DECISION DOCUMENT

West 29th Street
Brownfield Cleanup Program
New York, New York County
Site No. C231107
July 2019

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

West 29th Street
Brownfield Cleanup Program
New York, New York County
Site No. C231107
July 2019

Statement of Purpose and Basis

This document presents the remedy for the West 29th Street site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the West 29th Street site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve

energy efficiency as an element of construction.

2. Excavation
The existing on-site building(s) will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy.
Excavation and off-site disposal of contaminant source areas, including:

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- non-aqueous phase liquids;
- soil with visual waste material or non-aqueous phase liquid; and
- soil containing total SVOCs exceeding 500 ppm.

Excavation and off-site disposal of all on-site soils which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy.

Approximately 16,000 cubic yards of contaminated soil will be removed from the site.
Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

3. Backfill
On-site soil which does not exceed the above excavation criteria may be used below the cover system described in contingent remedy element 7 to backfill the excavation and establish the designed grades at the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

4. Enhanced Bioremediation
In-situ enhanced biodegradation will be employed to treat residual VOCs and other contaminants in groundwater in an area to be determined following the removal of the source area as described in remedy element 2. The volume, density, application rates, and other design criteria will be determined prior to implementation based on field conditions and in consultation with DEC.

5. Vapor Intrusion Evaluation
As part of the track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

6. Contingent Track 1
The intent of the remedy is to achieve Track 1 unrestricted use; therefore, no environmental easement (EE) or site management plan (SMP) is anticipated. If no EE or SMP is needed to achieve soil, groundwater, or soil vapor remedial action objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code which prohibits potable use of groundwater without prior approval.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial action objectives, the following contingent remedial elements will be required and the remedy will achieve a Track 4 restricted residential cleanup.

7. Cover System
A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

8. Engineering and Institutional Controls
Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum and will include: imposition of a site cover (as a contingency if soil greater than 2 feet but less than 15 feet deep does not meet the site specific SCOs), an environmental easement, and site management plan as described below.

9. Institutional Control
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH and
- require compliance with the Department approved Site Management Plan.

10. Site Management Plan
A Site Management Plan is required, which includes the following:
1. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 9 above.

Engineering Controls: The Cover System discussed in Paragraph 7 above.
This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in

areas of remaining contamination;

- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 7 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
    - monitoring of groundwater to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the Department;
    - monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
- an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
    - maintaining site access controls and Department notification;
    - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting, and;
    - providing the Department access to the site and O&M records.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

july 9, 2019

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

West 29th Street
New York, New York County
Site No. C231107
June 2019

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

New York Public Library - Muhlenberg Library
209 West 23rd Street
New York, NY 10011
Phone: 212-924-1585

Manhattan Community Board District 4
330 West 42nd Street, 26th Floor
New York, NY 10036
Phone: 212-736-4536

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:
The site is located in an urban area at 601 West 29th Street, which includes the addresses 601-609 West 29th Street, 613-617 West 29th Street, 615-635 West 29th Street, and 309 11th Avenue, in the Chelsea section of Manhattan. The site is bound to the north by an auto repair shop, a New York City Department of Sanitation (DSNY) garage, a private parking facility, and West 30th Street, followed by a construction site that is part of the Hudson Yards redevelopment district; to the east by 11th Avenue, followed by residential and commercial uses; to the south by West 29th Street, followed by a Con Edison parking and office facility; and to the west by a private parking facility followed by 12th Avenue and the Hudson River Park.

Site Features:
The site consists of one lot (lot 12); which resulted from a three-lot merger of the former lots 12, 29 and 36, comprising 61,719 square feet (1.42 acres). The site is now vacant. The former lot 12 consists of an asphalt-paved parking lot for the Port Authority of New York and New Jersey, a one-story office and locker room structure for the DSNY, a one-story and a four-story brick building occupied by artist studios and gallery space; former lot 29 consists of a one-story brick and concrete building occupied by an artist studio; and former lot 36, now vacant, consisted of a gasoline station with an auto repair garage, now demolished. This parcel has been subject to a previous cleanup to address a petroleum spill (Spill project #9305598).

