

DECISION DOCUMENT

432 Pearl Street
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915237
September 2013



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

DECLARATION STATEMENT - DECISION DOCUMENT

432 Pearl Street
Brownfield Cleanup Program
Buffalo, Erie County
Site No. C915237
September 2013

Statement of Purpose and Basis

This document presents the remedy for the 432 Pearl 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 432 Pearl 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, maintenance, and monitoring of the remediation 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 gas 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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. SITE COVER

A site cover currently exists (asphalt) on the 432 Pearl Street parcel and will be maintained as

part of the remedy. There are no current plans to remove SVOC soils marginally above commercial SCOs at the 432 Pearl Street parcel. The 267 Franklin Street parcel contains a tenement style apartment building and asphalt paved parking area. These improvements will be maintained to allow for continued restricted residential and commercial use of the site until future redevelopment plans are implemented. Because the multi-use zoning district allows restricted residential use, any site redevelopment will maintain a site cover, which may consist of either structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is required, it will be a minimum of two foot, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. PLUME REDUCTION

Plume reduction will be accomplished by treating the groundwater via in-situ treatment methods such that the groundwater leaving the site has been effectively treated to water quality criteria.

A shallow chlorinated VOC contaminant plume has migrated from the adjoining BCP site C915208 onto this site and further onto downgradient off-site parcels. The current post C915208 IRM shallow groundwater plume area is depicted in Figure 3. Though there is residual chlorinated VOC contamination in the deep groundwater zone at both BCP sites C915208 and C915237 (see Figure 4), no measures to address this residual chlorinated VOC contamination in the deep groundwater zone are proposed.

In-Situ Groundwater Treatment via enhanced natural attenuation of VOCs in groundwater (e.g., microbial inoculation, zero-valent iron, hydrogen release compounds, or a combination thereof) is proposed for site C915208 residual source with a partial extension onto the 267 Franklin Street apartment parcel. Contaminant plume reduction will be accomplished by injecting in-situ treatment materials along a series of injection points 10 to 20 feet in depth along accessible southern and western perimeter areas of this BCP site and along the western perimeter of the 275 Franklin Street parcel of the C915208 BCP site to create a continuous permeable reactive treatment zone (see Figure 5) along the accessible downgradient edges of both BCP sites. The in-situ treatment materials will utilize the same materials used in the source area treatment system at BCP site C915208 to promote enhanced natural attenuation of residual chlorinated VOC contamination in the shallow groundwater zone.

4. VAPOR MITIGATION

The existing SSDS in the existing building will require continued operation until vapor intrusion no longer occurs and is a health threat in this building.

5. INSTITUTIONAL CONTROL

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires 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);

- allows continued restricted residential use of the apartment building and the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- requires compliance with the Department approved Site Management Plan.

6. SITE MANAGEMENT PLAN

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

- a. 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: (ICs) discussed in Paragraph 4.

Engineering Controls: The site cover discussed in Paragraph 2 above, plume reduction discussed in Paragraph 3, and vapor mitigation discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- i. an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
 - ii. a Monitoring Plan to ensure groundwater quality and to assess the performance and effectiveness of the site cover;
 - iii. descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
 - iv. provisions for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
 - v. provisions for the management and inspection of the identified engineering controls;
 - vi. maintaining site access controls and Department notification; and
 - vii. the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
 - i. monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - ii. a schedule of monitoring and frequency of submittals to the Department; and
 - iii. monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required pursuant to item a.iv above.

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.

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

432 Pearl Street
Buffalo, Erie County
Site No. C915237
September 2013

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 repository:

Buffalo and Erie Co. Public Library
Attn: Michael Mahaney
1 LaFayette Square
Buffalo, NY 14203
Phone: 716-858-8900

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, Voluntary 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 BCP site consists of two non-contiguous parcels in the City of Buffalo, Erie County. The BCP site contains a 0.45 acre parcel located at 432 Pearl Street and a 0.25 acre parcel located at 267 Franklin Street. The two parcels are adjacent to each other, but are separated by Asbury Alley owned by the City of Buffalo. The site is situated in an urban commercial district.

