Phase IA Historical Documentary Report and Archaeological Assessment of 156 Rivington Street (Block 349, Lot 33), Manhattan (New York County), New York

Prepared for:

ABC No Rio
156 Rivington Street
New York, New York 10002-2411

and

New York State Office of Parks, Recreation and Historic Preservation
Albany, New York

City of New York - Landmarks Preservation Commission
New York, New York

Prepared by:
Alyssa Loorya, M.A., R.P.A., Principal Investigator and
Christopher Ricciardi, Ph.D.
Chrysalis Archaeological Consultants, Inc.

Final Report – January 2012

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MANAGEMENT SUMMARY TABLE

NY SHPO Project Review Number:	n/a
Involved State/Federal Agencies:	NY SHPO, NYC-LPC, NYC-HPD
Phase of Survey:	Phase IA Documentary Study and Archaeological Assessment
Location Information:	New York, New York New York County
Survey Area:	N/A
USGS 7.5 Quad Map:	
Archaeological Survey Overview:	N/A
Results of Archaeological Survey:	N/A
Results of Architectural Survey:	
Buildings within Project Area:	1
Buildings adjacent to Project Area	3
Previous N/R Buildings:	0
Eligible N/R Buildings	N/A
Report Authors:	Alyssa Loorya, M.A., MPhil., R.P.A. Christopher Ricciardi, Ph.D., R.P.A.
Date:	January 2012

MANAGEMENT SUMMARY TEXT

In October 2011 Chrysalis Archaeological Consultants (Chrysalis) was contracted by ABC No Rio, a not-for-profit collectively run center for art and activism, to undertake a Phase IA Documentary Study and Archaeological Assessment for the proposed redevelopment of their property at 156 Rivington Street, Block 349 Lot 33, New York, (New York County), New York (Map 01). As this project is being funded, in part, with Federal, State and City funding, the project must comply with the existing regulations of Section 106 of the National Historic Preservation Act (NHPA) 1966, as amended, the New York State Environmental Quality Review Act (SEQRA) and the City Environmental Quality Review Act (CEQRA).

The building at 156 Riving Street, a former tenement house, has been occupied by ABC No Rio since the 1990s (Image 01). During this period the property was owned by the City of New York. In 1997 ABC No Rio favorably settled tenancy issues with the City of New York. As part of the agreement, The City of New York - Department of Housing, Preservation and Development (HPD) would sell the building to ABC No Rio for the sum of one dollar if they were to raise the money to rehabilitate the building and dedicate it to community use. Following the Uniform Land Use Review Process (ULURP), ABC No Rio obtained title to the property on June 29, 2006 and began to move forward with their plans for re-development (Map 02).

The purpose of this study is to provide documentary history and information to determine the archaeological potential of the site. The study was to determine if the site may be sensitive for archaeological deposits that would be impacted by the proposed development as well as provides a recommendation for further study or mitigation, should the potential for disturbance to buried cultural resources exist.

In the course of this study the following research collections were accessed: the City of New York Landmarks Preservation Commission (LPC), the New York Public Library, the New York Historical Society, the New York State Office of Parks, Recreation and Historic Preservation (NY SHPO) and others institutions.

Alyssa Loorya, M.A. MPhil., R.P.A., and Christopher Ricciardi, Ph.D. R.P.A., served as the authors of this study. Documentary research was undertaken with the assistance of Diane George and Eileen Kao. All work was performed in accordance with the NY SHPO, LPC and New York Archaeological Council guidelines and regulations.

The history of 156 Rivington Street is consistent with the history of other properties in the Lower East Side neighborhood in Manhattan. The property was originally part of a larger eighteenth century farm, later sold off in lots. By the mid to late nineteenth century, traditional tenement row housing was constructed in the area and on site. 156 Rivington Street housed immigrant families, mostly of Jewish and Austro-German descent throughout the second half of the nineteenth century and the early twentieth century.

Although the property does not appear to be individually eligible for inclusion on the National Register of Historic Places or the City of New York – Landmarks list, it does contribute to the history of the larger Lower East Side neighborhood. The property has sensitivity for remnants of the nineteenth century rear tenement structure and privies, wells or cisterns dating from 1825 through the early twentieth century when indoor plumbing was added to the building.

However, in consultation with NY SHPO and the LPC, it is the conclusion of this report that no further testing is required on site as the significance of the potential archaeological deposits is not considered high.

TABLE OF CONTENTS

LIST OF MAPS, IMAGES AND TABLES

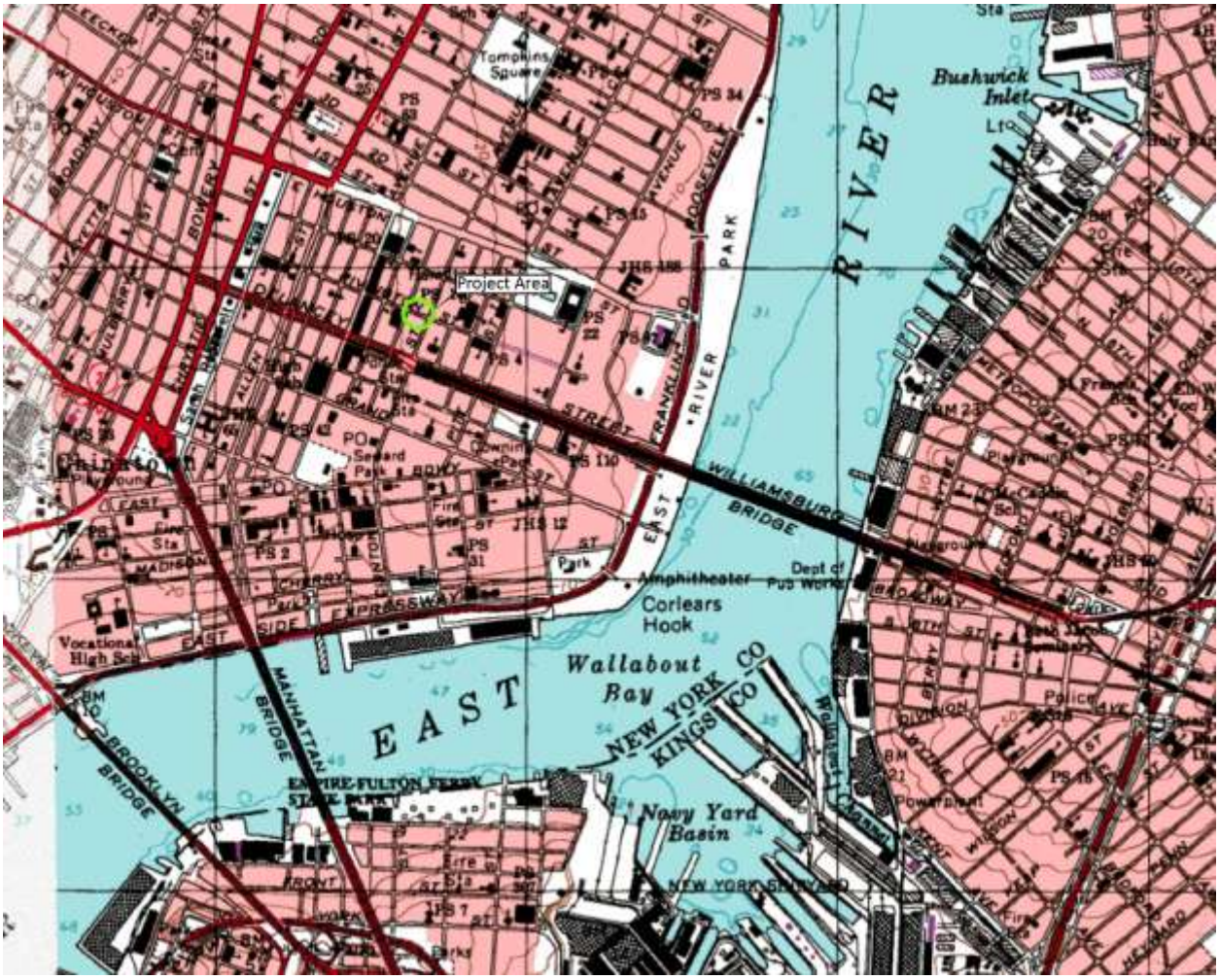
Note: All images taken by Chrysalis unless noted

ACKNOWELDGEMENTS

The authors wish to thank Steven Englander and the Board of Directors of ABC No Rio for the opportunity to work on this project, their understanding of the archaeological process and their willingness to share as much information as was available. It made our job that much easier. Additionally we'd like to thank Douglas Mackey of the New York State Office of Parks, Recreation and Historic Preservation and Amanda Sutphin of the City of New York – Landmarks Preservation Commission for their consultation and guidance throughout this process. We also wish to thank the Chrysalis staff who assisted in the research of this report, Diane George and Eileen Kao.

I. Introduction:

In October 2011 Chrysalis Archaeological Consultants (Chrysalis) was contracted by ABC No Rio, a not-for-profit collectively run center for art and activism, to undertake a required Phase IA Documentary Study and Archaeological Assessment for the proposed redevelopment of their property at 156 Rivington Street, Block 349 Lot 33, New York, (New York County), New York (Map 01). As this project is being funded, in part, with Federal, State and City funding, it must comply with the existing regulations of Section 106 of the National Historic Preservation Act (NHPA) 1966, as amended, the New York State Environmental Quality Review Act (SEQRA) and the City Environmental Quality Review Act (CEQRA).



Map 01: USGS Project Area

The building at 156 Riving Street, a former tenement house, has been occupied by ABC No Rio since the early 1990s (Image 01). During this period the property was owned by the City of New York. In 1997 ABC No Rio favorably settled tenancy issues with the City of New York. As part of the agreement, The City of New York - Department of Housing, Preservation and Development (HPD) would sell the building to ABC No Rio for the sum of one dollar if they were to raise the money to rehabilitate the property and dedicate it to community use. Following the Uniform Land Use Review Process (ULURP), ABC No Rio obtained title to the property on June 29, 2006 and began to move forward with their plans for re-development (Map 02).

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In the course of this investigation, the following research collections were utilized: the City of New York Landmarks Preservation Commission (LPC), the New York Public Library, the New York Historical Society, the New York State Office of Parks, Recreation and Historic Preservation (NY SHPO) and others institutions.

Alyssa Loorya, M.A. MPhil., R.P.A., and Christopher Ricciardi, Ph.D. R.P.A., served as the authors of this document. Documentary research was undertaken with the assistance of Diane George and Eileen Kao. All work was performed in accordance with the NY SHPO, LPC and New York Archaeological Council guidelines and regulations.

At the commencement of the project, Chrysalis consulted with the LPC as a Re-Zoning Environmental Impact Statement (EIS) had been completed for the larger Lower East Side neighborhood of Manhattan, in which the current project site is located (Bergoffen 2008). Bergoffen identified 156 Rivington Street as potentially sensitive. In consideration of this, the LPC recommended a "focused" property specific documentary study be undertaken, streamlining the traditional Phase IA process and content. Chrysalis concurred with the approach and notified the NY SHPO and the LPC, via email, as to the outline of the project. The traditional sections of the Phase IA Report (e.g. Geographic Setting, Prehistoric History Outline and Historic Outline) are not included in this report. This report references the EIS by Bergoffen, which documented these aspects of the neighborhood area (Bergoffen 2008) and other Cultural Resource Management Reports from within the area.

Image 01: 156 Rivington Street, 2011

Map 02: Current General Area Site Map

II. Current Conditions, Site Proposal and the Area of Potential Effect (APE):

The lot of 156 Rivington Street measures twenty-three by one hundred feet (23' x 100') with the southern property line abutting the sidewalk of Rivington Street (Image 02). The northern, western and eastern property lines abut adjacent lots with existing structures. The presently undeveloped back yard of the property contains a large tree, paving and apparent demolition debris from the nineteenth century rear tenement building (Image 03). Currently the site is occupied by an in-use four-story structure with a basement, twenty-three by forty feet (23' x 40'), located on the southern portion of the lot. See Appendix B for additional site images.

"Envisioned for the site is a multi-use community and arts center with photo darkroom, silk-screen printshop, zine library, computer center, expanded space for art, music, performance, educational and community activities, and meeting and office space for ABC No Rio and other organizations" (ABC No Rio 2011). Redevelopment of the site calls for the demolition of the existing structure, excavation of the site and construction of a new building with basement. The proposed new structure will encompass and exceed the limits of the existing building footprint to encompass the entire lot. Previously undertaken soil-boring tests, to determine structural integrity, are discussed in Section V. The proposed structure will be a traditional rectangular brick structure in a similar or complementary style to the surrounding existing buildings. However, at the writing of this report, an architectural rendering of the proposed redevelopment of the building was not available.

Though the construction plans for the site are evolving, the general size and dimensions of the proposed structure are known larger and extend to a greater depth (approximately eight to ten feet (8' – 10') below surface, than the existing structure. The Area of Potential Effect (APE) is considered to be the entire lot.

Image 02: Rivington Street, 2011

Image 03: 156 Rivington Street – Backyard looking south towards the building, 2011

III. Previous Site Reports:

There have been several Cultural Resource Management reports (CRM) that have reported on, and documented the history of the area of Manhattan known as "The Lower East Side". Each has outlined the general area's geography, prehistory, history and included general maps of the area. These reports should be referenced for that information (Bergoffen 1997, 2008; Geismar 1991, 2003; Greenhouse 1996; Grossman 1995 and Historical Perspectives 1997).

Bergoffen's 2008 report focused on the portion of the Lower East Side that was under consideration for rezoning. The report provided an overall history of the area, and a survey of multiple properties, including the property at 156 Rivington Street. The report provides the greatest amount of detail concerning the geography, general prehistory and history of the Lower East Side (Bergoffen 2008).

The works of Geismar and Greenhouse were more site specific, focusing on various nineteenth century features and structures. These provide a good reference and template for the overall lifeways of the Lower East Side residents. The tenement neighborhood was mostly occupied by, recent immigrants and the property residents were transient in nature. (Geismar 2003; Grossman 1995). This character of the neighborhood is highlighted in the interpretation of the Lower East Side Tenement Museum (97 Orchard Street) and Geismar's associated study.

IV. 156 Rivington Street Site History:

As stated, this report is not a traditional Phase IA as it omits several sections and presents a focused history of the property in question.

In addition to the site reports referenced in Section III, the overall history of the Lower East Side of Manhattan is well documented, primarily in secondary source histories and photographic collections. This is particularly true for the nineteenth and early twentieth centuries (e.g., Jacobs Riis 1890 and Stokes 1928, Burrows and Wallace 1999). The neighborhood is perhaps best (and/or popularly) recognized as a focal point for Jewish immigrants and known for its tenement housing.

Pre-Nineteenth Century

A survey of historic maps and histories shows that the property of 156 Rivington Street and Block 349 overall, to have historically been part of the James DeLancey farm and Estate[1].

Prior to DeLancey's ownership Block 349 was likely part of Corlaer's Plantation (Stokes 1915-1928(VI):84B-b). Jacobus van Curler (Corlear), the grandson of Dutch West India Company shareholder Goosen van Curler, owned this estate. Van Curler was first granted the land between 1636 and 1638. The exact date remains unknown, but by May 1638 documents refer to "substantial work" that had been done on the site (Stokes 1915-1928(VI): 90).

Contradictorily to the above, Stokes also stated that Corlaer's Plantation only "went as far west as Attorney Street" (Stokes 1915-1928(II):193), one block east of the relevant part of Block 349. If this is the case, then Block 349 would have been part of Bouwerie Number 4 (Pannebaker's Bouwery), one of the six original Dutch bouweries (Stokes 1915-1928(VI): 84B-b).

Despite having promised the property to Anthony Fernando, a free "negro" who occupied the site, Van Curler sold the property to William Beekman in 1652. Beekman brought a successful lawsuit to eject Fernando from the land (Stokes 1915-1928 (VI):90).

By 1686 the area had been acquired by Cornelis Steenwyck who had earlier partnered with Olaf Van Cortlandt to purchase the land as an investment in 1668. Neither owner ever lived on the property (Stokes 1915-1928 (VI):88). Steenwyck's widow, Margarita de Reimer, remarried the Reverend Henricus Selyns, aka "Dominie", and the property became known as "Dominie's Farm" (Stokes 1915-1928 (VI):89-90).

When de Reimer passed in 1712, the property was distributed among her heirs, Abraham and Isaac Gouverner, Isaac de Reimer and Henry Coerten. They conveyed the property to James De Lancey on June 12, 1741 (Stokes 1915-1928 (VI):89-90).

[1] Additional information and history of the DeLancey Farm may be found in *The Lower East Side Tenement Museum: Archaeology at 97 Orchard Street* by Joan Geismar, 1999/2003.

DeLancey's property was comprised of two separate holdings, "the Dominie's Farm" and a smaller holding known as "The Mansion House Plot" (Map of Original Grants in Stokes 1915-1928(VI):84B-b), totalling an estimated 339 acres. "The Mansion House Plot" was the location of DeLancey's three-story brick country house (Burrows and Wallace 1999 and Stokes 1916-1928).

Delancey's Farm was bounded by Bowery Road to the west, the future Division Street to the south, the East River to the south and east and what is now Stanton Street to the north. The Delancey's country house, demolished in 1795, stood north of the Dominie's Farm set back from the Bowery Lane (or Road) between what are now Delancey and Rivington streets[2]. Stokes also described additional features of De Lancey's property. There was a stable on First Street (present-day Christie Street) and a paddock on Second Street. Orchard Street was named for DeLancey's orchards. The area along the East River was leased to ship yards, and there was a ropewalk on Montgomery Street (Stokes 1915-1928(V):1193). The Original Grants Map also shows two unknown structures east of Block 349 at Rivington Street and Pitt Street and Willett Street between Rivington Street and Delancey Street (Map of Original Grants in Stokes 1915-1928(VI):84B-b). Neither DeLancey's house nor any of the constructions described by Stokes are in the immediate vicinity of Block 349.

The DeLancey's were well-known Loyalists who actively supported the crown during the Revolution. According to research by Geismar the family spent the period of the Revolutionary War in England, never returning to New York (Geismar 1999/2003). The Commissioners of Forfeiture confiscated their property after the war (Burrows and Wallace 1999).

Table 01 highlights property owners of the area that Block 349 was part of prior to the seizure of Delancey's lands by the Commissioner of Forfeiture (Table 01).

Owner	Date acquired
Jacobus van Curler	1636 - 1638
William Beekman	1652
Cornelis Steenwyck, Olaf van Cortlandt	1668
Rev. Henricus ("Dominie") Selyns and Margarita de Reimer Selyns (widow of Cornelis Steenwyck)	1686
Issac Gouverneur & Co. (heirs of M. de Reimer Selyns)	1712
James De Lancey	1741

Table 01: Ownership of the general area - prior to 1792

Beginning in 1784 the farm was subdivided into blocks and lots. Under the New York Act of Confiscation, Commissioners of Forfeiture Isaac Stoutenburgh and Philip Van Courtlandt oversaw the sale of parcels of the property.

[2] This is significantly west of the project area.

A survey of records of conveyance at the New York City Registrar's Office detail that Morgan Lewis acquired Block 349 in 1792 from the Commission of Forfeiture. Stokes cites a notation from E. Banckers made in September 1785 stating that he "went with Coll. Morgan Lewis showed him the 16 acre meadow lot went over the whole and made a plan of the same for him" (E. Banckers MSS note-book, New York Historical Society 2555 cited in Stokes 1915-1928 (VI):90).

According to Stokes, Rivington Street was laid out prior to 1797 (Stokes 1915-1928 (III):1008) and Arundel and Suffolk Streets were laid out prior to 1767 (Stokes 1915-1928 (III):992, 1010). The 1800 Hayward map depicting 1797, reproduced in Valentine's Manual of Old New York (1917) shows these blocks as mapped but still undeveloped meadow (Map 03).

Map 03: Hayward 1800

In 1802 the property, along with all of Block 349 was conveyed to Maturin Livingston, Councillor at Law and Margaret Livingston. Several lots, including Lot 33, were leased to William C. Holley, merchant and agent of the Sterling Company, over a period of twenty-one years beginning in 1825. An 1827 assignment to the Sterling Company contains an agreement with Livingston providing for additional rents if a building were constructed (City of New York – Tax Assessment Records).

During the first quarter of the nineteenth century the block of Rivington Street came to the attention of the Common Council of New York on several occasions. Two petitions for formal pavement of the street by New York City were denied, in 1820 and 1821, and ordinances for correcting nuisances and repairs were issued in 1823 and 1826 (Minutes of the Common Council, 1784-1831 (Volumes V, XI, XIII and XV)).

The 1824 Hooker map shows the street as developed (Map 04). Tax records and a survey of local directories confirm that the property was developed and occupied by 1825. The earliest tax assessment lists a house and lot with tax assessed on William Holley, an agent of the Sterling Company dated 1825. From 1827 to 1830 tax is assessed on Sterling Works for three lots (street numbers 154, 156 and 158) with buildings (City of New York – Tax Assessment Records).

Map 04: Hooker 1824

The Sterling Company was a metals company focused on the manufacture of nails and chains. Their workshops and offices occupied two blocks between Rivington, Arundel, Stanton and Attorney Streets. Their operation was a fairly large one employing up to 400 people.

The lease on Lot 33 was transferred on two occasions, to David Olyphant, merchant, in 1833 and to William Duke in 1844. In 1846 the lease was assigned to Maturin Livingston Jr. and surrendered to the Livingston's in 1848 (City of New York – Tax Assessment Records).

In addition to the leases, a survey of New York City Directories suggests that the two-story property was being rented. The 1829-1830 New York City Directory lists John Middleton and John Albert Holly as occupants of 156 Rivington Street (New York City – Directory 1831). Longworth's 1834 New York Register and City Directory cites 156 Rivington Street as the home of John Sniffen, a merchant at 317 Pearl Street (Longworth 1834).