Current Zoning and Land Use:
The current zoning designation of the site is M2-3 (manufacturing district). The surrounding area is largely developed with industrial and commercial uses with residential and commercial uses located to the east.

Past Use of the Site:
The site was developed with a lumber yard and an auto house as early as 1890. Between approximately 1911 and 1930, former lot 12 was additionally developed with a smelting and refining works. An asbestos distribution warehouse, freight/transportation businesses, and several gasoline tanks were on-site until the late 1970s. The current DSNY structure was constructed by 1994. Former lot 29 was developed with an iron works between 1890 and 1899, and later replaced by a woodworking and scenery manufacturer in 1911. By 1950, the lot was occupied by Express Depot and contained gasoline tanks. Former lot 29 remained relatively

unchanged through the late 1980s when it included commercial uses; an art gallery was identified as early as 2002. Former lot 36 was historically occupied by a lumber yard and wagon yard until approximately 1927, when a gasoline station was located on the lot. The addition of an auto repair shop was noted in the 1950s. Former Lot 36 remained relatively unchanged through the present-day.

Site Geology and Hydrology:
The site lies at an elevation of approximately 10 to 15 feet above mean sea level and slopes slightly down toward the southwest. Groundwater is 10 to 17 feet below ground surface and is flows in a westerly to northwesterly direction toward the Hudson River, located approximately 520 feet west of the site. Historic fill material (comprised of sand and silt, with varying amounts of brick, plastic, wood, concrete, gravel, and asphalt) was observed in the soil borings between just below surface grade down to approximately 10 to 15 feet below grade. The fill material was underlain by sand and silt down to approximately 20 feet below grade.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

ethylbenzene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
dibenz[a,h]anthracene
benzene
toluene
isopropylbenzene
1,1 dichloroethene
2,2,4-trimethylpentane
butane
cyclohexane
trichloroethene (TCE)
lead

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination: Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern for the site are metals and polycyclic aromatic hydrocarbons (PAHs) typical of historic fill.

Soil - PAHs and/or metals were found at all depths sampled across the site (0-15 feet bgs) with exceedances of restricted residential use soil cleanup objectives (RRSCOs) found at all depths. Several PAHs were identified exceeding RRSCOs, including, but not limited to: benzo(a)anthracene was detected up to 32.9 parts per million (ppm) (RRSCO is 1 ppm), benzo(a)pyrene up to 29.1 ppm (RRSCO is 1 ppm), benzo(b)fluoranthene up to 38.3 ppm (RRSCO is 1 ppm), and dibenzo(a,h)anthracene up to 4.41 ppm (RRSCO is 0.33 ppm). Metal exceedances include, but are not limited to: lead up to 839 ppm (RRSCO is 400 ppm). Total PCBs were detected up to 1.83 ppm exceeding the RRSCO of 1 ppm. There were no VOCs or pesticide exceedances of RRSCOs. The highest exceedances of SVOCs were in the central portion of former lot 12. Data does not indicate any off-site impacts in soil related to this site.

Groundwater - Petroleum-related VOCs were detected above groundwater standards including, but not limited to, the following: benzene at 21 parts per billion (ppb, standard is 1 ppb), ethylbenzene at 21 ppb (standard is 5 ppb), toluene at 5.8 ppb (standard is 5 ppb) and isopropylbenzene at 8.7 ppb (standard is 5 ppb.) The highest detections were localized to the northwest corner of former lot 36.

Soil Vapor - VOCs were detected in soil vapor on the site at as follows: tetrachloroethylene (PCE) was detected at 140 micrograms per cubic meter (ug/m^3), tetrachloroethene at 140

ug/m^3, tricholoroethene at 150 ug/m^3, 1,1-dichloroethene at 340 ug/m^3, cyclohexane at 1,700,000 ug/m^3, butane at 710,000 ug/m^3 and 2,2,4-trimethylpentane at 6,8000,000 ug/m^3. Data does not indicate any off-site impacts in soil vapor related to this site.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site related contaminants due to soil vapor intrusion does not represent a current concern. Furthermore, environmental sampling indicates soil vapor intrusion is not a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Contingent Track 1 remedy.

