12, Idriss and Boulanger, 2008.

d) The increase in shear strength and decrease in compressibility below 23- to 28-ft depth.

e) The presence of localized perched water at shallow depths on the order of 1.5 ft but more typical groundwater levels at 12- to 13-ft depth in May 2024.

f) The results of preliminary analyses indicating a Seismic Site Class D and a low potential for liquefaction triggering.

CLOSURE

This interim report has been prepared to provide preliminary information regarding site and subsurface conditions on the 1000+ acre site. The conclusions and comments contained herein have been developed based on a discrete number of widely spaced sample borings. This information is intended for general information and use in feasibility planning and conceptual design only. Final design recommendations must be based on an appropriate geotechnical study utilizing specific site grading plans, building layout, and structure loading information. We are available to assist with providing an appropriate scope of work for the final geotechnical investigation as plans are more developed.

The following illustrations are attached and complete this preliminary report.

Plate 1	Site Vicinity
Plate 2	Plan of Borings
Plates 3 through 8	Preliminary Boring Logs
Plate 9	Key to Terms and Symbols
Attachment 1	Results of Preliminary Liquefaction Analysis

* * * * *

We appreciate the opportunity to provide preliminary results and recommendations for this project. Please contact us should you have any questions regarding this information. In the meantime, we will be working on the final report.

