

22420A



A11: Additional Information
Must be typewritten.

121324717
Orient and affix BIS job number label here

Page number 1 of 1 BIS Document No. _____

1 Location and Job Information Required for all applications.

House No(s) 21 Street Name West End Avenue
Borough Manhattan Block 1171 Lot 164 BIN 1088870 CB No. 107

2 Revisions to Plans/Drawings Required whenever updating plans. All revisions for each page must be clearly described in section 3.

Submission is part of a Post Approval Amendment (PAA)? Yes PW1 required No Indicate all actions for this submission:

Action	Original/New/Omit Page ID	Superseding Page ID	Action	Original/New/Omit Page ID	Superseding Page ID	Action	Original/New/Omit Page ID	Superseding Page ID	Action	Original/New/Omit Page ID	Superseding Page ID

For "Action" use "N" for new page, "S" for superseding page, "O" for omitting page. Is this section continued on additional A11 forms? Yes No

3 Additional Information Required for all applications.

We have included and relied upon additional borings performed by others at the project site. The borings were performed by Mueser Rutledge Consulting Engineers. To our knowledge, the borings were performed in general accordance with ASTM D1586 - Standard Test Method for Standard Penetration Test, and other Building Code requirements. The boring logs are reproduced and attached for reference.

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

Name (please print) Alan R. Poepfel
Signature Alan R. Poepfel Date 9/27/12
P.E. / R.A. Seal (apply seal, then sign and date over seal)



**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-1
SHEET 2 OF 3
FILE NO. 10169C
SURFACE ELEV. 13
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

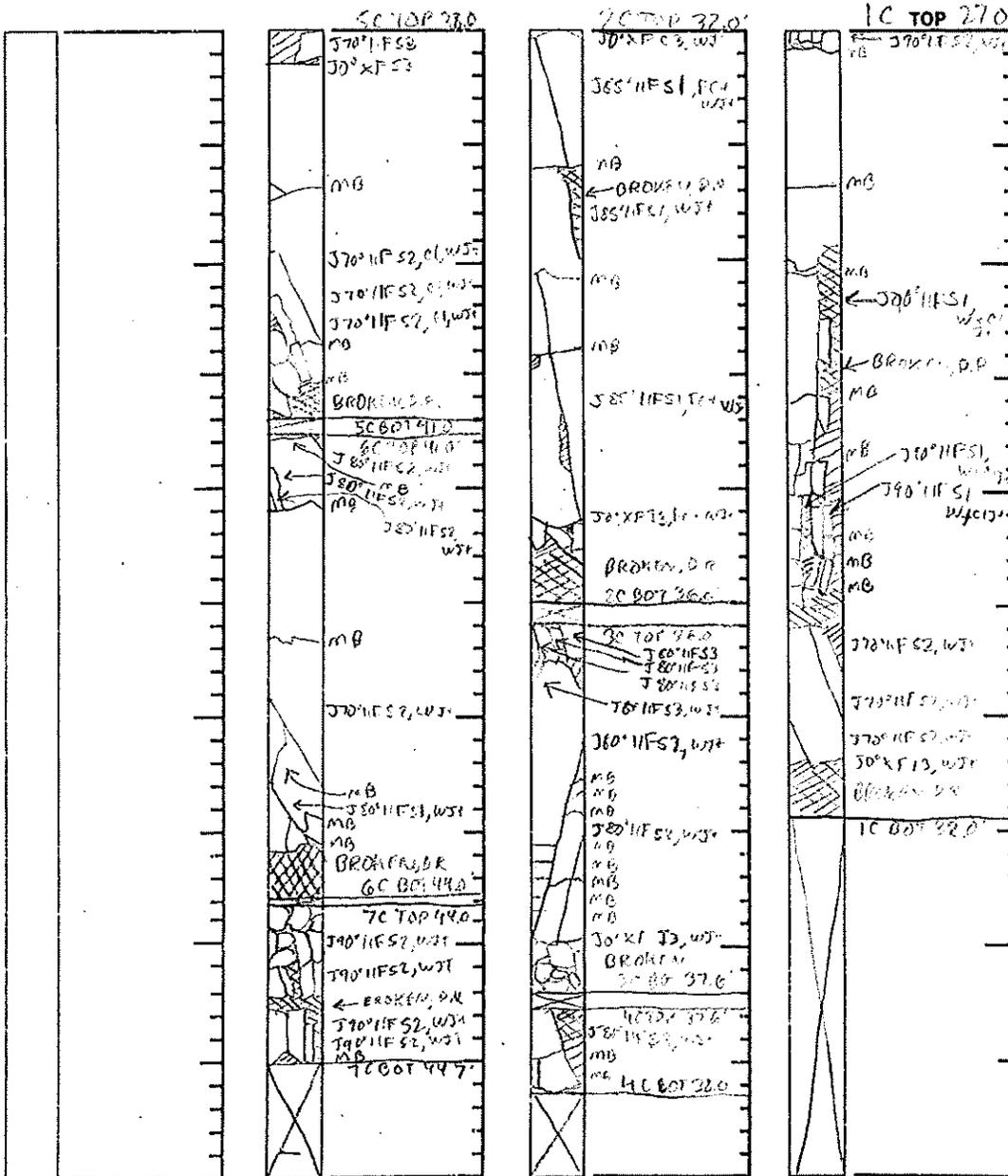
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD
5C	57/27
6C	67/27
7C	100/0

Run No.	REC / RQD
2C	63/0
3C	100/0
4C	100/0

Run No.	REC / RQD
1C	69/16



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- ∠ - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Silky
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- [Symbol] Joint
- [Symbol] Healed Joint
- [Symbol] Broken
- [Symbol] Part of Core Not Recovered
- [Symbol] Cavities or Vugs in Core
- [Symbol] Clay
- [Symbol] Sand
- [Symbol] Empty Space

SCALE: 1 division = 0.1 feet

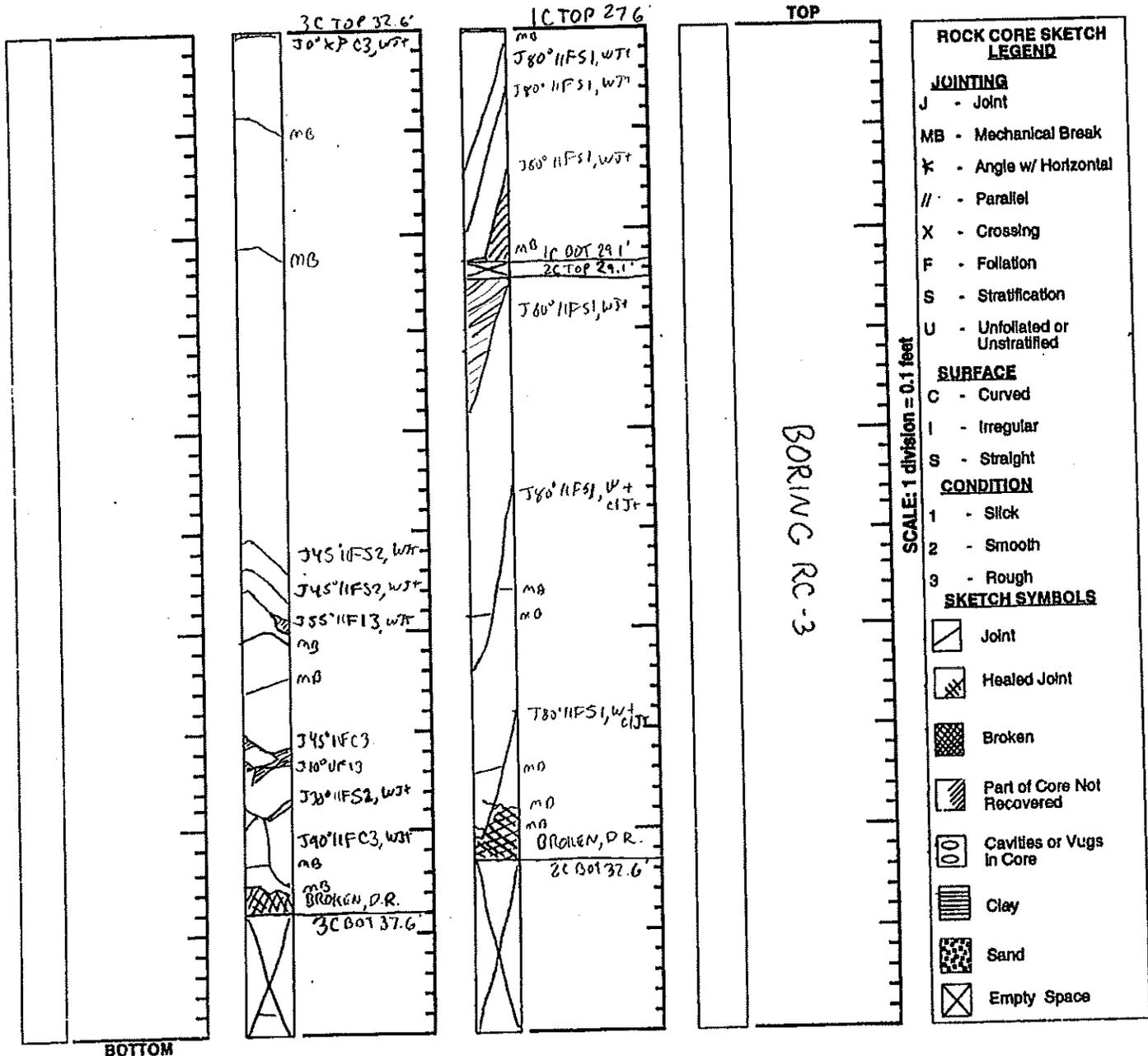
NOTES _____

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-2P
SHEET 2 OF 4
FILE NO. 10164C
SURFACE ELEV. 13.4
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2
LOCATION NEW YORK NY

Run No.	REC / RQD						
		3C	88/59	1C	77/50		
				2C	83/57		



NOTES

MRCE Form BS-1

PROJECT RIVER CENTER BUILDING 2 **BORING NO.** RC-2P
LOCATION NEW YORK, NEW YORK **SHEET** 4 **OF** 4
BORING LOCATION SEE BORING LOCATION PLAN **FILE NO.** 10164C
DATE BOROUGH PRESIDENT OF MANHATTAN **START DATE** 13.4

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG TRUCK **TYPE OF FEED DURING CORING** MECHANICAL **CASING USED** YES NO
ACKER SOIL MAX MECHANICAL **DIA., IN.** 4 **DEPTH, FT. FROM** 0 **TO** 23.5
SKID HYDRAULIC **DIA., IN.** X **DEPTH, FT. FROM** **TO**
BARGE OTHER **DIA., IN.** **DEPTH, FT. FROM** **TO**
OTHER

TYPE AND SIZE OF: **DRILLING MUD USED** YES NO
D-SAMPLER 2" O. D. SPLIT SPOON **DIAMETER OF ROTARY BIT, IN.** 4-3/4, 3-3/4
U-SAMPLER **TYPE OF DRILLING MUD**
S-SAMPLER
CORE BARREL NX DOUBLE TUBE **AUGER USED** YES NO
CORE BIT NX DIAMOND BIT **TYPE AND DIAMETER, IN.**
DRILL RODS NWJ
***CASING HAMMER, LBS.** 300 **AVERAGE FALL, IN.** 30
***SAMPLER HAMMER, LBS.** 140 **AVERAGE FALL, IN.** 30
***USED DONUT HAMMER.**

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-06-11	07:00	10	9	0.4	MORNING WATER READING RODS LEFT IN HOLE.
06-06-11	10:30	37.6	23.5	8.5	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED YES NO **SKETCH SHOWN ON** SEE SHEET NO. 3

STANDPIPE: **TYPE** PVC PIPE **ID, IN.** 2 **LENGTH, FT.** 7 **TOP ELEV.** 13.4
INTAKE ELEMENT: **TYPE** PVC SLOTTED PIPE **OD, IN.** 2-1/2 **LENGTH, FT.** 30 **TIP ELEV.** 9.1
FILTER: **MATERIAL** SAND **OD, IN.** 4 **LENGTH, FT.** 33.3 **BOT. ELEV.** -24.2

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING **LIN. FT.** 27.6 **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.** 10 **OTHER:**

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER MICHAEL MCERLEAN **HELPERS** WALTER MALINOWSKI
REMARKS PIEZOMETER INSTALLED.
RESIDENT ENGINEER DANIEL GEORGE **DATE** 06-06-11
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** A. KLAETSCH

LOG

ENGINE NO. RC-3
 SHEET NO. 4
 FILE NO. 10164C
 SURVEY ELEV. 19.4
 DESIGNER DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

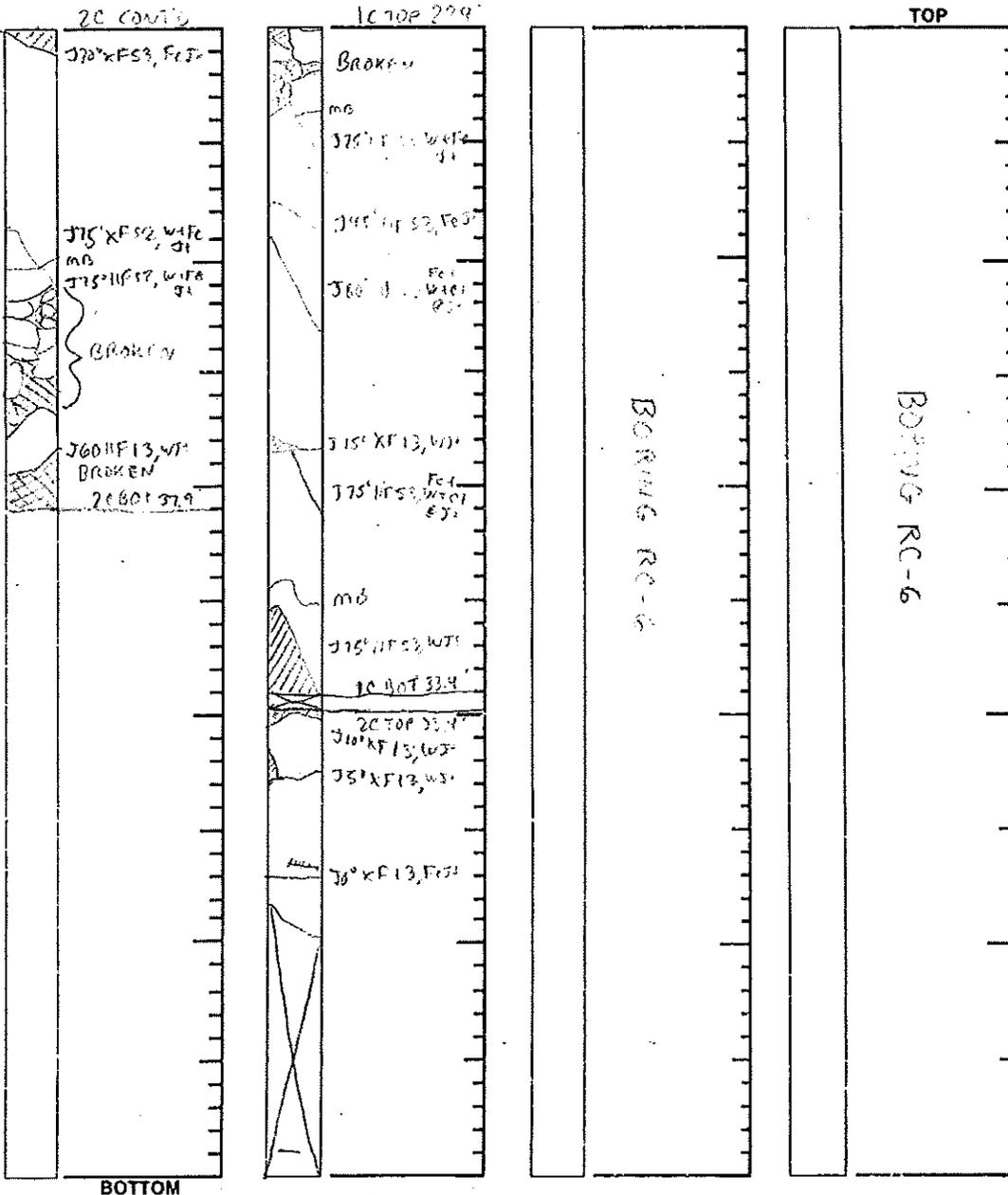
DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
07:15	1D	0.3	100/6"	Black fine to coarse sand, some gravel, silt (Fill) (SM)	[Symbol]	[Symbol]	DRILLED	**Asphalt from 0' to 0.3'
06-03-11		0.8					AHEAD	Asphalt at grade.
Friday	2D	0.8	2-4	Brown fine to coarse sand, some gravel, trace brick, silt (Fill) (SP-SM)	[Symbol]	[Symbol]	4"	1D-2D: REC=3"
Clear		2.8	2-5					Boulder at 3'.
60°F	3D	5.0	2-19	Gray gravelly fine to coarse sand, trace silt (Fill) (SP-SM)	[Symbol]	[Symbol]		REC=1"; possible wash sample.
		7.0	5-4					
	4D	7.0	4-9	Brown fine to medium sand, some gravel, silt, trace coarse sand (Fill) (SM)	[Symbol]	[Symbol]		
		9.0	5-11					
	5D	10.0	6-2	Brown fine to medium sand, some silt, trace gravel, coal (Fill) (SM)	[Symbol]	[Symbol]		
		12.0	2-10					
	6D	15.0	6-5	Do 5D (Fill) (SM)	[Symbol]	[Symbol]		Casing pushed to 15'; driven thereafter with 300 lb. hammer.
		17.0	4-8					
	7D	20.0	2-3	Top 5": Black fine to coarse sand, some gravel, silt, trace coal (Fill) (SM) Bot 9": Brown fine to medium sand, some silt, trace gravel (Fill) (SM)	T	[Symbol]		Losing water at 20'.
		22.0	2-4					
	8D	25.0	6-100/3"	Brown fine to medium sand, some silt, rock fragments, trace clay, mica (SM)	[Symbol]	[Symbol]		Drilling with Revert at 25'. Hard drilling from 26' to 29.4'. All soil appeared dry in-situ.
		25.8						
	9NR	29.4	50/0"	No recovery	[Symbol]	[Symbol]	6.75*	*Coring time in minutes per foot.
	1C	29.4	REC=72%	Medium hard to intermediate slightly weathered gray gneiss schist, jointed to broken, weathered & iron stained & clay joints				6"
		33.4	RQD=20%				3.5*	Losing water at 32.5'.
	2C	33.4	REC=88%	Medium hard to weathered slightly weathered moderately weathered gray gneissic schist, jointed to broken, weathered & iron stained joints	[Symbol]	[Symbol]	4"	Barrel blocked up at 33.4'.
		37.9	RQD=24%					
	3C	37.9	REC=95%	Medium hard slightly weathered gray gneissic schist, moderately jointed to closely jointed, weathered & iron stained joints	[Symbol]	[Symbol]	4*	Barrel dropped 3' at 36'.
		42.9	RQD=52%					
							3.5*	
							8*	
							3.25*	
							2.25*	
							2.25*	
10:45							2.75*	
							2*	End of Boring at 42.9'.

