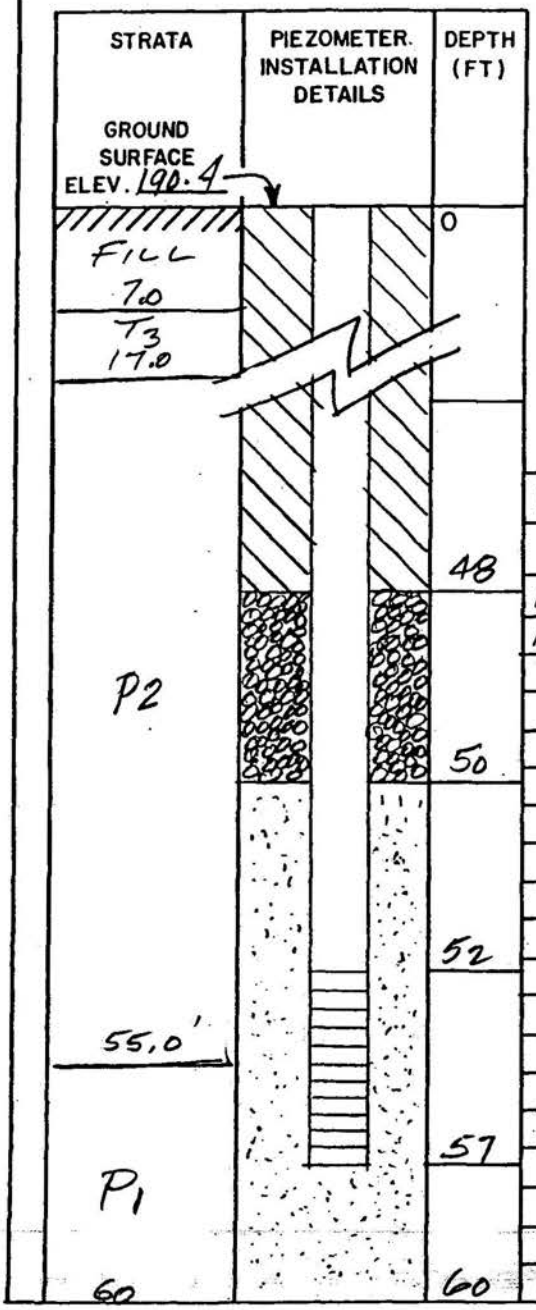
SHEET 3 OF 4
FILE NO. 9976A
SUBCODE _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT DC USA
PIEZOMETER NO. M-1P
LOCATION WASHINGTON, D.C
PIEZOMETER LOCATION SEE BORING LOCATION PLAN
DATE OF INSTALLATION 10/14/03
☐ SEE SKETCH ON BACK
RES. ENG. B. HOBSON

PIEZOMETER TYPE SLOTTED PVC



INTAKE POINT

depth to bottom, ft = 60
depth to top, ft = 50
length, ft = 10 = L
diameter, in = 3-3/4, ft = 0.313 = 2R

STANDPIPE/RISER

elevation of rim, ft = 190.4
diameter, in = 2, ft = 0.1667 = 2r

READING TIME		DEPTH – ~~RIM~~ G.S TO WATER	ELEVATION OF WATER	REMARKS
DATE	CLOCK			
10/17	1130	23.8'	166.6	
10/29	11:00	23.9	166.5	

Sand Bentonite Gravel Grout

GROUND SURFACE ELEV. 190.4

PIEZOMETER NO. M-1P

Board of Zoning Adjustment
District of Columbia
CASE NO. 17232
EXHIBIT NO. 37A2

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-1P
		SHEET	4 OF 4
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, D.C.	SURFACE ELEV.	190.4
BORING LOCATION	SEE BORING LOCATION PLAN	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	19
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:					
D-SAMPLER	2" O.D SPLIT SPOON	DRILLING MUD USED	[X] YES	[ ] NO	
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-3/4		
S-SAMPLER		TYPE OF DRILLING MUD	REVERT		
CORE BARREL		AUGER USED	[ ] YES	[X] NO	
CORE BIT		TYPE AND DIAMETER, IN.			
DRILL RODS	NW				

*CASING HAMMER, LBS.	140	AVERAGE FALL, IN.	30
*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30

*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					FOR WATER LEVEL READINGS SEE SHEET 3.

PIEZOMETER INSTALLED [X] YES [ ] NO SKETCH SHOWN ON SHEET 3

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	52	TOP ELEV.	193.8
INTAKE ELEMENT:	TYPE	SLOTTED PVC	OD, IN.	2-1/4	LENGTH, FT.	5	TIP ELEV.	136.8
FILTER:	MATERIAL	SAND	OD, IN.	3-3/4	LENGTH, FT.	10	BOT. ELEV.	133.8

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, INC.

DRILLER RONALD STIDHAM HELPERS RANDALL BRUMMETT

REMARKS BOREHOLE WAS GROUTED BETWEEN 1' TO 48'.

RESIDENT ENGINEER BILL HOBSON DATE 10-14-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-3
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 195.5
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:00	1D	0.5	8-100/1"	Gray slag and concrete (Fill)		0.5	4"	*6" asphalt at surface.
10-15-03		1.1						Concrete from 1' to
Wednesday	2D	2.0	2-4	Brown black clayey fine to medium sand, some				1.6'.
		3.5	2	gravel, trace brick, coal (Fill) (SC)	F			
	3D	4.0	14-9	Top: Gray f-c sand, some gravel, silt (Fill) (SM)		4.5		
		5.5	10	Bot: Stiff gray red silty clay, trace fine sand (CL)	T1			WC=24
	4D	6.5	11-16	Brown gray gravelly fine to medium sand, some		6.5		
		8.0	32	silt, trace clay pockets (SM)				
	5D	9.0	15-19	Brown gray gravelly fine to coarse sand, trace		10		
		10.5	17	silt (SP-SM)				
					T3			
	6D	14.0	11-14	Brown fine to coarse sandy gravel, trace silt,		15		
		15.5	21	clay (GP-GM)				
						18		
	7D	19.0	4-7	Brown gray silty fine to medium sand, trace		20	USED	Washed ahead of
		20.5	10	clay, gravel (SM)			MUD	casing to 19'.
								Casing blows not
								recorded.
	8D	24.0	6-9	Gray silty fine to medium sand, trace clay (SM)		25		
		25.5	12					
	9D	29.0	9-10	Do 8D, trace gravel, clay pockets (SM)		30		
		30.5	13					
	10D	34.0	10-12	Brown silty fine to coarse sand, trace gravel,		35		
		35.5	13	clay (SM)	P2			
	11D	39.0	6-10	Brown gray silty medium to fine sand, trace		40		
		40.5	14	coarse sand, gravel, clay, clay pockets, silt				
				pockets (SM)				
	12D	44.0	5-7	Brown silty medium to fine sand, trace clay,		45		
		45.5	12	gravel (SM)				
	13D	49.0	9-3	Brown fine to coarse sand, some silt, gravel,		50		
		50.5	2	trace clay, clay pockets (SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-3
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 195.5
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
10-15-03	14D	54.0	7-9	Brown silty fine to medium sand, trace clay (SM)	P2	55		
Wednesday		55.5	13					
								Gravel layer from 57.8' to 58.3'.
	15D	59.0	5-4	Top: Brown silty fine to medium sand, trace		59.5		15D Bot: WC=42
12:55		60.5	11	clay, gravel (SM)	P1	60.5		End of boring at 60.5'.
				Bot: Stiff gray silty clay, trace fine sand, cemented silt (CL)				
								WC=Water Content in percent of dry weight.
						65		
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-3
		SHEET	3 OF 3
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, D.C.	SURFACE ELEV.	195.5
BORING LOCATION	SEE BORING LOCATION PLAN	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	19
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:			
D-SAMPLER	2" O.D. SPLIT SPOON	DRILLING MUD USED	[X] YES [ ] NO
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-3/4
S-SAMPLER		TYPE OF DRILLING MUD	QUIK GEL
CORE BARREL		AUGER USED	[ ] YES [X] NO
CORE BIT		TYPE AND DIAMETER, IN.	
DRILL RODS	NW		

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-15-03	13:00	59	19	16.9	MUD LEVEL AT COMPLETION OF BOREHOLE
10-16-03	08:55	59	19	26.3	OVERNIGHT.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60.5	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, I NC.
DRILLER STEVE GONZALEZ HELPERS ANTHONY SQUIRES
REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER BILL HOBSON DATE 10-15-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-4
SHEET 1 OF 2
FILE NO. 9976A
SURFACE ELEV. 192.0
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:00	1D	0.5	5-2	Black brown gravelly fine to coarse sand, trace	*	0.5	4"	*6" asphalt at surface.
10-15-03		2.5	2-2	silt, brick, concrete (Fill) (SP-SM)				
Wednesday	2D	2.5	2-4	Gray concrete fragments, some fine to coarse				
		4.5	6-1	sand, trace silt, brick (Fill)				
	3D	4.5	12-6	Brown fine to coarse sand, some concrete,		5		
		6.5	2-1	trace brick, gravel, silt (Fill) (SP-SM)				
	4D	6.5	4-8	Top: Brown gravelly fine to coarse sand, some	F			
		8.5	44-8	silt, trace brick (Fill) (SM)				
				Bot: Brn f-c sand, sm gvl, silt (Fill) (SM)				
	5D	9.0	1-2	Brown fine to coarse sand, some gravel,		10		
		10.5	3	concrete, silt (Fill) (SM)				
						12	↓	Washed ahead of
	6D	12.0	11-44	Brown gravelly fine to coarse sand, some silt,			USED	casing to 12'. Casing
		13.5	53	trace clay pockets (Possible Fill) (SM)	T3	13.5	MUD	blows not recorded.
	7D	14.0	14-7	Top: Brown gravelly fine to coarse sand, some		15	↓	
08:00		15.5	6	silt (SM)		15.5		End of boring at 15.5'.
				Bot: Gray silty fine sand, trace clay (SM)	P2			Borehole went crooked
								due to obstructions.
								Unable to drive the
						20		casing; borehole was
								abandoned at 15.5'.
								Drilled a replacement
								boring at the location
						25		of Boring M-4A.
						30		
						35		
						40		
						45		
						50		

MRCE Form BL-1

BORING NO. M-4

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. M-4
SHEET 2 OF 2
FILE NO. 9976A
SURFACE ELEV. 192.0
DATUM USGS

PROJECT DC USA
LOCATION WASHINGTON, D.C.
BORING LOCATION SEE BORING LOCATION PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[ ] YES	[X] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	12
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NW

