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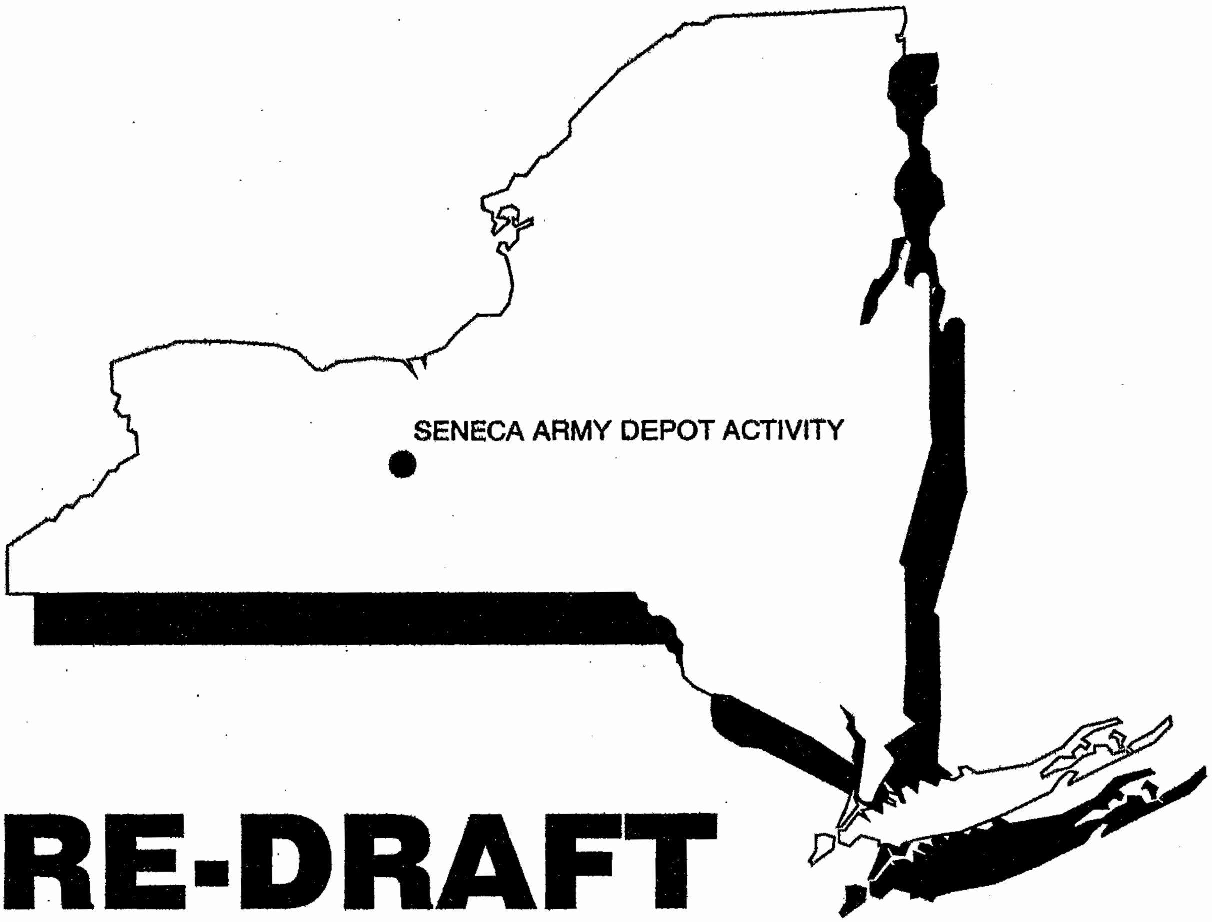
U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA



PRE-DRAFT

SEAD-52
PROJECT SCOPING PLAN FOR PERFORMING A CERCLA REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) AT THE AMMUNITION BREAKDOWN AREA, SENECA ARMY DEPOT ACTIVITY

JULY 1995

PARSONS ENGINEERING SCIENCE, INC.

Prudential Center • Boston, Massachusetts 02199-7697 • (617) 859-2000 • Fax: (617) 859-2043

August 4, 1995

Ms. Dorothy Richards
CEHND-PM-ED
U.S. Army Corps of Engineers
Huntsville Division
106 Wynn Drive
Huntsville, Alabama 35805-1957

SUBJECT: Submittal of a Pre-Draft Project Scoping Plan for Performing a CERCLA Remedial Investigation/Feasibility Study (RI/FS) at SEAD-52, an Ammunition Breakdown Area

Dear Ms. Richards:

Parsons Engineering Science, Inc. (Parsons ES) is pleased to submit the Pre-Draft Project Scoping Plan for performing a Comprehensive Environmental Responsibility, Compensation and Liability Act (CERCLA) Remedial Investigation/Feasibility Study (RI/FS) at an Ammunition Breakdown Area (SEAD-52) at the Seneca Army Depot Activity (SEDA) located in Romulus, New York. This work was performed in accordance with the Scope of Work (SOW) for Delivery Order 0041 to the Parsons ES Contract DACA87-92-D-0022.

The Project Scoping Plan contains specific information about this site for conducting an RI/FS. Additional information that is not specific to any particular site at SEDA is contained in the Generic Installation RI/FS Workplan that serves as a foundation for this RI/FS Project Scoping Plan. The Generic Installation RI/FS Workplan was previously submitted to you. The Generic Installation RI/FS Workplan and its associated Scoping Plans provide a mechanism for investigating Areas of Concerns at SEDA as part of the United States Army Corps of Engineers (USACE) remedial response activities under CERCLA.

Parsons ES appreciates the opportunity to work with the USACE on this important project and looks forward to a continued relationship on this and other projects. Please feel free to call me at 617-859-2492.

Sincerely,

PARSONS ENGINEERING SCIENCE, INC.

Michael Duchesneau, P.E.
Project Manager

MD/cmf/Sead52

cc: Mr. Randall Battaglia, SEDA
Mr. Keith Hoddinott, HSHB-ME-SR
Dr. Buchi, CETHA-IR-D
Mr. Naughton, CENAN-PP-E
Mr. Pickett, CENAD-CO-EP
Mr. B. King, AMCEN-A
Ms. Johnson, AMSDS-EN-FD
Ms. Percifield, CEMRD-ED-GL

PROJECT SCOPING PLAN
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
AT SEAD-52
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared For:

Seneca Army Depot Activity
Romulus, New York

Prepared By:

Parsons Engineering Science, Inc.
Prudential Center
Boston, Massachusetts

727651

July 1995

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LIST OF ACRONYMS

1,2-DCA	1,2-Dichloroethane
1,2-DCE	1,2-Dichloroethylene (total)
AA	Atomic absorption
AMC	U.S. Army Material Command
AN	Army-Navy
AOC	Areas of Concern
APCS	Air Pollution Control System
AQCR	Genesee-Finger Air Quality Control Region
ARAR	Applicable or Relevant and Appropriate Requirements
ASTM	American Society for Testing and Materials
BOD	Biological Oxygen Demand
CEC	Cation exchange capacity
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLP	Contract Laboratory Program
cm	Centimeters
cm/sec	Centimeters per second
COD	Chemical Oxygen Demand
Cr	Chromium
$CaCO_3$	Calcium Carbonate
CRT	Cathode ray tube
DARCOM	Development and Readiness Command
DERA	Defense Environmental Restoration Account
DO	Dissolved oxygen
DOT	Department of Transportation
DQO	Data Quality Objective
DRMO	Defense, Revitalization and Marketing Office
EM-31	Electromagnetic
EPA	Environmental Protection Agency
ESI	Expanded Site Inspections
FS	Feasibility Study
ft	Feet
ft/ft	Feet per foot

LIST OF ACRONYMS (CONT.)

ft/sec	Feet per second
ft/yr	Feet per year
GA	Classification: The best usage of Class GA waters is as a source of potable water supply. Class GA waters are fresh groundwaters
GC	Gas chromatograph
gpm	Gallons per minute
GPR	Ground penetrating radar
GRI	Gas Research Institute
GSSI	Geophysical Survey Systems, Inc.
HSWA	Hazardous and Solid Waste Amendments
IAG	Interagency Agreement
Koc	Organic carbon coefficient
lb	pound
L/min	Liters per minute
MCL	Maximum Contaminant Level
mg/l	Milligram per liter
mg/kg	Milligrams per kilogram
MHz	Megahertz
Miniram	Minature Real-Time Aerosol Meter
mL	Milliliter
mmhos/m	Millimhos per meter
MSL	Mean sea level
MW	Monitoring Well
NA	Not analyzed or not available
NBS	National Bureau of Standards
NGVD	National Geologic Vertical Datum
NO_2/N	Nitrite-Nitrogen
NO_3/N	Nitrate-Nitrogen
NPL	National Priority List
NTU	Nephelometric turbidity units
NYSDEC	New York State Department of Environmental Conservation
OVM	Organic Vapor Meter
Pb	Lead

LIST OF ACRONYMS (CONT.)

PAH	Polynuclear Aromatic Hydrocarbon
Parsons ES	Parsons Engineering Science, Inc.
PCB	Polychlorinated biphenyls
PID	Photoionization detector
ppm	parts per million
ppmv	parts per million per volume
PSCR	Preliminary Site Characterization Report
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RAGS	EPA Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RF	Response factor
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RQD	Rock Quality Designation
SB	Soil boring
SCS	Soil Conservation Service
SD	Sediment sample
SEAD	Seneca Army Depot (old name)
SEDA	Seneca Army Depot Activity
sec	Seconds
SOW	Statement of Work
SS	Soil sample
SVO	Semivolatile Organic Compounds
SW	Surface water sample
SWMU	Solid Waste Management Unit
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target analyte list
TCL	Target compound list
TDS	Total dissolved solids
TKN	Total Kjeldah Nitrogen

LIST OF ACRONYMS
(CONT.)

TOC	Total Organic Carbon
TOX	Total Organic Halogens
TRPH	Total Recovered Petroleum Hydrocarbons
TP	Test Pit
UCL	Upper Confidence Level
ug/g	Micrograms per gram
ug/kg	Micrograms per kilogram
ug/mg	Micrograms per milligram
ug/L	Micrograms per liter
USACE	United States Army Corps of Engineers
USAEHA	United States Army Environmental Hygiene Agency
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USGS	United States Geological Survey
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
Vs	Volt Second

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

The purpose of this Project Scoping Plan is to outline the work proposed for Phase I of the Remedial Investigation/Feasibility Study (RI/FS) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at SEAD-52 at the Seneca Army Depot Activity (SEDA) in Romulus, New York. The purpose of the RI/FS is to determine the nature and extent of environmental impacts, and to evaluate and select appropriate remedial actions. These actions will comply with ARARs and take into account the risks to human health and the environment.

Phase I is designed to develop a conceptual site model identifying potential source area release mechanisms and receptor pathways, determine data requirements for an evaluation of risks to human health and the environment, and develop a task plan to address the data requirements that have been identified. After the field investigation is completed, if there is insufficient data to perform a risk assessment, the data gaps will be addressed in a Phase II field investigation. A Phase II field investigation, if necessary, will be developed in an addendum to this Workplan. If the data requirements appear to have been satisfied in the Phase I of the field investigation, then the baseline risk assessment portion of the RI will proceed.

This work will be performed as part of the United States Army Corps of Engineers (USACOE) remedial response activities under CERCLA. It will follow the requirements of the New York State Department of Environmental Conservation (NYSDEC), the U.S. Environmental Protection Agency, Region II (EPA), and the Interagency Agreement (IAG).

This Project Scoping Plan provides site specific information for the RI/FS project at SEAD-52. The Generic Installation RI/FS Workplan was designed to serve as a foundation for this document and provides generic information that is applicable to all site activities at SEDA.