The site is adjacent to BCP site C915208 also owned by the 432 Pearl Street BCP volunteer. The 432 Pearl Street BCP site and the adjacent BCP site are part of a common proposed redevelopment project. See Figure 2.

SITE FEATURES: The 432 Pearl Street parcel is a paved commercial parking lot. The 267 Franklin Street parcel site contains an occupied apartment building with a paved parking lot for the tenants.

CURRENT ZONING/USE: Both non-contiguous parcels that constitute the site are situated in the Downtown Opportunity (DO) zoning district which currently contains a mix of uses including apartment residences, restaurants, retail, entertainment, office and parking. Permitted use in the DO zoning district includes residential, office, (limited) retail, restaurant, hotel and entertainment. The surrounding parcels are currently used for a combination of commercial uses including surface parking, restaurant and entertainment.

PAST USE OF THE SITE: Information concerning the use of both parcels dates back to the late 1800s when the area was predominantly closely spaced urban residential, interspersed with commercial businesses and establishments.

432 Pearl Street: In the late 1800s, the northern half of the parcel consisted of four separate lots with residential buildings facing Pearl Street and carriage sheds facing Asbury Alley. By the 1940s, one of the residences was demolished and converted to a surface parking lot. The balance of these residences were demolished in subsequent years and also converted to surface parking lots. No known date concerning the demolition of the residences and conversion to parking lots is available or provided. Continuing southward along this parcel, in the late 1800s, two lots also contained residences and two lots contained apartment/rooming houses. By the mid 1920, the two residences were replaced by a retail commercial building (record use indicates that a heating equipment company occupied the building). By the 1940s, the commercial building and apartment/rooming houses were demolished and converted to surface parking.

267 Franklin Street: In the late 1800s through 1926, land use consisted of two separate

apartment buildings on this parcel. The northern half of the 267 Pearl Street parcel contained a residential apartment building facing Franklin Street. The apartment building appears to have been demolished between 1925 and 1946. No other land use for the former apartment building lot other than as a parking lot appears to have occurred after 1946. The southern half of the parcel contains the current tenement style apartment building which remains actively used as an occupied apartment building. Tenant parking is provided on the northern half of the site that contained the former apartment building.

According to the BCP application, future development plans for the site, in conjunction with BCP site C915208, consists of a hotel with conference and parking facilities.

SITE GEOLOGY/HYDROGEOLOGY:

Overburden: The site is located within the Erie-Ontario lake plain physiographic province, which is typified by little topographic relief and gentle slope toward Lake Erie, except in the immediate vicinity of major drainage ways. The surficial geology of the Lake Erie plain generally consists of a thin glacial till layer, glaciolacustrine (lake-laid laminated silts and clays) deposits, alluvium, and soils derived by these deposits. Glacial till deposits were not encountered at the site except for a thin layer (1 to 2 feet thick) above limestone bedrock. The site geology consists of a lake-laid sandy ridge deposit about 40 to 45 feet thick with several interbedded silty clay lenses. The 432 Pearl Street parcel is covered by a thin soil/fill layer approximately 2 to 5 feet thick. The fill is characteristic of urban fill common in the City of Buffalo.

Bedrock: The site is situated over the Onondaga formation limestone. Limestone bedrock was encountered about 52 feet below the surface.

Hydrogeology: Unconfined shallow groundwater was encountered within the native soils at depths of approximately 10 to 12 feet below ground surface. Because of a silty clay soil lens within the sandy soil profile found at a depth of approximately 25 to 30 feet below ground surface, the site has a defined shallow and deep groundwater zone. The deep groundwater hydrostatic surface is nominally below the shallow groundwater surface. Site groundwater flow gradient (shallow and deep) appears to flow in a south/southwest direction. Regional groundwater appears to flow west/southwest toward Lake Erie and confluence of the Buffalo River.

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(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do 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
- indoor air
- sub-slab 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:

TETRACHLOROETHYLENE (PCE) TRICHLOROETHENE (TCE)

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

- groundwater
- soil vapor intrusion
- indoor air

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.

