PROPOSED REMEDIAL ACTION PLAN

Pan American Tannery
Environmental Restoration Project
Gloversville (c), Fulton County
Site No. B00175
January 2013

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

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of contaminants at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled, or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated, the property can then be reused.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repositories:

Gloversville Public Library
58 E. Fulton Street
Gloversville, New York 12078
Telephone: (518) 725-2819
Hours of Operation:
Monday: 3:00 pm – 8:00 pm
Tuesday & Wednesday: 10:00 am - 7:00 pm
Thursday. & Friday: 10 am – 6 pm
Saturday: 10:00 am – 4:00 pm

City of Gloversville, Clerks Office
City Hall
3 Frontage Road
Gloversville, New York 12078
Telephone: (518) 773-4542
Hours of Operation:
Monday-Friday: 8:00 am - 4:00 pm

A public comment period has been set from:

1/30/2013 to 03/15/2013

A public availability session is scheduled for the following date:

2/5/2013 from 4:00 PM – 6:00 PM

Public availability session location:

City of Gloversville, Council's Chambers, 3 Frontage Rd, Gloversville, NY 12078

At the availability session, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent until 03/15/2013 to:

Alicia Thorne, P.E.
NYS Department of Environmental Conservation
Division of Environmental Remediation
232 Golf Course Rd
Warrensburg, NY 12885
ajthorne@gw.dec.state.ny.us

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision

(ROD). The ROD is the Department's final selection of the remedy for this site.

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The site is a former tannery facility located on the northern side of West Fulton Street in a primarily residential area of the City of Gloversville, Fulton County.

Site Features: The 4.8 acre site, bordered by vacant undeveloped land (formerly West Mill Pond, now Mill Creek) to the north, residential and vacant undeveloped land to the west, residential land to the south (Beyond West Fulton Street) and commercial use and vacant land to the east.

Current Use/Zoning: The site is currently vacant, and owned by the City of Gloversville, which obtained it through tax foreclosure. The site is currently zoned industrial. The City of Gloversville entered into the Environmental Restoration Program in 2002 to investigate whether the historical tanning operations had contaminated the abandoned tannery site.

Historic Uses: Historically, the site was comprised of six abandoned tannery buildings of various sizes and states of disrepair. The tannery facility operated from at least 1912 until the mid-1990s as primarily a re-tanning and finishing facility. These historical tanning operations may have contributed to environmental contamination on site.

Geology/Hydrogeology: The surficial geology of the site is mapped as Kame and Kame Moriane. The site soils are generally composed of granular fill materials overlying soils composed of brown fine sand and silt, brown sand and gravel, and brown to fine to coarse sand. Depth to bedrock is unknown, and was not encountered during the RI. The depth to groundwater on site ranges from approximately 1 ft to 9 ft deep, and the groundwater flow is generally to the north towards Mill Creek.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows

for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: 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.

No PRPs have been documented to date.

Pan American Tannery went bankrupt in the mid-1990s. No other PRPs have been documented to date.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. City of Gloversville will assist the state in its efforts by providing all information to the state which identifies PRPs. City of Gloversville will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment, and
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil
- sediment

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

ARSENIC
COPPER
BENZO(A)PYRENE
BENZ(A)ANTHRACENE
BENZO(B)FLUORANTHENE
DIBENZ[A,H]ANTHRACENE
indeno(1,2,3-cd)pyrene
BENZENE
Isopropylbenzene

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

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

The following IRMs have been completed at this site based on conditions observed during the RI.

Building Demolition, Tank Closure and Waste Removal IRM

A May 2005 site walkthrough by the City's engineer revealed extreme deterioration of the main tannery building, determining it was near collapse and very dangerous the City deemed the building unsafe for onsite investigation workers. Subsequently, it was determined that the main tannery building needed to be demolished in order to safely investigate the areas adjacent to and underneath the building. An Interim Remedial Measure (IRM) for an asbestos abatement and demolition of the main tannery building was performed in 2007. Several IRM activities were performed as part of and in preparation of the building demolition. These activities included the installation of chainlink fencing to secure the site, removal of one underground storage tank (UST) and three aboveground storage tanks (ASTs), removal and proper disposal of numerous drums of various petroleum and chemical wastes, removal and proper disposal of PCB laden transformers, and removal and proper disposal of tanning wastes throughout the main tannery building.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for the site.

