

ARKANSAS DEPARTMENT OF TRANSPORTATION



SUBSURFACE INVESTIGATION

STATE JOB NO. 090384

FEDERAL AID PROJECT NO. STPF-CA-0004(67)

PEA RIDGE NATIONAL MILITARY PARK MITIGATION (S)

STATE HIGHWAY --- SECTION ---

IN BENTON 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 STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

December 22, 2010

TO: Mr. Michael D. Fugett, Engineer of Roadway Design

SUBJECT: Job No. 090065
Avoca – North Garfield (S)
Route 62 Section 2
Benton County

The Geotechnical Section has reviewed the proposed cross-sections for the above referenced project for the station limits of 170+00 to 186+00. The area of the project alignment has been mapped as the Boone Formation (Mb). The Boone is composed of gray; fine to coarse grained fossiliferous limestone interbedded with chert and is known for dissolutional features. Some sections may be predominantly either limestone or chert. The quantity of chert varies considerably both vertically and horizontally. The thickness of the Boone Formation is 300 to 350 feet in most of northern Arkansas. The limestone is overlain with various thickness of reddish cherty clay material. Top of bedrock exposed along the alignment of the proposed cut is approximately 5 to 15 feet above the existing ditch grade.

The proposed cuts between stations 172+00 to 178+00 left and right of centerline, station 179+00 left of centerline, station 180+00 left and right of centerline and stations 181+00 to 186+00 right of centerline are rock cuts with an approximate depth of 28 feet with varying amounts of overburden. The limestone bedrock may be excavated on a slope no steeper than 0.5H:1V. The limestone will require blasting to obtain the recommended slope configuration. A 5 feet wide bench should be constructed at the cherty clay – limestone interface to provide an area for isolated slope adjustments during construction if dissolutional features are encountered during rock excavation. The cherty clay overburden should be excavated on slopes no steeper than 3H:1V.


Michael C. Benson
Materials Engineer

MCB:jaa:bjj
Attachment

cc: State Constr. Eng. – Master File Copy
District 9 Engineer
G. C. File

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

December 22, 2009

TO: Mr. Charles Clements, Engineer of Roadway Design

SUBJECT: Job No. 090065
Avoca – North Garfield (S)
Route 62 Section 2
Benton 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 6.439 miles of Highway 62 from two lanes to five lanes. A portion of the project involves a relocation of the roadway off of the existing alignment. Samples were obtained in the travel lanes, shoulders and ditch line of the existing highway as well as selected locations along the proposed new location. All sample locations were measured from the proposed centerline of construction.

Based on laboratory test results of samples obtained within the existing ditch line, material in the vicinity of stations 115+00 to 147+00, 163+00 to 187+00, 203+00 to 235+00, 371+00, 387+00 and 419+00 consists primarily of highly plastic cherty clay. Given the high chert fragment content of the samples, it is anticipated that the material should provide a stable working platform if the weather during construction is good and/or additional processing of the subgrade material is performed by the contractor to dry the material. If weather conditions are poor and additional processing of the material is not sufficient to allow work to proceed, undercutting to stable material and backfilling with stone backfill may be considered to accelerate the work schedule.

It is recommended that fill slopes on this project are constructed at no steeper than a 3H:1V configuration. Cut slopes in soil should also be limited to a maximum 3H:1V configuration, but cutting on steeper configurations may be considered if any areas of cut extend into bedrock. Bedrock (limestone and/or chert) was encountered at several locations within the project limits. Table 1 below provides a summary of the locations where rock was encountered and the depth to rock. Design profile and cross sections were not available at the time of this investigation; further recommendations for slope construction can be provided upon request when design profiles and cross sections become available.

TABLE 1 – Location and Depth to Rock Encountered

<i>Station and Location</i>	<i>Depth (ft)</i>	<i>Station and Location</i>	<i>Depth (ft)</i>
115+00; 10' and 27' RT CL	4.2, 4.0	235+00; 5' RT CL	3.5
131+00; 34' RT CL	3.5	243+00; 7', 16', and 47' LT CL	3.5, 3.5, 3.5
139+00; 6' RT CL	2.5	259+00; 6' and 39' LT CL	3.8, 2.3
147+00; 1' and 8' RT CL	4.0, 3.5	267+00; 16' and 50' RT CL	4.5, 1.5
155+00; 7' RT CL	2.5	275+00; 15' and 58' RT CL	2.5, 2.5
163+00; 5' LT CL	2.5	307+00; CL	4.0
171+00; 6' and 30' LT CL	4.0, 3.5	371+00; 14' LT CL	1.5
179+00; 20' and 36' LT CL	1.5, 4.7	387+00; 12' LT CL	2.5
203+00; 21' and 45' LT CL	3.5, 3.5	419+00; 44' LT CL	2.0
210+00; 11', 23', and 48' LT CL	3.0, 4.0, 4.0	427+00; 12' and 22' LT CL	2.0, 3.0
219+00; 11' and 50' RT CL	3.5, 4.0	443+00; 10' LT CL	1.5

1. The Qualified Products List (QPL) indicates that Aggregate Base Course (Class CL-7) is available from commercial producers located in the vicinity of Avoca.
2. Asphalt Concrete Hot Mix

Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.9	94.1
Binder Course	4.9	95.1
Base Course	4.4	95.6


 Michael C. Benson
 Materials Engineer

MCB:bj
 Attachment
 cc: State Constr. Eng. – Master File Copy
 District 9 Engineer
 Planning Div. – Jared Wiley
 G. C. File

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

DATE - 11/30/2009
JOB NUMBER - 090065

SEQUENCE NO. - 1
MATERIAL CODE - SSRVPS
SPEC. YEAR - 2003
SUPPLIER ID. - 1
COUNTY/STATE - 04
DISTRICT NO. - 09

JOB NAME - AVOCA - NORTH GARFIELD (S)

* STATION LIMITS R-VALUE AT 240 psi *

BEGIN JOB - END JOB 6

RESILIENT MODULUS
STA.155+00 8002
STA.235+00 7680
STA.395+40 7331

REMARKS -
-

AASHTO TESTS : T190

JOB: 090065

Arkansas State Highway Transportation Department

JOB NAME: AVOCA - NORTH GARFIELD (S)

Materials Division

COUNTY NO. 4 DATE TESTED 11/24/2009

Michael Benson, Materials Engineer

STA.#	LOC.	DEPTH	COLOR	#					L.L.	P.I.	SOIL CLASS	LAB #:	%MOISTURE
				#4	#10	#40	#80	#200					
155+00	56'RT		RED	100	99	97	93	78	27	8	A-4(5)	RV938	
235+00	50'RT		RED	100	95	89	82	78	33	20	A-6(13)	RV939	
395+40	42'RT		RED	100	95	89	83	78	35	16	A-6(11)	RV940	
115+00	10'RT	0-4.2Z	RED	100	92	77	70	64	33	18	A-6(9)	S846	20.3
115+00	27'RT	0-4.0Z	RED	100	96	88	84	80	29	15	A-6(10)	S847	21.4
115+00	52'RT	0-5	RED	100	88	76	73	69	51	32	A-7-6(21)	S848	16.1
123+00	7'RT	0-5	RED	100	91	78	73	67	52	36	A-7-6(22)	S849	26.8
123+00	28'RT	0-5	RED	100	98	91	86	80	56	39	A-7-6(31)	S850	31.7
123+00	56'RT	0-5	RED	100	92	72	64	56	40	22	A-6(9)	S851	19.6
131+00	6'RT	0-5	RED	100	96	87	82	76	50	32	A-7-6(24)	S852	40.2
131+00	16'RT	0-5	RED	100	92	79	73	67	36	23	A-6(13)	S853	22.2
131+00	34'RT	0-3.5Z	RED	100	91	81	77	72	50	33	A-7-6(22)	S854	19.7
139+00	6'RT	0-2.5Z	RED	100	92	78	73	67	41	26	A-7-6(15)	S855	22.4
139+00	17'RT	0-5	RED	100	94	84	80	75	36	20	A-6(13)	S856	25
139+00	50'RT	0-5	RED	100	89	75	71	67	35	19	A-6(9)	S857	18.3
147+00	8'LT	0-4Z	RED	100	93	79	73	66	35	20	A-6(11)	S858	26
147+00	1'RT	0-3.5Z	RED	100	94	80	74	67	44	27	A-7-6(16)	S859	31.4
147+00	29'RT	0-5	RED	100	95	84	79	75	61	42	A-7-6(31)	S860	32.8
155+00	7'LT	0-5	RED	100	97	86	79	71	27	12	A-6(6)	S861	20.8
155+00	7'RT	0-2.5Z	RED	100	96	84	77	70	26	10	A-4(5)	S862	19.8
155+00	41'RT	0-5	RED	100	99	98	94	80	24	5	A-4(2)	S863	21.4
163+00	R'LT	0-2.5Z	RED	100	93	79	73	69	36	22	A-6(11)	S864	23.1
163+00	11'RT	0-5	RED	100	88	75	70	65	48	32	A-7-6(18)	S865	23.6
171+00	6'LT	0-4Z	RED	100	98	94	91	87	60	42	A-7-6(39)	S866	32.8
171+00	16'LT	0-5	RED	100	95	89	87	84	60	42	A-7-6(37)	S867	30.5
171+00	30'LT	0-3.5Z	RED	100	92	83	79	74	47	27	A-7-6(19)	S868	32.8

comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

STA.#	LOC.	DEPTH	COLOR	#4	#10	#40	#80	#200	L.L.	P.I.	SOIL CLASS	LAB #:	%MOISTURE
				S	I	E	V	E					
179+00	6'LT	0-5	RED	100	88	72	66	60	23	7	A-4(2)	S869	18.4
179+00	20'LT	0-1.5Z	RED	100	76	51	43	37	ND	NP	A-4(0)	S870	7.5
179+00	36'LT	0-4.7Z	RED	100	93	83	79	75	40	24	A-6(16)	S871	31.6
187+00	5'LT	0-5	RD/BR	100	96	88	82	66	26	9	A-4(4)	S872	20.2
187+00	16'LT	0-5	RD/BR	100	88	76	71	66	37	23	A-6(12)	S873	21.7
187+00	35'LT	0-5	RED	100	95	88	83	78	37	20	A-6(14)	S874	26.8
195+00	5'LT	0-5	RD/BR	100	90	79	75	71	33	19	A-6(11)	S875	20.2
195+00	16'LT	0-5	RD/BR	100	87	77	72	68	31	17	A-6(9)	S876	21.8
195+00	40'LT	0-5	RD/BR	100	96	91	85	79	30	14	A-6(9)	S877	19.3
203+00	8'LT	0-5	RD/BR	100	94	83	77	72	24	7	A-4(11)	S878	19.2
203+00	21'LT	0-3.5Z	RD/BR	100	92	81	76	70	28	12	A-6(6)	S879	18.9
203+00	45'LT	0-3.5Z	RED	100	99	81	78	75	55	39	A-7-6(28)	S880	30.1
210+00	11'LT	0-3Z	RED	100	96	86	81	75	33	18	A-6(11)	S881	20.5
210+00	23'LT	0-4Z	RED	100	97	90	87	83	34	19	A-6(14)	S882	21
210+00	48'LT	0-4Z	RED	100	97	89	86	81	47	30	A-7-6(24)	S883	26.8
219+00	11'RT	0-3.5Z	RED	100	93	83	79	75	34	18	A-6(11)	S884	20.5
219+00	50'RT	0-4Z	RED	100	94	85	82	78	41	24	A-7-6(18)	S885	23.9
227+00	7'LT	0-5	RED	100	96	93	82	61	54	37	A-7-6(19)	S886	28.7
227+00	15'LT	0-5	RED	100	89	74	68	62	45	30	A-7-6(15)	S887	21.1
227+00	27'LT	0-5	RED	100	93	80	75	71	68	50	A-7-6(35)	S888	27.4
235+00	5'RT	0-3.5Z	RED	100	93	80	73	63	28	13	A-6(5)	S889	16.7
235+00	15'RT	0-5	RED	100	88	77	73	67	23	6	A-4(2)	S890	18.7
235+00	50'RT	0-5	RED	100	94	88	84	76	38	22	A-6(15)	S891	22.4
243+00	7'LT	0-3.5Z	RD/BR	100	92	84	80	76	33	17	A-6(11)	S892	21.4
243+00	16'LT	0-3.5Z	RD/BR	100	89	80	76	71	27	12	A-6(6)	S893	23.2
243+00	47'LT	0-5	RED	100	90	85	81	76	31	12	A-6(8)	S894	24.8
251+00	7'RT	0-5	BROWN	100	96	93	91	87	26	9	A-4(6)	S895	22.2
251+00	16'RT	0-5	BROWN	100	95	90	86	82	23	7	A-4(3)	S896	23.3

comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

STA.#	LOC.	DEPTH	COLOR	#4	#10	#40	#80	#200	L.L.	P.I.	SOIL CLASS	LAB #:	%MOISTURE
				S	I	E	V	E					
251+00	50'RT	0-5	RD/BR	100	93	86	83	78	34	18	A-6(12)	S897	21.9
259+00	6'LT	0-3.8Z	RED	100	87	74	68	61	28	13	A-6(5)	S898	19.3
259+00	16'LT	0-5	RED	100	92	76	70	64	31	14	A-6(6)	S899	22.1
259+00	56'LT	0-2.8Z	RED	100	88	77	73	69	45	27	A-7-6(17)	S900	33.5
267+00	6'RT	0-5	BROWN	100	90	75	70	66	22	7	A-4(2)	S901	19.9
267+00	16'RT	0-4.5Z	BROWN	100	84	71	65	60	23	7	A-4(2)	S902	22.9
267+00	50'RT	0-1.5Z	RD/BR	100	79	69	66	64	31	7	A-4(3)	S903	26
275+00	6'RT	0-5	RED	100	87	69	63	57	27	11	A-6(3)	S904	24.1
275+00	15'RT	0-2.5Z	RED	100	84	68	63	58	26	8	A-4(2)	S905	19.8
275+00	58'RT	0-2.5Z	RED	100	86	75	71	66	26	7	A-4(3)	S906	16.9
283+00	CL	0-5	RD/BR	100	82	70	66	63	35	18	A-6(9)	S907	24.5
291+00	CL	0-5	RD/BR	100	93	90	86	81	31	13	A-6(9)	S908	22.7
296+00	CL	0-5	RED	100	94	86	82	77	29	12	A-6(7)	S909	22.4
307+00	CL	0-4Z	RED	100	89	73	69	64	29	11	A-6(5)	S910	27.2
318+50	CL	0-5	RED	100	91	82	78	73	29	12	A-6(7)	S911	20.1
323+00	CL	0-5	RED	100	93	86	81	74	31	14	A-6(8)	S912	20.7
331+00	CL	0-5	BR/RD	100	85	69	63	56	25	8	A-4(2)	S913	19.1
339+50	100'LT	0-5	BR/RD	100	88	81	77	72	28	10	A-4(5)	S914	22
347+00	CL	0-5	RED	100	90	78	75	69	27	10	A-4(5)	S915	23.8
355+25	CL	0-5	RED	100	92	76	70	62	25	7	A-4(2)	S916	28.8
363+00	CL	0-5	RED	100	97	89	83	77	32	13	A-6(9)	S917	18.4
371+00	14'LT	0-1.5Z	RED	100	84	75	69	62	44	26	A-7-6(13)	S918	29.4
371+00	23'LT	0-5	RED	100	95	86	82	75	32	14	A-6(9)	S919	34.5
379+50	11'RT	0-5	RED	100	89	75	70	60	34	18	A-6(8)	S920	22.6
379+50	50'RT	0-5	RED	100	95	89	84	77	28	10	A-4(6)	S921	29.5
387+00	12'LT	0-3.1Z	RED	100	92	85	82	77	48	31	A-7-6(23)	S922	34.9
387+00	29'LT	0-5	RD/BR	100	92	81	76	70	38	22	A-6(13)	S923	31
395+40	12'RT	0-5	RED	100	95	85	81	75	22	8	A-4(3)	S924	22.1

comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

STA.#	LOC.	DEPTH	COLOR	#4	#10	#40	#80	#200	L.L.	P.I.	SOIL CLASS	LAB #:	%MOISTURE
				S	I	E	V	E					
395+40	42'RT	0-5	RED	100	92	86	83	78	29	11	A-6(7)	S925	29.9
403+00	11'LT	0-5	RED	100	91	80	73	63	22	7	A-4(2)	S926	17.5
403+00	45'LT	0-5	RED	100	90	73	67	61	29	13	A-6(5)	S927	17.2
411+00	10'RT	0-5	RED	100	86	74	66	55	23	7	A-4(1)	S928	16.8
411+00	50'RT	0-5	RED	100	96	85	79	72	27	8	A-4(4)	S929	17.5
419+00	10'LT	0-5	RED	100	98	95	93	80	46	31	A-7-6(24)	S930	23.6
419+00	44'LT	0-2.0Z	BROWN	100	93	90	88	77	50	32	A-7-6(24)	S931	26.9
427+00	12'LT	0-2Z	BROWN	100	82	74	71	56	24	7	A-4(1)	S932	13.6
427+00	22'LT	0-3.0Z	BROWN	100	91	78	68	53	35	17	A-6(6)	S933	14.8
435+00	11'RT	0-5	BROWN	100	91	84	80	67	21	6	A-4(1)	S934	17.4
443+00	10'LT	0-1.5Z	RED	100	85	78	68	60	26	10	A-4(3)	S935	15.5
443+00	20'LT	0-5	RED	100	97	87	82	75	29	10	A-4(6)	S936	21.7
443+00	32'LT	0-5	RED	100	91	77	71	65	28	10	A-4(4)	S937	22.3

JOB: 090065

Arkansas State Highway Transportation Department

DATE TESTED

JOB NAME: AVOCA - NORTH GARFIELD (S)

11/24/2009

Materials Division

COUNTY NO. 4

Michael Benson, Materials Engineer

STA.# LOC.

