

BORING NO. MB-1

BORING LOG-S		DIV SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 1 SHEETS				
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON					
2 LOCATION	591547.236E, 400692.082N	11 NO. OF SAMPLES						
3 AGENCY	GEOTEK DRILLING	DISTURBED	12	UNDISTURBED 0				
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -					
5 SIZE AND TYPE OF BIT	8" AUGER WITH SPT SAMPLES	13 TOTAL CORE RECOVERY	- 0 -					
6 DRILLER	STEVEN JOHNSON	14 DRILLING DATE	START 06/22/99	END 06/23/99				
7 THICKNESS OF OVERBURDEN	24.0'	15 ELEV TOP OF HOLE	412.47	NGVD				
8 DEPTH DRILLED INTO ROCK	0.0'	16 GROUNDWATER ELEV	398.97					
9 TOTAL DEPTH OF HOLE	24.0'							
DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
3.0	3" TOPSOIL M. STIFF, BROWN, SILTY CLAY, (CL) STIFF, SOME FINE GRAVELS	8 25						
		14 24					33	13
		10 23						
6.0	M. STIFF, BROWN, SILT, W/FINE SAND (ML) M. STIFF, BROWN, SILTY CLAY (CL) STIFF	5 24						
		7 21					32	14
		12 21						
		13 19						
12.0	FIRM, TAN, FINE SAND (SP)	19 7						
		13 20						
15.0	FIRM, TAN, SILTY FINE SAND (SM)	10 21						
18.0	TAN, SAND (SP), HIT WATER							
21.0	LOOSE, WET	9 21						
24.0	BOH AT 24'	18 18						

MB-1

BORING NO. MB-2

BORING LOG-S		DIV SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 2 SHEETS				
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON					
2 LOCATION	591943.383E, 400194.232N	11 NO. OF SAMPLES						
3 AGENCY	GEOTEK DRILLING	DISTURBED	17	UNDISTURBED 0				
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -					
5 SIZE AND TYPE OF BIT	8" AUGERS 2" SPOON SAMPLES AS INDICATED	13 TOTAL CORE RECOVERY	- 0 -					
6 DRILLER	CORPS OF ENGINEERS	14 DRILLING DATE	START 06/21/99	END 06/22/99				
7 THICKNESS OF OVERBURDEN	34.5'	15 ELEV TOP OF HOLE	409.560	NGVD				
8 DEPTH DRILLED INTO ROCK	0'	16 GROUNDWATER ELEV						
9 TOTAL DEPTH OF HOLE	34.5'		391.81					
DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
3.0	HARD, TAN SILT (ML) W/FINE SAND AND ORGANICS MEDIUM STIFF STIFF	53 25						
		6 25						
		13 29						
6.0	STIFF, BROWN, SLIGHTLY CLAYEY SILT (ML) W/FINE SAND AND ORGANICS M. STIFF, WET, TAN, SILT W/FINE SAND	11 45						
		8 26						
		6 21						
9.0	ORGANIC SLUDGE, WET NEWSPAPER	4 31						
12.0	FIRM, WET, BROWN, SILTY FINE SAND (SM) W/ORGANIC SLUDGE DENSE, ORGANICS LOOSE, DISCOLORATION	12 43						
		31 31						
		9 26						
15.0	STIFF, BROWN, SILT (ML) FINE SANDY SILT/SILTY FINE SAND (ML) W/ORGANICS	9 27						
		9 28						
18.0	FIRM, BROWN, SILTY FINE SAND (SM)	13 27						
21.0	TAN	15 29						
24.0		15 19						
30.0		15 20						

MB-2

BORING LOG (Cont Sheet)		ELEVATION TOP OF HOLE	BORING NO.	SHEET 2 OF 2 SHEETS					
PROJECT	MAY BRANCH	409.560	MB-2						
INSTALLATION	LITTLE ROCK DISTRICT								
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
34.0		BROWN							
37.0		BOH AT 34.5'							

SYMBOL 350-A

PROJECT MAY BRANCH BORE NO. MB-2

BORING NO. MB-2A

BORING LOG-S		DIV SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 2 SHEETS				
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON					
2 LOCATION	591951.209E, 400098.412N	11 NO. OF SAMPLES						
3 AGENCY	GEOTEK DRILLING	DISTURBED	17	UNDISTURBED 0				
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -					
5 SIZE AND TYPE OF BIT	8" AUGERS 2" SPOON SAMPLES AS INDICATED	13 TOTAL CORE RECOVERY	- 0 -					
6 DRILLER	CORPS OF ENGINEERS	14 DRILLING DATE	START 06/21/99	END 06/22/99				
7 THICKNESS OF OVERBURDEN	34.5'	15 ELEV TOP OF HOLE	411.618	NGVD				
8 DEPTH DRILLED INTO ROCK	0'	16 GROUNDWATER ELEV						
9 TOTAL DEPTH OF HOLE	34.5'		393.62					
DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
3.0	STIFF, TAN, SILT W/FINE SAND (ML) HARD, ORGANICS	8 19						
		50 19						
		50 19						
6.0	V. STIFF, WET, BROWN, SILTY CLAY W/FINE SAND (CL) FIRM, MOIST, TAN, SILTY FINE SAND (SM) W/ORGANICS	28 28						
		18 20						
9.0	STIFF, MOIST, BROWN, SILTY CLAY (CL) W/FINE SAND AND ORGANICS	9 31						
		14 29						
12.0	STIFF, WET, ORGANICS (OL) HARD, WET, BROWN, FINE SANDY SILT (ML) W/ORGANICS	10 134						
		7 36						
15.0	STIFF, WET, ORGANICS (OL) AND FREE WATER FIRM, WET, TAN FINE SAND (SP-SM) W/SILT AND ORGANICS	44						
		14 25						
18.0	V. STIFF, WET, BROWN SILT (ML) W/FINE SAND AND ORGANICS V. SOFT, WET, BLACK, SLUDGE (OL)	17 44						
		4 48						
21.0	LOOSE, WET, REDDISH-TAN, SILTY FINE SAND (SM) W/ORGANICS FIRM	7 29						
		15						
24.0	LOOSE, WET, TAN, FINE SAND (SP)	6 37						
30.0	M. STIFF, WET, TAN, SILTY-CLAY (CL) W/FINE SAND	6 33						

MB-2A

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

**MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB1-MB2A**

SCALE: AS SHOWN JANUARY 2005

BORING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		HOLE NO.		SHEET			
		411.618		MB-2A		OF 2 SHEETS			
PROJECT		INSTALLATION		SHEET		OF 2 SHEETS			
MAY BRANCH		LITTLE ROCK DISTRICT		MB-2A		OF 2 SHEETS			
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS	BLDG	W.C.	GRAVEL	SAND	FINES	LL	PI
34.0		M. STIFF, BROWN, SLIGHTLY CLAYEY SILT (ML) W/FINE SAND	8	28	21				
BOH AT 34.5'									
37.0									
40.0									
43.0									
46.0									
49.0									
52.0									
55.0									
58.0									
61.0									
64.0									
67.0									

BORING NO. MB-3

BORING LOG-S		DIV		DISTRICT		LITTLE ROCK		SHEET	
		SOUTHWESTERN		LITTLE ROCK		LITTLE ROCK		OF 1 SHEETS	
PROJECT		INSTALLATION		SHEET		OF 2 SHEETS		SHEETS	
MAY BRANCH		LITTLE ROCK DISTRICT		MB-3		OF 2 SHEETS		OF 1 SHEETS	
1	PROJECT	MAY BRANCH		10		INSPECTOR		STEVEN JOHNSON	
2	LOCATION	592167.703E, 400079.876N		11		NO. OF SAMPLES		DISTURBED 18 UNDISTURBED 0	
3	AGENCY	GEOTEK DRILLING		12		TOTAL NUMBER CORE BOXES		- 0 -	
4	EQUIP	MOBILE		13		TOTAL CORE RECOVERY		- 0 -	
5	SIZE AND TYPE OF BIT	8" AUGERS		14		DRILLING DATE		START 06/17/99 END 06/18/99	
6	DRILLER	CORPS OF ENGINEERS		15		ELEV TOP OF HOLE		416.807 NGVD	
7	THICKNESS OF OVERBURDEN	39'		16		GROUNDWATER ELEV		397.81	
8	DEPTH DRILLED INTO ROCK	0'		17		TOTAL DEPTH OF HOLE		39'	
9	TOTAL DEPTH OF HOLE	39'		18		TOTAL DEPTH OF HOLE		39'	
DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	WC	GVL	SA	FI	LL	PI
5.0		5' TOPSOIL STIFF, TAN/BROWN, SILT (ML) W/FINE SAND	13	17				26	5
3.0		STIFF, BROWN, SILTY CLAY (CL) W/FINE SAND	10	19					
		DARK BROWN	10	21					
6.0		M. STIFF, BROWN, SILT (ML) W/FINE SAND	7	23				26	5
		M. STIFF, DARK BROWN, SILTY CLAY (CL) W/FINE SAND	8	24					
9.0		M. STIFF, TAN, SILT (ML) W/FINE SAND	7	22				28	7
		STIFF	12	24					
12.0		FIRM, TAN, SILTY FINE SAND (SM)	11	28					
15.0		M. STIFF, BROWN, SILT (ML) W/FINE SAND	7	28					
		LOOSE, TAN, SILTY FINE SAND (SM)	6	30					
		M. STIFF, TAN, FINE SANDY SILT/ SILTY FINE SAND (ML)	6	30					
18.0		V. LOOSE, TAN, SILTY FINE SAND (SM)	4	32					
21.0		M. STIFF, TAN, FINE SANDY SILT (ML)	7	32					
24.0		LOOSE, TAN, SILTY FINE SAND (SM)	6	30					
27.0									
30.0			4	32					

BORING NO. MB-3

BORING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		HOLE NO.		SHEET			
		416.807		MB-3		OF 2 SHEETS			
PROJECT		INSTALLATION		SHEET		OF 2 SHEETS			
MAY BRANCH		LITTLE ROCK DISTRICT		MB-3		OF 2 SHEETS			
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS	BLDG	W.C.	GRAVEL	SAND	FINES	LL	PI
34.0		SOFT, GRAYISH BROWN, FINE SANDY SILT (ML)	3	27					
37.0									
40.0									
43.0									
46.0									
49.0									
52.0									
55.0									
58.0									
61.0									
64.0									
67.0									

