

ARKANSAS DEPARTMENT OF TRANSPORTATION



**SUBSURFACE INVESTIGATION**

STATE JOB NO. 050341

FEDERAL AID PROJECT NO. NHPP-0012(34)

MILL & PINEY CREEK STRS. & APPRS. (S)

STATE HIGHWAY 25 SECTION 2

IN CLEBURNE COUNTY

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ARKANSAS DEPARTMENT OF TRANSPORTATION

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MATERIALS DIVISION

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October 17, 2017

**TO:** Mr. Rick Ellis, Bridge Engineer

**SUBJECT:** Job No. 050341  
 Mill & Piney Creek Strs. & Apprs. (S)  
 Route 25 Section 2  
 Cleburne County

Transmitted herewith are a brief summary of the geology and site conditions, rock core unconfined compression test summary, RMR, D50 scour analysis, and the logs of the borings conducted for the structures and approaches of the above referenced project. The samples obtained by the Standard Penetration Tests were brought to the laboratory and visually classified by experienced lab personnel to confirm the field identifications.

This project consists of replacing the bridge crossing Piney Creek, on Highway 25, northeast of Quitman. The new bridge will be constructed upstream from the existing. A total of eight borings were performed for this project: one for each end bent and three borings at each intermediate bent, one at each proposed drilled shaft location.

Based on plans provided by Bridge Division, it is anticipated that end bents will be founded on steel h-piles, bearing on rock, and intermediate bents will be founded on rock-socketed drilled shafts. Drilled shafts socketed into Sandstone to Sandstone with Shale should be designed based on the values provided in Table 1.

TABLE 1 – Bearing Capacity Recommendations for Drilled Shafts

Nominal Shaft Side Resistance (ksf)	Factored Shaft Side Resistance (ksf)	Nominal Shaft Tip Resistance (ksf)	Factored Shaft Tip Resistance (ksf)
32.7	18.0	274	137

Findings from this subsurface investigation revealed that bedrock is less than ten feet deep at each boring location. Therefore, spread footings may be considered as an alternative to drilled shafts and preboring may be necessary in order to achieve minimum penetration requirements for piling. Spread footings founded in Sandstone to Sandstone with Shale should be designed based on the values provided in Table 2.

TABLE 2 – Bearing Capacity Recommendations for Spread Footings

Nominal Bearing Resistance (ksf)	Factored Bearing Resistance (ksf)	Bearing Resistance at Service Limit State (ksf)
430	194	40

If you have any questions concerning these recommendations, please contact the Geotechnical Section.



Michael C. Benson  
Materials Engineer

MCB:rpt:mlg

cc: State Construction Engineer - Master File Copy  
District 5 Engineer  
G.C. File

**GEOLOGY AND SITE CONDITIONS**  
**Job No. 050341**  
**Mill & Piney Creek Strs. & Apprs. (S)**  
**Route 25 Section 2**  
**Cleburne County**

**Site Conditions**

The proposed structure is to be located east of the existing bridge. The current bridge is located on highway 25, northeast of Quitman, in Cleburne County. It is a 4 span bridge, approximately 140 foot long, running southwest to northeast. The bridge decking is cast-in-place concrete with steel guardrail and is supported by spread footings and concrete end walls. The west side of the bridge was widened by adding on additional decking and support. Overhead power lines and buried fiber optic parallel the west side of the roadway along the project alignment and a buried gas line parallels the east side of the road.

Piney Creek flows from east to west under the bridge. The creek channel is primarily lined with pasture land to the west of the bridge and moderate to heavy woodland to the east. The creek bank has recently been lined with riprap on the southwestern side of the bridge and appears to be susceptible to erosion. Part of the channel has been dammed up by concrete that was poured to cover a water line that was recently excavated and repaired. The repaired water line crosses the creek approximately 60 feet east of the existing bridge alignment. Horizontally bedded sandstone is exposed in the creek channel and there are several mapped faults to the northwest of the project alignment.

**Site Geology**

The project alignment is located in the mapped outcrop of the Atoka Formation (map symbol Pa). This formation is Pennsylvanian in age and has the widest areal extent of all the Paleozoic rocks in Arkansas. The Atoka is a sequence of mostly tan to gray marine sandstones and grayish black shales. This formation represents prominent surface exposures in the Boston Mountains, along the Arkansas River Valley and the frontal Ouachita Mountains, where unit thickness can be up to 25,000 feet. This formation contains rare calcareous beds, discontinuous coal, and abundant trace fossils.

**Subsurface Conditions**

Based on the results of the borings, the subsurface stratigraphy may be generalized as follows:

- 0 to 5.2 Feet: Consists of moist to wet, loose to medium dense, brown sand with occasional gravel (rock fragments).
- 5.2 to 39.4 Feet: Consists of weathered to slightly weathered, cemented to well cemented, occasionally fractured, gray sandstone with interbedded shale.