PAVEMENT SOUNDINGS

115+00	10'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM SURFACE	AGG BASE CRS CL7
		4.0W	3.25	3.5		6.0
115+00	27'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM SURFACE	AGG BASE CRS CL7
		4.0W	6.75			8.0
115+00	52'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM SURFACE	AGG BASE CRS CL7
123+00	7'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM SURFACE	AGG BASE CRS CL7
		3.25	3.0	6.0		6.0
123+00	28'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM SURFACE	AGG BASE CRS CL7
		4.0	9.0			8.0
123+00	56'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM SURFACE	AGG BASE CRS CL7
131+00	6'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7		
		6.0W	2.5	6.0		
131+00	16'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	AGG BASE CRS CL7	
		3.0X		7.0		
131+00	34'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	AGG BASE CRS CL7	
139+00	6'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	AGG BASE CRS CL7	
		5.75W	2.0	8.0		
139+00	17'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	AGG BASE CRS CL7	
		3.0		6.0		
139+00	50'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	AGG BASE CRS CL7	
147+00	8'LT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7
		4.5	2.0	3.5	2.5	7.0
147+00	1'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7
		5.5W				7.0
147+00	29'RT	ACHM SURFACE	ACHM BINDER	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7
155+00	7'LT	ACHM SURFACE	AGG BASE CRS CL7			
		5.25W	6.0			
155+00	7'RT	ACHM SURFACE	AGG BASE CRS CL7			
		6.5W	6.0			

comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

PAVEMENT SOUNDINGS

STA.# LOC.

155+00	41'RT	ACHM SURFACE	AGG BASE CRS CL7		
163+00	R'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		9.0W	1.5	6.0	
163+00	11'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		3.5W		6.0	
171+00	6'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		5.0	1.5	5.0	
171+00	16'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		3.0		5.0	
171+00	30'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
179+00	6'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		5.25W	2.75	5.0	
179+00	20'LT	ACHM SURFACE	ASPH TREAT BASE CR&SPH TREAT BASE CRS	AGG BASE CRS CL7	
		3.5W		3.0	
179+00	36'LT	ACHM SURFACE	ASPH TREAT BASE CR&SPH TREAT BASE CRS	AGG BASE CRS CL7	
187+00	5'LT	ACHM SURFACE	ASPH TREAT BASE CR&SPH TREAT BASE CRS	AGG BASE CRS CL7	
		7.0W	3.0	1.0X	3.0
187+00	16'LT	ACHM SURFACE	ACHM BINDER	ASPH TREAT BASE CRS	AGG BASE CRS CL7
		2.5		6.0	
187+00	35'LT	ACHM SURFACE	ACHM BINDER	ASPH TREAT BASE CRS	AGG BASE CRS CL7
195+00	5'LT	ACHM SURFACE	ACHM BINDER	ASPH TREAT BASE CRS	AGG BASE CRS CL7
		5.0W	2.5	3.5	5.0
195+00	16'LT	ACHM SURFACE	AGG BASE CRS CL7		
		4.5W	5.0		
195+00	40'LT	ACHM SURFACE	AGG BASE CRS CL7		
203+00	8'LT	ACHM SURFACE	AGG BASE CRS CL7		
		8.5W	5.0		
203+00	21'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		3.0W		6.0	
203+00	45'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
210+00	11'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		5.75W	2.0	6.0	

comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

PAVEMENT SOUNDINGS

STA.# LOC.

210+00	23'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		3.5W	—	6.0	
210+00	48'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		—	—	—	
219+00	11'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	
		5.0	3.0	5.0	
219+00	50'RT	ACHM SURFACE	CHIP SEAL	ACHM BINDER	AGG BASE CRS CL7
		—	—	—	
227+00	7'LT	ACHM SURFACE	CHIP SEAL	ACHM BINDER	AGG BASE CRS CL7
		11.75W	1.0	1.5	
227+00	15'LT	ACHM SURFACE	CHIP SEAL	ACHM BINDER	AGG BASE CRS CL7
		6.0W	—	2.0	5.0
227+00	27'LT	ACHM SURFACE	AGG BASE CRS CL7		
		—	—	—	
235+00	5'RT	ACHM SURFACE	AGG BASE CRS CL7		
		12.25W	3.0		
235+00	15'RT	ACHM SURFACE	AGG BASE CRS CL7		
		7.5W	5.0		
235+00	50'RT	ACHM SURFACE	CHIP SEAL	ACHM BINDER	ASPH TREAT BASE CRS
		—	—	—	AGG BASE CRS CL7
243+00	7'LT	ACHM SURFACE	CHIP SEAL	ACHM BINDER	—
		11.0W	1.0	2.0	AGG BASE CRS CL7
243+00	16'LT	ACHM SURFACE	CHIP SEAL	ACHM BINDER	5.0
		7.0W	—	—	AGG BASE CRS CL7
243+00	47'LT	ACHM SURFACE	ACHM BINDER	CHIP SEAL	6.0X
		—	—	—	ACHM BINDER
251+00	7'RT	ACHM SURFACE	ACHM BINDER	CHIP SEAL	—
		7.5W	2.0	1.0	ACHM BINDER
251+00	16'RT	ACHM SURFACE	ACHM BINDER	CHIP SEAL	1.5
		11.0W	—	—	ACHM BINDER
251+00	50'RT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	—
		—	—	—	ACHM BINDER
259+00	6'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	—
		10.5W	2.0	3.0	ACHM BINDER
259+00	16'LT	ACHM SURFACE	ACHM BINDER	AGG BASE CRS CL7	—
		9.0W	—	5.0	ACHM BINDER
259+00	56'LT	ACHM SURFACE	CHIP SEAL	ACHM SURFACE	—
		—	—	—	ACHM BINDER
					ACHM SURFACE
					AGG BASE CRS CL7

comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

PAVEMENT SOUNDINGS

STA.# LOC.

267+00	6'RT	ACHM SURFACE 8.5W	CHIP SEAL 1.0	ACHM SURFACE 1.5	ACHM BINDER 2.0	ACHM SURFACE	AGG BASE CRS CL7 3.0
267+00	16'RT	ACHM SURFACE 4.0	CHIP SEAL	ACHM SURFACE 1.0	ACHM BINDER	ACHM SURFACE	AGG BASE CRS CL7 3.0
267+00	50'RT	ACHM SURFACE	CHIP SEAL	ACHM SURFACE	CHIP SEAL	ACHM SURFACE	AGG BASE CRS CL7
275+00	6'RT	ACHM SURFACE 8.0W	CHIP SEAL 1.25	ACHM SURFACE 1.0	CHIP SEAL .5	ACHM SURFACE	AGG BASE CRS CL7 3.0
275+00	15'RT	ACHM SURFACE 9.0W	CHIP SEAL	ACHM SURFACE	CHIP SEAL	ACHM SURFACE	AGG BASE CRS CL7 3.0
275+00	58'RT						
283+00	CL						
291+00	CL						
296+00	CL						
307+00	CL						
318+50	CL						
323+00	CL						
331+00	CL						
339+50	100'LT						
347+00	CL						
355+25	CL						
363+00	CL						
371+00	14'LT	ACHM SURF	ASPH TREAT BASE CRS				
371+00	23'LT	ACHM SURF 9.0W	ASPH TREAT BASE CRS 4.0				

Comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

PAVEMENT SOUNDINGS

STA.# LOC.

