



Submitted By:

**Severson
Environmental
Services, Inc.**
2749 Lockport Road
Niagara Falls, New York
716-284-0431

**D
R
A
F
T**

May 24, 2002

Draft Removal Action Plan for Arsenic Contaminated Properties Spring Valley, Washington DC



Submitted To:

**United States Army Corps of Engineers
Baltimore District**

Spring Valley TCRA Arsenic Contaminated Properties Washington, D.C.

ID	Task Name	Duration	Start	Finish	May 12,	May 19,	May 26,	Jun 2, '0	Jun 9, '0	Jun 16, '	Jun 23, '	Jun 30, '	Jul 7, '0	Jul 14, '	Jul 21, '	Jul 28, '	Aug 4, '	Aug 11,	Aug 18,	Aug 25,	Sep 1, '	Sep 8, '	Sep 15,	Sep 22,	Sep 29,	Oct 6, '0						
					5/12	5/19	5/26	6/2	6/9	6/16	6/23	6/30	7/7	7/14	7/21	7/28	8/4	8/11	8/18	8/25	9/1	9/8	9/15	9/22	9/29	10/6						
1	Pre-mobilization Activities	20 days	5/22/02	6/18/02																												
2	Mobilization	5 days	6/19/02	6/25/02																												
3	General Conditions	68 days	6/19/02	9/20/02																												
4	Safety & Health	68 days	6/19/02	9/20/02																												
5	Temporary Facilities	68 days	6/19/02	9/20/02																												
6	Clearing & Grubbing	7 days	6/24/02	7/2/02																												
7	Equipment Decontamination Facilities	2 days	6/26/02	6/27/02																												
8	Demarcation Fences	3 days	6/21/02	6/25/02																												
9	Soil Erosion & Sediment Control	18 days	6/26/02	7/19/02																												
10	Surveying	68 days	6/19/02	9/20/02																												
11	Sidewalk & Driveway Demolition	3 days	7/3/02	7/5/02																												
12	Borrow Samples Analysis	1 day	6/27/02	6/27/02																												
13	Waste Characterization	1 day	6/27/02	6/27/02																												
14	Residential Property Appraisal	3 days	6/26/02	6/28/02																												
15	Excavation	45 days	6/27/02	8/28/02																												
16	Tindall Excavation Activities	33 days	6/27/02	8/12/02																												
17	Springdale Excavation Activities	9 days	8/6/02	8/16/02																												
18	45th Street Excavation Activities	9 days	8/12/02	8/22/02																												
19	50th Street Excavation Activities	9 days	8/16/02	8/28/02																												
20	Transportation & Disposal	45 days	7/4/02	9/4/02																												
21	Backfill	50 days	7/1/02	9/6/02																												
22	Topsoil	17 days	8/19/02	9/10/02																												
23	Sod	14 days	8/29/02	9/17/02																												
24	Demobilization	5 days	9/16/02	9/20/02																												

Project: Commercial Construction Date: 6/6/02	Task		Progress		Summary		External Tasks		Deadline	
	Split		Milestone		Project Summary		External Milestone			

Table of Contents

1.0 Introduction

1.1 General	1-1
1.2 Site History	1-1
1.3 Objective	1-1
1.4 Approach	1-2

2.0 Project Management and Organization

2.1 Project Team and Organization	2-1
2.2 Resource Management	2-1
2.3 Lines of Communication and Project Organization	2-2
2.4 Proposed Staffing Plan	2-3
2.5 Project Structure and Function	2-4
2.5.1 Home Office Personnel	2-4
2.5.2 Field Office Personnel	2-6

3.0 Remedial Action Approach

3.1 Regulatory Requirements	3-1
3.2 Cleanup Criteria and Basis	3-1
3.3 Residential Properties Sequencing and Scheduling	3-2

Attachments:

1. Contaminated Soil Grids

4.0 Activities to Implement the Remedial Action

4.1 Pre-mobilization Activities	4-1
4.2 Mobilization	4-1
4.2.1 Facilities and Work Zones	4-1
4.2.2 Equipment and Materials	4-4

Table of Contents

4.2.3 Health and Safety.....	4-4
4.3 Right of Entry.....	4-5
4.4 Professional Appraisals.....	4-5
4.5 Soil Characterization	4-6
4.6 Excavation.....	4-7
4.6.1 Pre-construction Survey.....	4-7
4.6.2 Utility Location	4-8
4.6.3 Clearing and Grubbing.....	4-8
4.6.4 Existing Structures.....	4-9
4.6.5 Primary Excavation	4-9
4.6.6 Secondary Excavation.....	4-12
4.6.7 Soil Erosion and Sediment Control	4-13
4.6.8 Security	4-14
4.6.9 Access to Homes	4-15
4.6.10 Communication	4-15
4.7 Confirmation Sampling.....	4-16
4.8 Waste Containerization.....	4-17
4.9 Transportation and Disposal	4-19
4.10 Restoration.....	4-18
4.11 Project Closeout.....	4-19
4.12 Construction QA/QC.....	4-20

Attachments:

1. Support Zone Layout

Table of Contents

5.0 Project Schedule

Appendices

- A. Site Health and Safety Plan
- B. Sampling and Analysis Plan
 - a. Field Sampling Plan
 - b. Quality Assurance Protection Plan
- C. Quality Control Management Plan
- D. OE/CWM Risk Evaluation

Introduction

1.0 Introduction

1.1 General

The purpose of this Time Critical Removal Action (TCRA) is to remove arsenic contaminated soils on seven residential properties located in Spring Valley, Washington, DC. These properties are 4434, 4438, 4442 and 4446 Tindall Street, 4115 45th Street, 4219 50th Street and 4456 Springdale Street, located within the boundaries of the Spring Valley Operable Unit 5 (OU-5).

1.2 Site History

During WWI the U.S. Government established the American University Experiment Station (AUES) to investigate the testing, production, and effects of noxious gases, antidotes, and protective masks. The AUES was located on the grounds of the present American University (AU) and used additional portions of the property in the vicinity to conduct the research and development of chemical warfare material, including mustard, Lewisite and Adamsite agents, irritants and smokes. An area adjacent to AUES, named Camp Leach, was also established and used for staging, training, and billeting troops. Immediately after the war these activities were transferred to other locations, the site restored and returned to the owners.

1.3 Objective

The goal of this project is to reduce the levels of arsenic in soil to a reasonable and acceptable background level that minimizes the threat to health and environment. The cleanup objective is less than or equal to 20mg/kg of arsenic in

Introduction

soil. To accomplish this, previously tested soil (as determined by the Remedial Investigation/Feasibility Study of Spring Valley OU-5) that has failed this standard will be removed and disposed of safely and in accordance with regulations. Clean soils will be brought in, the properties restored to their pre-removal action elevations, and all disturbed areas sodded.

1.4 Approach

Prior to excavation, Severson will perform initial surveys to establish initial site conditions at each property. These surveys will include:

- Visual inspections to note major property features and identify problem areas. Exterior photographs and videotape will provide a record of each affected home site prior to the removal action. Interior video of the structural condition of each home will be performed prior to work. For residents who elect to relocate during the removal action, additional video of the interior contents of the home will be made before removal action commences.
- A professional landscape appraisal will be performed to provide cost estimates that will be used as the basis for reimbursement to homeowners for vegetation that may be removed or damaged during excavation activities.
- Topographic surveys will record original lines and grades for the restoration activities.

Actual excavation will utilize standard construction equipment such as excavators, loaders and backhoes to remove contaminated soil and place it into intermodal shipping containers. The smallest, most efficient construction equipment will be used to minimize noise and to reduce homeowner concerns regarding property damage risks. Care will be taken to minimize the impact of construction traffic in the work area and to keep open access to homes. Areas of

Introduction

excavation will be sampled to confirm they pass the cleanup standard of less than or equal to 20mg/kg arsenic in soil and excavation will continue in lifts until this criterion is met. (Additional detail of confirmation sampling process is located in Section 4.7 of this document and in Appendix B – Sampling and Analysis Plan.) Once met, clean areas will be backfilled to original grades and sod placed. Containerized soils will be sampled to determine their disposal status and shipped off site accordingly.

Project Management and Organization

2.0 Project Management and Organization

2.1 Project Team

The USACE **Baltimore District** is responsible for performing the remedial action under the FUDS program. The Baltimore District has retained **Sevenson Environmental Services, Inc.** to be the general contractor to implement the time critical remedial action (TCRA).

From the **Baltimore District**, Mr. Bruce Ware IV, P.E. is the Resident Engineer of the Environmental Remediation Resident Office (ERRO) of the U.S. Army Corps of Engineers, Baltimore District, Construction Division. Mr. Ware is also the Contracting Officer's Representative (COR) for this delivery order and primary point of contact for the Baltimore District for the project. Mr. Joseph Brutsman is a Project Engineer for ERRO and will be the Project Engineer for the Delivery Order and will be the primary point of contact for the Baltimore District in the field. All progress meetings in the field will be chaired by the COR or his designated representative. **The seven properties to be remediated under this task are currently occupied by their owners. Specific points of contact for the each of the properties will be established at a later date.**

Project Management and Organization

Key to the success of the Spring Valley project to date has been the cooperative relationship established between the Corps and Spring Valley residents and occupants. Severson will work to support this relationship and become a productive and considerate element in the Spring Valley cleanup process. To this end, key members of the project team to include the Project Manager, Project Engineer, and Public Relations liaison will be available to property owners to answer questions, work through concerns, provide work status, and generally be supportive of the Corps efforts to perform this TCRA efficiently and to specifications. In addition, Severson staff will attend resident and community meetings, and support the Corps in any required presentations. Working closely with the Baltimore District staff, Severson will work to accommodate property owner needs and address concerns during the execution of this TCRA.

2.2 Project Organization

Figure 2-1 depicts the lines of communication established for this project. While this is not a reporting chart, it is clear how information flows during the execution of the removal action. At the end of this section is a Site Contact List showing key Severson personnel and how to reach them.

Severson, on behalf of USACE, has overall responsibility for the remedial activities at the Site. Severson will perform the verification sampling for soil excavation activities described in the SAP. In addition, Severson will be responsible for evaluating resultant sampling data and preparing required deliverables, including a Chemical Quality Control Summary Report (CSCSR) to be submitted at the completion of the project. Project direction and field quality assurance (QA) oversight will be provided by USACE.

Severson has assigned staff to the following key Management positions:

- Laurence A. Elia – Owner in Charge
- Al LaGreca – Corporate Project Manager

Project Management and Organization

- Paul Hitcho - Corporate Health and Safety Director
- Ken Paisley – Regulatory Specialist
- Greg Utz - On-Site Project Manager
- Rick Elia – Project Engineer
- Bill Modaffara – Project Superintendent
- Scott Burns – CQC Systems Manager
- Dave Larson – Site Health and Safety Officer
- Cassandra Marshall – Community and Public Relations
- Shannon Smith – Cost Accountant

A complete Contact List with phone numbers, Fax numbers and email addresses will be created once the office trailer is connected. This list will be appended to this document at that time and mailed to the property owners.