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-3
 SHEET 2 OF 4
 FILE NO. 10164C
 SURFACE ELEV. 19.4
 RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2
 LOCATION NEW YORK, NY

Run No.	REC / RQD						
2C	CONT'D	1C	73/20				
		2C	88/24				



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Follation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- [Symbol] Joint
- [Symbol] Healed Joint
- [Symbol] Broken
- [Symbol] Part of Core Not Recovered
- [Symbol] Cavities or Vugs in Core
- [Symbol] Clay
- [Symbol] Sand
- [Symbol] Empty Space

NOTES _____

MRCE SETTLEMENTS CONSULTING ENGINEERS

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK
 BORING LOCATION: SEE BORING LOCATION PLAN

BORING NO: RC-3
 SHEET: 4 OF 4
 FILE NO: 10164C
 SURFACE ELEV: 19.4
 DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>24</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER _____				

TYPE AND SIZE OF:	DRILLING MUD USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>4-3/4, 3-3/4</u>		
U-SAMPLER _____	TYPE OF DRILLING MUD _____		
S-SAMPLER _____			
CORE BARREL <u>NX DOUBLE TUBE</u>	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT <u>NX DIAMOND BIT</u>	TYPE AND DIAMETER, IN. _____		
DRILL RODS <u>NWJ</u>			

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-03-11	11:05	42.9	19	5.2	READING TAKEN AT END OF BORING, 5' CASING PULLED 1ST.

PIEZOMETER INSTALLED YES 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. <u>29.4</u>	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. <u>13.5</u>	OTHER: _____

BORING CONTRACTOR: WARREN GEORGE, INC.
 DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI
 REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-03-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ENGINEERING CONSULTANTS

LOG

LOG NO. RC-4
 SHEET NO. 5
 FILE NO. 10164C
 SURVEY ELEV. 15.5
 LOGGING ENGINEER DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS	
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS		
12:15 06-08-11 Wednesday Clear 90°F	1D	0.3	5-8	Top 6": Brn & blk f-m sand, sm silt (Fill) (SM)	S	DRILLED		**Asphalt from 0' to 0.3'.	
		2.3	11-8	Bot 12": Brn silty f-c sand, tr gravel (Fill) (SM)		AHEAD		Asphalt at grade.	
	2D	2.3	7-7	Brown silty fine sand, trace gravel (Fill) (SM)			4" 3"		
		4.3	10-19						
	3D	5.0	6-4	Brown fine to coarse sand, some silt, trace gravel (Fill) (SM)					
		7.0	4-3						
	4D	7.0	3-6	Gray fine to coarse sand, some silt, gravel (Fill) (SM)					
		9.0	11-9						
	5D	10.0	2-1	Gray fine to coarse sand, sm silt, trace gravel, brick (Fill) (SM)					Spun casing at 10'. 4" Casing pushed to 12'; driven there after.
		12.0	2-2						
	6D	15.0	2-WH/12" 1	Gray fine to medium sand, some silt, trace gravel (SM)					
		17.0							
	7D	20.0	9-12	Top 17": Do 6D (SM)					
		22.0	13-12	Bot 1": Red brown fine sand, some silt, trace gravel (SM)					
	8D	25.0	7-6	Top 2": Brn fine to medium sand, some silt (SM)					
		27.0	12-12	Bot 18": Brown clayey silt, trace coarse sand, gravel (ML)				8D Bot: WC=22	
	9D	30.0	20-32	Red brown fine to coarse sand, some silt, trace gravel (SM)	T				
		32.0	36-39					Rig chatter from 33' to 35'.	
13:45									
06:15 06-09-11 Thursday Clear 80°F	10D	35.0	35-100/4"	Red brown fine to coarse sand, some rock fgmts, silt (SM)					
		35.8							
	11NR	39.3	100/2"	No recovery	D		7"	REC=0"	
		39.5					4.75*	*Coring time in minutes per foot.	
	1C	39.5	REC=66%	Int to W SIW to MdW gray mica schist, jointed to broken, weathered & clay joints & FeJts			12"		
		43.5	RQD=8%				12"		
	2C	43.5	REC=100%	Weathered slightly weathered gray mica schist, closely jointed to bkn, weathered & clay joints			9"	Core barrel blocked at 43.5'.	
		44.6	RQD=0%				10"		
	3C	44.6	REC=62%	Weathered slightly weathered gray mica schist, jointed, weathered joints			10.75*		
		46.7	RQD=0%				2.75*		
	4C	46.7	REC=99%	Weathered to intermediate slightly weathered to moderately weathered gray schist, trace pegmatite, jointed to broken, weathered & mineral coated & clay joints			2.25*	Lost all water at 48'.	
		51.7	RQD=10%				3.5*	Spun 3" casing.	
							5.75*		

LOG NO. RC-4

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-4
SHEET 4 OF 5
FILE NO. 10164C
SURFACE ELEV. 15.5
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

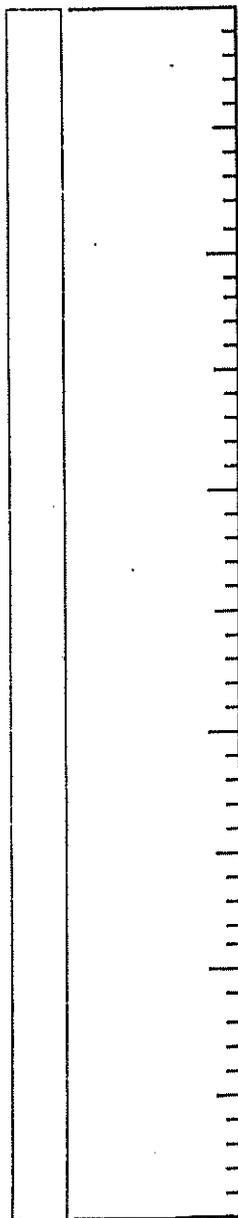
LOCATION NEW YORK

Run No.	REC / RQD

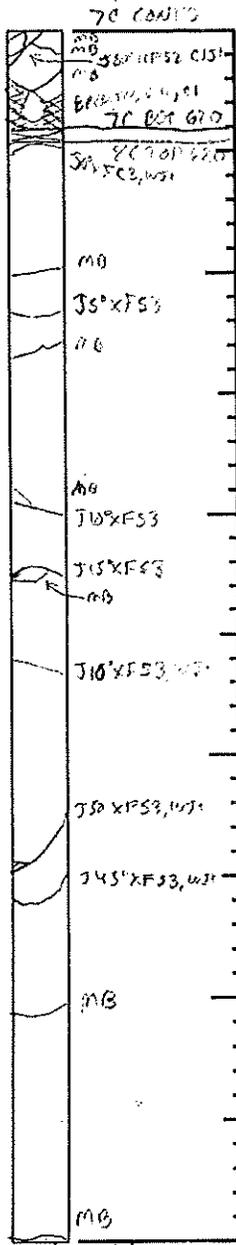
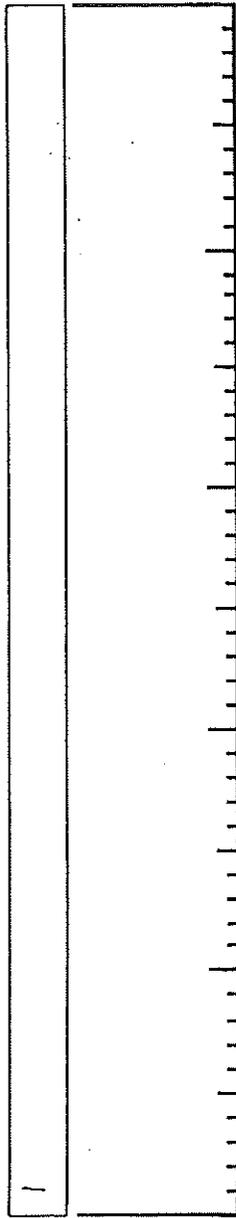
Run No.	REC / RQD

Run No.	REC / RQD
7C	CON'D
8C	97/76

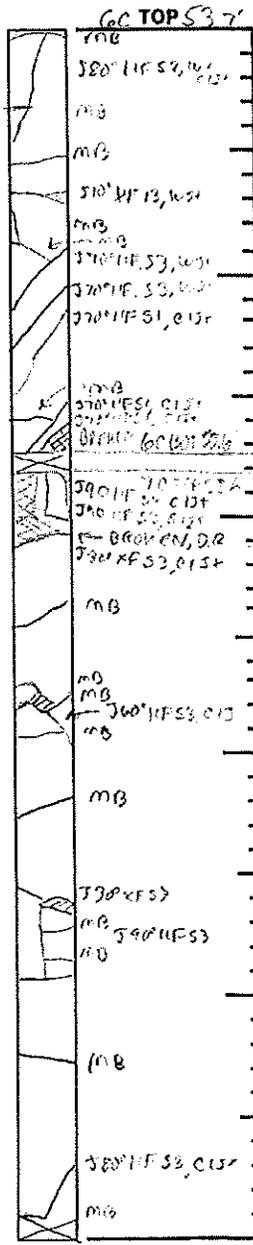
Run No.	REC / RQD
6C	36/10
7C	68/43



BOTTOM



8C BOT 67.0



SCALE: 1 division = 0.1 feet

**ROCK CORE SKETCH
LEGEND**

JOINTING

- J - Joint
- MB - Mechanical Break
- ∠ - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfolded or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

NOTES

GENERAL CONTRACTING ENGINEERS

PROJECT LOCATION: RIVER CENTER BUILDING 2
NEW YORK, NEW YORK
 BORING LOCATION: SEE BORING LOCATION PLAN

BORING NO: RC-4
 SHEET 5 OF 5
 FILE NO: 10164C
 SCHEDULED DATE: 15.5
 DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>18.6</u>
SKID		HYDRAULIC <u>X</u>	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>45.6</u>
BARGE		OTHER	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER	_____				

TYPE AND SIZE OF:		DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER	<u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN.	<u>4-3/4, 3-3/4</u>	
U-SAMPLER	_____	TYPE OF DRILLING MUD	<u>E-Z MUD</u>	
S-SAMPLER	_____	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BARREL	<u>NX DOUBLE TUBE</u>	TYPE AND DIAMETER, IN.	_____	
CORE BIT	<u>NX DIAMOND BIT</u>			
DRILL RODS	<u>NWJ</u>			

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-09-11	12:40	67	45.6	19.7	READING TAKEN AT END OF BORING (TAPED 65.9')

PIEZOMETER INSTALLED YES 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.	<u>39.5</u>	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.	<u>27.5</u>	OTHER:	_____

BORING CONTRACTOR: WARREN GEORGE, INC.
 DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI
 REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-09-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ENGINEERING LOG

ENGINEERING LOG

ENGINE NO: RC-5
 SHEET NO: 4
 FILE NO: 10164C
 SERIAL NO: 13.2
 ENGINEER: DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
08:00	1D	0.3	9-10	Top 11": Blk f-c sa, sm gvl, tr coal, si (Fill) (SP-SM)	O	DRILLED	**Asphalt from 0' to 0.3'	
06-08-11		2.3	4-2	Bot 1": Brn f-c sand, sm silt, gravel (Fill) (SM)		AHEAD	Asphalt at grade.	
Wednesday	2D	2.3	1-2	Do 1D, Bottom (Fill) (SM)		4"	1D Bot: From Sample tip.	
Clear		4.3	7-5				2D: REC=4"	
75°F	3D	5.0	13-9	Top 3": Blk gravel, sm f-c sand, silt (Fill) (GM)				
		7.0	5-6	Bot 5": Brn f-m sand, sm silt, tr gravel (Fill) (SM)				
	4D	7.0	3-16	Top 4": Brn gravelly f-m sand, sm silt (Fill) (SM)				
		9.0	43-45	Bot 7": Brown rock fragments, some fine to medium sand, trace silt (GP-GM)				
	5D	10.0	3-1/12"	Brown gravel, some coarse to fine sand, silt, clay (Fill) (GM)				
		12.0	2					
	6D	15.0	1-1	Soft gray organic silty clay, trace shells (OH)	O		WC=62, pp<0.5	
		17.0	1-2					
	7D	20.0	5-2	Top 6" & Bot 12": Gray silty fine to coarse sand, trace shells (SM)				
		22.0	1-2	Mid 6": Soft gray organic silty clay, trace fine sand, shells (OL)			7D Mid: WC=44, pp<0.5	
	8D	25.0	3-6	Top 2": Brown medium to fine sand, trace silt (SP-SM)	T			
		27.0	11-11	Mid 13": Brown clayey silt, trace gravel, coarse sand (ML)			8D Mid: WC=23, pp=2.8, 3.5	
				Bot 7": Brown f-c sand, some silt (SM)				
	9D	30.0	7-10	Top 16": Red brown clayey silt, some rock fgmts, medium to fine sand, tr gvl (ML)	D			
		31.8	13-100/4"	Bot 1": Brown rock fragments, some medium to fine sand, tr silt (DR) (GP-GM)			Hard driving of spoon at 31.6'. Spoon bouncing from 31.6' to 34.3'.	
	10NR	34.3	50/0"	No recovery		9.5*	*Coring time in minutes per foot.	
						8*		
	1C	34.3	REC=97% RQD=73%	Top 29": MdHd to Int SIW gray gns schist, jointed to ClJtd, weathered & iron stained joints	O	7*		
				Bot 29.5": Hd UnW to SIW gray peg, MdJtd, WJts		7.75*		
	2C	39.3	REC=99% RQD=97%	Top 20": Hard unweathered white pegmatite, blocky		7*		
		44.3		Mid 21.5": Medium hard to intermediate slightly weathered gray mica schist, closely jointed, weathered & mineral coated joints		5*	WC=Water Content in percent of dry weight.	
				Bot 7": Hard unweathered white pegmatite, blocky		3.5*		
11:00						4*		
						3.75*		
						6.5*	End of Boring at 44.3'.	
							pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.	

ENGINE NO: RC-5

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-5
 SHEET 2 OF 4
 FILE NO. 101640
 SURFACE ELEV. 13.2
 RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

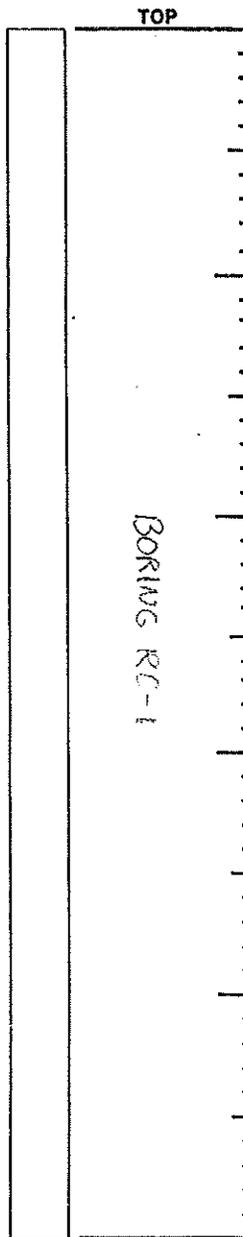
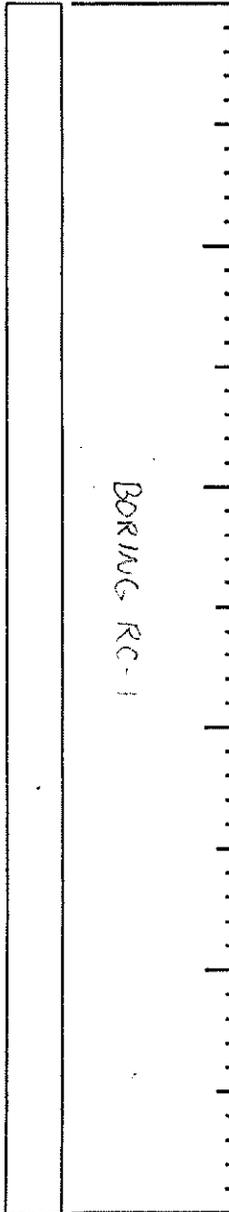
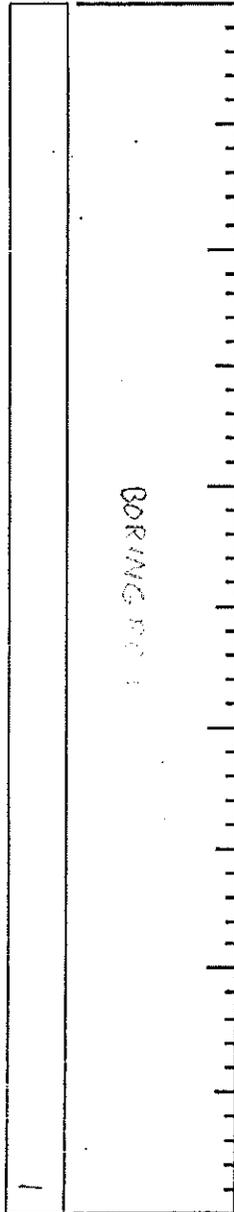
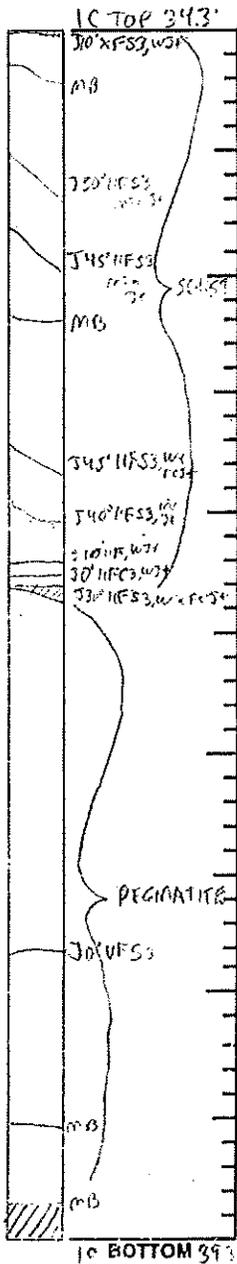
LOCATION NEW YORK, NY