BORING NO. MB-3A

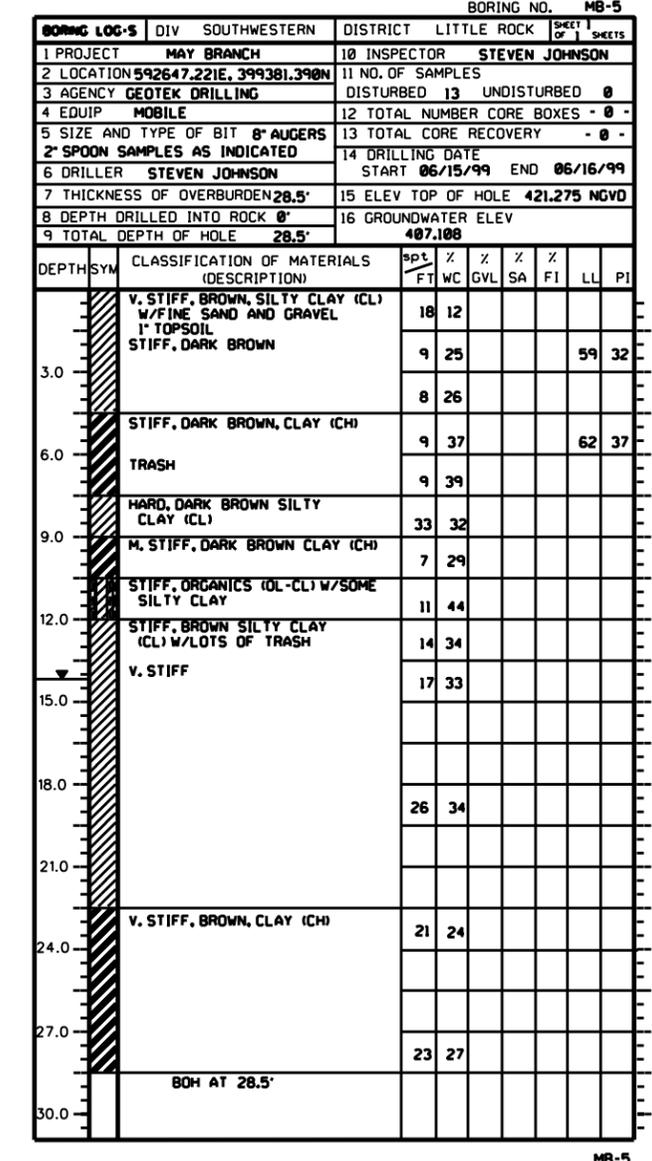
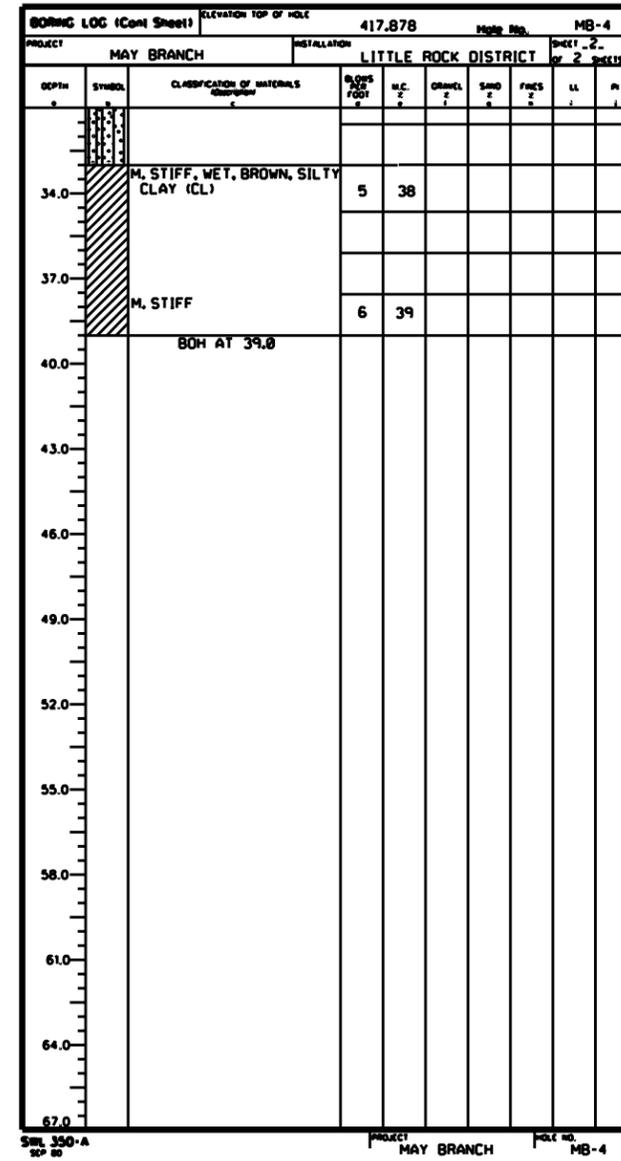
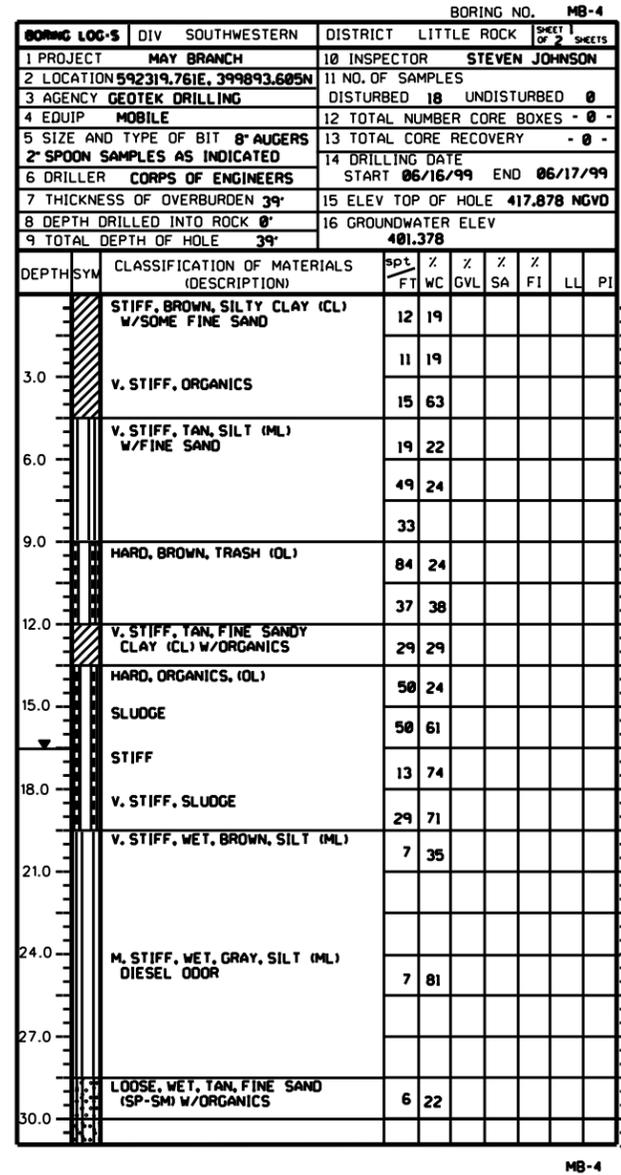
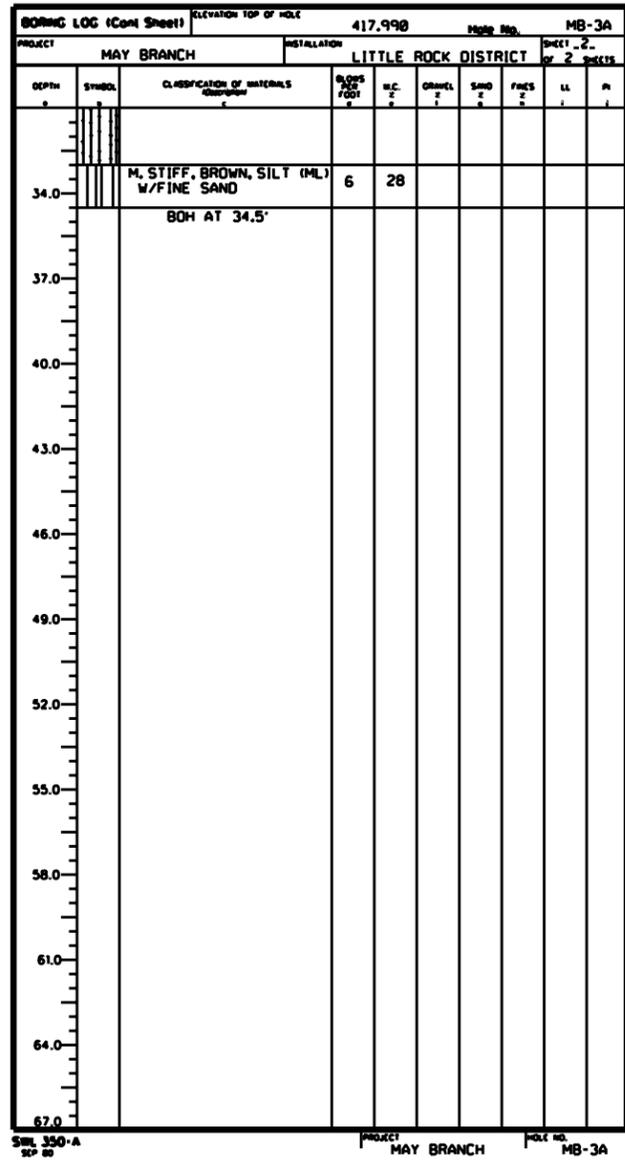
BORING LOG-S		DIV		DISTRICT		LITTLE ROCK		SHEET	
		SOUTHWESTERN		LITTLE ROCK		LITTLE ROCK		OF 2 SHEETS	
PROJECT		INSTALLATION		SHEET		OF 2 SHEETS		SHEETS	
MAY BRANCH		LITTLE ROCK DISTRICT		MB-3A		OF 2 SHEETS		OF 2 SHEETS	
1	PROJECT	MAY BRANCH		10		INSPECTOR		STEVEN JOHNSON	
2	LOCATION	592223.461E, 399961.923N		11		NO. OF SAMPLES		DISTURBED 17 UNDISTURBED 0	
3	AGENCY	GEOTEK DRILLING		12		TOTAL NUMBER CORE BOXES		- 0 -	
4	EQUIP	MOBILE		13		TOTAL CORE RECOVERY		- 0 -	
5	SIZE AND TYPE OF BIT	8" AUGERS		14		DRILLING DATE		START 06/17/99 END 06/18/99	
6	DRILLER	CORPS OF ENGINEERS		15		ELEV TOP OF HOLE		417.990 NGVD	
7	THICKNESS OF OVERBURDEN	34.5'		16		GROUNDWATER ELEV		400.49	
8	DEPTH DRILLED INTO ROCK	0'		17		TOTAL DEPTH OF HOLE		34.5'	
9	TOTAL DEPTH OF HOLE	34.5'		18		TOTAL DEPTH OF HOLE		34.5'	
DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	WC	GVL	SA	FI	LL	PI
2.0		2' TOPSOIL STIFF, BROWN, SILTY CLAY (CL) W/FINE SAND	13	19					
3.0		V. STIFF, TAN, SILTY FINE SAND (ML) AND OCCASIONAL SILTY CLAY LAYERS	16	18					
		STIFF, TAN, FINE SANDY SILT (ML) W/BROWN SILTY CLAY PARTING AND ORGANICS	10	20					
6.0		V. LOOSE, TAN, FINE SAND (SP) W/ORGANICS	4	21					
		V. LOOSE, TAN, SILTY FINE SAND (SM) W/DARK BROWN CLAY SILT AND ORGANICS	4	22					
9.0		M. STIFF, TAN, SILTY FINE SAND (ML) AND ORGANICS	5	24					
		STIFF	8	20					
		MOIST	10	22					
12.0		STIFF, TAN, SILTY FINE SAND (SM)	13	24					
15.0		STIFF, WET, TAN, FINE SANDY SILT (ML) W/FINE SAND	9	27					
		M. STIFF	6	31					
		SOFT, SILT W/FINE SAND	3	32					
18.0		M. STIFF	8	28					
		STIFF	12	29					
24.0		LOOSE, TAN, SILTY FINE SAND (SM)	6	31					
27.0									
30.0		BROWN	5	27					

