Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Former Gastown MGP Site
Tonawanda, Erie County, New York
Site Number 9-15-171

March 2007

New York State Department of Environmental Conservation
ELIOT SPITZER, *Governor*

DECLARATION STATEMENT - RECORD OF DECISION

Former Gastown MGP Inactive Hazardous Waste Disposal Site
Tonawanda, Erie County, New York
Site No. 9-15-171

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Former Gastown 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 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 Former Gastown MGP inactive hazardous waste disposal site, 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.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Former Gastown MGP site and the criteria identified for evaluation of alternatives, the Department has selected excavation, sediment removal, collection trenches and institutional/engineering controls. The components of the remedy are as follows:

- A remedial design program would be developed to provide the details necessary to implement the remedial program.

- Soils containing visible evidence of MGP tar and/or containing total PAHs greater than 500 ppm would be removed from the portions of the site and the property owned by the NFTA as shown on Figure 6. Three buildings which are located above substantial amounts of contaminated material would be demolished to permit access. Excavation in the vicinity of the fiberoptic cable would be coordinated with the owner of that line. Any MGP tar left beneath the railroad embankment, cable or buildings would be isolated from the clean

backfill by an appropriate barrier. Excavation would be performed in a manner which would adequately control vapors and odors.

- Underground collection trenches would be constructed around the Sportsmen's Club and also west of the site. MGP tar in the vicinity of these trenches would be extracted to the extent possible, and prevent further migration of the tar. The trenches would also prevent contaminated groundwater from entering these off-site buildings.

- Sediment between the shore and the navigational channel east of the railroad bridge would be removed. The approximate physical extent of this sediment removal is shown on Figure 9, although the exact extent would be determined during the remedial design program.

- Although no current impact to indoor air has been noted to date, sub-slab depressurization systems would be provided for the five residential dwellings west of the site. Soil gas quality would be monitored at the Open Bible Baptist Church School.

- Since the remedy results in contamination above unrestricted levels remaining at the site, a site management plan (SMP) would be developed and implemented. The SMP would include the institutional controls and engineering controls to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) provide for the operation and maintenance of the components of the remedy; (d) monitor the groundwater and soil gas;(e) identify any use restrictions on site development or groundwater use; and, f) provide a groundwater monitoring program including installing monitoring wells and sampling them on a periodic basis. Analysis would include BTEX and PAHs. This monitoring program and the effectiveness of the remedy would periodically be re-evaluated..

- The SMP would require the responsible party or property owner to provide an Institutional Control/ Engineering Control (IC/EC) certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department annually or for a period to be approved by the NYSDEC, which would certify that the institutional controls and engineering controls put in place are unchanged from the previous certification and that nothing has occurred that would impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with any operation and maintenance or soil management plan.

- Imposition of an institutional control in the form of an environmental easement that would: (a) require compliance with the approved site management plan, (b) limit the use and development of the property to commercial or industrial uses only; (c) restrict use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Erie County Department of Health; and, (d) require the property owner to complete and submit to the NYSDEC IC/EC certification.

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 30 2007

Date

Dale A. Desnoyers, Director
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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Former Gastown MGP Site. The presence of hazardous waste has created significant threats to human health and the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, operations at the former manufactured gas plant (MGP) have resulted in the disposal of hazardous wastes, including coal carbonization and water gas tars. These MGP tars contain numerous chemicals including polycyclic aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, and xylene (BTEX). These wastes have contaminated the soils, groundwater, sediment and soil gas at the site, and have resulted in:

- a threat to human health associated with potential exposure to groundwater, subsurface soil and soil vapor; and

- an environmental threat associated with the impacts of contaminants to groundwater, subsurface soils and sediments.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- Soils containing visible evidence of MGP tar and/or containing total PAHs greater than 500 parts per million (ppm) would be removed from the areas shown on Figure 8.

- Underground collection trenches would be constructed around the Sportsmen's Club and also west of the site. MGP tar in the vicinity of these trenches would be extracted to the extent possible. The trenches would also prevent further migration of the tar and prevent contaminated groundwater from entering the nearby off-site buildings.

- Sediments in Tonawanda Creek between the shore and the navigational channel east of the railroad bridge would be removed.

- Sub-slab depressurization systems would be provided for the five residential dwellings where soil vapors are present at levels which could potentially impact indoor air quality.

- Since the remedy results in contamination remaining on site at levels above guidelines for unrestricted use, a site management plan (SMP) would be developed and implemented.

- Imposition of an institutional control in form of an environmental easement and periodic certification.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially 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.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Former Gastown MGP Site is located in the City of Tonawanda, Erie County. It is approximately 3.5 acres in size and is located on East Niagara Street between Carney St. and East Ave. The site is a small industrial area surrounded by a residential neighborhood. The site is bounded to the north by Tonawanda Creek and to the west by a railroad track, as shown on the site map (Figure 1).

Tar has moved through subsurface soils away from the source areas where it was released. The direction and extent of this movement, and the movement of contaminated groundwater, is largely controlled by the physical characteristics of the soils beneath the site. Four geologic units have been identified:

The first unit encountered below the ground surface is made up of man-made fill materials, which were deposited to level the site for development. The fill ranges in thickness from a few inches to 22 feet.

A recent alluvium deposit (made up largely of interbedded layers of sand and silt) lies beneath the fill. Most of the lateral migration of tar and contaminated groundwater has taken place in this unit. Minor variations in sand content appear to have very significant affects on the migration of contamination, with the tar moving preferentially through the more permeable layers with higher sand content. The alluvium generally extends from the fill material downward to approximately 16 feet (varies from 12 to 24 feet).

Underlying the alluvium is a layer of coarser sand and gravel which, in turn, overlies the red clay which is the hydraulic base at this site. Little or no MGP contamination has been found in these units.

The water table is typically 6 feet below ground surface. Groundwater flow is primarily to the north, towards Tonawanda Creek, but there is also a component of groundwater flow both to the east and west. This groundwater flow pattern has resulted in the migration of contamination in all three directions.

Surface water at the site moves northward into Tonawanda Creek.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

A Manufactured Gas Plant (MGP) was operated at this site by the Tonawanda Gas Light Company, which was incorporated in 1884. Initially, gas was manufactured using the coal carbonization process. The carburetted water gas process was added in 1910, and the plant produced gas using both processes until 1921.

The coal carbonization process heated coal in retorts or beehive ovens, carbonizing the coal in the absence of air. Methane gas was released as the coal was carbonized. The carburetted water gas process involved the passage of steam through heated coal. This formed a gaseous mixture (water gas or blue gas) which was then passed through a super heater which had an oil spray. The oil spray would generate additional gas, enhancing the heat and light capacity of the overall gas mixture.

Both processes produced an oily byproduct, commonly known as coal tar, as the gas was cooled prior to distribution. The tar typically accumulated in the bottom of a circular gas storage vessel known as a relief gas holder. This structure was located in the northeast corner of the site, as shown on Figures 3 through 8. Coal carbonization tar had a number of uses in different industries; however, carburetted water gas tar was considered far less valuable. A review of Public Service Commission (PSC) records did not find any records of water gas tar being recovered. This tar is the principal contaminant at the site today.

No gas was produced in 1922, and in 1923 the production facilities were dismantled, however, a number of subsurface structures remain in place. The plant site continued to be used as a booster and storage facility.

3.2: Remedial History

In March 1993, the NYSDEC Spill Response Unit responded to a complaint that an unknown oily substance was entering basement sumps at the Gastown Sportsman's Club. This substance was subsequently identified as coal tar, and chemical analysis showed that it contained enough benzene to be defined as a characteristic hazardous waste.

In September 1998, a groundwater/tar extraction and treatment system was installed just west of the Gastown Sportsmen's Club building. The purpose of this system was to intercept the tar and the contaminated groundwater associated with it, before it could enter the basement sumps. It consists of a single 10" diameter extraction well and a system to separate the tar and treat the contaminated groundwater.

Tar is collected and transported off site for proper treatment and disposal. Treated water is discharged directly to Tonawanda Creek. The system has been effective, and remains in service today. The system has removed over 1,750 gallons of tar to date.

In 1998, the NYSDEC listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

A initial investigation was conducted by the NYSDEC from December 1999 to September 2000. The activities performed included a records search regarding former site use and owners/operators; completion of test pits, wells and soil borings; and sampling of coal tar, soil and groundwater. A Site Investigation Report was completed in January 2001.

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 only PRP for the site documented to date is National Fuel Gas, which is the corporate successor to the Tonawanda Gas Light Company.

The PRP declined to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRP will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRP, the NYSDEC will evaluate the site for further action under the State Superfund. The PRP is subject to legal action by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted 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 RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between June 2001 and July 2004. The field activities and findings of the investigation are described in the RI report.

The RI started with test pits and soil borings in the areas of known coal tar contamination, and then expanded outwards until the limit of the contamination was defined. This primarily involved the use of direct push soil borings to delineate the extent of coal tar and contaminated soil, which was then followed by the installation of monitoring wells to define the extent of groundwater contamination. Soil vapor samples were collected following the delineation of groundwater contamination.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, groundwater, sediment and soil gas contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels." and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives).

- Sediment SCGs are based on the NYSDEC "Technical Guidance for Screening Contaminated Sediments."

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 below. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

As described in the RI report, many soil, groundwater, sediment, surface water, soil vapor and air samples were collected to characterize the nature and extent of contamination. As seen in Figures 3 and 4 and summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water, parts per million (ppm) for waste, soil, and sediment, and micrograms per cubic meter ($\mu g/m^3$) for air samples. For comparison purposes, where applicable, SCGs are provided for each medium.

Specific volatile organic compounds of concern are benzene, toluene, ethylbenzene and xylene. These are referred to collectively as BTEX in this document.

The specific semivolatile organic compounds of concern in soil and groundwater are the following polycyclic aromatic hydrocarbons (PAHs):

acenaphthene	pyrene	*benzo(a)pyrene*
acenaphthylene	*indeno(1,2,3-cd) pyrene*	*benzo(a)anthracene*
anthracene	*chrysene*	*benzo(b)fluoranthene*
dibenzo(a,h)anthracene	fluorene	*benzo(k)fluoranthene*
phenanthrene	naphthalene	benzo(g,h,i)perylene
fluoranthene	2-methylnaphthalene	

PAH concentrations referred to in this plan are the summation of the individual PAHs listed above (i.e., total PAHs or tPAHs). The italicized PAHs are probable human carcinogens. The summation of the italicized PAHs are referred to in this document as cPAHs.

MGP tars are present at this site in the form of a dense oily liquid which does not readily dissolve in water. Materials such as this are typically found at MGP sites, and are referred to as non-aqueous phase liquids or NAPL. Since this NAPL is more dense than water, it is also referred to as a dense NAPL or DNAPL. Analysis of the NAPL reveals that it contains BTEX and PAHs several orders of magnitude greater than the SCGs for these compounds.

In some areas, NAPL was found to saturate the pore spaces in the soils. Elsewhere it was found only in sand-rich layers or in scattered, discontinuous globules. Any of these conditions can cause high BTEX and PAH concentrations in soil, groundwater and soil gas.

Figures 3 and 4 and Table 1 summarize the degree of contamination for the contaminants of concern in soil, groundwater, sediment, surface water, soil vapor and air and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Waste Materials/Structures

The sources of the MGP tar wastes appear to be the former MGP structures, some of which are still present in the subsurface beneath the site. From these source areas, tar has migrated over 300 feet to the east and west, and approximately 200 feet to the north. Tar and MGP-contaminated sediment were also found in the bed of Tonawanda Creek. The MGP tar generally has not migrated vertically beyond the alluvium layer, and has not entered the underlying granular material, clay or bedrock. The extent of waste material is shown on Figure 3.

Directly south of the metal tank shown in Figure 3, a deposit of nearly pure naphthalene crystals was observed. Although naphthalene is an important constituent of coal tar, its presence as a purified material remains unexplained.

Waste and MGP Structures identified during the RI/FS will be addressed in the remedy selection process.

Subsurface Soil

Subsurface soil in the vicinity of MGP structures, and in areas where the tar has migrated has been impacted by PAHs and BTEX. BTEX concentrations in subsurface soil ranged from not detected to 1,165 ppm. The highest BTEX concentrations in subsurface soils were found east of the former relief holder. Total PAH concentrations in subsurface soils ranged from not detected (4 samples) to 293,520 ppm, with the highest concentrations in the vicinity of the naphthalene crystals. The extent of PAH and visible MGP tar contamination are shown on Figure 3.

Total cyanide concentrations in subsurface soil ranged from not detected (8 samples) to 15.7 ppm. The one elevated sample (15.7 ppm) was in an interval containing cinders and slag at a depth of 1-2 feet, located near the entrance of the Great Lakes Gears building.

Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

Surface Soil

Nearly the entire site is covered with buildings or crushed stone surfaces for parking. Consequently, no surface soils were identified for sampling and the remedy will not specifically address surface soil.

Groundwater

Groundwater in the vicinity of MGP tar and the contaminated subsurface soil has also been impacted by PAHs and BTEX.

