

ARKANSAS DEPARTMENT OF TRANSPORTATION



SUBSURFACE INVESTIGATION

STATE JOB NO. 100941

FEDERAL AID PROJECT NO. STPF-0011(47)

HWY. 62 INTERS. IMPVTS. (PIGGOTT) (S)

STATE HIGHWAY 62 SECTION 20

IN CLAY 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

March 9, 2018

TO: Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT: Job No. 100941
Hwy. 62 Inters. Impvts. (Piggott)(S)
Route 62 Section 20
Clay County

Transmitted herewith is the requested Soil Survey, strength data and Resilient Modulus test results for the above referenced job. The project consists of making improvements at 4 intersections on Highway 62 in Piggott. Samples were taken 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 low plasticity clayey sands. Cross-sections are not complete, but demonstrate 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 slides observed within the project limits.

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

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 Pocahontas.
2. Asphalt Concrete Hot Mix

Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.2	94.8
Binder Course	4.1	95.9
Base Course	3.9	96.1



Michael C. Benson
Materials Engineer

MCB:pt:bjj
Attachment

cc: State Constr. Eng. – Master File Copy
District 10 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 - 02/09/2018
JOB NUMBER - 100941

SEQUENCE NO. - 1
MATERIAL CODE - SSRV
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 11
DISTRICT NO. - 10

JOB NAME - HWY.62 INTERS. IMPVTS.(PIGGOT)(S)

* STATION LIMITS R-VALUE AT 240 psi *

BEGIN JOB - END JOB LESS THAN 5

RESILIENT MODULUS
STA. 206 + 00 10174

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.	100941	Material Code	SSRVPS
Date Sampled:	1/10/18	Station No.:	206+00
Date Tested:	February 6, 2018	Location:	12'LT
Name of Project:	HWT. 62 INTERS. IMPVTS. (PIGGOTT)(S)		
County:	Code: 11	Name: CLAY	
Sampled By:	THORNTON/FRAZIER	Depth:	0-5
Lab No.:	20180064	AASHTO Class:	A-6 (11)
Sample ID:	RV969	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	3.95
Bottom	3.94
Average	3.95
Membrane Thickness (in):	0.01
Height of Specimen, Cap and Base (in):	8.03
Height of Cap and Base (in):	0.00
Initial Length, Lo (in):	8.03
Initial Area, Ao (sq. in):	12.16
Initial Volume, AoLo (cu. in):	97.64

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	3150.00
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4. Soil Properties:

Optimum Moisture Content (%):	16.5
Maximum Dry Density (pcf):	108.3
95% of MDD (pcf):	102.9
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	3150.00
Compaction Moisture content (%):	16.7
Compaction Wet Density (pcf):	122.93
Compaction Dry Density (pcf):	105.33
Moisture Content After Mr Test (%):	16.4

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

#VALUE!

7. Resilient Modulus, Mr:

11030(Sc)^{-0.10524}(S3)^{0.20087}

8. Comments

9. Tested By:

GW

Date: February 6, 2018

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No. 100941
 Date Sampled: 1/10/18
 Date Tested: February 6, 2018
 Name of Project: HWT. 62 INTERS. IMPVTS. (PIGGOTT)(S)
 Country: Code: 11 Name: CLAY
 Sampled By: THORNTON/FRAZIER
 Lab No.: 20180064
 Sample ID: RV969
 LATITUDE:
 Material Code SSRVPS
 Station No.: 206+00
 Location: 12LT
 Depth: 0-5
 AASHTO Class: A-6 (11)
 Material Type (1 or 2): 2
 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. LVD1 and 2	Resilient Strain ϵ_r	Resilient Modulus M_r
DESIGNATION	S_a	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	22.6	2.7	2.1	1.9	0.2	0.00102	0.00013	14,659
Sequence 2	6.0	4.0	47.4	44.7	2.7	3.9	3.7	0.2	0.00205	0.00026	14,391
Sequence 3	6.0	6.0	70.1	66.6	3.5	5.8	5.5	0.3	0.00318	0.00040	13,816
Sequence 4	6.0	8.0	93.3	87.3	6.0	7.7	7.2	0.5	0.00453	0.00056	12,737
Sequence 5	6.0	10.0	116.5	108.1	8.4	9.6	8.9	0.7	0.00594	0.00074	12,024
Sequence 6	4.0	2.0	25.1	22.3	2.8	2.1	1.8	0.2	0.00109	0.00014	13,563
Sequence 7	4.0	4.0	47.0	44.3	2.7	3.9	3.6	0.2	0.00230	0.00029	12,693
Sequence 8	4.0	6.0	68.7	66.0	2.7	5.7	5.4	0.2	0.00357	0.00044	12,218
Sequence 9	4.0	8.0	91.9	86.7	5.1	7.6	7.1	0.4	0.00486	0.00060	11,796
Sequence 10	4.0	10.0	115.2	107.6	7.6	9.5	8.8	0.6	0.00630	0.00078	11,282
Sequence 11	2.0	2.0	25.0	22.2	2.8	2.1	1.8	0.2	0.00127	0.00016	11,561
Sequence 12	2.0	4.0	46.7	43.9	2.8	3.8	3.6	0.2	0.00259	0.00032	11,199
Sequence 13	2.0	6.0	67.8	65.0	2.8	5.6	5.3	0.2	0.00399	0.00050	10,752
Sequence 14	2.0	8.0	90.4	86.1	4.2	7.4	7.1	0.3	0.00544	0.00068	10,448
Sequence 15	2.0	10.0	113.1	106.5	6.7	9.3	8.8	0.5	0.00691	0.00086	10,174