The RI included the collection of surface soil samples, subsurface soil samples, and water samples. The soil was sampled from 13 soil borings, 9 of which were converted into monitoring wells, and 11 surface soil samples. Groundwater samples were collected from the 9 monitoring wells on-site. In addition, the RI included the collection of 11 surface soil samples and 5 sediment samples from off-site.

The soil, groundwater, and sediment were analyzed for volatile organic compounds (VOCs), semivolatile compounds (SVOCs), polychlorinated bipheyls (PCBs), metals and pesticides. RI findings documented the presence of soil and groundwater contamination on-site and surface soil contamination off-site near and around Mill Creek. The off-site sediment and surface soil contamination, appear to be attributable to multiple sources which discharged to the former Mill Pond, and will be further evaluated by the Division of Fish, Wildlife and Marine Resources as a separate site to determine if additional action is necessary.

The main contaminants of concern on-site are inorganic contaminants, specifically arsenic and copper. Low levels of SVOC contamination was detected in one surface soil sample on-site. Low level VOC contamination and inorganic contamination was detected in the site's groundwater. Benzene was detected in only 2 of 9 samples at 1.4 ppb and 1.8 ppb, slightly

above its respective SCG of 1.0 ppm. Isopropylbenzene was detected in only 1 of 9 samples, at 8.8 ppb, slightly above its SCG of 5.0 ppm. Several inorganic compounds were detected in the groundwater, including arsenic, aluminum, antimony, chromium, iron and manganese. The inorganic compounds of aluminum, antimony, iron and manganese are all naturally occurring and not indicative of site contamination. With the absence of an identified soil source for chromium on-site, the single chromium groundwater exceedance is considered an anomaly.

The detailed analysis of all sample analysis results is explained in Exhibit A.

6.4: Summary of Human Exposure Pathways

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

People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. The site is completely fenced, which restricts public access. However, persons who enter the site could come into contact with contaminants in soil by walking on the site, digging or otherwise disturbing the soil.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy

must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the AA report.

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

The basis for the Department's proposed remedy is set forth at Exhibit D.

The proposed remedy is referred to as the Soil Cover System, Institutional Controls and Site Management Plan remedy.

The estimated present worth cost to implement the remedy is $216,000. The cost to construct the remedy is estimated to be $186,000 and the estimated average annual cost is $2,000.

The elements of the proposed remedy are as follows:

1. Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:
•Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
•Reducing direct and indirect greenhouse gas and other emissions;
•Increasing energy efficiency and minimizing use of non-renewable energy;
•Conserving and efficiently managing resources and materials;
•Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
•Maximizing habitat value and creating habitat when possible;
•Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
•Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Soil Cover System
A site cover currently exists in portions of the site, including the paved access roads on-site, along with the existing building foundations on-site. These existing site covers will be

maintained to allow for commercial use of the site. For all remaining exposed surface soil on-site, a site cover will be constructed to allow for commercial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. Institutional Controls

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

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

4. Site Management Plan

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

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls discussed above remain in place and effective. This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- a schedule of monitoring and frequency of submittals to the Department.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into three categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 6.1.1 are also presented.

Waste/Source Areas

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. The waste/source areas identified at the site were addressed by the IRMs described in Section 6.2.

Groundwater

Table 1 presents a summary of the analytical data for groundwater. Groundwater samples were collected from overburden monitoring wells to assess groundwater conditions on-site. The results indicate low level VOC contamination and inorganic contamination was detected above SCGs in the site's groundwater. For VOC contamination, benzene was detected in only 2 of 9 samples and at only slightly above its respective SCG of 1.0 ppm and isopropylbenzene was detected in only 1 of 9 samples, and slightly above its SCG of 5.0 ppm. Several inorganic compounds were detected in the groundwater, including arsenic, aluminum, antimony, chromium, iron and manganese. The inorganic compounds of aluminum, antimony, iron and manganese are all naturally occurring and not indicative of site contamination. With the absence of an identified soil source for chromium on-site, the single chromium groundwater exceedance is considered an anomaly. Arsenic was detected in only 2 of 9 groundwater samples above its SCG of 25 ppm, at 37.8 and 352 ppm respectively. These two arsenic detections above SCGs, although not indicative of a site wide contamination, does constitute arsenic as a primary contaminant of concern. Figure 3 presents the nature and extent of the groundwater contamination on-site.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Benzene	1.4 to 1.8	1.0	2 of 9
Isopropylbenzene	8.8	5	1 of 9

