



## Robyn Wong

---

**From:** Dan Eschenasy (Buildings) <DEschenasy@buildings.nyc.gov>  
**Sent:** Monday, May 08, 2017 10:47 AM  
**To:** Robyn Wong  
**Cc:** Aleksandr Koval (Buildings); Lek Jani (Buildings)  
**Subject:** RE: Peer Review 200 Amsterdam Avenue 122887224

Lek/Alex,

The peer review for FOUNDATION is accepted. Please, when drawings are submitted please verify that the foundation or geotechnical notes indicate need for additional

Dan Eschenasy, PE,SECB, F.SEI  
Department Chief Structural Engineer  
NYC Buildings  
deschenasy@buildings.nyc.gov

borings, Thank you, Dan

---

**From:** Robyn Wong [mailto:robyn@gillmaninc.com]  
**Sent:** Monday, May 08, 2017 10:38 AM  
**To:** Dan Eschenasy (Buildings)  
**Cc:** Aleksandr Koval (Buildings); Lek Jani (Buildings)  
**Subject:** RE: Peer Review 200 Amsterdam Avenue 122887224

Dan,  
See attached updated foundation dwg & attached response from Engineer. Please let me know if this will suffice or do you need this in another format?

Call with questions or comments.

Sincerely,  
**Robyn Wong**  
Project Manager

**Gillman Consulting Inc**  
40 Worth Street, Suite 600  
New York, NY 10013  
T: 212.349.9304 | F: 212.349.9346 | E: robyn @ gillmaninc.com

---

**From:** Dan Eschenasy (Buildings) [mailto:DEschenasy@buildings.nyc.gov]  
**Sent:** Monday, May 08, 2017 10:28 AM  
**To:** Robyn Wong <robyn@gillmaninc.com>  
**Cc:** Aleksandr Koval (Buildings) <AKoval@buildings.nyc.gov>; Lek Jani (Buildings) <LJani@buildings.nyc.gov>  
**Subject:** RE: Peer Review 200 Amsterdam Avenue 122887224

DEPT BLDGS Job No. 122887224



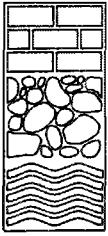
Scan Code ESHS2776171

**Geotechnical Report  
Amsterdam Avenue Tower  
200 Amsterdam Avenue  
New York, New York**

**SJP Properties  
11 Times Square  
New York, New York 10036  
&  
MITSUI FUDOSAN AMERICA, INC.  
1251 Avenue of the Americas  
New York, NY 10020**

**Mueser Rutledge Consulting Engineers  
225 West 34th Street  
New York, NY 10122**

**October 13, 2016**



# Mueser Rutledge Consulting Engineers

14 Penn Plaza · 225 West 34<sup>th</sup> Street · New York, NY 10122  
Tel: (917) 339-9300 · Fax: (917) 339-9400  
www.mrce.com

Peter W. Deming  
Roderic A. Ellman, Jr.  
Francis J. Arland  
David R. Good  
Walter E. Kaeck  
**Partners**

Tony D. Canale  
Jan Cermak  
Sitotaw Y. Fantaye  
**Associate Partners**

David M. Cacolo  
Alfred H. Brand  
James L. Kaufman  
Hugh S. Lacy  
Joel Moskowitz  
George J. Tamaro  
Elmer A. Richards  
John W. Fowler  
**Consultants**

Domenic D'Argenzio  
Robert K. Radzke  
Ketan H. Trivedi  
Hiren J. Shah  
Alice Arana  
Joel L. Volterra  
Frederick C. Rhyner  
Steven R. Lowe  
Andrew R. Tognon  
**Senior Associates**

Douglas W. Christie  
Gregg V. Piazza  
Pablo V. Lopez  
James M. Tantalla  
T. C. Michael Law  
Andrew Pontecorvo  
Renzo D. Verastegui  
Alex Krutovskiy  
Srinivas Yenamandra  
Farid F. Vastani  
Jesse L. Richins  
**Associates**

Joseph N. Courtade  
**Director of Finance  
and Administration**

Martha J. Huguet  
**Director of Marketing**

October 13, 2016

SJP Properties  
11 Times Square  
New York, New York 10036

MITSUI FUDOSAN AMERICA, INC.  
1251 Avenue of the Americas  
New York, NY 10020

Attn: Mr. Victor Cividini

Re: Subsurface Investigation Report  
Amsterdam Avenue Tower  
200 Amsterdam Avenue  
New York, New York  
MRCE File 12509

Greetings:

As per your request, Mueser Rutledge Consulting Engineers (MRCE) has completed subsurface investigations at the referenced project. This report supersedes our initial report dated September 1, 2015, and presents a summary of our additional investigations, our interpretation of subsurface conditions encountered, and general foundation recommendations for the proposed construction.

## PROJECT DESCRIPTION

We understand that you are planning a high-rise development at the referenced site on the west side of Amsterdam Avenue between W69th Street and W70th Street in Manhattan (Figure No.1). The site covers Lots 133 and 134 of Block 1158 with a combined footprint of about 12,000 square feet. The site is presently occupied by existing one- and two-story buildings with cellars, which will be demolished for the construction of the new building. The new development will occupy most of the site and will include multiple cellar levels.

The site is located over relatively shallow rock overlain by fill and sand deposits with a relatively shallow groundwater table. The adjacent Amsterdam Avenue sidewalk slopes along the site from Elev. +78.4 at the south end to Elev. +79.0 at the north end of the site. Elevations in this report refer to the North American Vertical Datum of 1988 (NAVD 88) which is about 1.65 feet below the Borough President of Manhattan Datum (BPM D).

*Foundation Engineering Since 1910*

The existing 200 Amsterdam Avenue building (south building) has a ground floor level a few feet above sidewalk grade (about Elev. +78.9) and is surrounded by a stepped plaza below sidewalk grade with elevations ranging from about Elev. +74 to Elev. +76.0. The existing 208 Amsterdam Avenue building (north building) has a ground floor level at sidewalk grade (about Elev. +78.9). Both buildings are underlain by a single cellar level with floor slab elevations ranging from Elev. +62.3 to Elev. +66.7. The site is bordered by an existing 15-story building with a cellar to the north, a parking lot to the west and a driveway to the south.

## EXHIBITS

The following exhibits are attached:

<u>Exhibit</u>	<u>Description</u>
Figure No. 1	Site Location Plan
Sheet No. B-1	Boring Location Plan
Drawing No. GS-1	Geologic Section A-A
Drawing No. GS-2	Geologic Section B-B
Drawing No. GS-R	Geotechnical Reference Standards
Drawing No. RC-1	Rock Classification Criteria
<u>Appendix</u>	<u>Description</u>
Appendix A	Logs of 2015-2016 MRCE Borings
Appendix B	Logs of 1957 MRCE Borings
Appendix C	Logs of 2015 and 2016 MRCE Test Pits

## SUBSURFACE INVESTIGATIONS

An initial investigation was completed in August 2015 to explore subsurface conditions across the project site for preliminary design. This investigation consisted of two borings (Borings MR-1 and MR-2P) drilled within the sidewalk on Amsterdam Avenue and two test pits (Test Pits TP-1 and TP-2) excavated from the existing cellar floor slab. Additionally, two borings (Borings MR-3 and MR-4) and one test pit (Test Pit TP-3) were performed in December 2015. Boring MR-3 was made from the existing lowered yard and Boring MR-4 was made within the existing 208 Amsterdam Avenue building. Test pit TP-3 was excavated from the cellar slab to explore the foundations of the adjacent 15-story building to the north. As deep layers of lesser quality rock were encountered in sidewalk Boring MR-2P, in March 2016, additional boring, Boring MR-5, was drilled within the existing 208 Amsterdam Avenue to investigate if such zones extend underneath the building core. In July of 2016, two additional test pits, TP-4 and TP-5, were excavated along the north wall of the existing building to investigate the footing extents and condition of the adjacent building to the north.

The as-drilled boring locations of all borings and test pits are shown on Drawing No. B-1.

The initial investigation was performed by Associated Environmental Service Ltd. (formerly CMI Subsurface Investigations Inc.) of Tappan, New York. All other work was performed by Aquifer

Drilling and Testing (ADT) of Mineola, New York. All boring and test pit work was performed under continuous inspection by our resident engineers who prepared field logs for each boring.

The sidewalk borings were performed with truck and track mounted rigs and the interior boring was drilled with a skid mounted drill rig both using wash-rotary methods with casing to stabilize the borehole. Samples were obtained using a 2-inch O.D. split-spoon sampler driven with a 140-pound hammer falling 30 inches. The number of hammer blows required to advance the split-spoon sampler through each of four six-inch drive intervals was recorded. The Standard Penetration Test (SPT) resistance or N-value, expressed in blows per foot, is an indication of the relative density of the material sampled and is calculated by summing the blows from the second and third six-inch intervals. In some instances where the sampler was unable to penetrate the full 24 inches due to the presence of dense soils, large gravel, cobbles, boulders, or other obstructions, the sampler was driven until 50 to 100 blows were administered and the actual penetration of the sampler was measured and recorded. Recovered soil samples were classified in the field and placed in jars for preservation and transport to our in-house laboratory.

The borings were advanced through overburden soils and cored bedrock. Bedrock was sampled using an NX-size, double-tube core barrel equipped with a diamond bit, recovering a nominal 2-inch diameter core. Percent recovery and Rock Quality Designation (RQD) were determined for each core run. RQD is defined as the sum of the lengths of recovered core pieces greater than four inches in length between natural breaks expressed as a percentage of the total core run. RQD is an indication of the relative frequency of jointing or natural fracturing of the bedrock. Sketches of recovered cores prepared in the field are attached to the boring logs. Rock cores were stored in wooden boxes for shipment to our laboratory.

After completion of the boring program, all soil samples and rock cores were delivered to our in-house soils laboratory for verification of field classification. Individual field soil sample and rock core descriptions, and rock core sketches are provided on the typed logs in Appendix A. The terminology used in MRCE soil descriptions is shown on Drawing No. GS-R. Rock core classification terminology and criteria used on the boring logs are shown on Drawing No. RC-1.

Groundwater level readings were taken throughout the investigation in a piezometer installed in Boring MR-2P. Piezometer construction details and water level readings are recorded on the Piezometer Record accompanying the boring log in Appendix A.

***Historic Borings*** Two borings, Borings 6 and 12, were drilled adjacent to the project site in May of 1958 by Warren George, Inc. under direct supervision of Moran, Proctor, Mueser, and Rutledge (now MRCE). Field logs were prepared for each boring and are attached as Appendix B. As-drilled boring locations are shown on Drawing No. B-1.

## **SUBSURFACE CONDITIONS**

The general subsurface profile in the area comprises miscellaneous fill over shallow bedrock. A thin layer of decomposed rock atop bedrock is common. Our interpretation of the subsurface strata is shown on individual boring logs. The subsurface conditions encountered in project borings are consistent with those from adjacent and previous investigations.

General descriptions of the materials encountered in the borings are summarized below in order of their occurrence with depth:

***Stratum F – Fill (NYC Class 7)*** An approximately five foot thick layer of fill was encountered in the sidewalk Borings MR-1 and MR-2P. The fill consists of loose to very compact gray to brown fine to coarse sand with trace silt, gravel, and clay. N-values ranged from 4 blows per foot (bpf) to 50 bpf and averaged about 19 bpf.

***Stratum DR – Decomposed Rock (NYC Class 3a)*** Some borings encountered a one to two-foot thick layer of decomposed rock below the cellar slab, boring MR-5 encountered a 15 foot layer of decomposed rock directly below the cellar slab. The decomposed rock consists of very compact brown micaceous fine to coarse sand with some rock fragments and trace silt. SPT samples were obtained in the decomposed rock had N-values of 32 bpf to over 100 bpf.

***Stratum WR – Weathered Rock (NYC Class 1d)***. A two to eight foot layer of weathered rock was encountered overlying competent bedrock in Borings MR-1 and MR-5. Boring MR-2P encountered a 19 foot thick layer of weathered rock deeper within the rock mass between El. +29 and El. +10. The weathered rock consisted of weathered to highly weathered gray gneissic schist, closely jointed to broken, iron stained and weathered joints. Core recoveries range from 6 to 96 percent, with an average of about 36 percent. RQD's range from 0 to 35 percent, with an average of about 10 percent.

***Stratum R - Bedrock (NYC Class 1c to 1a)*** All borings encountered bedrock underlying decomposed or weathered rock where present. Bedrock was encountered between El. +65 and El. +44 across the site. The bedrock generally consists of intermediate to hard gneissic schist. Core recoveries range from 53 to 100 percent, with an average of about 89 percent. RQD's range from 20 to 100 percent, with an average of about 72 percent.

***Groundwater*** Groundwater levels measured in the piezometers are considered more indicative of the true water table than drilling fluid measurements in boreholes. Groundwater depth in Boring MR-2P piezometer was about 16.5 feet (approx. Elev. +65) during our investigation.

Local variations in topography and permeability may affect groundwater levels within the area. It is likely the groundwater table will follow contours of the rock surface. Groundwater levels may also fluctuate as a result of precipitation, nearby construction, and water main breaks in the vicinity of the site.

## **TEST PITS**

The test pits were excavated by hand after using a jack hammer to penetrate the floor slab. Test pit logs and representative photos are attached in Appendix C.

Test Pit TP-1 was excavated at the southwest corner of the existing cellar at 200 Amsterdam Ave. The top of the cellar slab is about 17 feet below the sidewalk level. Test Pit TP-1 penetrated through the concrete slab and encountered rock 1.2 feet to 2.2 feet from top of the slab. All other test pits were excavated at the 208 Amsterdam Ave building. Test Pit TP-2 was excavated at the northwest corner of the existing cellar. The top of the cellar slab at that location is about 13 feet below the sidewalk level. Test Pit TP-2 penetrated through the concrete slab and concrete

foundations, and encountered bedrock 4 to 5 feet from top of the slab. It is likely that at both locations, bedrock was excavated down to about Elev. +61 to +62 for construction of the existing cellar and foundations.

Test Pit TP-3 was made to explore adjacent wall. The test pit measured approximately 5 feet wide by 5 feet long in plan and ranged from 0.8 feet to 2.5 feet deep. The test pit revealed the existing 208 Amsterdam Ave building wall footing was constructed with reinforced concrete bearing directly on bedrock. Our inspector was not able to probe through the existing concrete wall to reveal the adjacent foundations due to considerable wall thickness and excavation effort required. Test Pits TP-4 and TP-5 were made to further explore adjacent building wall footings. The two test pits revealed the adjacent building is likely supported on a continuous concrete strip footing extending the length of the property line which is founded on bedrock at approximately El. +60 at the test pit locations.

## **GENERAL FOUNDATION RECOMMENDATIONS**

**Foundations** Foundation design must take into account the existing subsurface conditions and proposed construction. Considering the proposed building includes multiple cellar levels, we recommend shallow footings or a foundation mat bearing on the bedrock. A base allowable bearing capacity of 20 tons per square foot (tsf) can be assumed in the foundation design. Footings along Amsterdam Avenue should be design for 8 tsf if possible. If additional capacity is needed at some locations further evaluations might be needed. Local removal of lower quality rock may be needed. We recommend that at least two additional borings be drilled after demolition of the existing buildings to confirm the deep, low quality rock layer does not extend underneath the building core and highly loaded columns.

Uplift loads shall be resisted by tiedowns extending into bedrock. The tiedowns should extend deep enough into the rock to engage sufficient rock mass to prevent pullout of a rock cone. The tiedowns will be locked off and the lock-off load should be included in foundation load evaluations.

For the initial design, a subgrade reaction coefficient of 1,500 tons per cubic foot (tcf) should be used for the majority of the foundation analysis. The subgrade coefficient may need to be revised following the structural analyses and comparing its results with geotechnical settlement evaluations.

**Basement Floor Slab and Walls** For evaluation of lateral earth pressures on walls, we recommend that the existing soil materials abutting the walls be assumed to have a friction angle of 30 degrees and total unit weight of 120 pounds per cubic foot. Permanent wall earth pressures should be based on at-rest conditions with a coefficient of at-rest pressure  $K_0 = 0.5$ , minimum sidewalk surcharge of 600 pounds per square foot. In bedrock, the lateral pressure should be assumed to be 10 percent of the overburden effective stress assuming adequate rock face stabilization will be provided. Surcharge loads from adjacent shallow foundations must be included in the evaluations.

As the cellar will extend below the observed groundwater table, we recommend that basement walls and floor slabs are designed using one of the following two approaches:

- Both cellar walls and slab be designed as structural elements to resist groundwater pressures.

- Cellar walls can be keyed into bedrock and designed to resist groundwater pressure. The slab can be designed on-grade with an underdrainage system to handle small volume of groundwater below the slab. Grouting of any active water seeps may be required during construction.

Having both cellar walls and slab fully drained is likely not feasible due to permit issues and groundwater disposal issues/costs.

The prevailing groundwater elevation should be assumed at Elev. +69 considering potential additional groundwater pressure during a utility break or following long rain events.

We recommend that the basement slab and walls be fully waterproofed up to grade. Sheet membrane waterproofing may be employed (Cetco or Grace products). Hydrophilic water stops and possibly groutable tubes should be used for all wall and slab construction joints below the groundwater table.

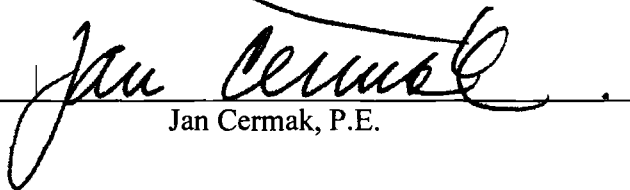
**Seismic Design** The design should be performed in accordance with the 2014 NYC Building Code. Seismic Site Class of B shall be used in design.

**Adjacent Structures** A precondition survey of the adjacent buildings should be done prior to construction to verify available foundation information and document existing conditions. Following the precondition surveys, the effects of proposed excavation and foundations on the adjacent structures should be reviewed. Displacement and vibration monitoring of the structures should be performed during construction.

We trust that this report provides sufficient information for foundation design and construction for the proposed structures. Please feel free to contact us if we can be of further help.

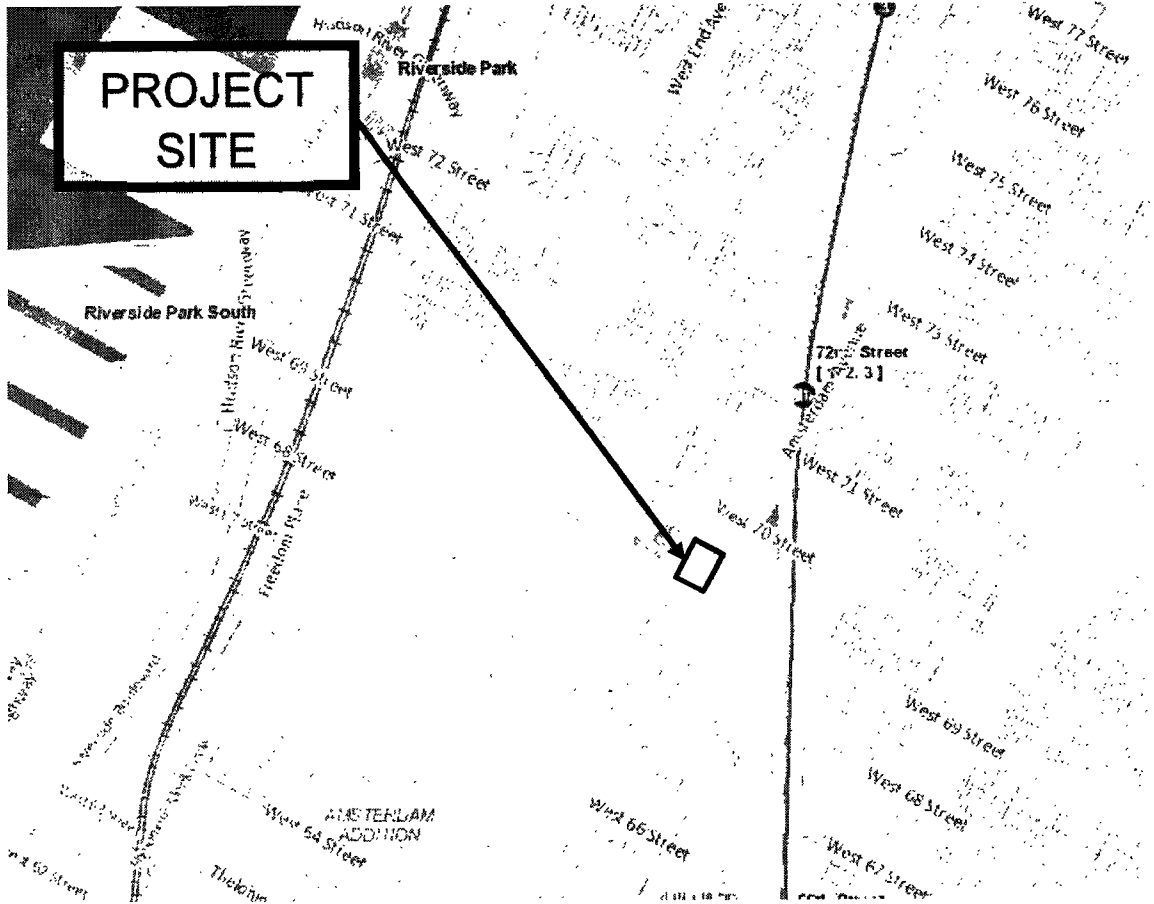
**MUESER RUTLEDGE CONSULTING ENGINEERS**

By: \_\_\_\_\_



Jan Cermak, P.E.



