

ARKANSAS DEPARTMENT OF TRANSPORTATION



SUBSURFACE INVESTIGATION

STATE JOB NO. 012318

FEDERAL AID PROJECT NO. NHPP-2653(1)

MIDDLE FORK SALINE RIVER & DRY RUN CREEK STRS. & APPRS. (S)

STATE HIGHWAY 7 SECTION 10 & 11

IN GARLAND & PERRY COUNTY

The information contained herein was obtained by the Department for design and estimating purposes only. It is being furnished with the express understanding that said information does not constitute a part of the Proposal or Contract and represents only the best knowledge of the Department as to the location, character and depth of the materials encountered. The information is only included and made available so that bidders may have access to subsurface information obtained by the Department and is not intended to be a substitute for personal investigation, interpretation and judgment of the bidder. The bidder should be cognizant of the possibility that conditions affecting the cost and/or quantities of work to be performed may differ from those indicated herein.



ARKANSAS DEPARTMENT OF TRANSPORTATION

ARDOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director

MATERIALS DIVISION

11301 West Baseline Road | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2185 | Fax: 501.569.2368

September 11, 2018

TO: Mr. Rick Ellis, Bridge Engineer

SUBJECT: Job No. 012318 (Formerly Job No. 061501)
Middle Fork Saline River & Dry Run Creek Str. & Apprs. (S)
Route 7 Sections 10 & 11
Garland & Perry Counties

Transmitted herewith are summaries of the site geology and subsurface conditions, unconfined compressive strength test results, RMR, D50 scour analysis test results, and the logs of the borings conducted for the structure 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. The rock cores are available for inspection at the Materials Division.

This project consists of replacing the bridge crossing the Middle Fork of the Saline River, on Highway 7, north of Jesseville. The new bridge will be constructed on the existing alignment. A total of eight borings were requested for this project: one for each end bent, two borings at each intermediate bent, and two borings for the temporary detour bridge. One of the eight requested borings, Station 312+75 20' Left of C.L. Construction, was not accessible due to high water levels, steep slopes, and low bridge clearance.

Bedrock at this site is composed of Shale with varying degrees of weathering and thin bedding planes dipping in different directions. These properties led to low unconfined compressive strength results. Unconfined compressive strength values used in bearing capacity calculations were adjusted to better represent the rock mass and provide appropriate resistance values.

Based on plans provided by Bridge Division and the depth at which bedrock was encountered, it is anticipated that end bents will be founded on piling and intermediate bents will be founded on drilled shafts or spread footings. Piling should be tipped into competent shale and preboring may be necessary to achieve minimum penetration requirements. Spread Footings, founded at least 2 feet in competent shale, should be sized based on the values provided in Table 1.

TABLE 1 – Bearing Capacity Recommendations for Spread Footings

Presumptive Bearing Resistance at Service Limit State (ksf)
20

Drilled Shafts socketed into competent shale, should be sized based on the values provided in Table 2.

TABLE 2 – Bearing Capacity Recommendations for Drilled Shafts

Nominal Side Resistance (ksf)	Factored Side Resistance (ksf)	Nominal Tip Resistance (ksf)	Factored Tip Resistance (ksf)
15.7	8.6	120	60

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 6 Engineer
District 8 Engineer
G.C. File



ARKANSAS DEPARTMENT OF TRANSPORTATION

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MATERIALS DIVISION

11301 West Baseline Road | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2185 | Fax: 501.569.2368

July 23, 2019

TO: Mr. Rick Ellis, Bridge Engineer

SUBJECT: Job No. 012318
Middle Fork Saline River & Dry Run Creek Strs. & Apprs. (S)
Route 7, Sections 10 & 11
Garland & Perry Counties

Transmitted herewith are summaries of the site geology and subsurface conditions, unconfined compressive strength test results, RMR, D50 scour analysis test results, and the logs of the borings conducted for the structure and approaches of Dry Run Creek. 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. The rock cores are available for inspection at the Materials Division. This information is considered supplementary to the subsurface investigation report submitted by IOM dated September 11, 2018.

This project consists of replacing the bridge crossing Dry Run Creek, on Highway 7, north of Jesseville. The new bridge will be constructed east of the existing alignment. A total of six borings were requested for this project.