An RI commenced in this site and adjoining BCP site C915208 in late 2006. Results from this work revealed chlorinated solvents commonly used by dry cleaners (tetrachloroethene [PCE]) in soils up to 20,000 microgram/kilogram (ug/kg) PCE and shallow groundwater up to 19 parts per million (ppm) PCE at adjoining the BCP site C915208 parcel 275-277 Franklin St. The water quality standard for PCE is 0.005 ppm. The source area in shallow groundwater contamination appears to be centered around MW-5 on BCP site C915208. Investigation of the 267 Franklin Street parcel initially revealed chlorinated solvents in shallow groundwater at levels up to 18 ppm for PCE. The 2006 RI revealed an extensive shallow groundwater contaminant plume located on adjoining companion BCP site C915208 had migrated onto the 267 Franklin Street

parcel, which is situated downgradient of BCP site C915208. The RI results suggest that the 432 Pearl Street parcel is on the fringe of the shallow groundwater contaminant plume emanating from source area (BCP site C915208), and the shallow groundwater contaminant levels were just slightly above the groundwater quality standard (0.005 ppm) for the VOC contaminants of concern. The 267 Franklin Street parcel is immediately downgradient of the source area (BCP site C915208), and as a result, the PCE contaminant levels on site were significantly higher in the shallow groundwater zone (up to 18 ppm prior to the implementation of an IRM). The deep groundwater zone was impacted, but to a lesser degree. Investigation of off-site areas by DEC on adjoining downgradient properties revealed the extensive chlorinated VOC plume extended to the south/southwest.

A supplemental site investigation was conducted in 2008 to develop an IRM for BCP site C915208. An IRM to treat contaminated groundwater via in-situ methods was implemented in 2008 at the adjoining companion BCP site C915208. Because of a silty clay soil lens midway between the surface and bedrock, two distinct groundwater zones exist at the site. The silty clay soil lens has limited some downward migration of the dissolved contamination. However, the 2008 supplemental investigation of companion BCP site C915208 confirmed that deeper groundwater zone is contaminated with the chlorinated solvents, with one deep monitoring well at adjoining companion BCP site C915208 initially containing 9.4 ppm PCE. PCE levels at this monitoring point have dropped to 0.091 ppm PCE during the 2012 sampling event. The 2008 investigation confirmed that the bedrock zone does not appear to be contaminated with chlorinated solvents. An additional investigative boring and deep monitoring well was installed in 2012 at 267 Franklin Street to further assess deep groundwater impacts. Deep groundwater sampling confirmed dissolved chlorinated VOC contamination at levels up to 0.069 ppm total VOCs at this new deep well.

A thin fill layer (3-5 feet) at the 432 Pearl Street parcel contains several SVOCs [benzo(a)anthracene, benzo(b)fluorene, benzo(a)pyrene and dibenzo(a,h) anthracene) at levels slightly above commercial SCOs. There were no exceedances for metals above commercial levels at both parcels.

Because of the extent of the dissolved shallow plume, vapor intrusion (VI) from the chlorinated solvents was a concern with structures on around the BCP site. Prior to the BCP volunteer's acquisition of the apartment building at 267 Franklin Street, a soil VI evaluation was completed by the Department in 2008. The VI evaluation revealed PCE impacts to indoor air quality inside the apartment building. The Department subsequently installed a sub-slab depressurization system (SSDS) inside the apartment building to address VI and reduce indoor air concentrations of PCE. Vapor intrusion was confirmed in another off-site building in 2011 and an SSDS was installed in 2012.

Additional investigations were required to assess off-site impacts, health and safety concerns, the presence of DNAPL, and bedrock aquifer contamination. The Department completed an off-site groundwater evaluation in 2009 which revealed that an elongated PCE plume has migrated in a southwesterly direction across Franklin Street. PCE contamination was revealed primarily in the shallow groundwater zone. Deep groundwater was impacted at one of the off-site monitoring points along Franklin Street. Additional investigation of impacts to downgradient properties and

structures was implemented in 2011 and 2012 and revealed shallow groundwater zone contamination, over 3 ppm for PCE, at another downgradient property along Franklin Street.

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 site is covered with a building and pavement. People are not coming into contact with the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater 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. A sub-slab depressurization system (systems that ventilate/remove the air beneath the building) was installed in the on-site building to prevent the indoor air quality from being affected by the contamination in soil vapor beneath the buildings. The potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development and occupancy.