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-3/4
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. ____ AVERAGE FALL, IN. ____
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-15-03	08:25	15.5	12	11.4	MUD LEVEL AT COMPLETION OF BOREHOLE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	15.5	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, INC.
DRILLER STEVE WINGET HELPERS STEVE DOWNS
REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER BILL HOBSON DATE 10-15-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-4A
SHEET 1 OF 2
FILE NO. 9976A
SURFACE ELEV. 192.0
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:00 10-15-03 Wednesday 08:30					F		USED MUD	
						4	↓	End of boring at 4'.
						5		Borehole abandoned at 4' due to obstructions.
						10		Drilled a replacement boring at the location of Boring M-4B.
						15		
						20		
						25		
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. M-4A
SHEET 2 OF 2

PROJECT DC USA
LOCATION WASHINGTON, D.C.
BORING LOCATION SEE BORING LOCATION PLAN

FILE NO. 9976A
SURFACE ELEV. 192.0
DATUM USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG
TRUCK CME-75
SKID
BARGE
OTHER

TYPE OF FEED DURING CORING
MECHANICAL
HYDRAULIC
OTHER

CASING USED [ ] YES [X] NO
DIA., IN. DEPTH, FT. FROM TO
DIA., IN. DEPTH, FT. FROM TO
DIA., IN. DEPTH, FT. FROM TO

TYPE AND SIZE OF:
D-SAMPLER
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS NW

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-3/4
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. AVERAGE FALL, IN.
SAMPLER HAMMER, LBS. AVERAGE FALL, IN.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 4
3.5" DIA. U-SAMPLE BORING LIN. FT.
CORE DRILLING IN ROCK LIN. FT.

NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER:

BORING CONTRACTOR GEO SERVICES, INC.
DRILLER STEVE WINGET HELPERS STEVE DOWNS
REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER BILL HOBSON DATE 10-15-13

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-4B
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 192.0
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:30 10-15-03 Wednesday							4"	Drilled without sampling to 14'. For soil description from 0' to 14' see log of Boring No. M-4.
						5		
						10		
						14		
	8D	14.0	8-10	Top: Brown gravelly fine to coarse sand, trace	T3	15	USED	Washed ahead of
		15.5	9	silt (SP-SM)			MUD	casing to 14.5'.
				Bot: Brown silty fine to medium sand, trace clay (SM)				Casing blows not recorded.
	9D	19.0	7-12	Light gray silty fine to medium sand, trace		20		
		20.5	16	clay (SM)				
	10D	24.0	8-10	Do 9D, trace gravel, coarse sand (SM)		25		
		25.5	15					
	11D	29.0	10-12	Gray fine to coarse sand, some silt, trace		30		
		30.5	15	gravel, clay (SM)				
	12D	34.0	9-10	Brown medium to fine sand, some silt, trace	P2	35		
		35.5	14	coarse sand, gravel, clay (SM)				
	13D	39.0	9-11	Do 12D (SM)		40		
		40.5	15					
	14D	44.0	11-14	Gray silty medium to fine sand, trace gravel,		45		
		45.5	17	clay (SM)				
						48		
	15D	49.0	7-10	Stiff gray clay, trace cemented sand, lignite (CH)	P1	50		
		50.5	13					

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-4B
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 192.0
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
10-15-03 Wednesday								
	16D	54.0	7-8	Stiff gray silty clay, trace fine sand (CL)	P1	55		WC=44; pp=2.0 tsf
		55.5	9					
	17D	58.5	13-15	Stiff gray silty clay, trace fine sand (Fissured)				
14:30		60.0	17	(CL)		60		WC=36; pp=3.5 tsf End of boring at 60'.
						65		WC=Water Content in percent of dry weight.
						70		pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						75		
						80		
						85		
						90		
						95		
						100		

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BORING NO. M-4B

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. M-4B
SHEET 3 OF 3

PROJECT DC USA
FILE NO. 9976A
LOCATION WASHINGTON, D.C.
SURFACE ELEV. 192.0
BORING LOCATION SEE BORING LOCATION PLAN
DATUM USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	14.5
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NW

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-3/4
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-15-03	14:37	60	14.5	21.7	MUD LEVEL AT COMPLETION OF BOREHOLE
10-16-03	09:30	60	14.5	21.9	OVERNIGHT.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, INC.
DRILLER STEVE WINGET HELPERS STEVE DOWNS
REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER BILL HOBSON DATE 10-15-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-5
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
11:00					*	1	4"	*6" asphalt at surface.
10-13-03	1D	1.0	4-6	Brown silty fine to medium sand, trace rock				6" gravel base below
Monday		3.0	7-7	fragments, mica (Fill) (SM)				asphalt.
	2D	3.5	8-11	Do 1D (Fill) (SM)				
		5.5	11-10			5	USED	
							MUD	
	3D	6.0	2-3	Do 1D, trace clay (Fill) (SM)				Washed ahead of
		8.0	5-8					casing to 4'.
					F			
	4D	9.0	4-5	Brown micaceous silty fine to medium sand,		10		
		11.0	7-9	trace rock fragments (Fill) (SM)				
	5D	11.5	7-10	Do 4D (Fill) (SM)				
		13.5	11-9					
	6D	14.0	3-4	Do 4D, trace gravel, brick (Fill) (SM)		15		
		16.0	5-7					
	7D	16.5	29-20	Top: Brown fine to coarse sand, some gravel,				
		18.5	20-26	silt, brick (Fill) (SM)		17.5		
				Bot: Brown f-c sand, some gravel, silt (SM)				
	8D	19.0	13-13	Brown fine to coarse sand, some gravel, silt,		20		
14:00		21.0	15-14	trace clay (SM)	T3			
06:00								
10-14-03						23		
Tuesday								
	9D	24.0	7-11	Brown medium to fine sand, some silt, trace		25		
		25.5	13	coarse sand, gravel, clay (SM)				
	10D	29.0	8-11	Brown medium to fine sand, some silt, trace		30		
		30.5	14	coarse sand, gravel, clay (SM)				
	11D	34.0	6-8	Do 10D (SM)		35		
		35.5	11					
					P2			
	12D	39.0	8-11	Do 10D (SM)		40		
		40.5	14					
	13D	44.0	8-10	Brown fine to coarse sand, some silt, trace		45		
		45.5	15	gravel, clay (SM)				Clay layer from 46.5'
								to 47.5'.
	14D	49.0	4-7	Top: Stiff gray clayey silt, some brown clayey		50		14D Top WC=37
		50.5	16	fine sand pockets (MH)				
				Bot: Brown gray silty f-m sand, trace clay (SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-5
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
'10-14-03								
Tuesday					P2			
	15D	54.0	10-15	Gray fine to medium sand, some silt, trace		55		
		55.5	19	clay (SM)				
						57		
					P1			
	16D	58.5	5-8	Stiff gray silty clay, trace fine sand				
07:15		60.0	13	(Fissured) (CL)		60		WC=36; pp=3.2 tsf
								End of boring at 60'.
								WC=Water Content in percent of dry weight.
						65		
								pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MRCE Form BL-1

BORING NO. M-5

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-5
		SHEET	3 OF 3
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, D.C.	SURFACE ELEV.	196.4
BORING LOCATION	AS STAKED	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	4
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:			
D-SAMPLER	2" SPLIT SPOON	DRILLING MUD USED	[X] YES [ ] NO
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-3/4
S-SAMPLER		TYPE OF DRILLING MUD	QUIK GEL
CORE BARREL		AUGER USED	[ ] YES [X] NO
CORE BIT		TYPE AND DIAMETER, IN.	
DRILL RODS	NW		

CASING HAMMER, LBS.		AVERAGE FALL, IN.	
*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30

*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-14-03	07:20	60	4.0	13.2	MUDLEVEL AT COMPLETION OF BORING.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES		
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES		
CORE DRILLING IN ROCK	LIN. FT.		OTHER:		

BORING CONTRACTOR GEO SERVICES, INC.

DRILLER RONALD STIDHAM HELPERS RANDALL BRUMMETT

REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.

RESIDENT ENGINEER BILL HOBSON DATE 10-14-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-6
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 194.8
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:00					*	1	4"	*5" blacktop at
10-13-03	1D	1.0	4-4	Brown micaceous silty fine to medium sand,				surface. 7" gravel
Monday		3.0	5-5	trace rock fragments (Fill) (SM)				base below blacktop.
	2D	4.0	2-4	Do 1D (Fill) (SM)		5		
		6.0	5-7					
	3D	6.5	5-6	Do 1D (Fill) (SM)	F			
		8.5	7-7					
	4D	9.0	3-6	Do 1D (Fill) (SM)		10		
		11.0	8-8					
	5D	11.5	6-8	Do 1D (Fill) (SM)				
		13.0	13			13		
	6D	14.0	13-18	Brown gravelly fine to coarse sand, some silt,		15		
		16.0	23-29	trace clay pockets (SM)				
					T3			
								Washed ahead of
								casing to 21'.
	7D	19.0	12-8	Top: Do 6D (SM)		19.5		Casing blows not
		21.0	6-7	Bot: Brown tan silty fine to mediums sand,				recorded.
				trace gravel, clay (SM)			USED	
							MUD	
	8D	24.0	4-7	Brown medium to fine sand, some silt, trace		25		
		25.5	10	clay, gray clay pockets (SM)				
	9D	29.0	6-8	Brown tan medium to fine sand, some silt,		30		
		30.5	10	trace clay, gravel (SM)				
	10D	34.0	6-9	Gray medium to fine sand, some silt, trace		35		
		35.5	12	clay, gravel (SM)				
					P2			
	11D	39.0	9-10	Brown medium to fine sand, some silt, trace		40		
		40.5	12	coarse sand, gravel, clay, gray clay pockets				
				(SM)				
	12D	44.0	4-7	Gray medium to fine sand, some silt, trace		45		
		45.5	10	claye, clayey fine to medium sand pockets				
				(SM)				
	13D	49.0	7-14	Top: Brown gray silty fine to medium sand,		50		13D Bot WC=33
		50.5	17	some clayey silt pockets (SM)				pp=1.7 tsf
				Bot: Stiff gray clay (CH)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-6
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 194.8
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
10-13-03 Monday	14D	54.0	6-7	Top: Brown gray clayey fine to medium sand,	P2	55		14D Bot: WC=43;
		55.5	10	some silty f-m sand pockets, trace gravel (SC) Bot: Stiff gray silty clay, trace cemented silt (Fissured) (CL)	P1			pp=2.3 tsf
	15D	58.5	8-12	Stiff brown red silty clay, trace cemented silt				WC=43, pp=1.7 tsf
10:25		60.0	16	(Fissured) (CL)		60		
								End of boring at 60'.
								WC=Water Content in percent of dry weight.
						65		
								pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. M-6
SHEET 3 OF 3