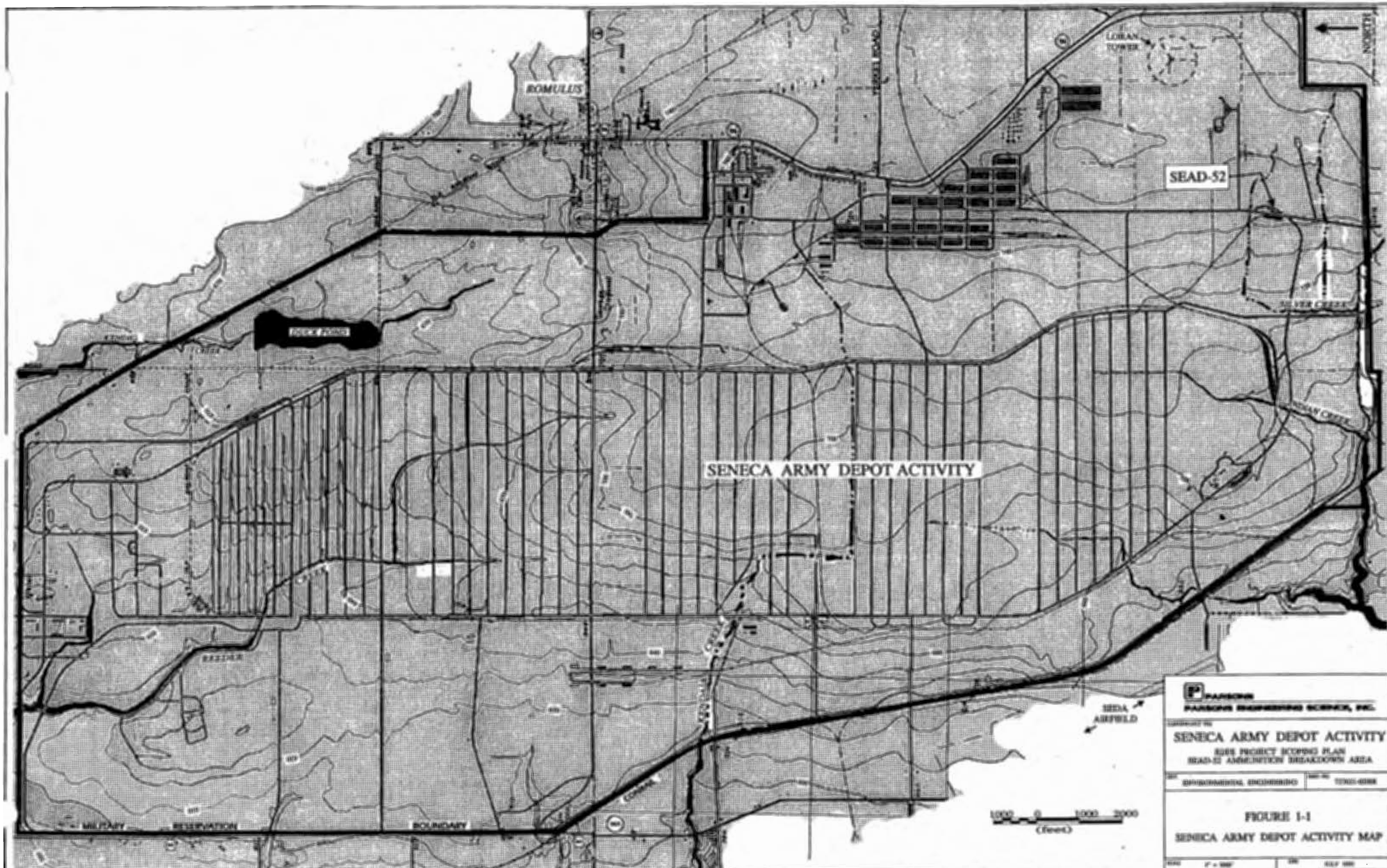
1.2 REPORT ORGANIZATION

The remaining sections of this report are organized to describe the overall site conditions, provide a scoping of the RI/FS, and to provide task plans for the RI and FS. Section 2.0 presents a description of regional geologic and hydrogeologic site conditions. Section 3.0 discusses scoping of the RI/FS including the conceptual site model, the results of previous investigations, identification of potential receptors and exposure scenarios, scoping of potential remedial action technologies, preliminary identification of ARARs, data quality objectives, and data gaps and needs. The task plans for the RI and FS are discussed in Sections 4.0 and 5.0, respectively. Section 6.0 discusses scheduling and staffing. Appendices A through G are included with this report.

1.3 SITE BACKGROUND

SEAD-52 is the Ammunition Breakdown Area located in the southeastern portion of SEDA as shown in Figure 1-1. SEAD-52 is comprised of Buildings 608, 610, 611 and 612,which have been used for the breakdown and maintenance of ammunitions. The materials handled at the Ammunitions Breakdown Area are not considered wastes. The materials are either reused or stored for later use. If the materials become obsolete, they are taken to the demolition grounds. Once received at the demolition grounds, the materials are considered wastes and appropriate actions are taken to dispose of them.

In January 1980, this Solid Waste Management Unit (SWMU) was identified as a location of known or suspected waste materials by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) in their report, "Installation Assessment of Seneca Army Depot". In 1987, the facility was deleted from the SWMU submission list by the U.S. Army Environmental Hygiene Agency (Groundwater Contamination Survey No. 38-26-0868-88). The reason for deleting the unit was due to the fact that there was no handling of waste at the SWMU. The facility was again added to the SWMU list in August, 1988 by the New York State Department of Environmental Conservation (RCRA Facility Assessment Report, draft August 1988). SWMU Classification Report (SCR) Resolution Meeting Minutes of September 25, 1992 indicated that limited sampling should be conducted at the site. Limited sampling was performed in December 1993 as part of the SWMU Classification Study update. The purpose of this sampling program was to collect additional data which would be used to determine whether or not this SWMU could be classified as a No-Action SWMU or if a Site Investigation (SI) was required. Based on the results of the limited sampling program presented in the final SWMU Classification Report (Parsons ES, September 1994), NYSDEC determined that a threat may exist at SEAD-52 due to the presence of explosive compounds in the surface soils. NYSDEC recommended that further investigations be performed at SEAD-52. This RI/FS Project scoping Plan along with the Generic Installation RI/FS Workplan outlines the recommended approach and methodologies for completion of an RI/FS at this site in accordance with EPA CERCLA guidelines.



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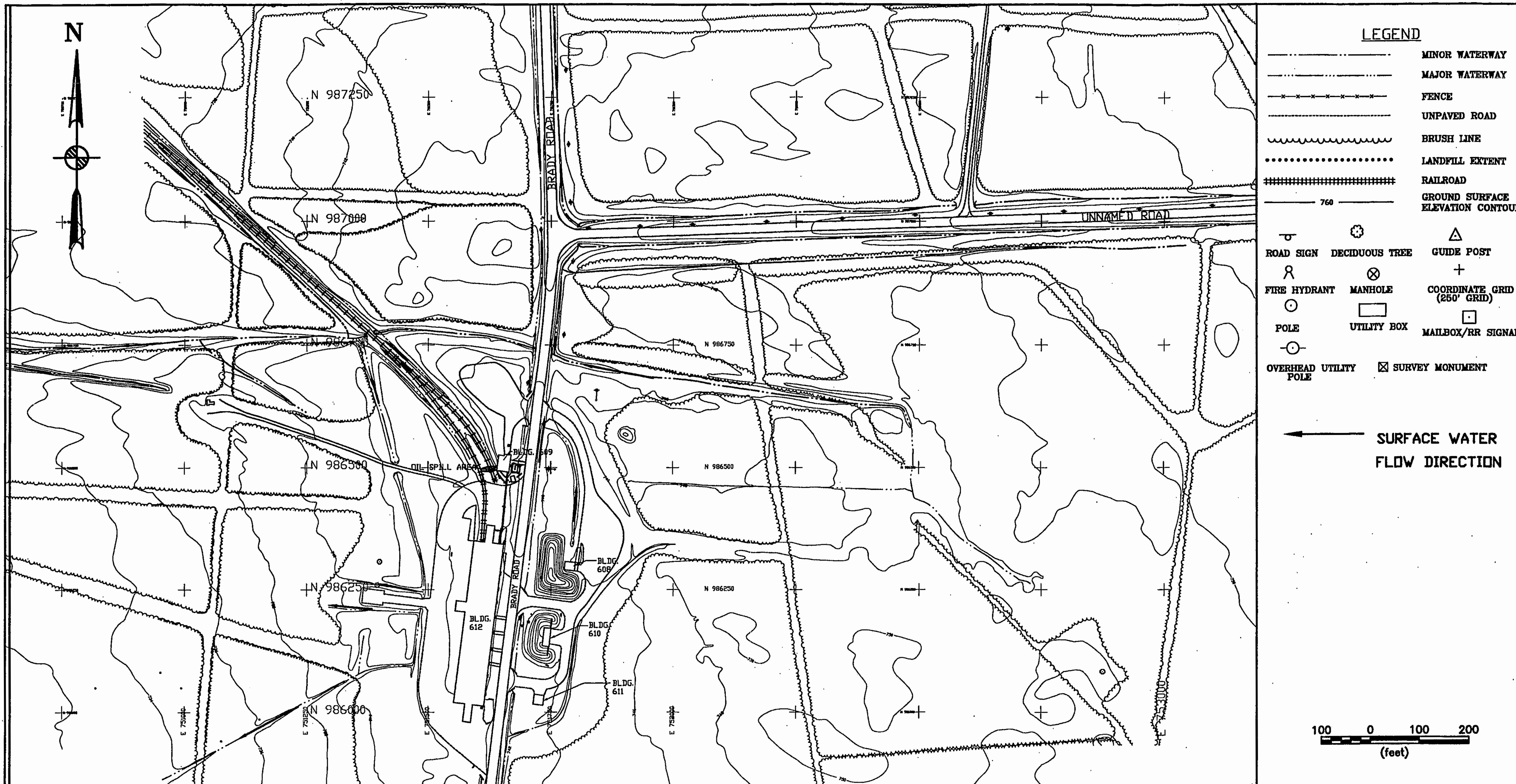

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CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY
RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No.

FIGURE 1-2
SITE PLAN

SCALE 1" = 200' | DATE JULY 1995 | REV A

2.0 SITE CONDITIONS

2.1 PHYSICAL SETTING

The physical setting of SEDA is described in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

2.2 REGIONAL GEOLOGICAL SETTING

The regional geological setting of SEDA is described in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

2.3 REGIONAL HYDROGEOLOGICAL SETTING

The regional hydrogeological setting of SEDA is described in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

3.0 SCOPING OF THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY RI/FS

This section describes the current understanding of SEAD-52 based upon the results of the Limited Sampling Program presented in the Solid Waste Management Unit Classification Study Report (Parsons ES, September 1994). This includes the development of a conceptual model describing all known contaminant sources and receptor pathways based upon actual sampling data. This conceptual model will be used to develop and implement additional studies which may be required to fully assess risks to human health and the environment. Other considerations which are discussed in this section are data quality objectives (DQOs) and potential remedial actions for SEAD-52. These considerations will also be integrated into the scoping process to ensure that adequate data is collected to complete the RI/FS process for this area of concern (AOC).

3.1 CONCEPTUAL SITE MODEL

The conceptual site model for SEAD-52 takes into account site conditions and accepted pollutant behavior to formulate an understanding of the site. This model will serve as a basis for determining necessary additional studies for the RI. The model was developed by evaluating the following aspects:

- Historical usage and waste disposal practices.
- Physical site characteristics: This considers the physical aspects of environmental conditions and the effect these conditions may have on potential pollutant migration. These include soil characteristics, topography, subsurface geology, groundwater characteristics and local terrain.
- Environmental fate of constituents: This considers the fate and transport of residual materials in the environment based upon known chemical and physical properties.

3.1.1 Site History

The Ammunition Breakdown Area (SEAD-52) has been an active site from the 1940s to the present time. The site consists of four buildings of concern which include Buildings 608, 610, 611 and Building 612. Building 612 has been used for the breakdown and maintenance of ammunitions; Building 608 has been used for the storage of ammunition magazines although no ammunition magazines are currently stored in the building; Building 610 has been used for ammunition powder collection; and Building 611 has been used for storage of equipment, paints, and solvents.

Cleaning procedures of Buildings 610 and 612 included hosing the floors with a water hose and releasing the water to the ground surface outside through the doors.

3.1.2 <u>Physical Site Characterization</u>

3.1.2.1 Physical Site Setting

SEAD-52 is located in the southeastern portion of SEDA as shown in Figure 1-1. The site is characterized by developed and undeveloped land as shown in Figure 1-2. East and west of the site are grassy fields with some sparse brush. Brady Road bisects the site running from north to south. The developed areas consist of Building 612, which is immediately west of Brady Road, and Buildings 608, 610 and 611, which are located east of Brady Road. Building 609, which is not part of SEAD-52, is located approximately 200 feet north of Building 612 on Brady Road and is a boiler house for Building 612. SEDA railroad tracks enter the site from the northwest and divide into two spurs which provide access to the northern side of Building 612 and the western side of Building 609. There are paved access routes on all sides of Building 612 and paved access routes to Buildings 608, 610, and 611.

Building 612 is a concrete block structure which is approximately 60 feet wide, 300 feet long, and 15 feet high. Covered platforms are located on the north and south ends of the building. Building 608 is also a concrete block structure which is approximately 20 feet wide by 20 feet long and 12 feet high. A concrete ramp extends from the front of the building to north of the building. No additional information is available for Buildings 610 and 611.

A mounded area with approximately 14 feet of relief is located west and south of Building 608. Another mounded area with approximately 8 feet of relief is located on the north, west, and south sides of Building 610.

The topography of SEAD-52 is relatively flat with the area to the west of Brady Road sloping gently to the west from a topographic high at Building 612. Several drainage ditches are located to the west, north, and south of Building 612 as shown on Figure 1-2. Approximately four ditches are located west of the building. One ditch flows north intersecting an east-west trending drainage ditch. One ditch flows southwest and two ditches flow west. Another ditch is located south of Building 612 and flows south paralleling Brady Road.

The area to the east of Brady Road also slopes gently to the west. A north-south trending drainage ditch is located east of Buildings 608, 610, and 611. Another drainage ditch parallels the east side of Brady Road and flows south.