The selected remedy is referred to as the Excavation with Enhanced Bioremediation remedy.

The elements of the selected remedy, as shown in Figures 3A and 3B, are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at

a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy.

Excavation and off-site disposal of contaminant source areas, including:

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- non-aqueous phase liquids;
- soil with visual waste material or non-aqueous phase liquid;
- soil containing total SVOCs exceeding 500 ppm; and

In addition to addressing source areas, as noted above, excavation and off-site disposal of all on-site soils which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy.

Approximately 16,000 cubic yards of contaminated soil will be removed from the site.

Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

3. Backfill

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in contingent remedy element 6 to backfill the excavation and establish the designed grades at the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

4. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat residual VOCs and other contaminants in groundwater in an area to be determined following the removal of the source area as described in remedy element 1. The volume, density application rates, and other design criteria will be determined prior to implementation based on field conditions and in consultation with DEC.

5. Vapor Intrusion Evaluation

As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

6. Contingent Track 1

The intent of the remedy is to achieve Track 1 unrestricted use; therefore, no environmental easement (EE) or site management plan (SMP) is anticipated. If no EE or SMP is needed to achieve soil, groundwater, or soil vapor remedial active objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code which prohibits potable use of groundwater without prior approval.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial action objectives, the following contingent remedial elements will be required and the remedy will achieve a Track 4 restricted residential cleanup.

7. Cover System
A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

8. Engineering and Institutional Controls
Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum and will include: imposition of a site cover (as a contingency if soil greater than 2 feet but less than 15 feet deep does not meet the Site Specific SCOs), an environmental easement, and site management plan as described below.

9. Institutional Control
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH and
- require compliance with the Department approved Site Management Plan.

10. Site Management Plan
A Site Management Plan is required, which includes the following:

o an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 9 above.

Engineering Controls: The Cover System discussed in Paragraph 6 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
    - monitoring of groundwater to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the Department;
    - monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
- an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
    - maintaining site access controls and Department notification;
    - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting, and;
    - providing the Department access to the site and O&M records.