Project Management and Organization

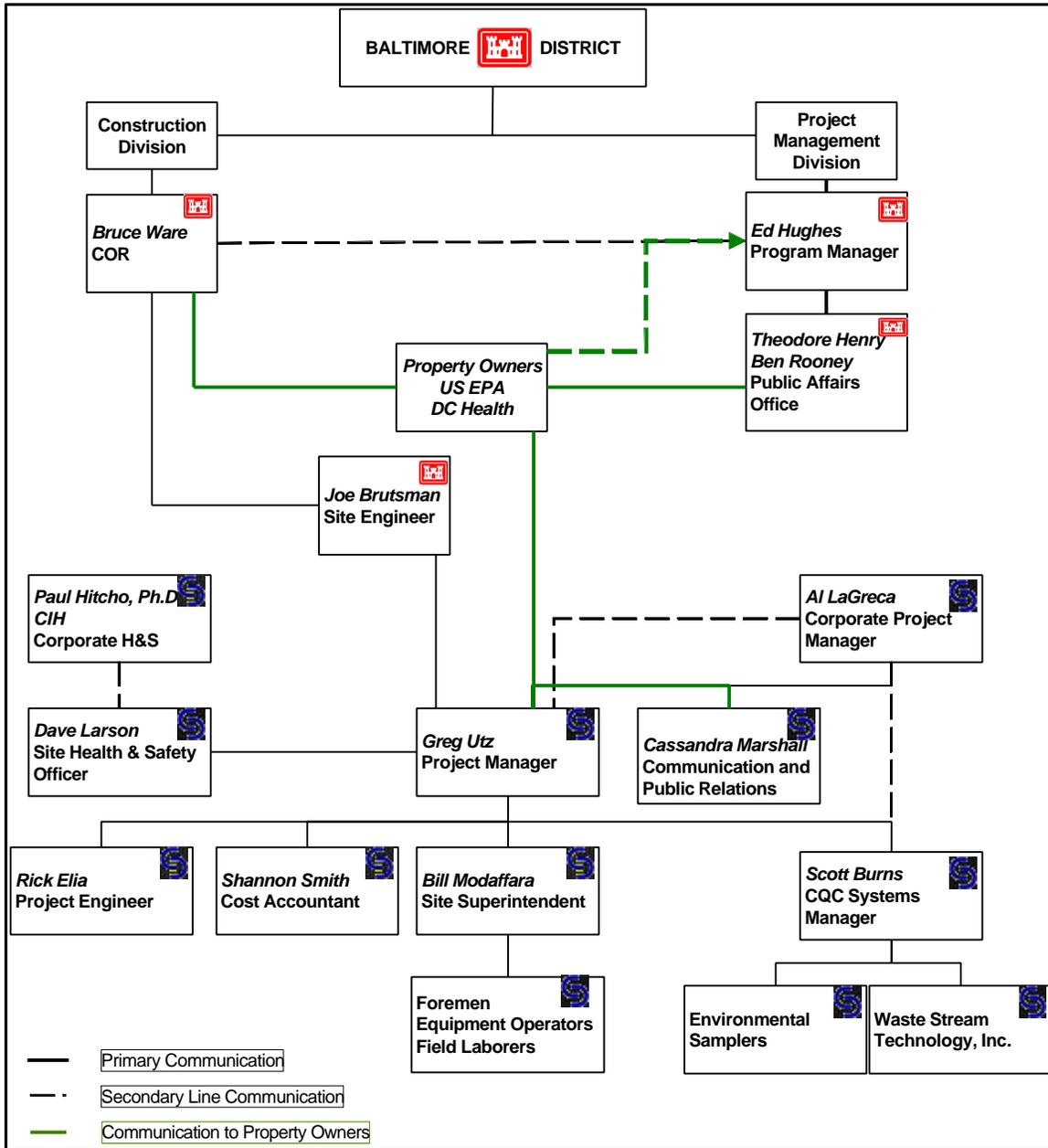


Figure 2-1 TCRA Lines of Communication

Project Management and Organization

2.3 Proposed Staffing Plan

The project management and field supervision team assigned to the Spring Valley Site possess a broad range of remedial action and construction skills. All have numerous years experience in the proper handling of contaminated material at hazardous waste sites. All are intimately familiar with components of a project team to work safely and efficiently on a day-to-day basis.

Sevenson's Project Manager and Superintendent will be the persons with whom the USACE or its designated representative will interact on a daily basis at the job site.

When rare problems arise that cannot easily be handled in the field, Sevenson field personnel rely on home office support. The first person to be notified in such case will be the Corporate Project Manager, namely, Mr. Al LaGreca. Mr. LaGreca will remain personally involved until the problem is resolved.

The Site Superintendent will report to Mr. LaGreca daily on the progress of the job. Mr. LaGreca will in fact be present on the jobsite as required to ensure that the project is progressing on schedule.

Sevenson's Health and Safety staff consists of a Certified Site Health and Safety officer. The program is managed in-house by Dr. Paul Hitcho, a Board-Certified Industrial Hygienist. Dr. Hitcho is responsible for the preparation, implementation, and enforcement of the Site-Specific Health and Safety Plans, as well as the air monitoring programs. The Site Health and Safety Officer, Mr. Dave Larson, will report to Dr. Hitcho on a regular basis. All job records generated are analyzed completely by Dr. Hitcho.

Project Management and Organization

2.4 Project Structure and Function

2.4.1 Home Office Personnel

Laurence A. Elia – Vice President. Mr. Elia is one of the owners of the company and will be responsible for the overall project's success. He will make available all Severson resources required to ensure that the project is executed successfully. He will be informed of the project's progress and whether or not the contract is meeting its goals. Mr. Elia will resolve problems that cannot be resolved by the Corporate Project Manager. He will periodically visit the Site and become acquainted with field personnel and procedures.

Paul Hitcho, PhD, CIH – Corporate Health and Safety Director. Dr. Hitcho is a Certified Industrial Hygienist (CIH) with over 20 years experience in managing Health and Safety issues for government and private remedial projects. Dr. Hitcho will be responsible for review and approval of the site-specific Safety and Health Plan (SSHP). He will also provide Site Safety and Health Officer (SSHO) supervision, present initial site-specific training to all Site personnel, perform the respirator qualitative fit tests, and develop the air-monitoring program. He will conduct quarterly safety audits/inspections.

Al LaGreca – Corporate Project Manager. Mr. LaGreca will make available all Severson resources required to complete the project successfully. He will be kept informed of the project's progress and whether or not the contract is meeting its goals. Mr. LaGreca will resolve problems that cannot be resolved by the Project Manager or the Site Superintendent. He will periodically visit the site and become acquainted with field personnel and other representatives. It is anticipated Mr. LaGreca will be on-site once a month.

Kenneth Paisley, CHMM – Regulatory Specialist. Mr. Paisley has 14 years experience in the chemistry and environmental field. Mr. Paisley is committed to overseeing all field sampling and data acquisition plans, as well as interfacing with off-site laboratory concerns. Mr. Paisley will review laboratory reports with the selected laboratory in order to ensure

Project Management and Organization

compliance with project specifications and all required protocols. He will coordinate off-site waste removal, including transport, disposal, manifesting, waste profiles, regulatory compliance, and disposal requirements.

2.4.2 Field Personnel

Greg Utz – On-Site Project Manager.

His responsibilities include:

- Subcontractor coordination and oversight.
- Acting as Site liaison between Severson, USACE, USEPA, and DC Health.
- Charge of all field operations.
- Hiring and termination/reassignment of personnel as necessary to support successful task order implementation.
- Management and coordination of all aspects of the project as defined in the Contract Specifications with an emphasis on adhering to the objectives of the remedial activities.
- Assuring corrective actions are taken for deficiencies cited during audits of sampling/analytical activities.
- Project coordination to implement and comply with the SAP in coordination with the USACE, Contractor Quality Control Systems Manager, Field Chemist, and Environmental Samplers, including the coordination of field and laboratory schedules pertaining to relevant operation/sampling activities and allocation of resources and staffing to implement the quality assurance/quality control (QA/QC) program.
- Implementation of the Site Safety and Health Plan (SSHP), including temporarily suspending field activities if the health and safety of personnel are endangered and/or temporarily suspending an individual for field activities for infractions of the SSHP, pending further consideration by the Health and Safety Manager.
- Review of all documents prepared by project personnel, including all relevant field records and logs.

Project Management and Organization

Bill Modaffara – Project Superintendent. Mr. Modaffara will be in charge of all field operations. In conjunction with the Project Manager, he will arrange schedules for delivery of materials and equipment for the work and be responsible for equipment management. All foremen will report directly to Mr. Modaffara. He will also attend all meetings between Severson and the Engineer. His duties include supervision of equipment operators, truck drivers, laborers, and technical staff (e.g., survey crew).

Rick Elia – Project Engineer. Mr. Elia will work in close conjunction with the Project Manager and the Project Superintendent on all matters of the project. He will act as an assistant to both the Mr. Utz and Mr. Modaffara helping them to complete all their necessary daily activities. His main responsibilities will be pertaining to tracking quantities (materials, hours, etc.), monitor and predict all costs incurred by the Contractor, and prepare all relevant field records and logs. Mr. Elia will also be assisting community and public liaison with any of the residence's concerns. He will be attending all meetings between Severson and the USACE.

Scott Burns – Contractor Quality Control (CQC) Systems Manager. As CQC Systems Manager, Mr. Burns will report directly to the Project Manager on matters concerning quality control. He will have both the authority and the duty to stop whatever operation appears to be out of compliance with the contract documents. The CQC Systems Manager is responsible for field chemistry and environmental sampling staff, and responsibility for all records related to personnel, supplies, equipment use, equipment calibration, and waste transportation and disposal.

Dave Larson – Site Health and Safety Officer. As Site Safety and Health Officer (SSHO), Mr. Larson will report directly to the Corporate Health and Safety Director and be responsible for the implementation of Severson's approved SSHP, including conducting required safety inspections, safety briefings, and reports of safety-related activities.

Project Management and Organization

Cassandra Marshall – Community and Public Relations. As the Community and Public liaison, Ms. Marshall will be handling interactions between the homeowners and Severson. Her tasks will be as outlined below:

- Primary point of contact to answer telephone calls from residents, provide answers to questions, or take messages for more difficult questions. Research for answers as required and then return phone calls within one business day, even if an immediate answer is not available. Maintain a log of contacts with residents.
- Support USACE in coordination and scheduling field activities on each property with the homeowner and the contractor field teams.
- Track the conduct of field activities at each residential property. This will include pre- and post-TCRA activities such as notifying the residents, discussing the pre-disturbance plot plan of property features and the landscape restoration plan. The final list of items to be tracked will be coordinated with the Baltimore District Project Manager and Operations Officer.
- Write articles for the Baltimore District *Corps'pondent* newsletter and TCRA E-Newsletter to keep the Spring Valley community apprised of current developments.
- Participate in meetings with residents as required.
- Coordinate other activities with residents as required by the Baltimore District Project Manager of Operation Officer.
- Keep the Baltimore District Operations Officer or Project Manager updated on the status of TCRA activities.
- Support PAO weekly update to homeowners by providing current data on remediation and restoration progress.