3.1.2.2 Local Hydrology

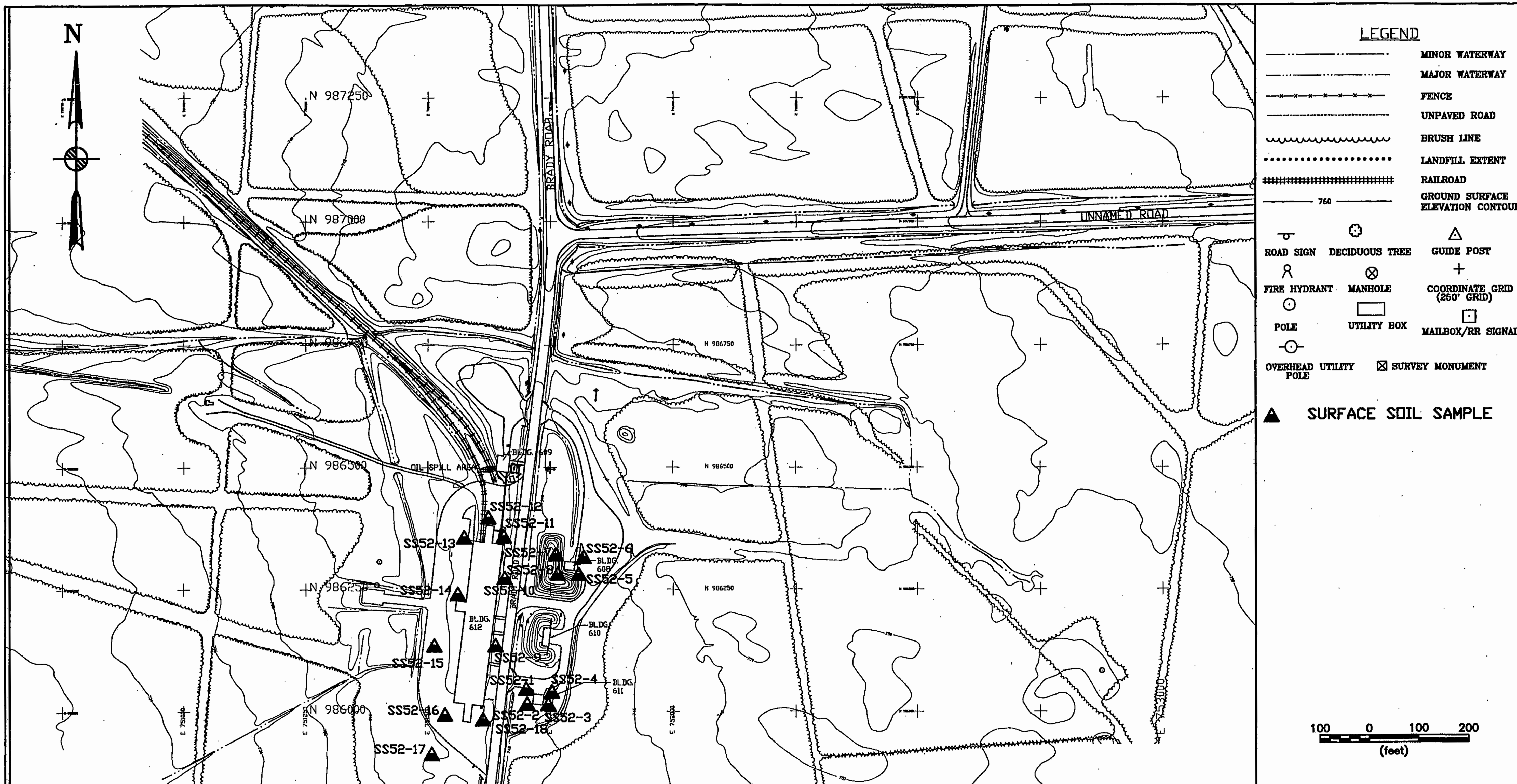
Surface water flow in the area to the west of Brady Road is likely to be captured by the network of drainage ditches located to the north, west, and south of Building 612 as shown in Figure 1-2. Drainage ditches flowing north intersect an east-west trending drainage ditch located approximately 250 feet north of Building 612.

Surface water runoff from Building 608 is to the north and east and is likely to be captured by a north-south trending drainage ditch which flows north and by the north-south trending drainage ditch located to the east of Buildings 608, 610, and 611. This ditch flows south and intersects a drainage ditch which parallels Brady Road. Surface water runoff from Building 610 is to the east into the eastern drainage ditch. The mounded areas located adjacent to Buildings 608 and 610 prevent flow from the building areas to the west.

Surface water runoff from Building 611 is to the west and south into the drainage ditch paralleling Brady Road.

3.1.2.3 Chemical Analysis Results

A Limited Sampling Program was performed at SEAD-52 in December 1993. A total of eighteen (18) surface soil samples were collected from a depth of 0 to 2" below ground surface and chemically analyzed for explosives by EPA Method 8330. The samples were collected from locations around Buildings 608, 611 and 612 as shown in Figure 3-1. A description of the program is presented below.



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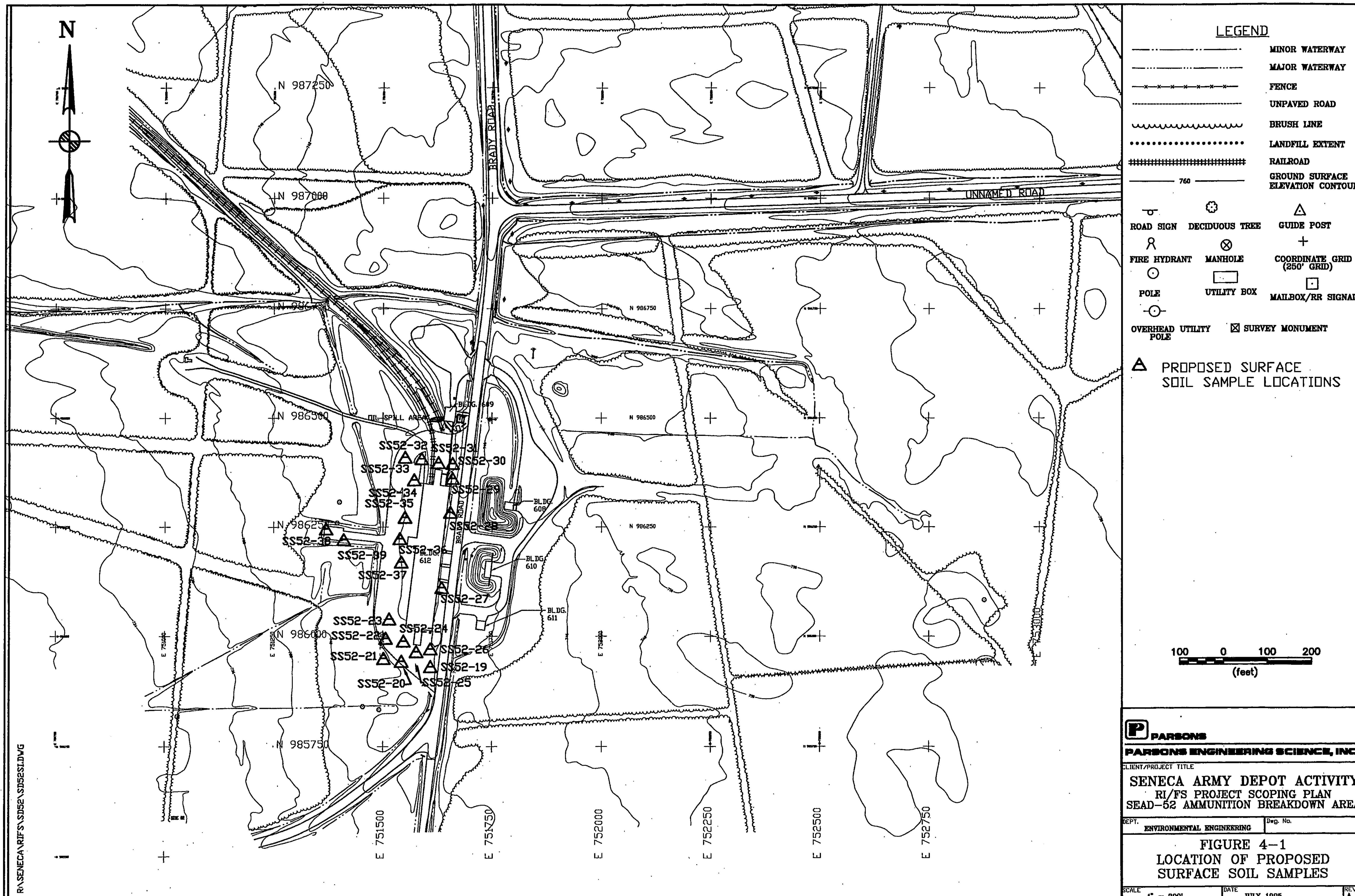
CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY
RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA

DEPT.	Dwg. No.
ENVIRONMENTAL ENGINEERING	

FIGURE 3-1
LOCATION OF SAMPLE POINTS
FROM THE LIMITED SAMPLING PROGRAM

SCALE	DATE	REV
1" = 200'	JULY 1995	A



N
N 987250
N 987000
N 986750
N 986500
N 986250
N 986000
N 985750
E 751500
E 751750
E 752000
E 752250
E 752500
E 752750
BRADY ROAD
UNNAMED ROAD
OIL SPILL AREA
BLDG. 609
BLDG. 608
BLDG. 610
BLDG. 611
BLDG. 612
SS52-19
SS52-20
SS52-21
SS52-22
SS52-23
SS52-24
SS52-25
SS52-26
SS52-27
SS52-28
SS52-29
SS52-30
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SS52-33
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SS52-38
SS52-39
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LEGEND
MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760
GROUND SURFACE ELEVATION CONTOUR
ROAD SIGN
DECIDUOUS TREE
GUIDE POST
FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT
PROPOSED SURFACE SOIL SAMPLE LOCATIONS
100 0 100 200
(feet)
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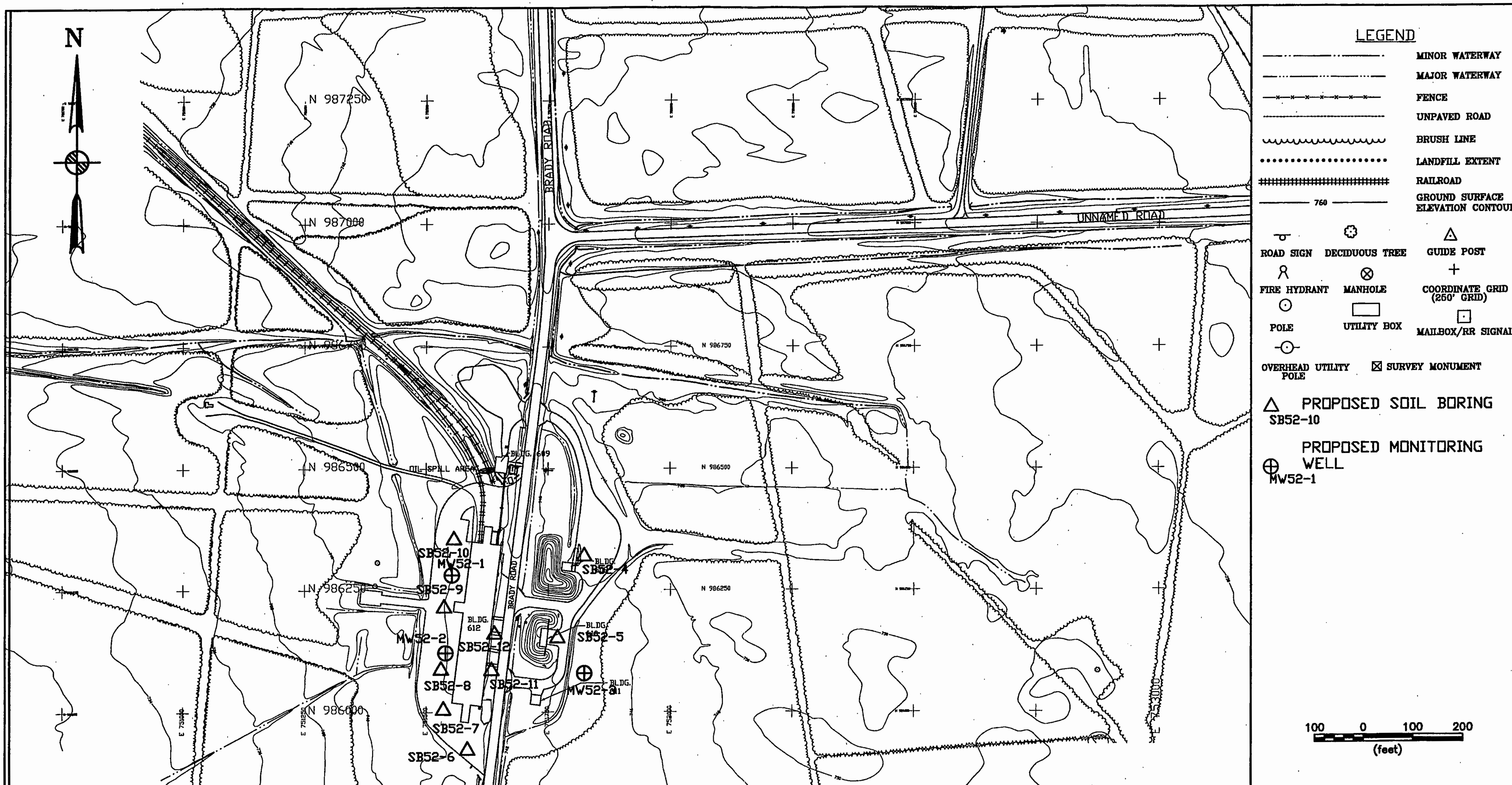
SENECA ARMY DEPOT ACTIVITY
RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA
DEPT.
ENVIRONMENTAL ENGINEERING
Dwg. No.
FIGURE 4-1
LOCATION OF PROPOSED SURFACE SOIL SAMPLES
SCALE 1" = 200'
DATE JULY 1995
REV A



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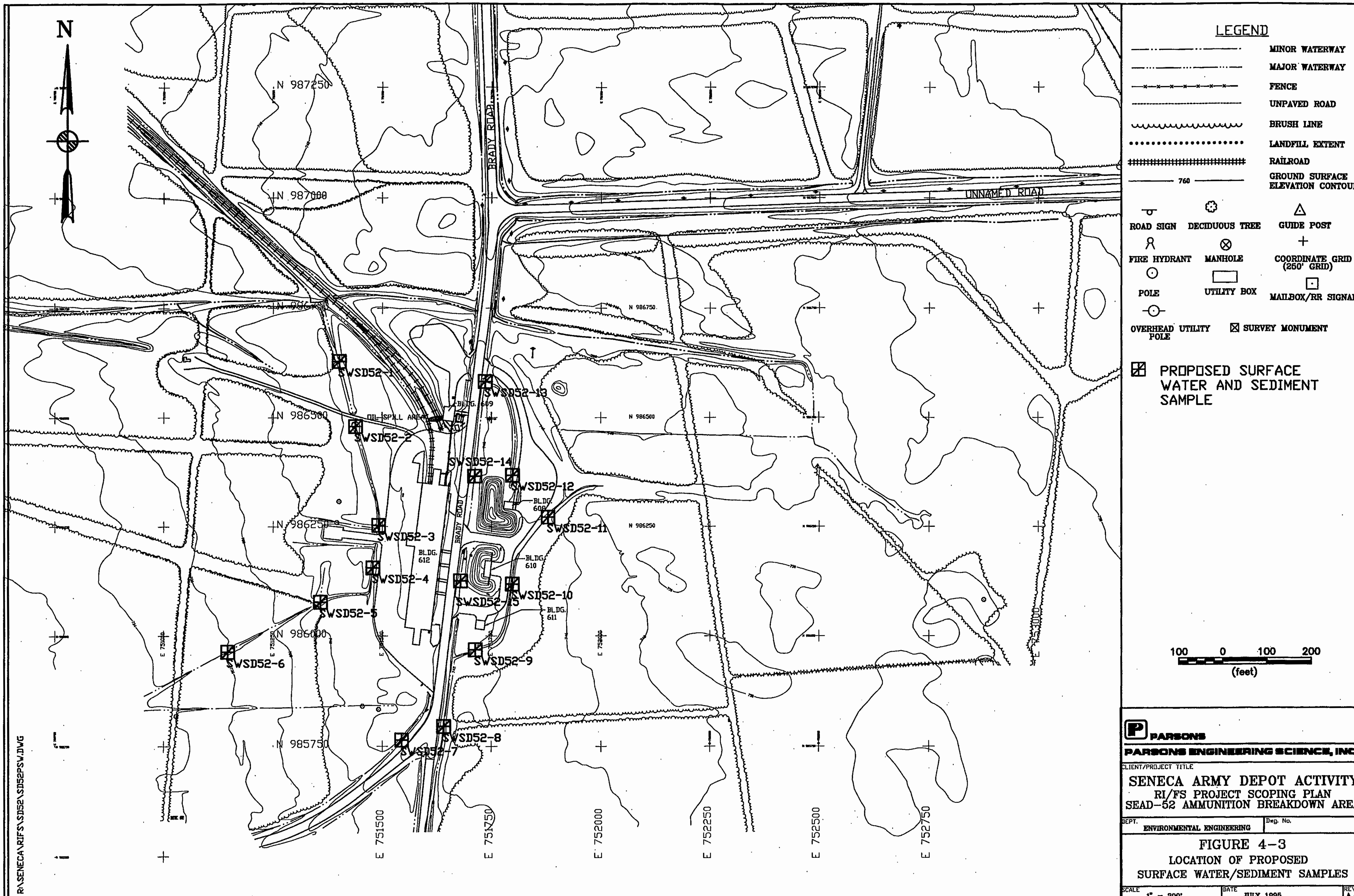
DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No.

