ARKANSAS DEPARTMENT OF TRANSPORTATION



SUBSURFACE INVESTIGATION

STATE JOB NO.		100875			
FEDERAL AID PROJE	CT NO.	STPC-STPLC-9227(72)			
	HWY. 351 NORTH & S	SOUTH INTERS. IMPVTS. (JOI	NESBORO) (S)		
STATE HIGHWAY	351	SECTION	1 & 2		
IN	CRAIGHEAD 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. 100875 Hwy. 49 – Pleasant View Dr. (Jonesboro)(S) Route 351 Section 2 Craighead County

Transmitted herewith is the requested Soil Survey, strength data and Resilient Modulus test results for the above referenced job. The project consists of widening approximately .8 miles of Highway 351. 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 moderate to highly plastic clay with some sand and gravel. 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. If embankment material is to be placed within the existing ditch line the soft unstable organic material should be undercut prior to embankment construction, anticipated to be no more than 2 feet. There were no slide areas observed within the project limits.

Additional earthwork recommendations will be made upon request when plans are further developed and cross-sections become 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 of Black Rock.
- 2. Asphalt Concrete Hot Mix

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

9. Am 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 02/13/2018 SEQUENCE NO. - 1 JOB NUMBER = 100875 MATERIAL CODE 😁 SSRV SPEC. YEAR = 2014 SUPPLIER ID. = 1 COUNTY/STATE - 16 DISTRICT NO. - 10 JOB NAME - HWY.49 - PLEASANT VIEW DR. (JONESBORO) (S) * STATION LIMITS R-VALUE AT 240 psi *

> BEGIN JOB - END JOB LESS THAN 5 RESILIENT MODULUS STA. 120 + 00 8650

REMARKS 📼

AASHTO TESTS : T190

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

Job No. Date Sampled: Date Tested: Name of Project:	100875 1/9/18 February 6, 2018 HWY. 49 - PLEASANT VIEW DR. (JONESBORO)(S)	Material Code Station No.: Location:	SSRVPS 120+00 15'RT
County: Sampled By: Lab No.: Sample ID: LATITUDE:	Code: 16 Name: CRAIGHEAD THORNTON/FRAZIER 20180049 RV956	Depth: AASHTO Class: Material Type (1 or 2): LONGITUDE:	0-5 A-6 (19) 2
1. Testing Inform	nation:		· · · · · · · · · · · · · · · · · · ·
	Preconditioning - Permanent Strain > 5% (Y=Yes Testing - Permanent Strain > 5% (Y=Yes or N=No) Number of Load Sequences Completed (0-15)		N N 15
2. Specimen Info	prmation:		
	Specimen Diameter (in): Top Middle Bottom Average Membrane Thickness (in): Height of Specimen, Cap and Base (in): Height of Cap and Base (in):		3.94 3.94 3.93 3.94 0.01 8.02 0.00
	Initial Length, Lo (in):		8.02
	Initial Area, Ao (sq. in):		12.10
	Initial Volume, AoLo (cu. in):		97.02
	- M/s 1 - 1-4.		
3. Soil Specimer	Weight of Wet Soil Used (g):		3079.20
4. Soil Propertie	s:		
	Optimum Moisture Content (%): Maximum Dry Density (pcf): 95% of MDD (pcf): In-Situ Moisture Content (%):		18.7 103.8 98.6 N/A
5. Specimen Pro	perties:		
•	Wet Weight (g): Compaction Moisture content (%): Compaction Wet Density (pcf): Compaction Dry Density (pcf): Moisture Content After Mr Test (%):		3079.20 19.0 120.93 101.62 18.7
6. Quick Shear T	est (Y=Yes, N=No, N/A=Not Applicable):		#VALUE!
7. Resilient Mod	ulus, Mr:	10677(S	c)^-0.14967(S3)^0.16544
8. Comments			
9. Tested By:	GW Date:	February 6, 2018	

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

Job No. Date Sampled: Date Tested: Name of Proiect:	100875 1/9/18 February 6, 2018 HWY. 49 - PLEASANT VIEW DR. (JONESBORO)(S)	Material Code Station No.: Location:	SSRVPS 120+00 15'RT
County: Sampled By: Lab No.: Sample ID: LATITUDE:	Code: 16 Name: CRAIGHEAD THORNTON/FRAZIER 20180049 RV956	Depth: 0-: AASHTO Class: A- Material Type (1 or 2): 2 LONGITUDE:	0-5 A-6 (19) I: 2

