Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Niagara Mohawk Johnstown Former Manufactured Gas Plant Site

State Superfund Project

City of Johnstown, Fulton County, New York

Site Number 518020

March 2010

New York State Department of Environmental Conservation

DAVID A. PATERSON, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Niagara Mohawk Johnstown Former MGP
State Superfund Project
City of Johnstown, Fulton County, New York
Site No. 518020

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Niagara Mohawk Johnstown Former Manufactured Gas Plant (MGP) site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law, 6 NYCRR Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Niagara Mohawk Johnstown Former MGP and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

Based on the results of the remedial investigation/feasibility study (RI/FS) for the Niagara Mohawk Johnstown Former MGP site and the criteria identified for evaluation of alternatives, the Department has selected Site Management. The components of the remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Green remediation and sustainability efforts will be considered in the design and implementation of the remedy to the extent practicable, including;
    - using renewable energy sources
    - reducing green house gas emissions
    - encouraging low carbon technologies
    - foster green and healthy communities
    - conserve natural resources
    - increase recycling and reuse of clean materials

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

a) 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);
b) restricts the use of the site, subject to local zoning laws, to:
□ residential use □ restricted residential use √commercial use √industrial use
c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department or NYSDOH;
d) prohibits agriculture or vegetable gardens on the controlled property; and
e) requires compliance with the Department-approved Site Management Plan;

4. Since the remedy results in contamination remaining at the site that does not allow for unrestricted use, 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 assure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls:
Environmental Easement

Engineering Controls:
Sheet pile wall
Monitoring/extraction well
Soil cover system

This plan includes:

i. an excavation plan, which details the provisions for management of future excavations in areas of remaining contamination;
ii. descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
iii. provisions for the management and inspection of the identified engineering controls;
iv. maintaining site access controls and Department notification; and
v. 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:

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. provision to evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 3 0 2010

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

RECORD OF DECISION

Niagara Mohawk Johnstown Former MGP
State Superfund Project
City of Johnstown, Fulton County, New York
Site No. 518020
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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the above referenced site. The disposal of hazardous waste at the site has resulted in threats to public health and the environment that are addressed by this remedy presented in this Record of Decision (ROD). The disposal of hazardous wastes at this site, as more fully described in Sections 5 of this document, have contaminated various environmental media. The remedy, discussed in detail in Section 8, is intended to attain the remedial action objectives identified for this site in Section 6 for the protection of public health and the environment. This ROD identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for the selected remedy. The Department has selected a final remedy for the site after careful consideration of all comments received during the public comment period.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this ROD in accordance with the requirements of 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.

SECTION 2: SITE DESCRIPTION AND HISTORY

2.1: Location and Description

The 0.7 acre Site is located at 105 North Market Street in the City of Johnstown, Fulton County, NY (see Figures 1 & 2). Cayadutta Creek forms the northern boundary of the site. The property is bordered on the east by Market Street, to the south by the Colonial Cemetery, and to the west by a wooded parcel of property. The nearest residential property is across Market Street, roughly 50 yards from the site.

The site is located in a mixed commercial, industrial and residential area. Currently, National Grid operates a natural gas regulator station at the site. The regulator station is located on the site, with equipment contained in fenced enclosures along the site's southern boundary. The rest of the site is grass covered.

The overburden soils at the site can be characterized in descending order as fill and two types of native glacial deposits: a layer of sand, silt, and gravel; and glacial till. Following an Interim Remedial Measure (IRM) that was conducted at the site between 2002 and 2003, fill and the silt, sand and gravel unit are now absent from large portions of the central and northern part of the site and have been replaced by post-IRM fill. During site investigations shale bedrock was reached at two locations underlying the glacial till.

Groundwater depths on-site were observed from approximately five to twenty feet below grade. Groundwater flows northward through the site area toward Cayadutta Creek. No private wells were identified in the vicinity of the site. The City of Johnstown restricts the use of groundwater due to the availability of a public water supply.

2.2: Operational/Disposal History

From approximately 1857 until 1931, a manufactured gas plant (MGP) operated on the site. Manufactured gas, which was used to heat and light Johnstown's homes and businesses, was produced at this site using the coal carbonization and Lowe water gas processes. Manufactured gas by-products were created during the plant operations. Subsequent to the close of the MGP the site remained the location of a gas regulator station, owned by National Grid or its predecessor companies.

2.3: Remedial History

1. Remedial Parties and Program.

In December 1992 Niagara Mohawk entered into an Order on Consent with the Department that required an environmental investigation and, where necessary, remediation of 21 Former MGP sites owned or operated by Niagara Mohawk and its predecessor companies. Included among the 21 sites is the Johnstown (North Market Street) site.

2. Investigation/Actions.

- Preliminary Site Assessment (PSA/IRM) Study completed October 1997
- Supplemental PSA completed November 1998
- Remedial Investigation (RI) completed January 2000
- Supplemental Investigations completed December 2001
- Holder Removal Interim Remedial Measure (IRM) conducted between March 2002 and June 2003
- Bridge IRM conducted between August 2005 and November 2006

- Supplemental RI completed March 2008
- Subsequent Groundwater Sampling conducted between July 2008 and March 2009
- Cayadutta Creek Bank Restoration IRM Site conducted August 2009

SECTION 3: LAND USE

The Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings when assessing the nature and extent of contamination. For this site alternatives that may restrict the use of the site to commercial criteria as described in Part 375-1.8(g) are being evaluated in addition to unrestricted SCGs because, the Niagara Mohawk Johnstown Former MGP site is currently the location of an active gas regulator, which is operated by National Grid and the site is presently zoned for commercial use by the City of Johnstown. Further, the site is located in a mixed commercial, industrial, and residential area. Therefore, the Department will evaluate the commercial SCGs found in Part 375-6.8(b) in assessing the nature and extent of contamination.

A comparison of the appropriate SCGs for the identified land use against the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in section 5.1.2.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The Department and Niagara Mohawk Corporation (acquired by and now referred to as National Grid) entered into Consent Orders on December 7, 1992 and November 7, 2003. The Orders obligate the responsible parties to implement a full remedial program.

SECTION 5: SITE CONTAMINATION

A remedial investigation has been conducted to determine the nature and extent of contamination and to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the Remedial Investigation (RI) was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between December 1999 and March 2008. The field activities and findings of the investigation are described in the Supplemental RI Report.

The following general activities are conducted during an RI:

- research of historical information,
- survey of residential water supply wells,
- geophysical survey to determine the lateral extent of wastes,
- test pits, soil borings, and monitoring well installations,
- sampling of waste, surface and subsurface soils, and groundwater
- sampling of surface water and sediment, groundwater,
- ecological and Human Health Exposure Assessments.

5.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform with 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 surface and subsurface soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in the following Sections list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI Report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the Remedial investigation. As described in the RI report, waste/ source materials were identified at the site and are impacting groundwater and/or soil.

Waste/Source Areas

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium.

Wastes and source areas were identified at the site within the former MGP structures. Coal tar and other MGP wastes were found within several former MGP subsurface structures including two gas holders. The coal tar was found to be migrating along the top of the till layer across the site.

Some NAPL, which contains benzene, toluene, ethylbenzene, and xylene (BTEX) and PAHs, remains in the remaining portion of former Holder #3 (i.e., greater than four to five feet bgs), which was unable to be excavated during the 2002-2003 IRM due to its proximity to the active gas regulator and colonial cemetery. Localized NAPL impacts also remain beneath North Market Street. The depth of the localized impacts, which is approximately 17 feet, the existence of utilities, and

limited thickness of these impacts makes the excavation of the NAPL technically impractable. The extent of NAPL contamination remaining at the site is shown on Figures 3 and 4.

Certain of the waste/source areas identified at the site were addressed by the IRM(s) described in Section 5.2. The remaining waste/source area(s) identified during the RI will be addressed in the remedy selection process.

This section describes the findings for all environmental media that were evaluated. As described in the Supplemental RI report, groundwater, soil, surface water, and sediment samples were collected to characterize the nature and extent of contamination.

For each media, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into three categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics (metals). For comparison purposes the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCG identified in Section 3 is also presented.

Groundwater

Groundwater samples were collected from overburden monitoring wells. The samples were collected to assess groundwater conditions on and off-site. The results indicate that contamination in groundwater at the site exceeds SCGs for volatile organic compounds (VOCS), semi-volatile organic compounds (SVOCs) and inorganics. The highest contaminant levels in groundwater were found in the central portion of the site. No site related contamination was detected north of Cayadutta Creek.

Table 1 - Groundwater				
Detected Constituents		Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs	Benzene	ND - 2600	1	37/64
	Ethylbenzene	ND - 1400	5	20/64
	Toluene	ND - 1600	5	18/64
	Xylene (Total)	ND - 2020	5	28/64
SVOCs	Acenaphthene	ND - 170	20	19/64
	Anthracene	ND - 150	50	2/64
	Benzo(a)anthracene	ND - 34	0.002	38/64
	Benzo(a)pyrene	ND - 36	0.001	37/64
	Benzo(b)fluoranthene	ND - 18	0.002	36/64
	Benzo(k)fluoranthene	ND - 19	0.002	34/64
	Chrysene	ND - 44	0.002	38/64
	Fluoranthene	ND - 140	50	3/64
	Fluorene	ND - 220	50	11/64
	Indeno(1,2,3-cd)pyrene	ND - 15	0.002	32/64
	Naphthalene	ND - 7300	10	28/64
	Phenanthrene	ND - 470	50	11/64
	Pyrene	ND - 160	50	3/64
Metals	Lead	ND - 317	25	9/64
	Cyanide	ND – 1.35	0.2	27/64

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary groundwater contaminants are benzene, toluene, ethylbenzene, and xylene (BTEX), less significant are the polycyclic aromatic hydrocarbons (PAHs), lead, and cyanide associated with operation of the former manufactured gas plant. As noted on Figure 5, the primary groundwater contamination is associated with the portion of the former holder under the regulated station located on the south/central portion of the site and the residual soil contamination at depth in the north/central

portion of the site, remaining after the IRM. The results of the last four groundwater sampling rounds indicate biodegradation of BTEX compounds is likely occurring.