FIGURE 4-2
LOCATION OF PROPOSED SOIL BORINGS AND MONITORING WELLS

SCALE 1" = 200' | DATE JULY 1995 | REV A


N
LEGEND
MINOR WATERWAY
MAJOR WATERWAY
FENCE
UNPAVED ROAD
BRUSH LINE
LANDFILL EXTENT
RAILROAD
760
GROUND SURFACE ELEVATION CONTOUR
ROAD SIGN
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FIRE HYDRANT
MANHOLE
COORDINATE GRID (250' GRID)
POLE
UTILITY BOX
MAILBOX/RR SIGNAL
OVERHEAD UTILITY POLE
SURVEY MONUMENT
PROPOSED SURFACE WATER AND SEDIMENT SAMPLE
100 0 100 200
(feet)
N 987250
N 987000
N 986500
N 986250
N 986000
N 985750
N 986750
BRADY ROAD
UNNAMED ROAD
OIL SPILL AREA
BLDG. 609
BLDG. 608
BLDG. 610
BLDG. 611
BLDG. 612
SWSD52-1
SWSD52-2
SWSD52-3
SWSD52-4
SWSD52-5
SWSD52-6
SWSD52-7
SWSD52-8
SWSD52-9
SWSD52-10
SWSD52-11
SWSD52-12
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SWSD52-14
SWSD52-15
E 751500
E 751750
E 752000
E 752250
E 752500
E 752750
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PARSONS
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RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA
DEPT.
ENVIRONMENTAL ENGINEERING
Dwg. No.
FIGURE 4-3
LOCATION OF PROPOSED SURFACE WATER/SEDIMENT SAMPLES
SCALE 1" = 200'
DATE JULY 1995
REV

Bldg. 608 - Four surface soil samples, at 0-2" depth, were collected; one from each corner of the building.

Bldg. 611 - Four surface soil samples, at 0-2" depth, were collected; one from each corner of the building.

Bldg. 612 - Ten surface soil samples, at 0-2" depth, were collected; one from each corner of the building, two from the long sides of the building, approximately 100 feet apart, and one from the middle of each of the shorter sides.

The results of the analyses are presented in Table 3-1. The results of the limited sampling indicate that the three explosive compounds, tetryl, 2,4,6-trinitrotoluene, and 2,4-dinitrotoluene, were detected in 10 surface soil samples. Surface soil samples SS52-1 through SS52-8, which were collected from the buildings on the east side of Brady Road, were generally free of explosive compounds, with the exception of SS52-1 and SS52-6, which contained 110 and 280 ug/kg, respectively, of the compound 2,4-dinitrotoluene.

All of the surface soil samples, except two samples, that were collected around Building 612 contained explosive compounds. 2,4-dinitrotoluene was the most frequently detected compound and ranged in concentration from 91 to 2100 ug/kg. The compound 2,4,6-trinitrotoluene was detected in only two samples and tetryl in only one sample. SS52-15 and SS52-16 , the two samples in which explosive compounds were not detected, were located on the southwest side of Building 612. No NYSDEC TAGM criteria are available for the explosive compounds detected.

3.1.3 Environmental Fate of Constituents at SEAD-52

The constituents of concern at SEAD-52 are explosives, heavy metals, and SVOCs. Their environmental fate is discussed below. The discussion is meant to present general information on the fate of the selected constituents of concern, and where possible, site-specific characteristics are presented. A summary of fate and transport characteristics for the constituents of concern is presented in Table 3-2.

3.1.3.1 Metals

In general, metals tend to be persistent and relatively insoluble. The behavior of heavy metals

TABLE 3-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-52 LIMITED SAMPLING PROGRAM

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	SOIL SEAD-52 0-0.2 12/16/93 SS-52-1 207145	SOIL SEAD-52 0-0.2 12/16/93 SS-52-2 207146	SOIL SEAD-52 0-0.2 12/16/93 SS-52-3 207147	SOIL SEAD-52 0-0.2 12/16/93 SS-52-4 207148	SOIL SEAD-52 0-0.2 12/16/93 SS-52-5 207149	SOIL SEAD-52 0-0.2 12/16/93 SS-52-6 207150	SOIL SEAD-52 0-0.2 12/16/93 SS-52-7 207151	SOIL SEAD-52 0-0.2 12/16/93 SS-52-8 207152	SOIL SEAD-52 0-0.2 10/20/93 SS-52-9 207153
NITROAROMATICS														
Tetryl	ug/kg	150	5.0%	NA	NA	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ
2,4,6-Trinitrotoluene	ug/kg	410	11.0%	NA	NA	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ
2,4-Dinitrotoluene	ug/kg	2100	53.0%	NA	NA	110 J	130 UJ	130 UJ	130 UJ	130 UJ	280 J	130 UJ	130 UJ	490 J
OTHER ANALYSES														
Total Solids	%W/W					77.3	65.8	69.2	66.5	74.8	89.8	73.8	76.2	87.3

NOTES:

a) J = The reported value is an estimated concentration.
b) UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.

TABLE 3-1

SOIL ANALYSIS RESULTS
SENECA ARMY DEPOT
SEAD-52 LIMITED SAMPLING PROGRAM

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	SOIL SEAD-52 0-0.2 12/16/93 SS-52-10 207154	SOIL SEAD-52 0-0.2 12/16/93 SS-52-11 207155	SOIL SEAD-52 0-0.2 12/16/93 SS-52-12 207156	SOIL SEAD-52 0-0.2 10/20/93 SS-52-13 207157	SOIL SEAD-52 0-0.2 12/16/93 SS-52-14 207158	SOIL SEAD-52 0-0.2 12/16/93 SS-52-15 207159	SOIL SEAD-52 0-0.2 12/16/93 SS-52-16 207160	SOIL SEAD-52 0-0.2 12/16/93 SS-52-17 207161	SOIL SEAD-52 0-0.2 12/16/93 SS-52-18 207162	SOIL SEAD-52 0-0.2 12/16/93 SS-52-19 207163 SS-52-1DUP
NITROAROMATICS															
Tetryl	ug/kg	150	5.0%	NA	NA	130 UJ	150 J	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ	130 UJ
2,4,6-Trinitrotoluene	ug/kg	410	11.0%	NA	NA	130 UJ	130 UJ	130 UJ	130 UJ	160 J	130 UJ	130 UJ	410 J	130 UJ	130 UJ
2,4-Dinitrotoluene	ug/kg	2100	53.0%	NA	NA	99 J	130 UJ	91 J	200 J	1500 J	130 UJ	130 UJ	1800 J	2100 J	120 J
OTHER ANALYSES															
Total Solids	%W/W					89	92.5	88	88.1	93.8	84.3	81	74.2	89.6	78.2

TABLE 3 - 2

SUMMARY OF FATE AND TRANSPORT PARAMETERS FOR SELECTED ORGANIC COMPOUNDS

SENECA ARMY DEPOT

COMPOUND	SOLUBILITY (mg/l)	VAPOR PRESSURE (mmHg)	HENRY'S LAW CONSTANT (atm-m³/mol)	Koc (ml/g)	Kow	HALF - LIFE (days)	BCF
Semivolatile Organic Compounds							
Phenol	93000	0.341	4.54E-07	1.42E+01	2.88E+01	3-5	1.4-2
2-Methylphenol	25000	0.24	1.50E-06	2.74E+02	8.91E+01	1-3	
4-Methylphenol		0.11	4.43E-07	2.67E+02	8.51E+01	1-3	
2,4-Dimethylphenol	4200	0.0573	2.38E-06	2.22E+02	2.63E+02	1-3	9.5-150
Benzoic Acid	2700			2.48E+02	7.41E+01		
Naphthalene	31.7	0.23	1.15E-03	1.30E+03	2.76E+03	1-110	44-95
2-Methylnaphthalene	25.4	0.0083	5.80E-05	8.50E+03	1.30E+04	1-3	
2-Chloronaphthalene	6.74	0.017	4.27E-04	4.16E+03	1.32E+04		
2,6-Dinitrotoluene	1320	0.018	3.27E-06	9.20E+01	1.00E+02	4	4.6
Acenaphthene	3.42	0.00155	9.20E-05	4.60E+03	1.00E+04		
Dibenzofuran				4.16E+03	1.32E+04		
2,4-Dinitrotoluene	240	0.0051	5.09E-06	4.50E+01	1.00E+02	5	
Diethylphthalate	896	0.0035	1.14E-06	1.42E+02	3.16E+02	1-3	14-117
Fluorene	1.69	0.00071	6.42E-05	7.30E+03	1.58E+04		
N-Nitrosodiphenylamine	113		1.40E-06	6.50E+02	1.35E+03	4	65-217
Hexachlorobenzene	0.006	0.000019	6.81E-04	3.90E+03	1.70E+05		
Phenanthrene	1	0.00021	1.59E-04	1.40E+04	2.88E+04	1-200	
Anthracene	0.045	0.000195	1.02E-03	1.40E+04	2.82E+04		
Di-n-butylphthalate	13	0.00001	2.82E-07	1.70E+05	3.98E+05	1-3	89-1800
Fluoranthene	0.206	0.0177	6.46E-06	3.80E+04	7.94E+04	140-440	
Pyrene	0.132	2.50E-06	5.04E-06	3.80E+04	7.59E+04	9-1900	
Butylbenzylphthalate	2.9	8.60E-06	1.20E-06	2.84E+04	5.89E+04		663
Benzo(a)anthracene	0.0057	1.50E-07	1.16E-06	1.38E+06	3.98E+05	240-680	
Chrysene	0.0018	6.30E-09	1.05E-06	2.00E+05	4.07E+05	160-1900	
Bis(2-Ethylhexyl)phthalate	0.285	2.00E-07	3.61E-07	5.90E+03	9.50E+03	Neg. Deg.	
Di-ni-octylphthalate	3			2.40E+06	1.58E+09		
Benzo(b)fluoranthene	0.014	5.00E-07	1.19E-05	5.50E+05	1.15E+06	360-610	
Benzo(k)fluoranthene	0.0043	5.10E-07	3.94E-05	5.50E+05	1.15E+06	910-1400	
Benzo(a)pyrene	0.0012	0.000568	1.55E-06	5.50E+06	1.15E+06	220-530	
Indeno(1,2,3-cd)pyrene	0.00053	1.00E-10	6.86E-08	1.60E+06	3.16E+06	600-730	
Dibenz(a,h)anthracene	0.0005	5.20E-11	7.33E-08	3.30E+06	6.31E+06	750-940	
Benzo(g,h,i)perylene	0.0007	1.03E-10	5.34E-08	1.60E+06	3.24E+06	590-650	

TABLE 3 - 2

SUMMARY OF FATE AND TRANSPORT PARAMETERS FOR SELECTED ORGANIC COMPOUNDS

SENECA ARMY DEPOT

COMPOUND	SOLUBILITY (mg/l)	VAPOR PRESSURE (mmHg)	HENRY'S LAW CONSTANT (atm-m³/mol)	Koc (ml/g)	Kow	HALF - LIFE (days)	BCF
Explosives							
HMX	66	3.90E-09		5.08E+02	1.30E-01		
RDX	50	4.10E-09	2.00E-05	5.38E+02	7.80E-01		
1,3,5-Trinitrobenzene	35	2.20E-04	1.30E+00	5.20E+02			
1,3-Dinitrobenzene	470			1.50E+02	4.17E+01		
Tetryl							
2,4,6-Trinitrotoluene	130	0.0001	1.37E-06	5.34E+02	1.90E+00		
4-amino-2,6-Dinitrotoluene							
2-amino-4,6-Dinitrotoluene							
2,6-Dinitrotoluene	182	0.018	3.27E-06	2.49E+02	1.00E+02	4	4.6
2,4-Dinitrotoluene	270	0.0051	5.09E-06	2.01E+02	1.00E+02	5	

Notes:
Koc = organic carbon partition coefficient
Kow = octanol-water partition coefficient
BCF = bioconcentration factor
Neg. Deg. = Negligible Biodegradation

References:
1. IRP Toxicology Guide
2. Basics of Pump-and-Treat Ground-Water Remediation Technology (EPA, 1990).
3. Handbook of Environmental Fate and Exposure Data (Howard, 1989).
4. Soil Chemistry of Hazardous Materials (Dragun, 1988)
5. Hazardous Waste Treatment, Storage, and Disposal Facilities, Air Emissions Models (EPA, 1989).
6. USATHAMA, 1985
7. Values for Koc not found were estimated by: logKoc = 0.544logKow + 1.377 (Dragun, 1988).

in soil is unlike organic compounds in many aspects. For example, volatilization of metals from soil is not considered a realistic mechanism for contaminant migration and is not considered here. However, leaching and sorption will be considered.