-			Actual	Actual	Actual	Actual	Actual	Actual	Average Decov Def	Resilient Strain	Resilient
aximum Appliea Appliea Axial Max. Axial Cyclic Load	m Applied Max. Axial		Applied Cyclic Loa	q	Applied Contact	Applied Max.	Applied Cyclic	Applied Contact	LVDT 1	Strain	Shindoni
Stress Load	Stress Load	Load			Load	Axial	Stress	Stress	and 2		
				_		Stress					
S _{cyclic} P _{max} P _{cyclic}			P _{cyclic}	0	P _{contact}	S _{max}	S _{cyclic}	Scontact	H _{avg}	ω	Mr
lbs	lbs		sql		lbs	psi	psi	psi	ŗ	in/in	psi
2.0 25.1 22.4	25.1		22.	4	2.7	2.1	1.9	0.2	0.00114	0.00014	13,054
4.0 47.1 44.4	47.1		44	4	2.7	3.9	3.7	0.2	0.00232	0.00029	12,658
6.0 69.6 66.1	69.6		66.	÷	3.5	5.8	5.5	0.3	0.00376	0.00047	11,653
8.0 92.9 87.0	92.9		87.	0	5.9	7.7	7.2	0.5	0.00547	0.00068	10,536
10.0 115.4 107.0	115.4		107	0.	8.4	9.5	8.8	0.7	0.00736	0.00092	9,634
2.0 25.1 22.3	25.1		22.	8	2.7	2.1	1.8	0.2	0.00125	0.00016	11,828
4.0 46.9 44.1	46.9	-	44.	-	2.8	3.9	3.6	0.2	0.00257	0.00032	11,370
6.0 68.3 65	68.3		65	65.5	2.8	5.6	5.4	0.2	0.00411	0.00051	10,579
8.0 91.4 86.4	91.4	_	86	4	5.0	7.6	7.1	0.4	0.00576	0.00072	9,933
10.0 114.6 10	114.6		9	107.1	7.5	9.5	8.9	0.6	0.00759	0.00095	9,351
2.0 25.0 21	25.0		3	22.2	2.8	2.1	1.8	0.2	0.00141	0.00018	10,412
4.0 46.8 44	46.8		4	44.0	2.8	3.9	3.6	0.2	0.00292	0.00036	9,986
6.0 68.2 65.4	68.2	_	65	4	2.8	5.6	5.4	0.2	0.00453	0.00057	9,562
8.0 90.5 86	90.5		8	86.3	4.3	7.5	7.1	0.4	0.00626	0.00078	9,127
10.0 113.6 1	113.6		-	106.9	6.6	9.4	8.8	0.5	0.00819	0.00102	8,650

February 6, 2018

DATE DATE

TESTED BY REVIEWED BY

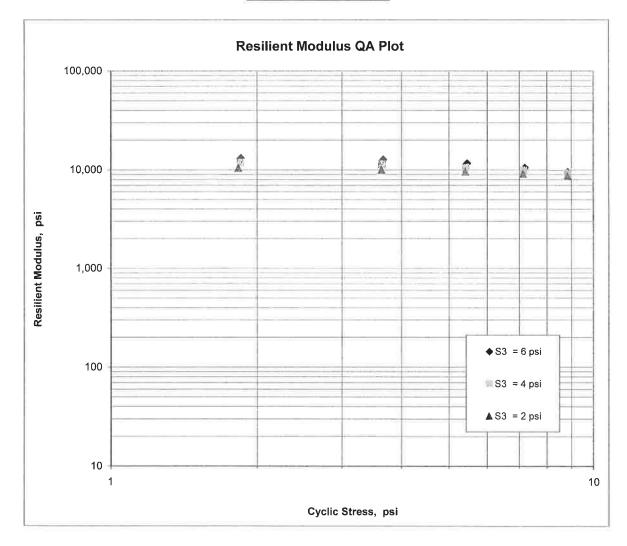
GW

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

Job No.	100875	Material Code SSRVPS
Date Sampled:	1/9/18	Station No.: 120+00
Date Tested:	February 6, 2018	Location: 15'RT
Name of Project:	HWY. 49 - PLEASANT VIE	W DR. (JONESBORO)(S)
County:	Code: 16 Name:	CRAIGHEAD
Sampled By:	THORNTON/FRAZIER	Depth: 0-5
Lab No.:	20180049	AASHTO Class: A-6 (19)
Sample ID:	RV956	Material Type (1 or 2): 2
LATITUDE:		LONGITUDE:

 $M_R = K1 (S_C)^{K_2} (S_3)^{K_5}$

K1 =	10,677
K2 =	-0.14967
K5 =	0.16544
$R^2 =$	0.91



COUNTY NO. 16 DATE TESTED

Arkansas State Highway Transporation Department

JOB NAME: HWY.49 - PLEASANT VIEW DR.(JONESBORO)(S)

