PROPOSED REMEDIAL ACTION PLAN

Spaulding Fibre
Operable Unit Numbers: 05,06
Environmental Restoration Project
Tonawanda, Erie County
Site No. E915050
February 2011

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 repository:

City of Tonawanda Public Library
333 Main Street
Tonawanda, NY 14150
Phone: 716-693-5043

A public comment period has been set from:

2/9/2011 to 3/25/2011

A public meeting is scheduled for the following date:

3/10/2011 at 7:00 PM

Public meeting location:

Tonawanda City Hall

At the meeting, the findings of the remedial investigation (RI) and the alternatives analyses (AA) will be presented along with a summary of the proposed remedy. After the presentation, 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 through 2/24/2011 to:

Glenn May
NYS Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Ave
Buffalo, NY 14203-2915
gmmay@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 46 acre Spaulding Fibre Site is located at 310 Wheeler Street in the City of Tonawanda, Erie County. The site is bounded by Dodge and Enterprise Avenues and residential properties to the north, a mix of commercial and residential properties to the east, Hackett Drive and commercial properties to the south, and Hinds Street and a mix of commercial and residential properties to the west.

Site Features: The topography of the site and the surrounding area is relatively flat, with most surface water runoff toward on-site drainage ditches and storm sewers. The Niagara River is located approximately one mile to the north, while Two Mile Creek is located approximately one mile to the west.

Current Zoning/Use: The site is zoned for commercial use, and is currently vacant.

Operable Units: The Spaulding Fibre Site has been subdivided into seven operable units (OUs). An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The seven operable units are defined as follows:

OU1: Regulated Landfill Wastes;
OU2: PCB-Contaminated Wastes;
OU3: Petroleum Contaminated Wastes;
OU4: Multiple Contaminant Wastes;
OU5: Wheeler Street Parking Lot;
OU6: Main Plant Area; and
OU7: Hinds Street Area.

OUs 1 through 4 are associated with the State Superfund (SSF) portion of the site, and consist of multiple Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). OUs 1 through 4 are wholly surrounded by OU6, but are not considered part of OU6. The SSF portion of the site is approximately 6 acres in size.

OUs 5 through 7 are addressed under the Environmental Restoration Program (ERP). The ERP portion of the site is approximately 40 acres in size. OU5 was used as a parking area for the former Plant and is separated from the remaining OUs by Wheeler Street. OU6 is the largest OU in area and includes the former manufacturing areas of the site. OU7 is a vacant parcel of land forming the western boundary of the site that was generally unaffected by Plant operations.

Historical Use: Spaulding began operations as a manufacturer of vulcanized fiber, an early "plastic" made by treating paper with a zinc chloride solution. The paper used to produce vulcanized fiber was also manufactured at the site. During the late 1940s to early 1950s, the plant began production of composite laminates (Spauldite) that were made by impregnating

natural fibers with phenolic resins (and later, melamine and epoxy resins and synthetic fibers). Many of the phenolic resins used in the production of Spauldite were manufactured on-site. In the fall of 1992 Spaulding ceased manufacturing operations at the site, but maintained a limited manpower staff until January 2004 to operate an on-site water treatment system and maintain the facility (e.g., lawn mowing and security).

Spaulding initiated decommissioning activities at the site in August 1992. The majority of these activities were completed between September 1992 and February 1993 with the remaining decommissioning activities completed by mid 1995.

To evaluate the contamination at the State Superfund portion of the Spaulding Fibre Site and to evaluate remedial alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, Spaulding completed both a Remedial Investigation/RCRA Facility Investigation (RI/RFI) and a Feasibility Study/Corrective Measures Study (FS/CMS) at the site. The RI/RFI was completed in 4 phases between April 1995 and August 1999, while the FS/CMS was completed in December 2000.

In March 2003 a Record of Decision/Statement of Basis was issued by the Department for OUs 1 through 4 (the SSF portion of the site).

In January 2004 the Department began the remediation of OU2 by excavating PCB contaminated soils. The remediation of OU2, except for the Spauldite Sheet Basement, was completed in February 2007.

In July 2006 the City of Tonawanda, Erie County and Erie County Industrial Development Agency submitted an ERP Application to evaluate contamination at OUs 5 through 7, and to evaluate remedial alternatives to address any contamination detected. The RI was completed between June and October 2007, with a Supplemental RI completed during June 2008. A Remedial Alternatives Report for OU7 was completed in January 2009.

In March 2009 a No Action Record of Decision was issued by the Department for OU7 because surface and subsurface soils met the Part 375 residential use soil cleanup objectives.

In October 2009 the Department began the remediation of OUs 1, 3 and 4 by excavating contaminated soils. The remediation of these OUs was completed in May 2010.

In December 2009 the Department began the remediation of the Spauldite Sheet Basement (remaining portion of OU2) by excavating PCB contaminated soils. The remediation of the Spauldite Sheet Basement was completed in March 2010.

Site Geology and Hydrogeology: The geology of the Spaulding Fibre Site has prevented the offsite migration of contaminants via shallow groundwater and has prevented the regional bedrock aquifer from becoming impacted by site related contaminants. Native soils at the site include a glaciolacustrine deposit consisting primarily of reddish brown silty clay and a dense glacial till consisting of dark reddish brown to gray, silty clay with abundant rock fragments and gravel. The glaciolacustrine deposit has a very low permeability (meaning that groundwater

cannot easily move through it), and ranges in thickness at the site from 36.4 to 45.8 feet. The glacial till deposit is less than 5 feet thick. The bedrock underlying the site is the Camillus Shale Formation, which was encountered at depths ranging from 38.5 to 54.9 feet.

Shallow groundwater is sporadically encountered within fill material at the site, and generally flows to the northeast. This water is perched (located) on top of the glaciolacustrine deposit because of this unit's low permeability. Groundwater from the Camillus Shale Formation is not utilized as a source of drinking water in the Tonawanda area because of naturally occurring high mineral content and the close proximity of the Niagara River, an important source of municipal drinking water throughout the Western New York area. Groundwater flow in the upper bedrock aquifer is to the north toward the Niagara River.

Operable Units 5 and 6 are the subject of this document.

A site location map is attached as Figure 1, while an operable unit location map is attached as Figure 2.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

The PRPs for the site, documented to date, include:

Spaulding Composites Company.

The Spaulding Composites Company operated a manufacturing plant on the property between 1911 and 1992. In October 2003 the Spaulding Composites Company filed for bankruptcy, and due to the resulting settlement, is no longer considered a viable PRP for these operable units.

Since no other 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 other PRPs be identified.

Erie County and Erie County Industrial Development Agency and City of Tonawanda will assist the state in their efforts by providing all information to the state which identifies Potentially Responsible Parties (PRPs). 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. Erie County and Erie County Industrial Development Agency and City of Tonawandawill 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,
- Ecological and Human Health Exposure Assessments.

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 Information

The analytical data collected on this site includes data for:

- groundwater
- soil

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:

For OU: 05

arsenic
benzo(b)fluoranthene
chromium
chrysene
indeno(1,2,3-cd)pyrene
lead
nickel
zinc

For OU: 06

benzene
benz(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo[k]fluoranthene
chrysene
dibenz[a,h]anthracene
fluoranthene
indeno(1,2,3-cd)pyrene
phenanthrene
pyrene
arsenic
barium
cadmium
chromium
copper
lead
mercury
nickel
zinc
dichloroethylene
vinyl chloride
acetone
methyl ethyl ketone
bis(2-ethylhexyl)phthalate
formaldehyde
polychlorinated biphenyls (pcb)
antimony

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable standards, criteria and guidance 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 IRM(s) has/have been completed at this site based on conditions observed during the RI.

IRM - Soil Removal at OU5

Removal of contaminated soil and fill identified during the RI and Supplemental RI was completed as an IRM during February and March 2010 and included the following activities:

- Excavation of approximately 1,850 tons of contaminated soil and fill from OU5. Excavated material was transported off-site for disposal as non-hazardous waste,
- Collection of post excavation confirmatory samples to ensure compliance with the Part 375 residential SCGs for OU5,
- Surveying of the final excavation limits and the locations of the confirmatory samples, and
- Backfilling of excavated areas with crushed concrete from Spaulding building demolition that met the Part 375 residential SCGs. Topsoil and seeding was not required as excavation took place in a asphalt parking lot formerly utilized by Spaulding.

IRM - Soil Removal at OU6

Removal of contaminated soil and fill identified during the RI and Supplemental RI was completed as an IRM between August 2009 and November 2010 and included the following activities:

- Removal of concrete floor slabs and foundation walls for access to contaminated soil and fill,
- Excavation of approximately 67,000 tons of contaminated soil and fill from OU6. Excavated material was transported off-site for disposal as non-hazardous waste,
- Collection of post excavation confirmatory samples to ensure compliance with the Part 375 restricted residential SCGs,
- Surveying of the final excavation limits and the locations of the confirmatory samples,
- Backfilling of excavated areas with crushed concrete from Spaulding building demolition or clean soil from an off-site source that met the Part 375 restricted residential SCGs, and
- Restoration of the operable unit through regrading to promote surface water runoff to on-site drainage ditches, the placement of 4 to 6 inches of topsoil, and hydroseeding.