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.

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.

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 Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Shallow Groundwater Remediation remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. REMEDIAL DESIGN

A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remediation 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 gas 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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. SITE COVER

A site cover currently exists (asphalt) on the 432 Pearl Street parcel and will be maintained as part of the remedy. There are no current plans to remove SVOC soils marginally above commercial SCOs at the 432 Pearl Street parcel. The 267 Franklin Street parcel contains a tenement style apartment building and asphalt paved parking area. These improvements will be maintained to allow for continued restricted residential and commercial use of the site until future redevelopment plans are implemented. Because the multi-use zoning district allows restricted residential use, any site redevelopment will maintain a site cover, which may consist of either structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two foot of exposed surface soil will exceed the applicable

soil cleanup objectives (SCOs). Where a soil cover is required, it will be a minimum of two foot, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. PLUME REDUCTION

Plume reduction will be accomplished by treating the groundwater via in-situ treatment methods such that the groundwater leaving the site has been effectively treated to water quality criteria.

A shallow chlorinated VOC contaminant plume has migrated from the adjoining BCP site C915208 onto this site and further onto downgradient off-site parcels. The current post C915208 IRM shallow groundwater plume area is depicted in Figure 3. Though there is residual chlorinated VOC contamination in the deep groundwater zone at both BCP sites C915208 and C915237 (see Figure 4), no measures to address this residual chlorinated VOC contamination in the deep groundwater zone are proposed.

In-Situ Groundwater Treatment via enhanced natural attenuation of VOCs in groundwater (e.g., microbial inoculation, zero-valent iron, hydrogen release compounds, or a combination thereof) is proposed for site C915208 residual source with a partial extension onto the 267 Franklin Street apartment parcel. Contaminant plume reduction will be accomplished by injecting in-situ treatment materials along a series of injection points 10 to 20 feet in depth along accessible southern and western perimeter areas of this BCP site and along the western perimeter of the 275 Franklin Street parcel of the C915208 BCP site to create a continuous permeable reactive treatment zone (see Figure 5) along the accessible downgradient edges of both BCP sites. The in-situ treatment materials will utilize the same materials used in the source area treatment system at BCP site C915208 to promote enhanced natural attenuation of residual chlorinated VOC contamination in the shallow groundwater zone.

4. VAPOR MITIGATION

The existing SSDS in the existing building will require continued operation until vapor intrusion no longer occurs and is a health threat in this building.

5. INSTITUTIONAL CONTROL

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires 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);
- allows continued restricted residential use of the apartment building and the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- requires compliance with the Department approved Site Management Plan.