Shannon Smith – Cost Accountant. As the Severson's Cost Accountant for the project, Ms. Smith will track all the costs incurred by the Contractor for the duration of the project. She will be preparing the weekly status reports kept by Severson to maintain accurate project costs. Ms. Smith will also be putting together the monthly invoice that Severson will submit to the USACE. As a basis for those two major items, Ms. Smith will keep up

Project Management and Organization

Sevenson's payroll, invoices, and any other relevant expenses.

CONTACT LIST		
Name	Address	Phone Number
Al LaGreca (Corporate Project Manager)	Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305	Ph - 716-284-0431 Fax - 716-284-1796
Paul Hitcho (Sevenson Health and Safety Director)	Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305	Ph - 716-284-0431 Fax - 716-284-1796
Kenneth Paisley (Regulatory Specialist)	Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305	Ph - 716-284-0431 Fax - 716-285-4201
Greg Utz (Project Manager)	TBD	Ph – TBD Fax – TBD
Scott Burns (CQC Systems Manager)	TBD	Ph - TBD Fax – TBD
Richard Elia, Jr. (Project Engineer)	TBD	Ph – TBD Fax – TBD Cell – 716-998-0102
Dave Larson (Site Health and Safety Officer)	TBD	Ph – TBD Fax - TBD
Cassandra Marshall Community Relations Liaison	Sevenson Environmental Services, Inc. 104 Lakeview Drive Chadds Ford, PA 19317	Ph.—610-388-0721 Fax – 610-388-0731
Jennifer Singer (Project Chemist)	Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305	Ph - 716-284-0431 Fax - 716-285-4201
Sid Tyrell/Dan Vollmer (Waste Stream Technology)	Waste Stream Technology Inc. 302 Grote Street Buffalo, NY 14207	Ph - 716-876-5290 Fax - 716-876-2412
Laura Percifield (QA Laboratory)	USACE Chemical Quality Assurance Branch CEWES-EE-Q 420 S. 18 th Street Omaha, NE 68102-2586	Ph - 402-444-4314 Fax - 402-341-5448

Note:
 TBD = To Be Determined

Remedial Action Approach

3.0 Remedial Action Approach

3.1 Regulatory Requirements

All remedial activities at the Site will be conducted under this Remedial Action Plan, the SSHP, and Site-specific Sampling and Analysis Plan (SAP). All Health and Safety-related issues will be managed under the requirements of 29 CFR.

Collection and management of site soil samples and samples of other site materials will be performed in accordance with USACE ER 1110-1-263, ER 1110-2-1907, and EM 200-1-3. All samples will be analyzed in accordance with EPA SW-846 methodologies.

All waste materials excavated or generated onsite will be classified for disposal purposes in accordance with 40 CFR 260 and 261. All materials will be transported from the site in accordance with the requirements of 49 CFR 172, 40 CFR 262, 40 CFR 263 and any/all applicable state or local regulations or requirements.

3.2 Cleanup Criteria and Basis

Final excavation limit requirements will be based on available site information and drawings. Excavation will proceed until the contract-specific cleanup objective of 20 mg/Kg is achieved. All excavated soils and debris will be characteristically classified for offsite disposal per 40 CFR 261.21 – 24. Drawings of the properties indicating the contaminated grids (20' x 20' grids) are included at the end of this section.

Remedial Action Approach

3.3 Residential Properties Sequencing and Scheduling

Our progress chart depicts, in bar graph form, the anticipated sequence and timing of the primary areas of work. This chart will be broken down into separate line items of work, categorized within the primary bid items, during the mobilization phase. The chart will be updated weekly, showing the progress of the project.

In general, mobilization activities will begin no later than 24 June 2002, with completion of the fieldwork by August 30, 2002. (Labor Day)

It is anticipated that Severson will begin work at the four adjoining properties on Tindall Street (numbers 4434, 4438, 4442, 4446). The proximity of the properties allows for greater efficiency in the movement of equipment and material and will speed the return of the homeowners to their properties.

Next, Severson will proceed to 4456 Springdale Street. Extremely limited access to the rear of this location, as well as significant vegetation issues warrant additional prior planning before excavation in this instance. If significant delays are encountered at this site, Severson will attempt to reduce the impact on the overall schedule by shifting efforts to another property.

The property at 4115 45th Street will be remediated next. A single path of access to the rear of this property, as well as the potential to encounter subsurface anomalies that may impede progress makes this property somewhat more challenging. Care will be taken during the excavation of the anomalies noted by other investigations. By using a cautious approach in excavating these target areas (direct operator supervision and shallow cuts made while digging), Severson will minimize the risk involved. If significant delays are encountered

Remedial Action Approach

at this site, Severson will attempt to reduce their impact on the overall schedule by shifting efforts to another property.

Finally, the property at 4219 50th Street will be remediated. This property's front yard is readily accessible and should allow cleanup to proceed efficiently. Utility location appears to be the major obstacle on this work site.

All work will be performed in accordance with the Contract Plans and Specifications, as well as within the limits and guidelines of our approved plans and submittals.

Severson will work with the COR on coordinating relocation of homeowners and will adjust the preliminary schedule accordingly.

The preliminary construction schedule in graph form is provided in Section 5.0.

Attachment C
 Final Grid Sampling Results
 4434 Tindall St (CSA 8)

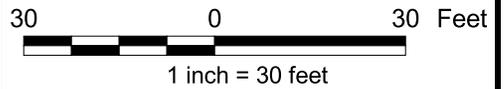
Spring Valley Operable Unit 5
 Washington D.C.

Legend

- ⊙ Boring
- Sample Points
 - < 20 ppm
 - ≥ 20 ppm
- 20' Grid
- ▤ Retaining Wall
- ▨ Pool
- ▧ Free Standing Wall
- ▧ Fence
- ▧ Hedge
- ▧ Sidewalk
- ▧ Roads
- ▧ Driveway
- ▧ Buildings
- Parcels

Quadrant or Half Sampling Information in Blue

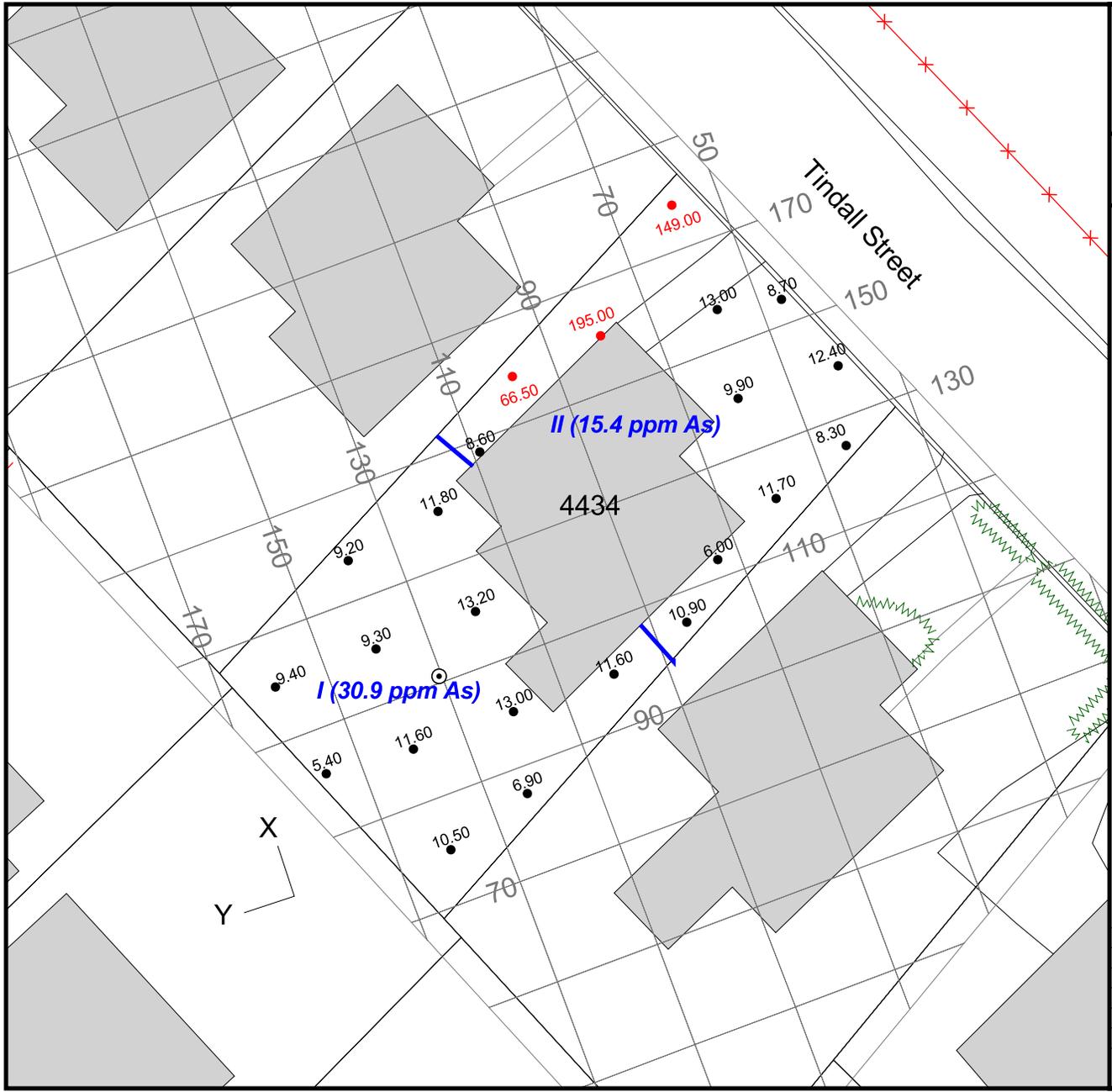
Half Sampled on 7/25/01
 Grid Sampled on 11/2/01



Scale:	1 : 360
Created By:	Parsons
File:	Y:\Projects\Fed\Usace\springva\springva.apr
Date:	11/13/2001
Figure Number:	Att. C
Page Number:	6 of 7



PARSONS



Attachment C
 Final Grid Sampling Results
 4438 Tindall St (CSA 8)

Spring Valley Operable Unit 5
 Washington D.C.