Map Source: USGS Topo base map service from The National Map

LEGEND

BOUNDARY OF BLOCK 675, LOT 12

0 800 1,600

SCALE IN FEET

AKRF

440 Park Avenue South, New York, NY 10016

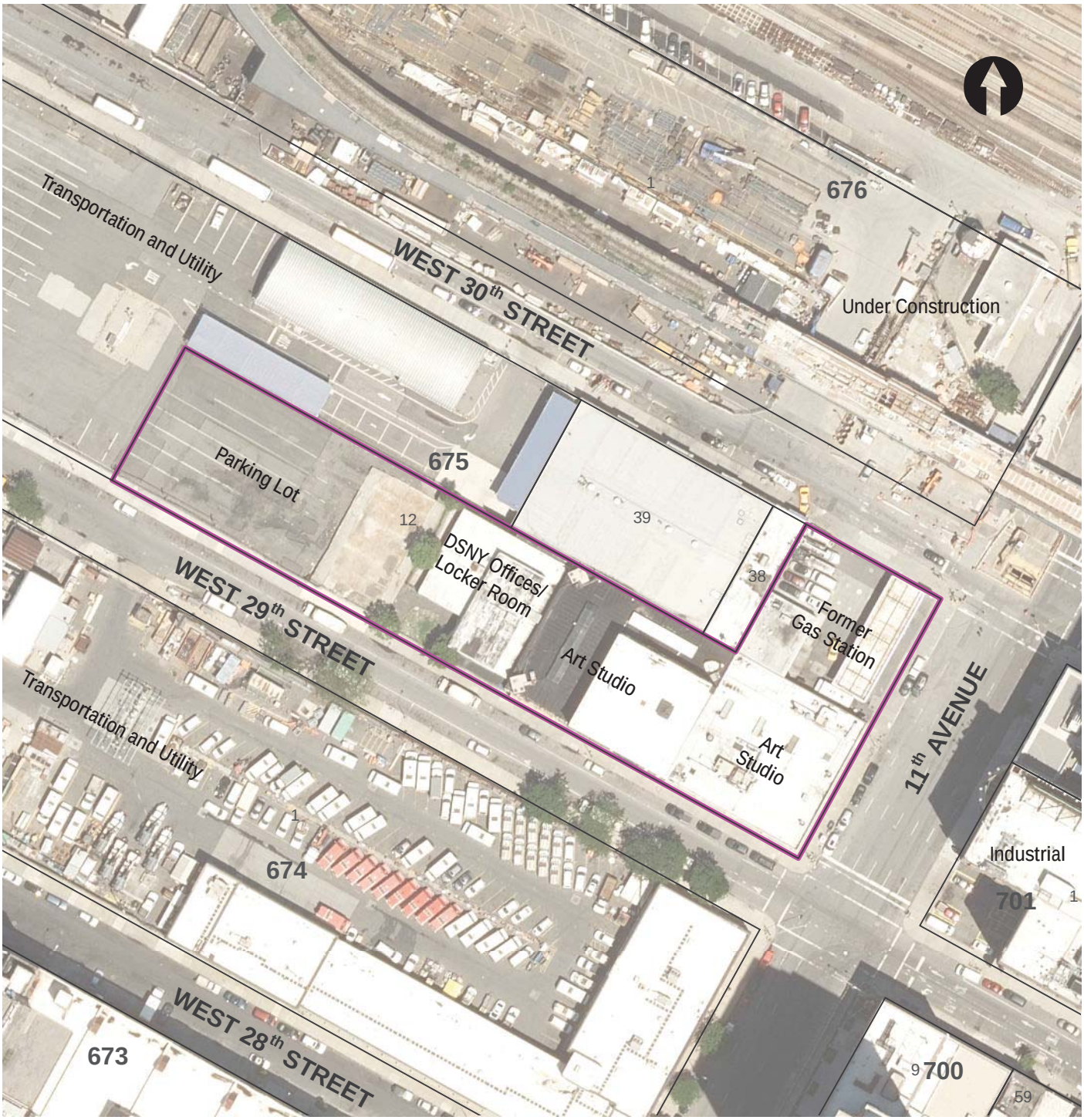
601 West 29th Street
Manhattan, New York