6. SITE MANAGEMENT PLAN

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

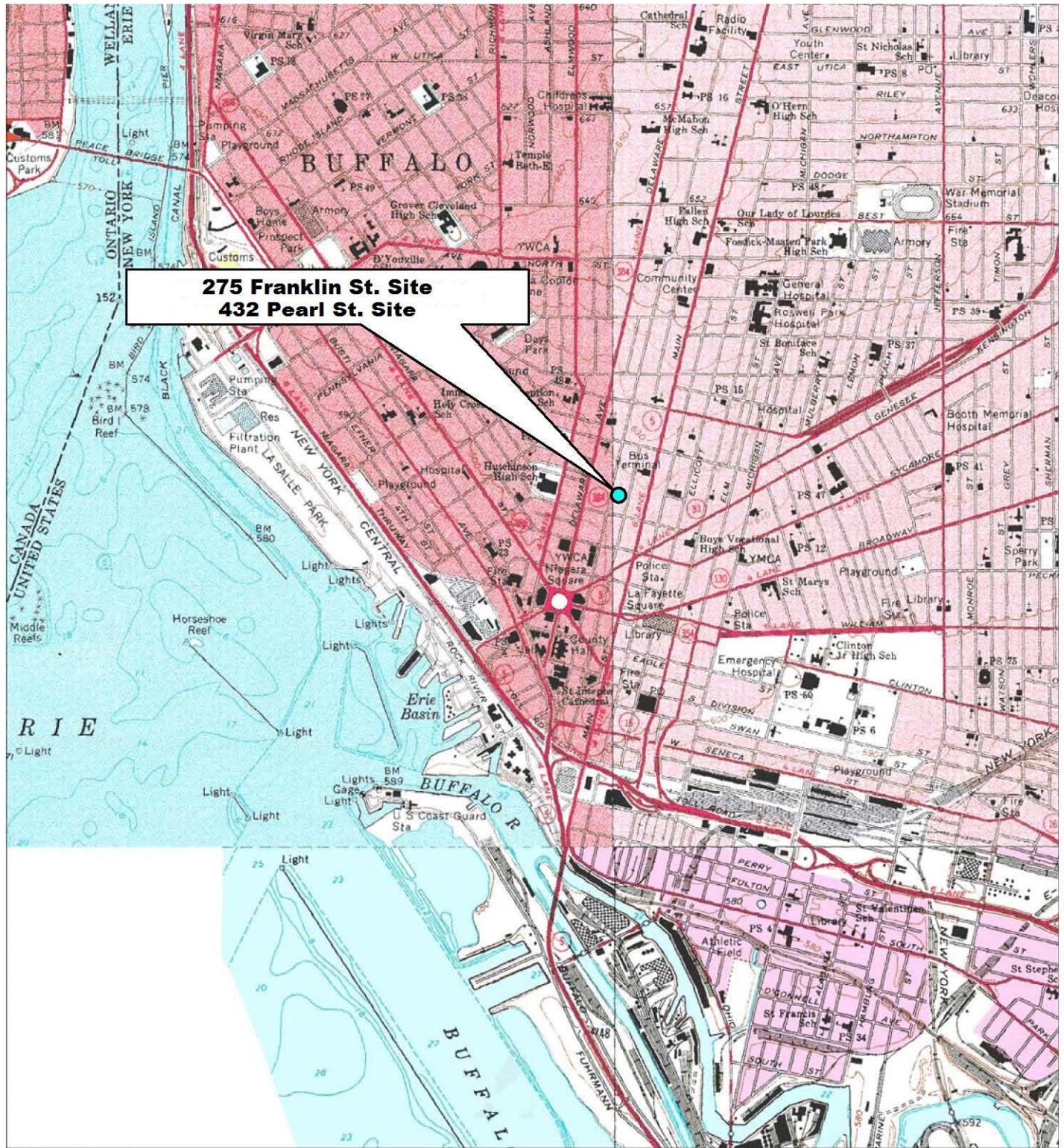
- a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: (ICs) discussed in Paragraph 4.

Engineering Controls: The site cover discussed in Paragraph 2 above, plume reduction discussed in Paragraph 3, and vapor mitigation discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- i. an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
 - ii. a Monitoring Plan to ensure groundwater quality and to assess the performance and effectiveness of the site cover;
 - iii. descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
 - iv. provisions for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
 - v. provisions for the management and inspection of the identified engineering controls;
 - vi. maintaining site access controls and Department notification; and
 - vii. the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
 - i. monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - ii. a schedule of monitoring and frequency of submittals to the Department; and
 - iii. monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required pursuant to item a.iv above.