Legend

- ⊙ Boring
- Sample Points
 - < 20 ppm
 - ≥ 20 ppm
- 20' Grid
- ▭ Retaining Wall
- ▭ Pool
- ▭ Free Standing Wall
- ▭ Fence
- ▭ Hedge
- ▭ Sidewalk
- ▭ Roads
- ▭ Driveway
- ▭ Buildings
- ▭ Parcels

Quadrant or Half Sampling Information in Blue

Half Sampled on 7/24/01
 Grid Sampled on 9/25/01

30 0 30 Feet

1 inch = 30 feet

Scale: 1 : 360

Created By: Parsons

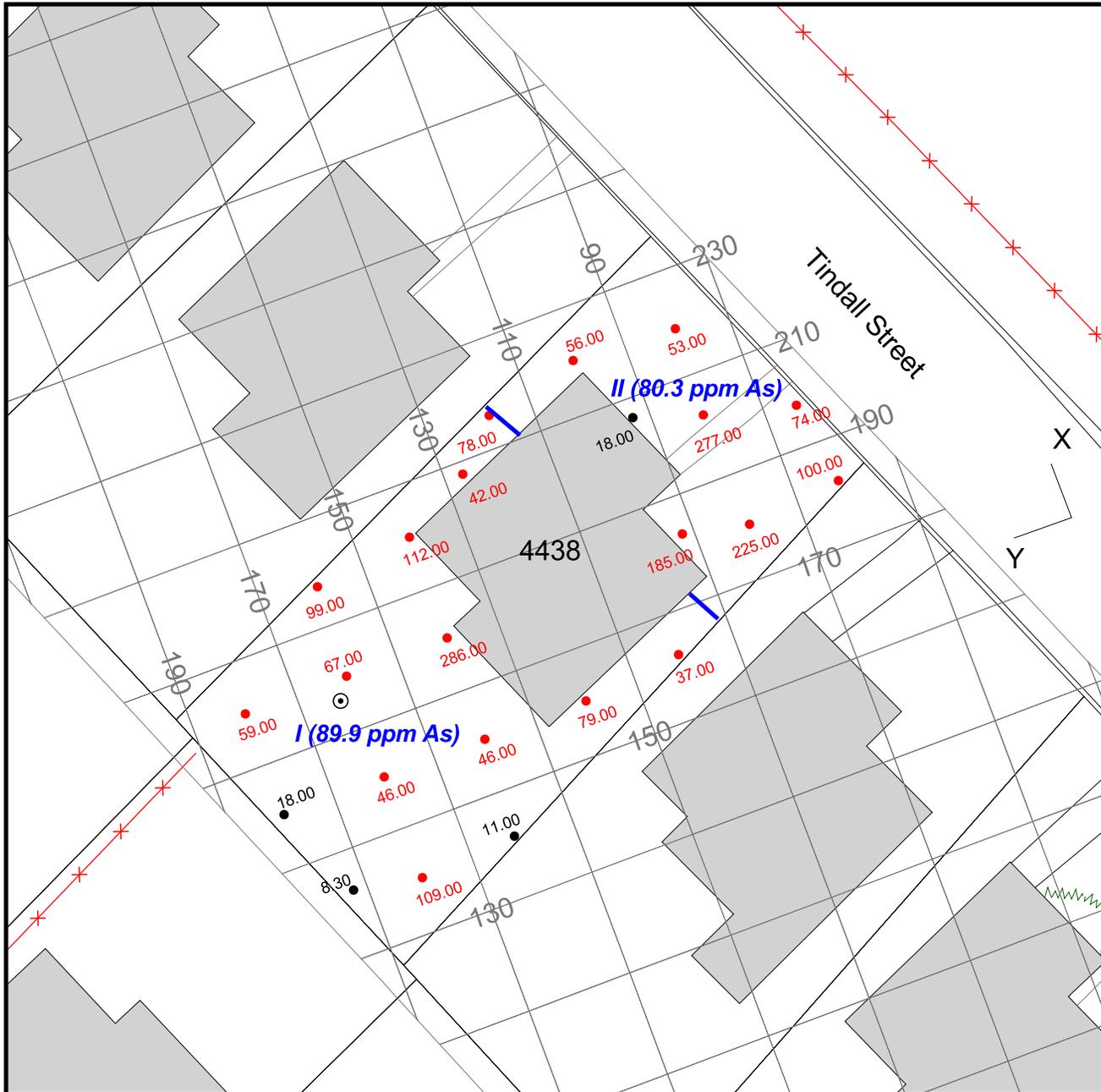
File: Y:\Projects\Fed\Usace\springva\springva.apr

Date: 10/05/2001

Figure Number: Att. C

Page Number: 6 of 7

PARSONS



Attachment C
 Final Grid Sampling Results
 4442 Tindall St (CSA 8)

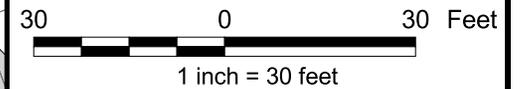
Spring Valley Operable Unit 5
 Washington D.C.

Legend

- ⊙ Boring
- Sample Points
 - < 20 ppm
 - ≥ 20 ppm
- 20' Grid
- ▤ Retaining Wall
- ▤ Pool
- ▤ Free Standing Wall
- ▤ Fence
- ▤ Hedge
- ▤ Sidewalk
- ▤ Roads
- ▤ Driveway
- ▤ Buildings
- ▤ Parcels

*Quadrant or Half Sampling
 Information in Blue*

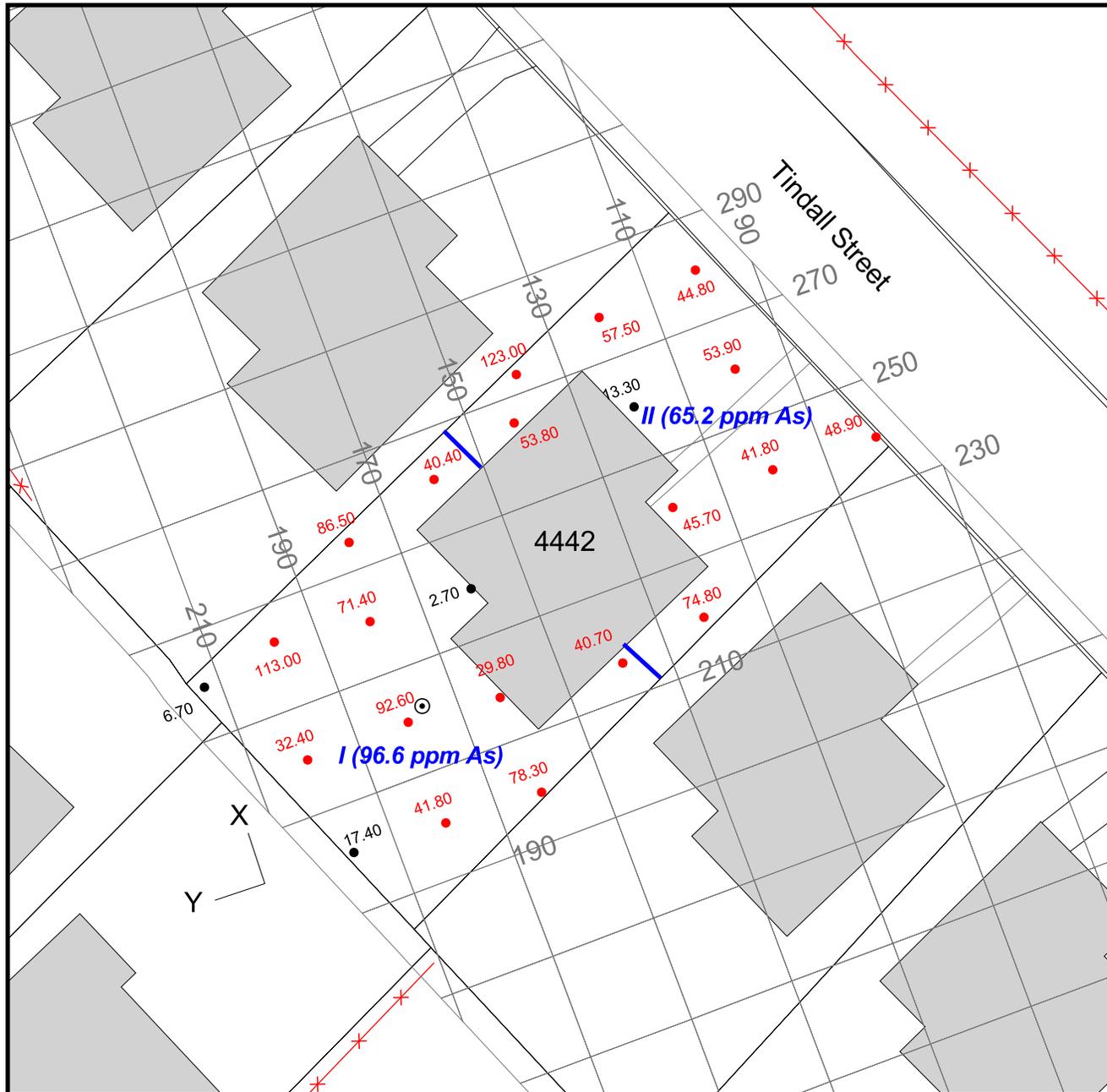
Half Sampled on 8/31/01
 Grid Sampled on 10/29/01



Scale:	1 : 360
Created By:	Parsons
File:	Y:\Projects\Fed\Usace\springva\springva.apr
Date:	11/28/2001
Figure Number:	Att. C
Page Number:	6 of 7



PARSONS



Attachment C
Final Grid Sampling Results
4446 Tindall St (CSA 8)

Spring Valley Operable Unit 5
Washington D.C.

Legend

- ⊙ Boring
- Sample Points
 - < 20 ppm
 - ≥ 20 ppm
- 20' Grid
- ▾ Retaining Wall
- ▾ Pool
- ▾ Free Standing Wall
- ▾ Fence
- ▾ Hedge
- ▾ Sidewalk
- ▾ Roads
- ▾ Driveway
- ▭ Buildings
- ▭ Parcels

