DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER

MAR 2 2 2013

MEMORANDUM FOR: U.S. Environmental Protection Agency – Region 2
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New York State Department of Environmental Conservation
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New York State Department of Health
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Bureau of Environmental Exposure Investigation
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FROM: AFCEC/CZRB - Griffiss
Building 45
706 Brooks Road
Rome, New York 13441

SUBJECT: Final Site Closure Plan
Land use Control/Institutional Control Sites
DP012, DP013, DP015, SS024, SD050, AOI 72, and Building 211
Former Griffiss Air Force Base, Rome, New York
Contract No. FA8903-10-D-8595; Delivery Order No. 0014
Revision 2.0, March 2013

1. Enclosed is the "Final Site Closure Plan for Land use Control/Institutional Control Sites (DP012, DP013, DP015, SS024, SD050, AOI 72, and Building 211)".

2. The overall objective of this effort is to obtain unrestricted use and final site closure all of the AOCs.

3. Request that comments or concerns be provided by April 23, 2013 so that Federal Facilitiy Agreement schedules, project schedules and performance milestones can be maintained.

4. Should you have any questions or concerns please contact me at 315 356 0810 ex 202.

MICHAEL F. MCDERMOTT
Air Force Civil Engineer Center
AFCEC/CZRB Griffiss

Enclosures: As noted

FINAL

SITE CLOSURE PLANS
LAND USE CONTROL/INSTITUTIONAL CONTROL SITES
(DP012, DP013, DP015, SS024, SD050, AOI 72, and BUILDING 211)

FORMER GRIFFISS AIR FORCE BASE SITE
ROME, NEW YORK

Prepared for:

Air Force Civil Engineer Center
Building 770
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Rome, New York 13441

Prepared by:

FPM Remediations Inc.
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Contract Number FA8903-10-D-8595/
Delivery Order 0014

March 2013

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LIST OF ACRONYMS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AOC	Area of Concern
AOI	Area of Interest
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm^3	Centimeter cubed
COC	Contaminant of concern
DGM	Digital Geophysical Mapping
DGPS	Digital Global Positioning System
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FDA	Fire Demonstration Area
FPM	FPM Remediations, Inc.
ft	Feet
GIS	Geographic Information System
GPR	Ground Penetrating Radar
GSSI	Geophysical Survey Systems, Inc.
IRA	Interim Remedial Action
LTM	Long Term Monitoring
LUC/IC	Land-Use Control/Institutional Control
m	Meter
µg	Microgram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OTH	Other Site

LIST OF ACRONYMS (continued)

PCB	Polychlorinated biphenyl
PID	Photoionization detector
RI	Remedial Investigation
ROD	Records of Decision
SCO	Site Cleanup Objective
SOP	Standard Operating Procedure
SVOC	Semi-volatile organic compound
UFP QAPP	Uniform Federal Policy Quality Assurance Project Plan
VOC	Volatile organic compound

1.0 INTRODUCTION

FPM Remediations, Inc. (FPM), in association with CAPE, Inc., under contract with the Air Force Civil Engineer Center (AFCEC), is conducting site closure activities at the Land use Control/Institutional Control (LUC/IC) Sites DP012 Building 301 Area of Concern (AOC), DP013 Building 255 AOC, DP015 Building 219 AOC, SS024 Fire Demonstration Area AOC, SD050 Building 214 AOC, Area of Interest (AOI) 72, and the Building 211 site at the former Griffiss Air Force Base (AFB) in Rome, New York. These sites are illustrated on Figure 1. The intent of these activities is to obtain unrestricted residential use and final site closure at the sites.

1.1 Purpose

The Griffiss Local Redevelopment Agency has implemented reuse and redevelopment for the former Griffiss AFB that includes a mixture of commercial, industrial and airport use. The Air Force's initiative to reduce its long-term environmental liabilities and life cycle costs through site closure creates an opportunity to optimize benefits to the local public, the federal government, and the environment. These sites are subject to deed restrictions in the form of land use restrictions for non-residential use. An evaluation of the potential residual soil contamination is required if the site is to achieve site closure. The proposed strategy is aimed at lifting the existing restrictions that will support site closure/unrestricted residential use at the sites.

The purpose of this Site Closure Plan is to establish the tasks necessary to achieve site closure/unrestricted residential use at seven AOCs. Tasks proposed to achieve site closure are soil sampling, concrete sampling, drywell removal, and if necessary removal of all residual soil contamination above the Title 6 - New York Codes, Rules and Regulations (6-NYCRR) Part 375 Residential use Soil Cleanup Objectives (SCOs) (NYSDEC, December 2006).

The work at these sites will be conducted in accordance with provisions of the Basic Contract #FA8903-10-D-8595 and Delivery Order # 0014. The Uniform Federal Policy Quality Assurance Project Plan (UFP QAPP) for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011) and Health and Safety Plan for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, June 2011) will be used in conjunction with this Site Closure Plan.

1.2 Regulatory Drivers

These sites are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The site activities will be conducted in consultation with the United States Environmental Protection Agency (EPA) Region II and New York State Department of Environmental Conservation (NYSDEC).

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2.0 DP012 BUILDING 301 AOC

2.1 Record of Decision

The ROD for the Building 301 AOC was signed by the Air Force and EPA in September 1999. Based on the previous investigations and environmental conditions at the site, the remedy for the Building 301 AOC was LUC/ICs for commercial/administrative use and groundwater use restrictions (groundwater use restrictions were removed in spring 2012). The ROD for the Building 301 AOC, Appendix A, states that:

- The property will be commercial/administrative use unless permission is obtained from the EPA, NYSDEC, and New York State Department of Health (NYSDOH).

2.2 Site Background

Building 301 formerly housed the Entomology Shop, which provided pest control for the base. A drywell was reportedly located in the grassy area at the south east corner of the former building. The drywell was reportedly a 4-foot square by 8-foot deep pit filled with stone and gravel. It was used from the 1940s through 1982 to dispose of small quantities of excess pesticides and rinse water from pesticide applications. Previous investigations have not been able to locate this drywell.

The Remedial Investigation (RI) for the Building 301 AOC was completed in 1994. Results showed the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and metals in soils at the site. A risk assessment was also conducted for the RI. For human health, contaminants in the soil and groundwater were within the lower end of the acceptable EPA target risk range for industrial and commercial users.

Long Term Monitoring (LTM) was conducted at the site from 2003 to 2004. Groundwater was deemed as not contaminated and monitoring ceased at the site in 2004 with regulatory approval. Removal of the groundwater restriction at the site was accepted by the EPA on June 7, 2012. The removal of the groundwater restriction was also approved by the NYSDEC (email to AFCEC dated June 6, 2012).

A Phase II Environmental Site Assessment performed at the Building 301 AOC in 2010 indicated one pesticide (dieldrin) above 6-NYCRR Part 375 Residential use SCOs at soil samples collected from 0 to 4 ft bgs. The dieldrin concentration was below the 6-NYCRR Part 375 Commercial use SCOs. All other detected contaminant of concern (COC) concentrations were below 6-NYCRR Part 375 Residential use SCOs.

2.3 Closure Plan

Closure tasks proposed for the Building 301 AOC include a geophysical investigation to confirm the absence/presence of a drywell at the site and a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs. The following sections detail these investigations.

2.3.1 Geophysical Investigation

A digital geophysical mapping (DGM) survey will be conducted at Building 301 to detect and locate a former drywell associated with the site. A grid-based survey will be conducted in a select area approximately 15 meters (m) by 15 m. The selection of the DGM area will be based on the following: historical maps, previous investigations, and current utility locations. DGM will cover 100% of the selected area. Data collection at the grids will utilize a local coordinate system with surveyed corners.

DGM will be conducted utilizing the following equipment:

- Geometrics Cesium Vapor Marine Magnetometer, G-858;
- Time-Domain Electromagnetic Induction Metal Detector, Geonics EM61-MK2;
- Ground Penetrating Radar (GPR), Geophysical Survey Systems, Inc. (GSSI) Model SIR-3000 equipped with 200- and 400-megahertz (MHz) monostatic antennas; and
- Real-time digital global positioning system (DGPS), Trimble® ProXRT with GLONASS.

Prior to conducting the DGM survey FPM will contact Dig Safely New York to mark out any underground utilities at the site. During the DGM survey all surficial cultural features (e.g., structures, utility poles, storm grates, etc.) will be recorded with the DGPS. Locations of all significant obstacles (both surficial and subsurface) will be included in the site Geographic Information System (GIS) and used during geophysical survey data analysis.

Once the DGM surveys have been completed, the acquired data will be validated and interpreted by the project geophysicist using equipment specific software, including: Geometrics MagMap 2000, Geosoft Montaj®, GPR Slice®, and Trimble Pathfinder Office. Results of the DGM survey will be used to determine the presence/absence of the drywell, as well as reducing the necessary area to be excavated for any remedial effort.

The drywell will be removed if it is found. All removal and confirmatory sampling activities will be detailed in a Removal Action Work Plan. If the drywell is absent, site closure will be based on the soil investigation results discussed in the following section.

2.3.2 Soil Investigation

The soil investigation will include the collection of nine soil samples from three soil boring locations (direct push) within the Building 301 AOC site boundary (Figure 2). Samples will be collected from three intervals at each boring: 0 to 4 feet (ft) below ground surface (bgs), 4 to 8 ft bgs, and 8 to 12 ft bgs. Field screening and soil characterization will be conducted prior to sampling. The screening will consist of visual and olfactory characteristics. Based on results of the Phase II Environmental Site Assessment, samples will be analyzed for pesticides only. Results of the soil investigation sampling will be relied upon to propose site closure with unrestricted use at the site. Closure will be recommended if pesticide levels are found below the 6-NYCRR Part 375 Residential use SCOs and if the absence of the drywell is confirmed. If sampling results do not support site closure, the data will be used to conduct an excavation of the

residual contamination. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities.

Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis. The laboratory's Standard Operating Procedure (SOP) for EPA Method SW8082 is included in the Uniform Federal Policy Quality Assurance Project Plan (UFP QAPP) for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

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3.0 DP013 BUILDING 255 AOC

3.1 Record of Decision

The ROD for the Building 255 Drywells AOC was signed by the Air Force in June 2001 and by the EPA in September 2001. Based on the previous investigations and environmental conditions at the site the selected remedy for the Building 255 AOC is no further action (NFA) for soils with LUC/ICs for industrial/commercial use and groundwater use restrictions (groundwater use restrictions were removed in spring 2012). The ROD for Building 255, Appendix B, states that:

- The property will be industrial/commercial use unless permission is obtained from the EPA, NYSDEC, and NYSDOH.

3.2 Site Background

The Building 255 AOC is located in the west-central portion (Parcel F3A) of the former Griffiss AFB. Building 255 was a former vehicle maintenance shop that included several drywells and is located in the area referred to as Tin City. This building has been demolished. One drywell was removed west of the former building in 1999 and two drywells are suspected to be present east of the former building.

RI soil and groundwater sampling showed VOCs, SVOCs, pesticides, PCBs, and metals detections. A risk assessment was conducted for the RI. For human health, contaminants in the soil and groundwater were within the lower end of the acceptable EPA target risk range for industrial and commercial users. An Interim Remedial Action (IRA) was performed at the site in 1998 which consisted of asphalt demolition, removal and disposal of the drywell (to west of building), and soil excavation. Confirmatory sampling conducted in the soil excavation indicated clean-up goals had been met as stated in the Closure Certification Report (Ocuto Blacktop and Paving Environmental Services [Ocuto], March 2001). The second and third drywells are presumably located east of the former building and have not been located in previous investigations.

LTM was conducted at the site from 2001 to 2002. Groundwater was deemed clean and monitoring ceased at the site in 2002 with regulatory approval. Based on the results from previous sampling and the ROD requirements for the Building 255 Drywell AOC, the Air Force submitted an Explanation of Significant Differences (ESD) in 2003 to the EPA. The document requested the deletion of ROD requirements for the groundwater investigations. The ESD was supported by groundwater monitoring data indicating groundwater ARARs have been met. The ESD was signed by the EPA on September 26, 2003. The remaining LTM wells at the site were decommissioned in the Round 3 Well Decommissioning event performed in summer/fall 2005.

A request to remove the groundwater restriction at the site was issued by the Air Force in March 2012. NYSDEC acceptance was provided on April 24, 2012 and EPA acceptance was provided on May 16, 2012.

3.3 Closure Plan at the Western Drywell Site

The western drywell site will be recommended for closure with unrestricted use. The western drywell was removed and residual contamination was excavated in 1998/1999. The restricted area is illustrated on Figure 3. All confirmatory sampling results were below cleanup objectives. The confirmatory sampling results were also compared to the NYCRR Part 375 Residential use SCOs. All concentrations were below the NYCRR Part 375 Residential use SCOs except for chromium. Elevated concentrations of chromium were attributed to base-wide background conditions (Ocuto, February 2000). In addition, the groundwater monitoring has confirmed the absence of groundwater contamination at the site.

3.4 Closure Plan at Eastern Drywell Site

Closure tasks proposed for the Building 255 AOC includes a geophysical investigation to confirm the absence/presence of the eastern drywell at the site and a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs. The following sections detail these investigations.

3.4.1 Geophysical Investigation

A DGM survey will be conducted at the Building 255 AOC (eastern drywell area) to detect and locate a former drywell associated with the site. A grid-based survey will be conducted in a select area approximately 15 m by 15 m. The selection of the DGM area will be based on the following: historical maps, previous investigations, and current utility locations. DGM will cover 100% of the selected area. Data collection at the grids will utilize a local coordinate system with surveyed corners.

DGM will be conducted utilizing the following equipment:

- Geometrics Cesium Vapor Marine Magnetometer, G-858;
- Time-Domain Electromagnetic Induction Metal Detector, Geonics EM61-MK2;
- GPR, GSSI Model SIR-3000 equipped with 200- and 400-MHz monostatic antennas; and
- Real-time DGPS, Trimble® ProXRT with GLONASS.

Prior to the investigation, subsurface utilities identification will be performed through Dig-Safe. During the DGM survey all surficial cultural features (e.g., structures, utility poles, storm grates, etc.) will be recorded with the DGPS. Locations of all significant obstacles (both surficial and subsurface) will be included in the site GIS and used during geophysical survey data analysis.
Once the DGM surveys have been completed, the acquired data will be validated and interpreted by the project geophysicist using equipment specific software, including: Geometrics MagMap 2000, Geosoft Montaj®, GPR Slice®, and Trimble Pathfinder Office. Results of the DGM survey will be used to determine the presence/absence of the drywell, as well as reducing the necessary area to be excavated for any remedial effort.

The drywell will be removed if it is found. All removal and confirmatory sampling activities will be detailed in a Removal Action Work Plan. If the drywell is absent, site closure will be based on the soil investigation results discussed in the following section.

3.4.2 Soil Investigation

The soil investigation will include the collection of 15 soil samples from five soil borings (direct push) within the Building 255 AOC (eastern drywell) site boundary (Figure 3). Samples will be collected from 0 to 4 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs from each boring. Field screening for visual and olfactory characteristics and PID screening will be conducted before sampling. Based on the data from previous investigations, soil samples will be analyzed for VOCs and metals. The data will be relied upon to propose site closure with unrestricted use at the site. Closure will be recommended if VOC and metals levels are found below the 6-NYCRR Part 375 Residential use SCOs and if the absence of the drywell is confirmed. If sampling results do not support site closure, the data will be used to conduct an excavation of the residual contamination. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities.

Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis. The laboratory's SOP for EPA Method SW8260 and EPA Method 6010B are included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

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4.0 DP015 BUILDING 219 AOC

4.1 Record of Decision

The ROD for the Building 219 Drywell AOC was signed by the Air Force and EPA in September 1999. Based on the previous investigations and environmental conditions at the site the selected remedy for the Building 219 Drywell AOC is NFA for soils with LUC/ICs for industrial land-use and groundwater use restrictions (groundwater use restrictions were removed in spring 2012). The ROD for Building 219 Drywell AOC, Appendix A, states that:

- The property will be industrial use unless permission is obtained from the EPA, NYSDEC, and NYSDOH.

4.2 Site Background

The Building 219 Drywell AOC, located in the west-central portion of the Griffiss AFB (Parcel F3A), was used as the Electrical Power Production Shop. Surface water run-off drains into the Mohawk River through the base storm drainage system. One drywell at the site was used for the disposal of liquid wastes (battery acid, glycol, floor wash-water) and was reportedly located south of the building. The drywell was not detected during surface geophysical surveys performed in 1993 and 1994 as part of the RI.

Soil and groundwater samples were collected during the RI conducted in 1994. Soil sampling results showed SVOCs and metals above applicable RI criteria. A risk assessment was also conducted for the RI. For human health, contaminants in the soil and groundwater were within the lower end of the acceptable EPA target risk range for industrial and commercial users.

LTM was conducted at the site from 2001 to 2002. Groundwater was deemed clean and monitoring ceased at the site in 2002 with regulatory approval. Based on the results from previous sampling and the ROD requirements for the Building 255 Drywell AOC, the Air Force submitted an ESD in 2003 to the EPA. The document requested the deletion of ROD requirements for the groundwater investigations. The ESD was supported by groundwater monitoring data indicating groundwater ARARs have been met. The ESD was signed by the EPA on September 26, 2003. The remaining LTM wells at the site were decommissioned in the Round 3 Well Decommissioning event performed in summer/fall 2005.

A request to remove the groundwater restriction at the site was issued by the Air Force in March 2012. NYSDEC acceptance was provided on April 24, 2012 and EPA acceptance was provided on May 16, 2012.

4.3 Closure Plan

Closure tasks proposed for the Building 219 AOC includes a geophysical investigation to confirm the absence/presence of the drywell at the site and a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs. The following sections detail these investigations.

4.3.1 Geophysical Investigation

A DGM survey will be conducted at Building 219 to detect and locate a former drywell associated with the site. A grid-based survey will be conducted in a select area approximately 15 m by 15 m. The selection of the DGM area will be based on the following: historical maps, previous investigations, and current utility locations. DGM will cover 100% of the selected area. Data collection at the grids will utilize a local coordinate system with surveyed corners.

DGM will be conducted utilizing the following equipment:

- Geometrics Cesium Vapor Marine Magnetometer, G-858;
- Time-Domain Electromagnetic Induction Metal Detector, Geonics EM61-MK2;
- GPR, GSSI Model SIR-3000 equipped with 200- and 400-MHz monostatic antennas; and
- Real-time DGPS, Trimble® ProXRT with GLONASS.

Prior to the investigation, subsurface utilities identification will be performed through Dig-Safe. During the DGM survey all surficial cultural features (e.g., structures, utility poles, storm grates, etc.) will be recorded with the DGPS. Locations of all significant obstacles (both surficial and subsurface) will be included in the site GIS and used during geophysical survey data analysis.

Once the DGM surveys have been completed, the acquired data will be validated and interpreted by the project geophysicist using equipment specific software, including: Geometrics MagMap 2000, Geosoft Montaj®, GPR Slice®, and Trimble Pathfinder Office. Results of the DGM survey will be used to determine the presence/absence of the drywell, as well as reducing the necessary area to be excavated for any remedial effort.

The drywell will be removed if it is found. All removal and confirmatory sampling activities will be detailed in a Removal Action Work Plan. If the drywell is absent, site closure will be based on the soil investigation results discussed in the following section.

4.3.2 Soil Investigation

The soil investigation will include the collection of 18 soil samples from six soil borings (direct push) within the Building 219 AOC site boundary (Figure 4). Samples will be collected from 0 to 4 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs from each boring. Field screening for visual and olfactory characteristics will be conducted before sampling. Based on the data from previous investigations, the samples will be analyzed for metals only. The data will be relied upon to propose site closure with unrestricted use at the site. Closure will be recommended if metals levels are found below the 6-NYCRR Part 375 Residential use SCOs or attributed to background conditions and if the absence of the drywell is confirmed. If sampling results do not support site closure, the data will be used to conduct an excavation of the residual contamination. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities.

Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis.

The laboratory's SOP for EPA Method SW6010B is included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

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5.0 SS024 FIRE DEMONSTRATION AREA AOC

5.1 Record of Decision

The ROD for the FDA AOC was signed by the Air Force and EPA in September 1999. Based on the previous investigations and environmental conditions at the site the selected remedy for the FDA AOC is no further remedial action, with LUC/ICs for industrial land-use and groundwater use restrictions. The ROD for the FDA, Appendix A, states that:

- The property will be industrial use unless permission is obtained from the EPA, NYSDEC, and the NYSDOH and
- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted, any water from the aquifer below the ground surface within the boundary of the property unless such owner or occupant obtains prior written approval from the NYSDOH.

5.2 Site Background

The Fire Demonstration Area (FDA) is located north of Buildings 101 and 100, between Taxiways 17 and Apron 3 in Parcel A1A. Surface water run-off discharges into the Mohawk River. The FDA was used from 1974 to 1992 for fire demonstrations. From 1974 to 1987, fuels and other flammable materials were ignited on bare ground and from 1987 to its closure in 1992 fuels were ignited in a metal trough.

Groundwater sampling and a soil gas survey were performed in 1994 during the RI. VOC concentrations were not found in exceedance of applicable standards or guidance values. Four soil borings were used at the FDA AOC to collect 32 subsurface screening samples and 18 confirmatory samples in late 1994 and early 1995. The presence of VOCs, SVOCs, pesticides, PCBs, dioxins, metals, cyanide, and petroleum hydrocarbons were reported. However, not all detections exceeded the guidance values. Soil exceedances of applicable RI criteria were limited to 2 SVOCs, 1 pesticide, and 5 metals. A risk assessment was also conducted for the RI. For human health, contaminants in the soil and groundwater were within the lower end of the acceptable EPA target risk range for industrial and commercial users.

5.3 Closure Plan

Closure tasks proposed for the FDA AOC includes a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs. The previous groundwater sampling data showed all detections were below NYS Groundwater Standards. In addition, the monitoring well at the site was decommissioned with EPA and DEC approval. Therefore, no groundwater sampling at this is necessary to support site closure.

The following sections detail these investigations.

5.3.1 Soil Investigation

Site Background Study

Due to the location of the site within the airport, additional COCs not associated with the FDA AOC may be present as a result of the airport activities. Therefore, a background study of the area surrounding the FDA AOC will be conducted to identify the COCs that are not be associated with FDA AOC site activities.

The site background study will include the collection of 24 soil samples from eight soil boring locations (direct push) located outside the FDA AOC site boundary. Samples will be collected from 0 to 4 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs from each boring. Field screening for visual and olfactory characteristics will be conducted before sampling. The samples will be analyzed for SVOCs, pesticides, and metals.

The background sampling locations were established by creating a 150 foot buffer around the LUC/IC boundary. The buffer will not extend past 150 feet from the FDA AOC site boundary due to the existence of active taxiways surrounding the site.

FDA AOC Soil Investigation

The soil investigation will include the collection of 18 soil samples from six soil borings (direct push) within the FDA AOC site boundary. Samples will be collected from 0 to 4 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs from each boring. Field screening for visual and olfactory characteristics will be conducted before sampling. Based on the data from previous investigations, the samples will be analyzed for SVOCs, pesticides, and metals. The data will be relied upon to propose site closure with unrestricted use at the site. Closure will be recommended if SVOCs, pesticides, and metals levels are found below the 6-NYCRR Part 375 Residential use SCOs or indicative of background conditions. If sampling results do not support site closure, the data will be used to conduct an excavation of the residual contamination. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities.

All proposed sampling locations are illustrated in Figure 5. Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis. The laboratory's SOP for EPA Method SW6010B is included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

6.0 SD050 BUILDING 214 AOC

6.1 Record of Decision

The ROD for Building 214 was signed by the Air Force and EPA in September 1999. Based on the previous investigations and environmental conditions at the site, the selected remedy for the Building 214 AOC site is NFA for soils with LUC/ICs for industrial land-use and groundwater use restrictions (groundwater use restrictions were removed in spring 2012). The ROD for the Building 214 AOC, Appendix A, states that:

- The property will be industrial use unless permission is obtained from the EPA, NYSDEC, and NYSDOH.

6.2 Site Background

Building 214, a former vehicle maintenance shop is located in the west-central portion of the former Griffiss AFB. An Underground Storage Tank (UST), OWS, and two drywells are associated with this site. The UST reportedly overflowed due to a mechanical failure. The UST and OWS were removed in 1997. Surface water run-off in this area drains towards the Mohawk River using the base storm drainage system. The building is currently used for storage and office space for an airplane refurbishing company.

The RI was conducted at the site in 1994. Results showed the presence of SVOCs, metals, and pesticides in soil and groundwater at the site. A risk assessment was also conducted for the RI. For human health, contaminants in the soil and groundwater were within the lower end of the acceptable EPA target risk range for industrial and commercial users.

LTM was conducted at the site from 2001 to 2002. Groundwater was deemed clean and monitoring ceased at the site in 2002 with regulatory approval. Based on the results from previous sampling and the ROD requirements for the Building 255 Drywell AOC, the Air Force submitted an ESD in 2003 to the EPA. The document requested the deletion of ROD requirements for the groundwater investigations. The ESD was supported by groundwater monitoring data indicating groundwater ARARs have been met. The ESD was signed by the EPA on September 26, 2003. The remaining LTM wells at the site were decommissioned in the Round 3 Well Decommissioning event performed in summer/fall 2005.

A request to remove the groundwater restriction at the site was issued by the Air Force in March 2012. NYSDEC acceptance was provided on April 24, 2012 and EPA acceptance was provided on May 16, 2012.

6.3 Closure Plan

Closure tasks proposed for the Building 214 AOC includes a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs. The following section details this investigation.

6.3.1 Soil Investigation

The soil investigation will include the collection of 12 soil samples from four soil borings (direct push) within the Building 214 AOC site boundary (Figure 6). As noted in Figure 6, one of the four soil boring locations will be situated within the Building 214 footprint. Samples will be collected from 0 to 4 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs from each boring. Field screening for visual and olfactory characteristics will be conducted before sampling. Based on the data from previous investigations, the samples will be analysis for metals. The data will be relied upon to propose site closure with unrestricted use at the site. Closure will be recommended if metals levels are found below the 6-NYCRR Part 375 Residential use SCOs or attributed to background conditions. If sampling results do not support site closure, the data will be used to conduct an excavation of the residual contamination. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities if an excavation is deemed necessary at the site.

Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis. The laboratory's SOP for EPA Method SW6010B is included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

7.0 AREA OF INTEREST 72

7.1 Site Background

This site was identified as an AOI in the 1994 AOI report based on the 1989 Environmental Protection Agency Site Analysis because drums were believed to be stored on site in 1966. An aerial photograph from May 1960 shows an open area stripped of vegetation with erosional channels. Aerial photographs from 1967 through 1973 show a storage area with rows of unknown material in the southern and central portion of the site. By 1974, the material had been removed. In photographs from 1975 through 1978, two small areas of storage materials and possible drums were observed. In 1982, the storage of material appeared sporadic (E&E, 1999).

A Preliminary Assessment/Site Inspection was conducted for AOI 72 in 1999 (E&E, 1999). During this investigation thirty soil samples were collected from fifteen (15) locations. Two samples, a surface (0 to 2 ft bgs) and a near-surface (2 to 4 ft bgs) soil sample were collected at each location. Samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and metals. Results from several areas within the current site boundary showed pesticides, lead, and copper concentrations above 6-NYCRR Part 375 Residential use SCOs. However, based on the sampling results and human health risk assessment conducted at the site, no further sampling was recommended (E&E, September 1999).

A ROD was not required because it was part of the AOI group and was closed during the PA/SI investigation period. LUC/ICs for the site, provided in the Parcel F9 deed, include:

"The grantee convenants and agrees to the requirement for additional evaluation of the portion of the property within AOI 72 should the property use change from institutional/educational to residential."

The Parcel F9 deed is provided in Appendix C.

7.2 Closure Plan

Closure tasks proposed for AOI 72 includes a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs. The following sections detail these investigations.

7.2.1 Pesticides Soil Investigation

Results of the 1999 investigation identified one location where pesticide concentrations exceeded the 6-NYCRR Part 375 Residential use SCOs. For the elevated pesticide location, samples will be collected from up to four soil boring locations (Figure 7). Two soil samples will be collected from each boring; one will be collected from 0 to 2 ft bgs and one from 2 to 4 ft bgs. Field screening for visual characteristics will be conducted before sampling. The soil samples will be analyzed using EPA Method SW8082 (pesticides). The soil sampling data will be used to confirm the absence or presence of contamination at this location by comparing the detected concentrations to the 6-NYCRR Part 375, Residential use SCOs.

If contamination is present, the sampling will also be used to determine the nature of the contamination and if additional remedial action at the site is required. Site closure will be recommended if the soil results indicate that COCs) concentrations are below the NYCRR Part 375 Residential use SCOs. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities.

Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis. The laboratory's SOP for EPA Method SW8082 is included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

7.2.2 Metals Soil Investigation

XRF Screening

Results of the 1999 investigation showed metals concentrations above 6-NYCRR Part 375 Residential use SCOs at six locations. Therefore, a handheld x-ray fluorescence (XRF) analyzer will be used to confirm the lateral extent of metals contamination at the six locations (identified in Figure 7). The XRF analyzer utilizes large area silicon drift detector technology for determining elemental concentrations in soil and sediment. Screening with XRF allows a dynamic, real-time investigation approach for delineating areas containing elevated metals concentrations. In-situ XRF samples collected at the AOI 72 are intended for screening purposes only and will not be used for correlation.

For the XRF screening at AOI 72, samples will be collected at the approximate location were elevated metals concentrations were detected in the 1999 Investigation. The area encompassing the 1999 sampling location will be subdivided into four equidistant aliquots centered on the initial location (depicted in Figure 7). The aliquots will establish a ten foot by ten foot grid surrounding the 1999 sampling location. XRF screening will then be performed at these locations to determine if additional soil borings with fixed-base laboratory sampling is necessary. The XRF screening procedures are provided in Appendix E (SOP #6).

If metals concentrations exceed 6-NYCRR Part 375 Residential use SCOs in any of the initial samples, additional screening locations will be collected to delineate the extent of the contamination. Sampling at these secondary locations will follow the same methodology used for the primary samples. The secondary screening/sampling locations will consist of three aliquots equidistant from the primary XRF screening locations (identified in Figure 7). The three aliquots will generate a step out grid with a ten foot by ten foot spacing.

Fixed-Base Laboratory Sampling

Soil samples will be collected from four primary soil borings at each of the six locations identified on Figure 7. Each boring will consist of two sampling intervals: 0 to 2 ft bgs and 2 to

4 ft bgs. The soil borings/samples will be collected from the XRF screening locations identified above and illustrated on Figure 7.

If necessitated, additional soil borings/samples may be collected from secondary XRF screening locations. A fixed-base sample will only be collected from the secondary XRF screening locations, if a metal concentration is identified above the 6-NYCRR Part 375 Residential use SCOs during the XRF analysis. Sampling at these secondary locations will follow the same methodology used for the primary samples.

Field screening for visual characteristics will be conducted before sampling. The soil samples will be analyzed using EPA Method SW6010B (metals). The soil sampling data will be used to confirm the absence or presence of contamination at this location by comparing the detected concentrations to the 6-NYCRR Part 375, Residential use SCOs.

If contamination is present, the sampling will also be used to determine the nature of the contamination and if additional remedial action at the site is required. Site closure will be recommended if the soil results indicate that COCs) concentrations are below the NYCRR Part 375 Residential use SCOs. A Removal Action Work Plan will be prepared detailing the excavation and confirmatory sampling activities.

Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E. Table 1 summarizes the proposed field activities and sample analysis. The laboratory's SOP for EPA Method SW6010B is included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011).

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe.

This is intentionally left blank.

8.0 BUILDING 211

8.1 Site Background

The Building 211 site is located near the intersection of Hangar Road and March Street in the west central portion of the installation and has been used as a drinking water chlorination facility (Figure 2).

The former Building 211 was used as a water supply building in the Tin City area. The site is located in Parcel F3A and has been transferred. Site OTH-211 (DW-211) was a mercury spill from a broken manifold gauge in Building 211 in 1985. The site was remediated in 2000. Confirmation wipe sample results showed mercury concentrations ranging from 2.08 µg/100 cm^3 to 4.80 µg/100 cm^3. The site-specific action level was 5 µg/100 cm^3. A project to encapsulate the residual contamination was completed in July 2002. The building was demolished in 2011 and the slab was left in place due to its proximity to underground utilities. Following demolition, the slab was covered with soil and asphalt cuttings.