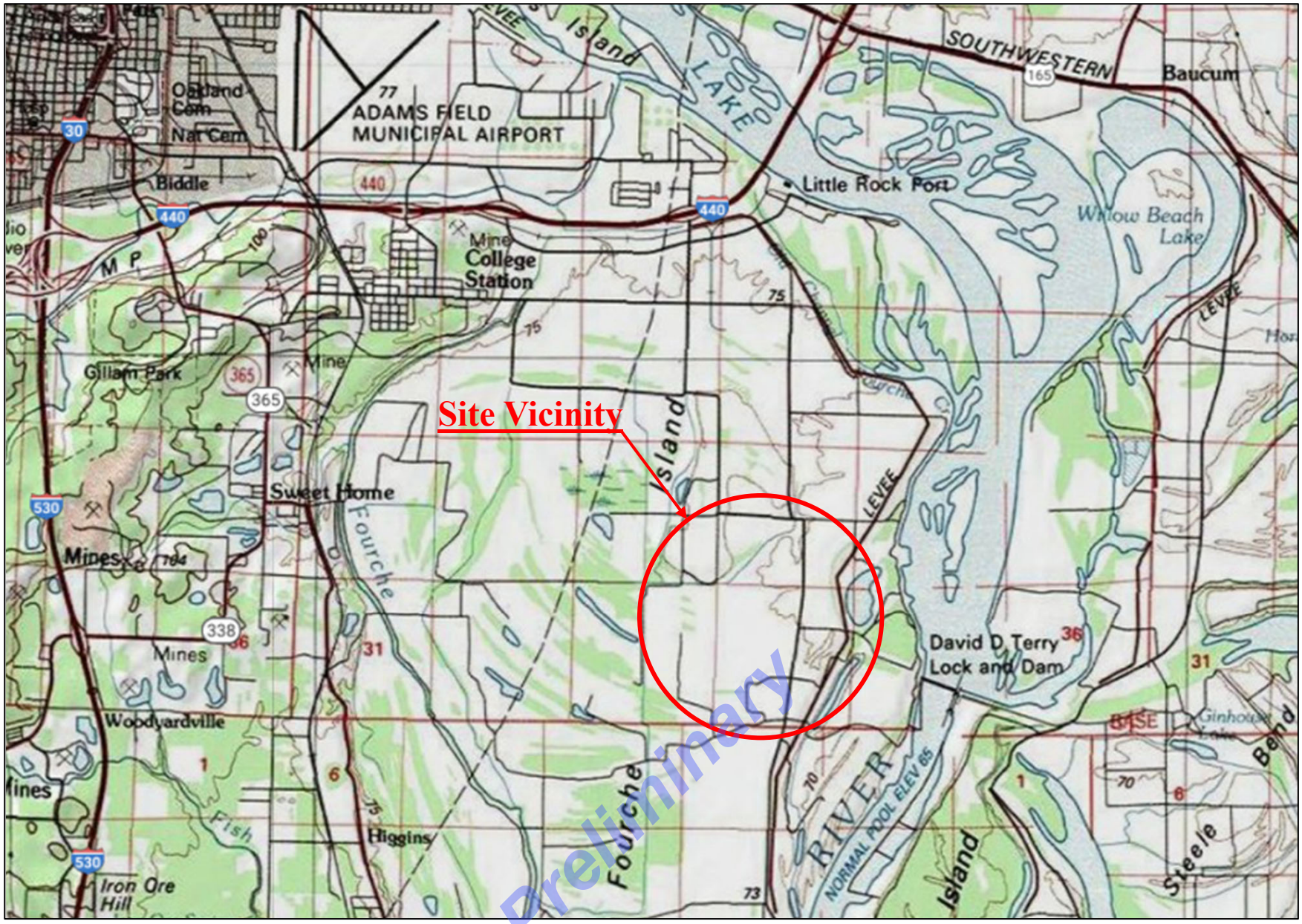
Sincerely,

GRUBBS, HOSKYN,
BARTON & WYATT, LLC

Mark E. Wyatt, P.E.
President

MEW:jw

Copies submitted: Little Rock Port Authority