*Quadrant or Half Sampling
Information in Blue*

Half Sampled on 7/24/01
Grid Sampled on 9/25/01

30 0 30 Feet

1 inch = 30 feet

Scale: 1 : 360

Created By: Parsons

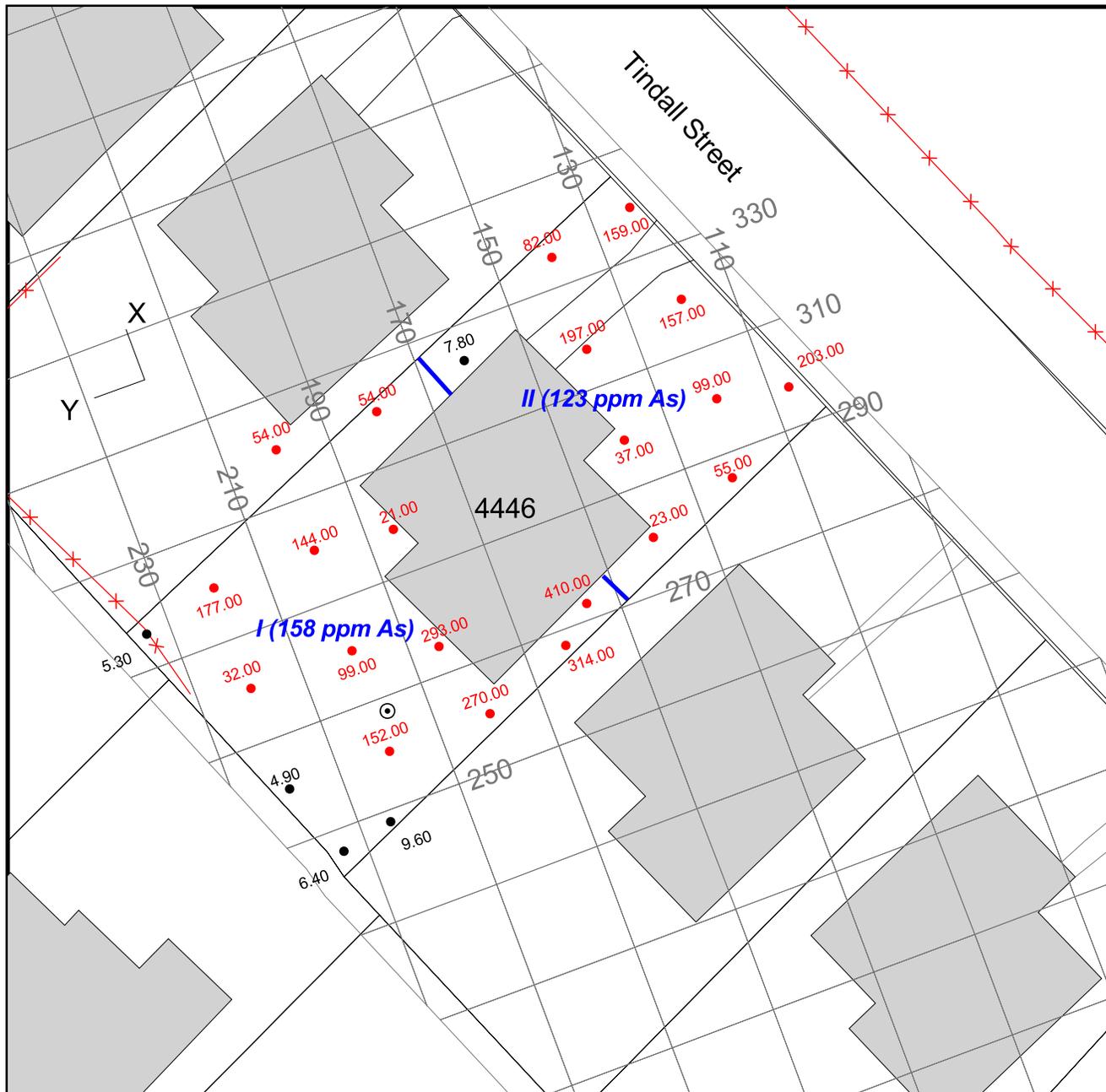
File: Y:\Projects\Fed\Usace\springva\springva.apr

Date: 10/05/2001

Figure Number: Att. C

Page Number: 6 of 7

PARSONS



Attachment C
 Final Grid Sampling Results
 4115 45th St (CSA 5)

Spring Valley Operable Unit 5
 Washington D.C.

Legend

- ⊙ Boring
- Sample Points
 - < 20 ppm
 - ≥ 20 ppm
- 20' Grid
- ▾ Retaining Wall
- ▾ Pool
- ▾ Free Standing Wall
- ▾ Fence
- ▾ Hedge
- ▾ Sidewalk
- ▾ Roads
- ▾ Driveway
- ▭ Buildings
- ▭ Parcels

*Quadrant or Half Sampling
 Information in Blue*

Half Sampled on 11/14/01
 Grid Sampled on 12/12/01

40 0 40 Feet

1 inch = 40 feet

Scale: 1 : 480

Created By: Parsons

File: Y:\Projects\Fed\Usace\springva\springva.apr

Date: 01/03/2002

Figure Number: Att. C

Page Number: 6 of 7

PARSONS



Attachment C
 Final Grid Sampling Results
 4456 Springdale St (CSA 8)

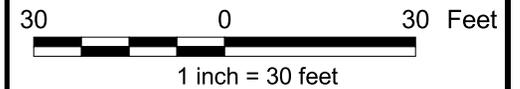
Spring Valley Operable Unit 5
 Washington D.C.

Legend

- ⊙ Boring
- Sample Points
 - < 20 ppm
 - ≥ 20 ppm
- 20' Grid
- ▤ Retaining Wall
- ▥ Pool
- ▧ Free Standing Wall
- ▨ Fence
- ▩ Hedge
- Sidewalk
- Roads
- ▬ Driveway
- Buildings
- Parcels

Quadrant or Half Sampling Information in Blue

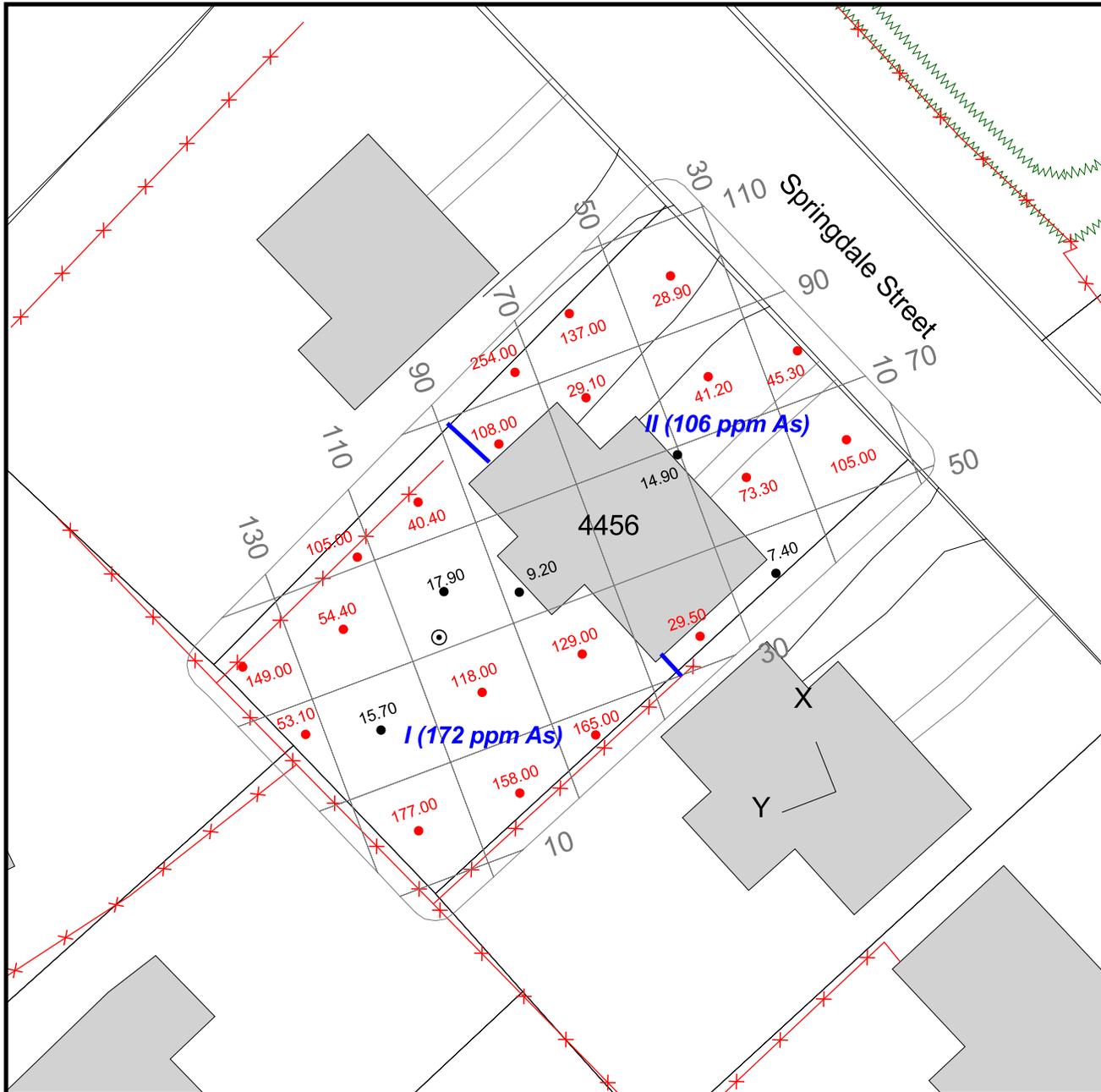
Half Sampled on 10/26/01
 Grid Sampled on 11/26/01



Scale:	1 : 360
Created By:	Parsons
File:	Y:\Projects\Fed\Usace\springva\springva.apr
Date:	12/10/2001
Figure Number:	Att. C
Page Number:	6 of 7



PARSONS



Activities to Implement the Remedial Action Approach

4.0 Activities To Implement the Remedial Action

4.1 Pre-Mobilization Activities

These activities include, but are not limited to, meetings with USACE, site visits to determine conditions and identify problem areas, identify and contract with sub-contractors, preparation of the Removal Action Plan, and preparation of the Action Memorandum.

4.2 Mobilization

4.2.1 Facilities and Work Zones

The onsite support and contamination reduction zone facilities will be at the current USACE compound located on the federal property in the vicinity of Sibley Hospital. Severson's support area will consist of one 12'x50' office trailer, one Health and Safety/Survey trailer, one crew break trailer and one tool and equipment storage trailer. Each trailer will be supplied with a fire extinguisher. The support facilities will be maintained in a clean and orderly fashion. All appropriate water, sanitary, electric, lighting and telephone utilities will require installation. The Contamination Reduction Zone (CRZ) will consist of a vehicle tarping station with appropriate equipment (pressure washers, pumps, holding tanks, etc.), emergency eye wash, and boot wash stations for decontamination of equipment and personnel as needed. A portable scale will be installed in the support zone to weigh waste hauling trucks prior to departure to the disposal facility. The areas designated to be used for the Support Zone and CRZ are enclosed by an existing fencing thereby regulating access. The layout for the Support Zone is included as a drawing at the end of this section.

Attachment C
 Preliminary Grid Sampling Results
 4115 45th St (CSA 5)

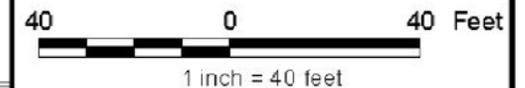
Spring Valley Operable Unit 5
 Washington D.C.