Leaching of heavy metals from soil is controlled by numerous factors. The most important consideration for leaching of heavy metals is the chemical form (base metal or cation) present in the soil. The leaching of metals from soil is substantial if the metal exists as a soluble salt. Metallic salts have been identified as a component of such items as tracer ammunition, ignitor compositions, incendiary ammunition, flares, colored smoke and primer explosive compositions. In particular, barium nitrate, lead stearate, lead carbonate, and mercury fulminate are potential heavy metal salts or complexes which are components of ammunition that may have been tested or disposed of at SEDA. During the burning of these materials, a portion of these salts oxidize to their metallic oxide forms. In general, metal oxides are considered less likely to leach metallic ions than metallic salts. Upon contact with surface water or precipitation, the heavy metal salts may be dissolved, increasing their mobility and increasing the potential for leaching to the groundwater.

Heavy metals may also exist in the base metallic form as a component of the projectiles tested or disposed of at SEDA. Bullets are composed mainly of lead, which may contain trace amounts of cadmium and selenium. Metals which exist in metallic form, i.e., as bullets or projectiles, will tend to dissolve more slowly than the metallic salts.

Oxidation and reduction involves the change of the valence state of the metals and has a large influence on the other fate mechanisms. A good example of the variation in contamination fate due to oxidation and reduction changes is iron. Iron (Fe) normally exists in one of two valence states, +2 and +3 [Fe(II) and Fe(III)]. Fe(II) is far more soluble than Fe(III) and therefore has a greater mobility.

Soil pH is often correlated with potential metal migration. If the soil pH is greater than 6.5, most metals are fairly immobile, particularly those normally present as cations. At higher pH values, metals form insoluble carbonate and hydroxide complexes. Metals would be most mobile in highly acidic soil (pH of less than 5).

The surface soil at SEDA has pH values ranging from 5 to 8.4 (SCS, 1972). Subsurface soil has even higher pH values, with the data indicating values ranging from 7 to 9. Therefore, metals at SEDA would be expected to be present primarily in insoluble forms. A detailed evaluation of select metals (barium, copper, lead and mercury) is given below.

Barium is a highly reactive metal that occurs naturally only in the combined state. Most barium released to the environment from industrial sources is in forms that do not become widely dispersed. Barium in soil may be taken up to a small extent either by vegetation, or transported through soil with infiltration of precipitation. Barium is not very mobile in most soil systems. The higher the level of organic matter, the greater the adsorption. The presence of calcium carbonate will also limit mobility, since barium will form $BaCO_3$, an insoluble carbonate. In aquatic media, barium is likely to precipitate out of solution as an insoluble salt, or adsorb to suspended particulate matter. Sedimentation of suspended solids removes a large portion of the barium from surface waters. Barium in sediment is found largely in the form of barium sulfate. Bioconcentration in freshwater aquatic organisms is minimal.

Copper is considered to be among the more mobile of the heavy metals in surface environments. Seasonal fluctuations have been observed in surface water copper concentrations, with higher levels in fall and winter, and lower levels in the spring and summer. Copper is not expected to volatilize from water. Since copper is an essential nutrient, it is strongly accumulated by all plants and animals, but is probably not biomagnified. The degree of persistence of copper in soil depends on the soil characteristics and the forms of copper present. For example, in soil of low organic content, soluble copper compounds may move into groundwater at a significant rate. On the other hand, the presence of organic complexing agents may restrict movement in soil, and copper may be immobilized in the form of various inorganic complexes. Copper is not expected to volatilize from soil. Several processes determine the fate of copper in aquatic environments, these being: formation of complexes, especially with humic substances; sorption to hydrous metal oxides, clays, and organic materials; and bioaccumulation. Organic complexes of copper are more easily adsorbed on clay and other surfaces than the free form. The aquatic fate of copper is highly dependent on factors such as pH, oxidation-reduction potential, concentration of organic matter, and the presence of other metals. With regard to the latter, it has been demonstrated that co-precipitation of copper with hydrous oxides of iron effectively scavenges copper from solution, although in most surface waters organic materials prevail over inorganic ions in complexing copper.

Lead is extremely persistent in both water and soil. Environmental fate processes may transform one lead compound to another; however, lead is generally present in the +2 oxidation state, and will form lead oxides. It is largely associated with suspended solids and sediment in aquatic systems, and it occurs in relatively immobile forms in soil. Lead which has been released to soil may become airborne as a result of fugitive dust generation.

Elemental mercury is insoluble in water and binds tightly to soil particles giving it a relatively low mobility. Bacterial and fungal organisms in sediment are capable of methylating mercury. Methyl mercury which is soluble in water, is a mobile substance and can then be ingested or absorbed. Until altered by biological processes, the primary transport method for mercury is the erosion and transportation of soil and sediment. Mercury most likely exists at SEDA in the elemental state as a result of the testing or demolition of munitions containing mercury fuzes. Although a mercury salt, mercury fulminate, was used in the past as a priming explosive, it has not been commonly used since 1925 (Dunstan and Bell, 1972), and its environmental fate will not be considered at the site.

3.1.3.2 Explosive Compounds

Table 3-2 presents the information which will serve as a basis for understanding the likely environmental fate of explosives at SEDA. The chemical class of the compounds identified in Table 3-2 is considered to be semivolatile. This is based upon the high molecular weights of these compounds and their low vapor pressures, typical of most semivolatile compounds. The most volatile of the five explosives considered at this site is 2,6-dinitrotoluene (2,6 DNT), with a vapor pressure of 0.018 millimeters mercury (mm Hg). Compared to benzene, a volatile compound which has a vapor pressure of 95.2 mm Hg, it is apparent that volatilization of this compound is expected to be low, especially in soil which have a high clay content. Soil with a high clay content generally has a high, i.e. >50%, ratio of water filled to air filled porosity, therefore, there is a small amount of air space through which vapor can migrate. Compounds such as RDX and HMX have extremely low vapor pressures and would not volatilize through the soil. Consequently, volatilization of RDX and HMX are not expected to represent a significant environmental pathway.

The potential for explosives to leach to the groundwater is a complicated consideration and influenced by many factors such as solubility, cation exchange capacity, clay content and percolation rate. For this evaluation, solubility has been considered as the most representative parameter for leaching potential. Of the six explosives considered, the most soluble of the explosives are the di- and trinitrotoluenes. Their solubilities range from approximately 130 mg/l to 270 mg/l. These are similar to the solubilities of organic hydrocarbons such as toluene, (500 mg/l), or the xylenes, (150 mg/l). This range of solubilities is considered to represent a moderate degree of leaching potential. Compounds which would represent a high degree of leachibility, i.e., high solubility, would be methylene chloride, (20,000 mg/l), benzene (1780 mg/l) and TCE, (1100 mg/l). The solubilities of HMX and RDX are approximately four times less than that for the di- and trinitrotoluenes and therefore represent a smaller potential for leaching.

A review of the melting points of these compounds indicates that explosives are solids at room temperature and therefore would not migrate through soil as separate liquid phases. Instead, as precipitation interacts with these solid residues a small portion would dissolve or erode away. Complete leaching would require a long interaction period.

Field studies have confirmed the long-term potential for leaching of explosives into the groundwater. An evaluation of the critical parameters affecting the migration of explosives through soil indicated that at a former propellant manufacturing facility, 2,4-DNT leached from soil contaminated with smokeless powder for over 35 years after cessation of operations (USATHAMA, 1985). At another facility, leaching of 2,4-DNT into groundwater from former burning grounds has been documented to occur for as long as 10 years after operations had been discontinued.

Another factor to examine is the tendency of explosives compounds to adsorb to the soil. The compounds considered in this evaluation show K_{oc} values which range from approximately 100 to 500 mL/g. The SEDA site soil has been shown to possess a high percentage of fines including clay, thereby increasing the sorption potential of these compounds to the soil. As shown in Table 3-2, for the range of K_{oc} exhibited by explosives, i.e., 100-500 mL/g, these compounds would be considered intermediately mobile.

Environmental degradation of these parent organic compounds has been shown to occur by various investigators. The information available on this subject is substantial and a detailed discussion is beyond the scope of this document. However, a review of the available information indicates that nitroaromatics and nitroamines are susceptible to environmental transformations. Since some of the byproducts of these transformations may be environmentally persistent, there is a potential for concern.

Much of the available research has been conducted on the environmental transformation of TNT. A summary of the identified breakdown products resulting from environmental degradation of TNT and 2,4-DNT is presented in the Generic Installation RI/FS Workplan. The environmental fate of RDX is less defined than that of the other two compounds previously mentioned. An overview of the expected degradation pathways and the byproducts produced as a result of the environmental degradation of RDX is also presented in the Generic Installation RI/FS Workplan. Clearly, the breakdown byproducts which have been identified are diverse. Analytical methods have only recently been developed which are capable of accurately detecting these compounds. The widespread application of these analytical techniques are greatly limited by the availability of standards which are essential for the analyses. Responding to the need for accurate analytical procedures and recognizing that standards for every breakdown product are not available, USATHAMA has developed Method 8330. This method is intended for the analysis of explosive residues in water, soil and sediment.

3.1.3.3 Semivolatile Organic Compounds

The following information was obtained from the document, "Management and Manufactured Gas Plant Sites, Volume III, Risk Assessment," GRI, May 1988, GRI-87/0260.3.

PAH compounds have a high affinity for organic matter and low water solubility. Water solubility tends to decrease and affinity for organic material tends to increase with increasing molecular weight. Therefore, naphthalene is much more soluble in water than is benzo(a)pyrene. When present in soil or sediment, PAHs tend to remain bound to the soil particles and dissolve only slowly into groundwater or the overlying water column. Because of the high affinity for organic matter, the physical fate of the chemicals is usually controlled by the transport of particulates. Thus, soil, sediment and suspended particulate matter (in air) represent important media for the transport of the chemicals.

Because of their high affinity for organic matter, PAH compounds are readily taken up (bioaccumulated) by living organisms. However, organisms have the potential to metabolize the chemicals and to excrete the polar metabolites. The ability to do this varies among organisms. Fish appear to have well-developed systems for metabolizing the chemicals. The metabolites are excreted. Shellfish (bi-valves) appear to be less able to metabolize the compounds. As a result, while PAH compounds are seldom high in fish tissues, they can be high in shellfish tissues.

Several factors can degrade PAH compounds in the environment. Biodegradation on soil microorganisms is an important process affecting the concentrations of the chemicals in soil, sediment and water. Volatilization may also occur. This mechanism is effective for the lighter molecular weight compounds. However, the volatilization of higher molecular weight PAH compounds occurs slowly.

3.1.4 Data Summary and Conclusions

The Limited Sampling Program at SEAD-52 consisted of surface soil sampling and chemical analyses for explosive compounds. No previous sampling data were available for SEAD-52 prior to this sampling program. The results of the Limited Sampling Program at SEAD-52 were presented in the SWMU Classification Report (Parsons ES, September 1994). This section will summarize the data collected to date and draw conclusions as to the likely environmental impacts those constituents have made to the site.

Sampling at SEAD-52 focused upon surface soil (0-2") impacts in the immediate vicinity of Buildings 608, 611 and 612. This was based upon the premise that the principle source of the impacts in this area would be the soil in the areas where ammunition breakdown and maintenance were suspected to have been conducted. The results of the chemical analyses indicate impacts to surface soil from explosives, principally 2,4-dinitrotoluene, 2,4,6-trinitrotoluene and tetryl.

Based upon the results of the investigation conducted at SEAD-52, a threat to human health and the environment may exist due to the presence of explosives in the surface soil. No information exists concerning the potential for volatilization of contaminants from soil to air or for infiltration of contaminants from soil to groundwater. Additional data is required to further evaluate these pathways in the overall evaluation of risks.

3.2 PRELIMINARY IDENTIFICATION OF POTENTIAL RECEPTORS AND EXPOSURE SCENARIOS

This section will identify the source areas, release mechanisms, potential exposure pathways and the likely human and environmental receptors at SEAD-52 based upon the results of their conceptual site models, which were described in the previous section.

This section discusses the current understanding of site risks for SEAD-52 based upon the data gathered from the Limited Sampling Program. This information is used to assess whether sources of contamination, release mechanisms, exposure routes and receptor pathways developed in the conceptual site model for SEAD-52 are valid or if they may be eliminated from further consideration prior to conducting a risk assessment. Additionally, this information will determine what data are necessary to develop a better conceptual understanding of the site, in order that risk to human health and the environment can be determined, Applicable or Relevant and Appropriate Requirements (ARARs) can be defined and appropriate remedial actions can be developed.

This is a generic discussion. The future use scenario and the required degrees of cleanup will be proposed on a site-by-site basis as part of each feasibility study. The future plans for each site will be taken into account at that time. Currently, the Army has no plans to change the use of this facility or to transfer the ownership.

As of early July, the Base Realignment and Closure Act (BRAC) Commission voted to recommend closure of SEDA. Until the BRAC Commission recommendations are voted on by the President and the Congress, BRAC does not apply to SEDA and the installation will remain open.

The President must approve the entire list by July 15, 1995 at which time the list is forwarded to Congress. If Congress approves the recommendations, they will become public law on October 1, 1995. If BRAC applies to SEDA, future use of the sites will be determined by the Army. In accordance with BRAC regulations, the Army will perform any additional investigations and remedial actions to assure that any change in intended land use is protective of human health and the environment. However, not all sites at SEDA will be turned over for residential use.