6.3: 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.*

The site is fenced, however, persons who dig below the ground surface may come into contact with contaminants in subsurface soil. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination.

6.4: Summary of Environmental Assessment

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

The completion of a Fish and Wildlife Impact Analysis (FWIA) to evaluate ecological receptors was not required during the ERP RI because the site is located in a mixed industrial, commercial and residential area that does not provide sufficient habitat for ecological receptors.

Some groundwater SCG exceedances have been documented at OU6. The geology and hydrogeology of the site, however, have prevented the off-site migration of contaminants via shallow groundwater and have prevented the regional bedrock aquifer from becoming impacted by site related contaminants. In addition, groundwater contamination has been addressed by the IRM completed at OU6, and the State Superfund remedial program completed at OUs 1 through 4. Excavation activities have removed contaminated soil and fill from the site that were the source of the groundwater contamination. As a result, there are no current or potential future environmental exposure pathways associated with the site.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Exhibit B. 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 C. 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 D.

7.1: Evaluation of Remedial 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.

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

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

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

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

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

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

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

8. Land Use. The Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

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

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP 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.

7.2: Elements of the Proposed Remedy

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

For OU: 05

The estimated present worth cost to implement the remedy is $0. The cost to construct the remedy is estimated to be $0 and the estimated average annual cost is $0.

The elements of the proposed remedy are as follows:

No Further Action is required for OU5 since the soil removal IRM achieved the Part 375 residential soil cleanup objectives and there are no groundwater impacts. Remediation at OU5 is complete. Since there are no engineering controls to maintain or use restrictions required for this operable unit there are no institutional controls necessary. Therefore, an environmental easement and site management plan are not required. This is consistent with the March 2009 Record of Decision for OU7.

For OU: 06

The estimated present worth cost to implement the remedy is $50,000. The cost to construct the remedy is estimated to be $25,000 and the estimated average annual cost is $2,000.

The elements of the proposed remedy are as follows:

1. Maintenance of the site cover. A site cover currently exists and will be maintained to allow for restricted residential use of the site as a component of any site redevelopment. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the restricted residential soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of two feet of soil, meeting SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for the restricted residential use.

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

(a) requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3),
(b) limits the use and development of the controlled property for restricted residential use, commercial use or industrial use provided that actual land use is subject to local zoning,
(c) restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH, or County DOH,
(d) prohibits agriculture or vegetable gardens on the controlled property, and
(e) requires compliance with the Department approved Site Management Plan.

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

(a) Institutional Controls: The Environmental Easement discussed in Paragraph 1 above.
(b) Engineering Controls: Maintenance of the site cover.

The Site Management Plan includes, but may not be limited to:

(a) An Excavation Plan, which details the provisions for management of future excavations in areas of remaining contamination,
(b) A description of the provisions of the Environmental Easement including any land and groundwater use restrictions, and
(c) The steps necessary for the property owner(s) to provide a periodic certification of the Institutional Controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner(s) in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) states that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the Site Management Plan unless otherwise approved by the Department.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation (RI) and Supplemental RI for all environmental media that were evaluated. As described in Section 6.1.2, 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 four categories: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide). For comparison purposes the SCGs are provided for each medium that allows for unrestricted use. For soil, the Restricted Use SCGs identified in Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI and Supplemental RI reports, waste/source materials were identified at the site and are impacting groundwater and soil.

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 where substantial quantities of contaminants are found that can migrate and release significant levels of contaminants to another environmental medium. Wastes and source areas identified at the site included cinders, button ash, slag, asphalt millings and foundry sand, often mixed into reworked silty clay. The thickness of this material typically ranges from 1 to 10 feet within the former building footprint, and from 0 to 2 feet outside the building footprint. At OU5, the primary contaminants in the waste are polycyclic aromatic hydrocarbons (PAHs) and arsenic. PAHs are a group of over 100 different chemicals that are common in the environment. Sources of PAHs include incomplete combustion of coal, oil, gasoline, garbage, wood, automobiles, and incinerators. PAHs, polychlorinated biphenyls (PCBs), and metals (e.g., arsenic, cadmium, chromium, copper, lead, nickel, and zinc) are the primary contaminants in waste at OU6.

The waste/source areas identified at the site for both OUs were addressed by the IRMs described in Section 6.2.

Groundwater

Groundwater samples collected from overburden monitoring wells identified localized groundwater contamination at OU6 by organic and inorganic compounds (Table 1). The locations of these samples are shown on Figure 3. Groundwater exceedances for VOCs were documented at wells MW-16 (cis-1,2-dichloroethene, trans-1,2-dichloroethene and vinyl chloride) and MW-43 (acetone, 2-butanone and 2-hexanone), while SVOC exceedances were documented at wells OW-B2 (bis(2-ethylhexyl)phthalate) and MW-43 (formaldehyde). Groundwater exceedances for metals were documented at wells OW-B2 (antimony), OW-3 (selenium), MW-43 (antimony and lead), MW-59 (arsenic, lead and thallium) and MW-A (antimony). These exceedances are also shown on Figure 3. The results from well MW-A are inconsistent with the previous Remedial Investigation/RCRA Facility Investigation (RI/RFI) results (no exceedances documented) and may be related to land disturbances during building demolition activities that have occurred at the site.

Table 1 - Groundwater			
Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Acetone	ND[c] – 85	50	1 of 14
2-Butanone	ND – 60	50	1 of 14
cis-1,2-Dichloroethene	ND – 44	5	1 of 14
trans-1,2-Dichloroethene	ND – 18	5	1 of 14
2-Hexanone	ND – 58	50	1 of 14
Vinyl Chloride	ND – 4.4	2	1 of 14
SVOCs			
Bis(2-ethylhexyl)phthalate	ND – 21	5	1 of 14
Formaldehyde	ND – 61	8	1 of 2
Metals			
Antimony	ND – 128	3	3 of 14
Arsenic	ND – 72.1	25	1 of 14
Lead	ND – 32	25	2 of 14
Selenium	ND – 14.5	10	1 of 14
Thallium	ND – 4.43	0.5	1 of 14

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).
c - ND = contaminant analyzed but not detected.

Groundwater contamination identified during the RI has been addressed by the IRM completed at OU6 as described in Section 6.2, and the State Superfund (SSF) remedial program completed at OUs 1 through 4. Excavation completed by the IRM and SSF remediation at OUs 1 through 4 has removed the contaminated soil and fill from the site that was the source of the groundwater contamination identified above.

Soil

Surface and subsurface soil samples were collected from OUs 5 and 6 during the RI and Supplemental RI. Surface soil samples from each operable unit were collected from a depth of 0 - 2 inches to assess direct human exposure to contaminated soil and fill. Subsurface soil samples were collected from a depth of 0 – 8 feet at OU5 and from a depth of 0 - 21 feet at OU6 to assess the nature and extent of contamination at these operable units.

Soil samples from the on-site drainage ditch were collected during the RI/RFI for the SSF parcels (OUs 1 through

4). Therefore, only limited samples from the drainage ditch were collected during the RI under the ERP project. For the 2003 Record of Decision/Statement of Basis for OUs 1 through 4, these results were compared to soil SCGs as water in this ditch is intermittent and the ditch does not harbor an aquatic environment. For consistency, the results obtained during the ERP RI are included in the soil tables shown below.

Surface and subsurface soil contamination identified during the RI and Supplemental RI was remediated by the IRMs completed at OUs 5 and 6 (described in Section 6.2). Therefore, the surface soil results summarized in Table 2 (OU5) and Table 3 (OU6), and the subsurface soil results summarized in Table 4 (OU5) and Table 5 (OU6), represent post-IRM conditions at the site. Exceedances of the unrestricted and residential SCGs at OU5 are shown on Figures 4 and 5, respectively, while exceedances of the unrestricted and restricted residential SCGs at OU6 are shown on Figures 6 and 7, respectively.

Table 2 - Surface Soil at OU5

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Metals					
Lead	73.4	63	1 of 1	400	0 of 1
Zinc	150	109	1 of 1	2,200	0 of 1

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), Residential Soil Cleanup Objectives.

Table 3 - Surface Soil at OU6

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
Metals					
Cadmium	2.1 – 3.3	2.5	2 of 3	4.3	0 of 3
Copper	93.8 - 123	50	3 of 3	270	0 of 3
Lead	53.8 – 75.3	63	1 of 3	400	0 of 3
Nickel	19.1 - 37	30	2 of 3	310	0 of 3
Zinc	466 - 651	109	3 of 3	10,000	0 of 3

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 Residential Soil Cleanup Objectives.

Table 4 - Subsurface Soil at OU5					
Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Acetone	ND – 0.12	0.05	1 of 9	100	0 of 9
SVOCs					
Benzo(b)fluoranthene	ND – 1.2	1	1 of 14	1	1 of 14
Chrysene	ND – 1.2	1	1 of 14	1	1 of 14
Indeno(1,2,3-cd)pyrene	ND – 0.51	0.5	1 of 14	0.5	1 of 14
Metals					
Arsenic	2.1 – 16	13	1 of 25	16	0 of 24
Chromium	14.5 – 31.5	30	1 of 9	36	0 of 9
Nickel	20.3 – 40.4	30	7 of 9	140	0 of 9
Zinc	16 – 141	109	1 of 10	2,200	0 of 10

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), Residential Soil Cleanup Objectives.