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Inorganics			
Aluminum	163 to 7,720	100	6 of 9
Antimony	14.8	3	1 of 9
Arsenic	37.8 to 352	25	2 of 9
Chromium	298	50	1 of 9
Iron	560 to 55,900	300	8 of 9
Manganese	353 to 1,210	300	7 of 9

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

The low level SVOCs which marginally exceeded the groundwater SCGs are not considered indicative of primary contaminants of concern. Based on the findings of the RI, the presence of arsenic, and to a lesser extent benzene and isopropylbenzene, have resulted in the contamination of groundwater. The site contaminant that is considered to be the primary contaminant of concern which will drive the remediation of groundwater to be addressed by the remedy selection process is arsenic, and to a much lesser extent benzene and isopropylbenzene.

Soil

Surface soil samples were collected both on-site and off-site during the RI and subsurface samples were collected on-site. Surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Subsurface soil samples were collected from a depth of 2 -11 feet to assess soil contamination impacts to groundwater. RI findings documented the presence of inorganic and SVOC surface soil contamination on site, inorganic subsurface soil contamination above SCGs on-site, and inorganic surface soil contamination above SCGs off-site. Figure 2 presents the nature and extent of surface and subsurface soil contamination on-site. The off-site soil and sediment contamination will be further evaluated by the Division of Fish, Wildlife and Marine Resources. The RI report provides additional details regarding the off-site sampling results.

The main contaminants of concern on-site include inorganic contamination, specifically arsenic and copper. Arsenic was detected in 3 surface soil samples as high as 252 ppm and in 8 subsurface soil samples as high as 750 ppm. Copper was detected in one sample at 1040 ppm in surface soil, and at 788 ppm in the subsurface soil. Elevated SVOC contamination was detected in one surface soil sample. The results for that sample included benzo(a)anthracene at 25 ppm, benzo(a)pyrene at 19 ppm, benzo(b)fluoroanthene at 26 ppm, dibenz(a,h)anthracene at 3 ppm, and indeno(1,2,3-cd)pyrene at 10 ppm.

Table 2 below presents a summary of the surface soil analytical data that exceed the Unrestricted SCOs found in Part 375-6.8 (a) along with a comparison of the analytical data to the Commercial SCOs found in Part 375-6.8 (b) for each individual contaminant. Table 3 presents a summary of the subsurface soil analytical data that exceed the Unrestricted SCOs found in Part 375-6.8 (a) along with a comparison of the analytical data to the Commercial SCOs found in Part 375-6.8 (b) for each individual contaminant.

Table 2 – Surface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG[c] (ppm)	Frequency Exceeding Commercial Use SCG
SVOCs					
Benzo(a)anthracene	25	1.0	1 of 11	5.6	1 of 11
Benzo(a)pyrene	19	1.0	1 of 11	1.0	1 of 11
Benzo(b)fluoroanthene	26	1.0	1 of 11	5.6	1 of 11
Dibenz(a,h)anthracene	3	0.33	1 of 11	0.56	1 of 11
Indeno(1,2,3-cd)pyrene	10	0.5	1 of 11	5.6	1 of 11
Inorganics					
Arsenic	17.5 to 252	13	3 of 11	16	3 of 11
Copper	1,040	50	1 of 11	270	1 of 11

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.
d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

Table 3 – Subsurface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG[c] (ppm)	Frequency Exceeding Commercial Use SCG
Inorganics					
Arsenic	22.8 to 750	13	8 of 22	16	8 of 22
Copper	788	50	1 of 13	270	1 of 13

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.
d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

The site specific primary contaminants of concern for both surface soil and subsurface soil on-site are inorganics, specifically arsenic and copper, associated with the operations of the former tannery.

The elevated SVOCs detected in only one sample on-site, are considered to be limited in extent and isolated, and are therefore not considered primary contaminants of concern.