# Rock Core Unconfined Compression Test Summary

Project Number: 050341  
 Project Name: Mill & Piney Creek Strs. & Apprs. (S)  
 Date Tested: 9/26/2017

Station	Location	Sample No.	Depth (ft)	Diameter (in)	Height (in)	Total Load (lbs)	Correction Factor	Stress (psi)	Remarks
505+11	C.L.	1	7.0	1.75	3.40	31,210	1.00	12,976	End Bent (South)
505+61	15' LT	2	8.2	1.75	3.50	48,770	1.00	20,276	Interbed SS/SH
505+61	15' LT	3	19.5	1.75	3.51	69,800	1.00	29,019	SS (light)
505+61	15' LT	4	26.6	1.75	3.52	16,950	1.00	7,047	Interbed SS/SH
505+61	15' LT	5	35.5	1.75	3.50	11,370	1.00	4,727	SS (dark)
505+61	C.L.	6	8.9	1.75	3.49	40,880	1.00	16,996	Interbed SS/SH
505+61	C.L.	7	14.2	1.75	3.53	12,260	1.00	5,097	SS (dark)
505+61	C.L.	8	20.0	1.75	3.49	50,080	1.00	20,821	SS (light)
505+61	C.L.	9	30.0	1.75	3.53	17,600	1.00	7,317	SS (dark)
505+61	C.L.	10	36.8	1.75	3.51	23,200	1.00	9,645	SS
505+61	10' RT	11	5.0	1.75	3.50	21,230	1.00	8,826	Interbed SS/SH
505+61	10' RT	12	13.3	1.75	3.50	49,620	1.00	20,629	SS
505+61	10' RT	13	21.8	1.75				BROKE	Interbed SS/SH
505+61	10' RT	14	32.5	1.75	3.51	5,390	1.00	2,241	SS
506+30	15' LT	15	4.3	1.75	3.50	17,750	1.00	7,380	SS w/ iron (WTD/Brown)
506+30	15' LT	16	12.4	1.75	3.50	26,950	1.00	11,204	Interbed SS/SH
506+30	15' LT	17	20.8	1.75	3.51	49,910	1.00	20,750	SS (light)
506+30	15' LT	18	27.1	1.75	3.50	16,180	1.00	6,727	Interbed SS/SH
506+30	15' LT	19	34.5	1.75	3.52	12,670	1.00	5,268	SS (dark)
506+76	C.L.	20	5.0	1.75	3.51	23,270	1.00	9,674	End Bent (North) SS (light)
506+26	C.L.	21	5.9	1.75	3.50	25,670	1.00	10,672	SS (light)
506+26	C.L.	22	13.4	1.75	3.50	24,880	1.00	10,344	Interbed SS/SH
506+26	C.L.	23	19.4	1.75	3.50	31,590	1.00	13,133	SS (light)
506+26	C.L.	24	26.3	1.75	3.52	22,710	1.00	9,442	SS (dark)
506+26	15' RT	25	6.3	1.75	3.50	32,900	1.00	13,678	SS (brown)
506+26	15' RT	26	17.2	1.75	3.50	14,030	1.00	5,883	SS (dark)
506+26	15' RT	27	29.8	1.75	3.50	20,110	1.00	8,361	Interbed SS/SH

\* Please note any broken samples, fractures or other characteristics of sample in Remarks.

**ROCK MASS RATING SUMMARY**  
**JOB # 050341**

**SAMPLE #1**

Station/Location	505+11\ CL
Depth (ft)	7
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	17
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	81
Class Number	I
Description	<b>VERY GOOD ROCK</b>

**SAMPLE #2**

Station/Location	505+61\ 15' LT
Depth (ft)	8.2
<b>Relative Rating</b>	
Uniaxial Compressive Strength	12
RQD	17
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	86
Class Number	I
Description	<b>VERY GOOD ROCK</b>

**SAMPLE #3**

Station/Location	505+61\ 15' LT
Depth (ft)	19.5
<b>Relative Rating</b>	
Uniaxial Compressive Strength	12
RQD	17
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	81
Class Number	I
Description	<b>VERY GOOD ROCK</b>

**SAMPLE #4**

Station/Location	505+61\ 15' LT
Depth (ft)	26.6
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	8
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	49
Class Number	III
Description	<b>FAIR ROCK</b>

**SAMPLE #5**

Station/Location	505+61\ 15' LT
Depth (ft)	35.5
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	20
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	76
Class Number	II
Description	<b>GOOD ROCK</b>

**SAMPLE #6**

Station/Location	505+61\ CL
Depth (ft)	8.9
<b>Relative Rating</b>	
Uniaxial Compressive Strength	12
RQD	17
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	81
Class Number	I
Description	<b>VERY GOOD ROCK</b>