BTEX concentrations in groundwater ranged from not detected to 23,000 ppb. The highest BTEX concentrations in groundwater were found east of the former relief holder in the immediate vicinity of MGP tar. The extent of groundwater BTEX contamination is shown on Figure 4.

Total PAH concentrations in groundwater ranged from not detected to 16,354 ppm. The highest PAH concentrations in groundwater were found north and east of the former relief holder in the immediate vicinity of MGP tar.

Out of ten samples, cyanide concentrations in groundwater ranged from 19 ppb to 18,300 ppb. The locations of elevated cyanide concentrations in groundwater were generally coincident with high levels of BTEX and PAHs.

Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process

Surface Water

Three surface water samples were collected during the RI. BTEX concentrations ranged from not detected to 3 ppb. PAH compounds and cyanide were not detected in any of the surface water samples. No site-related surface water contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface water. However, contaminated sediments and groundwater, which impact the surface water, will be addressed.

Sediments

BTEX concentrations in sediment ranged from not detected to 0.676 ppm. The highest BTEX concentrations in sediment were found at the northwest edge of the site, just to the east of the

railroad bridge over Tonawanda Creek. Total PAH concentrations in sediment ranged from not detected to 241 ppm. The highest PAH concentrations in sediment were also found just to the east of the railroad bridge. One sediment sample was analyzed for cyanide, the concentration was 0.074 ppm. The extent of sediment PAH contamination is shown in Figure 9.

The extent of MGP sediment contamination appears to be limited by the maintenance of a dredged navigation channel in Tonawanda Creek. Several episodes of navigational dredging have taken place here in the years since the MGP ceased operations.

Not all of the PAH contamination in the area is related to the MGP. Beyond the area described above, PAHs are found at levels typical for heavily used recreational waterways such as Tonawanda Creek.

Sediment contamination associated with the MGP identified during the RI/FS will be addressed in the remedy selection process.

Soil Gas/Sub-Slab Vapor/Air

Total BTEX concentrations in soil gas and sub-slab soil gas samples ranged from not detected to 293 micrograms per cubic meter. The highest BTEX concentrations in sub-slab samples were found below private homes west of the site. Soil vapor contamination identified during the RI/FS will be addressed in the remedy selection process.

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 completion of the RI/FS.

No IRM has been completed at this site. The installation of the NAPL collection/treatment system at the Gastown Sportsmen's Club was similar in scope to an IRM, but was completed as part of the spill response prior to the start of the RI/FS process, and is therefore not considered an IRM.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 7 of the RI report.

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.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). 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.

Under the current and future use scenarios, there exists the potential for exposure to volatile organic compounds and semi-volatile compounds via inhalation of vapor, or via incidental ingestion or dermal contact with contaminated subsurface soil/waste or Tonawanda Creek sediments.

The potential exists for exposure via inhalation of, or direct contact with, coal tar contamination seeping into the Sportsman's Club sump. There could also be exposure via soil vapor intrusion into nearby homes.

Groundwater in the vicinity of the project site is not utilized as a source of potential drinking water. Therefore, exposure via ingestion of contaminated groundwater is not expected.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors. The following environmental exposure pathways and ecological risks have been identified:

Sediments in Tonawanda Creek contain levels of PAHs and BTEX that are considered toxic to bottom-dwelling wildlife. This results in potential impacts to wildlife living and/or feeding in the Creek.

Site contamination has also impacted the groundwater resource in the upper, unconsolidated aquifer.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- the presence of NAPL and MGP-related contaminants as the sources of soil, groundwater and soil gas contamination;
- migration of NAPL and MGP-related contaminants that would result in soil, groundwater or soil gas contamination;
- the release of contaminants from NAPL in on-site soil into groundwater that result in exceedances of groundwater quality standards;
- the potential for ingestion of groundwater with contaminant levels exceeding drinking water standards;
- the potential for ingestion/direct contact with contaminated soil;
- impacts to biota from ingestion/direct contact with sediments; and
- the release of contaminants from subsurface soil under buildings into indoor air through soil gas migration and intrusion.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards and
- recommended soil cleanup objectives in TAGM 4046 and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected 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 Former Gastown MGP Site were identified, screened and evaluated in the FS report which is available at the document repositories identified in Section 1.

A summary of the remedial alternatives that were considered for this site are discussed below. The present worth 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 potential remedies were considered to address the contaminated soils, sediments, surface water, groundwater, and soil gas at the site.

Alternative 1: No Further Action

Present Worth: $984,000
Capital Cost: $0
Annual OM&M:: $64,000

The No Further Action alternative recognizes remediation of the site conducted under a previously completed IRM or remedial action. To evaluate the effectiveness of the remediation already performed at the Gastown Sportsmen's Club, this alternative provides only continued monitoring.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. The costs listed above would address ongoing monitoring.

Common Elements

Alternatives 2 through 6 evaluated below each include the following common elements:

Metal Tank Removal: A buried metal tank filled with tar is located on the north east side of the site, as shown on Figure 2. It would be removed in each of the alternatives. An area of pure naphthalene crystals is located adjacent to this tank and would also be removed. The cost of this removal is estimated at $50,000. This cost has been included in the total cost for each remedy.

Sediment: A small area of sediment in Tonawanda Creek, located between the bank and the navigational channel along the 100' stretch of the Creek east of the railroad bridge, contains MGP-related PAHs at levels above applicable guidelines. These sediments would be removed by environmental dredging in each of the alternatives. The limits of dredging would be determined during a design phase investigation. This investigation would include additional samples collected both upstream and downstream of any site-related contamination to confirm that the site-related contamination is limited to the above area, and that the lower levels seen elsewhere in the Creek are consistent with background levels. The cost of this element is estimated to be approximately $200,000. This cost has been included in the cost of each remedy.

Soil Gas: Soil gas has been impacted by site related contaminants. Contaminant levels below homes west of the tracks were as much as 27 times the levels found in the NYSDOH database of typical background values. Values were also as much as 9 times the guidance levels provided in the USEPA draft guidance for sub-slab soil gas. A sample of the coal tar from this site was analyzed by the NYSDOH. This analysis provided an understanding of the volatile chemicals which would be expected to be associated with soil gas impacted by the tar. Soil gas results from homes west of the tracks exhibited an identifiable pattern consistent with this analysis at levels which could potentially impact the indoor air.

Although indoor air samples from these buildings have not shown any impacts to date, either continued monitoring of the soil gas or prophylactic sub-slab depressurization systems would be needed. These systems remove soil gas from the immediate vicinity of building foundations, preventing gas infiltration. For individual residences, depressurization systems would be both most cost effective and most protective. For the nearby Open Bible Baptist Church School, which is located beyond the groundwater contamination, a depressurization system does not appear to be necessary, but on-going monitoring would be appropriate. The cost of this element is estimated to be approximately $20,000. This cost has been included in the cost of each remedy.

Alternative 2 : NAPL/Groundwater Collection and Treatment

Present Worth: $5,747,000
Capital Cost: $3,464,000
Annual OM&M:: $148,000

This alternative would use either rows of wells or underground collection trenches to eliminate the heaviest, most mobile contamination by collecting NAPL and heavily contaminated groundwater. A conceptual layout of collection trenches is shown on Figure 5. Trenches or wells would be installed on-site and also west of the railroad tracks, where they would collect the most significant NAPL found in this off-site residential area. A treatment facility would be constructed on-site to separate the NAPL from the groundwater and to treat the collected groundwater prior to discharge to either Tonawanda Creek or to the local sewer system. NAPL would be containerized and shipped off site for proper treatment and disposal.

Near the original relief holder and the metal tank referenced in the common elements section, the contamination does not appear to be amenable to collection, and the subsurface, which contains large amounts of debris and rubble, would not be conducive to construction of a collection trench. Approximately 8,000 cubic yards of material would be excavated from this area. Two on-site buildings would be demolished to facilitate this excavation.

A site management plan (SMP) would: a) establish procedures for excavating and managing soil during future intrusive work, b) require evaluation of potential vapor intrusion for any future buildings, c) provide operation and maintenance (O&M) of the collection system; (d) require monitoring of groundwater and soil gas; and, (e) identify restrictions on site development or groundwater use. The SMP would require periodic certification that all controls remain effectively in place and the SMP is being implemented. Compliance with and certification of the SMP would be required by an environmental easement placed on the site property.

Alternative 3 : Partial Excavation and Collection Trenches

Present Worth: $8,942,000
Capital Cost: $6,897,000
Annual OM&M
(Years 1-30): $133,000

This alternative would remove as much contaminated soil as possible while allowing the continued occupancy and/or operation of on-site businesses, adjacent residents, and the Gastown Sportsmen's Club.

To facilitate this removal, three on-site buildings would be demolished. It is envisioned that this demolition and subsequent reconstruction could be conducted in phases, to allow the on-site businesses to temporarily relocate from one building to another, and minimize impact to ongoing business activities.

The 24,000 cubic yard soil removal shown on Figure 6, would include nearly all on-site soils containing either visible MGP tars or total PAHs above 500 ppm. Excavated material would be transported to appropriately permitted treatment and disposal facilities.

Sheet piling or other controls would be used to stabilize the walls of the excavation. When the excavation is complete, the site would be backfilled with clean fill material from off-site sources. MGP tars would be present in some sidewalls following excavation, particularly along the railroad tracks. Where tar is present in the sidewalls, steps would be taken to prevent re-contamination of the clean backfill.

An underground collection trench around the Sportsmen's Club would be constructed to eliminate the need for sumps inside that building and to eliminate the mobility of remaining MGP tar.

Contamination west of the site would also be addressed by a system of collection trenches. These trenches would remove mobile NAPL and prevent the migration of the NAPL and heavily impacted groundwater to the west and toward Tonawanda Creek. NAPL and contaminated groundwater would be collected and handled as described in Alternative 3.

A site management plan (SMP) would: a) establish procedures for excavating and managing soil during future intrusive work, b) require evaluation of potential vapor intrusion for any future buildings, c) provide operation and maintenance (O&M) of the collection system; (d) require monitoring of groundwater and soil gas; and, (e) identify restrictions on site development or groundwater use. The SMP would require periodic certification that all controls remain effectively in place and the SMP is being implemented. Compliance with and certification of the SMP would be required by an environmental easement placed on the site property.

Alternative 4: Full Isolation and Containment

Present Worth: $6,592,000
Capital Cost: $3,848,000
Annual OM&M:: $178,000

This alternative would contain the contaminants to eliminate migration of NAPL and contaminated groundwater and to prevent direct exposure to contaminated soils. The layout of this alternative is shown on Figure 7.

Vertical barrier walls would be installed around the contaminated areas both east and west of the railroad tracks. The walls would be keyed into the low-permeability clay at depth. On the MGP site, a cap would be constructed on the ground surface and joined to the barrier walls, forming a water-tight seal.

No demolition would be required for this alternative. Since buildings would be left in place, the capping materials would have to be carefully sealed against the building foundations to prevent leakage of rain water into the contained soils.

A barrier wall would also be constructed adjacent to East Niagara Street, connecting the northern walls of the two containment areas and containing the contamination under the railroad tracks. Since groundwater would naturally build up under the tracks behind this wall, groundwater pumping would be required to prevent leakage through the wall. A treatment system would be constructed near the rail line to treat groundwater pumped from the contained areas and the upgradient side of the barrier wall crossing the rail lines to control hydraulic gradients. Groundwater would be treated on site prior to discharge to Tonawanda Creek or the local sewer system. Any NAPL recovered would be separated and shipped off site for proper treatment and disposal.

A site management plan (SMP) would: a) establish procedures for excavating and managing soil during future intrusive work, b) require evaluation of potential vapor intrusion for any future buildings, c) provide operation and maintenance (O&M) of the containment and groundwater collection systems; (d) require monitoring of groundwater and soil gas; and, (e) identify restrictions on site development or groundwater use. The SMP would require periodic certification that all controls remain effectively in place and the SMP is being implemented. Compliance with and certification of the SMP would be required by an environmental easement placed on the site property.

Alternative 5: Full Excavation

Present Worth: $14,388,000
Capital Cost: $12,643,000
Annual OM&M:(30 yr) $103,000

This alternative would maximize removal of NAPL and contaminated soil, although contamination would still remain under the railroad tracks.

This 50,000 cubic yard excavation, shown in Figure 8, would remove NAPL-contaminated soil and soil exceeding the soil cleanup goals. Removed material would be transported off site to appropriately permitted treatment and disposal facilities. The site would then be backfilled with clean fill material.

Contamination under the railroad tracks would be addressed by NAPL and groundwater collection wells, and possibly containment walls. The operation and maintenance of these

facilities constitute the great majority of the OM&M cost. The presence of the track would be an effective engineering and institutional control.

Groundwater monitoring would be performed for an estimated two years to confirm the success of the remediation. Beyond this, site management expenses would be greatly reduced, since nearly all on-site contamination would be removed.

Groundwater and NAPL generated during the excavation of soil would be separated on-site in an oil/water separator. NAPL would be transported off site for treatment and groundwater would be treated on site prior to discharge to surface water.

Demolition of the site buildings, the Gastown Sportsmen's Club and residences west of the railroad would be required, in order to allow removal of the underlying contaminated soil. The costs associated with relocations are included in the estimate.