Based on the findings of the RI, the disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: BTEX, PAHs, lead and cyanide.

Soil

Subsurface soil samples were collected at the site following the 2002-2003 IRM and during the RI. During the IRM, soil samples were collected from the bottom of the excavations, which ranged from 5 to 30 feet. During the RI subsurface soil samples were collected from a depth of 12 to 24.8 feet. The results indicate that soils at the site exceed the unrestricted SCG for VOCs, SVOCs and metals.

Table 2 - Soil – Post IRM

Detected Constituents		Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs	Benzene	ND – 8.06	0.06	24/31	44	0/31
	Ethylbenzene	ND – 14.4	1	17/31	390	0/31
	Toluene	ND – 10.1	0.7	9/31	500	0/31
	Xylene (total)	ND – 14.7	0.26	21/31	500	0/31
SVOCs	Acenaphthene	ND - 76	20	3/17	500	0/17
	Benzo(a)anthracene	ND – 47	1	7/17	6	5/17
	Benzo(a)pyrene	ND -37	1	6/17	1	6/17
	Benzo(b)fluoranthene	ND - 22	1	5/17	6	4/17
	Benzo(k)fluoranthene	ND -25	0.8	6/17	56	0/17
	Indeno(1,2,3-cd)pyrene	ND – 20	0.5	2/17	6	4/17
	Chrysene	ND - 42	1	7/17	56	0/17
	Dibenzo(a,h)anthracene	ND – 5.3	0.33	4/17	1	4/17
	Fluoranthene	ND - 110	100	1/17	500	0/17
	Fluorene	ND - 88	30	3/17	500	0/17
	Naphthalene	ND – 480	12	5/17	500	0/17
	Phenanthrene	ND - 240	100	3/17	500	0/17

	Pyrene	ND - 120	100	2/17	500	0/17
	Total SVOCs	3.59 -1488			500	3/17
	Lead	2.6 – 92.7	63	1/2	1000	0/2

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Commercial Soil Cleanup Objectives.

Soil contamination identified during the RI was addressed during the IRM described in Section 5.2. However, soil contamination remains at depth in the central/northern area of the site in the vicinity of monitoring well MW-15 where excavation could not be completed due to difficulties with the construction of the sheet pile wall supporting excavation (Figure 6). The remaining low-level BTEX and PAH soil contamination will be addressed by the remedy selection process.

Surface Water

Surface water samples were collected from Cayadutta Creek as part of the RI in January 2000. Three surface water samples were collected. VOCs, SVOCs and cyanide were not detected in any of the three surface water samples. Lead was detected in two of the three surface water samples marginally above the NYSDEC water quality standard.

Table 3 - Surface Water

Detected Constituents		Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Metals	Lead	ND - 4	Hardness Dependent: 2.82 - 2.85	2/3

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b-SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6NYCRR Part 703: Surface Water and Groundwater Quality Standards.

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

Sediment samples were collected from Cayadutta Creek during the RI from the shallow sediment horizon (0-6" and 0-2') and the deep sediment horizon (3 -7') at locations upstream, adjacent to and downstream of the site along the Cayadutta Creek. The samples were collected to assess the potential for impacts to the creek sediment from the site. The results indicate that sediment in the Cayadutta Creek exceed the Department's SCGs for sediments for lead, VOCs and SVOCs. The most prevalent compounds exceeding the criteria within the sediments were PAHs. However, given the urban character of a significant portion of the Cayadutta Creek drainage basin upstream of the site and the historic presence within that basin of many industrial facilities, elevated PAH levels are to be anticipated throughout the creek. While the site may be one of the historic sources, the overall PAH contamination of the creek sediments can be attributed to a number of sources. The concentrations of total BTEX and total PAH compounds in sediment samples are shown on Figure 7.

Table 4 - Sediments

Detected Constituents		Concentration Range Detected (ppm)[a]	SCG[b]	Frequency Exceeding SCG	Site Derived Value [c] (ppm)	Frequency Exceeding Site Derived
VOCs	Benzene	ND – 0.187	0.6 ug/gOC		0.00066 – 1.26	3/18
	Toluene	ND - 0.006	49 ug/gOC		0.065 – 2.87	0/18
	Ethylbenzene	ND – 0.4	24 ug/gOC		0.026 – 2.59	2/18
	Xylene (Total)	ND – 0.33	92 ug/gOC		0.101 – 10.16	1/18
SVOCs	Total PAHs	0.18 - 46	4 ppm	8/18		
Metals	Lead	11 - 2010	LEL[d] – 31 ppm SEL[d] – 110 ppm	9/18 2/18		

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;
b - SCG: The Department's "Technical Guidance for Screening Contaminated Sediments."
c – Site Derived Value: Equilibrium Partioning is used to derive the organic carbon normalized sediment criterion. The concentration of organic carbon in the sediment at the site is used to apply the organic carbon normalized sediment criterion on a site specific basis.
d – LEL = Lowest Effects Level and SEL = Severe Effects Level. A sediment is considered to be contaminated if either of these criteria is exceeded. If both criteria area exceeded, the sediment is severely impacted. If only the LEL is exceeded, the impact is considered to be moderate.

While some site-related sediment contamination was identified during the RI, for the reasons discussed above, no remedial alternatives need to be evaluated for sediment.

5.2: 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 Record of Decision.

Based on the initial results of the RI activities conducted between 1997 and 2000 it was determined that MGP-impacted source material existed within the former holders at the site. An IRM was conducted between 2002 and 2003 to remove the former holders and associated contaminated soil (Figure 8). During this IRM former Holder No. 2 and the northern half of former Holder No. 3 were demolished and removed from the site. The southern portion of Holder No. 3, which is greater than four to five feet bgs was not removed during this IRM due to proximity to the old stone cemetery wall, the Colonial Cemetery, the regulator station and subsurface piping. Approximately 13,870 cubic yards of soil were excavated and disposed off-site, and approximately 6,640 cubic yards of soil were excavated and subsequently re-used as backfill on the site. Permanent steel sheeting was left in place along the northeastern perimeter of the site to avoid disturbance of the roadway and to provide containment of residual material left at depth. Site restoration activities included grading the creek shoreline, stabilizing it with riprap cover placed over a geo-textile fabric on the lower half of the

slope adjacent to the creek, and fitting the upper half of the slope farther from the Creek with a polyethylene erosion control mat. A 4 foot clean soil cap and underlying demarcation layer was installed on the site.

Following the holder removal IRM, an additional IRM was conducted at the site between 2005 and 2006. During this IRM National Grid provided support to the City of Johnstown for subsurface work associated with the replacement of the North Market Street Bridge across Cayadutta Creek. The IRM consisted of the installation of a sheet pile cofferdam around the existing bridge, followed by sequential demolition of former bridge elements and excavation of MGP-related soils within the cofferdam area and down to approximately 1-foot below the bottom of the new bridge footing elevation. Approximately 1,413 cubic yards of contaminated soil was excavated from within the cofferdam area and disposed off-site. See Figure 9.

In August 2009 an additional IRM was completed at the site to restore vegetation along the southern creek bank of Cayadutta Creek at the locations of the 2002 and 2005 IRMs in order to satisfy the overall requirements of 6 NYCRR Part 608. During this IRM the riprap area along the Cayadutta Creek Bank restored during the previous IRMs was enhanced to allow for establishment of stream-side vegetation.

5.3: Summary of Human Exposure Pathways:

This section describes the current or potential human exposures (the way people may come in contact with contamination) that may result from the site contamination. A more detailed discussion of the human exposure pathways can be found in the RI report available at the document repository. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Exposure to contaminated groundwater and soils is unlikely since the area is serviced by public water and the remaining contaminated soil is below the ground surface. Exposures associated with recreating in Cayadutta Creek are not expected since stream sediments in the immediate vicinity of the site do not appear to be significantly contaminated. The potential for exposures via soil vapor intrusion will need to be evaluated if new construction is planned on-site in the future.

5.4: 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 Fish and Wildlife Impact Analysis (FWIA), which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site poses to fish and wildlife receptors.

The Johnstown Former MGP site is located along the Cayadutta Creek. Surface drainage is primarily to the north into Cayadutta Creek. Cayadutta Creek is designated as a Class "C" surface water body. Class "C" waters are suitable for fishing and fish propagation; water quality is suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose.

The FWIA did not identify any current or potential impacts to ecological resources.

The Cayadutta Creek flows to the west, along the northern boundary of the site. The Creek is 25 to 30 feet wide under typical flow conditions, with a depth of approximately 3 to 4 feet. No current or potential site-related surface water impacts have been identified.

Groundwater depths at the site typically range from approximately five to twenty feet below grade. The groundwater table generally occurs within the glacial deposits below the bottom of the fill material. Groundwater flows northward through the site area toward Cayadutta Creek.

Site related contamination is impacting groundwater. The groundwater is not used as a source of potable water. Protection of the groundwater resource will be addressed in the remedy selection process.

SECTION 6: 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 objectives for this site are:

Public Health Protection

Groundwater

- Prevent people from drinking groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with contaminated groundwater.
- Prevent inhalation of contaminants from groundwater.

Soil

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of contaminants volatilizing from the soil.

