

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT



SUBSURFACE INVESTIGATION

STATE JOB NO. 080445

FEDERAL AID PROJECT NO. STPR-0071(28)

CADRON CREEK STR. & APPRS. (S)

STATE HIGHWAY 124 SECTION 7

IN VAN BUREN COUNTY

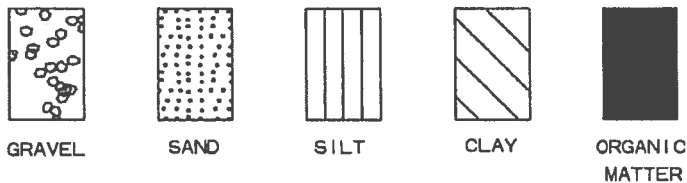
LETTING OF JUNE 22, 2016

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

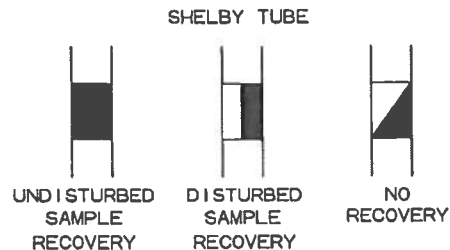
SOIL TYPES

(SHOWN IN SYMBOL COLUMN)
(PREDOMINANT TYPE SHOWN HEAVY)



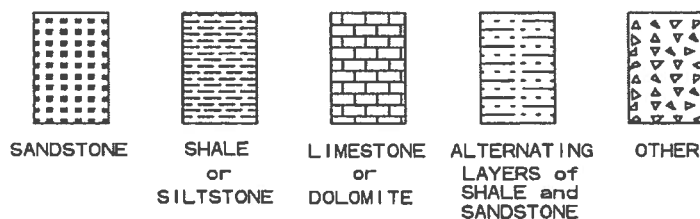
SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

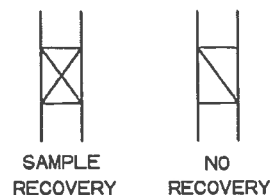


ROCK TYPES

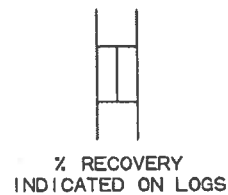
(SHOWN IN SYMBOL COLUMN)



SPLIT SPOON



ROCK CORING



TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-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'	
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetration	
		31-60	Hard	31-60	Hard	in 60 Blows: Medium Hard	
		Over 60	Very Hard	Over 60	Very Hard	Less than 2'	
						Penetration	
						in 60 Blows: 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_f) can be obtained by

adding the bottom two numbers for example: $\frac{6}{8-9} \Rightarrow 8+9 = 17 \text{blows} / \text{ft}$. The “N” Value corrected to 60% efficiency (N₆₀) can be obtained by multiplying N_f by the hammer correction factor published on the boring log.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.					BORING NO. 1 PAGE 1 OF 1							
JOB NO. 080445 Van Buren County			DATE: December 16, 2014									
JOB NAME: Cadron Creek Str. & Apprs. S.H. 124			TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring									
STATION: 112+10			EQUIPMENT: CME 850 w/ CME Automatic Hammer									
LOCATION: Center Line of Construction			HAMMER CORRECTION FACTOR: 1.23									
LOGGED BY: Henderson & Boughner												
COMPLETION DEPTH: 23.9												
DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 535.8									
			Moist, Very Dense, Sand with Clay, Gravel (Sandstone Fragments) and Cobbles									
5			SANDSTONE - Light Brown, Thin Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								88	0
			SANDSTONE WITH OCCASIONAL CLAY SEAMS - Gray and Brown, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								94	30
10			SANDSTONE WITH FREQUENT DARK GRAY SHALES PARTINGS - Light Gray to Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								80*	16
15												100
20			SANDSTONE WITH FREQUENT DARK GRAY SHALES PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								100	96
25			Boring Terminated									
30												
35												

REMARKS: * Low recovery due to inner core barrel not locking in.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 2 PAGE 1 OF 1
JOB NO. 080445	Van Buren County	DATE: December 17, 2014
JOB NAME: Cadron Creek Str. & Apprs. S.H. 124		TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
STATION: 112+83		EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 8' Right of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.23
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 27.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 529.9									
			Moist, Very Dense, Sand with Clay, Gravel (Sandstone Fragments) and Cobbles									
5			SANDSTONE - Light Brown and Gray, Thin Bedded, Slightly Weathered, Well-Cemented, with Slight Dip and Vertically Fractured Layers *								90	0
10			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray and Brown, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip and Vertically Fractured Layers *								100	70
15			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip *								100	84
20											100	76
25												100
30			Boring Terminated									
35												