A site management plan (SMP) would be required primarily for the area under an near the tracks. This plan would: a) establish procedures for excavating and managing soil during future intrusive work near the remaining contamination, b) provide operation and maintenance (O&M) of the components of the remedy; and, (d) require monitoring of groundwater. The SMP would require periodic certification that all controls remain effectively in place and the SMP is being implemented. Compliance with and certification of the SMP would be required by an environmental easement placed on the site property.

Alternative 6: Removal and Solidification

Present Worth: $11,823,000
Capital Cost: $10,078,000
Annual OM&M:: $103,000

This alternative would remove the contamination in the areas of heaviest NAPL contamination. On-site buildings would be demolished and business would be relocated as in Alternative 5. Excavated areas would be backfilled with clean fill.

Other areas impacted by NAPL would be treated using in-situ solidification. This technology involves mixing the soil with pozzolanic agents (typically Portland cement), using large diameter augers. This process would produce overlapping columns of solidified soil, resulting in a low permeability monolith. The result would eliminate the mobility of the contamination and greatly reduce or eliminate the contamination as a continuing source of groundwater contamination.

The low permeability monoliths on each side of the railroad tracks would be expected to increase groundwater flow and NAPL mobility under the tracks. This would dictate that some form of collection system be installed to address this contamination. Operation of the collection system and monitoring of groundwater quality would be required in the site management plan.

Demolition of the site buildings, the Gastown Sportsmen's Club and residences west of the railroad would be required. The costs associated with relocations are included in the estimate.

A site management plan (SMP) would: a) establish procedures for excavating and managing soil during future intrusive work, b) require evaluation of potential vapor intrusion for any future buildings, c) provide operation and maintenance (O&M) of the components of the remedy; (d) require monitoring of groundwater and soil gas; and, (e) identify restrictions on site development or groundwater use. The SMP would require periodic certification that all controls remain effectively in place and the SMP is being implemented. Compliance with and certification of the SMP would be required by an environmental easement placed on the site property.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

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 NYSDEC has determined to be applicable on a case-specific basis.

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

3. Short-term 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.

4. 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.

5. 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.

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 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 Table 2.

This final criterion 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.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the NYSDEC addressed the concerns raised. In general, the public comments received were supportive of the selected remedy..

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 3, Partial Excavation and Collection Trenches as the remedy for this site. The elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS. Alternative 3 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by removing the most significant contamination and controlling the mobility of the remaining contamination.

Because Alternatives 2-6 all satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

The overall goal is to restore the site to pre-release conditions to the extent feasible. In the simplest cases, this would involve excavating the contaminated soil, or treating it in place to remove and destroy the contamination. However, at MGP sites, it is common to find that full restoration is not feasible, due to the spreading of tar away from the source areas into locations where full removal is impracticable.

Where it would not be feasible to remove contamination, the next preference is to treat it to reduce mobility and toxicity. Where contamination can neither be removed nor treated, it should be contained or otherwise controlled to prevent further movement and exposure to human and/or environmental receptors.

One example of a location where removal would be infeasible is beneath the railroad tracks immediately to the west of the site. Excavation in this location would involve removing the rail line from service for a lengthy period (thus cutting off passenger service to Niagara Falls and Canada), and could compromise the structural integrity of the drawbridge over Tonawanda Creek. No technology is currently available to fully treat the MGP tars in place. Consequently, NAPL and heavily contaminated soil would remain in place under the tracks in all of the alternatives.

All alternatives would include provisions for a combination of collection and containment in the area beneath the tracks. A simple physical barrier to migration does not appear to be feasible, since this barrier would not only impede NAPL flow, but also the flow of ordinary groundwater. Groundwater would be expected to build up on the upgradient side of a barrier and would soon start flowing around it, potentially presenting the risk of creating new pathways for migration of dissolved contamination. A partially successful containment system could increase groundwater flow velocities in this area and thus actually increase the mobility of the NAPL as well. Constructing an effective containment barrier under the active tracks would be difficult to implement both technically and administratively. Thus, using wells or trenches to collect NAPL and hydraulically controlling the remaining contamination appears to be the only alternative available which would be both implementable and effective under the tracks .

The contamination just west of the tracks (between the tracks and the homes) is significant enough that excavation could reasonably be considered. This would be unavoidably disruptive to the residents of these homes. However, if this area were instead included in the containment and collection remedy used under the tracks, the cost and additional impact to the community would be negligible.

While excavation east of the Sportsmen's Club property and under the western homes would be technically feasible, it would be unreasonable to significantly disrupt these residential areas by excavating roughly16 feet of clean soil in order to remove a layer of contamination a few inches in thickness.

Alternative 2 (extraction/treatment) would offer some level of protection by removing the most mobile tar and reducing the off site mobility of the tar, but would leave significant volumes of contaminated soil in place on the site which would continue to pose a risk of exposure to underground utility workers. This alternative would leave grossly contaminated material on-site which could be economically and practically excavated. Alternative 3 proposes to excavate all of the NAPL and heavily contaminated soil that can be removed without excessively disrupting the community. The Department has not identified any compelling reason to leave this material in place, untreated, so Alternative 3 would be preferred over Alternative 2.

Alternative 4 (containment) would be subject to concerns with implementability. Because it would rely solely on containment and allows a large volume of potentially mobile tar to remain in place within the contained area, there would be a risk that even a minor flaw in the containment system could permit a significant release of contamination. Therefore, this remedy would need to include NAPL collection and/or hydraulic control. Alternative 3 would include the excavation of the most heavily contaminated area, and as such it would be preferred over

Alternative 4 since it would permanently remove a greater amount of contamination and reduce the likelihood of containment failure by reducing the amount of mobile tar inside the contained area.

Alternatives 5 and 6 would require the relocation of all of the businesses on this property, which would have a significant impact on the community. In contrast, the building removal required for Alternative 3 could be conducted in phases, allowing the businesses to relocate temporarily, while continuing to operate, as remediation proceeds. Alternatives 5 and 6 would also involve either significant disruption to (or potentially demolition of) two homes west of the railroad tracks.

The estimated present worth cost to implement the remedy is $8,942,000. The cost to construct the remedy is estimated to be $6,897,000 and the estimated average annual operation, maintenance, and monitoring costs for 30 years is $133,000.

The elements of the selected remedy are as follows:

1. A remedial design program will be developed to provide the details necessary to implement the remedial program.

2. Soils containing visible evidence of MGP tar and/or containing total PAHs greater than 500 ppm will be removed from the portions of the site and the property owned by the NFTA as shown on Figure 6. Three buildings which are located above substantial amounts of contaminated material will be demolished to permit access. Excavation in the vicinity of the fiberoptic cable will be coordinated with the owner of that line. Any MGP tar left beneath the railroad embankment, cable or buildings will be isolated from the clean backfill by an appropriate barrier. Excavation will be performed in a manner which will adequately control vapors and odors.

3. Underground collection trenches will be constructed around the Sportsmen's Club and also west of the site. MGP tar in the vicinity of these trenches will be extracted to the extent possible, and prevent further migration of the tar. The trenches will also prevent contaminated groundwater from entering these off-site buildings.

4. Sediment between the shore and the navigational channel east of the railroad bridge will be removed. The approximate physical extent of this sediment removal is shown on Figure 9, although the exact extent will be determined during the remedial design program.

5. Although no current impact to indoor air has been noted to date, sub-slab depressurization systems will be provided for the five residential dwellings west of the site. Soil gas quality will be monitored at the Open Bible Baptist Church School.

6. Since the remedy results in contamination above unrestricted levels remaining at the site, a site management plan (SMP) will be developed and implemented. The SMP will

include the institutional controls and engineering controls to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) provide for the operation and maintenance of the components of the remedy; (d) monitor the groundwater and soil gas;(e) identify any use restrictions on site development or groundwater use; and, f) provide a groundwater monitoring program including installing monitoring wells and sampling them on a periodic basis. Analysis will include BTEX and PAHs. This monitoring program and the effectiveness of the remedy will periodically be re-evaluated..

7. The SMP will require the responsible party or property owner to provide an Institutional Control/ Engineering Control (IC/EC) certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department annually or for a period to be approved by the NYSDEC, which will certify that the institutional controls and engineering controls put in place are unchanged from the previous certification and that nothing has occurred that would impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with any operation and maintenance or soil management plan.

   Imposition of an institutional control in the form of an environmental easement that will: (a) require compliance with the approved site management plan, (b) limit the use and development of the property to commercial or industrial uses only; (c) restrict use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Erie County Department of Health; and, (d) require the property owner to complete and submit to the NYSDEC IC/EC certification.

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:

1. Repositories for documents pertaining to the site were established.

2. A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

3. A public meeting was held on February 27, 2007 to present and receive comment on the PRAP. In general, the public comments received were supportive of the selected remedy.

4. A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination
June 1996 - July 2004

WASTE	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	14,000 - 38,000	NA	NA
	Toluene	14,000 - 55,000	NA	NA
	Ethylbenzene	1,400 - 8,600	NA	NA
	Xyene (Total)	4,000 - 38,000	NA	NA
Semivolatile Organic Compounds (SVOCs)	Naphthalene	110,000-120,000	NA	NA
	Total PAHs	292,000 - 301,000	NA	NA

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 75	0.06	15 of 56
	Toluene	ND - 340	1.5	9 of 56
	Ethylbenzene	ND - 270	5.5	12 of 56
	Xyene (Total)	ND - 480	1.2	17of 56
Semivolatile Organic Compounds (SVOCs)	Naphthalene	ND - 280,000	13	25 of 56
	Total PAHs	ND - 298,000	500	16 of 56

SEDIMENTS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 0.360	0.006	1 of 4
	Toluene	ND	0.049	0 of 4
	Ethylbenzene	ND - 0.260	0.024	1 of 4
	Xyene (Total)	ND - 0.056	0.092	0 of 4

SEDIMENTS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Naphthalene	ND - 63	0.6	4 of 21
	Total PAHs	ND - 244	NA	NA
	Exceed SCG for at least one PAH	NA	NA	19 of 22

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND - 16,000	1	22 of 37
	Toluene	ND - 5,200	5	10 of 37
	Ethylbenzene	ND - 5,500	5	15 of 37
	Xyene (Total)	ND - 2,300	5	16 of 37
Semivolatile Organic Compounds (SVOCs)	Naphthalene	ND - 9,800	10	12 of 37
	Total PAHs	ND - 14,190	NA	
	Exceeds GW Standards for at least one PAH.	NA	NA	18 of 37
Inorganic Chemicals	Cyanide	ND - 18,300	200	6 of 12

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND	1	0 of 4
	Toluene	2 to ND	5	1 of 4
	Ethylbenzene	ND	5	0 of 4
	Xyene (Total)	1 to ND	5	1 of 4
Semivolatile Organic	Naphthalene	ND	13	0 of 4

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Compounds (SVOCs)	Total PAHs	ND	NA	0 of 4

SOIL GAS	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	28.8	NA	NA
	Toluene	169	NA	NA
	Ethylbenzene	16.6	NA	NA
	Xyene (Total)	78.2	NA	NA

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values;

[c] 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 are exceeded, the sediment is severely impacted. If only the LEL is exceeded, the impact is considered
to be moderate.

For marine and estuarine sediments, change LEL to ER-L and SEL to ER-M in Table 1 and replace the above footnote with:
[c] ER-L = EffectRange - Low and ER-M = Effect Range - Moderate. A sediment is considered to be contaminated if either of these
criteria is exceeded. If both criteria are exceeded, the sediment is severely impacted. If only the ER-L is exceeded, the impact is
considered to be moderate.

NA = No SCG available for the compounds and environmental medium indicated.

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual OM&M	Total Present Worth
1. No Action	$0	$64,000	$984,000
2. NAPL/Groundwater Collection and Treatment	$3,464,000	$148,000	$5,747,000
3. Partial Excavation and Collection Trenches	$6,897,000	$133,000	$8,942,000
4. Full Isolation and Containment	$3,848,000	$178,000	$6,592,000
5. Full Excavation	$12,643,000	$103,000	$14,388,000
6. Removal and Solidification	$10,078,000	$103,000	$11,823,000

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former Gastown MGP Site
Tonawanda, Erie County, New York
Site No. 9-15-171

The Proposed Remedial Action Plan (PRAP) for the Former Gastown 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 14, 2007. The PRAP outlined the remedial measure proposed for the contaminated soil, sediment and groundwater at the Former Gastown 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 February 27, 2007, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) 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 14, 2007.

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: There are a lot of kids in this area. What happens if those kids come in contact with coal tar from digging in their yard or playing on these properties? How much at risk are they for exposure to the contaminants?
RESPONSE 1: Coal tar has not been identified in any residential areas at depths that would be accessible to children digging or playing.

COMMENT 2: We are concerned about the health of local teenagers who swim in that area of the canal. Are they at risk?
RESPONSE 2: No. Contamination was not detected in the water. The only contamination targeted for action is in the sediment in a small area east of the railroad bridge.

