ARKANSAS DEPARTMENT OF TRANSPORTATION

SUBSURFACE INVESTIGATION

STATE JOB NO. 050344

FEDERAL AID PROJECT NO. NHPP-0025(18)

ENGLISH CREEK STR. & APPRS. (S)

STATE HIGHWAY 289 **SECTION** 4

IN FULTON **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
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April 1, 2019

TO: Mr. Rick Ellis, Bridge Engineer

SUBJECT: Job No. 050344
English Creek Str. & Apprs. (S)
Fulton County
Route 289 Section 4

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 Highway 289 Bridge crossing English Creek, south of Mammoth Spring. The new bridge will be constructed downstream from the existing. A total of five borings were performed for this project.

Based on plans provided by Bridge Division and the depth at which bedrock was encountered, it is anticipated that both end bents will be founded on steel h-piles bearing on rock and all intermediate bents will be founded on spread footings. Preboring may be necessary to achieve minimum pile penetration requirements. Spread footings founded on competent Dolostone and/or Chert should be designed based on the values provided in Table 1. Drilled shafts are not recommended due to the multitude and chaotic structure of fractures and the presence of voids in this rock mass.

TABLE 1 – Bearing Capacity Recommendations for Spread Footings

Nominal Bearing Resistance (KSF)	Factored Bearing Resistance (KSF)
123	55

It is acceptable to utilize 2H:1V end slopes for the proposed embankments. This embankment geometry provides a satisfactory Factor of Safety for static conditions. 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. 050344
English Creek Str. & Apprs. (S)
Fulton County
Route 289 Section 4

Site Conditions

This job consists of replacing the existing bridge over English Creek. The existing bridge has two spans and consists of a steel truss bridge combined with a concrete pre-cast channel beam bridge. The steel truss is approximately 120 feet in length and supports the north span of the bridge and the beam bridge is approximately 30 feet in length and supports the south bridge span. The superstructure of the beam bridge consists of six pre-cast concrete beams with concrete decking supported by the same concrete spread footing as the truss. Concrete wing walls support both bridge ends. The guardrail on the beam bridge is composed of steel supported by concrete posts and the guardrail on the truss is composed of steel supported by steel posts. There is concrete curb lining the bridge edges and some of the curb is missing and falling apart. There is a ditch that drains into English Creek paralleling the right side of Route 289 up station from the bridge.

At the project location, English Creek flows northwest to southeast before reaching its confluence with the Spring River. The remnants of an older bridge are exposed upstream from the existing structure. There is dolostone in the creek dipping slightly towards the southwest and a dolostone outcrop down station from the bridge on the left side of the road. The land surrounding the bridge is primarily pasture to the north and to the east of the bridge, and woodlands to the southwest of the bridge. Overhead powerlines cross Route 289 up station from the bridge. A telecommunication line parallels the right side of Route 289, crossing overhead at the channel.

Site Geology

The project alignment is located in the mapped outcrop of the Cotter/Jefferson City Formation undifferentiated (Ocjc). The Cotter Dolomite is composed of dolostone of predominantly two types: a fine-grained, argillaceous, earthy textured, relatively soft, white to buff or gray dolostone locally called "cotton rock", and a more massive, medium-grained, gray dolostone that weathers to a somewhat hackly surface texture and becomes dark on exposure. The rock encountered at the project locality better fits the second description of the Cotter noted above. The formation contains chert, some minor beds of greenish shale, and occasional thin interbedded sandstone. Due to similarities in composition, there has been no success in differentiating the Cotter Formation from the Jefferson City Formation in Arkansas, although the contact is considered disconformable. The thickness is about 340 feet in the vicinity of Cotter, but the interval may range up to 500 feet thick in places. The Cotter Formation at the project locality was highly fractured with occasional layers being brecciated .The fractures tended to increase with depth in the majority of the borings. The formation was fairly vuggy and occasional cavities were encountered with the largest being 1.2 feet thick at approximately 35.4 feet below ground level at station 114+77. There are no known major faults in the area but unmapped faults are possible.

Scour Potential

Bedded dolostone was identified in both the base of the channel and on the west side of route 289, down-station from the bridge. Therefore, it is likely that the bridge footings and the bridge ends are founded in solid rock and not likely susceptible to scour. There is wood and other debris resting on the beams of the truss bridge, suggesting periods of high water levels. As can be seen in the images below, a significant amount of gravel has been deposited in front of the middle spread footing of the existing bridge. This accumulation is most likely due to the skewed orientation of this footing in relation to the direction of channel flow. As can be seen in (Fig 1), there is some scour of this accumulation around the middle spread footing. The footing itself is founded in solid, horizontally bedded dolostone. Analysis of D50 particle size yielded a median value of 0.25 in or 6.35 mm, which is not considered a highly scourable sediment size (Fig 2). Based on grain size analysis and visual observation, significant scour is not anticipated at the new bridge with proper bent alignment.