PROJECT DC USA
FILE NO. 9976A
LOCATION WASHINGTON, D.C.
SURFACE ELEV. 194.8
BORING LOCATION SEE BORING LOCATION PLAN
DATUM USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG: TRUCK CME-75; SKID; BARGE; OTHER
TYPE OF FEED DURING CORING: MECHANICAL; HYDRAULIC; OTHER

CASING USED: [X] YES [ ] NO
DIA., IN. 4 DEPTH, FT. FROM 0 TO 21
DIA., IN. DEPTH, FT. FROM TO
DIA., IN. DEPTH, FT. FROM TO

TYPE AND SIZE OF:
D-SAMPLER 2" O.D SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS NX

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-3/4
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-13-03	10:30	58.5	21	10.9	MUDLEVEL AT COMPLETION OF BOREHOLE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 60
3.5" DIA. U-SAMPLE BORING LIN. FT.
CORE DRILLING IN ROCK LIN. FT.
NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER:

BORING CONTRACTOR GEOSERVICES, INC.
DRILLER RONALD STIDHAM HELPERS RANDALL BRUMMETT
REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER BILL HOBSON DATE 10-13-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-7
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 197.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
07:30	1D	0.0	10-11	Brown black silty fine to coarse sand, some			4"	
10-09-03		2.0	7-7	gravel, trace clay, mica (Fill) (SM)	F			
Thursday	2D	2.0	6-6	Top: Brown silty f-c sand, tr gravel, cl (Fill) (SM)				
		4.0	4-5	Bot: Stiff red f-m sandy cl, tr gvl, roots (Fill) (CL)		4		2D Bot: WC=19;
	3D	4.0	7-10	Top: Red clayey f-m sa, tr gvl, c sand (SC)		5		pp=2.0 tsf
		6.0	12-25	Bot: Red white f-c sand, sm gvl, si, tr clay (SM)				
	4D	6.5	11-16	Brown gravelly fine to coarse sand, some silt,				
		8.0	31	trace clay (SM)				
	5D	9.0	17-22	Do 4D, trace silt pockets (SM)		10		
		10.5	18		T3			
	6D	14.0	6-8	Top: Gray fine to medium sand, trace silt,		15		
		15.5	12	gravel (SP-SM)				
				Bot: Gray fine to coarse sand, some gravel,				
				trace silt (SP-SM)				Washed ahead of casing to 20'.
	7D	19.0	10-9	Top: Gray fine to medium sand, some silt,		19.5	▼	Casing blows not
		20.5	11	gravel, trace clay pockets (SM)			USED	recorded.
				Bot: Brown silty fine to medium sand, trace			MUD	
				clay (SM)				
	8D	24.0	4-8	Gray medium to fine sand, some silt, trace clay		25		
		25.5	12	(SM)				
	9D	29.0	6-10	Gray brown medium to fine sand, some silt,		30		
		30.5	12	trace clay, gravel (SM)				
	10D	34.0	6-10	Brown fine to coarse sand, some silt, trace	P2	35		
		35.5	13	gravel, clay (SM)				
	11D	39.0	7-11	Brown fine to coarse sand, some silt, trace		40		
		40.5	13	gravel, clay, gray clayey silt pockets (SM)				
	12D	44.0	7-8	Brown fine to coarse sand, some silt, trace		45		
		45.5	11	gravel, clay (SM)				
	13D	49.0	8-13	Brown fine to coarse sand, some silt, gravel,		50		
		50.5	21	trace clay, clay pockets (SM)			▼	

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-7
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 197.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
10-09-03					P2			
Thursday								
	14D	54.0	6-7	Top: Brown silty fine to medium sand, trace		54.5		
		55.5	8	gravel, clay (SM)				
				Bot: Stiff gray brown clay, trace fine sand				14D Bot: WC=45;
				pockets (CH)	P1			pp=1.8 tsf
	15D	58.5	9-13	Gray fine sandy silt, trace clay (ML)				WC=26
10:55		60.0	16			60		End of boring at 60'.
								WC=Water Content in percent of dry weight.
						65		
								pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-7
		SHEET	3 OF 3
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, D.C.	SURFACE ELEV.	197.4
BORING LOCATION	SEE BORING LOCATION PLAN	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:					
D-SAMPLER	2" O.D. SPLIT SPOON	DRILLING MUD USED	[X] YES	[ ] NO	
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-3/4		
S-SAMPLER		TYPE OF DRILLING MUD	QUIK GEL		
CORE BARREL		AUGER USED	[ ] YES	[X] NO	
CORE BIT		TYPE AND DIAMETER, IN.			
DRILL RODS	NW				
		*CASING HAMMER, LBS.	140	AVERAGE FALL, IN.	30
		*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30
		*AUTO HAMMER			

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-07-03	11:00	58.5	20.0	8.8	MUDLEVEL AT COMPLETION OF BOREHOLE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, INC.

DRILLER RONALD STIDHAM HELPERS RANDALL BRUMMETT

REMARKS BOREHOLE WAS GROUTED ON COMPLETION.

RESIDENT ENGINEER BILL HOBSON DATE 10-09-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-8P
SHEET 1 OF 4
FILE NO. 9976A
SURFACE ELEV. 195.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
09:30	1D	0.0	4-8	Brown to red fine to coarse sand, some silt,			4"	
10-07-03		2.0	7-6	gvl, tr brick, concrete, roots, organics (Fill) (SM)				
Tuesday	2D	2.0	5-7	Brown fine to coarse sand, some gravel, silt,				
		4.0	18-13	trace clay, roots (Fill) (SM)	F			
	3D	4.0	4-4	Brown gray fine to coarse sand, some gravel,		5		
		6.0	3-2	silt, concrete, clay pockets (Fill) (SM)		6		
	4D	6.0	4-6	Red brown gravelly fine to coarse sand, sm				
		8.0	10-12	silt, trace clay, cemented sand (SM)				
	5D	8.0	11-13	Red brown fine to medium sand, some silt,				
		10.0	9-9	trace gravel, clay (SM)		10		
					T3			
	6D	13.5	23-54	Light brown fine to coarse sand, some gravel,				
		15.0	69	trace silt, clay pockets (SP-SM)		15		
	7D	18.5	8-6	Brown tan clayey fine to coarse sand and				2" recovery.
		20.0	5	gravel (SC&GC)		20		
	8D	20.5	4-8	Top: Gray silty fine sand, trace clay (SM)				
		22.0	12	Bot: Gray brown medium to fine sand, some				
				silt, trace clay (SM)				
	9D	23.5	7-11	Gray brown medium to fine sand, some silt,				
		25.0	13	trace clay (SM)		25		
	10D	28.5	6-8	Gray brown medium to fine sand, some silt,				
		30.0	10	trace coarse sand, gravel, clay (SM)		30		
								Washed ahead of casing to 34'.
	11D	33.5	4-5	Do 10D (SM)			↓	Casing blows not
		35.0	8		P2	35	USED	recorded.
							REVERT	
	12D	38.5	1-3	Do 10D (SM)				
14:00		40.0	6			40		
06:30								
10-08-03								
Wednesday	13D	43.5	6-7	Gray brown medium to fine sand, some silt,				
		45.0	10	trace clay (SM)		45		
	14D	48.5	4-5	Top: Do 13D (SM)				
		50.0	9	Bot: Stiff gray clayey silt, trace fine sand (MH)		50		14D Bot: WC=37; pp=2.0 tsf.

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-8P
SHEET 2 OF 4
FILE NO. 9976A
SURFACE ELEV. 195.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
10-08-03							REVERT	
Wednesday					P2			
	15D	53.5	8-13	Gray fine to medium sand, some silt,				
		55.0	17	trace cemented sand layer, clay (SM)		55		
						56		
					P1			
	16D	58.5	5-10	Stiff gray clayey silt (Fissured) (MH)				WC=36
10:00		60.0	15			60		End of boring at 60'.
						65		WC=Water Content in percent of dry weight.
						70		pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						75		
						80		
						85		
						90		
						95		
						100		

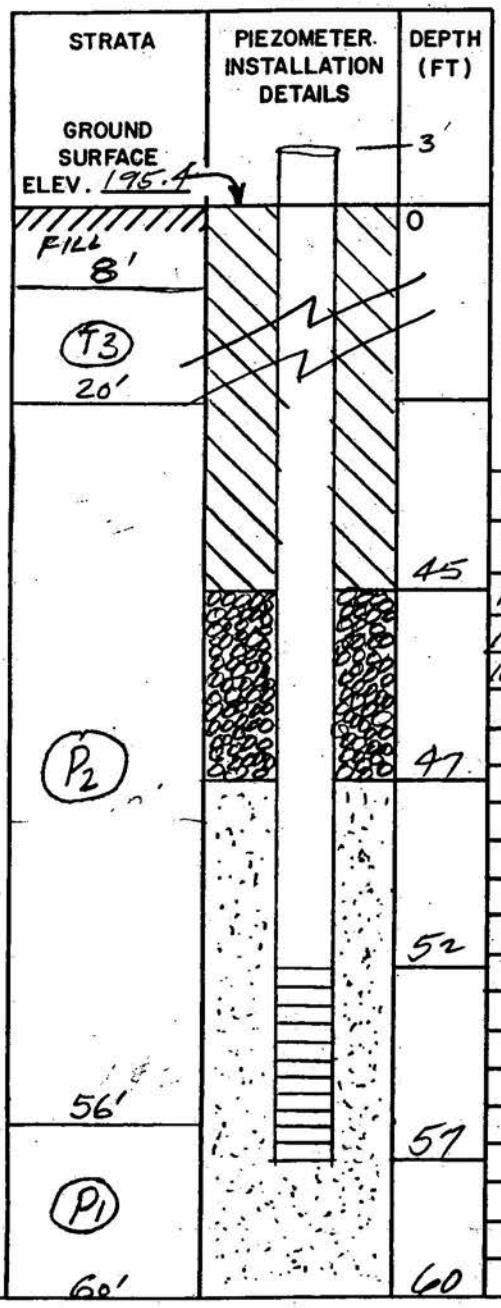
SHEET 3 OF 4
FILE NO. 9976A
SUBCODE _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT DC USA — PIEZOMETER NO. M-8P
LOCATION WASHINGTON, D.C
PIEZOMETER LOCATION SEE BORING LOCATION PLAN — DATE OF INSTALLATION 10/7/03
☐ SEE SKETCH ON BACK — RES. ENG. B. HOBSON