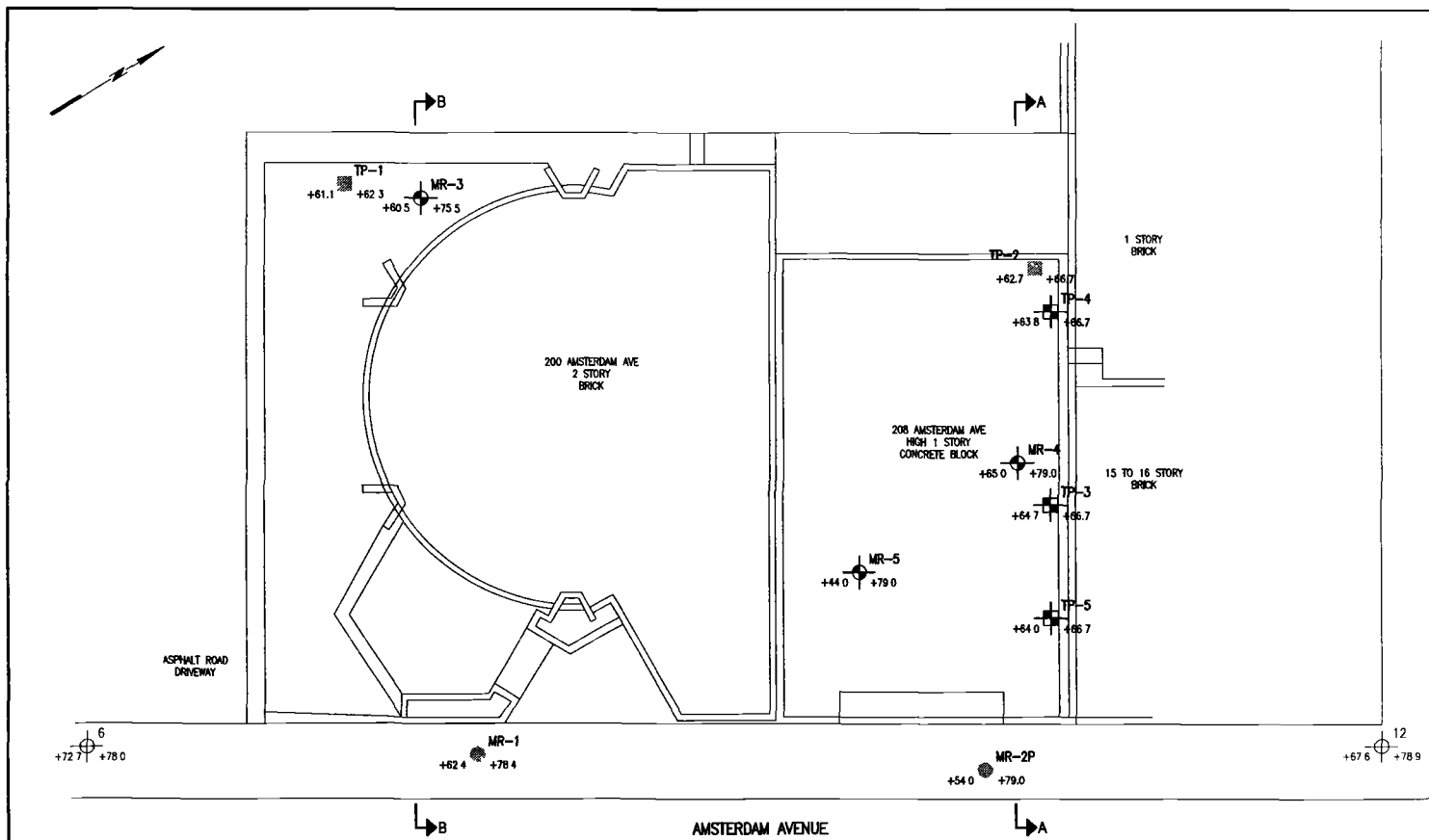


**REFERENCE:**  
 NEW YORK CITY OASIS MAPS (2015)

<b>AMSTERDAM AVENUE TOWER</b>			
NEW YORK		NEW YORK	
<b>SJP PROPERTIES</b>			
NEW YORK		NEW YORK	
<b>MUESER RUTLEDGE CONSULTING ENGINEERS</b>			
14 PENN PLAZA - 225 W 34 <sup>TH</sup> STREET, NEW YORK NY 10122			
SCALE	MADE BY: AEP	DATE: 08-31-15	FILE No.
N.T.S.	CH'KD BY: JC	DATE: 08-31-15	12509
<b>SITE LOCATION PLAN</b>			FIG. No. 1

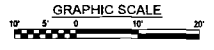
**NOTES:**

- 1 BASE PLAN OBTAINED FROM SITE PLAN BY EARL B LOVELL-S.P. BELCHER, INC DATED MARCH 28, 2014
- 2 ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
- 3 AS-DRILLED LOCATIONS WERE MEASURED IN THE FIELD BY OUR RESIDENT ENGINEER
- 4 BORINGS WERE MADE IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE AND THE STANDARD SPECIFICATIONS FOR SUBSURFACE BORING AND SAMPLING BY MUESER RUTLEDGE CONSULTING ENGINEERS (MRCE)
- 5 ALL BORINGS WERE MADE UNDER THE CONTINUOUS INSPECTION OF MRCE
- 6 BORINGS WERE MADE BY AQUIFER DRILLING AND TESTING (ADT) BETWEEN DECEMBER 15 AND DECEMBER 23, 2015, AND BETWEEN APRIL 24TH AND APRIL 28TH ALL BORINGS WERE MADE USING ROTARY DRILLING METHODS EMPLOYING CASING AND DRILLING MUD TO MAINTAIN A STABLE BOREHOLE.
- 7 SOIL SAMPLES WERE COLLECTED USING A 2-INCH DIAMETER SPLIT-SPOON SAMPLER ADVANCED WITH A 140-POUND HAMMER FALLING 30 INCHES
- 8 ROCK CORING WAS PERFORMED USING A NX-SIZE DOUBLE-BARREL CORE SAMPLER WITH A DIAMOND BIT
- 9 BORINGS NOT RECEIVING A PIEZOMETER WERE BACKFILLED UPON COMPLETION
- 10 TEST PITS WERE PERFORMED CONCURRENT WITH THE BORINGS AND IN ACCORDANCE WITH ALL OSHA AND NEW YORK CITY BUILDING CODE REQUIREMENTS TEST PITS WERE EXCAVATED BY HAND AROUND FOUNDATION ELEMENTS
- 11 FOR BORING LOGS, SEE APPENDIX A. FOR TEST PIT LOGS, SEE APPENDIX B



**PLAN**

- LEGEND:**
- 1958 MRCE BORING  
GROUND SURFACE ELEVATION (FT)  
TOP OF ROCK ELEVATION (FT)
  - MRCE TEST PIT EXCAVATED  
GROUND SURFACE ELEVATION (FT)  
TOP OF ROCK ELEVATION (FT)
  - MRCE BORING DRILLED  
GROUND SURFACE ELEVATION (FT)  
TOP OF ROCK ELEVATION (FT)  
\*P\* - INDICATES PIEZOMETER
  - MRCE BORING DRILLED DECEMBER 2015 AND APRIL 2016  
GROUND SURFACE ELEVATION (FT)  
TOP OF ROCK ELEVATION (FT)
  - MRCE TEST PIT EXCAVATED DECEMBER 2015 AND JULY 2016  
GROUND SURFACE ELEVATION (FT)  
TOP OF ROCK ELEVATION (FT)

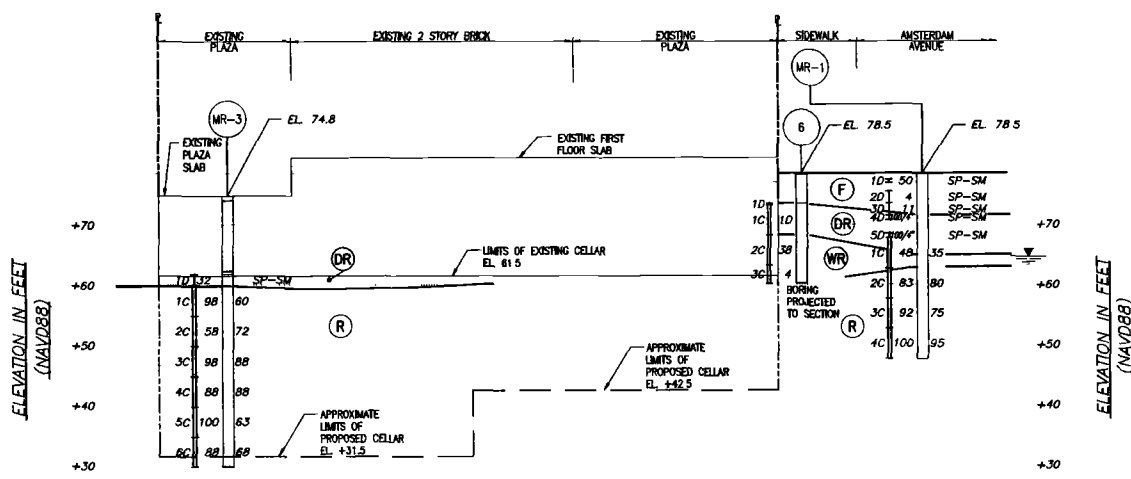


3	7-5-16	SFK	UPDATE ELEVATIONS
2	5-18-16	SFK	ADDED APR 2016 INVESTIGATION
1	1-13-16	A.E.P.	ADDED DEC 2015 INVESTIGATION
REV	DATE	BY	DESCRIPTION
<b>AMSTERDAM AVENUE TOWER</b>			
NEW YORK		NEW YORK	
<b>SJP PROPERTIES</b>			
NEW YORK		NEW YORK	
<b>MUESER RUTLEDGE CONSULTING ENGINEERS</b>			
14 PENN PLAZA - 225 W 34TH STREET, NY, NY 10122			
SCALE	MADE BY WB	DATE 05-18-2016	FILE NUMBER
GRAPHIC	CH. BY S.F.K.	DATE 05-18-2016	12509
<b>BORING AND TEST PIT LOCATION PLAN</b>			<b>B-1</b>

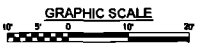
Printed by: SJP Properties  
 Printed on: Thursday, Oct 13, 2016 - 11:09:04 AM  
 Last saved by: sfozola on Thursday, Oct 13, 2016 - 11:08:38 AM  
 C:\UNGS\1251\12509\B-1.dwg



Printed by Seth Kishel  
 Printed on Thursday, Oct 13, 2016 - 11:10:59 AM  
 Drawn by S. J. Kishel  
 Checked by S. J. Kishel  
 Date: Oct 10, 2016 - 5:43:37 PM  
 C:\WORK\125\12509\GS-2.dwg



**SECTION B-B**

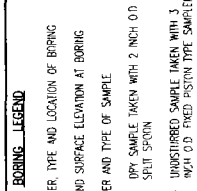
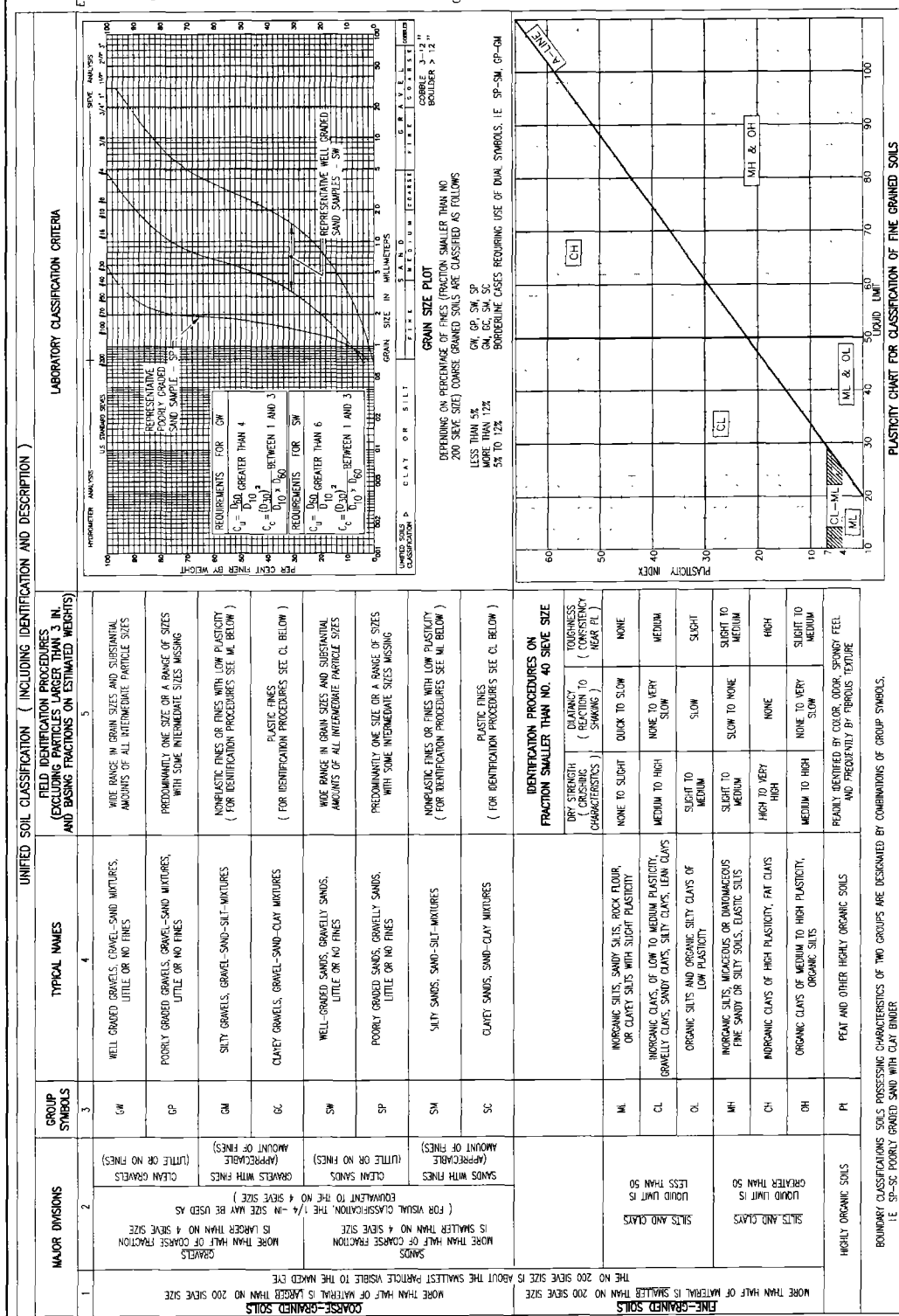


- NOTES:**
- FOR PLAN NOTES AND SECTION LOCATIONS, SEE DRAWING NO B-1
  - ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
  - STRATIFICATIONS ARE NECESSARY INTERPOLATIONS BETWEEN BORINGS AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS
  - SAMPLE DESCRIPTIONS AND STRATIFICATIONS SHOWN ARE BY MRCE
  - SEE DRAWING NO GS-R FOR BORING LEGEND AND SUMMARY OF UNIFIED SOIL CLASSIFICATION CRITERIA
  - COMPLETE SOIL AND ROCK DESCRIPTIONS ARE PROVIDED ON THE BORING LOGS IN APPENDIX A.
  - GROUNDWATER LEVELS SHOWN BY SOLID SYMBOLS ARE MUD LEVELS MEASURED IN THE BORING AND MAY NOT REPRESENT ACTUAL GROUNDWATER LEVELS REFER TO PIEZOMETER FOR GROUNDWATER LEVELS

**GENERAL STRATA DESCRIPTIONS:**

- (F) FILL
- (DR) DECOMPOSED ROCK
- (WR) WEATHERED ROCK
- (R) ROCK - NYC CLASS 1c OR BETTER

2	7-5-16	SFK	UPDATE ELEVATIONS
1	5-18-16	SFK	ADDED APR. 2016 INVESTIGATION
REV	DATE	BY	DESCRIPTION
<b>AMSTERDAM AVENUE TOWER</b>			
NEW YORK		NEW YORK	
<b>SJP PROPERTIES</b>			
NEW YORK		NEW YORK	
<b>MUESER RUTLEDGE CONSULTING ENGINEERS</b>			
14 PENN PLAZA - 225 W 34TH STREET, NY, NY 10122			
SCALE	MADE BY WB	DATE 05-18-2016	FILE NUMBER
GRAPHIC	CHK'D BY SFK	DATE 05-18-2016	12509
GEOLOGIC SECTION B-B			DRAWING NUMBER
			GS-2



**UNIFIED SOIL CLASSIFICATION (INCLUDING IDENTIFICATION AND DESCRIPTION)**

**FIELD IDENTIFICATION PROCEDURES (EXCLUDING PARTICLES LARGER THAN 3/8 IN. AND BIASING FRACTIONS ON ESTIMATED WEIGHTS)**

**MAJOR DIVISIONS**

1. MORE THAN HALF OF MATERIAL IS LARGER THAN 200 SIEVE SIZE

2. MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE

3. CLEAN GRAVELS

4. MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE

5. CLEAN GRAVELS (LITTLE OR NO FINES)

6. GRAVELS WITH FINES (APPROXIMATE AMOUNT OF FINES)

7. GRAVELS WITH FINES (APPROXIMATE AMOUNT OF FINES)

8. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

9. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

10. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

11. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

12. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

13. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

14. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

15. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

16. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

17. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

18. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

19. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

20. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

21. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

22. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

23. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

24. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

25. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

26. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

27. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

28. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

29. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

30. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

31. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

32. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

33. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

34. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

35. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

36. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

37. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

38. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

39. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

40. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

41. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

42. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

43. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

44. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

45. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

46. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

47. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

48. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

49. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

50. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

51. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

52. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

53. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

54. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

55. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

56. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

57. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

58. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

59. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

60. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

61. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

62. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

63. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

64. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

65. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

66. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

67. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

68. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

69. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

70. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

71. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

72. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

73. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

74. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

75. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

76. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

77. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

78. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

79. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

80. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

81. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

82. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

83. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

84. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

85. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

86. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

87. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

88. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

89. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

90. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

91. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

92. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

93. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

94. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

95. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

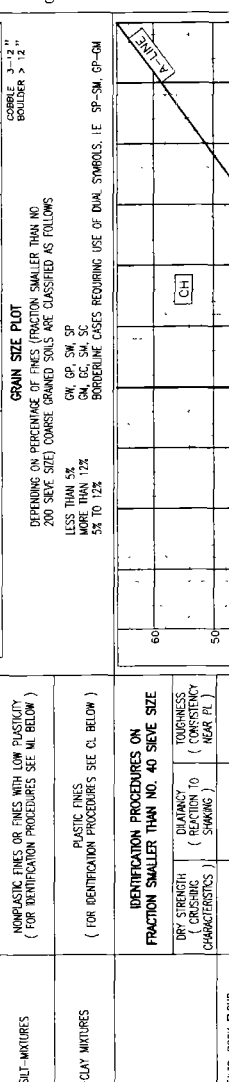
96. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

97. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

98. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

99. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)

100. SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)



**GRAIN SIZE PLOT**

DEPENDS ON PERCENTAGE OF FINES (FRACTION SMALLER THAN NO. 200 SIEVE SIZE). COARSE GRAINED SOILS ARE CLASSIFIED AS FOLLOWS:

LESS THAN 5% GW, GP, SW, SP  
 MORE THAN 5% GM, GC, SM, SC  
 MORE THAN 12% MH, CH  
 5% TO 12% ML, OL

**PLASTICITY CHART FOR CLASSIFICATION OF FINE GRAINED SOILS**

DESCRIPTION OF CONSTITUENT PERCENTAGES AS USED IN SOIL SAMPLE CLASSIFICATIONS

1% TO 12% - "TRACE"  
 12% TO 50% - "SOME"  
 50% TO 85% - "MODERATE AMOUNT"  
 85% TO 95% - "HIGH AMOUNT"  
 95% TO 100% - "VERY HIGH AMOUNT"

**TERMINOLOGY USED IN URGE SOIL DESCRIPTIONS**

BOUNDARY CLASSIFICATIONS SOILS POSSESSING CHARACTERISTICS OF TWO GROUPS ARE DESIGNATED BY COMBINATIONS OF GROUP SYMBOLS, IE SP-S, POORLY GRAINED SAND WITH CLAY BINDER

DEGREE OF COMPACTION	DEGREE OF COMPACTION FOR NON-PLASTIC SOIL		DEGREE OF COMPACTION FOR HIGHLY ORGANIC SOILS	
	BLOWS PER FOOT	STANDARD PENETRATION RESISTANCE USING 140 LB O.D. SPLIT-SPOON SAMPLER	BLOWS PER FOOT	STANDARD PENETRATION RESISTANCE USING 140 LB O.D. SPLIT-SPOON SAMPLER
LOOSE	0 TO 10	LESS THAN 10	0 TO 10	LESS THAN 10
MEDIUM COMPACT	11 TO 29	10 TO 20	11 TO 29	10 TO 20
COMPACT	30 TO 50	20 TO 40	30 TO 50	20 TO 40
VERY COMPACT	GREATER THAN 50	GREATER THAN 40	GREATER THAN 50	GREATER THAN 40

NON-PLASTIC SILTS ARE DESCRIBED USING DEGREE OF COMPACTION AS PRESENTED FOR NON-PLASTIC SOIL.

**MUESER RUTLEDGE CONSULTING ENGINEERS**  
 225 WEST 34th STREET - 14 FENN PLAZA  
 NEW YORK, NY 10122

**GEOTECHNICAL REFERENCE STANDARDS** GS-R

**TABLE R-1 ROCK CORE CLASSIFICATION CRITERIA**

HARDNESS/SOUNDNESS CLASSIFICATION	TYPICAL GEOLOGIC CLASSIFICATION	IDENTIFICATION CHARACTERISTICS	GENERAL MINIMUM CORING CHARACTERISTICS				INTACT SPECIMEN TYPICAL MINIMUM COMPRESSIVE STRENGTH PSI
			NX OR LARGER		BX OR SMALLER		
			REC	RQD	REC	RQD	
<b>HARD ROCK</b> UNWEATHERED MAY BE JOINTED	-CRYSTALLINE IGNEOUS, OR METAMORPHIC ROCKS  -HIGHLY SILICEOUS SEDIMENTARY ROCKS	- UNWEATHERED FABRIC - RINGS WHEN STRUCK WITH BAR - SHARP AND HARD FRACTURE SURFACE WHEN BROKEN MECHANICALLY - MAY BE JOINTED, BUT JOINTS ARE GENERALLY TIGHT JOINTS MAY BE IRON STAINED - DOES NOT DISINTEGRATE UPON EXPOSURE - DOES NOT SLAKE IN WATER	95 OR MORE	85 OR MORE	85 OR MORE	75 OR MORE	3000
<b>MEDIUM HARD ROCK</b>  SLIGHTLY WEATHERED MAY BE CLOSELY JOINTED	AS FOR HARD ROCKS AND  - MODERATELY SILICEOUS SEDIMENTARY ROCKS - CERTAIN CALCAREOUS ROCKS	AS FOR HARD ROCK, EXCEPT  - FABRIC MAY BE IRON STAINED - MAY BE CLOSELY JOINTED, BUT JOINTS ARE GENERALLY TIGHT JOINTS HAVE SLIGHT WEATHERING OR MAY BE IRON STAINED	70	50	50	40	1500
<b>INTERMEDIATE ROCK</b>  MODERATELY WEATHERED MAY BE CLOSELY JOINTED	AS FOR MEDIUM HARD ROCKS AND  - MOST SEDIMENTARY ROCKS OTHER THAN COMPACTION SHALES - MOST CALCAREOUS ROCKS WHICH ARE NOT POROUS	AS FOR MEDIUM HARD ROCK, EXCEPT  - MODERATELY WEATHERED FABRIC - WEATHERED JOINTS - THUDS WHEN STRUCK BY BAR - CAN BE INDENTED WITH A STEEL NAIL - BREAKS READILY WITH HAMMER - PIECES OF WEATHERED SURFACE CAN BE BROKEN OFF BY HAND - DOES NOT DISINTEGRATE UPON EXPOSURE - UNWEATHERED PIECES DO NOT SLAKE	50	35	35	25	500
<b>WEATHERED ROCK</b>  HIGHLY WEATHERED MAY BE BROKEN	AS FOR INTERMEDIATE ROCKS AND  - COMPACTION SEDIMENTARIES - CALCAREOUS ROCKS WITH SOIL-FILLED CAVITIES	AS FOR INTERMEDIATE ROCK, EXCEPT  - HIGHLY WEATHERED FABRIC - CAN BE BROKEN EASILY, CRUMBLES WITH DIFFICULTY BY HAND - CAN BE SCRAPPED BY KNIFE - MAY SOFTEN UPON EXPOSURE - MAY SLAKE IN WATER - STANDARD PENETRATION RESISTANCE EXCEEDS 50 BLOWS/FOOT	LESS THAN 50	LESS THAN 35	LESS THAN 35	LESS THAN 25	150
<b>DECOMPOSED ROCK</b>  (RESIDUAL SOILS)	ALL ROCK TYPES	- ROCK TEXTURE AND STRUCTURE OFTEN PRESERVED - GENERALLY SOIL-LIKE IN CONSISTENCY - CAN BE CRUMPLED BY SLIGHT HAND PRESSURE - CAN BE PEELED WITH A KNIFE - STANDARD PENETRATION RESISTANCE LESS THAN 50 BLOWS/FOOT	WHEN RECOVERED WITH SOIL SAMPLING TECHNIQUES, DESCRIBED AS FOR SOILS INCLUDING USC GROUP SYMBOLS (WITH ROCK) ADDED TO DESCRIPTION				150
			GENERALLY RECOVERED WITH SOIL SAMPLING TECHNIQUES AND DESCRIBED AS FOR SOILS INCLUDING USC GROUP SYMBOLS (DEC ROCK) ADDED TO DESCRIPTION				

**TABLE R-2 WEATHERING AND JOINTING DEFINITIONS**

DEGREE OF FABRIC WEATHERING		CHARACTERISTIC
Unweathered	UnW	No decomposition or discoloration rings when struck
Slightly Weathered	SiW	Iron Stained Rings when struck
Moderately Weathered	MdW	Deteriorated fabric Thuds when struck
Highly Weathered	HiW	Frable, easily broken by hand
Decomposed	Dec	Soil-like

**DEGREE OF JOINT WEATHERING**

JOINT WEATHERING	CHARACTERISTIC
Iron stained joints	FeJS Indicates movement of water along joints
Weathered joints	WJS Joints are not tight and do not match joints have frable edges

**DEGREE OF JOINTING**

JOINTING	JOINT FREQUENCY
Massive	Msv Less than 1 joint in 4 feet
Blocky	Bly 1 joint every 2 to 4 feet
Moderately Jointed	MdJd 1 joint every foot to 2 feet
Jointed	Jd 1 to 2 joints per foot
Closely Jointed	CJd 2 to 4 joints per foot
Broken	Bkn More than 4 joints per foot

Vertical joints are ignored in RQD and joint frequency evaluations, but are noted in written descriptions and on core sketches

**TABLE R-3 ABBREVIATIONS FOR ROCK CORE CLASSIFICATION**

Blocky	Bly	Intermediate	Int
Broken	Bkn	Light	Lt
Brown	brn	Lignite	lgn
Calcareous or Calcite	calc	Limestone	lms
Cavities	cvt	Jointed	Jd
Chlorite	chl	Joints	Jts
Clay, Clayey	cl	Massive	Msv
Closely Jointed	CJd	Medium Hard	Mdhd
Coating on joint surface	coat	Mica, Micaceous	Mic
Crushed	crsh	Moderately Jointed	MdJd
Dark	dk	Moderately Weathered	MdW
Decomposed	Dec	Pockets	pkt
Dolomite, Dolomitic	do	Quartz	qtz
Dolomite, Dolomitic	Dol	Recovery	Rec
Iron stained joints	FeJS	Rock Quality Designation	RQD
Iron Stained	FeStn	Sand	sa
Feldspar	feld	Sandstone	ss
Foliation	Fol	Schist, Schistose	sch
Fractured	fret	Shale	sh
Fragments	fgmts	Shear zone	Sz
Gneiss, Gneissic	gns	Siliceous	sil
Gouge	gog	Silt	sl
Granite, Granitic	gr	Slickensided	slks
Gray	gry	Slightly Weathered	SiW
Hard	Hd	Unweathered	UnW
Highly Weathered	HiW	Weathered	Wtd
Hornblende	Hbl	Weathered Joints	WJts
Injected	inj	Yem	Yn
Interbedded	Intbd	Vertical Joints	VJts

**TABLE R-4 ROCK CORE SKETCH KEY**

**NOTES:**

- ROCK CORE DESCRIPTIONS REPRESENT ONLY THE MATERIAL RECOVERED IN THE CORING OPERATIONS
- GENERAL MINIMUM CORING CHARACTERISTICS ASSUME ROCK CORING WITH A DOUBLE TUBE SERIES "M" OR EQUIVALENT CORE BARREL USING GOOD CORING TECHNIQUES AND EQUIPMENT.
- REC - RECOVERY IS THE LENGTH OF CORE RECOVERED, EXPRESSED AS A PERCENTAGE OF THE LENGTH OF CORE RUN.
- RQD - ROCK QUALITY DESIGNATION IS THE SUM OF THE LENGTHS OF CORE PIECES FOUR INCHES OR LONGER EXPRESSED AS A PERCENTAGE OF THE TOTAL LENGTH OF CORE RUN. LENGTHS ARE MEASURED BETWEEN IN-SITU SEPARATIONS; MECHANICAL BREAKS RESULTING FROM CORING AND VERTICAL JOINTS ARE IGNORED.