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB2A-MB3A

SCALE: AS SHOWN JANUARY 2005



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

**MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB3A-MB5**

SCALE: AS SHOWN JANUARY 2005

BORING NO. MB-6

BORING LOG-S		DIV. SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 1 SHEETS
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON	
2 LOCATION	593070.006E, 398751.318N	11 NO. OF SAMPLES		
3 AGENCY	GEOTEK DRILLING	DISTURBED	13	UNDISTURBED 0
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -	
5 SIZE AND TYPE OF BIT	8" AUGERS	13 TOTAL CORE RECOVERY	- 0 -	
2" SPOON SAMPLES AS INDICATED		14 DRILLING DATE		
6 DRILLER	CORPS OF ENGINEERS	START	06/14/99	END 06/15/99
7 THICKNESS OF OVERBURDEN	28.5'	15 ELEV TOP OF HOLE	413.778 NGVD	
8 DEPTH DRILLED INTO ROCK	0'	16 GROUNDWATER ELEV		
9 TOTAL DEPTH OF HOLE	28.5'		405.028	

DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
	M. STIFF, DARK BROWN, CLAY (CH) 1" TOPSOIL	5	31					
		10						
3.0	STIFF	12	32				63	37
	STIFF, DARK BROWN, SILTY CLAY (CL) W/SOME FINE SAND	13	28					
6.0	STIFF, DARK BROWN, CLAY (CH) W/CALCAREOUS INCLUSIONS	14	25				73	47
	CALCAREOUS DEPOSITS	11	35					
9.0	V. STIFF	14	27				91	59
		17	31					
		21	30					
		18	32					
15.0								
18.0	STIFF, BROWN, SILTY CLAY (CL)	12	31				44	24
			30					
21.0	V. STIFF	21						
24.0								
27.0	V. STIFF, BROWN, CLAY (CH)	16	32					
30.0	BOH AT 28.5'							

MB-6

BORING NO. MB-7

BORING LOG-S		DIV. SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 1 SHEETS
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON	
2 LOCATION	593544.386E, 398249.654N	11 NO. OF SAMPLES		
3 AGENCY	GEOTEK DRILLING	DISTURBED	13	UNDISTURBED 0
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -	
5 SIZE AND TYPE OF BIT	8" AUGERS	13 TOTAL CORE RECOVERY	- 0 -	
2" SPOON SAMPLES AS INDICATED		14 DRILLING DATE		
6 DRILLER	CORPS OF ENGINEERS	START	06/14/99	END 06/15/99
7 THICKNESS OF OVERBURDEN	28.5'	15 ELEV TOP OF HOLE	420.992 NGVD	
8 DEPTH DRILLED INTO ROCK	0'	16 GROUNDWATER ELEV		
9 TOTAL DEPTH OF HOLE	28.5'		406.492	

DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
	M. STIFF, BROWN, SILTY CLAY (CL) W/FINE TO COARSE GRAVEL	6	13					
		6						
3.0	TAN	6	26					
	SOFT	3	19				41	21
6.0		3	28					
	M. STIFF, DARK BROWN TO DARK GRAY, CLAY (CH)	7	36					
9.0	DARK GRAY	9	34					
	STIFF	12	33				74	44
		14	22					
15.0	V. STIFF	18	29					
18.0		15						
	DARK BROWN, SILTY CLAY (CL), W/MOLD		27					
21.0		18						
24.0								
27.0	V. STIFF, DARK GRAYISH BROWN, CLAY (CH)	15	26					
30.0	BOH AT 28.5'							

MB-7

BORING NO. MB-8

BORING LOG-S		DIV. SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 1 SHEETS
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON	
2 LOCATION	593448.401E, 397606.984N	11 NO. OF SAMPLES		
3 AGENCY	GEOTEK DRILLING	DISTURBED	13	UNDISTURBED 0
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -	
5 SIZE AND TYPE OF BIT	8" AUGERS	13 TOTAL CORE RECOVERY	- 0 -	
2" SPOON SAMPLES AS INDICATED		14 DRILLING DATE		
6 DRILLER	CORPS OF ENGINEERS	START	06/14/99	END 06/15/99
7 THICKNESS OF OVERBURDEN	28.5'	15 ELEV TOP OF HOLE	416.032 NGVD	
8 DEPTH DRILLED INTO ROCK	0'	16 GROUNDWATER ELEV		
9 TOTAL DEPTH OF HOLE	28.5'		407.532	

DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
	FIRM, FINE TO COARSE GRAVEL (GM) W/DARK GRAY SILT	24	5					
	M. STIFF, GRAY, SILTY CLAY (CL) W/FINE GRAVEL	6	16					
3.0	STIFF, GRAY	13	32				41	18
	MOLD	14	30					
6.0	V. STIFF	17	29					
	V. STIFF, BROWN, SILTY CLAY (CH) W/CALCAREOUS INCLUSIONS	15	24				65	40
9.0	V. STIFF, BROWN, SILTY CLAY (CL) W/CALCAREOUS INCLUSIONS	16	29					
	LIGHT BROWN		28					
12.0	TAN		27				33	12
	BROWN		34					
15.0								
18.0		19	26					
			31					
21.0		23						
24.0								
27.0		21	24					
30.0	BOH AT 28.5'							

MB-8

BORING NO. MB-9

BORING LOG-S		DIV. SOUTHWESTERN	DISTRICT LITTLE ROCK	SHEET 1 OF 1 SHEETS
1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON	
2 LOCATION	593654.830E, 397055.097N	11 NO. OF SAMPLES		
3 AGENCY	GEOTEK DRILLING	DISTURBED	8	UNDISTURBED 0
4 EQUIP	MOBILE	12 TOTAL NUMBER CORE BOXES	- 0 -	
5 SIZE AND TYPE OF BIT	8" AUGERS	13 TOTAL CORE RECOVERY	- 0 -	
2" SPOON SAMPLES AS INDICATED		14 DRILLING DATE		
6 DRILLER	CORPS OF ENGINEERS	START	06/03/99	END 06/04/99
7 THICKNESS OF OVERBURDEN	24'	15 ELEV TOP OF HOLE	416.469 NGVD	
8 DEPTH DRILLED INTO ROCK	0'	16 GROUNDWATER ELEV		
9 TOTAL DEPTH OF HOLE	24'		411.219	

DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
	4" TOPSOIL, LOOSE ROCKS AND BRICKS 9" TO 1'9"							
	BROWN, FINE SANDY CLAY (CL) W/FINE GRAVEL							
3.0							24	39 19
	DARK BROWN, CLAY (CH)							
6.0								
	DARK BROWN, CLAY (CH)							
9.0							28	61 37
	LIGHT BROWN, SILTY CLAY (CL) W/FINE SAND							
12.0								
	BROWN							
15.0								
	GRAYISH BROWN							
18.0								
21.0								
24.0	BOH AT 24'							
27.0								
30.0								

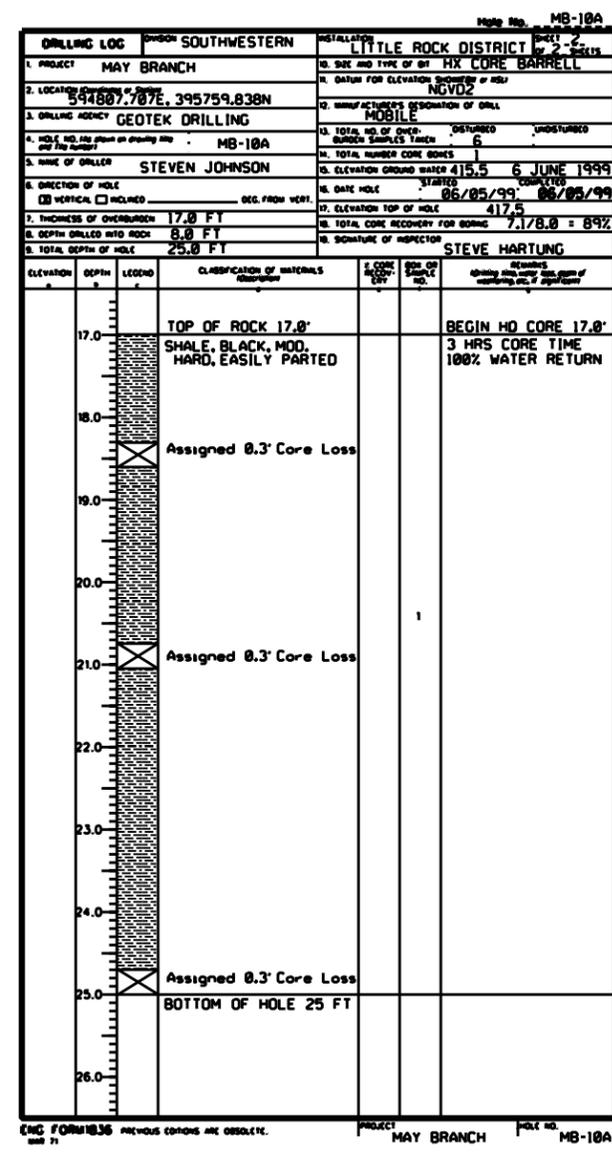
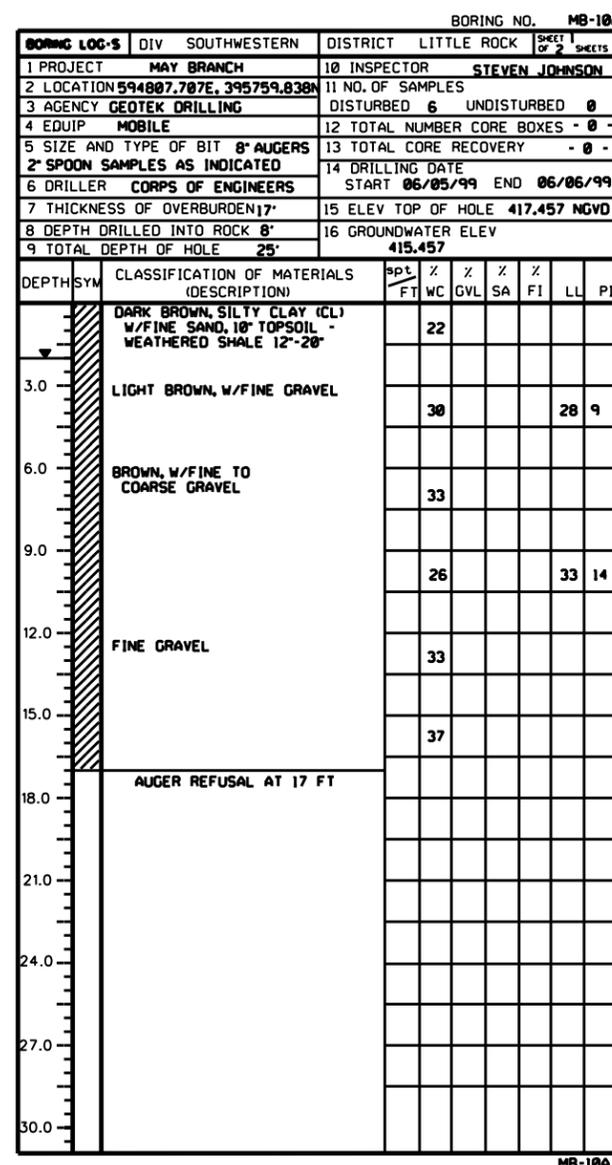
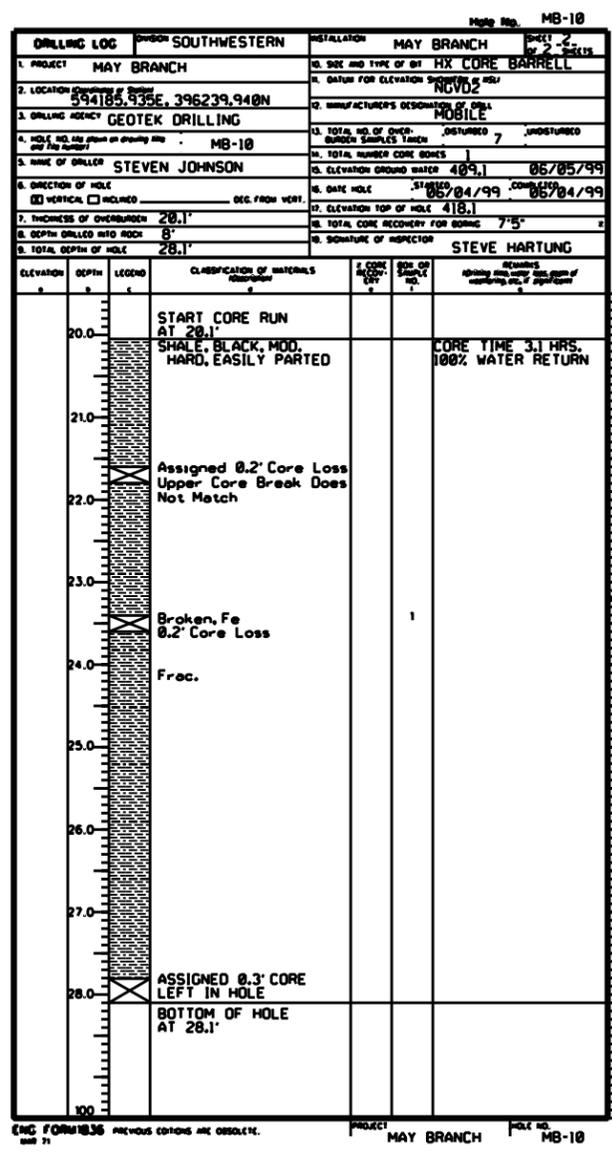
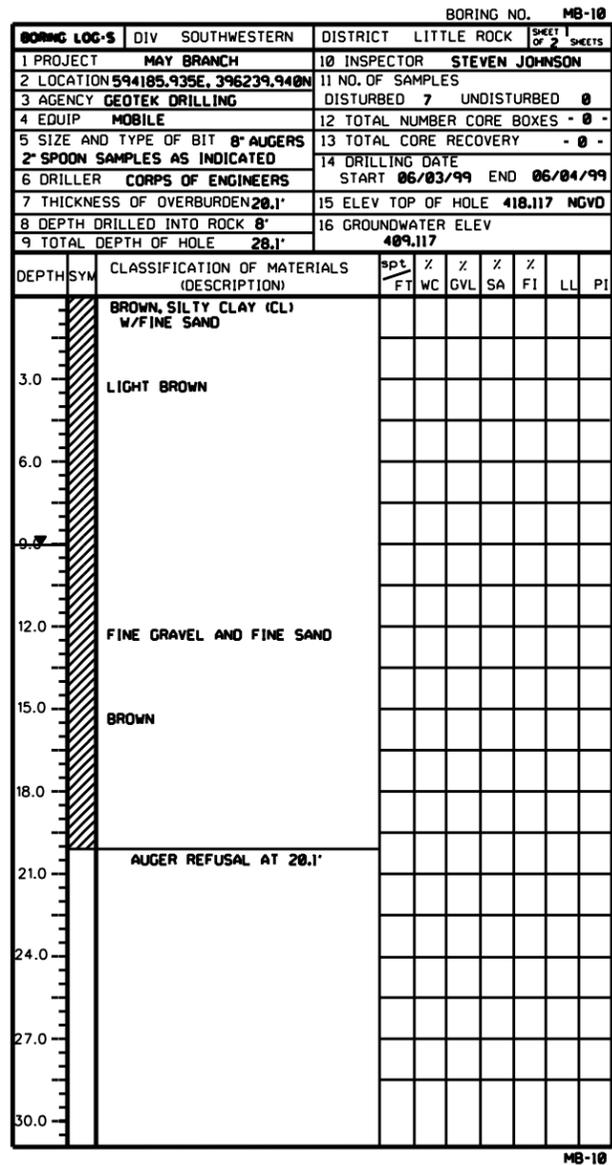
MB-9