PIEZOMETER TYPE SLOTTED PVC



INTAKE POINT

depth to bottom, ft = 60
depth to top, ft = 47
length, ft = 13 = L
diameter, in = 3-3/4, ft = 0.313 = 2R

STANDPIPE/RISER

elevation of rim, ft = 198.4
diameter, in = 2, ft = 0.1667 = 2r

READING TIME		DEPTH - ~~RIM~~ GS TO WATER	ELEVATION OF WATER	REMARKS
DATE	CLOCK			
10/9	1220	30.7'	164.7	
10/17	1230	28.6'	166.8	
10/29	11:10	28.2	167.2	

Sand Bentonite
Gravel Grout

GROUND SURFACE ELEV. 195.4

PIEZOMETER NO. M-8P

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-8P
		SHEET	4 OF 4
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, D.C.	SURFACE ELEV.	195.4
BORING LOCATION	SEE BORING LOCATION PLAN	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	34
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:					
D-SAMPLER	2" O.D. SPLIT SPOON	DRILLING MUD USED	[X] YES	[ ] NO	
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-1/2		
S-SAMPLER		TYPE OF DRILLING MUD	REVERT		
CORE BARREL		AUGER USED	[ ] YES	[X] NO	
CORE BIT		TYPE AND DIAMETER, IN.			
DRILL RODS	NW				

*CASING HAMMER, LBS.	140	AVERAGE FALL, IN.	30
*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30

*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					FOR WATER LEVEL READINGS SEE SHEET 3.

PIEZOMETER INSTALLED [X] YES [ ] NO SKETCH SHOWN ON SHEET 3

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	55	TOP ELEV.	198.4
INTAKE ELEMENT:	TYPE	SLOTTED PVC	OD, IN.	2-1/2	LENGTH, FT.	5	TIP ELEV.	138.4
FILTER:	MATERIAL	SAND	OD, IN.	3-3/4	LENGTH, FT.	13	BOT. ELEV.	135.4

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES		
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES		
CORE DRILLING IN ROCK	LIN. FT.		OTHER:		

BORING CONTRACTOR GEO SERVICES, INC.

DRILLER RONALD STIDHAM HELPERS

REMARKS BOREHOLE WAS GROUTED FROM 2' TO 45'.

RESIDENT ENGINEER BILL HOBSON DATE 10-08-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-9
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
11:00	1D	0.0	8-15	Black brown fine to coarse sand, some gravel,			4"	
10-09-03		1.3	100/3"	silt, trace concrete, brick (Fill) (SM)	F			6" concrete layer at
Thursday								1.3'.
	2D	3.0	4-5	Top: Brown silty f-m, sand, tr gvl, cl (Fill) (SM)		4		
		5.0	8-9	Bot: Brn clayey fine to medium sand, some		5		
				silty fine to medium sand layers (SC)	T2			
	3D	6.5	19-32	Red brown gravelly fine to coarse sand, some		6.5		
		8.0	28	silt, trace clay (SM)				
	4D	9.0	9-11	Brown fine to coarse sand, some gravel, silt,		10		
		10.5	10	trace clay (SM)				
					T3			
	5D	14.0	10-11	Brown gravelly fine to coarse sand, some silt,		15		
		15.5	13	trace clay (SM)				
	6D	19.0	7-4	Top: Brown fine to coarse sand, some gravel,		19.5	↓	Washed ahead of casing to 20'.
		20.5	4	silt, trace clay (SM)			USED	Casing blows not
				Bot: Brown clayey fine to medium sand (SC)			MUD	recorded.
	7D	24.0	5-7	Tan medium to fine sand, some silt, trace clay		25		
		25.5	10	(SM)				
	8D	29.0	4-7	Do 7D (SM)		30		
14:00		30.5	9					
06:00								
10-10-03								
Friday								
	9D	34.0	3-7	Top: Stiff gray silty clay, trace fine sand	P2	35		WC=47; pp=2.0 tsf
		35.5	10	pockets (CL)				
				Bot: Brown silty fine to medium sand, trace clay (SM)				
	10D	39.0	6-10	Brown medium to fine sand, some silt, trace		40		
		40.5	11	coarse sand, gravel, clay (SM)				
	11D	44.0	7-9	Gray brown fine to coarse sand, some silt,		45		
		45.5	12	trace clay, gravel (SM)				
						47		
	12D	49.0	3-7	Stiff gray silty clay, trace fine sand, fine sand	P1	50	↓	WC=28; pp=2.0 tsf
		50.5	8	pockets (CL)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-9
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.4
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
					P1			
10-10-03 Friday								
	13D	54.0	8-10	Top: *Stiff gray brown silty clay, some fine*		54.5		WC=40
		55.5	14	sand, trace fine to medium sand pockets (CL)				
				Bot: Brown silty fine to medium sand, trace				
				clay (SM)	P2			
	14D	58.5	5-7	*Top: Brown silty fine sand, trace clay (SM)*		59		14D Bot: WC=41
07:30		60.0	9	Bot: Stiff gray silty clay, trace fine sand pockets	P1	60		End of boring at 60'.
				(Fissured) (CL)				
								WC=Water Content in percent of dry weight.
						65		
								pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MRCE Form BL-1

BORING NO. M-9

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-9
		SHEET	3 OF 3
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, D.C.	SURFACE ELEV.	196.4
BORING LOCATION	SEE BORING LOCATION PLAN	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

		TYPE OF FEED DURING CORING		CASING USED	[X] YES	[ ] NO		
TYPE OF BORING RIG								
TRUCK	CME-75	MECHANICAL		DIA., IN. 4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC		DIA., IN.	DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.	DEPTH, FT. FROM		TO	
OTHER								

TYPE AND SIZE OF:		DRILLING MUD USED	[X] YES [ ] NO
D-SAMPLER	2" O.D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.	3-1/2
U-SAMPLER		TYPE OF DRILLING MUD	QUIK GEL
S-SAMPLER			
CORE BARREL		AUGER USED	[ ] YES [X] NO
CORE BIT		TYPE AND DIAMETER, IN.	
DRILL RODS	NW		

*CASING HAMMER, LBS.	140	AVERAGE FALL, IN.	30
*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30

*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-10-03	07:50	58.5	20	11.4	MUDLEVEL AT COMPLETION OF BOREHOLE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.			
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.			
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.			

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES		
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES		
CORE DRILLING IN ROCK	LIN. FT.		OTHER:		

BORING CONTRACTOR	GEO SERVICES, INC.		
DRILLER	RONALD STIDHAM	HELPERS	RANDALL BRUMMETT
REMARKS	BOREHOLE WAS GROUTED UPON COMPLETION.		
RESIDENT ENGINEER	BILL HOBSON	DATE	10-10-03

MRCE Form BS-1

BORING NO. M-9

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-10
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 194.8
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:00	1D	0.0	5-11	Gray brown silty fine to coarse sand, some			4"	
10-10-03		2.0	15-14	gravel, trace clay, glass (Fill) (SM)				
Friday	2D	2.0	11-10	Brown red fine to coarse sand, some silt, trace				
		4.0	8-12	gravel, brick concrete, clay (Fill) (SM)				
	3D	4.0	10-10	Red fine to coarse sand, some crushed brick,	F	5		
		6.0	6-4	trace silt, concrete (Fill) (SP-SM)				
	4D	6.5	4-2	Brown red fine to medium sand, some brick				
		8.5	2-7	fragments, tr concrete, silt, glass (Fill) (SP-SM)				
						8.5		
	5D	9.0	4-5	Gray silty fine to medium sand, trace clay, clay		10		
		10.5	7	pockets (SM)	T2			
						12.5		
	6D	14.0	10-11	Brown fine to coarse sandy gravel, trace silt	T3	15		
		15.5	13	(GP-GM)				
						16.5		
	7D	19.0	3-4	Brown tan silty fine sand, trace clay, gravel		20		
		20.5	6	(SM)				Washed ahead of casing to 23.5'. Casing blows not recorded. WC=39
	8D	23.5	6-6	Gray fine sandy silt, trace silty fine sand layers				
		25.0	8	(MH)		25	USED	
							MUD	
	9D	28.5	7-8	Brown black medium to fine sand, some silt,				
		30.0	10	trace gravel, clay (SM)		30		
	10D	33.5	7-9	Do 9D (SM)	P2			
		35.0	13			35		
	11D	38.5	7-9	Brown medium to fine sand, some silt, gravel,				
		40.0	13	trace coarse sand, clay (SM)		40		
	12D	43.5	7-10	Brown gray silty fine to medium sand, trace				
		45.0	14	clay, silty fine sand layers (SM)		45		
						48		
	13D	48.5	6-10	Top: Stiff gry si cl, tr f sa, f sa pkts (CL)				WC=30
		50.0	13	Bot: Stiff brown clayey silt, sm fine sand, fine	P1	50		
				sandy silt layers (MH)				

MRCE Form BL-1

BORING NO. M-10

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-10
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 194.8
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
	14D	53.5	12-8	Top: Brown silty fine to medium sand, trace				
		55.0	12	clay (SM)	P1	55		Sand layers from 53'
				Bot: Stiff brown gray clay, trace fine sand				to 54'.
				pockets (Slickensided) (CH)				14D: Bot WC=37
	15D	58.5	12-17	Stiff gray green clayey silt, some fine sand				
12:35		60.0	20	(Fissured) (MH)		60		WC=36, pp=2.2 tsf
								WC=Water Content
								in percent of dry
						65		weight.
								pp=Pocket
						70		Penetrometer
								Unconfined Compres-
								sive Strength in tsf.
						75		
						80		
						85		
						90		
						95		
						100		

MRCE Form BL-1

BORING NO. M-10

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. M-10
SHEET 3 OF 3

PROJECT: DC USA
FILE NO.: 9976A
LOCATION: WASHINGTON, D.C.
SURFACE ELEV.: 194.8
BORING LOCATION: SEE BORING LOCATION PLAN
DATUM: USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	23.5
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:
D-SAMPLER: 2" O.D. SPLIT SPOON
U-SAMPLER:
S-SAMPLER:
CORE BARREL:
CORE BIT:
DRILL RODS: NW

DRILLING MUD USED: [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN.: 3-3/4
TYPE OF DRILLING MUD: QUIK GEL

AUGER USED: [ ] YES [X] NO
TYPE AND DIAMETER, IN.:

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-10-03	12:40	58.5	23.5	12.6	MUDLEVEL AT COMPLETION OF BOREHOLE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR: GEO SERVICES, INC.
DRILLER: RONALD STIDHAM HELPERS: RANDALL BRUMMETT
REMARKS: BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER: BILL HOBSON DATE: 10-10-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-11
SHEET 1 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.3
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
10:00	1D	0.0	4-3	Brown black silty fine to coarse sand, some			4"	
10-08-03		2.0	2-2	gravel, trace asphalt, clay (Fill) (SM)				
Wednesday	2D	2.0	1-1	Brown black clayey fine to medium sand, sm				
		4.0	1-1	gravel, clay pockets, trace cinders (Fill) (SC)				
	3D	4.0	1-1	Brown clayey fine to coarse sand, some gvl,	F	5		
		6.0	2-2	trace cinders, roots (Fill) (SC)				
	4D	6.0	2-1	Brown clayey fine to coarse sand, some gvl,				
		8.0	1/12"	trace clay pockets (Fill) (SC)		8		
	5D	8.0	11-14	Gray tan fine to coarse sand, some gravel,				
		10.0	9-10	cemented sand, trace silt (SP-SM)		10		
	6D	10.0	8-16	Red brown clayey fine to medium sand, some				
		12.0	23-55	gravel, with some layers of fine to medium				
				sand, some silt, trace clay (SC)	T3			
	7D	14.0	24-35	Red brown fine to coarse sand, some gravel,		15		
		15.5	55	clay (SC)				
								Washed ahead of
						18		casing to 19'.
							↓	Casing blows not
	8D	19.0	6-8	Brown red silty fine to medium sand, trace		20	USED	recorded.
		20.5	11	clay (SM)			MUD	
	9D	24.0	9-11	Gray medium to fine sand, some silt, trace		25		
		25.5	14	gravel, clay (SM)				
	10D	29.0	7-10	Gray brown medium to fine sand, some silt,		30		
		30.5	14	trace clay, gravel, coarse sand (SM)				
	11D	34.0	8-11	Gray fine to coarse sand, some silt, trace clay,	P2	35		
		35.5	15	gravel (SM)				
	12D	39.0	7-10	Gray brown medium to fine sand, some silt,		40		
		40.5	12	trace clay, gravel (SM)				
	13D	44.0	8-10	Gray fine to coarse sand, some silt, trace		45		
		45.5	12	gravel, clay (SM)				
	14D	49.0	7-9	Gray brown silty fine to medium sand, trace		50		
		50.5	12	clay (SM)			↓	

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-11
SHEET 2 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.3
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, D.C.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
10-08-03							MUD	
Wednesday								
	15D	54.0	7-11	Gray fine to coarse sand, some silt, trace	P2	55		
		55.5	16	gravel, clay (SM)				
						57.5		
	16D	58.5	4-7	*Top: Stiff dark gray clay, trace lignite, lignite*	P1			*16D Top WC=43*
13:25		60.0	14	layers, cemented sand, (slickensided) (CH)		60		End of boring at 60'.
				Bot: Brown clayey fine sand (SC)				
								WC=Water Content in percent of dry weight.
						65		
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MRCE Form BL-1

BORING NO. M-11

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. M-11
SHEET 3 OF 3
FILE NO. 9976A
SURFACE ELEV. 196.3
DATUM USGS

PROJECT DC USA
LOCATION WASHINGTON, D.C.
BORING LOCATION SEE BORING LOCATION PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	19
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS NW

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-3/4
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
10-08-03	13:30	58.5	19	16.8	MUDLEVEL AT COMPLETION OF BOREHOLE.
10-08-03	5:45	58.5	19	26.8	OVERNIGHT.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.		
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.		
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, INC.
DRILLER RONALD STIDHAM HELPERS RANDALL BRUMMETT
REMARKS BOREHOLE WAS GROUTED UPON COMPLETION.
RESIDENT ENGINEER BILL HOBSON DATE 10-09-03

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-12P
SHEET 1 OF 4
FILE NO. 9976A
SURFACE ELEV. 194.2
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, DC

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
09:00	1D	0.0	12-9	Top: Gray f-c sand, sm gravel, silt (Fill) (SM)			23	Drilled ahead of
10-06-03		2.0	9-7	Bot: Brn cl f-m sand, tr gravel, mica (Fill) (SC)			10	casing to 15'.
Monday	2D	2.0	5-4	Stiff brown silty clay, trace fine sand (Fill) (CL)			10	WC=18
Partly		4.0	6-7				9	
Cloudy	3D	4.0	4-4	Stiff gray brown fine sandy clay, trace brick (Fill)		5	USED	WC=18
		6.0	5-5	(CL)			MUD	
	NR	6.5	3-4	No recovery				
		8.5	4-6		F			
	4D	9.0	1-2	Medium gray silty clay, trace fine sand, fine		10		WC=19
		11.0	2-6	sand layers, gravel (Fill) (CL)				
	5D	11.5	3-3	Top: Med brn gry si cl, tr vegetation (Fill) (CL)				
		13.5	6-20	Bot: Brown f-c sand, some gravel, clay, trace		13		
				cemented sand (SC)	T3	14		
	6D	14.0	4-5	Gray pink silty fine to medium sand, trace		15		
		16.0	8-11	gravel, clay (SM)				
	7D	19.0	7-9	Gray pink fine to medium sand, some silt,		20		
		20.5	13	trace clay (SM)				
	8D	24.0	3-6	Top: Stiff gray clayey, silt, tr fine sand (MH)		25		WC=38
		25.5	8	Bot: Brown silty fine to medium sand, trace				
				clay (SM)				
	9D	29.0	6-8	Gray medium to fine sand, some silt, trace		30		
		30.5	13	gravel, clay, clayey silt pockets (SM)				
					P2			
	10D	34.0	6-10	Gray brown medium to fine sand, some silt,		35		
		35.5	12	trace clay, gravel (SM)				
								Lost 100 gallons of drilling fluid at 39.5'.
	11D	39.0	4-2	Gray medium to fine sand, some silt, trace		40		
		41.0	1-1	coarse sand, gravel, clay (SM)				Drove 4" casing to 44' to stop loss of drilling fluid.
14:00								
07:00	12D	44.0	8-9	Gray brown medium to fine sand, some silt,		45		
10-07-03		45.5	11	trace gravel, clay (SM)				
Tuesday								
Partly								
Cloudy	13D	49.0	5-8	Gray brown medium to fine sand, some silt,		50		
		50.5	13	trace clay (SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. M-12P
SHEET 2 OF 4
FILE NO. 9976A
SURFACE ELEV. 194.2
RES. ENGR. BILL HOBSON

PROJECT: DC USA
LOCATION: WASHINGTON, DC

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							USED	
							MUD	
10-07-03					P2			
Tuesday	14D	54.0	10-12	Do 13D (SM)		55		
		55.5	16					
						58		
	15D	58.5	6-8	Stiff gray brown silty clay (Fissured) (CL)	P1			WC=33
10:00		60.0	12			60		End of boring at 60'.
								WC=Water Content in percent of dry weight.
						65		
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MRCE Form BL-1

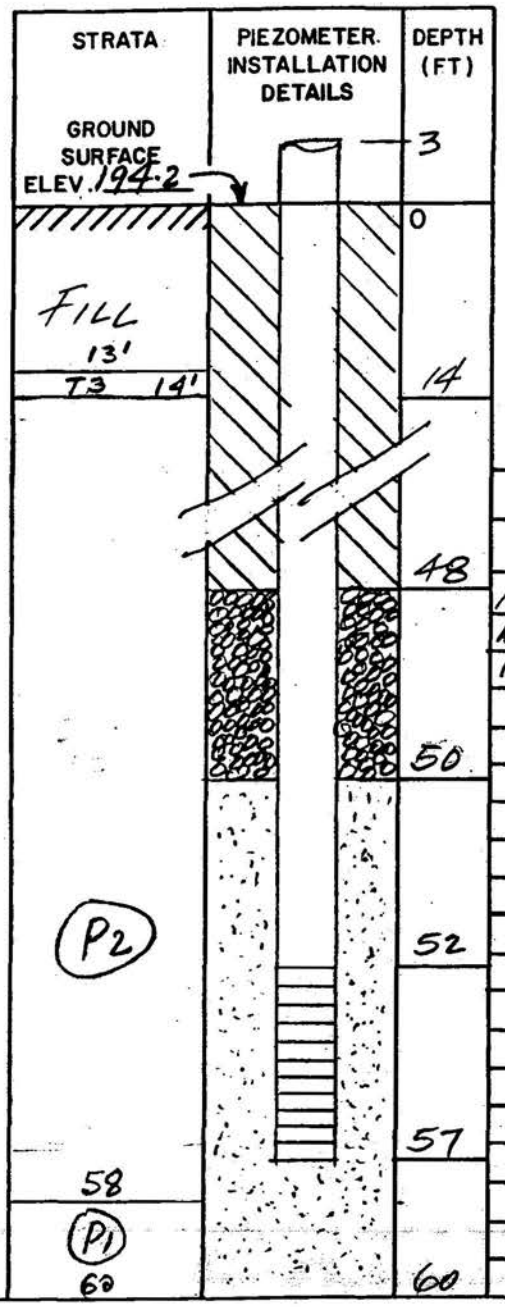
BORING NO. M-12P

SHEET 3 OF 4
FILE NO. 9976A
SUBCODE

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT DCUSA — PIEZOMETER NO. M-12P
LOCATION WASHINGTON, D.C
PIEZOMETER LOCATION SEE BORING LOCATION PLAN — DATE OF INSTALLATION 10/7/03
☐ SEE SKETCH ON BACK — RES. ENG. B. HOBSON



PIEZOMETER TYPE SLOTTED PVC

INTAKE POINT

depth to bottom, ft = 60
depth to top, ft = 50
length, ft = 10 = L
diameter, in = 3-3/4, ft = 0.313 = 2R

STANDPIPE/RISER

elevation of rim, ft = 197.2
diameter, in = 2, ft = 0.1667 = 2r

READING TIME		DEPTH – ~~RIM~~ 9.5 TO WATER	ELEVATION OF WATER	REMARKS
DATE	CLOCK			
10/9	1210	26.3	167.9	
10/17	1220	26.2	168.0	
10/29	11:30	26.1	168.1	

Sand Bentonite Gravel Grout

GROUND SURFACE ELEV. 194.2

PIEZOMETER NO. M-12P

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	M-12P
		SHEET	4 OF 4
PROJECT	DC USA	FILE NO.	9976A
LOCATION	WASHINGTON, DC	SURFACE ELEV.	194.2
BORING LOCATION	AS STAKED	DATUM	USGS

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES	[ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	44
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:					
D-SAMPLER	2" O.D. SPLIT SPOON	DRILLING MUD USED	[X] YES	[ ] NO	
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-1/2		
S-SAMPLER		TYPE OF DRILLING MUD	QUIK-GEL		
CORE BARREL		AUGER USED	[ ] YES	[X] NO	
CORE BIT		TYPE AND DIAMETER, IN.			
DRILL RODS	NW				

*CASING HAMMER, LBS.	140	AVERAGE FALL, IN.	30
*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30

*AUTO HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					FOR WATER LEVEL READINGS SEE SHEET 3.