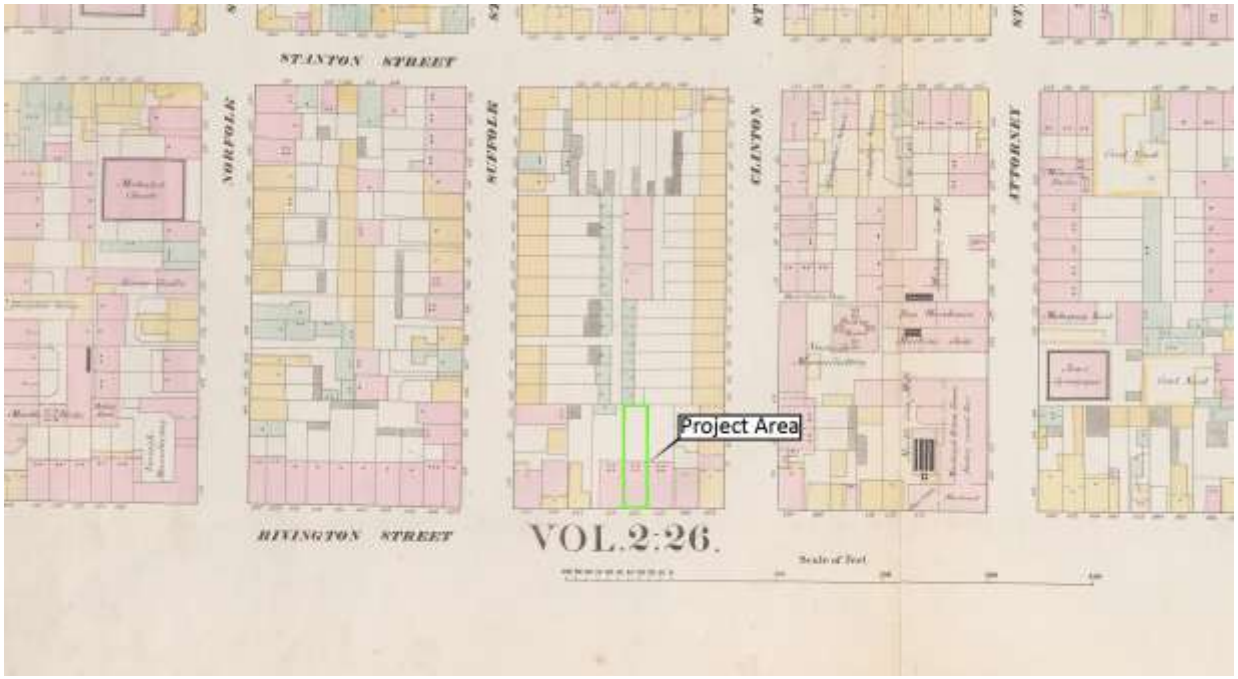
John Sniffen (b. 1792) lived at 156 Rivington Street with his wife (Mary) Jane Culver and their eight children. He was the son of a soldier in the American Revolution (Sons of the American Revolution petitions 1800-1825) who also worked as an auctioneer for the City. John Sniffen was also a staunch proponent of the Graham System of Living, which called for the adoption of a vegetarian diet as a means to prevent impure thoughts (Testimonial dated 13 December 1834). Sometime after 1840 the Sniffen's moved to Brooklyn (U.S. Census Records 1800-1830).

During the 1840s the Anderson family lived at the house on Rivington Street. William Anderson was a carpenter and Ann E. Anderson was a schoolteacher at Ward School Number 9 (Doggett's 1848 and Valentine 1917/1923).

The 1857 Perris map depicts the property as containing a brick or stone dwelling with an open back yard (Map 05). It appears that the property continued to be rented during the 1850s and 1860s. Trow's 1861 New York City Directory lists 156 Rivington Street as the address of musician and composer Gaetano Daga (New York City – Directory 1861). Born in Italy, Daga is best known for his Union Blues Quick Step from 1843 (Library of Congress – American Memory 2011). Daga died is 1887 and is buried in The Greenwood Cemetery in Brooklyn, New York (Geenwood Cemetery Burial Records).

In 1860 ownership of the property, along with lots 32, 34 and 35, passed to Lewis H. Livingston as part of Margaret Livingston's will. Lewis and his wife Julia sold the property to Louis and Maria Aull in 1862. Throughout most of the 1860s ownership of 156 Rivington Street changed yearly (City of New York – Tax Assessment Records, various). In 1864 an agreement was made between then owners Ernest O. and Catherine Bernet and the owner of 158 Rivington Street, John Zulauf, to build a sewer on the property line of 156 and 158 for the adjoining "sinks or water closets". The expense of this and any future repair and maintenance would be shared (City of New York – Tax Assessment Records, various). Table 02 details the property ownership throughout the nineteenth century (Table 02).

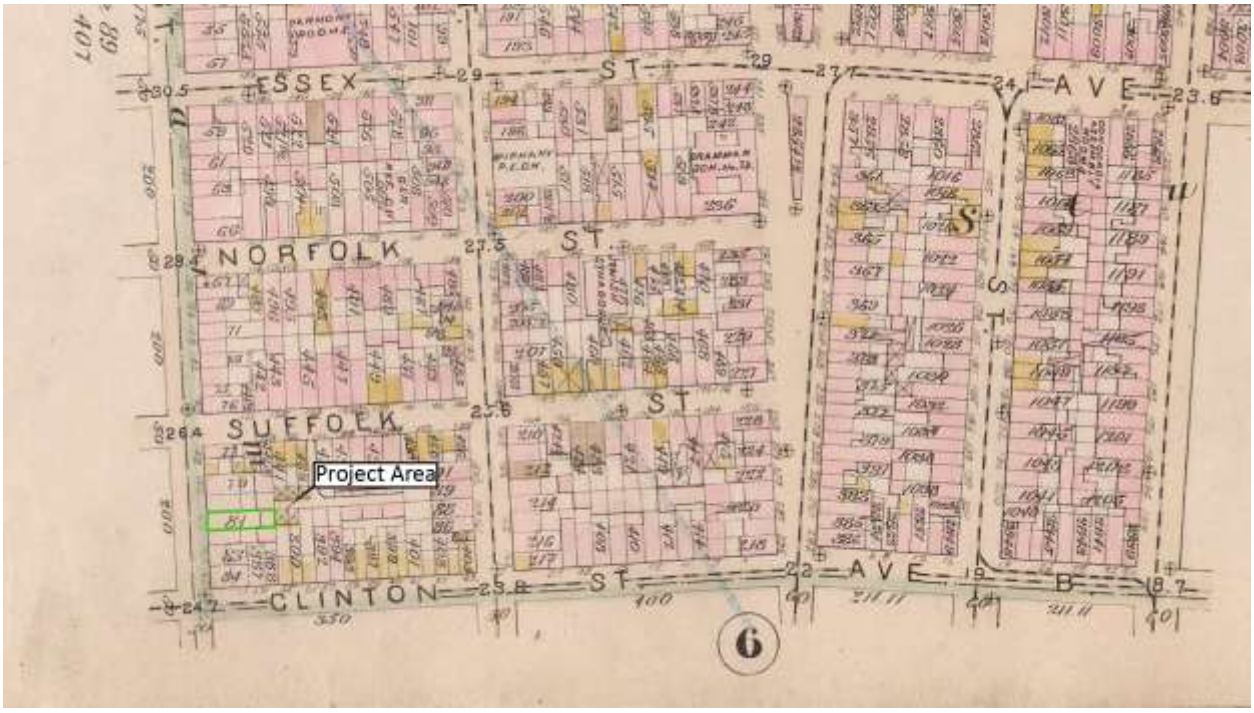
In 1869, 156 Rivington Street was conveyed to John and Magdalena Weinz. An 1870 application to the New York City - Department of Buildings (DOB) petitions to add two stories to the existing structure and notes the existence of a five story tenement building at the rear of the property. This rear structure was likely constructed sometime between 1857 and 1870. The application describes the property as a twenty-three by one hundred feet (23' x 100') lot with a two and a half story (2 ½) building that measured twenty-three by forty feet (23' by 40') with an eighteen inch (18") thick stone foundation (DOB application 4 October 1870).



Map 05: Perris 1857

Throughout the remainder of the nineteenth century 156 Rivington Street served as a typical Lower East Side tenement property. The description from the DOB application and the 1885 Robinson Atlas depicts a typical tenement layout (Map 06). The 1897 Bromley Atlas depicts the street front building as four stories with a basement and the extant rear structure as five stories with no basement (Map 07). The courtyard area between the two buildings contained the sinks/water closets (DOB records, various).

Census records provide information about the late nineteenth century residents of the property (Appendix C). In 1880, the first year that the census records contain specific detail, there were eight families living in the front building and ten families living in the rear building. With one exception, a father and son from Holland, all the residents were recent immigrants from Germany and Hungary (U.S. Census Records 1880).



Map 06: Robinson 1885

Map 07: Bromley 1897

Tax Assessed on	Property Type	Building size/stories	year(s)	Notes
William Holley	lot, house		1825 - 1826	1826-Holley identified as "Sterling Co. agent"
Sterling Works	3 lots "with the buildings"		1827 - 1830	"3 lots" refers to 154-158. (They are also assessed for a lot and house at 152, and Wm Holley is assessed for this lot in 1828-at least 1832.)
Moore & Vernon	lot, house		1831	Nos. 154-158. "These houses just been raised and unfinished"
P.H. & S.P. Vernon	lot, house		1832 - 1836	Nos. 154-158; assessment also made on several individuals "in" [the house] - only one person per year
Wm Vernon	lot, house		1836 - 1846	Nos. 154-158 to 1845; 156 & 158 - 1846. Property in 1836 identified as "L, L" - mistake or no structure? Size of lot 33 first recorded in 1845 as 23.3? x 103' (later 23.2).
M. Livingston	lot, house	23.2 x 40' 2 stories (first listed in 1858)	1847 - 1861	Nos. 152-158.
Lewis Livingston	lot, house	23 x 40 2 stories 23 x 30 5 stories	1861 - 1866	Nos. 152-158 to 1865; Nos. 154 & 156 in 1866; second bldg in 1865 or 1866 (1865 illeg.)
Henry Bealing	lot, house		1867	Nos. 152-156
Michael Boullion	lot, house		1867-1869	Nos. 152-156
John Weins?	lot, house		1870	No. 156 only
Reichert	lot, house	23.2 x 40 4 stories 23.2 x 30 5 stories	1871 - 1884	Nos. 154 & 156 to 1879 and 1883 to 1883/4?; No. 156 from 1879 to 1882
M. Bouillar/Bomuller	lot, house	4 story listed as with basement	1885 - 1896	Nos. 154 & 156

Table 02: Tax Assessment Records 1825 - 1896

In 1900 fifteen families resided at 156 Rivington Street, six were located in the front property and the nine in the rear building. The ethnicity of the residents is relatively consistent from 1880 with the majority of residents having emigrated from the Austro-Hungarian Empire. By 1910 new residents had moved into 156 Rivington Street. These new immigrants were mostly from Russia along with a few families from Austria (U.S. Census Records 1890-1910) (Image 04).

Image 04: Rivington Street, circa 1910 (courtesy NYPL Image Collection)

In 1902 the owners filed a DOB application seeking to erect an eight by thirteen foot (8' by 13') outhouse at the rear of the lot between the two buildings. The outhouse was proposed as a one-story structure requiring excavation to four feet (4') below ground. The new outhouse would drain to the public sewer in the street and would be in addition to the existing nine water closets in the yard. The proposed location was thirteen feet (13') from the front tenement and eight feet (8') from the rear tenement (DOB application 24 July 1902) (Map 08).

The Weinz' owned the property until 1906 when it was conveyed to Felix and Nellie Kunstler. Beginning in 1903, Lena Weinz leased the property to Adolf Dorman and the Kunstler's continued that lease. The Dormans, a Jewish couple from Austria emigrated in 1881 and had moved to 156 Rivington Street as early as 1889 (Trows 1889:505). Adolph Dorman, who became a naturalized citizen in October 1892, had several occupations according to census records. In the 1900 Census, Adolf lived at 156 Rivington Street with his wife Lena and their eight children. His occupation at that time was listed as a glazer. By 1910 the Dorman's left Rivington Street and moved to Brooklyn where Dorman continued to work as a glazer (U.S. Census Records 1890-1910).

Map 08: 156 Rivington – Current Site Map and potential outhouse location area.

The Kunstler's, who never lived at 156 Rivington Street, sold the property to Yuda L. Muhlstein in 1915. Later that year the property was granted to the Trustees of Adolph Mandel via the State Supreme Court as part of a bankruptcy settlement against Muhlstein. In turn the Trustees sold the property to Nathan Shapanka and Isaac Goldberg in 1917 (New York City Register's Office). The new owners applied to the DOB to alter the then vacant buildings to convert each floor into single apartments, install indoor plumbing and soil pipes, remove the toilets in the yard and create a storefront on the first floor (DOB Petition 1917).

In 1919 the new storefront was leased to photographer Gustave Wittmayer (City of New York – Tax Assessment Records). Known as "Gus, the Photographer", Wittmayer was well known for taking portraits of Lower East Side residents as a popular photographer and local businessman (Image 05).

Image 05: A portrait by Gus Wittmayer, entitled, "Gypsy Girl"
(courtesy Wittmayer Studios, Atlanta)

The 1920 Census lists a total of eight families living at 156 Rivington Street. All were recent emigrants from Russia and Poland-Austria (U.S. Census Records 1920).

In 1931 the property was sold to Hensyl Realty Corporation. The realty company fell into default and Bowery Savings Bank foreclosed on the property in 1936. At some point during this period the rear structure was demolished. In 1939 Gustave and Margaret Wittmayer, who still ran their photo shop in the first floor store, purchased the building. The Wittmayer family owned the property until 1977, when their son Robert sold it to Ramon Realty Company. In 1978 the property was seized by the City of New York (New York City Register). The property remained within the control of the City of New York, until an agreement was reached with the Non-Profit organization, ABC No Rio to purchase and redevelop the property. Table 03 details the deed search data for 156 Rivington Street (Table 03).

Block 349, Lot 33 (156 Rivington)				
Owner	Year	Seller if not prior owner	Notes	Leases
ABC No Rio	2007			
City of New York	1970			
Robert Wittmayer, Samuel Deitch	1969	Margaret Wittmayer		
Samuel & Ida Neiman	1947			
Davitian Momas	1946			
Bert Schrenberg	1945			
Lawrence H. King	1945	Stanton Housing Corp.		
Gustave & Margaret Wittmayer	1939			
Bowery Savings Bank	1936	Hensyl Realty Corp., def.	foreclosure	
Harry Berger	1932			
Zelick Berger	1932			
Hensyl Realty Corp.	1931			
Ida Goldberg	1925			
Nathan Shapanka, Isaac Goldberg	1917			Joseph Weinstein, 1923 (second floor); Gustave Wittmayer, 1920 (stoop floor and basement store), 1919 (floor)

bankruptcy trustees of Adoph Mandel	1915	granted via Supreme Court action against previous owner		
Yuda L. Muhlstein	1915			
Felix & Nellie Kunstler	1910			
Joseph S. Goldwag	1909			
Adolf D. & Sally Lindemann	1907			
Felix & Nellie Kunstler	1906			Adolf Dorman, 1906
Lena Laue	1904	M. Wienz, widow of John		
John & Magdalena Weinz	1869			Lena Weinz to Adolf Dorman, 1903
Charles Oberlander, Jacob Simmermeyer	1867			
Julius Scheibert	1866			
Christian & Mathilda Muller	1865			
Herman Hauf	1864		(Lot 33 only)	
Ernest O. & Catherine Bernet	1863		Lots 32 & 33; 1864 agmt btwn Bernet and John Zulauf at 158 for building of sewer on property line btwn 156 &158 for their adjoining "sinks or water closets" and to share repair and maintenance expense	
Louis & Maria Aull	1862	(Lewis & Julia L.)	lots 32-35	
Lewis H. Livingston	1860		lots 32-35; part of larger property distrubution to children of Margaret Livingston in her will	

Maturin & Margaret Livingston	1802		all of block 349. Maturin Livingston is designated "Councillor at Law" in the deed. (No lots btwn Suffolk and Arundel (Clinton) sold until 1818.)	William C. Holley, Merchant, 1825 for 21 years, lots 32-35 on Rivington (and other lots). Assigned to John W. Hinton and James A. Moore, merchants, 1826. Assg to Sterling Co., 1827 [agmt with Livingston providing for additional rents if building built]. Assg to Philip H. & Samuel B. Vernon, 1831. Assg to David Olyphant, merchant, 1833 (lots 32, 33). Assg to Wm Duke, 1844 (lots 32, 33). Assg to Maturin Livingston Jr., 1846 (lots 32-35). Surrendered to Livingstons, 1848.
Morgan Lewis	1792		forfeiture; all of Block 349. Morgan Lewis - attorney	
James Delancy	1741 /176 5		Delancy farm acquired in 1745 and 1761	

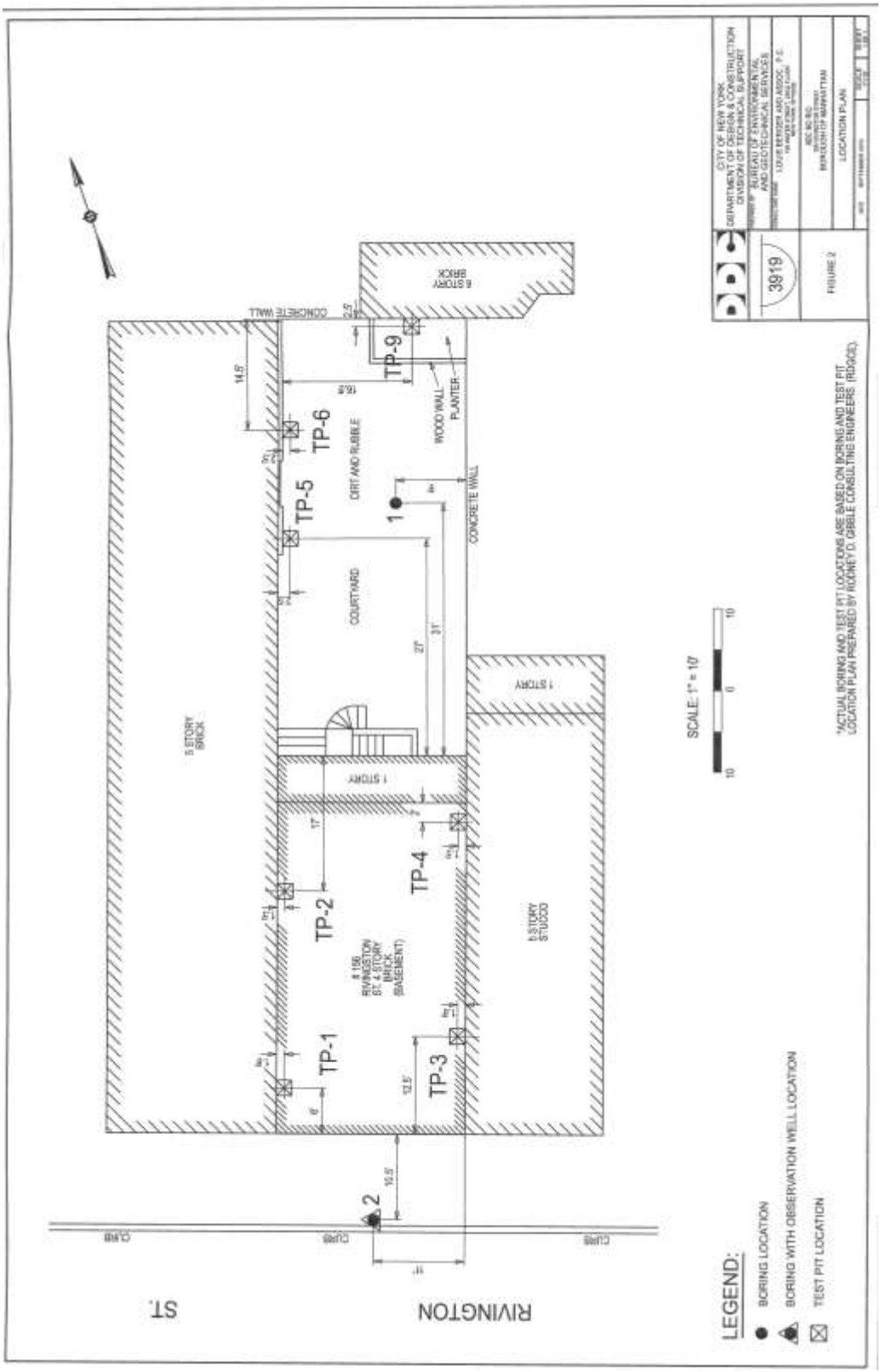
Table 03: Deed Records for 156 Rivington Street, New York, New York.

V. Geo-Technical Work:

In 2010, the City of New York – Department of Design and Construction undertook a limited Geotechnical Investigation to assist ABC No Rio in determining what type of foundation system would be required for the new structure, among other issues. Louis Berger and Associates were contracted to undertake this work, which did not take into consideration the potential archaeological record (Berger 2010 and Appendix D).

Two borings and seven test pits were excavated to depths ranging from five to one hundred feet (5' to 100'). The test results indicate that the site's overall subsurface stratigraphy consists of approximately five feet (5') of loose fill followed by approximately seventy-five feet (75') of medium to dense sand mixed with trace amounts of silt (Map 09).

Three of the seven test pits were excavated in the backyard of the property. The excavation of Test Pits 5, 6 and 9, all of which extended to at least fifty feet (50') below the existing surface, revealed trace amounts of historic materials in the first five feet (5'). These included building materials such as brick and gravel (Image 06).



Map 09: Location of test pits, Berger 2010

Image 06: Test Pit 9 (courtesy Paul Castrucci, 2010)

VI. Conclusions and Recommendations:

The history and occupation of 156 Rivington Street appears to be a fairly typical of a nineteenth to early twentieth century Lower East Side tenement building. The population of the site was of transient in nature, with multiple families occupying two tenement structures. Many of the families took in boarders or had multiple family members residing with them. The families were recent immigrants mostly from the Austro-Hungarian Empire during the nineteenth century and Russia-Poland beginning in the early twentieth century.

The tenement was first constructed as a two-story building but expanded to four stories in the mid nineteenth century. This was likely to maximize the property's rental potential as new immigrants began populating the area increasing demand for housing. Also during the nineteenth century a five-story rear tenement structure was constructed in the previously undeveloped back yard.

The Geotechnical data suggests evidence of post-contact development. Consideration of the nineteenth century development of the property and its inland location limits the potential for prehistoric resources. Therefore, there is a low potential for the recovery of *in situ* Prehistoric remains on site.

National Register Eligibility

One of the main goals of this Phase IA is to determine the site's potential eligibility for the National Register of Historic Places as outlined in the National Park Service's, National Register Bulletin 15: *How to Apply the National Register Criteria for Evaluation*.

National Register Criteria for Evaluation may be summarized as:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

a. That are associated with events that have made a significant contribution to the broad patterns of our history; or

b. That are associated with the lives of significant persons in our past; or

c. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. That have yielded or may be likely to yield, information important in history or prehistory.

Although located in an historic area of New York, upon review of the material presented in this report, the site of 156 Rivington Street does not individually meet the criteria for potential National Register of Historic Places eligibility. However, the site does contribute to the larger history and development of the Lower East Side.

The potential for the recovery of historic information is moderate, considering the development property. The rear tenement building did not have a basement and the soil boring tests did identify that there has been some disturbance in the area, most likely due to the demolition of the building.

However, the approximate location of the water closets have been identified. These closets remained in use into the twentieth century and may potentially provide an opportunity to explore the material culture of the late nineteenth through early twentieth century immigrant population (Image 07). The relative consistency of ethnic, or cultural, descent of the tenement's residents may afford the opportunity to further investigate ethnicity through the archaeological record. This may be seen in conscious choices with regard to material possessions as well as evidenced through dietary choices.

Image 07: 156 Rivington Street – Backyard looking north– 2011

The final recommendation of this report is based upon the information presented and in consultation with the NY SHPO and the LPC (Appendix E). Although there is a potential for the recovery of the late nineteenth through early twentieth century water closets, they do not possess a high enough level of significance to warrant further investigation.

In consideration of these factors, it is the recommendation of this report that no further cultural resource/archaeologist testing is required for this property.