Run No.	REC / RQD
1C	97/73

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD



**ROCK CORE SKETCH
LEGEND**

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs In Core
- Clay
- Sand
- Empty Space

SCALE: 1 division = 0.1 feet

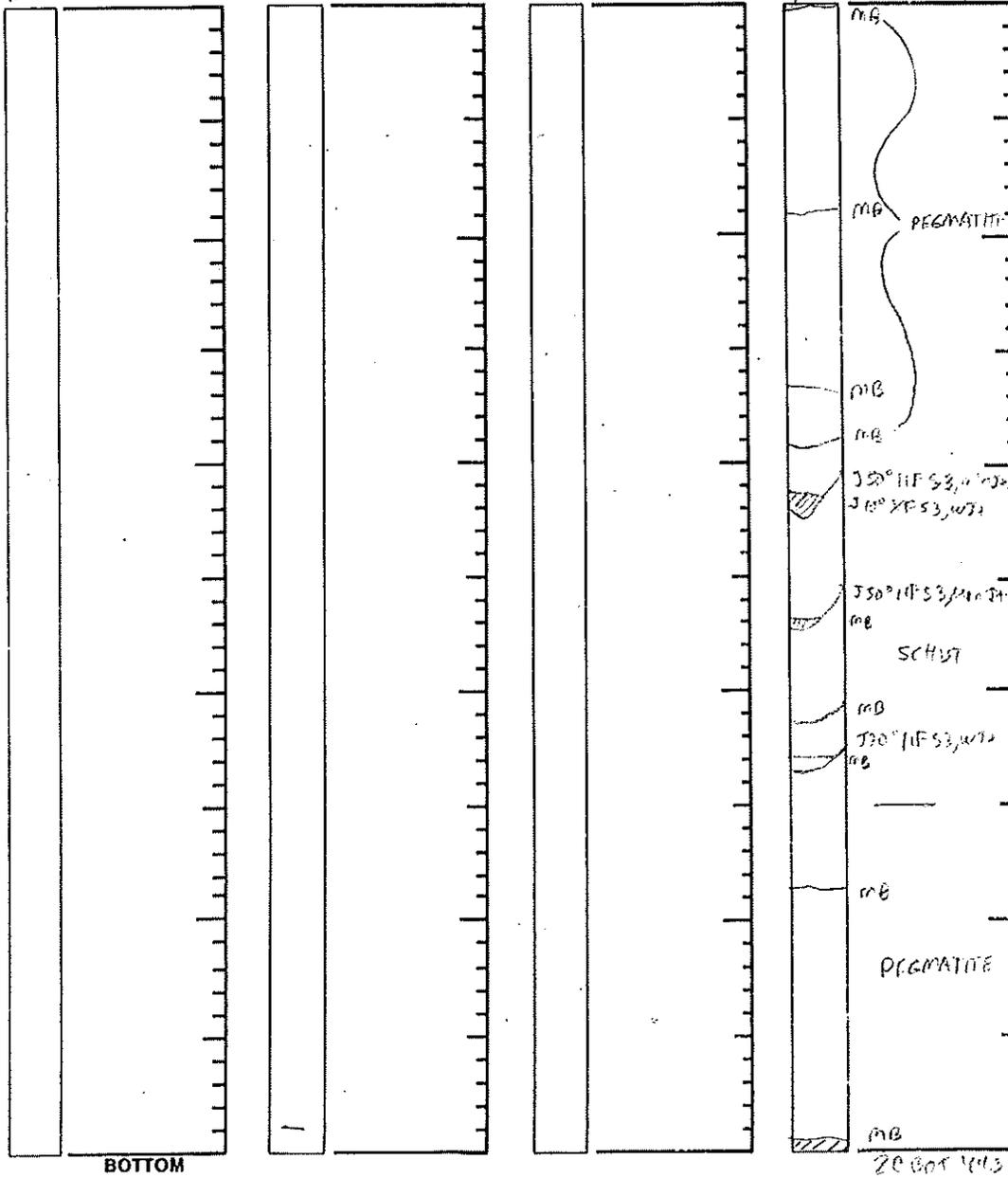
NOTES _____

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-5
SHEET 3 OF 4
FILE NO. 10164C
SURFACE ELEV. 13.2
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2
LOCATION NEW YORK, NY

Run No.	REC / RQD						
						2C	99/73



**ROCK CORE SKETCH
LEGEND**

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

NOTES _____

SEATTLE GEOTECHNICAL ENGINEERS

PROJECT RIVER CENTER BUILDING 2
 LOCATION NEW YORK, NEW YORK
 BORING LOCATION SEE BORING LOCATION PLAN

PROJECT NO. RC-5
 SHEET 4 OF 4
 FILE NO. 10164C
 SURFACE ELEVATION 13.2
 DISTRICT BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>14.3</u>
SKID		HYDRAULIC	DIA., IN. <u>X</u>	DEPTH, FT. FROM	TO
BARGE		OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER					

TYPE AND SIZE OF:		DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER	<u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN.	<u>3-3/4, 4-3/4</u>	
U-SAMPLER		TYPE OF DRILLING MUD	<u>EZ-MUD</u>	
S-SAMPLER		AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BARREL	<u>NX DOUBLE TUBE</u>	TYPE AND DIAMETER, IN.		
CORE BIT	<u>NX DIAMOND BIT</u>			
DRILL RODS	<u>NWJ</u>			

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-08-11	11:15	44.3	14.3	7	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED YES 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.	<u>34.3</u>	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.	<u>10</u>	OTHER:	_____

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER MICHAEL MCERLEAN HELPERS WALTER MALINOWSKI
 REMARKS BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER DANIEL GEORGE DATE 06-08-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ENGINEERING CONSULTANTS

LOG

LOG NO: RC-6
 SHEET NO: 4
 FILE NO: 10164C
 SCALE: 21.2
 DESIGNER: DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
07:45 06-02-11 Thursday Clear 75°F	1D	1.0	9-10	Top 6": Black f-c sand, sm gravel, silt (Fill) (SM)	S	DRILLED		**Asphalt from 0' to 0.3'
		3.0	8-10	Bot 10": Light brn si fine sand, tr gravel (Fill) (SM)		AHEAD		Asphalt at grade.
	2D	3.0	5-6	Black fine to coarse sand, some gravel, silt, trace coal (Fill) (SM)			4"	
		5.0	18-19					
	3D	5.0	8-7	Top 6": Brn gravelly f-m sand, sm silt (SM)				
		7.0	9-17	Bot 1": Blk f-c sand, some silt, tr gravel (SM)				Casing pushed to 7'; driven thereafter.
	4D	7.0	46-37	Top 10": Brn f-c sand, some silt, tr gvl, mica (SM)				
		8.4	100/5"	Bot 5": Blk rock fgmts, sm m-f sand, tr si (GP-GM)				
	5D	9.0	77-16	Blk rock fragments, some fine to medium sand, trace silt (GP-GM)				REC=1" Losing water from 9' to 15'.
		11.0	11-8					
	6D	15.0	2-8	Brown coarse to fine sand, some rock fragments, trace silt (SP-SM)				REC=5"
		17.0	6-4					
	7D	20.0	5-8	Gray rock fragments, some medium to fine sand, trace silt (GP-GM)				REC=5" Gray silt in wash from 22' to 25'.
		22.0	11-7					
	8D	25.0	7-6	Top 10": Gray silty fine sand, tr gravel, clay (SM)				
		27.0	10-10	Mid 1": Brown fine to medium sand, some silt (SM)				
				Bot 4": Brown silty fine sand (SM)				
	9D	30.0	4-5	Top 13": Stiff brown clayey silt varved with trace gray silty clay (ML)	S			9D Top: WC=29, pp=1.8, 2.0
		32.0	9-8	Bot 6": Red brown fine sand, some silt (SM)				
	10D	35.0	17-28	Top 3": Brown fine sand, some silt (SM)	T			Drilling with Revert at 37'.
		37.0	57-68	Bot 9": Brown fine to coarse sandy gravel, some silt (GM)				Rig chatter from 35' to 37'.
	11D	40.0	22-33	Brown gravelly fine to coarse sand, trace silt (SP-SM)				Hard drilling at 43'.
		42.0	20-23					
	1C	44.5	REC=29%	Weathered moderately weathered pegmatite, closely jointed to broken, weathered joints & clay-filled joints	S		6.5*	*Coring time in minutes per foot.
		47.0	RQD=0%				12.25*	Run 1C was cleaned out.
	2C	47.2	REC=82%	Medium hard slightly weathered to moderately weathered gray pegmatite, moderately jointed to broken, weathered & iron stained joints	S		5*	
		51.7	RQD=52%				10*	
							2.25*	
							2.25*	

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. RC-6
 SHEET 3 OF 4
 FILE NO. 10164C
 SURFACE ELEV. 21.2
 RES. ENGR. D. GEORGE

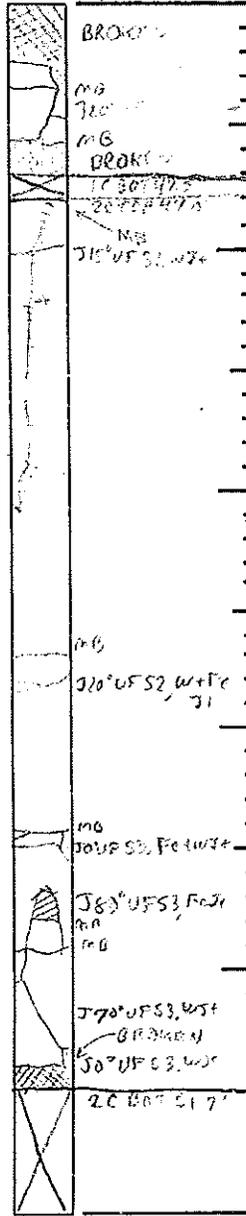
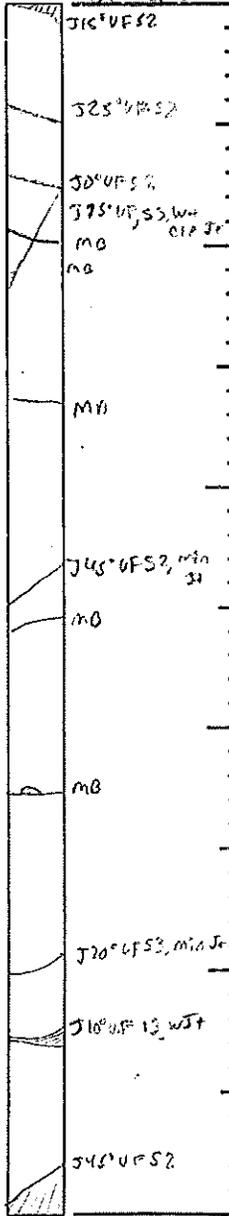
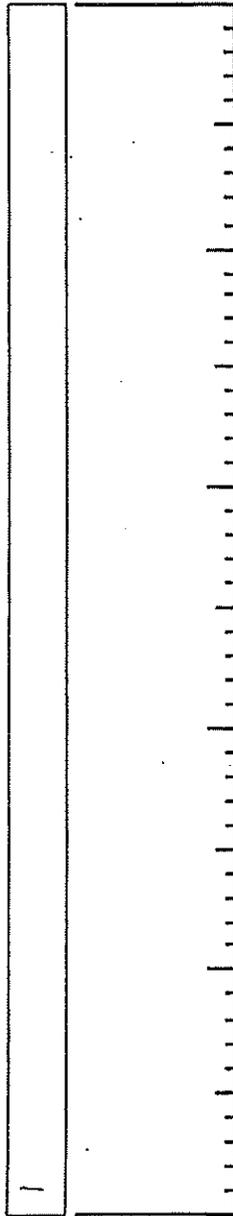
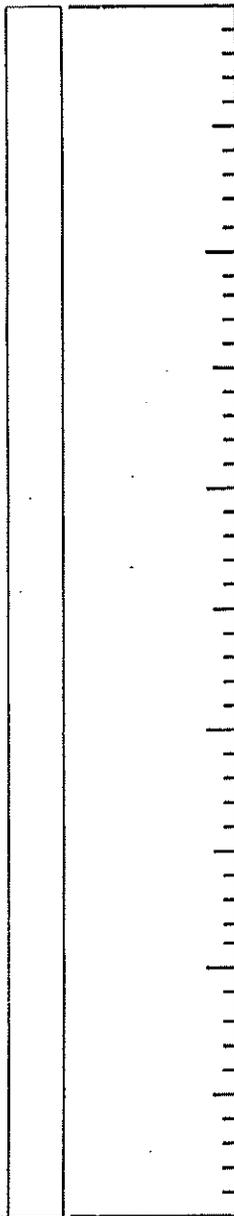
PROJECT RIVER CENTER BUILDING 2
 LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
3C	99/72

Run No.	REC / RQD
1C	29/0
2C	82/52



SCALE: 1 division = 0.1 feet

ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- (diagonal lines) - Joint
- (cross-hatch) - Healed Joint
- (stippled) - Broken
- (diagonal lines, different pattern) - Part of Core Not Recovered
- (circle with lines) - Cavities or Vugs in Core
- (horizontal lines) - Clay
- (stippled, different pattern) - Sand
- (empty) - Empty Space

NOTES _____

GEOTECHNICAL ENGINEERING

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK
 BORING LOCATION: SEE BORING LOCATION PLAN

PROJECT NO: RC-6
 SHEET: 4 OF 4
 FILE NO: 10164C
 SURFACE ELEVATION: 21.2
 DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG: _____ TYPE OF FEED: _____ CASING USED: YES NO

TRUCK: ACKER SOIL MAX MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO 29

SKID: _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM _____ TO _____

BARGE: _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____

OTHER: _____

TYPE AND SIZE OF: _____ DRILLING MUD USED: YES NO

D-SAMPLER: 2" O. D. SPLIT SPOON DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-3/4

U-SAMPLER: _____ TYPE OF DRILLING MUD: REVERT

S-SAMPLER: _____

CORE BARREL: NX DOUBLE TUBE AUGER USED: YES NO

CORE BIT: NX DIAMOND BIT TYPE AND DIAMETER, IN. _____

DRILL RODS: NWJ

*CASING HAMMER, LBS. 140/300 AVERAGE FALL, IN. 30

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

*USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-02-11	13:45	57.2	28	29	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED: YES 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. 44.5 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. 12.2 OTHER: _____

BORING CONTRACTOR: WARREN GEORGE, INC.

DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI

REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.

RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-02-11

CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ENGINEERING CONSULTANTS

LOG

LOG NO. RC-7
 SHEET NO. 5
 FILE NO. 10164C
 SCALE 16.8
 EST. ENG. DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
06:30 06-10-11 Friday Partly Cloudy 70°F	1D	0.5	3-2	Top 1": Lt brown fine sand, tr silt (Fill) (SP-SM)	S	DRILLED	**Concrete from 0' to 0.3'.	
		2.5	2-4	Bot 1": Brn f-c sand, sm gvl, tr silt (Fill) (SP-SM)		AHEAD	Concrete at grade.	
	2D	2.5	5-14	Top 6": Brn f-m sand, trace silt (SP-SM)		4"		
		4.5	8-11	Mid 3": Black coal fragments (Fill) (GP)				
				Bot 6": Brown gvly f-c sand, tr silt (Fill) (SP-SM)				
	3D	5.0	8-9	Top 7": Blk gvl, sm f-c sand, tr silt (Fill) (GP-GM)				
		7.0	25-42	Bot 9": Brn f-c sand, sm gravel, silt (Fill) (SM)				
	4D	7.0	20-45	Top 8": Do 3D, Bottom (Fill) (SM)				
		8.9	90-100/5"	Bot 5": Dark brn fine to coarse sand, some coal fragments, silt, trace gravel, silt (Fill) (SM)				
				No recovery				
	5NR	10.0	4-5			REC=0"		
		12.0	4-4					
						Rig chatter at 14'.		
	6D	15.0	1-1	Gray fine to medium sand, some silt, gravel (SM)		REC=6"		
		17.0	4-8			4" Casing pushed to 14'; driven thereafter.		
						Loss of mud at 20'.		
	7D	20.0	1-6	Gray fine to medium sand, some silt, trace gravel, wood (SM)				
		22.0	2-3					
	8D	25.0	6-9	Top 5": Blue gray clayey silt, some fine to medium sand (ML)				
		27.0	7-8	Mid 10": Brn f-c sand, some gravel, silt (SM)				
			Bot 5": Brown clayey silt (ML)		WC=24			
9D	30.0	6-30	Top 5": Brown medium to fine sand, some silt (SM)					
	32.0	34-25	Mid 5": Gray clayey silt (ML)		9D Top: Possible wash sample.			
			Bot 5": Brown fine to coarse sand, trace gravel, silt (SP-SM)		9D Mid: pp=1.0			
10D	35.0	20-15	Red brown fine to coarse sandy, gravel, some silt (GM)					
	36.8	34-100/5"	Gray boulder		5.5*			
1C	36.8	REC=9%			2*			
	41.8	RQD=NA			1*			
					0.25*			
					1.5*			
11D	41.8	100/1"	Gray rock fragments, some fine to coarse sand, trace silt (DR) (GP-GM)					
	41.9				Hard driving of spoon at 36.9'.			
2C	44.7	REC=80%	Medium hard to intermediate slightly weathered gray mica schist, some pegmatite, jointed to closely jointed, weathered & clay-filled & iron stained joints		Hard drilling from 36.8' to 44.7'.			
	49.7	RQD=35%			6.25*			
					4.25*			
					5.25*			
					5*			
3C	49.7	REC=100%	Hard unweathered to slightly weathered gray pegmatite, some mica schist, moderately jointed to broken, weathered & iron stained joints		8.25*			
	54.7	RQD=91%			6.25*			
					4*			
					4*			