Environmental Protection

Groundwater

- Restore the groundwater aquifer to meet ambient groundwater quality criteria, to the extent feasible.
- Prevent discharge of contaminated groundwater to surface water.

Soil

- 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.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is presented below. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following alternatives were considered to address the contaminated media identified at the site as describe in Section 5:

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 5.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: Site Management

This alternative would include the implementation of a site management plan (SMP) to include monitoring of groundwater to assure that the contaminant levels in groundwater continue to attenuate as a result of the source removal completed in 2003 with the excavation of the former gas holders and their contents. The SMP would provide the mechanism to monitor the residual constituents in groundwater at the site. Under this alternative, the Department may evaluate post-remedial data, to address the need for additional remedial action(s) for groundwater and/or residual soil contamination. Such future actions may include active treatment (e.g., air sparging).

Under this alternative a 4-inch monitoring well would also be installed to monitor and if necessary remove the remaining localized NAPL impacts beneath North Market Street. Additional details of this approach can be found in the FS under Alternative GW-2.

A site management plan (SMP) would also be developed under this alternative to address remaining contamination. The SMP would include institutional controls such as implementing groundwater use restrictions to prohibit use of groundwater for potable purposes on-site or in the adjacent community. A groundwater monitoring program would be developed to monitor on-site and off-site groundwater quality. The monitoring network would be comprised of existing wells. Data would be collected from these wells to determine the fate and transport of contaminants.

An excavation plan would be developed as part of the SMP to ensure the use of adequate control measures and personal protective equipment (PPE) during intrusive activities and NAPL removal from the recovery well. The City of Johnstown Highway Department would be provided with relevant documentation describing the location of the contaminated soil beneath North Market Street and any requirements to handle the soil during future work. In addition periodic reviews would be performed to assess changes in the risk to human health and the environment posed by the site.

Present Worth: *$239,000*
Capital Cost: *$24,000*
Annual Costs: *$14,000*

Alternative 3: In Situ Solidification/Stabilization

This alternative would include in situ solidification/stabilization to encapsulate and reduce the mobility of contamination within the central area of the site. This process would begin at the top of the till layer, which ranges between 15 and 25 feet below ground surface in the proposed area and would continue upward until 4 feet below the top of existing grade is reached. A total volume of approximately 5,600 cubic yards of soil would be mixed with cementitous additives or stabilizing reagents within the proposed area. Once the in situ solidification/stabilization activities are complete, the area would be topped with clean backfill and topsoil, re-graded and seeded.

In addition to in situ treatment, attenuation of groundwater contaminants will be monitored.

A SMP to include a NAPL monitoring/extraction well as described above for Alternative 2 would also be included in Alternative 3. Additional details of this approach can be found in the FS under Alternative GW-3.

Present Worth: *$1,166,000*
Capital Cost: *$895,000*
Annual Costs: *$14,000*

Alternative 4: Excavation of Former Source Area

This alternative would include the removal of residual contaminated soil in the former source area to the top of the till layer with attenuation to address contamination in groundwater. Excavation of contaminated soil would proceed to depths of approximately 15 to 25 feet below ground surface. It is estimated that approximately 6,800 cubic yards of soil would be excavated. The excavated soil would be either transported off-site for proper disposal or if suitable from a contaminant concentration standpoint, be reused as fill on-site. Excavation dewatering is anticipated since depth to water ranges from 3 feet below ground surface in the north of the site (adjacent to Cayadutta Creek) to 16 feet below ground surface in the center of the proposed excavation area. It is estimated that approximately 30,000 gallons of water will be removed from the proposed excavation area, which would be sent to the local publicly owned treatment works (POTW) for treatment. In addition to excavation, a groundwater monitoring network using exiting monitoring wells and point of compliance system would be developed and data would be collected from these wells to determine the fate and transport of contaminants.

An SMP and institutional controls as described above for Alternative 2 would also be included in Alternative 4.

Present Worth: *$2,759,000*
Capital Cost: *$2,488,000*
Annual Costs: *$14,000*

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which sets forth the requirements for the remediation of inactive hazardous waste disposal sites in New York. A detailed discussion of the evaluation criteria and comparative analysis is included in the feasibility study.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards

and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in the Remedial Alternatives Cost Table 5.

Table 5
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action	0	0	0
Site Management	24,000	14,000	295,000
Solidification/Stabilization	895,000	14,000	1,166,000
Excavation	2,488,000	14,000	2,759,000

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised.

No significant public comments were received.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 2, Site Management as the remedy for this site. The elements of this remedy are described at the end of this section.

8.1 Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives.

Alternative 2 is selected because, as described below, it satisfies the threshold criteria and provides the best balance of the balancing criterion described in Section 7.2. It would achieve the remediation goals for the site by addressing residual constituents in groundwater through natural attenuation processes.

Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 4, by removing the source of groundwater contamination, meets the threshold criteria. Alternatives 2 and 3 also comply with this criteria but to a lesser degree or with lower certainty. Because Alternatives 2, 3 and 4 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site.

Alternatives 2 through 4 all have short-term impacts which could be controlled; however, Alternative 2 would have the smallest impact. Alternative 3 would have a significant short-term impact due to the mixing of contaminated soils on site. Alternative 4 would also have a significant short-term impact due to the intrusive activities involved in the excavation of the former source area. However, Alternative 4 would achieve remedial goals in a shorter time period, than Alternatives 2 and 3.

Long-term effectiveness is best accomplished by excavation of the contaminated overburden soils (Alternative 4). Alternative 4 would result in the removal of the source of groundwater contamination at the site, but it also requires an environmental easement and long-term monitoring.

Alternatives 2 and 3 would both require an extended period of time for groundwater to reach standards and would require an environmental easement and long-term monitoring.

Alternative 2 would control potential exposures with institutional controls and will offer no immediate reduction in mobility, toxicity, or volume of contaminants remaining, since no active remediation would be performed. Alternative 3, in situ solidification/stabilization, would reduce the mobility of contaminants. However, the volume and toxicity would not be reduced. Alternative 4, excavation of former source area, would provide reduction of toxicity and contaminant volume at the site.

All of the alternatives evaluated are technically feasible. Alternative 2 is the most favorable as it is the easiest to implement. Alternative 2 requires a fate and transport evaluation to better define a monitoring network and point of compliance, as well as sampling of wells over an extended time period. Alternative 3 and 4 also require ongoing SMP activities. Alternative 3 is more difficult to implement because it would require significant on-site intrusive activities required for in situ solidification/stabilization. Alternative 4 would be the most difficult to implement because it involves significant soil removal, disturbance to the public and difficulty associated with working around the gas regulator and cemetery.

The costs of the alternatives vary significantly. Alternative 2 has low capital costs. Alternative 3 has higher capital costs for implementation of construction activities. Alternative 4 has the highest capital costs for implementation of significant construction activities. The required site management costs would be the same for alternatives 2 and 3.

The anticipated use of the site is commercial. Under Alternatives 2 and 3 at least some contaminated soil would remain on the property. However, the remaining contamination with Alternative 2 and 3 would be controllable with implementation of a Site Management Plan.

The estimated present worth cost to implement the remedy is $295,000. The cost to construct the remedy is estimated to be $23,625 and the estimated average annual costs for 30 years is $14,000.

8.2 Elements of the Selected Remedy

The elements of the selected restricted use remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Green remediation and sustainability efforts will be considered in the design and implementation of the remedy to the extent practicable, including;
    - using renewable energy sources
    - reducing green house gas emissions
    - encouraging low carbon technologies
    - foster green and healthy communities
    - conserve natural resources
    - increase recycling and reuse of clean materials

3. Imposition of an institutional control in the form of an environmental easement for the controlled property that:
   a) 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);
   b) restricts the use of the site, subject to local zoning laws, to:
      □ residential use □ restricted residential use √commercial use √industrial use
   c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department or NYSDOH;
   d) prohibits agriculture or vegetable gardens on the controlled property; and
   e) requires compliance with the Department-approved Site Management Plan;

4. Since the remedy results in contamination remaining at the site that does not allow for unrestricted use, 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 assure the following institutional and/or engineering controls remain in place and effective:

      Institutional Controls:
      Environmental Easement

      Engineering Controls:
      Sheet pile wall
      Monitoring/extraction well
      Soil cover system

      This plan includes:
      vi. an excavation plan, which details the provisions for management of future excavations in areas of remaining contamination;
      vii. descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
      viii. provisions for the management and inspection of the identified engineering controls;
      ix. maintaining site access controls and Department notification; and
      x. the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