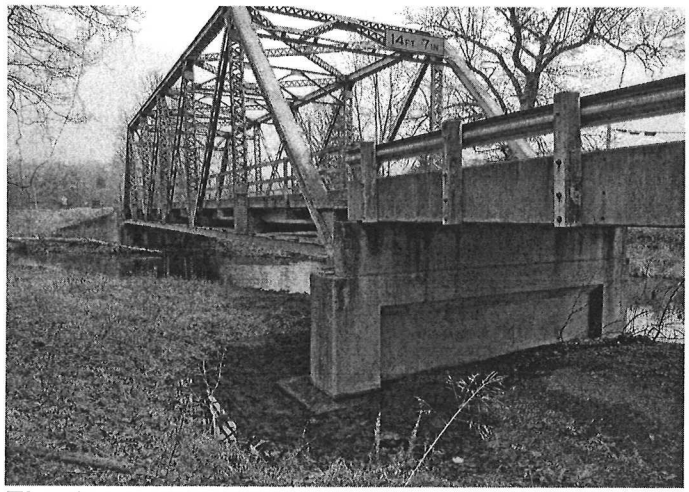


Fig. 1

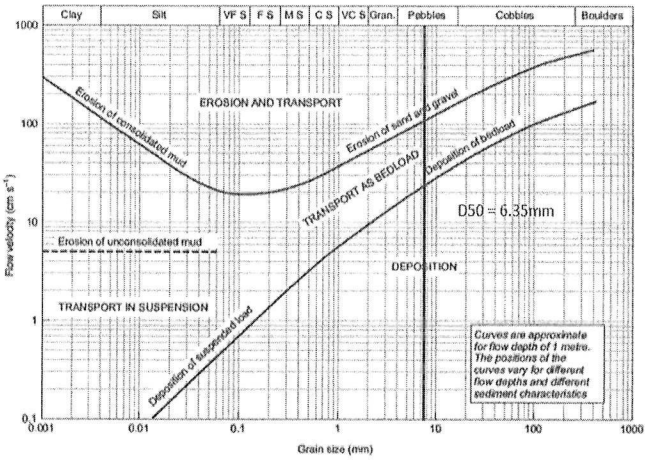


Fig. 2

Subsurface Conditions

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

0 to 9.0 Feet: Varies from wet, loose to medium dense, brown **clayey sand with gravel (dolostone fragments)** to wet, stiff, dark brown **clay.**

9.0 to 63.5 Feet: Consists of slightly weathered, hard, frequently fractured, **dolostone with frequent** to **occasional vuggs, dolomite veins, brecciated layers and interbedded chert**.

* A 1.2 feet thick cavity was encountered at approximately 35.4 feet below the surface at station 114+77.

Rock Core Unconfined Compression Test Summary

Project Number: 050344
Project Name: English Creek Str. & Apprs. (S)
Date Tested: 2/25/2019

Station	Location	Sample No.	Depth (ft.)	Diameter (in.)	Height (in.)	Total Load (lbs.)	Correction Factor	Stress (psi)	Remarks
113+38	C.L.	1	43.9	1.75	3.80	3,460	1.00	1,439	
114+71	4' Lt	2	9.0	1.75	3.50	40,530	1.00	16,850	
114+71	4' Lt	3	22.0	1.75	3.45	48,630	1.00	20,218	Brecciated
114+71	4' Lt	4	22.7	1.75	3.80	55,100	1.00	22,908	
114+71	4' Lt	5	25.4	1.75	3.60	47,590	1.00	19,786	
114+71	4' Lt	6	30.0	1.75	3.90	54,770	1.00	22,771	
114+71	4' Lt	7	30.5	1.75	3.90	70,720	1.00	29,402	
115+33	C.L.	8	10.0	1.75	4.00	37,010	1.00	15,387	
115+33	C.L.	9	11.8	1.75	3.70	58,020	1.00	24,122	
115+33	C.L.	10	20.8	1.75	4.30	42,330	1.00	17,599	
115+33	C.L.	11	27.6	1.75	4.00	27,150	1.00	11,288	
115+33	C.L.	12	31.2	1.75	4.00	47,570	1.00	19,777	
115+33	C.L.	13	32.7	1.75	4.30	8,450	1.00	3,513	Cracks & seams all through

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

ROCK MASS RATING SUMMARY

JOB # 050344

SAMPLE #1

Station/Location	113+38 CL
Depth (ft.)	43.9
	Relative Rating
Uniaxial Compressive Strength	1
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*51*
Class Number	III
Description	FAIR ROCK