A ROD was not required because it was part of the AOI group and was closed during the PA/SI investigation period. LUC/ICs for the site, provided in the Parcel F3A deed, include:

"The grantee is notified in Exhibit E (deed) that an encapsulation project was completed in the Building 211 pipe vault. The Grantee covenants to be responsible for maintaining the integrity of the encapsulation and for complying with all applicable Federal, State, and Local laws relating to the disposal of demolition debris if Building 211 is demolished or modified."

The Parcel F3A deed is provided in Appendix D.

8.2 Closure Plan

The Building 211 site is subject to the maintenance of the integrity of the encapsulation. Closure tasks proposed for the Building 211 site include concrete sampling to confirm the presence/absence of residual mercury contamination in the concrete slab. The following section details the proposed sampling.

8.2.1 Concrete Slab Sampling

Concrete samples will be collected at six locations within the slab of the former building and analyzed for mercury (EPA Method SW7471). Figure 8 shows the proposed sample locations. Because the building slab was covered with soil and asphalt cuttings, the six selected sampling locations will be exposed by manual removal of the approximately 1-ft layer of soil and asphalt cuttings. Following this removal, samples will be collected using a 1-inch diameter concrete drill bit to a depth of approximately 2 inches. To obtain sufficient concrete chips and dust for analysis, 3 aliquot points at each location will be drilled. Following sample collection, the points will be fully restored with concrete and the manually removed soil and asphalt cuttings will be placed back to restore the site to pre-sampling conditions. Field forms and additional sample collection and handling standard operating procedures are provided in Appendix E.

The data will be relied upon to propose site closure with unrestricted use at the site. Closure will be recommended if mercury levels are found below the 6-NYCRR Part 375 Residential use SCOs. If sampling results do not support site closure, the LUC/ICs will be maintained at the site. Remediation is not feasible at this site as the former building's floor is directly above the main water pipeline from the City of Rome to the former AFB. The water pipeline is made from transite and any remedial activities could cause damage to this water pipeline. Table 1 summarizes the proposed field activities and sample analysis.

The laboratory's SOP for EPA Method SW7471 is included in the UFP QAPP for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, November 2011). All data will then be reviewed and evaluated in accordance with these procedures, and the laboratory's standard qualifiers would apply.

Prior to sampling, subsurface utilities identification will be performed through Dig-Safe. It should be noted that the drilling will only extend one or two inches into the former building's floor and it is anticipated that the drilling will not interfere with any underground utilities.

9.0 DELIVERABLES

9.1 Site Closure Report

A Site Closure Report will be prepared for each site following the completion of the field work and lab analysis of the soil samples. The report will describe the process used to sample and provide the soil sampling results along with associated figures. The draft version of this report will include a compact disc with all daily field activity forms and photographs of site conditions prior to initiating sampling and removal activities, sampling locations, and site conditions after completion of the activities described in this Site Closure Plan.

9.2 Explanation of Significant Differences

ESDs will be prepared as required to document the findings of the investigations, proposed site closures or additional remedial actions taken such as soil excavation.

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10.0 REFERENCES

Air Force, Basewide Environmental Baseline Survey for the Griffiss Air Force Base, September 1994.

Air Force, Updated Basewide Environmental Baseline Survey for the Griffiss Air Force Base, November 2005.

Air Force, Deed for Parcels F-3A and F-3B, former Griffiss Air Force Base, 2004.

Air Force, Deed for Parcel F-9, former Griffiss Air Force Base, 2000.

CAPE/FPM, Final Land Use Control/Institutional Control Site Inspection Report at the former Griffiss AFB, New York, July 2012.

CAPE/FPM/AECOM, Draft-Final Health and Safety Plan for Performance Based-Remediation at the former Griffiss AFB, New York, July 2011.

CAPE/FPM/AECOM, Final Uniform Federal Policy Quality Assurance Project Plan for Performance Based-Remediation at the former Griffiss AFB, New York, November 2011.

Ecology and Environment, Inc, Final Records of Decision for Areas of Concern at the Former Griffiss Air Force Base, Rome, NY, September 1999.

Ecology and Environment, Inc, Final Records of Decision for Areas of Concern at the Former Griffiss Air Force Base, Rome, NY, June 2001.

Air Force, Explanation of Significant Differences for the Tin City AOC at the Former Griffiss Air Force Base, September 2003.

FPM Group, Ltd., Final 5-Year Review for the former Griffiss Air Force Base, Revision 2.2, September 2005.

FPM Group, Ltd., Final 5-Year Review for the former Griffiss Air Force Base, Revision 2.0, July 2010.

Ocuto Blacktop and Paving Environmental Services, Closure Certification Report for IRA at Building 20, 112, 222, and 255, March 2001.

NYSDEC, 6-NYCRR Part 375 Environmental Remediation Programs, December 2006.

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TABLES

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Table 1
Field Activity/Sample Analysis Summary

Site	Activity	Medium	No. of Samples	Analyte	EPA Method	Rationale
Building 301 AOC	Geophysical Investigation	Varied	--	--	--	Confirm the presence/absence of associated drywell at the site.
	Soil Investigation	Soil	6	Pesticides	SW8082	Soil samples will be collected to evaluate site conditions for closure with unrestricted use.
Building 255 AOC	Geophysical Investigation	Varied	--	--	--	Confirm the presence/absence of associated drywell at the site.
	Soil Investigation	Soil	15	VOCs/ Metals	SW8260/ SW6010B	Soil samples will be collected to evaluate site conditions for closure with unrestricted use.
Building 219 AOC	Geophysical Investigation	Varied	--	--	--	Confirm the presence/absence of associated drywell at the site.
	Soil Investigation	Soil	18	Metals	SW6010B	Soil samples will be collected to evaluate site conditions for closure with unrestricted use.
FDA AOC	Soil Investigation	Soil	42	Pesticides/ SVOCs/ Metals	SW8082/ SW8270B/ SW6010B	Due to the location of the site within the airport, additional COCs not associated with the FDA AOC may be present. Therefore, a background study of the area surrounding the FDA AOC will be conducted to identify COCs specifically associated with airport activities. 24 soil samples will be collected from outside the FDA AOC as part of the site background study.
						18 additional soil samples will be collected from within the AOC boundary to evaluate site conditions for closure with unrestricted use.
Building 214 AOC	Soil Investigation	Soil	12	Metals	SW6010B	Soil samples will be collected to evaluate site conditions for closure with unrestricted use.
AOI 72	Soil Investigation	Soil	56	Pesticides/ Metals	SW8082/ SW6010B	Soil samples will be collected to evaluate site conditions for closure with unrestricted use.
Building 211 Site	Concrete Slab Investigation	Concrete	6	Metals	SW6010B	Samples will be collected to confirm the absence or presence of residual mercury in the slab. Results will be used to evaluate site conditions in support of site closure with unrestricted use.

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FIGURES

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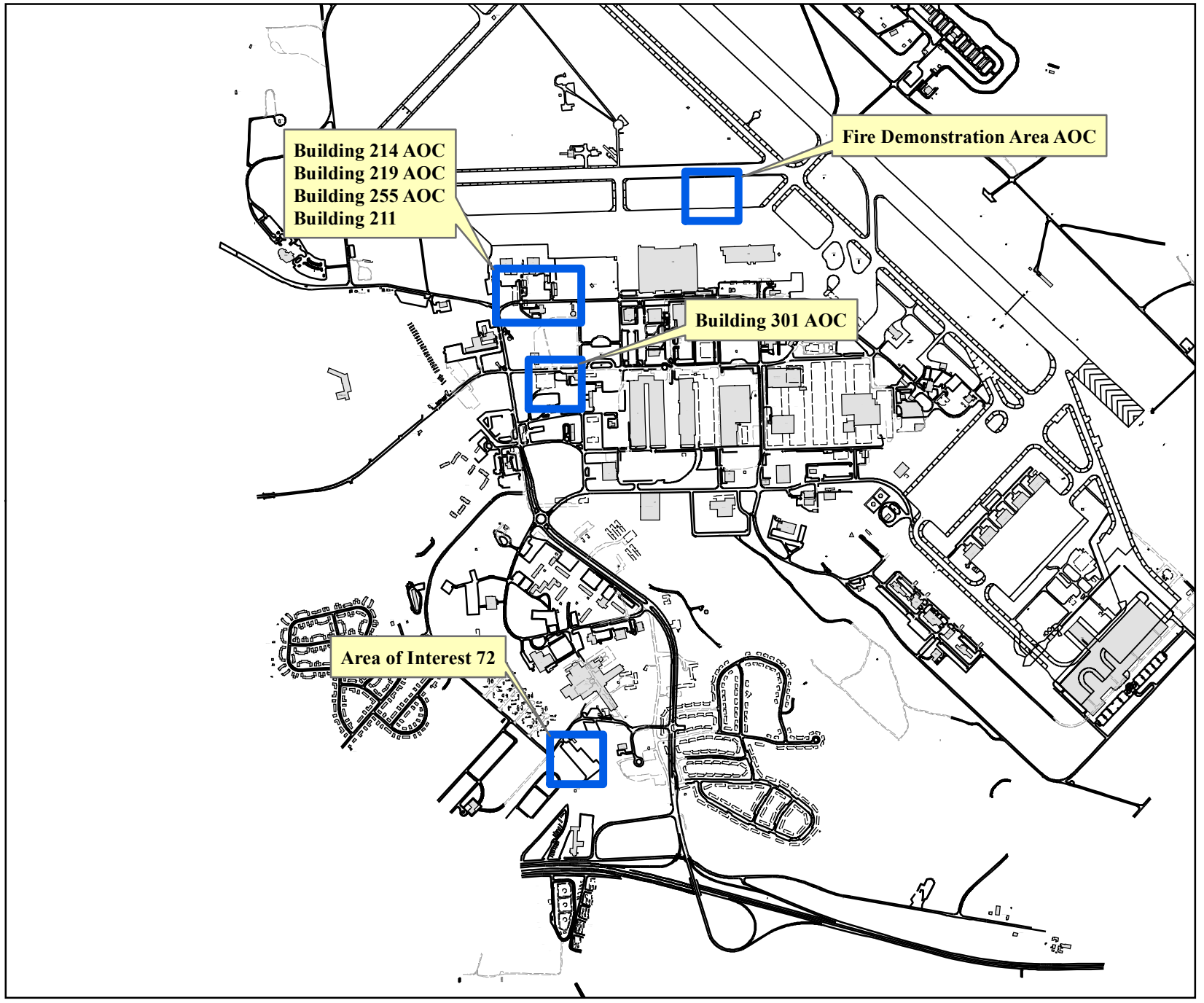

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Site Location

Legend

- Airfied/Road
- Demolished Facility
- Existing Facility
- AOC Location

2,000 1,000 0

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 1
LUC/IC Site Closure Sites Location Map

FPM Remediations, Inc.

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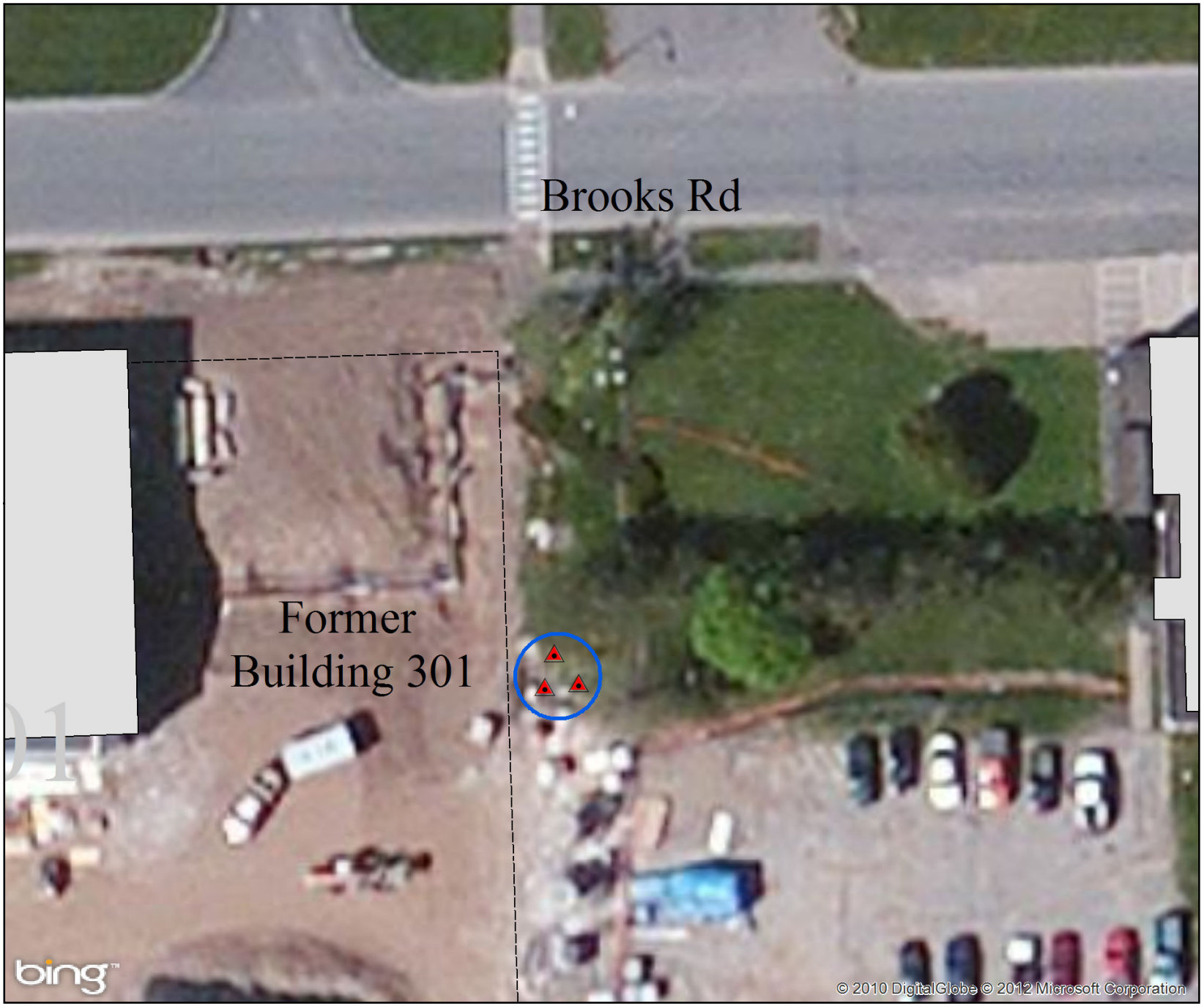

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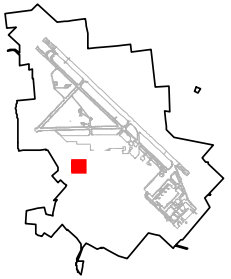

Site Location

Legend

- Proposed Soil Sample Location
- Building 301 AOC Site Boundary
- Demolished Facility
- Existing Facility

* The background image does not reflect the current conditions on the ground.

20 10 0 20

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 2
Building 301 AOC
Proposed
Sampling Locations

FPM Remediations, Inc.

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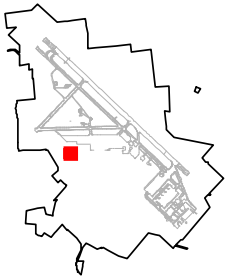

Site Location

Legend

- Proposed Soil Sample Location
- Building 255 AOC Site Boundary (Eastern Drywell Area)
- Demolished Facility

20 10 0 20

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 3
Building 255 AOC
Proposed
Sampling Locations

FPM Remediations, Inc.

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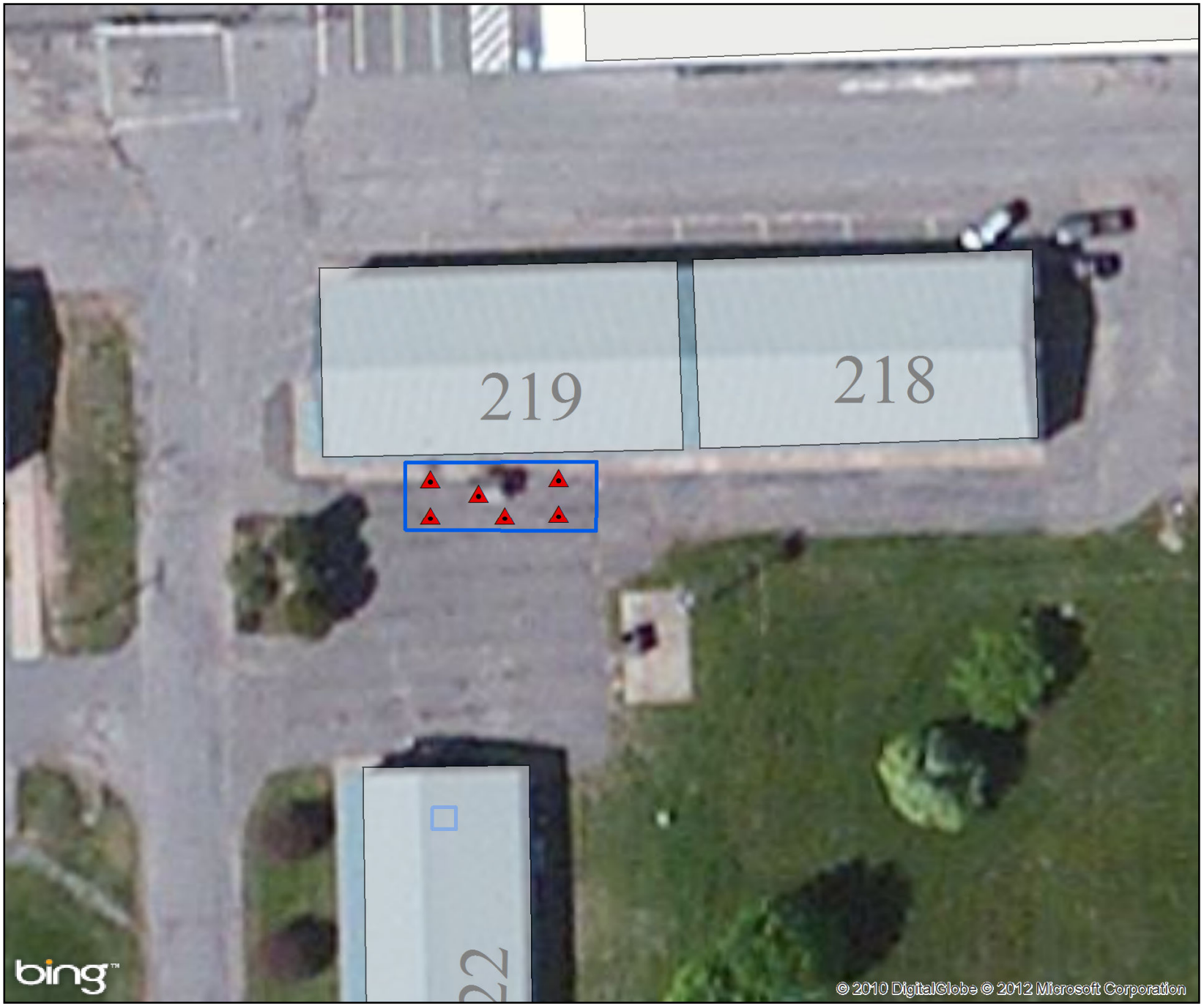

N

Site Location

Legend

- Proposed Soil Sample Location
- Building 219 AOC Site Boundary
- Existing Facility

* The background image does not reflect the current conditions on the ground.

20 10 0 20

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 4
Building 219 AOC
Proposed
Sampling Locations

FPM Remediations, Inc.

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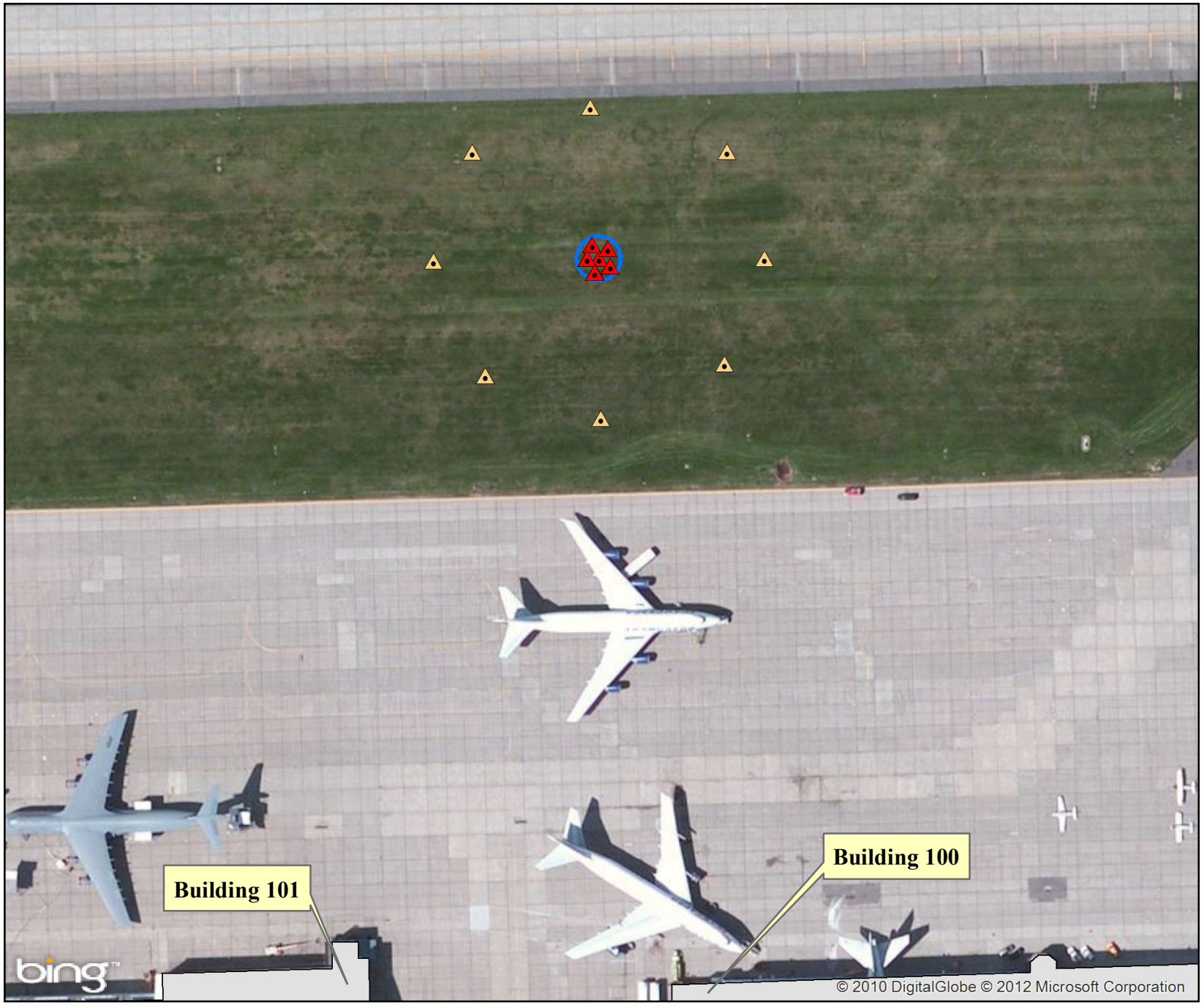

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Site Location

Legend

- Proposed Sample Location
- Proposed Sample Location (Background)
- FDA AOC Site Boundary
- Existing Facility

100 50 0 100

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 5
FDA AOC Proposed Sampling Locations

FPM Remediations, Inc.

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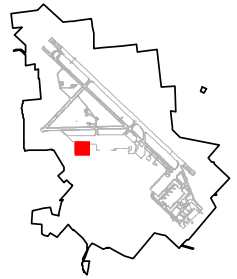

Site Location

Legend

- Proposed Soil Sample Location
- Building 214 AOC Site Boundary
- Existing Facility

20 10 0 20

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 6
Building 214 AOC
Proposed
Sampling Locations

FPM Remediations, Inc.

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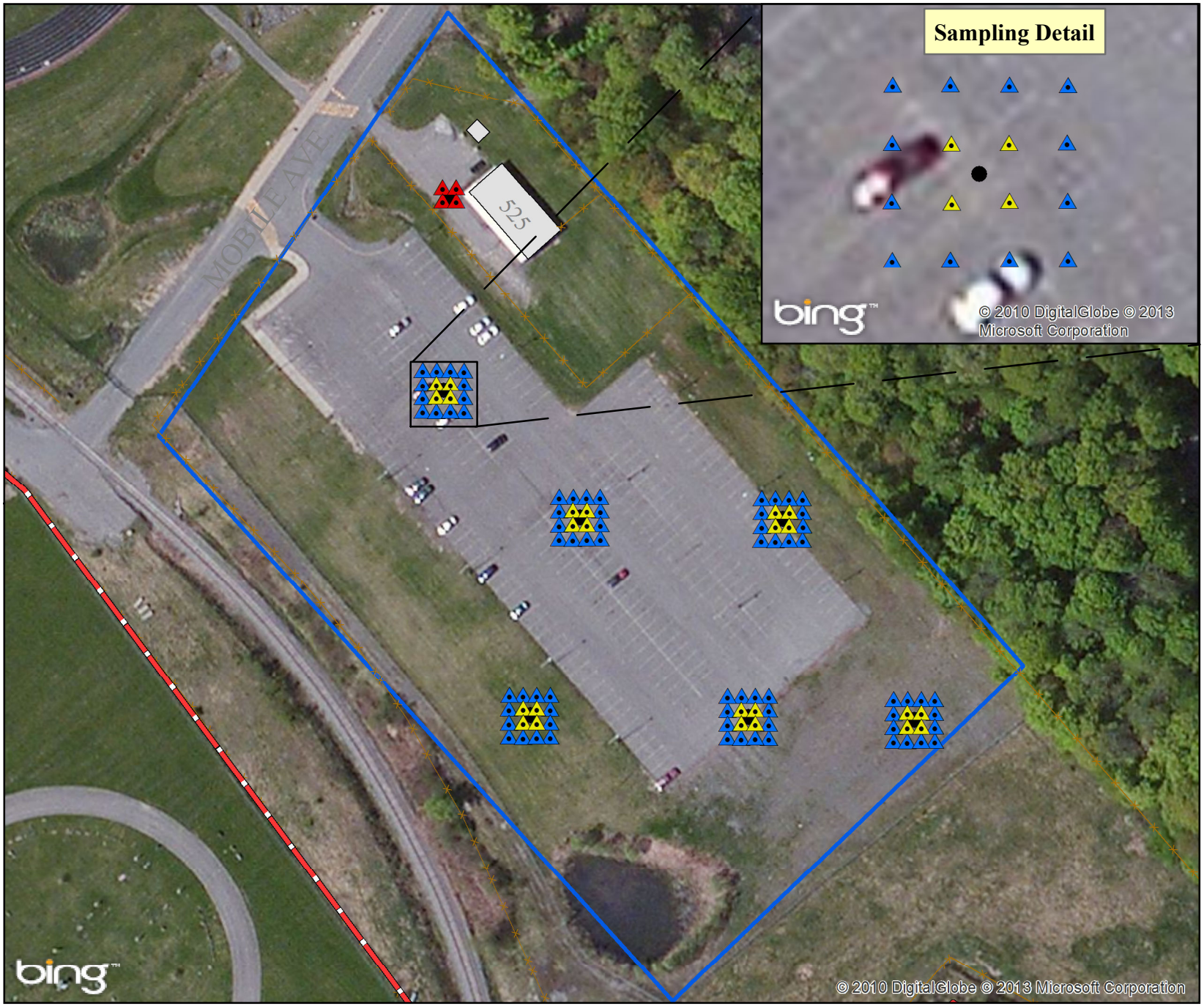

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Site Location

Legend

- Proposed Soil Sampling Location (for pesticides)
- Initial XRF Screening/ Sampling Location (for metals)
- Proposed Secondary Screening/Sampling Location (for metals)
- Previous Soil Sample Location
- Fence
- Parcel F9 Boundary
- Existing Facility
- AOI 72 Site Restriction

60 30 0 60

Feet

United States Air Force
Former Griffiss Air Force Base
Rome, New York

Figure 7
AOI 72 Proposed Sampling Locations

FPM Remediations, Inc.

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APPENDIX A
Building 301 AOC, Building 219 AOC, FDA AOC, and Building 214 AOC
Records of Decision

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File: 17-C-10
M.M.

GRIFFISS AFB
NEW YORK

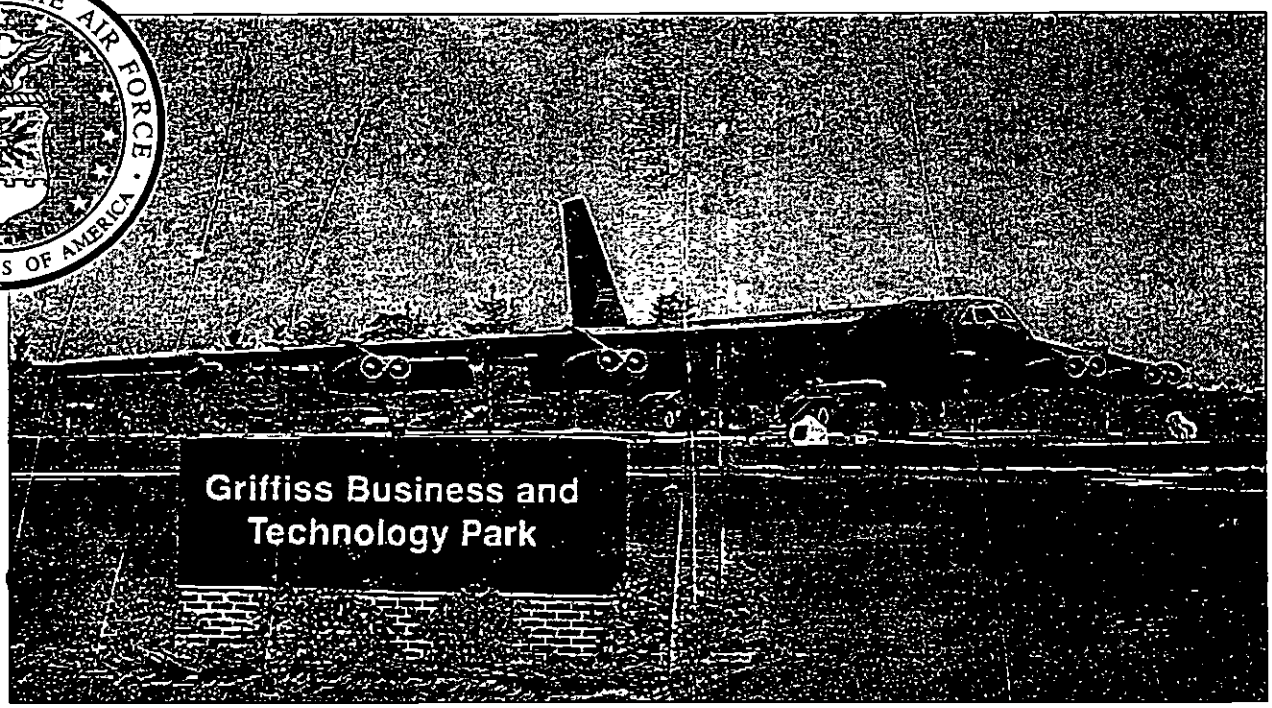
ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 1362

Final Records of Decision for Areas of Concern (AOCs)

Former Griffiss Air Force Base
Rome, New York

September 1999



- Building 301 Drywell AOC
- Building 219 Drywell AOC
- Building 214 AOC
- Fire Demonstration Area AOC
- Suspected Fire Training Area AOC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

1362 2
94-7082
17-A-95
R1/FS
Mike W

SEP 30 1999

Mr. Albert F. Lowas
Director
AFBCA/DR
1700 North Moore Street, Suite 2300
Arlington, VA 22209-2802

Re: Record of Decision for Five Areas of Concern, Griffiss Air Force Base

Dear Mr. Lowas:

This is to inform you that after considering public comments on the Proposed Plans, Griffiss Air Force Base's responsiveness summary to those comments, the Draft Records of Decision and other supporting documents, the U.S. Environmental Protection Agency (EPA) concurs with the Records of Decision for the Suspected Fire Training Area, the Fire Demonstration Area, Building 301, Building 214 and Building 219. Enclosed is a copy of the signed Records of Decision, which I have co-signed on behalf of EPA.

These Records of Decision address only the above mentioned areas of concern. All other areas of Griffiss Air Force Base are being addressed under separate operable units. Please note that these Records of Decision require certain land use restrictions (e.g., deed restrictions) and are subject to EPA's 5-year review process (excluding the Suspected Fire Training Area which was found acceptable for unrestricted use).