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB6-MB9

SCALE: AS SHOWN JANUARY 2005



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB10-MB10A

SCALE: AS SHOWN JANUARY 2005

BORING LOG-S		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 1 OF 2 SHEETS		
1 PROJECT MAY BRANCH		10 INSPECTOR STEVEN JOHNSON		11 NO. OF SAMPLES		DISTURBED 9 UNDISTURBED 0		
2 LOCATION 595259.649E, 395259.649N		12 TOTAL NUMBER CORE BOXES - 0 -		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE		
3 AGENCY GEOTEK DRILLING		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE		START 06/07/99 END 06/08/99		
4 EDUIP FAILING 1500		14 DRILLING DATE		15 ELEV TOP OF HOLE 416.255 NGVD		16 GROUNDWATER ELEV		
5 SIZE AND TYPE OF BIT 8" AUGERS		15 ELEV TOP OF HOLE 416.255 NGVD		16 GROUNDWATER ELEV		411.922		
2" SPOON SAMPLES AS INDICATED		16 GROUNDWATER ELEV		411.922				
6 DRILLER CORPS OF ENGINEERS		16 GROUNDWATER ELEV		411.922				
7 THICKNESS OF OVERBURDEN 18.8'		16 GROUNDWATER ELEV		411.922				
8 DEPTH DRILLED INTO ROCK 8'		16 GROUNDWATER ELEV		411.922				
9 TOTAL DEPTH OF HOLE 25.8'		16 GROUNDWATER ELEV		411.922				
DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	WC	GVL	SA	FI	LL	PI
0.0 - 1.0	M. STIFF, BROWN, SILTY CLAY (CL) W/FINE SAND, 10" TOPSOIL	7	21					
1.0 - 2.0	V. SOFT, GRAY	2	29					
2.0 - 3.0	M. STIFF, GRAY, W/FERROUS STAINS	8	21				29	11
3.0 - 4.0	TAN, W/COARSE SAND	8	28					
4.0 - 6.0	STIFF, BROWNISH GRAY	10	23					
6.0 - 7.0	STIFF, GRAY, W/FERROUS STAINS	9	22				33	15
7.0 - 8.0	M. STIFF, BROWN, W/FERROUS STAINS AND NODULES	6	23					
8.0 - 9.0	M. STIFF, BROWN, W/FERROUS STAINS AND NODULES	7	21					
9.0 - 15.0	M. STIFF, GRAY, W/FINE SAND	4	26					
15.0 - 18.8	AUGER REFUSAL AT 18.8'							

MB-11

BORING LOG		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 2 OF 2 SHEETS	
1 PROJECT MAY BRANCH		10 INSPECTOR STEVEN JOHNSON		11 NO. OF SAMPLES		DISTURBED 9 UNDISTURBED 0	
2 LOCATION 595259.649E, 395259.649N		12 TOTAL NUMBER CORE BOXES - 0 -		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE	
3 AGENCY GEOTEK DRILLING		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE		START 06/07/99 END 06/07/99	
4 EDUIP MOBILE		14 DRILLING DATE		15 ELEV TOP OF HOLE 416.3		16 GROUNDWATER ELEV	
5 SIZE AND TYPE OF BIT 8" AUGERS		15 ELEV TOP OF HOLE 416.3		16 GROUNDWATER ELEV		416.3	
2" SPOON SAMPLES AS INDICATED		16 GROUNDWATER ELEV		416.3			
6 DRILLER CORPS OF ENGINEERS		16 GROUNDWATER ELEV		416.3			
7 THICKNESS OF OVERBURDEN 18.10'		16 GROUNDWATER ELEV		416.3			
8 DEPTH DRILLED INTO ROCK 8.0 FT		16 GROUNDWATER ELEV		416.3			
9 TOTAL DEPTH OF HOLE 26.10'		16 GROUNDWATER ELEV		416.3			
ELEVATION	DEPTH	LOGNO	CLASSIFICATION OF MATERIALS (DESCRIPTION)	S. CORE LOSS (FT)	NO. OF SAMPLES	REMARKS	REMARKS
18.0	0.0		TOP OF ROCK 18.8'			BEGIN HQ CORE 18.8'	
18.0	0.0		SHAPE, BLACK, MOD. HARD, EASILY PARTED			CORE TIME 1HR. - 50 MIN. 100% WATER RETURN	
20.0	2.0		Frac. 40-60"				
21.0	3.0		Assigned 2.0' Core Loss				
22.0	4.0		Assigned 2.0' Core Loss				
23.0	5.0		Assigned 2.0' Core Loss				
24.0	6.0		Assigned 2.0' Core Loss				
25.0	7.0		Assigned 1.0' Core Loss				
26.0	8.0		Assigned 1.0' Core Loss				
26.0	8.0		BOTTOM OF HOLE 26.10'				

ENC FORM 1036 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT MAY BRANCH BORE NO. MB-11

BORING LOG-S		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 1 OF 2 SHEETS		
1 PROJECT MAY BRANCH		10 INSPECTOR STEVEN JOHNSON		11 NO. OF SAMPLES		DISTURBED 8 UNDISTURBED 0		
2 LOCATION 595996.089E, 395204.663N		12 TOTAL NUMBER CORE BOXES - 0 -		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE		
3 AGENCY GEOTEK DRILLING		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE		START 06/08/99 END 06/09/99		
4 EDUIP MOBILE		14 DRILLING DATE		15 ELEV TOP OF HOLE 418.954 NGVD		16 GROUNDWATER ELEV		
5 SIZE AND TYPE OF BIT 8" AUGERS		15 ELEV TOP OF HOLE 418.954 NGVD		16 GROUNDWATER ELEV		416.754		
2" SPOON SAMPLES AS INDICATED		16 GROUNDWATER ELEV		416.754				
6 DRILLER CORPS OF ENGINEERS		16 GROUNDWATER ELEV		416.754				
7 THICKNESS OF OVERBURDEN 14.2'		16 GROUNDWATER ELEV		416.754				
8 DEPTH DRILLED INTO ROCK 8'		16 GROUNDWATER ELEV		416.754				
9 TOTAL DEPTH OF HOLE 22.2'		16 GROUNDWATER ELEV		416.754				
DEPTH SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	WC	GVL	SA	FI	LL	PI
0.0 - 1.0	DENSE FINE TO COARSE GRAVEL (GM) W/GRAY FINE SANDY SILTY TOPSOIL AND GRAVEL 3-8"	38	7					
1.0 - 2.0	M. STIFF, DARK GRAY, SILTY CLAY (CL) W/FINE SAND AND GRAVEL	6	16				23	4
2.0 - 3.0	SOFT, TAN	3	26					
3.0 - 4.0	M. STIFF, BROWN, W/FERROUS STAINS AND NODULES	5	17				27	8
4.0 - 5.0	HARD, GRAYISH BROWN	50	15					
5.0 - 6.0	BROWN, HIGHLY WEATHERED SHALE	50	9				34	10
6.0 - 14.2	GRAY	50	7					
14.2 - 22.2	AUGER REFUSAL AT 14.2'							