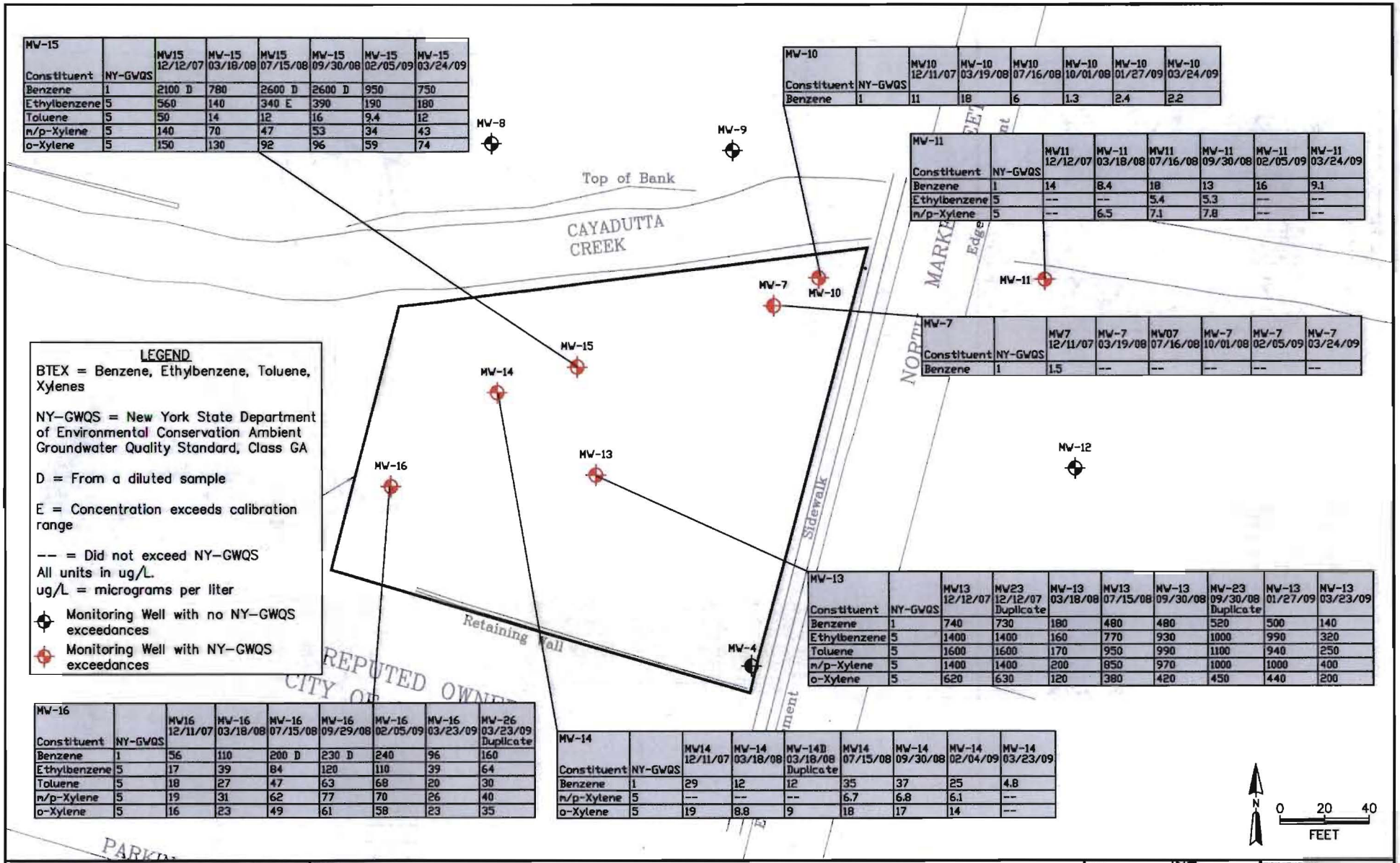
   b) a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes:
      i. monitoring of groundwater to assess the performance and effectiveness of the remedy;
      ii. a schedule of monitoring and frequency of submittals to the Department; and

iii. provision to evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established
- An information sheet on the 1997 Preliminary Site Assessment was mailed to the public contact list.
- An information sheet on the 1998 Supplemental Environmental Investigation was mailed to the public contact list.
- A fact sheet announcing the 2002 Interim Remedial Measure was mailed to the public contact list.
- A fact sheet announcing the August 2009 Cayadutta Creek Bank Restoration Interim Remedial Measure was mailed to the public contact list.
- A fact sheet announcing the availability of the February 2010 Proposed Remedial Action Plan and the public meeting was mailed to the public contact list.
- A public meeting was held on March 3, 2010 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.



MW-15 Constituent	NY-GWQS	MW15 12/12/07	MW-15 03/18/09	MW15 07/15/08	MW-15 09/30/08	MW-15 02/05/09	MW-15 03/24/09
Benzene	1	2100 D	780	2600 D	2600 D	950	750
Ethylbenzene	5	560	140	340 E	390	190	180
Toluene	5	50	14	12	16	9.4	12
m/p-Xylene	5	140	70	47	53	34	43
o-Xylene	5	150	130	92	96	59	74

MW-10 Constituent	NY-GWQS	MW10 12/11/07	MW-10 03/19/08	MW10 07/16/08	MW-10 10/01/08	MW-10 01/27/09	MW-10 03/24/09
Benzene	1	11	18	6	1.3	2.4	2.2

MW-11 Constituent	NY-GWQS	MW11 12/12/07	MW-11 03/18/08	MW11 07/16/08	MW-11 09/30/08	MW-11 02/05/09	MW-11 03/24/09
Benzene	1	14	8.4	18	13	16	9.1
Ethylbenzene	5	--	--	5.4	5.3	--	--
m/p-Xylene	5	--	6.5	7.1	7.8	--	--

MW-7 Constituent	NY-GWQS	MW7 12/11/07	MW-7 03/19/08	MW07 07/16/08	MW-7 10/01/08	MW-7 02/05/09	MW-7 03/24/09
Benzene	1	1.5	--	--	--	--	--

MW-13 Constituent	NY-GWQS	MW13 12/12/07	MW23 12/12/07 Duplicate	MW-13 03/18/08	MW13 07/15/08	MW-13 09/30/08	MW-23 09/30/08 Duplicate	MW-13 01/27/09	MW-13 03/23/09
Benzene	1	740	730	180	480	480	520	500	140
Ethylbenzene	5	1400	1400	160	770	930	1000	990	320
Toluene	5	1600	1600	170	950	990	1100	940	250
m/p-Xylene	5	1400	1400	200	850	970	1000	1000	400
o-Xylene	5	620	630	120	380	420	450	440	200

MW-16 Constituent	NY-GWQS	MW16 12/11/07	MW-16 03/18/08	MW-16 07/15/08	MW-16 09/29/08	MW-16 02/05/09	MW-16 03/23/09	MW-26 03/23/09 Duplicate
Benzene	1	56	110	200 D	230 D	240	96	160
Ethylbenzene	5	17	39	84	120	110	39	64
Toluene	5	18	27	47	63	68	20	30
m/p-Xylene	5	19	31	62	77	70	26	40
o-Xylene	5	16	23	49	61	58	23	35

MW-14 Constituent	NY-GWQS	MW14 12/11/07	MW-14 03/18/08	MW-14D 03/18/08 Duplicate	MW14 07/15/08	MW-14 09/30/08	MW-14 02/04/09	MW-14 03/23/09
Benzene	1	29	12	12	35	37	25	4.8
m/p-Xylene	5	--	--	--	6.7	6.8	6.1	--
o-Xylene	5	19	8.8	9	18	17	14	--

LEGEND

BTEX = Benzene, Ethylbenzene, Toluene, Xylenes

NY-GWQS = New York State Department of Environmental Conservation Ambient Groundwater Quality Standard, Class GA

D = From a diluted sample

E = Concentration exceeds calibration range

-- = Did not exceed NY-GWQS

All units in ug/L.

ug/L = micrograms per liter

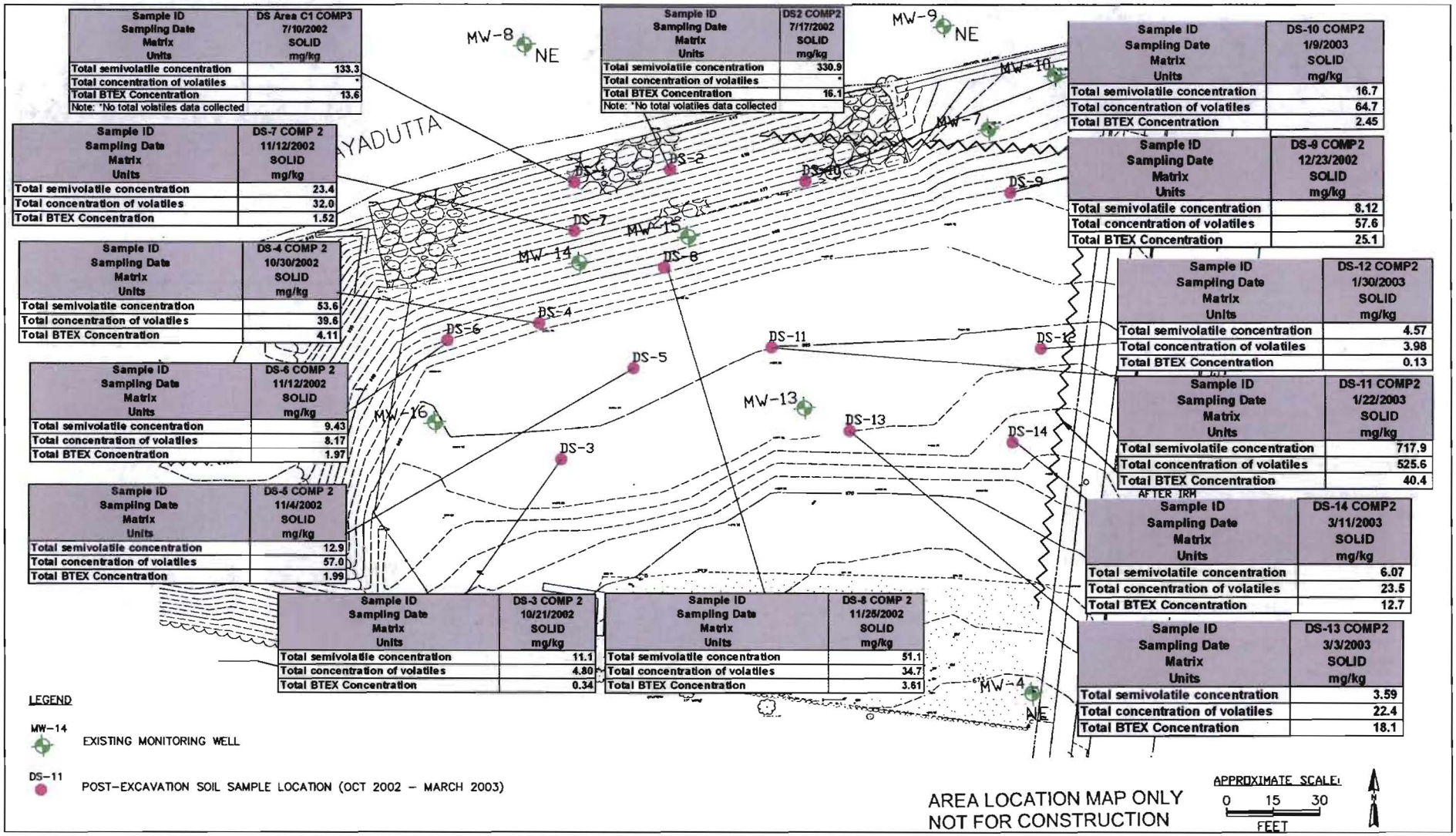
Monitoring Well with no NY-GWQS exceedances