LOG NO. RC-7

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-7
 SHEET 3 OF 5
 FILE NO. 101640
 SURFACE ELEV. 16.8
 RES. ENGR. D. GEORGE

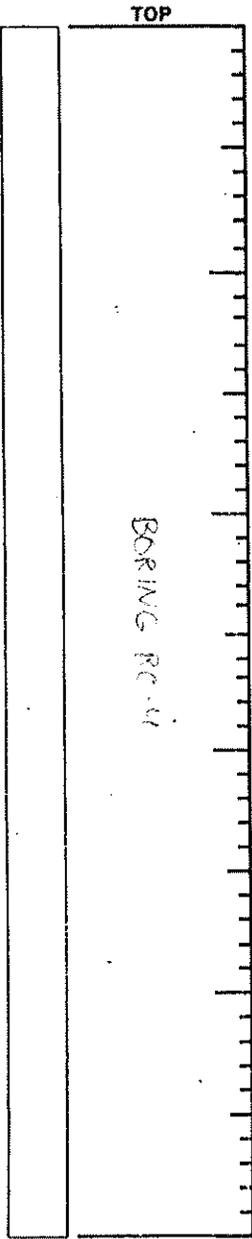
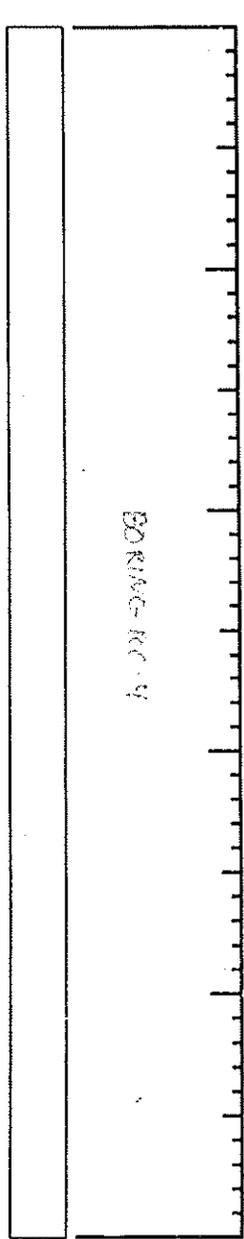
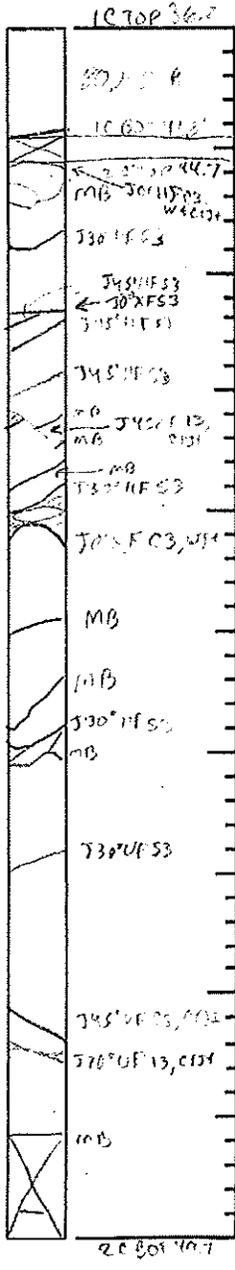
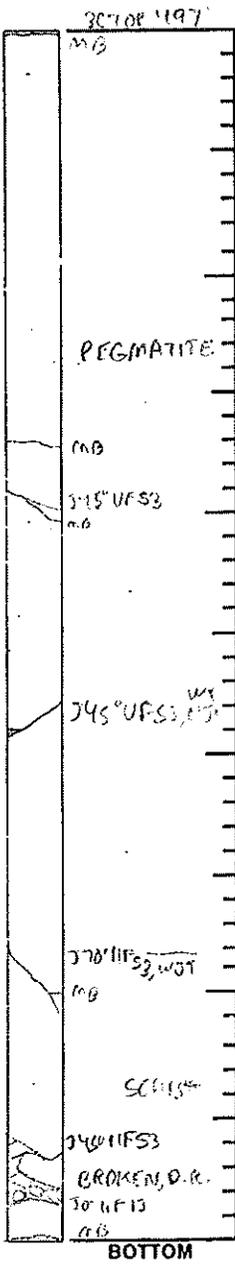
PROJECT RIVER CENTER EXPLORING 2
 LOCATION NEW YORK, NY

Run No.	REC / RQD
3C	100/41

Run No.	REC / RQD
1C	9/9
7C	80/35

Run No.	REC / RQD

Run No.	REC / RQD



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- X - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- (diagonal lines) - Joint
- (cross-hatch) - Healed Joint
- (stippled) - Broken
- (diagonal lines) - Part of Core Not Recovered
- (circles) - Cavities or Vugs in Core
- (horizontal lines) - Clay
- (stippled) - Sand
- (X) - Empty Space

SCALE: 1 division = 0.1 feet

NOTES _____

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-7
SHEET 4 OF 5
FILE NO. 10164C
SURFACE ELEV. 16.8
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

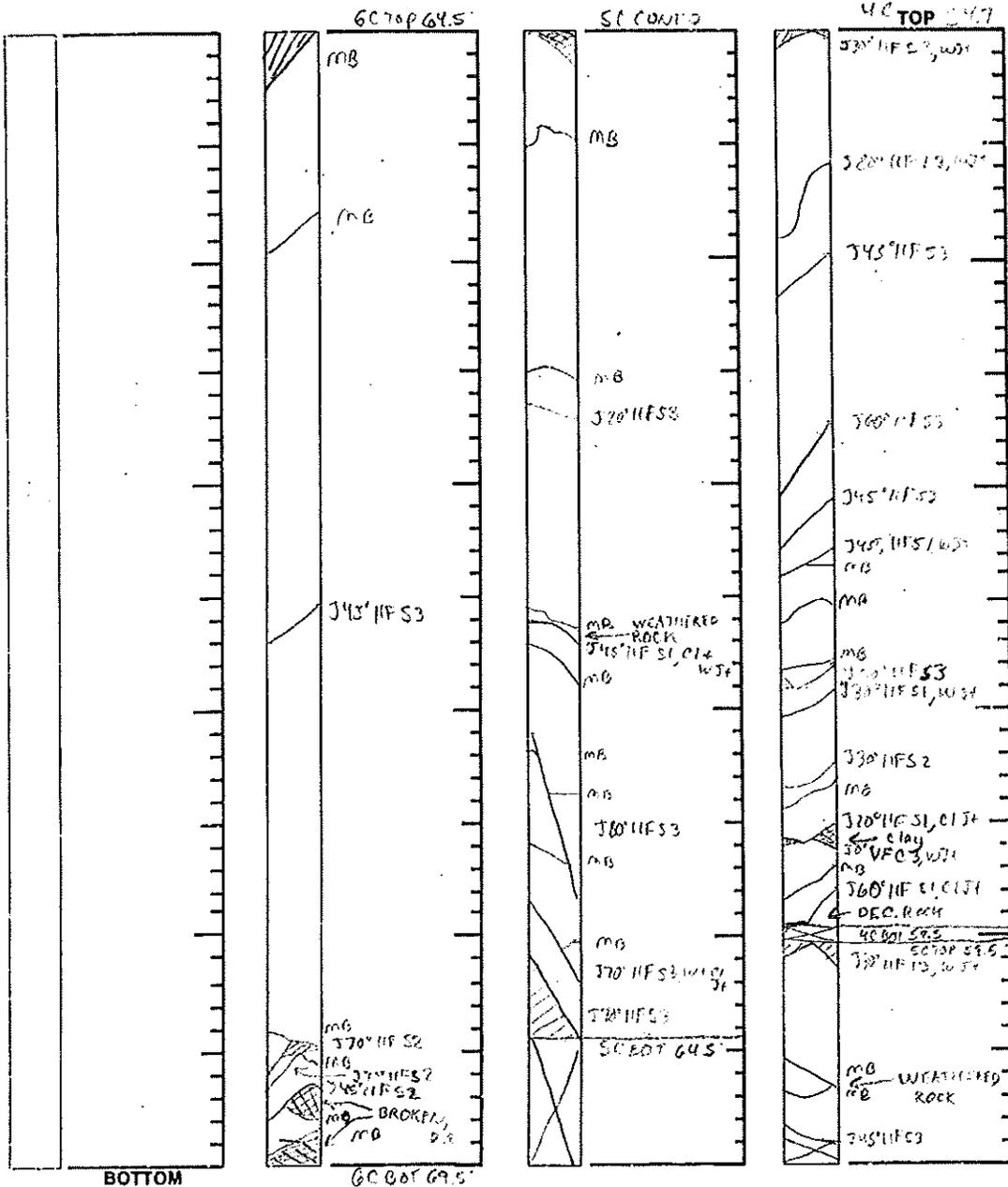
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD
6C	100/88

Run No.	REC / RQD
5C	CONTD

Run No.	REC / RQD
4C	83/30
5C	100/72



**ROCK CORE SKETCH
LEGEND**

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Folliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- [Symbol] Joint
- [Symbol] Healed Joint
- [Symbol] Broken
- [Symbol] Part of Core Not Recovered
- [Symbol] Cavities or Vugs in Core
- [Symbol] Clay
- [Symbol] Sand
- [Symbol] Empty Space

SCALE: 1 division = 0.1 feet

NOTES _____

RESOLUTIONS ENGINEERS

PROJECT <u>RIVER CENTER BUILDING 2</u>	DRILLING NO <u>RC-7</u>
LOCATION <u>NEW YORK, NEW YORK</u>	SHEET <u>5</u> OF <u>5</u>
DRILLING LOCATION <u>SEE BORING LOCATION PLAN</u>	FILE NO <u>10164C</u>
	SPACING/ELEV <u>16.8</u>
	DISTRICT <u>BOROUGH PRESIDENT OF MANHATTAN</u>

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>ACKER SOIL MAX</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>34.3</u>
SKID	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.	DEPTH, FT. FROM TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM TO
OTHER			

TYPE AND SIZE OF:	DRILLING MUD USED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>4-3/4, 3-3/4</u>
U-SAMPLER	TYPE OF DRILLING MUD <u>E-Z MUD</u>
S-SAMPLER	
CORE BARREL <u>NX DOUBLE TUBE</u>	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT <u>NX DIAMOND BIT</u>	TYPE AND DIAMETER, IN.
DRILL RODS <u>NWJ</u>	
	*CASING HAMMER, LBS. <u>300</u> AVERAGE FALL, IN. <u>30</u>
	*SAMPLER HAMMER, LBS. <u>140</u> AVERAGE FALL, IN. <u>30</u>
	*USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-13-11	06:10	69.5	34.3	16.6	MORNING MUD LEVEL READING.

PIEZOMETER INSTALLED YES 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. <u>39.7</u>	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. <u>29.8</u>	OTHER: _____

BORING CONTRACTOR _____	WARREN GEORGE, INC.
DRILLER <u>MICHAEL MCERLEAN</u>	HELPERS <u>WALTER MALINOWSKI</u>
REMARKS <u>BOREHOLE BACKFILLED WITH SOIL CUTTINGS ON 06-13-11 & PATCHED WITH CONCRETE UPON COMPLETION.</u>	
RESIDENT ENGINEER <u>DANIEL GEORGE</u>	DATE <u>06-10-11</u>
CLASSIFICATION CHECK: <u>CHERYL J. MOSS</u>	TYPING CHECK: <u>A. KLAETSCH</u>

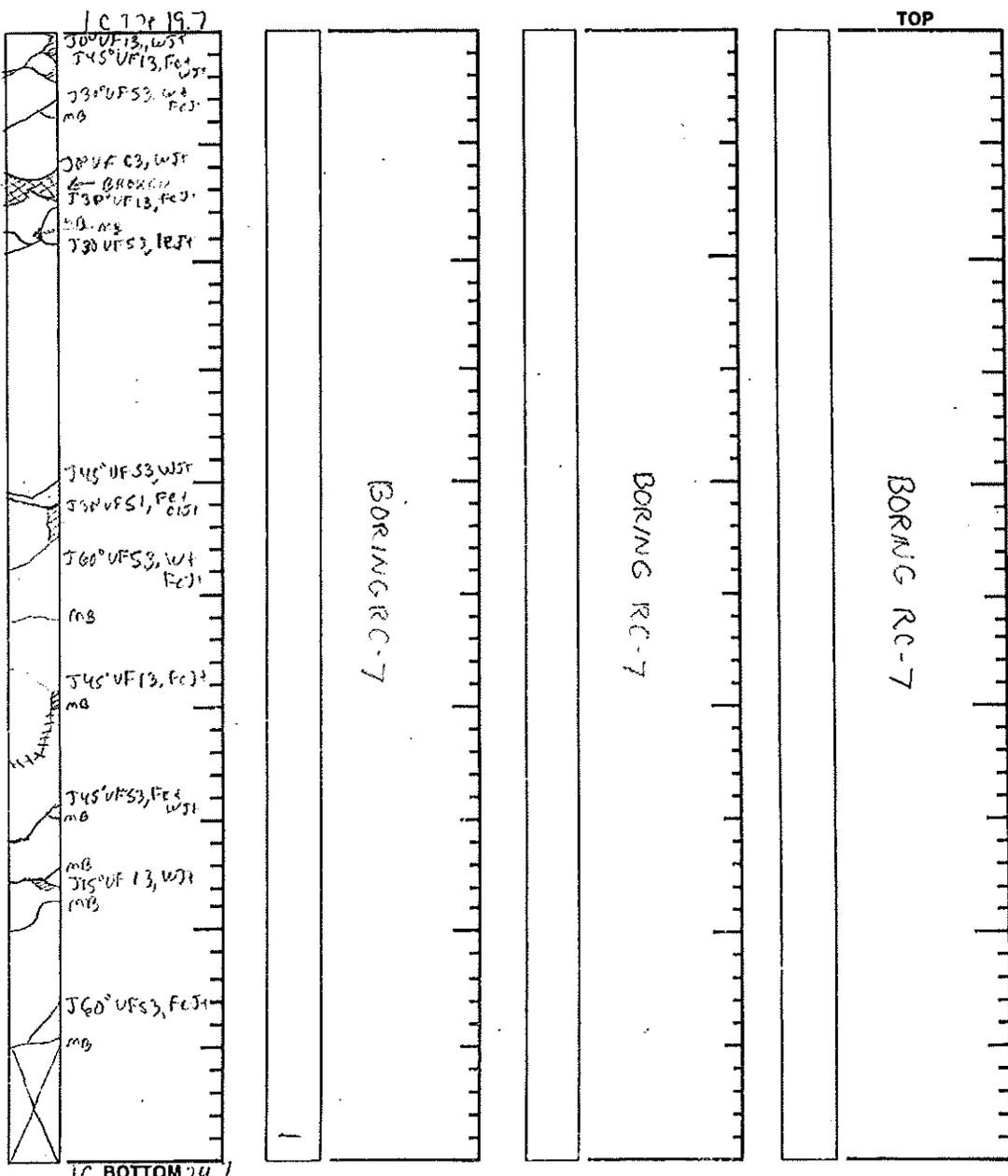
**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-8
SHEET 2 OF 4
FILE NO. 10164C
SURFACE ELEV. 16.8
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

LOCATION NEW YORK, NY

Run No.	REC / RQD						
1C	90/40						



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs In Core
- Clay
- Sand
- Empty Space

NOTES _____

MRCE ENGINEERING CONSULTANTS

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK
 DRILLING LOCATION: SEE BORING LOCATION PLAN

DRILLING NO: RC-8
 SHEET: 4 OF 4
 FILE NO: 10164C
 SURFACE ELEVATION: 16.8
 DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	<u>ACKER SOIL MAX</u>	<u>MECHANICAL</u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>18</u>
SKID		<u>HYDRAULIC</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE		<u>OTHER</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER	_____				

TYPE AND SIZE OF:		DRILLING MUD USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER	<u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. _____	<u>4-3/4, 3-3/4</u>	
U-SAMPLER	_____	TYPE OF DRILLING MUD _____	<u>E-Z MUD</u>	
S-SAMPLER	_____			
CORE BARREL	<u>NX DOUBLE TUBE</u>	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT	<u>NX DIAMOND BIT</u>	TYPE AND DIAMETER, IN. _____		
DRILL RODS	<u>NWJ</u>			

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-13-11	11:30	44.7	18	9.1	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED YES 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. <u>19.7</u>	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. <u>25</u>	OTHER: _____

BORING CONTRACTOR: WARREN GEORGE, INC.
 DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI
 REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-13-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