MB-13

BORING LOG		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 2 OF 2 SHEETS	
1 PROJECT MAY BRANCH		10 INSPECTOR STEVEN JOHNSON		11 NO. OF SAMPLES		DISTURBED 8 UNDISTURBED 0	
2 LOCATION 595996.089E, 395204.663N		12 TOTAL NUMBER CORE BOXES - 0 -		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE	
3 AGENCY GEOTEK DRILLING		13 TOTAL CORE RECOVERY - 0 -		14 DRILLING DATE		START 06/09/99 END 06/09/99	
4 EDUIP MOBILE		14 DRILLING DATE		15 ELEV TOP OF HOLE 418.95		16 GROUNDWATER ELEV	
5 SIZE AND TYPE OF BIT 8" AUGERS		15 ELEV TOP OF HOLE 418.95		16 GROUNDWATER ELEV		418.95	
2" SPOON SAMPLES AS INDICATED		16 GROUNDWATER ELEV		418.95			
6 DRILLER CORPS OF ENGINEERS		16 GROUNDWATER ELEV		418.95			
7 THICKNESS OF OVERBURDEN 14.2'		16 GROUNDWATER ELEV		418.95			
8 DEPTH DRILLED INTO ROCK 8.0 FT		16 GROUNDWATER ELEV		418.95			
9 TOTAL DEPTH OF HOLE 22.2'		16 GROUNDWATER ELEV		418.95			
ELEVATION	DEPTH	LOGNO	CLASSIFICATION OF MATERIALS (DESCRIPTION)	S. CORE LOSS (FT)	NO. OF SAMPLES	REMARKS	REMARKS
14.0	0.0		START RUN AT 14.2'				
14.0	0.0		GRAY SHALE			CORE TIME 1HR 55MIN 100% WATER RETURN	
18.0	4.0		Assigned 2.0' Core Loss				
22.0	8.0		Assigned 2.0' Core Loss				
22.0	8.0		BOH AT 22.2'				

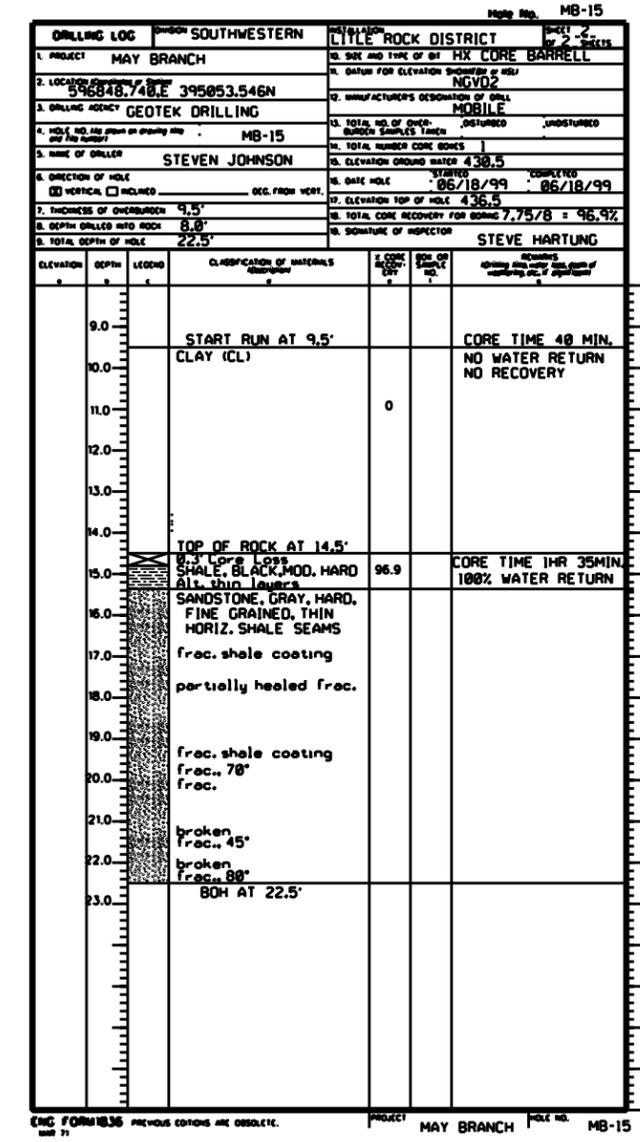
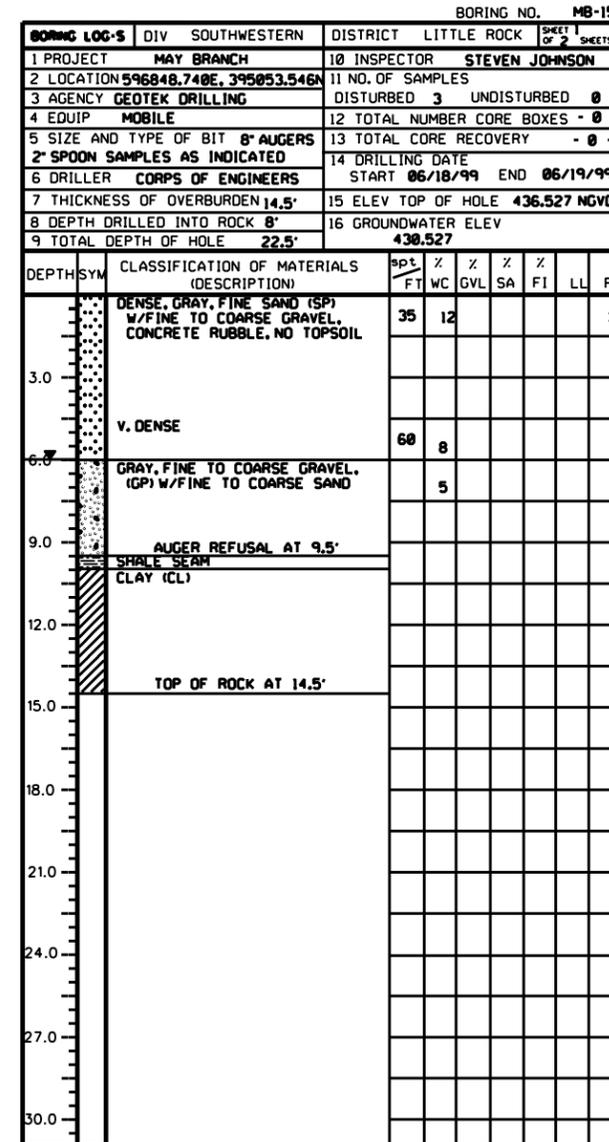
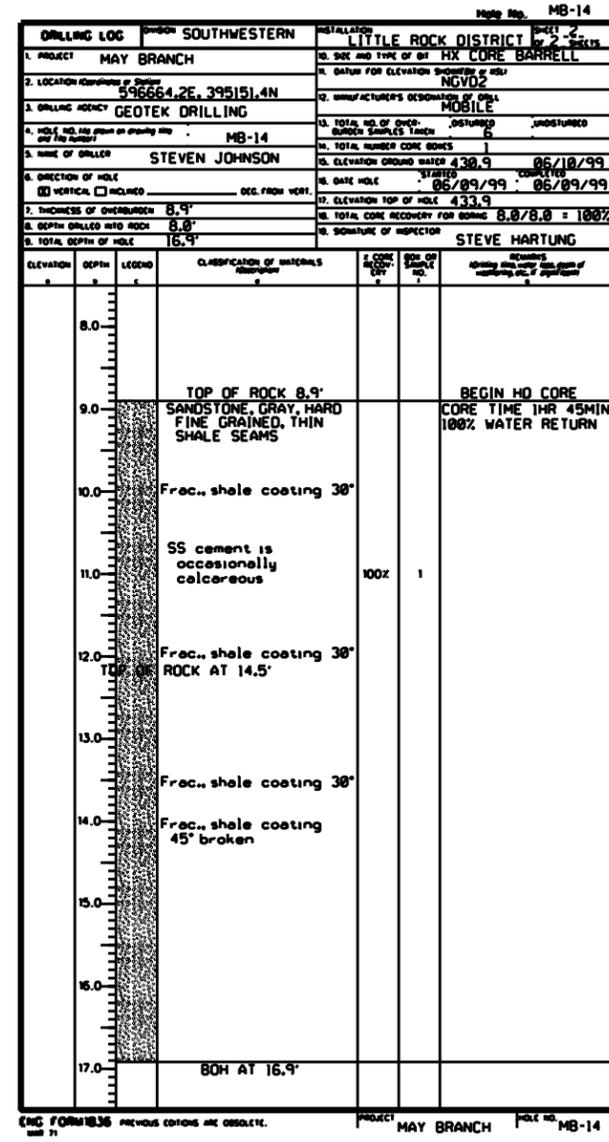
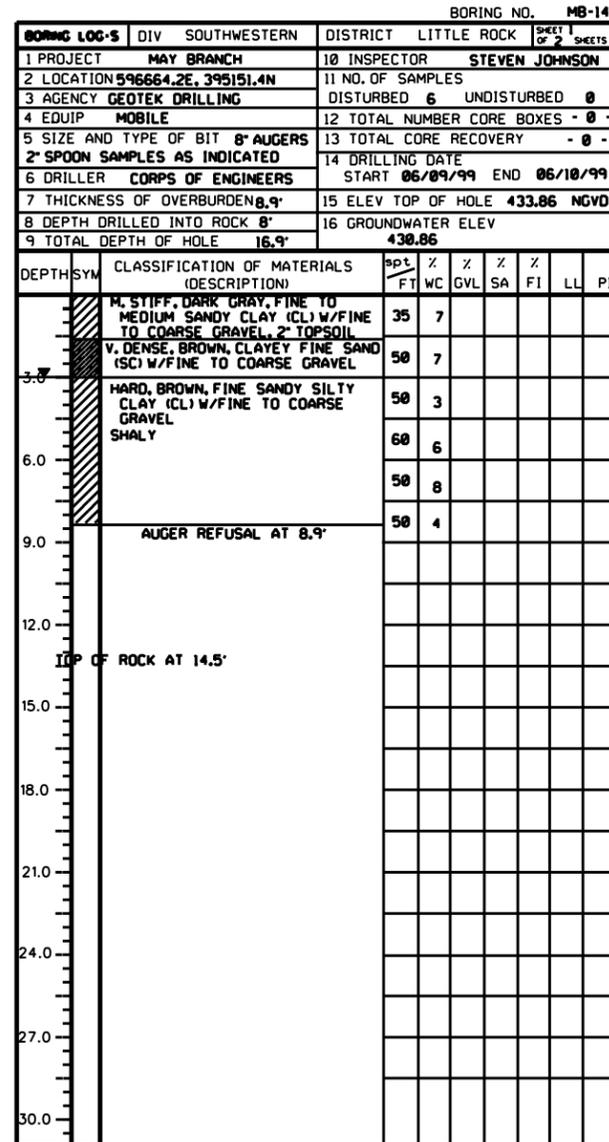
ENC FORM 1036 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT MAY BRANCH BORE NO. MB-13