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Appendix A:

Project's Scope of Work

CHRYSALIS ARCHAEOLOGICAL CONSULTANTS
Cultural Resource Specialists

October 14, 2011

Steven Englander
ABC No Rio
156 Rivington Street
New York, New York 10002-2411
Phone: (212) 254-3697 ext. 13
Email: steven@abcnorio.org
Web: http://www.abcnorio.org

RE: Scope of Work/Cost Proposal for the "Focused Documentary" Phase IA Study for the 156 Rivington Street New York, New York, Project

Dear Mr. Englander and the Board of ABC No Rio:

My name is Alyssa Loorya, President of Chrysalis Archaeological Consultants, Incorporated (Chrysalis), a fully licensed and insured, Small, Woman-Owned Business in the City and State of New York, holding membership with the Register of Professional Archaeologists (RoPA). We are listed on the approved list of Cultural Resource Management (CRM) (Archaeological) firms for the City of New York - Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation and Historic Preservation (NY SHPO).

Thank you for contacting Chrysalis with regard to the Scope of Work/Cost Proposal for the "Focused Documentary" Phase IA Study for the 156 Rivington Street New York, New York, Project. Having worked within the field of CRM for over a decade, Chrysalis has completed numerous Phase 1A Reports for both the LPC and NY SHPO.

Based on the information provided to my associate, Dr. Christopher Ricciardi, a detailed, "focused" documentary addendum report is required for the specific site 156 Rivington Street project. The original Phase IA Documentary Study and Archaeological Sensitivity Report, Bergoffen 2008, was completed for the overall Lower East Side area and only included general information, maps and archaeological assessments for several blocks. This study is to focus specifically on lot at 156 Rivington Street providing details on the history and archaeological sensitivity of the lot.

4110 Quentin Road Brooklyn, New York 11234-4322
Phone/Fax: (718) 645-3962 • Mobile: (347) 922-5581
info@chrysalisarchaeology.com • www.chrysalisarchaeology.com

This Addendum to the existing Phase IA Documentary Study and Archaeological Sensitivity Report will attempt to identify issues such as, but not limited to:

a. Who owned the original lot(s) dating back to the sixteenth/seventeenth century
b. When the area was divided into lots
c. Previous lot owners up till the property was developed as the present "tenement" building
d. If other structures existed on site
e. Who were the residents of the building and previous structures
f. Were these commercial or residential structures
g. Were any of the tenants or activities significant enough for potential National Register eligibility
h. Could the proposed project potentially impact potential buried cultural resources on the site – thus requiring moving the project to the Phase IB Archaeological Field Testing stage of the overall Cultural Resource Management (Archaeological) Process.

Upon completion of the draft report, it will be submitted digitally to ABC No Rio for review and authorization to send to the LPC for formal review. A printed version of the report will be provided to LPC for review. Comments from the LPC will be immediately addressed and a final version of the report will be completed. Two printed and two digital copies of the final report will be provided to both ABC No Rio and LPC.

Schedule for the Phase IA:

In general, a Phase IA Report usually takes between 20 to 30 business days to gather the necessary documentary information and produce a draft report. The LPC generally reviews reports within a 10 to 15 business day period. Comments are addressed as quickly as possible and the report will be resubmitted as a final version to ABC No Rio and the LPC. This usually occurs within 10 business days.

However, as ABC No Rio has already undertaken some of the research, incorporating the information from the existing Phase IA Report and conducting the additional required study, it is estimated that no more than 15 business days will be required to complete the draft report.

Work can begin upon receipt of the Notice to Proceed from ABC No Rio.

Finally, I am attaching additional information about Chrysalis, including the resumes of myself and Dr. Ricciardi (Appendix A) as well as a general outline of the CRM process so that your office has a better understanding of the overall process (Appendix B).

If you have any questions with regard to this proposal and/or the Cultural Resource Management Process and Requirements, in general, please contact me at the number(s) listed above.

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Once again, thank you for the opportunity to submit this proposal and I hope that we can work together on this project.

Sincerely,

Alyssa Loorya, M.A., MPhil., R.P.A.
President

Enclosures

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Appendix B:

Images

Image 08: Rivington Street looking north, circa 1905 (courtesy NYPL Image Collection)

Image 09: Corner of Rivington – Strelt's Matzos – a famous bakery

Image 10: 156 Rivington Street –Looking North - 2011

Image 11: 156 Rivington Street – Backyard – looking north - 2011

Image 12: 156 Rivington Street – Backyard – looking north – 2011

Image 13: 156 Rivington Street – Backyard – looking northeast – 2011

Image 14: 156 Rivington Street – Backyard – looking south – 2011

Appendix C:

US Federal Census Records 1880-1920

	Name	Age	Occupation	Birthplace	Immigration	Relationship
1880 Census						
1	August Vitting	41	Barber	Prussia		
	Margaret	33		Hesse Kassel		
	Frank	16	store clerk			
	Robert	10				
	August	7				
	Lizzie	5				
	Amelia	3				
	John	1				
2	John Wintersdorf	43	Carpenter	Holland		
	John	16	works in jewelry shop			
3	Adolph Reich	36	shoemaker	Prussia		
	Anna	32		Prussia		
	Ida	10		Prussia		
	Otto	7				
4	Joseph Niet (Nied)	53	ice dealer	Wurtenburg		
	Mary	45		Baden		
	Joseph	16		stpre clerk		
	Mary	11				
	Anton	6				
5	Frederick Wieman	43	cigar maker	Hanover		
	Lena	42		Hanover		
	Emil	18	passementerie maker			
	Otto	16	passementerie maker			
	Lena	14				
6	John Zimmerman	29	cabinet maker	Hesse Kassel		
	Margaret	28		Hesse Kassel		
	Margaret	1				
7	Joseph Grulisch	55	cigar maker	Bohemia		
	Mary	54		Bohemia		
8	Adolph Wolf	49	traveling salesman	Hesse Kassel		
	Sarah	48				
	Bertha	21				
	Gustav	18	musician			
	Rosa	14	miliner			
	Ella	3				
Rear						
1	Magdalena Schlechter	82		Baden		
2	Adolph Stern	24	coppersmith	Hungary		
	Rosalie	33		Hungary		
	Adolph Weislowith	26	cigar maker	Hungary	boarder	
3	Joseph Rosenthal	27	clothing presser	Hungary		
	Charlotte	20		Hungary		
	David	1		Hungary		
4	William Schumeier	38	carpenter	Wurtenburg		
	Kate	37		Wurtenburg		
	John	12				
	Kate	10				
	Louise	8				
	Frederick	6				
	William	3				
	Mary	7 mos				
5	David Blum	35	glazer	Prussia		
	Cecelia	38		Prussia		
	Louis	13	feather maker			
	Berthold	9				
	Mamie	5				
6	Henry Newman	49	veterinary surgeon	Hungary		
	Rosalie	44		Hungary		
	Joseph	21	tailor	Hungary		
	Emil	16	store clerk	Hungary		

	William	13	cap maker	Hungary		
7	Bernard Amster	35	cap maker	Hungary		
	Fanny	35		Hungary		
	Mary	12		Hungary		
	Dora	8				
	Regina	7				
	Solomon	5				
	Esther	3				
	Hulius	1				
8	Daniel Ross	35	carpenter	Prussia		
	Mary	29		New Jersey		
	George	5				
	Daniel	3				
	Minnie	2				
9	Frederick Jacob	40	shoemake	Baden		
	Mary	40		Baden		
	Mathilda	16	humidormenterie maker	Wurtenburg		
	Frances	5				
	Frederick	1				
10	Charles Kurtz	39	carpenter	Wurtenburg		
	Martha	35		Wurtenburg		
	Charles	12	tobacco stripper			
	Louis	10				
	Frida	8				
	John	6				
	Emil	4				
	Adam F	1				
1900 census						
1	David Palnatik	29	carpenter	Russia	1889	
	Lena	24		Russia	1889	
	Louis	6				
	Rebecca	3				
	Rosa	2				
	Isacc Usach	30	men's tailor	Russia	1894	boarder
2	Joseph Binder	30	cooper	Austria	1890	
	Mollie	32		Austria	1890	
	Morris	6				
	Bertha	4				
	Antonio	1				
	Annie Binder	21		Austria	1899	sister
	Samuel Loner	35	cooper	Austria	1899	boarder
3	Joseph Josephson	40	laborer	Romania	1899	
	Nettie	37		Romania	1899	
	Rosa	20		Romania	1899	
	Lotto	19	knee parts cutter	Romania	1899	
	Barnard Cohn	33	pants presser	Romania	1898	
	Wolf Cohn	17	pants presser	Romania	1898	
4	Harris Flaum	65		Austria	1883	
	Esther	58		Austria	1883	
	Julius	25	lawyer	Austria	1883	
5	Samuel Lanshas	26	shirt cutter	Russia	1895	
	Sarah	24		Russia	1895	
	Jacob	7		Russia	1895	
	Belle	3		Russia	1897	
	Fannie	2				
	Max	5 mos				
	Yettia	70		Russia	1895	mother
	Henry Labonvitz	22	ove... maker	Russia	1897	
	Sarah Labonvits	18		Russia	1897	
6	Adolph Dorman	38	glazer	Austria	1881	
	Lena	36		Austria	1883	

	Benjamin	13				
	Jennie	12				
	Etta	11				
	Jacob	10				
	Louis	7				
	Rosa	5				
	Isadore	3				
	Charles	1 mo				
Rear						
1	George Furlicht	37	ladies tailor	Hungary	1879	
	Fannie	32		Hungary	1883	
	Sharlott	9				
	Lillie	5				
	Julia	2				
	Rosia	6 mos				
	Herman Venetianer	62	Jewish teacher	Hungary	1884	
	Felia Steltz	18	servant	Austria	1899	servant
	Anna Venetesana	25		Hungary	1888	boarder
	Joseps Venetesana	33	Rubber ... Cot...	Hungary	1888	boarder
2	Henry Gronispan	45	coat presser	Austria	1881	
	Annie	36		Austria	1881	
	Esther	16	knitter			
	Samuel	12				
	Fannie	9				
	Sussie	3				
	Charles Springer	39	painter	Austria	1899	boarder
3	Davis Ackel	63		Austria	1890	
	Sarah	52		Austria	1890	
	Henry	22	hat blocker	Austria	1890	
	Bettie	21	boyo waists	Austria	1890	
	Jennie	20	boyo waists	Austria	1890	
4	Jacob Goldstein	22	cloak maker	Austria	1899	
	Fannie	20		Austria	1899	
5	Abraham Glasner	30	cloakmaker	Austria	1899	
	Annie	23		Austria	1899	
	Rachel	5		Austria	1899	
	Solomon Diamond	24	shirtmaker	Austria	1899	boarder
6	Wolf Rich	36	pants presser	Austria	1890	
	Ida	29		Austria	1890	
	Nathan	9				
	Sigmund	5				
	Moses	3				
	Dora Rich	24	pants maker	Austria	1890	sister
7	Henry Burnstein	24	clock operator	Austria	1886	
	Sadie	20		Austria	1893	
8	Isacc Suckburg	28	pants presser	Austria	1899	
	Anna	27		Austria	1899	
	Katie	5		Austria	1899	
	Jacob	2		Austria	1899	
	Louis Kaupel	28	pants presser	Austria	1897	boarder
9	Jacob Hellman	28	peddler	Austria	1896	
	Yetta	25		Austria	1896	
	Herman	3		Austria	1896	
1910 Census						
1	Louis Schultz	45	Barber	Austria	1892	
	Wete	42		Austria	1896	
	Sam	22	Cutlery	Austria	1896	
2	Aaron J. Siegel	39	Tailor	Russia	1890	
	Fanny	45	bookkeeper	Russia	1890	
	Harry S.	17	Railroad Agent			
	Philip	14				

	David	9				
	Louis	7				
	Mike Pelicker	42	Rastaurant laborer	Russia	1909	boarder
	Sam Setricker	36	Restaurant dishwasher	Russia	1910	boarder
3	Ike Shreimer	39	Ladies Clothing Presser	Russia	1899	
	Annie	26		Russia	1899	
	Bessie	12		Russia	1899	
	Issy	11		Russia	1899	
	Sam	7				
	Benny	5				
	Jake Fistel	40	Ladies Clothing Presser	Russia	1904	
4	Celia Flaiser	44	Nurse	Austria	1902	
	Daniel	18	Fruit Peddler	Austria	1906	
	Louis	15	Wagon Driver	Austria	1906	
	Joe	11		Austria	1906	
5	Morris Redel	40	hair dresser	Russia	1907	
	Esther	40		Austria	1907	
	Mary	11		South America	1907	
	Ida	10		South America	1907	
	Almander	9		South America	1907	
	Nathan	8		South America	1907	
	Leon	7		South America	1907	
	Harry	3		South America	1907	
	Warwarer Pobolsky	21	servant	South America	1907	servant
Rear						
1	Ferhard O. Oglo	33	paperbox maker	Turkey	1908	
	Jake Overstein	22	dentist	Russia	1909	boarder
2	Sam Kodensky	24	Yiddish Teacher	Russia	1906	
	Esther	23		Russia	1902	
	Albert Warschof	28	Waiter	Turkey	1909	boarder
3	Morke Edelstein	32	Mattress maker	Austria	1907	
	Lilly	24		Austria	1907	
	Rose	4		Austria	1907	
	Meyer	2 mo				
	Harry Volkowitz	40	Furrier	Austria	1909	boarder
4	Pauline Steinman	35	wet nurse	Russia	1907	
	Joe	12		Russia	1907	
	Philip	10		Russia	1907	
5	Max Gorochofsky	23	Carpenter	Russia	1906	
	Ethel	22		Russia	1907	
	Lilly	3		Russia	1907	
6	David Sugarman	56	peddler	Russia	1874	
	Sarah	57		Russia	1875	
	Samuel	20	bookbinder			
	Jacob	17	stock clerk			
	Dora	13				
7	Dave Glusky	44	Carpenter	Russia	1904	
	Bessie	40		Russia	1909	
	Joe	20	Carpenter	Russia	1907	
	Harry	16	Laborer	Russia	1907	
	Samuel	5		Russia	1909	
8	Louis N Wiesenger	25	Thimble maker	Austria	1907	
	Sarah	24		Austria	1907	
	Pauline	3				
	Abraham	1				
9	Harry Glasser	25	Clothing cutter	Austria	1909	
	Minnie	19		Austria	1909	
1920 Census						
1	Louis Schleifer	28	Real Estate broker	Poland	1913	
	Mary	25		Russia	1902	
	Gladys	1				
2	Jacob Fruman	52	Rabbi	Russia	1913	

	Mary	50		Russia	1913	
	Morris	22	paper box factory	Russia	1913	
	Ida	20	factory bookkeeper	Russia	1913	
	Dawid	18	factory bookkeeper	Russia	1913	
	Gen	16		Russia	1913	
3	Morris Kalb	47	Restaurant Owner	Poland Austria	1885	
	Bertha	31		Poland Austria	1907	
	Jacob	12				
	Gussie	11				
	Sylvia	6				
	Hyman	6				
	Mollie	2				
	Gussie Shun	40	Servant	Poland Austria	1911	Servant
Rear						
1	Simon Braunstein	42	Fruit Peddler	Poland Austria	1914	
	Laura	42		Poland Austria	1915	
	Yuda	17		Poland Austria	1915	
	Debbe	13		Poland Austria	1915	
	Gertha	8		England	1915	
	Dawid	6		England		
2	Daniel Katz	27	Electrician	Poland Austria	1905	
	Pauline	24		Poland Austria	1906	
	Charlotte	2				
	Edna	3 mo				
3	Aaron Missman	28	hat store clerk	Russia	1913	
	Lillian	25		Russia	1912	
	Mary	2				
4	Leon Edelstein	28	Millinery Merchant	Poland Austria	1907	
	Ida	28		Russia	1905	
	Edna	4				
	Mark	2				
	Pauline	57		Poland Austria	1910	Mother
5	Isidor Levinowitz	25	Newspaper Delivery Foreman	Russia	1903	
	Rose	19				

Appendix D:

GeoTechnical Report

-Final-

Geotechnical Investigation Report
for
ABC No Rio
156 Rivington Street
New York, New York

DDC PROJECT NO. PVN463ABC / SES 3919

WORK ORDER NO. 7083-LBA-2R-6781

CONTRACT REGISTRATION NO. 20101402206

Prepared for:

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

Bureau of Environmental and Geotechnical Services

30-30 Thomson Avenue, Fifth Floor

Long Island City, New York 11101

Prepared by:

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Tel. (212) 612-7900 Fax (212) 363-4341

PROJECT NO. PC890C6

September 2010

TABLE OF CONTENTS

Page

Figures

Appendices

EXECUTIVE SUMMARY

The New York City Department of Design and Construction (DDC) has requested Louis Berger and Assoc., P.C. (Berger) perform boring and test pit inspections, geotechnical evaluation and geotechnical engineering services with respect to foundation system for the proposed ABC No Rio project located at 156 Rivington Street, New York, New York (hereinafter "Site"). See Figure 1 - Site Location Map.

Currently there is an existing and in-use 4-story structure with a basement located on the southern portion of the Site. The northern portion of the Site is an undeveloped rear yard at approximately grade level with street elevation. . The Site measures 100 feet by 23 feet (2,300 square feet). The southern property line abuts a sidewalk and Rivington Street. The western, northern and eastern property lines abut existing structures with foundations of undetermined foundation materials, conditions and depths. Berger understands that redevelopment plans at the Site include the demolition of the existing building, excavation of the Site and construction of a new four-story building which will include a one-level basement.

The ABC No Rio geotechnical investigation scope of work included the oversight of two (2) geotechnical borings and seven (7) test pits, logging of the boreholes and test pits, preparation of the record of borings, evaluation of the subsurface data, preparation of this geotechnical investigation report which includes recommendations of a suitable and economical foundation system for the proposed structure and other geotechnical recommendations.

This report provides subsurface information and geotechnical recommendations for the proposed development.

Subsurface conditions at the site from the existing ground surface to approximately 100 feet below grade (ftbg) consist of:

Stratum 1- an approximately five (5) - foot thick, generally loose to medium dense fill stratum; underlain by

Stratum 2- an approximately 25 - foot thick medium to very dense fine to medium brown sand with little to trace amounts of silt, over

Stratum 3- an approximately 25 foot thick medium to dense silt mixed with variable amounts of sand, underlain by

Stratum 4- In excess of 45 foot thick very dense fine to coarse sand with trace amounts of silt.

Groundwater was observed at depths between 16 and 17 ftbg, corresponding to an elevation of approximately between +7 feet and +8 feet.

A shallow foundation system, and spread, or continuous, wall footings was evaluated and recommended for this development. After the preparation of the Site as suggested in Section 4.3 of this report, in the design, the use of an allowable bearing pressure of two (2) tsf (tons per square foot) located a minimum of 8 feet below the existing grade (i.e. below fill) is recommended. Under seismic loading, the allowable bearing pressure can be assumed to be 2.7 tsf. For floor support a slab-on-grade is recommended. In design, a modulus of subgrade reaction of 100 $lb/in^2/in$ (1 ft by 1 ft plate) is recommended.

Data obtained from the recent borings indicate that excavated soils are not suitable to meet the backfill and structural fill requirements of the project because of their fine grained nature and likely inclusions of construction and demolition debris.

In order to mitigate for stormwater and surface runoff, permanent water drainage systems should be used below the floor slab (for example a layer of crushed stone), and drainage pipes buried in crushed stone behind the basement walls to promote the control of piezometric pressures. The use of a separation fabric, or filter fabric, around the drain pipes is not recommended due to potential clogging of the fabric over the years, thus, acting like a membrane, causing build-up of hydrostatic pressure and reduction of the water discharge. For a basement wall, a design lateral soil load of 60 psf per foot of depth is recommended. In addition, a seismic load, determined by the structural engineer, acting horizontally against the basement walls should be evaluated. The seismic load would act at a depth of 0.4 times the height of the basement wall below the finished grade. Any surcharge loads should be added to this soil load.

Because of the depth and access to adjacent property limitations during the test pit excavations, the existing foundation bottom and floor slab bottom elevations could not be determined accurately. It is recommended that information be collected regarding the final footprint, type and depth of the foundations of the proposed and the existing adjacent structures and the utilities. This information should then be evaluated for the need for underpinning of the existing structures and perhaps some of the utilities. If the lowest floor bottom elevations of the adjacent structures are below the proposed excavation depth, underpinning of the adjacent structures will be required. Underpinning of the adjacent structures should transfer the foundation loads from their present bearing level to a level below the lowest excavation elevation of the proposed building. Because of the restricted access and adverse effects of driven sheeting and piles to the existing structures, drilled in micro pile underpinning support may be appropriate for the support of the adjacent structures. The proposed underpinning system should be designed by the Contractor's New York State Registered Professional Engineer, and should be reviewed, approved and inspected by the client or by his consultants.

In accordance with the guidelines provided in the New York City Building Code, the recommended seismic site classification is stiff soil profile, Site Class D. The mapped maximum considered earthquake spectral response acceleration at short periods (Ss) shall be 0,365g and at 1-second period (S1) shall be 0,071g. Based on SPT blow counts obtained from the borings, and depth to groundwater combined with the compactness of sand and silt at or below the foundation bottom elevation, and assuming the proposed development is an Occupancy Category I or II, structure, the site can be classified as liquefaction unlikely in an earthquake event.

1.0 INTRODUCTION

The New York City Department of Design and Construction (DDC) has requested Louis Berger and Assoc., P.C. (Berger) perform boring and test pit inspections, geotechnical evaluation and geotechnical engineering services with respect to foundation system for the proposed ABC No Rio project located at 156 Rivington Street, New York, New York (hereinafter "Site"). See Figure 1 - Site Location Map.

2.0 PROJECT DESCRIPTION

Currently there is an existing and in-use 4-story structure with a basement located on the southern portion of the Site. The northern portion of the Site is an undeveloped rear yard at approximately grade level with street elevation. . The Site measures 100 feet by 23 feet (2,300 square feet). The southern property line abuts a sidewalk and Rivington Street. The western, northern and eastern property lines abut existing structures with foundations of undetermined foundation materials, conditions and depths. Berger understands that redevelopment plans at the Site include the demolition of the existing building, excavation of the Site and construction of a new four-story building which will include a one-level basement.

3.0 PURPOSE AND SCOPE OF WORK

Geotechnical borings were required in order to identify the subsurface conditions below the footprint of the proposed structure and to satisfy the New York City Building Code requirements. Test pits were requested to determine if adjacent, existing building(s) need underpinning during construction. The scope of work included the oversight of two (2) geotechnical borings and seven (7) test pits, logging of the boreholes and test pits, preparation of the record boreholes, evaluation of the subsurface data, preparation of this geotechnical report which includes selection of a suitable and economical foundation system for the proposed structure and other geotechnical recommendations. The Boring and Test Pit Location Plan is shown on Figure 2 (Figure 2 is based on Boring and Test Pit Location Plan prepared by Rodney D. Gibble Consulting Engineers. Final boring and test pit locations, which were modified slightly based on site conditions, are shown on Figure 2).

Berger prepared a Record of Borings in accordance with NYCDDC procedures and guidelines. The Record of Borings includes a boring location plan, logs of the borings and a table summarizing the results of the laboratory testing. Record of Borings are presented in Appendix B. Laboratory test results are presented in Appendix C.

4.0 SITE CONDITIONS AND REGIONAL GEOLOGY

4.1 Location and Topography

The Site is located at 156 Rivington Street, New York, New York, in New York City's Lower East side. Figure 1 – Location Plan is an annotated Google map showing the Site's location and surrounding land uses.