At this time, the specific details for closure procedures, projected timetables of closure, discussion of the Army's future intention for the sites, and detailed account of notification methods to prospective purchasers are unavailable for inclusion in this Workplan. If it is decided that the base will be closed, then closure procedures will be obtained.

3.2.1 Potential Source Areas and Release Mechanisms

Based upon historical knowledge, the primary contaminant source area for SEAD-52 would be soil impacted by explosives resulting from handling of the ammunition powder and cleaning process during the ammunition breakdown.

Potential release mechanisms from these source areas are runoff and erosion to surface water and sediment and infiltration to groundwater. Wind may also release the impacted soil as fugitive dust, but because the area is paved and vegetated, this is not expected to be a significant release mechanism.

3.2.2 Potential Exposure Pathways and Receptors - Current Uses

The potential exposure pathways from sources to receptors based upon current and future use scenarios are shown in Figure 3-2. The potential for human exposure is directly affected by the accessibility to the site. Since SEAD-52 is within the Ammunition Breakdown Area, access is restricted.

There are two primary receptor populations for potential releases of contaminants from the Ammunition Breakdown Area near Buildings 608, 610, 611, and 612 at SEAD-52:

1. Current site workers and visitors to the site; and
2. Terrestrial biota on or near the Ammunition Breakdown area.

3.2.2.1 Ingestion and Dermal Exposure Due to Surface Water and Sediment

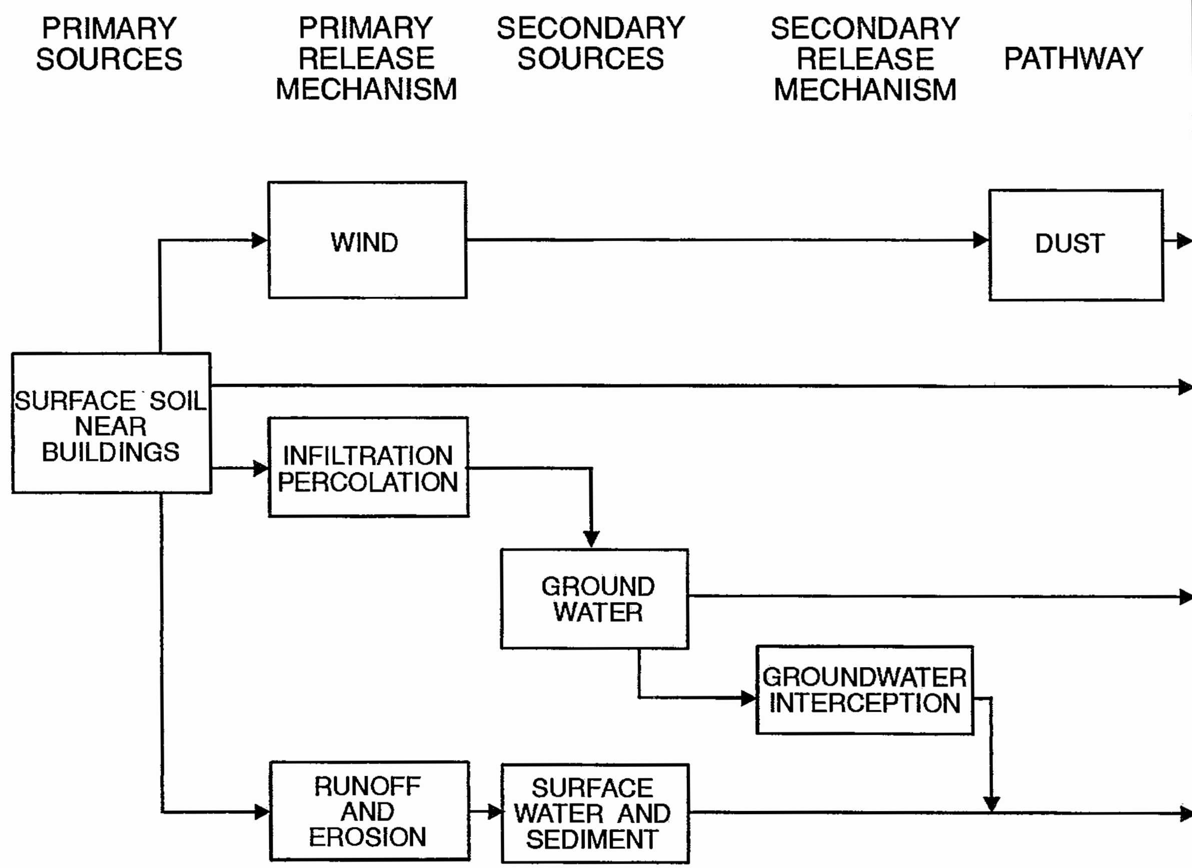
Current site workers and visitors could be exposed by way of ingestion or dermal contact to surface water or sediment in the drainage ditches. Terrestrial biota that ingest or come in contact with surface water or sediment in the drainage ditches may be exposed. Aquatic biota in the drainage ditches may also be exposed.

3.2.2.2 Incidental Soil Ingestion and Dermal Contact

Incidental ingestion of, and dermal contact with, impacted soil is a potential exposure pathway for current site workers, visitors, and terrestrial biota.

3.2.2.3 Groundwater Ingestion, Inhalation, and Dermal Contact

The groundwater at SEAD-52 is not used as a drinking water source. It is not anticipated that there will be direct exposure to the groundwater from the site under current uses to current site workers, visitors, or terrestrial biota.



EXPOSURE ROUTE	RECEPTOR: HUMAN – FUTURE ON-SITE RESIDENT	RECEPTOR: HUMAN – CURRENT SITE WORKERS AND VISITORS	RECEPTOR: BIOTA – TERRESTRIAL	RECEPTOR: BIOTA – AQUATIC
INHALATION	●	●	●	NA
DERMAL CONTACT	●	●	●	NA
INGESTION	●	●	●	NA
DERMAL CONTACT	●	●	●	NA
INGESTION	●	NA	NA	NA
INHALATION	●	NA	NA	NA
DERMAL CONTACT	●	NA	NA	NA
INGESTION	●	●	●	●
DERMAL CONTACT	●	●	●	●

● PATHWAY CONSIDERED TO POSE POTENTIAL RISK

NA NOT APPLICABLE RECEPTOR

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA

DEPT. ENVIRONMENTAL ENGINEERING | DWG NO. 726510-02001

FIGURE 3-2
EXPOSURE PATHWAY SUMMARY

SCALE NA | DATE JULY 1995

H:\ENG\SENECA\SCOPING\SEAD52\52EXP.CDR

3.2.2.4 Dust Inhalation and Dermal Contact

Contaminated fugitive dust may be released from SEAD-52 due to high winds, vehicle traffic through the area, or disturbance of the soil during site use. The receptors of fugitive dust releases by way of inhalation and dermal contact are current site workers, visitors, and terrestrial biota. Because the site is vegetated and paved, the amount of fugitive dust is not expected to be significant.

3.2.3 Potential Exposure Pathways and Receptors - Future Uses

Under current site conditions, access to the site is limited. While strict land use control cannot be ensured in future uses, limitations may be imposed through zoning restrictions or deed restrictions. Potential future uses of the site include light industrial and unrestricted residential or other private development.

For future uses of SEAD-52, the receptor population that would differ from the above-mentioned receptors would be on-site residents. For the ingestion of soil, surface water, and sediment, and dermal contact with surface water and sediment, the receptors would be primarily children. Dermal contact with soil; ingestion of, inhalation of, and dermal contact with groundwater; and inhalation of and dermal contact with fugitive dust are potential exposure pathways for all future on-site residents.

The numerical assumptions that will be used in the risk assessment for the future use exposure scenario are listed in Table 4-1 of the Generic Installation RI/FS Workplan.

3.3 SCOPING OF POTENTIAL REMEDIAL ACTION ALTERNATIVES

A comprehensive list of remedial response action alternatives are discussed in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

Based upon sampling data gathered during the Limited Sampling Program, the media of concern at SEAD-52 for protection of human health and the environment and compliance with ARARs is surface soil (0-2") containing explosives. Human health concerns for SEAD-52 would focus primarily on dust inhalation and dermal contact with surface soil for current site usage.

3.4 PRELIMINARY IDENTIFICATION OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

A comprehensive list of ARARs is discussed in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

Identification and refinement of ARARs will be performed during the RI/FS process. As additional data are collected regarding the nature and extent of contamination, site specific conditions, and potential use of various remedial technologies, additional ARARs will be selected and existing ARARs will be reviewed for their applicability.

3.5 DATA QUALITY OBJECTIVES (DQOs)

DQOs are discussed in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

Any further investigations conducted at SEAD-52, either as part of this RI, or additional work, will conform with all the stated DQOs. Sampling of groundwater, soil, sediment and surface water will generally require Level IV quality data.

3.6 DATA GAPS AND DATA NEEDS

The Limited Sampling Program at SEAD-52 was conducted to gain a preliminary understanding of the nature and extent of impacts to the site from explosive compounds. The data needs for SEAD-52 are a result of the need to meet the DQOs identified in the Generic Installation RI/FS Workplan. By media, these needs are:

Groundwater Data

- Install and sample overburden monitoring wells in the till/weathered shale aquifer. Determine whether groundwater has been impacted by constituents on-site and establish concentrations in the aquifer with collected data.
- In addition to assessing the ground water quality, determine hydrologic properties of the aquifer hydraulic conductivity) to assess contaminant migration and potential remedial actions.
- Establish database to determine compliance with ARARs, to perform baseline risk assessment and to develop remedial action alternatives.

Surface Water/Sediment Data

- Establish potential for contamination of off-site surface water and sediment.
- Assess the sorptive potential of the sediment by performing total organic carbon (TOC) and grain size analysis on sediment samples.
- Establish database to determine compliance with ARARs, to perform baseline risk assessment and to develop remedial action alternatives.

Soil Data

- Verify surface soil sampling results from the Limited Sampling Program.
- Determine the nature and extent of contamination across the site. Collect samples for risk evaluation.
- Establish potential for soil contamination to infiltrate groundwater.
- Assess the sorptive potential of the soil by performing TOC and grain size analysis on soil samples.
- Establish database to determine compliance with ARARs, to perform baseline risk assessment and to develop remedial action alternatives.

Ecological Data

- Document visual observations discriminating between obviously and potentially impacted and non-impacted areas. This will determine where and if there is a need for further investigation.
- Establish database to determine compliance with ARARs, to perform baseline risk assessment and to develop remedial action alternatives.

4.0 TASK PLAN FOR THE REMEDIAL INVESTIGATION (RI)

This section describes the tasks required for completion of the Remedial Investigation (RI) at SEAD-52. These include the following:

- Pre-field Activities
- Field Investigations
- Data Reduction, Interpretation and Assessment
- Data Reporting
- Task Plan Summary

4.1 PRE-FIELD ACTIVITIES

The pre-field activities include the following:

- A site inspection to familiarize key project personnel with site conditions and finalize direction and scope of field activities.
- A comprehensive review of Health & Safety Plan with field team members to ensure that site hazards and preventive and protective measures are completely understood.
- Inspection and calibration of all equipment necessary for field activities to ensure proper functioning and usage.
- A comprehensive review of sampling and work procedures with field team members.

4.2 FIELD INVESTIGATIONS AT SEAD-52

The following field investigations will be performed to complete the RI at SEAD-52:

- Soil Investigation
- Surface Water and Sediment Investigation
- Groundwater Investigation
- Ecological Investigation
- Surveying

These investigations are described in the following sections.

4.2.1. Soil Investigations

The purpose of the soil investigation program at SEAD-52 is to:

- Determine the extent of surface and subsurface soil impacts exceeding TAGM values,
- Locate areas for potential removal actions,
- Provide database for baseline risk assessment, and
- Provide a database for the feasibility study and scoping of remedial actions.

The sampling program will consist of surface and subsurface soil sampling.

The results of the Limited Sampling Program soil investigation, which was summarized previously in the SWMU Classification Report (Parsons ES, September 1994) and in Section 3.1.2.3 of this Project Scoping Plan, indicate that the surface soil at SEAD-52 has been impacted by explosives.