**SAMPLE #7**

Station/Location	505+61\ CL
Depth (ft)	14.2
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	8
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	69
Class Number	II
Description	<b>GOOD ROCK</b>

**SAMPLE #8**

Station/Location	505+61\ CL
Depth (ft)	20
<b>Relative Rating</b>	
Uniaxial Compressive Strength	12
RQD	17
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	81
Class Number	I
Description	<b>VERY GOOD ROCK</b>

**SAMPLE #9**

Station/Location	505+61\ CL
Depth (ft)	30
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	13
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	69
Class Number	II
Description	GOOD ROCK

**SAMPLE #10**

Station/Location	505+61\ CL
Depth (ft)	36.8
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	20
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	74
Class Number	II
Description	GOOD ROCK

**SAMPLE #11**

Station/Location	505+61\ 10' RT
Depth (ft)	5
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	67
Class Number	II
Description	GOOD ROCK

**SAMPLE #12**

Station/Location	505+61\ 10' RT
Depth (ft)	13.3
<b>Relative Rating</b>	
Uniaxial Compressive Strength	12
RQD	13
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	82
Class Number	I
Description	VERY GOOD ROCK

**SAMPLE #13**

Station/Location	505+61\ 10' RT
Depth (ft)	21.8
<b>Relative Rating</b>	
Uniaxial Compressive Strength	N/A
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	50
Class Number	III
Description	FAIR ROCK

**SAMPLE #14**

Station/Location	505+61\ 10' RT
Depth (ft)	32.5
<b>Relative Rating</b>	
Uniaxial Compressive Strength	1
RQD	20
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	73
Class Number	II
Description	GOOD ROCK

**SAMPLE #15**

Station/Location	506+30\ 15' LT
Depth (ft)	4.3
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	13
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	69
Class Number	II
Description	GOOD ROCK

**SAMPLE #16**

Station/Location	506+30\ 15' LT
Depth (ft)	12.4
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	20
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	84
Class Number	I
Description	VERY GOOD ROCK

**SAMPLE #17**

Station/Location	506+30\ 15' LT
Depth (ft)	20.8
<b>Relative Rating</b>	
Uniaxial Compressive Strength	12
RQD	17
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	76
Class Number	II
Description	GOOD ROCK

**SAMPLE #18**

Station/Location	506+30\ 15' LT
Depth (ft)	27.1
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	20
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	81
Class Number	I
Description	VERY GOOD ROCK

**SAMPLE #19**

Station/Location	506+30\ 15' LT
Depth (ft)	34.5
<b>Relative Rating</b>	
Uniaxial Compressive Strength	4
RQD	17
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	78
Class Number	II
Description	GOOD ROCK

**SAMPLE #20**

Station/Location	506+78\ CL
Depth (ft)	5
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	8
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	60
Class Number	III
Description	FAIR ROCK

**SAMPLE #21**

Station/Location	506+28\ CL
Depth (ft)	5.9
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	25
Condition of Joints	20
Groundwater Conditions	7
Sum	72
Class Number	II
Description	GOOD ROCK

**SAMPLE #22**

Station/Location	506+26\ CL
Depth (ft)	13.4
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	77
Class Number	II
Description	GOOD ROCK

**SAMPLE #23**

Station/Location	506+26\ CL
Depth (ft)	19.4
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	72
Class Number	II
Description	GOOD ROCK

**SAMPLE #24**

Station/Location	506+26\ CL
Depth (ft)	26.3
<b>Relative Rating</b>	
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	67
Class Number	II
Description	GOOD ROCK



**SAMPLE #25**

Station/Location	506+26\ 15' RT
Depth (ft)	6.3
	<b>Relative Rating</b>
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	57
Class Number	III
Description	FAIR ROCK

**SAMPLE #26**

Station/Location	506+26\ 15' RT
Depth (ft)	17.2
	<b>Relative Rating</b>
Uniaxial Compressive Strength	4
RQD	17
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	64
Class Number	II
Description	GOOD ROCK

**SAMPLE #27**

Station/Location	506+26\ 15' RT
Depth (ft)	29.8
Uniaxial Compressive Strength	7
RQD	13
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	60
Class Number	III
Description	FAIR ROCK

**SAMPLE #28**

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

**SAMPLE #29**

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

**SAMPLE #30**

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

**SAMPLE #31**

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

**SAMPLE #32**

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

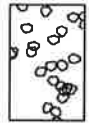
**D<sub>50</sub> AGGREGATE ANALYSIS  
FOR SCOUR CALCULATIONS**

<b>Job No. 080506</b>					
<b>Creek Name</b>	<b>Station</b>	<b>Sample Type</b>	<b>Location</b>	<b>Depth (FT)</b>	<b>Aggregate Size (D50) (IN)</b>
Piney Creek	311+00	Creek Bank	Construction C.L.	N/A	0.007