If you have any questions regarding the subject of this letter, please contact me at (212) 637-5000 or have your staff contact Douglas Pocze at (212) 637-4432.

Sincerely,

Jeanne M. Fox
Regional Administrator

RECEIVED
19 OCT 1999
A.M.

cc: M. O'Toole, NYSDEC

New York State Department of Environmental Conservation
Division of Environmental Remediation, Room 260B
0 Wolf Road, Albany, New York 12233-7010
Phone: (518) 457-5861 • **FAX:** (518) 385-8404
Website: www.dec.state ny us

John P Cahill
Commissioner

SEP 16 1999

94-7082
17-A-95
R1/FS
SD-50 B/214
DP-12 B/301
SS-24 FDA
FT-48 SFTA
Mike W.

Mr. Richard L. Caspe, P.E.
Director
Emergency & Remedial Response Division
USEPA Region II
290 Broadway, 19th Floor
New York, NY 10007-1866

Dear Mr. Caspe:

Re: Draft Final Records of Decision for Bldgs. 214, 219, 301, FDA, SFTA;
Griffiss Air Force Base (ID No. 633006)

The New York State Department of Environmental Conservation (NYSDEC), in conjunction with the New York State Department of Health (NYSDOH), has reviewed the referenced Records of Decision (RODs) and find each to be acceptable.

If you have any questions or comments on this matter, please contact Mr. Sal Ervolina, of my staff, at (518) 457-4349.

Sincerely,

Michael J O'Toole, Jr.
Director
Division of Environmental Remediation

cc M McDermott
R. Wing/D Pocze, USEPA-Region II
H. Hamel, NYSDOH-Syracuse
D. Swedowski, Reg 6, Watertown
R. Joyner
L. Hansak
S Dimeo

DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

1362 5

SEP 1 4 1999

1700 North Moore Street
Suite 2300
Arlington, VA 22209-2802

Mr. Richard L. Caspe
USEPA-Region II
290 Broadway, 18th Floor
New York, NY 10007-1866

Dear Mr. Caspe

Enclosed are four (4) copies of five (5) Final Records of Decision (RODs) for Building 301 Drywell Area of Concern (AOC), Building 219 Drywell AOC, Building 214 AOC, Fire Demonstration Area AOC, and Suspected Fire Training Area AOC for your review and concurrence. Once the RODs are signed, please retain one copy for your files, and forward three (3) copies to Air Force Base Conversion Agency (AFBCA) for distribution.

If you have any questions or need additonal information, please contact Ms. Lynn Hancsak at (703) 696-5244.

Sincerely

ALBERT F. LOWAS, JR.
Director

Attachment:
Final Records of Decision for Areas of Concern

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ►

To Mike McDermott From Lynn

Dept./Agency Phone #

Fax # Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

KE6909

Final Records of Decision for Areas of Concern (AOCs) at the Former Griffiss Air Force Base Rome, New York

September 1999

Prepared for:

U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
601 East 12th Street
Kansas City, MO 64106-2896

ecology and environment, inc.
International Specialists in the Environment
BUFFALO CORPORATE CENTER 368 Pleasant View Drive, Lancaster, New York 14086
Tel 716/684-8060, Fax 716/684-0844

TAB

Bldg 301 Drywell AOC

Record of Decision for the Building 301 Drywell Area of Concern at the Former Griffiss Air Force Base Rome, New York

September 1999

Prepared for:

U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
601 East 12th Street
Kansas City, MO 64106-2896

Table of Contents

List of Tables

List of Illustrations

List of Acronyms

AFBCA	Air Force Base Conversion Agency
AFB	Air Force Base
AOC	Area of Concern
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRP	Community Relations Plan
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
FS	Feasibility Study
GPR	ground-penetrating radar
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NEADS	North East Air Defense Sector
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PQL	Practical Quantitation Limit
QAPjP	Quality Assurance Project Plan
RI	remedial investigation
ROD	Record of Decision
SAC	Strategic Air Command
SAP	Sampling and Analysis Plan
SARA	Superfund Amendment and Reauthorization Act
SVOC	semivolatile organic compound
TBC	to be considered
USAF	United States Air Force
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Building 301 Drywell Area of Concern (AOC) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the institutional controls alternative, in the form of land use restrictions, as the selected remedial action for the Building 301 Drywell AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA), and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through a joint agreement. This decision is based on the administrative record file for this site

1.3 Description of Selected Remedy

The selected remedy for the Building 301 Drywell AOC is institutional controls, in the form of land use restrictions for commercial/administrative use and groundwater use restrictions. The agencies will perform joint five-year reviews to ensure that future land use and restricted groundwater use are in compliance with the transfer documents (deed) and consistent with the risk assessment for commercial/administrative use with groundwater use restrictions.

1362 14

1.4 Declaration Statement

The AFBCA, EPA, and NYSDEC have determined that institutional controls, in the form of land use restrictions, are warranted for the Building 301 Drywell AOC because the industrial risk assessment indicated potentially harmful levels of contamination in the groundwater when used for consumption purposes. Site soil and groundwater pose no current or future threat to public health or the environment for commercial/administrative use with groundwater use restrictions. Future landowners will be bound, through transfer documents (deed), to the commercial/administrative reuse of the property with groundwater use restrictions.

1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations (RIs) performed at the Building 301 Drywell AOC, there is no evidence that previous operations at this site have resulted in environmental contamination that poses a current or future potential threat to human health or the environment when used for commercial/administrative purposes. Future landowners will be bound, through transfer documents (deed), to the commercial/administrative reuse of the property. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this Record of Decision.

Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency

September 15, 1999
Date

Jeanne M. Fox
Regional Administrator
United States Environmental Protection Agency, Region 2

9/30/99
Date

2 Decision Summary

This section provides an overview of the site-specific factors and analysis that lead to the institutional controls decision for the Building 301 Drywell AOC.

2.1 Site Name, Location, and Description

Regional Site Description

The former Griffiss AFB covers approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Threemile Creek, Sixmile Creek (both of which drain into the New York State Barge Canal), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Because of its flat topography, sandy soil, and high average precipitation, the former Griffiss AFB is considered a groundwater recharge zone.

Building 301 Drywell Area of Concern

Building 301, which is located in the central portion of the base (see Figure 2-1), formerly housed the Entomology Shop, which provided pest control for the base. Based on interviews with current and retired base personnel, a drywell was reportedly located in a grassy area near the east entrance of the building, south of an existing air conditioning unit (see Figure 2-2). The drywell was reportedly a 4-foot-square by 8-foot-deep pit filled with stone and gravel.

Building 301 is not located near any natural surface water drainage features. Surface water runoff from this AOC is channeled into the base storm drain system, which discharges to the Mohawk River. Groundwater flow in this area is in a westerly direction. Groundwater was encountered at a depth of 15.5 feet below ground surface (BGS) in a soil boring south of the reported drywell location. Subsurface soils in this area were described as black silty fine-grained

sand from 2 to 4 feet BGS and brown medium- to coarse-grained sand with some gravel and cobbles from 4 to 20 feet BGS.

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied during its operational history. The former Griffiss AFB was activated on February 1, 1942, as the Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force (USAF) in 1947, the depot was renamed Griffiss Air Force Base. The base became an electronics center in 1950 with the transfer of the Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added during that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. The former Griffiss AFB was designated for realignment under the Base Realignment and Closure Acts of 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the North East Air Defense Sector (NEADS) will continue to operate at their current locations. The New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998 when they were relocated to Fort Drum and the Defense Finance and Accounting Services established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous substances and hazardous wastes were used, stored, or disposed of at various sites on the installation. The defense missions involved the storage, maintenance, and shipping of war material; research and development; and aircraft operations and maintenance, among others.

Numerous studies and investigations under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) have been carried out to detect, locate, and quantify contamination of areas by these substances and wastes These studies and investigations included a records search in 1981 involving interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment of the potential for site contamination, problem confirmation and quantification studies in 1982 and 1985; soil and groundwater analyses in 1986, a public health assessment in 1988 conducted by the U S. Public Health Service, Agency for Toxic Substances and Disease Registry; base-specific hydrology investigations in 1989 and 1990, and a groundwater investigation in 1991. ATSDR issued a Public Health Assessment for Griffiss AFB dated October 23, 1995, and an addendum to the assessment report dated September 9, 1996.

Pursuant to Section 105 of CERCLA, the former Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, USAF, EPA, and NYSDEC entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA. Under the terms of the agreement, USAF is required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports include identification of environmental AOCs on base; a scope of work for an RI; a work plan for the RI, including a sampling and analysis plan (SAP) and a quality assurance project plan (QAPjP); a baseline risk assessment; a community relations plan (CRP); and the RI report. The AFBCA delivered a draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996, that incorporated or addressed EPA and NYSDEC comments.

During the RI, a site-specific industrial risk assessment was conducted (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) in order to evaluate the risks posed by detected site contaminants to the reasonable maximally exposed individual. In addition, the RI report compared detected site contaminants to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), sediments, or air. Therefore, other non-promulgated federal and state advisories and guidance values, referred to as to-be-considereds (TBCs), or background levels of the contaminants in the absence of TBCs, were considered.

Proposed Remedy

Based on the results of the RI, AFBCA has proposed that institutional controls, in the form of land use restrictions for commercial/administrative use, be implemented at the Building 301 Drywell AOC The institutional controls proposal was based on the contaminant levels found at the Building 301 Drywell AOC and is consistent with the commercial/administrative land use indicated in the redevelopment plan for Griffiss AFB provided by the Griffiss Local Development Corporation (GLDC).

Summary of Site Activities

The Building 301 Drywell AOC was used from the 1940s through 1982 to dispose of small quantities of excess pesticides (approximately 2 gallons per year) and rinse water from pesticide containers (less than 1 gallon per day). The wastes were allowed to percolate into the permeable subsoils beneath the drywell.

In the RI, the nature and extent of environmental contamination from historical releases at this AOC were investigated to determine whether any remedial action is necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions In 1982, a groundwater monitoring well (301MW-4) was installed east of Building 301 in an area believed to be downgradient from the reported drywell. The monitoring well was sampled after installation and was also included in the 1992-1993 quarterly sampling program at the base. Groundwater modeling performed in 1994 for the RI, however, indicated that groundwater flow in this area is in a westerly direction. Therefore, the monitoring well is cross-gradient from the reported drywell location and would not be impacted by residual contamination from this area

In 1994, during the RI, a ground penetrating radar (GPR) survey was performed, and two test pits were excavated in an attempt to locate the drywell. The drywell was not detected by the survey, and it was not discovered during excavation. Field sampling for the RI included the drilling of one soil boring (301SB-1) in the downgradient direction from the reported drywell location; the collection of seven soil samples from the soil boring; the installation of a temporary monitoring well in the soil boring; and the collection of one grab groundwater sample in August 1994 and a second grab groundwater sample, collected from a temporary monitoring well drilled adjacent to the first, in April 1995.

Headspace screening was conducted on the seven soil samples obtained from boring 301SB-1. In accordance with the RI Workplan, the sample with the highest headspace screening (2 to 4 feet BGS) and one sample from the soil/groundwater interface (14 to 16 feet bgs) were

submitted for chemical analysis. Three volatile organic compounds (VOCs) , 11 semivolatile organic compounds (SVOCs), 10 pesticides, and 23 metals were detected in the subsurface soils. The concentrations for seven of these chemicals exceeded the soil guidance values (see Table 2-1)

Two grab groundwater samples were collected from adjacent soil boring locations during the RI; one was collected in April 1994 and the other in April 1995. Five VOCs, six SVOCs, nine pesticides, 22 metals, cyanide, and glycol were detected in the samples. Two VOCs and three SVOCs exceeded the standards and guidance values (see Table 2-2). Twelve metals (aluminum, arsenic, beryllium, chromium, copper, iron, lead, manganese, nickel, selenium, sodium, and thallium) were detected above standards or guidance values. Unfiltered grab groundwater samples, however, frequently yield elevated metals results due to the suspended particulate matter that contains naturally occurring metals. Therefore, grab groundwater samples, when analyzed for metals, are not necessarily representative of groundwater conditions

2.3 Highlights of Community Participation

A proposed plan for the Building 301 Drywell AOC indicating no further action as the selected remedial action was released to the public on February 18, 1998. The document was made available to the public in both the administrative record and an information repository maintained at the Jervis Public Library. The notice announcing the availability of this document was published in the *Rome Sentinel* on February 18, 1998. In addition, a public meeting was held on March 10, 1998. At this meeting, representatives from AFBCA, EPA, and NYSDEC answered questions about issues at the AOC and the no further action proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision (see Section 3).

The agencies have determined institutional controls will be placed on the Building 301 Drywell AOC. This determination is based upon the groundwater ingestion risk assessment. This risk will be abated by eliminating the pathway of exposure (i.e., groundwater ingestion).

This decision document presents the selected remedial action for the Building 301 Drywell AOC at the former Griffiss AFB, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NCP. The decision for this AOC is based on the administrative record.

2.4 Scope and Role of Site Response Action

The scope of the institutional controls in the form of land use restrictions for the Building 301 Drywell AOC addresses the soils and groundwater at the site. The potential risks from the site contamination can be effectively managed through the use of institutional controls.

2.5 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the Building 301 AOC. As part of the RI, an industrial risk assessment was conducted to evaluate current and future potential risks to human health and the environment associated with contaminants found in the soils and groundwater at the site The results of this assessment were considered when formulating this proposal.

Human Health Risk Assessment

A human health risk assessment was conducted during the RI to determine whether chemicals detected at the Building 301 Drywell could pose health risks to individuals under current and proposed future land uses if no remediation occurs. As part of the baseline risk assessment, the following four-step process was used to assess site-related human health risks for a reasonable maximum exposure scenario:

- Hazard Identification--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- Exposure Assessment--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soils) by which humans are potentially exposed;
- Toxicity Assessment--determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer Hazard Index value) assessment of site-related risks.

Chemicals of potential concern were selected for use in the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil and groundwater at the site were considered chemicals of potential concern with the exception of inorganics detected at concentrations less than twice the mean background concentrations and iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients.

The current and future land use designation for the Building 301 Drywell AOC is commercial/administrative It is expected that people will continue working in Building 301, as well as in adjacent structures, following base realignment. However, it is unlikely that these people will be exposed to contaminants previously placed in the drywell because the reported drywell location is covered with grass or pavement Therefore, potentially exposed populations include utility workers and construction workers (if the site is developed in the future) exposed to subsurface soils and industrial workers who might be exposed to groundwater if it is ever used as a potable water supply. Potential routes of exposure to subsurface soil included incidental ingestion of soil, skin contact with the soil, and inhalation of fugitive dusts during excavation of soils in the area Potential routes of exposure to groundwater included ingestion, contact with the skin, and inhalation of VOCs.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the Building 301 AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. A computed risk greater than 1 in 10,000 (1×10^{-4}) is considered unacceptable by EPA.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soils) and pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause a similar toxic effect.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that the risk at a site exceeds the cancer risk level of 1 in 10,000 or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds have been exceeded, remedial action alternatives are evaluated to reduce the risk levels to within EPA's acceptable risk range of 1 in 10,000 to 1 in 1,000,000 and an HI of 1 or less.

The cumulative carcinogenic risk for both utility and construction workers due to exposure to the chemicals of potential concern in soils was calculated as 1 in 10,000,000 (1×10^{-7}) This result is well below EPA's target level, indicating that potential adverse carcinogenic health effects are not expected to occur from exposure to chemical concentrations in the soil.

Under the hypothetical scenario which assumed use of site groundwater as a potable water supply by future industrial workers, the cumulative carcinogenic risk associated with the reasonable maximum exposure (RME) to groundwater contaminants was estimated as 3 in 10,000 (3×10^{-4}), which was almost all due to the ingestion route. The future use of the groundwater is extremely unlikely since the area is served by the municipal water system. The cumulative HIs for the utility and construction workers were 0.001 and 0 04, respectively, well below the acceptable level of 1.0. The cumulative HI for industrial workers exposed to groundwater was 0.3. Therefore, potential adverse noncarcinogenic health affects are not expected to occur from exposure to chemical concentrations in the soil or groundwater at the Building 301 Drywell AOC.

Toxicity values were not available for five compounds detected in the soil (phenanthrene, benzo[g,h,i]perylene, lead, guthion, and coumaphos); thus, a quantitative risk assessment could not be performed. Therefore, a qualitative assessment was conducted by comparing the concentrations of these five compounds to the soil guidance values. Phenanthrene and benzo(g,h,i)perylene were detected in one of the two soil samples collected from the site at concentrations of 0.15 mg/kg and 0.079 mg/kg, which are below the guidance value of 50 mg/kg. Lead was detected in both samples at concentrations of 5.4 mg/kg and 41 mg/kg, which are well below the guidance value of 400 mg/kg. Guthion was detected in both samples at concentrations of 0.030 mg/kg and 0.070 mg/kg, but no guidance value is available. However, 50 mg/kg of guthion ingested by Wistar rats had no detectable effect. Coumaphos, which also has no available guidance value, was detected in both soil samples at concentrations of 0.090 mg/kg and 0.11 mg/kg. No adverse health effects associated with this compound have been reported for humans.

Uncertainties exist in many areas of the human health risk assessment process. However, use of conservative variables in intake calculations and conservative assumptions throughout the entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment for this AOC include: (1) Chemical samples were collected from the suspected source of contamination rather than through random sampling, which may result in a potential overestimate of risk; (2) The risk assessment was quantified based on analysis of a relatively small number of

soil samples, which can contribute to uncertainty in the risk calculations; (3) When assessing the dermal pathway, it was assumed that workers would come into contact with the soil, although the use of protective clothing is more likely. This assumption would result in a potential overestimate of risk, (4) It was assumed that for the proposed future use scenario, construction would occur over a one-year period, though it will probably require less time to complete due to the small size of this AOC This assumption would result in a potential overestimate of risk; and (5) It was assumed that groundwater would be used for industrial purposes in the future which is very unlikely due to the availability of existing water supplies at the former base and in the City of Rome. This assumption would result in a potential overestimate of risk.

The property at the Building 301 Drywell AOC contains levels of contamination suitable for commercial/administrative usage but not necessarily suitable for residential or similar use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- The property will be commercial/administrative use unless permission is obtained from the EPA, NYSDEC, and the New York State Department of Health; and
- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the aquifer below the ground surface within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

Ecological Risk Assessment

A baseline risk assessment for ecological receptors at the Building 301 Drywell AOC was conducted during the RI. Both current and proposed future land use for this AOC is commercial/administrative, which, by its very nature, minimizes the number of ecological receptors. Habitats critical to ecological receptors were considered to be insignificant because the drywell is below ground level and, based on several studies performed in the 1990s, ecological receptors are not expected to be found at these depths. Although certain state endangered plants and animals have been observed on or in the vicinity of the base, no threatened and/or endangered species have been identified at this site. Overall, this AOC poses no current or potential threat to the environment.

2.6 Description of the Institutional Controls Alternative

Institutional controls, in the form of land use restrictions and groundwater use restrictions, are proposed for the Building 301 Drywell AOC. The majority of the chemicals detected at this AOC do not exceed screening levels. In addition, the risk assessment indicates that the levels of contaminants in the soils and groundwater do not present unacceptable carcinogenic risk to potential receptors as long as the property reuse remains as it is currently used (i.e., commercial/administrative) and the groundwater is not allowed to be ingested

2.7 Significant Changes

The proposed plan for the Building 301 Drywell AOC was released for public comment on February 18, 1998. The proposed plan identified no further action as the preferred alternative. The agencies have reviewed all written and verbal comments submitted during the public comment period. Following the review of these comments, it was determined that the remedy should be amended to clarify institutional controls, in the form of land use restrictions and groundwater use restrictions, placed on the Building 301 Drywell AOC.

Table 2-1

COMPOUNDS EXCEEDING GUIDANCE VALUES
SUBSURFACE SOIL SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/kg)			
Benzo(a)pyrene	200 J	1/2	61[a]
Metals (mg/kg)			
Calcium	2,040 - 42,000	1/2	23,821
Total chromium	17 - 34.5	1/2	22 6[b]
Copper	32.3 - 176	1/2	43[b]
Lead	5.4 - 41	1/2	36[b]
Mercury	.028 J - 0 13	1/2	0.1[a]
Silver	1 58 J	1/2	1 1[b]

a NYS soil cleanup objective
b Background screening concentration

Key:

J = Estimated concentration

Table 2-2

COMPOUNDS EXCEEDING GROUNDWATER STANDARDS GRAB GROUNDWATER SAMPLES

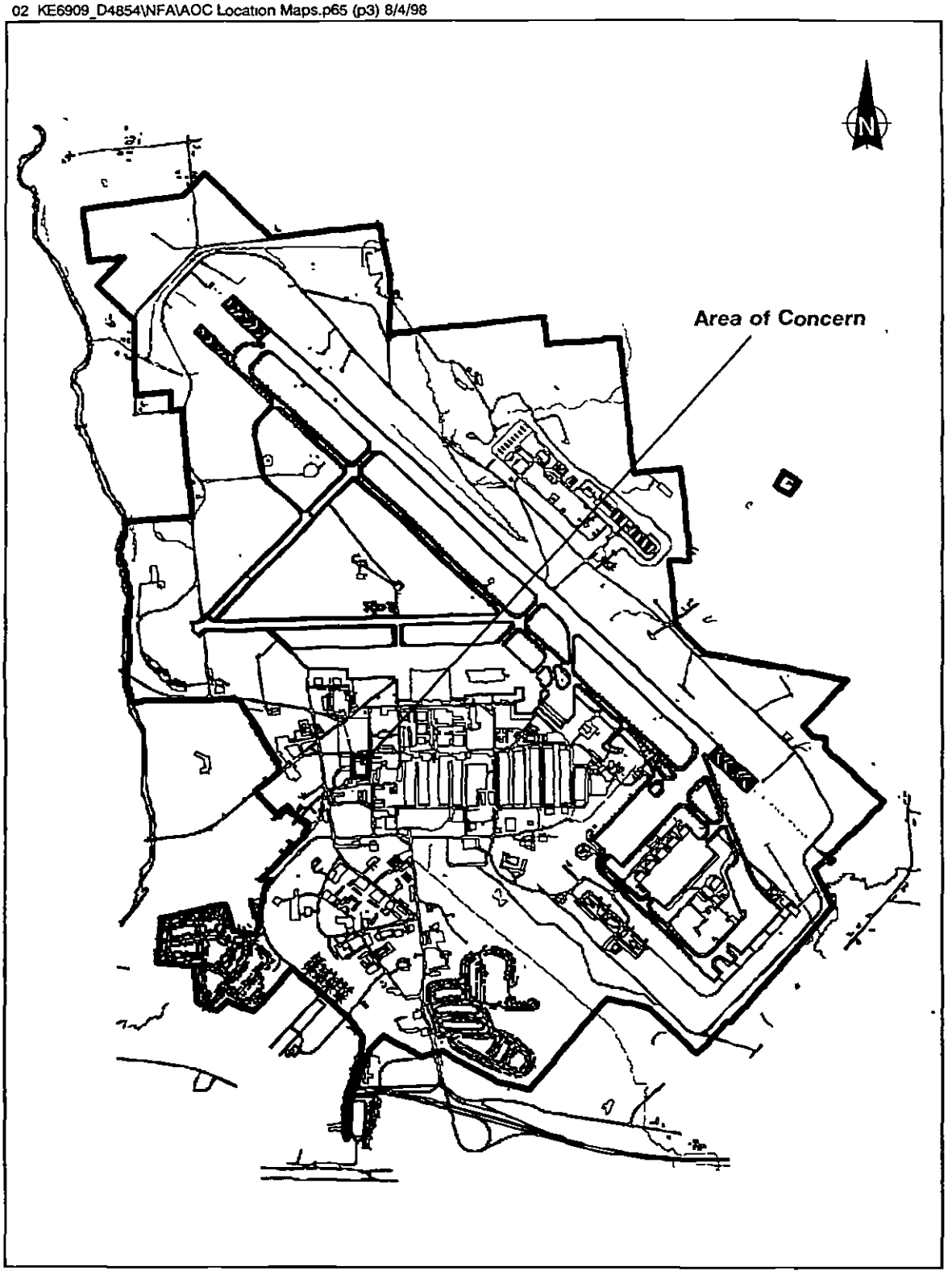
Compound	Range of Detected Concentrations		Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
VOCs (µg/L)				
Acetone	340		1/2	50[a]
Tetrachloroethylene	1 5		1/2	0 7[a]
SVOCs (µg/L)				
2,4 Dinitrotoluene	50	J	1/2	5[b]
bis(2-chloroethyl)ether	50	J	1/1	1.0[c]
o-Toluidine	10	J	1/2	5[c]

a
b NYS groundwater guidance value.
c New York primary maximum contaminant limit (MCL).
NYSDEC Class GA groundwater standard.

Key

J = Estimated.

02 KE6909_D4854\NFA\AOC Location Maps.p65 (p3) 8/4/98



SOURCE AFBCA 1996

SCALE
0 4,000 8,000 Feet

Figure 2-1 BUILDING 301 DRYWELL AOC FORMER GRIFFISS AIR FORCE BASE

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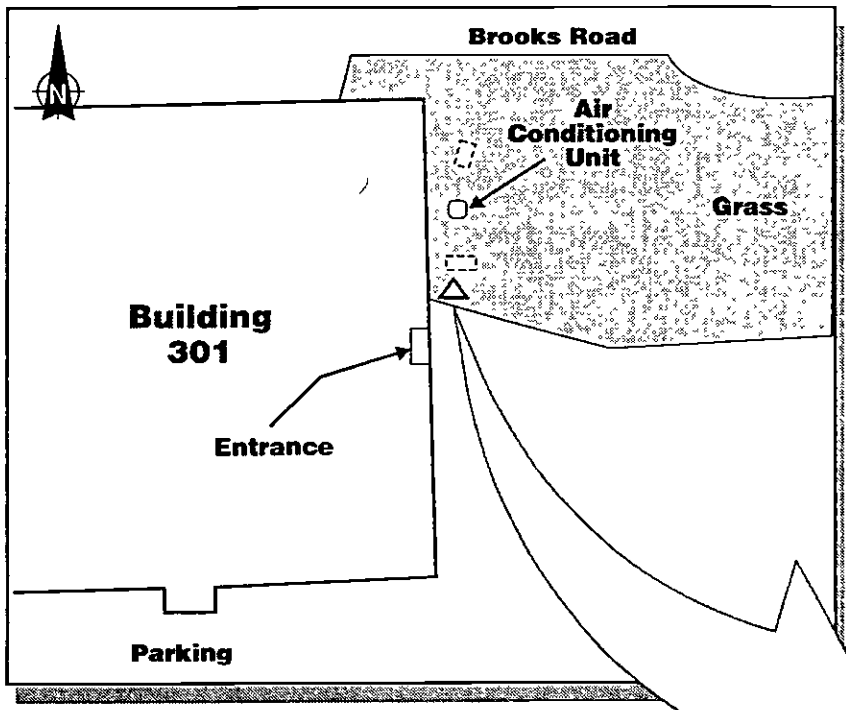

The drywell was reportedly located in a grassy area near the east entrance of Building 301.

Figure 2-2 SITE MAP OF THE BUILDING 301 DRYWELL AOC

3 Responsiveness Summary

On Wednesday February 18, 1998, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the no further action proposed plans at the Building 214, Building 219 Drywell, Building 301 Drywell, T-9 Storage Area, Fire Demonstration Area, and Suspected Fire Training Area Areas of Concern (AOCs) at the former Griffiss Air Force Base. The release of the proposed plans initiated the public comment period, which concluded on March 20, 1998.

During the public comment period, a public meeting was held on Tuesday March 10, 1998, at 5:00 p.m. at the former base chapel located at 525 Kirkland Drive. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal to take no further action at these sites.

This document summarizes the verbal comments and provides responses to the comments received at the March 10, 1998, public meeting No written comments were received during the public comment period, which ran from February 18 through March 20, 1998.

Comment #1

One commentor referred to an article in the Sentinel that indicated that a certain firm involved in computer chips took the Griffiss Park off its list because it is considered a brownfield area. The same commentor also stated, "Last week a state consultant rejected the Griffiss Park's application to be one of the ten potential manufacturing sites around the state. Quoting from the Sentinel article, Dimeo said, 'The fact the park is considered a brownfield because of wastes dumped by the Air Force may have influenced that decision ' I'm wondering if any of these sites are part of that decision, are part of that brownfield?"

Response #1

No. These sites were not selected for consideration as brownfield sites. There is a brownfield site under consideration in Rome, NY; however, such evaluation is independent from the ongoing work at Griffiss.

Comment #2

Two commentors expressed concern that the contaminant levels shown in the tables of the proposed plans are above the stringent regulatory criteria shown in the tables. They requested an answer as to what rationale was used to justify no further action

Response #2

It is assumed that this comment was directed at the T-9 Storage Area proposed plan since several compounds exceeded guidance values for surface soils at that site. Upon further review, it was decided to temporarily postpone the issuance of a ROD for the T-9 Storage Area until an interim removal action is completed. A revised proposed plan for the T-9 Storage Area will be issued. It will include the results of the confirmatory samples taken after the interim removal action is completed.

For this site, as explained in the Environmental Background section of the proposed plans:

The no further action proposal is based on an evaluation of two investigation criteria. First, a site-specific baseline risk assessment for commerical/administrative use, using appropriate toxicological and exposure assumptions, was conducted to evaluate the risks posed by detected site contaminants. Second, the levels of contaminants found were compared to available standards and guidance values for each potential contaminant. The standards and guidance values were determined by using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies which result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil, sediment, or air. In addition, groundwater and drinking water standards have not been promulgated for all potential contaminants. Therefore, other nonpromulgated federal and state advisories and guidance values, referred to as "TBCs," or background values of the contaminants in the absence of TBCs, were considered. Environmental sampling results were compared to the most stringent of these standards or guidance values during the remedial investigation for the AOC.

No further action was originally proposed for this AOC because the baseline risk assessment evidence and the comparisons of the level of contamination to the appropriate standards and guidance values indicate that this site poses no significant threat to public health or the environment.

Following the review of these comments, it was determined that the remedy should be amended to clarify institutional controls, in the form of land use restrictions and groundwater use restrictions, at the AOC.

TAB

Bldg 219 Drywell AOC

Record of Decision for Soils at the Building 219 Drywell Area of Concern at the Former Griffiss Air Force Base Rome, New York

September 1999

Prepared for:

U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
601 East 12th Street
Kansas City, MO 64106-2896

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List of Acronyms

AFBCA	Air Force Base Conversion Agency
AFB	Air Force Base
AOC	Area of Concern
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRP	Community Relations Plan
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
FS	feasibility study
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NEADS	North East Air Defense Sector
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PQL	Practical Quantitation Limit
QAPjP	Quality Assurance Project Plan
RI	remedial investigation
ROD	Record of Decision
SAC	Strategic Air Command
SAP	Sampling and Analysis Plan
SARA	Superfund Amendment and Reauthorization Act
SVOC	semivolatile organic compound
TBC	to be considered
USAF	United States Air Force
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Building 219 Drywell Area of Concern (AOC) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the no further remedial action alternative with land use restricted to industrial land use as the selected remedial action for soils at the Building 219 Drywell AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through a joint agreement. This decision is based on the administrative record file for this site.

1.3 Description of Selected Remedy

The selected remedy for the Building 219 Drywell AOC is no further remedial action, with land use restrictions for industrial land use. The agencies will perform joint five-year reviews to ensure that future land use is in compliance with the transfer documents (deed) and consistent with the baseline risk assessment for industrial land use

1.4 Declaration Statement

The AFBCA, EPA, and NYSDEC have determined that no further remedial action, with land use restrictions, is warranted for the Building 219 Drywell AOC because the baseline risk assessment for industrial land use demonstrates that contaminants in the site soil and groundwater pose no current or future threat to public health or the environment. Future landowners will be notified, through transfer documents (deed), that the land use is restricted to industrial use.

1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations (RIs) performed at the Building 219 Drywell AOC and the baseline risk assessment for industrial land use, there is no evidence that previous operations at this site have resulted in environmental contamination that poses a current or future potential threat to human health or the environment if the land is restricted to industrial use. Future landowners will be notified, through transfer documents (deed), that the land use is restricted to industrial use. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this Record of Decision.

Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency

September 15, 1999
Date

Jeanne M. Fox
Regional Administrator
United States Environmental Protection Agency, Region 2

9/30/99
Date

2 Decision Summary

This section provides an overview of the site-specific factors and analysis that lead to the no further action with land use restrictions decision for soils at the Building 219 Drywell AOC.