PIEZOMETER INSTALLED [X] YES [ ] NO SKETCH SHOWN ON SHEET 3

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	55	TOP ELEV.	197.5
INTAKE ELEMENT:	TYPE	SLOTTED PVC	OD, IN.	2-1/2	LENGTH, FT.	5	TIP ELEV.	136.5
FILTER:	MATERIAL	SAND	OD, IN.	3-3/4	LENGTH, FT.	10	BOT. ELEV.	133.5

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	60	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR GEO SERVICES, INC.

DRILLER RONALD STIDHAM HELPERS RANDALL BRUMMETT

REMARKS BOREHOLE WAS GROUTED FROM 2 TO 48 FEET.

RESIDENT ENGINEER BILL HOBSON DATE 10-07-03

E

CLARK CONSTRUCTION SMOOT CONSTRUCTION

DC USA - A JOINT VENTURE

December 6, 2004

D.C. Board of Zoning Adjustment
Suite 210
441 4th Street, N.W.
Washington, DC 20001

Regarding: DC USA at Columbia Heights
Washington, DC

To whom it may concern:

We understand that zoning regulations require that 1,592 parking spaces be provided. The RLA Revitalization Corp. is requesting a reduction in the number of parking spaces to meet market demand and deal with the unique site conditions of this project. The design currently provides, 1,000 parking spaces in two levels of below-grade parking. To provide the total amount required by zoning would require the construction of a full third level and a partial fourth level of parking. We have estimated the cost premiums indicated below:

Option 1 - 1,000 Spaces on Two Levels

Level	# of Spaces	Cost	$/SF	$/Car
1 & 2	1,000	$27,645,000	$67	$27,600

Option 2 – Use of Zoning Special Exception to Provide 1,209 Spaces on Three Levels

Level	# of Spaces	Cost	$/SF	$/Car
1 & 2	1,000	$27,648,000	$67	$27,600
3	209	$9,140,000	$102	$43,700

Option 3 – Zoning As-of Right – 1,592 spaces on Four Levels

Level	# of Spaces	Cost	$/SF	$/Car
1 & 2	1,000	$27,648,000	$67	$27,600
3	500	$17,510,000	$85	$35,000*
4	92	$6,359,000	$137	$69,000*

(*Note: Combined 3rd and 4th levels equals $40,000/space.)

The cost premiums result from the following items:

7500 Old Georgetown Road
Bethesda, Maryland 20814-6196

Writer's Direct Dial 301 272-7046

CLARK CONSTRUCTION SMOOT CONSTRUCTION

DC USA - A JOINT VENTURE

Groundwater Levels – The Subsurface Investigation report prepared by Mueser Rutledge, dated April 13, 2004, indicates that actual groundwater would be approximately 6-8' above the finished floor elevation of the 3rd parking level. Project construction costs and time will be significantly increased to handle major site dewatering and higher soil stabilization costs associated with deeper excavation in super saturated soils. Mitigation of this problem for the life of the building will require an extensive drainage and waterproofing system added to the current design. Increased safety risks during construction and ongoing flooding risks during the life of the building will need to be dealt with. Other continual costs may include a pumping system (including a connection and increased sizing to the emergency generator), and District dewatering charges. There are also operational costs involved including the electrical consumption charges for the pumping system that are not included in the estimate above. A fourth parking level may also require a thicker slab on grade.

WMATA Tunnel - A WMATA subway tunnel runs adjacent to the site on 14th Street. According to the structural engineers, there would be a premium associated with the additional WMATA Surcharge as well as increased monitoring costs. There will also be additional monitoring costs for constructing the third and fourth levels.

Sheeting/Shoring/Underpinning Premium – The additional parking levels are much more difficult for sheeting and shoring and involve exponentially higher loads on the sheeting as the excavation gets deeper. Therefore the cost of sheeting/shoring/underpinning is substantially higher than the upper floors. Support of the existing façade will also increase.

Design Inefficiencies – Adding additional parking levels require that many design elements that are not based on the number of cars, such as elevators, exit stairs and parking ramps be extended to the lower levels. This results in an extremely high incremental cost per parking spot. In addition, the additional parking levels may increase the size of garage exhaust ventilation ductwork that must run through the building to the roof. All exhaust fans serving these areas will need to be increased accordingly.

Increased Construction Schedule - The third parking level will add approximately four months to the overall construction schedule and the partial fourth parking level an additional two months. This will result in additional costs for project management, and construction general conditions.

Exposure to Unforeseen Conditions - The deeper the excavation, the higher the risk of project exposure to the unexpected. These exposures may be in the form of unsuitable materials, undocumented utilities and/or adverse weather conditions. The success of the construction project is largely how quick we can get out of the hole and get the shell of the building completed and dried-in. Normal excavations are vulnerable to adverse weather conditions. Deep excavations in supersaturated soils with continual dewatering systems are very vulnerable and unfortunately have longer exposure periods due to the many related support activities and safety measures that must be taken.

7500 Old Georgetown Road
Bethesda, Maryland 20814-6196

Writer's Direct Dial 301 272-7046

CLARK CONSTRUCTION SMOOT CONSTRUCTION

DC USA - A JOINT VENTURE

Yours truly,

CLARK CONSTRUCTION GROUP, LLC

Kenneth C. Carlson
Vice President

7500 Old Georgetown Road
Bethesda, Maryland 20814-6196

Writer's Direct Dial 301 272-7046

Grid Properties
DC USA at Columbia Heights
Washington, DC

BUDGET COMPARISON TO BASE
TWO (2) LEVEL GARAGE
December 6, 2004
Based on Current Pricing

Parameter	3rd Level 90,000s.f./209 spaces Premium Cost/Space	3rd & 4th Levels 254,000s.f./592 spaces Premium Cost/Space
Excavation and Dewatering Premiums Due to Depth	$1,700	$1,400
Support of Excavation Premiums Due to WMATA	1,200	900
Structural Premiums Due to Depth, Efficiency and Water	6,500	4,900
Additional Waterproofing Due to Water Table	1,000	500
Building Finish Premium Due to Reduced Efficiency	700	600
Elevator Premium Due to Reduced Efficiency	500	200
Mechanical Premium for Additional Pumps	500	200
Electrical Premium Due to Reduced Efficiency	200	
SUBTOTAL	$12,100	$8,700
Mark-Ups and Contingencies	$4,000	$2,900
PREMIUM COST/SPACE	$16,100	$11,400

Over and Above 2 Level Garage

Grid Properties
DC USA at Columbia Heights
Washington, DC

PRELIMINARY BUDGET ESTIMATE OF CONSTRUCTION COST

December 6, 2004
Based on Current Pricing
Add Third level and Partial Fourth level, 254,000sf, 592 Spaces

	Below Grade		Totals
	Parking & Loading	**Davis Bacon Premium Parking & Loading**	**Total with Davis Bacon Premium**
Sitework			$0
Building Excavation	$3,316,000	$88,000	$3,404,000
Support of Excavation	1,756,000	$105,000	$1,861,000
Deep Foundations			$0
Structure	8,682,000	$434,000	$9,116,000
Exterior Skin Envelope			$0
Roofing & Waterproofing	475,000	$48,000	$523,000
Exterior Soffit		$0	$0
General Building Finishes	1,114,000	$111,000	$1,225,000
Vertical Transportation	400,000		$400,000
Mechanical System	1,524,000	$76,000	$1,600,000
Electrical System	1,019,000	$71,000	$1,090,000
Railroad Insurance	27,000	0	$27,000
Builder's Risk Insurance	77,000	4,000	$81,000
General Liability Insurance	138,000	7,000	$145,000
SUBTOTAL	$18,528,000	$944,000	$19,472,000
General Conditions	$1,038,000		$1,038,000
General Contractor's Bond	157,000	9,000	$166,000
Fee	838,000	41,000	$879,000
Pricing Contingency 3 %	617,000	30,000	$647,000
SUBTOTAL	21,178,000	1,024,000	22,202,000
Cost per SF	$83.38 /sf	$4.03 /sf	$87.41 /sf
Gross Area (SF)	254,000 sf	254,000 sf	254,000 sf
Design Contingency 3 %	635,000	31,000	666,000
Construction Contingency 3 %	635,000	31,000	666,000
Escalation 1.5%	318,000	17,000	335,000
TOTAL BUDGET	$22,766,000	**$1,103,000**	$23,869,000

CLARK/SMOOT A Joint Venture	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
BUILDING EXCAVATION				
BUILDING EXCAVATION				
Abate Underground Fuel Oil Storage Tanks	ea			Exclude
Abate Contaminated Soils	cy			Exclude
Building Cut & Haul	cy	115,000	26.00	2,990,000
Excavation & backfill for interior wall layback	cy	1,600	20.00	32,000
Foundation, Footing & Pit Excavation Premium	cy	6,720	8.00	53,760
Foundation, Footing & Pit Backfill Premium	cy	3,360	3.00	10,080
Foundation, Footing & Pit Excavation	cy	1,500	40.00	60,000
Hand Backfill & Hand Excavation Work	ls			20,000
DC water discharge fees for dewatering - **Allowance**	ls			Exclude
Groundwater control & sumping premium	ls			150,000
BUILDING EXCAVATION TOTAL	cy	115,000	28.83	~~3,315,840~~
			USE	$3,316,000
SUPPORT OF EXCAVATION				
Sheeting & Shoring & support of existing adjacent structures	sf	38,000	37.00	1,406,000
WMATA support of excavation premium	sf	10,000	20.00	200,000
WMATA Monitoring & Survey premium	ls			150,000
SUPPORT OF EXCAVATION TOTAL	sf	38,000	46.21	~~1,756,000~~
			USE	$1,756,000
STRUCTURE BELOW GRADE				
Concrete Foundations	cy	1,250	280.00	350,000
Concrete Foundation Wall	sf	38,000	26.00	988,000
Concrete Interior ramp Walls	sf	5,600	25.00	140,000
Shear walls	sf	5,000	30.00	150,000
Premium for Thickened Slab on Grade	sf	190,000	6.00	1,140,000
Concrete Supported Slab	sf	254,000	21.70	5,511,800
DCI in Concrete Slabs	cy	5,600	30.00	168,000
Concrete CIP Stairs	flight	8	6,790	54,320
Winter protection & heat - Masonry, Fireproofing & Concrete	sf	254,000	0.20	50,800
Concrete Misc. Fills, Curbs, Pads, etc.	cy	40	2,000.00	80,000
Expansion Joints	lf	980	50.00	49,000
STRUCT. BELOW GRADE TOTAL	sf	254,000	34.18	~~8,681,920~~
			USE	$8,682,000