Monitoring Well with NY-GWQS exceedances

nationalgrid

TITLE:
BTEX Compounds in Groundwater Exceeding NY-GWQS
Johnstown MGP Site – Feasibility Study
North Market Street, Johnstown, NY

DWN.: LMC	DATE: 07/09/09	PROJECT NO.: 106-2907.0004
CHKD:	REV.: 0	FIGURE NO.: 5
DES.: TTK	APPD:	



Sample ID	DS Area C1 COMP3
Sampling Date	7/10/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	133.3
Total concentration of volatiles	*
Total BTEX Concentration	13.6
Note: *No total volatiles data collected	

Sample ID	DS2 COMP2
Sampling Date	7/17/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	330.9
Total concentration of volatiles	*
Total BTEX Concentration	16.1
Note: *No total volatiles data collected	

Sample ID	DS-10 COMP2
Sampling Date	1/9/2003
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	16.7
Total concentration of volatiles	64.7
Total BTEX Concentration	2.45

Sample ID	DS-7 COMP 2
Sampling Date	11/12/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	23.4
Total concentration of volatiles	32.0
Total BTEX Concentration	1.52

Sample ID	DS-9 COMP2
Sampling Date	12/23/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	8.12
Total concentration of volatiles	57.6
Total BTEX Concentration	25.1

Sample ID	DS-4 COMP 2
Sampling Date	10/30/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	53.6
Total concentration of volatiles	39.6
Total BTEX Concentration	4.11

Sample ID	DS-12 COMP2
Sampling Date	1/30/2003
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	4.57
Total concentration of volatiles	3.98
Total BTEX Concentration	0.13

Sample ID	DS-6 COMP 2
Sampling Date	11/12/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	9.43
Total concentration of volatiles	8.17
Total BTEX Concentration	1.97

Sample ID	DS-11 COMP2
Sampling Date	1/22/2003
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	717.9
Total concentration of volatiles	525.6
Total BTEX Concentration	40.4

Sample ID	DS-5 COMP 2
Sampling Date	11/4/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	12.9
Total concentration of volatiles	57.0
Total BTEX Concentration	1.99

Sample ID	DS-14 COMP2
Sampling Date	3/11/2003
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	6.07
Total concentration of volatiles	23.5
Total BTEX Concentration	12.7

Sample ID	DS-3 COMP 2
Sampling Date	10/21/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	11.1
Total concentration of volatiles	4.80
Total BTEX Concentration	0.34

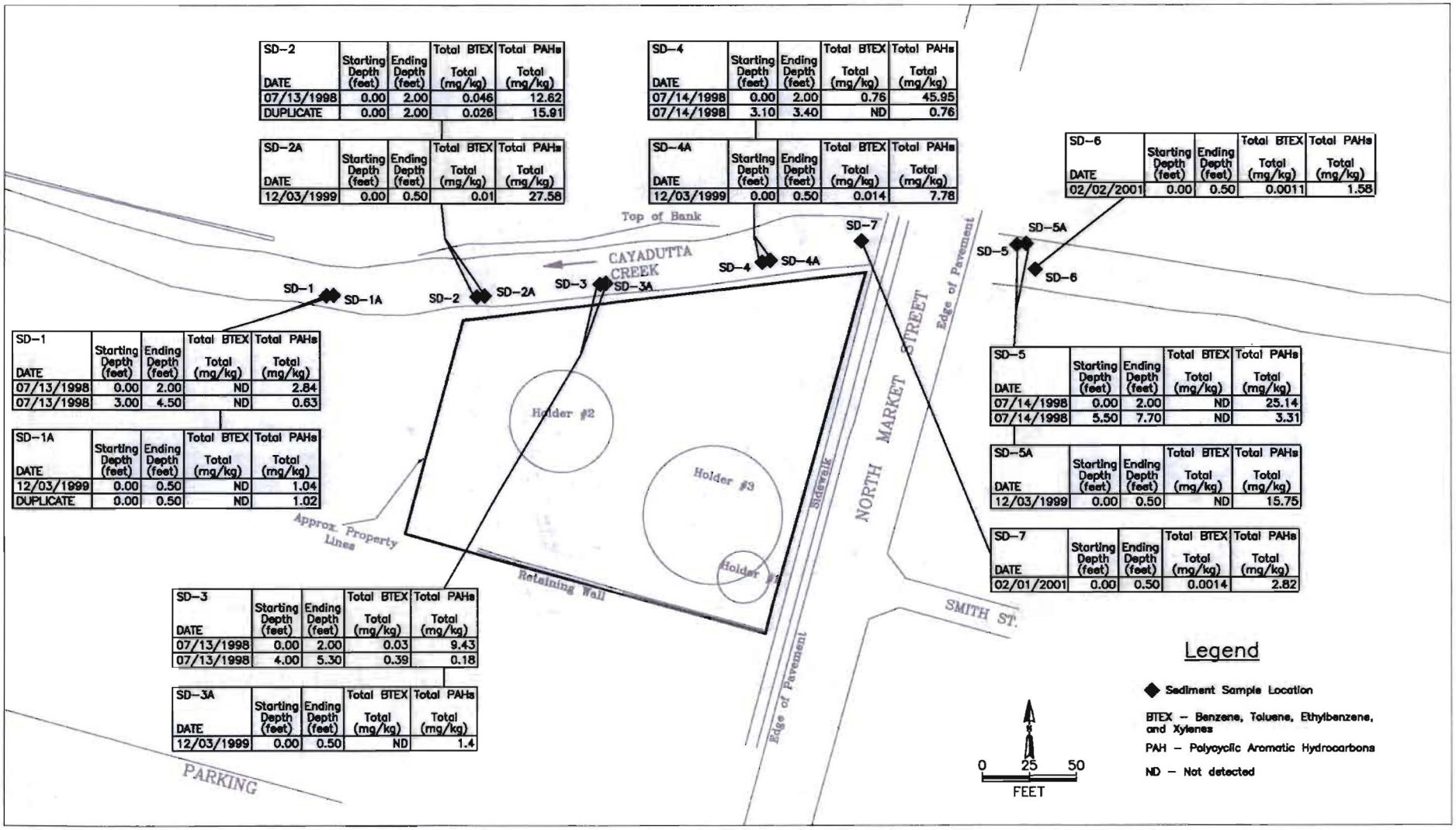
Sample ID	DS-8 COMP 2
Sampling Date	11/25/2002
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	51.1
Total concentration of volatiles	34.7
Total BTEX Concentration	3.61

Sample ID	DS-13 COMP2
Sampling Date	3/3/2003
Matrix	SOLID
Units	mg/kg
Total semivolatile concentration	3.59
Total concentration of volatiles	22.4
Total BTEX Concentration	18.1

nationalgrid

TITLE:
Post Excavation Samples and Results
Johnstown N. Market Street Site

DWN.:	DATE:	PROJECT NO.:
MR	01/26/10	106-2907.0004
CHKD.:	REV.:	FIGURE NO.:
LH		6
DES.:	APPD:	
EG		



SD-2 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
07/13/1998	0.00	2.00	0.046	12.62
DUPLICATE	0.00	2.00	0.026	15.91

SD-2A DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
12/03/1999	0.00	0.50	0.01	27.58

SD-4 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
07/14/1998	0.00	2.00	0.76	45.95
07/14/1998	3.10	3.40	ND	0.76

SD-4A DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
12/03/1999	0.00	0.50	0.014	7.78

SD-6 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
02/02/2001	0.00	0.50	0.0011	1.58

SD-1 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
07/13/1998	0.00	2.00	ND	2.84
07/13/1998	3.00	4.50	ND	0.63

SD-1A DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
12/03/1999	0.00	0.50	ND	1.04
DUPLICATE	0.00	0.50	ND	1.02

SD-5 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
07/14/1998	0.00	2.00	ND	25.14
07/14/1998	5.50	7.70	ND	3.31

SD-5A DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
12/03/1999	0.00	0.50	ND	15.75

SD-7 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
02/01/2001	0.00	0.50	0.0014	2.82

SD-3 DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
07/13/1998	0.00	2.00	0.03	9.43
07/13/1998	4.00	5.30	0.39	0.18

SD-3A DATE	Starting Depth (feet)	Ending Depth (feet)	Total BTEX Total (mg/kg)	Total PAHs Total (mg/kg)
12/03/1999	0.00	0.50	ND	1.4