2.1 Site Name, Location, and Description

Regional Site Description

The former Griffiss AFB covers approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Threemile Creek, Sixmile Creek (both of which drain into the New York State Barge Canal), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Because of its flat topography, sandy soil, and high average precipitation, the former Griffiss AFB is considered a groundwater recharge zone.

Building 219 Drywell Area of Concern

Building 219, the Electric Power Production Shop, is located in the west-central portion of the base (see Figure 2-1). Based on interviews with base personnel, a drywell was reportedly located south of Building 219 in what is now an asphalt parking lot (see Figure 2-2). The actual location of the drywell has not been determined. The drywell was reportedly a 4-foot-square by 10-foot-deep pit filled with stone and gravel.

Building 219 is not located near any natural surface water drainage features. Surface water runoff is channeled into the base storm drain system, which discharges to the Mohawk River. Groundwater flow in this area is southwesterly. Groundwater was encountered at a depth

of 14 feet below ground surface (BGS) in a soil boring southwest of the reported drywell location. The uppermost soils (to a depth of 2 feet below the asphalt pavement) have been described as fine to silty medium sand with some fine to coarse gravel. Subsurface soils from 2 feet BGS to 20 feet BGS have been described as brown to yellowish brown, fine- to coarse-grained silty sand with gravel and cobbles

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied during its operational history. The former Griffiss AFB was activated on February 1, 1942 as the Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force (USAF) in 1947, the depot was renamed Griffiss Air Force Base The base became an electronics center in 1950 with the transfer of the Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added during that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. The former Griffiss AFB was designated for realignment under the Base Realignment and Closure Acts of 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the North East Air Defense Sector (NEADS) will continue to operate at their current locations. The New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998, when they were relocated to Fort Drum and the Defense Finance and Accounting Services established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous substances and hazardous wastes were used, stored, or disposed of at various sites on the installation. The defense missions involved the storage, maintenance, and

shipping of war material; research and development, and aircraft operations and maintenance, among others.

Numerous studies and investigations under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) have been carried out to detect, locate, and quantify contamination by these substances and wastes. These studies and investigations included a records search in 1981, which involved interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment of the potential for site contamination; problem confirmation and quantification studies in 1982 and 1985; soil and groundwater analyses in 1986; a public health assessment in 1988 conducted by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR); base-specific hydrology investigations in 1989 and 1990; and a groundwater investigation in 1991 ATSDR issued a Public Health Assessment for Griffiss AFB dated October 23, 1995, and an addendum to the assessment report dated September 9, 1996.

Pursuant to Section 105 of CERCLA, the former Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, USAF, EPA, and NYSDEC entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA. Under the terms of the agreement, USAF is required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports include identification of environmental AOCs on base; a scope of work for an RI; a work plan for the RI, including a sampling and analysis plan (SAP) and a quality assurance project plan (QAPjP); a baseline risk assessment; a community relations plan (CRP); and the RI report. AFBCA delivered a draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996, that incorporated or addressed EPA and NYSDEC comments.

During the RI, a site-specific baseline risk assessment for industrial land was conducted (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) to evaluate the risks posed by site contaminants to the reasonable maximally exposed individual. In addition, the RI report compares detected site contaminants to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), sediments, or air. Therefore, other non-promulgated federal and state advisories and guidance values, referred to as to-be-considereds (TBCs), or background levels of the contaminants in the absence of TBCs, were considered. No further action with land use restrictions is proposed when the levels

of contaminants at the site, in comparison to the baseline risk assessment for industrial use and the applicable standards or guidance values indicate the site poses no threat to public health or the environment.

Proposed Remedy

Based on the results of the draft RI, AFBCA has proposed that no further remedial action, with land use restrictions for industrial use, be implemented at the Building 219 Drywell AOC. The land use restriction proposal was based on the contaminant levels found at the Building 219 Drywell AOC and the site-specific risk assessment for industrial use. The determination for industrial land use was based on the redevelopment plan for Griffiss AFB provided by the Griffiss Local Development Corporation (GLDC).

Summary of Site Activities

The Building 219 Drywell AOC was reportedly used to dispose of liquid wastes. Fuel spills have also been reported at this site. The drywell operated until the early 1970s, with the disposal of less than 1 gallon per day of neutralized battery acid, less than 1 gallon per day of ethylene glycol, and less than 1 gallon per month of shop floor washwater.

In the RI, the nature and extent of environmental contamination from historical releases at this AOC were investigated to determine whether any remedial action is necessary to prevent potential threats to human health and the environment that might result from exposure to site conditions. In 1993 and 1994, during the RI, a surface geophysical survey was performed, and one test pit was excavated in an attempt to locate the drywell. Neither the drywell nor any discharge points were detected by the survey, and they were not discovered during excavation.

In 1994, one soil boring was drilled in the anticipated downgradient direction from the reported drywell location. Seven soil samples were collected at 2-foot intervals from the surface to the depth of the groundwater; all samples were sent to a commercial laboratory for chemical analysis. Three volatile organic compounds (acetone, toluene, and trichloroethylene) were detected in several subsurface soil samples; all concentrations were below soil guidance values. Seven semivolatile organic compounds were also detected. Six of the SVOCs were polynuclear aromatic hydrocarbons (PAHs) (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, fluoranthene, and pyrene). These SVOCs were detected only in the sample collected from the 0- to-2-foot depth interval, indicating that their presence may be related to asphalt at the site rather than prior disposal activities. The seventh SVOC, bis(2-ethylhexyl)phthalate, was detected in all seven soil samples and may be related to the gloves worn by field personnel or the

plastic containers used to ship deionized water to the site. The concentrations of all of the SVOCs were below soil guidance values with the exception of benzo(a)pyrene (see Table 2-1) Ten pesticides were detected in soil samples collected down to a depth of 12-feet BGS; none of their concentrations exceeded soil guidance values. Twenty-four metals were detected in the subsurface soil samples The concentrations of six metals exceeded soil guidance values (see Table 2-1).

Petroleum hydrocarbons were detected in six of the seven soil samples at concentrations ranging from 7 to 1,600 mg/kg. The highest concentrations were detected in the samples collected at depths less than 8 feet BGS, with the highest concentration occurring in the 0-to-2-foot depth interval. This finding is similar to the detection of PAHs at shallow depths and indicates that the presence of total petroleum hydrocarbons may be related to the asphalt rather than to previous disposal activities

In 1994, one grab groundwater sample was collected from the temporary monitoring well installed in the soil boring and sent to a commercial laboratory for chemical analysis. In 1995, a second grab groundwater sample was collected and analyzed for SVOCs (the laboratory had failed to analyze for SVOCs in the first sample). One VOC (trichloroethylene), three SVOCs (acenaphthylene, anthracene, and di-n-butylphthalate), five pesticides, sixteen metals, total glycols, and petroleum hydrocarbons were detected in the grab groundwater sample. None of the VOCs, SVOCs, or pesticide concentrations exceeded the screening levels. Five of the sixteen metals exceeded the standards or guidance values (aluminum, iron, manganese, sodium, thallium). Unfiltered grab groundwater samples, however, frequently yield elevated metals results due to the suspended particulate matter that contains naturally occurring metals. Therefore, grab groundwater samples are not necessarily representative of groundwater conditions.

The concentration of total glycols (0.44 mg/L) in the grab groundwater sample exceeded the New York State Groundwater Standard of 0.05 mg/L. However, glycols disposed of in the drywell in the 1970s should not be present in the environment in 1995 because glycols do not typically adsorb to either soils or sediments and rapidly biodegrade in groundwater. The physical half-life of glycols in the environment ranges from 4 to 24 days. Therefore, the presence of glycols does not appear to be related to drywell usage, but it was investigated under a separate RI AOC. Petroleum hydrocarbons were detected at a concentration of 0.3 mg/L which slightly exceeds the New York State Groundwater Standard for unspecified organic compounds (0.1 mg/L).

The groundwater is being evaluated for individual sites at the former Griffiss AFB on the basis of location and the direction of groundwater flow. Wells will be considered in groups

according to their location within given groundwater drainage areas and their relationship to individual sites or groups of sites. There are eight groundwater drainage areas on the former base; the Building 219 AOC falls within the Mohawk River drainage basin and will be discussed and evaluated in this context.

2.3 Highlights of Community Participation

A proposed plan for soils at the Building 219 Drywell AOC indicating no further action as the selected remedial action was released to the public on February 18, 1998. The document was made available to the public in both the administrative record and an information repository maintained at the Jervis Public Library. The notice announcing the availability of this document was published in the *Rome Sentinel* on February 18, 1998. In addition, a public meeting was held on March 10, 1998. At this meeting, representatives from AFBCA, EPA, and NYSDEC answered questions about issues at the AOC and the no further action proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision (see Section 3).

The agencies have determined the land use restrictions that will be placed on the Building 219 Drywell AOC. This determination is based on the transfer and future reuse of the site indicated in the redevelopment plan for Griffiss AFB, which was provided by the GLDC.

This decision document presents the selected remedial action for the Building 219 Drywell AOC at the former Griffiss AFB, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NPC. The decision for this AOC is based on the administrative record.

2.4 Scope and Role of Site Response Action

The scope of the no further remedial action with land use restrictions response for the Building 219 Drywell AOC addresses the soils at the site. Based on the baseline risk assessment for industrial land use, there is no evidence that the previous operations conducted at this site have resulted in environmental contamination that poses a current or potential threat to human health or the environment.

2.5 Summary of Site Risks

A baseline risk assessment for industrial land use was conducted to evaluate current and future potential risks to human health and the environment associated with contaminants found in

the soils during the RI at the Building 219 Drywell AOC. The results of this assessment were considered when formulating this no further action proposal for soils

Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the Building 219 Drywell could pose health risks to individuals under current and proposed future land uses As part of the baseline risk assessment, the following four-step process was used for assessing site-related human health risks for a reasonable maximum exposure scenario:

- Hazard Identification--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- Exposure Assessment--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soils) by which humans are potentially exposed,
- Toxicity Assessment--determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk) assessment of site-related risks.

The chemicals of potential concern were selected for use in the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil samples were considered chemicals of potential concern with the following exceptions. Detected compounds were excluded from the risk assessment if they were essential human nutrients or, for metals, if they were detected at a concentration less than twice the mean background concentration. Petroleum hydrocarbons were not included as a chemical of concern; rather the detected constituents (e.g., benzene, toluene, ethylbenzene) were evaluated.

The current and future land use designations for the Building 219 Drywell AOC are industrial The buildings adjacent to Building 219, which are also designated industrial, are primarily maintenance shops and offices occupied by base personnel. It is possible that Building 219 and the adjacent structures will be demolished and this area will become an easement next to the newly proposed parkway. In this case, there would be no complete exposure pathways, and exposure to contaminants would likely not occur. However, because of uncertainty regarding the

fate of this area, and for the purposes of the risk assessment, the future land use is assumed to be industrial. Under this scenario, the individuals most likely to be affected by subsurface soil are utility and construction workers. The exposure pathways evaluated for soil include incidental ingestion, dermal contact, and inhalation of fugitive dusts during excavation.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the Building 219 AOC as part of a risk characterization. The risk characterization evaluates potential health risk based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s). A computed risk greater than 1 in 10,000 (1×10^{-4}) is considered unacceptable by EPA

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soils) and pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause a similar toxic effect.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that risk at a site exceeds the cancer risk level of 1 in 10,000 or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds have been exceeded, remedial action alternatives are evaluated to reduce the risk levels to within EPA's acceptable risk range of 1 in 10,000 to 1 in 1,000,000 and an HI of 1 or less.

Results of the risk assessment at the Building 219 AOC indicate that chemicals detected in the soil do not pose a current or potential threat to utility workers and construction workers. The cumulative carcinogenic risk for utility workers and construction workers were calculated as 2 in 1,000,000 (2×10^{-6}) and 1 in 1,000,000 (1×10^{-6}), respectively, which are within EPA's acceptable target risk range. For chemicals with concentrations greater than the most stringent soil guidance values, the contaminant-specific risk calculations were below the acceptable EPA risk levels. The chemical contributing most to the estimated cancer risks for utility workers and

construction workers was arsenic, which was detected at concentrations ranging from 4 to 10.7 mg/kg; the background screening concentration for arsenic in soils is 4.9 mg/kg.

The target risk level for noncarcinogenic effects, as specified by EPA, is a HI of 1. The total HI for this AOC for subsurface soils was calculated at 0.03 for the utility worker and 0.7 for the construction worker. The greatest potential noncarcinogenic hazard was from the incidental ingestion of soil. These results indicate that adverse noncarcinogenic health effects to these workers are not expected to occur from exposure to chemical concentrations in the soil.

A reference dose and cancer slope factor were not available for lead, and a quantitative risk assessment could not be performed; therefore, a qualitative assessment was performed. The concentrations of lead ranged from 1.5 to 50 mg/kg, with the highest concentration detected in the sample collected from the 0- to-2-foot depth interval. The maximum value slightly exceeds the background screening concentration (36 mg/kg) but is well below the soil guidance value of 400 mg/kg that is recommended by EPA and is based on incidental soil exposure for children. Therefore, lead concentrations in the soil at the Building 219 Drywell AOC are not expected to pose unacceptable risks to utility workers or construction workers.

Uncertainties exist in many areas of the human health assessment process. However, use of conservative variables in intake calculations and conservative assumptions throughout the entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment for the Building 219 Drywell AOC include: (1) In quantifying exposure, it was assumed that chemicals are uniformly distributed over a defined area. At this AOC, every attempt was made to collect chemical samples from the suspected source(s) of contamination. However, because the exact location of the former drywell was never actually identified, it is possible that risk from soils was underestimated; (2) The risk assessment was quantified based on analysis of a relatively small number of soil samples from one soil boring, which can contribute to uncertainty in the risk calculations; (3) When assessing the dermal pathway, it was assumed that workers would come into contact with the soil, although the use of protective clothing is more likely. This assumption would result in potential overestimate of risk; (4) It was assumed that construction under the proposed future use scenario would occur over a one-year period, though it will probably require less time to complete due to the small size of this AOC. This assumption would result in potential overestimate of risk.

The property at the Building 219 Drywell AOC contains levels of contamination suitable for industrial/commercial usage but not necessarily suitable for residential or similar use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- The property will be industrial use unless permission is obtained from EPA, NYSDEC, and the New York State Department of Health; and

- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the aquifer below the ground surface within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

Ecological Risk Assessment

A risk assessment for ecological receptors at the Building 219 Drywell was conducted during the RI. The current and one of the proposed future land uses for this AOC is industrial, which, by its very nature, minimizes the number of ecological receptors.

Although certain state endangered plants and animals have been observed on or in the vicinity of the base, no threatened or endangered plant or animal species have been identified at this site. Therefore, the ecological risk assessment was performed for terrestrial wildlife through the most likely routes of exposure, which are ingestion of soil and ingestion of native vegetation. The risk assessment was performed for the short-tailed shrew and the raccoon. The ecological HIs were calculated at much less than the target level of 1 for both animal species. The greatest values were 0.00074 for the short-tailed shrew for selenium and 0.00000044 for the raccoon for lead. Therefore, this AOC poses no threat to the terrestrial ecological receptors or the environment.

2.6 Description of the No Further Action With Land Use Restrictions Alternative

No further remedial action, with land use restrictions, is proposed for soils at the Building 219 Drywell AOC. The majority of the chemicals detected do not exceed screening levels, and there is no known source of these contaminants at the site. In addition, the baseline risk assessment for industrial use indicates that the levels of contaminants present in the soils are within or below EPA's acceptable carcinogenic risk range and pose no unacceptable noncarcinogenic risk to the occupational worker. Therefore, both the concentrations of contaminants in the soil and the baseline risk assessment demonstrate that soil contamination at the site poses no current or potential threat to public health or the environment.

2.7 Significant Changes

The proposed plan for soils at the Building 219 Drywell AOC was released for public comment on February 18, 1998. The proposed plan identified no further action as the preferred

alternative. The agencies have reviewed all written and verbal comments submitted during the public comment period Following the review of these comments, it was determined that the remedy should be amended to clarify no further remedial action, with land use restrictions, at the Building 219 Drywell AOC.

Table 2-1

COMPOUNDS EXCEEDING GUIDANCE VALUES
SUBSURFACE SOIL SAMPLES

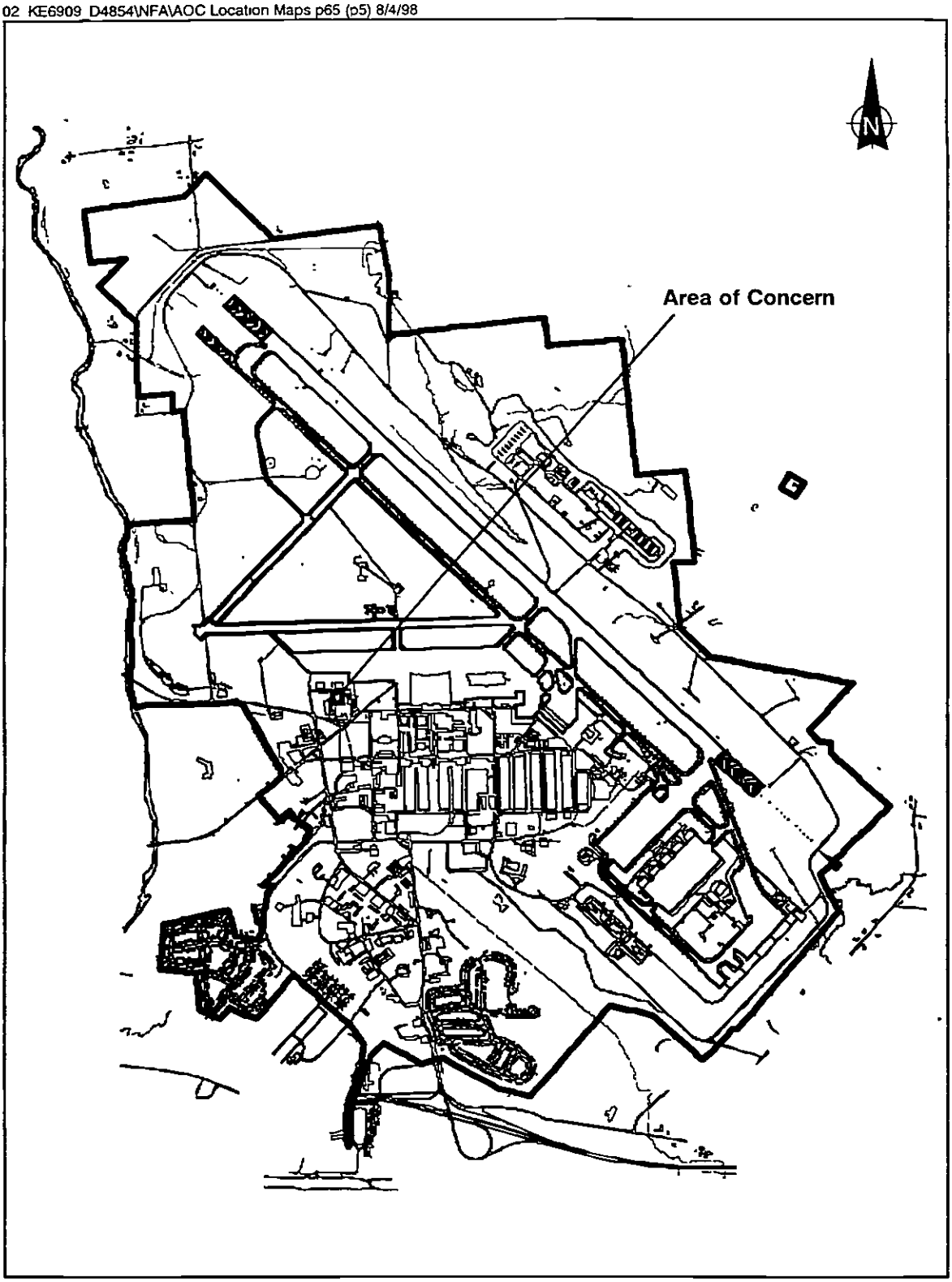
Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/L)			
Benzo(a)pyrene	68J	1/7	61[a]
Metals (mg/kg)			
Arsenic	4 - 10.7J	4/7	4.9[b]
Calcium	1,590 - 24,500	1/7	23,800[b]
Total chromium	9 3J - 28 9	2/7	22.6[b]
Copper	8 1 - 43.9	1/7	43[b]
Lead	1 5J - 50	1/7	36.2[b]
Manganese	283 - 2,360	1/7	2,110[b]

[a] NYS soil cleanup objective
[b] Background screening concentration

Key:

J = Estimated Concentration.

02 KE6909 D4854\NFA\AOC Location Maps p65 (p5) 8/4/98

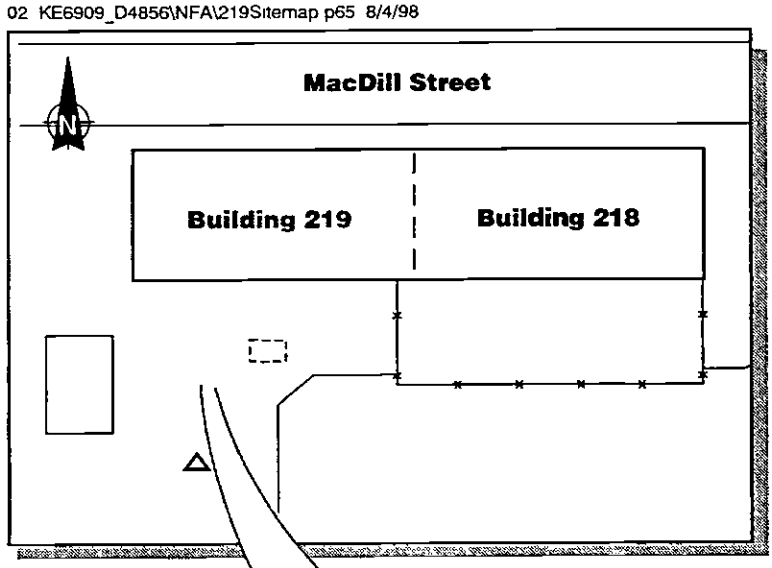


SOURCE: AFBCA 1996

SCALE
0 4,000 8,000 Feet

Figure 2-1 BUILDING 219 DRYWELL AOC FORMER GRIFFISS AIR FORCE BASE

02 KE6909_D4856\NFA\219Sitemap p65 8/4/98



KEY:
- Soil boring/grab groundwater sampling location
- Test pit location
- Fence

Building 219 Drywell was reportedly located to the south of Building 219 in an area that is now an asphalt parking lot. The parking lot is shown in the photo looking southwest from Building 219.

Figure 2-2 SITE MAP OF THE BUILDING 219 DRYWELL AOC

3 Responsiveness Summary

On Wednesday February 18, 1998, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the no further action proposed plans at the Building 214, Building 219 Drywell, Building 301 Drywell, T-9 Storage Area, Fire Demonstration Area, and Suspected Fire Training Area Areas of Concern (AOCs) at the former Griffiss Air Force Base. The release of the proposed plans initiated the public comment period, which concluded on March 20, 1998.

During the public comment period, a public meeting was held on Tuesday March 10, 1998, at 5:00 p.m. at the former base chapel located at 525 Kirkland Drive. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal to take no further action at these sites.

This document summarizes the verbal comments and provides responses to the comments received at the March 10, 1998, public meeting. No written comments were received during the public comment period, which ran from February 18 through March 20, 1998.

Comment #1

One commentor referred to an article in the Sentinel that indicated that a certain firm involved in computer chips took the Griffiss Park off its list because it is considered a brownfield area. The same commentor also stated, "Last week a state consultant rejected the Griffiss Park's application to be one of the ten potential manufacturing sites around the state. Quoting from the Sentinel article, Dimeo said, 'The fact the park is considered a brownfield because of wastes dumped by the Air Force may have influenced that decision.' I'm wondering if any of these sites are part of that decision, are part of that brownfield?"

Response #1

No. These sites were not selected for consideration as brownfield sites. There is a brownfield site under consideration in Rome, NY; however, such evaluation is independent from the ongoing work at Griffiss.

Comment #2

Two commentors expressed concern that the contaminant levels shown in the tables of the proposed plans are above the stringent regulatory criteria shown in the tables. They requested an answer as to what rationale was used to justify no further action.

Response #2

It is assumed that this comment was directed at the T-9 Storage Area proposed plan since several compounds exceeded guidance values for surface soils at that site. Upon further review, it was decided to temporarily postpone the issuance of a ROD for the T-9 Storage Area until an interim removal action is completed. A revised proposed plan for the T-9 Storage Area will be issued. It will include the results of the confirmatory samples taken after the interim removal action is completed.

For this site, as explained in the Environmental Background section of the proposed plans:

The no further action proposal is based on an evaluation of two investigation criteria. First, a site-specific baseline risk assessment for industrial land use, using appropriate toxicological and exposure assumptions, was conducted to evaluate the risks posed by detected site contaminants. Second, the levels of contaminants found were compared to available standards and guidance values (e.g., industrial reuse) for each potential contaminant. The standards and guidance values were determined by using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies which result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil, sediment, or air. In addition, groundwater and drinking water standards have not been promulgated for all potential contaminants. Therefore, other nonpromulgated federal and state advisories and guidance values, referred to as "TBCs," or background values of the contaminants in the absence of TBCs, were considered. Environmental sampling results were compared to the most stringent of these standards or guidance values during the remedial investigation for the AOC.

Although no further remedial action is proposed for this AOC, land use restrictions are required because the baseline risk assessment was limited to industrial/nonresidential reuse. However, the comparison of the levels of contamination to the applicable standards and guidance values (e.g., industrial reuse) indicate that this site poses no significant threat to public health or the environment if use is restricted.

TAB

Bldg 214 AOC

Record of Decision for Soils at the Building 214 Area of Concern at the Former Griffiss Air Force Base Rome, New York

September 1999

Prepared for:

U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
601 East 12th Street
Kansas City, MO 64106-2896

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List of Acronyms

AFBCA	Air Force Base Conversion Agency
AFB	Air Force Base
AOC	Area of Concern
ATSDR	Agency for Toxic Substances and Disease Registry
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRP	Community Relations Plan
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
FS	feasibility study
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NEADS	North East Air Defense Sector
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PQL	Practical Quantitation Limit
QAPjP	Quality Assurance Project Plan
RI	remedial investigation
ROD	Record of Decision
SAC	Strategic Air Command
SAP	Sampling and Analysis Plan
SARA	Superfund Amendment and Reauthorization Act
SVOC	semivolatile organic compound
TBC	to be considered
USAF	United States Air Force
UST	Underground Storage Tank
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Building 214 (former Vehicle Maintenance Shop) Area of Concern (AOC) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the no further remedial action alternative with land use restricted to industrial land use as the selected remedial action for soils at the Building 214 AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA). and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through a joint agreement This decision is based on the administrative record file for this site.

1.3 Description of Selected Remedy

The selected remedy for the Building 214 AOC is no further remedial action, with land use restrictions for industrial land use. The agencies will perform joint five-year reviews to ensure that future land use is in compliance with the transfer documents (deed) and consistent with the baseline risk assessment for industrial land use.

1.4 Declaration Statement

The AFBCA, EPA, and NYSDEC have determined that no further remedial action, with land use restrictions, is warranted for the Building 214 AOC because the baseline risk assessment for industrial land use demonstrates that the site contaminants in the soil and groundwater pose no current or future threat to public health or the environment. Future landowners will be notified, through transfer documents (deed), that the current and future land use is restricted to industrial use.

1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations (RIs) performed at the Building 214 AOC and the baseline risk assessment for industrial land use, there is no evidence that previous operations at this site have resulted in environmental contamination that poses a current or future potential threat to human health or the environment if the land is restricted to industrial use. Future landowners will be notified, through transfer documents (deed), that land use is restricted to industrial use. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this Record of Decision.

Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency

September 15, 1999
Date

Jeanne M. Fox
Regional Administrator
United States Environmental Protection Agency, Region 2

9/30/99
Date

2 Decision Summary

This section provides an overview of the site-specific factors and analysis that lead to the no further action with land use restrictions decision for soils at the Building 214 AOC.

2.1 Site Name, Location, and Description

Regional Site Description

The former Griffiss AFB covers approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Threemile Creek, Sixmile Creek (both of which drain into the New York State Barge Canal), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Because of its flat topography, sandy soils, and high average precipitation, the former Griffiss AFB is considered a groundwater recharge zone.

Building 214 Area of Concern

The Building 214 AOC, located in the west-central portion of the base (see Figure 2-1), consists of Building 214, an underground storage tank (UST), parking areas, and two suspected drywells (see Figure 2-2) Building 214, a former vehicle maintenance shop, covers approximately 3,000 square feet of the site.

Grass-covered areas line the east and west sides of the building, an asphalt parking area is to the north, and a gravel-covered parking area is to the south. Solvent and petroleum product releases have been reported in the gravel-covered parking area Two drywells have also been reported to exist at this AOC, one located at the southeast corner and the other at the southwest corner of the building. The historical and operational uses of these reported drywells are unknown.

Building 214 is not located near any natural surface water drainage features. Surface water runoff from this AOC is channeled into the base storm drain system, which discharges to the Mohawk River. Groundwater flow in this area is to the south-southwest.

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied during its operational history. The former Griffiss AFB was activated on February 1, 1942, as the Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force (USAF) in 1947, the depot was renamed Griffiss AFB. The base became an electronics center in 1950 with the transfer of the Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added during that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. The former Griffiss AFB was designated for realignment under the Base Realignment and Closure Acts of 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the North East Air Defense Sector (NEADS) will continue to operate at their current locations. The New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998 when they were relocated to Fort Drum and the Defense Finance and Accounting Services established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous substances and hazardous wastes were used, stored, or disposed of at various sites on the installation. The defense missions involved the storage, maintenance, and shipping of war material; research and development; and aircraft operations and maintenance, among others.

Numerous studies and investigations have been carried out under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) to detect, locate, and quantify areas contaminated by these substances and wastes. These studies and investigations included a records search in 1981 involving interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment of the potential for site contamination; problem confirmation and quantification studies in 1982 and 1985; soil and groundwater analyses in 1986; a public health assessment in 1988 conducted by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR); base-specific hydrology investigations in 1989 and 1990; and a groundwater investigation in 1991. ATSDR issued a Public Health Assessment for Griffiss AFB dated October 23, 1995, and an addendum to the assessment report dated September 9, 1996.

Pursuant to Section 105 of CERCLA, the former Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, USAF, EPA, and NYSDEC entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA. Under the terms of the agreement, USAF is required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports include identification of environmental AOCs on base; a scope of work for an RI; a work plan for the RI, including a sampling and analysis plan (SAP) and a quality assurance project plan (QAPjP); a baseline risk assessment; a community relations plan (CRP); and the RI report. The AFBCA delivered a draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996, that incorporated or addressed EPA and NYSDEC comments.

During the RI, a site-specific baseline risk assessment for industrial land was conducted (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) to evaluate the risks posed by site contaminants to the reasonable maximally exposed individual. In addition, the RI report compared detected site contaminants to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), sediments, or air. Therefore, other non-promulgated federal and state advisories and guidance values, referred to as to-be-considereds (TBCs), or background levels of the contaminants in the absence of TBCs, were considered. No further action, with land use restrictions, is proposed when the levels of contaminants at the site, in comparison to the baseline risk assessment for industrial use

and the applicable standards or guidance values, indicate the site poses no threat to public health or the environment.

Proposed Remedy

Based on the results of the draft RI, AFBCA has proposed that no further remedial action, with land use restrictions for industrial use, be implemented at the Building 214 AOC The land use restriction proposal was based on the contaminant levels found at the Building 214 AOC and the site-specific risk assessment for industrial use The determination for industrial land use was based on the redevelopment plan for Griffiss AFB provided by the Griffiss Local Development Corporation (GLDC).

Summary of Site Activities

The floor drain system in Building 214 is connected to an oil/water separator system located in the southeastern portion of the building. The water discharges to the sanitary sewer system, and the oils are directed to a 275-gallon UST located outside of the southeast corner of the building. This UST has reportedly overflowed in the past due to mechanical failure of the tank gauge. The oil/water separator and associated UST were removed in June 1997 The excavation walls, floor, and excavated soil pile were sampled, and no petroleum constituents were encountered above NYSDEC regulations.

In the RI, the nature and extent of potential environmental contamination associated with historical releases from this AOC were investigated to determine whether any remedial action is necessary to prevent potential threats to human health and the environment that might result from exposure to site conditions. The following summarizes the RI field efforts conducted at the Building 214 site. No previous investigations were conducted at the site prior to the RI.