Attn: Mr. Bryan Day (1-email)



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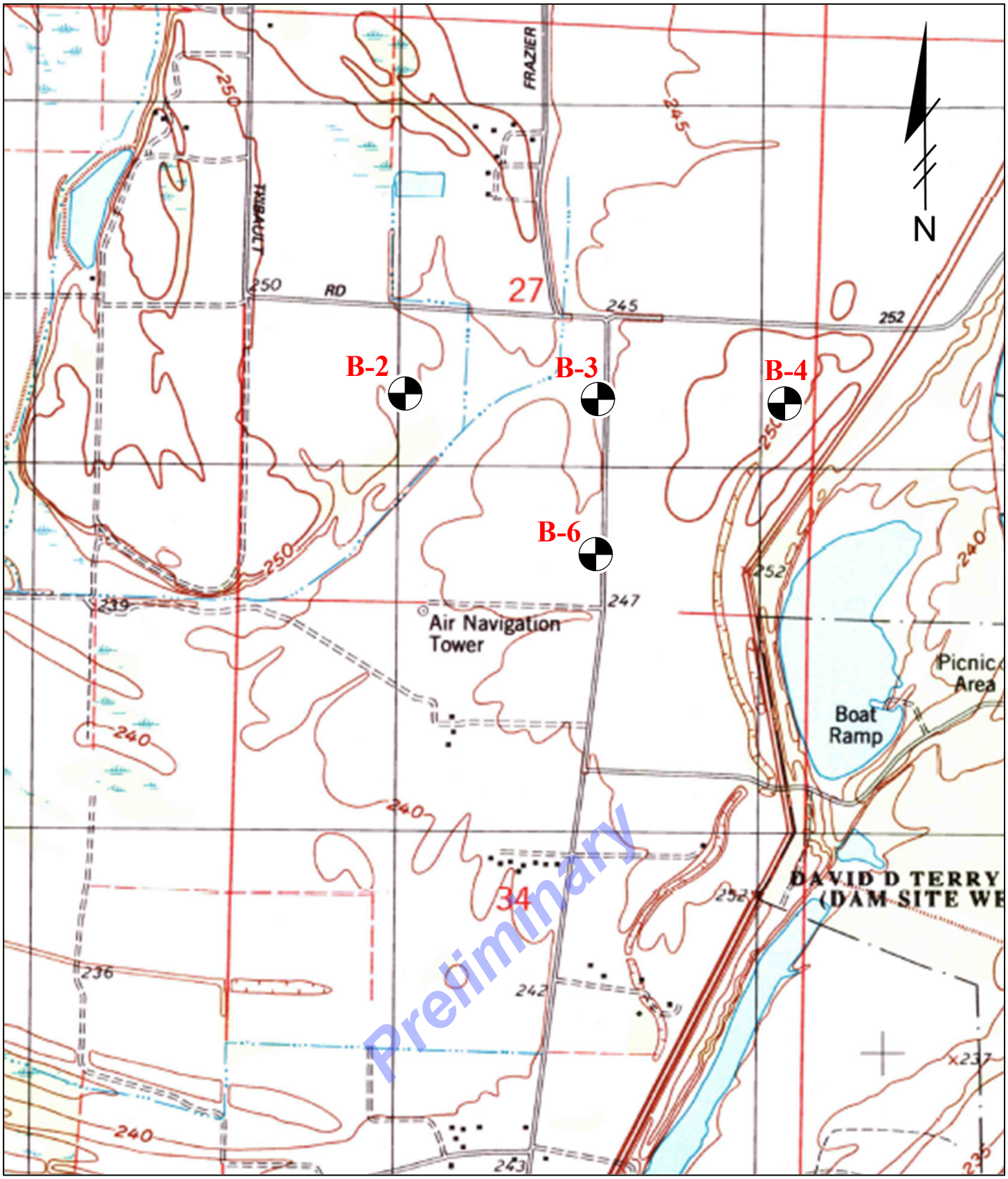
CONSULTING ENGINEERS
A UES Company

