## ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

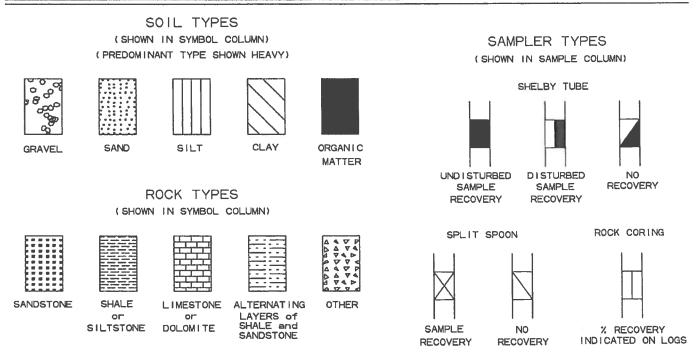


## SUBSURFACE INVESTIGATION

STATE JOB NO.		080445	
FEDERAL AID PROJEC	CT NO	STPR-0071(28)	
	CADRO	N CREEK STR. & APPRS. (S)	
STATE HIGHWAY	124	SECTION	7
IN		VAN BUREN	COUNTY
LETTING OF		JUNE 22, 2016	

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.

## LEGEND



## TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANU	LAR SOIL		CLAY	CL	AY-SHALE	SHALE							
'N' Value	Density	'N' Value	Consistency	'N' Value	Consistency	'N' Value	Consistency						
0-4	Very Loose	0-1	Very Soft	0-1	Very Soft								
5-10	Loose	2-4	Soft	2-4	Soft.	31-60	Soft						
11-30	Medium Dense	5-8	Medium Stiff	5-8	Medium Stiff	Over 60							
31-50	Dense	9-15	Stiff	9-15	Stiff	More than	2'						
0ver 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetrati	on						
		31-60	Hard	31-60	Hard	in 60 Blov	ws: Medium Haro						
Ì		Over 60	Very Hard	0ver 60	Very Hard	Less than	2'						
						Penetrati	on						
		and the second s				in 60 Blow	ws: Hard						

- 1. Ground water elevations indicated on boring logs represent ground water elevations at date or time shown on boring log. Absence of water surface implies that no ground water data is available but does not necessarily mean that ground water will not be encountered at locations or within the vertical reaches of these borings.
- 2. Borings represent subsurface conditions at their respective locations for their respective depths. Variations in conditions between or adjacent to boring locations may be encountered.
- 3. Terms used for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System.

Standard Penetration Test – Driving a 2.0" O.D., 1-3/8" I.D. sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and performing the test are recorded for each 6 inches of penetration on the drill log. The field "N" Value (N<sub>f</sub>) can be obtained by