Michael Benson, Materials Engineer

Materials Division

STA.#	LOC.	DEPTH	COLOR	#4	#10	# 40	#80	#200	<i>L.L</i> .	<i>P.I</i> .	SOIL CLASS	LAB #:	%MOISTURE
120+00	15'RT	0-5	BR/GR	100	USIN 1		Longol Magal	96	38	19	A-6(19)	RV956	
120+00	15 RT	0-5	BR/GR	100	192 L P	X		96	38	19	A-6 (19)	RV956	
112+00	06 LT	0-5	BR/GR	91	87	77	73	72	41	25	A-7-6(16)	S946	17.7
112+00	15 LT	0-5	BR/GR	100		18.2		96	43	27	A-7-6(27)	S947	20.4
120+00	06 RT	0-5	RD/BR	95	90	80	78	77	35	21	A-6(14)	S948	22.7
120+00	15 RT	0-5	BR/GR	94	91	84	81	80	41	25	A-7-6(19)	S949	22.6
128+00	06 LT	0-5	BR/GR	91	83	69	64	62	33	18	A-6(8)	S950	18.4
128+00	15 LT	0-5	BROWN	83	79	65	58	56	31	14	A-6(5)	S951	22.8
136+00	06 RT	0-5	BR/GR	93	80	78	75	74	37	20	A-6(13)	S952	20.9
136+00	15 RT	0-5	BROWN	98	96	92	88	86	32	14	A-6(11)	S953	22
144+00	06 LT	0-5	BROWN	91	86	77	73	72	32	17	A-6(10)	S954	19.7
144+00	15 LT	0-5	BR/GR	80	73	68	63	61	25	07	A-4(2)	S955	17.9

JOB:	100875	Ark
JOB NAME:	: HWY 49 - PLEASANT VIEW DR. (JONESBORO)(S)	

COUN	COUNTY NO. ¹⁶	16		Michael Benson, Materials Engineer
STA.#	STA.# LOC.			PAVEMENT SOUNDINGS
112+00	06 LT	ACHMSC 5.5W	ACHMBC 	AGG. BASE CRS CL-7 10.0
112+00	15 LT	ACHMSC -	ACHMBC 	AGG. BASE CRS CL-7
120+00	06 RT	ACHMSC 4.0W	ACHMBC 2.0	AGG. BASE CRS CL-7 6.0
120+00	15 RT	ACHMSC -	AGG. BASE CRS CL-7	
128+00	06 LT	ACHMSC 5.75W	AGG. BASE CRS CL-7 9.0	
128+00	15 LT	ACHMSC	AGG. BASE CRS CL-7	
136+00	06 RT	ACHMSC 5.5W	AGG. BASE CRS CL-7 10.0	
136+00	15 RT	ACHMSC -	AGG. BASE CRS CL-7	
144+00	00 LT	ACHMSC 5.5W	AGG. BASE CRS CL-7 8.0	

comments: W=MULTIPLE LAYERS

ARKANSAS STATE HIGHWAY A	AND TRANSPORTATION MATERIALS DI		LE ROCK, ARKANSAS
	EL BENSON, MATERIA JRVEY / PAVEMENT S	ALS ENGINEER SOUNDING TEST REPOR'	T ***
DATE - 02/13/18 JOB NUMBER - 100875 FEDERAL AID NO TO BE ASSIGN PURPOSE - SOIL SURVEY SPEC. REMARKS - NO SPECIFICA SUPPLIER NAME - STATE NAME OF PROJECT - HWY.49 - P PROJECT ENGINEER - NOT APPLIC PIT/QUARRY - ARKANSAS LOCATION - CRAIGHEAD COUN SAMPLED BY - THORNTON/FRAZIE SAMPLE FROM - TEST HOLE MATERIAL DESC SOIL SURVEY	SAMPLE ATION CHECK PLEASANT VIEW DR.(CABLE NTY ER	MATERI SPEC. SUPPLI COUNTY DISTRI (JONESBORO) (S) DATE DATE DATE	NCE NO 1 IAL CODE - SSRVPS YEAR - 2014 IER ID 1 Z/STATE - 16 ICT NO 10 SAMPLED - 01/09/18 RECEIVED - 01/12/18 TESTED - 02/13/18
	20180039 3946 INFORMATION ONLY 12+00 06 LT 0-5 38/GR 35 51 38.00 90 39 27.80 100 96 91 87 77	- 20180040 - S947 - INFORMATION ONLY - 112+00 - 15 LT - 0-5 - BR/GR - - 35 51 37.90	- S948 - INFORMATION ONLY - 120+00 - 06 RT - 0-5 - RD/BR - 35 51 45.70
LIQUID LIMIT - PLASTICITY INDEX -	41 25 A-7-6(16) 17.7 5.5W 10.0	- 43 - 27 - A-7-6(27) - 20.4 	- 35 - 21 - A-6(14) - 22.7 - 4.0W - 2.0 - 6.0