Legend

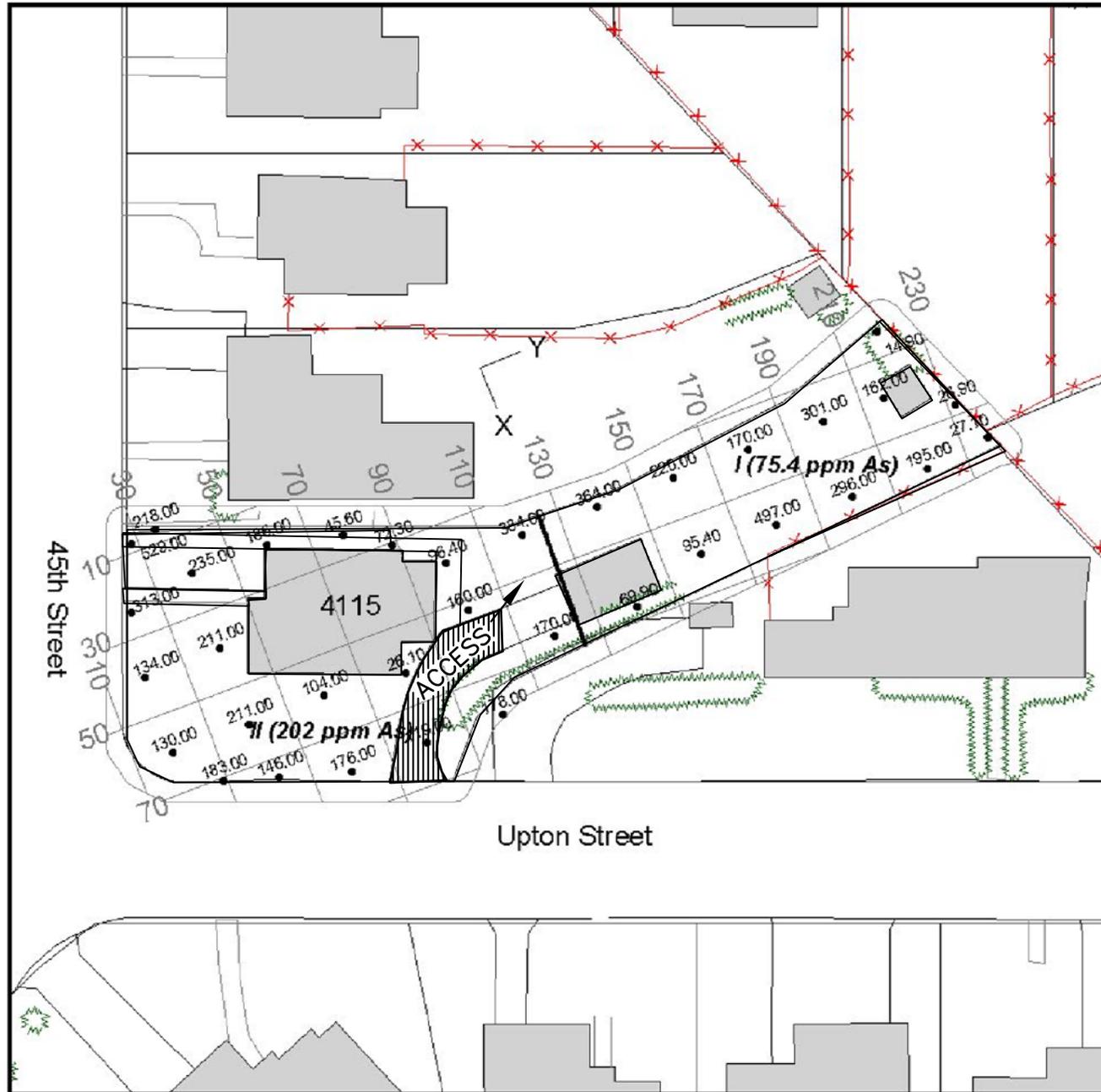
- Sample Points
- 20' Grid
- ▬ Retaining Wall
- ▬ Pool
- ▬ Free Standing Wall
- ▬ Fence
- ▬ Hedge
- ▬ Sidewalk
- ▬ Roads
- ▬ Driveway
- Buildings
- Parcels

**Quadrant or Half Sampling
 Data Indicated by Roman
 Numerals and Parentheses**

Half Sampled on 11/14/01
 Grid Sampled on 12/12/01



Scale:	1 : 480
Created By:	Parsons
File:	Y:\Projects\Fed\W3ae\springva\springva.apr
Date:	01/03/2002
Figure Number:	All C
Page Number:	6 of 7



Attachment C
 Final Grid Sampling Results
 4446 Tindall St (CSA 8)

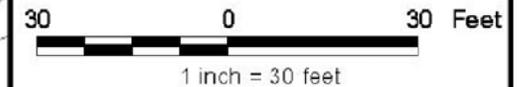
Spring Valley Operable Unit 5
 Washington D.C.

Legend

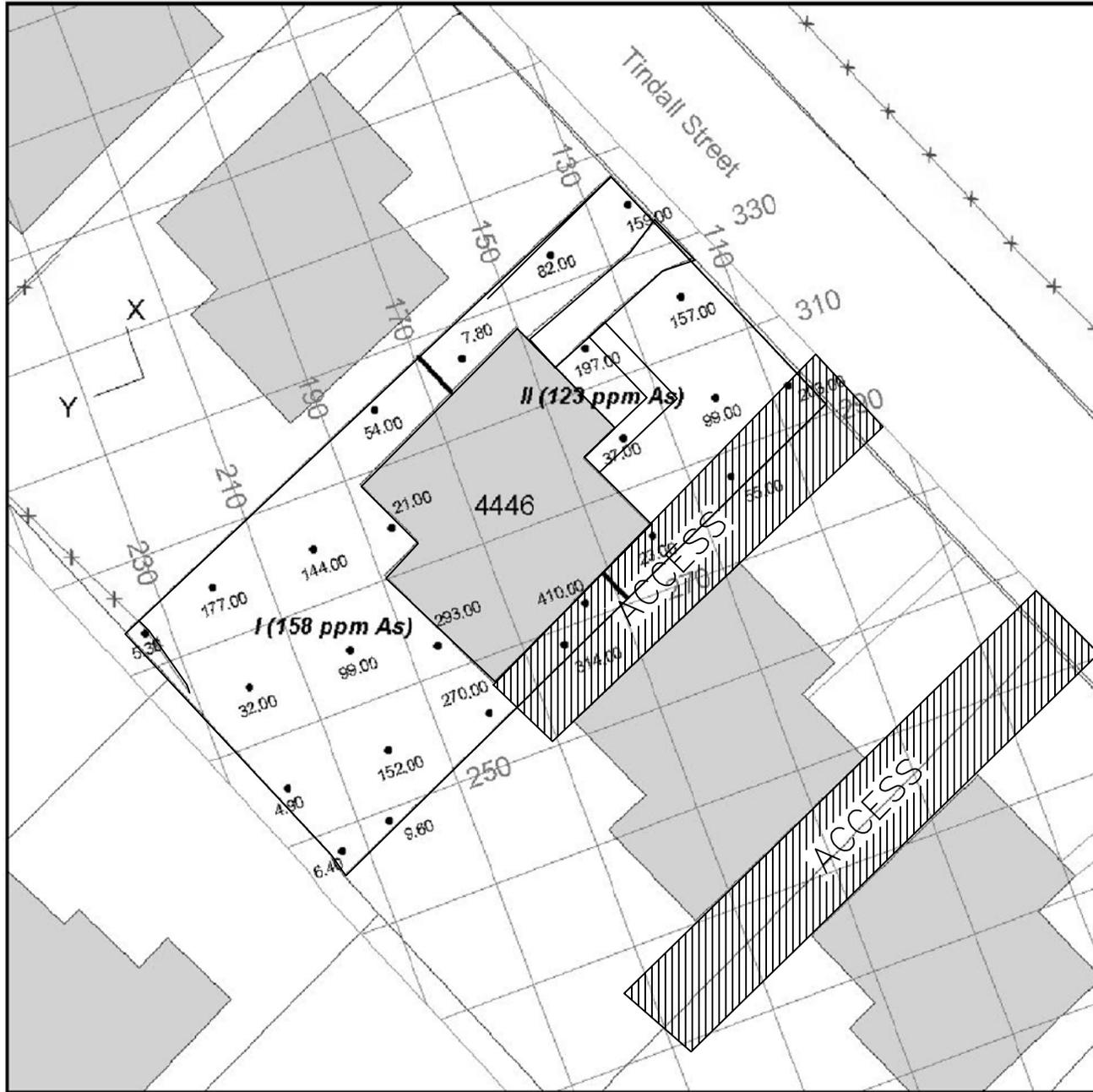
- Sample Points
- 20' Grid
- ▤ Retaining Wall
- ▥ Pool
- ▧ Free Standing Wall
- ⋆ Fence
- ▨ Hedge
- ▩ Sidewalk
- Roads
- Driveway
- Buildings
- Parcels

**Quadrant or Half Sampling
 Data Indicated by Roman
 Numerals and Parentheses**

Half Sampled on 7/24/01
 Grid Sampled on 9/25/01



Scale:	1 : 360
Created By:	Parsons
File:	Y:\Projects\Fed\U5\oa\springva\springva.apr
Date:	10/05/2001
Figure Number:	Att. C
Page Number:	6 of 7



Activities to Implement the Remedial Action Approach

Sevenson will layout and identify the various work zones in the field and will limit equipment, operations and personnel in these zones in compliance with OSHA 29 CFR 1910.120 and the Site Safety and Health Plan. As the removal of contaminated material progresses and confirmation soil samples show that the cleanup criteria (less than or equal to 20mg/kg arsenic) has been met, the limits of the exclusion zone will decrease accordingly. The SSHO will determine the boundaries of the work zones and the level of personnel protection required.

Also defined in the SSHP, these work zones are:

Exclusion Zone: This zone includes all areas where potentially contaminated materials are exposed, excavated, or handled and all areas where contaminated equipment or personnel may travel. The Site Safety and Health Officer (SSHO) in accordance with the SSHP will determine the level of personnel protection after monitoring and onsite inspection. The initial level of protection will be Level C and may be modified depending on monitoring results and site conditions.

The Exclusion Zones will be determined by the SSHO at each work site and move from property to property as work progresses.

Contamination Reduction Zone: This zone provides for the transfer of construction materials and equipment from off-site to the exclusion zone, decontamination of vehicles prior to reentering the Support Zone, decontamination of personnel and clothing (including containerization of disposable outerwear), personnel decontamination facilities, and physical segregation of the Support and Exclusion Zones.

An emergency eyewash station will be included in the CRZ for emergency

Activities to Implement the Remedial Action Approach

decontamination of personnel.

The Contamination Reduction Zones will also be defined in the same manner as the Exclusion Zones, that is, dependent on site conditions at each work area/property location.

Support Zone: This zone provides a location for temporary site facilities and an entry and exit area for personnel, material and equipment to and from the project site.

Operations under this contract may require exposure to potentially hazardous materials. Severson will therefore provide and assure the wearing of all the necessary Personal Protective Equipment (PPE) for all personnel on-site. All personnel entering the site will don, at a minimum, Level D PPE. The following PPE ensembles will be worn on-site unless the approved SSHP provides otherwise:

LEVEL D	<ul style="list-style-type: none"> ▪ Work clothing, as dictated by the weather; ▪ Safety (steel toe/shank) shoes or boots; ▪ Hard hat; ▪ Safety glasses, goggles, or face shield; ▪ Hearing protection (for specified areas)
MODIFIED LEVEL D (same as for Level D, Plus)	<ul style="list-style-type: none"> ▪ Disposable, hooded, one-piece, full-body coveralls constructed of spun-bonded olefin or polypropylene fabrics (e.g. Tyvek or equivalent), ▪ Gloves (Latex, cotton, & nitrile) ▪ Disposable boot covers of (minimum) 60 mil rubberized PolyVinyl Chloride (PVC).

