

SITE MANAGEMENT PLAN

West 19th Street Development Site New York, New York

Brownfield Cleanup Program Number:

W2-1012-04-07

Site Number:

C231017

Prepared for:

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Site Management Plan (SMP)

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Attachments

- A** - Figure 1, Site Location Map, reprinted from BBL RAWP, 2003
- B** - Figure 2, Site Map, reprinted from BBL RAWP, 2003
- C** - Figure 4: Waterproof / Vapor Barrier Construction, reprinted from Roux Final Engineering Report, July 2006
- D** - Environmental Easement
- E** - Monitoring Plan (MP)
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1.0 Introduction

Georgetown 19th Street Development, LLC (“Georgetown”) is developing the properties known as the West 19th Street Development Site (the “site”). The site comprises part of the former West 18th Street Manufactured Gas Plant (“MGP”) that was operated by predecessors of Consolidated Edison (“Con Edison”).

Remediation of the Site was conducted by contractors to Georgetown, pursuant to Brownfield Cleanup Agreement Index No. W2-1012-04-07 with the New York State Department of Environmental Conservation (“NYSDEC”).

This Site Management Plan (SMP) was developed to ensure that the approved site remedy continues to remain in place and be effective in protecting the public health and the environment. To that end, the SMP provides monitoring protocols for the institutional and engineering controls in use at the Site and operational protocols to evaluate the continued effectiveness of these controls.

Institutional controls relative to the site remedy include an environmental easement. The easement designates the site for commercial and/or industrial use only; restricts the use of groundwater at the site without proper treatment or permission from the NYSDEC; requires maintenance of the engineering controls developed for the site, as described in this SMP; grants NYSDEC/NYSDOH uncontrolled access to the site to inspect the engineering controls; stipulates that any disturbance or alteration of the barrier layer (part of the engineering controls) may occur only after notification to and/or approval from NYSDEC; and requires annual certification of engineering controls.

Engineering controls relative to the site remedy consist of site perimeter watertight sheeting and grouting, a barrier layer that is integrated into the building foundation (comprised of a mud slab, waterproofing/vapor barrier membrane, and a structural concrete slab or foundation walls) and an active venting system in the cellar of the building. The engineering controls of the sheeting/grouting and the barrier layer were constructed in accordance with the December 2003 Remedial Action Work Plan (RAWP), after removal and disposal of contaminated soil and other fill material to a depth of 15 – 18 feet, also pursuant to the RAWP. The active venting system will be constructed as a part of the future commercial office building.

2.0 Site Description

The approximately 0.7-acre site is located on Block 690, Lots 12 and 54, between West 18th and West 19th Streets and Tenth and Eleventh Avenues in the Borough of Manhattan, New York City (Attachments A and B). The development site is one of numerous parcels that comprised the former West 18th Street Gas Works Site, which is one of the sites that are subject to a Voluntary Cleanup Agreement (VCA) between the NYSDEC and Con Edison, effective August 25, 2002. Remediation of this site was conducted pursuant to a Brownfield Cleanup Agreement with the NYSDEC, effective July 14, 2004 (Index No. W2-1012-04-07, Site No. C231017, the "BCA").

This BCA was entered into via an application for transition into the Brownfields Cleanup Program from the Voluntary Cleanup Program under which one of the volunteers, Georgetown 19th Street Development, LLC, had entered with the NYSDEC, effective March 13, 2003 (Index No. W2-0948-03-02, Site No. V-00624-2).

Remedial investigations were performed in October 2002 and March 2003 by Blasland, Bouck and Lee, Inc. (BBL) to assess whether MGP and/or petroleum-related constituents were present in soil and groundwater at concentrations that would require remediation. The remedial investigations included a regulatory record review, the collection of soil and groundwater samples from borings and monitoring wells at the site and hydrogeological testing.

The regulatory record review indicated that five 550-gallon tanks containing unleaded gasoline were closed and removed from the site in January 1992.

The soil borings ranged in depth from 12 to 20 feet below the concrete floor surface of the parking garage. Subsurface soils observed included urban fill followed by gravelly sands with some silt, and a clayey silt layer. Saturated soils (groundwater) were encountered in the borings at depths between 7 and 8 feet. Non-aqueous phase liquids (NAPLs) were not observed in any of the borings. Odors ranging from slight to strong and elevated photoionization (PID) readings were observed at all borings.

The primary constituents detected in soil during the site investigations include BTEX, PAHs, and phenolic constituents. Soils containing BTEX, PAHs and phenolic constituent concentrations above NYSDEC soil guidance values were detected from the near surface to a depth of approximately 31 feet.

Additional information regarding the remedial investigations is provided in the Preliminary Site Investigation Report (BBL, November 2002) and the Site Investigation Report (BBL, June 2003).

Demolition of the existing two-story brick structure that served as a mid- to long-term truck parking garage and a small fenced vacant lot in the southwestern part of the property occurred in the spring of 2004.

The site is currently under construction for a 10-story commercial office building with below grade parking and utility rooms for the operation of the building. The foundation of the building has been completed and the superstructure is currently underway.

3.0 Site Remedial Action

The objective of the site remediation was to fulfill the requirement of the BCA by excavating impacted soil from the site to allow for the construction of a commercial building and to obtain the assignable release and covenant not to sue from the NYSDEC as provided under Exhibit C of the BCA.