RI field activities began in 1993. A geophysical survey was performed in an attempt to locate the suspected drywell near the southwest corner of the building, but this drywell was not found Visual inspections revealed a round, disturbed, revegetated area near the reported drywell location at the southwestern corner of Building 214. A site reconnaissance discovered a corrugated metal pipe that appeared to be associated with the drainage control near the reported drywell location at the southeastern corner of the building and south of the UST. A soil gas survey was conducted in 1994 to characterize the nature and extent of potential contamination in the area of reported solvent and petroleum releases south of the building. Other field activities conducted during the RI included the collection of surface and subsurface soils, on-site soil sample screening, the installation and collection of groundwater samples from two temporary

wells installed near the reported drywell locations, and a topographic land survey. Subsurface soil samples were collected from two temporary well installations and six boreholes in areas indicated by the soil gas survey. These areas were consistent with the potential source areas at the site (i.e., the UST and gravel-covered parking area). All subsurface soils were screened for organic compounds at an on-site laboratory and a total of 40 samples were sent to an off-site laboratory for analysis. Laboratory analysis detected the presence of volatile organic compounds, semivolatile organic compounds, pesticides, and petroleum hydrocarbons. The concentrations of ten of these chemicals exceeded the soil guidance values, most frequently in the borings adjacent to the reported drywell locations (see Table 2-1).

Three surface soil samples and four shallow samples from soil borings were collected in the vicinity of the UST and analyzed by an off-site laboratory. The surface soil samples contained concentrations of four SVOCs, one pesticide, and two metals that slightly exceeded the soil guidance values (see Table 2-2).

Two grab groundwater samples were collected from the temporary wells installed near the suspected drywell locations. Both samples contained VOCs, SVOCs, petroleum hydrocarbons, and pesticides, most concentrations were below the soil guidance values. One SVOC and two pesticides were detected at concentrations above soil guidance values in one of two samples (see Table 2-3). Five metals were detected above the soil guidance values. Petroleum hydrocarbons were detected at a concentration of 3.9 mg/L which exceeds the New York State Groundwater Standard for unspecified organic compounds (0.1 mg/L) Unfiltered grab groundwater samples, however, frequently yield elevated metals results due to the suspended particulate matter that contains naturally occurring metals Therefore, grab groundwater samples are not necessarily representative of groundwater conditions.

The groundwater is being evaluated for individual sites at the former Griffiss AFB on the basis of location and the direction of groundwater flow. Wells will be considered in groups according to their location within given groundwater drainage areas and their relationship to individual sites or groups of sites. There are eight groundwater drainage areas on the former base; the Building 214 AOC falls within the Mohawk River drainage basin and will be discussed and evaluated in this context Petroleum hydrocarbon contamination also will be investigated in this area as part of an open spill at adjacent Buildings 215/216 under NYSDEC open spill number 9702165.

2.3 Highlights of Community Participation

A proposed plan for soils at the Building 214 AOC indicating no further action as the selected remedial action was released to the public on February 18, 1998. This document was made available to the public in both the administrative record and an information repository maintained at the Jervis Public Library. The notice announcing the availability of the document was published in the *Rome Sentinel* on February 18, 1998. In addition, a public meeting was held on March 10, 1998 At this meeting, representatives from AFBCA, EPA, and NYSDEC answered questions about issues at the AOC and the No Further Action proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision (see Section 3).

The agencies have determined the land use restrictions that will be placed on the Building 214 AOC. This determination is based on the transfer and future reuse of the site indicated in the redevelopment plan for Griffiss AFB, which was provided by the GLDC.

This decision document presents the selected remedial action for the Building 214 AOC at the former Griffiss AFB, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NCP. The decision for this AOC is based on the administrative record.

2.4 Scope and Role of Site Response Action

The scope of the no further remedial action with land use restrictions response for the Building 214 AOC addresses soils at the site. Based on the results of the baseline risk assessment for industrial land use, there is no evidence that previous operations conducted at this site have resulted in environmental contamination that poses a current or potential threat to human health or the environment.

2.5 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the AOC. As part of the RI, a baseline risk assessment for industrial use was conducted to estimate current and future potential risks to human health and the environment associated with the contaminants found in soils at the Building 214 AOC. The results of this assessment for surface and subsurface soils were considered when formulating this no further action proposal for soils.

Risks associated with groundwater at this site will be evaluated in the context of the Mohawk River drainage area as discussed above. A feasibility study will present an evaluation of the contaminants in the groundwater and a discussion of the alternatives available to address any risks posing a current or potential threat to human health or the environment. Therefore,

risks associated with potential groundwater contamination at this AOC are not discussed in this proposed plan.

Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected in soils at the AOC could pose a health risk to individuals under current and future site conditions in the absence of a remedial action being conducted at the site. As part of the baseline risk assessment, the following four-step process was used to assess site-related human health risks for a reasonable maximum exposure scenario:

- Hazard Identification--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- Exposure Assessment--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soils) by which humans are potentially exposed;
- Toxicity Assessment--determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer hazard index value) assessment of site-related risks.

The risk assessment evaluated chemicals of concern; baseline exposure scenarios, including routes of exposure and current and future land-use scenarios; and current and potential risks.

Chemicals of potential concern were selected for the risk assessment based on the analytical results and data quality evaluation All contaminants detected in the soil samples collected at the AOC were considered chemicals of potential concern with the exception of inorganics detected at mean concentrations less than twice the mean background and essential human nutrients (i.e., calcium, iron, magnesium, potassium, and sodium). Petroleum hydrocarbons were not included as a chemical of concern; rather the detected constituents (e.g., benzene, toluene, ethylbenzene) were evaluated.

Surface and subsurface soils were evaluated during the Building 214 AOC risk assessment. Routes of exposure were selected based on current and proposed future land use. This AOC is currently designated for industrial use, and future land use is assumed to remain industrial. The most probable sources of chemicals associated with Building 214 derive from suspected solvent releases and historical overflows from the oil/water separator to contaminated

surface soils. In addition, past disposal of wastes into drywells reportedly located at the site may have adversely impacted the soils. Potentially exposed populations at the AOC under current use are landscape workers If the site undergoes future development, potentially exposed populations include landscape workers, utility workers, and construction workers. Potential routes of exposure to site soils included incidental ingestion, inhalation of fugitive dusts, and dermal contact.

The risk characterization combined the results of the exposure and toxicity assessments into quantitative and qualitative expressions of risk associated with exposures to contaminants of potential concern. Estimates for both carcinogenic and noncarcinogenic risks were calculated for the Building 214 AOC

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. A computed risk greater than 1 in 10,000 (1×10^{-4}) is considered unacceptable by EPA.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soils) and pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause a similar toxic effect.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that risk at a site exceeds the cancer risk level of 1 in 10,000 or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds have been exceeded, remedial action alternatives are evaluated to reduce the risk levels to within EPA's acceptable risk range of 1 in 10,000 to 1 in 1,000,000 and an HI of 1 or less.

Results of the risk assessment indicate that chemicals detected in the soil at the Building 214 AOC do not pose a current or potential threat to occupational workers. The cumulative carcinogenic risk for landscape workers exposed to surface soils was calculated as 2 in 1,000,000 (2×10^{-6}). The cumulative carcinogenic risks for potential future utility and construction workers exposed to subsurface soils were calculated at 1 in 1,000,000 (1×10^{-6}), and 9 in 10,000,000 (9×10^{-7}), respectively. These results are well below EPA's target risk range. For chemicals with concentrations greater than the most stringent soil guidance values, the contaminant-specific risk calculations were well below the acceptable EPA risk levels.

The cumulative HI for landscape workers exposed to surface soil at the Building 214 AOC was calculated as 0.008. The HIs for utility and construction workers exposed to subsurface soil at Building 214 were calculated at 0.007 and 0.1, respectively. These results are well below the target hazard index of 1.0. None of the exposure pathways evaluated indicated an unacceptable risk from exposure to chemicals in soils.

Toxicity values were not available for nine compounds (acenaphthylene, benzo(g,h,i)perylene, coumaphos, lead, fensulfothion, guthion, phenanthrene, etridiazole, and methiocarb) detected in the soil; thus a quantitative risk assessment could not be performed. Therefore, a qualitative assessment was performed by comparing the concentrations of these nine compounds to the soil guidance values. Acenaphthylene was detected in two of 40 soil samples at concentrations of 0.043 mg/kg and 0.052 mg/kg, but no standard or guidance value is available. Benzo[g,h,i]perylene was detected in four of 40 samples at concentrations ranging from 0.059 mg/kg to 0.58 mg/kg, which are below the soil guidance value of 50 mg/kg. Coumaphos was detected in two of 18 soil samples at concentrations ranging from 0.08 mg/kg to 0.16 mg/kg, but no standard or guidance value is available. Lead was detected in all soil samples collected from this AOC at concentrations ranging from 2.8 mg/kg to 150 mg/kg, three of which were above the background screening concentration for Griffiss AFB (36 mg/kg) but below the most stringent guidance value of 400 mg/kg. Fensulfothion was detected in one of 18 soil samples at a concentration of 0.04 mg/kg, but no soil guidance value is available Guthion was detected in one of 18 soil samples at a concentration of 0.07 mg/kg, but no soil guidance value is available. Phenanthrene was detected in eight of 40 samples at concentrations ranging from 0.065 mg/kg to 0.24 mg/kg, which are below the soil guidance value of 50 mg/kg. Based on the results of this qualitative risk assessment, the concentrations of the nine compounds detected at the Building 214 AOC are unlikely to pose health hazards to potential occupational and industrial receptors.

Uncertainties exist in many areas of the human health assessment process. However, use of conservative variables in intake calculations and conservative assumptions throughout the

entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment include: (1) In quantifying exposure, it was assumed that the chemicals are uniformly distributed over a defined area. At this AOC, chemical samples were collected from the suspected source of contamination rather than through random sampling which could result in a potential overestimate of risk; (2) The risk assessment was quantified based on analysis of a relatively small number of soil samples, which can contribute to uncertainty in the risk calculations; (3) When assessing the dermal pathway, it was assumed that workers would come into contact with the soil, although the use of protective clothing is more likely This assumption would result in a potential overestimate of risk, and (4) It was assumed that for the proposed future use scenario, construction would occur over a one-year period, though it will probably require less time to complete due to the small size of this AOC. This assumption would result in a potential overestimate of risk.

The property at the Building 214 AOC contains levels of contamination suitable for industrial/commercial usage but not necessarily suitable for residential or similar use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- The property will be industrial use unless permission is obtained from EPA, NYSDEC, and the New York State Department of Health; and
- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the aquifer below the ground surface within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

Ecological Risk Assessment

Both the current and proposed future land uses for this AOC are industrial, which, by its very nature, minimizes the number of ecological receptors. Ecological risks were considered as part of the Building 214 baseline risk assessment. Surface soils were evaluated with exposures to terrestrial wildlife common to the area. Ecological risks were assessed for raccoons and short-tailed shrews. Routes of exposure considered for each receptor included ingestion and bioaccumulation through the food chain. An assessment was performed using methods similar to those used to quantify human risks. Hazard quotients were calculated for the chemicals of concern for each of the species. None of the quotients calculated exceeded the target index of 1.0, with the greatest value being approximately 0.077 for the short-tailed shrew for selenium. For the raccoon, the greatest value is approximately 0.000072 for lead. Therefore, the results of

the ecological risk assessment indicate that the chemicals found in the soils at this AOC do not pose a current or potential threat to terrestrial wildlife.

2.6 Description of the No Further Action With Land Use Restrictions Alternative

No further remedial action, with land use restrictions, is proposed for soils at the Building 214 AOC The majority of the chemicals detected at the AOC do not exceed standards or guidance values, and there are no known sources of these contaminants at the site. In addition, the baseline risk assessment for industrial use indicates that the levels of contaminants present in the soils are within or below EPA's acceptable carcinogenic risk range and pose no unacceptable noncarcinogenic risk to the occupational workers. Therefore, the concentrations of contaminants in the soil and the baseline risk assessment both demonstrate that contaminants in the soils at the Building 214 AOC pose no current or potential threat to public health or the environment.

2.7 Significant Changes

The proposed plan for soils at the Building 214 AOC was released for public comment on February 18, 1998. The proposed plan identified no further action as the preferred alternative. The agencies have reviewed all written and verbal comments submitted during the public comment period. Following the review of these comments, it was determined that the remedy should be amended to clarify no further remedial action, with land use restrictions, at the Building 214 AOC.

Table 2-1

COMPOUNDS EXCEEDING GUIDANCE VALUES SUBSURFACE SOIL SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/kg)			
Benzo(a)pyrene	48 J - 150 J	4/36	61[a]
Metals (mg/kg)			
Arsenic	2 7 - 10	17/36	4.9[b]
Cadmium	0.3 J - 5.2	3/36	1.0[a]
Calcium	932 - 26,100	1/36	23,800[b]
Total chromium	6.5-111	4/36	22 6[b]
Copper	13.1 - 48.4	2/36	43[b]
Lead	2 8 - 150	3/36	36.2[b]
Mercury	0 014 J - 0 4 J	2/36	0 1[b]
Nickel	10.3 - 55.7	1/36	46.1[b]
Silver	0 41 J - 19 5	3/36	1 1[b]

a
b NYS soil cleanup objectives.
Background screening concentration

Key

J = Estimated concentration

Table 2-2

COMPOUNDS EXCEEDING GUIDANCE VALUES SURFACE SOIL SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (μg/kg)			
Benzo(a)anthracene	120 J - 690	2/3	224[a]
Benzo(a)pyrene	140 J - 660	3/3	61[a]
Chrysene	160 J - 810	2/3	400[a]
Dibenzo(a,h)anthracene	98 J - 170 J	2/3	14[a]
Pesticides/PCBs (μg/kg)			
Dieldrin	29 - 105	2/3	40[b]
Metals (mg/kg)			
Cadmium	3	1/3	1.0[a]
Lead	19 9 - 92	2/3	36.2[c]

a
b NYS soil cleanup objectives
c Proposed RCRA corrective action levels.
Background screening concentration.

Key:

J = Estimated concentration.

Table 2-3

COMPOUNDS EXCEEDING GROUNDWATER STANDARDS GRAB GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
SVOCs (µg/L)			
Bis(2-ethylhexyl)phthalate	5 J - 8 J	1/2	6[a]
Pesticides/PCBs (µg/L)			
3,5-dimethyl-4-(methylthio)	13	1/2	5[b]
Aldrin	0 002 J - 0 014 J	1/2	ND
Other Compounds (mg/L)			
Petroleum hydrocarbons	3 9	2/2	0 1[c]

a
b Federal primary maximum contaminant levels
c NYSDEC Class GA groundwater standard.
New York primary maximum contaminant level .

Key

J = Estimated concentration
ND = Nondetect.

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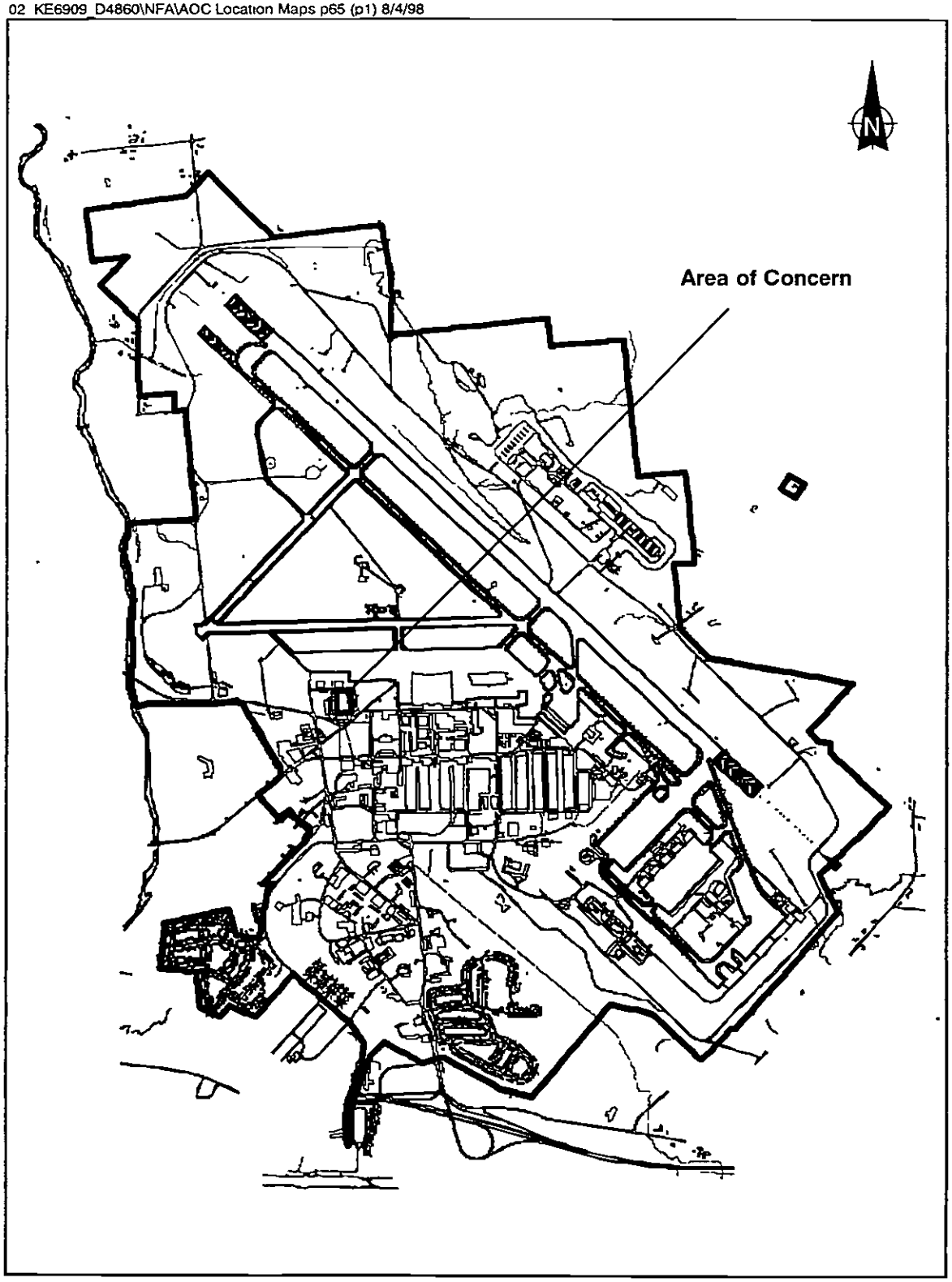
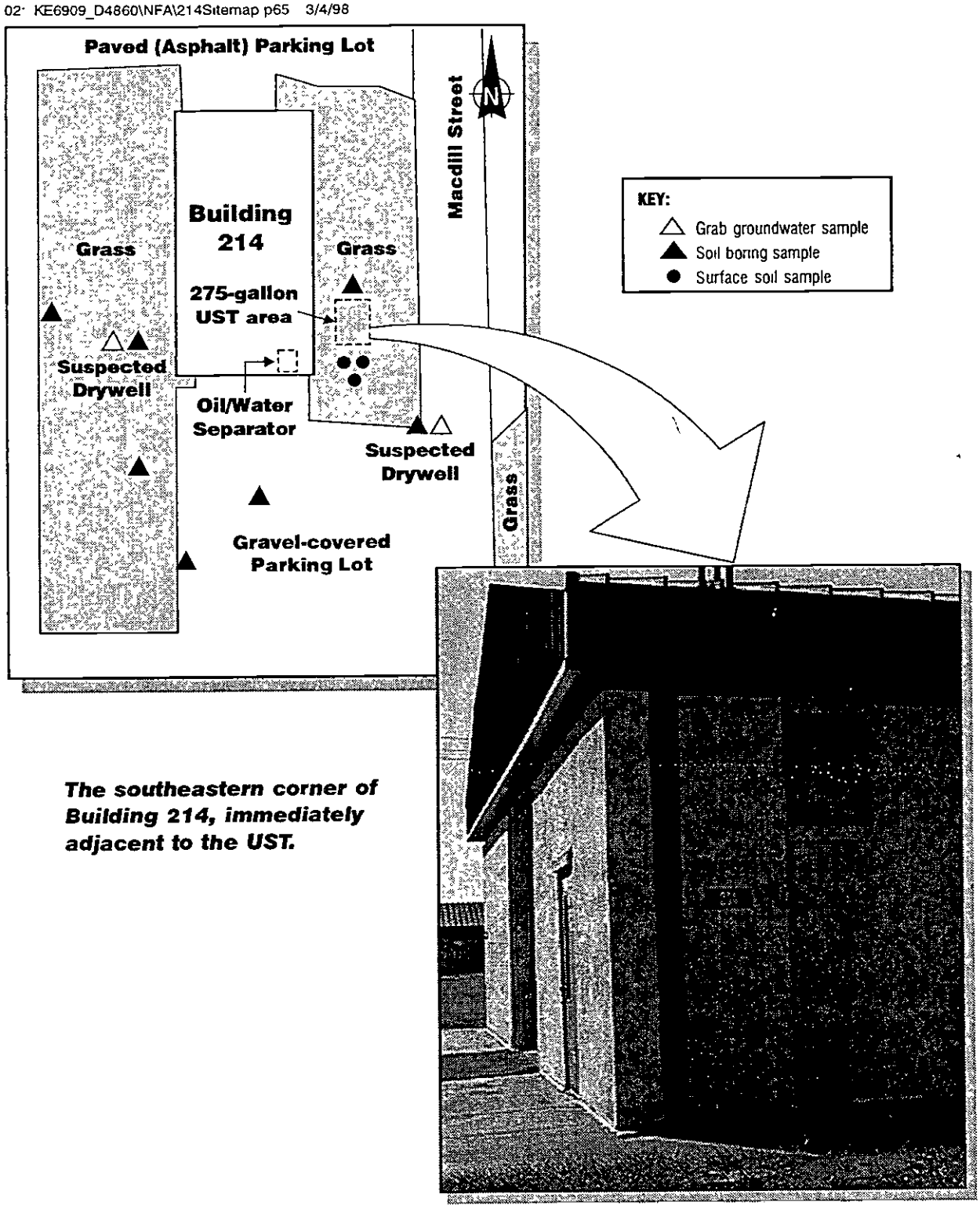


SOURCE AFBCA 1996

SCALE
0 4,000 8,000 Feet

Figure 2-1 BUILDING 214 AOC FORMER GRIFFISS AIR FORCE BASE



The southeastern corner of Building 214, immediately adjacent to the UST.

Figure 2-2 SITE MAP OF THE BUILDING 214 AOC

3 Responsiveness Summary

On Wednesday February 18, 1998, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the no further action proposed plans at the Building 214, Building 219 Drywell, Building 301 Drywell, T-9 Storage Area, Fire Demonstration Area, and Suspected Fire Training Area Areas of Concern (AOCs) at the former Griffiss Air Force Base. The release of the proposed plans initiated the public comment period, which concluded on March 20, 1998.

During the public comment period, a public meeting was held on Tuesday March 10, 1998, at 5:00 p m. at the former base chapel located at 525 Kirkland Drive. A court reporter recorded the proceedings of the public meeting A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal to take no further action at these sites.

This document summarizes the verbal comments and provides responses to the comments received at the March 10, 1998, public meeting. No written comments were received during the public comment period, which ran from February 18 through March 20, 1998.

Comment #1

One commentor referred to an article in the Sentinel that indicated that a certain firm involved in computer chips took the Griffiss Park off its list because it is considered a brownfield area. The same commentor also stated, "Last week a state consultant rejected the Griffiss Park's application to be one of the ten potential manufacturing sites around the state. Quoting from the Sentinel article, Dimeo said, 'The fact the park is considered a brownfield because of wastes dumped by the Air Force may have influenced that decision.' I'm wondering if any of these sites are part of that decision, are part of that brownfield?"

Response #1

No. These sites were not selected for consideration as brownfield sites There is a brownfield site under consideration in Rome, NY; however, such evaluation is independent from the ongoing work at Griffiss.

Comment #2

Two commentors expressed concern that the contaminant levels shown in the tables of the proposed plans are above the stringent regulatory criteria shown in the tables. They requested an answer as to what rationale was used to justify no further action.

Response #2

It is assumed that this comment was directed at the T-9 Storage Area proposed plan since several compounds exceeded guidance values for surface soils at that site. Upon further review, it was decided to temporarily postpone the issuance of a ROD for the T-9 Storage Area until an interim removal action is completed. A revised proposed plan for the T-9 Storage Area will be issued. It will include the results of the confirmatory samples taken after the interim removal action is completed.

For this site, as explained in the Environmental Background section of the proposed plans:

The no further action proposal is based on an evaluation of two investigation criteria. First, a site-specific baseline risk assessment for industrial land use, using appropriate toxicological and exposure assumptions, was conducted to evaluate the risks posed by detected site contaminants. Second, the levels of contaminants found were compared to available standards and guidance values (e g., industrial reuse) for each potential contaminant The standards and guidance values were determined by using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies which result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil, sediment, or air. In addition, groundwater and drinking water standards have not been promulgated for all potential contaminants Therefore, other nonpromulgated federal and state advisories and guidance values, referred to as "TBCs," or background values of the contaminants in the absence of TBCs, were considered. Environmental sampling results were compared to the most stringent of these standards or guidance values during the remedial investigation for the AOC

Although no further remedial action is proposed for this AOC, land use restrictions are required because the baseline risk assessment was limited to industrial/nonresidential reuse. However, the comparison of the levels of contamination to the applicable standards and guidance values (e.g., industrial reuse) indicate that this site poses no significant threat to public health or the environment if use is restricted.

TAB

Fire Demonstration Area AOC

Record of Decision for the Fire Demonstration Area Area of Concern at the Former Griffiss Air Force Base Rome, New York

September 1999

Prepared for:

U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
601 East 12th Street
Kansas City, MO 64106-2896

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List of Acronyms

AFBCA	Air Force Base Conversion Agency
AFB	Air Force Base
AOC	Area of Concern
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRP	Community Relations Plan
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
FDA	Fire Demonstration Area
FS	feasibility study
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NEADS	North East Air Defense Sector
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PQL	Practical Quantitation Limit
PCB	polychlorinated biphenyl
QAPjP	Quality Assurance Project Plan
RI	remedial investigation
ROD	Record of Decision
SAC	Strategic Air Command
SAP	Sampling and Analysis Plan
SARA	Superfund Amendment and Reauthorization Act
SVOC	semivolatile organic compound
TBC	to be considered
USAF	United States Air Force
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Fire Demonstration Area (FDA) Area of Concern (AOC) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the no further remedial action alternative with land use restricted to industrial land use as the selected remedial action for the FDA AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA), and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through a joint agreement. This decision is based on the administrative record file for this site.

1.3 Description of Selected Remedy

The selected remedy for the FDA AOC is no further remedial action, with land use restrictions for industrial land use. The agencies will perform joint five-year reviews to ensure that future land use is in compliance with the transfer documents (deed) and consistent with the baseline risk assessment for industrial land use

1.4 Declaration Statement

The AFBCA, EPA, and NYSDEC have determined that no further remedial action, with land use restrictions, is warranted for the FDA AOC because the baseline risk assessment for

industrial land use demonstrates that the site contaminants in the soil and groundwater pose no current or future threat to public health or the environment. Future landowners will be notified, through transfer documents (deed), that the land use is restricted to industrial use.

1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations (RIs) performed at the FDA AOC and the baseline risk assessment for industrial land use, there is no evidence that previous operations at this site have resulted in environmental contamination that poses a current or future potential threat to human health or the environment if the land is restricted to industrial use. Future landowners will be notified, through transfer documents (deed), that the current and future land use is restricted to industrial use. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this Record of Decision.

Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency

September 15, 1999
Date

Jeanne M. Fox
Regional Administrator
United States Environmental Protection Agency, Region 2

9/30/99
Date

2 Decision Summary

This section provides an overview of the site-specific factors and analysis that lead to the no further action with land use restrictions decision for the FDA AOC.

2.1 Site Name, Location, and Description

Regional Site Description

The former Griffiss AFB covers approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Threemile Creek, Sixmile Creek (both of which drain into the New York State Barge Canal), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Because of its flat topography, sandy soil, and high average precipitation, the former Griffiss AFB is considered a groundwater recharge zone.

Fire Demonstration Area AOC

The FDA AOC is located between Taxiways 17, 15, and 13 and Apron 3 in the north-central part of the base (see Figures 2-1 and 2-2). The area is a flat lawn of short grass surrounded by stormwater catch basins. The FDA was used from 1974 through 1992 for demonstrations on how to extinguish aircraft fuel fires.

Surface water runoff from the FDA is collected in the base storm drain system, which discharges to the Mohawk River. Groundwater flows in a westerly direction and was encountered from 15 to 16.5 feet below ground surface (BGS) at this AOC in August 1994. Surface soils were characterized in the RI as 2 feet of medium sandy silt with variable quantities

of gravel. Subsurface soils in the area were characterized as medium- to coarse-grained sand with variable quantities of silt and gravel.

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied during its operational history. The former Griffiss AFB was activated on February 1, 1942, as the Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S Army Air Corps Upon creation of the U.S. Air Force (USAF) in 1947, the depot was renamed Griffiss AFB. The base became an electronics center in 1950 with the transfer of the Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added during that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. The former Griffiss AFB was designated for realignment under the Base Realignment and Closure Acts of 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the North East Air Defense Sector (NEADS) will continue to operate at their current locations. The New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998 when they were relocated to Fort Drum and Defense Finance and Accounting Services established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous substances and hazardous wastes were used, stored, or disposed of at various sites on the installation. The defense missions involved the storage, maintenance, and shipping of war material; research and development; and aircraft operations and maintenance, among others.

Numerous studies and investigations under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) have been carried out to detect, locate, and quantify

contamination of areas by these substances and wastes. These studies and investigations included a records search in 1981 involving interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment of the potential for site contamination; problem confirmation and quantification studies in 1982 and 1985; soil and groundwater analyses in 1986; a public health assessment in 1988 conducted by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR); base-specific hydrology investigations in 1989 and 1990; and a groundwater investigation in 1991. ATSDR issued a Public Health Assessment for Griffiss AFB dated October 23, 1995, and an addendum to the assessment report dated September 9, 1996.

Pursuant to Section 105 of CERCLA, the former Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, USAF, EPA, and NYSDEC entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA. Under the terms of the agreement, USAF is required to prepare and submit numerous reports to EPA and NYSDEC for review and comment. These reports include identification of environmental AOCs on base; a scope of work for an RI; a work plan for the RI, including a sampling and analysis plan (SAP) and a quality assurance project plan (QAPjP); a baseline risk assessment; a community relations plan (CRP); and the RI report. AFBCA delivered a draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996, that incorporated or addressed EPA and NYSDEC comments.

During the RI, a site-specific baseline risk assessment for industrial land use was conducted (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) in order to evaluate the risks posed by detected site contaminants to the reasonable maximally exposed individual. In addition, the RI report compared detected site contaminants to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), sediments, or air. Therefore, other non-promulgated federal and state advisories and guidance values, referred to as to-be-considereds (TBCs), or background levels of the contaminants in the absence of TBCs, were considered. No further action, with land use restrictions, is proposed when the levels of contaminants at the site, in comparison to the baseline risk assessment for industrial use and the applicable standards or guidance values, indicate the site poses no threat to public health or the environment.

Proposed Remedy

Based on the results of the draft RI, AFBCA has proposed that no further remedial action, with land use restrictions for industrial use, be implemented at the FDA AOC. The land use restriction proposal was based on the contaminant levels found at the FDA AOC and the site-specific risk assessment for industrial use The determination for industrial land use was based on the redevelopment plan for Griffiss AFB provided by the Griffiss Local Development Corporation (GLDC).

Summary of Site Activities

From 1987 to 1992, a metal trough in FDA AOC was filled with fuel and various flammable materials, ignited, and extinguished during the demonstrations. From 1974 to 1987, the fuels and flammable materials were ignited and extinguished on the ground surface.

In the RI, the nature and extent of environmental contamination from historical releases at this AOC were investigated to determine whether any remedial action is necessary to prevent potential threats to human health and the environment that might result from exposure to site conditions. Previous activities at the FDA AOC include a removal action and several sampling efforts, including a soil gas/groundwater survey, soils investigation, and groundwater investigation. The metal trough used for fuel fire demonstrations was removed from the AOC in 1992.

Soil and groundwater sampling was conducted at the FDA AOC in 1986. Three boreholes were drilled, one of which was developed as monitoring well. The locations of the other two boreholes are unknown because this information was not provided in the original investigation report; the estimated location is a 200-foot-by-100-foot area west of the FDA metal trough. Soil samples were analyzed for oil and grease, metals, polychlorinated biphenyls (PCBs), and 1,1,1-trichloroethane. Analytical results indicated the presence of petroleum hydrocarbons, zinc, and lead in soils; and cadmium, chromium, lead, nickel, and zinc in groundwater, all at concentrations below the available standards and guidance values.