LOG

LOG NO. RC-9P
 SHEET NO. 4
 FILE NO. 10164C
 SURVEY ELEV. 23
 ENGINEER SHRINIDHI K. SHETTY

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

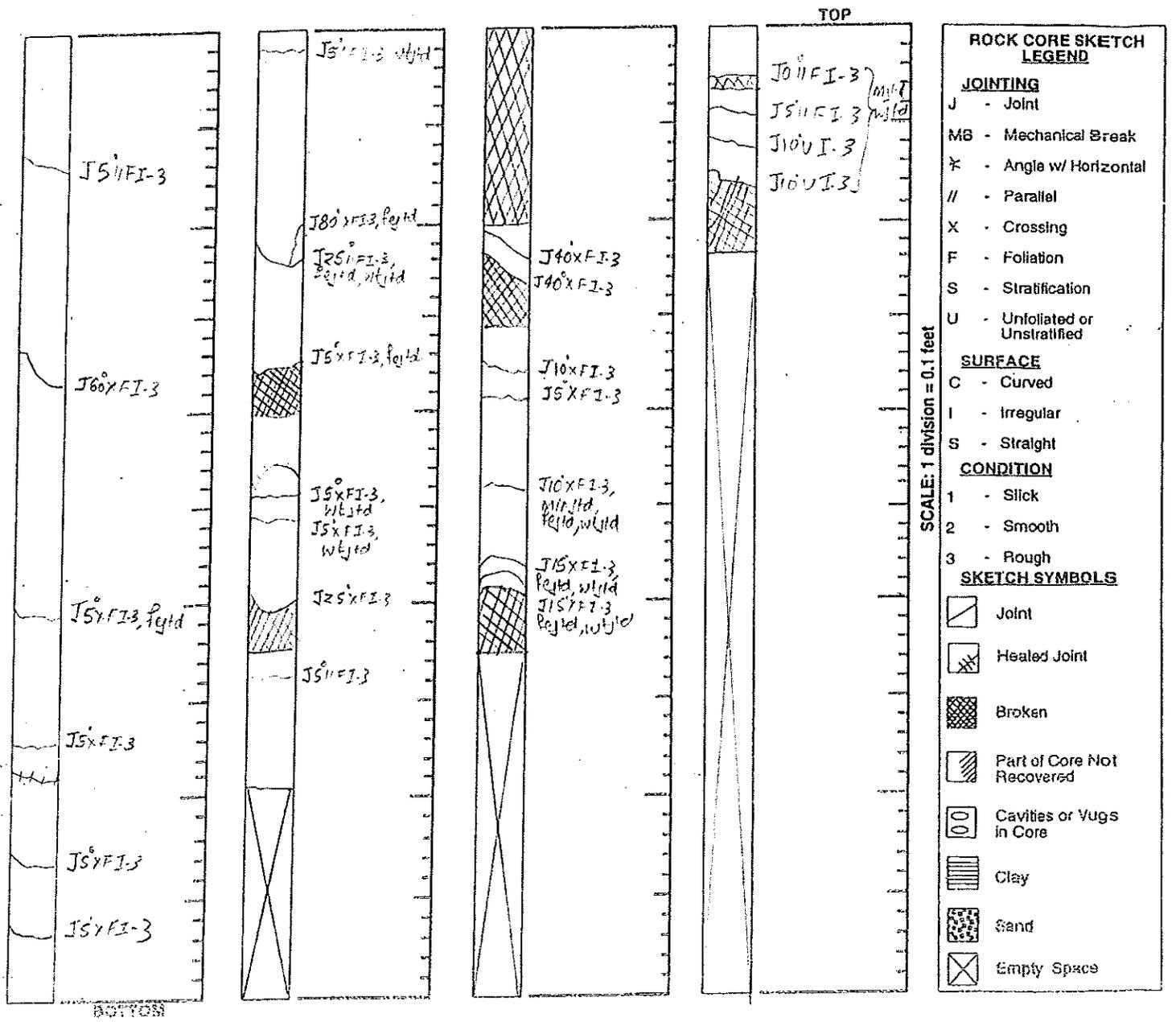
DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
7:00	1D	0.0	8-9	Brown fine to medium sand, some silt, trace gravel, brick, concrete (Fill) (SM)			DRILLED	
06-15-11		2.0	10-8				AHEAD	
Wednesday	2D	2.0	6-7	Do 1D (Fill) (SM)			4" 3"	
Clear		4.0	6-6					
80°F	3D	4.0	11-10	Brown fine to medium sand, some silt, trace gravel, coarse sand (Fill) (SM)				
		6.0	10-12					
	4D	6.0	13-11	Do 3D (Fill) (SM)				
		8.0	10-10					
	5D	8.0	3-3	Gray fine to coarse sand, some silt, trace plaster, brick, coarse sand (Fill) (SM)				
		10.0	2-3					
	6D	10.0	6-4	Do 5D (Fill) (SM)				
		12.0	5-4					
	7D	15.0	11-9	Gray brown rock fragments, some fine to medium sand, trace silt (GP-GM)				Slight hard drilling at 16'.
		17.0	8-15					
	8D	20.0	4-6	Brown fine to medium sand, some gravel, silt (SM)	T			
		22.0	14-22					
	9D	25.0	100/3"	Gray rock fragments, some fine to coarse sand, trace silt, mica (GP-GM)	D			
		25.3						
	1C	29.0	REC=24%	Weathered, highly weathered to moderately weathered gray gneissic schist, broken, iron stained & weathered joints			9*	Sand & rock fragments in wash from 30' to 34'. *Coring time in minutes per foot.
		34.0	RQD=0%				4*	
							1*	
							1*	Loss of wash from 34' to 36'.
	2C	34.0	REC=66%	Do 1C			4*	
		39.0	RQD=12%				3*	
							3*	
							2*	
	3C	39.0	REC=80%	Medium hard slightly weathered to moderately weathered gray gneissic schist, jointed to broken, weathered & iron stained joints			2*	
		44.0	RQD=54%				3*	
							4*	
							3*	
							2*	
	4C	44.0	REC=100%	Medium hard slightly weathered gray gneissic schist, jointed, weathered & iron stained joints			2*	
		49.0	RQD=84%				4*	
							4*	
							4*	
15:00							3*	End of Boring at 49'.

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. RC-9P
 SHEET 2 OF 4
 FILE NO. 10164C
 SURFACE ELEV. 23
 RES. ENGR. SKSKETTY

PROJECT RIVER CIRCLE BUILDING
 LOCATION MANHATTAN, NYC, NY

Run No.	REC / RQD						
4C		3C		2C		1C	
44	100%	39'	80%	34'	66%	29'	24%
49'	84%	44'	54%	39'	12%	34'	0%

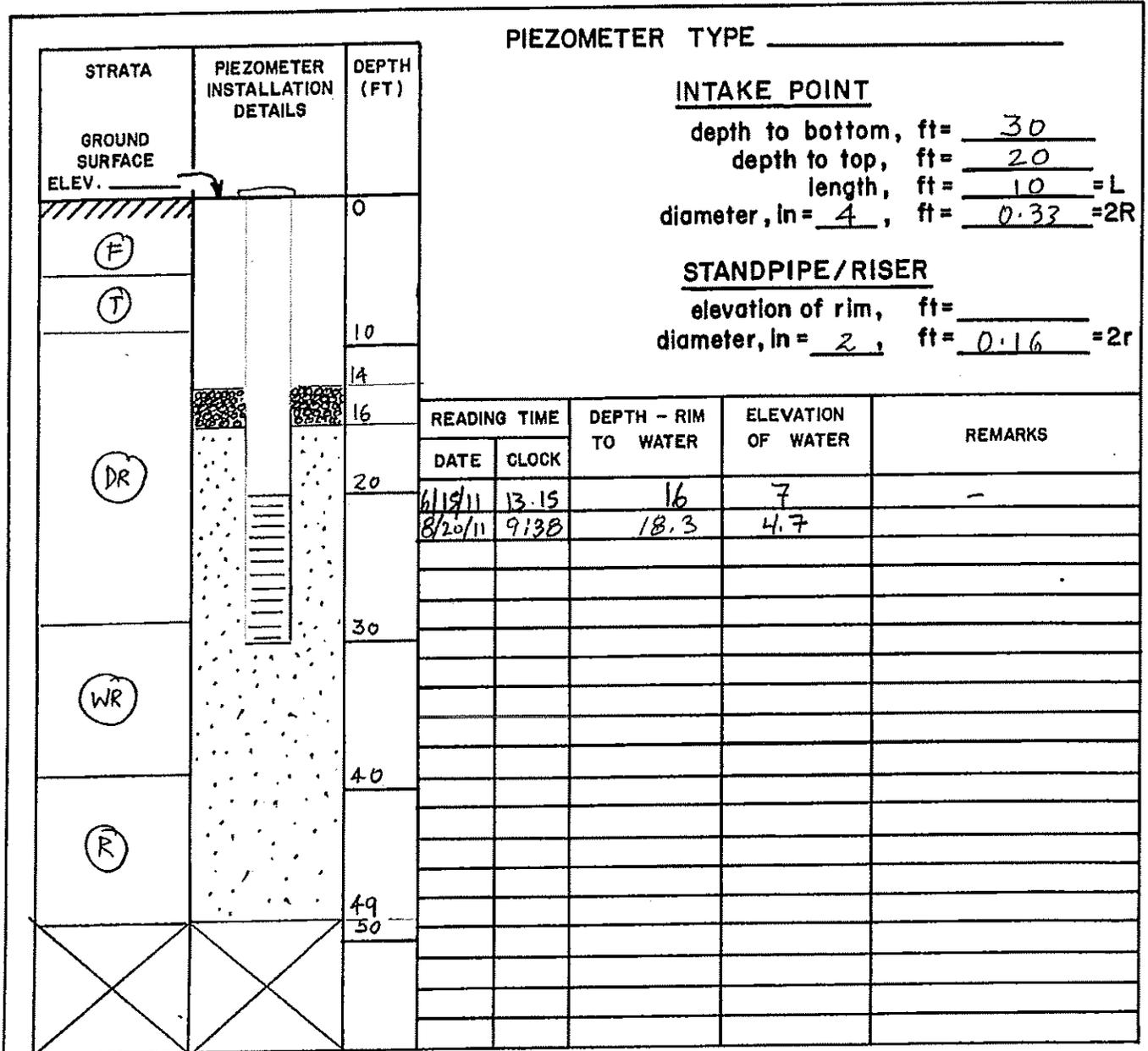


NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT RIVER CIRCLE BUILDING PIEZOMETER NO. RC-9P
 LOCATION MANHATTAN, NYC, NY
 PIEZOMETER LOCATION SEE BLP DATE OF INSTALLATION 6/15/11
 SEE SKETCH ON BACK RES. ENG. SK SKRETTY



Sand Bentonite
 Gravel Grout

GROUND SURFACE ELEV. 23

PIEZOMETER NO. RC-9P

PROPOSED SETTLEMENTS CONSULTING ENGINEERS

PROJECT	RIVER CENTER BUILDING 2	BORING NO	RC-9P
LOCATION	NEW YORK, NEW YORK	SHEET	4 OF 4
BORING LOCATION	SEE BORING LOCATION PLAN	FILE NO	10164C
		SUBJECT	23
		DISTRICT	BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX	MECHANICAL	DIA., IN. 4	DEPTH, FT. FROM 0	TO 25
SKID		HYDRAULIC	DIA., IN. 3	DEPTH, FT. FROM 0	TO 35
BARGE		OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER					

TYPE AND SIZE OF:		DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER	2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.	2-7/8, 3-7/8	
U-SAMPLER		TYPE OF DRILLING MUD	REVERT	
S-SAMPLER				
CORE BARREL	NX DOUBLE TUBE	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT	NX DIAMOND BIT	TYPE AND DIAMETER, IN.		
DRILL RODS	NWJ			
		*CASING HAMMER, LBS.	300	AVERAGE FALL, IN. 24
		*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN. 30
		*USED DONUT HAMMER.		

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-15-11	13:15	49	35	16	WATER LEVEL OBSERVED AFTER COMPLETION OF DRILLING.

PIEZOMETER INSTALLED YES NO SKETCH SHOWN ON SEE SHEET 3

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	20	TOP ELEV.	23
INTAKE ELEMENT:	TYPE	PVC	OD, IN.	2.25	LENGTH, FT.	10	TIP ELEV.	7
FILTER:	MATERIAL	SAND	OD, IN.	4	LENGTH, FT.	33	BOT. ELEV.	-26

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	29	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.	20	OTHER:	

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER MICHAEL MCERLEAN HELPERS WALTER MALINOWSKI
 REMARKS PIEZOMETER INSTALLED.

RESIDENT ENGINEER SHRINIDHI K. SHETTY DATE 06-15-11

CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A.KLAETSCH

LOG

BOHING NO RC-10
 SHEET NO 3
 FILE NO 10164C
 SURVEY ELEMENT 23
 ENGINEER DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

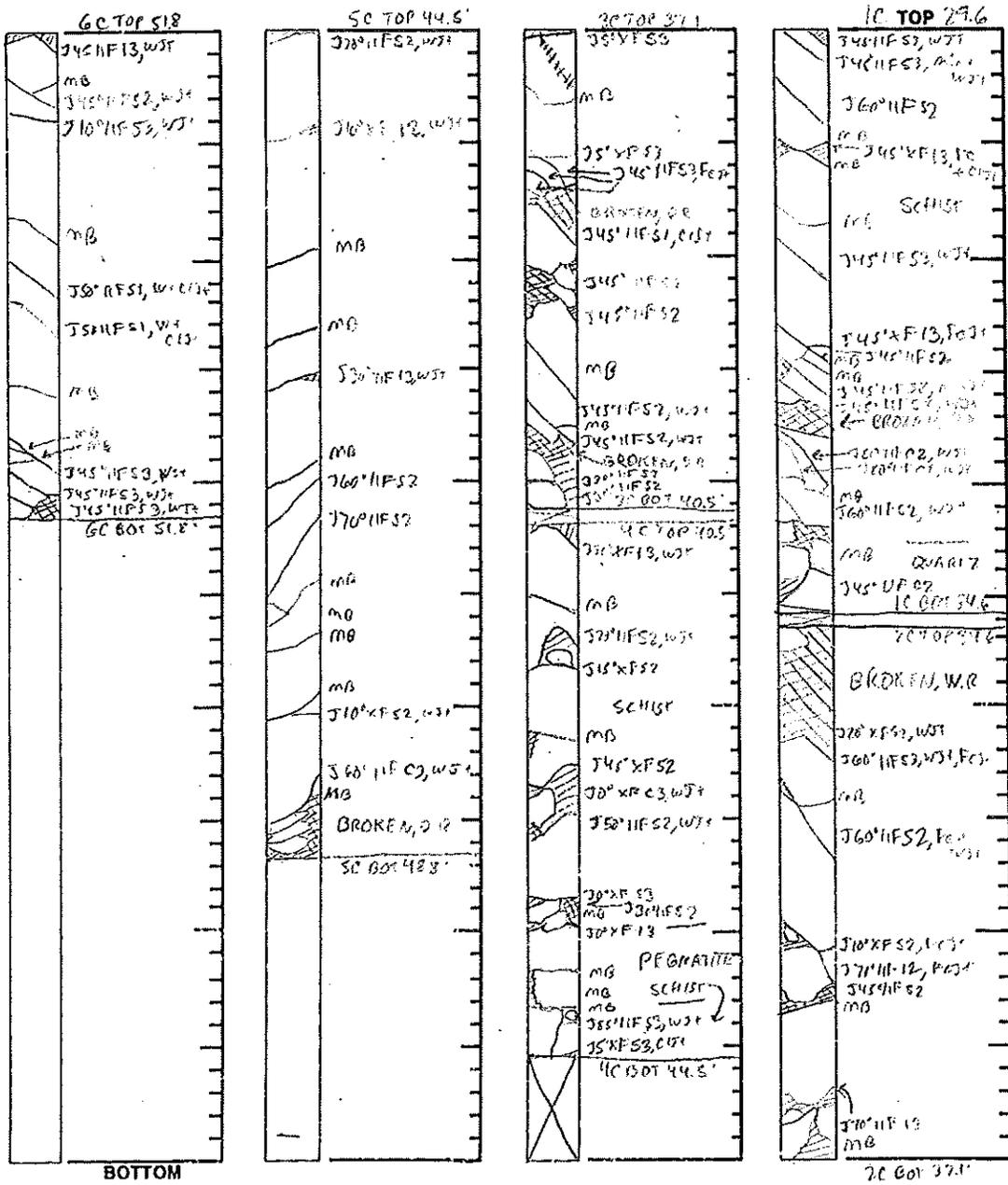
DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
12:50	1D	0.0	17-35	Top 14": Brn gvl, m-f sa, tr si, brk, veg(Fill)(SP-SM)	S		DRILLED	Fill at grade.
06-13-11		2.0	19-15	Bot 8": Blk f-m sa, sm si, tr gvl, pvc (Fill) (SM)			AHEAD	Change in wash at 2'.
Monday	2D	2.0	15-28	Top 18": Blk f-m sand, sm silt, gvl (Fill) (SM)			4"	Rig chatter from 0' to 2'.
Partly Cloudy		4.0	40-55	Bot 3": Brn f-m sand, sm silt, tr gravel (Fill) (SM)				
70°F	3D	5.0	8-8	Top 4": Brn f-m sa, sm silt, tr gravel (Fill) (SM)				
		7.0	11-7	Mid 4": Brn silty f sand, trace gravel (Fill) (SM)				
	4D	7.0	8-19	Bot 3": Gray silty fine sand (Fill) (SM)				4" Casing pushed to 8'; driven thereafter.
		9.0	24-32	Top & Bot 9": Brown fine sand, some silt, trace gravel, ash (Fill) (SM)				Hard drilling from 9' to 10.5'.
13:45				Mid 7": Gray silty fine sand (Fill) (SM)				
07:15	5D	10.0	100/3"	Rock fragments, some fine to medium sand, trace mica, silt (Fill) (GP-GM)				
06-14-11		10.3						
Tuesday								
Clear								
65°F	6D	15.0	5-5	Brown fine to medium sand, some silt, trace mica (SM)				
		17.0	6-6					
	7D	20.0	10-12	Top 9": Gray fine to medium sand, some silt (SM)				
		22.0	13-13	Bot 9": Brown silty fine to medium sand, trace gravel, coarse sand (SM)				
	8NR	24.5	100/3"	No recovery				
		24.8						
	9NR	29.6	100/0"	No recovery				
		29.6						
	1C	29.6	REC=51%	Intermediate to weathered slightly weathered to highly weathered gray gneissic schist, CIJtd to broken, W & min coated & clay & FeJts				
		34.6	RQD=7%					
	2C	34.6	REC=95%	Intermediate to weathered slightly weathered to moderately weathered gray gneissic schist, closely jointed to broken, weathered & FeJts				
		37.1	RQD=14%					
	3C	37.1	REC=62%	Intermediate to weathered slightly weathered to moderately weathered gray gneissic schist, closely jointed to broken, W & Fe & CIJts				
		40.5	RQD=15%					
	4C	40.5	REC=58%	Intermediate to weathered slightly weathered to moderately weathered gray schistose gneiss, tr pegmatite, closely jointed to brkn, weathered, clay-filled, and iron stained joints				
		44.5	RQD=24%					
	5C	44.5	REC=85%	Medium hard slightly weathered to moderately weathered gray gneissic schist, trace pegmatite, jointed to broken, weathered joints & iron stained joints				
		48.0	RQD=55%					
	6C	48.8	REC=72%	Medium hard to weathered slightly weathered to moderately weathered, gray gneissic schist, closely jointed to broken, weathered, clay-filled & iron stained joints				
		51.8	RQD=33%					
12:45								