Based on plans provided by Bridge Division and the depth at which bedrock was encountered, it is anticipated that end bents will be founded on piling and intermediate bents will be founded on spread footings. Piling should be tipped into competent shale or sandstone and preboring may be necessary to achieve minimum penetration requirements. Spread Footings, founded at least 2 feet in competent sandstone, shale, or interbedded shale and sandstone, should be sized based on the values provided in Table 1.

TABLE 1 – Bearing Capacity Recommendations for Spread Footings

Table with 3 columns: Nominal Bearing Resistance (ksf), Factored Bearing Resistance (ksf), Presumptive Bearing Resistance at Service Limit State (ksf). Values: 114, 51, 40.

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

Handwritten signature of Michael C. Benson, Materials Engineer.

MCB:rpt:mlg
cc: State Construction Engineer - Master File Copy
District 6 Engineer
District 8 Engineer
G.C. File

GEOLOGY AND SITE CONDITIONS
Job No. 012318
Middle Fork Saline River & Dry Run Creek Str. & Apprs. (S)
Garland & Perry Counties
Route 7, Sections 10 & 11

Site Conditions

The existing bridge is located on Highway 7, north of Jessieville, and crosses Dry Run Creek. It is a two span, approximately 60 feet long, 18 feet wide, north to south running bridge. The bridge superstructure and substructure are cast-in-place concrete. The bridge superstructure consists of decking supported by two concrete beams resting on concrete bents with web walls and a single spread footing. The guardrails leading up to the bridge are steel supported by concrete posts. The original guardrail on the bridge were stone and mortar, but the guardrail on the south side of the bridge has been replaced by steel. Dry Fork Creek runs from east to west under the existing bridge before reaching its confluence with Trace Creek, approximately 280 feet down stream. Dry Fork Creek is capable of maintaining a large sediment load as indicated by rounded cobbles and boulders in the channel and surrounding the channel banks. The existing bridge is located in the Ouachita National Forest and is predominately surrounded by woodland. No utilities were observed surrounding the project locality.

Site Geology

The bridge is located in Mississippian aged rocks in the Ouachita Mountain Orogeny which consist primarily of extensively faulted and folded rocks with a generally east to west trend of ridges and valleys. The rocks encountered at the existing bridge belong to the Stanley Formation, which consists of dark-gray shale interbedded with fine-grained sandstone. A thick sandstone member, the Hot Springs Sandstone, is found near the base of the sequence and an equivalent thin conglomerate/breccia occurs at the base of the unit in many other places. Stratigraphically minor amounts of tuff, chert, bedded and vein barite, and conglomerate have been noted in various parts of the sequence. Silty sandstones outside the Hot Springs Sandstone Member are normally found in thin to massive beds separated by thick intervals of shale. The tuffs (Hatton Tuff Lentil and others) seem to be restricted to the lower part of the Stanley Shale. Cherts are sometimes present in the middle and upper parts of the formation. The total thickness of the Stanley Formation varies from 3,500 feet to over 10,000 feet. Shale and Sandstone beds dipping towards the northwest are exposed in the channel, upstream from the existing bridge. Core samples collected at the jobsite show evidence of high levels of deformation such as slickensides, fractures, and mineral veins. Most of the rock layers encountered in the core were moderately to steeply dipping. Some of the sandstone layers evaluated in the core were very hard and it is possible that metaquartzite could be encountered during excavation for the new bridge. There are numerous thrust faults surrounding the project alignment and one is mapped several hundred feet south of the existing bridge. Other unmapped faults in the area are likely.

Scour Potential

Rock was encountered in all five borings between 1.4 and 5.1 feet below ground level. Therefore, it is likely that the bridge footings will be set in solid rock. The sediment observed around the bridge footings consists of sand and rounded gravel, cobbles, and boulders. This coarse sized sediment has diminished capacity for scour and no scour was observed around the existing structure, channel banks, and bridge footing. Analysis of D50 particle size yielded a median value 8.0mm, which is not considered a highly scourable sediment size (Fig 2). Based on grain size analysis and visual observation, scour is not anticipated at the new bridge.



Figure 1. Looking downstream at Dry Run Creek.