379+50	11'RT	ACHM SURF 9.0W	ASPH TREAT BASE CRS 4.0X	
379+50	50'RT	ACHM SURF	ASPH TREAT BASE CR&GG BASE CRS CL7	
387+00	12'LT	ACHM SURF 6.5W	ASPH TREAT BASE CR&GG BASE CRS CL7 2.5	4.0
387+00	29'LT	ACHM SURF	ASPH TREAT BASE CR&GG BASE CRS CL7	
395+40	12'RT	ACHM SURF 9.0W	ASPH TREAT BASE CRS 2.0	
395+40	42'RT	ACHM SURF	ASPH TREAT BASE CRS	
403+00	11'LT	ACHM SURF 8.0W	ASPH TREAT BASE CRS 2.0	
403+00	45'LT	ACHM SURF	ACHM BINDER	
411+00	10'RT	ACHM SURF 8.0W	ACHM BINDER 3.0	
411+00	50'RT	ACHM SURF	ACHM BINDER	
419+00	10'LT	ACHM SURF 8.0W	ASPH TREAT BASE CR&CHM SURF 2.5	2.5
419+00	44'LT	ACHM SURF	ASPH TREAT BASE CR&CHM SURF	
427+00	12'LT	ACHM SURF 7.0W	ASPH TREAT BASE CR&CHM SURF 3.5	
427+00	22'LT	ACHM SURF	CHIP SEAL	ACHM BINDER
435+00	11'RT	ACHM SURF 7.75W	CHIP SEAL	ACHM BINDER
443+00	10'LT	ACHM SURF 8.0W	CHIP SEAL .25	ACHM BINDER 1.0
443+00	20'LT	ACHM SURF 6.25W	AGG BASE CRS CL7 5.0	
443+00	32'LT	ACHM SURF	AGG BASE CRS CL7	
			CHIP SEAL	ASPH TREAT BASE C
			—	—
			CHIP SEAL	ASPH TREAT BASE C
			—	2.0
			CHIP SEAL	ASPH TREAT BASE C
			.5	2.25

Comments: Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

Monday, December 21, 2009

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.	090065	Material Code	SSRVPS
Date Sampled:	11/18/2009	Station No.:	155+00
Date Tested:	November 18, 2009	Location:	56'RT
Name of Project:	AVOCA - NORTH GARFIELD (S)		
County:	Code: 4	Name:	BENTON
Sampled By:		Depth:	0-5
Lab No.:	20093245	AASHTO Class:	A-4(5)
Sample ID:	RV938	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	3.98
Middle	3.98
Bottom	3.99
Average	3.98
Membrane Thickness (in):	0.00
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):	12.46
Initial Volume, AoLo (cu. in):	99.94

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	3179.70
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4. Soil Properties:

Optimum Moisture Content (%):	14.8
Maximum Dry Density (pcf):	110.6
95% of MDD (pcf):	105.1
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	3179.70
Compaction Moisture content (%):	15.1
Compaction Wet Density (pcf):	121.22
Compaction Dry Density (pcf):	105.32
Moisture Content After Mr Test (%):	15.3

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

7. Resilient Modulus, Mr: $10514(S_c)^{-0.22950}(S_3)^{0.30297}$

8. Comments _____

9. Tested By: DEB **Date:** November 18, 2009

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

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

Job No. 090065 **Material Code** SSRVPS
Date Sampled: 11/18/2009 **Station No.:** 155+00
Date Tested: November 18, 2009 **Location:** 56RT
Name of Project: AVOCA - NORTH GARFIELD (S)
County: Code: 4 **Name:** BENTON
Sampled By: **Depth:** 0-5
Lab No.: 20093245 **AASHTO Class:** A-4(5)
Sample ID: RV938 **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	25.7	22.8	2.9	2.1	1.8	0.2	0.00093	0.00012	15,731
Sequence 2	6.0	4.0	48.1	45.2	2.9	3.9	3.6	0.2	0.00202	0.00025	14,364
Sequence 3	6.0	6.0	71.3	67.4	3.9	5.7	5.4	0.3	0.00332	0.00041	13,082
Sequence 4	6.0	8.0	95.3	88.9	6.4	7.6	7.1	0.5	0.00501	0.00062	11,424
Sequence 5	6.0	10.0	118.8	109.8	9.0	9.5	8.8	0.7	0.00684	0.00085	10,330
Sequence 6	4.0	2.0	25.6	22.7	2.9	2.1	1.8	0.2	0.00110	0.00014	13,238
Sequence 7	4.0	4.0	47.8	44.9	2.9	3.8	3.6	0.2	0.00239	0.00030	12,078
Sequence 8	4.0	6.0	69.6	66.6	3.0	5.6	5.3	0.2	0.00394	0.00049	10,881
Sequence 9	4.0	8.0	93.5	87.9	5.6	7.5	7.1	0.4	0.00563	0.00070	10,046
Sequence 10	4.0	10.0	117.2	109.2	8.0	9.4	8.8	0.6	0.00746	0.00093	9,411
Sequence 11	2.0	2.0	25.4	22.5	2.9	2.0	1.8	0.2	0.00131	0.00016	11,019
Sequence 12	2.0	4.0	47.2	44.3	2.9	3.8	3.6	0.2	0.00286	0.00036	9,965
Sequence 13	2.0	6.0	68.3	65.3	3.0	5.5	5.2	0.2	0.00468	0.00058	8,985
Sequence 14	2.0	8.0	90.8	86.1	4.7	7.3	6.9	0.4	0.00659	0.00082	8,410
Sequence 15	2.0	10.0	114.2	106.9	7.2	9.2	8.6	0.6	0.00860	0.00107	8,002

TESTED BY _____ **DATE** November 18, 2009
REVIEWED BY _____ **DATE** _____

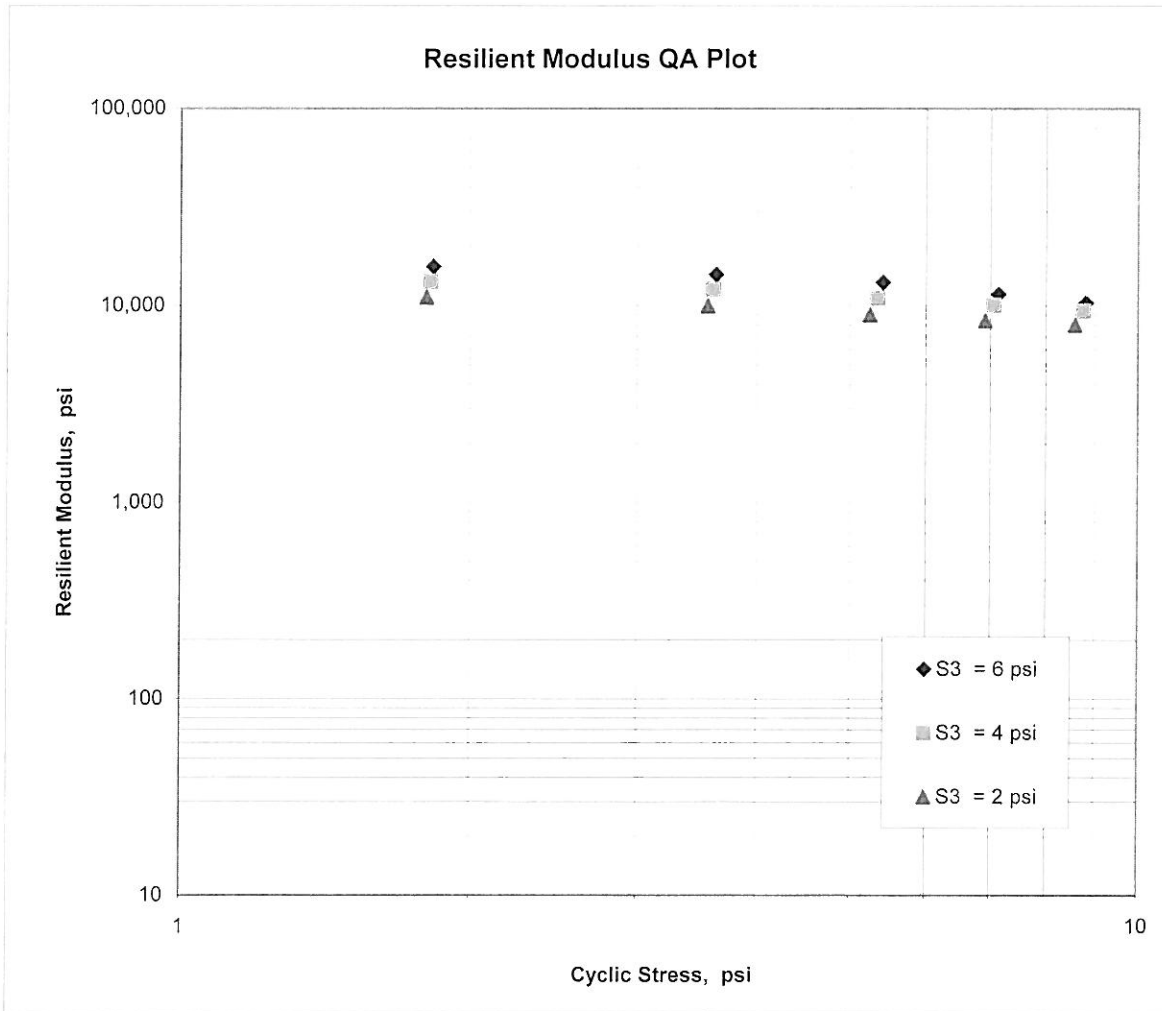
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.	090065	Material Code SSRVPS
Date Sampled:	11/18/2009	Station No.: 155+00
Date Tested:	November 18, 2009	Location: 56'RT
Name of Project:	AVOCA - NORTH GARFIELD (S)	
County:	Code: 4	Name: BENTON
Sampled By:		Depth: 0-5
Lab No.:	20093245	AASHTO Class: A-4(5)
Sample ID:	RV938	Material Type (1 or 2): 2
LATITUDE:		LONGITUDE:

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

$K_1 = \underline{10,514}$
 $K_2 = \underline{-0.22950}$
 $K_5 = \underline{0.30297}$
 $R^2 = \underline{0.97}$



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

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

Job No.	090065	Material Code	SSRVPS
Date Sampled:	11/18/2009	Station No.:	235+00
Date Tested:	November 18, 2009	Location:	50'RT
Name of Project:	AVOCA - NORTH GARFIELD (S)		
County:	Code: 4	Name:	BENTON
Sampled By:		Depth:	0-5
Lab No.:	20093246	AASHTO Class:	A-6(13)
Sample ID:	RV939	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	3.98
Middle	3.99
Bottom	3.98
Average	3.98
Membrane Thickness (in):	0.00
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):	12.46
Initial Volume, AoLo (cu. in):	99.94

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	3181.90
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4. Soil Properties:

Optimum Moisture Content (%):	16.5
Maximum Dry Density (pcf):	105.9
95% of MDD (pcf):	100.6
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	3181.90
Compaction Moisture content (%):	16.2
Compaction Wet Density (pcf):	121.31
Compaction Dry Density (pcf):	104.39
Moisture Content After Mr Test (%):	16.8

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

7. Resilient Modulus, Mr: 8049(Sc)^-0.14595(S3)^0.34376

8. Comments _____

9. Tested By: DEB **Date:** November 18, 2009

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

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

Job No.	090065	Material Code	SSRVPS
Date Sampled:	11/18/2009	Station No.:	235+00
Date Tested:	November 18, 2009	Location:	50'RT
Name of Project:	AVOCA - NORTH GARFIELD (S)	Depth:	0-5
County:	Code: 4 Name: BENTON	AASHTO Class:	A-6(13)
Sampled By:	20093246	Material Type (1 or 2):	2
Lab No.:	RV939	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
	S ₃	psi	S _{axial}	P _{max}	P _{cyclic}	P _{contact}	S _{max}	S _{cyclic}	S _{contact}	H _{avg}	ε _r	M _r
DESIGNATION	psi	psi	lbs	lbs	lbs	lbs	psi	psi	psi	in	in/in	psi
Sequence 1	6.0	2.0	25.7	22.9	2.7	2.1	1.8	0.2	0.00109	0.00014	13,578	
Sequence 2	6.0	4.0	48.2	45.4	2.8	3.9	3.6	0.2	0.00228	0.00028	12,831	
Sequence 3	6.0	6.0	71.3	67.5	3.8	5.7	5.4	0.3	0.00363	0.00045	11,969	
Sequence 4	6.0	8.0	95.5	89.1	6.3	7.7	7.2	0.5	0.00515	0.00064	11,136	
Sequence 5	6.0	10.0	119.3	110.5	8.8	9.6	8.9	0.7	0.00662	0.00082	10,746	
Sequence 6	4.0	2.0	25.4	22.7	2.7	2.0	1.8	0.2	0.00125	0.00016	11,712	
Sequence 7	4.0	4.0	47.5	44.7	2.8	3.8	3.6	0.2	0.00269	0.00034	10,685	
Sequence 8	4.0	6.0	69.2	66.2	2.9	5.5	5.3	0.2	0.00429	0.00053	9,941	
Sequence 9	4.0	8.0	93.3	87.9	5.4	7.5	7.1	0.4	0.00592	0.00074	9,557	
Sequence 10	4.0	10.0	117.4	109.5	7.9	9.4	8.8	0.6	0.00759	0.00095	9,284	
Sequence 11	2.0	2.0	25.2	22.5	2.7	2.0	1.8	0.2	0.00154	0.00019	9,396	
Sequence 12	2.0	4.0	46.5	43.8	2.8	3.7	3.5	0.2	0.00331	0.00041	8,513	
Sequence 13	2.0	6.0	67.4	64.6	2.8	5.4	5.2	0.2	0.00522	0.00065	7,971	
Sequence 14	2.0	8.0	90.0	85.4	4.6	7.2	6.9	0.4	0.00709	0.00088	7,751	
Sequence 15	2.0	10.0	114.0	106.9	7.1	9.1	8.6	0.6	0.00896	0.00112	7,680	

TESTED BY DEB DATE November 18, 2009

REVIEWED BY _____ DATE _____

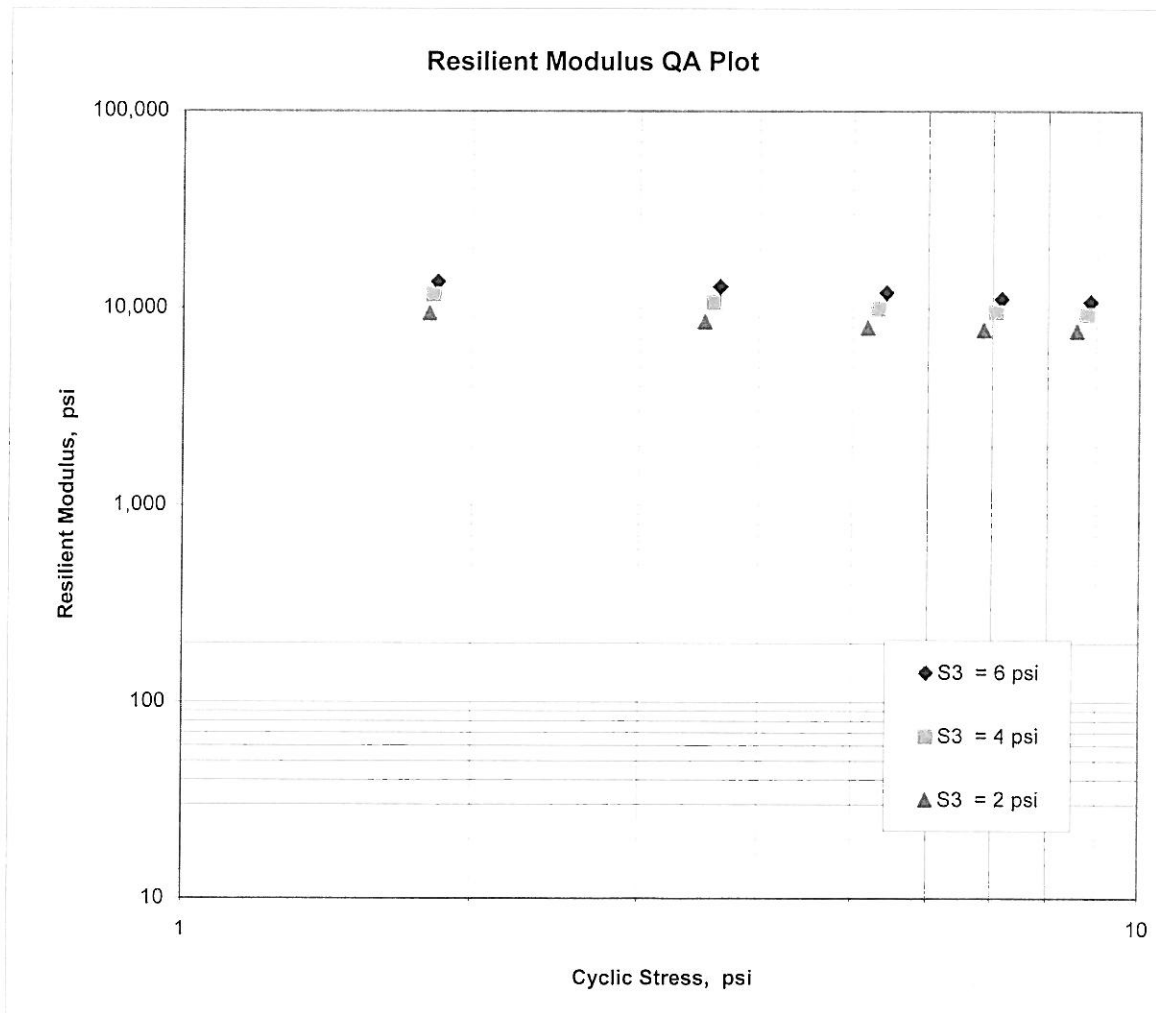
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.	090065	Material Code	SSRVPS
Date Sampled:	11/18/2009	Station No.:	235+00
Date Tested:	November 18, 2009	Location:	50'RT
Name of Project:	AVOCA - NORTH GARFIELD (S)		
County:	Code: 4	Name:	BENTON
Sampled By:		Depth:	0-5
Lab No.:	20093246	AASHTO Class:	A-6(13)
Sample ID:	RV939	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