CLARK/SMOOT A Joint Venture	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
ROOFING & WATERPROOFING				
WATERPROOFING				
Foundation Drain tile	lf	2,000	15.00	30,000
Underslab Drainage	sf	190,000	0.40	76,000
Heavy Duty Vapor Barrier at SOG	sf	190,000	1.00	190,000
Garage Slab Sealer	sf	90,000	0.30	27,000
Vertical Bentonite Panels	sf	38,000	2.50	95,000
Vertical Drainage Board	sf	38,000	1.50	57,000
ROOFING & W.P. TOTAL	sf	254,000	1.87	~~475,000~~
			USE	$475,000
GENERAL BUILDING FINISHES				
PARTITIONS				
Masonry CMU Partitions	sf	34,000	10.00	340,000
BUILDING FINISHES :				
REMAINING BUILDING FINISHES:				
FLOOR FINISHES :				
Paint / Seal Concrete Floor	sf			In Waterproofing
Parking space Striping	space	612	10.00	6,120
Elevator lobby floor	sf	4,000	8.00	32,000
CEILING FINISHES :				
Painting of exposed ceilings at garage	ls			Exclude
Gypsum board bulkheads at lobby	sf	5,000	5.00	25,000
Spray-On Insulation	ls			Exclude
WALL FINISHES :				
Paint CMU Walls	sf	67,000	0.50	33,500
Floor Identification Color code on columns	sf	36,000	0.80	28,800
Paint Garage Exposed Conc. Walls & Columns	sf	73,000	0.50	36,500
DOORS, FRAMES & HARDWARE:				
Hollow Metal Doors, Frames & Hardware	leaf	34	825.00	28,050

CLARK/SMOOT A Joint Venture	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
SPECIALTIES:				
Ramp Divider Railings	lf	1,680	85.00	142,800
Stair Railings	Flight	8	2,500.00	20,000
Corner Guards	lf	9,000	14.00	126,000
Louvers	sf	4,760	25.00	119,000
Signage	ls			15,000
Fire Extinguishers & Cabinets	ea	42	200.00	8,400
Final Building Cleaning	sf	254,000	0.10	25,400
Rough Carpentry	gsf	254,000	0.10	25,400
Interior Caulking	gsf	254,000	0.10	25,400
Interior Misc. Metals	gsf	254,000	0.30	76,200
GEN. BUILD. FINISH TOTAL	sf	254,000	4.38	~~1,113,570~~
			USE	$1,114,000
VERTICAL TRANSPORTATION				
Budget Allocation from Retail Building Budget	stop	16	25,000	400,000
VERTICAL TRANSPORT. TOTAL	Stops			~~400,000~~
			USE	$400,000
MECHANICAL SYSTEM				
PARKING				
Garage/Storage Ventilation - **Allowance**	sf	254,000	2.90	736,600
Carbon Monoxide Monitoring - **Allowance**	sf	254,000	0.35	88,900
Garage/Storage Drainage	sf	254,000	1.25	317,500
Garage/Storage Sprinklers	sf	254,000	1.50	381,000
MECHANICAL SYSTEM TOTAL	sf	254,000	6.00	~~1,524,000~~
			USE	$1,524,000
ELECTRICAL SYSTEM				
PARKING				
Building Systems (Switchgear, Panel Boards. Emergency, Fire Alarm)	sf	254,000	1.95	495,300
Interior Lighting	sf	254,000	1.10	279,400
Wiring Devices	sf	254,000	0.17	43,180
HVAC & Electrical Power	sf	254,000	0.40	101,600
Temporary Power	ls			100,000
ELECTRICAL SYSTEM TOTAL	sf	254,000	4.01	~~1,019,480~~
			USE	$1,019,000

Grid Properties
DC USA at Columbia Heights
Washington, DC

PRELIMINARY BUDGET ESTIMATE OF CONSTRUCTION COST

December 6, 2004
Based on Current Pricing
Two Level Garage, 1,000 spaces, 411,400sf

	Below Grade		**Totals**
	Parking & Loading	**Davis Bacon Premium Parking & Loading**	**Total with Davis Bacon Premium**
Sitework			$0
Building Excavation	$4,070,000	$108,000	$4,178,000
Support of Excavation	1,931,000	$116,000	$2,047,000
Deep Foundations			$0
Structure	9,466,000	$473,000	$9,939,000
Exterior Skin Envelope			$0
Roofing & Waterproofing	197,000	$20,000	$217,000
Exterior Soffit		$0	$0
General Building Finishes	1,202,000	$120,000	$1,322,000
Vertical Transportation	400,000		$400,000
Mechanical System	2,294,000	$115,000	$2,409,000
Electrical System	1,639,000	$115,000	$1,754,000
Railroad Insurance	27,000	0	$27,000
Builder's Risk Insurance	90,000	4,000	$94,000
General Liability Insurance	160,000	8,000	$168,000
SUBTOTAL	$21,476,000	$1,079,000	$22,555,000
General Conditions	$1,203,000		$1,203,000
General Contractor's Bond	183,000	11,000	$194,000
Fee	972,000	46,000	$1,018,000
Pricing Contingency 3 %	715,000	34,000	$749,000
SUBTOTAL	24,549,000	1,170,000	25,719,000
Cost per SF	$59.67 /sf	$2.84 /sf	$62.52 /sf
Gross Area (SF)	411,400 sf	411,400 sf	411,400 sf
Design Contingency 3 %	736,000	35,000	771,000
Construction Contingency 3 %	736,000	35,000	771,000
Escalation 1.5%	368,000	19,000	387,000
TOTAL BUDGET	$26,389,000	**$1,259,000**	$27,648,000

CLARK/SMOOT
A Joint Venture

	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
BUILDING EXCAVATION				
BUILDING EXCAVATION				
Abate Underground Fuel Oil Storage Tanks	ea			Exclude
Abate Contaminated Soils	cy			Exclude
Building Cut & Haul	cy	170,000	22.00	3,740,000
Excavation & backfill for interior wall layback	cy	1,200	20.00	24,000
Foundation, Footing & Pit Excavation	cy	6,720	30.00	201,600
Foundation, Footing & Pit Backfill	cy	3,360	20.00	67,200
Hand Backfill & Hand Excavation Work	ls			45,000
DC water discharge fees for dewatering - **Allowance**	ls			Exclude
Groundwater control & sumping premium	ls			30,000
Target Allocation				(38,000)
BUILDING EXCAVATION TOTAL	cy	170,000	23.94	~~4,069,800~~
			USE	$4,070,000
SUPPORT OF EXCAVATION				
Sheeting & Shoring & support of existing adjacent structures	sf	52,085	35.00	1,822,975
WMATA support of excavation premium	sf	10,800	10.00	108,000
WMATA Monitoring & Survey premium	ls			Exclude
SUPPORT OF EXCAVATION TOTAL	sf	52,085	37.07	~~1,930,975~~
			USE	$1,931,000
STRUCTURE BELOW GRADE				
Concrete Foundations	cy	6,719	280.00	1,881,320
Slab on Grade	sf	204,909	6.10	1,249,945
Concrete Foundation Wall	sf	48,000	24.50	1,176,000
Concrete Interior ramp Walls	sf	8,000	24.50	196,000
Shear walls	sf	5,000	28.00	140,000
Concrete Supported Slab	sf	196,000	21.70	4,253,200
DCI in Concrete Slabs	cy	6,272	30.00	188,160
Concrete Plaza Slab	sf	26,800	21.70	581,560
Target Allocation plaza				(312,000)
Concrete CIP Stairs	flight	13	6,790	88,270
Winter protection & heat - Masonry, Fireproofing & Concrete	sf	411,400	0.20	82,280
Concrete Misc. Fills, Curbs, Pads, etc.	cy	67	2,000.00	134,000
Expansion Joints	lf	980	50.00	49,000
Target Allocation footings				(242,000)
STRUCT. BELOW GRADE TOTAL	sf	411,400	23.01	~~9,465,735~~
			USE	$9,466,000

CLARK/SMOOT A Joint Venture	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
ROOFING & WATERPROOFING				
WATERPROOFING				
Foundation Drain tile	lf	2,000	15.00	Exclude
Underslab Drainage	sf	196,100	0.40	Exclude
Garage Slab Sealer	sf	386,000	0.30	115,800
Loading Dock Traffic Coating	sf	26,800	4.00	107,200
Target Allocation	ls			(42,000)
Horizontal Membrane Waterproofing	sf	2,100	3.00	6,300
Horizontal protection board	sf	2,100	1.00	2,100
Vertical Bentonite Panels	sf	48,000	2.50	Exclude
Vertical Drainage Board	sf	48,000	1.50	Exclude
Metallic Waterproofing - Elevator Pits	sf	1,600	5.00	8,000
ROOFING & W.P. TOTAL	sf	254,000	0.78	~~197,400~~
			USE	$197,000
GENERAL BUILDING FINISHES				
PARTITIONS				
Masonry CMU Partitions	sf	34,000	10.00	340,000
BUILDING FINISHES :				
Parking Garage Manager and Toilet Room	sf	250	50.00	12,500
REMAINING BUILDING FINISHES:				
FLOOR FINISHES :				
Paint / Seal Concrete Floor	sf			In Waterproofing
Parking space Striping	space	1,000	10.00	10,000
Elevator lobby floor	sf	4,365	8.00	34,920
CEILING FINISHES :				
Painting of exposed ceilings at garage	ls			Exclude
Gypsum board bulkheads at lobby	sf	5,000	5.00	25,000
Spray-On Insulation	ls			Exclude
WALL FINISHES :				
Paint CMU Walls	sf	67,000	0.50	33,500
Floor Identification Color code on columns	sf	12,800	0.80	10,240
Paint Garage Exposed Conc. Walls & Columns	sf	61,000	0.50	30,500
DOORS, FRAMES & HARDWARE:				
Hollow Metal Doors, Frames & Hardware	leaf	25	825.00	20,625