Activities to Implement the Remedial Action Approach

LEVEL C	<ul style="list-style-type: none"> ▪ Modified Level D PPE <u>and</u> ▪ Full-face piece, air-purifying respirator National Institute for Occupational Safety and Health (NIOSH) approved, equipped with particulate filter cartridges approved by NIOSH for dust.
----------------	--

The initial minimum level of protection of each major site activity is outlined below:

Site Activity	Initial Level of Protection	Contingency Level
General Site Reconnaissance	D	Modified D
Site Preparation	D	Modified D
Constructing Work Zones	D	Modified D
Structural Demolition	C	Modified D
Excavation	C	Modified D
Decontamination	C	Modified D
Backfilling/Restoration Activities	D	Modified D
Clean-up and Demobilization	D	Modified D

4.2.2 Equipment and Materials

During mobilization, the equipment and materials need to perform the remedial action will be brought on-site, to the Support Zone by the hospital. This equipment will include machinery such as excavators, loaders, backhoes, intermodal shipping containers, as well as a variety of hand tools. Restoration equipment will consist of this equipment plus items such as bulldozers and soil compactors to assist in replacement of excavated soils. Severson's approach for equipment selection for work at Spring Valley will be to use equipment that will cause minimal impact. Other materials to be brought on-site include sediment

Activities to Implement the Remedial Action Approach

and erosion control materials (silt fence and hay bales), health and safety supplies (protective clothing and equipment), decontamination equipment (pressure washers, brooms, hand tools), security fencing, sampling equipment, and office furniture and equipment.

4.2.3 Health and Safety

Personnel who will take part in the active remediation of the site will receive both medical surveillance and Occupational Safety and Health Association (OSHA) required training, as detailed within the SSHP and all such records will be transmitted to the USACE prior to any hazardous or intrusive site work being performed.

Initial supplies of health and safety related materials and equipment will be purchased and inventoried prior to the start of work in the exclusion zone.

The Site Health and Safety Plan is included in Appendix A.

The SSHO will be the responsible party for providing the work crews with safety briefings regarding awareness of Ordnance and Explosives/Chemical Warfare Material (OE/CWM). If OE/CWM is discovered, the SSHO will order a stoppage of all work activities in the area and contact the COR immediately for direction.

An evaluation of the potential to encounter OE/CWM can be found in Appendix E and F.

4.3 Right of Entry

Activities to Implement the Remedial Action Approach

The Right of Entry permits are being obtained by the USACE. These permits grant permission to the USACE to perform the TCRA and are property specific. Severson will not perform work on properties where an entry permit is not in place.

4.4 Professional Appraisals

A professional Landscaper/Arborist will be sub-contracted to perform an appraisal of each affected property. This appraisal will be used for determining final compensation to residents by the USACE for damages to pre-existing landscape features. Digital photographs and videotape of the exterior of each property will be made for recording purposes and be supplied to the COR. For properties where owners elect to temporarily relocate, photographs and videotape of interior contents will be made. All properties will have a videotape made of interior structural conditions. The subcontractor will also be used to determine the best approach possible for preventing damage to large specimen trees. It is Severson's intention to use minimally invasive excavation techniques (i.e. handwork) to attempt and preserve these landscape features. Confirmation sampling around these trees will provide an accurate guide to the limits of excavation in these areas. Additionally, a licensed land surveyor will record the locations of significant property features to facilitate the restoration.

4.5 Soil Characterization

An initial full-suite soil characterization sample will be taken at each property prior to excavation. One sample will be collected from each property or group of properties. The sample will be taken from the center of that property's grid with the highest concentration of arsenic. These grids were defined by previous

Activities to Implement the Remedial Action Approach

investigation. Analysis of these samples will be for the constituents noted in Section 3.2.1 of the Sampling and Analysis Plan (SAP).

Preliminary sampling of dirt floor crawlspaces in the several of the properties also will be done. One sample will be collected for every 400 square feet of exposed soil area in each crawlspace. Protocols outlined in the SAP will be followed and the samples analyzed for total arsenic. A remediation plan for these areas will then be coordinated with the COR, Severson, regulators and property owners. Severson anticipates that the crawlspace areas will be treated in the same manner as the exterior grids for confirmation sampling.

In addition, waste soil characterization for disposal purposes will be done. An initial sample from an intermodal-shipping container will be analyzed for RCRA Characteristics (corrosivity, ignitability and reactivity) and Full TCLP (TCLP VOCs, SVOCs, Pesticides, Herbicides and Metals) constituents. Again, procedures will follow those outlined in the SAP.

4.6 Excavation

4.6.1 Pre-construction Survey

The pre-construction survey will take place prior to the disturbance of any areas of the site. Two types of survey will be conducted.

The first will be a visual survey of the site. It will consist of both audio-visual taping of the affected site and abutting properties and of electronic (digital) photographing of the site. Both Severson and the USACE will jointly conduct the visual inspection. Personnel present should include Severson's QCM, SSO

Activities to Implement the Remedial Action Approach

and Site Superintendent along with the USACE's COR. (The property owner can be present for this survey, but attendance is not required.) The entire perimeter of each affected property will be walked at this time and any unusual or significant features noted. Pre-construction photos of both the site and general areas of the site will be taken at this time. The videotapes and photographs will be submitted to the COR for approval prior to commencement of the work.

The second survey conducted will be the initial survey, layout and topographical survey of the site in preparation for starting demolition and excavation work. Baselines¹ and tie-downs² will be established at this time. Significant property features will also be located to assist in the restoration process. Metes and bounds³ and topographical survey maps will be submitted to the COR prior to the commencement of any excavation work. A Licensed Land Surveyor will be hired to conduct this part of the survey.

4.6.2 Utility Location

Utilities will be located by calling the Washington, DC District One Call system 48 hours before beginning excavation activities. The telephone number is 202-256-7177. Hand excavation may be employed to locate and expose subsurface utilities and avoid damage to them.

4.6.3 Clearing and Grubbing

¹ the exact form, boundaries, position, extent, etc., of (a tract of land, section of a country, etc.) by linear and angular measurements and the application of the principles of geometry and trigonometry. (*From Random House Unabridged Dictionary 1997*)

² a point of reference used in surveying, usually a permanent physical feature of the property

³ the boundaries or limits of a piece of land (*From Random House Unabridged Dictionary 1997*)

Activities to Implement the Remedial Action Approach

A professional tree service contractor will be used to cut down and dispose of all the large trees and shrubs that must be removed within the excavation areas. This does not include specimen trees that are designated to be saved (see section 4.4). Clearing large trees and shrubs that are designated for removal will occur as soon as ROE is received, to facilitate immediate ability to begin excavations on future sites. Smaller vegetation will be handled at the time of excavation. The tree service contractor will cut the trees at grade. Severson will dispose of subsurface root materials during excavation activities. All cleared materials will be properly disposed. Clearing operations will continue as access agreements dictate, with direction from the COR.

4.6.4 Existing Structures

Movable existing structures such as fencing and play equipment will be removed from the excavation area prior to work commencing. These items will be inspected for adhering soils and broom cleaned. They will be stored in the CRZ (possibly in the Support Zone if many items need to be stored) until the restoration process is completed, where they will be placed as found. Their return will be coordinated as soon as practicable with the restoration activities.

Permanent existing structures such as walks, patios and curbs will be protected and removed only as dictated by the excavation work. The removal of these features will be determined by excavating around them, collecting samples from underneath and then determining their disposition with the COR. Each section of concrete will be cleaned, surveyed for contamination, and prepared for proper disposal. If necessary, further measures will be taken to minimize concrete that is considered contaminated.

Activities to Implement the Remedial Action Approach

4.6.5 Primary Excavation

Primary excavation will be performed in accordance with the RFP and the approved SSHP to the lines and grades indicated on the drawings. Initially a maximum of two vertical feet of material will be removed. Care will be taken while excavating in the vicinity of existing utilities and foundations to prevent damage to them. Hand excavation techniques will be utilized to locate the utilities as necessary and to help preserve the larger vegetation and building structures. Severson will use a statewide one-call system to locate the various utilities (gas, electric, water, cable and telephone) on the properties. The District One Call telephone number is 202-265-7177.

Before excavating, all gas and water will be turned off to the property from the street. In case of an accident, Severson will notify the utility company and the USACE COR. The utility company will repair any damage before the site is restored. Utility companies will come to inspect utility features before turning service back on. In the event of damage to foundations, Severson will notify the USACE COR. We will evaluate the damage, and will repair it before site restoration. If the damage is structural, we will call in a structural engineer to evaluate the situation, and Severson will make repairs recommended. In the case of damage to existing utilities or to foundations, Severson and USACE will immediately notify the property owner

Contaminated soils will be removed using excavators, loaders and backhoes. These soils will then be placed in a prepared intermodal-shipping container to await sampling and final disposal. Initially, the soils will be dug using an excavator and placing the material directly into the shipping container. As work progresses, the excavated material may be transported within the work area and placed in the box by use of loader equipment. If conditions and access dictate,

Activities to Implement the Remedial Action Approach

Sevenson also has the capability to hand excavate soils and transfer it via vacuum equipment.

Movable existing structures such as fencing and play equipment will be removed from the excavation area prior to work commencing. Their return will be coordinated as soon as practicable with the restoration activities.

Soil erosion and sediment control measures will be used throughout the excavation process to prevent the migration of soils into non-work areas.

Construction fencing will be used to limit access to the work areas and provide protection to pedestrians and adjoining property owners from the construction activities.

Permanent existing structures such as walks, patios and curbs will be protected and removed only as dictated by the excavation work. Each section of concrete will be cleaned, surveyed for contamination and prepared for proper disposal. If necessary, further measures will be taken to minimize concrete that is considered contaminated

The baseline and control points from the drawings will be utilized to layout the limits of excavation. A grid system will be established for each of the properties. Prior to the transport vehicle and intermodal box arriving at the excavation site, the intermodal will be prepared at the Support Zone. The intermodal's cover will be removed and the box lined. Once the box is prepared it will be transported to the excavation site. Sevenson will place the boxes at the work area so as not to obstruct traffic or block access to the homes.

Activities to Implement the Remedial Action Approach

Polyethylene (poly sheeting) will be placed on the ground at loading areas to prevent dirt and mud from coming into contact with the truck providing intermodal transport. The box will be positioned in the vicinity of the excavation as required. Excavated material will be placed directly into the bulk containers for transport off-site. Once the containers are loaded, the truck tires will be checked for signs of dirt. If they appear dirty, they will be manually cleaned with sweeping techniques. Once cleaned, the box will be transported to the Support Area for final weighing, sampling and tarping. The intermodal box will be positioned at the Support Zone until analytical results from the sampling indicate where the container should be transported.

Upon completion of excavation around structures, Severson will remove mud, dirt or other loose material adhering to basement walls, foundations or other surfaces utilizing a wire brush or other methods approved by the COR. A visual record of this activity does not need to be taken. When the surfaces are dry, and upon authorization from the COR, any remaining adhering material will be removed using a power brush or similar method approved by the COR. Water use will be kept to a minimum.

Due to the proximity of neighboring homes, Severson is sensitive to the issue of fugitive dust and its control. Our target is to generate no dust during the excavation process. Use of water spray will be the primary method of dust control. If this proves insufficient, other control techniques will be investigated and coordinated with the COR. Any issues with dust control will be addressed until the excavation is backfilled and sodded.