REMARKS - W=MULTIPLE LAYERS

AASHTO TESTS : T24 T88 T89 T90 T265

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ARKANSAS STATE HIGHWAY AND TRANSPORTATI MATERIALS I MICHAEL BENSON, MATER	DIVISION
*** SOIL SURVEY / PAVEMENT	
DATE - 02/13/18 JOB NUMBER - 100875 FEDERAL AID NO TO BE ASSIGNED PURPOSE - SOIL SURVEY SAMPLE SPEC. REMARKS - NO SPECIFICATION CHECK SUPPLIER NAME - STATE NAME OF PROJECT - HWY.49 - PLEASANT VIEW DR PROJECT ENGINEER - NOT APPLICABLE PIT/QUARRY - ARKANSAS	COUNTY/STATE - 16 DISTRICT NO 10
LOCATION - CRAIGHEAD COUNTY SAMPLED BY - THORNTON/FRAZIER	DATE SAMPLED - 01/09/18 DATE RECEIVED - 01/12/18
SAMPLE FROM - TEST HOLE MATERIAL DESC SOIL SURVEY - R VALUE- PAV	DATE TESTED - 02/13/18 EMENT SOUNDINGS
SAMPLE ID - S949 TEST STATUS - INFORMATION ONLY STATION - 120+00 LOCATION - 15 RT DEPTH IN FEET - 0-5 MAT'L COLOR - BR/GR MAT'L TYPE - LATITUDE DEG-MIN-SEC - 35 51 45.60 LONGITUDE DEG-MIN-SEC - 90 39 30.30 % PASSING 2 IN 1 1/2 IN 3/4 IN 100 3/8 IN 96 NO. 4 - 94 NO. 10 - 91 NO. 40 - 84 NO. 80 - 81	90 39 30.30 90 39 30.50 - - - - - - 100 - 100 - 98 - 89 - 91 - 83 - 83 - 79 - 69 - 65 - 64 - 58
NO. 200 - 80 LIQUID LIMIT - 41 PLASTICITY INDEX - 25 AASHTO SOIL - A-7-6(19) UNIFIED SOIL - * MOISTURE CONTENT - 22.6 ACHMSC (IN) AGG. BASE CRS CL-7 (IN) - - - - - - - - - - - -	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

REMARKS - W=MULTIPLE LAYERS

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ARKANSAS STATE HIGHWAY AND TRANSPORTATI MATERIALS I MICHAEL BENSON, MATER	DIVISION
*** SOIL SURVEY / PAVEMENT	
DATE - 02/13/18 JOB NUMBER - 100875 FEDERAL AID NO TO BE ASSIGNED PURPOSE - SOIL SURVEY SAMPLE SPEC. REMARKS - NO SPECIFICATION CHECK SUPPLIER NAME - STATE NAME OF PROJECT - HWY.49 - PLEASANT VIEW DR PROJECT ENGINEER - NOT APPLICABLE PIT/QUARRY - ARKANSAS	COUNTY/STATE - 16 DISTRICT NO 10
LOCATION - CRAIGHEAD COUNTY	DATE SAMPLED - 01/09/18
SAMPLED BY - THORNTON/FRAZIER SAMPLE FROM - TEST HOLE	DATE RECEIVED - 01/12/18 DATE TESTED - 02/13/18
MATERIAL DESC SOIL SURVEY - R VALUE- PAV	
LAB NUMBER - 20180045	- 20180046 - 20180047
	- S953 - S954
TEST STATUS-INFORMATION ONLYSTATION-136+00	- INFORMATION ONLY - INFORMATION ONLY
LOCATION - 136+00 LOCATION - 06 RT	- 136+00 - 144+00 - 15 RT - 06 LT
DEPTH IN FEET $-0-5$	- 0-5 - 0-5
MAT'L COLOR - BR/GR MAT'L TYPE -	BROWN BROWN
LATITUDE DEG-MIN-SEC - 35 52 1.60 LONGITUDE DEG-MIN-SEC - 90 39 30.00	- 35 52 1.40 - 35 52 9.50 90 39 30.00 90 39 29.80
% PASSING 2 IN	
1 1/2 IN	
3/4 IN 100	
3/8 IN 97 NO. 4 - 93	- 100 - 98 - 98 - 91
	96 86
NO. 10 - 80 NO. 40 - 78	92 77
NO. 80 - 75	- 88 - 73
NO. 200 - 74	86 72
LIQUID LIMIT - 37	- 32 - 32
PLASTICITY INDEX - 20 AASHTO SOIL - A-6(13)	- 14 - 17 - A-6(11) - A-6(10)
UNIFIED SOIL - A-6(13)	- A-6(11) - A-6(10)
% MOISTURE CONTENT - 20.9	22.0 19.7
ACHMSC (IN) - 5.5W AGG. BASE CRS CL-7 (IN) - 10.0	5.5W
AGG. BASE CRS CL-7 (IN) - 10.0 -	8.0
-	a) a
-	
-	970 -
-	
REMARKS - W=MULTIPLE LAYERS	