A soil gas/groundwater survey was performed as part of the RI in May 1994 on a 100-foot grid established at the AOC. Soil gas samples were collected at 13 grid locations between 3 and 4 feet BGS. Grab groundwater samples were collected at six grid locations at the depth of encountered groundwater (18 to 19 feet BGS). The samples were analyzed for the presence of various halogenated and aromatic volatile organic compounds. VOC concentrations were not reported above the detection limit in any of the soil gas samples.

Soil investigations at the AOC during summer 1994 and spring 1995 included the drilling of four soil borings and the collection and analysis of 32 subsurface soil screening samples and 18 confirmatory samples. The boring locations included two in the downgradient direction, one in the upgradient direction, and one drilled in the former location of the metal trough. Analytical results of the subsurface soil samples revealed the presence of six VOCs, 18 semivolatile organic compounds, 12 pesticides, two PCB compounds, three dioxin compounds, 21 metals, cyanide, and total recoverable petroleum hydrocarbons. Some of the analytical results for eight of these chemicals exceeded the guidance values (see Table 2-1).

One grab groundwater sample was collected from a temporary monitoring well installed in a soil boring located in the area of the former metal trough as part of the 1994 investigation Sampling was not performed on the existing monitoring well (FDAMW-1) because the structural integrity of the well was questionable. The purpose of collecting the grab groundwater sample was to determine whether historical releases of fuels and organic solvents had impacted the groundwater quality. Therefore, the sample was analyzed for VOCs, dioxins, pesticides, and PCBs. Relatively low concentrations of four pesticides were detected in the sample. The only detected pesticide that exceeded standards or guidance values was alpha-BHC (see Table 2-2). There is no known source of alpha-BHC at the FDA, but agricultural areas are located nearby. As a follow-up to the RI and at the request of the regulators, an inspection of monitoring well FDAMW-1 was performed in August 1997 during the Supplemental Investigation This inspection did not reveal the presence of any free product.

2.3 Highlights of Community Participation

A proposed plan for the FDA AOC indicating no further action as the selected remedial action was released to the public on February 18, 1998. The document was made available to the public in both the administrative record and an information repository maintained at the Jervis Public Library. The notice announcing the availability of this document was published in the *Rome Sentinel* on February 18, 1998. In addition, a public meeting was held on March 10, 1998. At this meeting, representatives from AFBCA, EPA, and NYSDEC answered questions about issues at the AOC and the no further action proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision (see Section 3).

The agencies have determined the land use restrictions that will be placed on the FDA AOC. This determination is based on the transfer and future reuse of the site indicated in the redevelopment plan for Griffiss AFB, which was provided by the GLDC.

This decision document presents the selected remedial action for the FDA AOC at the former Griffiss AFB, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NCP. The decision for this AOC is based on the administrative record.

2.4 Scope and Role of Site Response Action

The scope of the no further remedial action with land use restrictions response for the FDA AOC addresses the soils and groundwater at the site. Based on to the baseline risk assessment for industrial land use, there is no evidence that the previous operations conducted at this site have resulted in environmental contamination that poses a current or potential threat to human health or the environment.

2.5 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the FDA AOC. As part of the RI, a baseline risk assessment for industrial land use was performed to estimate current and future potential risks to human health and the environment associated with the contaminants found in soils and groundwater at the site. The results of the risk assessment were considered when formulating this no further action proposal.

Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI phase to determine whether chemicals detected at the FDA AOC could pose health risks to individuals under current and proposed future land use. As part of the baseline risk assessment, the following four-step process was used for assessing site-related human health risks for a reasonable maximum exposure scenario:

- Hazard Identification--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- Exposure Assessment--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingesting contaminated soils) by which humans are potentially exposed;
- Toxicity Assessment--determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and

- Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer Hazard Index value) assessment of site-related risks.

Chemicals of potential concern were selected for use in the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil and groundwater samples collected at the AOC were considered chemicals of potential concern with the exception of inorganics in soils detected at concentrations less than twice the mean background concentrations; iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients; and compounds detected in less than 5% of the total samples (unless they were Class A carcinogens) Petroleum hydrocarbons were not included as a chemical of concern; rather the detected constituents (e.g., benzene, toluene, ethylbenzene) were evaluated. The chemicals of potential concern for the groundwater included four pesticides: carbaryl, carbofuran, alpha BHC, and endrin.

Routes of exposure and occupational receptors were selected based on current and proposed future land use of the FDA AOC. The current land use designation of the FDA AOC is industrial. Following base realignment, the FDA and immediate vicinity are anticipated to remain industrial because the airfield is planned to remain active.

Contaminant sources at the FDA are attributed to spills of fuels and other flammable substances used for fire demonstration activities. These released fuels infiltrated and percolated into the subsurface soil and groundwater. Potentially exposed populations at the FDA and airfield under current use are landscape workers performing lawncare maintenance. Potentially exposed populations under the proposed future land use assumptions are landscape workers, construction workers, and/or utility workers exposed to soils if the site undergoes future development; and industrial workers who might be exposed to groundwater at the site if groundwater is used as a potable water supply. Potential routes of exposure to surface and subsurface soils included incidental ingestion, dermal absorption, and inhalation of volatiles and fugitive dusts. Potential routes of exposure to groundwater included ingestion and dermal contact.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the FDA AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is 1 in 10,000

(1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. A computed risk greater than 1 in 10,000 (1×10^{-4}) is considered unacceptable by EPA.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soils) and pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause a similar toxic effect. EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that risk at a site exceeds the cancer risk level of 1 in 10,000 or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds have been exceeded, remedial action alternatives are evaluated to reduce the risk levels to within EPA's acceptable risk range of 1 in 10,000 to 1 in 1,000,000 and an HI of 1 or less.

Results of the risk assessment indicate that chemicals detected in the soil and groundwater at the FDA AOC do not pose a current or potential threat to occupational workers. The cumulative carcinogenic risk to landscape workers, construction workers, and utility workers due to exposure to the chemicals of potential concern in soils at the FDA AOC were calculated as 7 in 1,000,000 (7×10^{-6}), 1 in 1,000,000 (1×10^{-6}), and 2 in 1,000,000 (2×10^{-6}), respectively. These results are below the target level of 1 in 10,000 (1×10^{-4}), indicating that potential adverse carcinogenic health effects to occupational workers are not expected to occur from exposure to chemical concentrations in the soil. For chemicals with concentrations greater than the most stringent soil guidance values, the contaminant-specific risk calculations were well below the acceptable EPA risk levels. The cumulative carcinogenic risk to industrial workers from exposure to contaminants in the groundwater was calculated as 4 in 100,000,000 (4×10^{-8}) which is below EPA's target risk range.

Cumulative hazard indices for landscape workers, construction workers, and utility workers due to exposure to the chemicals of potential concern in soils at the FDA AOC were calculated as 0.04, 0.2, and 0.01, respectively. The cumulative hazard index for industrial workers exposed to groundwater was 0.0007. These results are below the target hazard index of 1.0, which indicates that potential adverse noncarcinogenic health effects to occupational

workers are not expected to occur from exposure to chemical concentrations in the soil or groundwater at the FDA AOC.

Toxicity values were not available for two compounds detected in the soil, phenanthrene and benzo(g,h,i)perylene, and a quantitative risk assessment could not be performed. Therefore, a qualitative assessment was performed by comparing the concentrations of these two compounds to the soil guidance values Phenanthrene was detected at a frequency of 2 in 16 samples at concentrations of 0.05 mg/kg and 0.15 mg/kg, which are below the guidance value of 50 mg/kg. Benzo(g,h,i)perylene was detected at a frequency of 3 in 16 samples at concentrations ranging from 0 057 mg/kg to 1.3 mg/kg, which are also below the guidance value of 50 mg/kg. Therefore, the concentrations of these two compounds in the soil are not expected to pose unacceptable risks to occupational workers.

Uncertainties exist in many areas of the human health assessment process. However, use of conservative variables in intake calculations and conservative assumptions throughout the entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment for the FDA include: (1) In quantifying exposure, it was assumed that chemicals are uniformly distributed over a defined area. At this AOC, chemical samples were collected from the suspected source of contamination rather than through random sampling--this can result in a potential overestimate of risk; (2) The risk assessment was quantified based on analysis of a relatively small number of soil samples and only one grab groundwater sample, which can contribute to uncertainty in the risk calculations; (3) HIs associated with dermal contact with soil were not quantified for the majority of the chemicals of potential concern due to the lack of dermal absorption factors necessary for the calculation, which may result in a potential underestimate of risk from the dermal pathway; (4) When assessing the dermal pathway, it was assumed that workers would come into contact with the soil, although the use of protective clothing is more likely. This assumption would result in a potential overestimate of risk; (5) It was assumed that for the proposed future use scenario, construction would occur over a one-year period, though it will probably require less time to complete due to the small size of this AOC. This assumption would result in a potential overestimate of risk; and (6) It was assumed that groundwater would be used for industrial purposes in the future which is very unlikely due to the availability of existing water supplies at the base and in the City of Rome. This assumption would result in a potential overestimate of risk.

The property at the FDA AOC contains levels of contamination suitable for industrial/commercial usage but not necessarily suitable for residential or similar use. The

transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- The property will be industrial use unless permission is obtained EPA, NYSDEC, and the New York State Department of Health; and
- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the aquifer below the ground surface within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health

Ecological Risk Assessment

The current and proposed future land use for this AOC is industrial, which, by its very nature, minimizes the number of ecological receptors. In addition, during the RI, it was determined that threatened and/or endangered plant and animal species are not a concern at the FDA AOC. Although certain state endangered plants and animals have been observed on or in the vicinity of the base, no threatened and/or endangered species have been identified at this site. Plant species protected by the State of New York were not identified in the vicinity of the base.

A risk assessment for animals was conducted during the RI. Potential exposure to contamination at the FDA AOC is limited to surface soil. Ecological risks were assessed for raccoons and short-tailed shrews and ingestion was the only exposure route considered. A risk characterization was performed for the terrestrial wildlife using methods similar to those used to quantify human risks. Potential adverse health effects to the indicator species may occur when a computed hazard quotient is greater than 1.0. Hazard quotients were calculated to be less than 1.0 for each chemical of concern in both indicator species. The greatest values were 0.00076 for a raccoon and 0.75 for a short-tailed shrew. Overall, this AOC is not considered to pose a current or potential threat to terrestrial wildlife.

2.6 Description of the No Further Action With Land Use Restrictions Alternative

No further remedial action with land use restrictions is proposed for the FDA AOC. The majority of the chemicals detected at the FDA do not exceed standards and guidance values, and there is no known source of these contaminants at the site. In addition, the baseline risk assessment for industrial use indicates that the levels of contaminants present in the soils and groundwater are within or below EPA's acceptable carcinogenic risk range and pose no unacceptable noncarcinogenic risk to the occupational worker. Therefore, the concentrations of

chemicals in the soil and groundwater and the baseline risk assessment demonstrate that site contaminants pose no current or potential threat to public health or the environment.

2.7 Significant Changes

The proposed plan for the FDA AOC was released for public comment on February 18, 1998. The proposed plan identified no further action as the preferred alternative. The agencies have reviewed all written and verbal comments submitted during the public comment period Following the review of these comments, it was determined that the remedy should be amended to clarify no further remedial action, with land use restrictions, at the FDA AOC.

Table 2-1

COMPOUNDS EXCEEDING GUIDANCE VALUES SUBSURFACE SOIL SAMPLES

Compound	Range of *Detected* Concentrations	Frequency of *Detection Above Most* Stringent Criterion	*Most Stringent* Criterion
SVOCs (μg/kg)			
Benzo(a)pyrene	64 J - 450 J	3/16	61[a]
Phenol	39 J - 360	3/16	30[a]
Dieldrin	0.36 J - 324	4/16	40[b]
Metals (mg/kg)			
Arsenic	2 J - 10 2	7/16	4.9[c]
Beryllium	0.112 J - 0 86	1/16	0 65[c]
Total chromium	10 9 - 90 9	4/16	22.6[c]
Copper	16 9 - 67 2	2/16	43[c]
Silver	05 J - 1 43 J	2/16	1.1[c]

a
b NYS soil cleanup objective.
c Proposed RCRA corrective action levels
Background screening concentration

Key

J = Estimated concentration.

Table 2-2

COMPOUNDS EXCEEDING GROUNDWATER STANDARDS
GRAB GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations		Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Pesticides (μg/L)				
Alpha-BHC	0.002	J	1	ND[a]

[a] NYSDEC Class GA groundwater standard

Key:

J = Estimated
ND = Nondetect.

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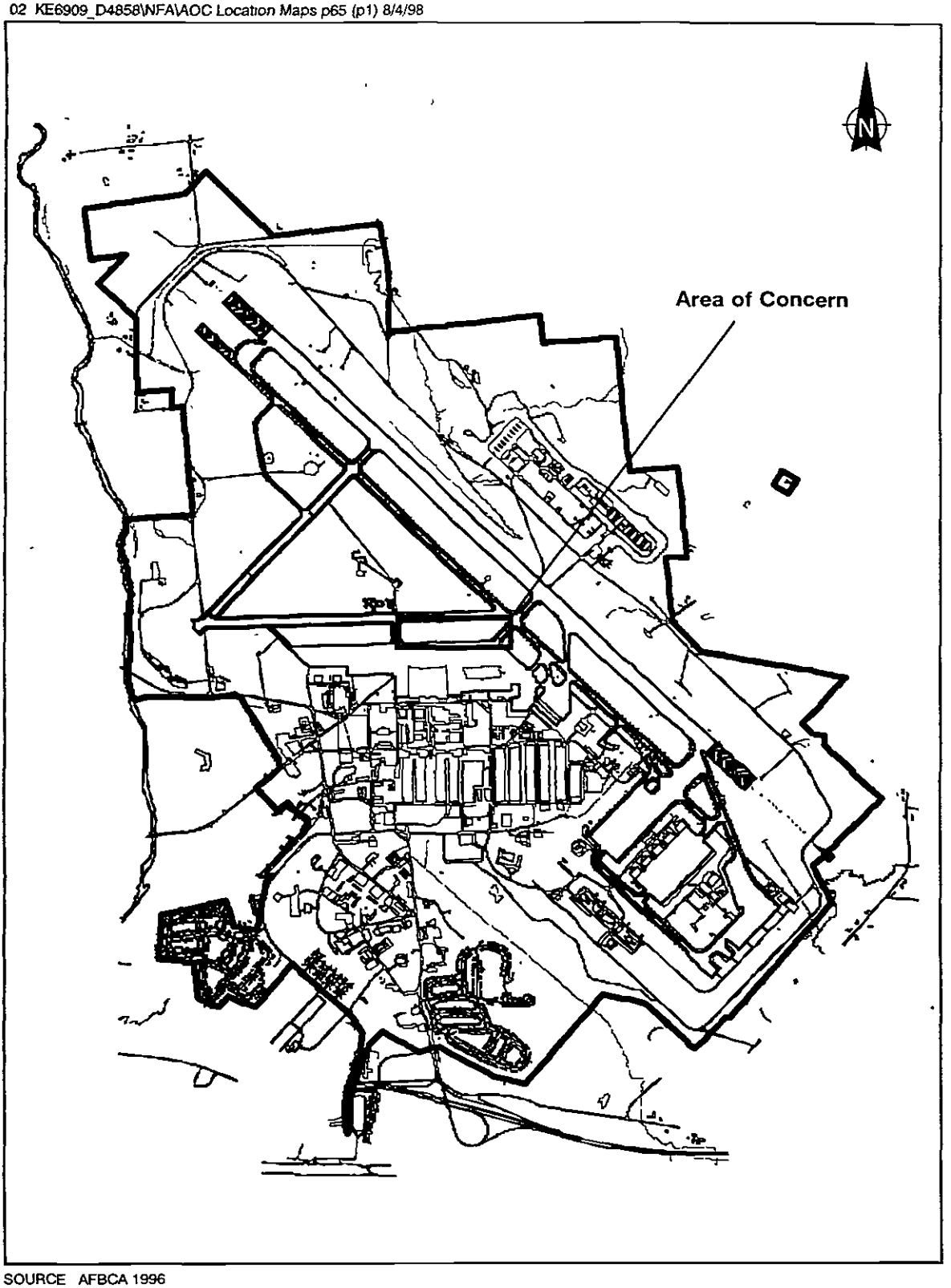

Figure 2-1 FIRE DEMONSTRATION AREA AOC FORMER GRIFFISS AIR FORCE BASE

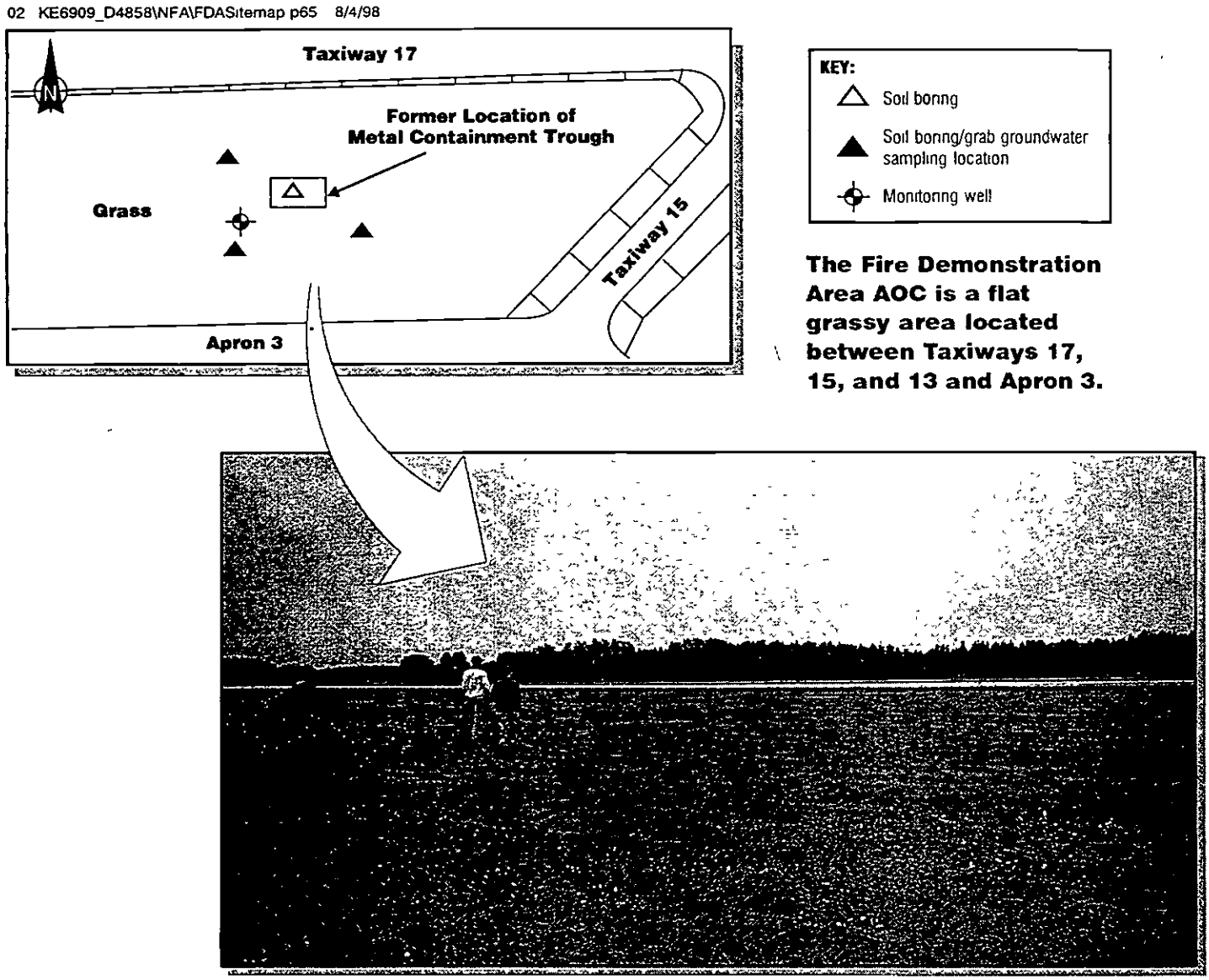

Figure 2-2 SITE MAP OF THE FIRE DEMONSTRATION AREA AOC

3 Responsiveness Summary

On Wednesday February 18, 1998, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the no further action proposed plans at the Building 214, Building 219 Drywell, Building 301 Drywell, T-9 Storage Area, Fire Demonstration Area, and Suspected Fire Training Area Areas of Concern (AOCs) at the former Griffiss Air Force Base. The release of the proposed plans initiated the public comment period, which concluded on March 20, 1998.

During the public comment period, a public meeting was held on Tuesday March 10, 1998, at 5:00 p.m. at the former base chapel located at 525 Kirkland Drive. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal to take no further action at these sites.

This document summarizes the verbal comments and provides responses to the comments received at the March 10, 1998, public meeting. No written comments were received during the public comment period, which ran from February 18 through March 20, 1998.

Comment #1

One commentor referred to an article in the Sentinel that indicated that a certain firm involved in computer chips took the Griffiss Park off its list because it is considered a brownfield area. The same commentor also stated, "Last week a state consultant rejected the Griffiss Park's application to be one of the ten potential manufacturing sites around the state. Quoting from the Sentinel article, Dimeo said, 'The fact the park is considered a brownfield because of wastes dumped by the Air Force may have influenced that decision.' I'm wondering if any of these sites are part of that decision, are part of that brownfield?"

Response #1

No. These sites were not selected for consideration as brownfield sites. There is a brownfield site under consideration in Rome, NY; however, such evaluation is independent from the ongoing work at Griffiss.

Comment #2

Two commentors expressed concern that the contaminant levels shown in the tables of the proposed plans are above the stringent regulatory criteria shown in the tables. They requested an answer as to what rationale was used to justify no further action.

Response #2

It is assumed that this comment was directed at the T-9 Storage Area proposed plan since several compounds exceeded guidance values for surface soils at that site. Upon further review, it was decided to temporarily postpone the issuance of a ROD for the T-9 Storage Area until an interim removal action is completed. A revised proposed plan for the T-9 Storage Area will be issued. It will include the results of the confirmatory samples taken after the interim removal action is completed.

For this site, as explained in the Environmental Background section of the proposed plans:

The no further action proposal is based on an evaluation of two investigation criteria. First, a site-specific baseline risk assessment for industrial land use, using appropriate toxicological and exposure assumptions, was conducted to evaluate the risks posed by detected site contaminants. Second, the levels of contaminants found were compared to available standards and guidance values (e.g., industrial reuse) for each potential contaminant. The standards and guidance values were determined by using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies which result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil, sediment, or air. In addition, groundwater and drinking water standards have not been promulgated for all potential contaminants. Therefore, other nonpromulgated federal and state advisories and guidance values, referred to as "TBCs," or background values of the contaminants in the absence of TBCs, were considered. Environmental sampling results were compared to the most stringent of these standards or guidance values during the remedial investigation for the AOC.

Although no further remedial action is proposed for this AOC, land use restrictions are required because the baseline risk assessment was limited to industrial/nonresidential reuse. However, the comparison of the levels of contamination to the applicable standards and guidance values (e.g., industrial reuse) indicate that this site poses no significant threat to public health or the environment if use is restricted.

APPENDIX B
Building 255 AOC Record of Decision

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Final Record of Decision for the Building 255 Drywell Area of Concern (DP-13) at the Former Griffiss Air Force Base Rome, New York

June 2001

AIR FORCE BASE CONVERSION AGENCY

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List of Abbreviations and Acronyms

AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	chemicals of potential concern
DFAS	Defense Finance and Accounting Services
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
GPR	ground-penetrating radar
HI	Hazard Index
HQ	Hazard Quotient
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEADS	Northeast Air Defense Sector
NPL	National Priorities List
NYANG	New York Air National Guard
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
PCB	polychlorinated biphenyl
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision
SAC	Strategic Air Command
SVOC	semivolatile organic compound
TAGM	Technical and Administrative Guidance Memorandum
TBC	To-Be-Considered
VOC	volatile organic compound

1 Declaration

1.1 Site Name and Location

The Building 255 Drywell Area of Concern (AOC) (site identification designation DP-13) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the no further action for soil with land use restrictions alternative for the Building 255 Drywell AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (USEPA 1980), as amended by the Superfund Amendment and Reauthorization Act (SARA) (USEPA 1986), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (USEPA 1968). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through joint agreement. This decision is based on the administrative record file for this site.

1.3 Description of Selected Remedy

The selected remedy for the Building 255 Drywell AOC is no further action for soil with land use restrictions for industrial/commercial use. The agencies will perform

joint 5-year reviews to ensure that future land use is in compliance with the transfer documents (deed) and consistent with the risk assessment for industrial/commercial use.

1.4 Declaration Statement

The AFBCA, EPA, and NYSDEC have determined that no further action for soil with land use restrictions are warranted for the Building 255 Drywell AOC. An interim remedial action was performed at this site in which the majority of soil contamination found during the remedial investigation was removed. The remaining chemicals detected in the soil do not exceed standards and guidance values and the known source of groundwater contamination has been removed. The concentrations of the contaminants remaining in the site soil following the remedial action do not pose a current or potential threat to public health or the environment provided the property is used for industrial/commercial use with groundwater use restrictions. Groundwater at the Building 255 AOC is being further evaluated as part of the On Base Groundwater AOC Tin City Operable Unit. Future landowners will be bound, through transfer documents (deed), to the industrial/commercial reuse of the property.

1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations performed at the Building 255 Drywell AOC there is no evidence that residual contamination at this site poses a current or future potential threat to human health or the environment when used for industrial/commercial purposes. Future landowners will be bound, through transfer documents (deed), to the industrial/commercial reuse of the property. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this Record of Decision.

Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency

August 20, 2001
Date

William J. Muszynski, P.E.
Acting Regional Administrator
United States Environmental Protection Agency, Region 2

9/27/01
Date

2 Decision Summary

2.1 Site Name, Location, and Brief Description

The Building 255 Drywell Area of Concern (AOC) (site identification designation DP-13) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

The Building 255 AOC is located in the west-central portion of the base (see Figure 1). The suspected drywells associated with this site included several near Building 255 and other nearby buildings, including Buildings 215/216, 222, 223, and the former location of Building 230 (see Figure 2).

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied over the years. The base was activated on February 1, 1942, as Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force in 1947, the depot was renamed Griffiss Air Force Base. The base became an electronics center in 1950, with the transfer of Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added in that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in

June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. Griffiss AFB was designated for realignment under the Base Realignment and Closure Act in 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the Northeast Air Defense Sector (NEADS) will continue to operate at their current locations; the New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998, when they were relocated to Fort Drum; and the Defense Finance and Accounting Services (DFAS) has established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous and toxic substances were used and hazardous wastes were generated, stored, or disposed at various sites on the installation. The defense missions involved, among others, procurement, storage, maintenance, and shipping of war materiel; research and development; and aircraft operations and maintenance.

Numerous studies and investigations under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) have been carried out to locate, assess, and quantify the past toxic and hazardous waste storage, disposal, and spill sites. These investigations included a records search in 1981 (Engineering Science 1981), interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment to determine the nature and extent of site contamination; Problem Confirmation and Quantification studies (similar to what is now designated a Site Investigation) in 1982 (Weston 1982) and 1985 (Weston 1985); soil and groundwater analyses in 1986; a base-wide health assessment in 1988 by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR) (ATSDR 1998); base-specific hydrology investigations in 1989 and 1990 (Geotech 1991); a groundwater investigation in 1991; and site-specific investigations between 1989 and 1993. ATSDR issued a Public Health Assessment for Griffiss AFB, dated October 23, 1995 (ATSDR 1995), and an addendum, dated September 9, 1996.

Pursuant to Section 105 of CERCLA, Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, the agencies entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA.

Under the terms of the agreement, the Air Force was required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports address remedial activities that the Air Force is required to undertake under CERCLA and include identification of Areas of Concern on base; a scope of work for a Remedial Investigation (RI); a work plan for the RI, including a sampling and analysis plan and a quality assurance project plan; a baseline risk assessment; a community relations plan; an RI report; and a work plan and the report for a supplemental investigation. The Air Force delivered the draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996 (Law 1996). The draft Closure Certification Report for Interim Remedial Action was delivered on May 24, 2000 (Ocuto 2000).

This ROD for no further action for soil with land use restrictions is based on an evaluation of potential threats to human health and the environment due to contamination in the soil and groundwater, and the performance of interim remedial actions at the Building 255 Drywell AOC. During the RI, a site-specific baseline risk assessment (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) was conducted in order to evaluate the risks posed by detected site contaminants to the reasonably maximally exposed individual under current and future land use assumptions. In the RI report, the concentrations of the contaminants were compared to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for polychlorinated biphenyls [PCBs]), therefore, other non-promulgated federal and state advisories and guidance values, referred to as To-Be-Considereds (TBCs), and background levels of the contaminants in the absence of TBCs, were considered.

Remedial Investigation

In 1994, an RI was performed (Law 1996). The main objective of the RI was to investigate the nature and extent of environmental contamination from historical releases at the AOC in order to determine whether any further remedial action was necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions. The RI included a visual survey, a ground-penetrating radar (GPR) survey, and the excavation of three test pits to try to locate the drywell; sampling and analysis of soil and grab groundwater; and installation of eight temporary monitoring wells. Observations from the visual survey included:

Building 255. Two features were noted east of Building 255 that may have been drywells associated with the storm water system. These features consisted of two corrugated metal pipes covered by steel grating and filled with gravel. No pipes were visible leading into these structures. No drywell was visibly evident in the parking lot west of Building 255. A storm drain, covered by a manhole and filled with dirt to 4 feet BGS, was assumed to be a drywell associated with Building 255.

Building 222. No drywell was evident in the vicinity of this building.

Building 223. The area at the suspected drywell location, south of Building 223, was reported by Griffiss AFB personnel to have been frequently excavated to at least 8 feet BGS for optical cable installation and repair. No drywell was reportedly encountered during this construction. The drywell at this location may have been unknowingly excavated or otherwise disturbed during construction activities.

Former Building 230. The area at the suspected drywell location east of the former location of Building 230 (now a covered pesticide storage/wash facility) was highly disturbed during construction of the new facility. No drywell was found at this location.

Building 215/216. An open surface-water drainage swale directs flow to a corrugated pipe where drainage is diverted beneath the driveway southwest of Building 216. It

was uncertain as to whether this was a drywell; however, this feature was at the location reported to be a drywell. No drywell was evident east of Building 215/216.

There were no anomalies detected during the GPR survey, which was conducted in 1993 at the suspected Building 255 drywell. In 1994, test pits were excavated at Building 222, Building 230, and Building 215/216 in an attempt to confirm the location of the reported drywells. Drywells were not located by any of the test pit activities and all test pits were backfilled.

Eight temporary monitoring wells were installed in August 1994 to collect grab groundwater samples. Six additional temporary wells were installed in April 1995 to collect additional grab groundwater samples. A total of 10 samples were collected. Analysis of the grab groundwater samples indicated the presence of 22 volatile organic compounds (VOCs), 20 semivolatile organic compounds (SVOCs), 34 pesticides, two PCBs, 26 metals, total glycols, cyanide, and petroleum hydrocarbons. The concentrations of 12 VOCs, six SVOCs, two pesticides, one PCB, 18 metals, and petroleum hydrocarbons exceeded the most stringent criteria for groundwater (see Table 1).

Eleven soil borings were drilled in the vicinity of the reported drywell locations. Six borings were associated with known drywell locations and five borings were located downgradient of presumed drywell locations. A total of 63 soil samples were collected. Analysis of the subsurface soil samples indicated the presence of 12 VOCs, 30 SVOCs, 23 pesticides, two PCBs, and 26 metals, as well as cyanide and petroleum hydrocarbons. The concentrations of six VOCs, nine SVOCs, one pesticide, one PCB, and 17 metals exceeded the most stringent criteria for subsurface soil (see Table 2). The high concentrations shown in Table 2 were all measured in one borehole (255SB-5) at a depth greater than 4 feet. This borehole is located near the drywell in the parking lot to the west of Building 255 Drywell. This soil was removed during the interim remedial action.

Supplemental Investigations

An RI supplemental investigation was performed in 1997 in the Tin City area, which includes the Building 255 Drywell AOC. This investigation included the installation and sampling of two new wells at Building 255. Low levels of chloroform and trichloroethylene were detected in one of the wells, but the concentrations did not exceed the NYSDEC groundwater guidance values.