Once decontamination procedures are complete, asphaltic damp-proofing material, purchased from a local supplier, will be applied to subsurface foundation

Activities to Implement the Remedial Action Approach

walls exposed during decontamination operations. Damp proofing will be applied in accordance with the manufacturer's recommendations.

4.6.6 Secondary Excavation

Upon completion of primary excavation to the lines and grades shown on the drawings the excavation will be sampled for arsenic content. Grids that exhibit total arsenic levels still greater than 20mg/kg will require further excavation. A determination will then be made by the COR as to what additional excavation may be required.

Sevenson will proceed with secondary excavation in the required areas, removing contaminated soil in lifts not to exceed one foot in depth. After one foot of soil is removed from the area designated as requiring secondary excavation, the surface of the new excavation will again be sampled to determine if remedial guidelines have been met. This process will continue until sample results indicate that all in place soils are below or equal to 20mg/kg total arsenic.

This process of soil removal, followed by soil sampling will take place until field measurements indicate that decontamination criteria have been met. Upon completion of the secondary excavation, a licensed land surveyor will perform final volume computations of the total soil removed from the entire excavation area.

At the completion of excavation and backfill activities in the Exclusion Zone, and after the removal of all temporary facilities, Sevenson will remove all sediment tracked in the CRZ and dispose of it.

Activities to Implement the Remedial Action Approach

4.6.7 Soil Erosion and Sediment Control

Sevenson will install the soil erosion and sediment control measures at the locations noted on the plans and in the specifications in accordance with the local Soil Conservation District. Sevenson will submit their Soil Erosion and Sediment Control Plan to the Soil Conservation District for certification, as required. All copies of this plan (applications and certifications) will be transmitted to the USACE for their information and records.

Preventive measures will include siltation fences and hay bales placed in low areas and down gradient locations or as directed by the COR to provide for temporary control and erosion until a grass stand has been established. Previously established grades will be maintained in a true and even condition.

At the completion of the site restoration, the perimeter siltation will be removed and properly disposed of. Once a grass stand is established, the sedimentation barriers will be removed and hauled off-site.

Significant rainfall may cause storm water to collect in the excavation areas. If this ponded water is in an active excavation area and may impede work progress, it may be pumped into a portable holding tank. Water in the tank will be sampled for contaminants. If clean, this storm water will be discharged to the storm sewer and if dirty, sent off-site for proper disposal.

4.6.8 Security

All excavations will be enclosed by high visibility orange “snow”/construction fencing. The fencing will be utilized to secure the excavations and protect the

Activities to Implement the Remedial Action Approach

public and workers from entering an excavation or Exclusion Zone. During non-work hours, access to the work sites will be closed off using the construction fencing. Equipment will be moved to not obstruct pedestrian and vehicular traffic as much as possible. Any intermodal shipping containers that must be left at the work area will be fully closed to prevent tampering. Local police will also be notified when work is being performed on specific properties. This will enable them to monitor these areas more closely.

In the event of a break-in at either the project Support Zone or the properties themselves, Severson will immediately notify the local police of the event and the USACE as soon as possible. To help prevent unauthorized entry into the affected homes, and to facilitate a response from local police in the event of a break-in, Severson will coordinate the installation of an alarm system in each home in the plan that is not currently connected.

4.6.9 Access to Homes

Residents who elect to not relocate during the excavation and renovation phases of this project will need to maintain access to their homes during this period. Severson will coordinate the excavation and backfill procedures to accommodate access for the resident. The most direct route from the street to an entrance to the house will be established. The resident's safety will be Severson's number one priority. The access route provided to the residents will be approved by the COR to limit the liability of the contractor.

4.6.10 Communication

SES will provide hand-held portable radios for use on-site. These will be

Activities to Implement the Remedial Action Approach

distributed to the following persons:

- a) COR On-Site Designee
- b) Severson's Quality Control Manager(QCM)
- c) Severson's Superintendent
- d) Severson's Site Safety and Health Officer

Additional radios will be provided as required. Telephone service will be supplied to all trailers. Several portable, hand-held air horns will be strategically located on-site in order to provide various warnings (such as immediate evacuation). These are detailed within the SSHP.

Activities to Implement the Remedial Action Approach

4.7 Confirmation Sampling

Confirmation samples of the primary excavation will be taken from the center of each excavated grid. Additional excavation will be required if analytical results show an arsenic level above 20mg/kg. In addition, sidewall confirmation samples will be collected from each grid excavated that borders either a grid with an arsenic sample result less than 20mg/kg, or a property with an arsenic composite sample result less than 12.6mg/kg. Sidewall confirmation sampling will also be collected adjacent to paved areas to determine if the soil under the paved area requires removal. All confirmation samples will be analyzed for arsenic only.

Additional sampling will be performed around large specimen trees to be saved before excavation commences around them. An arborist will be consulted on procedures and methods that might save large specimen trees. A possibility of raising the arsenic level to 43 mg/kg to save a tree was discussed with the COR. Each case will be analyzed separately to determine the proper course of action. If excavation is necessary, a sensitive method of contamination removal will be implemented in this case. The use of hand excavation may be applied to preserve the tree's roots. Severson realizes the delicacy of the tree's tolerance to disruption and will use the highest appropriate level of caution.

Specific plans and procedures for sampling are found in the Sampling and Analysis Plan.

Activities to Implement the Remedial Action Approach

4.8 Waste Containerization and Characterization

Waste generated from the excavation and decontamination operations will be containerized in intermodal shipping boxes. These containers effectively hold and isolate the waste material while awaiting characterization and during transit to the disposal facility. Waste will be loaded directly into the boxes as outline in the excavation section and the boxes staged at the Support Area. One sample from each loaded intermodal-shipping container will be taken and analyzed to determine its final disposition, whether to a hazardous or non-hazardous disposal facility. Analytical parameters for characterization may include analyses for RCRA characteristics, TCLP VOCs, TCLP SVOCs, TCLP metals, BTEX, TPH-DRO, TPH-GRO and PCBs.

Shipment to an appropriate facility will be done using commercial licensed waste haulers. An onsite scale will ensure that individual loads are within DOT weight limits.

4.9 Transportation and Disposal

The transportation and disposal of the contaminated soils from Spring Valley will occur as soon as approval is granted by the disposal facility. Shipping of the waste will occur continuously once approvals have been received from the disposal facilities. A Transportation and Disposal Plan will be submitted under separate cover before waste soils are sent off site.

Activities to Implement the Remedial Action Approach

4.10 Restoration

Land surveys by a Licensed Land Surveyor will be performed prior to the initiation of backfill work. Volume calculations will be made to determine the total volume of contaminated material removed during primary and secondary excavations. The excavation elevation at the bottom of the excavation will then be used to determine backfill quantities.

Once all contaminated excavation and verification testing and civil surveys have been completed as described, the excavation area will be backfilled and graded the original lines and grades.

All materials used for fill will be tested to ensure they are free from chemical contamination prior to being brought onto the site. Backfill materials will be tested for gradation and proctor values, and this data, along with samples, will be submitted to the COR. One sample will be collected and analyzed for each borrow sources utilized. The backfill material will be analyzed for the items found in section 3.2.4 of the Sampling and Analysis Plan.

Backfill will be accomplished by placing fill in 6" to 9" loose thickness lifts and compacting it to 85% of the maximum dry density. Heavy compaction equipment will not be used within five feet of existing structures. Close to these structures, hand operated compaction equipment will be used to achieve proper backfill conditions. Six inches of topsoil will be placed over the compacted fill material.

Finally, sod will be placed on all disturbed soil surfaces to establish a grass stand. Directions for the care and maintenance of the sod will be forwarded to the COR for reference by the property owners. After sodding the disturbed areas, erosion

Activities to Implement the Remedial Action Approach

and sediment controls will be removed. Any areas outside of the designated work zones that may have been disturbed will be seeded at this time. Should the backfill and grading work be completed at a time that is not conducive to seeding, Severson will consult with the USACE (and, at USACE direction, the property owner) and an appropriate course of action will be determined. No additional landscaping is anticipated for this project.

Compaction testing of the borrow soil samples will be accomplished by use of an approved commercial testing laboratory. Severson anticipates utilizing a USACE approved commercial laboratory to perform civil testing. Chemical analysis of the borrow soils will follow the tests outlined in Table 2 attached at the end of this section. Analyses detailed are VOCs, TCL VOCs, TCL Pesticides, TCL PCBs and Inorganic Metals.

Sidewalks, driveways and curbs that require replacement will be rebuilt in their original locations. Severson will schedule and coordinate this work with the chosen subcontractor. For other features of the property (patios, decks, etc.), it is Severson's goal to make a minimal impact on these features. In the event that other property features need to be removed (partially or wholly), Severson will perform that removal with care and to preserve the ability to restore that feature as it was found. Restoration of other outdoor features will be coordinated with the COR and the property owner.

Utilities will be restored as required and will be coordinated by Severson. The city engineer and DPW will be notified when Severson is restoring utilities (water, sewer, and storm mains). The public utilities (gas, electric, telephone, cable) will perform their own restorations.

Activities to Implement the Remedial Action Approach

4.11 Project Closeout

Project Closeout activities shall include the following:

- a) Decontamination and removal of all equipment operated by the Contractor
- b) Restoration of the project site
- c) Disconnection and removal of temporary utilities and facilities
- d) Decommissioning and disposal of facilities
- e) Disposal of Contractor-generated contaminated equipment for which decontamination is inappropriate
- f) Preparation of a Draft and Final Remedial Action (RA) Report by the USACE
- g) Turn in Project Record Documents to include:
 - a. Construction Schedule and progress chart of work
 - b. Technical Specifications
 - c. Change Orders and other modifications to the Contract
 - d. Manufacturer's certificates
 - e. Verification and Laboratory Data
 - f. Written reports of any significant Quality Assurance problems
 - g. Contracting Officer's Directives
 - h. Daily Work Activity Reports
 - i. Monthly Reports

4.12 Construction QA/QC

A Quality Control Management Plan (QCMP) will be implemented to ensure compliance with the specifications for remedial and construction procedures employed during the performance of site work required as detailed on the

Activities to Implement the Remedial Action Approach

Contract Drawings and in the Contract Specifications. The quality control measures as presented in the QCMP will include construction procedures, staffing, types of material and equipment to be used, and methods of performing, documenting, and enforcing quality control operations of both the prime contractor and subcontractors (including inspection and testing).



STONE ROAD

POWER PANEL



POWER POLES

SAFETY/SURVEY

POWER PANEL

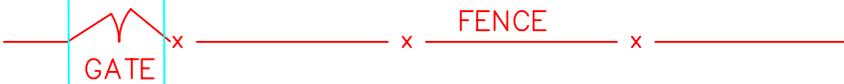
SEVENSON OFFICE

USCACOE OFFICE

BREAK TRAILER

TOOL TRAILER

EXISTING STORAGE UNIT



TRAILER LAYOUT	
USACOE Spring Valley Operable Unit No. 5 Washington, D.C.	
 SEVENSON ENVIRONMENTAL SERVICES, INC.	
DRAWING	DATE: 5/22/2002
	DRAWN BY:
	CHECKED BY: G. UTZ
	CAD FILE: TRAILER-LAYOUT
	SCALE: AS SHOWN