275 Franklin St. Site
432 Pearl St. Site



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 www.delorme.com



2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NY 14218
 (716) 856-0599

SITE LOCATION AND VICINITY MAP

RI-AA-IRM REPORT
432 PEARL STREET SITE
275 FRANKLIN STREET SITE
 BUFFALO, NEW YORK

PREPARED FOR
BUFFALO DEVELOPMENT CORPORATION

PROJECT NO.: 0156-001-102

DATE: APRIL 2010

DRAFTED BY: BCH



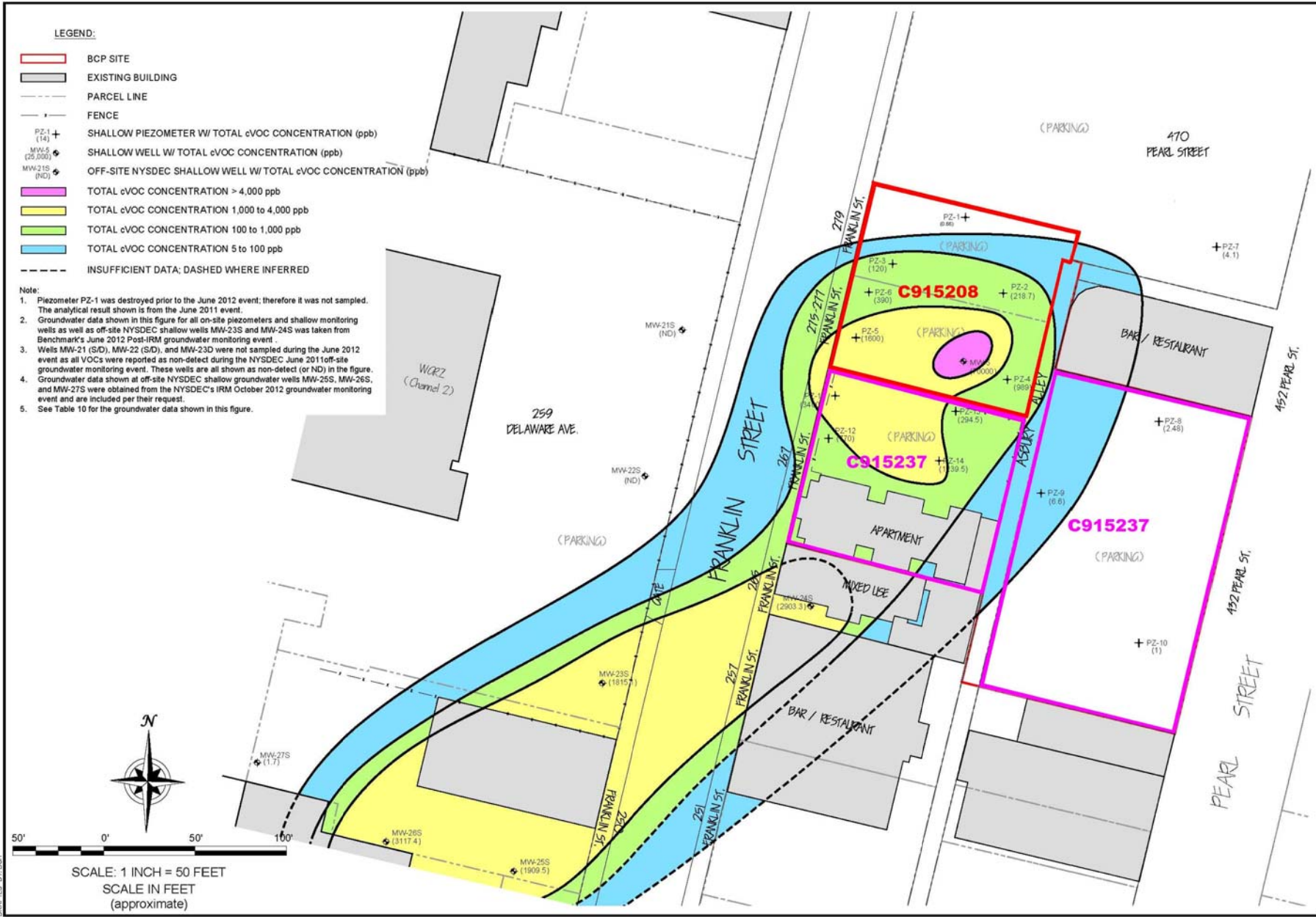
0 15 30 60 90 120 Feet

275-279 Franklin St. Site - DEC BCP Site C915208

432 Pearl Street Site - DEC BCP Site C915237

City of Buffalo, Erie Co.