Legend

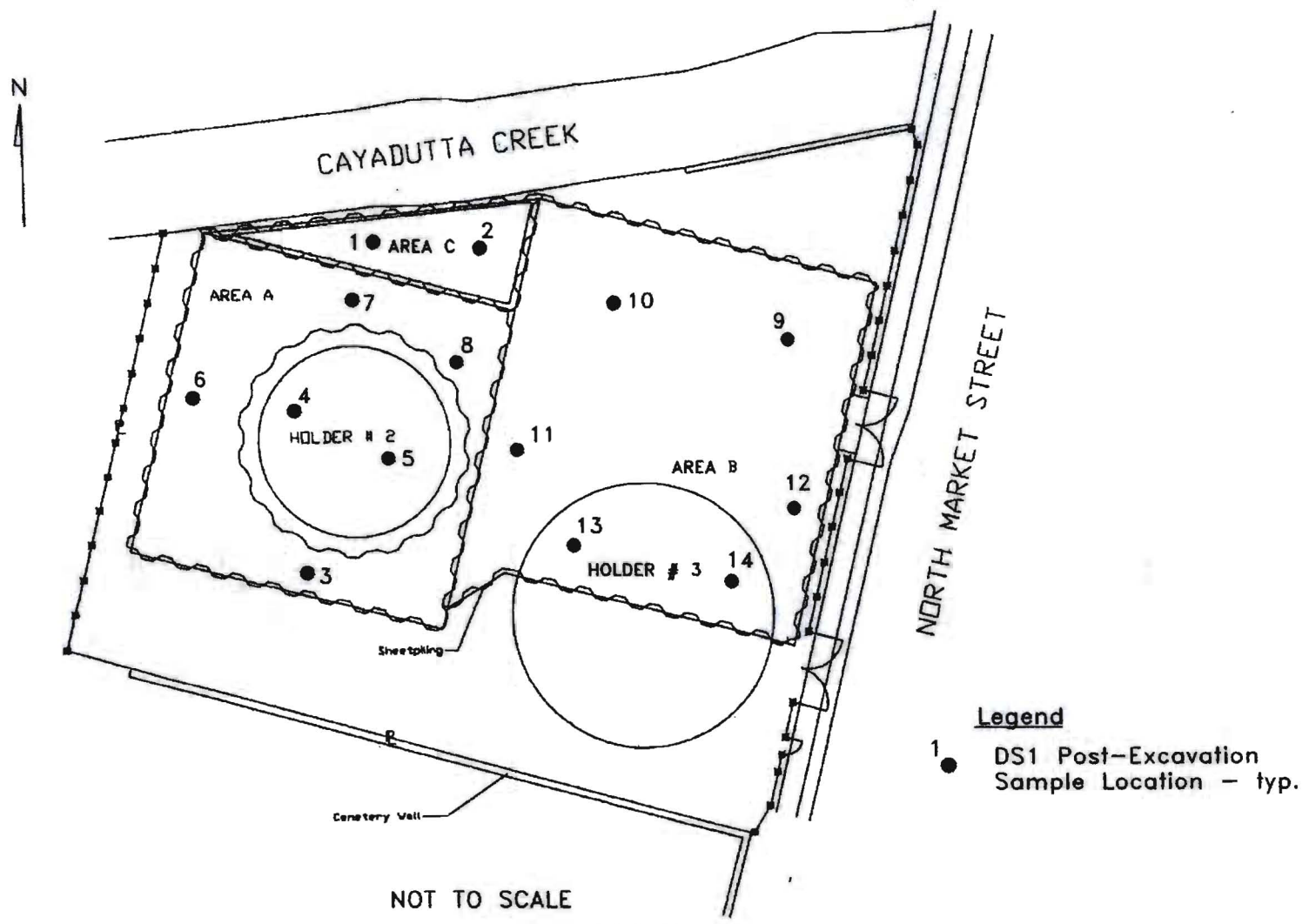
- Sediment Sample Location
- BTEX – Benzene, Toluene, Ethylbenzene, and Xylenes
- PAH – Polycyclic Aromatic Hydrocarbons
- ND – Not detected

TETRA TECH EC, INC.

TITLE:
TOTAL BTEX AND TOTAL PAHs IN SEDIMENT
National Grid
Johnstown (North Market Street) Site

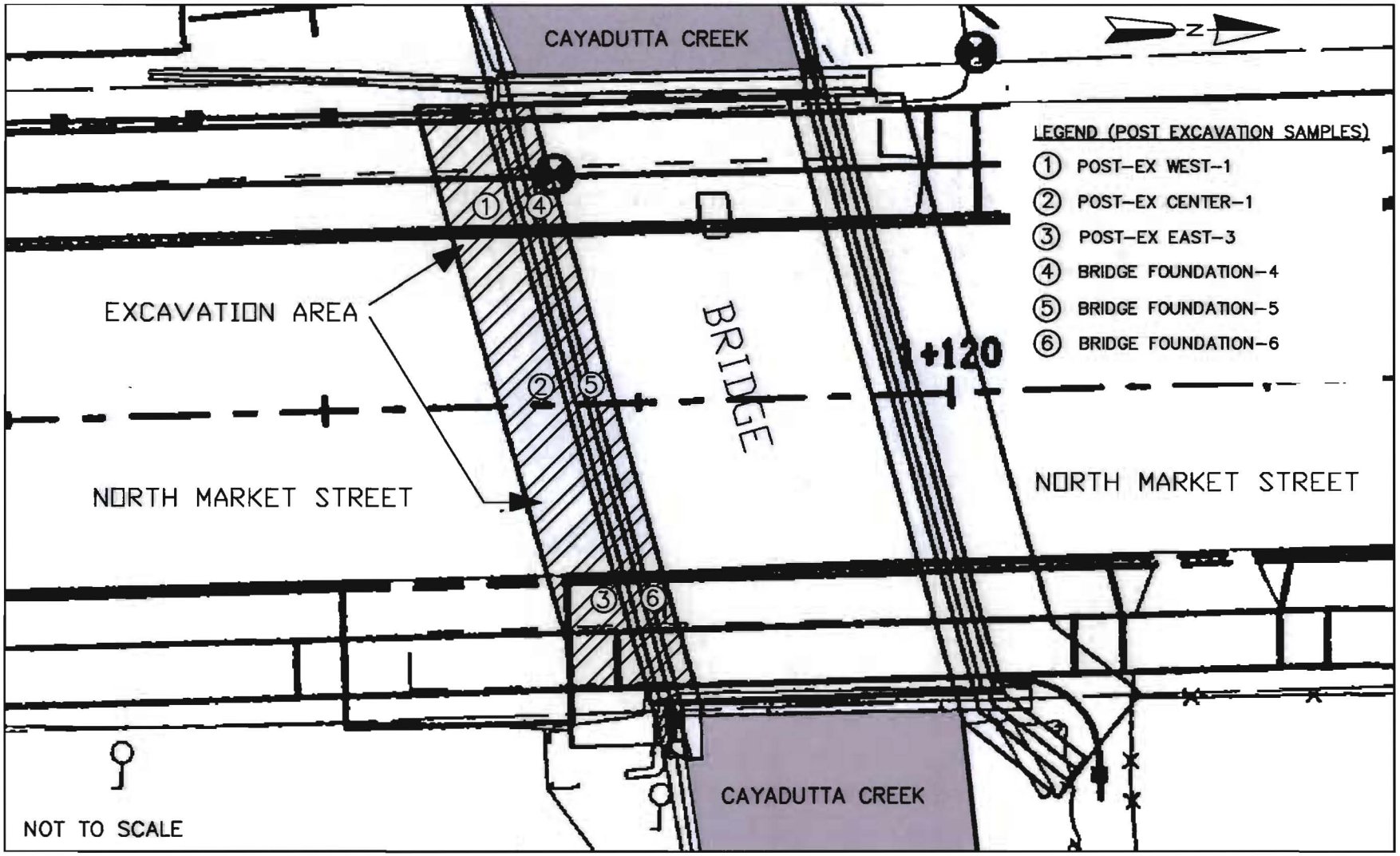
DWN.:	DATE:	PROJECT NO.:
TTK	09/08/08	106-2907.0004
CHKD:	REV.: 0	FIGURE NO.: 7
DES.: TTK	APPD:	

N:\GIS\GISKEY\GISPROJ\NMPC JOHNSTOWN\CHEM\MAPS\Figure 3 BTEX TOT PAHs 090808 (Sediments) .DWG



TETRA TECH FW, INC.	TITLE: WORKING AREAS AND POST-EXCAVATION SAMPLING LOCATIONS Johnstown (North Market St.) Site	DWN: CTS	DES.: CTS	PROJECT NO.: 2771.0004	
		CHKD:	APPD:		
		DATE: 12/31/03	REV.: 0	FIGURE NO.: 8	

N:\GIS\GISKEY\GISPROJ31\NMPC JOHNSTOWN\FIGURE 2-1 OR 1-4 123103.DWG



TETRA TECH EC, INC.	TITLE: Excavation Area and Soil Sample Locations N. Market Street Bridge Construction	DWN: EAG	DES.:	PROJECT NO.: 106-2907.0004
		CHKD:	APPD:	FIGURE NO.: 9
		DATE: 05/06/08	REV.: 0	