adding the bottom two numbers for example:  $\frac{6}{8-9} \Rightarrow 8+9=17$  blows / ft. The "N" Value corrected to 60% efficiency (N<sub>60</sub>) can be obtained by multiplying N<sub>f</sub> by the hammer correction factor published on the boring log.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.  JOB NO. 080445 Van Buren County JOB NAME: Cadron Greek Str. & Apprs. SIATION: 112+10 LOCATION: Center Line of Construction LOCATION: DEPTH: 23.9  DESCRIPTION DEPTH: 23.9  DESCRIPTION OF MATERIAL FIT. L S SURFACE ELEVATION: 535.8  Molst, Very Dense, Sand with Clay, Gravel (Sandstone Fragments) and Cobbies  SANDSTONE: Light Brown, Thin Badded, Slightly Weathered, Well-Cemented, with Slight Dip  SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Light Gray to Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  BORING NO. 1  DATE: December 16, 2014 TYPE OF DEBLILING: Hollow Steen Auger & Deamber 10, 2014 TYPE OF DEBLILING: Light Gray to Gray and Brown, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  BORNOS NO. 1  BORNOS NO. 1  DATE: December 16, 2014 TYPE OF DEBLILING: Light Gray to Gray and Brown, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  BORNOS NO. 1  BORNOS NO.														·	ji					
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JOB NAME: Cadron Creek Str. & Apprs. S.H. 124 STATION: 112+10 EQUIPMENT: CME 850 w CME Automatic Hammer LOCATION: DEPTH: 23.9  D S S A P Y M P H B L C S SURFACE ELEVATION: 535.8  Moist, Very Dense, Sand with Clay, Gravel (Sandstone Fragments) and Cobble (Sandstone Fragments) and Cobble Silightly Weathered, Well-Cemented, with Silight Dip  SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Light Gray to Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Silight Dip  SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  SOIL GROUP  JUNE SOIL GROUP JUNE STANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Light Gray to Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  Boring Terminated			-				_	- 1			nher	16.	2014		$\dashv$					
S.H. 124 STATION: 112+10 LOCATION: Center Line of Construction LOCGED BY: Henderson & Boughner    Date		_						DRI				-		uger	&					
LOCATION: Center Line of Construction LOGGED BY: Henderson & Boughner    Description of Material   Soil   Record   Recor				• •										_						
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SHALE PARTINGS - Light Gray to Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  30 30 35				CANDOTONE WITH EDECLIENT DARK CRAY																
Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  20 SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  30 30 35	<del> </del>				1															
20 SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  25 Boring Terminated  30 30 35	15			Bedded, Slightly Weathered, Well-Cemented,																
20 SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  30 30 35	<u> </u>			with Slight Dip																
SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  30  35						İ								100	96					
SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  30  35					!															
SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  30  35	L		Ш		-															
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Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  30  35														100	90					
25 Boring Terminated  30				Slightly Weathered, Well-Cemented, with Slight										100	30					
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	25	-																		
		IARK	S:	* Low recovery due to inner core barrel not locking	in.			1						1						

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	G NO		· 1							
JOB N			080445 Van Buren County	DATE: December 17, 2014											
JOB N			Cadron Creek Str. & Apprs.		TYPE OF DRILLING: Hollow Stem Auger &										
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STAT	ON·		112+83		EQUIPM	IENT		CN	Æ 8	50 v	/ CN	Æ			
LOCA			8' Right of Center Line of Construction					Aut	oma	itic I	lamr	ner			
			Vade Boughner		HAMMI	ER CO	RREC	TION	FACT	ror:		1.23			
			N DEPTH: 27.5												
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ET	Ĺ	E S	OUDEA OF ELEVATIONS FOR O		PLASTIC LIMIT	% MOIST	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.				
FT.	NGE(X)	٥	SURFACE ELEVATION: 529.9		교니	%	77	Ω	7	Z	Ы				
	3//3		Moist, Very Dense, Sand with Clay, Gravel												
<u> </u>	<b>100</b>		(Sandstone Fragments) and Cobbles												
L -															
L -															
5			SANDSTONE - Light Brown and Gray, Thin										^		
			Bedded, Slightly Weathered, Well-Cemented,									90	0		
Γ -			with Slight Dip and Vertically Fractured Layers *												
				-									-		
-			CANDOTONE WITH EDECHENT DADIC CDAY												
10			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray and Brown, Medium												
10	-		Bedded, Slightly Weathered, Well-Cemented,									100	70		
	1		with Slight Dip and Vertically Fractured Layers *				1								
<u> </u>	-														
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15												100	84		
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			SANDSTONE WITH FREQUENT DARK GRAY												
20			SHALE PARTINGS - Gray, Medium Bedded,				1					400			
20	-		Slightly Weathered, Well-Cemented, with Slight									100	/6		
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35	44.5		1	F1											
REN	MAR	S:	* Total water loss was encountered from 3.1' to 27	.ວັ.											