The Site generally slopes to the east, with a mean elevation of approximately 30 feet above mean sea level. The Site is located within a highly urbanized area, including multi-story commercial and apartment buildings, Hamilton Fish Park, and the Williamsburg Bridge.

4.2 Regional Geology

The site lies in the southeastern part of the New England Physiographic Province, in the area underlain by a heavily metamorphosed complex of Precambrian and Paleozoic sedimentary and igneous rocks. Based on published geologic maps (Baskerville, 1990), the project site is underlain by glacial deposits over metamorphic and igneous bedrock. The bedrock at the site is represented by the Cambrian-Ordovician Ravenswood Granodiorite, which was regionally mapped as gray granodiorite and gneiss. This was encountered at depth in excess of 100-feet (Baskerville, 1990). Recent artificial fill and marsh deposits overlay these geologic units on the surface in the site and its vicinity.

Based on historical records (New York State Urban Development Corporation, [NYS UDC] 1990), between circa 1795 and 1850, East River marshes north of Front Street were systematically filled with dredge spoils and other fill materials for the purposes of urban development (i.e. in at least three stages, between "ancient water line" and present Brooklyn wharf). Near surface soils at the site consist mainly of historic urban fill.

4.3 Hydrology

Based on the document research no State or Federal wetlands are located within the Site. The nearest surface water body to the Site is the East River, located approximately 0.6 miles to the east. Based on the surface elevations within the Site and the elevation of surrounding surface water features, depth to groundwater was observed to range at approximately 16 to 17 feet below ground surface. Under natural conditions, groundwater would be expected to flow east toward the East River. However, groundwater flow directions may vary due to seasonal surface water fluctuations in precipitation, local usage demands, underground utilities, or dewatering operations.

Based on the Environmental Database Report (EDR, 2009), the Site is not located within the 100-year or 500-year flood plains. A copy of the flood plain map was not available for inclusion in this report.

5.0 METHOD OF INVESTIGATION

Berger provided inspection for the drilling of two (2) geotechnical borings and excavation of seven (7) test pits to explore the subsurface conditions of the Site. The boring and test pit locations were based on the plan "Boring and Test Pit Location Plan" prepared by Rodney D. Gibble Consulting Engineers (RDGCE). Final boring and test pit locations, which were modified slightly based on site conditions, are depicted on Figure 2.

The borings were installed to identify the subsurface conditions in the footprint of the proposed structure and to satisfy the New York City Building Code requirements. Test pits were excavated to observe foundation conditions of the adjacent buildings.

5.1 Subsurface Investigation

The subsurface investigation was completed between July 8, 2010 and July 20, 2010. Boring B-1 was installed in the northern undeveloped rear yard portion of the Site to a depth of 52 feet below ground (ftbg). Boring B-2 was installed to the south of the existing building along Rivington Street to a depth of 102 ftbg.

Test Pits TP-1, TP-2, TP-3 and TP-4 were excavated in the basement of the existing building. Test Pits TP-5, TP-6, and TP-9 were excavated in the northern undeveloped rear yard portion of the Site. Test Pits were excavated to depths between 3 and 5 ftbg. Two Test Pits originally planned (TP-7 and TP-8) were not excavated due to inaccessibility of their proposed locations.

Test pit photographs taken during and after excavation are given in Appendix A. Boring and Test Pit Logs are presented in Appendix B.

5.1.1 Borings

Boring B-1 was drilled using an Acker Tripod with a donut hammer used for driving casing and split spoons, commonly referred to as a *shell and auger* drilling technique. Boring B-2 was drilled using a CME-55 drilling rig with an automatic hammer used for driving casing and split spoons, and advanced by using the rotary drilling techniques with mud circulation using a 3.5-inch diameter cutter bit. Standard Penetration Test (SPT) soil samples were collected for examination and laboratory testing. Representative samples from the borings were collected using a 1.4-inch inner diameter (I.D.) split-spoon SPT sampler driven with a 140-pound (donut or automatic) hammer with a 30-inch drop. The SPT sampling was conducted in accordance with ASTM D1586 to collect representative samples and estimate the SPT resistance "N" values.

In Boring B-1 representative disturbed SPT soil samples were collected continuously from ground surface to a depth of 16-18 ftbg, and at five (5)-foot intervals from 20 ftbg to the end of boring (52 ftbg). In Boring B-2 disturbed SPT soil samples were collected continuously from 5 to 11 ftbg and at five (5)-foot intervals from 15 ftbg to the end of boring (102 ftbg).

The field investigation activities were conducted under the observation of a Berger geotechnical engineer. Soil samples were visually classified in the field using the Unified Soil Classification System (USCS). Soil samples were further classified using the Burmister Soil Classification Systems and the New York City Building Code. The borings and the test pits were backfilled with drill cuttings and bentonite chips, tamped, and the surface was restored to its original condition.

Groundwater levels were observed both by the wetness of the soil sample and through water depth observations during the investigation period (See section 6.3 for groundwater observations).

5.1.2 Test Pits

Seven (7) test pits were excavated to depths between 3 and 5 ftbg by hand-excavation. Test Pits within the building were excavated through the earthen basement floor. Test Pits in the undeveloped rear yard were excavated adjacent to neighboring buildings. After test pit holes were opened, photos were taken (Appendix A) and the test pits subsurface observations were logged (Appendix B).

5.2 Laboratory Testing

Soil samples collected from test borings were sent to Converse Consultant (Berger's subcontracted geotechnical laboratory) to determine their index characteristics. The following laboratory tests were conducted:

- Grain size distribution in accordance with ASTM D421, D422;
- Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils, ASTM D4318;
- pH of Soil Samples in accordance with ASTM D2976; and
- Moisture Content Determination in accordance with ASTM D2216.

The Laboratory Test Results Report is provided in Appendix C.

6.0 RESULTS OF INVESTIGATION AND TESTING

6.1 Subsurface Conditions

A generalized description of the subsurface conditions encountered, including a brief description of the earth materials and geologic units identified in the record of borings, is presented below.

Stratum 1 **Fill (Class 7):** A layer of fill was encountered in all borings and test pits (NYC Building Code Rating 7). Within the building footprint, the fill layer consisted of a 6" inch compacted earth flooring. Outside of the building footprint the fill layer consisted of a five (5) to eight (8) foot thick, brown to dark brown sand with little to some gravel, brick and concrete debris. The SPT resistance "N" values (ASTM Standard D1586) indicate medium dense compactness.

Stratum 2 **(Upper) Sand to Silty Sand (SP-SM) (Class 3a, 3b, and 6):** This layer was encountered below the Fill. The SPT resistance "N" values indicated medium dense to very dense soils (density increased with depth). The soil was generally described as fine brown to red-brown Sand, little Silt. This layer has a thickness of approximately 25 feet.

Stratum 3 **Silt (ML) (Class 5a and 5b):** This layer was encountered below the Stratum 2 sand in both boreholes, at depths approximately 30 feet below the existing grade. The silt stratum has an average thickness of 25 feet. The SPT resistance "N" values indicated medium to very stiff consistency..

The laboratory tests indicated a water content (wc) range of 24.3 to 30.3 percent, a Liquid Limit (LL) range of 19 to 28, a Plastic Limit (PL) range of NP (non-plastic) to 23 and a Plasticity Index (PI) range of NP to 5. The test results indicate that the silt is not cohesive.

Stratum 4 **(Lower) Sand to Silty Sand (SP, SM) (Class 3a, 3b):** This soil was encountered below Silt, and observed in B-2 at a depth of about 60 feet below the existing grade. The soil was generally described as fine to course red brown to gray sand, and (to little) silt, with thin layers of gravel and silt (less than 5 feet).

The SPT resistance "N" values indicated the soil was generally very dense compactness..

The laboratory tests indicated fines contents between 15 percent and 51 percent, while the gravel content was less than one (1) percent.

Boreholes were terminated within this stratum at 102 feet below the existing grade.

6.2 Adjacent Structures

Test pits were excavated to observe the depths and foundation conditions of the adjacent structures. There are three (3) structures adjacent to the Site.

- A 5-story building located to the east of the existing structure (footings not observed);
- A 5-story building located to the west of the existing structure(stacked stone and mortar footings observed); and,
- A 6-story building located to the north of the Site (concrete footing observed).

Test Pits TP-3 and TP-4 were located in the basement of the on-site building on the side next to the 5-story building to the east of the Site. TP-3 and TP-4 exposed the subsurface brick wall of the existing building (not the adjacent structure). Due to the clearance restrictions the wall of the adjacent building could not be exposed. Test Pits TP-1, TP-2, TP-5, and TP-6 were located next to the 5-story building to the west of the Site. TP-1 and TP-2 were excavated in the basement of the on-site building and exposed the subsurface brick wall of the on-site building (not the adjacent structure). TP-5 and TP-6 were excavated in the west side of the yard behind the existing building and exposed the adjacent building subgrade wall. The adjacent building subgrade wall exposed was stacked stone and mortar. Test Pit TP-9 was (i.e. the project site) located next to the concrete wall that was between the Site and the 6-story building to the north of the Site. TP-9 identified a concrete footing below the brick wall.

6.3 Groundwater

Groundwater levels were observed both by the wetness of the soil sample and through water depth observations during the investigation period. Upon completion of drilling Boring B-2, a groundwater monitoring well was installed to a depth of 20 ftbg. After a stabilization period of 24 hours, three (3) groundwater readings were obtained the monitoring well. Groundwater was observed to be approximately 16 to 17 feet below the existing grade, corresponding to elevations at approximately +7 and + 8 feet below the existing grade. The groundwater table is expected to fluctuate depending on climatic factors, surface drainage conditions, tidal influences and other factors. Groundwater readings are shown on the boring logs in Appendix B.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The results of our geotechnical evaluation and recommendations for the design and construction of the foundations for the proposed ABC No Rio project are presented below. Our evaluation and recommendations are based on the results of the field investigation, laboratory testing, geotechnical engineering analysis and our current understanding of the proposed project requirements.

The purpose of this investigation was to provide subsurface information and geotechnical recommendations for the proposed development. The structural narratives referred to in this report are based on the verbal information obtained from NYCDDC. During the design phase, after finalization of the site development plans or structural plans, additional engineering analysis and/or investigation would be required to develop final designs for the structures.

7.1 Foundation and Floor Support

Berger evaluated the data gathered and the possible foundation scheme, including the floor support for the proposed structure and concluded soils below the proposed structure with the exception of the Stratum 1 fill are considered to be suitable bearing strata to withstand the structural loads. Accordingly, a shallow foundation system with spread, or continuous wall footings, and a slab-on-grade for the floor support would be a cost effective and safe foundation system for the proposed development.

The proposed building will have a one-level basement, which will then require an excavation of about 10 feet, to an approximate elevation of +14 feet elevation for the basement construction. At this depth, unsuitable Stratum 1 fill would be wholly removed and the foundation subgrade would consist of sand of NYC Building Class 3a and 3b soils. The shallow foundation system using spread footings or a continuous wall footing can be designed using an allowable bearing capacity of two (2) tons per square foot (tsf). Under an assumed column load of 50 tons, for example, the estimated settlement would be less than 1.0 inch, and almost all of it would be completed during the construction period. The anticipated post-construction settlement would be negligible. It is important to note that, however, because the subgrade mostly consists of fine sand, during excavation for the footings, attention should be paid to minimize the disturbance of silty sand and fine sand of the Stratum 2. In any case, however, the footing bottom should be compacted to minimum 98% of Maximum Modified Proctor Density, as observed in ASTM D 1557.

Under seismic loading, the allowable bearing pressure can be assumed to be 2.7 tsf.

The floor slab for the building can be designed using a modulus of subgrade reaction of 100 $lb/in^2/in$ (1 foot by 1 foot plate). No significant settlement of the floor slab is expected.

Because the groundwater is within a few feet of the foundation bottom/floor slab bottom, water-proofing of the floor and basement walls is recommended.

For sliding resistance between the foundation concrete and the underlying granular soils, an ultimate friction factor of 0.45 can be taken (See Section 4.4).

7.2 Earthwork, Suitability of On-Site Materials and Subgrade Preparation

This section evaluates the suitability of the on-site materials and the preparation of the subgrade for the floor slab and foundations. Data obtained from the recent borings were evaluated for the possible use of the on-site soils during foundation/basement excavation. Since most of the excavated soils would consist of *fine* sand (Stratum 1) and may contain construction and demolition debris (in fill), the excavated soils would not be suitable to be used as structural fill for this project. The imported structural fill should meet the following gradation criteria:

- Maximum particle size – four (4) inches
- No more than 50% by weight retained on the ¾-inch sieve
- No more than 30% by weight passing the #50 sieve
- No more than 8% by weight passing the #200 sieve, non-plastic

In order to minimize the effects of settlements and to develop a subgrade for the shallow foundations suitable to support the structural and floor loads with acceptable performance, the following site preparation is recommended:

1. Remove Stratum 1 fill and either dispose of it off the site or stockpile it for future use other than as structural fill.
2. Observe the exposed subgrade, remove compressible materials (i.e. clay, if any), and replace with select fill (meeting the grading requirements given above) or crushed stone of ¾ inches in size.
3. Compact the exposed surface to 95 percent under the floor slab and 98 percent under the structures of the Maximum Modified Proctor Density as determined in ASTM D1557.
4. Under the floor slab, place a minimum of 6-inches thick crushed stone or gravel of ¾ inches in size for subgrade drainage. The use of a separation fabric, or filter fabric, around the drain pipes is not recommended due to potential clogging of the fabric over the years, thus acting like a membrane, causing build-up of hydrostatic pressure and reduction of the water discharge (See Section 4.4).

7.3 Excavation Support System, Underpinning and the Control of Storm Water

Groundwater is not expected within the construction influence zone, assuming basement/foundation bottom elevation is at least above elevation +9.0 feet (groundwater elevation is about +8.0 feet). However, there may be perched water accumulations during and after a storm event. Therefore, in order to mitigate for stormwater and surface runoff, permanent water drainage systems should be used behind basement walls to promote the control of piezometric pressures. For the long-term handling of storm runoff water, a permanent water drainage system for seepage for the slab and behind the wall drain should be used. The wall

drain can be a plastic drain feeding a drainage pipe leading to a sump. The slab drain should consist of perforated pipes, embedded in a layer of clean stone as designed by others. The pipes would feed into headers, then into a sump. The use of a separation fabric, or filter fabric, around the drain pipes is not recommended due to potential clogging of the fabric over the years, thus causing build-up of hydrostatic pressure and reduction of the water discharge.

Because of the depth and access to adjacent property limitations during the test pit excavations, the existing foundation of adjacent structures could not be determined accurately. It is common to employ underpinning to protect existing structures with a distance equal to the depth of excavation. All adjacent structures are well within the depth of excavations (i.e. within 10 feet), and unless the lowest floor bottom elevation of the adjacent structures are below the proposed excavation depth, underpinning of the adjacent structures will be required. Underpinning of the adjacent structures should transfer the foundation loads from their present bearing level to a level below the lowest excavation elevation of the proposed building. The extent of the required underpinning cannot be determined at present due to the limited information available regarding the elevations, locations and bearing grades of the foundations of the proposed and existing adjacent structures. It is recommended that information be collected regarding the final footprint, type and depth of the foundations of the proposed and the existing adjacent structures and the utilities. This information should then be evaluated for the need for underpinning of the existing structures and perhaps some of the utilities. The proposed underpinning system should be designed by the Contractor's New York State Registered Professional Engineer, and should be reviewed, approved and inspected by the client or by his consultants. Because of the restricted access and adverse effects of driven sheeting and piles to the existing structures, drilled in micro pile underpinning support may be appropriate for the support of the adjacent structures. Micro piles are estimated to have an average length of 25 feet and each micro pile can take up to 12 tons to support the existing structures. Even with well-conducted underpinning, the existing structures may settle about ¼ to ½ inch.

If the foundation excavation depth extends below the bottom elevation of the adjacent structures sheeting and shoring, in addition to underpinning, will be required. For sheeting and shoring, a conventional excavation support system may also be used. The conventional system can consist of closely-spaced soldier beams placed after drilling (not driving), and timber lagging with temporary tiebacks or rakers can be used for the support. Any site excavation and construction efforts should meet the current requirements of the OSHA code.

For sheeting, shoring and earth pressure calculations, the following soil parameters can be used (the stratum 4 is at a depth beyond the foundation influence zone, thus recommended parameters were omitted):

Soil Type/Parameter	Stratum 1 Fill	Stratum 2 Sand (Upper)	Stratum 3 Silt
Approximate depth below present grade, ft.	0-5	5-30	30-55
SPT Resistance, "N" Value	12	20	30
Cohesion (tsf)	-	-	2.0
Angle of Internal Friction (phi)	30^0	35^0	-
Unit Weight, above ground water (lb/ft^3)	110	115	-
Unit Weight, below ground water (lb/ft^3)	-	65	65
Coefficient of Active Pressure (K_a)	0.33	0.27	0.6
Coefficient of Passive Resistance (K_p)	3.03	3.70	1.5
Coefficient of at-rest Resistance (K_0)	0.50	0.43	1.0
Ultimate friction factor	0.40	0.45	-

7.4 Lateral Earth Pressure

Basement, foundation and retaining walls should be designed to resist lateral soil loads. The basement walls should be designed for at-rest pressures. In addition, design lateral pressure from surcharge loads and seismic design load should be added to the lateral earth pressure load. For a basement wall, considering no hydrostatic pressure acting on the wall, a design lateral soil load of 60 psf per foot of depth is recommended. In addition, a seismic load, determined by the structural engineer, acting horizontally against the basement walls should be evaluated. The seismic load would act at a depth of 0.4 times the height of the basement wall below the finished grade. Any surcharge loads should be added to this soil load.

7.5 Seismic Considerations

Available information indicates that the subsurface conditions at the site generally consist of dense to very dense granular soils (i.e. sands and silt) to the limits of the borings. Assuming that these conditions represent the subsurface conditions to the bedrock depth, the recommended seismic site classification is *stiff soil profile, Site Class D*. In accordance with the requirements of the New York City Building Code, the mapped maximum considered earthquake spectral response acceleration at short periods (S_s) shall be 0,365g and at 1-second period (S_1) shall be 0,071g. In addition, the below-grade walls should also be designed to ensure stability in an earthquake event in accordance with the guidelines given in Section BC1617 of the New York City Building Code.

Based on SPT blow counts obtained from the borings, and depth to groundwater combined with the compactness of sand and silt at or below the foundation bottom elevation, and assuming the proposed development is an Occupancy Category I or II, structure, the site can be classified as *liquefaction unlikely* in an earthquake event.

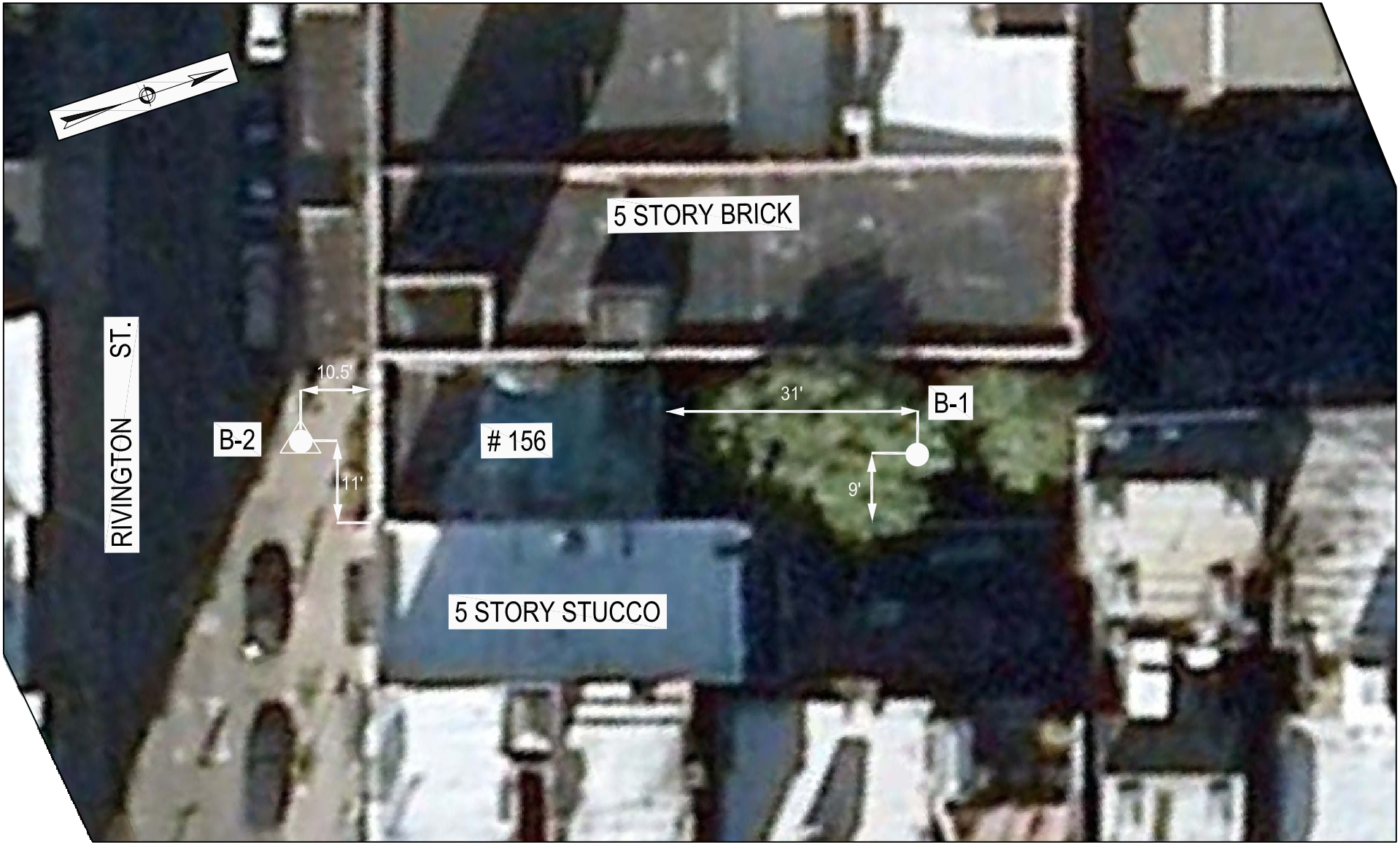
8.0 LIMITATIONS

Our professional geotechnical engineering services have been performed using a degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared by Berger for the New York City Department of Design and Construction, to be used solely for the Foundations and Construction Recommendations for the proposed four story structure at ABC No Rio Site, located at 156 Rivington, New York, NY. The report has not been prepared for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses.

The recommendations provided in this report are based upon our understanding of the described project information and on our interpretation of the data collected during this subsurface exploration. The locations and the number of borings and test pits were selected based on access to the site. Our recommendations, therefore, are based on this limited data and are based upon experience with similar subsurface conditions. The recommendations apply to the specific project discussed in this report; therefore, the locations and the design of the structure, its configuration, loads, location or site grades should be provided to Berger so we can review our conclusions and recommendations and make any necessary modifications.