2.3 Highlights of Community Participation

The final proposed plan, indicating no further action for soil with land use restrictions at this site, was released to the public on Friday, February 9, 2001 (AFBCA 2001). The document was made available to the public in both the administrative record file located at Building 255 in the Griffiss Business and Technology Park and in the Information Repository maintained at the Jervis Public Library. The notice announcing the availability of this document was published in the *Rome Sentinel* on Friday, February 9, 2001. A public comment period lasting from February 9, 2001, to March 11, 2001, was set up to encourage public participation in the alternative selection process. In addition, a public meeting was held on March 1, 2001. The AFBCA and the New York State Department of Health were present at the meeting and the AFBCA answered questions about issues at the AOC and the proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD (see Section 3).

2.4 Scope and Role of Site Response Action

The scope of the plan for no further action for soil with land use restrictions for the Building 255 Drywell AOC addresses the soil at the site. The land use restrictions for industrial/commercial use are consistent with the risk assessment performed for occupational workers.

2.5 Site Characteristics

The Building 255 AOC is located in the west-central portion of the base (see Figure 1). Building 255 was the Vehicle Maintenance Building. The suspected drywells associated with this site included several near Building 255 and other nearby buildings, including Buildings 215/216, 222, 223, and the former location of Building 230.

Two drywells, which were reportedly located near Building 255 were reportedly stone- and gravel-filled pits measuring approximately 3 feet square by 10 feet deep. The exact location of these two drywells was not known; although they were suspected (but never found) in an area on the east side of the building in the grassed area across Langley Road (see Figure 2). A third drywell was located during a site reconnaissance on the west

side of Building 255 Drywell, beneath a manhole cover in the paved parking lot. The third drywell reportedly received liquid wastes from the Vehicle Maintenance Shop and possibly a small glass repair shop located within Building 255. The quantity of wastes disposed by these facilities was estimated at less than 5 gallons per day. Wastes reportedly disposed included lube oil, engine cleaning compounds, caustics, acids, and paint. Pesticide rinse water, solvents, and other waste liquids generated in small quantities by activities in Buildings 215/216, 222, 223, 230 and 255 may also have been disposed in the Building 255 drywell. Use of this drywell was discontinued in the early 1970s.

The former Griffiss AFB covered approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Three Mile Creek, Six Mile Creek (both of which drain into the New York State Barge Canal, located to the south of the base), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Due to its high average precipitation and predominantly silty sands, the former Griffiss AFB is considered a groundwater recharge zone.

The Building 255 Drywell AOC is located on relatively flat lying terrain with less than 1 foot of relief. This AOC is not located near major natural surface water drainage features. Run-off from the site is channeled into the base drain storm system, which discharges to the Mohawk River. Groundwater has been encountered at depths ranging from 13.5 feet below ground surface (BGS) to 21 feet BGS. Groundwater flows to the south-southeast across the site. Site soil consists of brown, silty fine to coarse sand and gravel to a depth of 19 feet BGS.

2.6 Current and Potential Future Site Use

The Building 255 Drywell AOC is currently designated for industrial use. Future land use at this AOC is assumed to be industrial/commercial.

2.7 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the Building 255 Drywell AOC. As part of the RI, a baseline risk assessment was conducted to evaluate

current and future potential risks to human health and the environment associated with contaminants found in the soil and groundwater at the site. The results of this assessment and the interim remedial action were considered when formulating the no further action for soil with land use restrictions proposal.

Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the Building 255 Drywell AOC could pose health risks to individuals under current and proposed future land use. As part of the baseline risk assessment, the following four-step process was used to assess site-related human health risks for a reasonable maximum exposure scenario:

- Hazard Identification—identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- Exposure Assessment—estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soil) by which humans are potentially exposed;
- Toxicity Assessment—determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- Risk Characterization—summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer Hazard Index value) assessment of site-related risks and a discussion of uncertainties associated with the evaluation of the risks and hazards for the site.

Chemicals of potential concern (COPCs) were selected for use in the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil and groundwater at the site were considered chemicals of potential concern with the exception of inorganics detected at concentrations less than twice the mean background concentrations; iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients; and compounds detected in less than 5% of the total samples (unless they were known human carcinogens). As a class, petroleum hydrocarbons were

not included as a chemical of concern; however, the individual toxic constituents (e.g., benzene, toluene, ethylbenzene) were evaluated.

The human health risk assessment evaluated potential exposure of occupational workers including utility, construction, and industrial workers. The various exposure scenarios for each population are described in Table 3. Intake assumptions, which are based on EPA guidance, are more fully described in the RI.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the Building 255 Drywell AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is generally considered to be 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. Therefore, sites with carcinogenic risk below the risk range for a reasonable maximum exposure do not generally require cleanup based upon carcinogenic risk under the NCP.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive sub-populations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soil) and across pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause similar toxic effects.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that the risk at a site exceeds the cancer risk level of 1 in 10,000 (1×10^{-4}) or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds has been exceeded, the 1 in

1,000,000 (1×10^{-6}) risk level and an HI of 1 or less may be used as the point of departure for determining remediation goals for alternatives.

Results of Site-Specific Health Risk Assessment

Potential risks from exposure to COPCs at the Building 255 Drywell AOC were evaluated for utility, construction, and industrial workers during the RI, prior to the interim remedial action. The potential carcinogenic and noncarcinogenic risks from exposure to soil and groundwater are summarized below.

Carcinogenic Risk

The total carcinogenic risk associated with exposure of utility workers to subsurface soil was 2 in 1,000,000 (2×10^{-6}), which is within EPA's target risk range. The total carcinogenic risk associated with exposure of construction workers to soil was 1 in 1,000,000 (1×10^{-6}), which is within EPA's target risk range. The total carcinogenic risk from exposure to contaminants in groundwater of industrial workers was 5 in 10,000 (5×10^{-4}), which is above EPA's target risk range. PAHs and PCBs were the major risk contributors via the inhalation and dermal pathways.

Noncarcinogenic Risk

The total HI for utility workers exposed to soil was 0.03. The total HI for construction workers exposed to subsurface soil was 0.6. The total HI for industrial workers exposed to constituents in groundwater was 0.8. All HIs for noncarcinogenic effects are below the benchmark level of 1.

Groundwater at the Building 255 Drywell AOC is being further evaluated under On Base Groundwater AOC as part of the Tin City operable unit.

Uncertainties

Uncertainties exist in many areas of the human health risk assessment process. However, use of conservative variables in intake calculations and health-protective assumptions throughout the entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment for this AOC include (1) Chemical samples were collected from

the suspected source of contamination rather than through random sampling, which may result in a potential overestimation of risk; (2) The HIs associated with dermal contact with soil were not quantified for the majority of COPCs, which may lead to underestimation of the overall risk due to dermal contact; (3) The models used in the RI are likely to overestimate exposure point concentrations in air, which would cause an overestimation of risk for the inhalation pathway; (4) It was assumed that groundwater would be used as a potable water source under the industrial use scenario (i.e., showering, ingestion, industrial processes) in the future, which is unlikely since the site has ready access to the existing water supplies at the former base and in the City of Rome. This would result in an overestimation of risk; and (5) Toxicological criteria were not available for all chemicals found at the site, which may result in an underestimation of risk.

Ecological Risk Assessment

Building 255 Drywell is located in a highly developed portion of the base with little habitat available for ecological receptors. However, potential future exposures to ecological receptors were evaluated and a baseline risk assessment was performed. The assessment modeled risks to the raccoon and short-tailed shrew for exposures to surface soil.

The hazard quotients for both the raccoon and the shrew were less than 1; the potential for adverse impacts to these ecological receptors is considered to be insignificant. Modeling of bioaccumulation to higher order species was not performed, nor was the cumulative effect of multiple contaminants considered; this tends to underestimate the risk to ecological receptors.

Although certain state-listed endangered plants and animals have been observed on or in the vicinity of the base, no threatened and/or endangered species have been identified at this site (Corey 1994). There are no federally listed (U.S. Department of the Interior) threatened or endangered plant or animal species at the former base.

2.8 Interim Remedial Action

In 1998, based upon the results of the RI and baseline risk assessment, an interim remedial action was performed to remove contaminated subsurface soil at the drywell located west of the former site of Building 255 (see Figure 3) (Ocuto 2000). It was deter-

mined that the removal of contaminated soil from this location would mitigate the majority of contamination and resulting risk associated with this site. The work consisted primarily of asphalt demolition, removal and disposal of the drywell, soil excavation, confirmation sampling and analysis, transportation and off-site disposal of excavated materials, backfilling and site restoration. Building 255 was demolished prior to remedial actions at the site. A brief summary of this remedial action is provided below.

Remedial action work activities began on July 7, 1998. Equipment was mobilized and work zones were established. The extent of contaminated soil was estimated as an approximately 20 foot square area, centered on the drywell, from a depth of 4 to 14 feet BGS. Excavation of the drywell involved removing the first four feet of clean overburden and stockpiling. All of the remaining material removed from the excavation was assumed contaminated, segregated, and stockpiled on a bermed liner. Two underground pipes, one that came from the Building 255 floor drain to the parking lot drywell, and one of unknown origin, were cut and removed to the edge of the excavation. The remaining pipe ends were plugged and grouted closed. Excavation was completed on July 13, 1998. The estimated volume of soil excavated, stockpiled, and disposed was 192.3 cubic yards.

Confirmatory samples were taken after the removal action was completed to verify the effectiveness of this interim remedial action. The Air Force, EPA, and NYSDEC compared the results of the confirmatory soil samples to the risk-based cleanup goals and NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Soil Cleanup Levels (NYSDEC 1994). After agreement was reached that the project goals were met, the excavated area was backfilled with the estimated 59.3 cubic yards of clean, stockpiled soil and additional clean material.

Material from the contaminated soil stockpile was loaded for transport to Seneca Meadows Landfill for disposal on September 14, 15, and 16, 1998.

2.9 Principal Threat Waste

There are no principal threat wastes at the Building 255 AOC.

2.10 Description of the No Further Action for Soil with Land Use Restrictions

No further action for soil with land use restrictions for industrial/commercial use is proposed for the Building 255 Drywell AOC. Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that future land use is in compliance with the transfer documents (deed) for industrial/commercial use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- The property will be designated for industrial/commercial use unless permission is obtained from the EPA, NYSDEC, and the New York State Department of Health; and
- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the subsurface aquifer within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

As a result of the interim remedial action, the majority of soil contamination found during the RI investigations at this AOC were removed. The remaining chemicals detected in the soil do not exceed standards and guidance values and the known source of the groundwater contamination has been removed. In addition, the baseline risk assessment for industrial/commercial use indicated that the levels of contamination present in the soil prior to remediation fell within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility, construction, and industrial workers. Therefore, the concentrations of the chemicals remaining in the soil after the completion of the remedial action demonstrate that the remaining site contaminants pose no current or potential threat to public health or the environment. Groundwater at the Building 255 Drywell AOC is being further evaluated as part of the On Base Groundwater AOC Tin City operable unit.

2.11 Statutory Determinations

The selected remedy must meet the statutory requirements of CERCLA, Section 121, which are described below.

Protection of Human Health and the Environment

The plan for no further action for soil with land use restrictions for industrial/commercial use will provide adequate protection from exposure to contaminants by limiting the use of the site in accordance with the risk assessment.

Compliance with ARARs

Contaminant concentrations in the soil following the interim remedial action comply with the applicable ARARs. Furthermore, land use restrictions for industrial/commercial use will be consistent with the risk assessment, which was performed for occupational workers.

Cost-Effectiveness

No costs are associated with the selected alternative.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

Treatment technologies are not included in the selected alternative.

Preference for Treatment as a Principal Element

Treatment technologies are not included in the selected alternative.

2.12 Documentation of Significant Changes

No significant changes have been made to the selected alternative from the time the proposed plan was released for public comment.

Table 1
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
BUILDING 255 DRYWELLS
GROUNDWATER SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
Volatiles (µg/L)			
1,2-Dichloroethane	0.8 - 4	2/8	0.4 [a]
1,3,5-Trimethylbenzene	190 D	1/8	5
Benzene	0.2 J - 3	1/8	1 [a]
Ethylbenzene	26	1/8	5 [a]
Isopropylbenzene	15	1/8	5 [a]
m,p-Xylene	160 D	1/8	5 [a]
Naphthalene	83 D	1/8	10 [b]
o-Xylene	87 D	1/8	5 [a]
SEC-butylbenzene	13	1/8	5 [a]
Toluene	0.1 J - 780 D	1/8	5 [a]
Tricholoethylene	0.1 J - 7.7	3/8	3
cis-1,2-Dichlorethylene	96 D	1/8	5 [a]
SVOCs (µg/L)			
Benzo(a)anthracene	0.06 J - 0.9 J	4/9	0.002 [b]
Benzo(a)pyrene	0.06 J - 0.9 J	4/9	0.002 [b]
Benzo(b)fluoranthene	0.1 J - 1 J	4/9	0.002 [b]
Benzo(k)fluoranthene	0.2 JU - 0.3 J	3/8	0.002 [b]
Chrysene	0.06 J - 1 J	4/9	0.002 [b]
Indeno(1,2,3-cd)pyrene	0.5 J	1/8	0.002 [b]
Pesticides/PCBs (µg/L)			
Aldrin	0.001 J - 0.004 J	1/9	0.002 [c]
Dieldrin	0.001 J - 0.013 J	1/8	0.004 [a]
PCB-1260 (Aroclor 1260)	0.6 J	1/8	0.1 [a]
Metals (mg/L)			
Aluminum	5.22 - 1,420	8/8	0.05 [d]
Antimony	0.0115	1/7	0.003 [a]
Arsenic	0.0041 J - 0.19	5/8	0.025 [a]
Barium	0.039 - 8.19	1/8	1 [a]
Beryllium	0.00173 J - 0.0592	5/8	0.003 [b]
Cadmium	0.058 J - 0.149	2/8	0.005 [a]
Chromium	0.0133 J - 4.87	5/8	0.05 [a]
Copper	0.055 - 9.43	6/8	0.2 [a]
Iron	147 - 3,940	4/8	0.3 [a]
Lead	0.0196 - 4.68	8/8	0.015 [c]
Manganese	0.693 - 293	8/8	0.05 [d]
Mercury	0.00005 J - 0.00351 J	1/8	0.0007 [a]
Nickel	0.0186 J - 2.48	4/8	0.1 [a]
Selenium	0.00083 J - 0.155	4/8	0.01 [a]
Silver	0.0062 J - 0.161 J	2/8	0.05 [a]
Thallium	0.0044 J - 0.0054	2/8	0.0005 [b]
Zinc	0.095 - 15.1	6/8	2 [a]
Wet Chemistry			
Petroleum Hydrocarbons	0.11J -28	8/8	0.1[a]

[a] NYSDEC Class GA groundwater standard; June 1998
[b] NYSDEC Class GA groundwater guidances; June 1999
[c] RCRA corrective action levels
[d] Federal secondary maximum contaminat level
[e] Federal primary maximum contaminat level

Key:
D = Indicates compounds identified in an analysis from a diluted sample
J = Estimated concentration*

* Estimated concentrations are typically due to measuring very low levels below the quantitation limit but above the detection limit or due to a quality control concern identified by a data reviewer.

Table 2
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
BUILDING 255 DRYWELLS
SUBSURFACE SOIL SAMPLES

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
VOCs (µg/kg)			
Acetone	2 J - 71,000	2/63	200 [a]
Ethylbenzene	1 J - 46,000	2/63	5,500 [a]
Methylene Chloride	2 J - 2,100 J	1/63	100 [a]
Toluene	1 J - 550,000	5/63	1,500 [a]
Trichloroethylene (TCE)	5 J - 13,000	1/63	700 [a]
Xylenes	1 J - 550,000	5/63	1,200 [a]
SVOCs (µg/kg)			
1,2-Dichlorobenzene	19,000 J - 29,000 J	2/63	7,900 [a]
Benzo(a)anthracene	37 J - 1,500 J	8/63	224 [a]
Benzo(a)pyrene	67 J - 1,900	21/63	61 [a]
Benzo(b)fluoranthene	130 J - 2,300 J	3/63	1,100 [a]
Bis(2-ethylhexyl)phthalate	48 J - 140,000 J	2/63	50,000 [a]
Chrysene	40 J - 6,900 J	6/63	400 [a]
Di-n-butyl phthalate	37 J - 16,000 J	2/63	8,100 [a]
Dibenzo(a,h)anthracene	430	1/63	14 [a]
Naphthalene	47 J - 520,000	2/63	13,000 [a]
Pesticides/PCBs (µg/kg)			
Endrin	0.41 J - 109	1/64	100 [a]
PCB-1260 (Aroclor 1260)	17.4 J - 2,380	4/64	90 [b]
Metals (mg/kg)			
Antimony	1.8 J -155	3/63	3.4 [c]
Arsenic	2.1 J - 49	35/63	4.9 [c]
Barium	11.2 J - 1,420	3/63	300 [a]
Beryllium	0.076 J - 0.66	1/63	0.65 [c]
Cadmium	0.22 J - 96.7	6/63	1.1 [c]
Calcium	579 - 76,700	5/63	23,800 [c]
Total chromium	5.1 J - 1,690	9/63	22.6 [c]
Cobalt	3.5 J - 30.6	1/63	30 [a]
Copper	13 - 4,900	11/63	43 [c]
Lead	1.8 - 20,000	16/63	36.2 [c]
Magnesium	1,610 J - 8,540 J	2/63	7,180 [c]
Manganese	160 - 2,210	2/63	2,110 [c]
Mercury	0.014 J - 1.77	5/63	0.1 [a]
Nickel	5.98 J - 72.2	4/63	46.1 [c]
Silver	0.36 J - 13.6	13/63	1.1 [c]
Sodium	24 J - 443	1/63	259 [c]
Zinc	23 - 6.730	7/63	120 [c]

[a] NYS-recommended soil cleanup objectives
[b] Proposed RCRA corrective action levels
[c] Backgroung screening concentration

Key:
J = Estimated concentration

Table 3
BUILDING 255 DRYWELLS AOC
RISK ASSESSMENT EXPOSURE SCENARIOS

UTILITY AND CONSTRUCTION WORKERS	INDUSTRIAL WORKER
• Inhalation of airborne chemicals • Inhalation of fugitive dust from soils • Incidental ingestion of soil • Dermal contact with soil	• Ingestion of groundwater • Dermal contact with groundwater (during showering) • Inhalation of VOCs from groundwater (during showering)

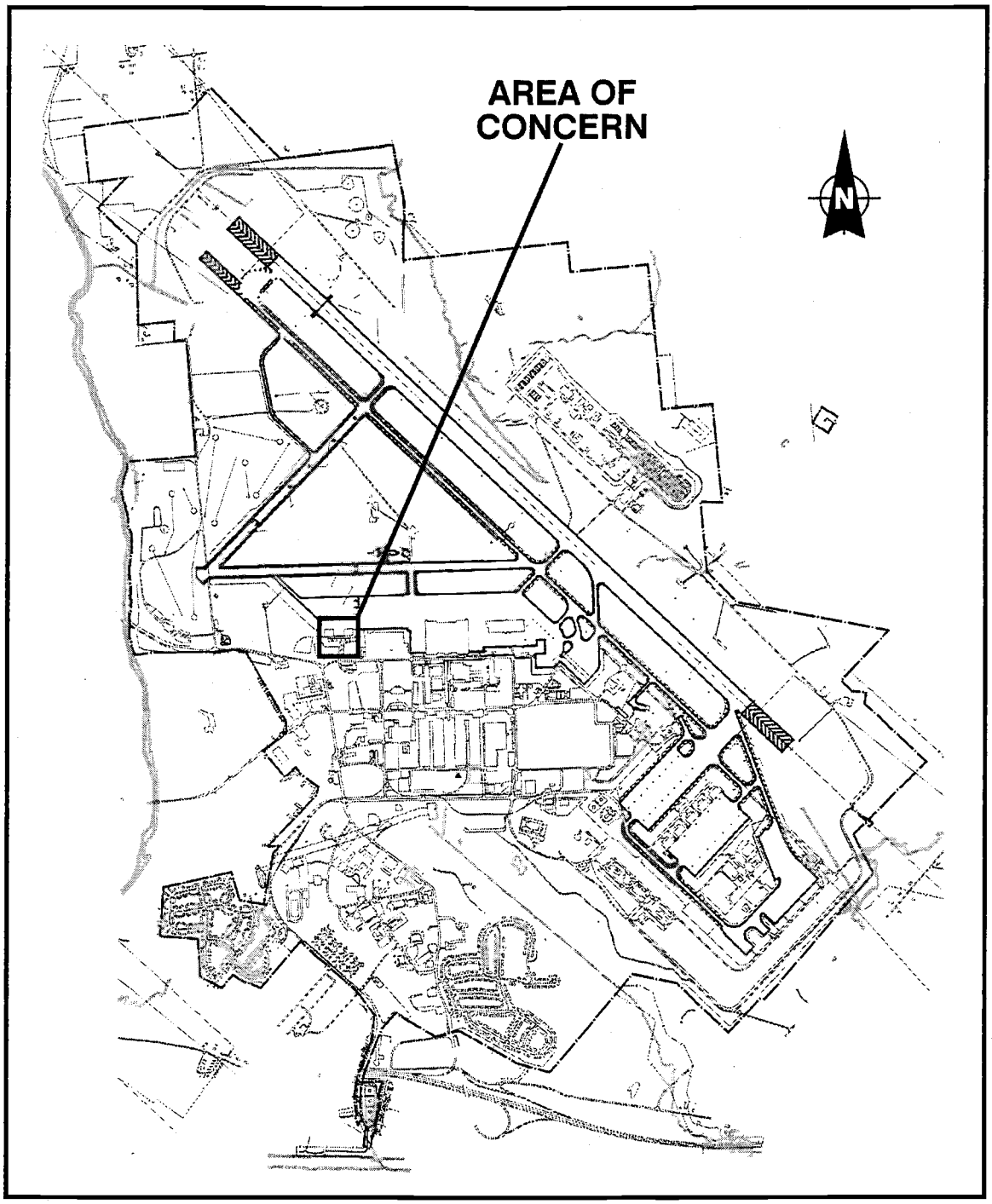

Figure 1 Building 255 Drywell AOC Location Map

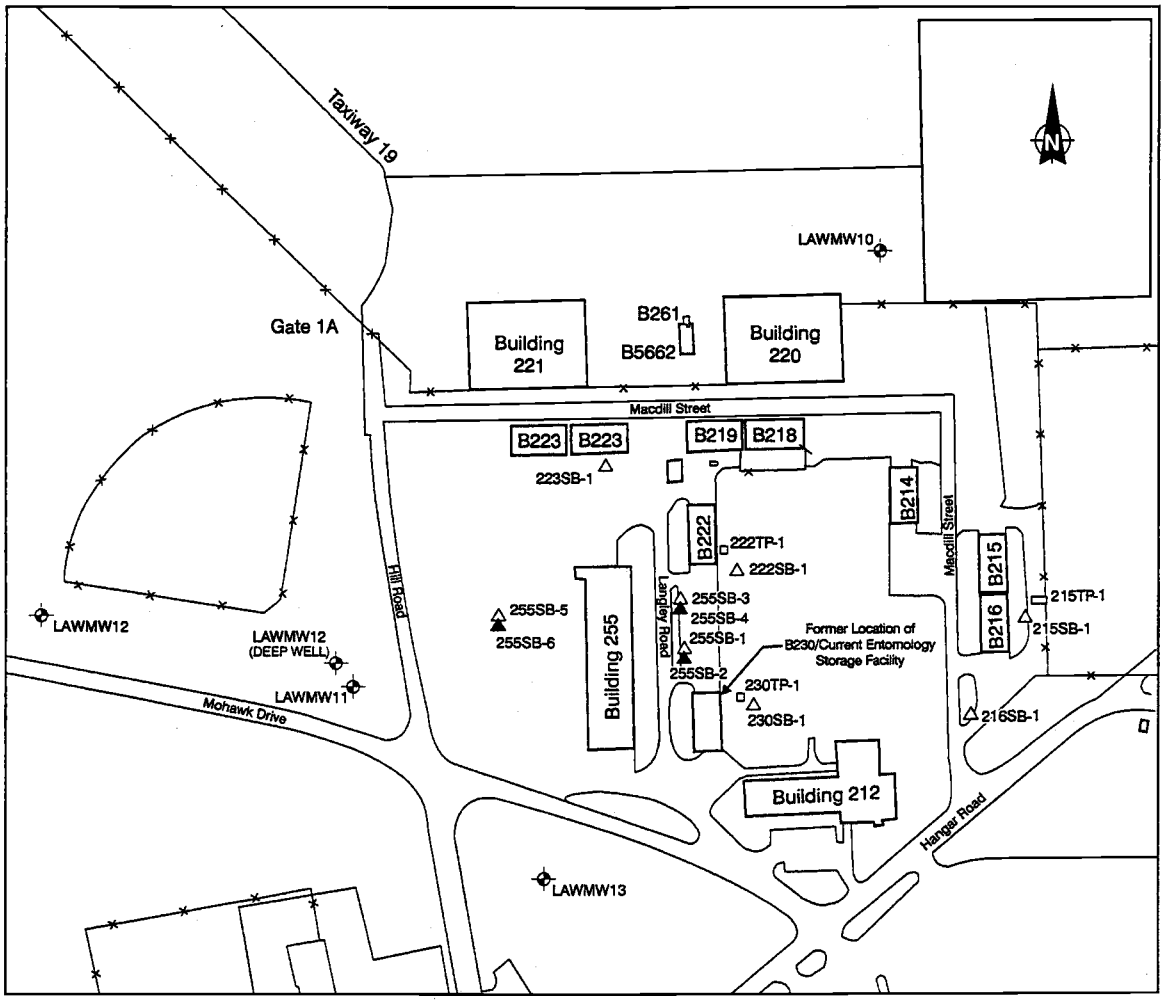

Figure 2 Building 255 Drywell AOC Site Map

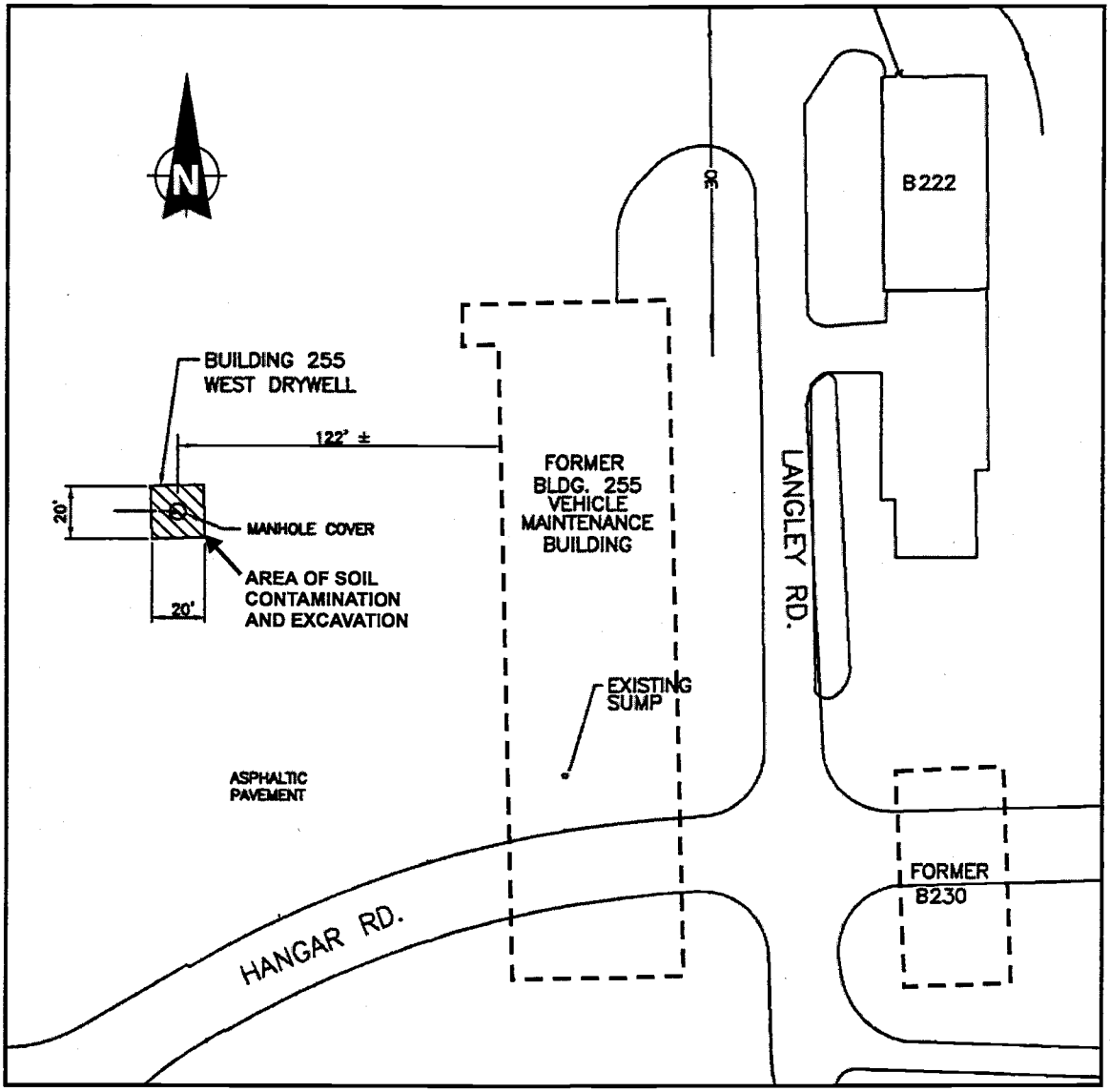

Figure 3 Building 255 Drywell AOC Interim Remedial Action

3 Responsiveness Summary

On Friday, February 9, 2001, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the proposed plan for no further action for soil with land use restrictions at the Building 255 Drywell AOC at the former Griffiss Air Force Base. The release of the proposed plan initiated the public comment period, which concluded on March 11, 2001.

During the public comment period, a public meeting was held on Thursday, March 1, 2001, at 5:00 p.m. at the Floyd Town Hall located at 8299 Old Floyd Road, Rome, NY. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal for remedial action at the site.

This document summarizes and provides responses to the verbal comments received at the public meeting and the written comments received during the public comment period.

Comment #1 (oral - Carmen Malagisi)

Mr. Malagisi requested an explanation of the five-year review process and whether there was a termination criteria for the five-year review.

Response #1

The five-year review is conducted by the Air Force, in conjunction with the EPA and NYSDEC, to assure that human health and the environment are being protected by the remedial actions being implemented. In this case, the review will ensure that the land use is in compliance with industrial/commercial use, deed restrictions remain in place and that the cleanup standards used in the ROD are still appropriate. During the first five-year review, and any subsequent review, if it is determined that conditions at a portion of the site have improved such that it meets unlimited and unrestricted use, then that portion of the site can be excluded from future review. However, it is the policy of the EPA that five-year reviews be conducted on a site-wide basis whenever any portion of a site requires a review.

Comment #2 (oral - John Fitzgerald)

Mr. Fitzgerald asked if it was possible to have only one five-year review.

Response #2

At a minimum, one five-year review will be conducted. During that five-year review, it could be decided that no additional reviews are necessary.

Comment #3 (oral - John Fitzgerald)

Mr. Fitzgerald asked if there would be a record of when the five-year reviews will occur.

Response #3

CERCLA regulations do not require that the public be an active participant in the five-year reviews, but they do require that the results of the five-year reviews be made available to the public in the Information Repository. EPA guidance, however, suggests that the public be consulted during the five-year review process. While the Air Force has an active presence at the former Griffiss AFB, the Restoration Advisory Board (RAB) will be informed of and invited to participate in the five-year reviews.

Comment #4 (oral - John Fitzgerald)

For the record, Mr. Fitzgerald noted that he and other residents have concerns about the groundwater, but they understand that those issues will be addressed at a later time.

4 References

Agency for Toxic Substances and Diseases Registry (ATSDR), 1995, *Public Health Assessment for Griffiss Air Force Base, Rome, Oneida County, New York*, CERCLIS NY4571924451, prepared for U.S. Department of Health and Human Services, Public Health Service, Albany, New York.

_____, 1988, *Health Assessment for Griffiss Air Force Base, Rome, New York*, prepared for U.S. Department of Health and Human Services, Public Health Service, Albany, New York.

Air Force Base Conversion Agency (AFBCA), February 2001, Proposed Plan Building 255 AOC, Rome, New York.

Corey, Michael, January 1994, *1993 Inventory of Rare Plant Species and Significant Natural Communities at Griffiss Air Force Base in Rome, New York*, prepared for the New York Natural Heritage Program.