Based on the findings of the RI, the presence of inorganics, and to a much lesser extent SVOCs, has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are arsenic and copper.

Surface Water

As there is no surface water on-site, surface water samples were collected off-site during the RI from Mill Creek. Mill Creek was formerly dammed and was an adjacent pond to the site. Currently, Mill Creek is a small stream, proximal to the site. Upstream, adjacent and downstream samples were collected to assess the surface water conditions off-site. The RI Report has additional information regarding the sampling results. No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

As there is no surface water on-site, sediment samples were collected off-site during the RI from Mill Creek. As noted above, Mill Creek was formerly dammed and was an adjacent pond to the site. Currently, Mill Creek is a small stream, proximal to the site. Upstream, adjacent and downstream sediment samples were collected to assess the sediment conditions off-site. The RI Report has additional information regarding the sampling results. The Division of Fish, Wildlife and Marine Resources will further evaluate the sampling results to determine if additional action is necessary. Based on the sampling results, no conclusive site-related sediment contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for sediment.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRMs described in Section 6.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: Soil Cover System, Institutional Controls, Site Management Plan

This alternative includes a soil cover system, implementation of institutional controls and a site management plan, preventing exposures to residual contamination on-site above the commercial use SCG. The time to implement the remedy is estimated to take approximately two months to complete. The estimated present worth cost to implement the remedy is $216,000. The cost to construct the remedy is estimated to be $186,000 and

the estimated average annual cost is $2000.

A site cover currently exists in portions of the site, including the paved access roads on-site, along with the existing building foundations on-site. These existing site covers would be maintained to allow for commercial use of the site. For all remaining exposed surface soil on-site, a site cover would be constructed to allow for commercial use of the site. This remedy also includes imposition of an institutional control in the form of an environmental easement for the controlled property and development of a site management plan

Present Worth: *$216,000*
Capital Cost: *$186,000*
Annual Costs: *$2,000*

Alternative 3: Excavation and Off-site Disposal (Restoration to Pre-Disposal or Unrestricted Conditions)

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative includes excavation and off-site disposal of all soil contamination above the unrestricted soil cleanup objectives, and groundwater dewatering of the excavations. The time to implement the remedy is estimated to be approximately three months. The cost to construct the remedy is estimated to be approximately $1,560,000. The estimated average annual cost is $0, therefore the present worth cost to implement the remedy is $1,560,000.

Capital Cost: *$1,560,000*

Exhibit C
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Action	0	0	0
Alternative 2: Soil Cover System, Institutional Controls, Site Management Plan	186,000	2,000	216,000
Alternative 3: Excavation and Off-site Disposal (Restoration to Pre-Disposal or Unrestricted Conditions)	1,560,000	0	1,560,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 2, Soil Cover System, Institutional Controls, and Site Management as the remedy for this site. Alternative 2 would achieve the remediation goals for the site by eliminating any potential exposure of soil contamination on-site above the commercial use SCGs. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 4.

Basis for Selection

Alternative 2, Soil Cover System, Institutional Controls, and Site Management is the preferred remedy, in that it is the most protective, cost effective, easily implementable remedy for the site. The Department believes that this remedy is protective of human health and the environment, and satisfies the remediation objectives listed in Section 6.5. Alternative 2 also meets the Department's goal of green remediation by minimizing the environmental footprint of remediation, through maximizing the reuse of the site's land, providing less disruption to the environment, and generating less soil waste.

Alternative 1 (No Further Action) does not provide any additional protection to public health and the environment and will not be evaluated further. Alternative 3 (Restoration to Pre-Disposal Conditions), by removing all soil contaminated above the unrestricted soil cleanup objectives for the contaminants of concern above SCGs, meets the threshold criteria, but is not as easily implemented or cost effective as Alternative 2.

The proposed remedy is based on the results of the RI and the evaluation of alternatives. Alternative 2 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the balancing criterion described in Section 7.2. It would achieve the remediation goals for the site by removing potential exposure routes to those who use the site in the future.

