ARKANSAS DEPARTMENT OF TRANSPORTATION

SUBSURFACE INVESTIGATION

STATE JOB NO. 080634

FEDERAL AID PROJECT NO. CRTLC-STPC-STPLC-9095(40)

HWY. 64/HOGAN LN. ROUNDABOUT (CONWAY) (S)

STATE HIGHWAY 64 **SECTION** 8

IN FAULKNER **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 | Lorie H. Tudor, 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

November 4, 2020

TO: Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT: Job No. 080634
Hwy. 64/Hogan Ln. Signal (Conway)(S)
Route 64 Section 8
Faulkner County

Attached is the requested soil survey, strength data and Resilient Modulus test results for the above referenced job. The project consists of making intersection improvements and adding a traffic signal. Samples were obtained in the existing travel lanes and ditch line. There were no paved shoulders within the project limits

The subgrade soils consist primarily of moderately plastic sandy clay with varying amounts of shale fragments. The subgrade soils are expected to provide a stable working platform with conventional processing if the weather is favorable during construction.

Between stations 50+00 to 55+20 the existing road is cut through a shale hill. The rock cuts are approximately 35 feet left and 45 feet right of centerline. The existing cuts are near vertical.

Further 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 in the vicinity of Greenbrier.

2. Asphalt Concrete Hot Mix

	PG 64-22	
Type	**Asphalt Cement %**	**Mineral Aggregate %**
Surface Course (3/8")	5.8	94.2
Surface Course (1/2")	5.6	94.4
Binder Course	4.5	95.5
Base Course	4.3	95.7

Jonathan A. Annable
Materials Engineer

JAA:yz:bjj
Attachment
cc: State Constr. Eng. – Master File Copy
District 8 Engineer
System Information and Research Div.
G. C. File

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
JONATHAN A. ANNABLE, MATERIALS ENGINEER
*** SOIL SURVEY STRENGTH TEST REPORT ***

DATE - 11/02/2020
JOB NUMBER - 080634

SEQUENCE NO. - 1
MATERIAL CODE - SSRV
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 23
DISTRICT NO. - 08

JOB NAME - HWY. 64/HOGAN LN. SIGNAL (CONWAY)(S)

STATION LIMITS	R-VALUE AT 240 psi
BEGIN JOB - END JOB	10
RESILIENT MODULUS STA. 21+00	6856

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.	080634	**Material Code**	SSRVPS
Date Sampled:	10/1/2020	**Station No.:**	21+00
Date Tested:	October 28, 2020	**Location:**	15'LT
Name of Project:	HWY. 64 / HOGAN LN. SIGNAL (CONWAY)(S)		
County:	**Code:** 23 **Name:** FAULKNER		
Sampled By:	BROWN / JORDAN	**Depth:**	0-5
Lab No.:	20201973	**AASHTO Class:**	A-6 (2)
Sample ID:	RV382	**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	3.96
Middle	3.95
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):	3235.90

4. Soil Properties:

Optimum Moisture Content (%):	14.1
Maximum Dry Density (pcf):	114.2
95% of MDD (pcf):	108.5
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	3235.90
Compaction Moisture content (%):	14.4
Compaction Wet Density (pcf):	126.01
Compaction Dry Density (pcf):	110.15
Moisture Content After Mr Test (%):	14.4