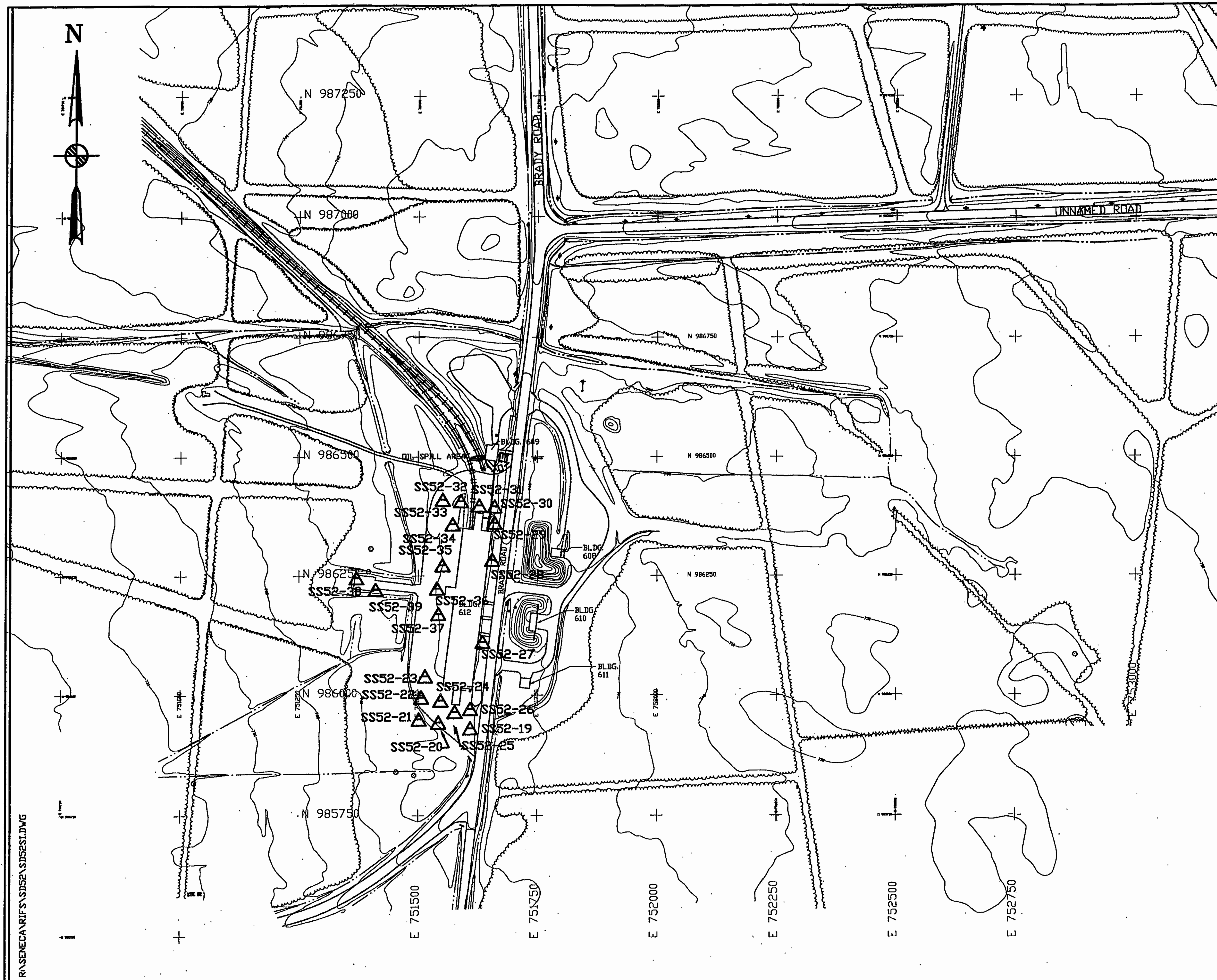
4.2.1.1 Surface Soil Sampling

Figure 4-1 shows the locations of the proposed surface soil samples (0-2") to be collected. A total of 21 surface soil samples will be collected around the perimeter of Building 612 at SEAD-52. These samples are intended to determine if there is a wide distribution of impacts to surface soil at the site. These samples will be spaced approximately 40 feet apart.

Surface soil sampling procedures are described in Appendix A, Field Sampling and Analysis Plan. The samples will be tested according to the analyses specified in Section 4.2.5 Analytical Program.

4.2.1.2 Subsurface Soils Sampling

A total of 12 soil borings will be completed at SEAD-52 as shown in Figure 4-2. Three (3) of the soil borings will be completed as monitoring wells and screened across the aquifer. The purpose of the soil borings will be to observe subsurface soils, to measure bedrock elevation, and to obtain soil samples for chemical analysis. These data will also be used to assess the potential for contaminant migration to groundwater from the soil.



LEGEND

MINOR WATERWAY

MAJOR WATERWAY

FENCE

UNPAVED ROAD

BRUSH LINE

LANDFILL EXTENT

RAILROAD

760 GROUND SURFACE ELEVATION CONTOUR

ROAD SIGN

DECIDUOUS TREE

GUIDE POST

FIRE HYDRANT

MANHOLE

COORDINATE GRID (250' GRID)

POLE

UTILITY BOX

MAILBOX/RR SIGNAL

OVERHEAD UTILITY POLE

SURVEY MONUMENT

PROPOSED SURFACE SOIL SAMPLE LOCATIONS

100 0 100 200

(feet)

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

RI/FS PROJECT SCOPING PLAN

SEAD-52 AMMUNITION BREAKDOWN AREA

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No.

FIGURE 4-1

LOCATION OF PROPOSED SURFACE SOIL SAMPLES

SCALE 1" = 200' | DATE JULY 1995 | REV A

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY
RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No.

FIGURE 4-2
LOCATION OF PROPOSED SOIL BORINGS AND MONITORING WELLS

SCALE 1" = 200' | DATE JULY 1995 | REV A

Soil borings will be performed by the continuous split-spoon method. Samples will be collected every two feet from the ground surface to the bottom of the boring. At each boring location a 0-2" surface soil sample will be collected and submitted for chemical testing. Two subsurface soil samples will also be collected from each soil boring to be submitted for chemical testing. The criteria for the selection of the subsurface soil samples submitted to the lab for chemical testing is provided in Appendix A, Field Sampling and Analysis Plan. Each soil boring will be drilled until auger refusal is encountered. Auger refusal for this project is defined in Appendix A, Field Sampling and Analysis Plan.

Additional soil samples will be collected from two soil boring locations and analyzed for grain size, total organic carbon, cation exchange capacity, pH, and density. The two soil borings will be chosen at random from the twelve soil borings that are proposed. At the chosen soil boring locations, three samples will be collected: one from near the surface, one from below the water table and one intermediate sample.

4.2.1.3 Soil Sampling Summary

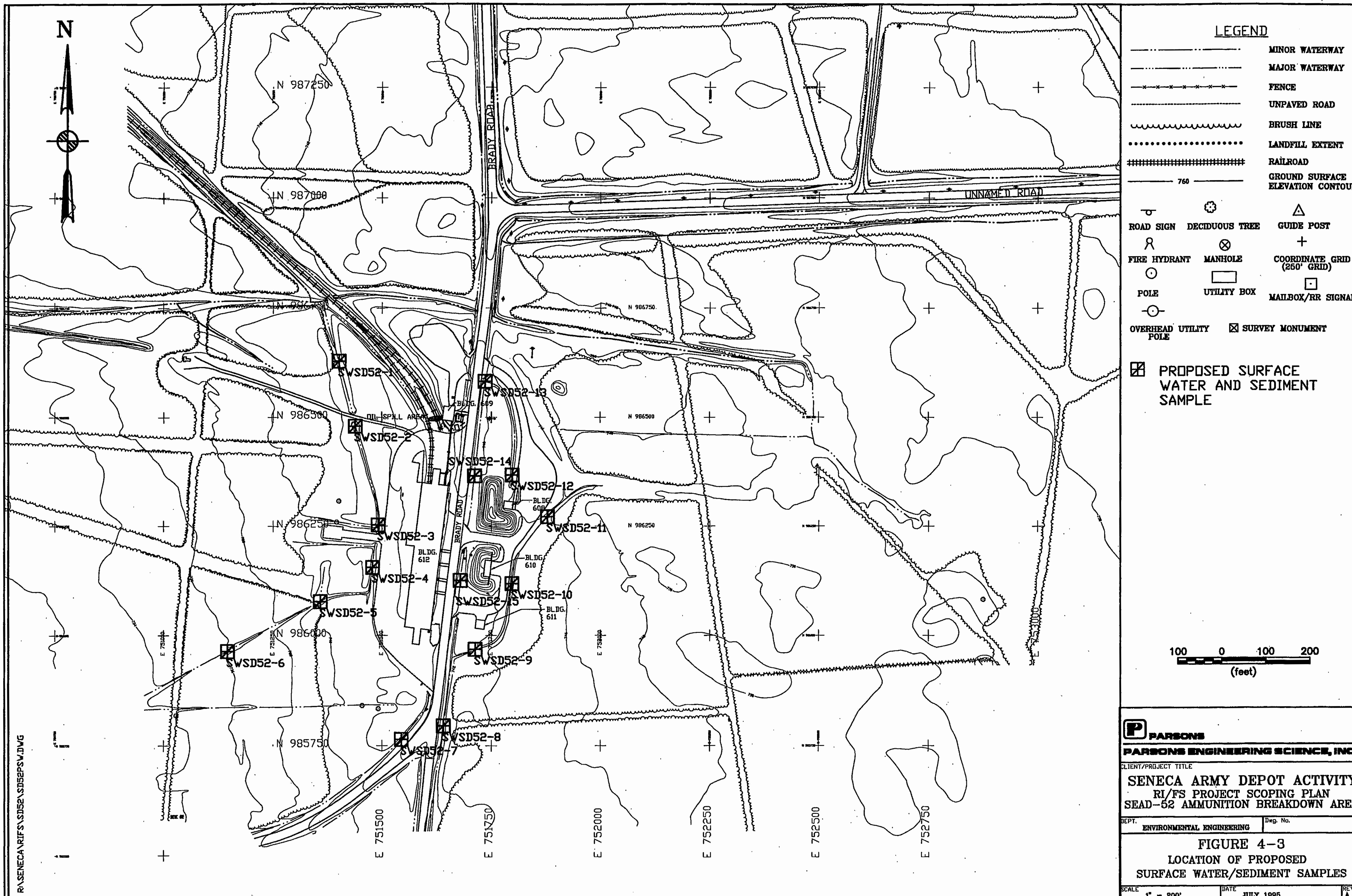
A total of twenty-four (24) subsurface soil samples will be collected from the 12 soil borings. Thirty-three (33) surface soil samples will be collected. Twenty-one (21) will be collected around the perimeter of Building 612 and twelve (12) will be collected from each soil boring location. The soil sampling procedures are described in Appendix A, Field Sampling and Analysis Plan.

The soil samples will be tested according to the analyses specified in section 4.2.5, Analytical Program.

4.2.2 Surface Water and Sediment Investigation

Surface water and sediment samples will be collected in areas of SEAD-52 that have the potential for acting as an exposure pathway or for transporting contaminants off-site.

A total of fifteen (15) surface water and sediment samples will be collected from the drainage ditches that flow from SEAD-52. The approximate locations of these surface water and sediment samples are shown in Figure 4-3. Surface water and sediment sampling will occur during or immediately after a rainstorm when there is water in the drainage channels.



PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY
RI/FS PROJECT SCOPING PLAN
SEAD-52 AMMUNITION BREAKDOWN AREA

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No.

FIGURE 4-3
LOCATION OF PROPOSED SURFACE WATER/SEDIMENT SAMPLES

SCALE 1" = 200' | DATE JULY 1995 | REV A

No standing water bodies are known to exist at SEAD-52, so the site will be carefully inspected for other bodies of water influenced by runoff from SEAD-52. If standing water is located at SEAD-52, up to 2 additional surface water and sediment samples will be collected from these areas.

These data will be used to determine if there is a surface water or sediment exposure pathway at SEAD-52. If concentrations exceeding applicable guidelines are present, the data will be used to perform a baseline risk assessment for this exposure pathway. The surface water and sediment sampling procedures are described in Appendix A, Field Sample and Analysis.

The surface water and sediment samples will be tested according to the analyses described in section 4.2.5, Analytical Program.

4.2.3 Groundwater Investigation

The goals of the groundwater investigation during the RI are to determine the extent of groundwater contamination, to characterize the aquifer and to confirm the groundwater flow direction. To accomplish this, three (3) monitoring wells will be installed at the approximate locations shown in Figure 4-2. All wells will be screened in the saturated overburden overlying the shale bedrock.

The groundwater flow direction was determined to be to the north-northwest at SEAD-60, which is located 150 feet to the north of SEAD-52. Groundwater flow is assumed to be in the same direction at SEAD-52, and this was used as the basis for the proposed locations of the 3 monitoring wells.

Monitoring well installation and development procedures for overburden wells are described in Appendix A, Field Sampling and Analysis Plan. All wells will be properly developed prior to sampling. Groundwater Sampling procedures are described in Appendix A, Field Sampling and Analysis Plan.

Two separate rounds of groundwater sampling will be performed. The groundwater samples will be tested according to the analyses described in section 4.2.5, Analytical Program.

Aquifer testing will be performed at the 3 monitoring wells. In-situ hydraulic conductivity tests will be performed on the monitoring wells using either a rising or falling head test.

Three rounds of water levels will be measured at each of the wells at SEAD-52 to further define the groundwater flow at the site. Water levels will be measured before well development and before the first and second rounds of groundwater sampling. The time period between the first and second rounds of sampling will be three months in order to characterize seasonal changes in the groundwater levels.

Procedures for in-situ conductivity tests and water level measurements are outlined in Appendix A, Field Sampling and Analysis Plan.

4.2.4 Ecological Investigation

The following procedure for the ecological investigation was developed from the New York State Department of Environmental Conservation (NYSDEC) Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (1994). The purpose of the ecological investigation is to determine if aquatic and terrestrial resources have been affected by a release of contaminants from the site. The investigation will be completed in two parts. The first part will be the site description, which will involve the accumulation of data describing the physical characteristics of the site, as well as the identification of aquatic and terrestrial resources present or expected to be present at the site. The second part will be the contaminant-specific impact analysis, which involves the determination of whether the identified aquatic and terrestrial resources have been impacted by contaminants that have been released at the site. The second part of the ecological investigation is dependent upon the chemical analysis data obtained for the RI.

4.2.4.1 Site Description

The purpose of the site description is to determine whether aquatic and terrestrial resources are present at the site and if they were present at the site prior to contaminant introduction. If they were present prior to contaminant introduction, the appropriate information will be provided to design a remedial investigation of the resources. The information to be gathered includes site maps, descriptions of aquatic and terrestrial resources at the site, the assessment of the value of the aquatic and terrestrial resources, and the appropriate contaminant-specific and site-specific regulatory criteria applicable to the remediation of the identified aquatic and terrestrial resources.

A topographic map showing the site and documented aquatic and terrestrial resources within a two mile radius from the site will be obtained. The aquatic and terrestrial resources of concern are Significant Habitats as defined by the New York State Natural Heritage Program; habitats supporting endangered, threatened or rare species or species of concern; regulated wetlands; wild and scenic rivers; significant coastal zones; streams; lakes; and other major resources.

A map showing the major vegetative communities within a half mile radius of the site will be developed. The major vegetative communities will include wetlands, aquatic habitats, NYSDEC Significant Habitats, and areas of special concern. These covertypes will be identified using the NYSDEC Natural Heritage Program descriptions and classifications of natural communities.