SAMPLE #2

Station/Location	114+71 4' LT CL
Depth (ft.)	9
	Relative Rating
Uniaxial Compressive Strength	12
RQD	8
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*57*
Class Number	III
Description	FAIR ROCK

SAMPLE #3

Station/Location	114+71 4' LT CL
Depth (ft.)	22
	Relative Rating
Uniaxial Compressive Strength	12
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*62*
Class Number	II
Description	GOOD ROCK

SAMPLE #4

Station/Location	114+71 4' LT CL
Depth (ft.)	22.7
	Relative Rating
Uniaxial Compressive Strength	12
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*62*
Class Number	II
Description	GOOD ROCK

SAMPLE #5

Station/Location	114+71 4' LT CL
Depth (ft.)	25.4
	Relative Rating
Uniaxial Compressive Strength	12
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*62*
Class Number	II
Description	GOOD ROCK

SAMPLE #6

Station/Location	114+71 4' LT CL
Depth (ft.)	30
	Relative Rating
Uniaxial Compressive Strength	12
RQD	3
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*52*
Class Number	III
Description	FAIR ROCK

SAMPLE #7

Station/Location	114+71 4' LT CL
Depth (ft.)	30.5
	Relative Rating
Uniaxial Compressive Strength	12
RQD	3
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*52*
Class Number	III
Description	FAIR ROCK

SAMPLE #8

Station/Location	115+33 CL
Depth (ft.)	10
	Relative Rating
Uniaxial Compressive Strength	12
RQD	13
Spacing of Joints	20
Condition of Joints	20
Groundwater Conditions	7
Sum	*72*
Class Number	II
Description	GOOD ROCK

SAMPLE #9

Station/Location	115+33 CL
Depth (ft.)	11.8
	Relative Rating
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 #10

Station/Location	115+33 CL
Depth (ft.)	20.8
	Relative Rating
Uniaxial Compressive Strength	12
RQD	8
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*57*
Class Number	III
Description	FAIR ROCK

SAMPLE #11

Station/Location	115+33 CL
Depth (ft.)	27.6
	Relative Rating
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 #12

Station/Location	115+33 CL
Depth (ft.)	31.2
	Relative Rating
Uniaxial Compressive Strength	12
RQD	8
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*57*
Class Number	III
Description	FAIR ROCK

SAMPLE #13

Station/Location	115+33 CL
Depth (ft.)	32.7
	Relative Rating
Uniaxial Compressive Strength	2
RQD	3
Spacing of Joints	5
Condition of Joints	12
Groundwater Conditions	7
Sum	*29*
Class Number	IV
Description	POOR ROCK

D_{50} AGGREGATE ANALYSIS FOR SCOUR CALCULATIONS

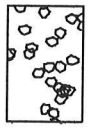
Job No. 050344					
Creek Name	**Station**	**Sampled From**	**Location**	**Depth (ft.)**	**Aggregate Size (D50) (in.)**
English Creek	115+93	Creek Bank	140' Rt. of Const. C.L.	N/A	0.250

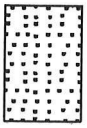
LEGEND

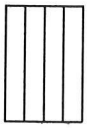
SOIL TYPES

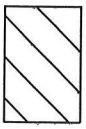
(SHOWN IN SYMBOL COLUMN)

(PREDOMINANT TYPE SHOWN HEAVY)


GRAVEL


SAND

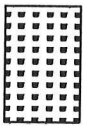

SILT

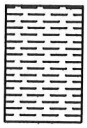

CLAY

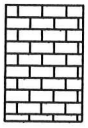

ORGANIC MATTER

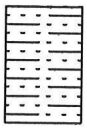
ROCK TYPES

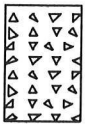
(SHOWN IN SYMBOL COLUMN)


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: $\frac{6}{8-9} \Rightarrow 8+9=17 blows/ft$. 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 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 113+38
LOCATION: Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 4, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 48.6

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: 483.6								
5			Wet, Medium Dense, Dark Brown Clayey Sand with Gravel						5 7-5		
10			Wet, Medium Stiff, Dark Brown Clay with Sand and Gravel						1 2-5		
15			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Brown							58	0
20										64	0
25			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Chert Layers and Seams, Light Brown							86	20
30			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Brown							88	34
35											

REMARKS:

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 1
PAGE 2 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 113+38
LOCATION: Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 4, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 48.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 483.6	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures, Chert Layers, and Dolomite Partings, Light Brown							100	74
40			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Brown							75	0
45			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Chert Layers, Gray							100	55
50			Boring Terminated								
55											
60											
65											
70											

REMARKS:

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 2
PAGE 1 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 113+93
LOCATION: 6' Left of Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 5, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 43.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 482.5	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
5			Wet, Medium Dense, Dark Brown Clayey Sand and Gravel						9 6-6		
10			Wet, Dense, Dark Brown Clayey Sand with Gravel (Dolostone Fragments)						5 5-30		
			DOLOSTONE - Weathered, Hard, Frequent Fractures, Light Gray							43	0
15			CHERT WITH INTERBEDDED DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Gray							86	0
20			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Frequent Fractures, Light Brown							100	16
25			CHERT WITH INTERBEDDED DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Gray							76	0
30			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Frequent Fractures, Light Brown							38	0
35			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Gray								

REMARKS:

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 2
PAGE 2 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 113+93
LOCATION: 6' Left of Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 5, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 43.4

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: 482.5								
			CHERT INTERBEDDED WITH DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Gray							74	0
			CHERT AND DOLOSTONE BRECCIA								
			CHERT - Slightly Weathered, Hard, Frequent Fractures, Gray								
40			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Frequent Fractures, Light Gray							92	0
			CHERT DOLOSTONE BRECCIA								
			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Gray								
45			Boring Terminated								
50											
55											
60											
65											
70											

REMARKS:

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 3
PAGE 1 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 114+71
LOCATION: 4' Left of Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 5 and 12, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 63.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 481.8	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
5		X	Wet, Loose, Brown Clayey Sand with Gravel						15 6-4		
10			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Light Brown							92	44
15			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Chert Layers and Seams, Light Brown							82	26
20			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Frequent Fractures, Light Brown							92	34
25			DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures, Occasional Chert Layers and Seams, Light Gray							100	64
30			DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures, Light Gray							94	50
			CHERT DOLOSTONE BRECCIA								
35											

REMARKS: * Cavity at 35.4 to 36.6

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 3
PAGE 2 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 114+71
LOCATION: 4' Left of Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 5 and 12, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 63.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 481.8	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Voids, Light Gray*							30	12
			CHERT DOLOSTONE BRECCIA								
40			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Vuggs, Gray							40	0
45			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures and Vuggs, Gray							40	0
50			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Chert Layers, Gray							76	0
55			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Gray							100	0
60			BRECCIATED DOLOSTONE							94	46
			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Gray								
65			Boring Terminated								
70											

REMARKS: * Cavity at 35.4 to 36.6

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 4
PAGE 1 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 115+33
LOCATION: Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 12 and 13, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 59.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 481.0	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
5			Wet, Loose, Dark Brown Clayey Sand with Gravel (Dolostone Fragments)						5 4-1		
10			DOLOSTONE - Slightly Weathered, Hard, Gray						10 (0")	100	87
15			DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures and Vuggs, Gray							100	70
20			DOLOSTONE WITH OCCASIONAL CHERT LAYERS AND SEAMS - Slightly Weathered, Hard, Occasional Fractures, Gray							93	78
25			DOLOSTONE - Slightly Weathered, Hard, Frequent to Occasional Fractures, Occasional Chert Layers and Seams, Gray							90	40
30			DOLOSTONE - Slightly Weathered, Hard, Gray*							85	78
35											

REMARKS: *Total water loss at approximately 29.2 feet below ground level.

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 4
PAGE 2 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 115+33
LOCATION: Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 12 and 13, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779

HAMMER CORRECTION FACTOR: N/A

COMPLETION DEPTH: 59.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 481.0	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			CHERT WITH INTERBEDDED DOLOSTONE - Slightly Weathered, Hard, Brecciated, Gray							36	0
40			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Gray							58	0
45			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Interbedded Chert, Gray							78	8
50			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Frequent Fractures, Occasional Vuggs, Gray							80	22
55			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Frequent Fractures, Occasional Dolomite Veins, Gray							82	40
60			Boring Terminated								
65											
70											

REMARKS: *Total water loss at approximately 29.2 feet below ground level.

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 5
PAGE 1 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 115+78
LOCATION: Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 19, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779
HAMMER CORRECTION FACTOR:

COMPLETION DEPTH: 42.1

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: 486.4								
5			Wet, Stiff, Dark Brown Clay						3 4-6		
10			Wet, Medium Dense, Brown Sand with Gravel (Dolostone Fragments)						6 9-6		
15			DOLOSTONE - Slightly Weathered, Hard, Gray							96	82
20			DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures and Dolomite Veins, Gray							80	60
25			DOLOSTONE WITH INTERBEDDED CHERT - Slightly Weathered, Hard, Occasional Vuggs and Dolomite Veins, Gray							94	16
30			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Chert Layers, Gray							90	30
35			DOLOSTONE - Slightly Weathered, Hard,							99	88

REMARKS:

ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.