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

K1 =	<u>8,049</u>
K2 =	<u>-0.14595</u>
K5 =	<u>0.34376</u>
R ² =	<u>0.99</u>



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

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

Job No.	090065	Material Code	SSRVPS
Date Sampled:	11/20/2009	Station No.:	395+40
Date Tested:	November 20, 2009	Location:	42'RT
Name of Project:	AVOCA - NOTH GARFIELD (S)		
County:	Code: 4	Name:	BENTON
Sampled By:		Depth:	0-5
Lab No.:	20093247	AASHTO Class:	A-6(11)
Sample ID:	RV940	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	3.94
Middle	3.95
Bottom	3.96
Average	3.95
Membrane Thickness (in):	0.00
Height of Specimen, Cap and Base (in):	8.04
Height of Cap and Base (in):	0.00
Initial Length, Lo (in):	8.04
Initial Area, Ao (sq. in):	12.25
Initial Volume, AoLo (cu. in):	98.52

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	2986.60
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4. Soil Properties:

Optimum Moisture Content (%):	19.7
Maximum Dry Density (pcf):	100.9
95% of MDD (pcf):	95.9
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	2986.60
Compaction Moisture content (%):	19.4
Compaction Wet Density (pcf):	115.50
Compaction Dry Density (pcf):	96.74
Moisture Content After Mr Test (%):	19.7

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

7. Resilient Modulus, Mr: $9389(S_c)^{-0.21387}(S_3)^{0.29515}$

8. Comments _____

9. Tested By: DEB **Date:** November 20, 2009

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

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

Job No. 090065 Material Code SSRVPS
 Date Sampled: 11/20/2009 Station No.: 395+40
 Date Tested: November 20, 2009 Location: 42'RT
 Name of Project: AVOCA - NOTH GARFIELD (S)
 County: Code: 4 Name: BENTON
 Sampled By: Depth: 0-5
 Lab No.: 20093247 AASHTO Class: A-6(11)
 Sample ID: RV940 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. LVD1 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	2.6	2.1	1.8	0.2	0.00107	0.00013	13,770
Sequence 2	6.0	4.0	47.2	44.5	2.7	3.9	3.6	0.2	0.00227	0.00028	12,896
Sequence 3	6.0	6.0	69.6	66.0	3.6	5.7	5.4	0.3	0.00359	0.00045	12,061
Sequence 4	6.0	8.0	92.2	86.1	6.1	7.5	7.0	0.5	0.00538	0.00067	10,496
Sequence 5	6.0	10.0	114.5	106.0	8.5	9.3	8.6	0.7	0.00738	0.00092	9,426
Sequence 6	4.0	2.0	25.0	22.3	2.7	2.0	1.8	0.2	0.00123	0.00015	11,892
Sequence 7	4.0	4.0	46.4	43.7	2.7	3.8	3.6	0.2	0.00268	0.00033	10,702
Sequence 8	4.0	6.0	67.5	64.7	2.8	5.5	5.3	0.2	0.00429	0.00053	9,890
Sequence 9	4.0	8.0	90.5	85.3	5.2	7.4	7.0	0.4	0.00608	0.00076	9,211
Sequence 10	4.0	10.0	112.7	104.9	7.8	9.2	8.6	0.6	0.00803	0.00100	8,575
Sequence 11	2.0	2.0	24.7	22.0	2.7	2.0	1.8	0.2	0.00144	0.00018	10,038
Sequence 12	2.0	4.0	45.6	42.8	2.8	3.7	3.5	0.2	0.00313	0.00039	8,983
Sequence 13	2.0	6.0	65.9	63.0	2.9	5.4	5.1	0.2	0.00501	0.00062	8,237
Sequence 14	2.0	8.0	87.5	83.1	4.4	7.1	6.8	0.4	0.00701	0.00087	7,774
Sequence 15	2.0	10.0	109.5	102.5	6.9	8.9	8.4	0.6	0.00917	0.00114	7,331

TESTED BY: DEB DATE: November 20, 2009
 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.	090065	Material Code	SSRVPS
Date Sampled:	11/20/2009	Station No.:	395+40
Date Tested:	November 20, 2009	Location:	42'RT
Name of Project:	AVOCA - NOTH GARFIELD (S)		
County:	Code: 4	Name:	BENTON
Sampled By:		Depth:	0-5
Lab No.:	20093247	AASHTO Class:	A-6(11)
Sample ID:	RV940	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