**SKETCH SYMBOLS**

	Joint
	Heded Joint
	Broken
	Port of Core Not Recovered
	Cavities or Vugs in Core
	Clay
	Sand

**JOINT ORIENTATION AND CONDITION**

SURFACE		CONDITION	
Parallel - //	Curved - C	Slick - 1	
Crossing - X	Irregular - I	Smooth - 2	
Foliation - F	Straight - S	Rough - 3	
Stratification - S			
Unfolded or Unstratified - U			
Mechanical Break - MB			

**MUESER RUTLEDGE CONSULTING ENGINEERS**  
225 WEST 34th STREET - 14 PENN PLAZA  
NEW YORK, NY 10122

ROCK CORE CLASSIFICATION CRITERIA RC-1







**MUESER RUTLEDGE CONSULTING ENGINEERS**

<b>PROJECT</b>	<b>AMSTERDAM AVENUE TOWER</b>	<b>BORING NO.</b>	<b>MR-1</b>
<b>LOCATION</b>	<b>NEW YORK, NEW YORK</b>	<b>SHEET</b>	<b>3 OF 3</b>
<b>BORING LOCATION</b>	<b>SEE BORING LOCATION PLAN</b>	<b>FILE NO.</b>	<b>12509</b>
		<b>SURFACE ELEV.</b>	<b>+78.4±</b>
		<b>DATUM</b>	<b>NAVD 88</b>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

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

<b>TYPE AND SIZE OF:</b>	<b>DRILLING MUD USED</b>	<b>X YES</b>	<b>NO</b>
D-SAMPLER 2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		5-7/8, 3-7/8
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL NX DOUBLE BARREL	<b>AUGER USED</b>	<b>YES</b>	<b>X NO</b>
CORE BIT NX DIAMOND	TYPE AND DIAMETER, IN.		
DRILL RODS NWJ			

\*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30  
 \*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30  
 \*USED ASSISTED MANUAL.

**WATER LEVEL OBSERVATIONS IN BOREHOLE**

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
08:45	15:45	30.5	10	18	WATER MEASURED AT END OF BORING.

**PIEZOMETER INSTALLED** YES  NO  SKETCH SHOWN ON \_\_\_\_\_

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

**PAY QUANTITIES**

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	10.8	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:	

<b>BORING CONTRACTOR</b>	<b>CMI QUINONES</b>
<b>DRILLER</b>	<b>BURT MOLZAHN</b>
<b>REMARKS</b>	<b>HELPERS FRANKIE QUINONES</b>
<b>RESIDENT ENGINEER</b>	<b>ANTHONY DEZENZO</b>
<b>CLASSIFICATION CHECK</b>	<b>DATE 08-04-15</b>
	<b>CHERYL J. MOSS</b>
	<b>TYPING CHECK: ALEXANDRA PATRONE</b>
	<b>BORING NO. MR-1</b>







# Mueser Rutledge Consulting Engineers

14 Penn Plaza - 225 West 34th Street

New York, NY 0112

T 917 339-9300 F 917 339-9400

www.mrce.com

PROJECT: Amsterdam Ave. Tunnel

LOCATION: New York, NY

TEST/INSP. EQUIPMENT

REF. CODES/STANDARDS

## ROCK CORE SKETCH

BORING NO. WA-102P

SHEET 2 OF 4

FILE NO. 12-57

SURFACE ELEV. 471

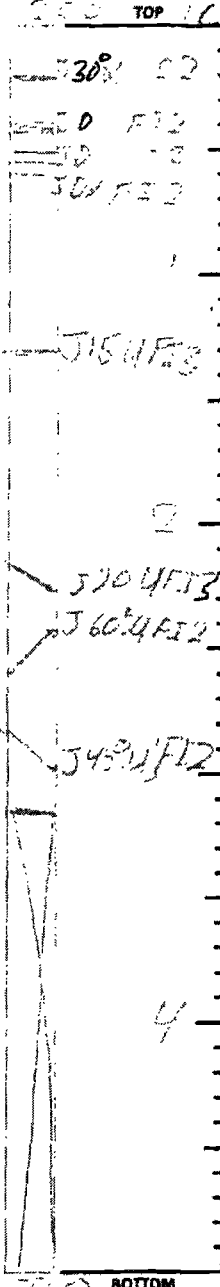
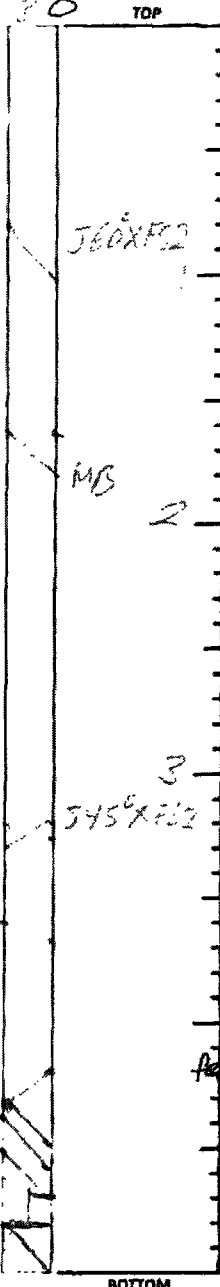
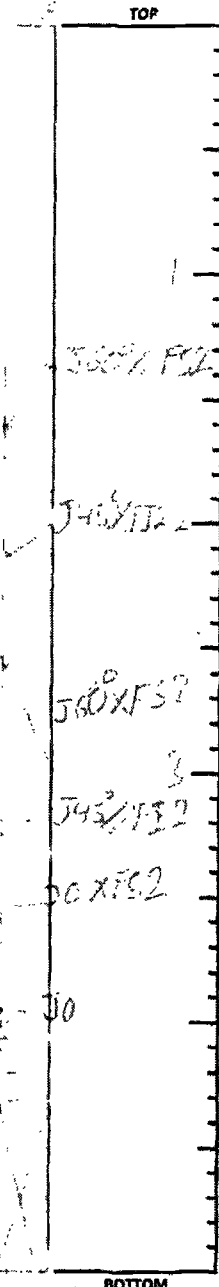
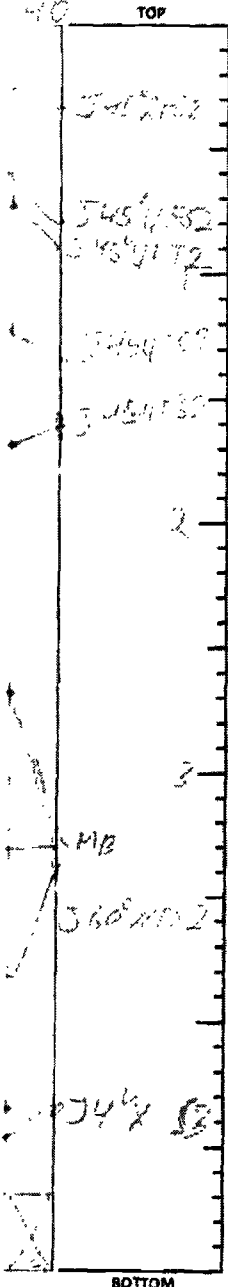
RES ENGR. L. R. [Signature]

Run No.	REC/RQD
1	85%
2	72%

Run No.	REC/RQD
3	85%
4	72%

Run No.	REC/RQD
5	92%
6	85%

Run No.	REC/RQD
7	83%
8	70%



ROCK CORE SKETCH LEGEND

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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**

<b>PROJECT</b>	<b>AMSTERDAM AVENUE TOWER</b>	<b>BORING NO.</b>	<b>MR-2P</b>
<b>LOCATION</b>	<b>NEW YORK, NEW YORK</b>	<b>SHEET</b> 7	<b>OF</b> 7
<b>BORING LOCATION</b>	<b>SEE BORING LOCATION PLAN</b>	<b>FILE NO.</b>	<b>12509</b>
		<b>SURFACE ELEV.</b>	<b>+79.0±</b>
		<b>DATUM</b>	<b>NAVD 88</b>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

<b>TYPE OF BORING RIG</b>	<b>TYPE OF FEED</b>	<b>CASING USED</b>	<b>x YES</b>	<b>NO</b>
TRUCK <input checked="" type="checkbox"/>	DURING CORING	DIA., IN. 4	DEPTH, FT. FROM	0 TO 15
SKID	MECHANICAL	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.	DEPTH, FT. FROM	TO
OTHER	OTHER	DIA., IN.	DEPTH, FT. FROM	TO

<b>TYPE AND SIZE OF:</b>	<b>DRILLING MUD USED</b>	<b>x YES</b>	<b>NO</b>
D-SAMPLER 2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		5-7/8, 3-7/8
U-SAMPLER	TYPE OF DRILLING MUD		EZ MUD
S-SAMPLER			
CORE BARREL <input checked="" type="checkbox"/> DOUBLE BARREL	<b>AUGER USED</b>	<b>YES</b>	<b>x NO</b>
CORE BIT <input checked="" type="checkbox"/> DIAMOND	TYPE AND DIAMETER, IN.		
DRILL RODS NWJ			
	*CASING HAMMER, LBS. 300	AVERAGE FALL, IN. 30	
	*SAMPLER HAMMER, LBS. 140	AVERAGE FALL, IN. 30	
	*USED ASSISTED MANUAL.		

**WATER LEVEL OBSERVATIONS IN BOREHOLE**

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

<b>PIEZOMETER INSTALLED</b>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<b>SKETCH SHOWN ON</b>	<b>SEE SHEET NO. 6</b>	
<b>STANDPIPE:</b>	<b>TYPE</b>	<b>2" SOLID PVC</b>	<b>ID, IN. 2</b>	<b>LENGTH, FT. 15</b>	<b>TOP ELEV. +74.0±</b>
<b>INTAKE ELEMENT:</b>	<b>TYPE</b>	<b>2" SLOTTED PVC</b>	<b>OD, IN. 2</b>	<b>LENGTH, FT. 10</b>	<b>TIP ELEV. +49.0±</b>
<b>FILTER:</b>	<b>MATERIAL</b>	<b>020 SAND</b>	<b>OD, IN. 4</b>	<b>LENGTH, FT. 12</b>	<b>BOT. ELEV. +49.0±</b>

**PAY QUANTITIES**

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	25	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.	50	OTHER:	

<b>BORING CONTRACTOR</b>	<b>CMI QUINONES</b>
<b>DRILLER</b>	<b>BURT MOLZAHN</b>
<b>REMARKS</b>	<b>HELPERS</b>
<b>RESIDENT ENGINEER</b>	<b>FRANKIE QUINONES</b>
<b>CLASSIFICATION CHECK</b>	<b>PIEZOMETER INSTALLED.</b>
	<b>DAVID RHEAULT/ANTHONY DEZENZO</b>
	<b>DATE</b> 08-03-15
	<b>CHERYL J. MOSS</b>
	<b>TYPING CHECK:</b>
	<b>ALEXANDRA PATRONE</b>
	<b>BORING NO. MR-2P</b>

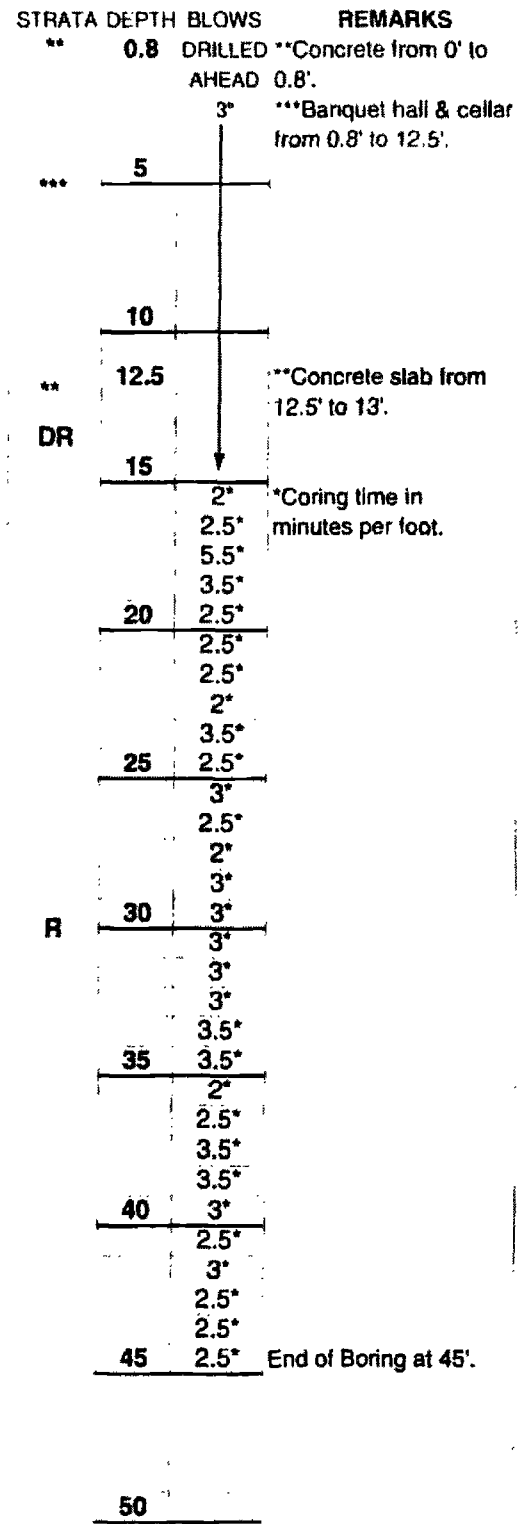


**MUESER RUTLEDGE CONSULTING ENGINEERS**  
**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWERS  
LOCATION: NEW YORK, NEW YORK

BORING NO. MR-3  
SHEET 1 OF 4  
FILE NO. 12509  
SURFACE ELEV. +74.8  
RES. ENGR. GEOFFREY SMITH

DAILY PROGRESS	SAMPLE NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION
07:30 12-22-15 Tuesday Rain 55°F	1D	13.0	18-11	Brown micaceous fine to coarse sand, some rock fragments, trace silt (DR) (SP-SM)
	1C	14.8 15.0 20.0	21-100/3* REC=98% RQD=60%	Medium hard slightly weathered gray gneissic schist, some pegmatite, jointed to broken, iron stained & weathered joints
	2C	20.0 25.0	REC=96% RQD=72%	Hard to medium hard slightly weathered to unweathered gray gneissic schist, jointed, iron stained & weathered joints
	3C	25.0 30.0	REC=98% RQD=88%	Hard unweathered gray gneissic schist, jointed, iron stained & weathered joints
	4C	30.0 35.0	REC=88% RQD=88%	Hard unweathered gray gneissic schist & pegmatite, jointed to moderately jointed, weathered joints
14:30 07:30 12-23-15 Wednesday Overcast 55°F	5C	35.0 40.0	REC=100% RQD=63%	Hard to medium hard slightly weathered to moderately weathered gray gneissic schist, trace pegmatite, jointed to broken, weathered joints
	6C	40.0 45.0	REC=88% RQD=68%	Medium hard gray gneissic schist, trace pegmatite, broken to jointed, weathered joints
09:30				





# Mueser Rutledge Consulting Engineers

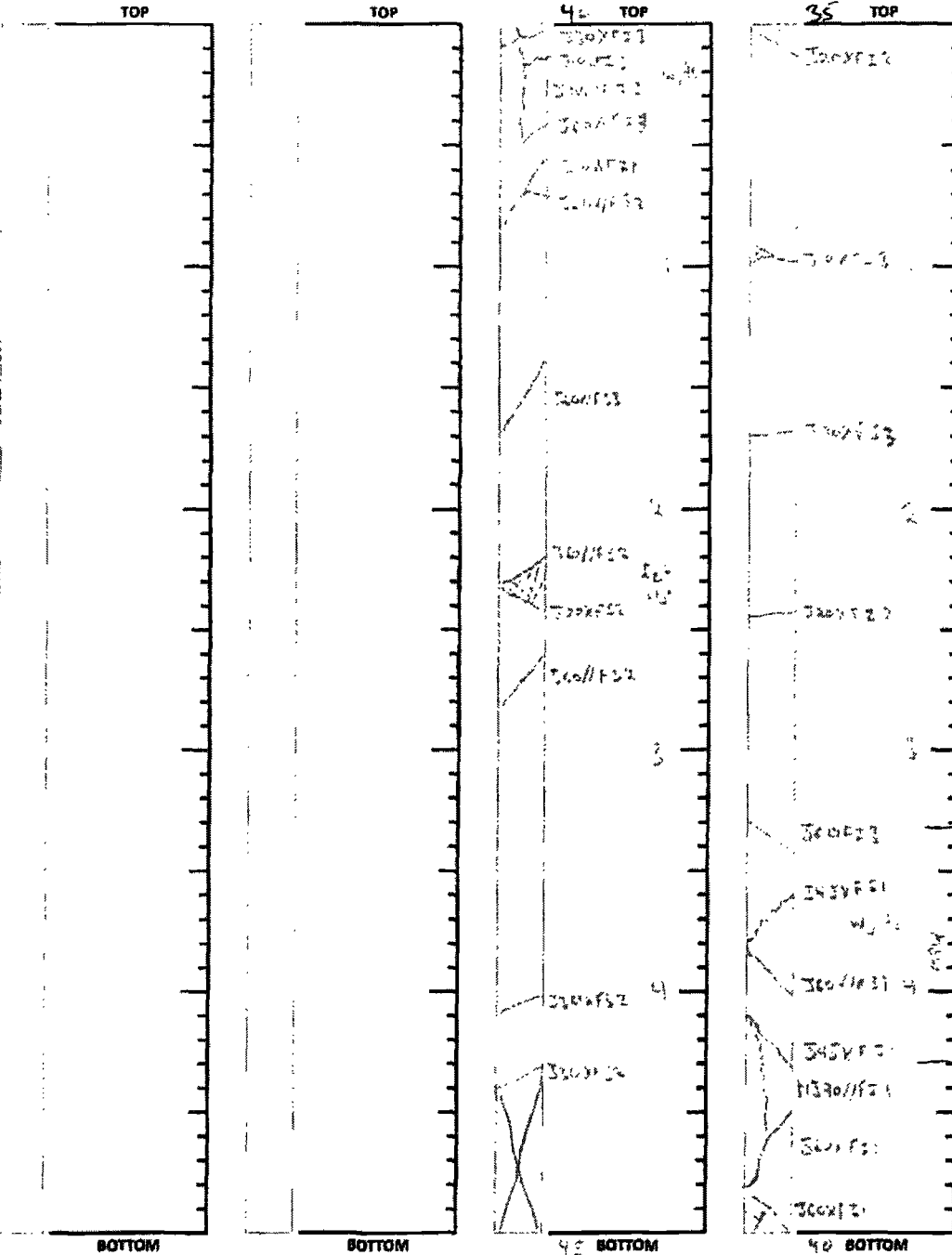
14 Penn Plaza 225 West 34th Street  
New York, NY 10122  
T: 917 339 9300 F: 917 339-9400  
www.mrce.com

## ROCK CORE SKETCH

BORING NO.                       
SHEET                      OF                       
FILE NO.                       
SURFACE ELEV. 74.8  
RES ENGR.                     

PROJECT:                       
LOCATION:                       
TEST/INSP. EQUIPMENT                       
REF. CODES/STANDARDS                     

Run No.	REC/RQD	Run No.	REC/RQD	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
- JOINT SURFACE**
- C - Curved
  - 1 - Irregular
  - 5 - Straight
- JOINT 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

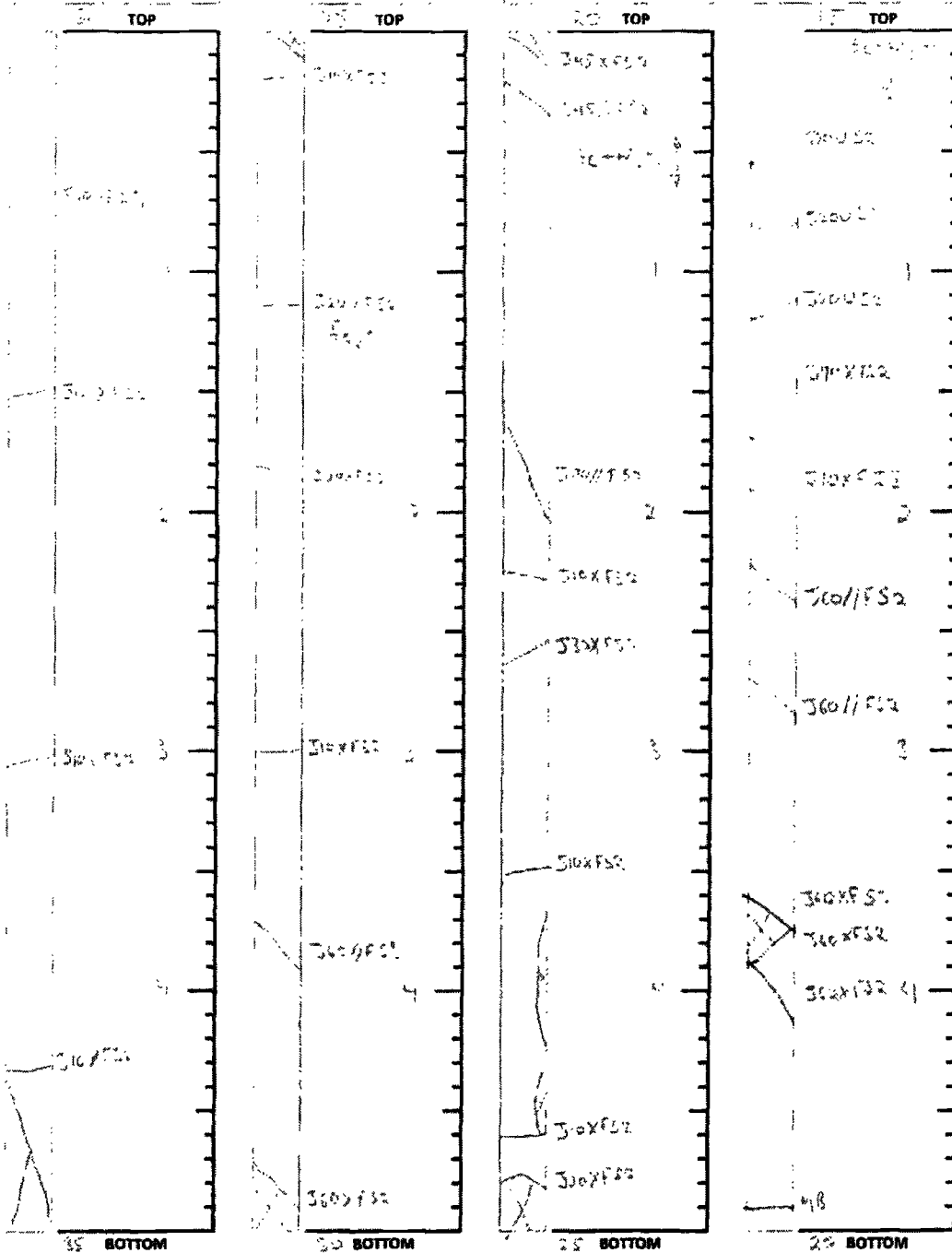
NOTES

**ROCK CORE SKETCH**

BORING NO. \_\_\_\_\_  
 SHEET \_\_\_\_\_ OF \_\_\_\_\_  
 FILE NO. \_\_\_\_\_  
 SURFACE ELEV. 74.87  
 RES ENGR. \_\_\_\_\_

PROJECT: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_  
 TEST/INSP EQUIPMENT \_\_\_\_\_  
 REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
30	30	31	31	32	32	33	33



**ROCK CORE SKETCH LEGEND**

- JOINTING**
- J - Joint
  - MB - Mechanical Break
  - ∠ - Angle w/ Horizontal
  - // - Parallel
  - X - Crossing
  - F - Foliation
  - S - Stratification
  - U - Unfoliated or Unstratified
- JOINT SURFACE**
- C - Curved
  - I - Irregular
  - S - Straight
- JOINT 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**

<b>PROJECT</b>	AMSTERDAM AVENUE TOWERS	<b>BORING NO.</b>	MR-3
<b>LOCATION</b>	NEW YORK, NEW YORK	<b>SHEET</b>	4 OF 4
<b>BORING LOCATION</b>	SEE BORING LOCATION PLAN	<b>FILE NO.</b>	12509
		<b>SURFACE ELEV.</b>	+74.8
		<b>DATUM</b>	NAVD 88

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

	<b>TYPE OF FEED</b>				
<b>TYPE OF BORING RIG</b>	<b>DURING CORING</b>	<b>CASING USED</b>	<b>X YES</b>	<b>NO</b>	
TRUCK	MECHANICAL	DIA., IN. 3	DEPTH, FT. FROM	0	TO 15
SKID	HYDRAULIC X	DIA., IN.	DEPTH, FT. FROM		TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM		TO
OTHER	ACKER ACE				

<b>TYPE AND SIZE OF</b>		<b>DRILLING MUD USED</b>	<b>YES</b>	<b>X NO</b>
D-SAMPLER	2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		2-15/16
U-SAMPLER		TYPE OF DRILLING MUD		
S-SAMPLER				
CORE BARREL	NX DOUBLE BARREL	<b>AUGER USED</b>	<b>YES</b>	<b>X NO</b>
CORE BIT	NX DIAMOND BIT	TYPE AND DIAMETER, IN.		
DRILL RODS	NWJ			
		*CASING HAMMER, LBS.	140	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
					NO WATER LEVEL OBSERVATIONS MADE.