AASHTO TESTS : T24 T88 T89 T90 T265

MIC	AY AND TRANSPORTATION DEPARTMEN MATERIALS DIVISION HAEL BENSON, MATERIALS ENGINEE SURVEY / PAVEMENT SOUNDING TE	R
	SORVER / PROBABILIE SOONDING TE	SI KHEOKI AAA
DATE - 02/13/18 JOB NUMBER - 100875 FEDERAL AID NO TO BE ASS PURPOSE - SOIL SURV SPEC. REMARKS - NO SPECIF SUPPLIER NAME - STATE NAME OF PROJECT - HWY.49 PROJECT ENGINEER - NOT APP	EY SAMPLE ICATION CHECK - PLEASANT VIEW DR.(JONESBORO)	SEQUENCE NO 4 MATERIAL CODE - SSRVPS SPEC. YEAR - 2014 SUPPLIER ID 1 COUNTY/STATE - 16 DISTRICT NO 10 (S)
PIT/QUARRY - ARKANSAS		
LOCATION - CRAIGHEAD C		DATE SAMPLED - 01/09/18
SAMPLED BY - THORNTON/FRA	ZIER	DATE RECEIVED - 01/12/18
SAMPLE FROM - TEST HOLE		DATE TESTED - 02/13/18
	YEY - R VALUE- PAVEMENT SOUNDI	INGS
	20180048 -	-
SAMPLE ID -	S955 -	-
TEST STATUS - STATION - LOCATION -	INFORMATION ONLY -	-
STATION -		
	15 LT ⁻ 0-5 ⁻	-
	BR/GR ~	-
MAT'L COLOR -		
LATITUDE DEG-MIN-SEC -	- 35 52 9.40 -	-
LONGITUDE DEG-MIN-SEC -		
% PASSING 2 IN	-	
1 1/2 IN		25 72
3/4 IN		
3/8 IN		17
NO. 4 -	80	1.5
NO. 10 - NO. 40 -	73	
NO. 40 -	68 -	-
NO. 80 -		80
NO. 200 -	61	
LIQUID LIMIT -	25 -	-
PLASTICITY INDEX -	07 -	-
AASHTO SOIL -	A-4(2) -	= 2
UNIFIED SOIL -		
% MOISTURE CONTENT -	17.9	
-	-	2 4 3
-		100 N
-	-	
_	177. 1781	
-	=	-
-	270	.
-	(2)	1770 - 17700 - 17700 - 17700 - 1770 - 1770 - 17700 - 1770 - 1770 - 1770 - 1770
-		
REMARKS - W=MULTIPLE LAYE	TP C	

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ARKANSAS STATE HIG	GHWAY AND TRANSPORTATION DEPARTMENT MATERIALS DIVISION	- LITTLE ROCK, ARKANSAS
	MICHAEL BENSON, MATERIALS ENGINEER OIL SURVEY / PAVEMENT SOUNDING TEST	REPORT ***
PROJECT ENGINEER - NOT PIT/QUARRY - ARKANSAS	ASSIGNED URVEY SAMPLE CIFICATION CHECK 49 - PLEASANT VIEW DR.(JONESBORO)(S APPLICABLE	
LOCATION - CRAIGHEA SAMPLED BY - THORNTON/	FRAZIER	DATE SAMPLED - 01/09/18 DATE RECEIVED - 01/12/18
SAMPLE FROM - TEST HOL MATERIAL DESC SOIL S	E SURVEY - RESISTANCE R-VALUE ACTUAL	DATE TESTED - 02/13/18 RESULTS
LAB NUMBER	- 20180049 -	-
SAMPLE ID	- RV956 -	-
TEST STATUS	- INFORMATION ONLY -	3
	- 120+00 -	1755 2.44
	- 15 RT	-
DEPTH IN FEET	= 0-5 	5 5
MAT'L COLOR MAT'L TYPE	BR/GR	3.
LATITUDE DEG-MIN-SEC		
LONGITUDE DEG-MIN-SEC	90 39 30.30	
	* = =	3 5 .
1 1/2 IN		
3/4 IN 3/8 IN		-
NO. 4	· ·	-
NO. 10	-	
NO. 40	-	3 - 3 -
NO. 80		
NO. 200	- 96	
LIQUID LIMIT	- 38 -	5 <u>2</u>
PLASTICITY INDEX	- 19 -	2 4
AASHTO SOIL	- A-6 (19) -	-
UNIFIED SOIL		
% MOISTURE CONTENT	18 (N)	
		<u>i n</u> in
		9 - 5
	- E	-
		9 2 9
		-
REMARKS - W=MULTIPLE I	LAYERS	
-		
-		
-		

AASHTO TESTS 1724 T88 T89 T90 T265

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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 3, 2018

TO: Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT: Job No. 100875 Hwy. 49 – Pleasant View Dr. (Jonesboro)(S) Route 351 Sections 1& 2 Craighead County

Transmitted herewith is the additional requested Soil Survey, strength data and Resilient Modulus test results for the above referenced job. Improvements to the intersection of Highway 49 and Highway 351 have been added to the project. Samples were taken in the existing travel lanes, shoulders and ditch line.