COMMENT 3: What are the long-term health effects of contact with coal tar?
RESPONSE 3: Eating large amounts of coal tar may cause a burning in the mouth and throat followed by stomach pains. Long-term (365 days or longer) exposure to lower levels of coal tar by skin or air contact can cause skin damage such as blistering or peeling. Animals fed large amounts of coal tar had convulsions and died, while those fed lower levels had liver and kidney problems. Long-term exposure, especially direct contact with skin to low levels of coal tar has resulted in skin cancer and cancer of the scrotum. Animal studies have also shown skin cancer

from skin exposure to coal tar products. Breathing vapors from coal tar can also cause irritation of the respiratory tract. The EPA has also determined that coal tar is a known human carcinogen.

COMMENT 4: In the soil gas, which chemical that you have found poses the greatest health risks? The Department of Health recently changed their guidelines. Will you have to retest this entire area once those new guidelines are established?
RESPONSE 4: The soil gas investigation was consistent with the current NYSDOH guidance. The chemicals of concern in the soil gas are the BTEX compounds (benzene, toluene, ethylbenzene, and xylene). Of these, benzene is of the most concern for exposure.

COMMENT 5: How many houses was indoor air sampled in?
RESPONSE 5: Indoor air samples were collected in 5 houses and one school. None of the samples identified impacts to indoor air from site related contamination.

COMMENT 6: How do the sub-slab depressurization systems work? What do they look like and how disruptive will they be to my home? How would they work for homes that don't have basements?
RESPONSE 6: These systems have been used commonly to address radon. The sub-slab depressurization systems would consist of a fan, which draws air from below the slab of the building, and vents it into the outdoor air. A properly designed system will create a vacuum below the slab, so any air that flows through the slab will be moving out of the building instead of into it. The fans are relatively small, use little energy, are quiet and generally do not require regular maintenance. The visible parts of the system would be some plastic piping and the fan. The sub-slab depressurization systems work the same for slab-on-grade construction and basements.

COMMENT 7: Who will pay for the sub-slab depressurization systems? Who will pay for the entire cleanup? Will there be a cost to homeowners?
RESPONSE 7: The remedy will be paid for either by the responsible party or by New York State. If the remedy is paid for by the State, efforts will be made to recover those costs from the responsible party. There would not be any direct cost to the homeowners for installation of these systems; however the cost to run the fan would be borne by the property owner.

COMMENT 8: What caused the coal tar to migrate as much as it did at this site?
RESPONSE 8: It appears that the coal tar movement was influenced by both the direction of groundwater flow and by the slope of a confining layer of silt. Groundwater flows from the site in 3 directions (north, east and west). The surface of the confining layer is complex, with several high spots which appear to have restricted the flow of tar.

COMMENT 9: What would stop the coal tar from moving past the area that it is in now?
RESPONSE 9: The tar at this site has been leaking from the holder and other sources for at least 85 years, and has slowly moved by gravity to its current location at rates of a few inches to a few feet per year. The tar appears to be in a state of equilibrium, with the force of gravity balanced by the resistance that the tar encounters as it moves through pore spaces in the soil. However, unless the source areas are removed, relatively minor changes in subsurface conditions

can upset this equilibrium and allow the tar to resume movement. This appears to be what happened at the Gastown Sportsman's Club, where tar appeared in areas where it had not been seen previously. Removing the source areas, where the tar is at relatively high elevations, will greatly reduce the gravitational forces that can cause tar movement, and will thus reduce the potential for further movement in the future.

COMMENT 10: What will stop the coal tar on Carney Street that isn't excavated as part of the remedy from moving in the future? We live just across the street. Couldn't it easily move over to us?
RESPONSE 10: In order for the coal tar to move, there needs to be a driving force. The force which moved the tar from the site to Carney Street was pressure created by gravity pulling on the mass of contamination at the site. This driving force will be eliminated by removing the mass of contamination and also by installing a collection trench between the Sportsmen's Club and the residential community.

COMMENT 11: Niagara Mohawk installed something in this area in the past few years – could that work have caused the movement of the coal tar?
RESPONSE 11: Any significant subsurface work could have the potential to re-mobilize tar. We are not aware of the Niagara Mohawk (a.k.a. National Grid) work referenced here.

COMMENT 12: Could the severe October storm that we recently experienced have affected the movement of contamination?
RESPONSE 12: Individual storm events would not be expected to have any impact on the subsurface contamination.

COMMENT 13: What is the range of elevations within the contaminated area?
RESPONSE 13: The shallowest coal tar is at the north east corner of the site, where it has been identified approximately 4 feet below the ground surface. The coal tar is at least 12 feet below the ground surface in all residential areas.

COMMENT 14: How can you predict where the coal tar will migrate?
RESPONSE 14: Efforts to predict where coal tar will move have not been particularly effective. Instead, we investigate the sites to demonstrate where it has moved and then use site-specific data to develop an understanding of the natural conditions and forces which resulted in its movement.

COMMENT 15: Do you have any evidence of multiple releases of coal tar, or is there just that one instance?
RESPONSE 15: Coal tar accumulated in the MGP structures throughout the operation of the plant, and this coal tar has subsequently leaked from these structures into the environment gradually from the start of operations to the current time. Some disposal may also have occurred during operation and/or closure of the MGP.

COMMENT 16: The ground shakes significantly when the railroad cars pass. I know this because my house is nearby to the tracks and it shakes each time a train passes. Could the train's force affect the movement of the coal tar plume?
RESPONSE 16: We have seen coal tar mobility affected by railroad tracks at a number of sites. In some cases, the vibration appears to increase the mobility. In other cases, the train traffic appears to have compacted the ground under the tracks decreasing mobility. At this site, it appears that the tracks may have increased the mobility slightly, since it is only near the tracks that we see coal tar migrating across East Niagara Street.

COMMENT 17: How far down was coal tar or vapor found in the contaminated area that you designated?
RESPONSE 17: The coal tar was found as shallow as 4.4 feet below ground surface and as deep as 22.4 feet. The soil vapors would be in the area of the soil above the water table (typically about 5 to 10 feet below ground surface). Contaminant levels in soil vapor due to coal tar decline as the vapors move upward, away from the water table.

COMMENT 18: My house on Carney Street has sunk 3 inches in recent years. I think it is due to your coal tar removal system. If you are removing a significant amount of substance from the ground, you will damage existing structures, such as my house.
RESPONSE 18: There is no reason to believe the coal tar removal system would be contributing to the settling of this house. The capture zone for that well has been mapped, and does not extend beyond the Sportsmen's Club property.

COMMENT 19: How much coal tar has already been collected?
RESPONSE 19: Approximately 1,750 gallons.

COMMENT 20: How often do you monitor the wells that are installed currently? Have you monitored them since you created the map that you are referring to? What if contaminants have moved since then? Has there been any contaminant movement that you have recorded? How do you know that the green spots on your map that represent clean test sites are still clean? Will you recheck wells if there is a long time before cleanup construction occurs?
RESPONSE 20: The monitoring wells have not been monitored since the completion of the remedial investigation in 2004. We anticipate that the wells will be monitored again as part of a pre-design investigation. As discussed in Response #9, given the slow movement of the coal tar absent a driving force, such as the removal at the Sportsman's Club, movement of the tar in the period since the last measurement is not believed to be significant.

COMMENT 21: How will the coal tar collection system work?
RESPONSE 21: The trenches would be excavated down to the clay. Appropriate collection piping would be placed in the excavation. The excavation would be backfilled with crushed stone. Some tar would be expected to move by gravity into the trenches, and this tar would be collected and pumped into a central treatment building. Tar is also expected to be drawn in by the groundwater flow into the trench. In addition to collecting tar and preventing its further movement, the collection trenches will also keep the groundwater below the nearby basements to ensure that contaminated groundwater does not enter the buildings.

COMMENT 22: What will the excavated area be backfilled with?
RESPONSE 22: It would be expected to be a clean granular material (sand or gravel) which will be easily compacted and would not settle over time.

COMMENT 23: How do you clean up the soil that you excavate? Will that soil be treated on-site?
RESPONSE 23: The soil would be transported off-site to a permitted treatment or disposal facility. This would most likely be a low temperature thermal desorption unit which would heat the soil to drive off volatile chemicals. These chemicals would then be captured and destroyed.

COMMENT 24: What will happen to affected groundwater? Will contamination always remain in the groundwater? Will it always exist along the edges of the removal area?
RESPONSE 24: Since coal tar will remain under the tracks indefinitely, some groundwater contamination will also remain. The groundwater will be monitored.

COMMENT 25: What will happen to the value of our homes? How does this contamination and associated cleanup project affect our property values?
RESPONSE 25: This question is beyond the scope of this remedy document.

COMMENT 26: What will be the location of the pumping station that you are proposing as part of the remedy?
RESPONSE 26: It is currently envisioned to be on site. A final location will be identified during the design of the system.

COMMENT 27: What will the pumping station look like? How large will it be?
RESPONSE 27: It is expected to be a small shed. Exact dimensions will be determined during the remedial design.

COMMENT 28: What will the treatment system do with contaminants that are collected through the pumping station?
RESPONSE 28: The coal tar would be separated and shipped off-site as hazardous waste. This is how it is handled presently. There are numerous technologies which could be used to address the remaining dissolved contamination, including off-site disposal, air stripping, oxidation, and activated carbon.

COMMENT 29: What is the schedule for this project? Duration of cleanup? Anticipated start date? How long will the entire project take?
RESPONSE 29: The schedule will be determined during the remedial design. However, it is anticipated that the project will require 2-3 years to design and then 2 years to complete.

COMMENT 30: We (Sportsmen Club) reviewed the PRAP. It says in the PRAP that there will be 2 vents installed in the Sportsmen's building. Is that true?
RESPONSE 30: No. There is no reference to vents in the Sportsmen's Club in the PRAP.

COMMENT 31: What, if any, buildings will be demolished for excavation work?

RESPONSE 31: As shown on Figure 6, it is anticipated that 3 on-site buildings will be demolished as part of the excavation work. As noted in Comment 65, some uncertainty exists regarding a fourth building nearby. This uncertainty will be resolved during the Remedial Design.

COMMENT 32: Please explain Item #7 in the PRAP. What does the site management plan and institutional controls involve and which properties do they affect?
RESPONSE 32: The site management plan (SMP) would not restrict the use of off-site properties, and would not obligate the owners of off-site properties to provide any certification to the NYSDEC. The SMP would restrict use of the on-site property, and would obligate the remedial party (NYSDEC or the responsible party) to maintain all aspects of the remedy including the trenches, treatment system and the sub-slab depressurization systems.

COMMENT 33: How far out will the trenching extend? What will the trenches look like? Do you have a construction plan for the trenches that we can see?
RESPONSE 33: The trenches would typically be 1 to 2 feet wide, backfilled with stone. The anticipated extent of trenches is shown on Figure 6. The alignment of the trenches will be determined during remedial design of the remedy. The construction details will also be finalized during design. Also see Response # 21.

COMMENT 34: Will there be sheet pile put up against the railroad tracks permanently to ensure that contamination doesn't migrate again due to soil movement possibly caused by the passing of trains?
RESPONSE 34: During the remedial design, we will determine whether to leave sheet piling between the collection trench and the excavated portion of the site on the east side of the tracks to prevent re-contamination. Sheet piling will not be installed west of the tracks, since we would want contamination to be able to move from under the tracks to the collection trench on the west of the tracks for removal.

COMMENT 35: Will the railroad let NYSDEC install sheet pile around the tracks?
RESPONSE 35: We expect that we will need to stay off the railroad property.

COMMENT 36: Is there a design available for the remedy?
RESPONSE 36: Once the ROD is signed, the NYSDEC will approach the potential responsible parties (PRP) to implement the remedy. The remedial design will begin only after we complete our negotiations with the PRP.

COMMENT 37: Does the PRP have a right to modify the remedy design?
RESPONSE 37: The PRP will be expected to implement the remedy selected by the ROD. There is a process for modifying a remedy after it has been selected; however, any change is predicated upon new information which shows the need for a change. The community would be notified if any significant changes are made. If the remedy were fundamentally changed, a new Record of Decision would be required, with a public meeting and comment period.

COMMENT 38: Does NYSDEC have any requirements about public notification for real estate transactions?
RESPONSE 38: Any change of use of the listed site would be subject to notification to the NYSDEC. No off-site notifications to the NYSDEC are required.

COMMENT 39: Please make sure that the Sportsmen's Club is notified of all activity and included on all mailing lists for this site.
RESPONSE 39: The Sportsmen's Club is on the mailing list, so fact sheets and other site related mailings will continue to be sent to that address. In addition, everyone who signed in at the public meeting has been added to the mailing list and will be provided with future mailings. Anyone else who wishes to be included on the mailing list should contact the NYSDEC project manager.

COMMENT 40: I appreciate DEC's diligence at this site. It appears that you did a thorough job of delineation and are taking a serious look at the best cleanup options possible. Thank you.
RESPONSE 40: Comment noted.

COMMENT 41: Will this be a seven day a week project? I ask because this area has a lot of traffic on Sundays due to the local football games.
RESPONSE 41: The site work would not be expected to require weekend work.

COMMENT 42: Will there be dump trucks during cleanup? Which way will they go and will they affect our traffic? Will we be blocked in?
RESPONSE 42: We would anticipate a dozen or so dump trucks per day during the excavation. There does not appear to be any choice regarding how trucks are routed. They will have to go east along E. Niagara Street to Route 425, since the railroad bridge is too low for them to pass under. The dump trucks would not be permitted to block the road.