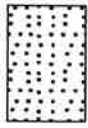
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## SOIL TYPES

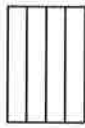
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( PREDOMINANT TYPE SHOWN HEAVY)



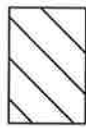
GRAVEL



SAND



SILT



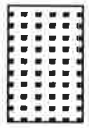
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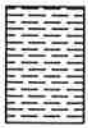
ORGANIC  
MATTER

## ROCK TYPES

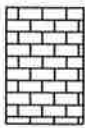
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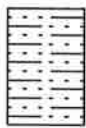
SANDSTONE



SHALE  
or  
SILTSTONE



LIMESTONE  
or  
DOLOMITE



ALTERNATING  
LAYERS of  
SHALE and  
SANDSTONE



OTHER

## SAMPLER TYPES

( SHOWN IN SAMPLE COLUMN)

### SHELBY TUBE



UNDISTURBED  
SAMPLE  
RECOVERY



DISTURBED  
SAMPLE  
RECOVERY

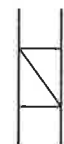


NO  
RECOVERY

### SPLIT SPOON



SAMPLE  
RECOVERY



NO  
RECOVERY

### ROCK CORING



% RECOVERY  
INDICATED ON LOGS

## TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-SHALE		SHALE	
*N <sup>o</sup> Value	Density	*N <sup>o</sup> Value	Consistency	*N <sup>o</sup> Value	Consistency	*N <sup>o</sup> Value	Consistency
0-4	Very Loose	0-1	Very Soft	0-1	Very Soft		
5-10	Loose	2-4	Soft	2-4	Soft	31-60	Soft
11-30	Medium Dense	5-8	Medium Stiff	5-8	Medium Stiff	Over 60	
31-50	Dense	9-15	Stiff	9-15	Stiff	More than 2'	
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetration	
		31-60	Hard	31-60	Hard	in 60 Blows	Medium Hard
		Over 60	Very Hard	Over 60	Very Hard	Less than 2'	
						Penetration	
						in 60 Blows	Hard

1. Ground water elevations indicated on boring logs represent ground water elevations at date or time shown on boring log. Absence of water surface implies that no ground water data is available but does not necessarily mean that ground water will not be encountered at locations or within the vertical reaches of these borings.
2. Borings represent subsurface conditions at their respective locations for their respective depths. Variations in conditions between or adjacent to boring locations may be encountered.
3. Terms used for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System.

Standard Penetration Test – Driving a 2.0" O.D., 1-3/8" I.D. sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and performing the test are recorded for each 6 inches of penetration on the drill log. The field "N" Value (N<sub>f</sub>) can be obtained by

adding the bottom two numbers for example:  $\frac{6}{8-9} \Rightarrow 8+9 = 17 \text{ blows/ft}$ . The "N" Value corrected to 60% efficiency (N<sub>60</sub>) can be obtained by multiplying N<sub>f</sub> by the hammer correction factor published on the boring log.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 1  
PAGE 1 OF 2

JOB NO. 050341 Cleburne County  
JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
Route 25 Section 2  
STATION: 505+11  
LOCATION: Construction Centerline  
LOGGED BY: Stanley Bates

DATE: August 30, 2017  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 38.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 582.3									
5		X	Wet, Medium Dense, Brown Gravel with Sand							4 5-9		
10			SANDSTONE WITH FREQUENT SHALE SEAMS - Slightly Weathered, Cemented, Gray								100	88
15			SANDSTONE WITH OCCASIONAL SHALE SEAMS AND LAYERS - Unweathered, Well Cemented, Gray								98	90
20			SHALE WITH FREQUENT SANDSTONE SEAMS - Unweathered, Hard, Dark Gray								100	80
25			SANDSTONE - Unweathered, Well Cemented, Gray									
25			SANDSTONE WITH FREQUENT SHALE SEAMS AND LAYERS - Unweathered, Cemented to Well Cemented, Gray								100	66
30			SANDSTONE WITH OCCASIONAL SHALE SEAMS AND LAYERS - Unweathered, Cemented to Well Cemented, Gray								100	80
35												

REMARKS: Lat: 35.4091045 Long: -92.1631248

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 1  
PAGE 2 OF 2

JOB NO. 050341 Cleburne County  
JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
Route 25 Section 2  
STATION: 505+11  
LOCATION: Construction Centerline  
LOGGED BY: Stanley Bates

DATE: August 30, 2017  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 38.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 582.3									
											100	100
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Lat: 35.4091045 Long: -92.1631248