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-10
SHEET 2 OF 3
FILE NO. 10164C
SURFACE ELEV. 23
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2
LOCATION NEW YORK, NY

Run No.	REC / RQD						
6C	72/33	5C	85/55	3C	62/15	1C	51/7
				4C	58/24	2C	95/14



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- X - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- [Symbol] Joint
- [Symbol] Healed Joint
- [Symbol] Broken
- [Symbol] Part of Core Not Recovered
- [Symbol] Cavities or Vugs in Core
- [Symbol] Clay
- [Symbol] Sand
- [Symbol] Empty Space

SCALE: 1 division = 0.1 feet

NOTES _____

MRCE SETTLEMENT MONITORING ENGINEERS

PROJECT RIVER CENTER BUILDING 2 DRILLING NO. RC-10
 LOCATION NEW YORK, NEW YORK SHEET 3 OF 3
 DRILLING LOCATION SEE BORING LOCATION PLAN FILE NO. 10164C
 DISTRICT BOROUGH PRESIDENT OF MANHATTAN SUBSECTION 23

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG _____ TYPE OF FEED _____ CASING USED YES NO
 TRUCK _____ DURING CORING _____ MECHANICAL _____ DIA., IN. 4 DEPTH, FT. FROM 0 TO 14.3
 SKID _____ HYDRAULIC X DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 BARGE _____ OTHER _____ DIA., IN. _____ DEPTH, FT. FROM _____ TO _____
 OTHER _____

TYPE AND SIZE OF: _____ DRILLING MUD USED YES NO
 D-SAMPLER 2" O. D. SPLIT SPOON DIAMETER OF ROTARY BIT, IN. 3-3/4
 U-SAMPLER _____ TYPE OF DRILLING MUD E-Z MUD
 S-SAMPLER _____
 CORE BARREL NX DOUBLE TUBE AUGER USED YES NO
 CORE BIT NX DIAMOND BIT TYPE AND DIAMETER, IN. _____
 DRILL RODS NWJ
 *CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-14-11	07:15	10.3	9.3		MORNING MUD LEVEL READING (NONE OBSERVED).
06-14-11	12:45	51.8	14.3	11.6	READING TAKEN AT END OF BORING,

PIEZOMETER INSTALLED YES 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. 29.6 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. 22.2 OTHER: _____

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER MICHAEL MCERLEAN HELPERS WALTER MALINOWSKI
 REMARKS BOREHOLE BACKFILLED WITH SOIL CUTTINGS UPON COMPLETION.
 RESIDENT ENGINEER DANIEL GEORGE DATE 06-14-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

APPENDIX B

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: RIVERSIDE SOUTH
LOCATION: NEW YORK, NEW YORK

BORING NO. M61-2
SHEET 1 OF 4
FILE NO. 10164
SURFACE ELEV. 20.0±
RES. ENGR. KATHLEEN SCHULZE

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
11:30 09-09-05 Friday Cloudy 78°F							4" 3"	Drilled ahead (Top 10' to 12' new fill for construction road.)
	1D	5.0	1-10	Gray fine to coarse sand, some gravel, silt (Fill) (SM)	NF	5		Lost a lot of water in new fill (NF)
		7.0	14-20					
							10	Can't continue 4" casing due to boulder.
	2D	11.0	13-17	Brown fine to coarse sand, some silt, red brick, trace gravel (Fill) (SM)	F			Lost water.
		13.0	20-26					
	3D	13.0	9-11	Dark brown silty fine to medium sand, some gravel (Fill) (SM)			15	
Cloudy 78°F		15.0	11-18					
	4D	15.0	11-9	Brown gray silty fine to medium sand, trace gravel (Fill) (SM)				
03:00		17.0	17-24					
08:00 09-12-05 Monday Clear 70°F								
	5D	20.0	21-81	Dark gray fine to coarse sand, some gravel, silt (Fill) (SM)	F		20	2nd 6": Possible boulder.
		22.0	30-31					
	6D	25.0	4-6	Dark gray fine to coarse sand, some gravel, wood, organic silt (SM)			25	
		27.0	7-6					
							28	
	7D	30.0	2-2	Soft dark gray organic silty clay, trace shells, trace gravel (OH)			30	WC=63
		32.0	2-2					
	8D	35.0	3-2	Soft dark gray organic silty clay, trace shells (OH)	O		35	WC=60
		37.0	2-2					
	9D	40.0	WH/12"	Soft gray organic clay, trace shells, tip 1" wood (OH)			40	WC=53
		42.0	2-1					
							43.5	
	10D	45.0	6-8	Red brown silty fine sand, trace mica (SM)	G		45	
		47.0	16-21					
							50	
	11D	50.0	8-14	Do 10D (SM)				
		52.0	19-24					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. M61-2
SHEET 2 OF 4
FILE NO. 10164
SURFACE ELEV. 20.0±
RES. ENGR. KATHLEEN SCHULZE

PROJECT: RIVERSIDE SOUTH
LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
	1C	52.0	REC=82%	Medium hard slightly weathered gray pegmatite, jointed to closely jointed, weathered joints to iron stained joints	G	52		
		57.0	RQD=58%					
Clear 84°F 03:30	2C	57.0	REC=100%	Medium hard to hard slightly weathered gray pegmatite, jointed to closely jointed, weathered joints to iron stained joints	R	55		
		62.0	RQD=75%					
08:45						60		End of boring at 62'.
09-14-05						62		
Wednesday						65		
Overcast								
80°F								
10:00						70		
Overcast								
84°F								
						75		
						80		
						85		
						90		
						95		
						100		

BORING NO. M61-2

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. M61-2
 SHEET 3 OF 4
 FILE NO. 10164
 SURFACE ELEV. 12.0
 RES. ENGR. K. SCHULZE

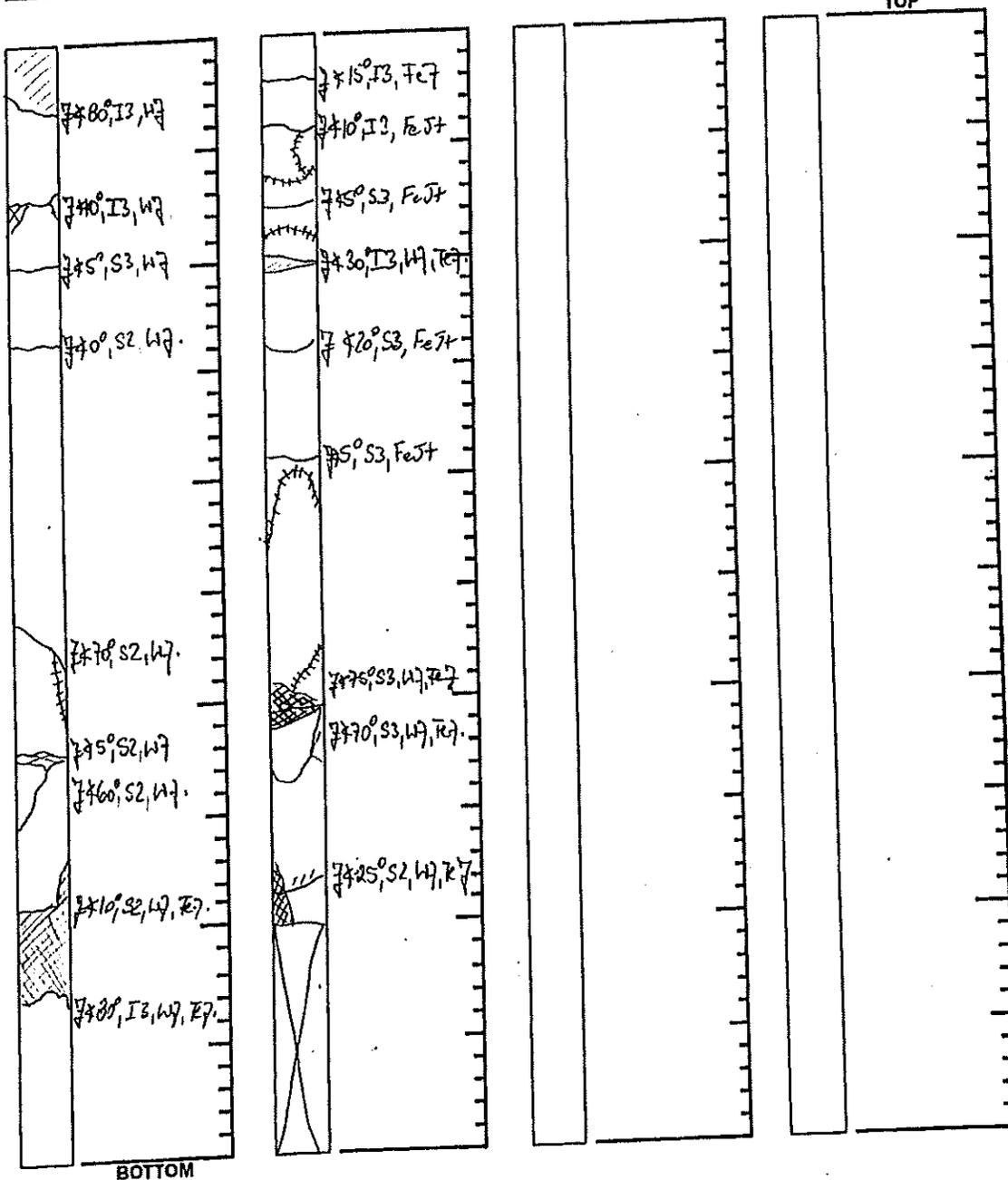
PROJECT RIVERSIDE SOUTH
 LOCATION NEW YORK, NY

Run No.	REC / RQD
2C	100 / 75

Run No.	REC / RQD
1C	82 / 58

Run No.	REC / RQD

Run No.	REC / RQD



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- ∠ - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- (diagonal lines) - Joint
- (cross-hatch) - Healed Joint
- (stippled) - Broken
- (diagonal lines, different pattern) - Part of Core Not Recovered
- (circles) - Cavities or Vugs in Core
- (horizontal lines) - Clay
- (stippled, different pattern) - Sand
- (empty) - Empty Space

NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>RIVERSIDE SOUTH</u>	BORING NO.	<u>M61-2</u>
LOCATION	<u>NEW YORK, NEW YORK</u>	SHEET	<u>4</u> OF <u>4</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>10164</u>
		SURFACE ELEV.	<u>20.0±</u>
		DATUM	<u>BOROUGH PRESIDENT OF MANHATTAN</u>

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>B-61</u>	DURING CORING <u>MECHANICAL</u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>10</u>
SKID _____	<u>HYDRAULIC</u>	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>45</u>
BARGE _____	<u>OTHER</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER _____				

TYPE AND SIZE OF:	DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER <u>2" O.D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>4-3/4, 3-7/8, 2-15/16</u>		
U-SAMPLER _____	TYPE OF DRILLING MUD _____		
S-SAMPLER _____			
CORE BARREL <u>NX DOUBLE TUBE</u>	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT <u>NX DIAMOND</u>	TYPE AND DIAMETER, IN. _____		
DRILL RODS <u>NWJ</u>			
	CASING HAMMER, LBS. <u>140*</u>	AVERAGE FALL, IN. <u>30</u>	
	SAMPLER HAMMER, LBS. <u>140*</u>	AVERAGE FALL, IN. <u>30</u>	
	*MANUAL HAMMER		

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
09-14-05	10:00	62	45	12.2	UPON COMPLETION OF HOLE.

PIEZOMETER INSTALLED YES 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. <u>52</u>	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. <u>10</u>	OTHER: _____

BORING CONTRACTOR TESTWELL LABS, INC.
DRILLER CEMMIE HARTLEY **HELPERS** ROBERT FULLER/ROBERT SHANE

REMARKS BACKFILLED UPON COMPLETION.

RESIDENT ENGINEER KATHLEEN SCHULZE **DATE** 08-14-05

CLASSIFICATION CHECK: CHERYL MOSS **TYPING CHECK:** _____

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. M61-1P

SHEET 1 OF 7

FILE NO. 10164

SURFACE ELEV. 13.1

RES. ENGR. K. SCHULZE

PROJECT: RIVERSIDE SOUTH
LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS	
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS		
07:00					ASPHALT	4"	3"	Drilled.	
10-03-05	1D	1.0	11-11	Gray fine to coarse sand, some silt, gravel, trace wood, mica, layer tan silty fine sand (SM)	F				
Monday		3.0	12-22						
Overcast	2D	3.0	12-18	Fine sand, some gravel, trace silt, shells (SP-SM)		5			
70°F		5.0	18-19						
	3D	5.0	14-15	Fine to coarse sand, some gravel, silt, trace red brick (SM)					
		7.0	22-14						
	4D	7.0	14-16	Fine to coarse sand, some silt, trace gravel (SM)					
		9.0	16-12						
	5D	10.0	11-17	Coarse sand, trace gravel (SP)					
		12.0	15-15						
	6NR	15.0	6-2	No recovery			Driller had already advanced with roller bit when spoon was opened.		
		17.0	2-2						
	7D	20.0	WH/24"	Soft gray organic silty clay, trace shell (OH)	O			WC=58	
		22.0							
	8D	25.0	WH/24"	Soft gray organic silty clay, trace shell, fine to medium sand (OH)		25			WC=44 WC=Water Content in percent of dry weight.
		27.0							
	9D	30.0	3-4	Brown fine to coarse sand, some silt, trace gravel, clay (SM)					
		32.0	3-4						
	10D	35.0	23-25	Red gravel and coarse sand (GP)	G			Probable wash.	
		37.0	25-23						
	11D	40.0	50/4"	Gravel, rock fragment (GP)			Refusal Possible boulder.		
		40.3							
					BLDRS /G	42.5		Roller bit through many smaller boulder.	
						45			
					G	47.5			
						50			
						51			
02:35									

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. M61-1P
SHEET 2 OF 7
FILE NO. 10164
SURFACE ELEV. 13.1
RES. ENGR. K. SCHULZE

PROJECT: RIVERSIDE SOUTH
LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
07:30					G	51	3"	
10-04-05	1C	51.0	REC=46%	Weathered gray mica schist, broken, weathered joints	WR			
Tuesday		56.0	RQD=0%					
Overcast						53.5		
65°F						55		
	2C	56.0	REC=97%	Medium hard slightly weathered gray gneissic schist, jointed, Iron stained joints	R			
		61.0	RQD=90%					
						60		
12:00						61		End of boring at 61'.
								3rd run for RQD was cancelled due to broken core barrel.
						65		
						70		
						75		
						80		
						85		
						90		
						95		
						100		

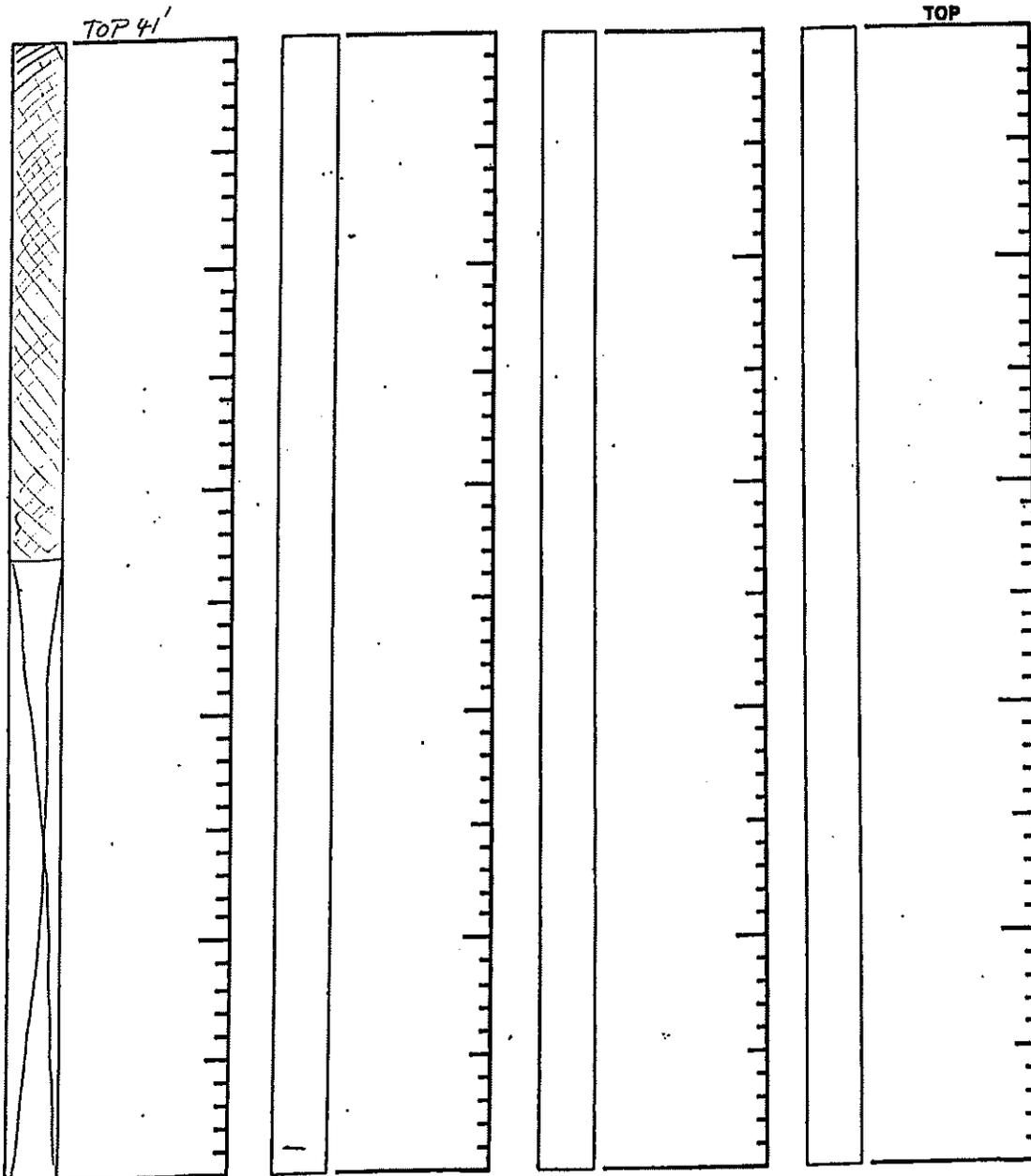
BORING NO. M61-1P

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. M61-1P
 SHEET 3 OF 7
 FILE NO. 10160
 SURFACE ELEV. 13.1
 RES. ENGR. K. Schultze