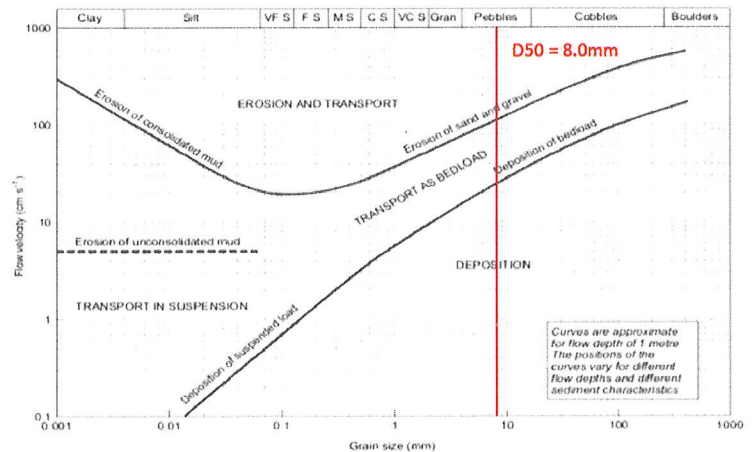


Figure 2. Hjulstroms Diagram with D50 plotted.

Subsurface Conditions

Based on the boring logs, the subsurface stratigraphy may be generalized as follows:

- 0 – 5.1 Feet: Consists of brown and gray **sand, gravel, cobbles, and boulders.**
- 5.1 – 41.0 Feet: Varies from weathered to unweathered, medium hard, frequently to occasionally fractured, moderately to steeply dipping **shale with interbedded sandstone** and frequent to occasional mineral veins to weathered to unweathered, cemented to well cemented, frequently to occasionally fractured, moderately to steeply dipping, **sandstone with interbedded shale** and frequent to occasional mineral veins.

ROCK MASS RATING SUMMARY

JOB # **012318**

Dry Run Creek

SAMPLE #1

Station/Location	510+27, 7' RT
Depth (ft.)	11.5
Relative Rating	
Uniaxial Compressive Strength	1
RQD	13
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	71
Class Number	II
Description	GOOD ROCK

SAMPLE #1

Station/Location	510+27, 7' RT
Depth (ft.)	13
Relative Rating	
Uniaxial Compressive Strength	1
RQD	13
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	71
Class Number	II
Description	GOOD ROCK

SAMPLE #3

Station/Location	210+65, 10' LT
Depth (ft.)	2.7
Relative Rating	
Uniaxial Compressive Strength	7
RQD	3
Spacing of Joints	20
Condition of Joints	25
Groundwater Conditions	7
Sum	62
Class Number	II
Description	GOOD ROCK

SAMPLE #4

Station/Location	210+65, 10' LT
Depth (ft.)	14
Relative Rating	
Uniaxial Compressive Strength	2
RQD	17
Spacing of Joints	25
Condition of Joints	20
Groundwater Conditions	7
Sum	71
Class Number	II
Description	GOOD ROCK

SAMPLE #5

Station/Location	511+00, 41' LT
Depth (ft.)	3.6
Relative Rating	
Uniaxial Compressive Strength	2
RQD	13
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	72
Class Number	II
Description	GOOD ROCK

SAMPLE #6

Station/Location	511+00, 41' LT
Depth (ft.)	5.1
Relative Rating	
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 #7

Station/Location	511+35, CL
Depth (ft.)	13.2
Relative Rating	
Uniaxial Compressive Strength	N/A
RQD	3
Spacing of Joints	10
Condition of Joints	25
Groundwater Conditions	7
Sum	45
Class Number	III
Description	FAIR ROCK

SAMPLE #8

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

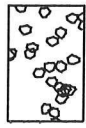
**D₅₀ AGGREGATE ANALYSIS
FOR SCOUR CALCULATIONS**

Job No. 012318					
Creek Name	Station	Sample Type	Location	Depth (FT)	Aggregate Size (D50) (IN)
Dry Run Creek	510+80	Creek Bank	C.L. of Construction	N/A	0.312

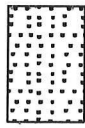
LEGEND

SOIL TYPES

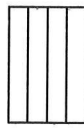
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(PREDOMINANT TYPE SHOWN HEAVY)