COMMENT 43: Will you have to re-route school buses during cleanup?
RESPONSE 43: No. This is not anticipated.

COMMENT 44: So during the excavation, everything involved in the cleanup will be contained on site? There won't be anything blocking the road?
RESPONSE 44: Other than occasional limited interruptions to move equipment around the site, it is anticipated that the only time the road will be blocked would be during installation of the trench under the tracks.

COMMENT 45: During remediation, will there be odors? Will our neighborhood will be dusty and smell during the entire cleanup?
RESPONSE 45: The remedial design will include a community air monitoring plan which will include control measures to address dust and vapors. There may be some occasional odors, but the work will be performed in a manner to prevent any health impacts and also prevent creating dust or strong, persistent odors.

COMMENT 46: Will air quality in the Sportsmen's Club be monitored as cleanup proceeds, especially during excavation, to address our inhalation concerns?
RESPONSE 46: See Response 45.

COMMENT 47: My husband has severe respiratory issues. Will he be impacted by air odors during cleanup? Should we be concerned? How can we protect him from harmful inhalations?
RESPONSE 47: The Community Air Monitoring Program is designed to protect individuals from impacts during the remediation. If anyone has special needs, they should consult their health care provider and contact the NYSDEC and NYSDOH so that appropriate precautions can be taken.

COMMENT 48: Are there any other MGP sites in Gastown?
RESPONSE 48: We are not aware of any.

COMMENT 49: Will you be coming out to meet with the public again before cleanup?
RESPONSE 49: A meeting will be held to present the remedial design. Additional fact sheets and meetings may be provided if appropriate.

Jason LaMonaco, P.E. the Tonawanda City Engineer submitted a letter dated March 2, 2007 which included the following comments:

COMMENT 50: The storm and sanitary sewers in this area generally run at or below the water table. The sanitary line along East Niagara Street ranges in depth from 11 to 14.5 feet. Would the sewers serve as a potential pathway for the contaminated groundwater to reach Tonawanda Creek (storm) or to contaminate the City sewage collection/pumping system?
RESPONSE 50: We do not believe that there is any coal tar above 14.5 feet in the area of the sanitary sewer. This will be confirmed during the pre-design investigation. It is possible that contaminated groundwater could enter the sanitary sewer. This will be addressed in the "Excavation Protocol" described in Response 51.

COMMENT 51: What dangers are posed to City maintenance crews or to contractors that may be needed to repair or replace the sewer system in the vicinity of the groundwater or coal tar contamination.
RESPONSE 51: The NYSDEC will provide an "Excavation Protocol" to the City, Erie County Water Authority and any other utility owners which will describe the steps to take if working in the area of contamination.

COMMENT 52: If the City or other utility does need to work in this area, would they be responsible for the cost of soil characterization, plan development and disposal of contaminated soil?
RESPONSE 52: The responsibility for such costs is beyond the scope of this decision document and will instead be addressed in the excavation protocol.

COMMENT 53: Will the sub-slab depressurization systems require continuous monitoring? Who will be responsible for the operation and maintenance of the systems?

RESPONSE 53: These systems are very simple and reliable, so little or no maintenance would be anticipated. The remedial party will be required to periodically certify that the systems are in place and operational. If there are any operational problems, they would be addressed by the remedial party.

COMMENT 54: It appears that the westernmost trench should extend further to ensure containment.
RESPONSE 54: The exact alignment of the trenches will be determined during the remedial design. On both the eastern and western edge of the contamination, only a thin seam tar is present, at a depth of approximately 20 feet. This contamination would not be expected to be highly mobile or to create any significant exposure potentials.

COMMENT 55: The City sanitary sewer system has capacity issues. Can the water go to the creek instead of the sanitary sewer?
RESPONSE 55: Yes. We can plan to discharge to the creek if necessary.

COMMENT 56: If the site is limited to commercial/industrial use due to residual contamination, then why won't the residential area where contamination is present be similarly restricted?
RESPONSE 56: The remedy will be protective of the health of these homeowners since any potential exposures to them will be addressed by the remedy. On the site, some contamination will remain, which could result in exposure if the site were redeveloped for residential use. These exposures can be controlled in the current commercial or industrial use of the site. This restriction recognizes this current use based on the extent of the selected remedy.

COMMENT 57: The remedial party (DEC or National Fuel Gas) will be required to provide certification that institutional and engineering controls remain effectively in place. Does this include the residential properties east and west of the site?
RESPONSE 57: These properties will not be encumbered by any environmental easement. The remedial party would be required to certify that all components of the remedy, including sub-slab depressurization systems and collection trenches, are in place and functioning. Off-site property owners will be provided an "excavation protocol" providing guidelines for planning and executing excavations should the need ever arise to excavate to the 20 foot depth where contamination exists.

Norman Schepperly submitted an e-mail dated March 14, 2007 which included the following comment:

COMMENT 58: This question is in regard to current business owners at the 126 East Niagara Street MGP Site. How will it be determined if a business is to be displaced? And, if a business is to be displaced, how will they be accommodated? Who will pay for a move if it is deemed necessary? The Parking Lot behind the building that is shown to not be demolished is a vital part to the business practice of that existing business, without use of that area, business cannot proceed.

RESPONSE 58: The NYSDEC is sensitive to the needs of the businesses at this site. As a first step in the design process, the NYSDEC, along with the PRP if they are the lead for the site, will meet with the business owners to discuss impacts to their operations during the remediation. We will strive to plan and phase the project to allow as many of the current businesses to remain on site as possible.

Mr. David P. Flynn of Phillips Lytle LLP, representing National Fuel Gas Distribution Corp. ("National Fuel") submitted a letter dated March 14, 2007 which included the following comments:

Comment 59: Since this site has multiple uses the NYSDEC should break the Site down into separate operable units with different SCGs. SCGs require that the industrial land use play a material role in selecting a remedy and selecting appropriate cleanup goals and objectives for soils.
Response 59: The goal of the State Superfund is to restore a site to pre-disposal conditions to the extent feasible and allowed by law. Furthermore, all remedial sites are required to address sources or source areas. The source areas are the areas being targeted by the remedy. Dividing projects into operable units is done at DEC's discretion, for purposes of expediting cleanup of part of the site or for other administrative reasons.

Comment 60: No references are provided for the factual allegations set forth in Section 3.1 (Operation/Disposal history) of the PRAP. In particular, the opinions expressed regarding the nature of by-products produced via the manufacture of gas, their physical characteristics, and their relative value in the marketplace 80+ years ago is unsupported.
Response 60: The facts regarding operational history were taken from records of the Public Service Commission filings by the site operator. These records are available in the State Archives in Albany. The relative value of water gas and coal gas tar is well documented, both in PSC records for MGPs statewide and in numerous publications by industry professionals.

Comment 61: National Fuel has established that it is not the "corporate successor" to the Tonawanda Gas Light Company. National Fuel did, at one time, own a portion of the Site. As an intervening owner, National Fuel has not been provided with any evidence of a release of hazardous waste on-Site during its period of ownership. It is for these reasons that National fuel declined to implement an RI/FS for the Site.
Response 61: National Fuel (NFG) is currently considered a potential responsible party. NFG's liability will be reviewed in the upcoming negotiations by Department legal staff.

Comment 62: It is inconsistent with accepted practice to produce an FS before the RI is approved. Further, it is notable that 2 years passed before the PRAP was produced. The alternatives considered in the PRAP are not consistent with the alternatives in the FS.
Response 62: It is inaccurate that the RI and FS must be prepared sequentially. Guidance from both USEPA and NYSDEC emphasizes the interactive nature of the entire RI/FS process. There is no requirement for the PRAP to precisely mirror the FS. 6NYCCR375-2.8(c)(4) provides that the NYSDEC shall select the remedy either from the feasibility study or may select an alternative "developed by the NYSDEC in addition to those presented by the feasibility study".

Some alternatives from the FS were modified while preparing the PRAP. The selected alternative combined components from a number of alternatives.

Comment 63: The RI for this Site left many key characteristics undefined. The FS should not have been completed. The basic information has so many significant data gaps, the FS is fundamentally flawed. The FS followed the pattern of the RI, focusing solely on coal tar NAPL. Given the weaknesses of the RI, the FS was built on a series of unproven and incorrect assumptions.
Response 63: The RI thoroughly investigated the nature and extent of the contamination, and established the source areas from which it is derived. The FS and PRAP built upon the RI and established the most appropriate response to remediate the contamination.

Comment 64: The RI did not achieve the goal to "Determine the sources of contamination…" For example, Figure 3-1 shows the locations of gas holders, but no indication of where liquid by-products were managed or stored on-Site.
Response 64: The NYSDEC disagrees. Historic drawings and photographs show that the production facilities were located in the northern portion of the site. Tar handling equipment is not shown on the historic "Sanborn" fire insurance maps available to the NYSDEC, but the metal tank unearthed during test pitting appears to be the tar tank. Based on our experience at other MGP sites, the other tar handling facilities are expected to be located near the tar tank and the production facilities in the north east portion of the site. Any nearby source areas or tanks will be readily recognizable and will be removed as this area is excavated.

In preparing the response to this comment, the NYSDEC reassessed all RI information in this area, and found that impacts in one soil boring, SB-60, had been under-represented on Figures 6-1 and 6-2. This boring had significant contamination throughout the overburden. Additional investigation will be required inside the building immediately north of that boring during the remedial design. If necessary, this building will be included in the demolition plans, and the excavation will be extended northward.

Comment 65: According to the RI, surface soils do not pose a risk, although there is no sampling or data in the RI to support this conclusion. To the extent there is fill at the surface, it is unknown if it meets the applicable goals established by NYSDEC regulations or the PRAP.
Response 65: Surface material at the site was placed after the end of MGP operations and is thus not related to the operation of the MGP. Low levels of PAHs are often found in surface soils near railroad tracks, automobile parking, and industrial activities.

Comment 66: During the RI, the contractor did not look for purifier wastes. There is no way to know if there is purifier waste or other byproduct wastes in surface and other vadose zone soils. In the FS/PRAP the costs of soil excavation ignore purifier wastes.
Response 66: This is not correct. Purifier waste is readily identifiable visually, and was only noted in two areas: one in a soil boring and another in a test pit. In both cases, nearby observations limit the possible size of the waste deposit in all three dimensions. The volumes would thus not be significant relative to the excavation already proposed. Additional delineation and analysis of this material will be completed as part of the pre-design investigation.

Comment 67: The RI focused solely on coal tar and resulting impacts. There was no recognition of the overall impacts associated with an MGP, or of how those impacts occurred. Information is missing in the RI connecting the NAPL to the former MGP structures which are the principal sources of NAPL.
Response 67: The connection of the NAPL to the source areas has been determined with a very high degree of certainty**.** This site came to DEC's attention due to the infiltration of coal tar into an occupied building. A search of historic records identified the nearby MGP as one obvious source of this coal tar contamination. The Remedial Investigation then provided overwhelming evidence of a contaminant migration pathway linking the contamination with the source. Elevated analytical results of other compounds such as metals were co-located with visual evidence of coal tar contamination, so separate discussion of their areal extent was not necessary.

Comment 68: The impacts identified in the RI are limited to NAPL in the strata above the Glaciolacustrine Silty Clay. That clearly under-represents the scope of conditions that the NYSDEC will ultimately require be addressed at the site.
Response 68: The RI included sufficient borings into the underlying material to define the vertical extent of contamination.

Comment 69: Polychlorinated biphenyls (PCBs) were detected in one subsurface soil sample collected during the RI. Again the RI is incomplete, looking at one byproduct rather than at all operations that would have occurred at the MGP.
Response 69: PCBs are not a by-product of any known MGP process, and their commercial production and use began more that two decades after this MGP shut down. Consequently, it is difficult to imagine how MGP operations would have produced PCB contamination. A single, low-level detection in an otherwise industrial setting was not considered further.

Comment 70: There are no quantifiable data that can be used to determine if collection trenches are needed or if they will be effective.
Response 70: The primary purpose of the trenches is to prevent further migration of contamination and to prevent human exposure. Since the coal tar is clearly mobile, some means of stopping movement is necessary and trenches appear to be the most effective means of doing so. As for effectiveness, NYSDEC recognizes that the trenches will not be fully effective in removing all of the tar contamination from the subsurface. This is why alternatives which called for total reliance on trenches were rejected.

Comment 71: Earth Tech never did a geophysical survey of the site. This raises the question of how many utilities, other tanks, or other foundations that could be acting as sources exist at the site. The occurrence of NAPL in the Sportsman's Club sump could simply be the result of an abandoned utility being cut when they put in the basement.
Response 71: The basement of the Sportsmen's Club had been in place for several years before the coal tar appeared, so a simple "utility cutting" explanation during construction of the basement is unlikely. The soil borings clearly show that coal tar has migrated through native subsurface soils to locations very near the Sportsmen's Club. The precise pathway by which it moves the last few feet and enters the building sump has not been established, and NYSDEC

recognizes subsurface utilities may have played a role. However, there is no way to verify this using geophysical techniques. Geophysics can sometimes identify where the utilities are, but can not determine which ones have coal tar migrating along them. Direct visual observation (and removal of any utilities found to be facilitating tar movement) will be possible when the proposed trenches around the building are constructed.