Because Alternatives 2 and 3 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. Both Alternatives 2 and 3 have short-term impacts which could easily be controlled. However, Alternative 3 has a more significant short-term impact due to the greater amount of earthwork required for soil excavation, disposal and backfill. However, the time needed to achieve the remediation goals is longer for Alternative 3 compared to Alternative 2, since Alternative 3 requires more significant construction activity (e.g., excavation, dewatering) to achieve pre-disposal conditions. The long-term effectiveness and permanence is the same for Alternatives 2 and 3. Alternative 3 returns the site to unrestricted use, while Alternatives 2 results in returning the site to commercial use, the proposed future use of the site. Alternative 2 requires a groundwater use restriction which should have minimal impact as the area is already served by public water. An environmental easement to limit the land use to commercial use is also required for Alternative 2.

The cost difference between Alternative 2 and 3 is significant. Excavation and disposal of all on-site contamination is approximately 10 times more expensive than implementing a soil cover system for the site. Therefore, Alternative 2 is the most cost effective remedy for the site.

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the AA 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.

The proposed remedy (Alternative 2) satisfies this criterion by eliminating the potential exposure to contaminated soils on-site. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 3, by removing all soil contaminated above the "Unrestricted" soil cleanup objective, meets the threshold criteria.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternative 2 complies with SCGs to the extent practicable. It complies with the restricted use soil cleanup objectives at the surface through construction of a soil cover system. Alternative 3, by removing all soil contaminated above the "Unrestricted" soil cleanup objective, complies with the SCGs.

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

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

Long-term effectiveness is best accomplished by Alternative 3, through excavation and off-site disposal of the contaminated soils. Alternative 2, through a soil cover system, site management plan and an environmental easement permanently removes the exposure to contaminated soils on-site.

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

Alternative 2 controls potential exposures through a soil cover system and institutional controls but will not reduce the toxicity, mobility or volume of contaminants remaining. Alternative 3, excavation and off-site disposal, reduces the toxicity, mobility and volume of on-site waste by transferring the material to an approved off-site location.

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

Both Alternatives 2 and 3 have short-term impacts which could easily be controlled through dust control measures and community air monitoring plans. Alternative 2 results in the least impact as it requires the least

amount of soil disturbance. The time needed to achieve the remediation goals is the shortest for Alternative 2 and longest for Alternative 3.

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.

Alternative 2 is favorable in that it is readily implementable. Alternative 3 is also implementable, but the volume of soil excavated under this alternative necessitates increased truck traffic on local roads and increased project duration.

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

The costs of the alternatives vary significantly. Alternative 2 has a low cost to implement of the alternatives evaluated. With its large volume of soil to be handled, Alternative 3 (excavation and off-site disposal) has a significantly higher present work cost, at approximately 10 times the cost.