**PIEZOMETER INSTALLED** YES  NO  SKETCH SHOWN ON \_\_\_\_\_

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

**PAY QUANTITIES**

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	15	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.	30	OTHER:

**BORING CONTRACTOR** AQUIFER DRILLING & TESTING CO., INC.

**DRILLER** DOMENIC PEPE **HELPERS** GEORGE RAYMOND

**REMARKS** BOREHOLE BACKFILLED.

**RESIDENT ENGINEER** GEOFFREY SMITH **DATE** 12-23-15

**CLASSIFICATION CHECK:** CHERYL J. MOSS **TYPING CHECK:** ALEXANDRA PATRONE

**BORING NO.** MR-3

**MUESER RUTLEDGE CONSULTING ENGINEERS**  
**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWERS  
LOCATION: NEW YORK, NEW YORK

BORING NO. MR-4  
SHEET 1 OF 4  
FILE NO. 12509  
SURFACE ELEV. +79.0  
RES. ENGR. GEOFFREY SMITH

DAILY		SAMPLE		SAMPLE DESCRIPTION	CASING		REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"		STRATA DEPTH	BLOWS	
09:30					**	0.4	DRILLED **Concrete slab from AHEAD 0' to 0.4'
12-16 15						3"	
Wednesday						5	
55°F							
					***		***Cellar from 0.4' to 12.5'
						10	
					***	12.5	***Concrete slab from 12.5' to 13'
14:45	1D	13.0	20-100/3"	Top: Broken, concrete fragments	DR	14	
		13.8		Bot: Brn micaceous f-c sand, tr silt (DR) (SP-SM)		15	
07:15	1C	14.0	REC=92%	Medium hard slightly weathered gray pegmatite,		8.5"	
12:17 15		19.0	RQD=73%	jointed, iron stained & weathered joints		8.5"	Casing at 16.5'
Thursday						4"	*Coring time in minutes per foot.
Rain						4"	
55°F	2C	19.0	REC=85%	Medium hard slightly weathered gray pegmatite,		20	
		24.0	RQD=62%	jointed, iron stained & weathered joints		13"	
						9"	
						10"	
14:45						18"	
07:30	3C	24.0	REC=92%	Medium hard slightly weathered gray pegmatite,		25	
12-18 15		29.0	RQD=80%	trace gneissic schist, jointed to moderately		5"	
Friday				jointed, weathered joints		4"	
Overcast						4"	
55°F	4C	29.0	REC=100%	Medium hard slightly weathered to unweathered	R	30	
		34.0	RQD=63%	gray gneissic schist, broken to jointed, iron		7"	
				stained & weathered joints		6"	
						6.5"	
						4.5"	
						4.5"	
14:30						35	
07:30	5C	34.0	REC=98%	Medium hard to hard slightly weathered to		9"	
12-21-15		39.0	RQD=80%	unweathered gray gneissic schist, moderately		5.5"	
Monday				jointed to closely jointed, iron stained &		4"	
Overcast				weathered joints		6"	
50°F						6"	
	6C	39.0	REC=100%	Hard slightly weathered to unweathered gray		40	
		44.0	RQD=85%	gneissic schist, jointed, weathered joints		5.5"	
						6"	
						5"	
						3"	
09:30						44	End of Boring at 44'.
						45	
						2"	
						50	





# Mueser Rutledge Consulting Engineers

14 Penn Plaza 225 West 14th Street  
New York, NY 10122  
T: 917 339 9300 F: 917 339 9400  
www.mrce.com

## ROCK CORE SKETCH

BORING NO. 161-1

SHEET 1 OF 1

FILE NO. 1791

SURFACE ELEV. 1791

RES ENGR. ES

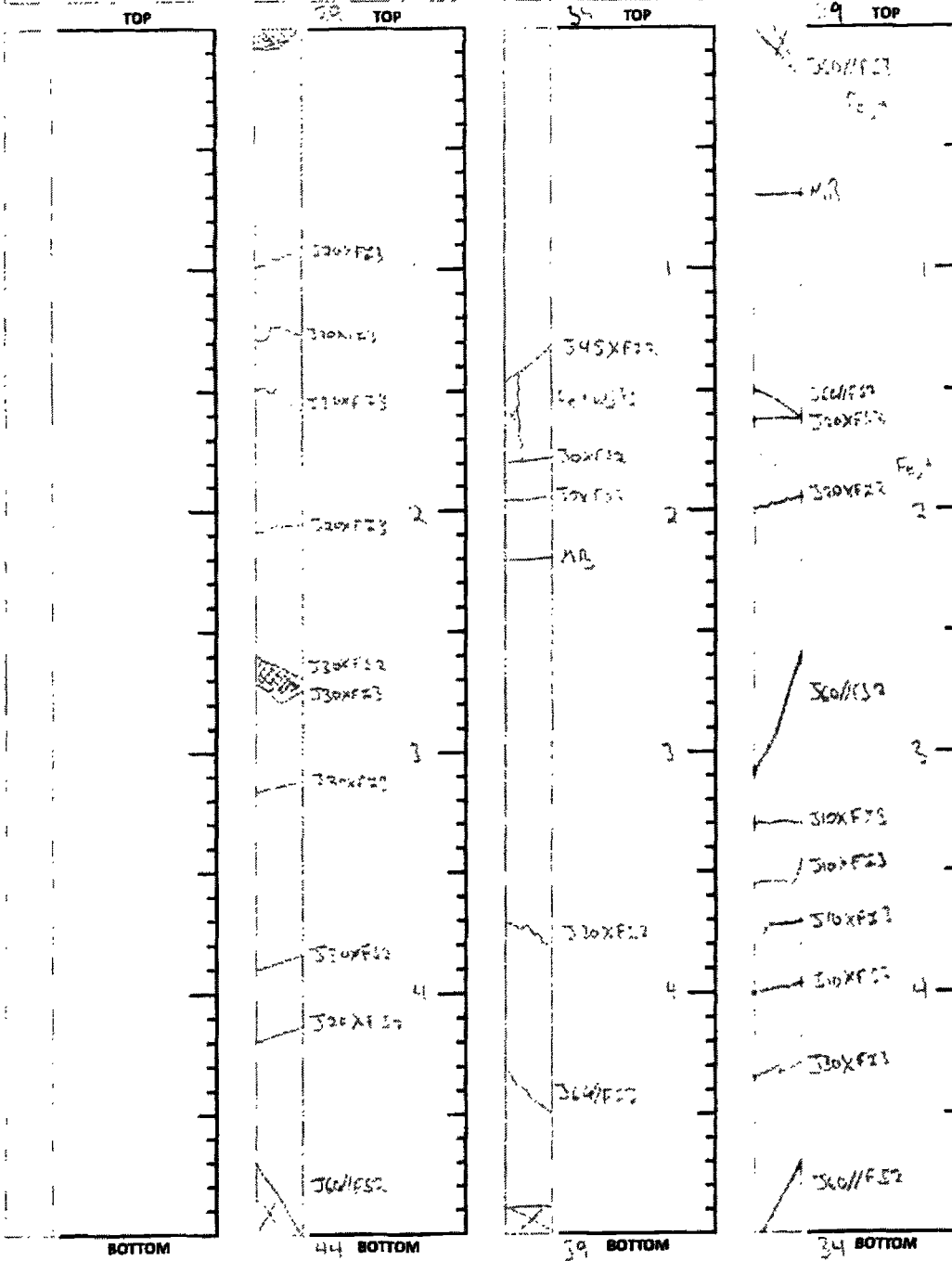
PROJECT: 200 PROSPECT

LOCATION: Prospect Hill

TEST/INSP EQUIPMENT

REF. CODES/STANDARDS

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
		32	00/00	34	00/00	39	00/00



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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**

<b>PROJECT</b>	<b>AMSTERDAM AVENUE TOWERS</b>	<b>BORING NO.</b>	<b>MR-4</b>
<b>LOCATION</b>	<b>NEW YORK, NEW YORK</b>	<b>SHEET</b>	<b>4 OF 4</b>
<b>BORING LOCATION</b>	<b>SEE BORING LOCATION PLAN</b>	<b>FILE NO.</b>	<b>12509</b>
		<b>SURFACE ELEV.</b>	<b>+74.0</b>
		<b>DATUM</b>	<b>NAVD 88</b>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

<b>TYPE OF BORING RIG</b>	<b>TYPE OF FEED</b>	<b>CASING USED</b>	<b>X YES</b>	<b>NO</b>
TRUCK	MECHANICAL	DIA., IN. 3	DEPTH, FT. FROM 0	TO 16.5
SKID	HYDRAULIC X	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO
OTHER	ACKER ACE			

<b>TYPE AND SIZE OF:</b>	<b>DRILLING MUD USED</b>	<b>YES</b>	<b>X NO</b>
D-SAMPLER 2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		2-15/16
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL NX DOUBLE BARREL	<b>AUGER USED</b>	<b>YES</b>	<b>X NO</b>
CORE BIT NX DIAMOND BIT	TYPE AND DIAMETER, IN.		
DRILL RODS NWJ			
	*CASING HAMMER, LBS. 140	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
					NO WATER LEVEL OBSERVATIONS MADE.

**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.	14	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.	30	OTHER:

<b>BORING CONTRACTOR</b>	<b>AQUIFER DRILLING &amp; TESTING CO., INC.</b>		
<b>DRILLER</b>	<b>DOMENIC PEPE</b>	<b>HELPERS</b>	<b>GEORGE RAYMOND/TODD SURRNY</b>
<b>REMARKS</b>	<b>BOREHOLE BACKFILLED.</b>		
<b>RESIDENT ENGINEER</b>	<b>GEOFFREY SMITH</b>	<b>DATE</b>	<b>12-21-15</b>
<b>CLASSIFICATION CHECK:</b>	<b>CHERYL J. MOSS</b>	<b>TYPING CHECK:</b>	<b>ALEXANDRA PATRONE</b>
		<b>BORING NO.</b>	<b>MR-4</b>

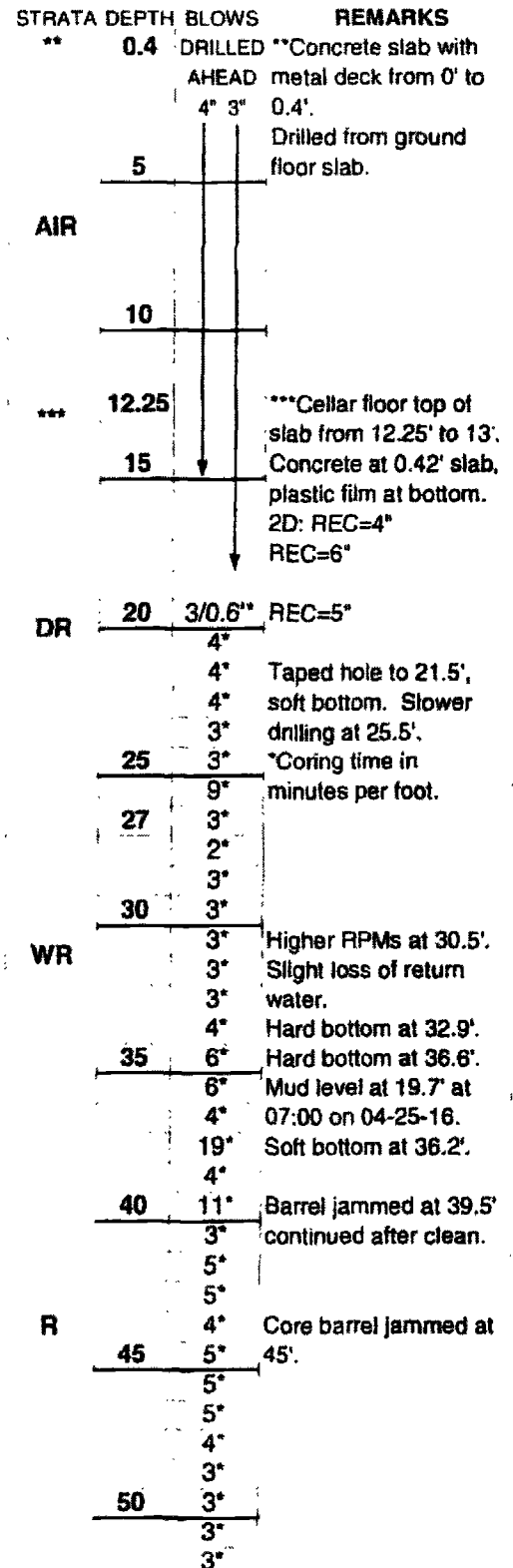


**MUESER RUTLEDGE CONSULTING ENGINEERS**  
**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWERS  
LOCATION: NEW YORK, NEW YORK

BORING NO. MR-5  
SHEET 1 OF 6  
FILE NO. 12509  
SURFACE ELEV. +79.0  
RES. ENGR. A. M. DYER/R. ZHANG

DAILY	NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION
PROGHE 55				
08:00				
04 23 16				
Saturday				
Indoors				
15:00	1D	12.8	2-14	Brown fine to medium sand, some silt, trace mica (Decomposed Rock) (SM)
07:00		14.8	31-50	
04 24 16	2D	14.8	60-100/5"	Do 1D (Decomposed Rock) (SM)
Sunday		15.7		
Indoors				
	3D	17.0	100/6"	Do 1D (Decomposed Rock) (SM)
		17.5		
	4D	19.0	100/5"	Gray fine to medium sand, some silt, trace mica (Decomposed Rock) (SM)
		19.4		
	1C	19.4	REC=0%	No recovery
		24.0	RQD=0%	
	5D	24.0	100/5"	Do 4D (Decomposed Rock) (SM)
		24.4		
	2C	24.5	REC=6%	Top 2.5': Decomposed Rock
		27.8	RQD=0%	Bot: 0.8': Withd HIW gray gns sch, Bkn, WJts
	3C	27.8	REC=31%	Weathered highly weathered to moderately weathered gray gneissic schist, broken, weathered joints
		32.9	RQD=11%	
	4C	32.9	REC=57%	Top 2': Do 3C (Weathered Rock)
		37.6	RQD=48%	Bot 2.7': Intermediate slightly weathered gray gneissic schist, jointed, slightly weathered joints
15:00	5C	37.6	REC=80%	Top 1': Weathered moderately weathered gray gneissic schist, broken, weathered joints
07:00		42.6	RQD=48%	Bot: Medium hard slightly weathered gray gneissic schist, jointed, weathered joints
04-25-16				
Monday				
Indoors				
	6C	42.6	REC=96%	Medium hard slightly weathered gray gneissic schist, jointed to closely jointed, weathered joints
		47.6	RQD=56%	
	7C	47.6	REC=98%	Hard unweathered gray gneissic schist, blocky
		52.7	RQD=98%	



BORING NO. MR-5

**MUESER RUTLEDGE CONSULTING ENGINEERS**  
**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWERS  
 LOCATION: NEW YORK, NEW YORK

BORING NO. MR-5  
 SHEET 2 OF 6  
 FILE NO. 12509  
 SURFACE ELEV.  
 RES. ENGR. RYAN ZHANG

DAILY PROGRESS	SAMPLE NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA DEPTH	CASING BLOWS	REMARKS
Cont'd 04-25-16 Monday Indoors	8C	52.7 57.5	REC 100% RQD 100%	Hard unweathered gray gneissic schist to schistose gneiss, blocky slightly weathered joints		3" 3" 55 3"	Soft bottom at 52.7'
	9C	57.5 61.9	REC=100% RQD: 100%	Do 8C		3" 3" 60 3"	
	10C	61.9 66.9	REC=98% RQD=98%	Do 8C, weathered joints		3" 3" 65 3"	Core barrel jammed at 62.9'. Shift end in middle of Run 10C.
15:00 07:00 04 26 16 Tuesday Indoors	11C	66.9 71.9	REC=78% RQD=58%	Medium hard unweathered gray gneissic schist, jointed to moderately jointed, weathered joints		3" 3" 70 4"	Mud level at 20.5'. Sound hole at 63.8'; soft bottom.
	12C	71.9 76.8	REC=96% RQD=78%	Medium hard to hard unweathered gray gneissic schist to schistose gneiss, blocky, weathered joints		3" 4" 75 4" 4"	
10:00						76.8	End of Boring at 76.8'
						80	
						85	
						90	
						95	
						100	





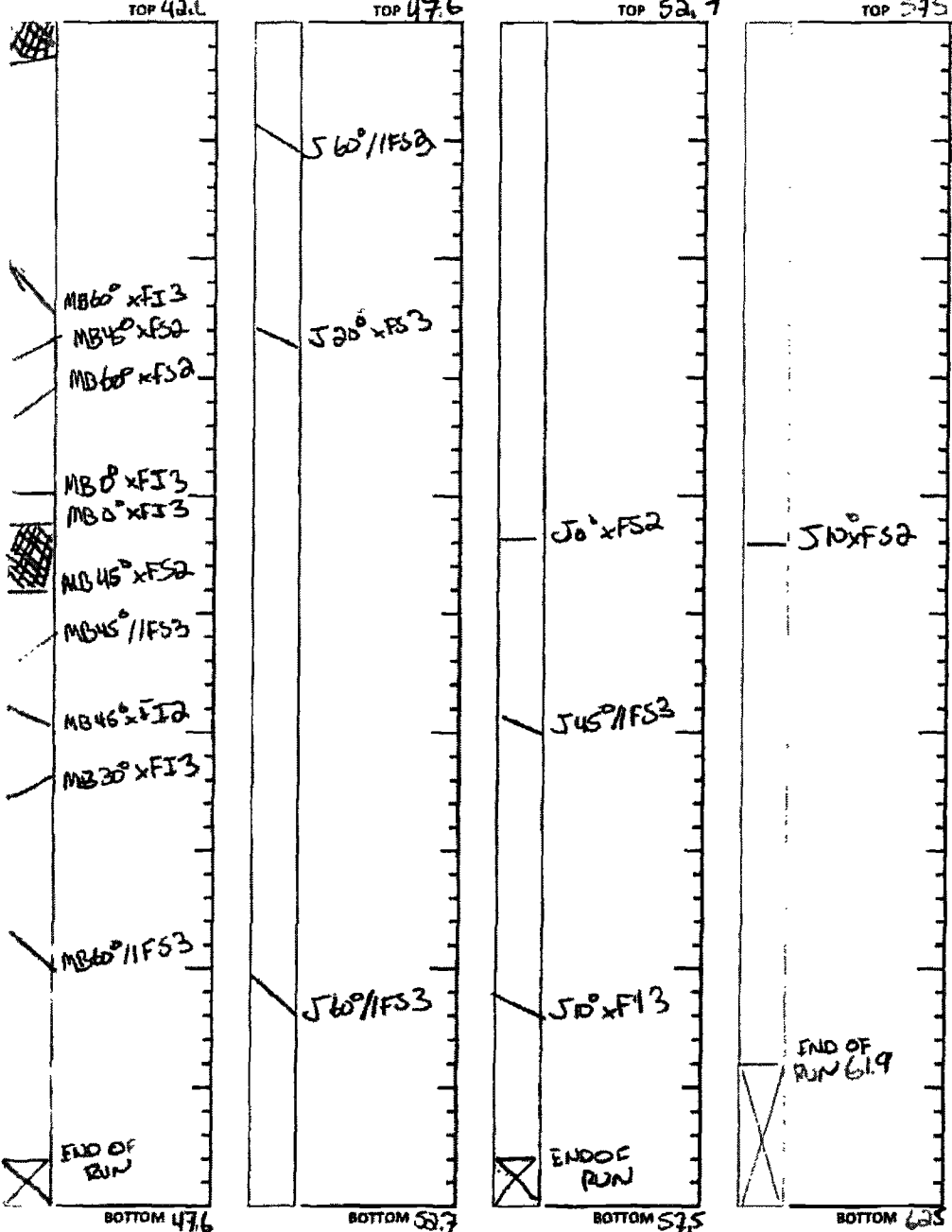
**Mueser Rutledge Consulting Engineers**  
 14 Penn Plaza, 22nd West 34th Street  
 New York, NY 10122  
 T 917 339-9400 F 917 339-9400  
 www.mrc.com

**ROCK CORE SKETCH**

PROJECT AMSTERDAM AVE TOWER  
 LOCATION: NY, NY  
 TEST/INSP EQUIPMENT \_\_\_\_\_  
 REF. CODES/STANDARDS \_\_\_\_\_

BORING NO. MR-5  
 SHEET 4 OF 6  
 FILE NO. 10329  
 SURFACE ELEV. 79.1  
 RES ENGR. RZ

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
6C	46% / 30	7C	98% / 95%	8C	100% / 100%	9C	100% / 100%



**ROCK CORE SKETCH LEGEND**

JOINTING

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

JOINT SURFACE

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

JOINT 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

14 Penn Plaza 125 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

## ROCK CORE SKETCH

PROJECT: AMSTERDAM FIVE TOWER  
LOCATION: NY, NY  
TEST/INSP. EQUIPMENT: \_\_\_\_\_  
REF. CODES/STANDARDS: \_\_\_\_\_

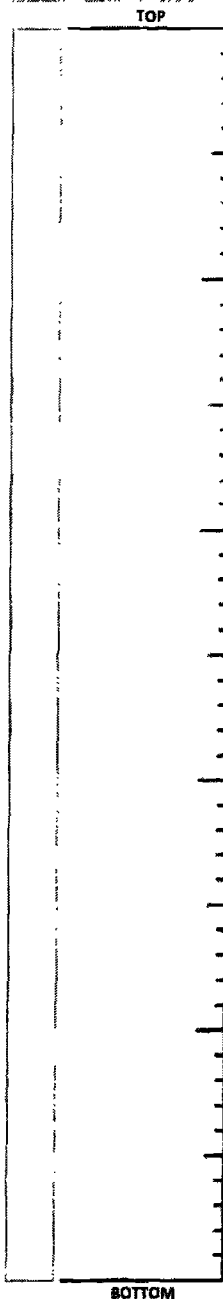
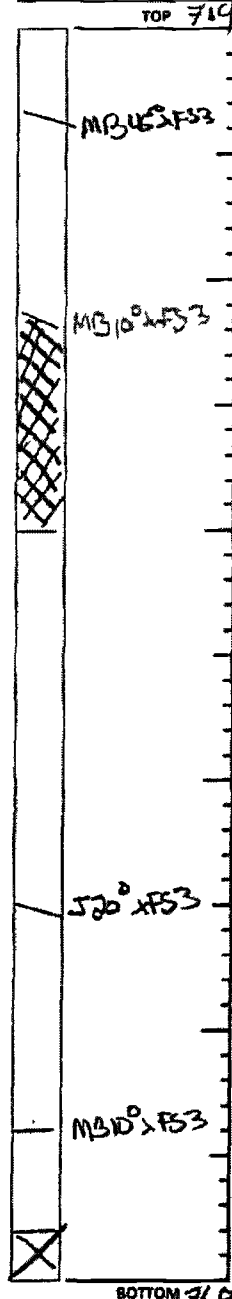
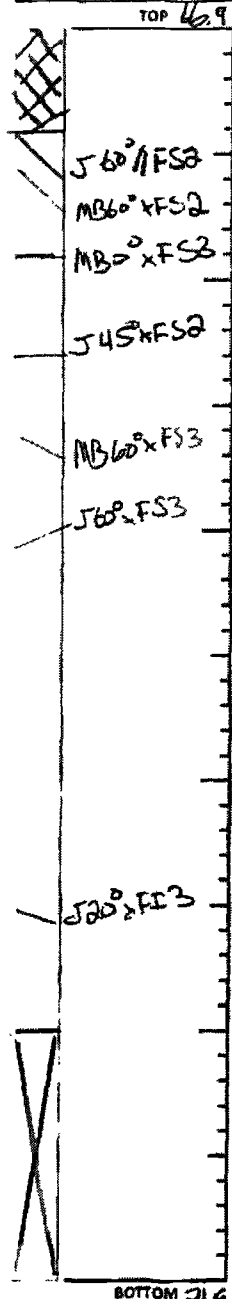
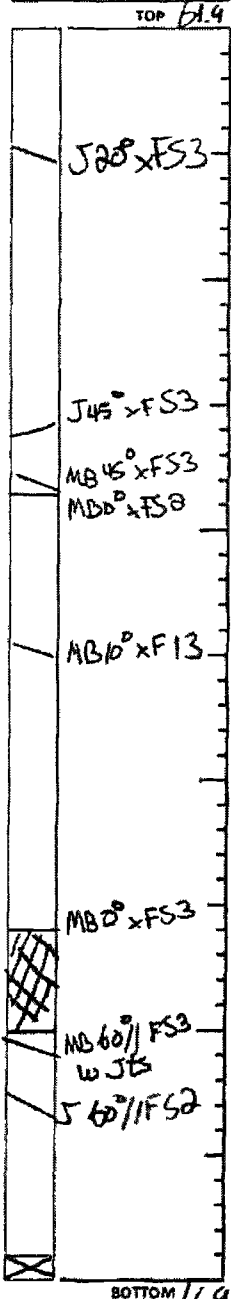
BORING NO. MC 5  
SHEET 5 OF 5  
FILE NO. 12509  
SURFACE ELEV. 179.1  
RES ENGR. RZ

Run No.	REC/RQD
10C	98% / 98%

Run No.	REC/RQD
11C	78% / 53%

Run No.	REC/RQD
12C	96% / 78%

Run No.	REC/RQD



ROCK CORE SKETCH LEGEND

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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**

<b>PROJECT</b>	<b>AMSTERDAM AVENUE TOWERS</b>	<b>BORING NO.</b>	<b>MR-5</b>
<b>LOCATION</b>	<b>NEW YORK, NEW YORK</b>	<b>SHEET</b>	<b>6 OF 6</b>
<b>BORING LOCATION</b>	<b>SEE BORING LOCATION PLAN</b>	<b>FILE NO.</b>	<b>12509</b>
		<b>SURFACE ELEV.</b>	<b>+79.0</b>
		<b>DATUM</b>	<b>NAVD 88</b>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

	<b>TYPE OF FEED</b>						
<b>TYPE OF BORING RIG</b>	<b>DURING CORING</b>	<b>CASING USED</b>		<b>X YES</b>	<b>NO</b>		
<b>TRUCK</b>	<b>MECHANICAL</b>	<b>DIA., IN.</b>	<b>4</b>	<b>DEPTH, FT. FROM</b>	<b>0 TO</b>	<b>15</b>	
<b>SKID</b>	<b>ACKER ACE HYDRAULIC</b>	<b>DIA., IN.</b>	<b>3</b>	<b>DEPTH, FT. FROM</b>	<b>0 TO</b>	<b>18</b>	
<b>BARGE</b>	<b>OTHER</b>	<b>DIA., IN.</b>		<b>DEPTH, FT. FROM</b>	<b>TO</b>		
<b>OTHER</b>							

<b>TYPE AND SIZE OF:</b>		<b>DRILLING MUD USED</b>	<b>X YES</b>	<b>NO</b>
<b>D-SAMPLER</b>	<b>2" &amp; 1-3/8" O. D. &amp; I. D. SPLIT SPOON</b>	<b>DIAMETER OF ROTARY BIT, IN.</b>		<b>3-7/8</b>
<b>U-SAMPLER</b>		<b>TYPE OF DRILLING MUD</b>		<b>EZ MUD</b>
<b>S-SAMPLER</b>				
<b>CORE BARREL</b>	<b>NX DOUBLE TUBE</b>	<b>AUGER USED</b>	<b>YES</b>	<b>X NO</b>
<b>CORE BIT</b>	<b>NX DIAMOND</b>	<b>TYPE AND DIAMETER, IN.</b>		
<b>DRILL RODS</b>	<b>WIRELINE, BWJ</b>			

\*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. \_\_\_\_\_  
 \*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30  
 \*USED DONUT HAMMER & ROPE 8" CATHEAD.