Regardless of the thoroughness of a geotechnical exploration, the possibility that subsurface conditions between boreholes and test pits may be different from those at specific test locations is present, and that conditions may be different than those anticipated by the designers or contractors. Specifically, some areas of the site were not accessible for exploratory borings. In addition, the construction process may itself alter soil conditions. Therefore, experienced geotechnical personnel should observe and document the construction procedures used and the conditions encountered. Unanticipated conditions and inadequate procedures should be reported to the design team, along with timely recommendations to solve the problems created.

FIGURES



LEGEND:

BORING LOCATION

BORING WITH OBSERVATION WELL LOCATION

SCALE: 1" = 20'

20 0 20

CITY OF NEW YORK
DEPARTMENT OF DESIGN & CONSTRUCTION
DIVISION OF TECHNICAL SUPPORT

3919

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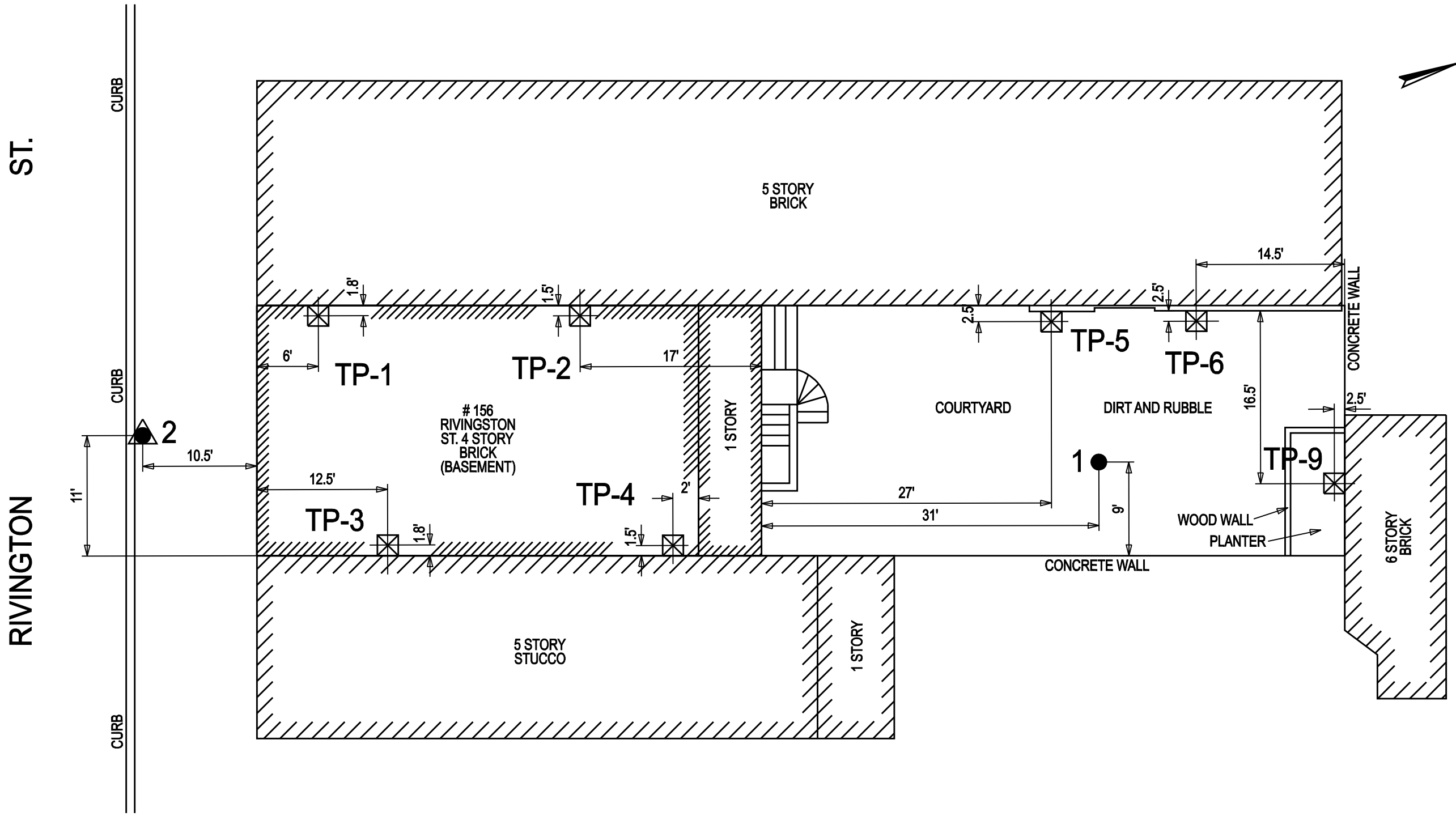
FIGURE 1

ABC NO RIO
156 RIVINGTON STREET
BOROUGH OF MANHATTAN

LOCATION PLAN

DATE: AUGUST 2010 | SCALE 1"=20' | SHEET 1 OF 1



SCALE: 1" = 10'

10 0 10

LEGEND:

- BORING LOCATION
- BORING WITH OBSERVATION WELL LOCATION
- TEST PIT LOCATION

*ACTUAL BORING AND TEST PIT LOCATIONS ARE BASED ON BORING AND TEST PIT LOCATION PLAN PREPARED BY RODNEY D. GIBBLE CONSULTING ENGINEERS (RDGCE).

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FIGURE 2

ABC NO RIO
156 RIVINGTON STREET
BOROUGH OF MANHATTAN

LOCATION PLAN

DATE: SEPTEMBER 2010 | SCALE 1"=10' | SHEET 1 OF 1

APPENDIX A
PROJECT PHOTOGRAPHS

Photograph #1 – Photograph showing TP-1.

Photograph #2 – Photograph showing TP-2.

Photograph #3 – Photograph showing TP-2.

Photograph #4 – Photograph showing TP-3.

Photograph #5 – Photograph showing TP-4.

Photograph #6 – Photograph showing TP-5.

Photograph #7 – Photograph showing TP-6.

Photograph #8 – Photograph showing TP-9 (start of excavation).

APPENDIX B
BORING AND TEST PIT LOGS

B-1
EXPLORATION PROGRAM

The two (2) borings were installed to determine bearing capacity of the subsurface in the footprint of the proposed structure and to satisfy the New York City Building Code requirements. Seven (7) test pits were excavated to determine if adjacent, existing building(s) need underpinning during construction. The subsurface investigation was completed between July 8, 2010 and July 20, 2010.

Boring B-1 was installed in the northern undeveloped rear yard portion of the Site to a depth of 52 ftbg. Boring B-2 was installed to the south of the existing building along Rivington St to a depth of 102 ftbg.

Test Pits TP-1, TP-2, TP-3 and TP-4 were excavated in the basement of the existing building. Test Pits TP-5, TP-6, and TP-9 were excavated in the northern undeveloped rear yard portion of the Site. Test Pits were excavated to depths between 3 and 5 feet below ground (ftbg). Two Test Pits originally planned (TP-7 and TP-8) were not excavated.

Boring B-1 was drilled using an Acker Tripod with a donut hammer used for driving casing and split spoons. Boring B-2 was drilled using a CME-55 drilling rig with an automatic hammer used for driving casing and split spoons. Borings were advanced by using the Rotary drilling with water circulation method with a 3.5-inch diameter cutter bit. Both bulk and representative disturbed soil samples were collected from all borings and test pits. Standard Penetration Test (SPT) soil samples were collected for examination and laboratory testing. Representative samples from the borings were collected using a 1.4-inch inner diameter (I.D.) split-spoon SPT sampler driven with a 140-pound (donut or automatic) hammer with a 30-inch drop. The SPT sampling was conducted in accordance with ASTM D1586 to collect representative samples and estimate the SPT resistance “N” values.

The Unified Soil Classification System and Burmister Classification System descriptions were used to classify the soil samples obtained from the borings. Stratification lines represent the approximate boundary between soil types; the transition may be gradual.

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30-30 THOMSON AVE, 5th FLOOR
LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 BORING # 1

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER

HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

BORING LOG

SHEET 1 OF 1

Date Started: 07/14/2010

Date Finished: 07/15/2010

Depth Of Hole: 50'	Spoon Type: 2" od	Weight Of Hammer : For Casing: 300 lb ;
Rig Type: ACKER TRIPOD	Drilling Bit Type: R.BIT	Weight Of Hammer : For Spoon: 140 lb;
Casing Size: 2.5"	Depth Of Casing: 35'	Type Of Hammer : DONUT

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

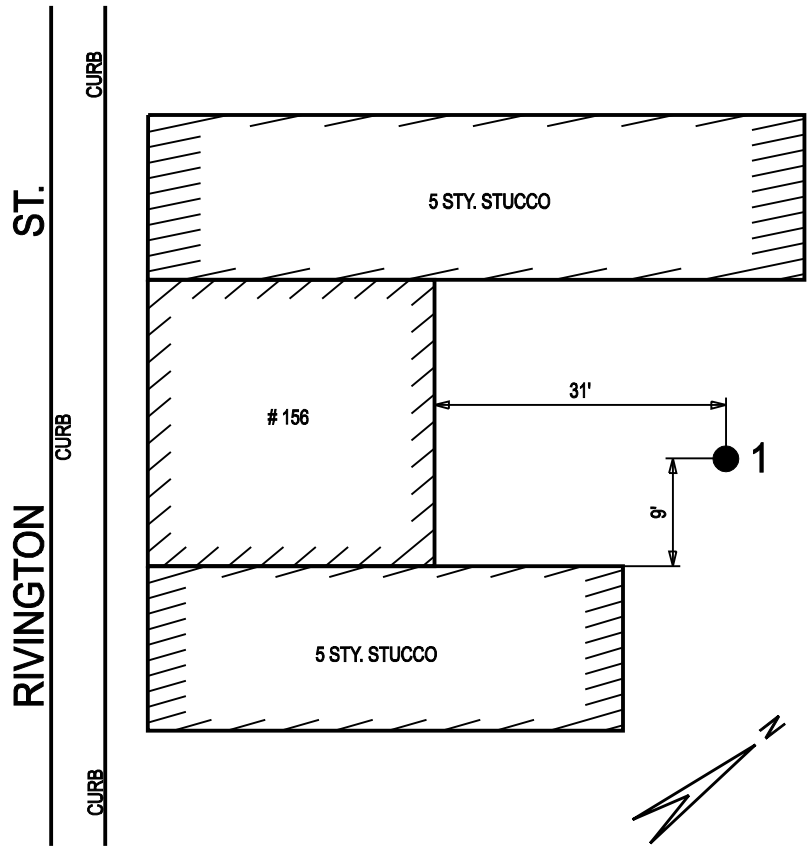
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



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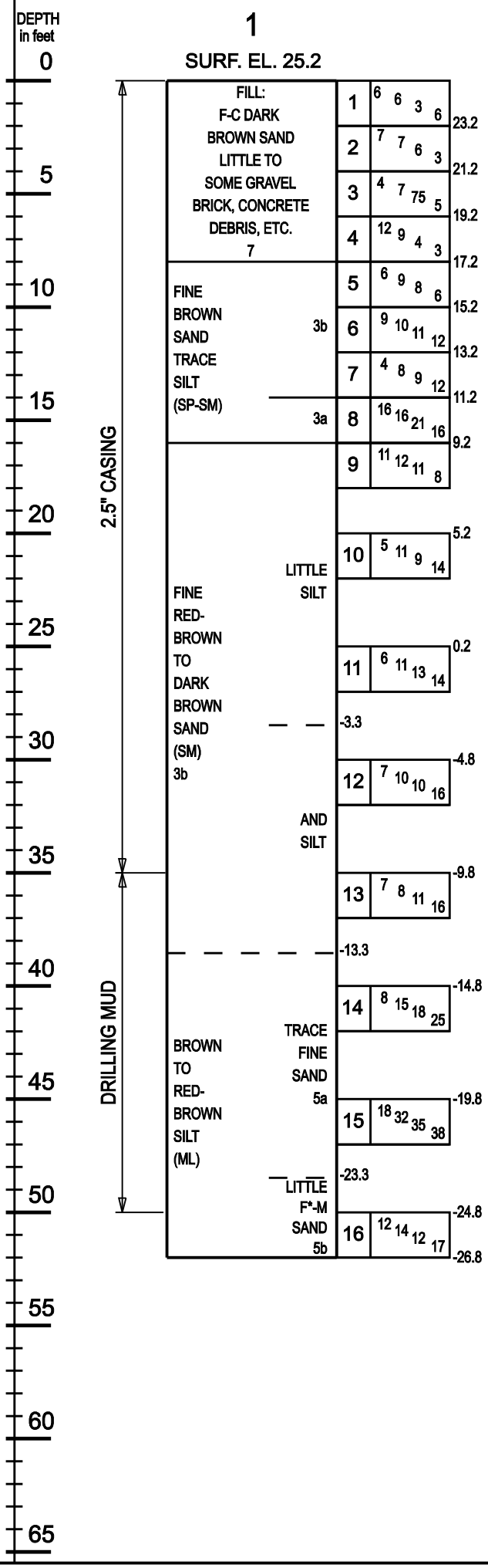

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30-30 THOMSON AVE, 5th FLOOR
LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 BORING # 2

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: J. PHILBIN

HELPER: A. KHOLODILIN

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

BORING LOG

SHEET 1 OF 2

Date Started: 07/19/2010

Date Finished: 07/20/2010

Depth Of Hole: 100'	Spoon Type: 2" od	Weight Of Hammer : For Casing: 300 lb ;
Rig Type: CME-55	Drilling Bit Type: R.BIT	Weight Of Hammer : For Spoon: 140 lb;
Casing Size: 4"	Depth Of Casing: 35'	Type Of Hammer : AUTO

PAVEMENT CORE DATA

PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: 20'
PVC Riser: 10'
Screen: 10'

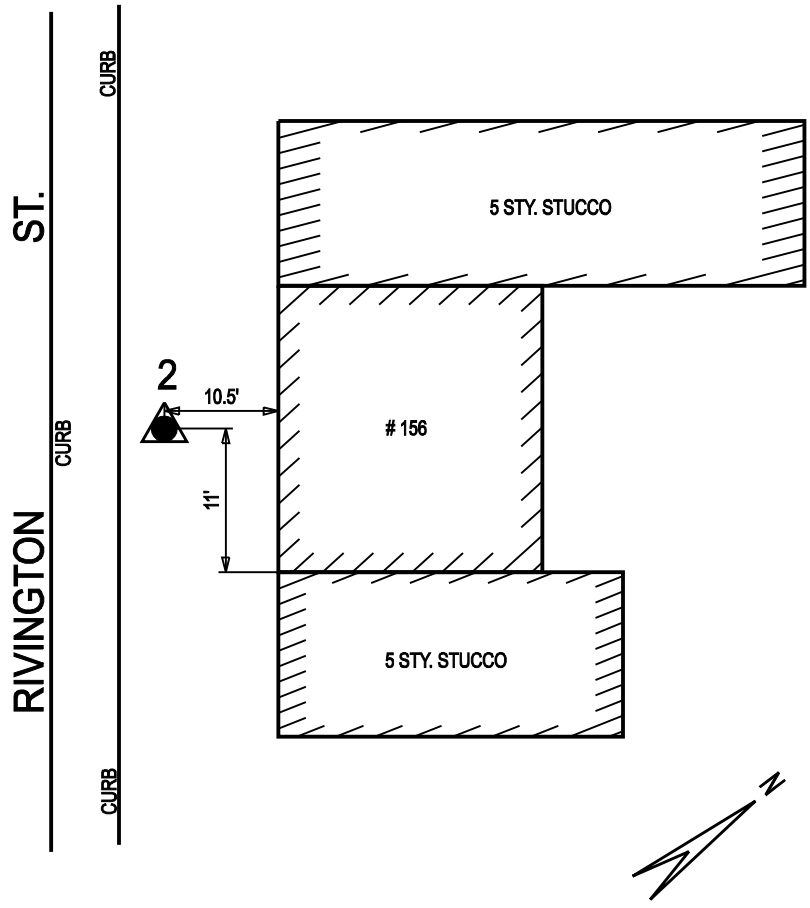
GROUND WATER RECORD

DATE	TIME	DEPTH
08/04/10	12:25 PM	16.7'
08/05/10	01:20 PM	16.7'
08/06/10	12:15 PM	16.7'

LEGEND

- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



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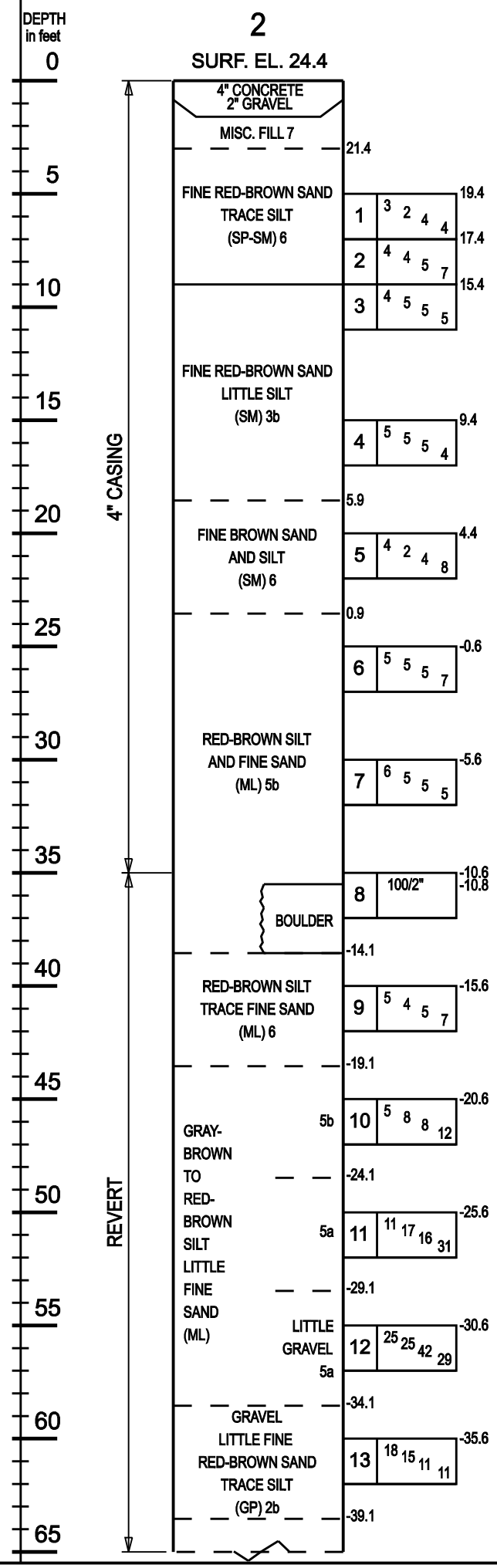

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30-30 THOMSON AVE, 5th FLOOR
LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 BORING # 2

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: J. PHILBIN

HELPER: A. KHOLODILIN

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

BORING LOG

SHEET 2 OF 2

Date Started: 07/19/2010

Date Finished: 07/20/2010

Depth Of Hole: 100'	Spoon Type: 2" od	Weight Of Hammer : For Casing: 300 lb ;
Rig Type: CME-55	Drilling Bit Type: R.BIT	Weight Of Hammer : For Spoon: 140 lb;
Casing Size: 4"	Depth Of Casing: 35'	Type Of Hammer : HAND

PAVEMENT CORE DATA

PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: 20'
PVC Riser: 10'
Screen: 10'

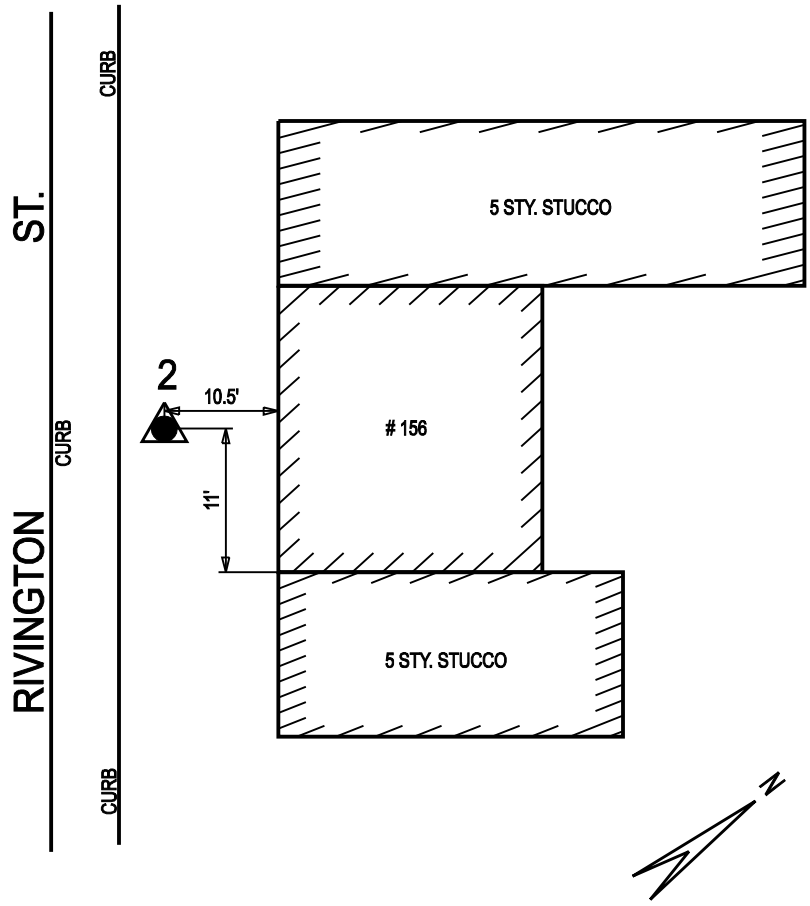
GROUND WATER RECORD

DATE	TIME	DEPTH
08/04/10	12:25 PM	16.67'
08/05/10	01:20 PM	16.69'
08/06/10	12:15 PM	16.68'

LEGEND

- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



INSPECTORS REMARKS :

DEPTH in feet

65 70 75 80 85 90 95 100 105 110 115 120 125 130

2 CON'D

REVERT

RED-BROWN SILT AND FINE SAND (ML) 6			-40.6
	14	6 5 4 7	
			-44.1
	15	23 24 24 27	-45.6
AND SILT	16	24 40 49 65	-50.6
	17	26 28 38 44	-55.6
FINE GRAY-BROWN SAND (SM) 3a			-59.1
	18	22 36 48 54	-60.6
LITTLE SILT	19	33 40 45 49	-65.6
	20	34 35 45 49	-70.6
			-74.1
F-C BROWN SAND SOME GRAVEL TRACE SILT (SP) 3a	21	71 100/5"	-75.6 -76.5

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LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-1