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

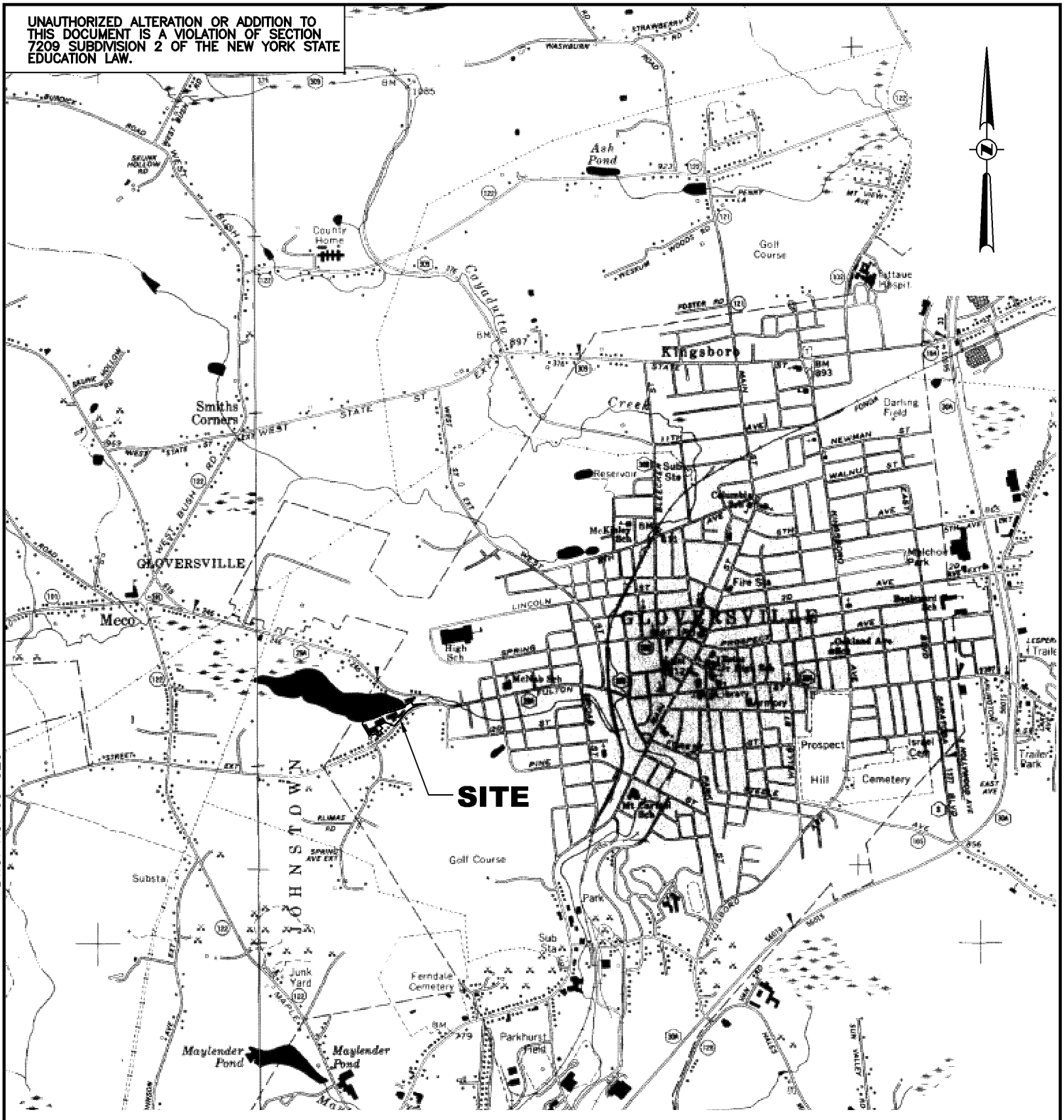
Alternative 2 complies with the anticipated use of the site as commercial. Alternative 3 removes or treats the contaminated soil permanently and does not require an environmental easement to restrict the land use.

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

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 2 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

NO XREFS



MAP REFERENCE:
NYS DEPARTMENT OF TRANSPORTATION 7.5 MINUTE SERIES QUADRANGLE MAP OF PECK LAKE & GLOVERSVILLE, NY, DATED 1983.

NOTES:
THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPROXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

DWG. NO. 03-320

Date	RECORD OF WORK	Appr.

FIGURE 1
SITE LOCATION MAP
PAN AMERICAN TANNERY
WEST FULTON STREET

CITY OF GLOVERSVILLE | FULTON COUNTY, NEW YORK

C.T. MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299
Architecture & Building Systems Engineering * Civil Engineering
Environmental Services * Survey & Land Information Services

Drafter: J.MARX	Checker: K.MOLINE
Appr. by:	Proj. No. 04.9109

SCALE: NOT TO SCALE | DATE: JAN. 8, 2005

CAD DWG. FILE NAME: SITE LOC MAP.DWG

XREFS: NONE

PROJECT NUMBER: 04.9109

CAD DWG. FILE NAME:FIGURE-2.DWG

Legend

MW — Monitoring Well & Subsurface Sampling Point

SS1 — Surface Sampling Point

Depicts Parameter Concentration Compared To its Applicable SCG

SS1		
Surface Soil (0–2")	Conc.	SGC
Arsenic	61.6	16
Copper	1,040	270

MW–2		
Subsurface Soils	Conc.	SGC
Arsenic (2'–4')	37.2	16
Arsenic (4'–6')	94	16

SS5		
Surface Soil (0–2")	Conc.	SGC
Arsenic	252	16

MW–7		
Subsurface Soils	Conc.	SGC
Arsenic (0'–2')	506	16
Arsenic (2'–4')	113	16

SS6		
Surface Soil (0–2")	Conc.	SGC
Arsenic	17.5	16

MW–12		
Subsurface Soils	Conc.	SGC
Arsenic (0'–2')	22.8	16

MW–8		
Subsurface Soils	Conc.	SGC
Arsenic (4'–6')	750	16
Arsenic (6'–8')	469	16
Copper (6'–8')	788	270