Table 5 - Subsurface Soil at OU6					
Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Acetone	ND – 1.4	0.05	13 of 82	100	0 of 82
Benzene	ND – 25	0.06	7 of 94	4.8	2 of 94
Toluene	ND – 12.8	0.7	1 of 85	100	0 of 85
Xylenes - Total	ND – 0.661	0.26	1 of 85	100	0 of 85
SVOCs					
2-Methylphenol	ND – 0.71	0.33	1 of 80	100	0 of 80
4-Methylphenol	ND – 2.8	0.33	1 of 80	100	0 of 80

Benzo(a)anthracene	ND – 1.37	1	1 of 199	1	1 of 199
Benzo(a)pyrene	ND – 1.09	1	1 of 199	1	1 of 199
Benzo(b)fluoranthene	ND – 1.4	1	2 of 199	1	2 of 199
Benzo(k)fluoranthene	ND – 0.992	0.8	1 of 199	3.9	0 of 199
Chrysene	ND – 1.37	1	2 of 199	3.9	0 of 199
Indeno(1,2,3-cd)pyrene	ND – 0.66	0.5	2 of 199	0.5	2 of 199
Phenol	ND – 1.1	0.33	3 of 80	100	0 of 80
PCBs	ND – 0.842	0.1	11 of 102	1	0 of 102
Metals					
Arsenic	ND – 16	13	3 of 203	16	0 of 203
Barium	5.5 – 404	350	3 of 166	400	1 of 166
Cadmium	ND – 6.3	2.5	31 of 241	4.3	2 of 241
Chromium	0.78 – 59.9	30	15 of 174	180	0 of 174
Copper	2.7 – 662	50	33 of 207	270	1 of 207
Lead	6.0 – 350	63	12 of 167	400	0 of 167
Mercury	ND – 0.29	0.18	4 of 150	0.81	0 of 150
Nickel	2.2 – 452	30	22 of 141	310	1 of 141
Selenium	ND – 5.3	3.9	5 of 141	180	0 of 141
Silver	ND – 5.6	2	1 of 141	180	0 of 141
Zinc	24.3 – 9,830	109	147 of 234	10,000	0 of 234

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 Residential Soil Cleanup Objectives.

Storm Water

Storm water runoff at the Spaulding Fibre Site occurs during rain events from 9 outfalls (where storm water leaves the site). During the RI/RFI completed under the SSF remedial program, water samples from the 9 outfalls and the on-site drainage ditch were collected. None of these samples exceeded the surface water SCGs. As a result, the collection of additional storm water samples was not required for the RI under the ERP.

Exhibit B

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 remediation objectives for OUs 5 and 6 are:

Public Health Protection

Groundwater

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with contaminated groundwater.

Soil

- Prevent ingestion/direct contact with contaminated soil.

Environmental Protection

Groundwater

- Restore the groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminated groundwater to surface water and the on-site sewer system.
- Remove the source of groundwater contamination.

Soil

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

Exhibit C

Description of Remedial Alternatives

The following alternatives were considered based upon the remedial action objectives (see Exhibit B) to address the contaminated media identified at OUs 5 and 6 as described in Exhibit A:

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of OUs 5 and 6 that was 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 public health and the environment.

Alternative 2: No Further Action with Site Management

The No Further Action with Site Management Alternative recognizes the remediation of OUs 5 and 6 that was completed by the IRMs described in Section 6.2, with Site Management and Institutional Control necessary to ensure the effectiveness of the IRMs. Surface soil at the site currently meets the restricted residential SCOs so additional remedial action to provide a soil cover over the site is not required. Institutional controls, in the form of an environmental easement and Site Management Plan (SMP), are necessary to protect public health and the environment from subsurface contamination remaining at the site after the IRMs. The existing soil cover will be maintained under the SMP. Capital costs for this alternative include development of the SMP, surveying, and filing the environmental easement.

Present Worth: ..... *$28,000 (OU5) - $50,000 (OU6)*
Capital Cost: ..... *$15,000 (OU5) - $25,000 (OU6)*
Annual Costs: ..... *$1,000 (OU5) - $2,000 (OU6)*

Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A, and soil meets the unrestricted soil cleanup objectives listed in Part 375-6.8 (a). This alternative would include the excavation of an estimated 18,500 tons (12,400 cubic yards) of contaminated soil and fill from OU5 and 68,800 tons (45,900 cubic yards) of contaminated soil and fill from OU6 that exceeds the unrestricted soil cleanup objectives. The areas that would be excavated are shown on Figure 8. The excavated material would be transported to approved off-site disposal facilities. The majority of the proposed excavations are relatively shallow (i.e., 0-3 feet below ground surface). Within several areas, however, excavation to a depth of 6 feet or greater would be required. Confirmatory samples would be collected following excavation to confirm that all soil and fill exceeding the unrestricted SCGs were removed from each operable unit. All excavations would be backfilled to grade with clean soil meeting the unrestricted SCGs, covered with 4 inches of topsoil, and hydroseeded. Since all soil and fill exceeding the unrestricted soil cleanup objectives would be removed from OUs 5 and 6, an environmental easement and site management plan would not be required. The time required to complete this alternative is estimated to be 2 months for OU5 and 9 months for OU6.

Capital Cost: ..... *$1,300,000 (OU5) - $5,700,000 (OU6)*

Exhibit D

Remedial Alternative Costs

Table 6 - Remedial Alternative Costs for OU5			
Remedial Alternatives	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Further Action	0	0	0
Alternative 2: No Further Action with Site Management	15,000	1,000	28,000
Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions	1,300,000	0	0

Table 7 - Remedial Alternative Costs for OU6			
Remedial Alternatives	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Further Action	0	0	0
Alternative 2: No Further Action with Site Management	25,000	2,000	50,000
Alternative 3: Restoration to Pre-Disposal or Unrestricted Conditions	5,700,000	0	0

Exhibit E

Summary of the Proposed Remedies

The Department is proposing the following alternatives as the remedies for this site. The elements of these remedies are described in Section 7.2.

- OU5: Wheeler Street Parking Lot: Alternative 1 – No Further Action; and
- OU6: Main Plant Area: Alternative 2 – No Further Action with Site Management.

Basis for Selection

The proposed remedies are based on the results of the RI, the Supplemental RI, the completed IRMs, and the evaluation of alternatives. The basis for selecting the remedy for each operable unit is as follows:

OU5: Wheeler Street Parking Lot

Alternative 1: No Further Action is being proposed for OU5 because, as described below, it satisfies the threshold criteria and provides the best balance of the balancing criterion described in Section 7.1. The completed IRM achieved the remediation goals for the site by removing contaminated soil and fill that exceeded residential soil cleanup objectives. Because surface and subsurface soils at OU5 meet the Part 375 residential use SCGs, an environmental easement and site management plan will not be required for this operable unit.

Alternative 2 (No Further Action with Site Management) is similar to Alternative 1 (No Further Action) but requires an environmental easement and site management. The residential cleanup is the same for both alternatives, and is protective for the intended future commercial use of the site. There are no short-term impacts associated with Alternatives 1 and 2.

Alternative 3 (Restoration to Pre-Disposal or Unrestricted Conditions) involves the excavation of contaminated soil and fill and also meets the threshold criteria. As a result, short-term impacts to construction workers and the surrounding community (e.g., dust generation, noise, etc.) could result during the implementation of this alternative. During the IRM, these impacts were mitigated through standard construction practices.

Alternative 3 has the greatest long-term effectiveness as all contaminated soil and fill above the unrestricted soil cleanup objectives would be removed from OU5. Alternatives 1 and 2 are also effective in the long-term as contaminated soil and fill was already removed to residential soil cleanup objectives during the IRM.

Under Alternative 3, the toxicity, mobility and volume of contaminants are completely reduced through the excavation and off-site disposal of contaminated soil and fill that exceeds the unrestricted soil cleanup criteria. The toxicity, mobility and volume of contaminants at OU5 were already significantly reduced by the IRM.

Table 6 in Exhibit D shows that the estimated costs to implement the alternatives at OU5 vary significantly. Alternative 1 has no costs associated with it as no additional excavation of contaminated soil and fill would be completed. An environmental easement and site management plan are not required under this alternative.

Alternative 2 has costs associated with the environmental easement and site management activities. Alternative 3 has the greatest cost as additional contaminated soil and fill would be excavated under this alternative.

Protection of Human Health and the Environment

Alternatives 1 and 2 would not eliminate or reduce the remaining contamination at OU5; however, Alternative 2 would use institutional controls, in the form of an environmental easement, to control any human exposures to, or environmental impacts from, the remaining contamination at this operable unit. The IRM completed at this operable unit achieved a residential cleanup. The intended future of the site is commercial. Therefore, although Alternatives 1 and 2 do not further remediate OU5, this operable unit has already been remediated to a level that is protective of human health and the environment for the intended re-use of the property. Alternative 3 is the most protective of human health and the environment because all contaminated soil and fill would be removed from this operable unit and properly disposed of in an approved off-site facility, although the resulting increase in protection would be minimal.