BORING NO. 5
PAGE 2 OF 2

JOB NO. 050344 Fulton County
JOB NAME: English Creek Str. & Apprs. (S)
Route 289 Section 4
STATION: 115+78
LOCATION: Construction Centerline
LOGGED BY: Connor Bunton

DATE: February 19, 2019
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: Acker 1779
HAMMER CORRECTION FACTOR:

COMPLETION DEPTH: 42.1

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
			Occasional Fractures and Chert Layers, Gray								
40			DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Occasional Chert Layers, Gray							72	22
45			Boring Terminated								
50											
55											
60											
65											
70											

SURFACE ELEVATION: 486.4

REMARKS:

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

August 24, 2017

TO: Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT: Job No. 050344
English Creek Str. & Apprs. (S)
Route 289 Section 4
Fulton 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 the bridge crossing English Creek on Highway 289. Samples were obtained in the existing travel lanes and ditch line. There were no paved shoulders within the project limits.

Based on laboratory results of samples obtained, the subgrade soils consist primarily of moderately plastic cherty clay. Cross sections are not currently available, but it is assumed the construction grade line will closely match that of the existing roadway. The subgrade soils are expected to provide a stable working platform with conventional processing, if the weather is favorable during construction. There were no slide areas observed within the project limits. Between stations 112+00 to 123+00, the alignment traverses open fields and the existing ditch line. All soft unstable organic material in the ditch line will need to be undercut prior to embankment construction, anticipated to be no more than two feet.

.

Additional earthwork recommendations will be made upon request when plans are further developed and cross sections are available.

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 Pocahontas.

2. Asphalt Concrete Hot Mix

Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.5	94.5
Binder Course	4.5	95.5
Base Course	4.0	96.0

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

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
MICHAEL BENSON, MATERIALS ENGINEER
*** SOIL SURVEY STRENGTH TEST REPORT ***

DATE - 08/15/2017
JOB NUMBER - 050344

SEQUENCE NO. - 1
MATERIAL CODE - SSRV
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 25
DISTRICT NO. - 05

JOB NAME - ENGLISH CREEK STR. & APPRS. (S)

STATION LIMITS	R-VALUE AT 240 psi
BEGIN JOB - END JOB	LESS THAN 5
RESILIENT MODULUS	
STA. 110+10	6989

REMARKS -
-

AASHTO TESTS : T190

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS
RECOMPACTED SAMPLES

Job No.	050344	**Material Code**	SSRVPS
Date Sampled:	7/6/17	**Station No.:**	110+10
Date Tested:	July 27, 2017	**Location:**	24'RT
Name of Project:	ENGLISH CREEK STR. & APPRS. (S)		
County:	**Code:** 25 **Name:** FULTON		
Sampled By:	THORNTON/BATES	**Depth:**	0-5
Lab No.:	20172326	**AASHTO Class:**	A-6(3)
Sample ID:	RV462	**Material Type (1 or 2):**	2
LATITUDE:		**LONGITUDE:**	

1. Testing Information:

Preconditioning - Permanent Strain > 5% (Y=Yes or N= No)	N
Testing - Permanent Strain > 5% (Y=Yes or N=No)	N
Number of Load Sequences Completed (0-15)	15

2. Specimen Information:

Specimen Diameter (in):	
Top	3.95
Middle	3.96
Bottom	3.95
Average	3.95
Membrane Thickness (in):	0.01
Height of Specimen, Cap and Base (in):	8.02
Height of Cap and Base (in):	0.00
Initial Length, Lo (in):	8.02
Initial Area, Ao (sq. in):	12.20
Initial Volume, AoLo (cu. in):	97.85

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	3159.70

4. Soil Properties:

Optimum Moisture Content (%):	14.7
Maximum Dry Density (pcf):	110.4
95% of MDD (pcf):	104.9
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	3159.70
Compaction Moisture content (%):	14.2
Compaction Wet Density (pcf):	123.04
Compaction Dry Density (pcf):	107.74
Moisture Content After Mr Test (%):	14.6

6. Quick Shear Test (Y=Yes, N=No, N/A=Not Applicable): #VALUE!

7. Resilient Modulus, Mr: 10352(Sc)^-0.28514(S3)^0.32253

8. Comments _____

9. Tested By: GW **Date:** July 27, 2017

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS
RECOMPACTED SAMPLES

Job No.	050344	**Material Code**	SSRVPS
Date Sampled:	7/6/17	**Station No.:**	110+10
Date Tested:	July 27, 2017	**Location:**	24'RT
Name of Project:	ENGLISH CREEK STR. & APPRS. (S)		
County:	**Code:** 25 **Name:** FULTON		
Sampled By:	THORNTON/BATES	**Depth:**	0-5
Lab No.:	20172326	**AASHTO Class:**	A-6(3)
Sample ID:	RV462	**Material Type (1 or 2):**	2
LATITUDE:		**LONGITUDE:**	