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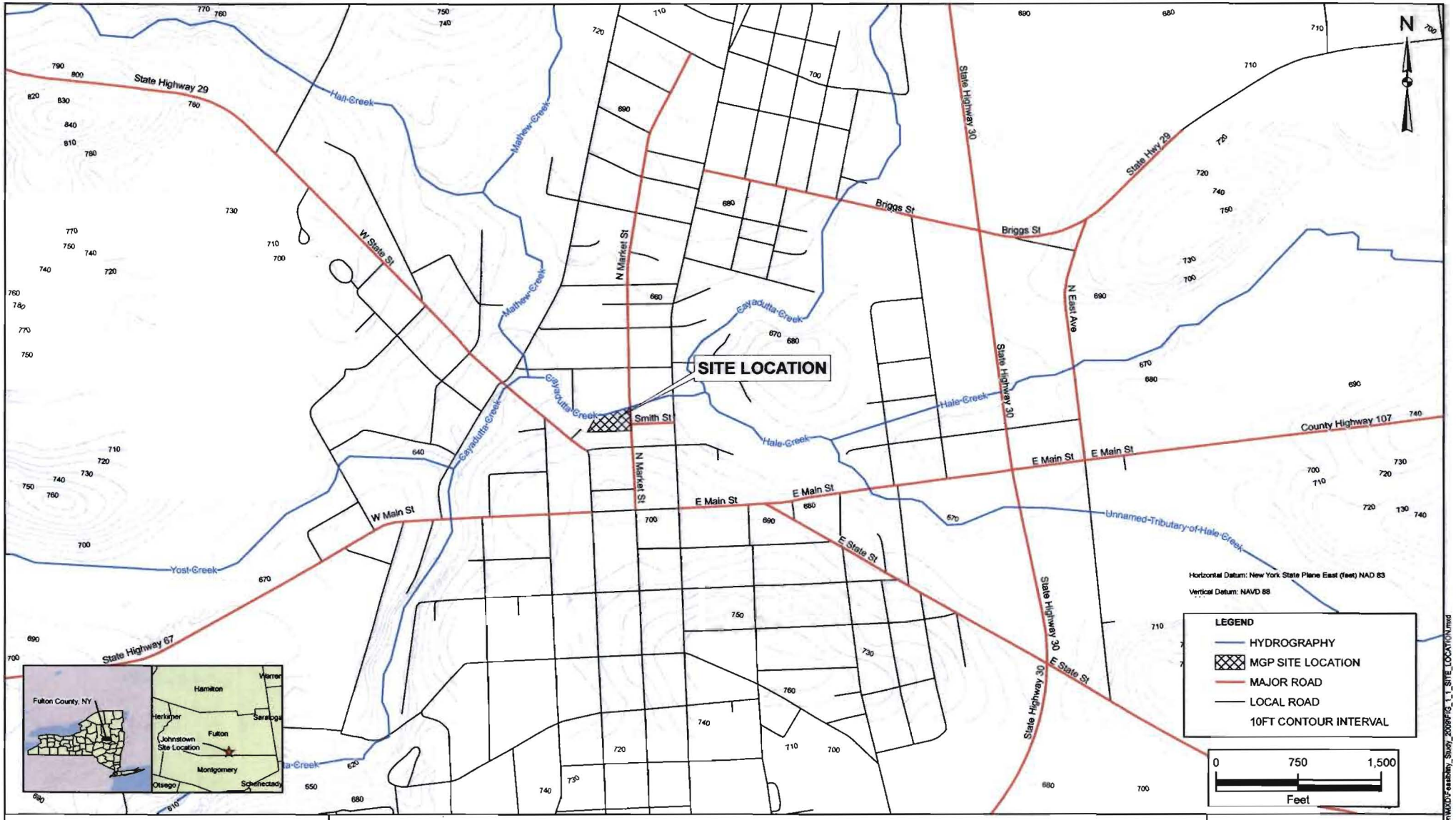


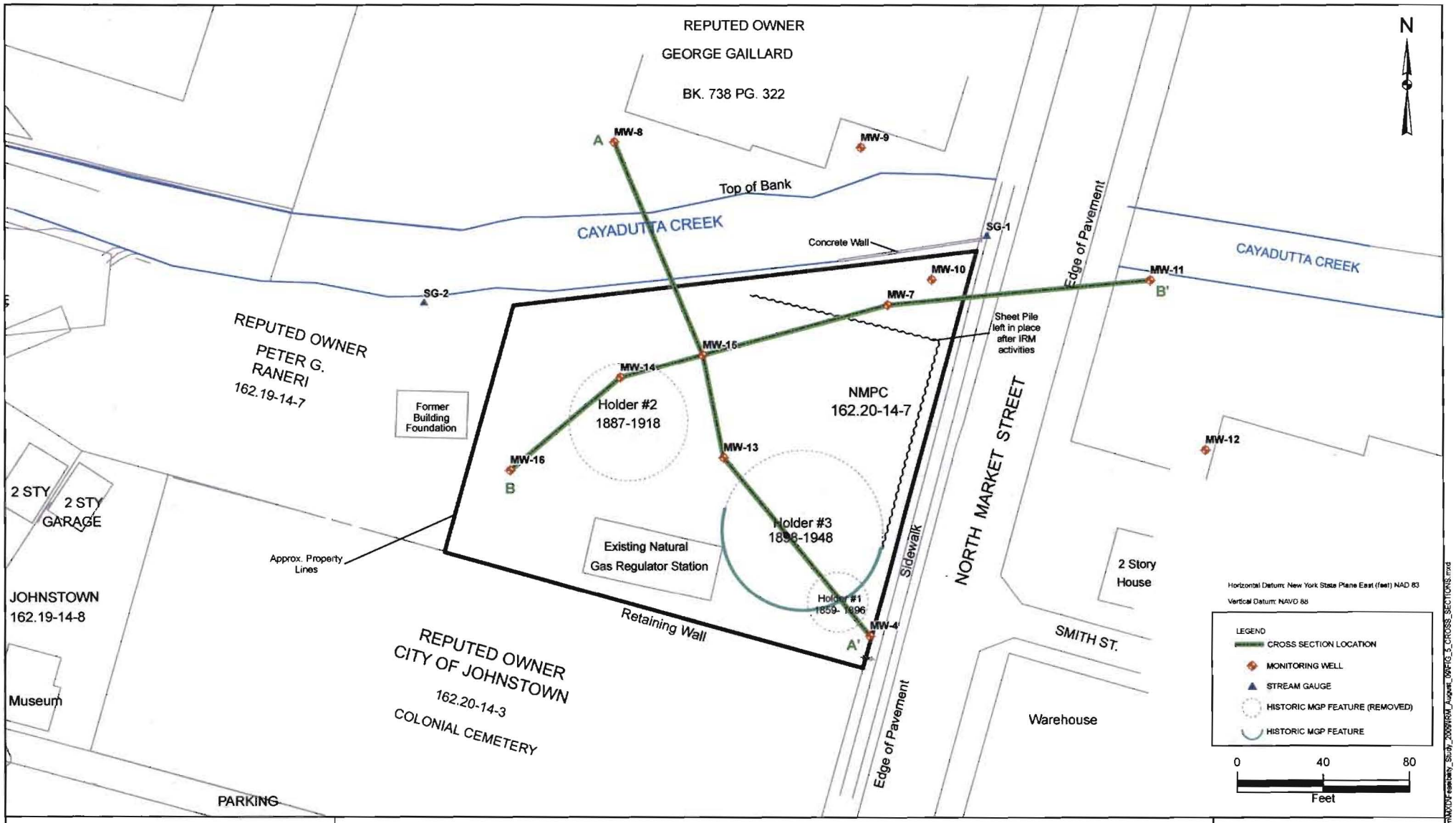
nationalgrid

SITE LOCATION

JOHNSTOWN (N. MARKET STREET) FORMER MGP SITE
JOHNSTOWN, NEW YORK

FIGURE 1

T:\GIS\National_Grid\Johnstown\MXD\Feasibility_Study_2009\Fig_1_1_SITE_LOCATION.mxd



TETRA TECH EC, INC.

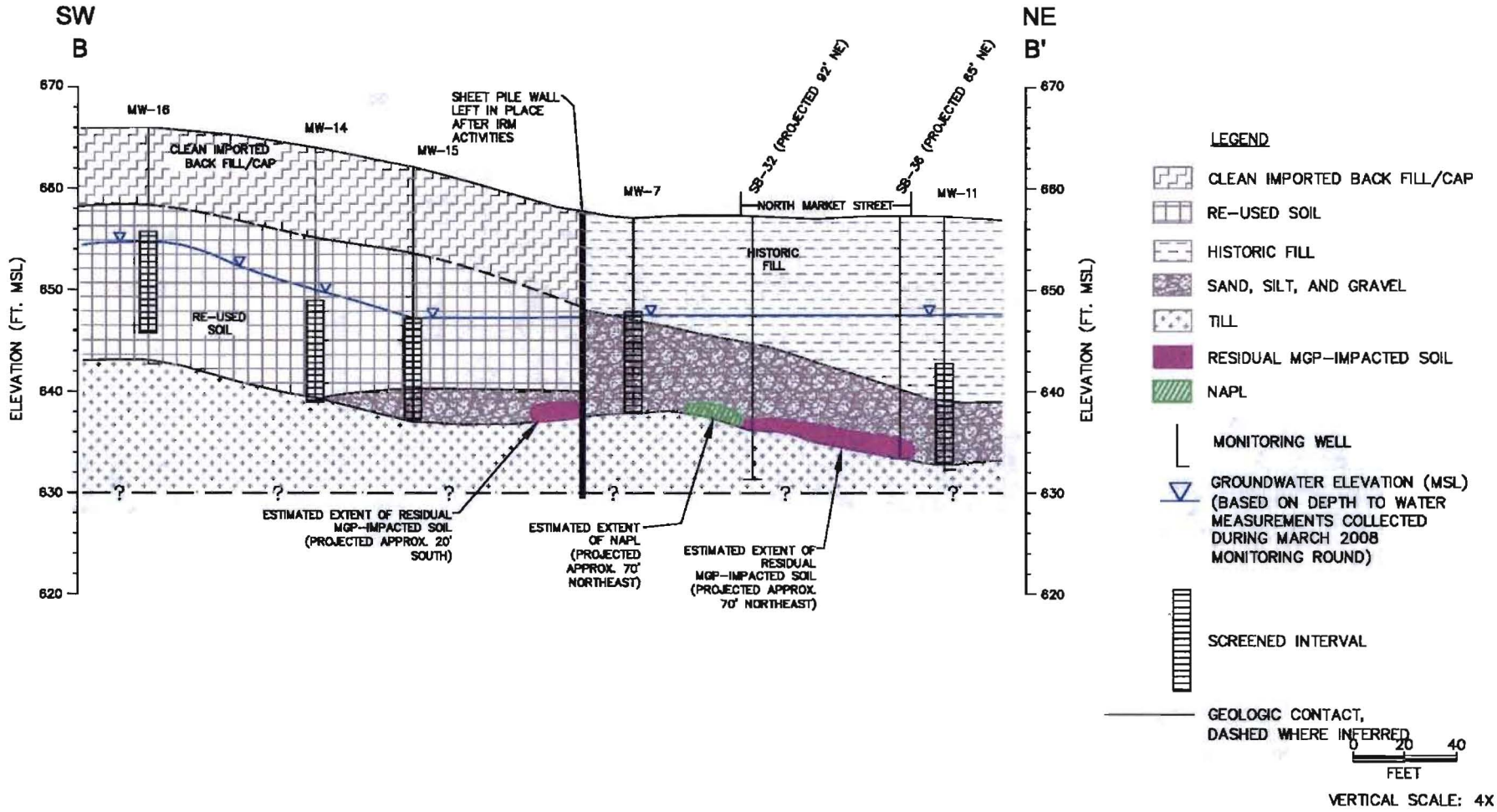
Site Location Plan W/
CROSS SECTION LOCATIONS