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB11, MB13

SCALE: AS SHOWN JANUARY 2005

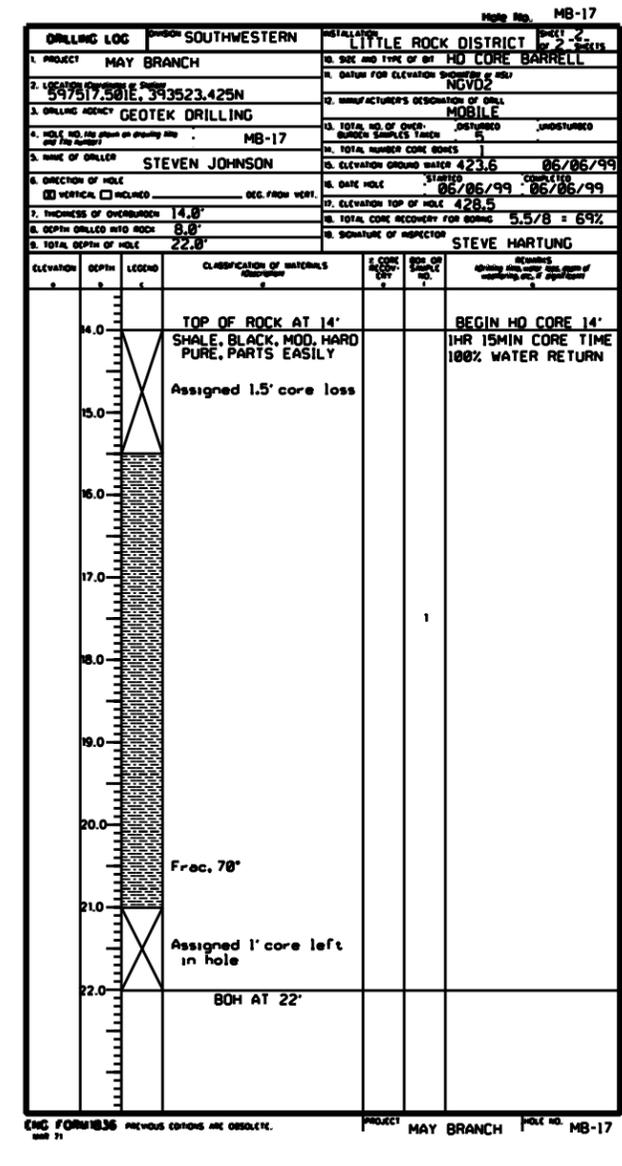
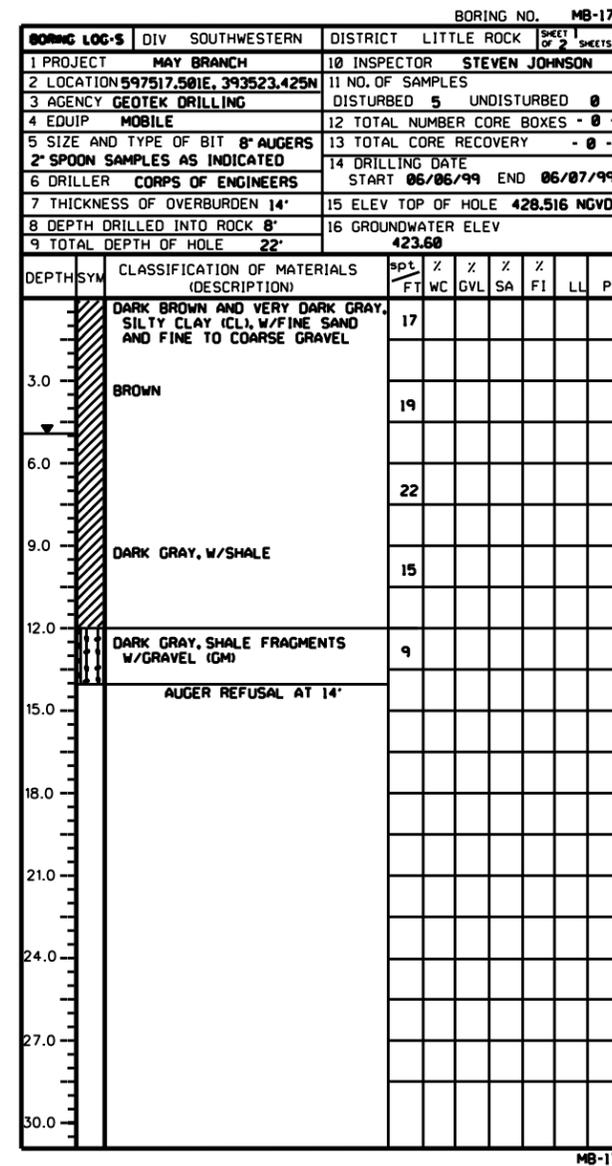
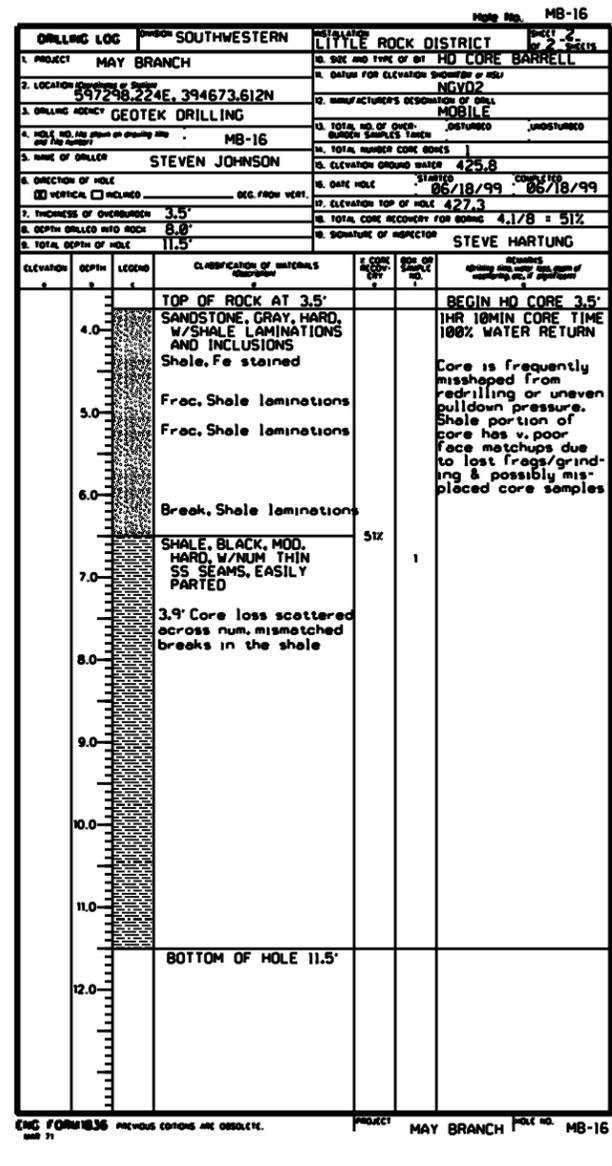
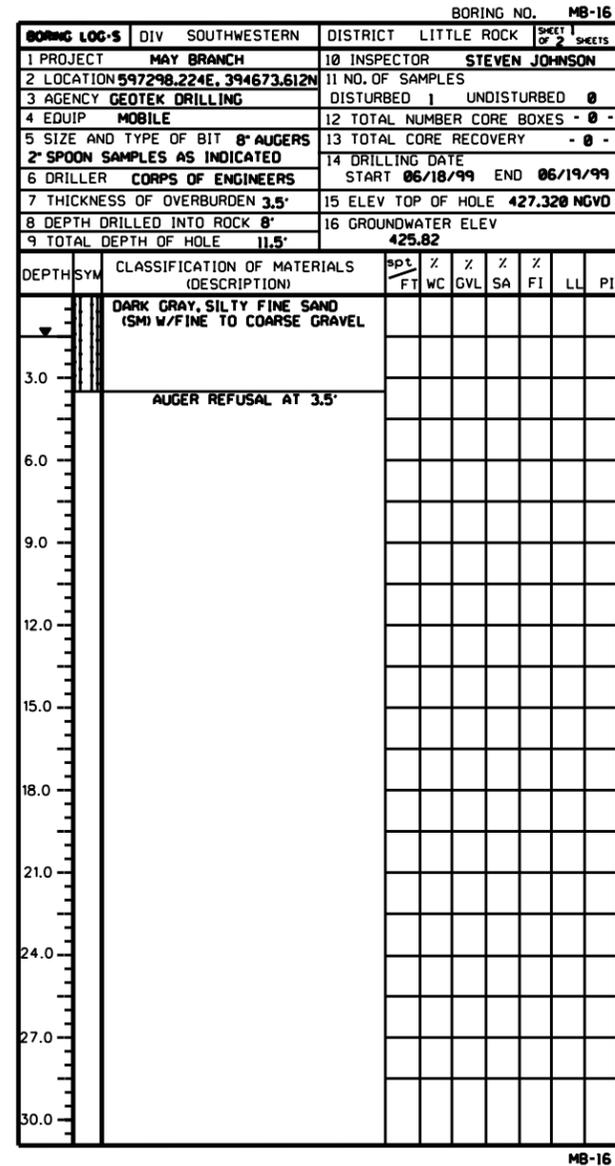


DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB14-MB15

SCALE: AS SHOWN JANUARY 2005



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

**MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB16-MB17**

SCALE: AS SHOWN JANUARY 2005

BORING NO. MB-18

1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON
2 LOCATION	597438.739E, 392201.045N	11 NO. OF SAMPLES	DISTURBED 7 UNDISTURBED 0
3 AGENCY	GEOTEK DRILLING	12 TOTAL NUMBER CORE BOXES	- 0 -
4 EQUIP	MOBILE	13 TOTAL CORE RECOVERY	- 0 -
5 SIZE AND TYPE OF BIT	8" AUGERS	14 DRILLING DATE	START 06/06/99 END 06/07/99
2" SPOON SAMPLES AS INDICATED		15 ELEV TOP OF HOLE	433.243 NGVD
6 DRILLER	CORPS OF ENGINEERS	16 GROUNDWATER ELEV	426.243
7 THICKNESS OF OVERBURDEN	21'		
8 DEPTH DRILLED INTO ROCK	0'		
9 TOTAL DEPTH OF HOLE	21'		

DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
0.0		BROWN, SILTY CLAY (CL) W/FINE SAND AND FINE GRAVEL	23						
3.0			19				34	13	
6.0		SHALE FRAGMENTS	17						
9.0		GRAY, CLAYEY SHALE-SHALY CLAY	11						
12.0			7						
15.0			8						
18.0		SHALE INCLUSIONS	23						
21.0		BOH AT 21'							

MB-18

BORING NO. MB-19

1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON
2 LOCATION	597376.423E, 390896.688N	11 NO. OF SAMPLES	DISTURBED 5 UNDISTURBED 0
3 AGENCY	GEOTEK DRILLING	12 TOTAL NUMBER CORE BOXES	- 0 -
4 EQUIP	MOBILE	13 TOTAL CORE RECOVERY	- 0 -
5 SIZE AND TYPE OF BIT	8" AUGERS	14 DRILLING DATE	START 06/19/99 END 06/20/99
2" SPOON SAMPLES AS INDICATED		15 ELEV TOP OF HOLE	441.314 NGVD
6 DRILLER	CORPS OF ENGINEERS	16 GROUNDWATER ELEV	436.814
7 THICKNESS OF OVERBURDEN	14.4'		
8 DEPTH DRILLED INTO ROCK	8'		
9 TOTAL DEPTH OF HOLE	22.4'		

DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
0.0		BROWN, SILTY CLAY (CL) W/FINE SAND, 10% GRAVEL FILL	21						
3.0			23						
6.0		BROWN, SILTY CLAY (CL-ML) W/FINE SAND	26				24	6	
9.0									
12.0		WEATHERED SHALE FRAGMENTS							
15.0		AUGER REFUSAL AT 14.4'							