PARAMETER	*Chamber Confining Pressure*	*Nominal Maximum Axial Stress*	*Actual Applied Max. Axial Load*	*Actual Applied Cyclic Load*	*Actual Applied Contact Load*	*Actual Applied Max. Axial Stress*	*Actual Applied Cyclic Stress*	*Actual Applied Contact Stress*	*Average Recov Def. LVDT 1 and 2*	*Resilient Strain*	*Resilient Modulus*
DESIGNATION	S_3	S_{cyclic}	P_{max}	P_{cyclic}	$P_{contact}$	S_{max}	S_{cyclic}	$S_{contact}$	H_{avg}	ε_r	M_r
UNIT	psi	psi	lbs	lbs	lbs	psi	psi	psi	in	in/in	psi
Sequence 1	6.0	2.0	25.2	22.5	2.8	2.1	1.8	0.2	0.00096	0.00012	15,313
Sequence 2	6.0	4.0	47.4	44.6	2.8	3.9	3.7	0.2	0.00206	0.00026	14,218
Sequence 3	6.0	6.0	69.9	66.2	3.6	5.7	5.4	0.3	0.00351	0.00044	12,393
Sequence 4	6.0	8.0	92.4	86.3	6.1	7.6	7.1	0.5	0.00546	0.00068	10,403
Sequence 5	6.0	10.0	114.6	106.1	8.5	9.4	8.7	0.7	0.00769	0.00096	9,069
Sequence 6	4.0	2.0	25.1	22.3	2.8	2.1	1.8	0.2	0.00116	0.00014	12,641
Sequence 7	4.0	4.0	47.0	44.2	2.8	3.9	3.6	0.2	0.00256	0.00032	11,350
Sequence 8	4.0	6.0	68.3	65.5	2.8	5.6	5.4	0.2	0.00423	0.00053	10,166
Sequence 9	4.0	8.0	91.1	85.9	5.2	7.5	7.0	0.4	0.00617	0.00077	9,158
Sequence 10	4.0	10.0	113.2	105.6	7.6	9.3	8.7	0.6	0.00835	0.00104	8,311
Sequence 11	2.0	2.0	25.0	22.2	2.8	2.0	1.8	0.2	0.00139	0.00017	10,516
Sequence 12	2.0	4.0	46.4	43.6	2.8	3.8	3.6	0.2	0.00308	0.00038	9,303
Sequence 13	2.0	6.0	67.0	64.2	2.8	5.5	5.3	0.2	0.00505	0.00063	8,345
Sequence 14	2.0	8.0	88.4	84.1	4.3	7.2	6.9	0.4	0.00727	0.00091	7,610
Sequence 15	2.0	10.0	110.3	103.6	6.7	9.0	8.5	0.5	0.00974	0.00121	6,989

TESTED BY GW DATE July 27, 2017

REVIEWED BY _____ DATE _____

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

MATERIALS DIVISION

AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS

RECOMPACTED / THINWALL TUBE SAMPLES

Job No.	050344	**Material Code**	SSRVPS
Date Sampled:	7/6/17	**Station No.:**	110+10
Date Tested:	July 27, 2017	**Location:**	24'RT
Name of Project:	ENGLISH CREEK STR. & APPRS. (S)		
County:	**Code:** 25 **Name:** FULTON		
Sampled By:	THORNTON/BATES	**Depth:**	0-5
Lab No.:	20172326	**AASHTO Class:**	A-6(3)
Sample ID:	RV462	**Material Type (1 or 2):**	2
LATITUDE:		**LONGITUDE:**	