TESTED BY _____ DATE February 6, 2018
 REVIEWED BY _____ DATE _____
 GW _____

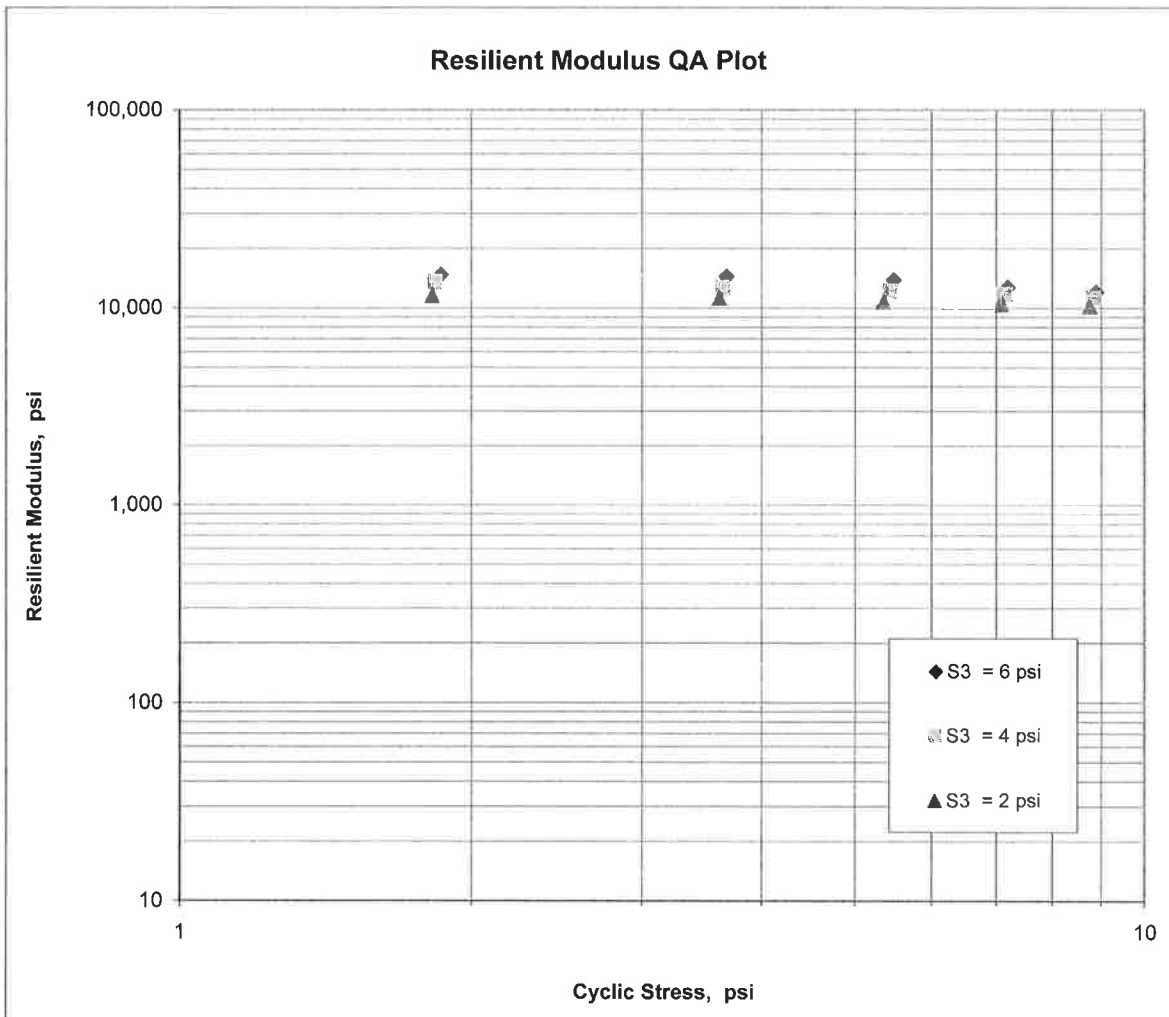
**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION**

**AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS
RECOMPACTED / THINWALL TUBE SAMPLES**

Job No.	100941	Material Code	SSRVPS
Date Sampled:	1/10/18	Station No.:	206+00
Date Tested:	February 6, 2018	Location:	12'LT
Name of Project:	HWT. 62 INTERS. IMPVTS. (PIGGOTT)(S)		
County:	Code: 11	Name:	CLAY
Sampled By:	THORNTON/FRAZIER		
Lab No.:	20180064	Depth:	0-5
Sample ID:	RV969	AASHTO Class:	A-6 (11)
LATITUDE:		Material Type (1 or 2):	2
		LONGITUDE:	

$$M_R = K_1 (S_C)^{K_2} (S_3)^{K_5}$$

$K_1 = \underline{11,030}$
 $K_2 = \underline{-0.10524}$
 $K_5 = \underline{0.20087}$
 $R^2 = \underline{0.96}$



JOB: 100941

Arkansas State Highway Transportation Department

JOB NAME: HWY.62 INTERS. IMPVTS.(PIGGOT)(S)

Materials Division

COUNTY NO. 11 DATE TESTED

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					
206+00	12'LT	0-5	BROWN	94	90	78	73	72	36	18	A-6(11)	RV969	
206+00	12 LT	0-5	BROWN	94	90	78	73	72	36	18	A-6 (11)	RV969	
101+00	05 RT	0-5	BROWN	93	86	77	68	58	21	05	A-4(3)	S957	17.6
101+00	12 RT	0-5	BROWN	88	75	58	43	36	ND	NP	A-4(2)	S958	16.1
105+00	05 LT	0-5	BR/GR	99	97	93	90	84	25	07	A-4(4)	S959	22.1
105+00	12 LT	0-5	BR/GR	96	92	85	77	67	23	06	A-4(2)	S960	20.3
201+00	05 RT	0-5	BROWN	86	79	71	58	45	19	04	A-4(1)	S961	17.1
201+00	12 RT	0-5	BR/GR	95	91	82	65	49	18	03	A-4(1)	S962	16.4
206+00	05 LT	0-5	BROWN	100				95	36	16	A-6(16)	S963	31.4
206+00	12 LT	0-5	BROWN	99	99	94	88	86	29	11	A-6(8)	S964	26.4
400+00	10 RT	0-5	BROWN	99	99	96	91	87	28	10	A-4(7)	S965	20.2
404+00	10 LT	0-5	BROWN	96	91	82	74	68	22	05	A-4(1)	S966	16.9
500+00	05 RT	0-5	BROWN	94	90	84	78	76	29	11	A-6(7)	S967	22.7
504+00	05 LT	0-5	BROWN									S968	16.1

comments: W=MULTIPLE LAYERS, X=STRIPPED

Wednesday, March 07, 2018

JOB: 100941

**Arkansas State Highway Transportation Department
Materials Division**

DATE TESTED
2/9/2018

JOB NAME: HWY.62 INTERS. IMPVTS.(PIGGOT)(S)

COUNTY NO. 11

Michael Benson, Materials Engineer

STA.# LOC.

PAVEMENT SOUNDINGS

101+00	05 RT	ACHMSC	AGG. BASE CRS CL-7	
		8.0W	7.0	
101+00	12 RT	ACHMSC	AGG. BASE CRS CL-7	
105+00	05 LT	ACHMSC	AGG. BASE CRS CL-7	
		7.5WX	9.0	
105+00	12 LT	ACHMSC	AGG. BASE CRS CL-7	
201+00	05 RT	ACHMSC	AGG. BASE CRS CL-7	
		7.0WX	8.0	
201+00	12 RT	ACHMSC	AGG. BASE CRS CL-7	
206+00	05 LT	ACHMSC	ACHMBC	
		7.0W	1.0	
206+00	12 LT	ACHMSC	ACHMBC	
400+00	10 RT	ACHMSC	PCCP	AGG. BASE CRS CL-7
		6.5W	8.25	1.0
404+00	10 LT	ACHMSC	PCCP	AGG. BASE CRS CL-7
		6.0W	6.0	3.0
500+00	05 RT	ACHMSC	AGG. BASE CRS CL-7	
		8.0W	8.0	
504+00	05 LT	ACHMSC	AGG. BASE CRS CL-7	
		4.0W	7.0	

comments: W=MULTIPLE LAYERS, X=STRIPPED