Compliance with New York State Standards, Criteria, and Guidance (SCGs)

The goal of the remedial program at the Spaulding Fibre Site is to restore the site to pre-disposal conditions to the extent feasible. The chemical-specific SCGs chosen for OU5 were the 6 NYCRR Part 375 residential soil cleanup objectives. The IRM completed at this operable unit achieved this level of cleanup. Therefore, although Alternatives 1 and 2 do not result in further removals, this operable unit has already been remediated to a level that complies with the site-specific SCGs. The implementation of Alternative 3 would remove all remaining contamination and remediate OU5 to unrestricted soil cleanup objectives.

Short-Term Effectiveness

Alternatives 1 and 2 pose no short-term impacts to workers and the community because no active remedial activities would take place. Under Alternative 3, several short-term impacts to the community and workers may arise during excavation of contaminated soil and fill. These impacts include increased truck traffic, odors, dust, noise, runoff from the site, and potential spills during handling and transportation of contaminated materials. To minimize short-term impacts, site access would be restricted during remedial activities. Health and safety measures, including air monitoring, use of appropriate personal protective equipment, and decontamination of equipment leaving the site, would be in place to protect the workers and the surrounding community. Action levels would be set prior to any intrusive activities, and appropriate corrective actions would be implemented if these action levels are exceeded.

Long-Term Effectiveness and Permanence

Under Alternatives 1 and 2, the residual contamination would remain at current concentrations. The IRM completed at this operable unit, however, achieved a residential cleanup that is protective for the intended future commercial use of the site. Therefore, although Alternatives 1 and 2 do not further remediate OU5, this operable unit has already been remediated to a level that limits the potential for human exposure to the remaining contamination, limits the potential for the remaining contamination to come into contact with ecological receptors, and limits impacts to the environment. The environmental easement and site management plan of Alternative 2 would further protect human health and the environment during future on-site redevelopment activities.

Alternative 3 has the greatest long-term effectiveness and permanence as all contaminated soil and fill would be removed and properly disposed of in an approved off-site facility.

Reduction of Toxicity, Mobility or Volume

Alternatives 1 and 2 do not reduce the toxicity, mobility or volume of the contaminants at OU5 any further than the IRM. The IRM, however, has already significantly reduced the toxicity, mobility and volume of contaminants. Alternative 3 would only minimally further reduce the toxicity, mobility and volume of contaminated soil and fill remaining at OU5 through excavation and off-site disposal.

Implementability

Alternative 1 would be the most implementable alternative because no activities would take place at OU5 and no institutional controls would be required. Alternative 2 would also be easily implementable because only institutional controls and site management would be required. Alternative 3 would be the least implementable alternative because active remedial activities would take place.

While Alternative 3 could be implemented using standard construction practices and methods, a significant level of effort would be required for minimal increase in the effectiveness of the cleanup. Local disposal facilities have been identified and the capacity of these facilities can easily accommodate the volume of material to be excavated. Remediation contractors and licensed trucking companies are also readily available. Alternative 3 is the least implementable because active remedial activities would take place.

Cost-Effectiveness

Alternative 1 is the most cost-effective as there is no cost associated with its implementation. Alternative 2 is slightly less cost-effective as there are costs associated with the environmental easement and site management activities. Alternative 3 is the least cost-effective as additional contaminated soil and fill would be excavated under this alternative. Since the IRM achieved a residential cleanup that is protective for the intended future commercial use of the site, the significant additional cost of Alternative 3 compared to Alternatives 1 and 2, makes this alternative much less favorable.

Land Use

The IRM completed at OU5 achieved a residential cleanup that is protective for the intended future commercial use of the site. The entire Spaulding property is currently zoned as a Commerce Park District.

OU6: Main Plant Area

Alternative 2: No Further Action with Site Management is being proposed for OU6 because, as described below, it satisfies the threshold criteria and provides the best balance of the balancing criterion described in Section 7.1. The completed IRM achieved the remediation goals for the site by removing contaminated soil and fill that exceeded restricted residential soil cleanup objectives. Site management and an environmental easement are required for this operable unit due to the level of cleanup completed during the IRMs and the State Superfund remedial program at OUs 1 through 4 (which are wholly located within OU6).

Alternative 2 (No Further Action with Site Management) is similar to Alternative 1 (No Further Action) but requires an environmental easement and site management. The restricted residential cleanup is the same for both alternatives, and is protective for the intended future commercial use of the site. There are no short-term impacts associated with Alternatives 1 and 2.

Alternative 3 (Restoration to Pre-Disposal or Unrestricted Conditions) involves the excavation of contaminated soil and fill and also meets the threshold criteria. As a result, short-term impacts to construction workers and the surrounding community (e.g., dust generation, noise, etc.) could result during the implementation of this alternative. During the IRM, these impacts were mitigated through standard construction practices.

Alternative 3 has the greatest long-term effectiveness as all contaminated soil and fill above the unrestricted soil cleanup objectives would be removed from OU6. Alternatives 1 and 2 are also effective in the long-term as contaminated soil and fill was already removed to restricted residential soil cleanup objectives during the IRM.

Under Alternative 3, the toxicity, mobility and volume of contaminants are completely reduced through the excavation and off-site disposal of contaminated soil and fill that exceeds the unrestricted soil cleanup criteria. The toxicity, mobility and volume of contaminants at OU6 were already significantly reduced by the IRM.

Table 7 in Exhibit D shows that the estimated costs to implement the alternatives at OU6 vary significantly. Alternative 1 has no costs associated with it as no additional excavation of contaminated soil and fill would be completed. An environmental easement and site management plan are not required under this alternative. Alternative 2 has costs associated with the environmental easement and site management activities. Alternative 3 has the greatest cost as additional contaminated soil and fill would be excavated under this alternative.

Protection of Human Health and the Environment

Alternatives 1 and 2 would not eliminate or reduce the remaining contamination at OU6; however, Alternative 2 would use institutional controls, in the form of an environmental easement, to control any human exposures to, or environmental impacts from, the remaining contamination at this operable unit. The IRM completed at this operable unit achieved a restricted residential cleanup. The intended future use of the site is commercial. Therefore, although Alternatives 1 and 2 do not further remediate OU6, this operable unit has already been remediated to a level that is protective of human health and the environment for the intended re-use of the property. Alternative 3 is the most protective of human health and the environment because all contaminated soil and fill would be removed from this operable unit and properly disposed of in an approved off-site facility, although the resulting increase in protection would be minimal.

Compliance with New York State Standards, Criteria, and Guidance (SCGs)

The goal of the remedial program at the Spaulding Fibre Site is to restore the site to pre-disposal conditions to the extent feasible. The chemical-specific SCGs chosen for OU6 were the 6 NYCRR Part 375 restricted residential soil cleanup objectives. The IRM completed at this operable unit achieved this level of cleanup. Therefore, although Alternatives 1 and 2 do not result in further removals, this operable unit has already been remediated to a level that complies with the site-specific SCGs. The implementation of Alternative 3 would remove all remaining contamination and remediate OU6 to unrestricted soil cleanup objectives.

Short-Term Effectiveness

Alternatives 1 and 2 pose no short-term impacts to workers and the community because no active remedial activities would take place. Under Alternative 3, several short-term impacts to the community and workers may arise during excavation of contaminated soil and fill. These impacts include increased truck traffic, odors, dust, noise, runoff from the site, and potential spills during handling and transportation of contaminated materials. To minimize short-term impacts, site access would be restricted during remedial activities. Health and safety measures, including air monitoring, use of appropriate personal protective equipment, and decontamination of equipment leaving the site, would be in place to protect the workers and the surrounding community. Action levels would be set prior to any intrusive activities, and appropriate corrective actions would be implemented if these action levels are exceeded.

Long-Term Effectiveness and Permanence

Under Alternatives 1 and 2, the residual contamination would remain at current concentrations. The IRM completed at this operable unit, however, achieved a restricted residential cleanup that is protective for the intended future commercial use of the site. Therefore, although Alternatives 1 and 2 do not further remediate OU6, this operable unit has already been remediated to a level that limits the potential for human exposure to the remaining contamination, limits the potential for the remaining contamination to come into contact with ecological receptors, and limits impacts to the environment. The environmental easement and site management plan of Alternative 2 would further protect human health and the environment during future on-site redevelopment activities.

Alternative 3 has the greatest long-term effectiveness and permanence as all contaminated soil and fill would be removed and properly disposed of in an approved off-site facility.

Reduction of Toxicity, Mobility or Volume

Alternatives 1 and 2 do not reduce the toxicity, mobility or volume of the contaminants at OU6 any further than the IRM. The IRM, however, has already significantly reduced the toxicity, mobility and volume of contaminants. Alternative 3 would only minimally further reduce the toxicity, mobility and volume of contaminated soil and fill remaining at OU6 through excavation and off-site disposal.

Implementability

Alternative 1 would be the most implementable alternative because no activities would take place at OU6 and no institutional controls would be required. Alternative 2 would also be easily implementable because only institutional controls and site management would be required. Alternative 3 would be the least implementable alternative because active remedial activities would take place.