**WATER LEVEL OBSERVATIONS IN BOREHOLE**

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
04-25-16	07:00	38	18	19.7	EZ MUD USED FOR DRILLING.
04-26-16	07:00	63	18	20.5	EZ MUD USED FOR DRILLING.

**PIEZOMETER INSTALLED**

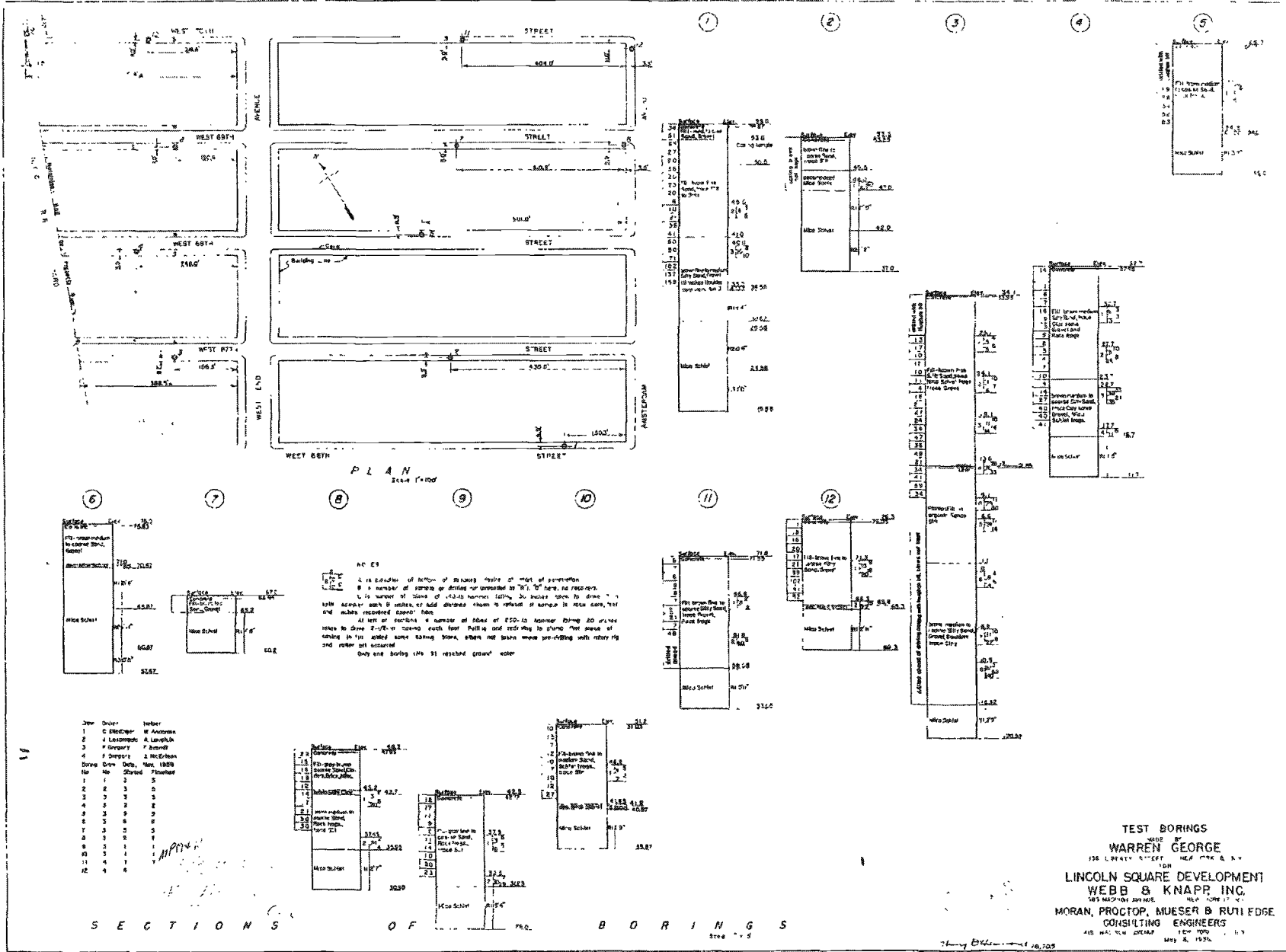
	<b>YES</b>	<b>X NO</b>	<b>SKETCH SHOWN ON</b>
<b>STANDPIPE:</b>	<b>TYPE</b>	<b>ID, IN.</b>	<b>LENGTH, FT.</b>
<b>INTAKE ELEMENT:</b>	<b>TYPE</b>	<b>OD, IN.</b>	<b>LENGTH, FT.</b>
<b>FILTER:</b>	<b>MATERIAL</b>	<b>OD, IN.</b>	<b>LENGTH, FT.</b>
			<b>TOP ELEV.</b>
			<b>TIP ELEV.</b>
			<b>BOT. ELEV.</b>

**PAY QUANTITIES**

<b>3.5" DIA. DRY SAMPLE BORING</b>	<b>LIN. FT.</b>	<b>19</b>	<b>NO. OF 3" SHELBY TUBE SAMPLES</b>	<b>0</b>
<b>3.5" DIA. U-SAMPLE BORING</b>	<b>LIN. FT.</b>	<b>0</b>	<b>NO. OF 3" UNDISTURBED SAMPLES</b>	<b>0</b>
<b>CORE DRILLING IN ROCK</b>	<b>LIN. FT.</b>	<b>58</b>	<b>OTHER: SPT SAMPLE</b>	<b>5</b>

<b>BORING CONTRACTOR</b>	<b>AQUIFER DRILLING &amp; TESTING CO., INC.</b>
<b>DRILLER</b>	<b>DOMENIC PEPE</b>
<b>REMARKS</b>	<b>HELPERS</b>
	<b>DAN ROMERO/ANTHONY KAPPEL</b>

<b>RESIDENT ENGINEER</b>	<b>ADAM M. DYER/RYAN ZHANG</b>	<b>DATE</b>	<b>04-26-16</b>
<b>CLASSIFICATION CHECK:</b>	<b>CHERYL J. MOSS</b>	<b>TYPING CHECK:</b>	



TEST BORINGS MADE BY  
**WARREN GEORGE**  
 126 LEXINGTON STREET NEW YORK 17, N.Y.  
**LINCOLN SQUARE DEVELOPMENT**  
**WEBB & KNAPP INC.**  
 185 MADISON AVENUE NEW YORK 17, N.Y.  
**MORAN, PROCTOR, MUESER & RUTLEDGE**  
 CONSULTING ENGINEERS  
 410 WALL STREET NEW YORK 100, N.Y.

MORAN, PROCTOR, MUESER & RUTLEDGE - CONSULTING ENGINEERS

415 MADISON AVE., NEW YORK 17, N. Y.

SHEET 1 OF 2

FILE NO. 2017

PROJECT Lincoln Square Development BORING NO. 6

LOCATION Manhattan, N. Y. RES. ENGR. William Sisienna

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
5-6-58 Tues.				2" ± Conc. Pave.	0' - 2"	1	—	
				Bra. Med.-Crs. Sand & Gravel (Fill)	2' - 10"		—	
					4' - 0"		—	
	1	5' - 0"	60/4	Soft mica schist (disint.)	4' - 0"	5	—	
		5' - 9"						
	Drill	5' - 9"	R = 6"	Soft seamy mica schist	5' - 14"			
		10' - 4"				10		
	Drill	10' - 4"	R = 1' - 11"	Seamy mica schist				
		15' - 9"		Bot 6" Gneiss		15		
Drill	15' - 4"	R = 8"	Gneiss & mica seams					
	18' - 4"							
			Bottom of Hole		20			

BORING NO. 6  
SURFACE ELEV. 76.1



MORAN, PROCTOR, MUESER & RUTLEDGE - CONSULTING ENGINEERS

415 MADISON AVE., NEW YORK 17, N. Y.

SHEET 2 OF 2

FILE NO. 2017

PROJECT LINCOLN SQUARE DEVELOPMENT  
 LOCATION MANHATTAN, N.Y. RES. ENGR. ROBERT C. HONG

BORING NO. 6

BORING LOCATION 3'-6" W. OF W. BL ON AMSTERDAM AVE. #  
9'-6" N. OF S. BL ON 69TH ST.

BORING SURFACE ELEVATION 76.0 DATUM \_\_\_\_\_  
 WEIGHT OF CASING HAMMER \_\_\_\_\_ LBS.; AVERAGE FALL \_\_\_\_\_ IN.  
 WEIGHT OF SAMPLE HAMMER 140 LBS.; AVERAGE FALL 30 IN.  
 TYPE OF: D-SAMPLER SPLIT O.D. OF SAMPLER \_\_\_\_\_ IN.  
 S-SAMPLER \_\_\_\_\_ O.D. OF SAMPLE TUBE \_\_\_\_\_ IN.  
 U-SAMPLER \_\_\_\_\_ O.D. OF SAMPLE TUBE \_\_\_\_\_ IN.  
 CORE BIT DIAMOND O.D. OF ROCK CORE 1 3/8 IN.

CASING SIZE 1 1/2 INCHES; FROM DEPTH OF 0 TO 4'-0"  
 \_\_\_\_\_ TO \_\_\_\_\_  
 \_\_\_\_\_ TO \_\_\_\_\_

WATER LEVEL READINGS:

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	ELEV. OF WATER

PIEZOMETER INSTALLATION DATA: NUMBER \_\_\_\_\_ LOCATION \_\_\_\_\_  
 STAND PIPE: TYPE \_\_\_\_\_ I.D. \_\_\_\_\_ LENGTH \_\_\_\_\_ TOP ELEV. \_\_\_\_\_  
 POINT: TYPE \_\_\_\_\_ O.D. \_\_\_\_\_ LENGTH \_\_\_\_\_ TIP ELEV. \_\_\_\_\_  
 FILTER: MATERIAL \_\_\_\_\_ O.D. \_\_\_\_\_ LENGTH \_\_\_\_\_ TIP ELEV. \_\_\_\_\_  
 ATTACH SEPARATE SKETCH; REMARKS \_\_\_\_\_

PAY QUANTITIES  
 2 1/2" DIA. DRY SAMPLE BORING 5'-4" FT.; 4'-4" DIA. U-SAMPLE BORING \_\_\_\_\_ FT.  
 NO. OF 2" DIA. SHELBY TUBES \_\_\_\_\_; NO. OF \_\_\_\_\_ U-SAMPLES \_\_\_\_\_  
 2 1/2" DIA. CONTINUOUS SAMPLE BORING \_\_\_\_\_ FT.; CORE DRILLING IN ROCK 13'-0" FT.

BORING CONTRACTOR WARREN GEORGE  
 DRILLER FRANK GREGORY HELPERS FRED BRANDT  
 REMARKS \_\_\_\_\_

RES. ENGR. Robert C. Hong

- NOTES:
1. Make a separate log of each boring & each unsuccessful attempt. Send one copy of each dry sample boring log & two copies of each undisturbed sample boring log to the office. Keep a copy of all logs in the field.
  2. In daily progress column indicate depth at beginning and end of day, calendar date, time at beginning and end of work day and weather conditions.
  3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, undisturbed samples U. Do not assign numbers to lost samples but record blows and reasons for lack of recovery.
  4. Mark each U-sample with boring number, sample number, depth, recovery and job number.
  5. Record blows on sample per six inches of penetration. Note all blows and penetrations when taken at less than six inch intervals. Indicate method by which penetration of tube sampler was obtained.
  6. Indicate changes of material in strata column and list generalized strata classifications.
  7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount, the recovery of rock cores in feet and inches and per cent of run, and any unusual occurrences.

BORING No. 6

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT AMSTERDAM AVE. TOWER

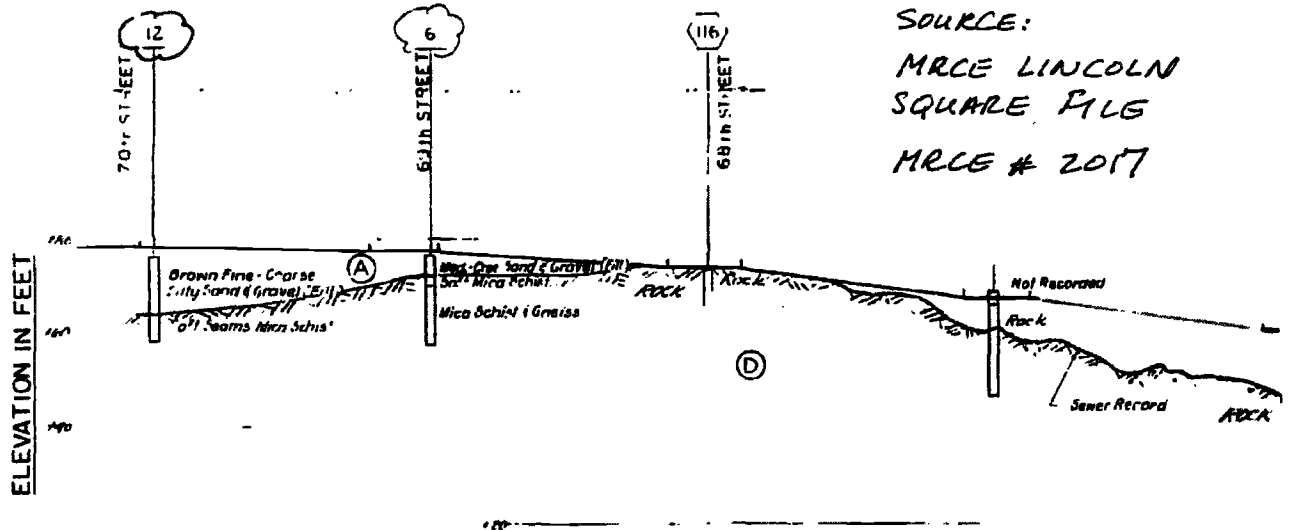
SHEET 1 OF 1

FILE 12509

MADE BY JC DATE 8/2/15

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

SUBJECT 1958 MRCE BORINGS # 12 & 6



SOURCE:  
MRCE LINCOLN  
SQUARE FILE  
MRCE # 2017

STRATA CLASSIFICATIONS

- (A) - Fill - fine to coarse sand & rock fragments, some silt, trace cinders
- (B) - Brown sandy silt, some clay, trace organic matter.
- (C) - Brown medium to coarse sand, some silt & boulders, trace clay.
- (D) - Rock - soft to hard sandy mica schist, some gneiss.

SECTION 5-5  
AMSTERDAM AVENUE

LEGEND & NOTES

**(119-1)** - Borings made by Department of Public Works, City of New York

Borings taken from Rock Date Map, Borough of Manhattan, Copyright 1937, Office of the President of the Borough of Manhattan of the City of New York.

**(31)** - Boring taken from Volume 2, Sheet 31

**(116)** - Boring taken from Volume 2, Sheet 32

**(10)** - Boring taken from Volume 2, Sheet 33

9 - Borings made by Warren George during May 1958 under direct supervision of Aaron Proctor, Mueser & Rutledge.

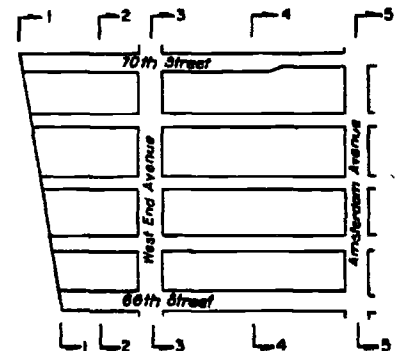
Sewer Records obtained by Commissioner of Borough Works, Borough of Manhattan, City of New York.

Sample descriptions are by Aaron Proctor, Mueser & Rutledge and may not agree with the driller's descriptions.

Elevations refer to Department of Public Works Datum which is 2.75 feet higher than Mean Sea Level at Sandy Hook.

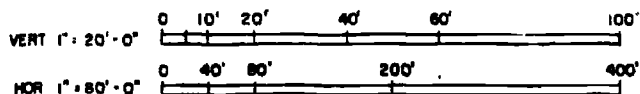
Limits of streets shown as building lines.

Stratifications between borings are necessary interpolations and may or may not represent actual subsurface conditions.



SECTION KEY PLAN

GRAPHIC SCALES





# Mueser Rutledge Consulting Engineers

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

## TEST PIT LOG

PROJECT: Amsterdam Ave. Towers

LOCATION: New York, NY

TEST PIT NO. TP-1

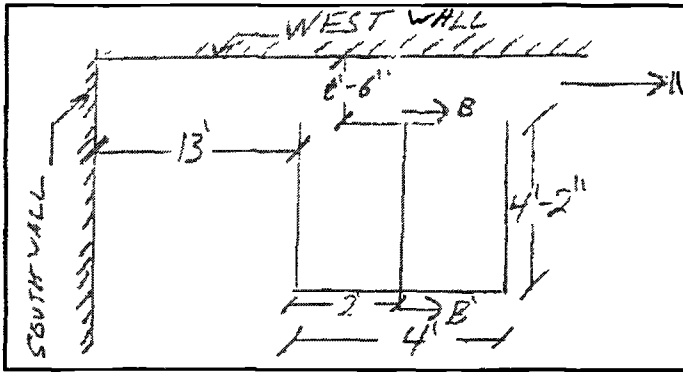
FILE NO. 12509

DATE 8-3-15

RES ENGR. A. DeLeonzo

TEST/INSP. EQUIPMENT \_\_\_\_\_

REF. CODES/STDS \_\_\_\_\_



### NOTES

-TEST PIT HAND EXCAVATED

-GW ENCOUNTERED AT APPROX. EL +54.1

-VERTICAL SCALE AS SHOWN

-HORIZONTAL NOT TO SCALE

Ground Surface Elevation +55.8

Sample Depth	Description [SEE PHOTOS 1 AND 2]	Depth (FT)
0	CONC.	0
0.5	PLASTIC SHEETING	0.5
1.0	FILL (Gray-Brown, F-2 SAND, Some gravel, trace cobbles, boulders, etc, silt)	1.0
1.5	1'-8" TO GWSURFACE	1.5
2.0	2'-2"	2.0
2.5	BED ROCK	2.5
3.0	-Med-Int. Hd, SW-MdW, Gray Gneissic SCHIST	3.0

SECTION B-B

BED ROCK  
-Med-Int. Hd, SW-MdW, Gray Gneissic SCHIST

TEST PIT NO. TP-1



*Photo 1 Overview, Test Pit 1*



*Photo 2 Local, Test Pit 1*

<b>AMSTERDAM AVENUE TOWER</b>			
NEW YORK		NEW YORK	
<b>SJP PROPERTIES</b>			
NEW YORK		NEW YORK	
<b>MUESER RUTLEDGE CONSULTING ENGINEERS</b>			
14 PENN PLAZA - 225 W 34 <sup>TH</sup> STREET, NEW YORK NY 10122			
SCALE	MADE BY AEP	DATE 08-31-15	FILE No
N T S	CH'KD BY JC	DATE 08-31-15	12509
PHOTO PLATE 1 - TEST PIT 1			FIG No 2



# Mueser Rutledge Consulting Engineers

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

## TEST PIT LOG

PROJECT: Amsterdam Ave. Towers

LOCATION: New York, NY

TEST PIT NO. TP-2

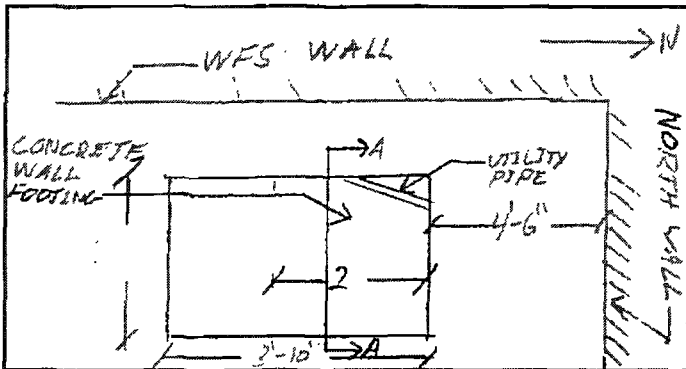
FILE NO. 12509

DATE 8-3-15

RES ENGR. A. DeBeno

TEST/INSP. EQUIPMENT \_\_\_\_\_

REF. CODES/STDS \_\_\_\_\_



### NOTES

- FTG APPEARS TO BE RESTING ON ROCK
- TEST PIT HAND EXCAVATED
- NO GW ENCOUNTERED
- VERTICAL SCALE AS SHOWN
- HORIZONTAL NOT TO SCALE

Ground Surface Elevation +55.8

Sample Depth	Description [SEE PHOTOS 3 AND 4]	Depth (FT)
SECTION A-A		
0	CONC SLAB	0
0.5	FILL	0.5
1.0	0.5-8m F-C Sand some gravel to 5.5 ft	1.0
1.5	FILL	1.5
2.0	BOULDER + BRICK	2.0
2.5	CONC SLAB	2.5
3.0	FILL	3.0
3.5	BOULDER + BRICK	3.5
4.0	CONC WALL FOOTING	4.0
4.5		4.5
5.0		5.0