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/14/2010

Date Finished: 07/14/2010

Depth Of Test Pit: 5'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

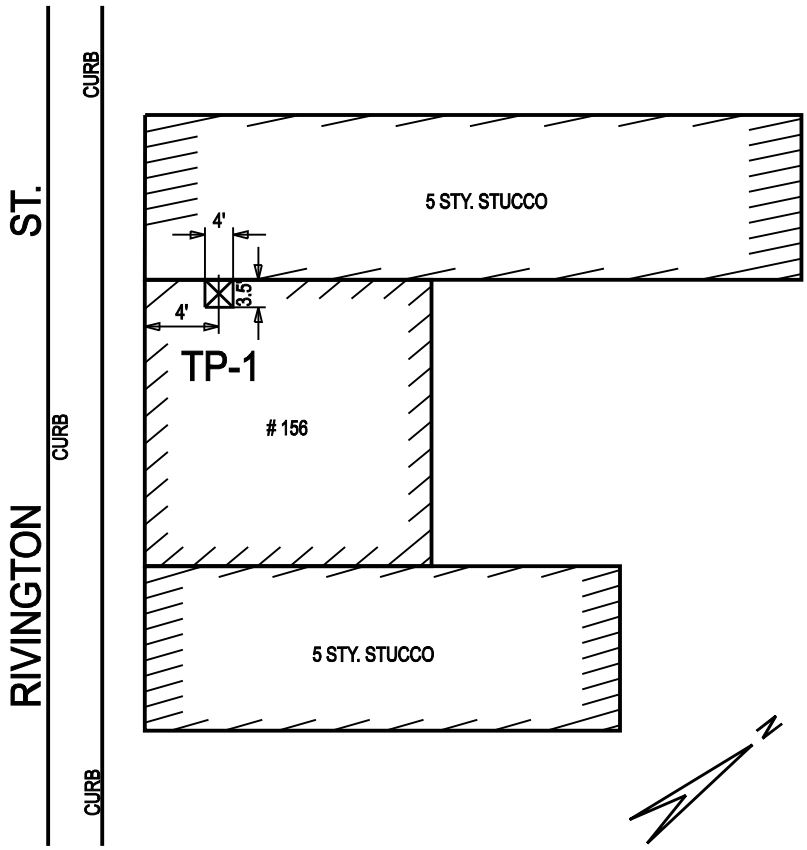
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

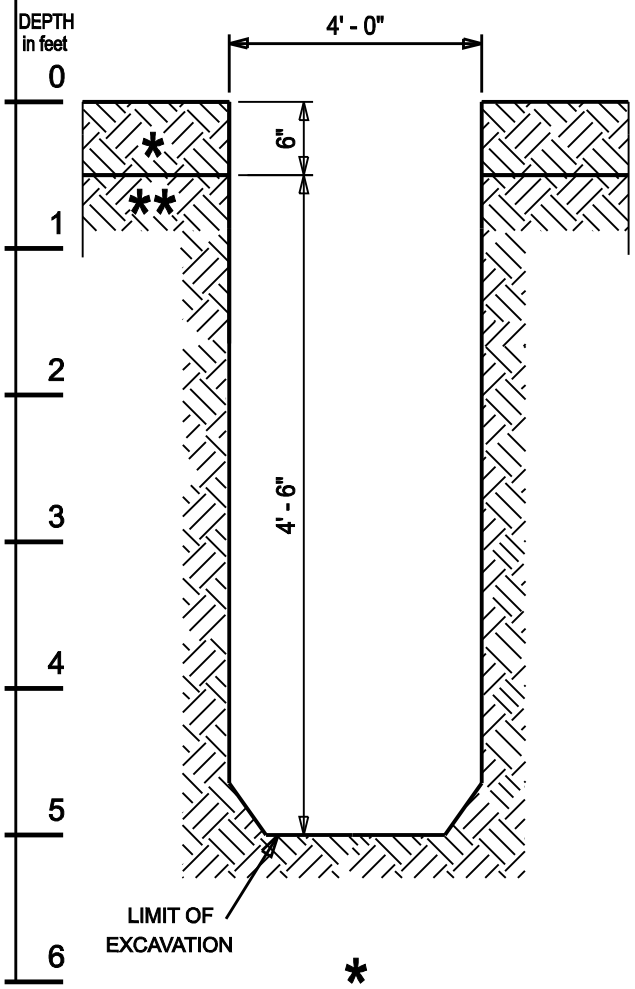
- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



INSPECTORS REMARKS :

TP-1



*
FILL:
F-C DARK
BROWN SAND
SOME GRAVEL
CONCRETE DEBRIS, ETC.

**
F-M YELLOW-
BROWN SAND
TRACE SILT
(SP)

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BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-2

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/13/2010

Date Finished: 07/13/2010

Depth Of Test Pit: 5'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

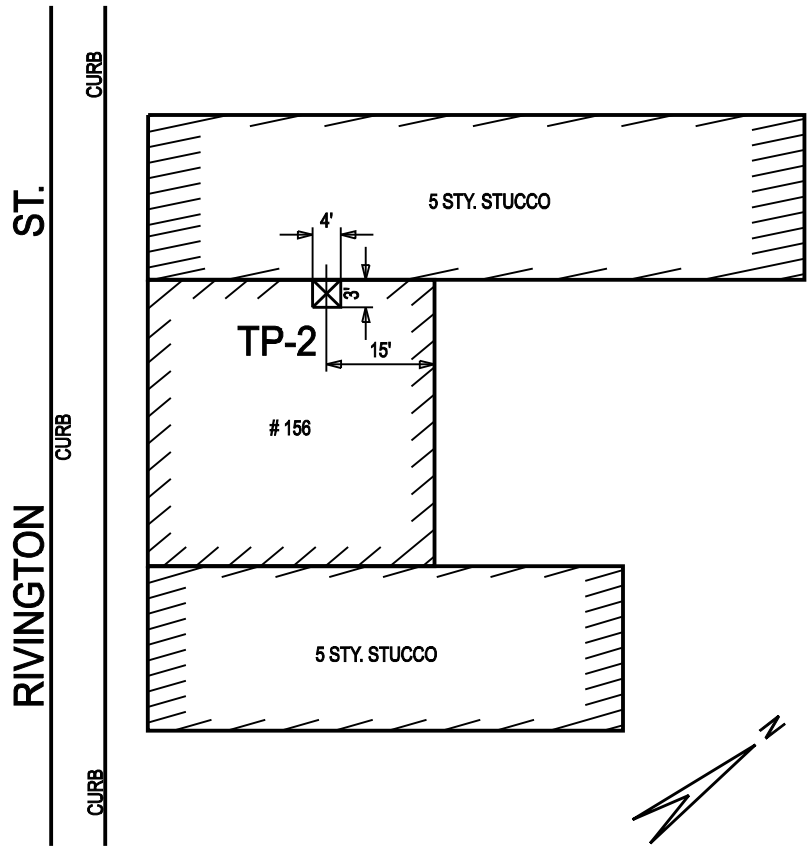
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

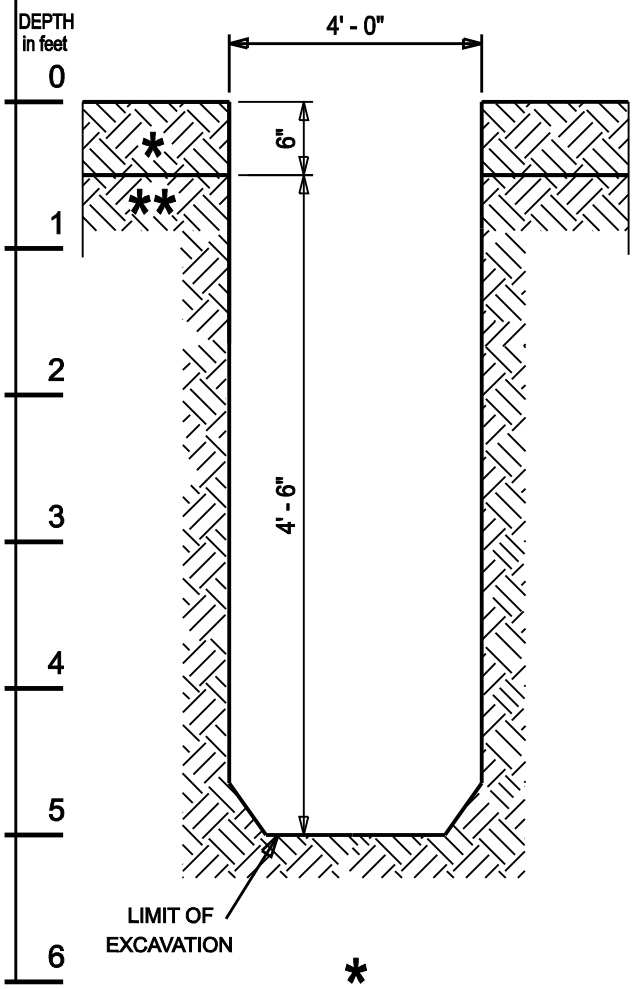
- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



INSPECTORS REMARKS :

TP-2



*
FILL:
F-C DARK
BROWN SAND
SOME GRAVEL
CONCRETE DEBRIS, ETC.

**
F-M YELLOW-
BROWN SAND
TRACE SILT
(SP)

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LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-3

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/13/2010

Date Finished: 07/13/2010

Depth Of Test Pit: 5'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

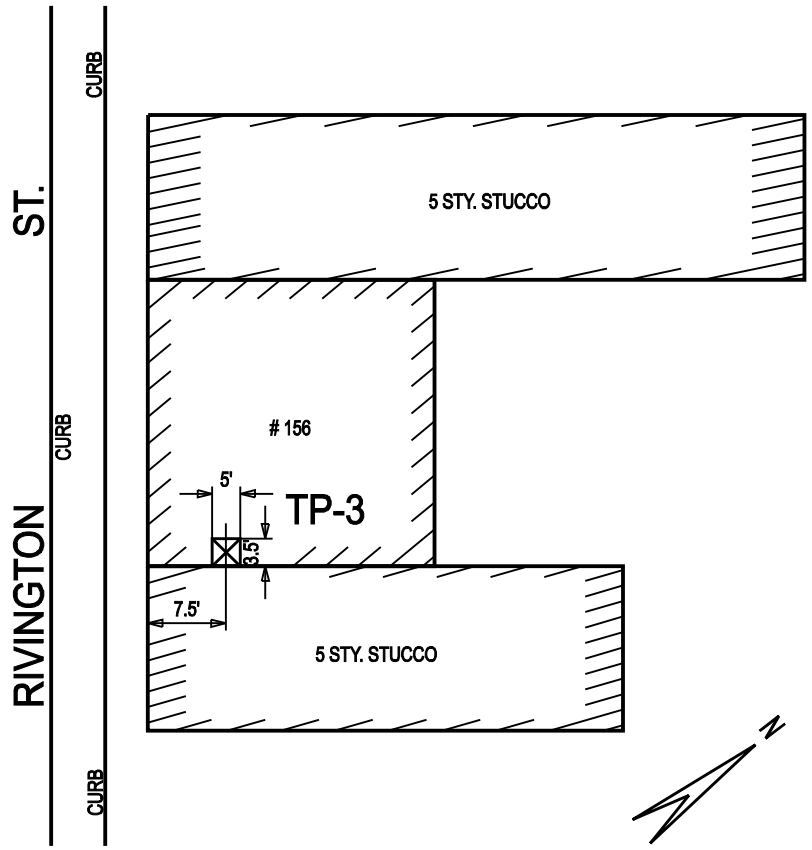
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

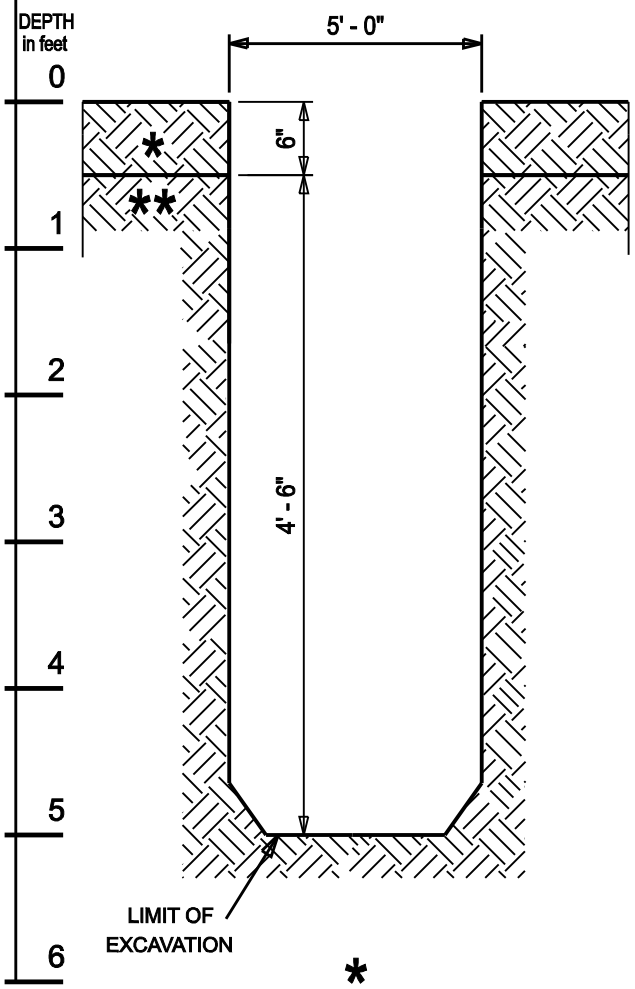
- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



INSPECTORS REMARKS :

TP-3



*
FILL:
F-C DARK
BROWN SAND
SOME GRAVEL
CONCRETE DEBRIS, ETC.

**
F-M YELLOW-
BROWN SAND
TRACE SILT
(SP)

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BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-4

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/13/2010

Date Finished: 07/13/2010

Depth Of Test Pit: 3'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

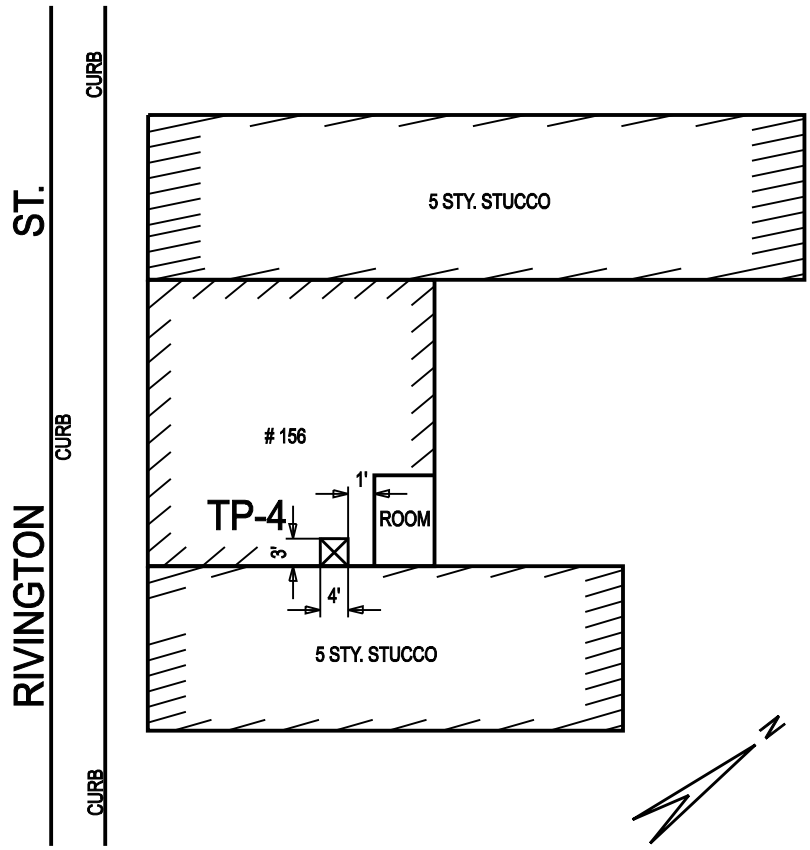
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

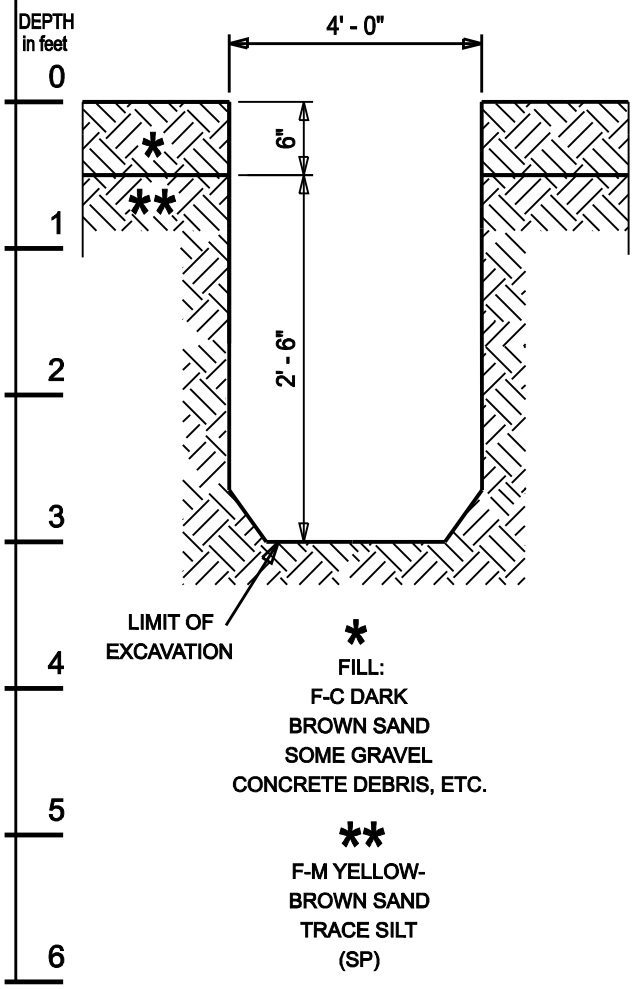
- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



INSPECTORS REMARKS :

TP-4



* FILL:
F-C DARK
BROWN SAND
SOME GRAVEL
CONCRETE DEBRIS, ETC.

** F-M YELLOW-
BROWN SAND
TRACE SILT
(SP)

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LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-5

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/08/2010

Date Finished: 07/08/2010

Depth Of Test Pit: 5'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

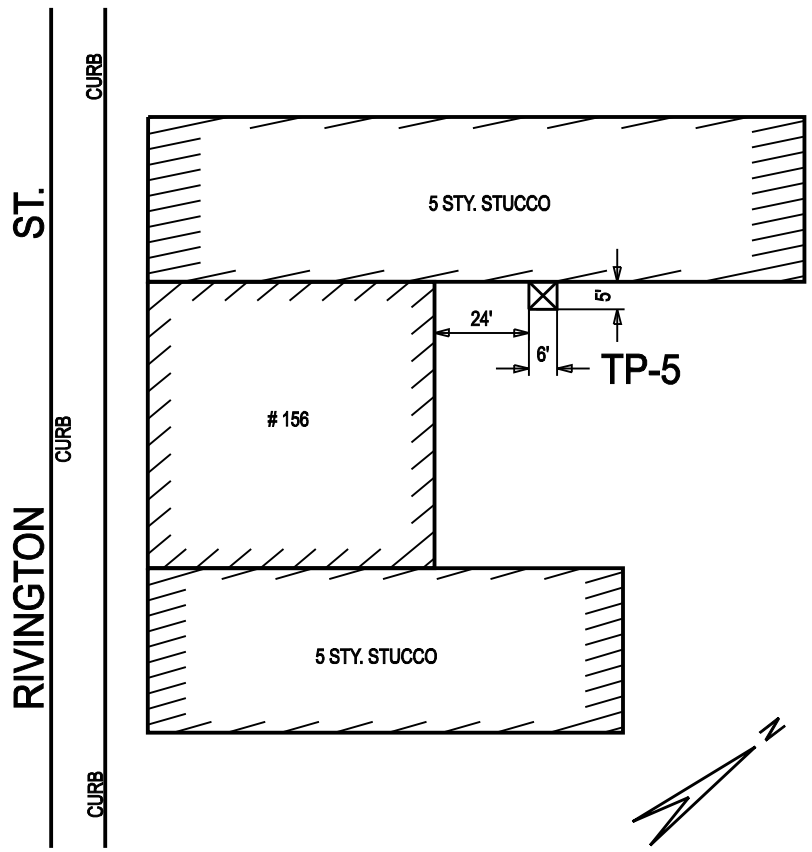
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



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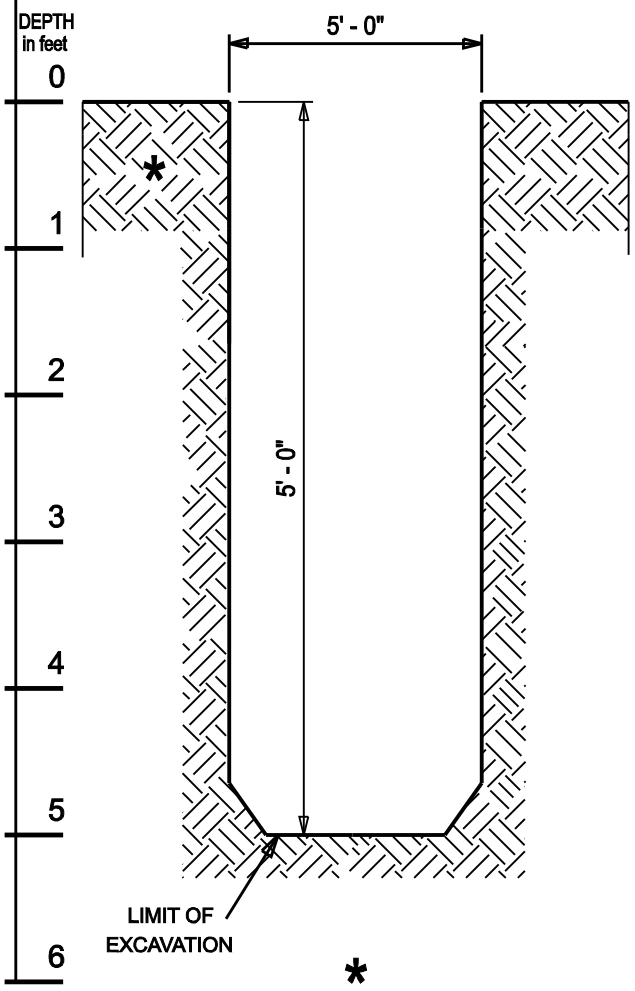

*
FILL:
F-C DARK
BROWN SAND
SOME GRAVEL
BRICK, CONCRETE
DEBRIS, ETC.