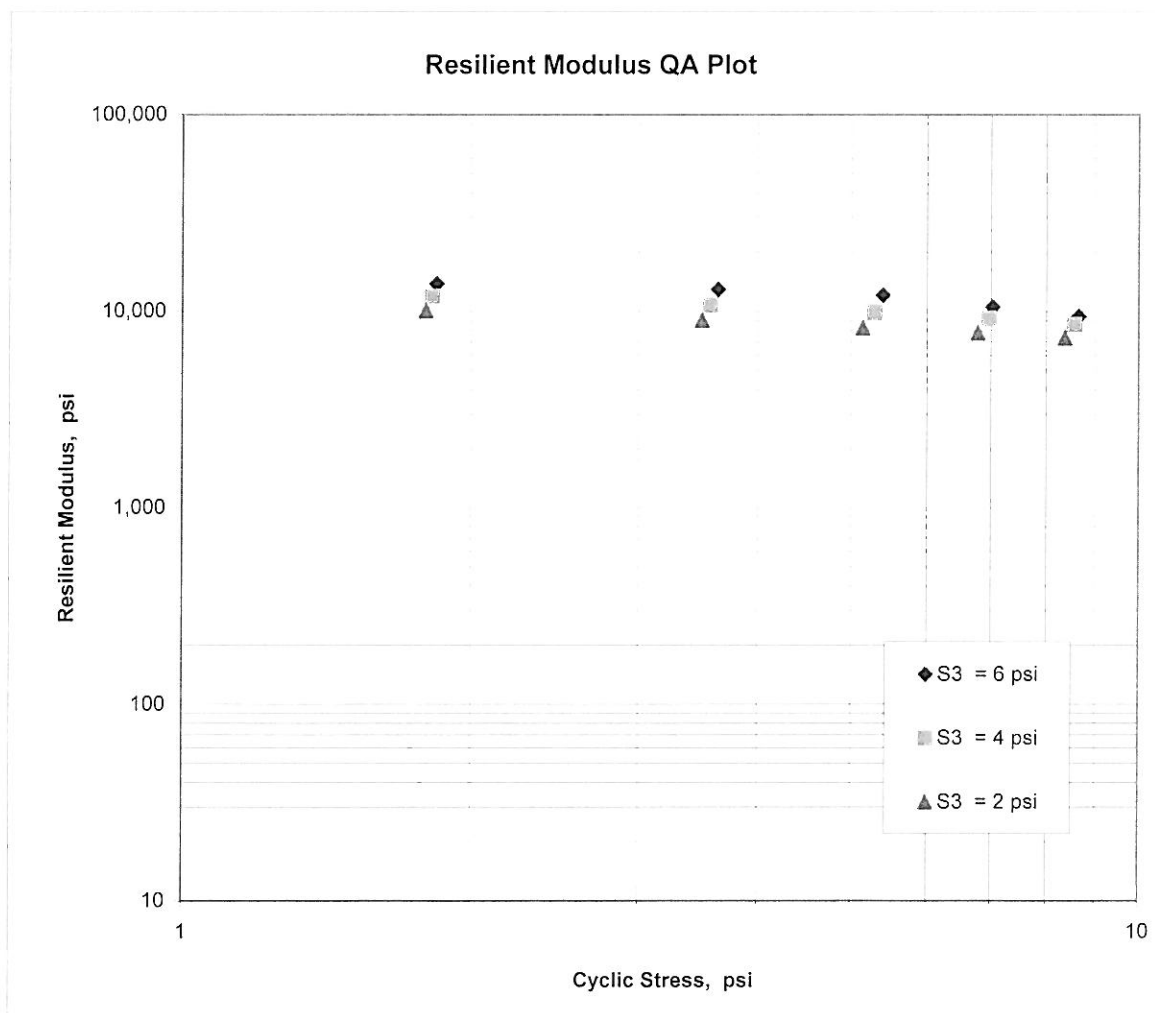
$$M_R = K_1 (S_C)^{K_2} (S_3)^{K_5}$$

$$K_1 = 9,389$$

$$K_2 = -0.21387$$

$$K_5 = 0.29515$$

$$R^2 = 0.96$$



ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/04/09	SEQUENCE NO.	- 1
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093153	- 20093154	- 20093155
SAMPLE ID	- S846	- S847	- S848
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 115+00	- 115+00	- 115+00
LOCATION	- 10'RT	- 27'RT	- 52'RT
DEPTH IN FEET	- 0-4.2Z	- 0-4.0Z	- 0-5
MAT'L COLOR	- RED	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 24 27.20	- 36 24 27.20	- 36 24 27.20
LONGITUDE DEG-MIN-SEC	- 94 04 16.30	- 94 04 16.10	- 94 04 15.80
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 92	96	88
	NO. 40 - 77	88	76
	NO. 80 - 70	84	73
	NO. 200 - 64	80	69
LIQUID LIMIT	- 33	- 29	- 51
PLASTICITY INDEX	- 18	- 15	- 32
AASHTO SOIL	- A-6(9)	- A-6(10)	- A-7-6(21)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 20.3	- 21.4	- 16.1
ACHM SURFACE (IN)	- 4.0W	- 4.0W	-
ACHM BINDER (IN)	- 3.25	- 6.75	-
ACHM SURFACE (IN)	- 3.5	-	-
AGG BASE CRS CL7 (IN)	- 6.0	- 8.0	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/04/09	SEQUENCE NO.	- 2
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093156	- 20093157	- 20093158
SAMPLE ID	- S849	- S850	- S851
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 123+00	- 123+00	- 123+00
LOCATION	- 7'RT	- 28'RT	- 56'RT
DEPTH IN FEET	- 0-5	- 0-5	- 0-5
MAT'L COLOR	- RED	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 24 35.00	- 36 24 35.00	- 36 24 34.90
LONGITUDE DEG-MIN-SEC	- 94 04 14.60	- 94 04 14.40	- 94 04 14.10
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	- 100	- 100
	NO. 10 - 91	- 98	- 92
	NO. 40 - 78	- 91	- 72
	NO. 80 - 73	- 86	- 64
	NO. 200 - 67	- 80	- 56
LIQUID LIMIT	- 52	- 56	- 40
PLASTICITY INDEX	- 36	- 39	- 22
AASHTO SOIL	- A-7-6(22)	- A-7-6(31)	- A-6(9)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 26.8	- 31.7	- 19.6
ACHM SURFACE (IN)	- 3.25	- 4.0	-
ACHM BINDER (IN)	- 3.0	- 9.0	-
ACHM SURFACE (IN)	- 6.0	-	-
AGG BASE CRS CL7 (IN)	- 6.0	- 8.0	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/04/09	SEQUENCE NO.	- 5
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093165	- 20093166	- 20093167
SAMPLE ID	- S858	- S859	- S860
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 147+00	- 147+00	- 147+00
LOCATION	- 8'LT	- 1'RT	- 29'RT
DEPTH IN FEET	- 0-4Z	- 0-3.5Z	- 0-5
MAT'L COLOR	- RED	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 24 58.10	- 36 24 58.10	- 36 24 58.00
LONGITUDE DEG-MIN-SEC	- 94 04 11.50	- 94 04 11.40	- 94 04 11.00
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 93	94	95
	NO. 40 - 79	80	84
	NO. 80 - 73	74	79
	NO. 200 - 66	67	75
LIQUID LIMIT	- 35	- 44	- 61
PLASTICITY INDEX	- 20	- 27	- 42
AASHTO SOIL	- A-6(11)	- A-7-6(16)	- A-7-6(31)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 26.0	- 31.4	- 32.8
ACHM SURFACE (IN)	- 4.5	- 5.5W	-
ACHM BINDER (IN)	- 2.0	-	-
ACHM SURFACE (IN)	- 3.5	-	-
ACHM BINDER (IN)	- 2.5	-	-
AGG BASE CRS CL7 (IN)	- 7.0	- 7.0	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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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	- 12/04/09	SEQUENCE NO.	- 8
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093174	- 20093175	- 20093176
SAMPLE ID	- S867	- S868	- S869
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 171+00	- 171+00	- 179+00
LOCATION	- 16'LT	- 30'LT	- 6'LT
DEPTH IN FEET	- 0-5	- 0-3.5Z	- 0-5
MAT'L COLOR	- RED	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 25 16.30	- 36 25 16.40	- 36 25 21.50
LONGITUDE DEG-MIN-SEC	- 94 03 52.90	- 94 03 53.00	- 94 03 45.30
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 95	92	88
	NO. 40 - 89	83	72
	NO. 80 - 87	79	66
	NO. 200 - 84	74	60
LIQUID LIMIT	- 60	- 47	- 23
PLASTICITY INDEX	- 42	- 27	- 7
AASHTO SOIL	- A-7-6(37)	- A-7-6(19)	- A-4(2)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 30.5	- 32.8	- 18.4
ACHM SURFACE (IN)	- 3.0	-	- 5.25W
ACHM BINDER (IN)	-	-	- 2.75
AGG BASE CRS CL7 (IN)	- 5.0	-	- 5.0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/04/09	SEQUENCE NO.	- 9
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093177	- 20093178	- 20093179
SAMPLE ID	- S870	- S871	- S872
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 179+00	- 179+00	- 187+00
LOCATION	- 20'LT	- 36'LT	- 5'LT
DEPTH IN FEET	- 0-1.5Z	- 0-4.7Z	- 0-5
MAT'L COLOR	- RED	- RED	- RD/BR
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 25 21.60	- 36 25 21.70	- 36 25 27.40
LONGITUDE DEG-MIN-SEC	- 94 03 45.50	- 94 03 45.60	- 94 03 38.70
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 76	93	96
	NO. 40 - 51	83	88
	NO. 80 - 43	79	82
	NO. 200 - 37	75	66
LIQUID LIMIT	- ND	- 40	- 26
PLASTICITY INDEX	- NP	- 24	- 9
AASHTO SOIL	- A-4 (0)	- A-6 (16)	- A-4 (4)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 7.5	- 31.6	- 20.2
ACHM SURFACE (IN)	- 3.5W	-	- 7.0W
ASPH TREAT BASE CRS (IN)	-	-	- 3.0
ASPH TREAT BASE CRS (IN)	-	-	- 1.0X
AGG BASE CRS CL7 (IN)	- 3.0	-	- 3.0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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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	- 12/04/09	SEQUENCE NO.	- 16
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093198	- 20093199	- 20093200
SAMPLE ID	- S891	- S892	- S893
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 235+00	- 243+00	- 243+00
LOCATION	- 50'RT	- 7'LT	- 16'LT
DEPTH IN FEET	- 0-5	- 0-3.5Z	- 0-3.5Z
MAT'L COLOR	- RED	- RD/BR	- RD/BR
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 25 52.30	- 36 25 57.10	- 36 25 57.20
LONGITUDE DEG-MIN-SEC	- 94 02 50.50	- 94 02 42.10	- 94 02 42.10
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	- 100	- 100
	NO. 10 - 94	- 92	- 89
	NO. 40 - 88	- 84	- 80
	NO. 80 - 84	- 80	- 76
	NO. 200 - 76	- 76	- 71
LIQUID LIMIT	- 38	- 33	- 27
PLASTICITY INDEX	- 22	- 17	- 12
AASHTO SOIL	- A-6(15)	- A-6(11)	- A-6(6)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 22.4	- 21.4	- 23.2
ACHM SURFACE (IN)	-	- 11.0W	- 7.0W
CHIP SEAL (IN)	-	- 1.0	-
ACHM BINDER (IN)	-	- 2.0	-
ASPH TREAT BASE CRS (IN)	-	-	- 6.0X
AGG BASE CRS CL7 (IN)	-	- 5.0	- 4.0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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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	- 12/04/09	SEQUENCE NO.	- 17
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093201	- 20093202	- 20093203
SAMPLE ID	- S894	- S895	- S896
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 243+00	- 251+00	- 251+00
LOCATION	- 47'LT	- 7'RT	- 16'RT
DEPTH IN FEET	- 0-5	- 0-5	- 0-5
MAT'L COLOR	- RED	- BROWN	- BROWN
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 25 57.30	- 36 26 1.60	- 36 26 1.60
LONGITUDE DEG-MIN-SEC	- 94 02 42.30	- 94 02 34.80	- 94 02 34.70
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 90	96	95
	NO. 40 - 85	93	90
	NO. 80 - 81	91	86
	NO. 200 - 76	87	82