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 505+61  
 LOCATION: 15' Left of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: August 29, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 38.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R O D
			SURFACE ELEVATION: 582.7									
5		X	Wet, Loose, Brown Sand							1 3-3		
10			SANDSTONE SANDSTONE WITH FREQUENT SHALE SEAMS - Slightly Weathered, Cemented, Gray								92	76
15			SANDSTONE WITH FREQUENT SHALE SEAMS AND LAYERS - Slightly Weathered, Cemented, Gray								100	76
20			SANDSTONE - Unweathered with Weathered Layers, Well Cemented with Cemented Layers, Gray								100	98
25			SHALE WITH FREQUENT SANDSTONE SEAMS - Unweathered, Hard, Dark Gray								100	82
30			SANDSTONE WITH FREQUENT SHALE SEAMS AND LAYERS* - Unweathered, Cemented, Gray								80	17
35			SHALE WITH FREQUENT SANDSTONE LAYERS - Unweathered, Hard, Dark Gray								100	98
38.8			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Well Cemented, Gray									

REMARKS: \* Poor recovery due to inner barrel malfunction. Lat: 35.4092584 Long: -92.1631147

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 505+61  
 LOCATION: 15' Left of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: August 29, 2017  
 TYPE OF DRILLING: Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 38.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 582.7									
											100	100
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: \* Poor recovery due to inner barrel malfunction. Lat: 35.4092584 Long: -92.1631147

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 505+61  
 LOCATION: Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: August 29, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 39

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 582.6									
5			Moist, Loose, Brown Sand							3 4-1		
10			SANDSTONE WITH FREQUENT SHALE SEAMS - Slightly Weathered, Cemented, Gray								95	80
15			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Slightly Weathered, Cemented, Occasional Fractures, Gray								94	48
20			SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Hard, Dark Gray								100	94
25			SANDSTONE WITH FREQUENT SHALE SEAMS - Unweathered, Cemented, Gray								100	82
			SHALE WITH FREQUENT SANDSTONE SEAMS - Unweathered, Hard, Dark Gray								100	58
30			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Cemented to Well Cemented, Gray								100	90
35												

REMARKS: Lat: 35.4092519 Long: -92.1630679



JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 505+61  
 LOCATION: Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: August 29, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 39

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% FCR	% RQD
			SURFACE ELEVATION: 582.6									
											100	92
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Lat: 35.4092519 Long: -92.1630679

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 505+61  
 LOCATION: 10' Right of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: August 30, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR. N/A

COMPLETION DEPTH: 36.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R O D
			SURFACE ELEVATION: 581.5									
			Sand									
5			Moist, Very Dense, Brown Sand							10 (1")	100	66
			SANDSTONE WITH FREQUENT SHALE SEAMS - Slightly Weathered, Cemented, Gray								100	62
10											100	62
			SANDSTONE - Slightly Weathered, Cemented, Gray								100	100
15											100	100
			SHALE WITH FREQUENT SANDSTONE SEAMS - Unweathered, Hard, Dark Gray								100	68
20			SANDSTONE - Unweathered, Well Cemented, Gray								100	64
			SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Hard, Dark Gray								100	64
25											100	64
			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Cemented to Well Cemented, Occasional Coal Seams, Occasional Fractures, Gray								100	92
30											100	92
35											100	92

REMARKS: Lat: 35.4092240 Long: -92.1630387

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 505+61  
 LOCATION: 10' Right of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: August 30, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 36.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 581.5									
			Boring Terminated									
40												
45												
50												
55												
60												
65												
70												

REMARKS: Lat: 35.4092240 Long: -92.1630387

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+26  
 LOCATION: Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 11, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 39

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 583.5									
5			Sand									
			SANDSTONE - Weathered, Cemented, Frequent Fractures, Gray									
			SANDSTONE - Slightly Weathered, Well Cemented, Gray								100	67
10			SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Gray								100	64
15												
			SANDSTONE - Unweathered, Well Cemented, Occasional Fractures, Gray								96	70
20												
			SANDSTONE WITH INTERBEDDED SHALE - Unweathered with Slightly Weathered Layers, Well Cemented, Occasional Fractures, Gray								100	92
25												
			SANDSTONE WITH INTERBEDDED SHALE - Unweathered with Slightly Weathered Layers, Well Cemented, Occasional Fractures, Gray								100	58
30												
			SANDSTONE WITH OCCASIONAL SHALE LAYERS - Unweathered, Well Cemented,								100	86
35												

REMARKS: Lat: 35.4094198 Long: -92.1629675

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+26  
 LOCATION: Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 11, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 39

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 583.5									
			Occasional Fractures, Gray								100	92
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Lat: 35.4094198 Long: -92.1629675

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+26  
 LOCATION: 15' Right of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 12, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 39.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5			Sand									
10			SANDSTONE - Slightly Weathered, Well Cemented, Frequent Fractures, Gray								100	58
15			SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Gray								100	86
20			SANDSTONE - Slightly Weathered, Cemented, Gray								100	66
25			SANDSTONE - Slightly Weathered, Well Cemented, Occasional Fractures, Gray								100	90
30			SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Very Hard, Occasional Fractures, Gray								100	58
35			SANDSTONE - Unweathered, Well Cemented,								100	82