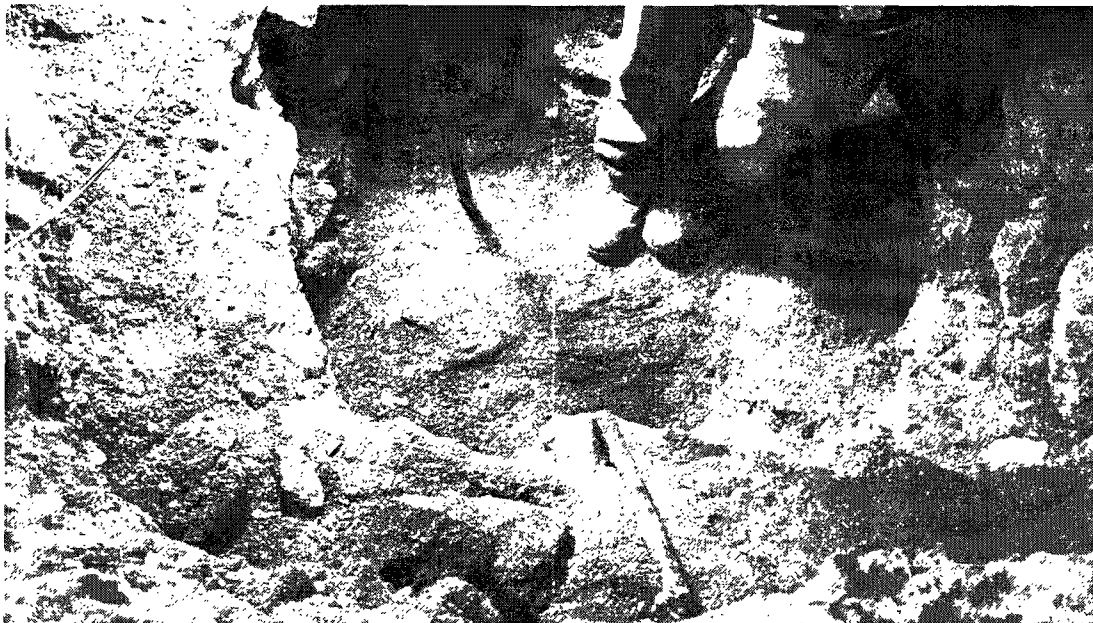
Additional details from diagram:  
 - Plastic Sheeting  
 - 49" distance between test pit walls  
 - 60" distance from right wall to footing  
 - 18" distance from left wall to footing  
 - 15" distance from footing to right wall  
 - 7" distance from footing to bottom of test pit  
 - 13" distance from top of footing to top of test pit  
 - 5" distance from top of footing to top of slab  
 - 13" distance from top of footing to top of brick  
 - 12" distance from top of footing to top of sand  
 - 1" distance from top of footing to top of slab  
 - 5" distance from top of footing to top of slab  
 - 7" distance from top of footing to top of test pit

Bedrock description: Md Hgt - 100 ft  
Silt - Redd Gray  
Gr. Silt - Sand

TEST PIT NO. TP-2



*Photo 3 - Overview, Test Pit 2*



*Photo 4 - Detail, Test Pit 2*

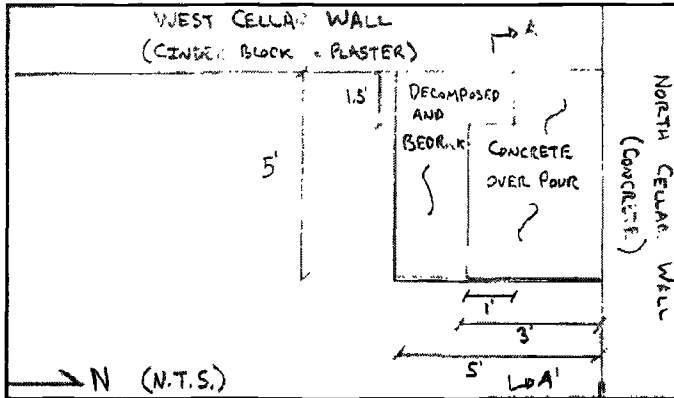
<b>AMSTERDAM AVENUE TOWER</b>			
NEW YORK		NEW YORK	
<b>SJP PROPERTIES</b>			
NEW YORK		NEW YORK	
<b>MUESER RUTLEDGE CONSULTING ENGINEERS</b>			
14 PENN PLAZA - 225 W 34 <sup>TH</sup> STREET, NEW YORK NY 10122			
SCALE	MADE BY AEP	DATE 08-31-15	FILE No
N T S	CH'KD BY JC	DATE 08-31-15	12509
PHOTO PLATE 2 - TEST PIT 2			FIG No 3

File No. 1250\*

Date 12/23/15

Project 200 AMSTERDAM AVE  
 Location MANHATTAN, NY

Test Pit No. TP-3  
 Res. Engr. G. SMITH



**NOTES**

- TEST PIT HAND EXCAVATED
- GROUND WATER NOT ENCOUNTERED.

Ground Surface Elevation ± 61.7

Sample Depth	Description A	Depth
	A Description A	
	WEST CELLAR WALL (CINDER BLOCK + PLASTER)	0.0
	CONCRETE OVER POUR W/ COARSE AGGREGATE	0.5
	CONCRETE SLAB W/ #4 REBAR, WELDED WIRE MESH AND PLASTIC SHEETING	0.5
	DECOMPOSED ROCK	1.0
	DECOMPOSED ROCK: Bm micaceous S-C sa, tr si (SP-SA)	1.5
	BED ROCK: MED HARD TO HARD, SIW TO MdW, GRAY GNEISSIC SCHIST, SM PEGMATITE	2.0
		2.5

2'      2'      1'

HORZ SCALE: 3/4" = 1-FT

TEST PIT NO. TP-3

**BORING LOGS**  
**INSPECTION OF BORINGS**

**200 Amsterdam Avenue**

**NEW YORK, NY**

Section 1704.7.4 of the City of New York Building Code includes a requirement for special inspections of soil investigations, borings and test pits. Mr. Anthony DeZenzo, Mr. Seth Knihtila, Mr. David Rheault, Mr. Geoffrey Smith, and Mr. Ryan Zhang of the staff of Mueser Rutledge Consulting Engineers inspected borings for which logs are submitted herewith.

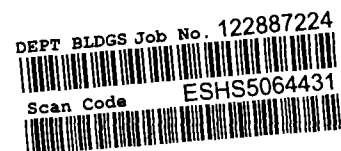
To the best of the undersigned's knowledge and belief, the inspection meets the requirements of the Code.

September 20, 2016



*Walter E. Kaeck 9-20-16*

Walter E. Kaeck  
Mueser Rutledge Consulting Engineers  
NYS Professional Engineer License #072575





200 Amsterdam Avenue

NEW YORK, NY

**GENERAL STRATA DESCRIPTIONS**

<i>STRATUM</i>	<i>DESCRIPTION</i>	<i>NYC BUILDING CODE CLASS OF MATERIAL</i>
<b>F</b>	<b>FILL</b>	<b>7</b>
<b>DR</b>	<b>DECOMPOSED ROCK</b>	<b>3</b>
<b>R</b>	<b>BEDROCK</b>	<b>1-a to 1-d</b>

DEPT BLDGS Job No. 122887224  
Scan Code ESHS5226616

**MUESER RUTLEDGE CONSULTING ENGINEERS**

**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWER  
 LOCATION: NEW YORK, NEW YORK

BORING NO. MR-1  
 SHEET 1 OF 3  
 FILE NO. 12509  
 SURFACE ELEV. +74.4±  
 RES. ENGR. ANTHONY DEZENZO

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS	
	NO.	DEPTH	BLOWS/6"						
12:30					**		DRILLED	**Concrete from 0' to 0.5'.	
08-13-15	1D	1.0	70-50/1"	Top 3": Gray to brn f-c sand, tr silt, gravel(SP-SM)	F		AHEAD		
Mon., Clear		1.6		Bot 9": Do 1D Top, some gravel (Fill) (SP-SM)			4"		
90°F	2D	3.0	2/12"	Do 1D Top (SP-SM)					
14.45		5.0	2-3				5		
08:00	3D	5.0	7-6	Gray coarse fine sand, trace silt, gravel, wood fragments (Fill) (SP-SM)					
08-04-15		7.0	5-4		BLDRS & CBLS	7.5		Rig chattering at 2.5'. 2D: REC=6" REC=5"	
Tuesday	4D	7.0	15-100/4"	Gray brown micaceous fine to coarse sand, trace silt (Decomposed Rock) (SP-SM)			10		
Partly Cloudy		7.8				11	3*	*Coring time in minutes per foot.	
70°F	5D	10.0	6-100/4"	Do 4D (Decomposed Rock) (SP-SM)	DR		7*	Mica in return from 7' to 9'.	
		10.8						7*	
	1C	10.8	REC=48%	Weathered slightly weathered to moderately weathered gray gneissic schist, closely jointed to broken, iron stained joints & weathered joints	WR	13.5	7*	Water lost at 9'.	
		15.8	RQD=35%				15	7*	Sand & gravel in return at 9' to 10'.
	2C	15.8	REC=83%	Medium hard slightly weathered gneissic schist, trace pegmatite, jointed, iron stained joints & weathered joints	R	15.5	5*		
		20.8	RQD=80%					6*	
								7*	
							20	7*	
	3C	20.8	REC=92%	Medium hard slightly weathered gray gneissic schist, jointed to moderately jointed, iron stained joints & weathered joints				5*	
		25.8	RQD=75%					5*	
								5*	
								4*	
	4C	25.8	REC=100%	Hard slightly weathered gray gneissic schist, trace pegmatite, jointed, weathered joints			25	5*	
		30.8	RQD=95%					6*	
15:30							8*		
							5*		
						30	7*		
						30.8		End of Boring at 30.8'.	
						35			
						40			
						45			
						50			

*Grouted*

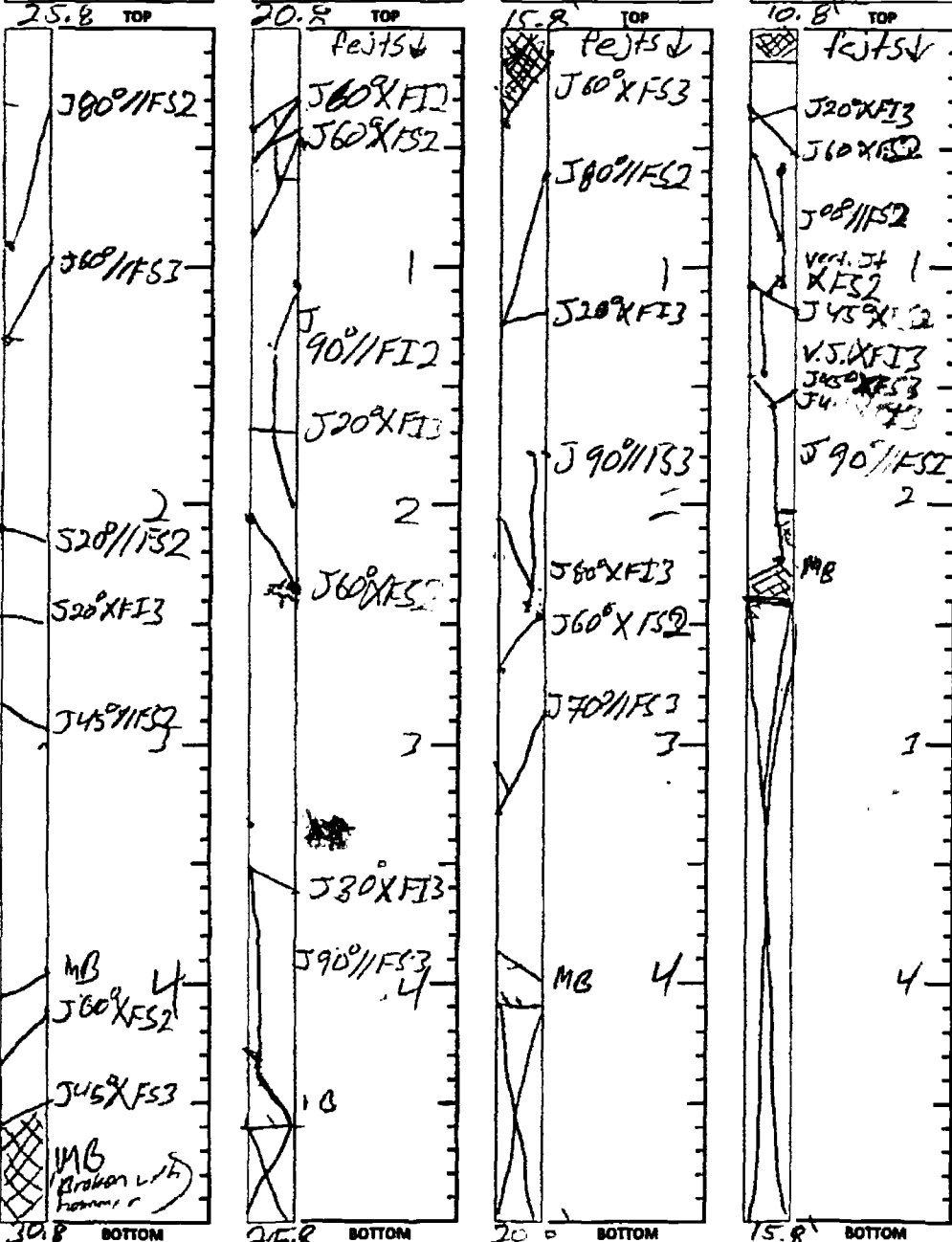
**ROCK CORE SKETCH**

PROJECT: Amsterdam Ave. Towers  
 LOCATION: New York, NY

BORING NO. MR-1  
 SHEET 2 OF 3  
 FILE NO. 12509  
 SURFACE ELEV. \_\_\_\_\_  
 RES ENGR. A. DeZeno

TEST/INSP. EQUIPMENT \_\_\_\_\_  
 REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
4C	100%	3C	92%	2C	83%	1C	48%
	95%		75%		80%		35%



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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

**MUESER RUTLEDGE CONSULTING ENGINEERS**

<b>PROJECT</b>	<u>AMSTERDAM AVENUE TOWER</u>	<b>BORING NO.</b>	<u>MR-1</u>
<b>LOCATION</b>	<u>NEW YORK, NEW YORK</u>	<b>SHEET</b>	<u>3 OF 3</u>
<b>BORING LOCATION</b>	<u>SEE BORING LOCATION PLAN</u>	<b>FILE NO.</b>	<u>12509</u>
		<b>SURFACE ELEV.</b>	<u>+74.4±</u>
		<b>DATUM</b>	<u>NAVD 88</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>X</u>	MECHANICAL		DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>10</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 checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN.	<u>5-7/8, 3-7/8</u>	
U-SAMPLER	TYPE OF DRILLING MUD		
S-SAMPLER			
CORE BARREL <u>NX DOUBLE BARREL</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>300</u>	AVERAGE FALL, IN. <u>30</u>
	*SAMPLER HAMMER, LBS.	<u>140</u>	AVERAGE FALL, IN. <u>30</u>
	*USED ASSISTED MANUAL		

**WATER LEVEL OBSERVATIONS IN BOREHOLE**

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
08:45	15:45	30.5	10	18	WATER MEASURED 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>10.8</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>20</u>	OTHER:	_____

BORING CONTRACTOR	<u>CMI QUINONES</u>
DRILLER	<u>BURT MOLZAHN                      HELPERS                      FRANKIE QUINONES</u>
REMARKS	<u>BOREHOLE BACKFILLED WITH CUTTINGS &amp; GROUTED.</u>
RESIDENT ENGINEER	<u>ANTHONY DEZENZO                      DATE                      08-04-15</u>
CLASSIFICATION CHECK:	<u>CHERYL J. MOSS                      TYPING CHECK:                      ALEXANDRA PATRONE</u>









# Mueser Rutledge Consulting Engineers

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

## ROCK CORE SKETCH

PROJECT: Amsterdam Ave. Towers  
LOCATION: New York, NY

BORING NO. MR-021  
SHEET 4 OF 7  
FILE NO. 12509  
SURFACE ELEV. \_\_\_\_\_  
RES ENGR. \_\_\_\_\_

TEST/INSP. EQUIPMENT \_\_\_\_\_

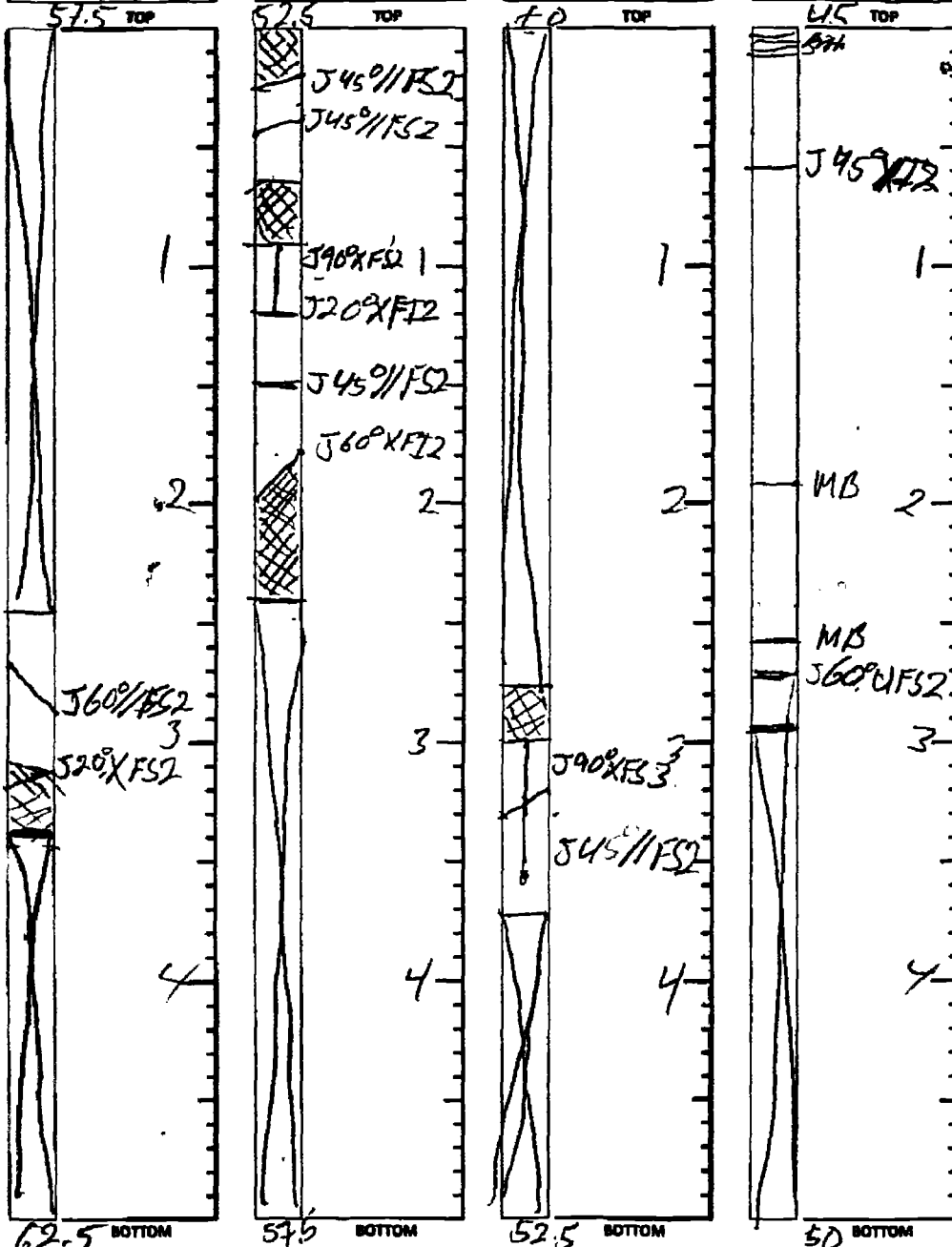
REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD
BC	18% 7%

Run No.	REC/RQD
7C	96% 0%

Run No.	REC/RQD
6C	33% 17%

Run No.	REC/RQD
5C	53% 49%



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

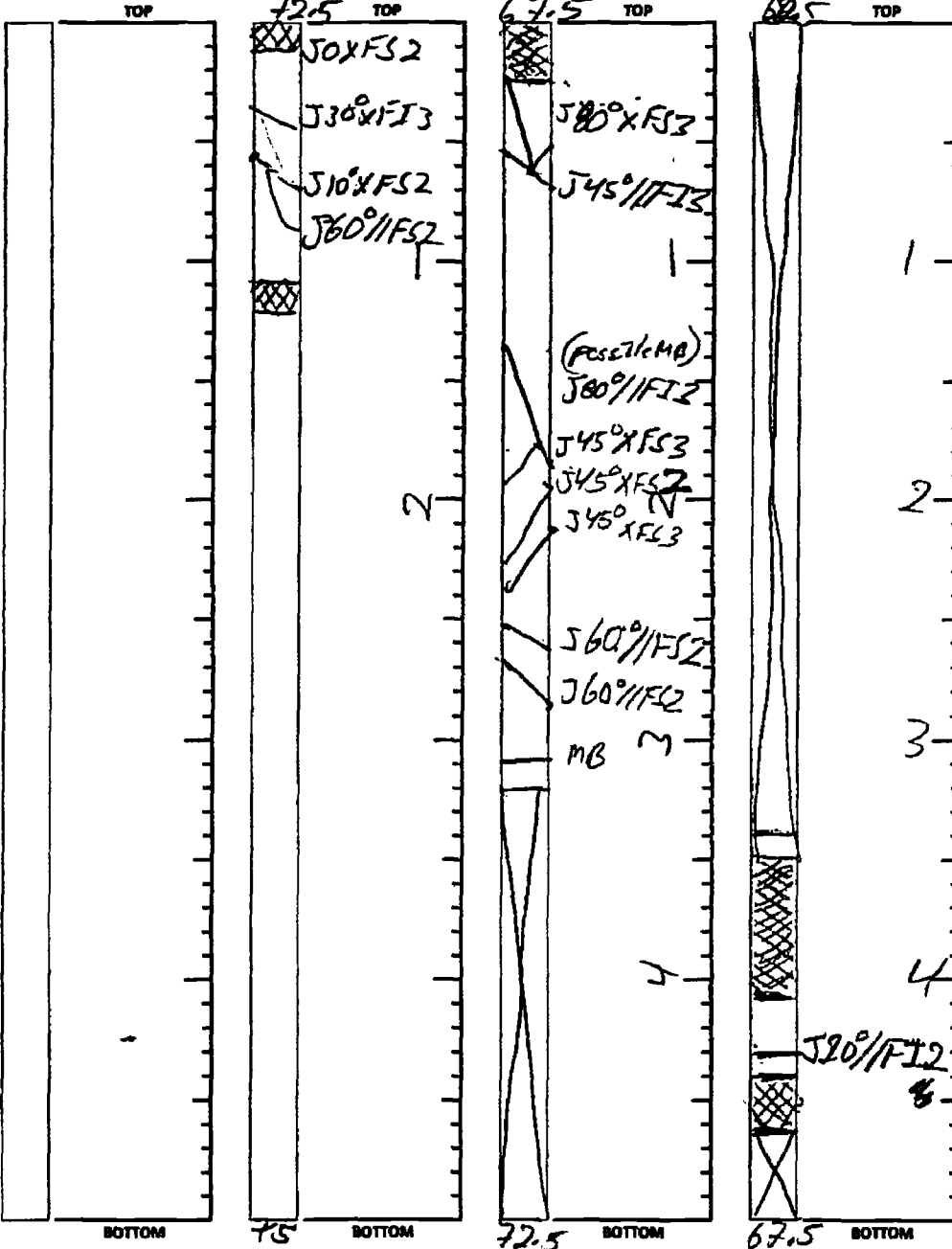
## ROCK CORE SKETCH

BORING NO. MR-02P  
SHEET 5 OF 7  
FILE NO. 12509  
SURFACE ELEV. \_\_\_\_\_  
RES ENGR. A. DeLenzo

PROJECT: Amsterdam Ave. Towers  
LOCATION: New York, NY

TEST/INSP. EQUIPMENT \_\_\_\_\_  
REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
		11C	53% 20%	10C	63% 40%	9C	23% 0%



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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

<b>PROJECT</b>	AMSTERDAM AVENUE TOWER	<b>BORING NO.</b>	MR-2P
<b>LOCATION</b>	NEW YORK, NEW YORK	<b>SHEET</b>	7 OF 7
<b>BORING LOCATION</b>	SEE BORING LOCATION PLAN	<b>FILE NO.</b>	12509
		<b>SURFACE ELEV.</b>	+74.0±
		<b>DATUM</b>	NAVD 88

### BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

<b>TYPE OF BORING RIG</b>	<b>TYPE OF FEED</b>	<b>CASING USED</b>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK <input checked="" type="checkbox"/>	DURING CORING	DIA., IN.			DEPTH, FT. FROM
SKID <input type="checkbox"/>	MECHANICAL	4			0 TO 15
BARGE <input type="checkbox"/>	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.			DEPTH, FT. FROM
OTHER <input type="checkbox"/>	OTHER	DIA., IN.			TO

<b>TYPE AND SIZE OF:</b>	<b>DRILLING MUD USED</b>
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
U-SAMPLER _____	DIAMETER OF ROTARY BIT, IN. <u>5-7/8, 3-7/8</u>
S-SAMPLER _____	TYPE OF DRILLING MUD <u>EZ MUD</u>
CORE BARREL <u>NX DOUBLE BARREL</u>	<b>AUGER USED</b>
CORE BIT <u>NX DIAMOND</u>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DRILL RODS <u>NWJ</u>	TYPE AND DIAMETER, IN. _____
	*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 ASSISTED MANUAL.