If they exist, other sources in the northern portion of the site will be identified and removed during the excavation.

Comment 72: In the FS, human health risks posed by incomplete exposure pathways to subsurface soils, NAPL, and groundwater were used to drive actions.
Response 72: Incomplete exposure pathways are commonly used to drive remedial actions. As stated in the PRAP and ROD, these incomplete exposure pathways represent "a threat to human health associated with potential exposure to groundwater, subsurface soil and soil vapor." Given the history of this site, in which high-concentration hazardous wastes have migrated beneath occupied off-site buildings and entered one of them, the currently incomplete exposure pathways clearly constitute a significant threat. Furthermore, DEC's experience at other MGP sites statewide lends particular credibility to exposure scenarios involving underground utility worker exposures.

Comment 73: There is inconsistent screening of technologies. At one point excavation of a trench is considered "impracticable" but mass excavation is considered practical; yet the selected remedy requires driving sheet pile and excavation. Trenching and excavation use the same equipment and techniques: if you can excavate, you can trench.
Response 73: The only remedy specifically identified as "impracticable" was the full excavation remedy. The FS characterizes interceptor trenches as a "very useful and cost efficient method for recovering product from shallow and/or tight soils as present at the Site."

Comment 74: The RI did not provide a thorough compilation of the data, risk assessment, and specific environmental factors affecting the attenuation of compounds in the environment.
Response 74: Attenuation of NAPL is not a significant consideration, because there is no reason to believe that it takes place. Attenuation of dissolved phase contamination was thoroughly considered; however, as long as large volumes of NAPL remain at the site, this attenuation is of limited importance.

Comment 75: In the FS/PRAP the cost of the depressurization systems in the homes ignores the costs for testing, access, and operation. The cost of excavation, disposal, and replacement of the soils from the main excavation is $75 per ton. The cost of soil disposal alone for the trenches is $65 per ton. The cost of site restoration and building construction is simply for the building, ignoring the costs of foundations, infrastructure, and amendments. For example, there is no cost to replace sidewalks, parking areas, or utilities.
Response 75: The ROD provides a reasonable basis for comparison of the alternatives, although we acknowledge that the overall cost may be higher than the dollar values indicated.

Depressurization systems are quite simple and have proven quite reliable, so the NYSDEC has not required any ongoing testing. Access payments will not be necessary since the systems are being provided at no cost to the homeowner. The homeowner will be responsible for operation. The NYSDEC believes the cost used for soil removal of $75/ton is reasonable, particularly if low temperature thermal desorption is readily available. The cost proposed by NFG of $75/ton for excavation and backfill, and an additional $115/ ton for disposal appears to be unreasonably high.

On the other hand, the cost figures provided by NFG point out that the cost per ton used in the FS for in-situ stabilization of $195/ton are no longer appropriate based on current market conditions. Accordingly, we have reduced the cost of PRAP Alternative 6 by $2.4 million. With this change, we believe that the PRAP, and now the ROD, provides a reasonable basis for comparison, while acknowledging that the overall cost may be higher than the dollar values indicated.

Comment 76: The FS states that if there is evidence of NAPL outside the excavation, provision must be made to prevent contamination of the backfill. No costs for such provision are included.
Response 76: This requirement is not expected to be a significant cost. This is considered a design detail. The intent is not to provide an impermeable barrier, but rather to provide a material that is somewhat less permeable than the native material. Using a flowable fill in the area immediately adjacent to the sidewall would be one relatively inexpensive approach.

Comment 77: The RI identified "pure crystalline" naphthalene in the soil. Neither the RI nor the PRAP mention these materials in the key findings. If the materials are not coal tar NAPL, the RI, FS, and PRAP seem to suggest it is acceptable to ignore these materials. During the remediation, the NYSDEC will require these be removed; the cost estimates should reflect these known costs.
Response 77: The presence of the naphthalene crystals is described in the "waste material" section of the PRAP, immediately following the description of the tar. Their removal is included in the "common elements" for all alternatives (included under "metal tank removal"). The cost of these common elements is included in the figures provided for each alternative.

Comment 78: It is inconsistent with accepted practice to have a leaking UST (a potential ongoing source of contamination) at a site that was not sampled and remains uncontrolled years after the conclusion of a site investigation.
Response 78: Removal of these structures is an important part of the remedy. Accelerated action during the design process will be considered.

Comment 79: The extent of groundwater contamination is related to ongoing releases from uncontrolled onsite sources, partitioning of constituents from the NAPL and impacted soils. Unfortunately, leaving a UST full of liquid at the site masked the importance of ongoing attenuation mechanisms.
Response 79: The source of the groundwater contamination is the large mass of coal tar which has spread through subsurface soils over the past several decades, not just the comparatively small, contained material still in the tank. Although biological activity is an important factor in

limiting the areal extent of dissolved groundwater contamination, Department experience at dozens of sites indicates that attenuation of undissolved NAPL does not occur to a measurable degree.

Comment 80: Tonawanda Creek is contained by a concrete retaining wall that extends from the northwest corner of the Site (at the railroad bridge) several hundred feet westward. The navigation channel for the creek is just north of this wall. The retaining wall rises approximately 8 feet above water surface in Tonawanda Creek. The depth of water in the creek is approximately 14 feet. The RI did not gather the data on how deep the retaining wall penetrates below the ground surface, but it *must* extend well below the water table.
Response 80: The concrete retaining wall is not present east of the railroad bridge where site related impacts were observed. Consequently, its depth below the water table is irrelevant.

Comment 81: Tonawanda Creek sediment contamination in the vicinity of the Site appears to be restricted to a relatively limited area near the shoreline between the railroad bridge and the loading dock. The missing consideration is whether the PAHs detected in the sediment could be from the railroad, railroad bridge, or watercraft. The potential contribution of the bridge operation, railroad, and watercraft on sediments is ignored. These are all likely sources of the PAHs in sediments. In order to consider risks of ecological exposure to PAHs, the PAHs must be linked to the site. Additional investigation is needed comparing the constituent makeup of the PAHs in sediment to those on the Site
Response 81: The only area slated for sediment remediation has coal tar impacts which were clearly identifiable visually and by odor, and is located where the subsurface tar plume emanating from the MGP site intersects the Creek. The characterization of this high-level contamination and its origin is clearly MGP.

PAHs were also observed elsewhere in the study area of Tonawanda Creek at levels above NYSDEC sediment screening levels. NYSDEC acknowledges that there are other potential sources of low-level PAH contamination in sediments, and this is discussed in the PRAP. The PAHs seen in a wide area at levels above 4 ppm but below 20 ppm were assumed to be attributable to the other sources described above. A more precise delineation of the boundaries of the MGP contamination will be performed during the Remedial Design.

Comment 82: The *in situ* treatment (biological and chemical) and soil vapor extraction/dual phase groundwater extraction were not adequately considered as remedial alternatives.
Response 82: The NYSDEC disagrees. These technologies were all seriously considered in our assessment of remedial options at this site.