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

7. Resilient Modulus, Mr: 9291(Sc)^-0.25477(S3)^0.33090

8. Comments _____

_____

9. Tested By: GW **Date:** October 28, 2020

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.	080634	**Material Code**	SSRVPS
Date Sampled:	10/1/2020	**Station No.:**	21+00
Date Tested:	October 28, 2020	**Location:**	15'LT
Name of Project:	HWY. 64 / HOGAN LN. SIGNAL (CONWAY)(S)		
County:	**Code:** 23 **Name:** FAULKNER		
Sampled By:	BROWN / JORDAN	**Depth:**	0-5
Lab No.:	20201973	**AASHTO Class:**	A-6 (2)
Sample ID:	RV382	**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	25.3	22.5	2.8	2.1	1.8	0.2	0.00105	0.00013	14,063
Sequence 2	6.0	4.0	47.5	44.6	2.9	3.9	3.7	0.2	0.00228	0.00028	12,882
Sequence 3	6.0	6.0	70.1	66.4	3.7	5.7	5.4	0.3	0.00379	0.00047	11,525
Sequence 4	6.0	8.0	93.5	87.3	6.1	7.7	7.2	0.5	0.00572	0.00071	10,035
Sequence 5	6.0	10.0	116.1	107.5	8.6	9.5	8.8	0.7	0.00766	0.00096	9,228
Sequence 6	4.0	2.0	25.3	22.4	2.9	2.1	1.8	0.2	0.00121	0.00015	12,128
Sequence 7	4.0	4.0	47.1	44.2	2.9	3.9	3.6	0.2	0.00266	0.00033	10,944
Sequence 8	4.0	6.0	68.3	65.5	2.9	5.6	5.4	0.2	0.00445	0.00055	9,670
Sequence 9	4.0	8.0	91.0	85.7	5.2	7.5	7.0	0.4	0.00643	0.00080	8,766
Sequence 10	4.0	10.0	113.9	106.2	7.7	9.3	8.7	0.6	0.00860	0.00107	8,118
Sequence 11	2.0	2.0	25.0	22.1	2.9	2.0	1.8	0.2	0.00148	0.00018	9,816
Sequence 12	2.0	4.0	46.5	43.6	2.9	3.8	3.6	0.2	0.00334	0.00042	8,576
Sequence 13	2.0	6.0	66.8	64.0	2.9	5.5	5.2	0.2	0.00542	0.00068	7,757
Sequence 14	2.0	8.0	88.1	83.8	4.3	7.2	6.9	0.4	0.00766	0.00096	7,186
Sequence 15	2.0	10.0	110.7	103.9	6.8	9.1	8.5	0.6	0.00997	0.00124	6,856

TESTED BY GW DATE October 28, 2020

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.	080634	**Material Code**	SSRVPS
Date Sampled:	10/1/2020	**Station No.:**	21+00
Date Tested:	October 28, 2020	**Location:**	15'LT
Name of Project:	HWY. 64 / HOGAN LN. SIGNAL (CONWAY)(S)		
County:	**Code:** 23 **Name:** FAULKNER		
Sampled By:	BROWN / JORDAN	**Depth:**	0-5
Lab No.:	20201973	**AASHTO Class:**	A-6 (2)
Sample ID:	RV382	**Material Type (1 or 2):**	2
LATITUDE:		**LONGITUDE:**	