SITE VICINITY MAP
LRPA Supersite
Little Rock, Arkansas

Job No. 24-0017

Plate 1



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CONSULTING ENGINEERS
A UES Company

PLAN of BORINGS
LRPA Supersite
Little Rock, Arkansas

Scale: As Shown
Job No. 24-0017
Plate 2

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LOG OF BORING NO. 2

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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: 244±				
			Very loose to loose brown silt	4			
			- loose, moist below 2 ft	6			95
5			Loose to medium dense light brown silty fine sand	10			
			- loose, brown below 6 ft	8			29
10				5			
			Firm gray and brown clay	8			
15							
			- brown and gray below 18 ft	7			91
20							
				7			
25							
			Medium dense light brown silty fine sand	18			
30							
				14			21

COMPLETION DEPTH: 60.0 ft
DATE: 5-14-24

DEPTH TO WATER IN BORING: 13 ft

DATE: 5/14/2024

Grubbs, Hoskyn, Barton & Wyatt, Inc.
Consulting Engineers

LOG OF BORING NO. 2

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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 %
40			(continued)	17			
45			Medium dense tan fine sand, slightly silty w/trace medium to coarse sand	36			
50				43			
55				41			
60				46			
65							

COMPLETION DEPTH: 60.0 ft
DATE: 5-14-24

DEPTH TO WATER IN BORING: 13 ft

DATE: 5/14/2024

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Form 108-6(74) Job No. 24-0017

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Consulting Engineers

LOG OF BORING NO. 3

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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: 244±				
			Loose brown silt, slightly sandy w/silty clay seams	5			
			Very loose brown fine sandy silt, wet	2			
5			- with clay seams below 4 ft	0/WOH			
			Firm brown clay			⊗	
			Very loose brown fine sandy silt	2			
10							
			Very soft brown clay	3			
15							
				3			
20							
			- very soft to soft below 23 ft				
				4			
25							
			Medium dense brown and tan silty fine sand	15			
30							
			Dense tan fine sand, slightly silty w/trace fine gravel	41			