SITE LOCATION

DATE
3/29/2018

PROJECT NO.
170087

FIGURE
1



LEGEND

PROJECT SITE BOUNDARY

12 CURRENT LOT BOUNDARY AND TAX LOT NUMBER

675 TAX BLOCK NUMBER

Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database

Aerial Source:
2014 New York Statewide Digital Orthoimagery

0 100 200

SCALE IN FEET

AKRF

440 Park Avenue South, New York, NY 10016

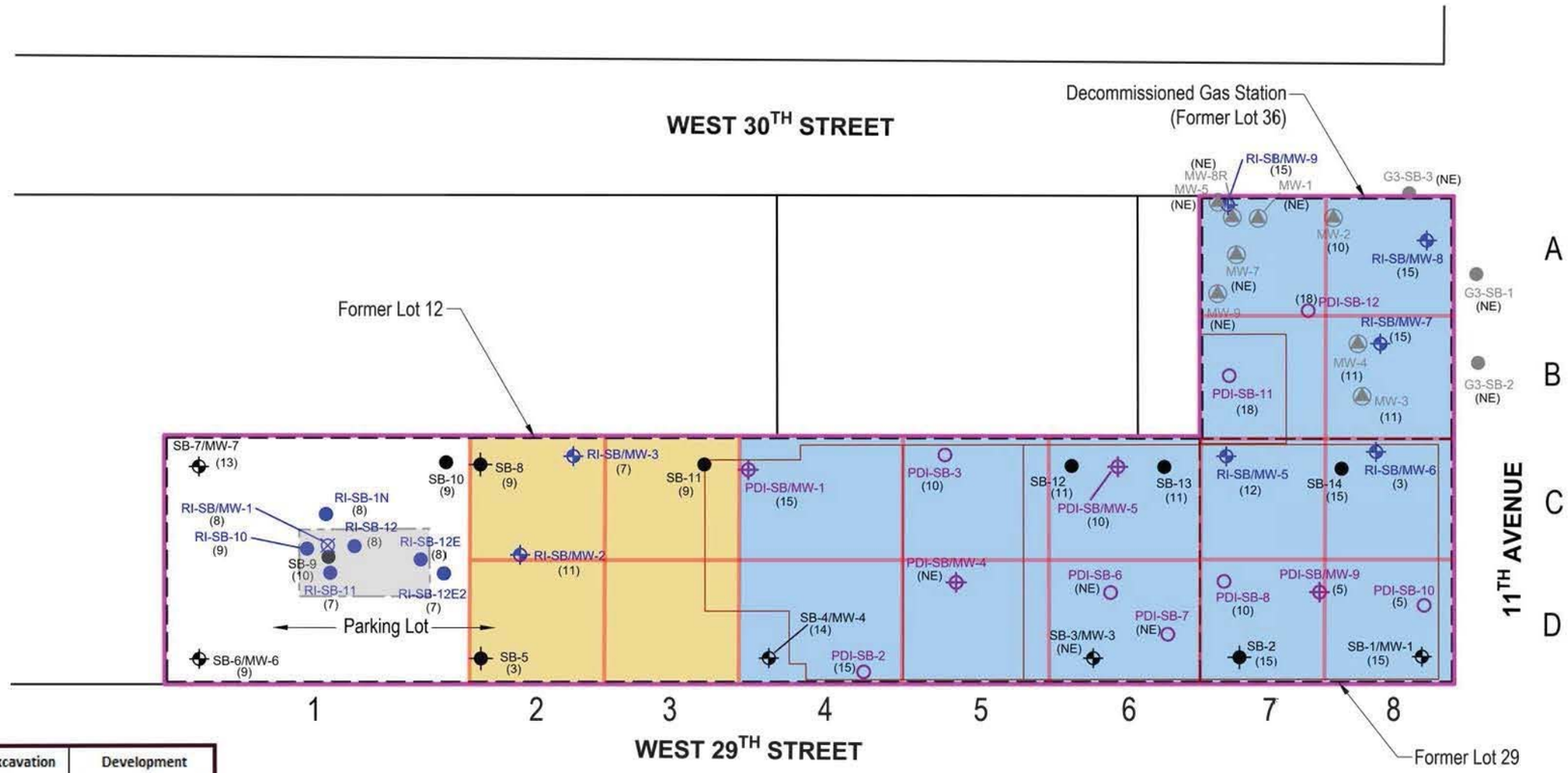
601 West 29th Street
Manhattan, New York

SITE PLAN

DATE
3/29/2018

PROJECT NO.
170087

FIGURE
2



Grid	Remedial Excavation Depth [1]	Development Excavation Depth [1]
A8	15	18
A7	15	18
B8	12	18
B7	18	18
C8	10	15
C7	12	15
D8	10	15
D7	10	15
C6	11	15
D6	NO REMEDIAL EXCAVATION	11
C5	10	15
D5	NO REMEDIAL EXCAVATION	11
C4	15	11
D4	15	11
C3	3	2
D3	3	2
C2	3	2
D2	3	2
C/D1	15 - PETROLEUM HOTSPOT EXCAVATION	NO EXCAVATION PROPOSED

Notes:
1. Depth in feet below sidewalk grade.