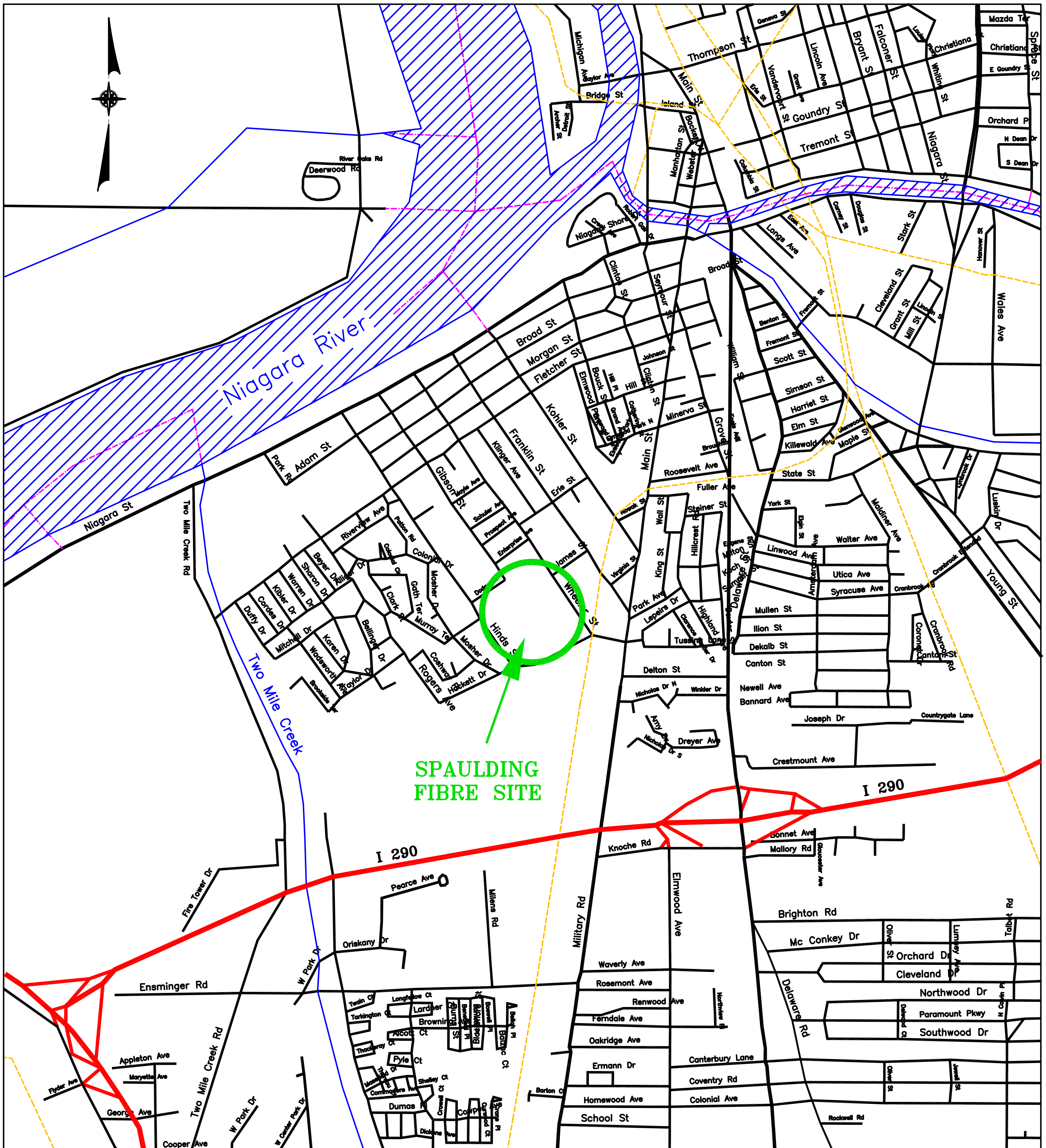
While Alternative 3 could be implemented using standard construction practices and methods, a significant level of effort would be required for minimal increase in the effectiveness of the cleanup. Local disposal facilities have been identified and the capacity of these facilities can easily accommodate the volume of material to be excavated. Remediation contractors and licensed trucking companies are also readily available. Alternative 3 is the least implementable because active remedial activities would take place.

Cost-Effectiveness

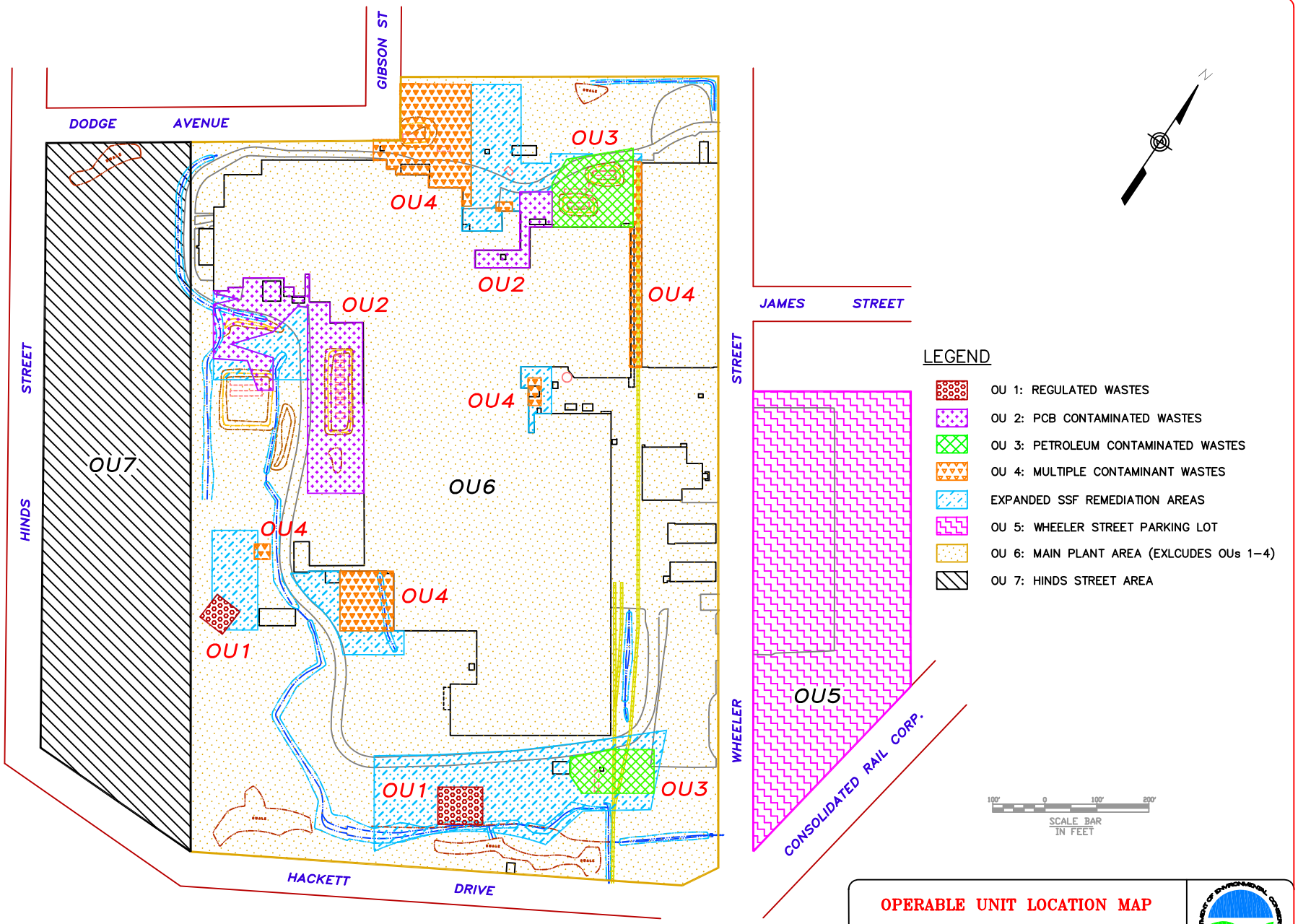
Alternative 1 is the most cost-effective as there is no cost associated with its implementation. Alternative 2 is slightly less cost-effective as there are costs associated with the environmental easement and site management activities. Alternative 3 is the least cost-effective as additional contaminated soil and fill would be excavated under this alternative. Since the IRM achieved a restricted residential cleanup that is protective for the intended future commercial use of the site, the significant additional cost of Alternative 3 compared to Alternatives 1 and 2, makes this alternative much less favorable.

Land Use

The IRM completed at OU6 achieved a restricted residential cleanup that is protective for the intended future commercial use of the site. The entire Spaulding property is currently zoned as a Commerce Park District.