To describe the covertypes at the site, the abundance, distribution, and density of the typical vegetative species will be identified. To describe the aquatic habitats at the site, the abundance and distribution of aquatic vegetation will be identified. The physical characteristics of the aquatic habitats will also be described and will include parameters such as the water chemistry, water temperature, dissolved oxygen content, depth, sediment chemistry, discharge, flow rate, gradient, stream-bed morphology, and stream classification.

The aquatic and terrestrial species that are expected to be associated with each covertype and aquatic habitat will be determined. In particular, endangered, threatened and rare species, as well as species of concern, will be identified. Alterations in biota, such as reduced vegetation growth or quality will be described. Alterations in, or absence of, the expected distribution or assemblages of wildlife will be described.

A qualitative assessment will be conducted evaluating the ability of the area within a half mile of the site to provide a habitat for aquatic and terrestrial species. The factors that will be considered will include the species' food requirements and the seasonal cover, bedding sites, breeding sites and roosting sites that the habitats provide.

The current and potential human use of the aquatic and terrestrial resources of the site and the area within a half mile of the site will be assessed. In addition to assessing this area, documented resources within two miles of the site and downstream of the site that are potentially affected by contaminants will also be assessed. Human use of the resources that will be considered will be activities such as hunting, fishing, wildlife observation, scientific studies, agriculture, forestry, and other recreational and economic activities.

The appropriate regulatory criteria will be identified for the remediation of aquatic and terrestrial resources and will include both site-specific and contaminant-specific criteria.

4.2.4.2 Contaminant-Specific Impact Analysis

Information from the site description developed in Section 4.2.4.1 and from the characterization of the contaminants at the site developed from the results of the RI will be used to assess the impacts of contaminants on aquatic and terrestrial resources. The impact analysis will involve three steps, each using progressively more specific information and fewer conservative assumptions and will depend upon the conclusion reached at the previous step regarding the degree of impact. If minimal impact can be demonstrated at a specific step, additional steps will not be conducted.

Pathway Analysis

A pathway analysis will be performed identifying aquatic and terrestrial resources, contaminants of concern and potential pathways of contaminant migration and exposure. After performing the pathway analysis, if no significant resources or potential pathways are present, or if results from field studies show that contaminants have not migrated to a resource along a potential pathway, the impact on aquatic and terrestrial resources will be considered to be minimal and additional impact analyses will not be performed.

Criteria-Specific Analysis

Presuming that the presence of contaminated resources and pathways of migration of site-related contaminants has been established, the contaminant levels identified in the field investigation will be compared with available numerical criteria or criteria developed according to methods established as part of the criteria. If contaminant levels are below criteria, the impact on resources will be considered to be minimal and additional impact analyses will not be performed. If numerical criteria are exceeded or if they do not exist and cannot be developed, an analysis of the toxicological effects will be performed.

Analysis of Toxicological Effects

The analysis of toxicological effects is based on the assumption that the presence of contaminated resources and pathways of migration of site-related contaminants has been established. The purpose of the analysis of toxicological effects is to assess the degree to which contaminants have affected the productivity of a population, a community, or an ecosystem and the diversity of species assemblages, species communities or an entire ecosystem through direct toxicological and indirect ecological effects.

A number of approaches are available to conduct an analysis of toxicological effects. One or more of the four following approaches will be used to assess the toxicological effects.

- **Indicator Species Analysis**–A toxicological analysis for a indicator species will be used if the ecology of the resource and the exposure scenarios are simple. This approach assumes that exposure to contaminants is continuous throughout the entire life cycle and does not vary among individuals.

- **Population Analysis**–A population level analysis is relevant to and will be used for the evaluation of chronic toxicological effects of contaminants to an entire population or to the acute toxicological effect of contaminant exposure limited to specific classes of organisms within a population.

- **Community Analysis**– A community with highly interdependent species including highly specialized predators, highly competitive species, or communities whose composition and diversity is dependent on a key-stone species, will be analyzed for alternations in diversity due to contaminant exposure.

- **Ecosystem Analysis**–If contaminants are expected to uniformly affect physiological processes that are associated with energy transformation within a specific trophic level, an analysis of the effects of contaminant exposure on trophic structure and trophic function within an ecosystem will be performed. Bioconcentration, bioaccumulation, biomagnification, etc., are concepts that may be used to evaluate the potential effects of contaminant transfer on trophic dynamics.

4.2.5 Analytical Program

A total of 57 soil samples, 6 groundwater samples and 15 surface water and sediment samples will be collected from SEAD-52 for analysis. All of these samples will be analyzed for the following: Target Compound List (TCL) volatile organic compounds, (EPA Method 524.2 on groundwater), SVOCs, pesticides/polychlorinated biphenyls (PCBs), Target Analyte List (TAL) metals and cyanide according to the NYSDEC Contract Laboratory Program (CLP) Statement of Work (SOW), explosive compounds by EPA Method 8330 and nitrate-nitrogen by EPA Method 353.2. Additional analyses to be performed on specific media are provided below.

The 6 groundwater samples will be analyzed for volatile organic compounds by EPA Method 524.2. The 30 surface water samples will also be analyzed for pH, hardness, TOC, total suspended solids, total dissolved solids, alkalinity, ammonia, nitrate/nitrite, phosphate, and turbidity.

The 15 sediment samples will also be analyzed for TOC, grain size distribution (including the distribution within the silt and clay size fractions), cation exchange capacity, pH, and density.

Six (6) subsurface samples from two soil boring locations will be tested for TOC, grain size distribution (including the distribution within the silt and clay size fraction), cation exchange capacity, pH and density.

Quality Assurance/Quality Control (QA/QC) sampling requirements are described in Section 5.3 of Appendix C of the Generic Installation RI/FS workplan.

Analyses for all of the media to be sampled are summarized in Table 4-1. A detailed description of these methods, as well as lists of each compound included in each of the categories is presented in Appendix C, Chemical Data Acquisition Plan.

4.2.6 Handling of UXOs

Due to the danger of unexploded ordnance (UXO) at SEAD-52, UXO personnel will be on-site to monitor the subsurface explorations and sampling. UXO personnel will decide when remote drilling and site clearance will be necessary based on site conditions. The following represents the proposed procedures for handling UXOs and explosives at SEAD-52.

Table 4-1

Summary of Sampling and Analyses
Seneca Army Depot Activity
SEAD-52

MEDIA	VOCs TCL NYSDEC CLP	VOCs Method 524.2	SVOCs TCL NYSDEC CLP	Pesticides/PCBs TCL NYSDEC CLP	Metals TAL NYSDEC CLP	Explosives Method 8330	Nitrate-Nitrogen Method 353.2	Grain Size* ASTM or Similar Method	pH Method 150.1	Hardness Method 130.2	TOC Method 415.1
Soil Surface	33	0	33	33	33	33	33	0	0	0	0
Soil Subsurface	24	0	24	24	24	24	24	6	0	0	6
Groundwater	0	6	6	6	6	6	6	0	0	0	0
Surface water	15	0	15	15	15	15	15	0	15	15	15
Sediment	15	0	15	15	15	15	15	15	0	0	15

Notes:
1) * Grain size analysis includes determination of the grain size distribution within the silt and clay size fraction.

During drilling operation, a UXO Safety Officer will monitor the work. UXO personnel will also clear areas for field personnel to walk on-site, to obtain surface soil, surface water, sediment, and groundwater samples.

UXO clearance procedures are discussed in detail in Appendix A, Field Sampling and Analysis Plan and Appendix B, Health and Safety Plan.

4.2.7 Surveying

Surveying will be performed at SEAD-52 to provide data to be used for the following purposes:

- Map the direction and compute the velocity of groundwater movement
- Locate all the environmental sampling points
- Serve as the basis for volume estimates of impacted soil and sediment which may require a remedial action
- Map the extent of any impacted groundwater above established ARAR limits.

The location, identification, coordinates and elevations of all the control points recovered and/or established at the site and all of the soil borings, monitoring wells (new and existing) and all surface water and sediment sampling points will be plotted on a topographic map to show their location with respect to surface features within the project area.

Site surveys will be performed in accordance with good land surveying practices and will conform to all pertinent state, federal, and USCOE laws and regulations governing land surveying. The surveyor shall be licensed and registered in the state of New York.

A detailed discussion of the site field survey requirements is presented in Appendix A, Field Sampling and Analysis Plan of the Generic Installation RI/FS Workplan.

4.3 DATA REDUCTION, ASSESSMENT AND INTERPRETATION

Data reduction, assessment, and interpretation is discussed in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

4.4 BASELINE RISK ASSESSMENT

The baseline risk assessment is discussed in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

4.5 DATA REPORTING

Data reporting is discussed in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

4.6 TASK PLAN SUMMARY FOR THE RI

General information about the Task Plan Summary is given in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

5.0 TASK PLAN FOR THE FEASIBILITY STUDY (FS)

The task plan for the Feasibility Study is given in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

5.1 DEVELOPMENT OF REMEDIAL ACTION OBJECTIVES

A discussion of the development of remedial action objectives for the FS is given in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

5.2 DEVELOPMENT OF REMEDIAL ACTION ALTERNATIVES

A discussion of the development of remedial action alternatives for the FS is given in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

5.3 SCREENING OF REMEDIAL ACTION ALTERNATIVES

A discussion of the development of remedial action objectives for the FS is given in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

5.4 DETAILED ANALYSIS OF REMEDIAL ACTION ALTERNATIVES

A discussion of the detailed analysis of remedial action alternatives for the FS is given in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

5.5 TASK PLAN SUMMARY FOR THE FS

The task plan summary for the FS is given in the Generic Installation RI/FS workplan that serves as a supplement to this RI/FS Project Scoping Plan.

6.0 PLANS AND MANAGEMENT

The purpose of this Work Plan is to present and describe the activities that will be required for the site remedial investigation/feasibility studies at SEAD-52. The Field Sampling and Analyses Plan (Appendix A), details procedures which will be used during the field activities. Included in this plan are procedures for sampling soil, sediments, surface water, fish, shellfish and groundwater. Also included in this plan are procedures for developing and installing monitoring wells, measuring water levels and packaging and shipment of samples.

The Health and Safety Plan (Appendix B) details procedures to be followed during field activities to protect personnel involved in the field program.

The Chemical Data Acquisition Plan (Appendix C) describes the procedures to be implemented to assure the collection of valid data. It also describes the laboratory and field analytical procedures which will be utilized during the RI.

6.1 SCHEDULING

The proposed schedule for performing the RI/FS at SEAD-52 is presented in Figures 6-1 and 6-2.

6.2 STAFFING

A discussion of the staffing for the RI/FS to be conducted at SEAD-52 is presented in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan.

Table 6-1
SEAD-52 RI Field Investigation Schedule
Seneca Army Depot Activity

8/3/1995

	1996			1997			
	October	November	December	January	February	March	April
Mark Sample Locations	9/30						
Surface Water / Sediment Sampling and Runoff Delineation	10/1 – 10/4						
Ecological Investigation	10/5 – 10/14	11/7 – 11/9					
Surface Soil Sampling	10/15 – 10/21						
Soil Borings	10/22 – 10/30						
Monitoring Well Installation and Development	10/31 –	11/2					
Groundwater Sampling		11/18 – 11/19			2/4 – 2/5		
Water Level Measurements		11/11, 11/18			2/4		
Apuifer Testing		11/20					
Sample Analysis	10/2 –	11/8; 11/19 – 11/29			2/5 – 2/12		
Data Validation		11/11 – 11/27	12/2		2/13		
Surveying		11/11 – 11/15					
Field Activity Reports	10/8 ↓	11/5 ↓	12/3 ↓		2/21 ↓		
Field Sampling Letter Report						3/12 ↓	

Legend: △—△ Task Length; ▽ Comments Due; ↓ Parsons ES Deliverable Due

Table 6-2
SEAD-52 RI/FS Schedule: Risk Assessment and Reports
Seneca Army Depot Activity

8/2/1995

1997

Activity	M	A	M	J	J	A	S	O	N	D
Preliminary Site Characterization Summary	3/3 – 3/31									
Baseline Risk Assessment	3/3 – 3/31									
Preparation of RI Report								10/1	Draft 11/25	
Preparation of FS Report										
Post FS Support				Draft ROD 6/30						
Monthly Reports	3/7	4/4	5/2, 5/30	6/27	7/24	8/21	9/19	10/16	11/13	12/11
Quarterly Reports	3/31			6/30			9/30			12/31

1998

Activity	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary Site Characterization Summary												
Baseline Risk Assessment												
Preparation of RI Report	1/8	Draft Final 2/8	Final 3/10									
Preparation of FS Report					5/1	Draft 6/8		Draft Final 8/22	Final 9/21			
Post FS Support										10/1	Draft PRAP 11/20	
Monthly Reports	1/9	2/6	3/6	4/3	5/1, 5/29	6/26	7/23	8/20	9/17	10/15	11/12	12/10
Quarterly Reports			3/31			6/30			9/30			12/31

1999

Activity	J	F	M	A	M
Preliminary Site Characterization Summary					
Baseline Risk Assessment					
Preparation of RI Report					
Preparation of FS Report					
Post FS Support			3/1		Draft ROD 5/4
Monthly Reports	1/8	2/5	3/5	4/2, 4/30	5/28
Quarterly Reports			3/31		

▲ ▲ Task Length ▼ Comments Due ⬇ Parsons ES Deliverable Due

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APPENDIX A

FIELD SAMPLING AND ANALYSIS PLAN

Appendix A information is contained in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan

APPENDIX C

CHEMICAL DATA AQUISITION PLAN

Appendix C information is contained in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan

APPENDIX D

UNITED STATES DEPARTMENT OF INTERIOR FISH AND WILDLIFE SERVICES ENDAGERED AND THREATENED SPECIES LETTER

Appendix D information is contained in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan

APPENDIX E

RESPONSE TO REVIEW COMMENTS

Appendix E information is contained in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan

APPENDIX F

SCOPE OF WORK

Appendix F information is contained in the Generic Installation RI/FS Workplan that serves as a supplement to this RI/FS Project Scoping Plan