LEGEND

- PROJECT SITE BOUNDARY
- FORMER LOT BOUNDARY
- BUILDING
- PROPOSED CELLAR
- PROPOSED PARKING GARAGE
- SOIL BORING LOCATION (JUNE 2017)
- SOIL BORING/MONITORING WELL LOCATION (JUNE 2013)
- SOIL BORING LOCATION (JUNE 2013)
- SOIL BORING/MONITORING WELL LOCATION (FEBRUARY 2005)
- SOIL BORING LOCATION (FEBRUARY 2005)
- RI SOIL BORING LOCATION (JULY 2018)
- RI SOIL BORING/TEMPORARY MONITORING WELL LOCATION (JULY 2018)
- RI SOIL BORING/PERMANENT MONITORING WELL LOCATION (JULY 2018)
- PDI SOIL BORING LOCATION
- PDI SOIL BORING/TEMPORARY MONITORING WELL LOCATION
- (15) DEPTH IN FEET BELOW SIDEWALK GRADE OF THE DEEPEST EXCEEDANCE OF THE NYSDEC UUSCOs AND/OR RRSCOs (NE = NO EXCEEDANCE OF THE UUSCOs AND/OR RRSCOs.
- APPROXIMATE EXTENT OF PETROLEUM HOTSPOT

0 30 60 120
SCALE IN FEET

Map Source:
NYCDCP (NYC Dept. of City Planning 2015) GIS database.

AKRF
440 Park Avenue South, New York, N.Y. 10016

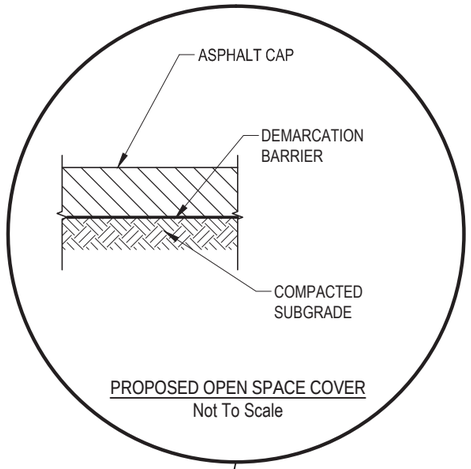
601 West 29th Street
Manhattan, New York