MB-19

BORING NO. MB-19

1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON
2 LOCATION	597376.423E, 390896.688N	11 NO. OF SAMPLES	DISTURBED 5 UNDISTURBED 0
3 AGENCY	GEOTEK DRILLING	12 TOTAL NUMBER CORE BOXES	- 0 -
4 EQUIP	MOBILE	13 TOTAL CORE RECOVERY	- 0 -
5 SIZE AND TYPE OF BIT	8" AUGERS	14 DRILLING DATE	START 06/19/99 END 06/20/99
2" SPOON SAMPLES AS INDICATED		15 ELEV TOP OF HOLE	441.314 NGVD
6 DRILLER	CORPS OF ENGINEERS	16 GROUNDWATER ELEV	436.814
7 THICKNESS OF OVERBURDEN	14.5'		
8 DEPTH DRILLED INTO ROCK	8.0'		
9 TOTAL DEPTH OF HOLE	22.5'		

ELEVATION	DEPTH	LEGGD	CLASSIFICATION OF MATERIALS (DESCRIPTION)	% CORE RECOVERY	REMARKS
441.314	0.0		TOP OF ROCK AT 14.5'		BEGIN HD CORE 14.5'
436.814	3.0		Assigned 0.3' core loss SHALE, MOD. HARD, W/NUM ALTERNATING HORIZ. THIN SS SEAMS, COMPRISING 40% OF CORE		1.5HR CORE TIME 100% WATER RETURN
436.814	6.0		Thicker SS seams are hard, gray, all breaks have poorly matching faces		
436.814	9.0		Break		
436.814	12.0		Break		
436.814	15.0		Break		
436.814	18.0		Break		
436.814	21.0		Break		
436.814	24.0		Break		
436.814	27.0		Break		
436.814	30.0		BOH AT 22.5'		

ENGINEERING FORM 1336 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT MAY BRANCH HOLE NO. MB-19

BORING NO. MB-20

1 PROJECT	MAY BRANCH	10 INSPECTOR	STEVEN JOHNSON
2 LOCATION	597053.668E, 389485.243N	11 NO. OF SAMPLES	DISTURBED 4 UNDISTURBED 0
3 AGENCY	GEOTEK DRILLING	12 TOTAL NUMBER CORE BOXES	- 0 -
4 EQUIP	MOBILE	13 TOTAL CORE RECOVERY	- 0 -
5 SIZE AND TYPE OF BIT	8" AUGERS	14 DRILLING DATE	START 06/19/99 END 06/20/99
2" SPOON SAMPLES AS INDICATED		15 ELEV TOP OF HOLE	454.129 NGVD
6 DRILLER	CORPS OF ENGINEERS	16 GROUNDWATER ELEV	451.129
7 THICKNESS OF OVERBURDEN	12.2'		
8 DEPTH DRILLED INTO ROCK	8'		
9 TOTAL DEPTH OF HOLE	20.2'		

DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SPT FT	% WC	% GVL	% SA	% FI	LL	PI
0.0		BROWN, FINE SANDY SILTY CLAY (CL) W/FINE TO COARSE GRAVEL 3" TOPSOIL	9						
3.0		FINE TO COARSE GRAVEL (GM) W/BROWN SILT	5						
6.0			6						
9.0		SHALE FRAGMENTS	3						
12.0		AUGER REFUSAL AT 12.2'							

MB-20

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

**MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB18-MB20**

SCALE: AS SHOWN JANUARY 2005

Boring No. MB-20

DRILLING LOG		DIVISION SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 2 OF 2 SHEETS	
1. PROJECT MAY BRANCH		10. DATE AND TYPE OF BIT HD CORE BARRELL		11. NO. OF SAMPLES		12. TOTAL NUMBER CORE BOXES - 0 -	
2. LOCATION 597053.666E, 389485.243N		12. MANUFACTURER'S DESIGNATION OF BIT MOBILE		13. TOTAL CORE RECOVERY - 0 -		14. DRILLING DATE	
3. DRILLING AGENCY GEOTEK DRILLING		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 4		14. DRILLING DATE START 06/19/99 END 06/19/99		15. ELEV TOP OF HOLE 454.2	
4. HOLE NO. MB-20		14. ELEVATION GROUND WATER 451.2		15. ELEV TOP OF HOLE 454.2		16. GROUNDWATER ELEV 398.431	
5. NAME OF DRILLER STEVEN JOHNSON		15. ELEVATION GROUND WATER 451.2		16. GROUNDWATER ELEV 398.431		17. SIGNATURE OF INSPECTOR STEVE HARTUNG	
6. DIRECTION OF HOLE		16. GROUNDWATER ELEV 398.431		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG	
7. THICKNESS OF OVERBURDEN 12.2'		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG	
8. DEPTH DRILLED INTO ROCK 8.0'		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG	
9. TOTAL DEPTH OF HOLE 20.2'		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG		21. SIGNATURE OF INSPECTOR STEVE HARTUNG	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (DESCRIPTION)	% SPT	% FC	% WC	% GVL	% SA	% FI	% LL	% PI
12.0			TOP OF ROCK AT 12.2'								
12.0			BEGIN HD CORE AT 12.2'								
12.0			0.3' Core loss SANDSTONE, GRAY, V. HARD OCCASIONAL SHALE INCLUSIONS								
13.0			Frac., shale coated								
14.0			Frac., shale coated								
15.0			0.2' core loss								
15.0			SHALE, BLACK, MOD. HARD, NUM. THIN SS SEAMS - 38% OF CORE								
16.0			Break								
17.0			Break								
18.0			Break								
19.0			Break								
20.0			SANDSTONE, GRAY, HARD, W/NUM. SHALE SEAMS								
20.2			BOH AT 20.2'								

ENC FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT MAY BRANCH BORE NO. MB-20

BORING NO. MB-21

BORING LOG-S		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 1 OF 1 SHEETS	
1. PROJECT MAY BRANCH		10. INSPECTOR STEVEN JOHNSON		11. NO. OF SAMPLES		12. TOTAL NUMBER CORE BOXES - 0 -	
2. LOCATION 591232.400E, 398268.345N		12. MANUFACTURER'S DESIGNATION OF BIT MOBILE		13. TOTAL CORE RECOVERY - 0 -		14. DRILLING DATE	
3. AGENCY GEOTEK DRILLING		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 0		14. DRILLING DATE START 06/19/99 END 06/20/99		15. ELEV TOP OF HOLE 415.131 NGVD	
4. EQUIP MOBILE		14. DRILLING DATE START 06/19/99 END 06/20/99		15. ELEV TOP OF HOLE 415.131 NGVD		16. GROUNDWATER ELEV 398.431	
5. SIZE AND TYPE OF BIT 8" AUGERS		15. ELEV TOP OF HOLE 415.131 NGVD		16. GROUNDWATER ELEV 398.431		17. SIGNATURE OF INSPECTOR STEVE HARTUNG	
6. DRILLER STEVEN JOHNSON		16. GROUNDWATER ELEV 398.431		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG	
7. THICKNESS OF OVERBURDEN 28.5'		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG	
8. DEPTH DRILLED INTO ROCK 0'		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG	
9. TOTAL DEPTH OF HOLE 28.5'		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG		21. SIGNATURE OF INSPECTOR STEVE HARTUNG	

DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	% SPT	% FC	% WC	% GVL	% SA	% FI	% LL	% PI
0.0		M. STIFF, BROWN SILTY CLAY (CL), W/FINE SAND, 3" TOPSOIL	8	19						
3.0		DARK BROWN	9	22					28	9
4.0		SOFT	4	21						
6.0		STIFF	11	23					36	17
9.0		V. STIFF	19	23					54	30
12.0		STIFF, LT. BROWN SILT (ML), SLIGHTLY CLAYEY W/FINE SAND	13	24						
15.0		M. STIFF, BROWN	7	27						
18.0		SOFT	4	30						
21.0										
24.0		SOFT, BROWN SILTY CLAY (CL), W/SOME FINE SAND	4	34						
27.0		DARK BROWN	26	30						
30.0		BOH AT 28.5'								

MB-21

BORING NO. MB-22

BORING LOG-S		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 1 OF 1 SHEETS	
1. PROJECT MAY BRANCH		10. INSPECTOR STEVEN JOHNSON		11. NO. OF SAMPLES		12. TOTAL NUMBER CORE BOXES - 0 -	
2. LOCATION 591786.191E, 397864.225N		12. MANUFACTURER'S DESIGNATION OF BIT MOBILE		13. TOTAL CORE RECOVERY - 0 -		14. DRILLING DATE	
3. AGENCY GEOTEK DRILLING		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 0		14. DRILLING DATE START 06/15/99 END 06/16/99		15. ELEV TOP OF HOLE 410.531 NGVD	
4. EQUIP MOBILE		14. DRILLING DATE START 06/15/99 END 06/16/99		15. ELEV TOP OF HOLE 410.531 NGVD		16. GROUNDWATER ELEV 397.78	
5. SIZE AND TYPE OF BIT 8" AUGERS		15. ELEV TOP OF HOLE 410.531 NGVD		16. GROUNDWATER ELEV 397.78		17. SIGNATURE OF INSPECTOR STEVE HARTUNG	
6. DRILLER STEVEN JOHNSON		16. GROUNDWATER ELEV 397.78		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG	
7. THICKNESS OF OVERBURDEN 28.5'		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG	
8. DEPTH DRILLED INTO ROCK 0'		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG	
9. TOTAL DEPTH OF HOLE 28.5'		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG		21. SIGNATURE OF INSPECTOR STEVE HARTUNG	

DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	% SPT	% FC	% WC	% GVL	% SA	% FI	% LL	% PI
0.0		STIFF, DARK BROWN, SILTY CLAY (CL) W/FINE SAND	13	23						
3.0		STIFF, BROWN, CLAYEY SILT (ML) W/FINE SAND	11	22						
6.0		STIFF, DARK BROWN, CLAY (CH)	12	35					72	41
9.0		V. STIFF	17	32						
12.0		BROWN, SLIGHTLY BLOCKY	13	33						
15.0		DARK BROWN, FERROUS STAINS	10	31					51	29
18.0		STIFF, BROWN, SILTY CLAY (CL) W/FERROUS NODULES	10	28						
21.0		M. STIFF, LT. BROWN, CLAY (CH)	8	31						
24.0		V. STIFF, BROWN, SILTY CLAY (CL)	15	26						
27.0		V. STIFF, BROWN, CLAY (CH) W/CALCAREOUS INCLUSIONS	18	28						
30.0		STIFF	13	33						
30.0		BOH AT 28.5'								

MB-22

BORING NO. MB-23

BORING LOG-S		DIV SOUTHWESTERN		DISTRICT LITTLE ROCK		SHEET 1 OF 1 SHEETS	
1. PROJECT MAY BRANCH		10. INSPECTOR STEVEN JOHNSON		11. NO. OF SAMPLES		12. TOTAL NUMBER CORE BOXES - 0 -	
2. LOCATION 592168.565E, 397530.776N		12. MANUFACTURER'S DESIGNATION OF BIT MOBILE		13. TOTAL CORE RECOVERY - 0 -		14. DRILLING DATE	
3. AGENCY GEOTEK DRILLING		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 0		14. DRILLING DATE START 06/15/99 END 06/16/99		15. ELEV TOP OF HOLE 414.295 NGVD	
4. EQUIP MOBILE		14. DRILLING DATE START 06/15/99 END 06/16/99		15. ELEV TOP OF HOLE 414.295 NGVD		16. GROUNDWATER ELEV 403.795	
5. SIZE AND TYPE OF BIT 8" AUGERS		15. ELEV TOP OF HOLE 414.295 NGVD		16. GROUNDWATER ELEV 403.795		17. SIGNATURE OF INSPECTOR STEVE HARTUNG	
6. DRILLER CORPS OF ENGINEERS		16. GROUNDWATER ELEV 403.795		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG	
7. THICKNESS OF OVERBURDEN 28.5'		17. SIGNATURE OF INSPECTOR STEVE HARTUNG		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG	
8. DEPTH DRILLED INTO ROCK 0'		18. SIGNATURE OF INSPECTOR STEVE HARTUNG		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG	
9. TOTAL DEPTH OF HOLE 28.5'		19. SIGNATURE OF INSPECTOR STEVE HARTUNG		20. SIGNATURE OF INSPECTOR STEVE HARTUNG		21. SIGNATURE OF INSPECTOR STEVE HARTUNG	