JOHNSTOWN (N. MARKET STREET) FORMER MGP SITE
JOHNSTOWN, NEW YORK

nationalgrid

FIGURE 2

\\GIS\National_Grid\Johnstown\MXD\Feasibility_Study_2009\RIM_August_09\FIG_5_CROSS_SECTIONS.mxd

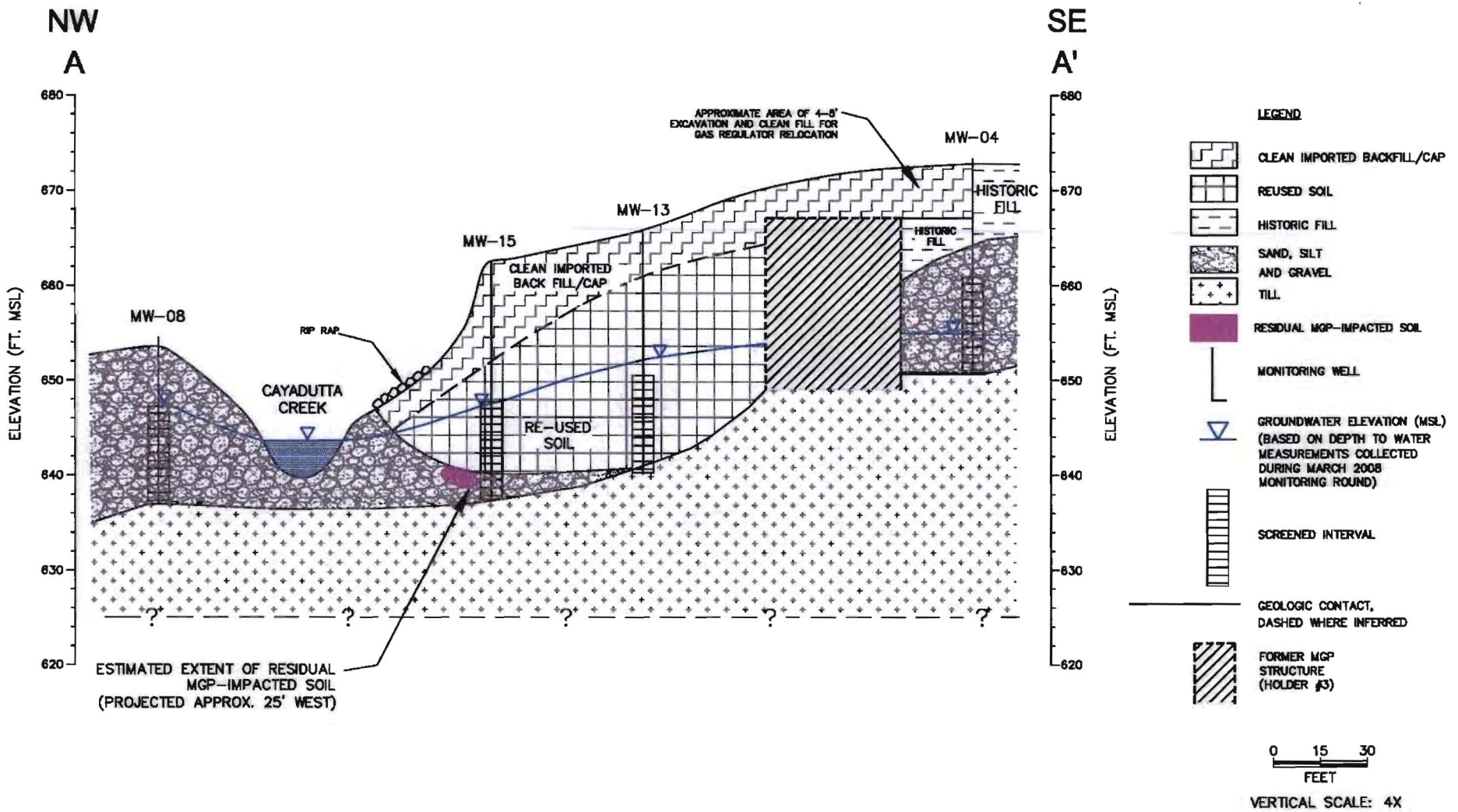


nationalgrid

TETRA TECH EC, INC.

TITLE:
CROSS SECTION B–B'
Johnstown (North Market Street) Site
Feasibility Study

DWN.: DLB	DATE: 01/21/10	PROJECT NO.: 2907.0003.0003	
CHKD: DPC	REV.: 0	FIGURE NO.: 4	
DES.: CTS	APPD: RC		



nationalgrid
TETRA TECH EC, INC.

TITLE:
CROSS SECTION A-A'
Johnstown (North Market Street) Site
Feasibility Study

DWN.: DLB	DATE: 01/21/10	PROJECT NO.: 2907.0003.0003
CHKD: DPC	REV.: 0	FIGURE NO.: 3
DES.: CTS	APPD: RC	

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Niagara Mohawk Johnstown Former MGP
State Superfund Project
City of Johnstown, Fulton County, New York
Site No. 518020

The Proposed Remedial Action Plan (PRAP) for the Niagara Mohawk Johnstown Former Manufactured Gas Plant (MGP) site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 8, 2010. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Niagara Mohawk Johnstown Former MGP site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 3, 2010, which included a presentation of the remedial investigation feasibility study (RI/FS) for the Niagara Mohawk Johnstown Former MGP as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 10, 2010.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: You mentioned that you sampled the creek. Did that sampling include fish sampling?

RESPONSE 1: The sampling did not include fish sampling. Based on the results of the fish and wildlife impact analysis and the results from the surface water and sediment sampling, the Department did not require fish sampling since no current or potential impacts to ecological resources were identified.

COMMENT 2: How long will the monitoring program go on for?

RESPONSE 2: The groundwater monitoring program will go on until the contaminant concentrations in the groundwater decrease to a point where NYSDEC and NYSDOH consider further monitoring unnecessary. For the purpose of cost estimation, it is assumed that groundwater monitoring will continue for 30 years. However, given the current levels of groundwater contamination, and the fact that much of the contaminated soil which could have continued to impact groundwater was removed during the IRM, a groundwater monitoring program of a shorter duration is envisioned.

APPENDIX B

Administrative Record

Administrative Record

Niagara Mohawk Johnstown Former MGP
State Superfund Project
City of Johnstown, Fulton County, New York
Site No. 518020

Proposed Remedial Action Plan for the Niagara Mohawk Johnstown Former Manufactured Gas Plant (MGP) site, dated February 2010, prepared by the Department.

Order on Consent, Index No. A4-0473-0000 (Former Index #D0-0001-9210, D0-0001-9612, A6 0201-89-05, A6-0208-89-09, A6-0260-91-04, and D6-0001-9210), between the Department and Niagara Mohawk, executed on November 2003.

"Preliminary Site Assessment & Interim Remedial Measures Study for the Johnstown (Market St.) Site", February 1998, prepared by Foster Wheeler Environmental Corporation

"Remedial Investigation Report for Johnstown (N. Market St.) Site", March 2000, prepared by Foster Wheeler Environmental Corporation

"Interim Remedial Measure (IRM) Summary Report for the Johnstown (N. Market St.) Site", March 2008, prepared by Tetra Tech

"Construction Completion Report for the North Market Street Bridge Replacement Project", April 2008, prepared by Tetra Tech

"Final Supplemental RI Report for the Johnstown (N. Market Street) site", December 2008, prepared by Tetra Tech

"Final Addendum to Supplemental RI Report for the Johnstown (N. Market Street) Site Sediment and Surface Water Media", February 2009, prepared by Tetra Tech

"Final Interim Remedial Measure Work Plan for the Cayadutta Creek Bank Restoration", June 2009, prepared by Tetra Tech

"Final Feasibility Study Report for the Johnstown (N. Market Street) Former Manufactured Gas Plant", January 2010, prepared by Tetra Tech