COMPLETION DEPTH: 60.0 ft
DATE: 5-7-24

DEPTH TO WATER IN BORING: 1.5 ft

DATE: 5/7/2024

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LOG OF BORING NO. 3

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL (continued)	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 %
40			- medium dense at 43 to 48 ft	48			
45				28			
50			- dense at 48 to 53 ft	31			
55			- medium dense below 53 ft	28			
60			Medium dense brown fine to coarse sand, slightly silty w/a little fine gravel	28			
65							

COMPLETION DEPTH: 60.0 ft
DATE: 5-7-24

DEPTH TO WATER IN BORING: 1.5 ft

DATE: 5/7/2024

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Form 108-6(74) Job No. 24-0017

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LOG OF BORING NO. 4

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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: 247±				
			Firm to stiff clayey silt, slightly sandy w/silt pockets and rootlets	10			
			Loose light brown fine sandy silt	6			
5			- very loose to loose below 4 ft	4			
			Very soft brown silty clay	2			
			Loose tan silty fine sand	6			
10							
			Loose brown silt, slightly sandy	7			
15			Loose tan fine sand, slightly silty				
			- medium dense, light brown below 18 ft	20			
20							
			Medium dense brown silty fine sand	11			
25							
			Medium dense light brown and tan fine sand, slightly silty	11			
30				17			

COMPLETION DEPTH: 85.0 ft
DATE: 5-10-24

DEPTH TO WATER IN BORING: 12 ft

DATE: 5/10/2024

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Form 108-6(74) Job No. 24-0017

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LOG OF BORING NO. 4

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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 %
			(continued)				
40				21			
45				20			
50			- dense at 48 to 58 ft	37			
55				35			
60			- medium dense below 58 ft	21			
65			Medium dense grayish tan fine to coarse sand, slightly silty w/trace fine gravel	20			
			- dense at 68 to 73 ft	55			

COMPLETION DEPTH: 85.0 ft
DATE: 5-10-24

DEPTH TO WATER IN BORING: 12 ft

DATE: 5/10/2024

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LOG OF BORING NO. 4

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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 %
			(continued)				
75			- medium dense with more coarse sand and fine gravel below 73 ft	21			
80			Dense tan fine to coarse sand, slightly silty w/some fine gravel	36			
85				45			
			Note: Borehole caving. Boring terminated at practical refusal.				
90							
95							
100							

COMPLETION DEPTH: 85.0 ft
DATE: 5-10-24

DEPTH TO WATER IN BORING: 12 ft
DATE: 5/10/2024

LGBNEW 24-0017.GPJ 5-17-24

Form 108-6(74) Job No. 24-0017

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LOG OF BORING NO. 6

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

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: 246±				
			Loose brown silt, slightly sandy	6			
				5			
5			- very loose below 4 ft	2			
			Very loose to loose brown fine sandy silt	4			
			Very loose brown silt, slightly sandy, wet	1			
10							
			Stiff brown silty clay			⊗	
15							
			Firm brown and gray clay w/organic stains	8			
20							
			Dense tan fine sand, slightly silty	32			
25							
			- brown below 28 ft - medium dense at 28 to 38 ft	27			
30							
				15			

COMPLETION DEPTH: 60.0 ft
DATE: 5-9-24

DEPTH TO WATER IN BORING: 12 ft

DATE: 5/9/2024

LGBNEW 24-0017.GPJ 5-17-24

Form 108-6(74) Job No. 24-0017

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LOG OF BORING NO. 6

LRPA Supersite
Little Rock, Arkansas

TYPE: Auger to 15 ft /Wash

LOCATION: See Plate 2

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL (continued)	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 %
40			- medium dense to dense with a little fine gravel below 38 ft	30			
45			Medium dense grayish brown fine to medium sand, slightly silty	17			
50			Dense tan fine sand, slightly silty	32			
55			Dense tan fine to medium sand, slightly silty	53			
60			Medium dense grayish brown fine sand, slightly silty w/a little fine gravel	25			
65							