SS6		
Surface Soil (0–2")	Conc.	SGC
Arsenic	17.5	16

SS11		
Surface Soil (0–2")	Conc.	SGC
Arsenic	24.2	16

MW–6		
Subsurface Soils	Conc.	SGC
Arsenic (0'–2')	40.6	16

SS7		
Surface Soil (0–2")	Conc.	SGC
Benzo(a)anthracene	25	5.6
Benzo(a)pyrene	19	1
Benzo(b)fluoranthene	26	5.6
Dibenz(a,h)fluoranthene	3	0.56
Indeno(1,2,3–cd)pyrene	10	5.6

BAR SCALE

80 0 40 80 160

1 inch = 80 ft.

MAP REFERENCES:
1. "BOUNDARY SURVEY LANDS NOW OR FORMERLY OF PAN AMERICAN TANNING CORPORATION 312 WEST FULTON STREET PREPARED FOR THE CITY OF GLOVERSVILLE" PREPARED BY C.T. MALE ASSOCIATES, P.C. DATED JUNE 17, 2004.

MAP NOTES:
1. SOME OF THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPROXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

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DESIGNED :
DRAFTED : S.WUNSCH
CHECKED : S.BIEBER
PROJ. NO: 04.9109
SCALE : 1"=80'
DATE : DEC. 16, 2011

FIGURE 2
CONTAMINANTS ABOVE SCGs IN SURFACE & SUBSURFACE SOILS

PAN AMERICAN TANNERY
NYS ERP ALTERNATIVE ANALYSIS

CITY OF GLOVERSVILLE — COUNTY OF FULTON, NEW YORK

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, P.C.
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FIG-2

SHEET 1 OF 1

DWG. NO: 11–0572

XREFS: NONE

PROJECT NUMBER: 04.9109

CAD DWG. FILE NAME:FIGURE-3.DWG

MW-1		
Groundwater	Conc.	SGC
Benzene	1.8	1
Aluminum	267	100
Iron	560	300

MW-2		
Groundwater	Conc.	SGC
Benzene	1.4	1
Aluminum	414	100
Arsenic	37.8	25
Iron	55,900	300
Manganese	1,210	300

MW-3		
Groundwater	Conc.	SGC
Iron	25,000	300
Manganese	761	300

MW-7		
Groundwater	Conc.	SGC
Isopropylbenzene	8.8	5
Aluminum	163	100
Iron	7,460	300
Manganese	454	300

MW-9X		
Groundwater	Conc.	SGC
Iron	3,890	300
Maganese	1,130	300

MW-9B		
Groundwater	Conc.	SGC
Manganese	1,200	300

MW-12		
Groundwater	Conc.	SGC
Aluminum	7,720	100
Iron	20,200	300
Manganese	1,180	300

MW-8		
Groundwater	Conc.	SGC
Aluminum	3,500	100
Antimony	14.8	3
Arsenic	352	25
Iron	13,300	300
Manganese	353	300

MW-9B		
Groundwater	Conc.	SGC
Manganese	1,200	300

MW-4		
Groundwater	Conc.	SGC
Aluminum	4,780	100
Chromium	298	50
Iron	17,000	300

Legend

- MW — Monitoring Well & Subsurface Sampling Point
- SS1 — Surface Sampling Point
- Depicts Parameter Concentration Compared To its Applicable SCG

FORMER WEST MILL POND

FORMER WEST MILL POND

MILL CREEK

EDGE OF ASHPALT PAVEMENT

ASPHALT

ABANDONED TANNERY BUILDING

RETAINING WALL LOADING DOCK

ABANDONED BUILDING

ABANDONED TANNERY BUILDING

DEMOLISHED MAIN TANNERY BUILDING (DETERIORATED SLAB REMAINS)

FOUNDATION OF DEMOLISHED BUILDING

DEMOLISHED MAIN TANNERY BUILDING (SLAB REMAINS)

EXISTING WASTE WATER TREATMENT PLANT

PUMP HOUSE

RETAINING WALL

CONCRETE WALL

BUILDING

MH

CHAIN LINK FENCE

10' WIDE GRAVEL ROAD

RETAINING WALL

HYD

CONC.