REMARKS: Lat: 35.4093959 Long: -92.1629273

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+26  
 LOCATION: 15' Right of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 12, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 39.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 584.9									
			Occasional Shale Layers, Occasional Fractures, Gray								100	94
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Lat: 35.4093959 Long: -92.1629273

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+30  
 LOCATION: 15' Left of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 6, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 37.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 582.4									
			Sand									
5			SANDSTONE - Weathered with Highly Weathered Layers, Cemented with Poorly Cemented Layers, Brown								95	74
			SANDSTONE - Unweathered, Well Cemented, Gray									
10			SANDSTONE WITH FREQUENT SHALE SEAMS - Unweathered, Well Cemented, Gray								100	100
15			SANDSTONE WITH OCCASIONAL SHALE LAYERS - Unweathered, Cemented, Gray								100	66
			SANDSTONE - Unweathered, Cemented, Gray									
20			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Well Cemented, Gray								100	100
25			SANDSTONE WITH FREQUENT SHALE SEAMS - Unweathered, Well Cemented, Gray								100	70
30			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Cemented, Gray								100	90
35												

REMARKS: Lat: 35.4094642 Long: -92.1630166



JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+30  
 LOCATION: 15' Left of Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 6, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 37.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 582.4									
			SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Cemented with Occasional Well Cemented Layers, Gray								100	84
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Lat: 35.4094642 Long: -92.1630166

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+76  
 LOCATION: Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 6, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 38.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R O D
			SURFACE ELEVATION: 587.4									
			Sand									
5			SANDSTONE - Slightly Weathered, Cemented, Gray							10 (0")	86	38
			SHALE WITH INTERBEDDED SANDSTONE - Slightly Weathered, Hard, Gray									
10			SANDSTONE - Unweathered, Well Cemented, Occasional Fractures, Gray								90	68
15			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Well Cemented, Occasional Fractures, Gray								100	76
20			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Cemented, Occasional Fractures, Gray								100	80
25			SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Cemented, Occasional Fractures, Gray								100	72
30			SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Occasional Fractures, Gray*								100	60
35												

REMARKS: \* Inner barrel malfunction at 33.6 to 34.6 feet below ground level. Lat: 35.4094990 Long: - 92.1628912

ARKANSAS HWY. & TRANS. DEPARTMENT  
 MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 8  
 PAGE 2 OF 2

JOB NO. 050341 Cleburne County  
 JOB NAME: Mill & Piney Creek Strs. & Apprs.(S)  
 Route 25 Section 2  
 STATION: 506+76  
 LOCATION: Construction Centerline  
 LOGGED BY: Stanley Bates

DATE: September 6, 2017  
 TYPE OF DRILLING:  
 Hollow Stem Auger - Diamond Core  
 EQUIPMENT: Acker  
 HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 38.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 587.4									
											88	50
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: \* Inner barrel malfunction at 33.6 to 34.6 feet below ground level. Lat: 35.4094990 Long: -92.1628912

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

December 29, 2016

**TO:** Mr. Trinity Smith, Engineer of Roadway Design

**SUBJECT:** Job No. 050341  
Mill & Piney Creek Strs. & Apprs. (S)  
Route 25 Section 2  
Cleburne County

Transmitted herewith is the requested Soil Survey, strength data and Resilient Modulus test results for the above referenced job. The project consists of replacing two bridges on Highway 25. Samples were obtained in the existing travel lanes and ditch line. There were no paved shoulders within the project limits. Due to job constraints, a bulk sample was not obtained. Based on soil type and jobs in the surrounding area an estimated R-Value of 20 is recommended.

Based on laboratory results of samples obtained, the subgrade soils consist primarily of low plasticity sandy clay. Cross sections are not currently available; but it is assumed that the construction grade line will closely match that of the existing roadway. The subgrade soils are expected to provide a stable working platform with normal drying and compactive efforts, if the weather is favorable during construction. No slides were observed within the project limits.

Listed below is the additional information requested for use in developing the plans:

1. The Qualified Products List (QPL) indicates that Aggregate Base Course (Class CL-7) is available from commercial producers located in the vicinity of Bee Branch.
2. Asphalt Concrete Hot Mix

<u>Type</u>	<u>Asphalt Cement %</u>	<u>Mineral Aggregate %</u>
Surface Course	5.3	94.7
Binder Course	4.4	95.6
Base Course	3.9	96.1

  
Michael C. Benson  
Materials Engineer

MCB:pt:bjj

Attachment

cc: State Constr. Eng. – Master File Copy  
District 5 Engineer  
System Information and Research Div.  
G. C. File