Based on laboratory results of samples obtained, the subgrade soils consist primarily of moderate to highly plastic clay with some sand. 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. If embankment material is to be placed within the existing ditch line the soft unstable organic material should be undercut prior to embankment construction, anticipated to be no more than 2 feet. There were no slide areas observed within the project limits.

Additional earthwork recommendations will be made upon request when plans are further developed and cross-sections become 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 of Black Rock.
- 2. Asphalt Concrete Hot Mix

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

A 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 - 07/23/2018 SEQUENCE NO. - 1 MATERIAL CODE - SSRV JOB NUMBER - 100875A SPEC. YEAR - 2014 SUPPLIER ID. - 1 COUNTY/STATE - 16 DISTRICT NO. - 10 JOB NAME - HWY. 49 - PLEASANT VIEW DR. (JONESBORO)(S) STATION LIMITS R-VALUE AT 240 psi * BEGIN JOB - END JOB LESS THAN 5 RESILIENT MODULUS STA. 323 + 00 7404

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REMARKS --AASHTO TESTS : T190

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

Job No. Date Sampled: Date Tested: Name of Project:	100875A 6/5/18 June 27, 2018 HWY. 49 - PLEASANT VIEW DR. (JONESBOR	Material Code Station No.: Location:	SSRVPS 323+00 38'RT
County: Sampled By: Lab No.: Sample ID: LATITUDE:	Code: 16 Name: CRAIGHEAD DICKERSON/FRAZIER 20181279 RV300	Depth: AASHTO Class: Material Type (1 or 2 LONGITUDE:	0-5 A-6 (17) 2
1. Testing Inform			
	Preconditioning - Permanent Strain > 5% (Y= Testing - Permanent Strain > 5% (Y=Yes or N Number of Load Sequences Completed (0-15)	=No)	N N 15
2. Specimen Info	ormation:		
	Specimen Diameter (in):		
	Тор		3.94
	Middle		3.95
	Bottom		3.94
	Average		3.94
	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):		12.14
	Initial Volume, AoLo (cu. in):		97.35
3. Soil Specimen	ı Weight:		
	Weight of Wet Soil Used (g)		3096.30
4. Soil Properties	8		
	Optimum Moisture Content (%):		15.3
	Maximum Dry Density (pcf):		107.3
	95% of MDD (pcf):		101.9
	In-Situ Moisture Content (%):		N/A
5. Specimen Pro	perties:		
	Wet Weight (g):		3096.30
	Compaction Moisture content (%):		15.4
	Compaction Wet Density (pcf):		121.19
	Compaction Dry Density (pcf):		105.01
	Moisture Content After Mr Test (%):		15.4
6. Quick Shear Te	est (Y=Yes, N=No, N/A=Not Applicable):		#VALUE!
7. Resilient Modu	ulus, Mr:	9469(S	Sc)^-0.18157(S3)^0.18695
8. Comments			
9. Tested By:	GW Da	ate: June 27, 2018	

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

Job No. Date Sampled:	100875A 6/5/18	Material Code	SSRVPS
rate painpire.	01/0/0	Station No.:	525+00
Date Tested:	June 27, 2018	Location:	38'RT
Name of Project:	HWY. 49 - PLEASANT VIEW DR. (JONESBORO)(S)		
County:	Code: 16 Name: CRAIGHEAD		
Sampled By:	DICKERSON/FRAZIER	Depth:	0-5
Lab No.:	20181279	AASHTO Class:	A-6 (17)
Sample ID:	RV300	Material Type (1 or 2): 2	2
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June 27, 2018

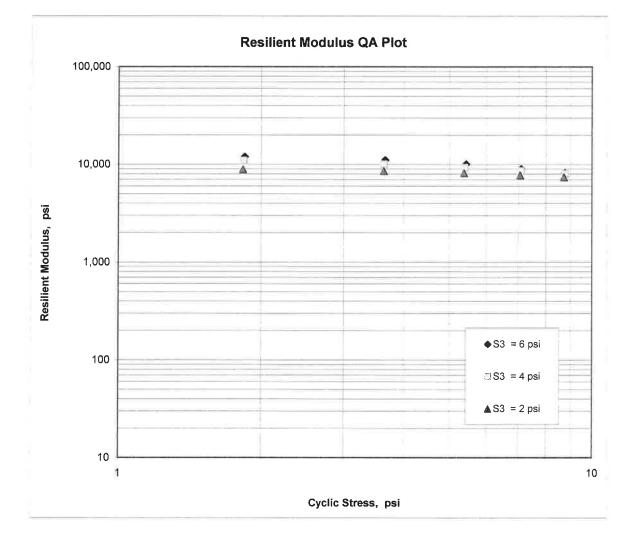
AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED / THINWALL TUBE SAMPLES