GRAVEL



SAND



SILT



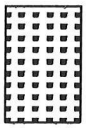
CLAY



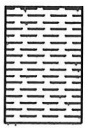
ORGANIC
MATTER

ROCK TYPES

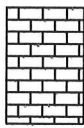
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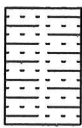
SANDSTONE



SHALE
or
SILTSTONE



LIMESTONE
or
DOLOMITE



ALTERNATING
LAYERS of
SHALE and
SANDSTONE



OTHER

SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

SHELBY TUBE



UNDISTURBED
SAMPLE
RECOVERY

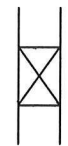


DISTURBED
SAMPLE
RECOVERY

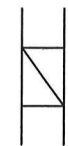


NO
RECOVERY

SPLIT SPOON

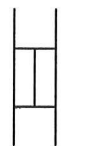


SAMPLE
RECOVERY



NO
RECOVERY

ROCK CORING



% RECOVERY
INDICATED ON LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-SHALE		SHALE	
"N" Value	Density	"N" Value	Consistency	"N" Value	Consistency	"N" 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, and 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_f) 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_{60}) can be obtained by multiplying N_f by the hammer correction factor published on the boring log.

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 1
PAGE 1 OF 1

JOB NO. 012318 Garland & Perry Counties
JOB NAME: Middle Fork Saline River and Dry Run Creek Strs. & Apprs. (S). Route 7, Sections 10 & 11
STATION: 510+27
LOCATION: 7' Right of Construction Centerline
LOGGED BY: Austin Dillman

DATE: June 26, 2019
TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 2094
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 30

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: 762.5									
5			Sand, Gravel, Cobbles, and Boulders									
			SHALE - Weathered, Medium Hard, Gray							100 (6")		
10			SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Occasional Slickensides and Mineral Veins, Gray								31	0
15											92	68
20			SHALE - Unweathered, Medium Hard, Occasional Fractures and Sandstone Clasts, Moderate Dip, Slickensided, Gray								86	68
25											98	72
30			SHALE - Unweathered, Medium Hard, Occasional Calcite Veins, Moderate Dip, Slickensided, Gray								100	82
			Boring Terminated									
35												

REMARKS: Dry Run Creek. Lat: 34.80084, Long: -93.109066

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 2
PAGE 1 OF 1

JOB NO. 012318 Garland & Perry Counties
JOB NAME: Middle Fork Saline River and Dry Run Creek Strs. & Apprs. (S). Route 7, Sections 10 & 11
STATION: 510+65
LOCATION: 10' Left of Construction Centerline
LOGGED BY: Austin Dillman

DATE: June 25, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 2094
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 23.9

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: 760.1									
			Sand, Gravel, Cobbles, and Boulders									
			SANDSTONE - Weathered, Cemented, Frequent Fractures, Moderate Dip, Brown and Gray								100	16
5			SHALE WITH INTERBEDDED SANDSTONE - Slightly Weathered, Medium Hard, Frequent Fractures and Calcite Veins, Slickensided, Moderate Dip, Gray*								50	0
10			SHALE - Unweathered, Medium Hard, Frequent to Occasional Fractures, Frequent Calcite Veins, Slickensided, Moderate to Steep Dip, Gray								36	0
15											100	80
20												94
25			Boring Terminated									
30												
35												

REMARKS: *Multiple core runs were made between 3.9 and 8.9 feet below ground level due to core barrel malfunction. Dry Run Creek

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 3
PAGE 1 OF 1

JOB NO. 012318 Garland & Perry Counties
JOB NAME: Middle Fork Saline River and Dry Run Creek Strs. & Apprs. (S). Route 7, Sections 10 & 11
STATION: 510+65
LOCATION: 10' Right of Construction Centerline
LOGGED BY: Austin Dillman

DATE: June 24 and 25, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 2094
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 27.9

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: 761.7								
			Sand, Gravel, Cobbles, and Boulders								
5			SANDSTONE WITH INTERBEDDED SHALE - Slightly Weathered, Cemented, Frequent Fractures and Mineral Veins, Slickensided, Steep Dip, Gray*						15 (0")	40	0
10			SANDSTONE WITH INTERBEDDED SHALE - Slightly Weathered, Cemented, Frequent Fractures and Mineral Veins, Slickensided, Steep Dip, Gray*							40	0
15			SHALE - Unweathered, Medium Hard, Frequent to Occasional Fractures and Calcite Veins, Moderate Dip, Slickensided, Gray							94	50
20			SHALE - Unweathered, Medium Hard, Frequent to Occasional Fractures and Calcite Veins, Moderate Dip, Slickensided, Gray							90	70
25			SHALE - Unweathered, Medium Hard, Frequent to Occasional Fractures and Calcite Veins, Moderate Dip, Slickensided, Gray							100	75
30			Boring Terminated								
35											