	HWY. & TRANS. DEPARTMENT		BORIN									
	B DIVISION - GEOTECHNICAL SEC.	PAGE 1 OF 1  DATE: December 22, 2014										
JOB NO.	080445 Van Buren County		DATE: TYPE O					-			ρ.	
JOB NAME:	Cadron Creek Str. & Apprs. S.H. 124		TYPEO	· DK	ILLING	: п			id Co		α	
STATION:	114+06		EQUIPM	ICNIT		CI			v/ CN	_		
	Center Line of Construction		EQUIFIN	IENI	•				Tamr			
	Wade Boughner		НАММЕ	R CO	ORREC	TION	FACT	OR:		1.23		
	ON DEPTH; 33.6						:					
D G												
E P M B L	DESCRIPTION OF MATERIAL	SOIL GROUF	1≌	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	% S C R	% R Q D	
FT.			PLAST	%	H	Z Z	LB	<u>2</u>	PE			
5 5	Moist, Medium Dense, Brown Sand with Gravel (Sandstone Fragments)				and the second distance of the second			6	3 -5			
10	Wet, Medium Dense, Brown Sand with Gravel (Sandstone Fragments)								5 -9			
	SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight									87	35	
15 — — —	Dip									100	80	
20 	SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded,									100	74	
	Slightly Weathered, Well-Cemented, with Slight Dip			- The state of the						100	84	
30										100	10	
	Boring Terminated		$\top$	$\top$							Π	
35				$\perp$		,						

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OBIN	AWIL.		S.H. 124		11120							ring	
STATI	ION:		115+41		EQUIPM	1ENT	:	CN	ME 8	50 v	v/ CN	Æ	
	TION		Center Line of Construction					Au	toma	tic I	Hami	ner	
LOGG	ED B	۷: S	Steven Faulkner		HAMMI	ER CO	DRREC	TION	FACT	OR:		1.23	
COM	PLET	1OI	N DEPTH: 34										
D	S	S									- 1		
E P T	o Y M B	A M P	DESCRIPTION OF MATERIAL	SOIL GROUI	P 0	T.		EIGHT	LBS PER CU.FT.	NO. OF BLOWS	٦.	% S C	% R Q
H =T.	O L	L E S	SURFACE ELEVATION: 517.2		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	BS PEI	10.0F	PER 6-IN.	R	D
	:XPA	_	SURFACE ELEVATION. 317.2			- 0	<u> </u>	П			-		_
   5			Moist, Medium Stiff, Brown and Gray Clay with Sand, Gravel (Sandstone Fragments) and Cobbles										
		X	Moist, Medium Dense, Brown Sand								8 -8		
<u>10</u>	3.P P.O. 6.00.0 50.00	X	Moist, Very Dense, Brown and Gray Sand with Gravel (Sandstone Fragments) SANDSTONE - Brown and Gray, Poorly-							- 2	11 27 3")		
15			Cemented SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray and Brown, Medium Bedded, Slightly Weathered, Well-Cemented,									94	3
			with Slight Dip  SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded,									96	5
20  			Slightly Weathered, Well-Cemented, with Slight Dip									100	
25 			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Moderate Dip									100	
30			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip									99	
35	T***	T	Boring Terminated										1

		HWY. & TRANS. DEPARTMENT		BORIN			- 4					
		DIVISION - GEOTECHNICAL SEC.		PAGE	1		F 1	1		014		
JOB NO.		080445 Van Buren County		DATE:			Dece					o
JOB NAME:		Cadron Creek Str. & Apprs.		TYPE O	F DR	ILLING	: H				uger	δζ
		S.H. 124									_	
STATION:		116+62		EQUIPM	1ENT	:			50 w			
LOCATION:		Center Line of Construction							atic I			
LOGGED BY				HAMM	ER CO	DRREC	TION	FAC	ror:		1.23	_
COMPLET	IOI	N DEPTH: 23.8										
D s	S											
	Α							ij	S		%	%
PM	M P	DESCRIPTION OF MATERIAL	SOIL				E	Ü.	,O <sub>M</sub>		S	R
B	-		GROU	P ပြ	ST.		Œ	R.C	BI	6-IN	C R	Q
0	Ē			TS!	Į	55	<del> </del>	S PE	NO. OF BLOWS	-9 ک	_ K	ט
FT. L	s	SURFACE ELEVATION: 523.2		PLASTIC LIMIT	% MOIST.	LIQUID	DR	LBS PER CU.FT	NO.	PER		_
838												
8//		Moist, Very Dense, Sand with Clay, Gravel										
		(Sandstone Fragments) and Cobbles				1			ء ا	Δ.		
									(3	i0 :	86	0
5		SANDSTONE - Gray and Brown, Medium										
		Bedded, Slightly Weathered, Cemented, with										
		Slight Dip SANDSTONE WITH FREQUENT DARK GRAY									96	18
		SHALE PARTINGS - Gray, Medium Bedded,										
		Slightly Weathered, Well-Cemented, with Slight										
	-	Dip and Vertically Fractured Layers										
10				1								
									1		400	-
											100	54
												_
15												
10		SANDSTONE WITH FREQUENT DARK GRAY										
— -		SHALE PARTINGS - Gray, Medium Bedded,									100	8
— —		Slightly Weathered, Well-Cemented, with Slight		1								
	Ш	Dip										
	$\vdash$											
20												
											1,00	_
											100	1
			1									
25		Boring Terminated										
_25											1	
_												
30												
				1								
		1										
35												L
REMARK	(S:											