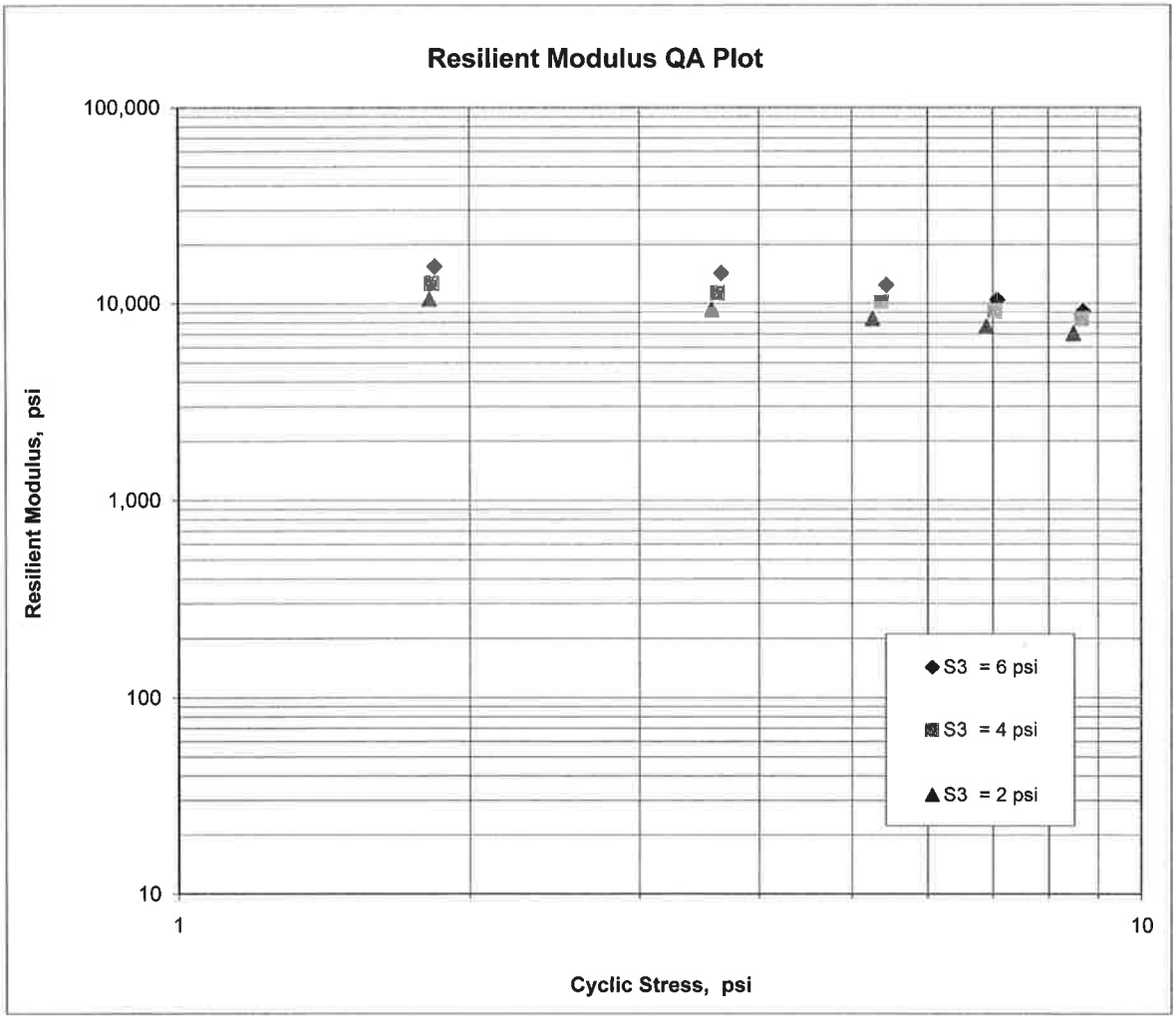
$$M_R = K1\ (S_C)^{K2}\ (S_3)^{K5}$$

K1 = 10,352

K2 = -0.28514

K5 = 0.32253

R^2 = 0.94



JOB: 050344

JOB NAME: ENGLISH CREEK STR. & APPRS. (S)

COUNTY NO. 25

STA.# LOC.

Arkansas State Highway Transporation Department

Materials Division

Michael Benson, Materials Engineer

DATE TESTED
7/27/2017

PAVEMENT SOUNDINGS

110+00	06 RT	BST	ACHMSC	ACHMBC	AGG.BASE CRS CL-7
		1.0	**2.5W**	**3.5**	**8.0**
110+00	18 RT	BST	ACHMSC	ACHMBC	AGG.BASE CRS CL-7
		--	--	--	--
130+00	06 LT	BST	ACHMSC	ACHMBC	AGG.BASE CRS CL-7
		0.5W	**2.5**	**2.5X**	**12.0**

comments: W=MULTIPLE LAYERS, X=STRIPPED

Tuesday, August 22, 2017

JOB: 050344

JOB NAME: ENGLISH CREEK STR. & APPRS. (S)

COUNTY NO. 25 **DATE TESTED** 7/27/2017

Arkansas State Highway Transporation Department

Materials Division

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 S					
110+10	24 RT	0-5	BROWN	70	60	50	42	38	37	21	A-6(3)	RV462	
110+00	06 RT	0-5	GRAY	83	76	69	61	55	31	19	A-6(7)	S458	20.4
110+00	18 RT	0-5	BROWN	68	58	51	44	41	38	25	A-6(5)	S459	15.9
130+00	06 LT	0-5	BROWN	74	66	53	39	33	23	11	A-2-6(0)	S460	13.7
130+00	18 LT	0-5	BROWN	74	60	43	30	26	27	12	A-2-6(0)	S461	13.7

comments: W=MULTIPLE LAYERS, X=STRIPPED

Tuesday, August 22, 2017

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
MICHAEL BENSON, MATERIALS ENGINEER
*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE - 07/27/17
JOB NUMBER - 050344
FEDERAL AID NO.- TO BE ASSIGNED
PURPOSE - SOIL SURVEY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - ENGLISH CREEK STR. & APPRS. (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - FULTON, COUNTY
SAMPLED BY - THORNTON/BATES
SAMPLE FROM - TEST HOLE
MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