**JOB: 050341**

**Arkansas State Highway Transportation Department**

**JOB NAME: MILL & PINEY CREEK STRS. & APPRS.(S)**

**Materials Division**

**COUNTY NO. 12 DATE TESTED 12/19/2016**

**Michael Benson, Materials Engineer**

STA.#	LOC.	DEPTH	COLOR	#4 #10 #40 #80 #200					L.L.	P.I.	SOIL CLASS	LAB #:	%MOISTURE
				S	I	E	V	E					
109+00	18RT	0-5	BROWN	74	58	46	38	30	25	8	A-2-4(0)	S499	18.2
109+60	05RT	0-5	BROWN	92	79	69	65	59	30	12	A-6(4)	S500	16.7
110+50	05LT	0-5	BROWN	91	80	70	62	54	25	10	A-4(2)	S501	22.3
110+80	18LT	0-5	BROWN	97	95	92	79	66	20	6	A-4(1)	S502	18.1
214+30	06RT	0-5	BROWN	95	90	86	64	46	21	8	A-4(1)	S503	15
214+30	18RT	0-5	BROWN	82	76	72	53	37	22	10	A-4(0)	S504	16.3
215+80	06LT	0-5	BROWN	97	94	91	70	54	24	12	A-6(3)	S505	14.8
215+80	18LT	0-5	BROWN	89	85	83	65	47	20	6	A-4(0)	S506	16.5

**comments:** W= MULTIPLE LAYERS, X=STRIPPED

**Tuesday, December 27, 2016**

**JOB:** 050341

**JOB NAME:** MILL & PINEY CREEK STRS. & APPRS.(S)

**Arkansas State Highway Transportation Department  
Materials Division**

**DATE TESTED**  
12/19/2016

**COUNTY NO.** 12

**Michael Benson, Materials Engineer**

**STA.# LOC.**

**PAVEMENT SOUNDINGS**

109+00	18RT	ACHMSC	ACHMBC	AGG BASE CRS CL-7
109+60	05RT	ACHMSC	ACHMBC	AGG BASE CRS CL-7
		6.25W		2.0
110+50	05LT	ACHMSC	ACHMBC	AGG BASE CRS CL-7
		5.0W	1.5	2.0
110+80	18LT	ACHMSC	ACHMBC	AGG BASE CRS CL-7
214+30	18RT	ACHMSC	ACHMBC	AGG BASE CRS CL-7
214+30	06RT	ACHMSC	ACHMBC	AGG BASE CRS CL-7
		4.5	1.5	7.0
215+80	18LT	ACHMSC	AGG BASE CRS CL-7	
215+80	06LT	ACHMSC	AGG BASE CRS CL-7	
		5.0X	7.0	

**comments:** W= MULTIPLE LAYERS, X=STRIPPED

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS  
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

\*\*\* SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT \*\*\*

DATE	- 12/19/16	SEQUENCE NO.	- 1
JOB NUMBER	- 050341	MATERIAL CODE	- SSPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 12
SUPPLIER NAME	- STATE	DISTRICT NO.	- 05
NAME OF PROJECT	- MILL & PINEY CREEK STRS. & APPRS. (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- CLEBURNE, COUNTY	DATE SAMPLED	- 12/07/16
SAMPLED BY	- THORNTON/BATES	DATE RECEIVED	- 12/12/16
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 12/19/16
MATERIAL DESC.	- SOIL SURVEY PAVEMENT SOUNDINGS		

LAB NUMBER	- 20164001	- 20164002	- 20164003
SAMPLE ID	- S499	- S500	- S501
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 109+00	- 109+60	- 110+50
LOCATION	- 18RT	- 05RT	- 05LT
DEPTH IN FEET	- 0-5	- 0-5	- 0-5
MAT'L COLOR	- BROWN	- BROWN	- BROWN
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 23 2.50	- 35 23 2.50	- 35 23 2.70
LONGITUDE DEG-MIN-SEC	- 92 12 53.50	- 92 12 52.80	- 92 12 51.70
% PASSING			
2 IN.	-	-	-
1 1/2 IN.	-	-	-
3/4 IN.	- 100	- 100	- 100
3/8 IN.	- 85	- 99	- 98
NO. 4	- 74	- 92	- 91
NO. 10	- 58	- 79	- 80
NO. 40	- 46	- 69	- 70
NO. 80	- 38	- 65	- 62
NO. 200	- 30	- 59	- 54
LIQUID LIMIT	- 25	- 30	- 25
PLASTICITY INDEX	- 8	- 12	- 10
AASHTO SOIL	- A-2-4 (0)	- A-6 (4)	- A-4 (2)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 18.2	- 16.7	- 22.3
ACHMSC (IN)	- ---	- 6.25W	- 5.0W
ACHMBC (IN)	- ---	- ---	- 1.5
AGG BASE CRS CL-7 (IN)	- ---	- 2.0	- 2.0
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - W= MULTIPLE LAYERS, X=STRIPPED