Tonawanda East & West Quadrangles; Buffalo East & West Quadrangles Scale Depends on Final Plotted Size	SITE LOCATION MAP DIVISION OF ENVIRONMENTAL REMEDIATION DATE: 01/25/01 DRAWING: Figure 1.dwg SITE: SPAULDING FIBRE SITE FIGURE 1	DEPARTMENT OF ENVIRONMENTAL CONSERVATION · NEW YORK STATE



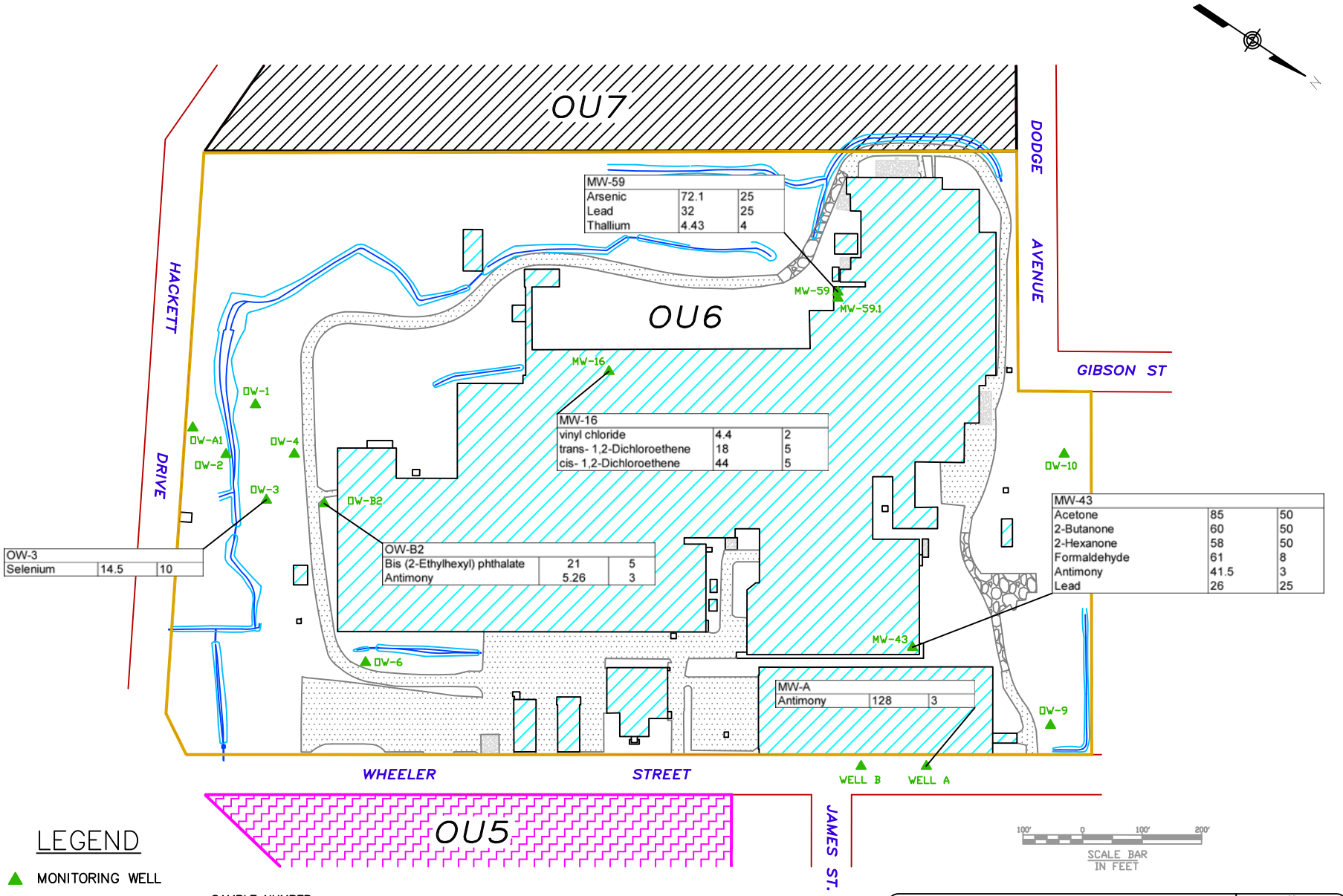
OPERABLE UNIT LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 11/05/08 | DRAWING: Figure 2.dwg

SITE: SPAULDING FIBRE SITE

FIGURE 2



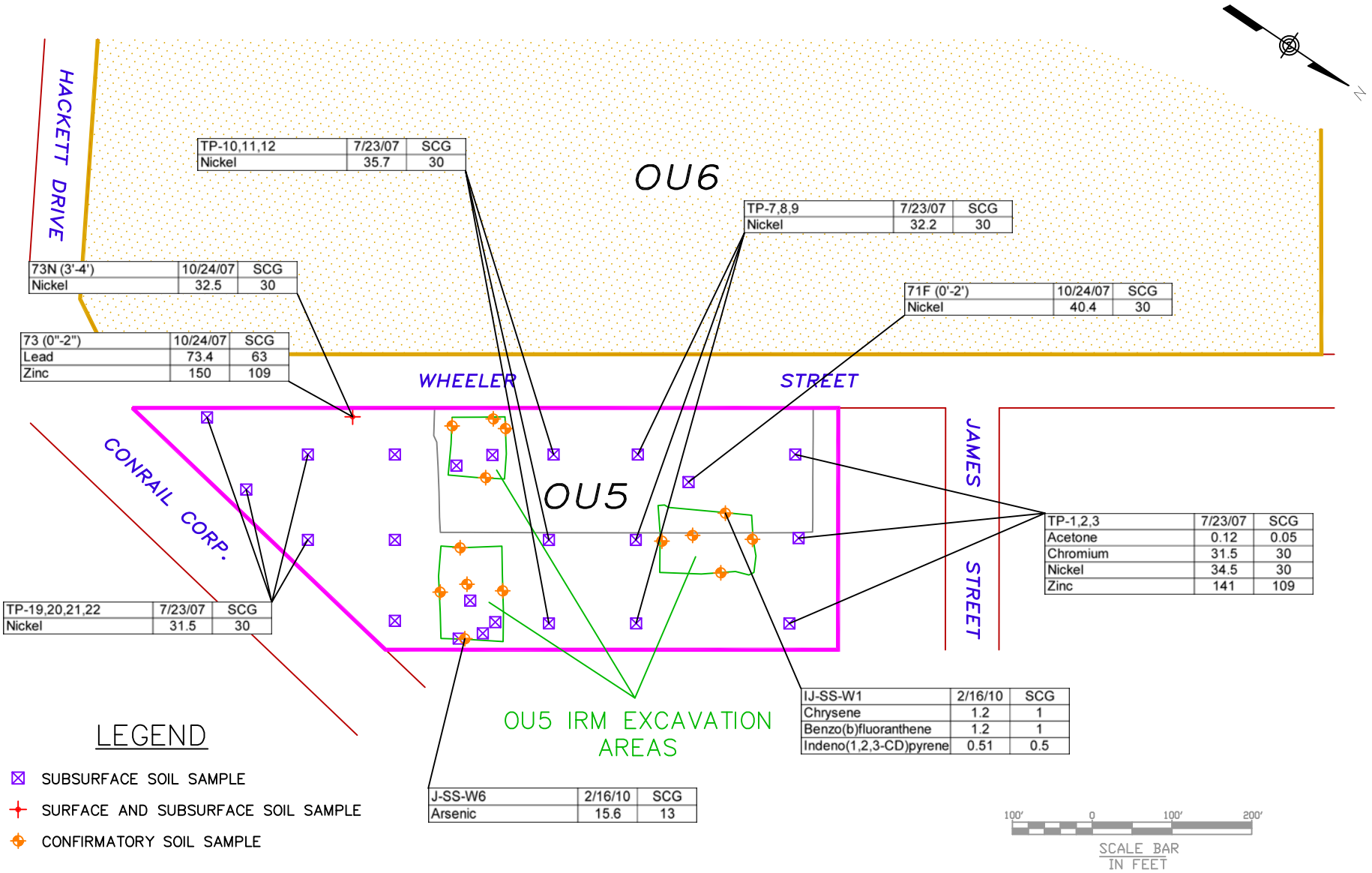
MONITORING WELL LOCATION & GROUNDWATER SCG EXCEEDANCE MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/06/11 DRAWING: Figure 3.dwg