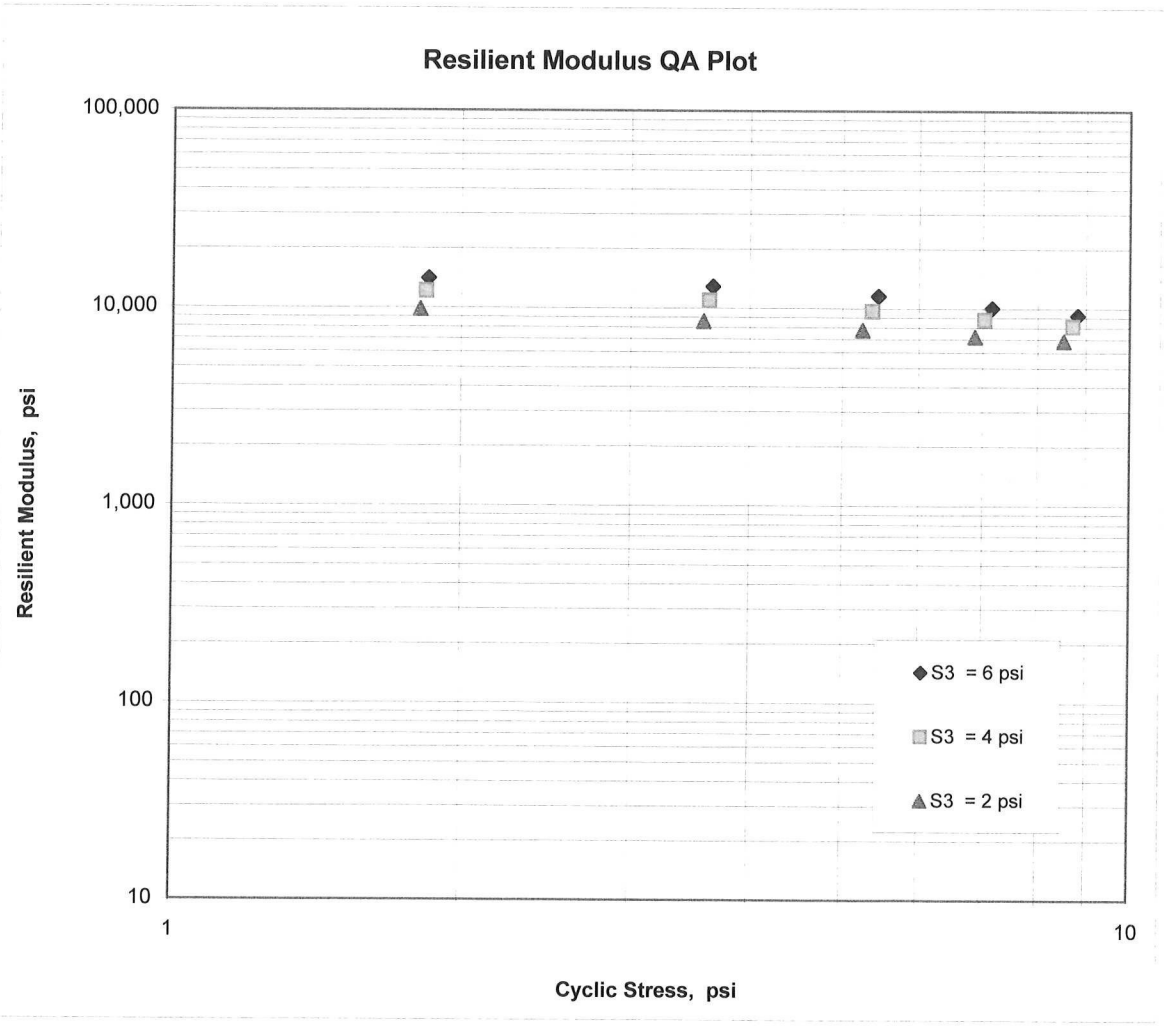
$$M_R = K1\ (S_C)^{K2}\ (S_3)^{K5}$$

K1 = 9,291

K2 = -0.25477

K5 = 0.33090

R^2 = 0.98



ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
JONATHAN A. ANNABLE, MATERIALS ENGINEER
*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE - 11/02/20
JOB NUMBER - 080634
FEDERAL AID NO.- TO BE ASSIGNED
PURPOSE - SOIL SURVEY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - HWY. 64/HOGAN LN. SIGNAL (CONWAY)(S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - FAULKNER, COUNTY
SAMPLED BY - BROWN/JORDAN
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 - 23
DISTRICT NO. - 08