Job No.	100875A	Material Code SSRVPS
Date Sampled:	6/5/18	Station No.: 323+00
Date Tested:	June 27, 2018	Location: 38'RT
Name of Project:	HWY. 49 - PLEASANT VIE	W DR. (JONESBORO)(S)
County:	Code: 16 Name:	CRAIGHEAD
Sampled By:	DICKERSON/FRAZIER	Depth: 0-5
Lab No.:	20181279	AASHTO Class: A-6 (17)
Sample ID:	RV300	Material Type (1 or 2): 2
LATITUDE:		LONGITUDE:

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 $M_{R} = K1 (S_{C})^{K2} (S_{3})^{K5}$

K1 =	9,469	
K2 =	-0.18157	
K5 =	0.18695	
$R^2 =$	0.91	



JOB: 100875A

COUNTY NO. 16 DATE TESTED

Arkansas State Highway Transporation Department

JOB NAME: HWY. 49 - PLEASANT VIEW DR. (JONESBORO)(S)

Michael Benson, Materials Engineer

Materials Division

STA.#	LOC.	DEPTH	COLOR	#4	#10	# 40	#80	#200	L.L.	<i>P.I</i> .	SOIL CLASS	LAB #:	%MOISTURE
323+00	38 RT	0-5	RD/BR	99	98	96	90	73	40	27	A-6(17)	RV300	
323+00	24 RT	0-5	BR/GR	98	95	90	81	69	40	27	A-6(16)	S294	21
323+00	32 RT	0-5	BR/GR	98	98	97	92	71	42	28	A-7-6(16)	S295	19.8
323+00	38 RT	0-5	RD/BR	97	96	95	86	70	36	23	A-6(13)	S296	19.8
337+25	24 LT	0-5	RD/BR	(ing)s	19			91	39	23	A-1-B	S297	20.9
337+25	32 LT	0-5	BR/GR	98	95	91	87	86	41	25	A-7-6(21)	S298	19.7
337+25	38 LT	0-5	RD/BR	81	80	78	75	74	35	19	A-6(12)	S299	21.9

6/27/2018

JOB: JOB N	1 <i>AME</i> : H	100875A HWY. 49 - PLEASA	JOB: 100875A JOB NAME: HWY. 49 - PLEASANT VIEW DR. (JONESBORO)(S)		Arkansas State Highway Transporation Department Materials Division	DATE TESTED 61712018
COUN	COUNTY NO.	16			Michael Benson, Materials Engineer	
STA.# LOC.	LOC.				PAVEMENT SOUNDINGS	
323+00	24 RT	ACHMSC 4.0W	ACHMBC 4.5W	ACHMSC 3.0	AGG. BASE CRS CL-7 6.0	
323+00	32 RT	ACHMSC 5.5W	ACHMBC	ACHMSC 	AGG. BASE CRS CL-7 12.0	
323+00	38 RT	ACHMSC	ACHMBC	ACHMSC	AGG. BASE CRS CL-7	
30-700	H TRC			-	I	
07+100	24 LI		ACHIMBC 4.0W	AGG. BASE CKS CL-7 7.0		
337+25	32 LT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7		
337+25	38 I T	6.0WX		10.0 ACC BASE CDS CI 7		
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comments:		=MULTIPLE LAYE	W=MULTIPLE LAYERS, X=STRIPPED	Constraint of the second se	Tuesday, July 24, 2018	27 29

Page 1 of 1

Tuesday, July 24, 2018

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS MATERIALS DIVISION								
MICHAEL BENSON, MATERIALS ENGINEER *** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***								
DATE - 07/ JOB NUMBER - 100 FEDERAL AID NO TO PURPOSE - SOI SPEC. REMARKS - NO SUPPLIER NAME - STA NAME OF PROJECT - E PROJECT ENGINEER - N PIT/QUARRY - ARKAN	SEQUENCE NO 1 MATERIAL CODE - SSRVPS SPEC. YEAR - 2014 SUPPLIER ID 1 COUNTY/STATE - 16 DISTRICT NO 10 (S) DATE SAMPLED - 06/05/18							
LOCATION- CRAIGHEAD COUNTYDATE SAMPLEDSAMPLED BY- D.DICKERSONDATE RECEIVEDSAMPLE FROM- TEST HOLEDATE TESTEDMATERIAL DESC SOIL SURVEY- R VALUE- PAVEMENT SOUNDINGS						EIVED - 06	5/07/18	
STATION LOCATION DEPTH IN FEET MAT'L COLOR MAT'L TYPE LATITUDE DEG-MIN- LONGITUDE DEG-MIN- % PASSING 2 1 1/2 3/4 3/8 NO. NO. NO. NO. NO. NO. NO. NO. NO.	- S2 - IN - 32 - 24 - 0- - BR - SEC - IN IN IN IN IN 10 - 40 - 80 - 200 - 44 - 2	FORMATION ONLY 3+00 RT 5 //GR 35 51 30.60 90 39 15.60 00 98 95 90 81 69		S295 INFORMATIO 323+00 32 RT 0-5 BR/GR 35 51 3 90 39 1 100 98 98 98 98 98 97 92 71 42 28		S296 INFORMATI 323+00 38 RT 0-5 RD/BR 35 51 90 39 100 98 97 96 95 86 70 36 23	30.70	
AASHTO SOIL UNIFIED SOIL % MOISTURE CONTENT	-	A-6(16) 21.0		A-7-6(16) 19.8	-	A-6(13) 19.8		
ACHMSC ACHMBC ACHMSC AGG. BASE CRS CL-7	(IN) - (IN) - (IN) - (IN) - - - -	4.0W 4.5W 3.0 6.0		5.5W 12.0				
NO. NO. NO. NO. NO. NO. NO. NO. NO. NO.	4 - 10 - 40 - 80 - 200 - - 4 - 22 - 4 - 4 - 22 - 4 - 4 - 22 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4	98 95 90 81 69 10 27 4-6(16) 21.0 4.0W 4.5W 3.0	E	98 98 97 92 71 42 28 A-7-6(16) 19.8 5.5W 		97 96 95 86 70 36 23 A-6(13)		