### WATER LEVEL OBSERVATIONS IN BOREHOLE

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

<b>PIEZOMETER INSTALLED</b>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<b>SKETCH SHOWN ON</b>	SEE SHEET NO. 6		
<b>STANDPIPE:</b>	TYPE	<u>2" SOLID PVC</u>	ID, IN	<u>2</u> LENGTH, FT	<u>15</u> TOP ELEV.	<u>+74.0±</u>
<b>INTAKE ELEMENT</b>	TYPE	<u>2" SLOTTED PVC</u>	OD, IN	<u>2</u> LENGTH, FT.	<u>10</u> TIP ELEV	<u>+49.0±</u>
<b>FILTER.</b>	MATERIAL	<u>020 SAND</u>	OD, IN	<u>4</u> LENGTH, FT.	<u>12</u> BOT ELEV	<u>+49.0±</u>

### PAY QUANTITIES

3 5" DIA. DRY SAMPLE BORING	LIN. FT.	<u>25</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>50</u>	OTHER:	

<b>BORING CONTRACTOR</b>	CMI QUINONES		
<b>DRILLER</b>	BURT MOLZAHN	HELPERS	FRANKIE QUINONES
<b>REMARKS</b>	PIEZOMETER INSTALLED.		
<b>RESIDENT ENGINEER</b>	DAVID RHEULT/ANTHONY DEZENZO	<b>DATE</b>	08-03-15
<b>CLASSIFICATION CHECK:</b>	CHERYL J. MOSS	<b>TYPING CHECK:</b>	ALEXANDRA PATRONE
		<b>BORING NO.</b>	MR-2P

**MUESER RUTLEDGE CONSULTING ENGINEERS**

**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWERS  
 LOCATION: NEW YORK, NEW YORK

BORING NO. MR-3  
 SHEET 1 OF 4  
 FILE NO. 12509  
 SURFACE ELEV. +69.6  
 RES. ENGR. GEOFFREY SMITH

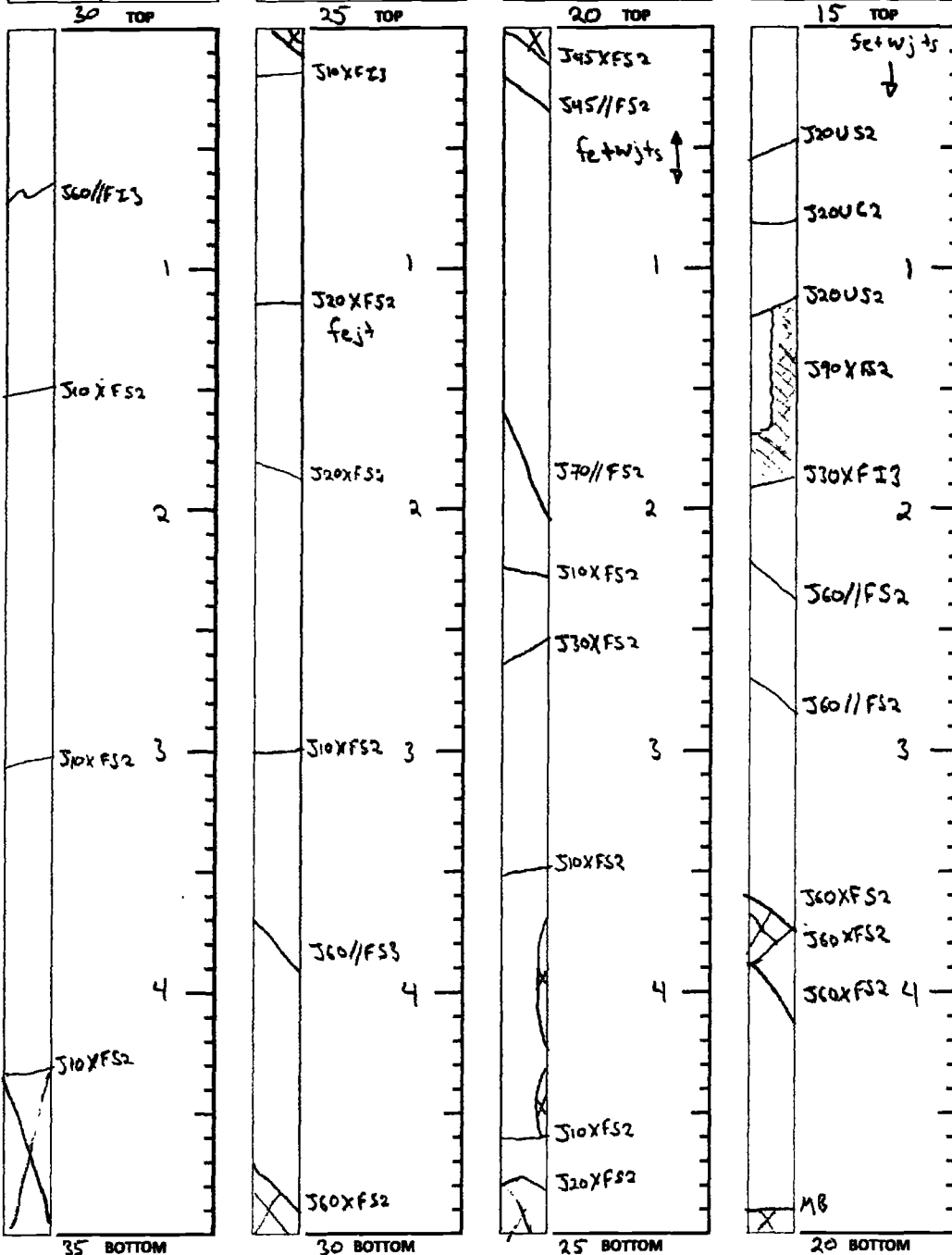
DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
07:30 12-22-15 Tuesday Rain 55°F					**	0.8	DRILLED AHEAD	**Concrete from 0' to 0.8'.
							3"	***Banquet hall & cellar from 0.8' to 12.5'.
					***	5		
						10		
					**	12.5		**Concrete slab from 12.5' to 13'.
	1D	13.0	18-11	Brown micaceous fine to coarse sand, some rock fragments, trace silt (DR) (SP-SM)	DR	15	↓	
		14.8	21-100/3"	Medium hard slightly weathered gray gneissic schist, some pegmatite, jointed to broken, iron stained & weathered joints			2*	*Coring time in minutes per foot.
	1C	15.0	REC=98%				2.5*	
		20.0	RQD=60%				5.5*	
						20	3.5*	
	2C	20.0	REC=96%	Hard to medium hard slightly weathered to unweathered gray gneissic schist, jointed, iron stained & weathered joints			2.5*	
		25.0	RQD=72%				2.5*	
							2*	
						25	3.5*	
	3C	25.0	REC=98%	Hard unweathered gray gneissic schist, jointed, iron stained & weathered joints			2.5*	
		30.0	RQD=88%				2*	
							3*	
	4C	30.0	REC=88%	Hard unweathered gray gneissic schist & pegmatite, jointed to moderately jointed, weathered joints	R	30	3*	
		35.0	RQD=88%				3*	
							3*	
							3.5*	
14:30						35	3.5*	
07:30 12-23-15 Wednesday Overcast 55°F	5C	35.0	REC=100%	Hard to medium hard slightly weathered to moderately weathered gray gneissic schist, trace pegmatite, jointed to broken, weathered joints			2*	
		40.0	RQD=63%				2.5*	
							3.5*	
							3.5*	
	6C	40.0	REC=88%	Medium hard gray gneissic schist, trace pegmatite, broken to jointed, weathered joints			3*	
		45.0	RQD=68%				2.5*	
							2.5*	
09:30						45	2.5*	End of Boring at 45'.
						50		

**ROCK CORE SKETCH**

PROJECT: 200 AMSTERDAM  
 LOCATION: MANHATTAN, NY  
 TEST/INSP. EQUIPMENT \_\_\_\_\_  
 REF. CODES/STANDARDS \_\_\_\_\_

BORING NO. MR-3  
 SHEET 2 OF 4  
 FILE NO. 12509  
 SURFACE ELEV. ± 69.6  
 RES ENGR. G. SMITH

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
4C	88/88	3C	98/88	2C	96/72	1C	98/60



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

- C - Curved
- 1 - Irregular
- S - Straight

**JOINT 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**

<b>PROJECT</b>	<u>AMSTERDAM AVENUE TOWERS</u>	<b>BORING NO.</b>	<u>MR-3</u>
<b>LOCATION</b>	<u>NEW YORK, NEW YORK</u>	<b>SHEET</b>	<u>4 OF 4</u>
<b>BORING LOCATION</b>	<u>SEE BORING LOCATION PLAN</u>	<b>FILE NO.</b>	<u>12509</u>
		<b>SURFACE ELEV.</b>	<u>+69.6</u>
		<b>DATUM</b>	<u>NAVD 88</u>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

<b>TYPE OF BORING RIG</b>	<b>TYPE OF FEED</b>	<b>CASING USED</b>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	MECHANICAL	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>15</u>
SKID	HYDRAULIC	DIA., IN. <u>X</u>	DEPTH, FT. FROM _____	TO _____
BARGE	OTHER	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER	<u>ACKER ACE</u>			

<b>TYPE AND SIZE OF:</b>	<b>DRILLING MUD USED</b>	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>2-15/16</u>		
U-SAMPLER _____	TYPE OF DRILLING MUD _____		
S-SAMPLER _____			
CORE BARREL <u>NX DOUBLE BARREL</u>	<b>AUGER USED</b>	<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>140</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
					NO WATER LEVEL OBSERVATIONS MADE.

**PIEZOMETER INSTALLED**  YES  NO **SKETCH SHOWN ON** \_\_\_\_\_

<b>STANDPIPE:</b>	<b>TYPE</b>	_____	<b>ID, IN.</b>	_____	<b>LENGTH, FT</b>	_____	<b>TOP ELEV.</b>	_____
<b>INTAKE ELEMENT:</b>	<b>TYPE</b>	_____	<b>OD, IN</b>	_____	<b>LENGTH, FT</b>	_____	<b>TIP ELEV</b>	_____
<b>FILTER:</b>	<b>MATERIAL</b>	_____	<b>OD, IN.</b>	_____	<b>LENGTH, FT.</b>	_____	<b>BOT ELEV</b>	_____

**PAY QUANTITIES**

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	<u>15</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>30</u>	OTHER	_____

**BORING CONTRACTOR** AQUIFER DRILLING & TESTING CO., INC.  
**DRILLER** DOMENIC PEPE **HELPERS** GEORGE RAYMOND  
**REMARKS** BOREHOLE BACKFILLED.

**RESIDENT ENGINEER** GEOFFREY SMITH **DATE** 12-23-15  
**CLASSIFICATION CHECK:** CHERYL J. MOSS **TYPING CHECK:** ALEXANDRA PATRONE

**BORING NO.** MR-3

MUESER RUTLEDGE CONSULTING ENGINEERS

**BORING LOG**

PROJECT: AMSTERDAM AVENUE TOWERS  
 LOCATION: NEW YORK, NEW YORK

BORING NO. MR-4  
 SHEET 1 OF 4  
 FILE NO. 12509  
 SURFACE ELEV. +74.0  
 RES. ENGR. GEOFFREY SMITH

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
09:30 12-16-15 Wednesday 55°F					**	0.4	DRILLED AHEAD	**Concrete slab from 0' to 0.4'.
							3"	
						5		
					***			***Cellar from 0.4' to 12.5'.
						10		
					***	12.5		***Concrete slab from 12.5' to 13'.
	1D	13.0	20-100/3"	Top: Broken, concrete fragments Bot: Brn micaceous f-c sand, tr silt (DR) (SP-SM)	DR	14		
14:45		13.8				15	↓	
07:15 12-17-15 Thursday Rain 55°F	1C	14.0	REC=92% RQD=73%	Medium hard slightly weathered gray pegmatite, jointed, iron stained & weathered joints			8.5*	
		19.0					8.5*	Casing at 16.5'.
							4*	*Coring time in minutes per foot.
	2C	19.0	REC=85% RQD=62%	Medium hard slightly weathered gray pegmatite, jointed, iron stained & weathered joints		20	8*	
		24.0					13*	
							9*	
							10*	
14:45							18*	
07:30 12-18-15 Friday Overcast 55°F	3C	24.0	REC=92% RQD=80%	Medium hard slightly weathered gray pegmatite, trace gneissic schist, jointed to moderately jointed, weathered joints		25	23*	
		29.0					5*	
							4*	
							4*	
	4C	29.0	REC=100% RQD=63%	Medium hard slightly weathered to unweathered gray gneissic schist, broken to jointed, iron stained & weathered joints	R	30	7*	
		34.0					6*	
							6.5*	
							4.5*	
14:30							4.5*	
07:30 12-21-15 Monday Overcast 50°F	5C	34.0	REC=98% RQD=80%	Medium hard to hard slightly weathered to unweathered gray gneissic schist, moderately jointed to closely jointed, iron stained & weathered joints		35	9*	
		39.0					5.5*	
							4*	
							6*	
	6C	39.0	REC=100% RQD=85%	Hard slightly weathered to unweathered gray gneissic schist, jointed, weathered joints		40	5.5*	
		44.0					6*	
							5*	
							3*	
09:30						44	3*	End of Boring at 44'.
						45	2*	
						50		





# Mueser Rutledge Consulting Engineers

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

PROJECT: 200 AMSTERDAM AVE

LOCATION: MANHATTAN, NY

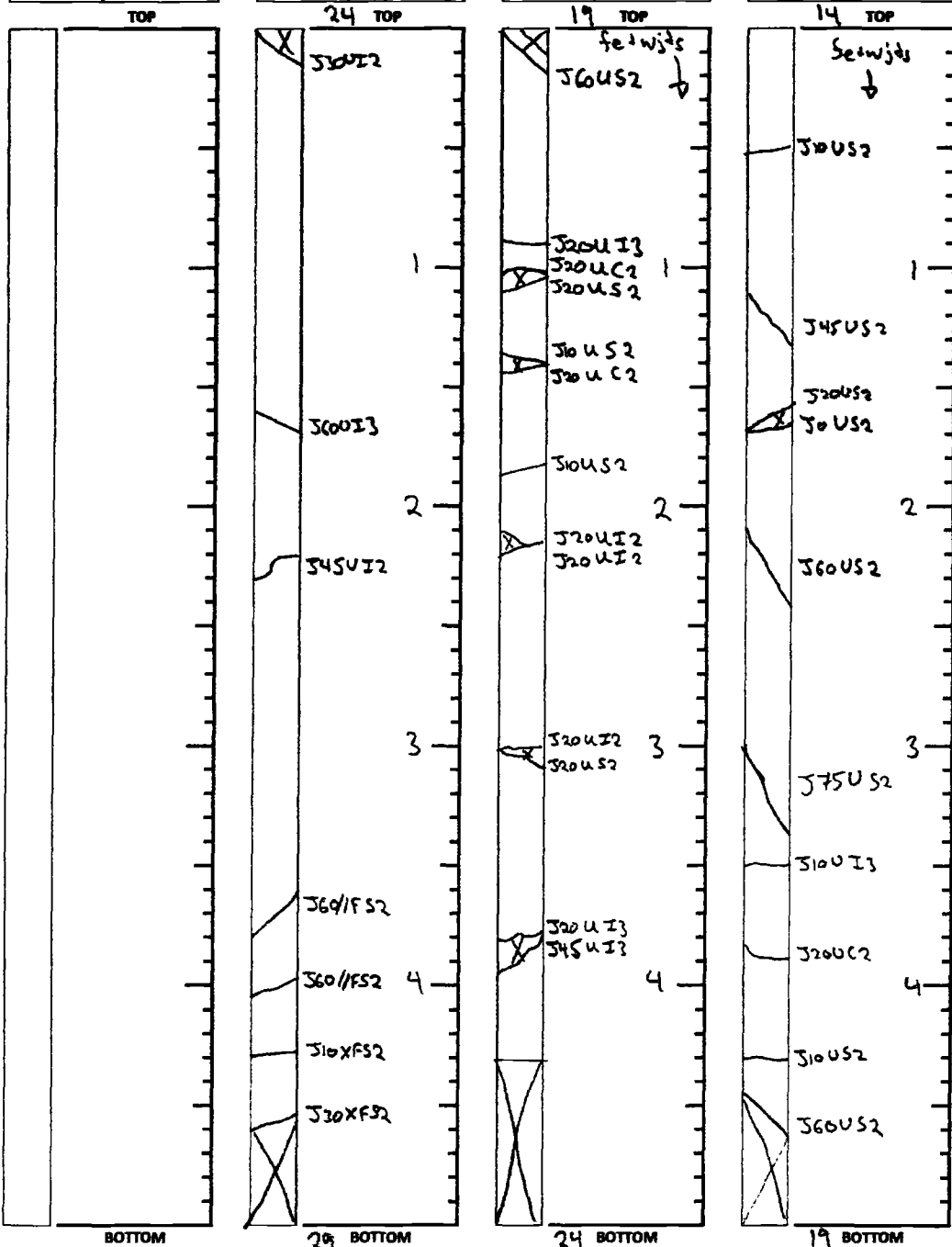
TEST/INSP. EQUIPMENT \_\_\_\_\_

REF. CODES/STANDARDS \_\_\_\_\_

## ROCK CORE SKETCH

BORING NO. MR-4  
SHEET 2 OF 4  
FILE NO. 12509  
SURFACE ELEV. ± 74.0  
RES ENGR. G. SHYU

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
		3C	92/80	2C	85/62	1C	92/73



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

## ROCK CORE SKETCH

BORING NO. MR-4  
SHEET 3 OF 4  
FILE NO. 12509  
SURFACE ELEV. ±74  
RES ENGR. G. SMITH

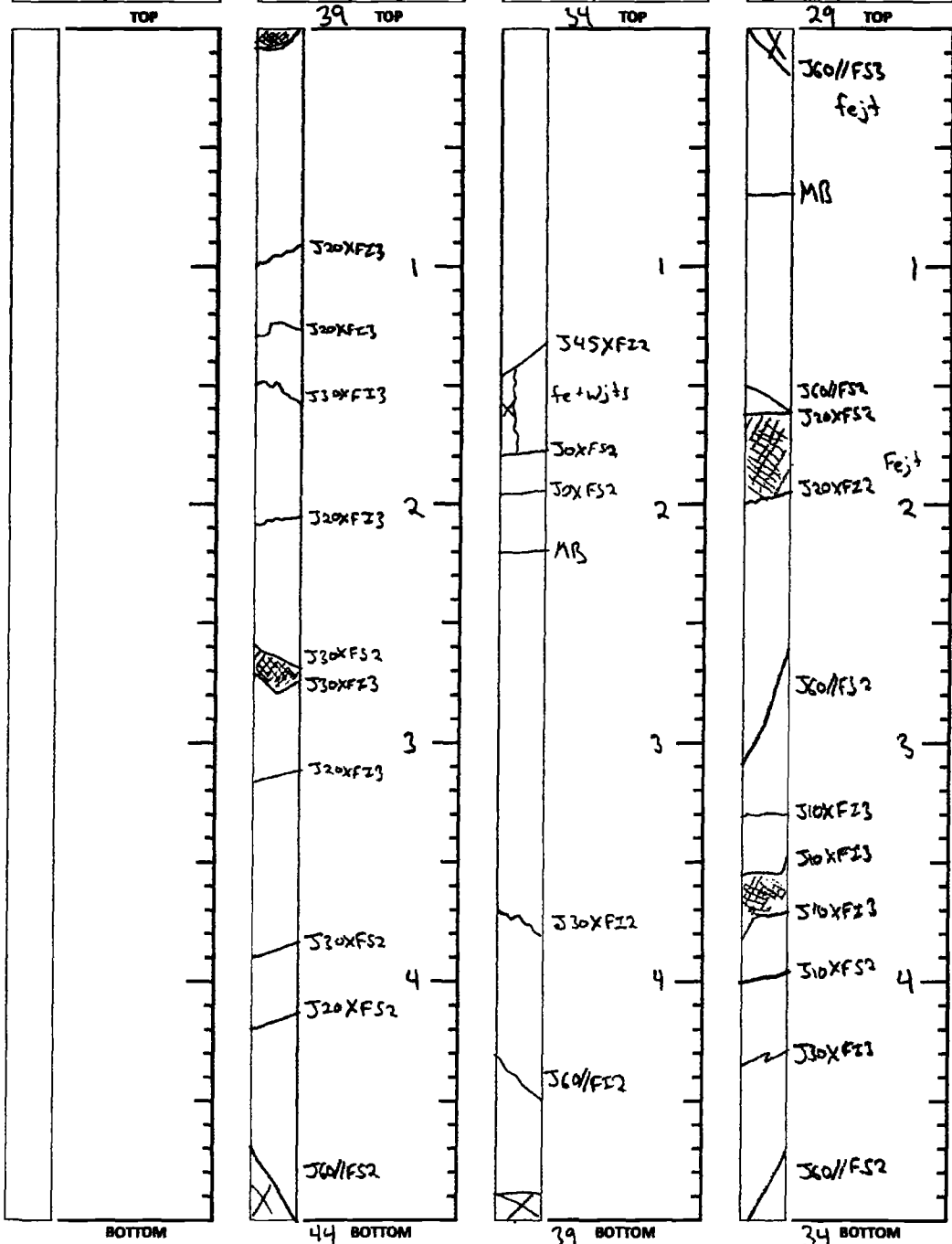
PROJECT: 200 AMSTERDAM  
LOCATION: MANHATTAN, NY  
TEST/INSP. EQUIPMENT \_\_\_\_\_  
REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD

Run No.	REC/RQD
GC	100/85

Run No.	REC/RQD
SC	98/80

Run No.	REC/RQD
4C	100/63



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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

**MUESER RUTLEDGE CONSULTING ENGINEERS**

<b>PROJECT</b>	<u>AMSTERDAM AVENUE TOWERS</u>	<b>BORING NO.</b>	<u>MR-4</u>
<b>LOCATION</b>	<u>NEW YORK, NEW YORK</u>	<b>SHEET</b>	<u>4 OF 4</u>
<b>BORING LOCATION</b>	<u>SEE BORING LOCATION PLAN</u>	<b>FILE NO.</b>	<u>12509</u>
		<b>SURFACE ELEV.</b>	<u>+74.0</u>
		<b>DATUM</b>	<u>NAVD 88</u>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

	TYPE OF FEED					
TYPE OF BORING RIG	DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO		
TRUCK	MECHANICAL	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>16.5</u>		
SKID	HYDRAULIC <u>X</u>	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____		
BARGE	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____		
OTHER	<u>ACKER ACE</u>					

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>2-15/16</u>	
U-SAMPLER	_____	TYPE OF DRILLING MUD	_____	
S-SAMPLER	_____			
CORE BARREL	<u>NX DOUBLE BARREL</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>140</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
					NO WATER LEVEL 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>14</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>30</u>	OTHER: _____

**BORING CONTRACTOR** AQUIFER DRILLING & TESTING CO., INC.  
**DRILLER** DOMENIC PEPE **HELPERS** GEORGE RAYMOND/TODD SURRNY  
**REMARKS** BOREHOLE BACKFILLED.