REMARKS: * Total water loss was encountered from 3.1' to 27.5'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 3 PAGE 1 OF 1
JOB NO. 080445 Van Buren County	DATE: December 22, 2014	
JOB NAME: Cadron Creek Str. & Apprs. S.H. 124	TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring	
STATION: 114+06	EQUIPMENT: CME 850 w/ CME Automatic Hammer	
LOCATION: Center Line of Construction	HAMMER CORRECTION FACTOR: 1.23	
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 33.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 511.2									
5	⊗		Moist, Medium Dense, Brown Sand with Gravel (Sandstone Fragments)							8 6-5		
10	⊗		Wet, Medium Dense, Brown Sand with Gravel (Sandstone Fragments)							5 9-9		
15			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								87	35
20			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								100	80
25											100	74
30												100
35			Boring Terminated								100	100

REMARKS:

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.						BORING NO. 4 PAGE 1 OF 1						
JOB NO. 080445 Van Buren County			DATE: December 8, 2014			TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring						
JOB NAME: Cadron Creek Str. & Apprs. S.H. 124			EQUIPMENT: CME 850 w/ CME Automatic Hammer			HAMMER CORRECTION FACTOR: 1.23						
STATION: 115+41			COMPLETION DEPTH: 34									
LOCATION: Center Line of Construction												
LOGGED BY: Steven Faulkner												
DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 517.2									
5			Moist, Medium Stiff, Brown and Gray Clay with Sand, Gravel (Sandstone Fragments) and Cobbles							8		
10			Moist, Medium Dense, Brown Sand							9-8		
15			Moist, Very Dense, Brown and Gray Sand with Gravel (Sandstone Fragments)							11		
			SANDSTONE - Brown and Gray, Poorly-Cemented							27		
			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray and Brown, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip							(3")	94	30
20			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								96	59
25			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Moderate Dip								100	78
30			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								100	80
35			Boring Terminated								99	92
REMARKS:												

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 5
PAGE 1 OF 1

JOB NO. 080445 Van Buren County
JOB NAME: Cadron Creek Str. & Apprs.
S.H. 124
STATION: 116+62
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: December 9, 2014
TYPE OF DRILLING: Hollow Stem Auger &
Diamond Coring
EQUIPMENT: CME 850 w/ CME
Automatic Hammer
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 23.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 523.2									
			Moist, Very Dense, Sand with Clay, Gravel (Sandstone Fragments) and Cobbles							60 (3")	86	0
5			SANDSTONE - Gray and Brown, Medium Bedded, Slightly Weathered, Cemented, with Slight Dip								96	18
			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip and Vertically Fractured Layers								100	54
15			SANDSTONE WITH FREQUENT DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								100	84
20											100	76
25			Boring Terminated									
30												
35												

REMARKS:

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 6 PAGE 1 OF 1
JOB NO. 080445 Van Buren County	DATE: December 10, 2014	
JOB NAME: Cadron Creek Str. & Apprs. S.H. 124	TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring	
STATION: 117+27	EQUIPMENT: CME 850 w/ CME Automatic Hammer	
LOCATION: Center Line of Construction	HAMMER CORRECTION FACTOR: 1.23	
LOGGED BY: David Allen		

COMPLETION DEPTH: 24												
DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			Moist, Very Dense, Sand with Clay, Gravel (Sandstone Fragments) and Cobbles									
			SANDSTONE - Gray and Brown, Poorly- Cemented							60 (3")	50	0
5			SANDSTONE WITH FREQUENT DARK GRAY SHALES PARTINGS - Gray and Brown to Gray, Medium Bedded, Slightly Weathered, Well- Cemented, with Slight Dip *								96	60
10			SANDSTONE WITH FREQUENT DARK GRAY SHALES PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip and Vertically Fractured Layers								100	56
15			SANDSTONE WITH FREQUENT DARK GRAY SHALES PARTINGS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip, Fractured Layers and some Slickensides								76	30
20			SANDSTONE WITH FREQUENT DARK GRAY SHALES PARTINGS - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								100	96
25			Boring Terminated									
30												
35												

REMARKS: * Total water loss was encountered at 5.0'.