REMARKS - W=MULTIPLE LAYERS, X=STRIPPED

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ARKANSAS STATE HIGHWAY AND TRANSPORTATI MATERIALS I								
MICHAEL BENSON, MATERIALS ENGINEER *** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***								
DATE - 07/23/18 JOB NUMBER - 100875A FEDERAL AID NO TO BE ASSIGNED PURPOSE - SOIL SURVEY SAMPLE SPEC. REMARKS - NO SPECIFICATION CHECK SUPPLIER NAME - STATE NAME OF PROJECT - HWY. 49 - PLEASANT VIEW DE PROJECT ENGINEER - NOT APPLICABLE PIT/QUARRY - ARKANSAS LOCATION - CRAIGHEAD COUNTY	COUNTY/STATE - 16 DISTRICT NO 10 R. (JONESBORO)(S) DATE SAMPLED - 06/05/18							
SAMPLED BY - D.DICKERSON SAMPLE FROM - TEST HOLE MATERIAL DESC SOIL SURVEY - R VALUE- PAVI	DATE RECEIVED - 06/07/18 DATE TESTED - 06/27/18 EMENT SOUNDINGS							
SAMPLE ID - S297	- INFORMATION ONLY - INFORMATION ONLY - 337+25 - 337+25 - 32 LT - 38 LT - 0-5 - 0-5 - BR/GR - RD/BR 							
LIQUID LIMIT - 39 PLASTICITY INDEX - 23 AASHTO SOIL - A-1-B UNIFIED SOIL - % MOISTURE CONTENT - 20.9 ACHMSC (IN) - 7.0W ACHMBC (IN) - 4.0W AGG. BASE CRS CL-7 (IN) - 7.0 	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$							

REMARKS - W=MULTIPLE LAYERS, X=STRIPPED

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ARKANSAS STATE H	- LITTLE ROCK, ARKANSAS		
***	MICHAEL BENSON, MATER SOIL SURVEY / PAVEMENT		
DATE - 07/23 JOB NUMBER - 1008 FEDERAL AID NO TO BH PURPOSE - SOIL SPEC. REMARKS - NO SH SUPPLIER NAME - STATH NAME OF PROJECT - HWY PROJECT ENGINEER - NO PIT/QUARRY - ARKANSA	SEQUENCE NO 1 MATERIAL CODE - RV SPEC. YEAR - 2014 SUPPLIER ID 1 COUNTY/STATE - 16 DISTRICT NO 10 (S)		
LOCATION - CRAIGHE SAMPLED BY - D.DICKE SAMPLE FROM - TEST HO MATERIAL DESC SOIL	DATE SAMPLED - 06/05/18 DATE RECEIVED - 06/07/18 DATE TESTED - 06/27/18 RESULTS		
LAB NUMBER		_	_
SAMPLE ID	- 20181279 - RV300		
	- INFORMATION ONLY	_	_
	- 323+00	_	_
LOCATION	- 38 RT	-	-
DEPTH IN FEET	- 0-5	-	-
MAT'L COLOR	- 0-5 - RD/BR -	-	-
		_	_
	EC - 35 51 30.70 EC - 90 39 15.60	-	-
% PASSING 2 I	EN	-	a .i
1 1/2 1		-	= 0
3/4 I		-	-
	IN 100	_	-
	4 - 99	-	
	10 - 98 10 - 96	-	
	30 - 90	-	-
NO. 20			
I TOUTD I IMID	4.0		
LIQUID LIMIT PLASTICITY INDEX	- 40 - 27	1759 1221	
AASHTO SOIL	- A-6(17)	-	
UNIFIED SOIL	_	-	-
% MOISTURE CONTENT	-	-	
	_	-	-
	-	-	_
	-	-	-
	_	_	_
	-	-	-
	-	-	-
	-	-	_
	-	_	_
REMARKS - W=MULTIPLE -	LAYERS, X=STRIPPED		
-			
-			~

AASHTO TESTS : T24 T88 T89 T90 T265

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