FIGURE - 2



DATE: JANUARY 2013
PRINTED: BENCHMARK

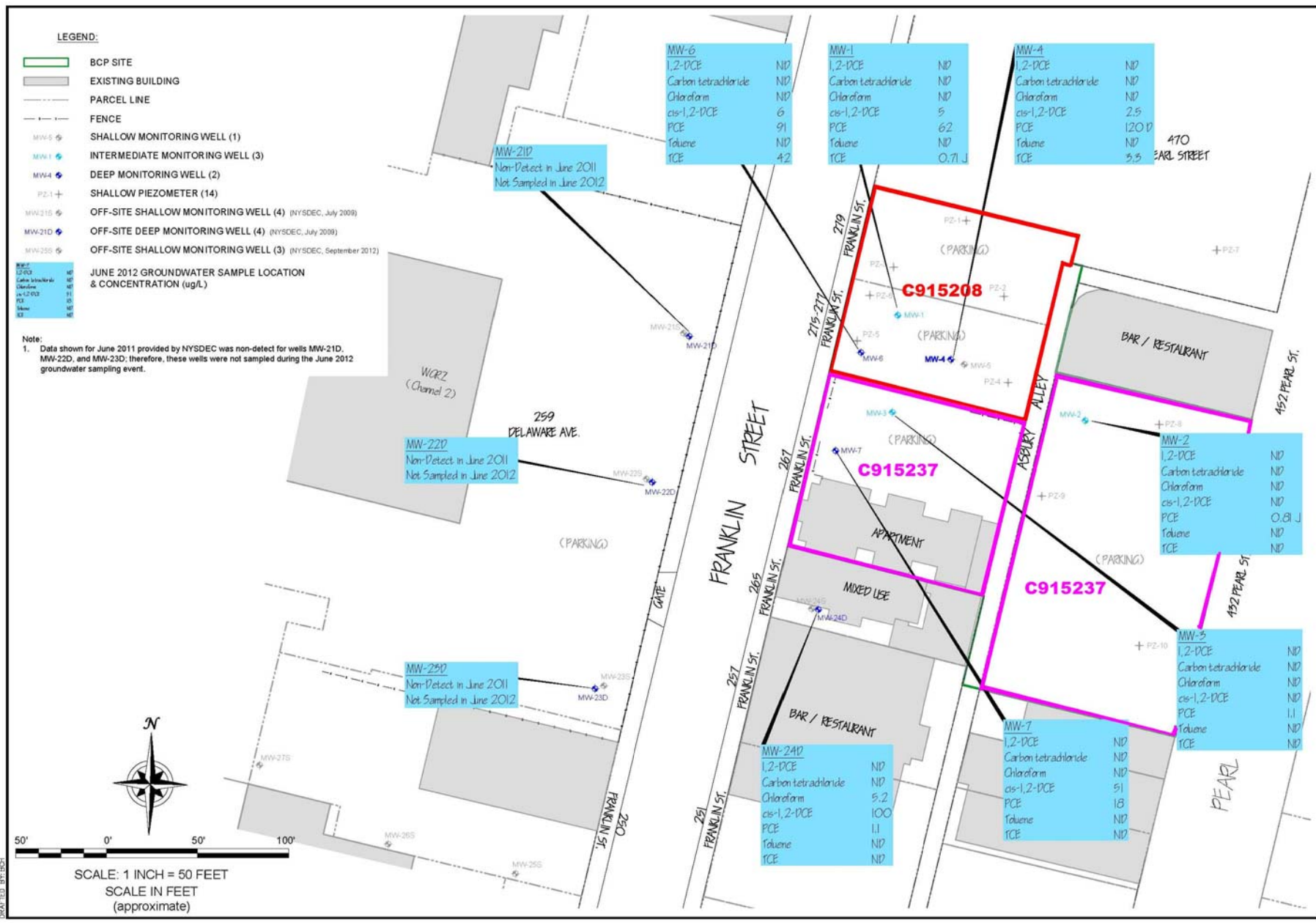
BENCHMARK
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(716) 859-0599