APPENDIX B

Administrative Record

Administrative Record

Gastown Former MGP Site
Site No. 9-15-171

1. Proposed Remedial Action Plan for the Gastown Former MGP Site, dated February 2007, prepared by the Department.

2. Site Investigation Report Former Gastown MGP Site, Dated January 2001, prepared by the Department

3. Remedial Investigation Sampling and Analysis Plan, Gastown Former MGP Sites, May 2001, Prepared by Earth Tech

4. Remedial Investigation Report, Gastown Former MGP Site, December 2004, prepared by Earth Tech.

5. Feasibility Study Report, Gastown Former MGP Site, February 2005, prepared by Earth Tech

6. Fact Sheet dated July 2001, "Remedial Investigation, Former Gastown MGP Site"

7. Fact Sheet dated October 2002, "Remedial Investigation, Former Gastown MGP Site"

8. Fact Sheet dated May 2004, "Remedial Investigation, Former Gastown MGP Site"

9. Fact Sheet dated February 2007, "Remedy Proposed for the Former Gastown MGP Site"

10. Letter dated March 2. 2007 from Jason LaMonaco, P.E. Tonawanda City Engineer

11. Letter dated March 14, 2007 from David P. Flynn, Phillip Lytle LLP representing Nation Fuel Gas Distribution Corp.

12. E-mail dated March 14, 2004 from Norman Schepperly.

Figure1 - Site Map
Gastown MGP Site ROD

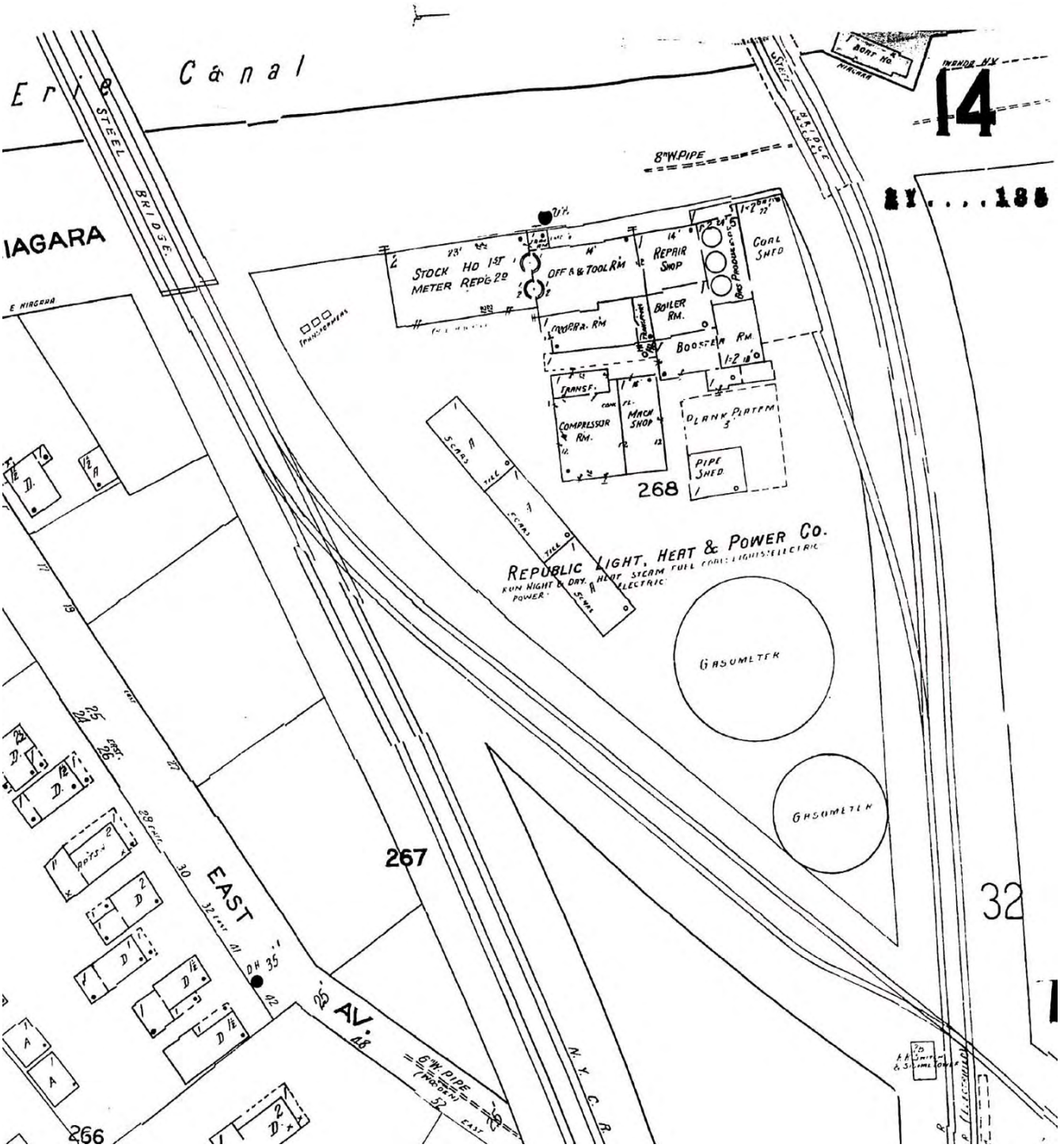

Figure 2 - Historic Structures
Gastown MGP ROD

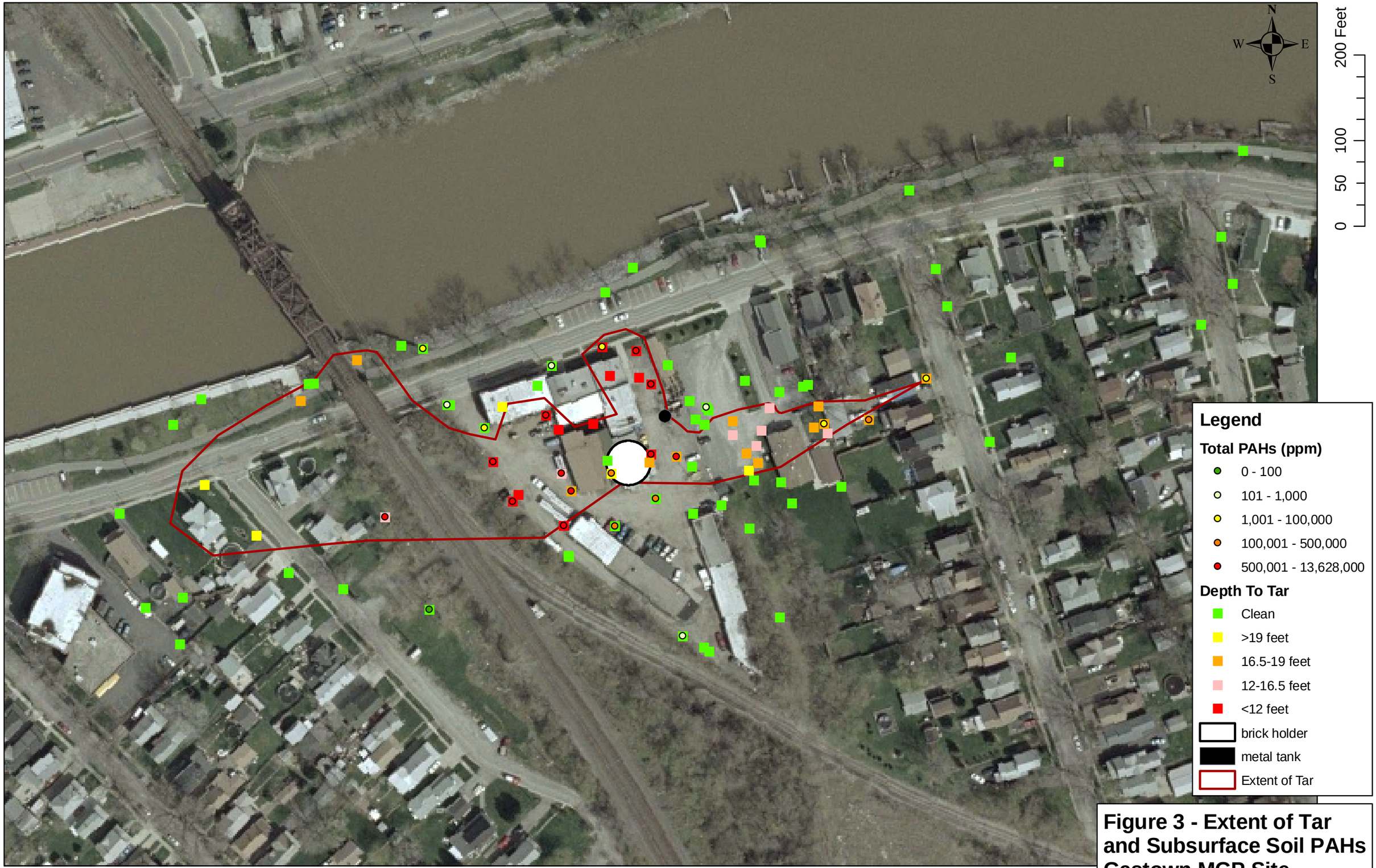

Figure 3 - Extent of Tar and Subsurface Soil PAHs Gastown MGP Site

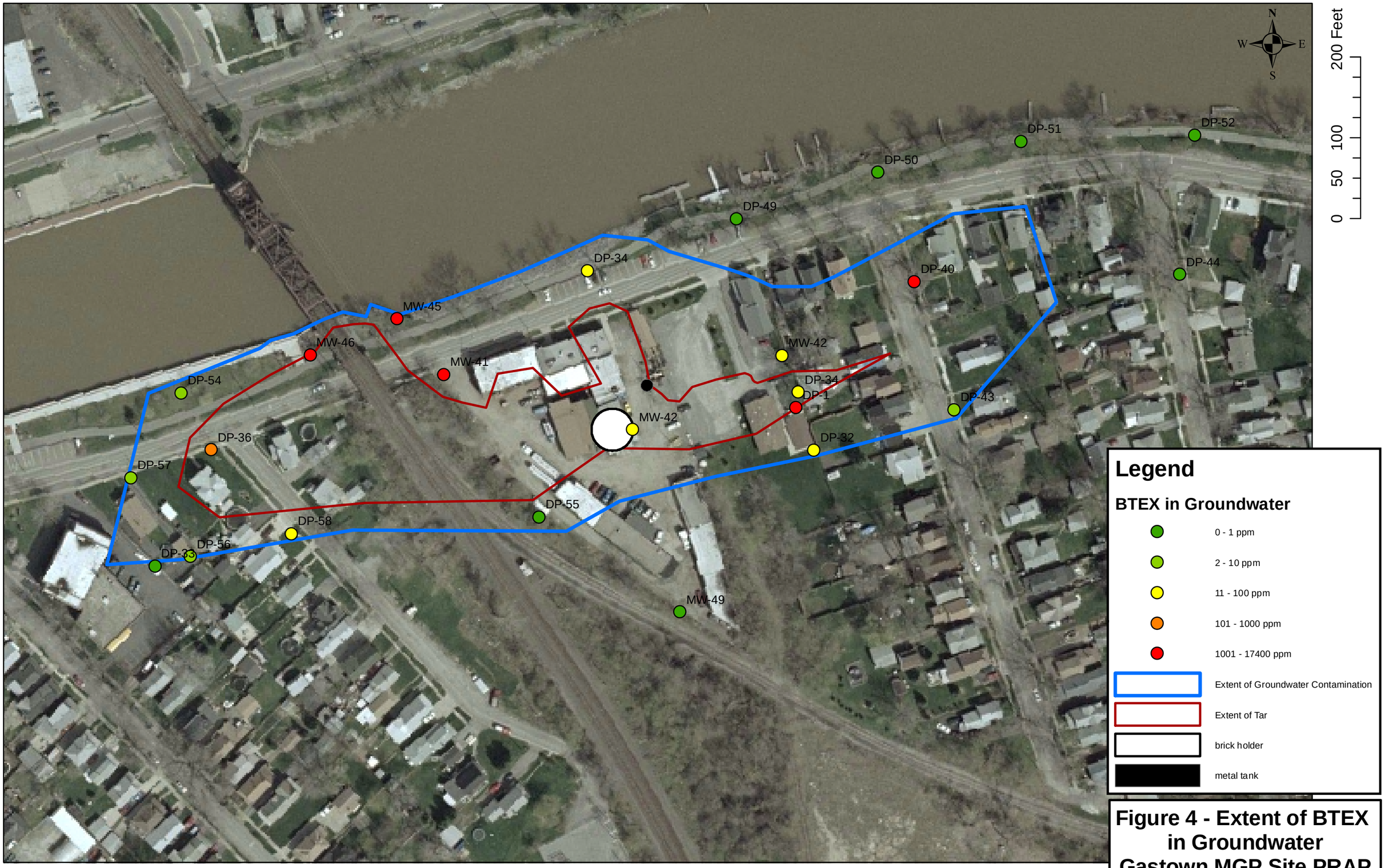

Figure 4 - Extent of BTEX in Groundwater Gastown MGP Site PRAP

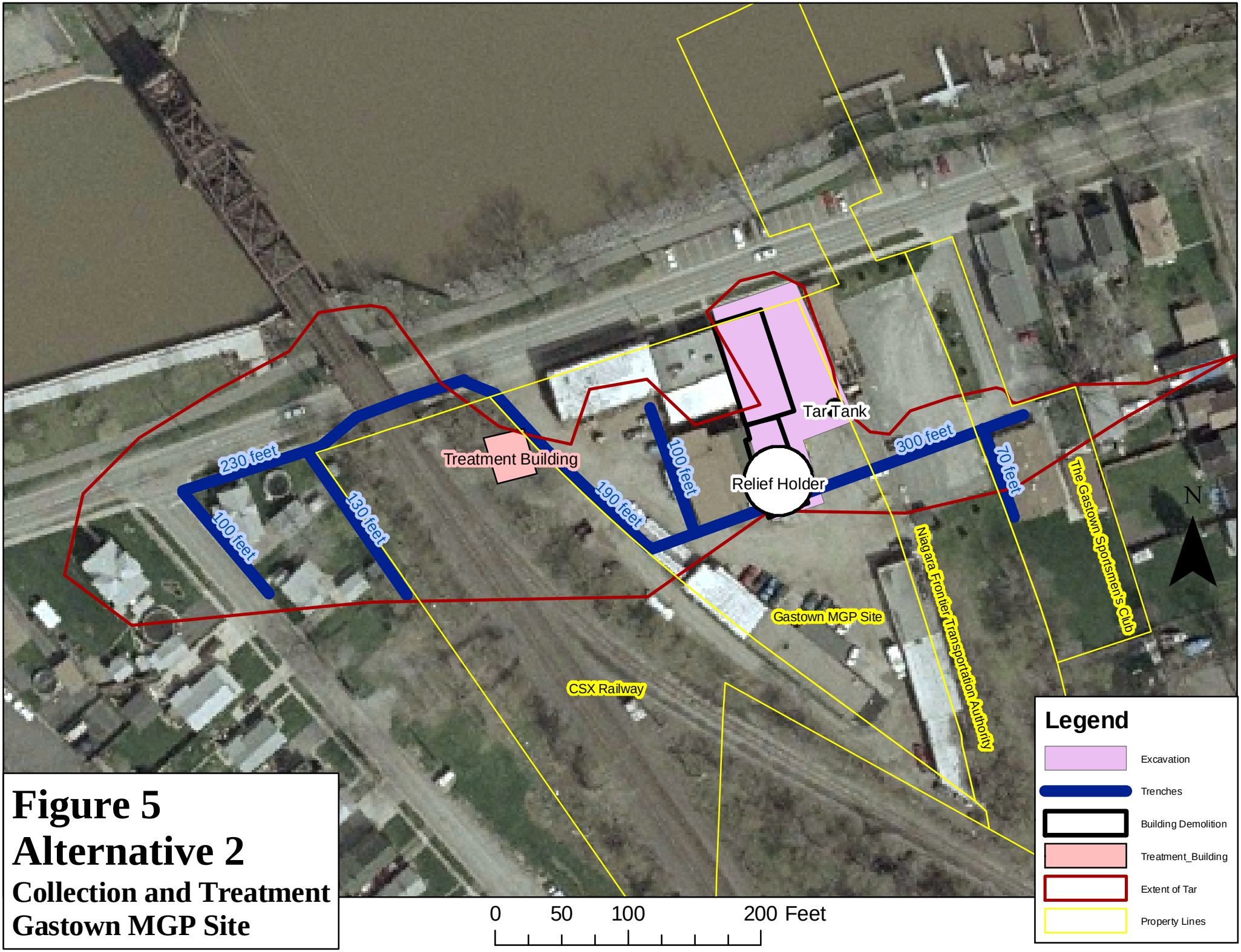

Figure 5
Alternative 2
Collection and Treatment
Gastown MGP Site

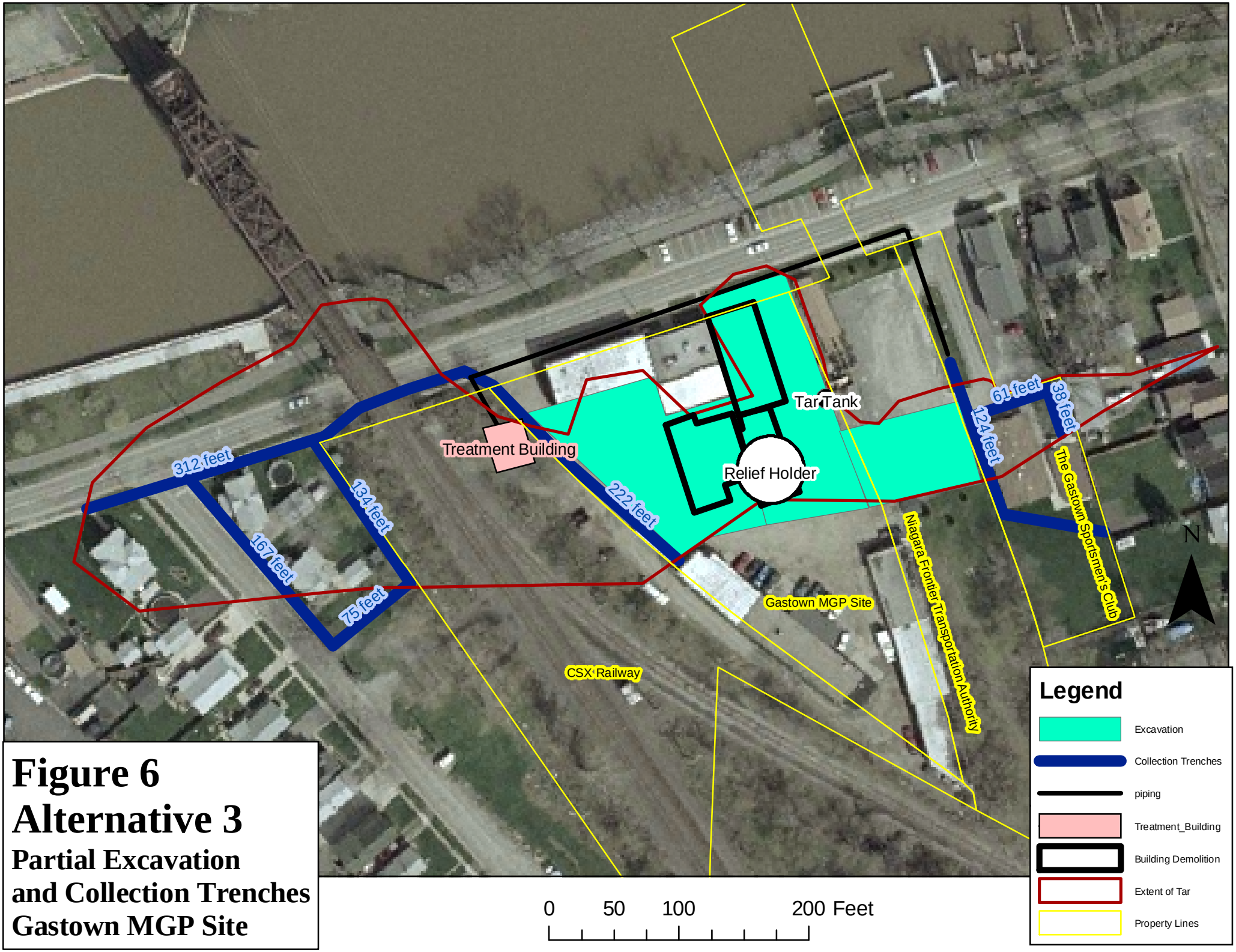

Figure 6
Alternative 3
Partial Excavation and Collection Trenches Gastown MGP Site