HORSHOE PITS

WOOD RAIL FENCE

4' HIGH CHAIN LINK FENCE

DOG KENNEL

POOL

6' HIGH WOOD FENCE

GARAGE

WEST FULTON STREET (49.5" RIGHT OF WAY)

SS1, SS2, SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10, SS11

SS-1 BCKGRD, SS-2 BCKGRD, SS-3 BCKGRD, SS-5 BCKGRD

BCKGRD-SS4

MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9B, MW-9X, MW-10, MW-11, MW-12

BAR SCALE

80 0 40 80 160

1 inch = 80 ft.

MAP REFERENCES:
1. "BOUNDARY SURVEY LANDS NOW OR FORMERLY OF PAN AMERICAN TANNING CORPORATION 312 WEST FULTON STREET PREPARED FOR THE CITY OF GLOVERSVILLE" PREPARED BY C.T. MALE ASSOCIATES, P.C. DATED JUNE 17, 2004.

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DESIGNED :

DRAFTED : S.WUNSCH

CHECKED : S.BIEBER

PROJ. NO: 04.9109

SCALE : 1"=80'

DATE : DEC. 16, 2011

FIGURE 3
CONTAMINANTS ABOVE SCGs IN GROUNDWATER

PAN AMERICAN TANNERY
NYS ERP ALTERNATIVE ANALYSIS

CITY OF GLOVERSVILLE — COUNTY OF FULTON, NEW YORK

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518.786.7400 * FAX 518.786.7299

FIG-3

SHEET 1 OF 1

DWG. NO: 11-0573

XREFS: NONE

PROJECT NUMBER: 04.9109

CAD DWG. FILE NAME:FIGURE-4.DWG

Legend

- MW — Monitoring Well & Subsurface Sampling Point
- SS1 — Surface Sampling Point
- Proposed Surface Cover System

FORMER WEST MILL POND

FORMER WEST MILL POND

MILL CREEK

SS1

EDGE OF ASHPALT PAVEMENT

SS10

SS2

MW-1

ASPHALT

SS3

MW-2

SS4

SS5

ASPHALT

ABANDONED TANNERY BUILDING

RETAINING WALL

LOADING DOCK

SS-1 BCKGRD

ABANDONED BUILDING

ABANDONED TANNERY BUILDING

MW-11

SS-2 BCKGRD

BCKGRD-SS4

HORSHOE PITS

WOOD RAIL FENCE

4' HIGH CHAIN LINK FENCE

SS-3 BCKGRD

DOG KENNEL

CHAIN LINK FENCE

POOL

6' HIGH WOOD FENCE

POOL

GARAGE

CHAIN LINK FENCE

MW-3

MW-4

SS-11

MW-9X

MW-9B

SS7

SS6

ASPHALT

SS-5 BCKGRD

MW-6

MW-7

MW-8

DEMOLISHED MAIN TANNERY BUILDING (DETERIORATED SLAB REMAINS)

EXISTING WASTE WATER TREATMENT PLANT

MW-10

SS8

RETAINING WALL

PUMP HOUSE

CONCRETE WALL

MW-12

MH

BUILDING

MH

CONCRETE WALL

CHAIN LINK FENCE

SS9

10' WIDE GRAVEL ROAD

RETAINING WALL

DEMOLISHED MAIN TANNERY BUILDING (SLAB REMAINS)

HYD

CONC.

WEST FULTON STREET (49.5" RIGHT OF WAY)

BAR SCALE

80 0 40 80 160

1 inch = 80 ft.

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DESIGNED :

DRAFTED : S.WUNSCH

CHECKED : S.BIEBER

PROJ. NO: 04.9109

SCALE : 1"=80'

DATE : DEC. 16, 2011

FIGURE 4
EXTENT OF SURFACE COVER SYSTEM

PAN AMERICAN TANNERY
NYS ERP ALTERNATIVE ANAYLSIS

CITY OF GLOVERSVILLE — COUNTY OF FULTON, NEW YORK

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FIG-4

SHEET 1 OF 1

DWG. NO: 11-0574