SITE: SPAULDING FIBRE SITE

FIGURE 3



NOTE: LISTED SOIL CLEANUP OBJECTIVE IS FOR UNRESTRICTED USE

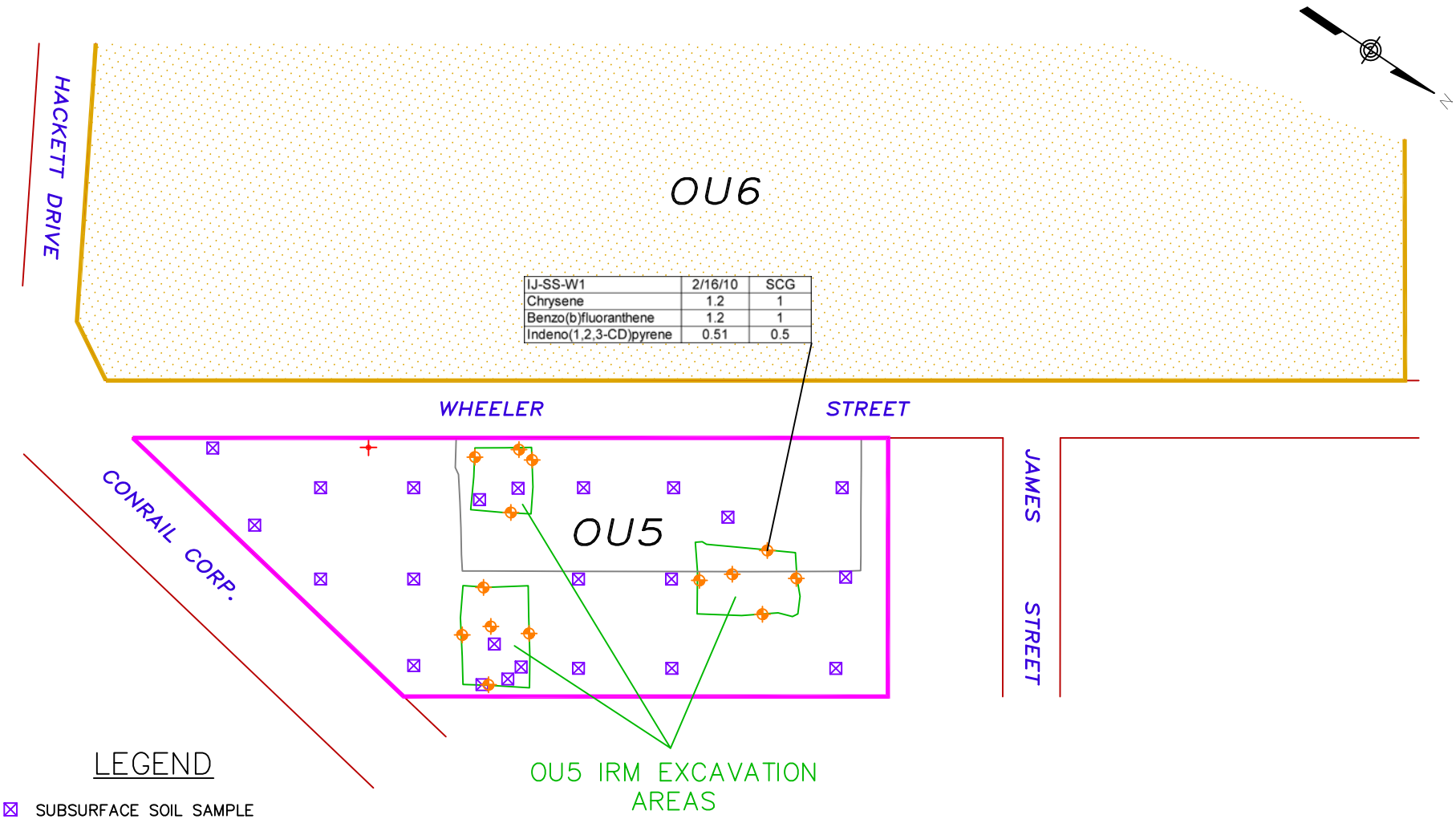
UNRESTRICTED SOIL SCG EXCEEDANCE MAP FOR OU5

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/06/11 | DRAWING: Figures 4 & 5.dwg

SITE: SPAULDING FIBRE SITE

FIGURE 4



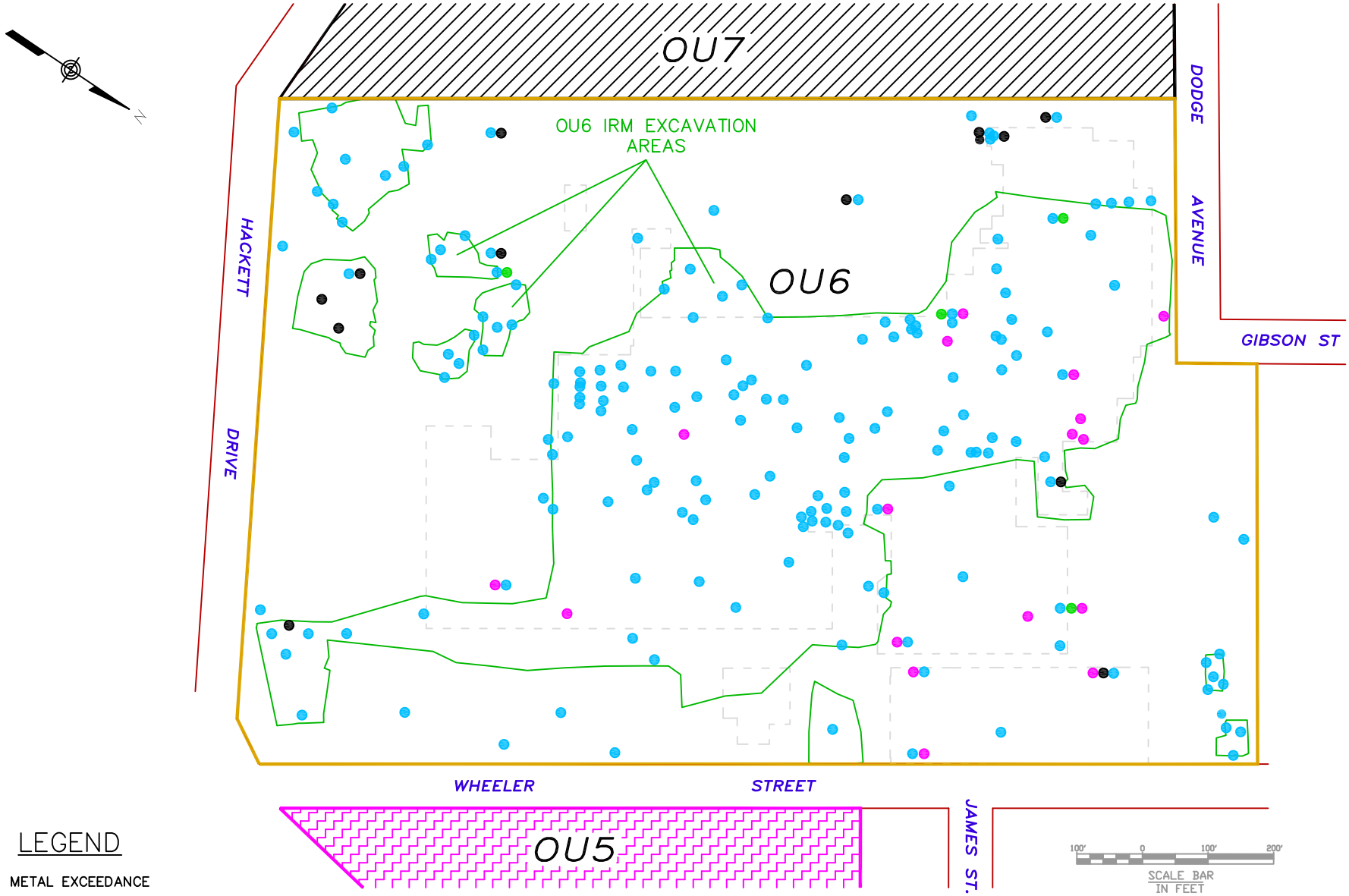
RESIDENTIAL SOIL SCG EXCEEDANCE MAP FOR OU5