DATE SAMPLED - 10/01/20
DATE RECEIVED - 10/01/20
DATE TESTED - 11/02/20

LAB NUMBER	20201969	20201970	20201971
SAMPLE ID	S378	S379	S380
TEST STATUS	INFORMATION ONLY	INFORMATION ONLY	INFORMATION ONLY
STATION	14+00	14+00	21+00
LOCATION	05RT	18RT	05LT
DEPTH IN FEET	0-5	0-5	0-5
MAT'L COLOR	RED	RD/BR	RD/BR
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	35 6 42.20	35 06 42.10	35 6 43.50
LONGITUDE DEG-MIN-SEC	92 30 3.40	92 30 3.40	92 29 55.00
% PASSING 2 IN.			
1 1/2 IN.			
3/4 IN.	100	100	100
3/8 IN.	99	99	96
NO. 4	97	98	90
NO. 10	91	91	85
NO. 40	82	78	78
NO. 80	78	74	73
NO. 200	68	70	59
LIQUID LIMIT	41	38	25
PLASTICITY INDEX	20	17	9
AASHTO SOIL	A-7-6(12)	A-6(11)	A-4(3)
UNIFIED SOIL			
% MOISTURE CONTENT	16.3	9.0	14.2
ACHMSC (IN)	11.75W	---	11.5W
ACHMBC (IN)	---	---	3.0
AGG.BASE CRS,CL-7 (IN)	5.0	---	---

REMARKS - W=MULTIPLE LAYERS

AASHTO TESTS : T24 T88 T89 T90 T265

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
JONATHAN A. ANNABLE, MATERIALS ENGINEER
*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 11/02/20	SEQUENCE NO.	- 2
JOB NUMBER	- 080634	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 23
SUPPLIER NAME	- STATE	DISTRICT NO.	- 08
NAME OF PROJECT	- HWY. 64/HOGAN LN. SIGNAL (CONWAY)(S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- FAULKNER, COUNTY	DATE SAMPLED	- 10/01/20
SAMPLED BY	- BROWN/JORDAN	DATE RECEIVED	- 10/01/20
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 11/02/20

MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER	- 20201972	-	-
SAMPLE ID	- S381	-	-
TEST STATUS	- INFORMATION ONLY	-	-
STATION	- 21+00	-	-
LOCATION	- 15LT	-	-
DEPTH IN FEET	- 0-5	-	-
MAT'L COLOR	- RD/BR	-	-
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 6 43.50	-	-
LONGITUDE DEG-MIN-SEC	- 92 29 55.10		
% PASSING 2 IN.	-	-	-
1 1/2 IN.	-	-	-
3/4 IN.	- 100	-	-
3/8 IN.	- 99	-	-
NO. 4	- 90	-	-
NO. 10	- 79	-	-
NO. 40	- 69	-	-
NO. 80	- 65	-	-
NO. 200	- 59		
LIQUID LIMIT	- 34	-	-
PLASTICITY INDEX	- 15	-	-
AASHTO SOIL	- A-6(2)	-	-
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 9.9		

REMARKS - W=MULTIPLE LAYERS

AASHTO TESTS : T24 T88 T89 T90 T265

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
JONATHAN A. ANNABLE, MATERIALS ENGINEER
*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 11/02/20	SEQUENCE NO.	- 1
JOB NUMBER	- 080634	MATERIAL CODE	- RV
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 23
SUPPLIER NAME	- STATE	DISTRICT NO.	- 08
NAME OF PROJECT	- HWY. 64/HOGAN LN. SIGNAL (CONWAY)(S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- FAULKNER, COUNTY	DATE SAMPLED	- 10/01/20
SAMPLED BY	- BROWN/JORDAN	DATE RECEIVED	- 10/01/20
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 11/02/20

MATERIAL DESC. - SOIL SURVEY - RESISTANCE R-VALUE ACTUAL RESULTS

LAB NUMBER	20201973		
SAMPLE ID	RV382		
TEST STATUS	INFORMATION ONLY		
STATION	21+00		
LOCATION	15LT		
DEPTH IN FEET	0-5		
MAT'L COLOR	RD/BR		
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	35 6 43.50		
LONGITUDE DEG-MIN-SEC	92 29 55.10		
% PASSING 2 IN.			
1 1/2 IN.	100		
3/4 IN.	92		
3/8 IN.	87		
NO. 4	78		
NO. 10	69		
NO. 40	60		
NO. 80	56		
NO. 200	49		
LIQUID LIMIT	29		
PLASTICITY INDEX	11		
AASHTO SOIL	A-6(2)		
UNIFIED SOIL			
% MOISTURE CONTENT			

REMARKS - W=MULTIPLE LAYERS

AASHTO TESTS : T24 T88 T89 T90 T265