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BOR PAG		NC 1		- 1					
JOB N			080445 Van Buren County		DATE: December 10, 2014									
JOB N			Cadron Creek Str. & Apprs.		TYPE OF DRILLING: Hollow Stem Auger &									
			S.H. 124							Dia	amoı	nd Co	ring	
STAT	ION:		117+27		EQUI	PME	NT:					v/ CN		
LOCA			Center Line of Construction						Αu	toma	atic I	Hamr		
LOGG	ED B	Y: [	David Allen		HAM	MER	CC	RREC	TION	FAC'	ror:		1.23	
COM	PLET	10I	N DEPTH: 24											
D	s	S												
E	Y	Α								H	S/		%	%
P T	М	M	DESCRIPTION OF MATERIAL	SOIL					H	J.U.	ΝO		S	R
Ь'n	В	L		GROU	P P		ST.		Ä	ER (	OF BLOWS	Z	C R	Q D
	0	Ε			PLASTIC	Ę	% MOIST	LIQUID	DRY WEIGHT	LBS PER CU.FT	0.0	PER 6-IN.		_
FT.	L.	S	SURFACE ELEVATION: 528.4		PL		%	35	D.R.	LB	NO.	PE		
			Moist, Very Dense, Sand with Clay, Gravel											
	287		(Sandstone Fragments) and Cobbles											
<del> </del>			SANDSTONE - Gray and Brown, Poorly-											
<del> </del>		25	Cemented								6	60 3")	50	0
5											16	,		
Ť			SANDSTONE WITH FREQUENT DARK GRAY											
<del> </del>			SHALE PARTINGS - Gray and Brown to Gray, Medium Bedded, Slightly Weathered, Well-	- 32									96	60
-			Cemented, with Slight Dip *											
10				1										
10			SANDSTONE WITH FREQUENT DARK GRAY	ŀ										
<del> </del>			SHALE PARTINGS - Gray, Medium Bedded,										100	56
			Slightly Weathered, Well-Cemented, with Slight											
<del> </del>			Dip and Vertically Fractured Layers			1								
<u> </u>		╁┼		-										
15	-		SANDSTONE WITH FREQUENT DARK GRAY											
├ -	-		SHALE PARTINGS - Gray, Medium Bedded,										76	30
-	-		Slightly Weathered, Well-Cemented, with Slight			İ							'	
<u> </u>	-		Dip, Fractured Layers and some Slickensides											
		-		-									-	
20	-		SANDSTONE WITH FREQUENT DARK GRAY											
<u> </u>	-		SHALE PARTINGS - Gray, Thick Bedded,										400	96
<u> </u>	4		Slightly Weathered, Well-Cemented, with Slight										100	90
<u> </u>	-		Dip											
<b>-</b>		Ш	Double Translated		+			-	+-		-		-	-
25	4		Boring Terminated											
<b>-</b>	-													
<u>_</u> -	-													
<u></u>	-								1					
<b>L</b> .	1													
30	4													
<u>L</u> .	4													
35														
REN	<b>JARK</b>	S:	* Total water loss was encountered at 5.0'.											