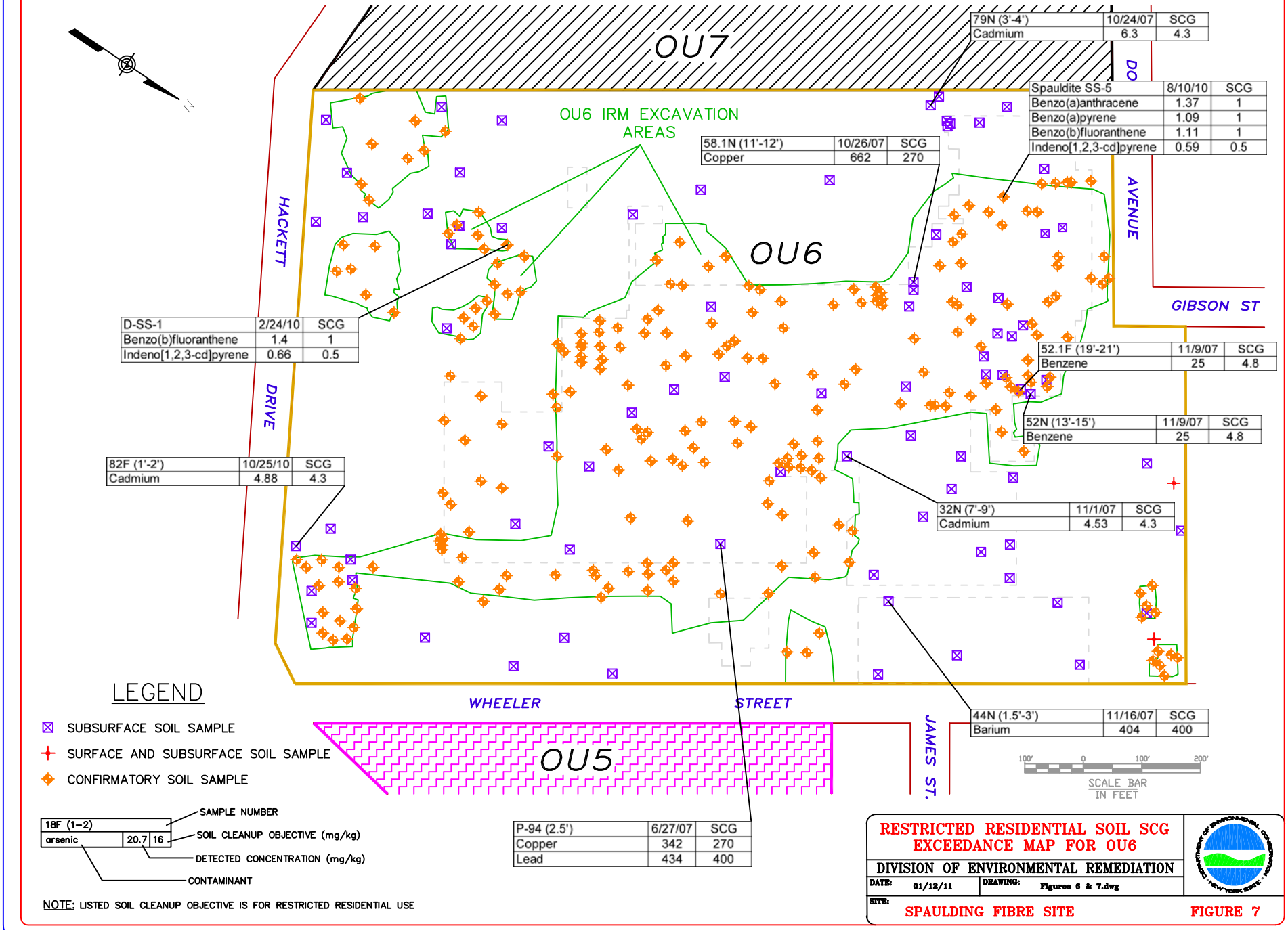
DIVISION OF ENVIRONMENTAL REMEDIATION

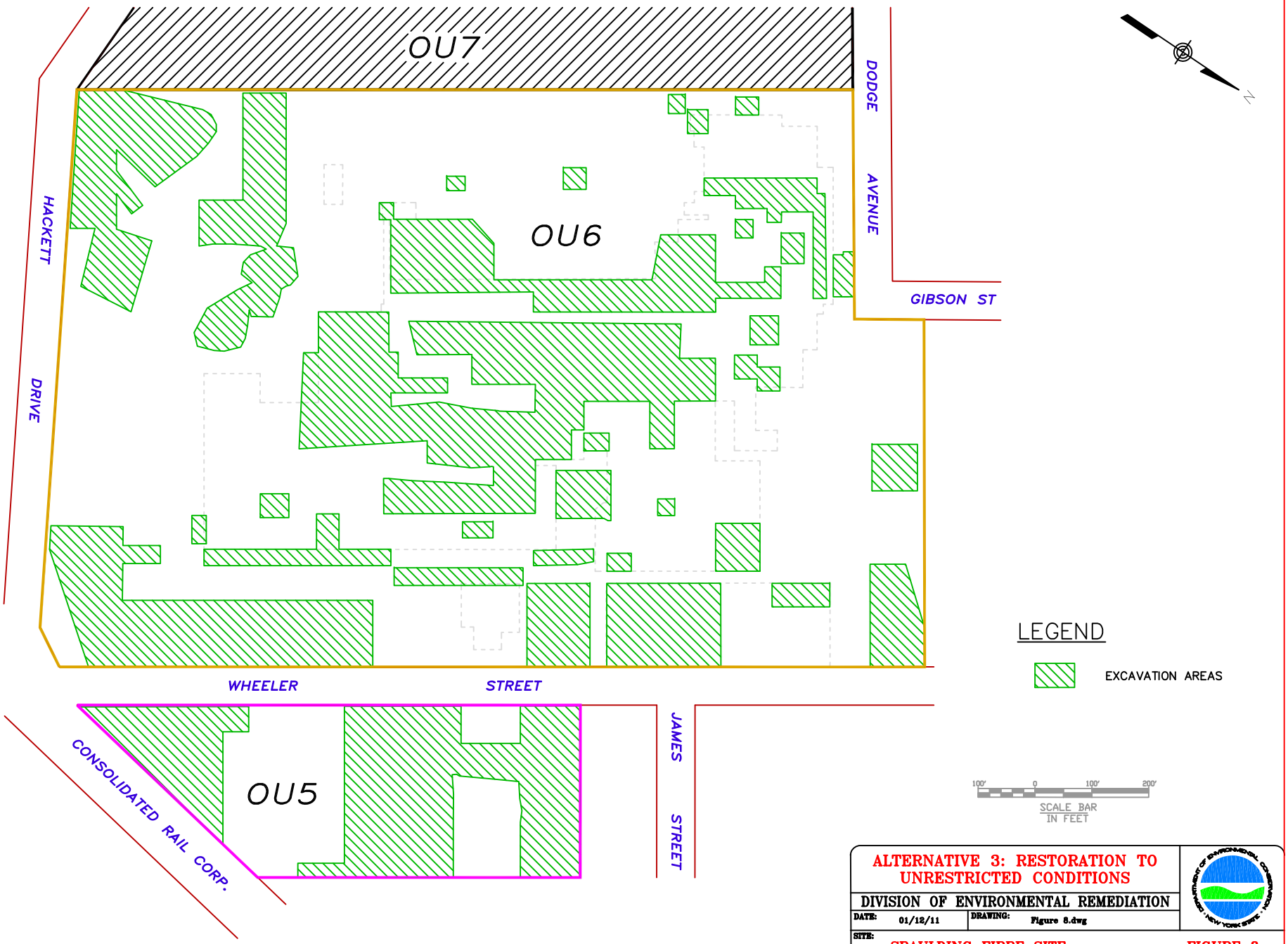
DATE: 01/06/11 | DRAWING: Figures 4 & 5.dwg

SITE: SPAULDING FIBRE SITE

FIGURE 5


OU7
OU6 IRM EXCAVATION AREAS
OU6
HACKETT DRIVE
DODGE AVENUE
GIBSON ST
WHEELER STREET
OU5
JAMES ST.
100' 0 100' 200'
SCALE BAR IN FEET
LEGEND
METAL EXCEEDANCE
PAH EXCEEDANCE
PCB EXCEEDANCE
VOC EXCEEDANCE
NOTE: EXCEEDANCES SHOWN ARE FOR UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
UNRESTRICTED SOIL SCG EXCEEDANCE MAP FOR OU6
DIVISION OF ENVIRONMENTAL REMEDIATION
DATE: 01/12/11
DRAWING: Figures 6 & 7.dwg
SITE: SPAULDING FIBRE SITE
FIGURE 6


OU7
OU6 IRM EXCAVATION AREAS
OU6
OU5
HACKETT DRIVE
AVENUE
GIBSON ST
WHEELER STREET
JAMES ST.
79N (3'-4') | 10/24/07 | SCG
Cadmium | 6.3 | 4.3
Spauldite SS-5 | 8/10/10 | SCG
Benzo(a)anthracene | 1.37 | 1
Benzo(a)pyrene | 1.09 | 1
Benzo(b)fluoranthene | 1.11 | 1
Indeno[1,2,3-cd]pyrene | 0.59 | 0.5
58.1N (11'-12') | 10/26/07 | SCG
Copper | 662 | 270
D-SS-1 | 2/24/10 | SCG
Benzo(b)fluoranthene | 1.4 | 1
Indeno[1,2,3-cd]pyrene | 0.66 | 0.5
52.1F (19'-21') | 11/9/07 | SCG
Benzene | 25 | 4.8
52N (13'-15') | 11/9/07 | SCG
Benzene | 25 | 4.8
82F (1'-2') | 10/25/10 | SCG
Cadmium | 4.88 | 4.3
32N (7'-9') | 11/1/07 | SCG
Cadmium | 4.53 | 4.3
44N (1.5'-3') | 11/16/07 | SCG
Barium | 404 | 400
P-94 (2.5') | 6/27/07 | SCG
Copper | 342 | 270
Lead | 434 | 400
100' 0 100' 200'
SCALE BAR IN FEET
LEGEND
SUBSURFACE SOIL SAMPLE
SURFACE AND SUBSURFACE SOIL SAMPLE
CONFIRMATORY SOIL SAMPLE
18F (1-2)
arsenic | 20.7 | 16
SAMPLE NUMBER
SOIL CLEANUP OBJECTIVE (mg/kg)
DETECTED CONCENTRATION (mg/kg)
CONTAMINANT
NOTE: LISTED SOIL CLEANUP OBJECTIVE IS FOR RESTRICTED RESIDENTIAL USE
RESTRICTED RESIDENTIAL SOIL SCG EXCEEDANCE MAP FOR OU6
DIVISION OF ENVIRONMENTAL REMEDIATION
DATE: 01/12/11
DRAWING: Figures 6 & 7.dwg
SITE: SPAULDING FIBRE SITE
FIGURE 7


OU7
OU6
OU5
HACKETT
DRIVE
DODGE
AVENUE
GIBSON ST
WHEELER
STREET
JAMES
STREET
CONSOLIDATED RAIL CORP.
N
LEGEND
EXCAVATION AREAS
100' 0 100' 200'
SCALE BAR
IN FEET
ALTERNATIVE 3: RESTORATION TO UNRESTRICTED CONDITIONS
DIVISION OF ENVIRONMENTAL REMEDIATION
DATE: 01/12/11
DRAWING: Figure 8.dwg
SITE:
SPAULDING FIBRE SITE
FIGURE 8