PROJECT RIVERSIDE SOUTH
 LOCATION NEW YORK, NY

Run No.	REC / RQD						
1C	46 / 0						



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- ∠ - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

SCALE: 1 division = 0.1 feet

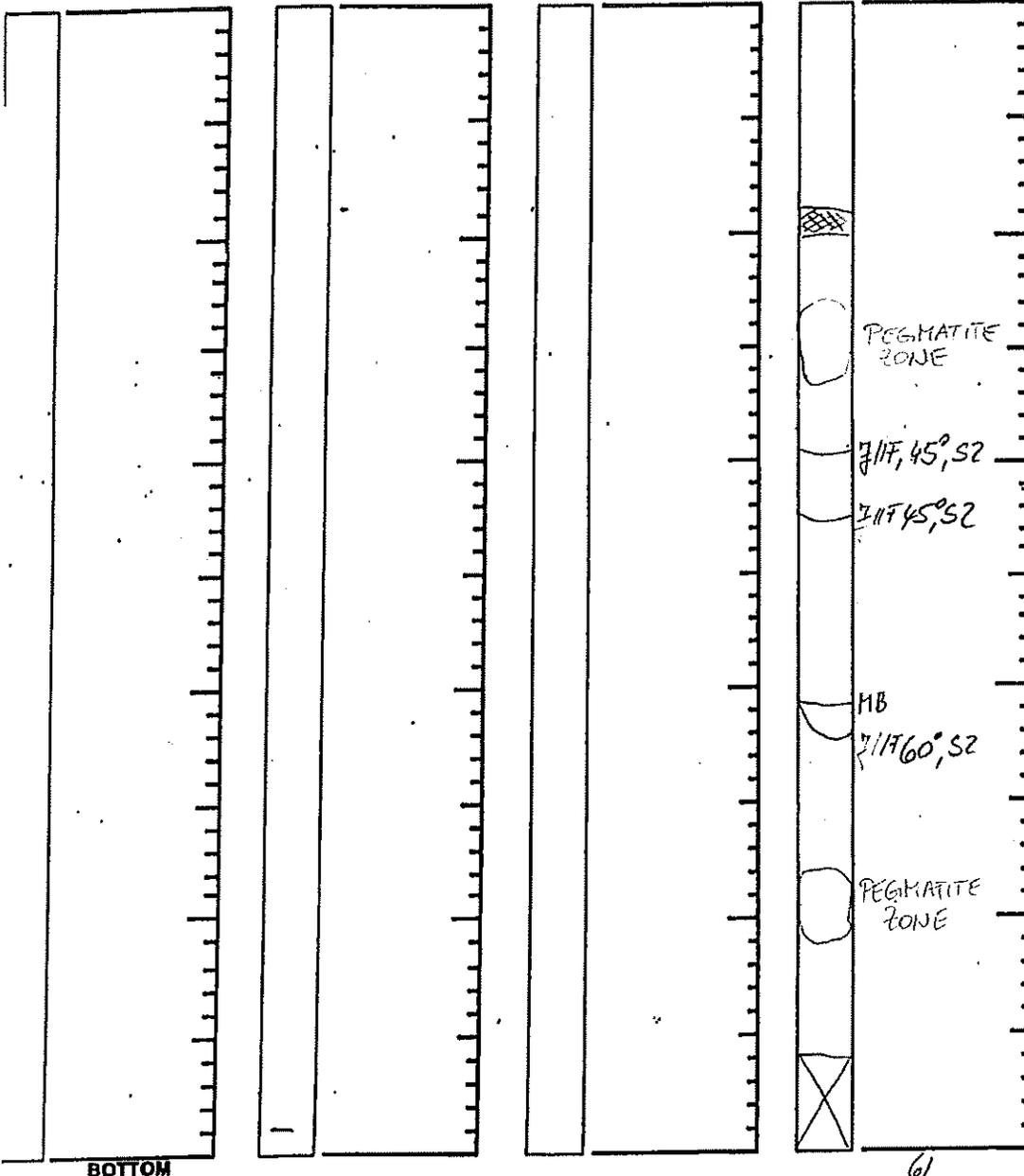
NOTES _____

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. M61-1P
SHEET 4 OF 7
FILE NO. 10164
SURFACE ELEV. 13.1
RES. ENGR. K. Schulze

PROJECT RIVERSIDE SOUTH
LOCATION NEW YORK, NY

Run No.	REC / RQD						
						2C	92/90



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

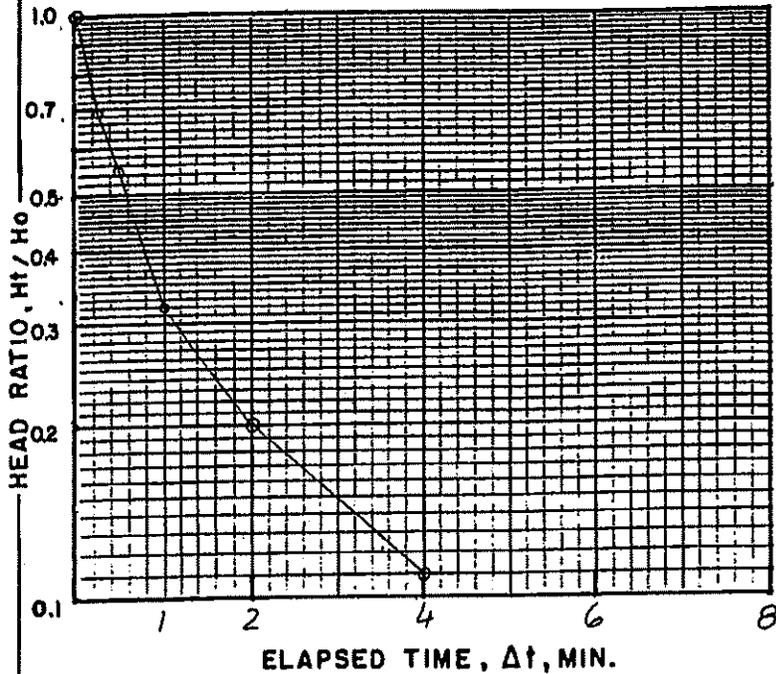
- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

NOTES _____

VARIABLE HEAD PERMEABILITY TEST

BOREHOLE OR PIEZOMETER NO. M61-1P
 TEST NO. 1

PROJECT RIVERSIDE SOUTH RES. ENG. K. SCHULZE
 LOCATION NEW YORK, NY CALC. BY KS DATE 10/07/05
 PIEZOMETER LOCATION SEE BORING LOC. PLAN CH'KD BY _____ DATE _____



INTAKE POINT

depth to bottom, ft = 17.5
 depth to top, ft = 7.5
 length, ft = 10 = L
 diameter, in = 2, ft = 0.17 = 2r

STANDPIPE/RISER

diameter, in = 2, ft = 0.17 = 2r
 depth of casing, ft = 53
 depth to which standpipe was bailed, ft = = Z

READING TIME			TEST DEPTH-RIM TO WATER ft.	DEPTH-RIM TO TIDE OR GWL ft.	UNBALANCED HEAD H ft.	HEAD RATIO Ht/Ho	REMARKS
DATE	CLOCK	Δt MIN.					
10-07-05	11:07		11.1	11.1	0		STATIC WATER LEVEL
		0	0.0		11.1	1.0	
		0.25	3.4		7.7	0.69	
		0.5	5.0		6.1	0.55	
		1	7.55		3.55	0.32	
		2	8.85		2.25	0.20	
		4	9.9		1.2	0.11	
		8	10.5		0.6	0.05	
		16	10.6		0.5	0.045	

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>RIVERSIDE SOUTH</u>	BORING NO.	<u>M61-1P</u>
LOCATION	<u>NEW YORK, NEW YORK</u>	SHEET	<u>7 OF 7</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>10164</u>
		SURFACE ELEV.	<u>13.1</u>
		DATUM	<u>BOROUGH PRESIDENT OF MANHATTAN</u>

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK <u>D-50</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>40</u>
SKID	HYDRAULIC <u>X</u>	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>53</u>
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER				

TYPE AND SIZE OF:	DRILLING MUD USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER <u>2" O.D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>4-3/4, 3-7/8, 2-1/2</u>		
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL <u>NX DOUBLE TUBE</u>	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT <u>DIAMOND</u>	TYPE AND DIAMETER, IN.		
DRILL RODS <u>NWJ</u>			
	CASING HAMMER, LBS. <u>140*/300*</u>	AVERAGE FALL, IN. <u>30</u>	
	SAMPLER HAMMER, LBS. <u>140*</u>	AVERAGE FALL, IN. <u>30</u>	
	*MANUAL		

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED YES 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. <u>51</u>	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. <u>10</u>	OTHER: _____

BORING CONTRACTOR TESTWELL LABORATORIES, INC.

DRILLER GARY SMITH, RICHARD RUGER **HELPERS** RICHARD RUGER, CARLOS RODRIQUEZ

REMARKS PIEZOMETER SET.

RESIDENT ENGINEER KATHLEEN SCHULZE **DATE** 10-04-05

CLASSIFICATION CHECK: CHERYL MOSS **TYPING CHECK:** _____

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE
 LOCATION: NEW YORK, NEW YORK

BORING NO. B-11
 SHEET 1 OF 3
 FILE NO. 10164
 SURFACE ELEV. 4.4
 RES. ENGR. T.C. MICHAEL LAW

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"				DRILLED AHEAD	
12:00								Hand auger to 3'.
03-19-04					F			
Friday							4"	
Mixed Snow & Sun 30°F	1D	3.0	100/4"	Gray green micaceous fine to medium sand, some silt, rock fragments (SM)		3	↓	REC=4"
		5.0				5		
	2D	5.0	24-34	Gray green micaceous fine to medium sand, some silt, rock fragments, trace clay (SM)	DR			
		6.8	52-100/3"			7		
15:00	1C	7.0	REC=88%	Medium hard slightly weathered gray weakly foliated granite, closely jointed, iron stained joints			8*	
07:00		12.0	RQD=30%				7*	
03-22-04						10	7*	
Monday							6*	
Sunny 20°F	2C	12.0	REC=96%	Medium hard slightly weathered gray gneissic schist, closely jointed, iron stained joints	R		5*	
		17.0	RQD=44%				5*	
						15	4*	*Coring time in minutes per foot.
						17	3*	End of boring at 17'.
10:00							3*	
						20		
						25		
						30		
						35		
						40		
						45		
						50		

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. B-11
SHEET 2 OF 3
FILE NO. 10164
SURFACE ELEV. 4.4
RES. ENGR. T.C. MICHAEL LAW

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

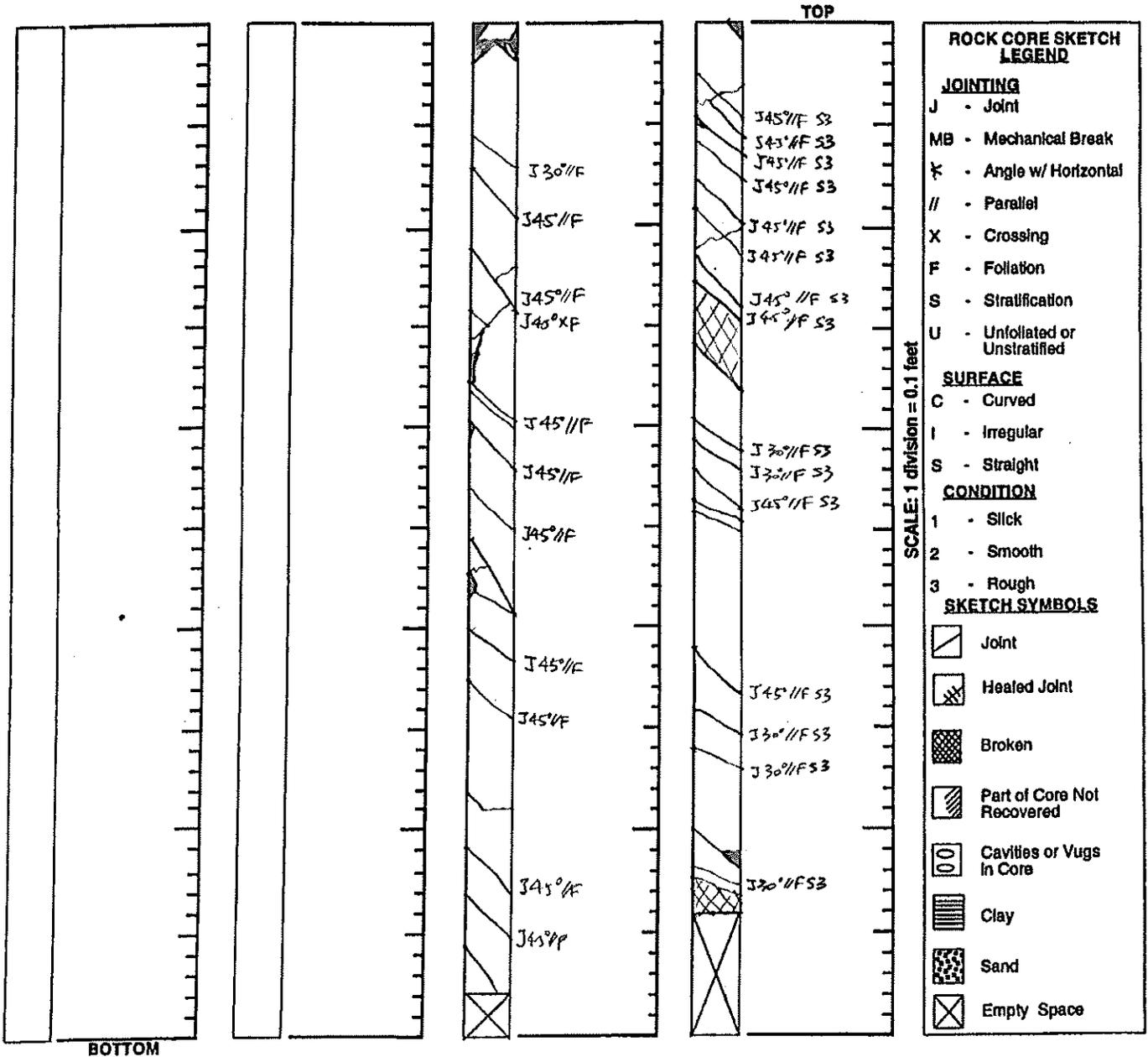
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
2C	96% 44.7%
12'-17'	

Run No.	REC / RQD
1C	88% 30%
7'-12'	



NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO.	B-11
LOCATION	NEW YORK, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE BORING LOCATION PLAN	FILE NO.	10164
		SURFACE ELEV.	4.4
		DATUM	BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	DURING CORING	DIA., IN.	4	DEPTH, FT. FROM 0 TO 4
SKID	MECHANICAL	DIA., IN.		DEPTH, FT. FROM TO
BARGE	HYDRAULIC	DIA., IN.	X	DEPTH, FT. FROM TO
OTHER	OTHER	DIA., IN.		DEPTH, FT. FROM TO

TYPE AND SIZE OF:	DRILLING MUD USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER	DIAMETER OF ROTARY BIT, IN.		3-7/8
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT	TYPE AND DIAMETER, IN.		
DRILL RODS			
	CASING HAMMER, LBS.	300	AVERAGE FALL, IN. 24
	SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
03-22-04	07:00	7	4	1	OVERNIGHT.