All of the remediation and construction tasks have been performed with oversight from the NYSDEC and in accordance with the following work plans and respective modifications, all of which have been approved by the NYSDEC (as well as the NYSDOH):

- a. Remedial Action Work Plan, West 19th Street Development Site, New York, New York, Blasland Bouck & Lee (BBL), December 2003
- b. RAWP Modifications Letter, BBL, May 6, 2004,
- c. RAWP Modifications Letter, Roux Associates, May 28, 2004,
- d. Site Operations Plan (SOP), West 19th Street Development Site, New York, New York, Roux Associates, June 24, 2004,
- e. SOP Modification - Adjustments To Watertight Steel Sheet Piling Due to Subsurface Obstructions, Roux/Remedial, October 13, 2004,
- f. SOP Modification - Alternative Vapor Barrier Membrane, Roux/Remedial, February 4, 2005; and
- g. SOP Modification - Revised Barrier Wall Design, Roux/Remedial, April 22, 2005.

The primary components of the site remedy included the installation of a watertight barrier comprised of watertight sheeting and a grout barrier wall around the perimeter of the site, the excavation and off-site disposal of soil to between 15 and 18 feet below grade across the site (excavation to 23 feet below grade for the elevator pits), the installation of a waterproofing/vapor barrier

beneath and around the proposed building foundation (refer to Attachment C for the barrier's details), and the construction of a below grade garage with ventilation.

The site remediation, with the exception of the ongoing monitoring, operations and maintenance measures described below, has been completed and is detailed in the Final Engineering Report, prepared by Roux Associates, Inc. and dated July 2006.

4.0 Institutional Controls

Institutional control aspects of the site remedy include an environmental easement. (refer to Attachment D)

The environmental easement shall be duly recorded with the New York City Register's Office, Borough of Manhattan, Division of Land upon approval of this SMP and upon acceptance of the easement by the NYSDEC Commissioner.

The Environmental Easement imposes site use restrictions, requires monitoring and maintenance of the institutional and engineering controls and prohibits any modification or removal of the engineering controls without prior notification and/or approval by the NYSDEC. These site use restrictions and engineering controls are as follows:

- A. The site may be used for commercial and industrial use as long as the following long-term engineering controls are employed:
1. Any soil on the property must be covered by a barrier layer that is comprised of a mud slab, a vapor barrier membrane, a structural concrete slab and building foundation walls.
 2. The garage sub-level of the building covering the site must be continuously vented by an active ventilation system.
 3. The barrier layer will be monitored for cracks from which water and vapors could emanate, the ventilation system will be monitored and both will be maintained and repaired as part of normal building maintenance.
 4. An annual certification will be submitted to the Department by a New York State Licensed Professional Engineer, stating that the building foundation is intact (including documentation of any repairs conducted since the prior certification) and that the ventilation system is in operation.

5. Any proposed soil excavation on the property below the barrier layer requires prior notification and/or prior approval of NYSDEC

and the excavated soil must be managed, characterized, and properly disposed of in accordance with NYSDEC regulations and directives. Please refer to Section 3 of the Soil Management Plan attached to this SMP for further details.

- B. The site may not be used for residential use and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.
- C. Ground water underlying the site may not be used without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the NYSDEC.
- D. The property deed and all subsequent instruments of conveyance and any leases, licenses, or other instruments granting a right to use shall state that the property is subject to an Environmental Easement.
- E. Annual certification of the controls employed at the site will be provided to NYSDEC.

5.0 Engineering Controls

Engineering control aspects of the site remedy include a barrier layer (comprised of a mud slab, waterproofing/vapor barrier, and a structural concrete slab or foundation walls) and an active venting system in the cellar of the building.

Barrier Layer Inspection and Maintenance.

The interior face of the perimeter foundation walls and the foundation slab shall be inspected once a year. This inspection will be performed under the supervision of a NY State licensed professional engineer and documented in a report that will be provided to the NYSDEC. The inspection shall investigate the entire surface of each barrier element for signs of vapor infiltration (i.e., cracks and/or accumulated moisture). The attached Monitoring Plan provides more details on monitoring, inspection and reporting protocols for the barrier layer. The attached Operations and Maintenance Plan provides for regular and managed upkeep of the barrier layer.

Additionally, the attached Soil Management Plan has been prepared to provide protocols that will be required in the event that soil beneath the barrier layer is

ever disturbed in connection with ongoing building maintenance (e.g., subsurface utility repair), engineering control repair, emergency response (e.g., flood

management) or foundation modification (e.g., addition of an elevator, entire property redevelopment).

Venting System Inspection and Maintenance

Fresh air will be supplied and venting installed to the cellar's parking area and utility rooms providing additional controls in the unlikely event of any breach to the barrier layer. As with the barrier layer, the venting systems will be inspected annually to verify that the fans are in good operating condition and the findings documented in a report. The attached Monitoring Plan provides more details on the monitoring, inspection and reporting protocols. The attached Operations and Maintenance Plan provides for regular and managed upkeep of the venting system.

6.0 SCHEDULE

The first inspections and certifications for Engineering Controls will be performed prior to building occupancy. The initial certification will document the construction and proper operation of the venting system and will include as-built drawings for the system.

Subsequent inspections and certifications will occur once a year thereafter until such time as the Environmental Easement is amended or extinguished.