LIQUID LIMIT	- 31	- 26	- 23
PLASTICITY INDEX	- 12	- 9	- 7
AASHTO SOIL	- A-6(8)	- A-4(6)	- A-4(3)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 24.8	- 22.2	- 23.3
ACHM SURFACE (IN)	-	- 7.5W	- 11.0W
ACHM BINDER (IN)	-	- 2.0	-
CHIP SEAL (IN)	-	- 1.0	-
ACHM BINDER (IN)	-	- 1.5	-
CHIPSEAL (IN)	-	- .5	-
ACHM BINDER (IN)	-	- 2.0	-
AGG BASE CRS CL7 (IN)	-	- 3.0	- 3.0
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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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	- 12/04/09	SEQUENCE NO.	- 18
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093204	- 20093205	- 20093206
SAMPLE ID	- S897	- S898	- S899
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 251+00	- 259+00	- 259+00
LOCATION	- 50'RT	- 6'LT	- 16'LT
DEPTH IN FEET	- 0-5	- 0-3.8Z	- 0-5
MAT'L COLOR	- RD/BR	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 26 1.30	- 36 26 6.70	- 36 26 6.80
LONGITUDE DEG-MIN-SEC	- 94 02 34.50	- 94 02 27.30	- 94 02 27.30
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 93	87	92
	NO. 40 - 86	74	76
	NO. 80 - 83	68	70
	NO. 200 - 78	61	64
LIQUID LIMIT	- 34	- 28	- 31
PLASTICITY INDEX	- 18	- 13	- 14
AASHTO SOIL	- A-6(12)	- A-6(5)	- A-6(6)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 21.9	- 19.3	- 22.1
ACHM SURFACE (IN)	-	- 10.5W	- 9.0W
ACHM BINDER (IN)	-	- 2.0	-
AGG BASE CRS CL7 (IN)	-	- 3.0	- 5.0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/04/09	SEQUENCE NO.	- 20
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093210	- 20093211	- 20093212
SAMPLE ID	- S903	- S904	- S905
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 267+00	- 275+00	- 275+00
LOCATION	- 50'RT	- 6'RT	- 15'RT
DEPTH IN FEET	- 0-1.5Z	- 0-5	- 0-2.5Z
MAT'L COLOR	- RD/BR	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 26 11.00	- 36 26 16.10	- 36 26 16.00
LONGITUDE DEG-MIN-SEC	- 94 02 19.10	- 94 02 11.60	- 94 02 11.50
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	- 100	- 100
	NO. 10 - 79	- 87	- 84
	NO. 40 - 69	- 69	- 68
	NO. 80 - 66	- 63	- 63
	NO. 200 - 64	- 57	- 58
LIQUID LIMIT	- 31	- 27	- 26
PLASTICITY INDEX	- 7	- 11	- 8
AASHTO SOIL	- A-4 (3)	- A-6 (3)	- A-4 (2)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 26.0	- 24.1	- 19.8
ACHM SURFACE (IN)	-	- 8.0W	- 9.0W
CHIP SEAL (IN)	-	- 1.25	-
ACHM SURFACE (IN)	-	- 1.0	-
CHIP SEAL (IN)	-	- .5	-
ACHM SURFACE (IN)	-	- 1.0	-
AGG BASE CRS CL7 (IN)	-	- 3.0	- 3.0
	-	-	-
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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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	- 12/07/09	SEQUENCE NO.	- 26
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093228	- 20093229	- 20093230
SAMPLE ID	- S921	- S922	- S923
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 379+50	- 387+00	- 387+00
LOCATION	- 50'RT	- 12'LT	- 29'LT
DEPTH IN FEET	- 0-5	- 0-3.1Z	- 0-5
MAT'L COLOR	- RED	- RED	- RD/BR
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 26 48.80	- 36 26 49.30	- 36 26 49.50
LONGITUDE DEG-MIN-SEC	- 94 00 10.90	- 94 00 1.70	- 94 00 1.70
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 95	92	92
	NO. 40 - 89	85	81
	NO. 80 - 84	82	76
	NO. 200 - 77	77	70
LIQUID LIMIT	- 28	- 48	- 38
PLASTICITY INDEX	- 10	- 31	- 22
AASHTO SOIL	- A-4 (6)	- A-7-6 (23)	- A-6 (13)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 29.5	- 34.9	- 31.0
ACHM SURF (IN)	-	- 6.5W	-
ASPH TREAT BASE CRS (IN)	-	- 2.5	-
AGG BASE CRS CL7 (IN)	-	- 4.0	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
 - LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/07/09	SEQUENCE NO.	- 28
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093234	- 20093235	- 20093236
SAMPLE ID	- S927	- S928	- S929
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 403+00	- 411+00	- 411+00
LOCATION	- 45'LT	- 10'RT	- 50'RT
DEPTH IN FEET	- 0-5	- 0-5	- 0-5
MAT'L COLOR	- RED	- RED	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 26 48.40	- 36 26 43.80	- 36 26 43.60
LONGITUDE DEG-MIN-SEC	- 93 59 42.20	- 93 59 34.00	- 93 59 34.20
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 90	86	96
	NO. 40 - 73	74	85
	NO. 80 - 67	66	79
	NO. 200 - 61	55	72
LIQUID LIMIT	- 29	- 23	- 27
PLASTICITY INDEX	- 13	- 7	- 8
AASHTO SOIL	- A-6(5)	- A-4(1)	- A-4(4)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 17.2	- 16.8	- 17.5
ACHM SURF (IN)	-	- 8.0W	-
ACHM BINDER (IN)	-	- 3.0	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/07/09	SEQUENCE NO.	- 29
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093237	- 20093238	- 20093239
SAMPLE ID	- S930	- S931	- S932
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 419+00	- 419+00	- 427+00
LOCATION	- 10'LT	- 44'LT	- 12'LT
DEPTH IN FEET	- 0-5	- 0-2.0Z	- 0-2Z
MAT'L COLOR	- RED	- BROWN	- BROWN
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 26 39.90	- 36 26 40.10	- 36 26 37.80
LONGITUDE DEG-MIN-SEC	- 93 59 25.50	- 93 59 25.30	- 93 59 16.50
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	100	100
	NO. 10 - 98	93	82
	NO. 40 - 95	90	74
	NO. 80 - 93	88	71
	NO. 200 - 80	77	56
LIQUID LIMIT	- 46	- 50	- 24
PLASTICITY INDEX	- 31	- 32	- 7
AASHTO SOIL	- A-7-6(24)	- A-7-6(24)	- A-4(1)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 23.6	- 26.9	- 13.6
ACHM SURF (IN)	- 8.0W	-	- 7.0W
ASPH TREAT BASE CRS (IN)	- 2.5	-	- 3.5
ACHM SURF (IN)	- 2.5	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 12/21/09	SEQUENCE NO.	- 30
JOB NUMBER	- 090065	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 04
SUPPLIER NAME	- STATE	DISTRICT NO.	- 09
NAME OF PROJECT	- AVOCA - NORTH GARFIELD (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- BENTON COUNTY	DATE SAMPLED	- 11/02/09
SAMPLED BY	- D.KRAFT	DATE RECEIVED	- 11/09/09
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 11/24/09
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20093240	- 20093241	- 20093242
SAMPLE ID	- S933	- S934	- S935
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 427+00	- 435+00	- 443+00
LOCATION	- 22'LT	- 11'RT	- 10'LT
DEPTH IN FEET	- 0-3.0Z	- 0-5	- 0-1.5Z
MAT'L COLOR	- BROWN	- BROWN	- RED
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 36 26 37.90	- 36 26 39.60	- 36 26 44.20
LONGITUDE DEG-MIN-SEC	- 93 59 16.50	- 93 59 7.20	- 93 58 59.00
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	- 100	- 100
	NO. 10 - 91	- 91	- 85
	NO. 40 - 78	- 84	- 78
	NO. 80 - 68	- 80	- 68
	NO. 200 - 53	- 67	- 60
LIQUID LIMIT	- 35	- 21	- 26
PLASTICITY INDEX	- 17	- 6	- 10
AASHTO SOIL	- A-6(6)	- A-4(1)	- A-4(3)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 14.8	- 17.4	- 15.5
ACHM SURF (IN)	-	- 7.75W	- 8.0W
CHIP SEAL (IN)	-	-	- .25
ACHM BINDER (IN)	-	-	- 1.0
CHIP SEAL (IN)	-	-	- .5
ASPH TREAT BASE CRS (IN)	-	- 2.0	- 2.25
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - Z=AUGER REFUSAL, W=MULTIPLE LAYERS, X=STRIPPED
- LOCATIONS MEASURED FROM CENTERLINE OF CONSTRUCTION
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AASHTO TESTS : T24 T88 T89 T90 T265