INSPECTORS REMARKS :

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LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-6

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/08/2010

Date Finished: 07/08/2010

Depth Of Test Pit: 5'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

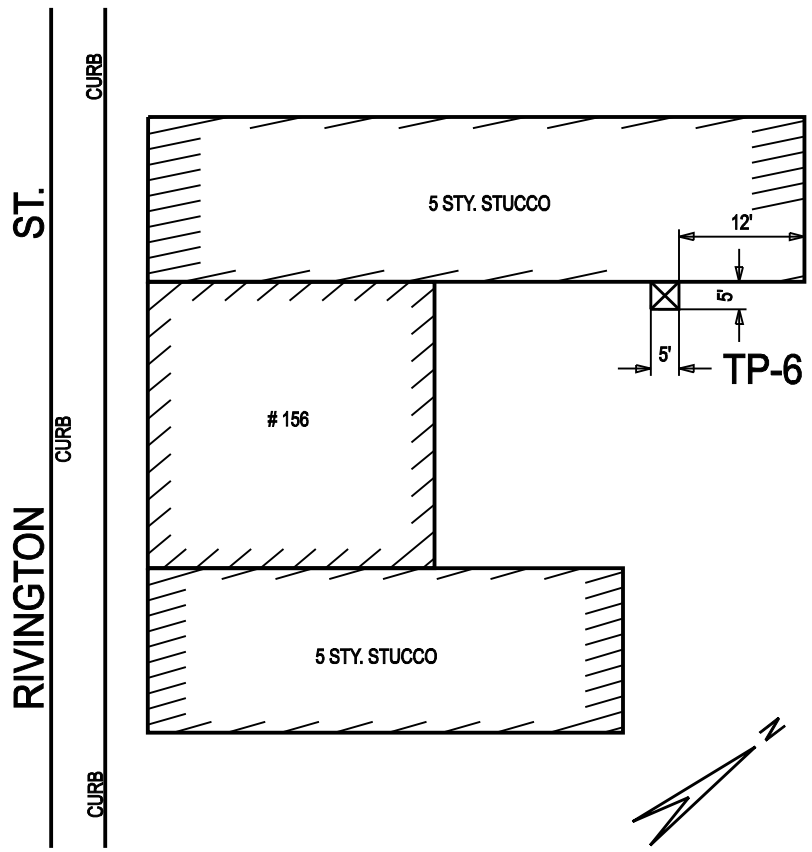
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

LEGEND

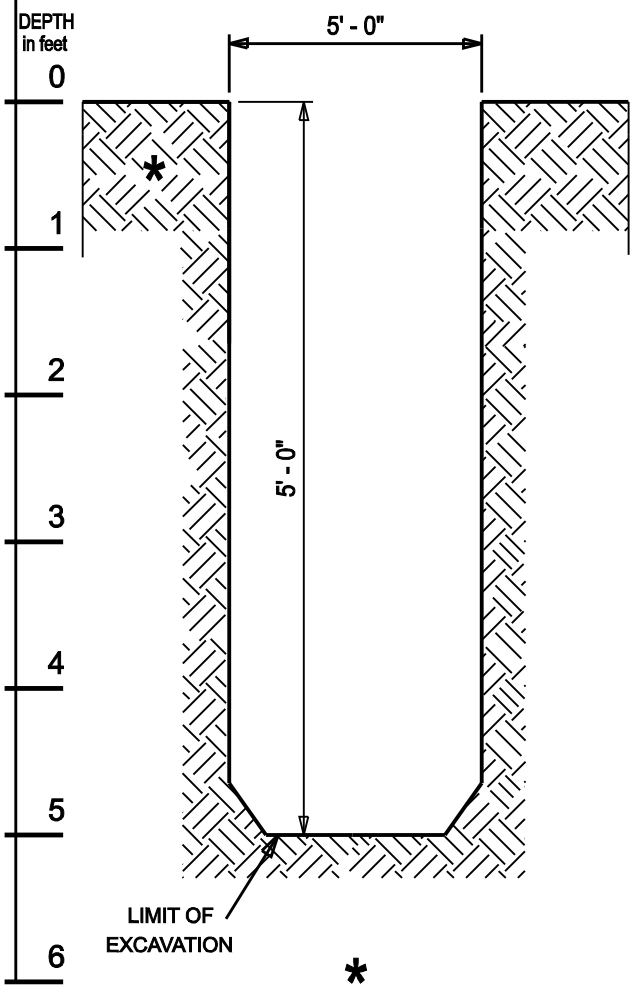
- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



INSPECTORS REMARKS :

TP-6



* FILL:
F-C DARK
BROWN SAND
SOME GRAVEL
BRICK, CONCRETE
DEBRIS, ETC.

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DIVISION OF TECHNICAL SUPPORT
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30-30 THOMSON AVE, 5th FLOOR
LONG ISLAND CITY, N.Y., 11101

BOROUGH: MANHATTAN JOB # SES-3919 TEST PIT # TP-9

PROJECT: ABC NO RIO

LOCATION: 156 RIVINGTON STREET, MANHATTAN

INSPECTOR: JOHN LACANLALE

CONTRACTOR: ADT

DRILLER: D. CARTER
HELPER: J. CAMPBELL

CONSULTANTS: LOUIS BERGER AND ASSOC., P.C.

TEST PIT LOG

SHEET 1 OF 1

Date Started: 07/09/2010

Date Finished: 07/09/2010

Depth Of Test Pit: 5'	Spoon Type: XXX	Weight Of Hammer : XXX
Rig Type: ACKER TRIPOD	Drilling Bit Type: XXX	Weight Of Hammer : XXX
Casing Size: XXX	Depth Of Casing: XXX	Type Of Hammer : XXX

PAVEMENT CORE DATA
PC # XXX
Asphalt: XXX
Concrete: XXX

Wellpoint Installed: XXX
PVC Riser: XXX
Screen: XXX

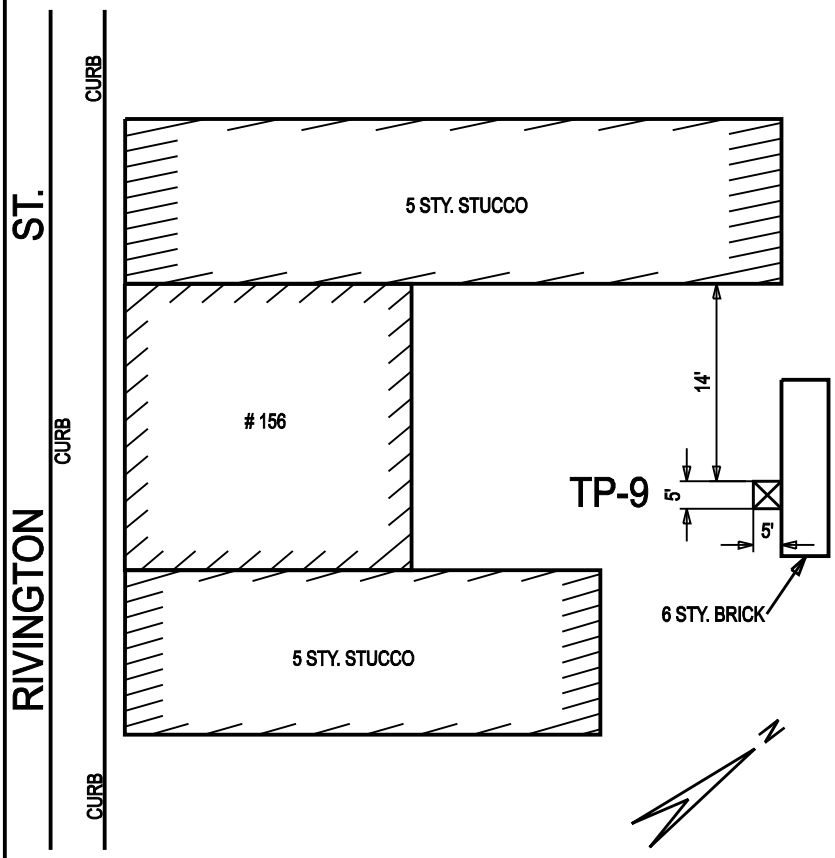
GROUND WATER RECORD

DATE	TIME	DEPTH
XXX	XXX	XXX
XXX	XXX	XXX
XXX	XXX	XXX

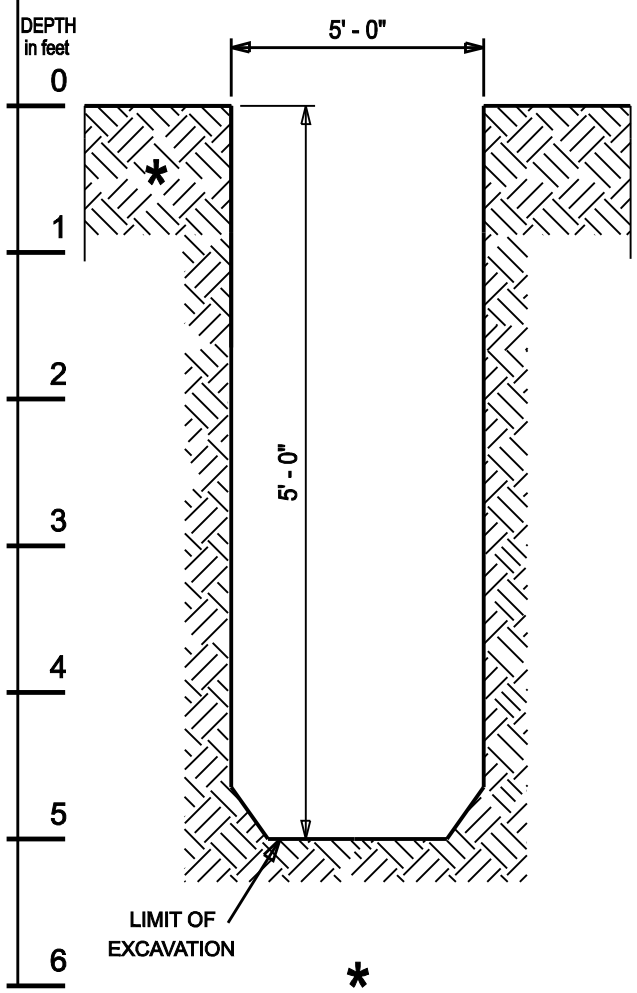
LEGEND

- Test Pit
- Test Boring
- Test Boring (Failed Attempt)
- Previously Done Test Boring (see job as noted)
- Environmental Test Boring
- Pavement Core
- Test Boring With Observation Well
- Caution Symbol
- Pavement Core and Test Boring (at same location)
- Highway Core

LOCATION PLAN (NOT TO SCALE)



TP-9



* FILL:
F-C YELLOW-
BROWN SAND
SOME GRAVEL
BRICK, CONCRETE
DEBRIS, ETC.

INSPECTORS REMARKS :

APPENDIX C
LABORATORY TEST RESULTS

C-1
LABORATORY TESTING

Selected soil samples were delivered to Converse Geotechnical Laboratories. The testing program included identification tests on representative soil samples.

The geotechnical test results are presented on the following pages.

The remaining samples will be retained in the laboratory for a period of 90 days after the submission of this report, after which they will be discarded unless your office otherwise advises us.

The following identifies the soil testing procedures employed, referring to the applicable ASTM Standard Test Designations, and any variations from standard procedures.

- Grain size distribution in accordance with ASTM D421, D422
- Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils, ASTM D4318
- pH of Soil Samples in accordance with ASTM D2976
- Moisture Content Determination in accordance with ASTM D2216

ABC No Rio
156 Rivington Street
BOROUGH OF MANHATTAN, NY

RESULTS OF GEOTECHNICAL LABORATORY TESTING

FMS I.D.: PVN463ABC
TASK NO. 7083
SES No. 3919

City of New York City
Department of Design and Construction
Division of Technical Support
Bureau of Environmental and Geotechnical Services
30-30 Thomson Avenue
Fifth Floor
Long Island City, New York 11101

Louis Berger & Assoc., PC
199 Water Street, 23RD floor
New York, NY 10038

Registration No. 20101402206
Work Order No. 7083-LBA-2R-6781

August 23, 2010

Results of Geotechnical Laboratory Testing
ABC No Rio – 156 Rivington Street
Borough of Manhattan, NY

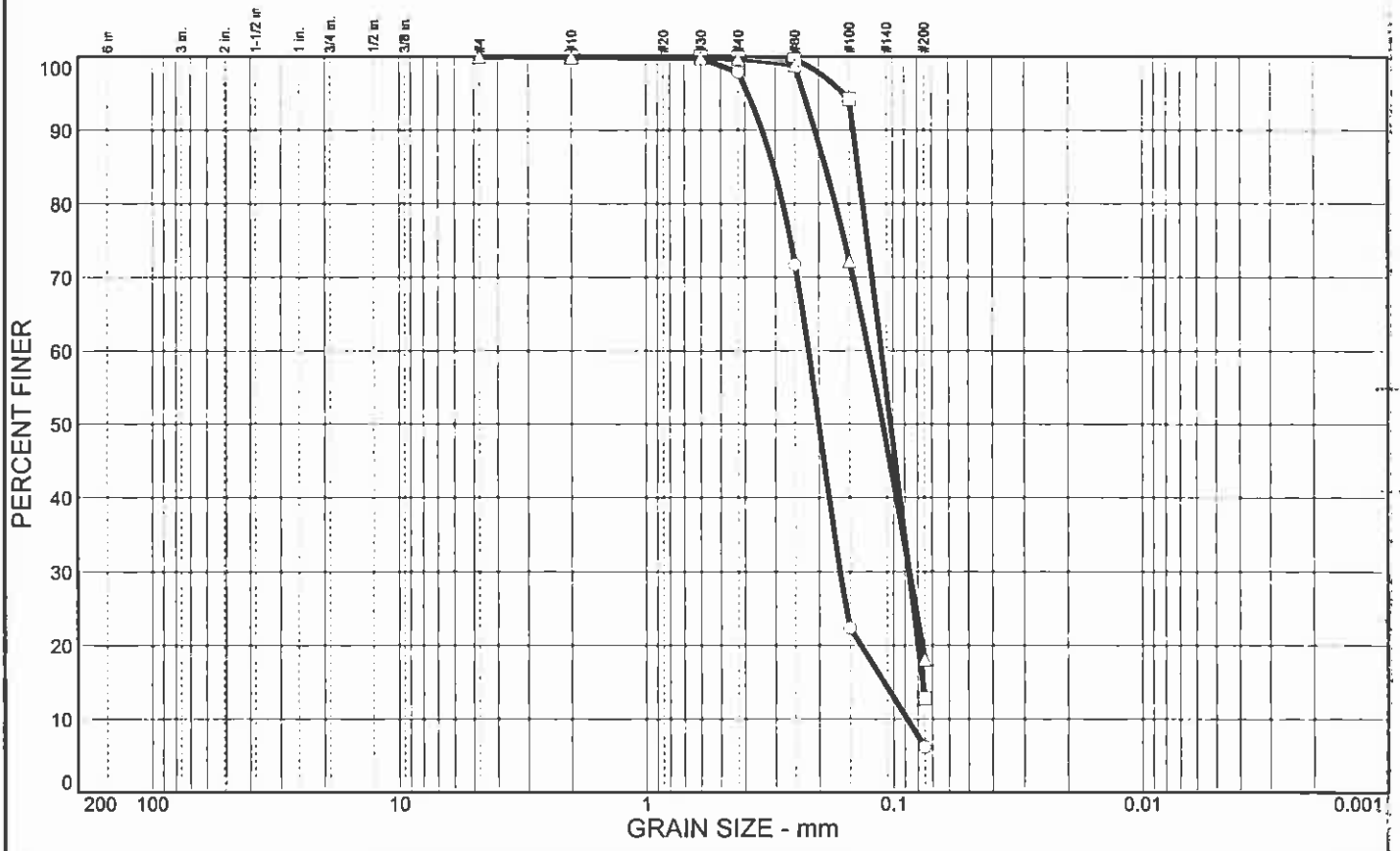
CONTENTS **Page**

LBA Proj No. PC890C6 / DDC Proj. No. PVN463ABC SES# 3919
ABC NO RIO, 156 RIVINGTON STREET, MANHATTAN, NY
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	SOIL IDENTIFICATION TESTS											
			USCS SYMBOL*	D60	D30	D10	% GRAVEL	% SAND	SIEVE MINUS No. 200	ATTERBERG LIMITS			NATURAL WATER CONTENT	pH
										PL	LL	PI		
B-1	S-5	8-10	SP-SM	0.220	0.164	0.0882		93.8	6.2					7.6
B-1	S-9	16-18	SM	0.112	0.0866			87.2	12.8					
B-1	S-10	20-22	SM	0.126	0.0862			81.9	18.1					
B-1	S-12	30-32	SM	0.117				62.6	37.4					
B-1	S-14	40-42	ML					3.6	96.4					
B-1	S-16	50-52	ML					12.6	87.4	NP	26	NP	24.3	
B-2	S-1	5-7	SP-SM	0.208	0.157	0.081		92.0	8.0					7.8
B-2	S-3	9-11	SM	0.159	0.0986			84.1	15.9					7.5
B-2 **	S-5	20-22	SM	0.106				61.9	38.1	NP	19	NP	25.4	
B-2	S-7	30-32	ML				0.1	36.0	63.9					
B-2	S-9	40-42	ML					7.6	92.4	23	27	4	30.3	
B-2	S-10	45-47	ML					19.9	80.1	23	28	5	24.3	
B-2	S-14	65-67	ML	0.0843				48.4	51.6					
B-2	S-17	80-82	SM	0.0879				51.1	48.9					
B-2	S-20	95-97	SM	0.138	0.0913			85.2	14.8					

Note: * USCS symbol based on visual observation and Sieve reported.
** Atterberg Limits were performed on material passing the #40 sieve.

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			93.8	6.2		SP-SM			
□			87.2	12.8		SM			
△			81.9	18.1		SM			

SIEVE inches size	PERCENT FINER ○	□	△
	GRAIN SIZE		
D_{60}	0.220	0.112	0.126
D_{30}	0.164	0.0866	0.0862
D_{10}	0.0882		
	COEFFICIENTS		
C_c	1.39		
C_u	2.50		

SIEVE number size	PERCENT FINER ○	□	△
#4			100.0
#10	100.0	100.0	99.9
#30	99.8	100.0	99.8
#40	97.9	99.9	99.7
#60	71.7	99.6	98.8
#100	22.4	94.2	72.2
#200	6.2	12.8	18.1

SOIL DESCRIPTION

○ Brown poorly graded sand with silt

□ Brown to red silty sand

△ Dark brown silty sand

REMARKS:

○ Moisture Content: 4.4%

□

△

○ Source: ABC No Rio, Manhattan, NY Sample No.: B-1, S-5 Elev./Depth: 8' - 10'

□ Source: ABC No Rio, Manhattan, NY Sample No.: B-1, S-9 Elev./Depth: 16' - 18'

△ Source: ABC No Rio, Manhattan, NY Sample No.: B-1, S-10 Elev./Depth: 20' - 22'

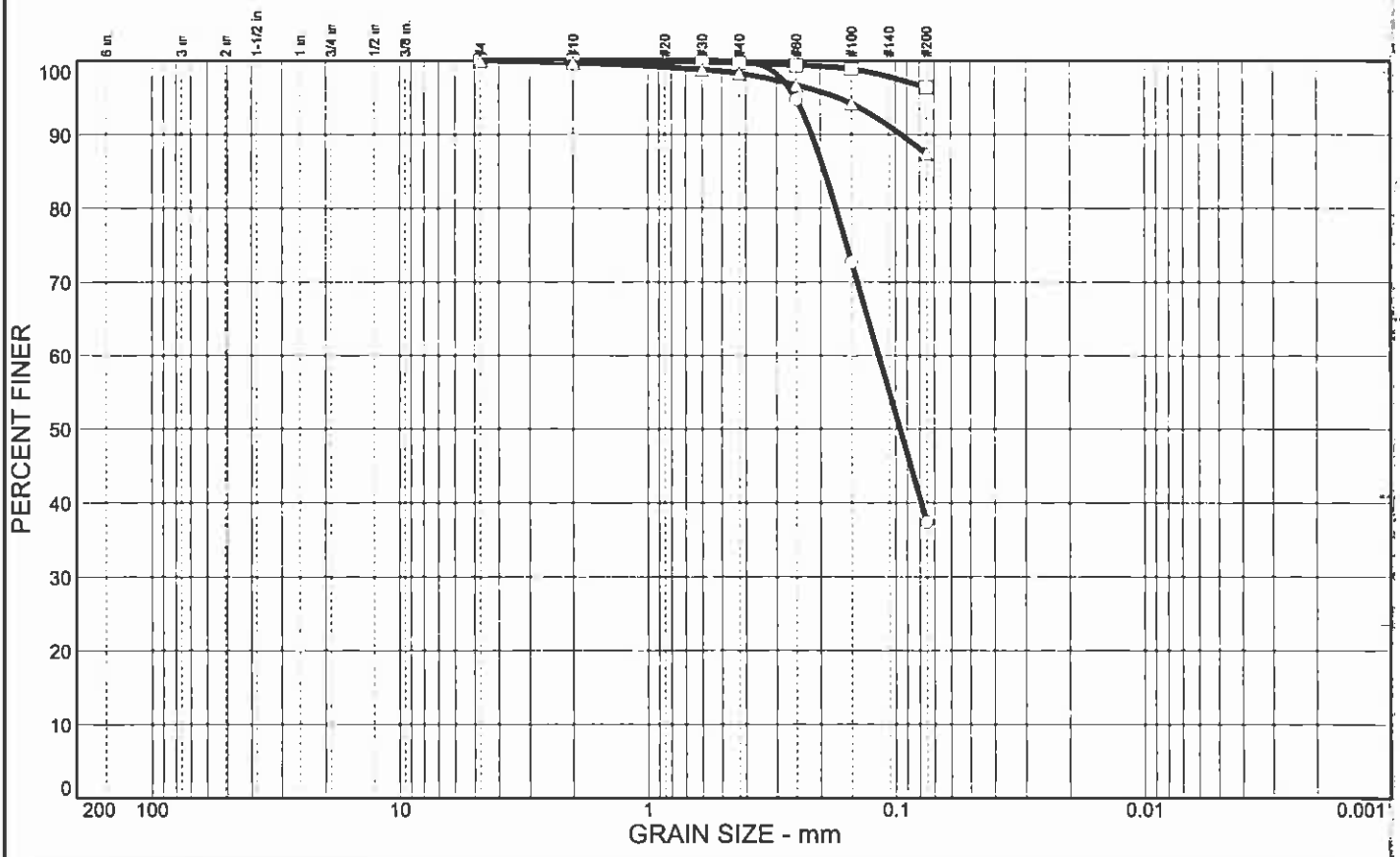
Converse Consultants

Client: The Louis Berger, Inc.