JOB NO.: 0156-001-102

**POST-IRM TOTAL cVOCs IN SHALLOW GROUNDWATER
ISOCONCENTRATION MAP - JUNE 2012**

RI-AA-IRM REPORT
275 FRANKLIN STREET SITE
BCP NO. C915208
BUFFALO, NEW YORK
PREPARED FOR
BUFFALO DEVELOPMENT CORPORATION

Figure 3

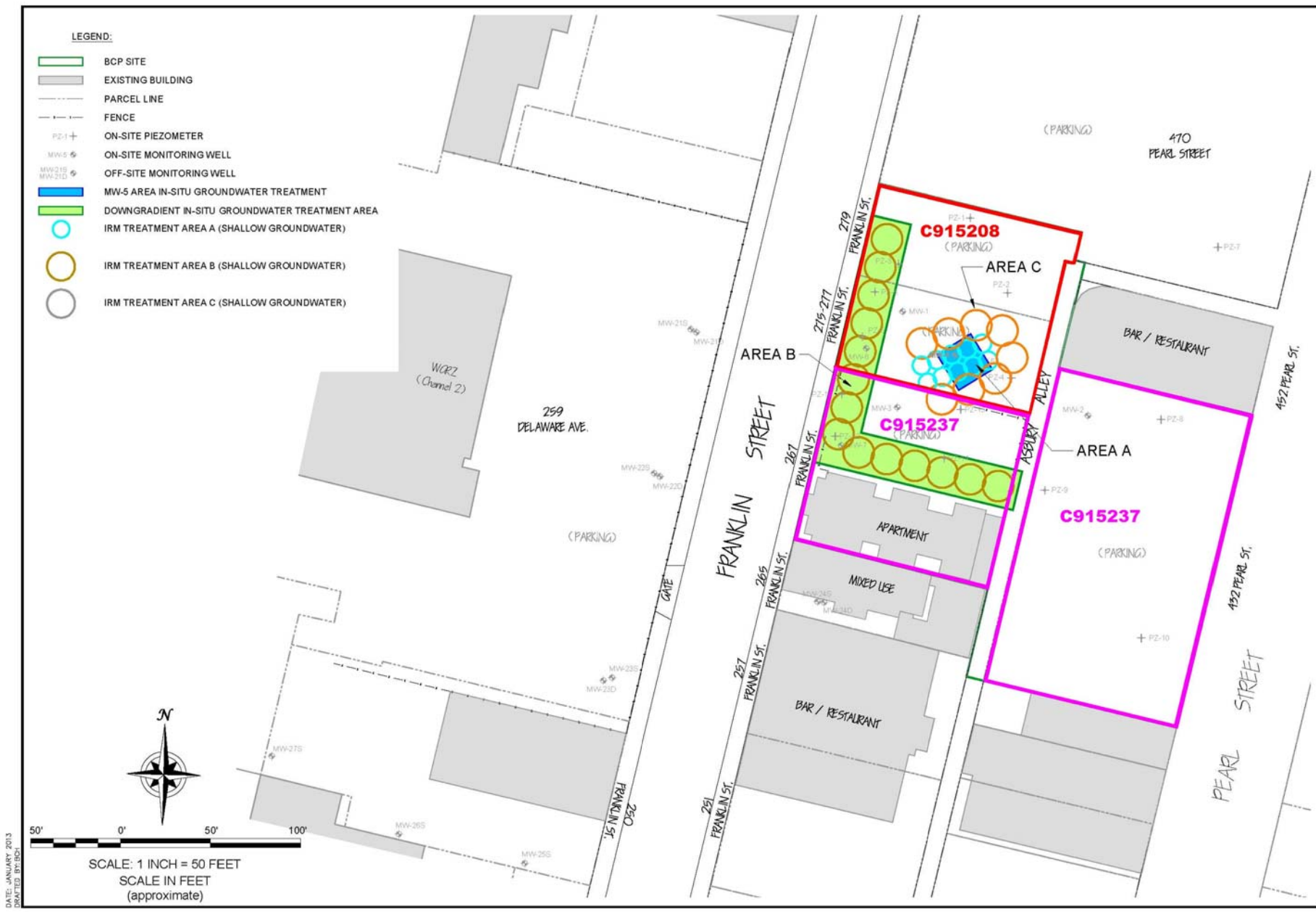


VOCs IN INTERMEDIATE & DEEP GROUNDWATER

RI-AA-IRM REPORT
275 FRANKLIN STREET SITE
BCP NO. C915208
BUFFALO, NEW YORK
PREPARED FOR
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Figure 4

F:\04\Benchmarks\Bulbels_Development\Comp275\Franklin Street Site\RI-AA-IRM Report (Jan 2013)\Figure 18, Proposed Final GWR Remedial Approach (Jan 2013).dwg



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**PROPOSED FINAL
GROUNDWATER REMEDIAL APPROACH**

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Figure 5