REMARKS: *Multiple core runs were made at 7.9 to 12.9 feet below ground level due to core barrel malfunction. Dry Run Creek


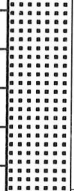
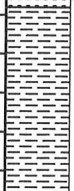
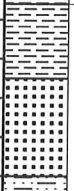
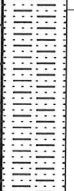

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 4
PAGE 1 OF 1

JOB NO. 012318 Garland & Perry Counties
JOB NAME: Middle Fork Saline River and Dry Run Creek Strs. & Apprs. (S). Route 7, Sections 10 & 11
STATION: 511+00
LOCATION: 41' Left of Construction Centerline
LOGGED BY: Austin Dillman

DATE: June 24, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 2094
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 23.6

DEPTH FT.	S Y M B O L	S A M P L E S	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: 759.9									
			Sand, Gravel, Cobbles, and Boulders									
5			SANDSTONE - Unweathered, Well Cemented, Occasional Fractures, Frequent Calcite Veins, Slight to Moderate Dip, Light Gray*							15 (0")	94	68
10			SHALE - Weathered, Medium Hard, Gray**								8	0
15			SHALE - Unweathered, Medium Hard, Occasional Sandstone Layers and Seams, Moderate Dip, Slickensided, Gray								96	86
			SANDSTONE - Unweathered, Well Cemented, Occasional Shale Clast, Moderate Dip, Gray									
20			SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Frequent Fractures and Calcite Veins, Steep Dip, Gray								94	54
25			Boring Terminated									
30												
35												

REMARKS: *Partial water loss between 3.6 and 8.6 feet below ground level. **Poor recovery due to core barrel malfunction. Dry Run Creek

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 5
PAGE 1 OF 1

JOB NO. 012318 Garland & Perry Counties
JOB NAME: Middle Fork Saline River and Dry Run Creek Strs. & Apprs. (S). Route 7, Sections 10 & 11
STATION: 511+02
LOCATION: 10' Right of Construction Centerline
LOGGED BY: Austin Dillman

DATE: June 18, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 2094
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 32.9

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: 763.0									
0			Sand, Gravel, Cobbles, and Boulders									
5			Sandstone Boulders							100 (5")	36	0
10			SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Frequent Calcite Layers and Seams, Slickensided, Moderate Dip, Gray								54	30
15											96	50
20											100	58
25			SHALE - Unweathered, Medium Hard, Occasional Calcite Veins, Slickensided, Gray								100	74
30											100	100
35			Boring Terminated									

REMARKS: Dry Run Creek

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6
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JOB NO. 012318 Garland & Perry Counties
JOB NAME: Middle Fork Saline River and Dry Run Creek Strs. & Apprs. (S). Route 7, Sections 10 & 11
STATION: 511+35
LOCATION: Construction Centerline
LOGGED BY: Austin Dillman

DATE: June 19, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 2094
HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 48.9

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: 761.3									
5			Sandy Clay, Gravel, Cobbles, and Boulders									
			Moist, Very Stiff, Brown Clay							18 26-34		
10			SHALE - Highly Weathered, Medium Hard, Gray									
			SHALE - Weathered, Medium Hard, Gray							22 60 (4")	86	46
15			SHALE - Slightly Weathered to Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray									
20			SANDSTONE - Unweathered, Well Cemented, Frequent Fractures and Mineral Veins, Gray								50	0
25											62	40
30											46	0
35			SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray								100	68

REMARKS: Dry Run Creek

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

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			SURFACE ELEVATION: 761.3									
40											72	48
45			SANDSTONE - Unweathered, Well Cemented, Frequent Fractures, Gray								92	60
50			Boring Terminated								100	74
55												
60												
65												
70												

REMARKS: Dry Run Creek