AASHTO TESTS : T24 T88 T89 T90 T265

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS  
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

\*\*\* SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT \*\*\*

DATE - 12/19/16 SEQUENCE NO. - 2  
JOB NUMBER - 050341 MATERIAL CODE - SSPS  
FEDERAL AID NO. - TO BE ASSIGNED SPEC. YEAR - 2014  
PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1  
SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 12  
SUPPLIER NAME - STATE DISTRICT NO. - 05  
NAME OF PROJECT - MILL & PINEY CREEK STRS. & APPRS. (S)  
PROJECT ENGINEER - NOT APPLICABLE  
PIT/QUARRY - ARKANSAS  
LOCATION - CLEBURNE, COUNTY DATE SAMPLED - 12/07/16  
SAMPLED BY - THORNTON/BATES DATE RECEIVED - 12/12/16  
SAMPLE FROM - TEST HOLE DATE TESTED - 12/19/16  
MATERIAL DESC. - SOIL SURVEY PAVEMENT SOUNDINGS

LAB NUMBER	-	20164004	-	20164005	-	20164006
SAMPLE ID	-	S502	-	S503	-	S504
TEST STATUS	-	INFORMATION ONLY	-	INFORMATION ONLY	-	INFORMATION ONLY
STATION	-	110+80	-	214+30	-	214+30
LOCATION	-	18LT	-	06RT	-	18RT
DEPTH IN FEET	-	0-5	-	0-5	-	0-5
MAT'L COLOR	-	BROWN	-	BROWN	-	BROWN
MAT'L TYPE	-	-	-	-	-	-
LATITUDE DEG-MIN-SEC	-	35 23 2.80	-	35 24 33.00	-	35 24 33.00
LONGITUDE DEG-MIN-SEC	-	92 12 51.30	-	92 09 47.60	-	92 09 47.60
% PASSING	2	IN.	-	-	-	-
	1 1/2	IN.	-	-	-	-
	3/4	IN.	-	100	-	100
	3/8	IN.	-	98	-	90
	NO. 4	-	-	95	-	82
	NO. 10	-	-	90	-	76
	NO. 40	-	-	86	-	72
	NO. 80	-	-	64	-	53
	NO. 200	-	-	46	-	37
LIQUID LIMIT	-	20	-	21	-	22
PLASTICITY INDEX	-	6	-	8	-	10
AASHTO SOIL	-	A-4 (1)	-	A-4 (1)	-	A-4 (0)
UNIFIED SOIL	-	-	-	-	-	-
% MOISTURE CONTENT	-	18.1	-	15.0	-	16.3
ACHMSC	(IN)	---	-	4.5	-	---
ACHMBC	(IN)	---	-	1.5	-	---
AGG BASE CRS CL-7	(IN)	---	-	7.0	-	---
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-

REMARKS - W=MULTIPLE LAYERS, X=STRIPPED

AASHTO TESTS : T24 T88 T89 T90 T265



ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS  
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

\*\*\* SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT \*\*\*

DATE	- 12/19/16	SEQUENCE NO.	- 3
JOB NUMBER	- 050341	MATERIAL CODE	- SSPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 12
SUPPLIER NAME	- STATE	DISTRICT NO.	- 05
NAME OF PROJECT	- MILL & PINEY CREEK STRS. & APPRS. (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- CLEBURNE, COUNTY	DATE SAMPLED	- 12/07/16
SAMPLED BY	- THORNTON/BATES	DATE RECEIVED	- 12/12/16
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 12/12/16
MATERIAL DESC.	- SOIL SURVEY PAVEMENT SOUNDINGS		

LAB NUMBER	- 20164007	- 20164008	-
SAMPLE ID	- S505	- S506	-
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	-
STATION	- 215+80	- 215+80	-
LOCATION	- 06LT	- 18LT	-
DEPTH IN FEET	- 0-5	- 0-5	-
MAT'L COLOR	- BROWN	- BROWN	-
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 24 34.70	- 35 24 34.70	-
LONGITUDE DEG-MIN-SEC	- 92 09 46.90	- 92 09 46.90	-
% PASSING	2 IN.	-	-
	1 1/2 IN.	-	-
	3/4 IN.	- 100	-
	3/8 IN.	- 99	-
	NO. 4	- 97	-
	NO. 10	- 94	-
	NO. 40	- 91	-
	NO. 80	- 70	-
	NO. 200	- 54	-
LIQUID LIMIT	- 24	- 20	-
PLASTICITY INDEX	- 12	- 6	-
AASHTO SOIL	- A-6(3)	- A-4(0)	-
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 14.8	- 16.5	-
ACHMSC	(IN) - 5.0X	- ---	-
AGG BASE CRS CL-7	(IN) - 7.0	- ---	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - W= MULTIPLE LAYERS, X=STRIPPED