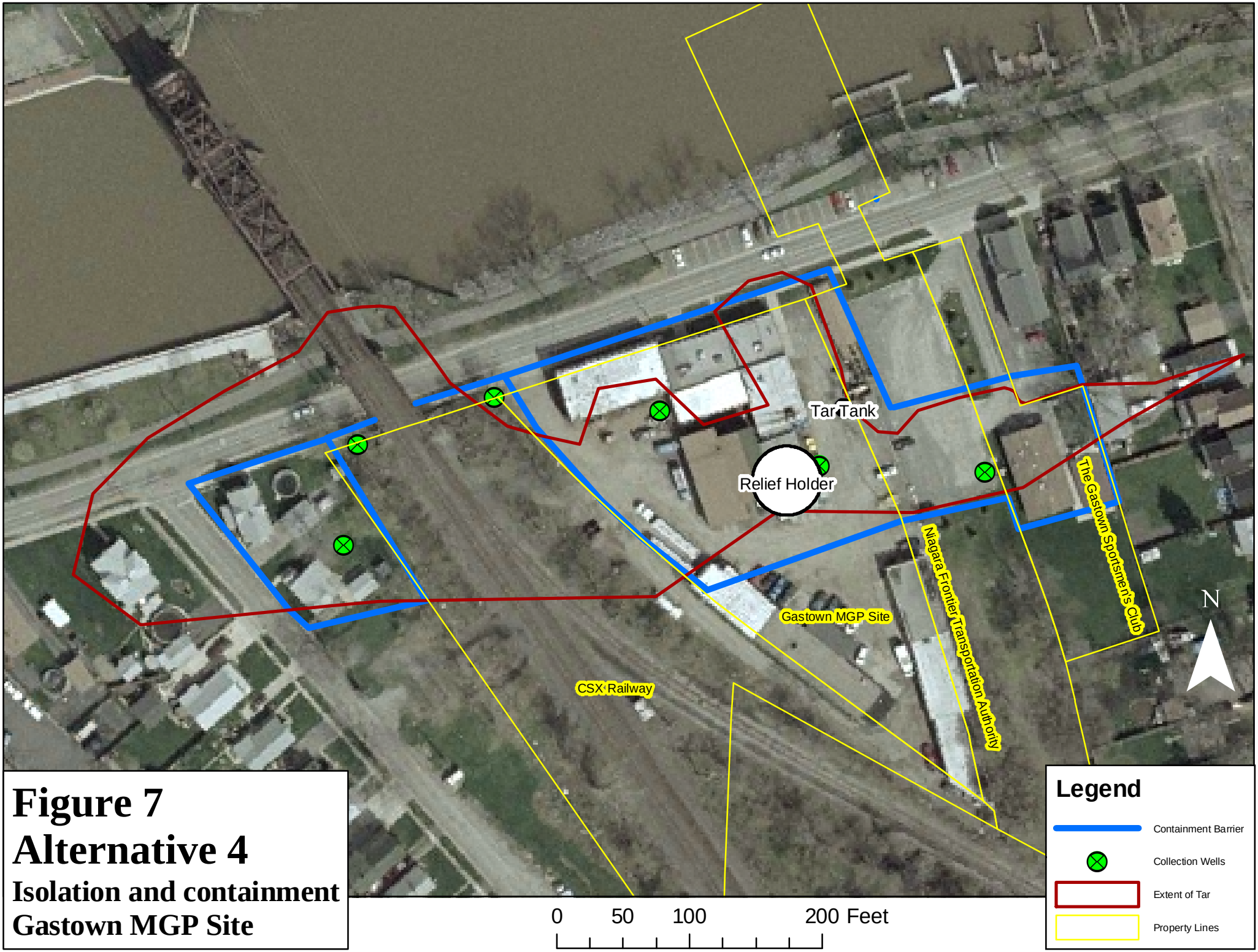

Figure 7
Alternative 4
Isolation and containment
Gastown MGP Site

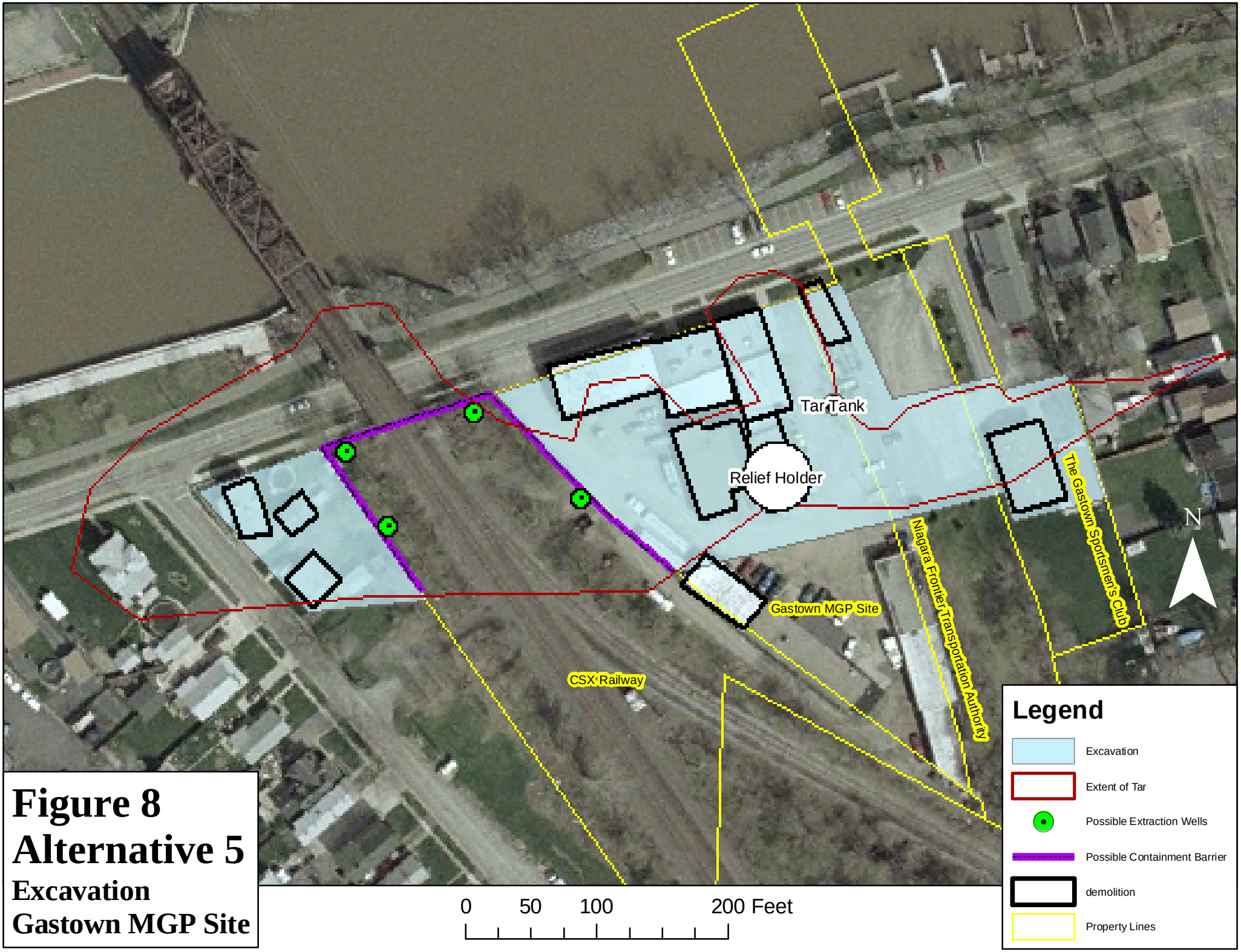

Figure 8
Alternative 5
Excavation
Gastown MGP Site

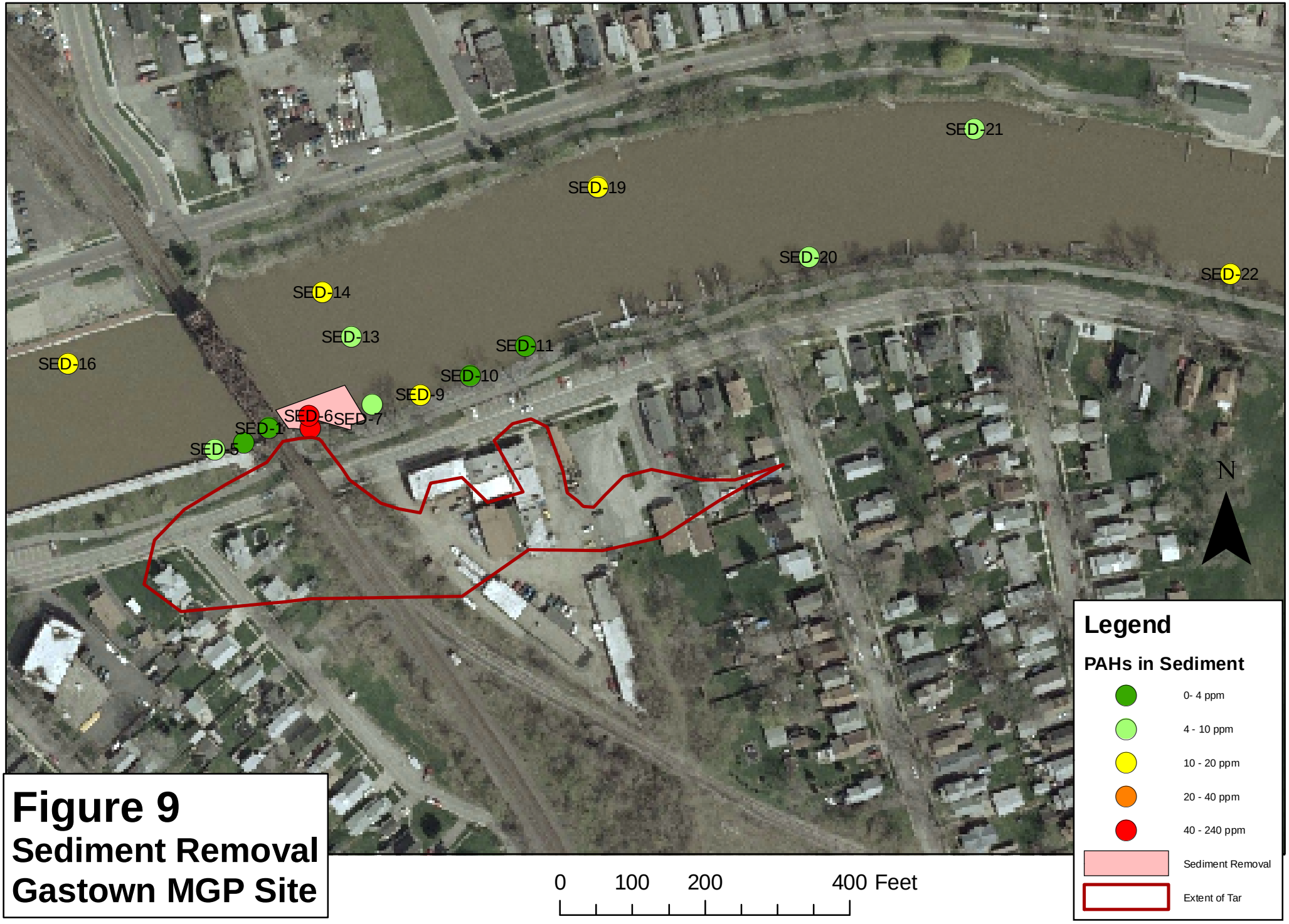

Figure 9
Sediment Removal
Gastown MGP Site