SEQUENCE NO. - 1
MATERIAL CODE - SSRVPS
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 25
DISTRICT NO. - 05

DATE SAMPLED - 07/06/17
DATE RECEIVED - 07/11/17
DATE TESTED - 07/27/17

LAB NUMBER	20172322	20172323	20172324
SAMPLE ID	S458	S459	S460
TEST STATUS	INFORMATION ONLY	INFORMATION ONLY	INFORMATION ONLY
STATION	110+00	110+00	130+00
LOCATION	06 RT	18 RT	06 LT
DEPTH IN FEET	0-5	0-5	0-5
MAT'L COLOR	GRAY	BROWN	BROWN
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	36 26 35.90	36 26 36.00	36 26 54.50
LONGITUDE DEG-MIN-SEC	91 33 57.90	91 33 57.90	91 33 58.80
% PASSING 2 IN.			
1 1/2 IN.			
3/4 IN.	100	100	100
3/8 IN.	92	78	89
NO. 4	83	68	74
NO. 10	76	58	66
NO. 40	69	51	53
NO. 80	61	44	39
NO. 200	55	41	33
LIQUID LIMIT	31	38	23
PLASTICITY INDEX	19	25	11
AASHTO SOIL	A-6(7)	A-6(5)	A-2-6(0)
UNIFIED SOIL			
% MOISTURE CONTENT	20.4	15.9	13.7
BST (IN)	1.0	--	0.5W
ACHMSC (IN)	2.5W	--	2.5
ACHMBC (IN)	3.5	--	2.5X
AGG.BASE CRS CL-7 (IN)	8.0	--	12.0

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 - 07/27/17
JOB NUMBER - 050344
FEDERAL AID NO.- TO BE ASSIGNED
PURPOSE - SOIL SURVEY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - ENGLISH CREEK STR. & APPRS. (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - FULTON, COUNTY
SAMPLED BY - THORNTON/BATES
SAMPLE FROM - TEST HOLE
MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

SEQUENCE NO. - 2
MATERIAL CODE - SSRVPS
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 25
DISTRICT NO. - 05

DATE SAMPLED - 07/06/17
DATE RECEIVED - 07/11/17
DATE TESTED - 07/27/17

LAB NUMBER	20172325
SAMPLE ID	S461
TEST STATUS	INFORMATION ONLY
STATION	130+00
LOCATION	18 LT
DEPTH IN FEET	0-5
MAT'L COLOR	BROWN
MAT'L TYPE	
LATITUDE DEG-MIN-SEC	36 26 54.50
LONGITUDE DEG-MIN-SEC	91 33 58.90
% PASSING 2 IN.	
1 1/2 IN.	
3/4 IN.	100
3/8 IN.	96
NO. 4	74
NO. 10	60
NO. 40	43
NO. 80	30
NO. 200	26
LIQUID LIMIT	27
PLASTICITY INDEX	12
AASHTO SOIL	A-2-6(0)
UNIFIED SOIL	
% MOISTURE CONTENT	13.7

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 - 07/27/17
JOB NUMBER - 050344
FEDERAL AID NO.- TO BE ASSIGNED
PURPOSE - SOIL SURVEY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - ENGLISH CREEK STR. & APPRS. (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - FULTON, COUNTY
SAMPLED BY - THORNTON/BATES
SAMPLE FROM - TEST HOLE
MATERIAL DESC. - SOIL SURVEY - RESISTANCE R-VALUE ACTUAL RESULTS

SEQUENCE NO. - 1
MATERIAL CODE - RV
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 25
DISTRICT NO. - 05

DATE SAMPLED - 07/06/17
DATE RECEIVED - 07/11/17
DATE TESTED - 07/27/17

LAB NUMBER	20172326
SAMPLE ID	RV462
TEST STATUS	INFORMATION ONLY
STATION	110+10
LOCATION	24 RT
DEPTH IN FEET	0-5
MAT'L COLOR	BROWN
MAT'L TYPE	
LATITUDE DEG-MIN-SEC	36 26 36.10
LONGITUDE DEG-MIN-SEC	91 33 57.90
% PASSING 2 IN.	
1 1/2 IN.	
3/4 IN.	100
3/8 IN.	88
NO. 4	70
NO. 10	60
NO. 40	50
NO. 80	42
NO. 200	38
LIQUID LIMIT	37
PLASTICITY INDEX	21
AASHTO SOIL	A-6(3)
UNIFIED SOIL	
% MOISTURE CONTENT	

REMARKS - W=MULTIPLE LAYERS, X=STRIPPED

AASHTO TESTS : T24 T88 T89 T90 T265