Project: ABC No Rio Manhattan, NY SES3919

Project No.: 08-67102-01 Date 8/13/10

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0		62.6	37.4		SM			
□	0.0		3.6	96.4		ML			
△			12.6	87.4		ML			

SIEVE inches size	PERCENT FINER ○	□	△
	GRAIN SIZE		
D_{60}	0.117		
D_{30}			
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4		100.0	100.0
#10	100.0	100.0	99.7
#30	100.0	99.8	98.8
#40	99.9	99.7	98.3
#60	94.7	99.4	96.7
#100	72.7	98.9	94.2
#200	37.4	96.4	87.4

SOIL DESCRIPTION

○ Red brown silty sand

□ Red brown silt

△ Brown silt

REMARKS:

○

□ Moisture Content: 28.1%

△

○ Source: ABC No Rio, Manhattan, NY Sample No.: B-1, S-12 Elev./Depth: 30' - 32'

□ Source: ABC No Rio, Manhattan, NY Sample No.: B-1, S-14 Elev./Depth: 40' - 42'

△ Source: ABC No Rio, Manhattan, NY Sample No.: B-1, S-16 Elev./Depth: 50' - 52'

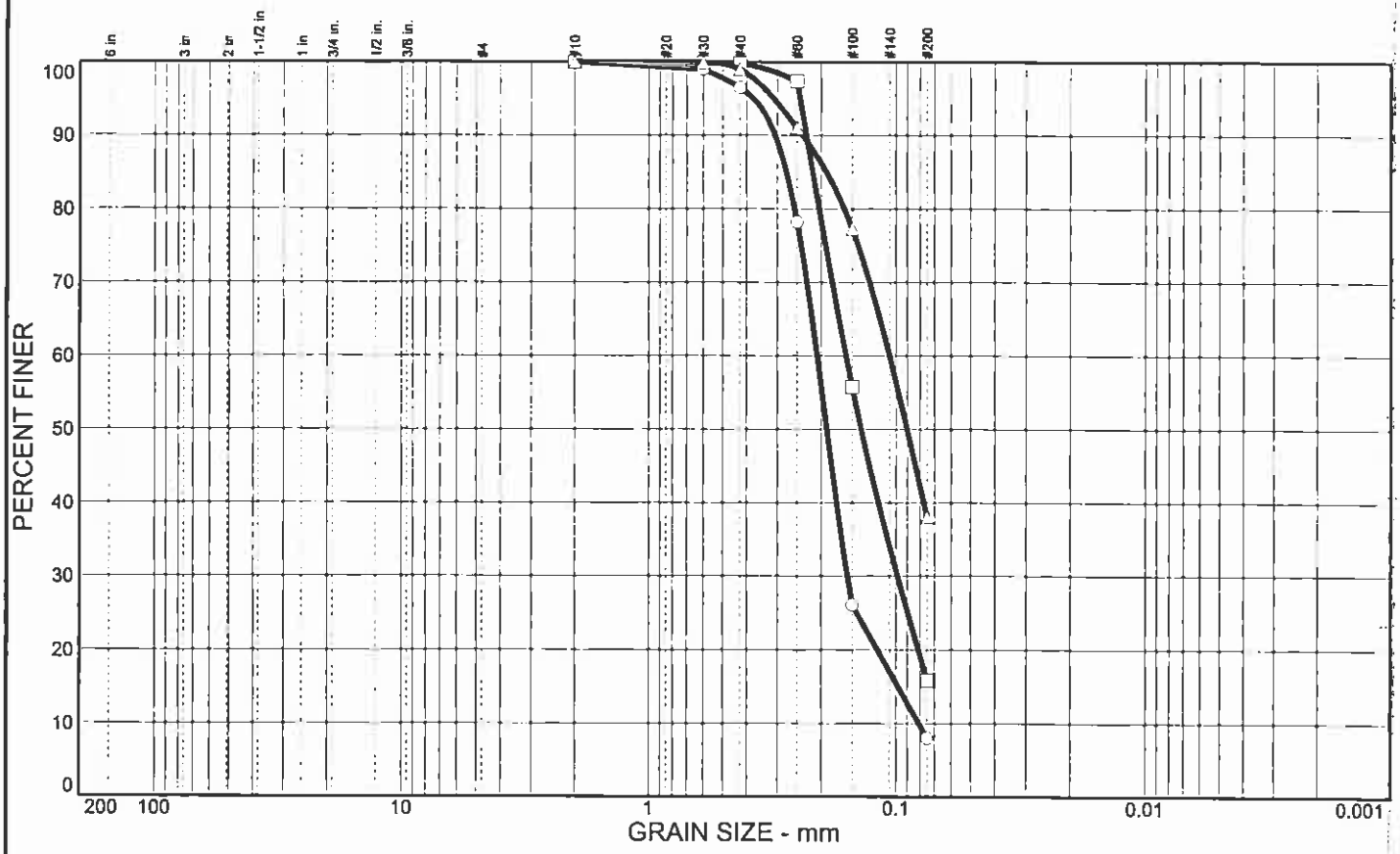
Converse Consultants

Client: The Louis Berger, Inc.

Project: ABC No Rio Manhattan, NY SES3919

Project No.: 08-67102-01 Date 8/13/10

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			92.0	8.0		SP-SM			
□			84.1	15.9		SM			
△			61.9	38.1		SM			

SIEVE inches size	PERCENT FINER ○	□	△
	GRAIN SIZE		
D_{60}	0.208	0.159	0.106
D_{30}	0.157	0.0986	
D_{10}	0.0810		
	COEFFICIENTS		
C_c	1.46		
C_u	2.56		

SIEVE number size	PERCENT FINER ○	□	△
#10	100.0	100.0	100.0
#30	99.0	99.9	99.9
#40	96.5	99.8	99.0
#60	78.2	97.4	91.0
#100	26.1	55.8	77.3
#200	8.0	15.9	38.1

SOIL DESCRIPTION

○ Red brown Poorly graded sand with silt

□ Red brown silty sand

△ Brown silty sand

REMARKS:

○ Moisture Content: 11.5%

□ Moisture Content: 14.7%

△ Moisture Content: 25.8%

○ Source: ABC No Rio, Mahattan, NY Sample No.: B-2, S-1 Elev./Depth: 5' - 7'

□ Source: ABC No Rio, Mahattan, NY Sample No.: B-2, S-3 Elev./Depth: 9' - 11'

△ Source: ABC No Rio, Mahattan, NY Sample No.: B-2, S-5 Elev./Depth: 20' - 22'

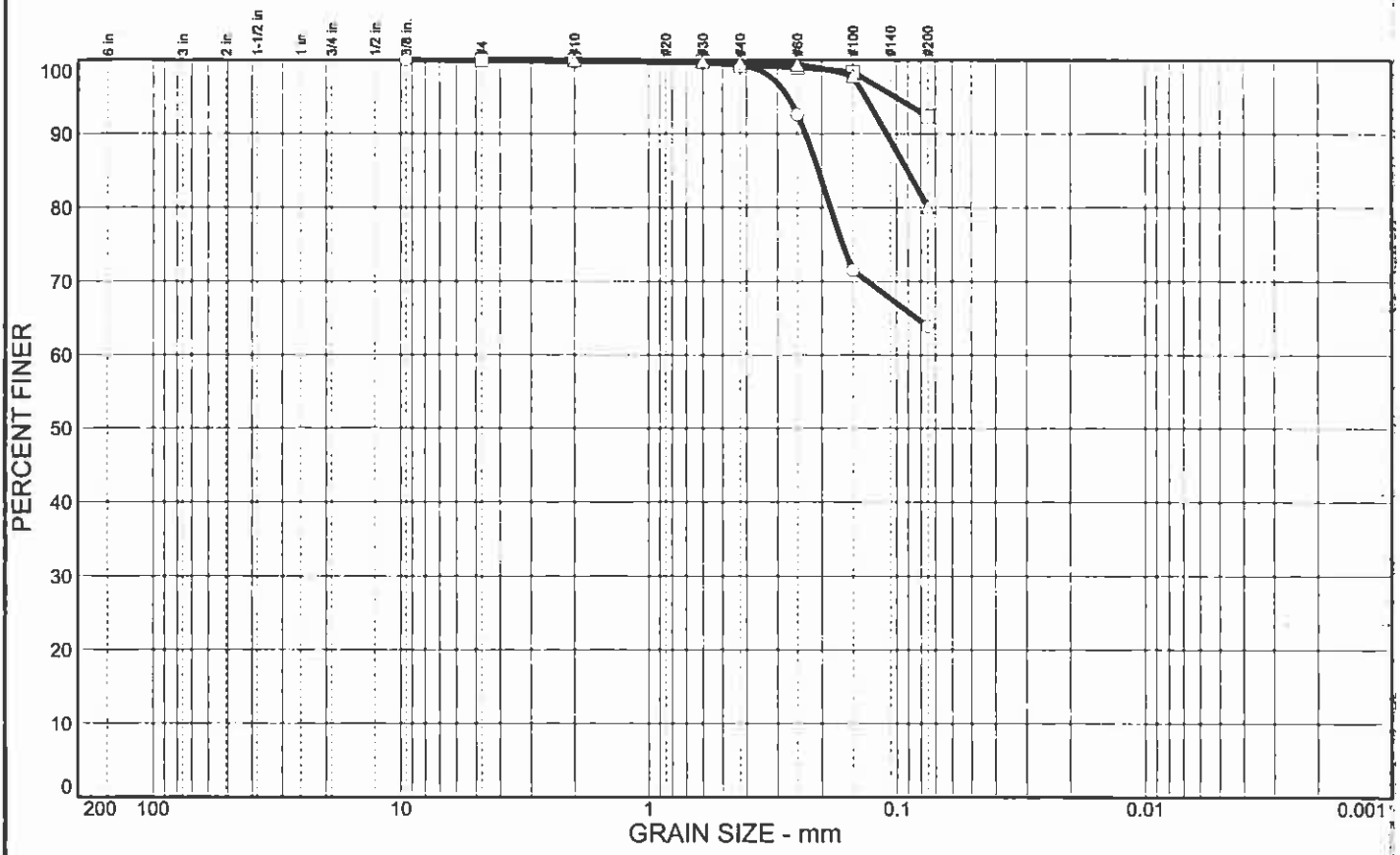
Converse Consultants

Client: The Louis Berger Group, Inc

Project: ABC No Rio, Manhattan, NY

Project No.: 08-67102-01 Date

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		0.1	36.0	63.9		ML			
□			7.6	92.4		ML			
△			19.9	80.1		ML			

SIEVE inches size	PERCENT FINER ○	□	△
3/8"	100.0		
GRAIN SIZE			
D_{60}			
D_{30}			
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	99.9	100.0	
#10	99.8	100.0	100.0
#30	99.7	99.8	99.8
#40	99.3	99.3	99.7
#60	92.6	99.0	99.4
#100	71.5	98.4	97.9
#200	63.9	92.4	80.1

SOIL DESCRIPTION

○ Brown sandy silt

□ Red brown silt

△ Gray silt with sand

REMARKS:

○

□ Moisture Content: 28.6%

△ Moisture Content: 25.1%

○ Source: ABC No Rio, Manhattan, NY	Sample No.: B-2, S-7	Elev./Depth: 30' - 32'
□ Source: ABC No Rio, Manhattan, NY	Sample No.: B-2, S-9	Elev./Depth: 40' - 42'
△ Source: ABC No Rio, Manhattan, NY	Sample No.: B-2, S-10	Elev./Depth: 45' - 47'

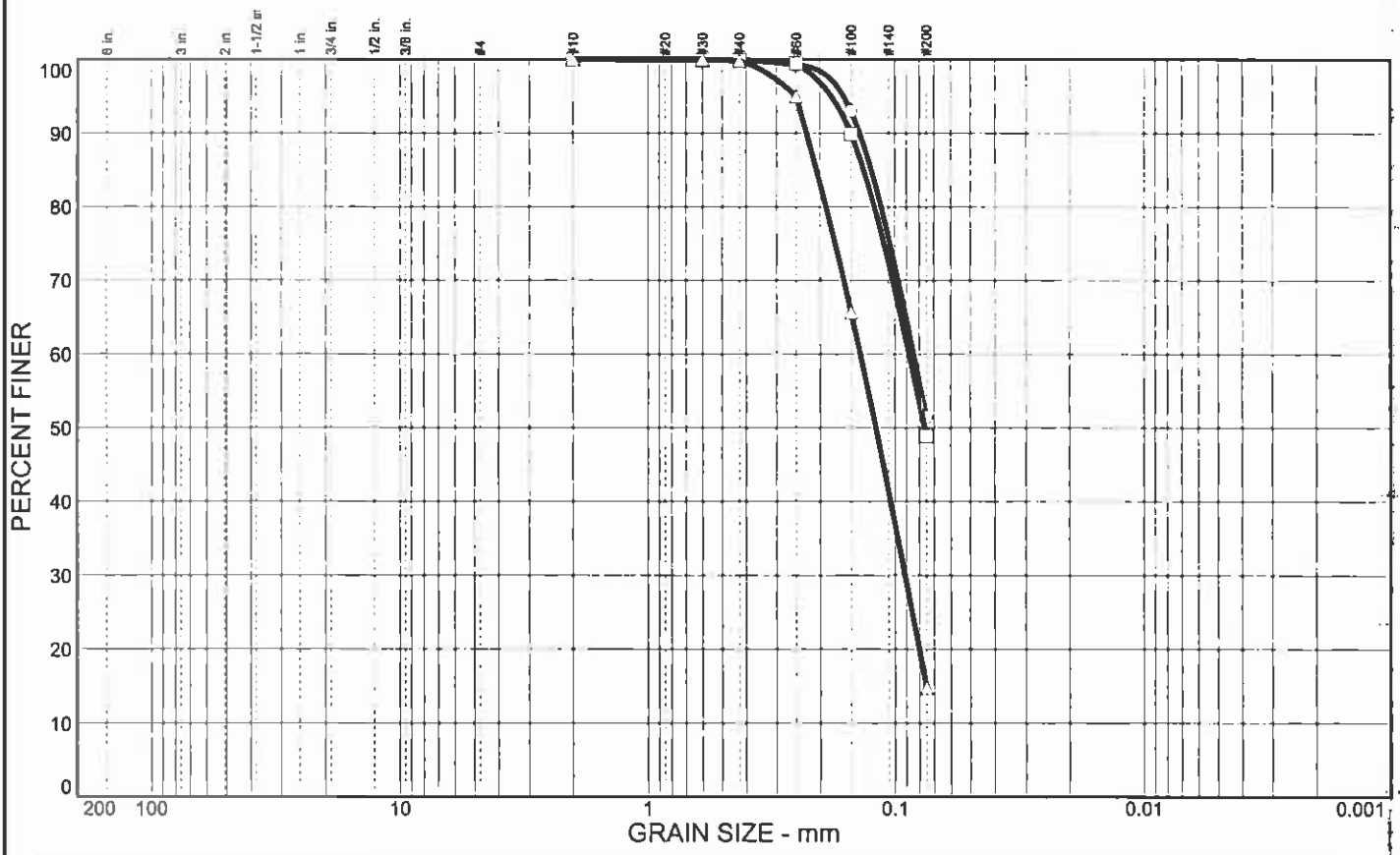
Converse Consultants

Client: The Louis Berger, Inc.

Project: ABC No Rio Manhattan, NY SES3919

Project No.: 08-67102-01 Date 8/13/10

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0		48.6	51.4		ML			
□			51.1	48.9		SM			
△			85.2	14.8		SM			

SIEVE inches size	PERCENT FINER ○	□	△
	GRAIN SIZE		
D_{60}	0.0843	0.0879	0.138
D_{30}			0.0913
D_{10}			
	COEFFICIENTS		
C_C			
C_U			

SIEVE number size	PERCENT FINER ○	□	△
#10	100.0	100.0	100.0
#30	99.9	99.9	100.0
#40	99.9	99.9	99.8
#60	99.3	99.5	95.0
#100	93.0	89.9	65.7
#200	51.4	48.9	14.8

SOIL DESCRIPTION

○ Red brown sandy silt

□ Gray brown silty sand

△ Red brown Silty sand

REMARKS:

○

□

△

○ Source: ABC No Rio, Manhattan, NY Sample No.: B-2, S-14 Elev./Depth: 65' - 67'

□ Source: ABC No Rio, Manhattan, NY Sample No.: B-2, S-17 Elev./Depth: 80' - 82'

△ Source: ABC No Rio, Manhattan, NY Sample No.: B-2, S-20 Elev./Depth: 95' - 97'

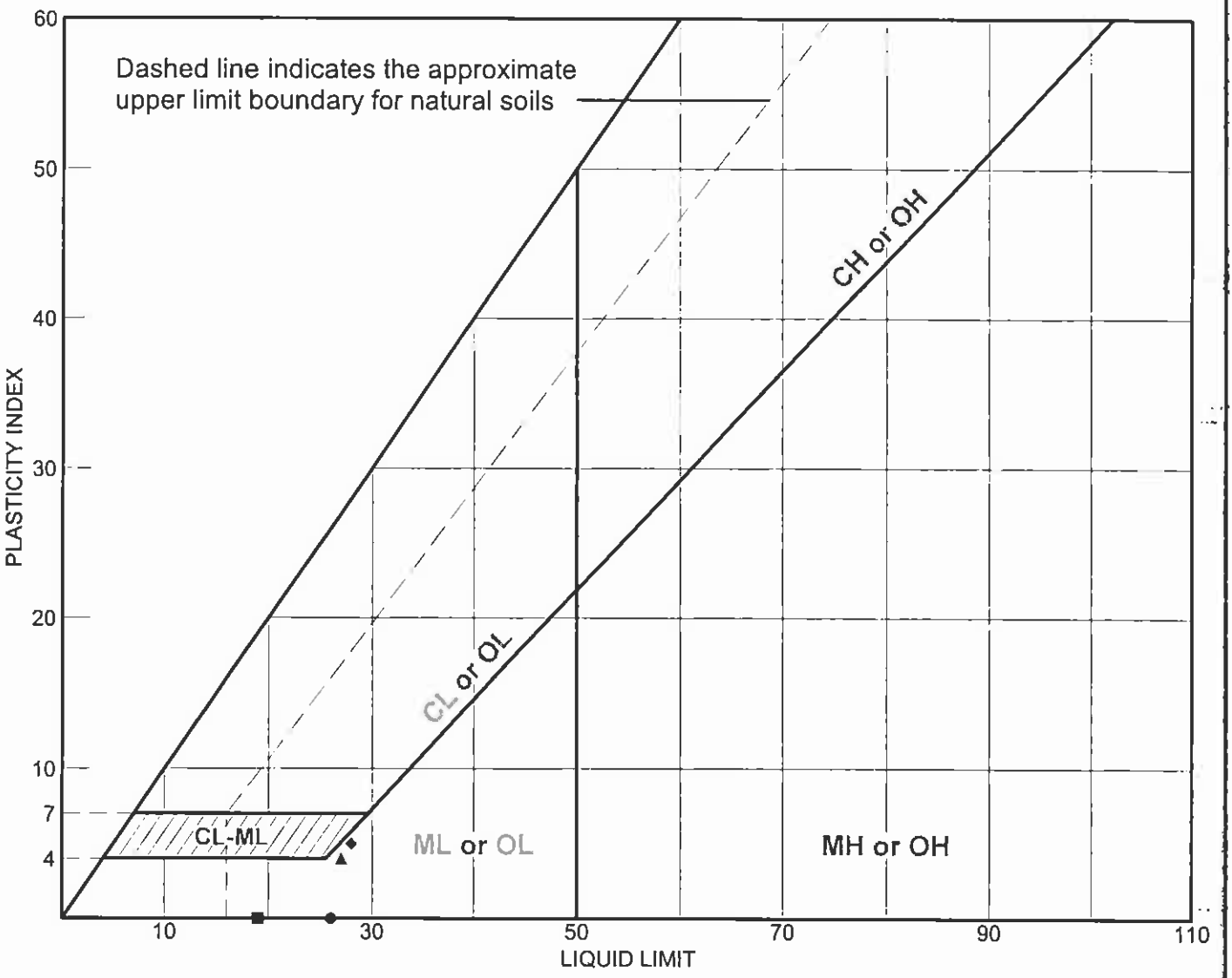
Converse Consultants

Client: The Louis Berger, Inc.

Project: ABC No Rio Manhattan, NY SES3919

Project No.: 08-67102-01 Date 8/13/10

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (m.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	ABC No Rio,	B-1, S-16	50' - 52'	24.3	NP	26	NP	ML
■	ABC No Rio,	B-2, S-5	20' - 22'	25.4	NP	19	NP	SM*
▲	ABC No Rio,	B-2, S-9	40' - 42'	30.3	23	27	4	ML
◆	ABC No Rio,	B-2, S-10	45' - 47'	24.3	23	28	5	ML

*USCS classification based on grain-size analysis.

Converse Consultants

Client: The Louis Berger Group, Inc
Project: ABC No Rio, Manhattan, NY

Project No.: 08-67102-01 **Date** 8/12/10

Converse Consultants Geotechnical Laboratory
622 Route 10 West, Suite 10
Whippany, New Jersey 07981
Phone: (973) 428-0934; Fax: (973) 428-0713; www.converseconsultants.com

Project Info.: 08-67102-01 ABC No. Rio, Manhattan, NY

Boring No.	Sample No.	Sample Depth (ft)	Description	Water Content (%)	Organic Content (%)	Specific Gravity Gs	% Passing #200 Sieve	pH	Resistivity (ohm-cm)	Chloride (mg/kg)	Sulfate (mg/kg)
B-1	S-5	8' - 10'						7.60			
B-2	S-1	5' - 7'						7.80			
B-2	S-3	9' - 11'						7.50			

Appendix E:

NY SHPO and LPC Correspondences

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

www.nysparks.com

January 12, 2012

Alyssa Loorya
Chrysalis Archeological Consultants
4110 Quentin Road
Brooklyn, NY 11234-4322

Re: HPD
156 Rivington Street
New York County
11PR07925

Dear Ms. Loorya:

Thank you for requesting the comments of the New York State Field Services Bureau of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted Phase IA and accompanying information in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York parks, Recreation and Historic Preservation Law). These comments are those of the Field Services Bureau and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon our review, our architectural historian for New York County has determined that 156 Rivington Street is not eligible for listing on the State or National Registers of Historic Places. It is also not located within the boundaries of the State and National Register listed Lower East Side Historic District. However, the property next door, 154 Rivington is eligible for listing on the State and National Registers of Historic Places. Our Archeologist for New York County has no archeological concerns. As such, it is OPRHP's opinion that proposed work at 156 Rivington Street will have No Adverse Impact upon historic resources provided the following condition is met:

1. A construction protection plan is put in place for all historic resources within 90 feet of any proposed construction. The plan should be developed in accordance with the requirements stipulated in the New York City Department of Buildings, "Technical Policy Procedure Notice #10/88".

If you have any questions, I can be reached at (518) 237-8643, ext. 3282. Please refer to the Project Review (PR) number in any future correspondences regarding this project.

Sincerely,

Beth A. Cumming
Historic Site Restoration Coordinator
e-mail: Beth.cumming@parks.ny.gov via e-mail only

cc: P. Blanchfield – NYC HPD

NYC Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ARCHAEOLOGY

Project number: HOUSING PRESERVATION AND DEV. / 12HPD002M
Project: ABC NO RIO
Address: 156 RIVINGTON STREET, **BBL:** 1003490033
Date Received: 12/22/2011

This document only contains Archaeological review findings. If your request also requires Architecture review, the findings from that review will come in a separate document.

[X] No archaeological significance

[ ] Designated New York City Landmark or Within Designated Historic District

[ ] Listed on National Register of Historic Places

[ ] Appears to be eligible for National Register Listing and/or New York City Landmark Designation

[x] ~~May be archaeologically significant~~; requesting additional materials

Comments:

The LPC is in receipt of the, "Phase 1A Historical Documentary Report and Archaeological Assessment of 156 Rivington Street (B 349, L 33), Manhattan, New York," prepared by Chrysalis Archaeological Consultants, Inc and dated December 2011.

The LPC does not concur that the site is likely to contain significant archaeological resources and, therefore, does not concur that field testing is needed. The LPC notes though that the project is also under the review of the NYSHPO who may concur with the recommendations and asks that if such testing is done that a final report of the work be submitted to the Commission for our library.

In addition, we would like another bound copy and a pdf of the report for the LPC archives.

cc: SHPO

12/28/2011

SIGNATURE DATE
Amanda Sutphin, Director of Archaeology

Appendix E:

Resumes (not including NY SHP or LPC version)