CLARK/SMOOT A Joint Venture	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
SPECIALTIES:				
Parking Equipment	ls			80,000
Ramp Divider Railings	lf	1,250	85.00	106,250
Stair Railings	Flight	8	2,500.00	20,000
Corner Guards	lf	6,500	14.00	91,000
Louvers	sf	3,500	25.00	87,500
Signage	ls			35,000
Fire Extinguishers & Cabinets	ea	42	200.00	8,400
Bike Storage	ls			10,000
Final Building Cleaning	sf	411,400	0.10	41,140
Rough Carpentry	gsf	411,400	0.10	41,140
Interior Caulking	gsf	411,400	0.10	41,140
Interior Misc. Metals	gsf	411,400	0.30	123,420
GEN. BUILD. FINISH TOTAL	sf	411,400	2.92	~~1,202,275~~
			USE	$1,202,000
VERTICAL TRANSPORTATION				
Budget Allocation from Retail Building Budget	stop	16	25,000	400,000
VERTICAL TRANSPORT. TOTAL	Stops			~~400,000~~
			USE	$400,000
MECHANICAL SYSTEM				
PARKING				
Garage/Storage Ventilation - **Allowance**	sf	411,400	2.90	1,193,060
Carbon Monoxide Monitoring - **Allowance**	sf	384,600	0.35	134,610
Garage/Storage Drainage	sf	411,400	0.85	349,690
Garage/Storage Sprinklers	sf	411,400	1.50	617,100
MECHANICAL SYSTEM TOTAL	sf	411,400	5.58	~~2,294,460~~
			USE	$2,294,000
ELECTRICAL SYSTEM				
PARKING				
Building Systems (Switchgear, Panel Boards, Emergency, Fire Alarm)	sf	411,400	1.95	802,230
Interior Lighting	sf	411,400	1.10	452,540
Wiring Devices	sf	411,400	0.17	69,938
HVAC & Electrical Power	sf	411,400	0.40	164,560
Temporary Power	ls			150,000
ELECTRICAL SYSTEM TOTAL	sf	411,400	3.98	~~1,639,268~~
			USE	$1,639,000

Grid Properties
DC USA at Columbia Heights
Washington, DC

PRELIMINARY BUDGET ESTIMATE OF CONSTRUCTION COST

December 6, 2004

Based on Current Pricing

Add Cost for Partial Third Level, 90,000sf, 209 Spaces

	Below Grade		**Totals**
	Parking & Loading	**Davis Bacon Premium Parking & Loading**	**Total with Davis Bacon Premium**
Sitework			$0
Building Excavation	$1,200,000	$32,000	$1,232,000
Support of Excavation	663,000	$40,000	$703,000
Deep Foundations			$0
Structure	3,338,000	$167,000	$3,505,000
Exterior Skin Envelope			$0
Roofing & Waterproofing	236,000	$24,000	$260,000
Exterior Soffit		$0	$0
General Building Finishes	406,000	$41,000	$447,000
Vertical Transportation	200,000		$200,000
Mechanical System	540,000	$27,000	$567,000
Electrical System	401,000	$28,000	$429,000
Railroad Insurance	27,000	0	$27,000
Builder's Risk Insurance	30,000	1,000	$31,000
General Liability Insurance	53,000	3,000	$56,000
SUBTOTAL	$7,094,000	$363,000	$7,457,000
General Conditions	$397,000		$397,000
General Contractor's Bond	60,000	4,000	$64,000
Fee	321,000	16,000	$337,000
Pricing Contingency 3 %	236,000	11,000	$247,000
SUBTOTAL	8,108,000	394,000	8,502,000
Cost per SF	$90.09 /sf	$4.38 /sf	$94.47 /sf
Gross Area (SF)	90,000 sf	90,000 sf	90,000 sf
Design Contingency 3 %	243,000	12,000	255,000
Construction Contingency 3 %	243,000	12,000	255,000
Escalation 1.5%	122,000	6,000	128,000
TOTAL BUDGET	$8,716,000	**$424,000**	$9,140,000

CLARK/SMOOT
A Joint Venture

	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
BUILDING EXCAVATION				
BUILDING EXCAVATION				
Abate Underground Fuel Oil Storage Tanks	ea			Exclude
Abate Contaminated Soils	cy			Exclude
Building Cut & Haul	cy	37,000	26.00	962,000
Excavation & backfill for interior wall layback	cy	1,200	20.00	24,000
Foundation, Footing & Pit Excavation Premium	cy	6,720	8.00	53,760
Foundation, Footing & Pit Backfill Premium	cy	3,360	3.00	10,080
Foundation, Footing & Pit Excavation	cy	1,000	40.00	40,000
Hand Backfill & Hand Excavation Work	ls			10,000
DC water discharge fees for dewatering - **Allowance**	ls			Exclude
Groundwater control & sumping premium	ls			100,000
BUILDING EXCAVATION TOTAL	cy	37,000	32.43	~~1,199,840~~
			USE	$1,200,000
SUPPORT OF EXCAVATION				
Sheeting & Shoring & support of existing adjacent structures	sf	13,200	37.00	488,400
WMATA support of excavation premium	sf	5,000	20.00	100,000
WMATA Monitoring & Survey premium	ls			75,000
SUPPORT OF EXCAVATION TOTAL	sf	13,200	50.26	~~663,400~~
			USE	$663,000
STRUCTURE BELOW GRADE				
Concrete Foundations	cy	750	280.00	210,000
Concrete Foundation Wall	sf	13,200	26.00	343,200
Concrete Interior ramp Walls	sf	2,000	25.00	50,000
Shear walls	sf	2,500	30.00	75,000
Premium for Thickened Slab on Grade	sf	90,000	6.00	540,000
Concrete Supported Slab	sf	90,000	21.70	1,953,000
DCI in Concrete Slabs	cy	2,000	30.00	60,000
Concrete CIP Stairs	flight	4	6,790	27,160
Winter protection & heat - Masonry, Fireproofing & Concrete	sf	90,000	0.20	18,000
Concrete Misc. Fills, Curbs, Pads, etc.	cy	22	2,000.00	44,000
Expansion Joints	lf	350	50.00	17,500
STRUCT. BELOW GRADE TOTAL	sf	90,000	37.09	~~3,337,860~~
			USE	$3,338,000

CLARK/SMOOT A Joint Venture	Project:	DC USA at Columbia Heights		
	Job # :	01_6040		
	PRELIMINARY BUDGET ESTIMATE			
	DATE:	6-Dec-04		
Parking & Loading	50% Sche			
	Unit	Quantity	Unit Price	Amount
ROOFING & WATERPROOFING				
WATERPROOFING				
Foundation Drain tile	lf	2,000	15.00	30,000
Underslab Drainage	sf	90,000	0.40	36,000
Heavy Duty Vapor Barrier at SOG	sf	90,000	1.00	90,000
Garage Slab Sealer	sf	90,000	0.30	27,000
Vertical Bentonite Panels	sf	13,200	2.50	33,000
Vertical Drainage Board	sf	13,200	1.50	19,800
ROOFING & W.P. TOTAL	sf	254,000	0.93	~~235,800~~
			USE	$236,000
GENERAL BUILDING FINISHES				
PARTITIONS				
Masonry CMU Partitions	sf	12,000	10.00	120,000
BUILDING FINISHES :				
REMAINING BUILDING FINISHES:				
FLOOR FINISHES :				
Paint / Seal Concrete Floor	sf			In Waterproofing
Parking space Striping	space	209	10.00	2,090
Elevator lobby floor	sf	2,000	8.00	16,000
CEILING FINISHES :				
Painting of exposed ceilings at garage	ls			Exclude
Gypsum board bulkheads at lobby	sf	2,500	5.00	12,500
Spray-On Insulation	ls			Exclude
WALL FINISHES :				
Paint CMU Walls	sf	24,000	0.50	12,000
Floor Identification Color code on columns	sf	6,400	0.80	5,120
Paint Garage Exposed Conc. Walls & Columns	sf	26,000	0.50	13,000
DOORS, FRAMES & HARDWARE:				
Hollow Metal Doors, Frames & Hardware	leaf	12	825.00	9,900

CLARK/SMOOT
A Joint Venture

Project: DC USA at Columbia Heights
Job # : 01_6040
PRELIMINARY BUDGET ESTIMATE
DATE: 6-Dec-04
Parking & Loading — 50% Sche

	Unit	Quantity	Unit Price	Amount
SPECIALTIES:				
Ramp Divider Railings	lf	600	85.00	51,000
Stair Railings	Flight	4	2,500.00	10,000
Corner Guards	lf	3,200	14.00	44,800
Louvers	sf	1,700	25.00	42,500
Signage	ls			10,000
Fire Extinguishers & Cabinets	ea	15	200.00	3,000
Final Building Cleaning	sf	90,000	0.10	9,000
Rough Carpentry	gsf	90,000	0.10	9,000
Interior Caulking	gsf	90,000	0.10	9,000
Interior Misc. Metals	gsf	90,000	0.30	27,000
GEN. BUILD. FINISH TOTAL	sf	90,000	4.51	~~405,910~~
			USE	$406,000
VERTICAL TRANSPORTATION				
Budget Allocation from Retail Building Budget	stop	8	25,000	200,000
VERTICAL TRANSPORT. TOTAL	Stops			~~200,000~~
			USE	$200,000
MECHANICAL SYSTEM				
PARKING				
Garage/Storage Ventilation - **Allowance**	sf	90,000	2.90	261,000
Carbon Monoxide Monitoring - **Allowance**	sf	90,000	0.35	31,500
Garage/Storage Drainage	sf	90,000	1.25	112,500
Garage/Storage Sprinklers	sf	90,000	1.50	135,000
MECHANICAL SYSTEM TOTAL	sf	90,000	6.00	~~540,000~~
			USE	$540,000
ELECTRICAL SYSTEM				
PARKING				
Building Systems (Switchgear, Panel Boards, Emergency, Fire Alarm)	sf	90,000	1.95	175,500
Interior Lighting	sf	90,000	1.10	99,000
Wiring Devices	sf	90,000	0.17	15,300
HVAC & Electrical Power	sf	90,000	0.40	36,000
Temporary Power	ls			75,000
ELECTRICAL SYSTEM TOTAL	sf	90,000	4.45	~~400,800~~
			USE	$401,000