SELETCED REMEDY

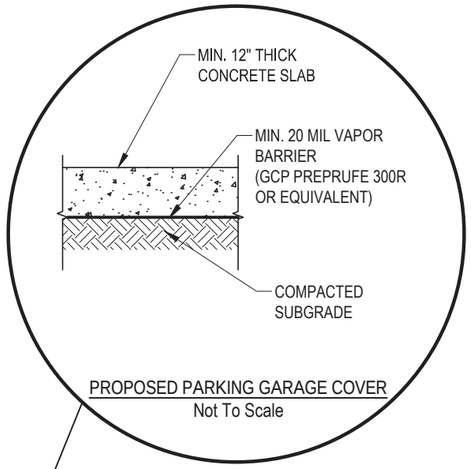
DATE
4/15/2019

PROJECT NO.
170087

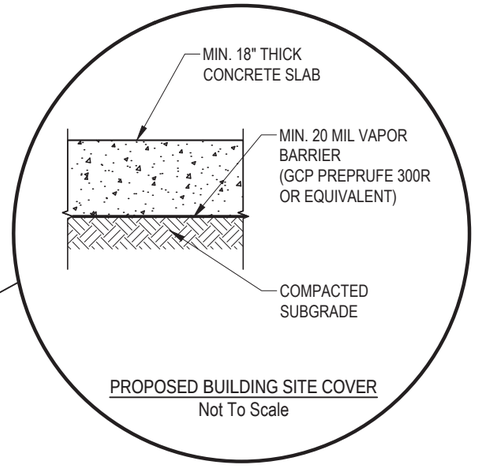
FIGURE
3A



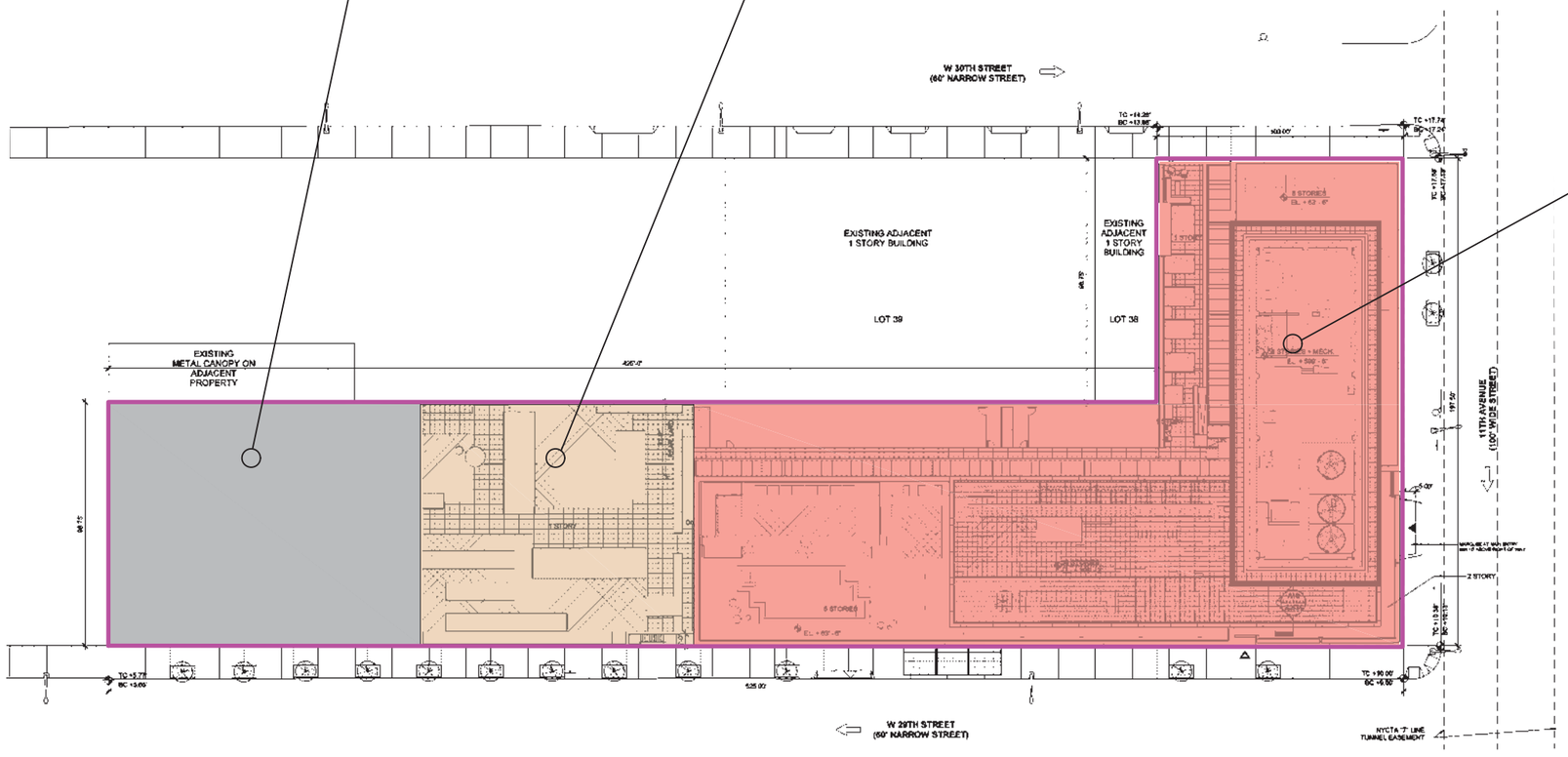
PROPOSED OPEN SPACE COVER
Not To Scale



PROPOSED PARKING GARAGE COVER
Not To Scale



PROPOSED BUILDING SITE COVER
Not To Scale



LEGEND

PROJECT SITE BOUNDARY

PROPOSED NEW BUILDING SLAB

0 30 60 120

SCALE IN FEET

SOURCE:

FXCOLLABORATIVE ARCHITECTS "SITE PLAN, ABBREVIATIONS & SYMBOLS", DRAWING No. A-001, DATED 11-17-17 (CD PROGRESS SUBMISSION 09-21-2018).

AKRF
440 Park Avenue South, New York, N.Y. 10016

601 West 29th Street
Manhattan, New York

CONTINGENT SELECTED REMEDY

DATE
11/5/2018

PROJECT NO.
170087

FIGURE
3B