DEPTH	SYM	CLASSIFICATION OF MATERIALS (DESCRIPTION)	% SPT	% FC	% WC	% GVL	% SA	% FI	% LL	% PI
0.0		V. DENSE, FINE TO COARSE GRAVEL (GP-GM) W/DARK GRAY SILTY SAND 3" TOPSOIL	61	7						
3.0		V. DENSE, BROWN, SILTY CLAY (CC) AND FINE TO COARSE GRAVEL	50	19						
6.0		STIFF, DARK GRAY, SILTY CLAY (CL) W/FINE SAND	11	25					40	19
9.0		V. STIFF	19	24						
12.0		V. STIFF, DARK BROWN, CLAY (CH)	16	31					63	36
15.0		BROWN	17	20						
18.0		BLOCKY, W/FINE TO COARSE GRAVEL	18	31					74	43
21.0		STIFF, BROWN, SILTY CLAY (CL)	14	25						
24.0			10	25						
27.0		LT. BROWN, CLAY (CH) W/FINE GRAVEL							32	
30.0		BROWN, SILTY CLAY (CL) W/FINE GRAVEL							28	
30.0		BROWN, CLAY (CH)							29	
30.0		BOH AT 28.5'								

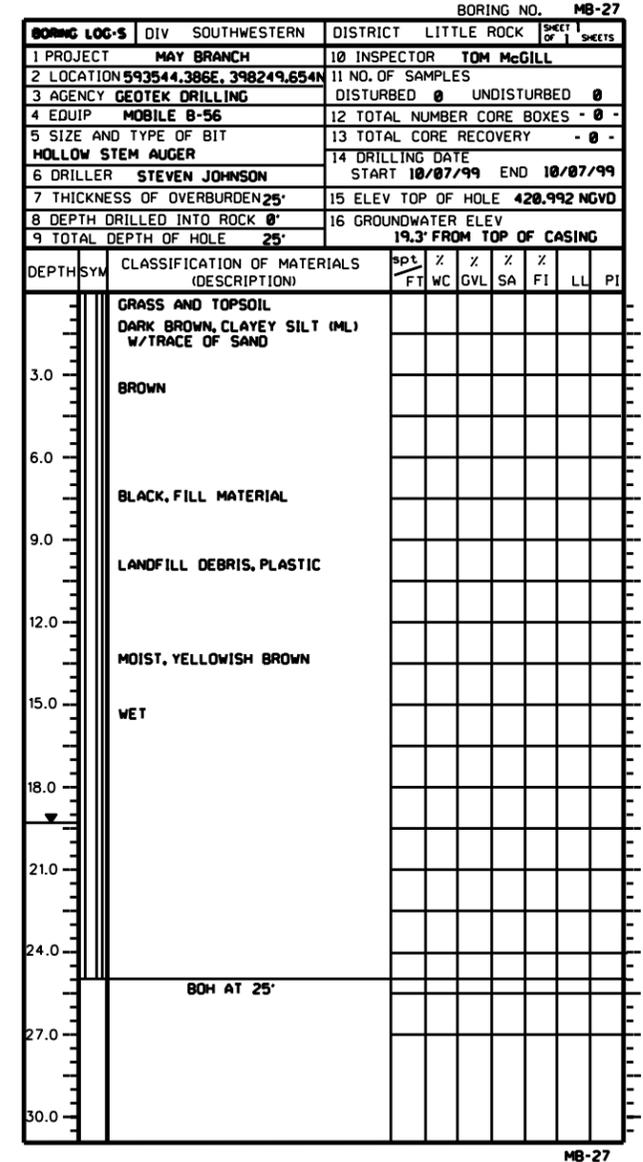
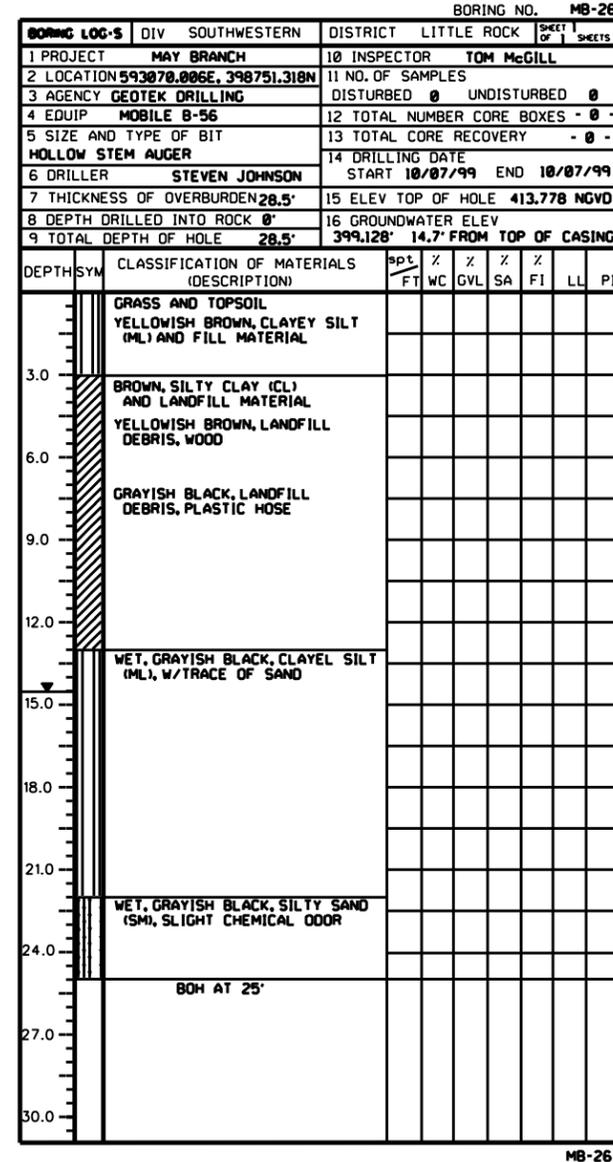
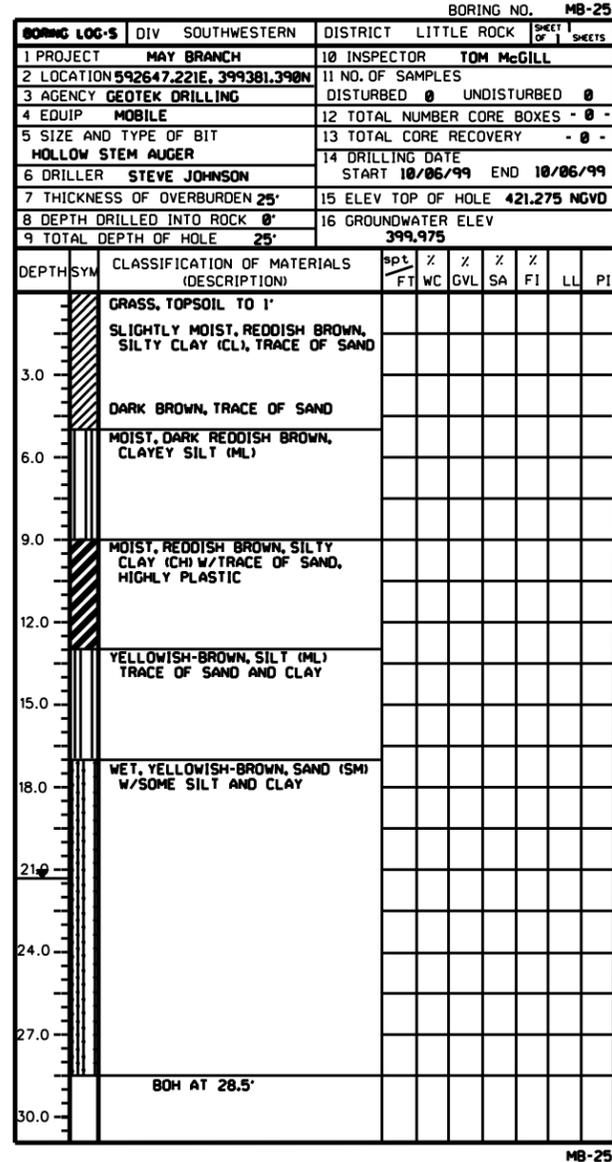
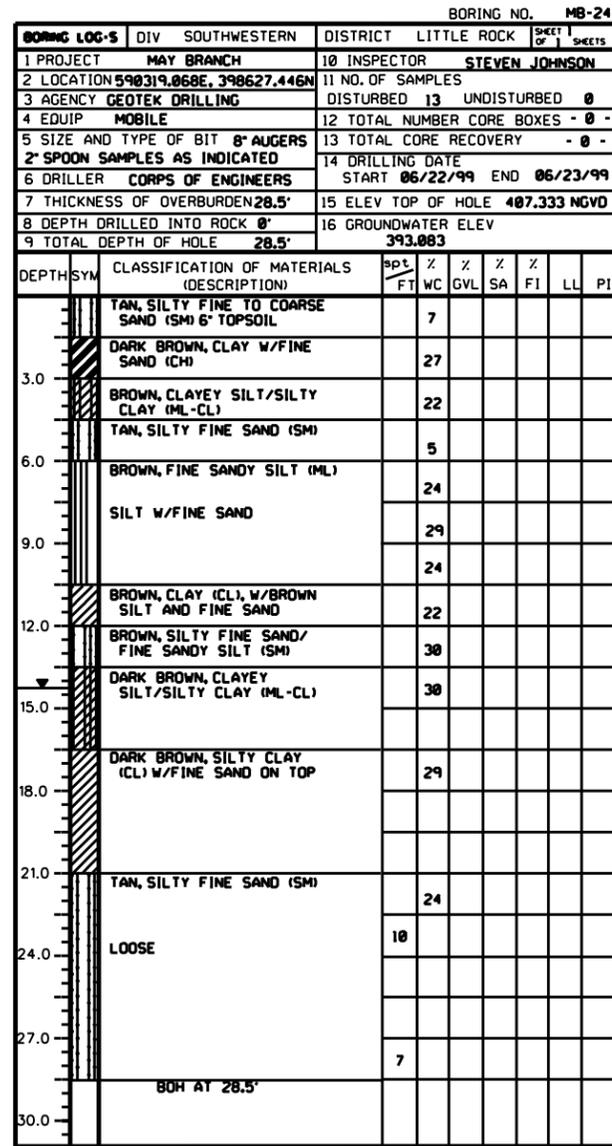
MB-23

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

**MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB20-MB23**

SCALE: AS SHOWN JANUARY 2005



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS

ARKANSAS RIVER WATERSHED ARKANSAS RIVER, ARKANSAS

MAY BRANCH - FORT SMITH, ARKANSAS
FEASIBILITY STUDY
BORING LOGS MB24-MB27

SCALE: AS SHOWN JANUARY 2005