**RESIDENT ENGINEER** GEOFFREY SMITH **DATE** 12-21-15  
**CLASSIFICATION CHECK:** CHERYL J. MOSS **TYPING CHECK:** ALEXANDRA PATRONE

MRCE Form BS-1 **BORING NO.** MR-4

# MUESER RUTLEDGE CONSULTING ENGINEERS

## BORING LOG

BORING NO. MR-5  
 SHEET 1 OF 6  
 FILE NO. 12509  
 SURFACE ELEV. \_\_\_\_\_  
 RES. ENGR. A. M. DYER/R. ZHANG

PROJECT: AMSTERDAM AVENUE TOWERS  
 LOCATION: NEW YORK, NEW YORK

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
08:00 04-23-16 Saturday Indoors					**	0.4	DRILLED AHEAD	**Concrete slab with metal deck from 0' to 0.4'.
						5	4" 3"	Drilled from ground floor slab.
					AIR	10		
15:00	1D	12.8	2-14	Brown fine to medium sand, some silt, trace mica (Decomposed Rock) (SM)	***	12.25		***Cellar floor top of slab from 12.25' to 13'.
07:00		14.8	31-50					
04-24-16 Sunday Indoors	2D	14.8	60-100/5"	Do 1D (Decomposed Rock) (SM)		15		Concrete at 0.42' slab, plastic film at bottom. 2D: REC=4" REC=6"
		15.7						
	3D	17.0	100/6"	Do 1D (Decomposed Rock) (SM)				
		17.5						
	4D	19.0	100/5"	Gray fine to medium sand, some silt, trace mica (Decomposed Rock) (SM)	DR	20	3/0.6*	REC=5"
		19.4		No recovery			4*	Taped hole to 21.5', soft bottom. Slower drilling at 25.5'.
	1C	19.4	REC=0% RQD=0%				4*	
		24.0					3*	
	5D	24.0	100/5"	Do 4D (Decomposed Rock) (SM)		25	3*	*Coring time in minutes per foot.
		24.4					9*	
	2C	24.5	REC=6% RQD=0%	Top 2.5': Decomposed Rock		27	3*	
		27.8		Bot: 0.8': With HiW gray gns sch, Bkn, WJts			2*	
	3C	27.8	REC=31% RQD=11%	Weathered highly weathered to moderately weathered gray gneissic schist, broken, weathered joints	WR	30	3*	Higher RPMs at 30.5'. Slight loss of return water.
		32.9					3*	
	4C	32.9	REC=57% RQD=48%	Top 2': Do 3C (Weathered Rock)			3*	Hard bottom at 32.9'.
		37.6		Bot 2.7': Intermediate slightly weathered gray gneissic schist, jointed, slightly weathered joints		35	6*	Hard bottom at 36.6'.
							6*	Mud level at 19.7' at 07:00 on 04-25-16.
15:00	5C	37.6	REC=80% RQD=48%	Top 1': Weathered moderately weathered gray gneissic schist, broken, weathered joints			19*	Soft bottom at 36.2'.
07:00		42.6		Bot: Medium hard slightly weathered gray gneissic schist, jointed, weathered joints			4*	
04-25-16 Monday Indoors						40	11*	Barrel jammed at 39.5' continued after clean.
							3*	
	6C	42.6	REC=96% RQD=56%	Medium hard slightly weathered gray gneissic schist, jointed to closely jointed, weathered joints	R		5*	Core barrel jammed at 45'.
		47.6				45	5*	
							5*	
							5*	
	7C	47.6	REC=98% RQD=98%	Hard unweathered gray gneissic schist, blocky			4*	
		52.7				50	3*	
							3*	
							3*	



**ROCK CORE SKETCH**

PROJECT: AMSTERDAM AVENUE TOWER  
 LOCATION: NY, NY

BORING NO. MR-5  
 SHEET 3 OF 6  
 FILE NO. 12509  
 SURFACE ELEV. 74.1-  
 RES ENGR. RZ/SFK

TEST/INSP. EQUIPMENT \_\_\_\_\_

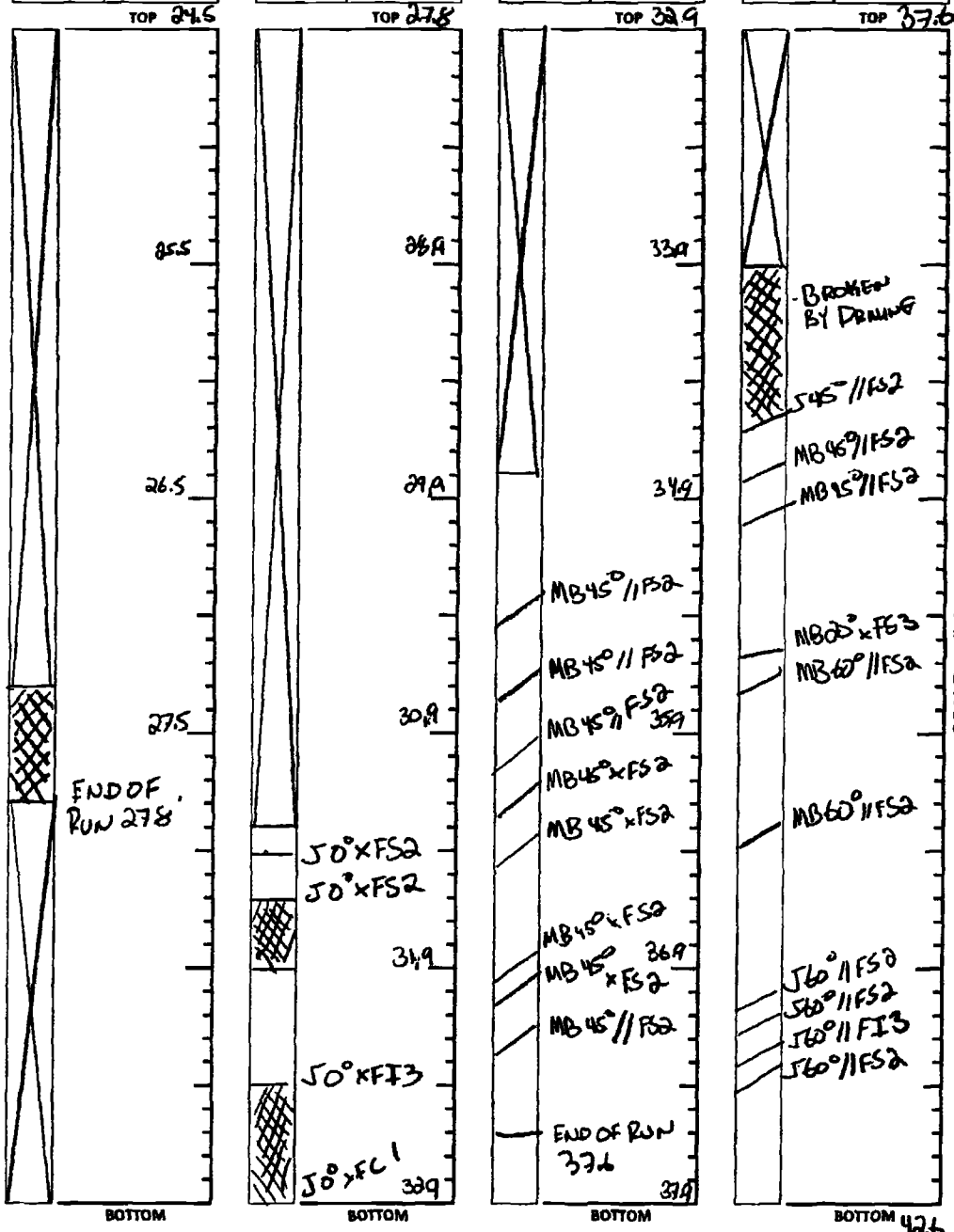
REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD
2C	6% / 10%

Run No.	REC/RQD
3C	31% / 11%

Run No.	REC/RQD
4C	57% / 48%

Run No.	REC/RQD
5C	80% / 48%



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT CONDITION**

- Slick
- Smooth
- 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

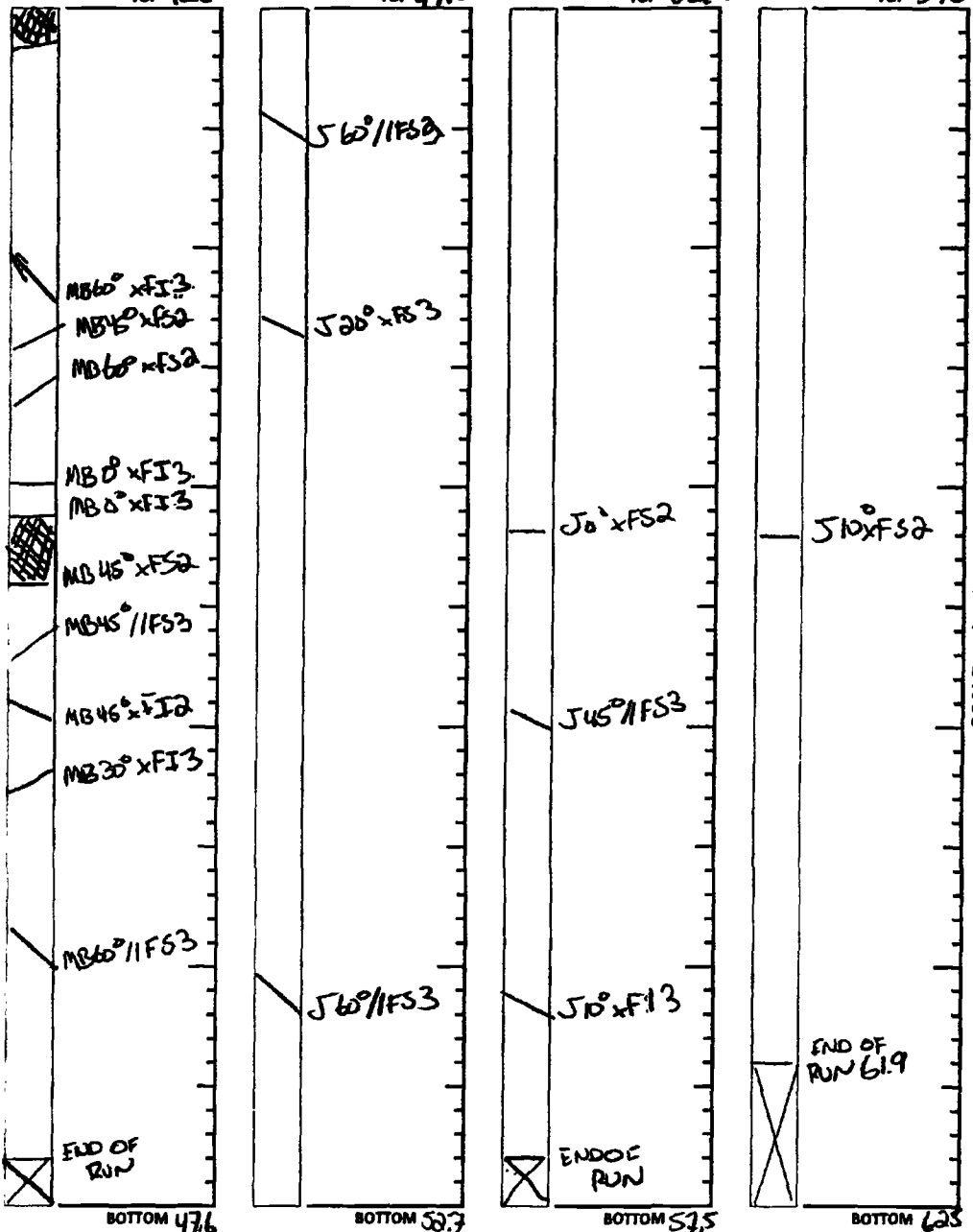
**ROCK CORE SKETCH**

BORING NO. MR-5  
 SHEET 4 OF 6  
 FILE NO. 12509  
 SURFACE ELEV. \_\_\_\_\_  
 RES ENGR. RZ

PROJECT: AMSTERDAM AVG TOWER  
 LOCATION: NY, NY

TEST/INSP. EQUIPMENT \_\_\_\_\_  
 REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
6C	46% / 50%	7C	48% / 46%	8C	100% / 100%	9C	100% / 100%
TOP 42.6		TOP 47.6		TOP 52.7		TOP 57.5	



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT CONDITION**

- Slick
- Smooth
- Rough

**SKETCH SYMBOLS**

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

NOTES



# Mueser Rutledge Consulting Engineers

14 Penn Plaza - 225 West 34th Street  
New York, NY 10122  
T: 917 339-9300 F: 917 339-9400  
www.mrce.com

## ROCK CORE SKETCH

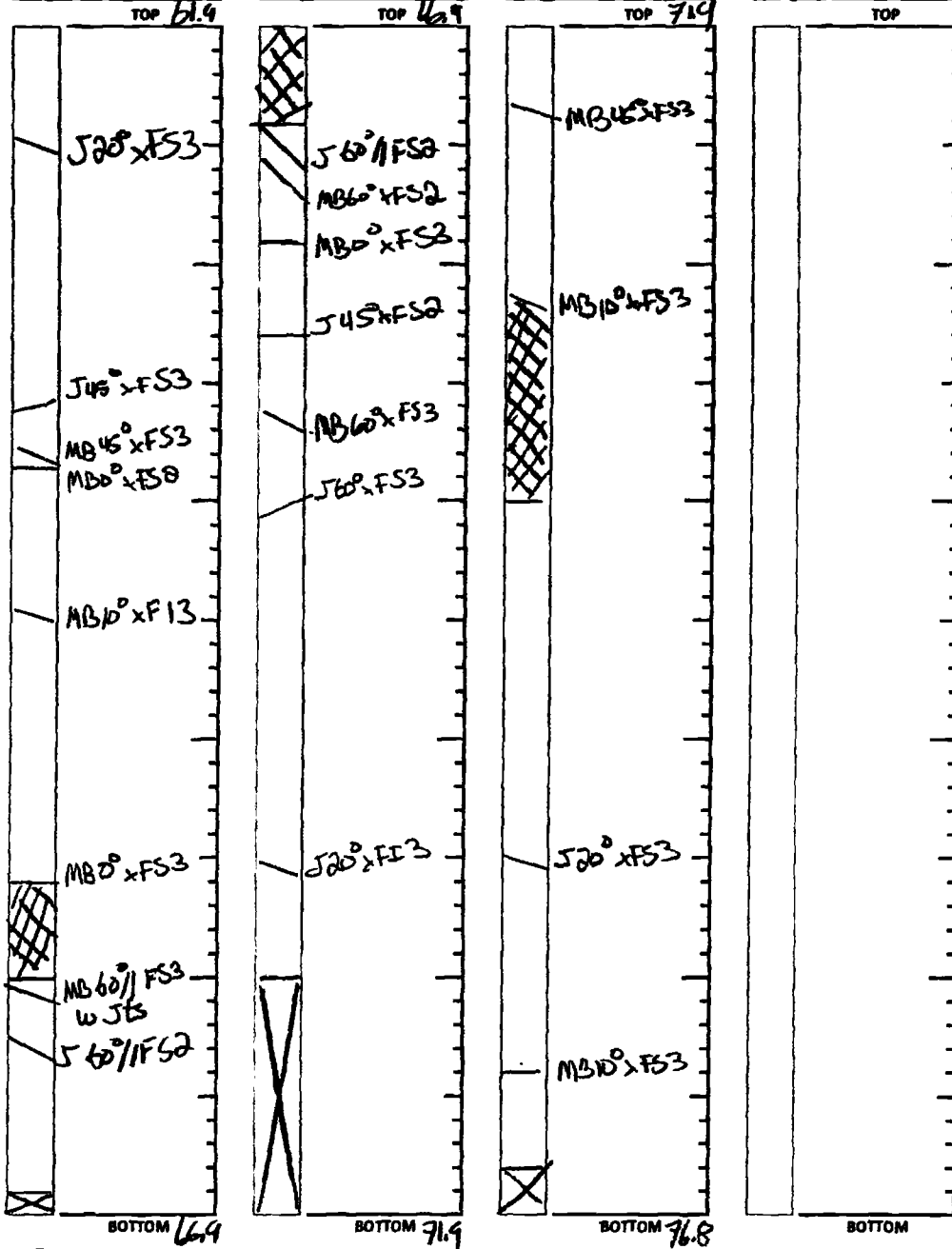
BORING NO. MR 5  
SHEET 5 OF 6  
FILE NO. 12509  
SURFACE ELEV. \_\_\_\_\_  
RES ENGR. RZ

PROJECT: AMSTERDAM PNE TOWER  
LOCATION: NY, NY

TEST/INSP. EQUIPMENT \_\_\_\_\_

REF. CODES/STANDARDS \_\_\_\_\_

Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD	Run No.	REC/RQD
10C	98% / 98%	11C	78% / 58%	12C	96% / 78%		



**ROCK CORE SKETCH LEGEND**

**JOINTING**

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

**JOINT SURFACE**

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

**JOINT 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**

<b>PROJECT</b> <u>AMSTERDAM AVENUE TOWERS</u>	<b>BORING NO.</b> <u>MR-5</u>
<b>LOCATION</b> <u>NEW YORK, NEW YORK</u>	<b>SHEET</b> <u>6</u> <b>OF</b> <u>6</u>
<b>BORING LOCATION</b> <u>SEE BORING LOCATION PLAN</u>	<b>FILE NO.</b> <u>12509</u>
	<b>SURFACE ELEV.</b> _____
	<b>DATUM</b> <u>NAVD 88</u>

**BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE**

<b>TYPE OF BORING RIG</b>	<b>TYPE OF FEED</b>	<b>CASING USED</b>	<input checked="" type="checkbox"/> <b>YES</b> <input type="checkbox"/> <b>NO</b>
TRUCK	DURING CORING	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>15</u>
SKID	MECHANICAL	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u> TO <u>18</u>
BARGE	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN. _____	DEPTH, FT. FROM _____ TO _____
OTHER	OTHER	_____	_____ TO _____

<b>TYPE AND SIZE OF:</b>	<b>DRILLING MUD USED</b> <input checked="" type="checkbox"/> <b>YES</b> <input type="checkbox"/> <b>NO</b>
D-SAMPLER <u>2" &amp; 1-3/8" O. D. &amp; I. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>3-7/8</u>
U-SAMPLER _____	TYPE OF DRILLING MUD <u>EZ MUD</u>
S-SAMPLER _____	
CORE BARREL <u>NX DOUBLE TUBE</u>	<b>AUGER USED</b> <input type="checkbox"/> <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b>
CORE BIT <u>NX DIAMOND</u>	TYPE AND DIAMETER, IN. _____
DRILL RODS <u>WIRELINE, BWJ</u>	

\*CASING HAMMER, LBS. 140    AVERAGE FALL, IN. \_\_\_\_\_  
 \*SAMPLER HAMMER, LBS. 140    AVERAGE FALL, IN. 30  
 \*USED DONUT HAMMER & ROPE 8" CATHEAD

**WATER LEVEL OBSERVATIONS IN BOREHOLE**

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
04-25-16	07:00	38	18	19.7	EZ MUD USED FOR DRILLING.
04-26-16	07:00	63	18	20.5	EZ MUD USED FOR DRILLING

**PIEZOMETER INSTALLED**     **YES**     **NO**    **SKETCH SHOWN ON** \_\_\_\_\_

<b>STANDPIPE.</b>	TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
<b>INTAKE ELEMENT</b>	TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
<b>FILTER.</b>	MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

**PAY QUANTITIES**

3 5" DIA. DRY SAMPLE BORING	LIN. FT. <u>19</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____ <u>0</u>
3 5" DIA. U-SAMPLE BORING	LIN. FT. <u>0</u>	NO. OF 3" UNDISTURBED SAMPLES	_____ <u>0</u>
CORE DRILLING IN ROCK	LIN. FT. <u>58</u>	OTHER SPT SAMPLE	_____ <u>5</u>

**BORING CONTRACTOR** AQUIFER DRILLING & TESTING CO., INC.  
**DRILLER** DOMENIC PEPE    **HELPERS** DAN ROMERO/ANTHONY KAPPEL

**REMARKS** \_\_\_\_\_  
**RESIDENT ENGINEER** ADAM M. DYER/RYAN ZHANG    **DATE** 04-26-16  
**CLASSIFICATION CHECK:** CHERYL J. MOSS    **TYPING CHECK:** \_\_\_\_\_



TR5: Technical Report  
Pile Driving  
*Must be typewritten.*

DEPT BLDGS Job No. 122887224  
Scan Code ESHS4573792

Sheet number 1 of 3 sheets

**1 Location Information** *Required for all applications.*

House No(s) 200 Street Name Amsterdam Avenue  
Borough Manhattan Block 1158 Lot 133 BIN 1030358 CB No. 107

**2 Applicant Information** *Required for all applications.*

Last Name Walter First Name Kaeck Middle Initial E  
Business Name Mueser Rutledge Consulting Engineers Business Telephone 917-339-9300  
Business Address 225 West 34th Street - 6th Floor Business Fax 917-339-9400  
City Manhattan State NY Zip 10122 Mobile Telephone 347-387-6148  
E-Mail wkaeck@mrce.com License Number 072575  
 P.E.  R.A.

**3 Pile Driving Contractor** *Required for all applications.*

Last Name McKenna First Name Barry Middle Initial  
Business Name ECD NY INC. Business Telephone 718-388-6705  
Business Address 35-12 19th Street 2W Business Fax 718-388-6706  
City Queens State NY Zip 11105 Mobile Telephone

**4 Pile Information** *Required for all applications.*

Type Caissons  
Material Grout/Rebar  
Load Capacity 880 tons

**5 Hammer Information** *Required for all applications.*

Make N/A (Drilled)  
Model Number N/A (Drilled)  
Energy N/A (Drilled)

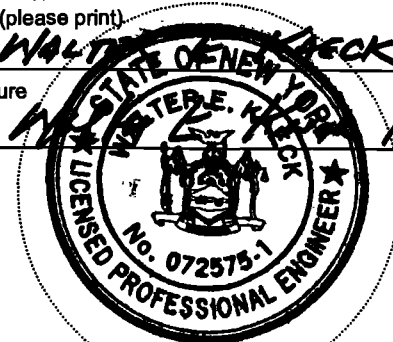
**6 Statements and Signatures** *Required for all applications.*

I hereby state that the above information is correct and complete to the best of my knowledge and that the above tests were performed in accordance with all Administrative Code Provisions and Departmental Rules, Regulations and Directives.

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.

Name (please print) WALTER E. KAECK  
Signature \_\_\_\_\_ Date 12-20-18



P.E. / R.A. Seal (apply seal, then sign and date over seal)

Approvals - Internal Use Only			
Examined and Recommended for Approval		Approved	
Examiner Name		Borough Commissioner Signature	Date
Signature	Date		

## 7 Test Report: 200 Amsterdam Ave

Pile Number	Diameter (inch)	Elevations: (feet) (NAVD 88 Datum)		Pile Length from Tip to Cutoff (feet)	Rock Socket Length (feet)	Elevation of Class 1c rock (feet)	Calculated Capacity (Tons)	Deviated from Designed Location		Variation from Plumb
		Pile Tip	Cutoff					(N+ or S -)	(E+ or W -)	
P-1	18	-0.5	32.60	33.1	33.1	33.0	880	0.06	0.12	OK
P-2	18	0.5	32.60	32.1	32.1	30.0	880	0.31	-0.1	OK
P-3	18	-4.8	28.80	33.6	33.6	29.0	880	0	-0.22	OK
P-4	18	-5.8	28.80	34.6	34.6	28.0	880	0.16	-0.56	OK
P-5	18	-4.7	28.80	33.5	33.5	29.0	880	0.01	-0.24	OK
P-6	18	-4.0	28.80	32.8	32.8	28.5	880	0.34	-0.63	OK
P-7	18	-17.3	28.80	46.1	46.1	30.0	880	0.61	-0.8	OK
P-8	18	-17.8	28.80	46.6	46.6	31.0	880	0.06	-0.53	OK
P-9	18	-16.8	28.80	45.6	45.6	31.0	880	0.17	-0.26	OK
P-10	18	-17.7	28.80	46.5	46.5	32.0	880	0.17	-0.7	OK
P-11	18	-16.0	28.80	44.8	44.8	31.0	880	0.45	-0.5	OK
P-12	18	-17.5	30.30	47.8	47.8	32.0	880	0.25	-0.56	OK
P-13	18	-15.7	30.30	46.0	46.0	32.0	880	0.14	-0.58	OK
P-14	18	-16.6	30.30	46.9	46.9	31.0	880	-0.18	-0.81	OK
P-15	18	-14.4	30.30	44.7	44.7	32.0	880	0.16	-0.05	OK
P-16	18	-14.3	30.30	44.6	44.6	31.0	880	0.3	-0.45	OK
P-17	18	-13.7	30.30	44.0	44.0	32.0	880	-0.05	-0.33	OK
P-18	18	-15.2	26.70	41.9	41.9	31.0	880	-0.29	-0.24	OK
P-19	18	-15.7	26.70	42.4	42.4	31.0	880	-0.44	-0.29	OK
P-20	18	-17.8	26.70	44.5	44.5	31.0	880	0.18	-0.3	OK
P-21	18	-17.2	26.70	43.9	43.9	31.0	880	-0.15	-0.2	OK
P-22	18	-18.3	26.70	45.0	45.0	31.0	880	0.23	-0.32	OK
P-23	18	-17.7	30.30	48.0	48.0	32.0	880	0.27	-0.76	OK
P-24	18	-17.5	30.30	47.8	47.8	31.0	880	-0.3	-1.22	OK
P-25	18	-15.7	30.30	46.0	46.0	32.0	880	0.07	-0.17	OK
P-26	18	-16.2	30.30	46.5	46.5	31.0	880	0.27	0.09	OK
P-27	18	-16.0	30.30	46.3	46.3	30.0	880	-0.13	-0.5	OK
P-28	18	-17.0	30.30	47.3	47.3	31.0	880	-0.07	0.07	OK
P-29	18	-16.2	30.30	46.5	46.5	31.0	880	0.13	-0.52	OK
P-30	18	-16.2	30.30	46.5	46.5	32.0	880	0.09	-0.03	OK

7 Test Report: 200 Amsterdam Ave										
Pile Number	Diameter (inch)	Elevations: (feet) (NAVD 88 Datum)		Pile Length from Tip to Cutoff (feet)	Rock Socket Length (feet)	Elevation of Class 1c rock (feet)	Calculated Capacity (Tons)	Deviated from Designed Location		Variation from Plumb
		Pile Tip	Cutoff					(N+ or S -)	(E+ or W -)	
P-31	18	-16.2	30.30	46.5	46.5	31.0	880	0	-0.35	OK
P-32	18	-14.7	30.30	45.0	45.0	33.0	880	0.7	-0.9	OK
P-33	18	-14.5	34.25	48.8	48.8	32.0	880	-0.1	-0.17	OK
P-34	18	-14.0	34.25	48.3	48.3	31.0	880	0.31	-0.41	OK
P-35	18	-13.5	34.25	47.8	47.8	32.0	880	-0.08	-0.35	OK
P-36	18	-17.0	34.25	51.3	51.3	29.0	880	0.41	-0.16	OK
P-37	18	-15.0	34.25	49.3	49.3	31.0	880	-0.05	-0.78	OK
P-38	18	-15.2	34.25	49.5	49.5	29.0	880	0.31	-0.41	OK
P-39	18	-13.5	34.25	47.8	47.8	32.0	880	-0.16	0.03	OK
P-40	18	-15.0	34.25	49.3	49.3	29.0	880	0.54	-0.28	OK
P-41	18	-2.2	32.60	34.8	34.8	30.0	880	0.19	-0.33	OK
P-42	18	-4.2	32.60	36.8	36.8	30.0	880	-0.12	-0.22	OK