COMPLETION DEPTH: 60.0 ft
DATE: 5-9-24

DEPTH TO WATER IN BORING: 12 ft

DATE: 5/9/2024

LGBNEW 24-0017.GPJ 5-17-24

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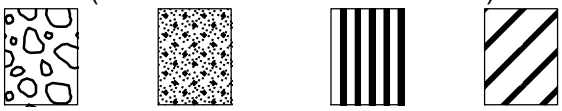
SYMBOLS AND TERMS USED ON BORING LOGS

SOIL TYPES

(SHOWN IN SYMBOLS COLUMN)

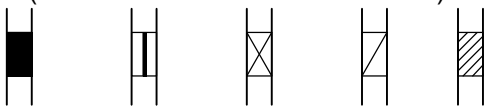


Gravel Sand Silt Clay

Predominant type shown heavy

SAMPLER TYPES

(SHOWN ON SAMPLES COLUMN)



Shelby Tube | Rock Core | Split Spoon | No Recovery | Cutting

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS (major portion retained on No. 200 sieve): Includes (I) 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.

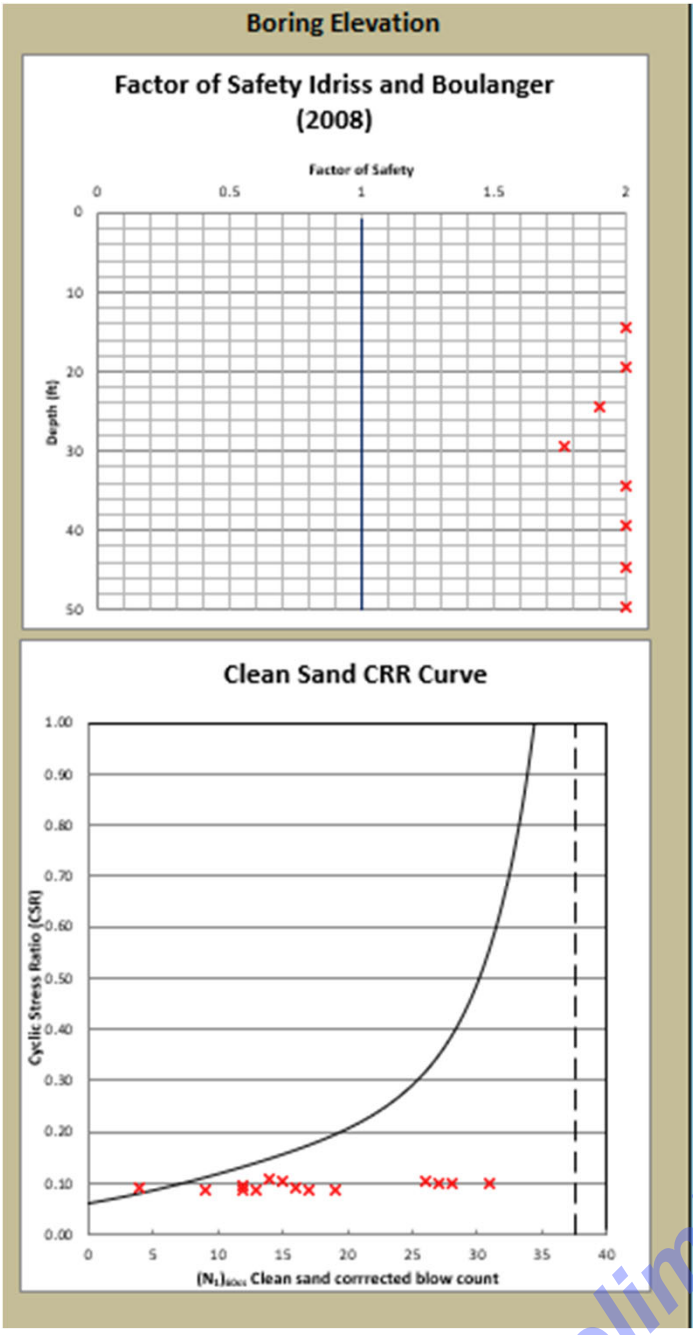
TERMS CHARACTERIZING SOIL STRUCTURE

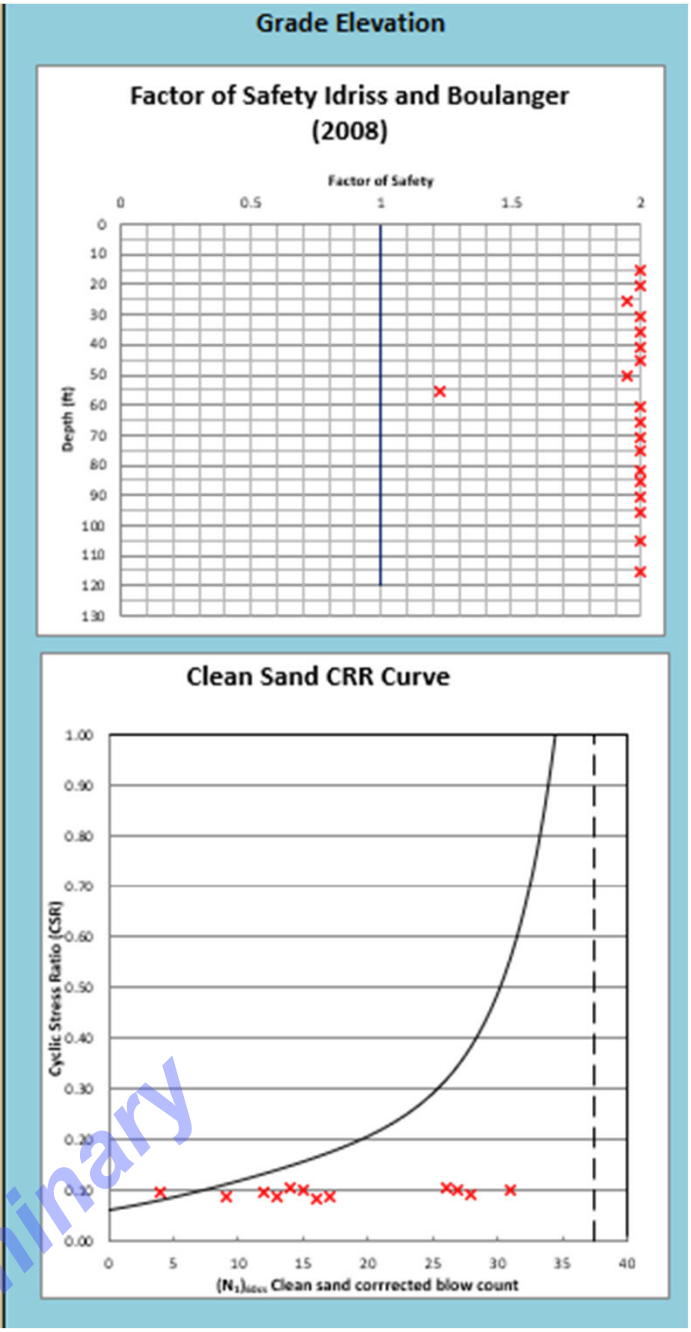
SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance.
FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.
LAMINATED - composed of thin layers of varying color and texture.
INTERBEDDED - composed of alternate layers of different soil types.
CALCAREOUS - containing appreciable quantities of calcium carbonate.
WELL GRADED - having a 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 on 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

KEY 3-14-12

ATTACHMENT 1





1000+ Acre Site (Boring 4)

Grubbs, Hoskyn, Barton & Wyatt, LLC CONSULTING ENGINEERS A UES Company	**LIQUEFACTION ANALYSIS RESULTS** LRPA 1000+ Acre Site Little Rock, Arkansas	**Job No. 24-0017** Plate