PIEZOMETER INSTALLED **YES** **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.	7	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.	10	OTHER:

BORING CONTRACTOR	TEST WELL LABORATORIES
DRILLER	HELPERS
REMARKS	EDDIE CARDONA/BRENTON ROUSEY

RESIDENT ENGINEER **T.C. MICHAEL LAW** **DATE** **03-19-04/03-22-04**

BORING NO. **B-11**

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE
LOCATION: NEW YORK, NEW YORK

BORING NO. B-12
SHEET 1 OF 3
FILE NO. 10164
SURFACE ELEV. 3.3
RES. ENGR. T.C. MICHAEL LAW

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
08:00							DRILLED	Hand auger to 3'.
02-24-04					F		AHEAD	
Tuesday						3	4"	
Snow							↓	Driller reported decomposed rock from 3'. Roller bit to 5'.
20°F	1D	5.0	27-100/5"	Gray rock fragments, some medium to fine sand, trace silt (GP-GM)	DR	5		
		5.9				6		
	1C	6.0	REC=83%	Top 3': Medium hard slightly weathered gray gneissic schist, clj, iron stained joints			4"	
		10.5	RQD=40%	Bot 1.5': Intermediate moderately weathered gray mica schist, broken			3"	Driller had to stop after 4.5', no water.
							3"	
	2C	10.5	REC=100%	Medium hard slightly weathered gray gneissic schist, jointed to closely jointed, iron stained joints	R	10	3"	
		15.5	RQD=62%				1"	
							3"	
							3"	
12:30						15	2"	*Coring time in minutes per foot.
						15.5	2"	End of boring at 15.5'.
						20		
						25		
						30		
						35		
						40		
						45		
						50		

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. B-12

SHEET 2 OF 3

FILE NO. 10164

SURFACE ELEV. 3.3

RES. ENGR. T.C. MICHAEL LAW

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

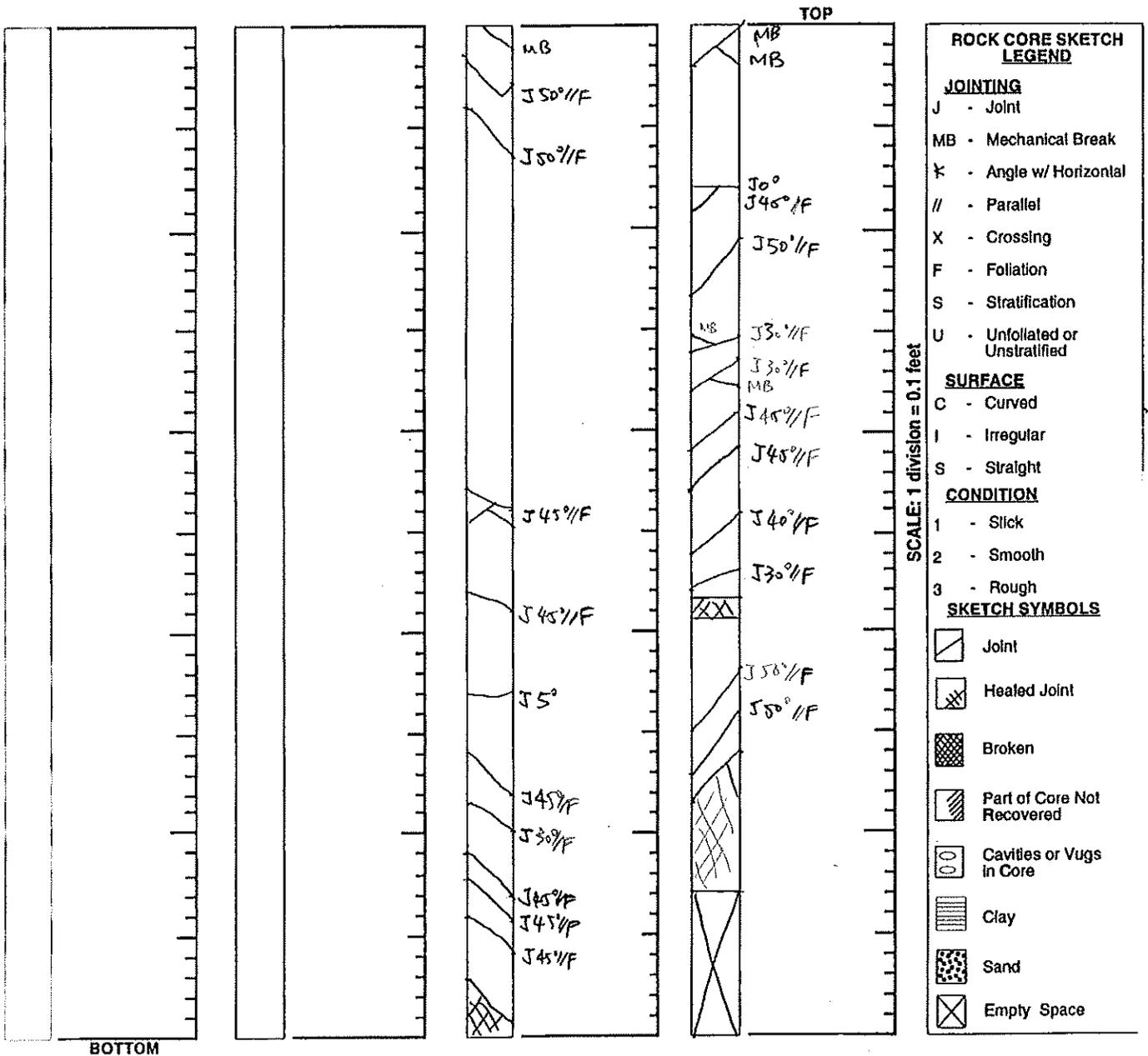
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
2c	100%
10.5' 15.5'	62%

Run No.	REC / RQD
1c	93%
6'-10.5'	40%



NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO.	B-12
LOCATION	NEW YORK, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE BORING LOCATION PLAN	FILE NO.	10164
		SURFACE ELEV.	3.3
		DATUM	BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	MOBILE B-58	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:	DRILLING MUD USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER 2' O.D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		4-3/4, 3-7/8
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL NX-DOUBLE TUBE	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT NX-DIAMOND	TYPE AND DIAMETER, IN.		
DRILL RODS NWJ			
	*CASING HAMMER, LBS.	140	AVERAGE FALL, IN. 30
	*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN. 30
	*AUTOMATIC HAMMER		

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
02-24-04	11:30	15.5	4	3	AFTER HOLE COMPLETION.

PIEZOMETER INSTALLED **YES** **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.	6	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.	9.5	OTHER:

BORING CONTRACTOR	TEST WELL LABORATORIES
DRILLER ROB WARE	HELPERS BRENTON ROUSEY
REMARKS AUTOMATIC HAMMER	
RESIDENT ENGINEER T.C. MICHAEL LAW	DATE 02-24-04

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE
LOCATION: NEW YORK, NEW YORK

BORING NO. B-13
SHEET 1 OF 3
FILE NO. 10164
SURFACE ELEV. 2.6
RES. ENGR. T.C. MICHAEL LAW

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
10:00							DRILLED	Hand auger to 2'.
03-22-04	1D	2.0	100/5"	Gray green micaceous fine to medium sand, some silt, trace rock fragments (SM)	F DR	2	AHEAD	
Monday		2.4				3	4*	Hard drilling from 3' to 5'.
Sunny 20°F						5		
15:30								
07:00	1C	5.0	REC=80%	Intermediate slightly to moderately weathered gray gneissic schist, closely jointed to broken, iron stained joints	R		5*	Start coring at 5' due to not enough clearance for the skid rig.
03-23-04		10.0	RQD=20%				5*	
Tuesday							6*	
Sunny							4*	
30°F						10	4*	
	2C	10.0	REC=62%	Intermediate slightly to moderately weathered gray gneissic schist, trace pegmatite, closely jointed, iron stained joints	R		5*	
		15.0	RQD=10%				4*	
							3*	
							4*	
	3C	15.0	REC=52%	Intermediate slightly weathered gray gneissic schist, closely jointed to broken, iron stained joints	R	15	4*	*Coring time in minutes per foot.
		20.0	RQD=20%				4*	
							4*	
							5*	
14:30						20	4*	End of boring at 20'.
						25		
						30		
						35		
						40		
						45		
						50		

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. B-13

SHEET 2 OF 3

FILE NO. 10164

SURFACE ELEV. 2.6

RES. ENGR. T.C. MICHAEL LAW

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

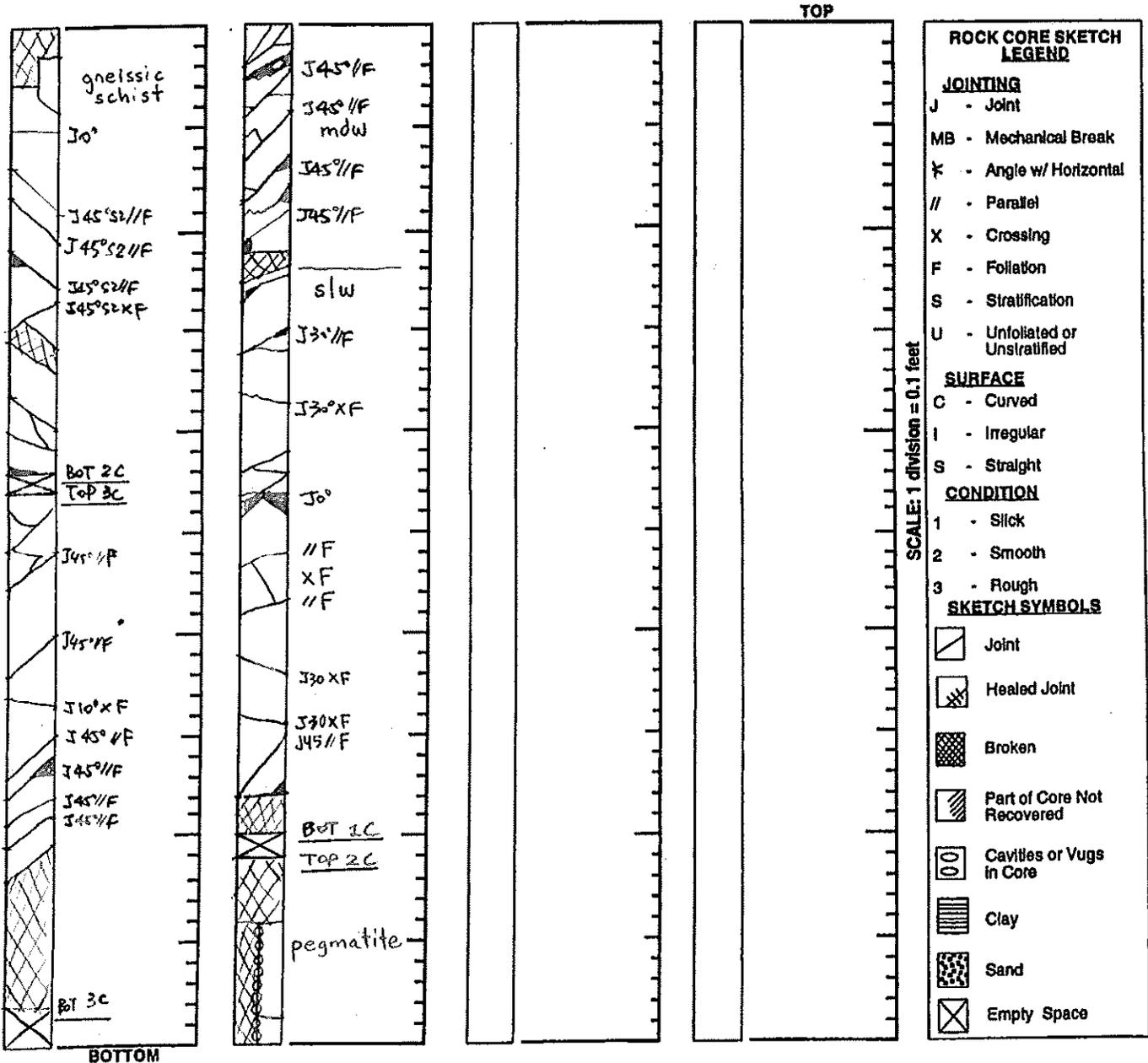
LOCATION NEW YORK, NY

Run No.	REC / RQD
2C CONT'D	
3C 15'-20'	52% 20%

Run No.	REC / RQD
1C 5'-10'	80% 20%
2C 10'-15'	62% 10%

Run No.	REC / RQD

Run No.	REC / RQD



NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO.	B-13
LOCATION	NEW YORK, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE BORING LOCATION PLAN	FILE NO.	10164
		SURFACE ELEV.	2.6
		DATUM	BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	DURING CORING	DIA., IN.	4	DEPTH, FT. FROM 0 TO 4
SKID	MECHANICAL	DIA., IN.		DEPTH, FT. FROM TO
BARGE	HYDRAULIC	DIA., IN.	X	DEPTH, FT. FROM TO
OTHER	OTHER			

TYPE AND SIZE OF:	DRILLING MUD USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER	DIAMETER OF ROTARY BIT, IN.		3-7/8
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT	TYPE AND DIAMETER, IN.		
DRILL RODS			
	CASING HAMMER, LBS.	300	AVERAGE FALL, IN. 24
	SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION AFTER HOLE COMPLETION.
03-23-04	14:30	20	4	1	

PIEZOMETER INSTALLED **YES** **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.	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.	15	OTHER:

BORING CONTRACTOR	TEST WELL LABORATORIES
DRILLER	HELPERS
REMARKS	GEORGE TIRADO, BRENTON ROUSEY

RESIDENT ENGINEER	T.C. MICHAEL LAW	DATE	03-22-04/03-23-04
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MRCE Form BS-1 **BORING NO. B-13**

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-14
 SHEET 1 OF 3
 FILE NO. 10164
 SURFACE ELEV. 2.9
 RES. ENGR. T.C. MICHAEL LAW

PROJECT: RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE
 LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS	
	NO.	DEPTH	BLOWS/6"						
12:30					F	2	DRILLED AHEAD	Hand auger to 2'.	
02-24-04					DR	4.5	4" ↓ 3*	Driller reported decomposed rock from 2', roller bit to 4.5'.	
Tuesday	1C	4.5	REC=92%	Medium hard slightly weathered gray gneissic schist, closely jointed, iron stained joints			2*		
Snow		9.5	RQD=20%				2*		
20°F	2C	9.5	REC=96%	Hard slightly weathered gray gneissic schist, jointed to closely jointed, iron stained joints	R	10	2* 3*	*Coring time in minutes per foot.	
		14.5	RQD=70%				2* 2*		
						14.5	2*		End of boring at 14.5'.
15:00									
						20			
						25			
						30			
						35			
						40			
						45			
						50			

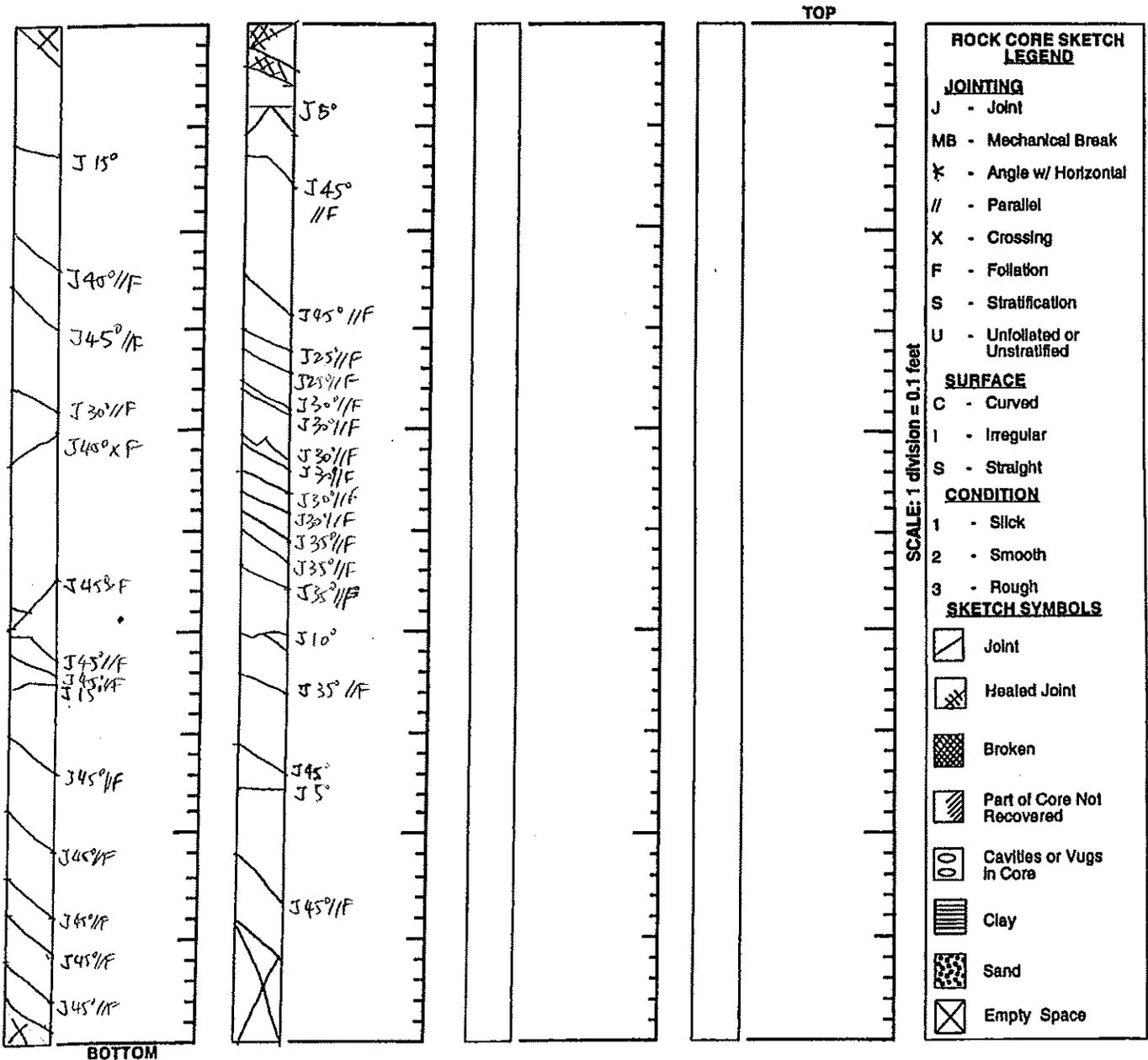
**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. B-14
 SHEET 2 OF 3
 FILE NO. 10164
 SURFACE ELEV. 2.9
 RES. ENGR. T. C. MICHAEL (AW)

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

LOCATION NEW YORK, NY

Run No.	REC / RQD	Run No.	REC / RQD	Run No.	REC / RQD	Run No.	REC / RQD
2 C 9.5' - 14.5'	96% / 70%	1 C 4.3' - 9.5'	92% / 20%				



NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO. B-14
LOCATION NEW YORK, NEW YORK	SHEET 3 OF 3
BORING LOCATION SEE BORING LOCATION PLAN	FILE NO. 10164
	SURFACE ELEV. 2.9
	DATUM BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

		TYPE OF FEED		CASING USED		X YES		NO	
TYPE OF BORING RIG	DURING CORING	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	4
TRUCK	MOBILE B-58	HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
SKID		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE									
OTHER									

TYPE AND SIZE OF:		DRILLING MUD USED		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER	2" O.D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		4-3/4, 3-7/8	
U-SAMPLER		TYPE OF DRILLING MUD			
S-SAMPLER					
CORE BARREL	NX-DOUBLE TUBE	AUGER USED		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BIT	NX-DIAMOND	TYPE AND DIAMETER, IN.			
DRILL RODS	NWJ				
		*CASING HAMMER, LBS.	140	AVERAGE FALL, IN.	30
		*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30
		*AUTOMATIC HAMMER			

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED YES 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.	4.5	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.	10	OTHER:

BORING CONTRACTOR	TEST WELL LABORATORIES
DRILLER ROB WARE	HELPERS BRENTON ROUSEY
REMARKS AUTOMATIC HAMMER.	
RESIDENT ENGINEER T.C. MICHAEL LAW	DATE 02-24-04