Engineering Science, July 1981, *Installation Restoration Program Phase I, Records Search, Hazardous Materials Disposal Site*, prepared for United States Air Force, AFESC/DEVP, Tyndall Air Force Base, Florida.

Geotech, February 1991, *Hydrogeology Study Report, Griffiss AFB, Rome, New York*, Grand Junction, Colorado.

Law Engineering and Environmental Services, Inc., December 1996, *Draft-Final Primary Report, Volume 21, Remedial Investigation, Griffiss Air Force Base, New York*, Contract No. DACA41-92-D-8001, Kennesaw, Georgia.

New York State Department of Environmental Conservation (NYSDEC), 1994, *Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Soil Cleanup Levels*.

Ocuto Blacktop and Paving Environmental Services, February 2000, *Closure Certification Report for Interim Remedial Action at Buildings 20, 112, 222, and 255*, prepared for United States Army Corps of Engineers, Contract No. DACA41-97-C-8001, Rome, New York.

U.S. Environmental Protection Agency (USEPA), 1986, *Superfund Amendments and Reauthoriztion Act (SARA)*, 41 U.S.C. 9601 et seq., Washington D.C.

_____, 1980, *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, 42 U.S.C. s/s 9601 et seq., Washington D.C.

_____, 1968, *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*, 40 CFR 300, Washington D.C.

Weston, November 1985, *Installation Restoration Program Phase II - Problem Confirmation and Quantification Study Stage 2, Griffiss Air Force Base, Rome, New York*, prepared for United States Air Force, Brooks AFB, Texas.

_____, December 1982, *Installation Restoration Program Phase II - Problem Confirmation and Quantification Study Stage 1, Griffiss Air Force Base, Rome, New York*, prepared for United States Air Force, Brooks AFB, Texas.

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APPENDIX C
Deed for Parcel F9

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GRI-EDC-2000-001-D-2
Parcel F-9
Oneida County Industrial Development Agency

TRAB

NEW YORK QUITCLAIM DEED

I. PARTIES

THIS DEED is made and entered into this 21st day of March, 2000, by and between the UNITED STATES OF AMERICA, acting by and through the Secretary of the Air Force, under and pursuant to the powers and authority contained in the Defense Base Closure and Realignment Act of 1990, as amended (10 U.S.C. § 2687 note), and delegations and regulations promulgated thereunder (the "Grantor"), and ONEIDA COUNTY INDUSTRIAL DEVELOPMENT AGENCY, an instrumentality and public benefit corporation of the State of New York (the "Grantee"). (When used in this Deed, unless the context specifies otherwise, "Grantor" shall include the assigns of the Grantor, and "Grantee" shall include the successors and assigns of the Grantee.)

II. CONSIDERATION AND CONVEYANCE

WITNESSETH, THAT in consideration of the sum of TEN DOLLARS ($10.00), receipt of which is hereby acknowledged, the Grantor hereby quitclaims to the Grantee, whose post office address is 153 Brooks Road, Rome, New York 13441-4105, all the real property situated in the City of Rome, County of Oneida, and State of New York described as set forth on Exhibit A to this Deed.

III. APPURTENANCES

TOGETHER WITH all the buildings and improvements erected thereon, and all and singular the tenements, hereditaments, appurtenances, and improvements hereunto belonging, or in any wise appertaining (which, together with the real property above described, is called the "Property" in this Deed).

IV. EXCEPTIONS

EXCEPTING THEREFROM all utility systems owned by the Grantor, including wire, cables, conduit, pipes, transformers, pumps, switching gear, poles, anchors, guys, towers, and appurtenant installations, structures, facilities, and equipment, reserving the right and easement in the Grantor to keep, operate, inspect, maintain, repair, remove, and replace such utility systems, and for ingress and egress to and from such systems. Not included in this exception are those parts of a utility system that serve only a specific building(s) or building lot(s), and that, in the practice of public utilities in Oneida County, New York, are usually controlled by individual realty owners and not by utility providers.

V. RESERVATIONS

A. RESERVING UNTO THE GRANTOR, including the United States Environmental Protection Agency ("EPA") and the State of New York (the "State"), and its and their respective officials, agents, employees, contractors, and subcontractors, the right of access to the Property (including the right of access to, and use of, utilities at reasonable cost to the Grantor), for the following purposes, either on the Property or on adjoining lands, and for such other purposes consistent with the Installation Restoration Program ("IRP") of the Grantor or the Federal Facility Agreement ("FFA"), if applicable:

1. To conduct investigations and surveys, including, where necessary, drilling, soil and water sampling, testpitting, testing soil borings, and other activities related to the IRP or FFA, if applicable.

2. To inspect field activities of the Grantor and its contractors and subcontractors in implementing the IRP or the FFA, if applicable.

3. To conduct any test or survey required by the EPA or the State relating to the implementation of the IRP or FFA, if applicable, or environmental conditions on the Property, or to verify any data submitted to the EPA or the State by the Grantor relating to such conditions.

4. To conduct, operate, maintain, or undertake any other response, corrective, or remedial action as required or necessary under the IRP or the FFA, if applicable, or the covenant of the Grantor in Section VII.F.8. of this Deed, but not limited to, the installation of monitoring wells, pumping wells, and treatment facilities.

B. AND FURTHER RESERVING all existing reservations, easements, restrictions, and rights, recorded or unrecorded, for public roads, highways, streets, railroads, and other rights-of-way, including but not limited to the specific easements, reservations, rights, and covenants described in this Deed, and to any matters which may be revealed by a detailed survey and a physical inspection of the Property.

VI. CONDITION

A. The Grantee agrees to accept conveyance of the Property subject to all covenants, conditions, restrictions, easements, rights-of-way, reservations, rights, agreements, and encumbrances, whether or not of record.

B. The Grantee acknowledges that it has inspected, is aware of, and accepts the condition and state of repair of the Property, and that the Property is conveyed, "as is," "where is," without any representation, promise, agreement, or warranty on the part of the Grantor regarding such condition and state of repair, or regarding the making of any alterations, improvements, repairs, or additions. The Grantee further acknowledges that the Grantor shall not be liable for any latent or patent defects in the Property, except to the extent required by applicable law.

VII. COVENANTS

A. Lead-Based Paint ("LBP").

1. The Property may include improvements that are presumed to contain LBP because they are thought to have been constructed prior to 1978. The Grantee hereby acknowledges the required disclosure in accordance with the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. Section 4852d (Title X), of the presence of any known LBP and/or LBP hazards in target housing constructed prior to 1978. This disclosure includes the receipt of available records and reports pertaining to LBP and/or LBP hazards; receipt of the lead hazard information pamphlet; and inclusion of the 25 C.F.R. Subparts 35H and 745F disclosure and lead warning language in the Title X Lead-Based Paint Disclosure Statement in the contract of sale.

2. The Grantee covenants and agrees that, in any improvements on the Property defined as target housing by Title X and constructed prior to 1978, LBP hazards will be disclosed to potential occupants in accordance with Title X before use of such improvements as a residential dwelling (as defined in Title X). Further, the Grantee covenants and agrees that LBP hazards in target housing constructed prior to 1960 will be abated in accordance with Title X before use and occupancy as a residential dwelling. "Target housing" means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than six [6] years of age resides, or is expected to reside, in such housing) or any zero-bedroom dwelling. LBP might be present in Buildings 480, 482, 490, 491, and 492. Grantee will be responsible for managing all LBP and potential LBP in compliance with NYSDEC Solid Waste Regulations and all other applicable laws and regulations.

3. The Grantee covenants and agrees that in its use and occupancy of the Property, it will comply with Title X and all applicable Federal, State, and local laws relating to LBP. The Grantee acknowledges that the Grantor assumes no liability for damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with LBP on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured.

4. The Grantee hereby acknowledges that the Air Force has classified Buildings 400, 437, 438, 439, 440, 442, 443, 444, 448, 452, 468, 488, 511, 517, 519, 520, 629, 654 and 6245 as facilities with a probability of having LBP because they were constructed prior to 1978 when maximum allowable content of lead in paint was reduced. Grantee will be responsible for managing all LBP including rubblized material generated during demolition which contains LBP and potential LBP in compliance with NYSDEC Solid Waste Regulations and all other applicable laws and regulations. LBP is assumed not to be present in Building 525 since it was constructed after 1978.

B. Asbestos-Containing Materials ("ACM"). The Grantee is warned that the Property may be improved with buildings, facilities, and equipment that may contain ACM. The Grantee covenants and agrees that in its use and occupancy of the Property, it will comply with all applicable Federal, State, and local laws relating to asbestos. The Grantee acknowledges that the Grantor assumes no liability for damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured.

1. ACM was identified in Buildings 400, 437, 438, 442, 443, 444, 452, 468, 480, 492, 517, 520 and 654. Grantee will monitor the condition of the existing ACM and comply with all applicable Federal, State and local laws, rules and regulations relating to asbestos. Grantee will be required to remove or remediate any ACM which, during the period of this Deed, becomes damaged or deteriorated. Grantee will submit an appropriate asbestos disposal plan to the Air Force for approval prior to conducting any remediation or demolition activities, and be responsible for the management of damaged or deteriorated ACM in facilities that will be demolished but occupied temporarily.

C. Sanitary Sewer Systems. All buildings transferred in this deed are connected to a sanitary sewer. Grantee is required to submit an application for discharging to the sanitary sewer for any new construction and to meet all applicable wastewater discharge permit standards.

D. Ordnance Related Material Notification. The risk associated with the possible presence of unexploded ordnance remaining on the property to be transferred has been investigated by the United States Army Corps of Engineers (USACE/Huntsville) and documented in the Archives Search Report - Recommendations and Findings, dated November 1997. The Archives Search Report (ASR) was developed by the USACE after extensive research of the munitions related history of Griffiss AFB and several interviews with past and present DoD employees. A list of the documents reviewed and the employees interviewed is provided in the ASR. Eleven (11) former munitions related sites at Griffiss AFB were identified for further investigation. None of the eleven (11) munitions related sites are identified to be present within the property. Clearing operations were performed in the summer of 1998 and documented in a final report dated October 30, 1998.

1. The intent of the investigation was to eliminate the presence of all ordnance and ordnance related materials within the identified areas. While not likely, it is possible that ordnance, not previously identified in the ASR, may be present on the property to be transferred.

2. All ground disturbing activities performed by the Grantee shall be performed in a manner such that the identification of ordnance related material may

occur. Upon discovery of any suspected ordnance related material the appropriate authorities shall be notified.

E. Non-Discrimination. The Grantee covenants not to discriminate upon the basis of race, color, religion, national origin, sex, age, or handicap in the use, occupancy, sale, or lease of the Property, or in its employment practices conducted thereon. This covenant shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit, nor shall it apply with respect to religion if the Property is on premises used primarily for religious purposes. The United States of America shall be deemed a beneficiary of this covenant without regard to whether it remains the owner of any land or interest therein in the locality of the Property.

F. Environmental Covenants.

1. The GRANTEE covenants to restrict the use of the Property to industrial, educational and commercial non-residential activities unless it obtains written permission to do so from United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), and New York State Department of Health (NYSDOH).

2. The GRANTEE shall include the restrictions of this Deed in any future deed(s), leases, licenses or other contracts involving the use of the Property. If there is any violation of the restrictions, it shall be lawful for the GRANTOR and other appropriate parties to prosecute any proceedings at law or in equity against such violator(s), either to prevent any violation of this restriction, or to recover damages for such violation, or both. The failure of the GRANTOR to enforce this restriction shall in no event be deemed a waiver of the right of the GRANTOR to do so thereafter as to the same violation, or as to one occurring prior or subsequent thereto.

3. The GRANTEE covenants and agrees to the requirement for additional evaluation of a portion of the property within Area of Interest (AOI) 72 should the property use change from institutional/educational to residential. The extent of the restricted area is shown on Exhibit B.

4. The GRANTEE covenants that it will not allow construction activities in the subsurface soils or groundwater in the areas of Underground Storage Tanks (UST) UST-319, UST-426, UST-440, AST-0468-02, UST-480-1 and UST-504, UST-654-01 and UST-654-02, as shown on Exhibit B, until the NYSDEC STARS Memo cleanup requirements are met, and cleanup actions are executed by the Air Force to the satisfaction of the NYSDEC Spills Program personnel. Scheduling of construction activities shall be properly coordinated with the Air Force and the NYSDEC to ensure protection of human health and the environment. The GRANTEE will allow the Air Force, NYSDEC and USEPA and their representatives access to spill sites for investigation purposes.

5. The GRANTEE covenants that it will not engage in any activities that will disrupt required remedial investigation, response actions or oversight activities, should

any be required on the Property. The GRANTOR agrees to coordinate its remediation activities with the GRANTEE so as not to unreasonably disrupt use of the Property by the GRANTEE.

6. The GRANTEE covenants that it will not allow construction activities in the subsurface soils or groundwater in the area of Petroleum, Oil and Lubricant (POL) Distribution Systems POL-426 and POL-654, as shown on Exhibit B, until the NYSDEC STARS Memo cleanup requirements are met and cleanup actions are executed by the Air Force to the satisfaction of the NYSDEC Spills Program personnel. Scheduling of construction activities shall be properly coordinated with the Air Force and the NYSDEC to ensure protection of human health and the environment. The GRANTEE will allow the Air Force, NYSDEC and USEPA and their representative access to both POL sites for investigation purposes. The GRANTEE will be responsible for complying with any applicable Federal, State and local environment regulations and for obtaining any required permits for operation of the POL systems.

7. The GRANTEE covenants and agrees to restrict occupancy of all the dormitory facilities until the mold is removed from all interior surfaces including carpets, curtains, walls, ceilings, etc. The GRANTEE will provide certification to the Air Force that the necessary modifications have been completed prior to occupancy.

8. The GRANTOR hereby covenants to the GRANTEE that all remedial action necessary to protect human health and the environment with respect to any hazardous substances remaining on the Property has been taken before the date of this Deed. Any additional remedial action found to be necessary after the date of this Deed for contamination on the Property existing prior to the date of this Deed shall be taken by the GRANTOR. The foregoing covenant shall not apply in any case in which the person or entity to whom the Property, or any part thereof, is transferred is a potentially responsible party with respect to such property before the date on which such person or entity acquired an interest in such property, or is a potentially responsible party as a result of an act or omission affecting such property.

9. The GRANTEE covenants and agrees that it will not spread or exacerbate environmental contamination or open exposure pathways to humans or the environment, and that it will not disrupt environmental investigations and remedial activities, or jeopardize the protectiveness of those remedies, such as:

i) surface application of water in the area of an IRP site that could impact the migration of contaminated ground water;

ii) subsurface drilling or use of ground water in the area of an IRP site unless the GRANTOR determines that there will be no adverse impacts on the IRP remediation process;

iii) construction that would interfere with, negatively impact, or restrict GRANTOR'S rights of access for purposes of the IRP remediation process.

G. Hazards to Air Navigation. Prior to commencing any construction on, or alteration of, the Property, the Grantee covenants to comply with 14 C.F.R. Part 77 entitled "Objects Affecting Navigable Air Space," or under the authority of the Federal Aviation Act of 1958, as amended.

VIII. MISCELLANEOUS

The covenants contained in this Deed shall run with the land and inure to the benefit of the assigns of the GRANTOR and shall be binding upon the successors and assigns of the GRANTEE.

IX. LIST OF EXHIBITS

The following Exhibits are attached to and made a part of this Deed:

A. Exhibit A - Property Description
B. Exhibit B - Parcel Map

IN WITNESS WHEREOF, I have hereunto set my hand at the direction of the Secretary of the Air Force, the day and year first above written.

UNITED STATES OF AMERICA

By: Ruby B. DeMesme
RUBY B. DEMESME
Assistant Secretary of the Air Force
(Manpower, Reserve Affairs, Installation & Environment)

Witness:

BRENT A EVANS

COMMONWEALTH OF VIRGINIA):
) SS.
COUNTY OF ARLINGTON):

On the 21st day of March, in the year 2000, before me personally came Ruby B. DeMesme to me known, who, being by me duly sworn, did depose and say that she resides at 2701 Lena Court, in Oakton (city), Fairfax (county), Virginia (state); that she is the Assistant Secretary of the Air Force duly appointed of the Manpower, Reserve Affairs, Installation & Environment described in and which executed the above instrument; and that she signed her name thereto by authority of the Secretary of the Air Force.

Gail K. Fujita
Notary Public

My commission expires on May 31, 2003.

Embossed Hereon Is My
Commonwealth of Virginia Notary Public Seal
My Commission Expires May 31, 2003
GAIL K. FUJITA

ACCEPTANCE

The GRANTEE hereby accepts this Deed and agrees to be bound by all the agreements, covenants, conditions, restrictions, and reservations contained in it.

DATE: May 25, 2000

ONEIDA COUNTY INDUSTRIAL DEVELOPMENT AGENCY
(Grantee)

By: _____

Attest: _____

EXHIBIT A

PARCEL I

ALL THAT TRACT, PIECE OR PARCEL OF LAND situate in the City of Rome, County of Oneida and State of New York as shown on a map entitled "Property Map Showing a Portion of Lands to be Conveyed to Oneida County Industrial Development Agency, City of Rome, County of Oneida, State of New York" (Drawing F9A); prepared by Michael P. Waters, P.L.S. No. 050027, dated September 3, 1999 and certified March 30, 2000 and being more particularly bounded and described as follows:

Beginning at a point on the northerly side of Ellsworth Road extended 243.6 feet westerly from its intersection with the centerline of Hill Road;

thence through the lands of the United States of America the following sixteen (16) courses and distances:

1. North 89° 02' 52" East, 328.33 feet to a point;
2. South 07° 27' 27" East, 148.13 feet to a point;
3. South 22° 49' 52" East, 115.73 feet to a point;
4. Southerly along a curve to the left having a radius of 913.74 feet, a chord length of 393.47 feet, a chord direction of South 35° 41' 40" East to a point;
5. South 52° 05' 06" East, 1,606.08 feet to a point;
6. South 07° 11' 18" East, 863.78 feet to a point;
7. Southerly along a curve to the right having a radius of 952.91 feet, a chord length of 233.08 feet, a chord direction of South 00° 31' 38" East to a point;
8. Southerly along a curve to the left having a radius of 3,561.19 feet, a chord length of 312.14 feet, a chord direction of South 07° 17' 54" West to a point;
9. Southerly along a curve to the left having a radius of 909.44 feet, a chord length of 252.42 feet, a chord direction of South 10° 45' 32" West to a point;
10. Southerly along a curve to the left having a radius of 853.84 feet, a chord length of 302.86 feet, a chord direction of South 10° 45' 23" East to a point;
11. South 22° 48' 10" East, 270.18 feet to a point;
12. Southerly along a curve to the right having a radius of 699.29 feet, a chord length of 95.11 feet, a chord direction of South 18° 40' 22" East to a point;
13. South 27° 41' 08" East, 13.95 feet to a point;
14. Southerly along a curve to the right having a radius of 411.75 feet, a chord length of 198.80 feet, a chord direction of South 17° 23' 34" East to a point;
15. South 03° 59' 08" East, 115.24 feet to a point;
16. South 08° 09' 44" East, 36.66 feet to a point on the division line between the lands of the United States of America on the north and the lands of the State of New York on the south;

thence along said division line the following two (2) courses and distances:

1. South 70° 42' 07" West, 339.07 feet to a point;

2. North 59° 41' 53" West, 578.24 feet to a point;

thence through the lands of the United States of America the following eleven (11) courses and distances:

1. North 37° 01' 33" East, 113.19 feet to a point;
2. North 41° 06' 28" West, 1,418.96 feet to a point;
3. North 47° 28' 00" West, 632.59 feet to a point;
4. North 55° 42' 05" East, 62.13 feet to a point;
5. North 39° 07' 58" West, 258.40 feet to a point;
6. South 55° 12' 05" West, 230.44 feet to a point;
7. North 34° 47' 54" West, 212.70 feet to a point;
8. North 02° 57' 01" West, 1,129.28 feet to a point;
9. North 07° 31' 35" East, 394.74 feet to a point;
10. North 35° 08' 09" East, 625.01 feet to a point;
11. North 01° 38' 07" West, 120.92 feet to the place of beginning, being 5,891,498.2± square feet or 135.250 acres, more or less.

EXCEPTING THEREFROM ALL THAT TRACT, PIECE OR PARCEL OF LAND situate in the City of Rome, County of Oneida, and State of New York identified as "F9B" on a map entitled "Property Map Showing a Portion of Lands to be Conveyed to Oneida County Industrial Development Agency, City of Rome, County of Oneida, State of New York" (Drawing F9A); prepared by Michael P. Waters, P.L.S. No. 050027, dated September 3, 1999, and certified March 30, 2000 and being 741.31 ± square feet.

ALSO EXCEPTING THEREFROM ALL THAT TRACT, PIECE OR PARCEL OF LAND situate in the City of Rome, County of Oneida, and State of New York identified as the "VA Hospital" on a map entitled "Property Map Showing a Portion of Lands to be Conveyed to Oneida County Industrial Development Agency, City of Rome, County of Oneida, State of New York" (Drawing F9A); prepared by Michael P. Waters, P.L.S. No. 050027, dated September 3, 1999, and certified March 30, 2000 and being 7.489 ± acres of land, which tract, piece or parcel of land is more particularly described as follows:

Beginning at a point marked by an iron pipe set in the westerly line of Kirtland Drive, said point being S 14°-02'-16" E 24.21 feet measured along the westerly line of said Kirtland Drive produced from its point of intersection with the southerly line of Brookley Road produced; thence running from said point of beginning S 14°-02'-16" E along the westerly line of the aforesaid Kirtland Drive 99.43 feet to a point; thence in a general southerly direction along the westerly line of said Kirtland Drive with a curve to the left tangent to the last mentioned line having a radius of 625.00 feet, a central angle of 16°-49'-02", an arc length of 183.45 feet and whose chord bears S 22°- 26'-47" E a chord distance of 182.79 feet to a point; thence S 30°-51'-18" E with a line tangent to the last mentioned curve along the westerly line of said Kirtland Drive 52.69 feet to a point marked by an iron pipe set; thence S 59°-18'-25" W through lands now owned by the parties of the first part 670.00 feet to a point marked by an iron pipe set; thence N 26°-47'-24" W 713.36 feet to a point marked by an iron pipe set in the southerly line of the

aforesaid Brookley Road; thence in a general easterly direction along the southerly line of said Brookley Road with a curve to the left having a radius of 235.00 feet, a central angle of 55°-21'-15", an arc length of 227.04 feet and whose chord bears S 69°-14'-47" E a chord distance of 218.31 feet to a point marked by an iron pipe set; thence N 83°- 04'-34" E on a line tangent to the last mentioned curve along the southerly line of said Brookley Road 61.60 feet to a point marked by a spike set; thence N 77°- 48'-19" E continuing along said line 493.03 feet to a point marked by an iron pipe set; thence in a general southeasterly direction with a curve to the right tangent to the last mentioned line having a radius of 25.00 feet, a central angle of 88°- 09'-25", and arc length of 38.47 feet and whose chord bears S 58°- 06'-59" E a chord distance of 34.78 feet to the point of beginning. Containing 7.489 acres of land more or less.

PARCEL II

ALL THAT TRACT, PIECE OR PARCEL OF LAND situate in the City of Rome, County of Oneida and State of New York as shown on a map entitled "Property Map Showing a Portion of Lands to be Conveyed to Oneida County Industrial Development Agency, City of Rome, County of Oneida, State of New York" (Drawing F9B); prepared by Michael P. Waters, P. L. S. No. 050027, dated November 27, 1999 and certified March 30, 2000 and being more particularly bounded and described as follows:

Beginning at a point on the division line between the herein described parcel on the east and the lands known as "Park Drive Manor" on the west; thence through the lands of the United States of America the following twelve (12) courses and distances:

1. South 79° 09′ 24″ East, 263.33 feet to a point; said point being westerly along the northerly boundary of Ellsworth Road extended 243.6 feet from its intersection with the centerline of Hill Road;
2. South 01° 38′ 07″ East, 120.92 feet to a point;
3. South 35° 08′ 09″ West, 625.01 feet to a point;
4. South 07° 31′ 35″ West, 394.74 feet to a point;

5. South 02° 57′ 01″ East, 1,129.28 feet to a point;
6. South 34° 47′ 54″ East, 212.70 feet to a point;
7. North 55° 12′ 05″ East, 230.44 feet to a point;
8. South 39° 07′ 58″ East, 258.40 feet to a point;
9. South 55° 42′ 05″ West, 62.13 feet to a point;
10. South 47° 28′ 00″ East, 632.59 feet to a point;
11. South 41° 06′ 28″ East, 1,418.96 feet to a point;
12. South 37° 01′ 33″West, 113.19 feet to a point on the division line between the herein described parcel on the north and the lands of Julia M. Navelli (reputed owner) on the South;

thence North 58° 24′ 19″ West along said division line 266.53 feet to its intersection with the division line between the herein described parcel on the northwest and the aforementioned lands of Navelli (reputed owner) on the southeast;

thence South 40° 46′ 11″West continuing along said division line 370.00 feet to a point;

thence South 21° 38′ 06″ West continuing along said division line 749.21 feet to its intersection with the division line between the lands of the People of the State of New York on the south and the aforementioned lands of Navelli (reputed owner) on the north with the division line between the herein described parcel on the West and the lands of the People of the State of New York on the East;

thence along the last mentioned division line the following two (2) courses and distances:

1. South 21° 27′ 14″ West, 118.33 feet to a point;
2. South 13° 13′ 41″ West, 186.43 feet to a point on the division line between the lands of the United States of America on the south and the lands of the People of the State of New York on the north;

thence through the lands of the United States of America the following two (2) courses and distances:

1. Southerly along a curve to the left having a radius of 1,367.69 feet, a chord length of 641.87 feet, a chord direction of South 05° 56′ 02″ East to a point;
2. South 32° 28′ 17″ West, 132.77 feet to a point on the division line between the herein described parcel on the east and the lands of Sears Realty Co., Inc. (reputed owner) on the west;

thence along the last mentioned division line the following three (3) courses and distances:

1. Northerly along a curve to the right having a radius of 1,472.69 feet, a chord length of 140.07 feet, a chord direction of North 11° 02′ 23″ West to a point;
2. South 77° 05′ 02″ West, 10.00 feet to a point;

3. Northerly along a curve to the right having a radius of 1,462.69 feet, a chord length of 607.22 feet, a chord direction of North 05° 15′ 06″ West to the intersection of the division line between the aforementioned lands of Sears Realty Co., Inc. (reputed owner) on the south and the lands of the People of the State of New York on the north with the division line between the herein described parcel on the east and the lands of the People of the State of New York on the west;

thence along the last mentioned division line and the division line between the herein described parcel on the east and the lands known as "Shady Grove Trailer Park" on the west the following four (4) courses and distances;

1. North 11° 29′ 35″ East, 88.29 feet to a point;
2. North 18° 21′ 12″ East, 99.49 feet to a point;
3. North 22° 05′ 51″ East, 668.00 feet to a point;
4. North 05° 21′ 07″ East, 438.80 feet to the intersection of the division line between the lands known as "Shady Grove Trailer Park" on the south and the lands of St. John the Baptist Cemetery (reputed owner) on the north with the division line between the herein described parcel on the east and the lands of St. John the Baptist Cemetery (reputed owner) on the west;

thence North 36° 49′ 43″ West along the last mentioned division line 511.78 feet to the intersection of the division line between the lands of St. John the Baptist Cemetery (reputed owner) on the south and the lands of Larry Converse, III and Janet Converse (reputed owners) on the north; with the division line between the herein described parcel on the east and the aforementioned lands of Converse (reputed owners), the lands of Louis Ano Cretaro, Sr. (reputed owner), the lands of N & A Falcon (reputed owners), the lands of William I. Hoffmeister (reputed owner), and the lands of St. Peter's Cemetery Association (reputed owner) on the west;

thence along the last mentioned division line the following four (4) courses and distances:

1. North 49° 07′ 53″West, 857.59 feet to a point;
2. South 46° 31′ 20″ West, 10.48 feet to a point;
3. North 48° 30′ 32″West, 167.17 feet to a point;
4. North 47° 12′ 45″ West, 361.68 feet to the intersection of the division line between the lands of St. Peter's Cemetery Association (reputed owner) on the south and the lands of the United States of America on the north; with the division line between the herein described parcel on the east and the lands of the United States of America on the west;

thence along the last mentioned division line the following three (3) courses and distances:

1. North 51° 49′ 32″ West, 333.22 feet to a point;
2. North 36° 52′ 31″ West, 310.06 feet to a point;
3. North 25° 40′ 31″ West, 419.57 feet to a point on the division line between the herein described parcel on the east and the lands of C.A. Kaplan (reputed owner) on the west;

thence along the last mentioned division line the following three (3) courses and distances:

1. North 10° 27′ 08″ East, 777.45 feet to a point;
2. North 39° 43′ 25″ East, 186.53 feet to a point;
3. South 83° 42′ 35″ West, 221.54 feet to its intersection with the first mentioned division line;

thence North 42° 56′08″ East along said mentioned division line 1,274.27 feet to the place of beginning, being 2,830,062.0± square feet or 64.969 acres, more or less;

ALSO, ALL THAT TRACT, PIECE OR PARCEL OF LAND situate in the City of Rome, County of Oneida, and State of New York identified as "F9B(1)" on a map entitled "Property Map Showing a Portion of Lands to be Conveyed to Oneida County Industrial Development Agency, City of Rome, County of Oneida, State of New York" (Drawing F9B); prepared by Michael P. Waters, P.L.S. No. 050027, dated November 27, 1999 and certified March 30, 2000 and being 741.31 ± square feet.

916 - 917	S22°48'10"E	270.18'
917 - 919	Radius 699.29' Chord Length 95.11' Chord Direction S18°40'22"E	
919 - 920	S27°41'08"E	13.95'
920 - 923	Radius 411.75' Chord Length 198.80' Chord Direction S17°23'34"E	
923 - 924	S03°59'08"E	115.24'
924 - 925	S08°09'44"E	36.63'
925 - 926	S70°42'07"W	339.07'
926 - 927	N59°41'53"W	578.24'
927 - 928	N37°01'33"E	113.19'
928 - 929	N41°06'28" W	1,418.96'
929 - 930	N47°28'00"W	632.59
930 - 931	N55°42'05"E	62.13'
931 - 932	N39°07'58"W	258.40'
932 - 933	S55°12'05"W	230.44'
933 - 934	N34°47'54"W	212.70'
934 - 935	N02°57'01"W	1,129.28'
935 - 936	N07°31'35"E	394.74'
936 - 937	N35°08'09"E	625.01'
937 - 901	N01°38'07"W	120.92'

AREA = 5,891,498.2 ± sq.ft
or
135.250 ± acres

PROPEF

SHOWING A PORTION OF I

ONEIDA COUNTY INDUSTRI

CITY OF ROME COUNTY OF C

Revisions

1. 3/30/00
VA Hospital

Scale: 1"-200'

Date: 9/3/99

Dgn: F9a.dgn

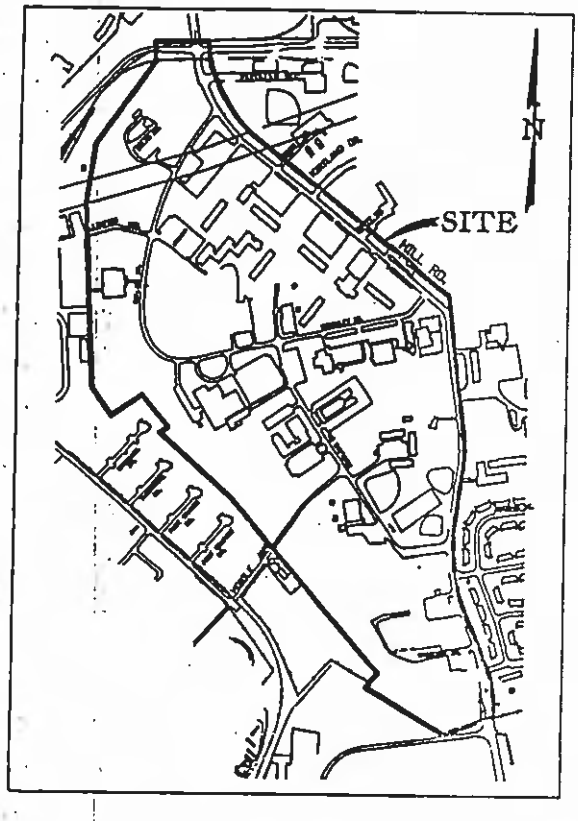
Proj No. *9989

F9A

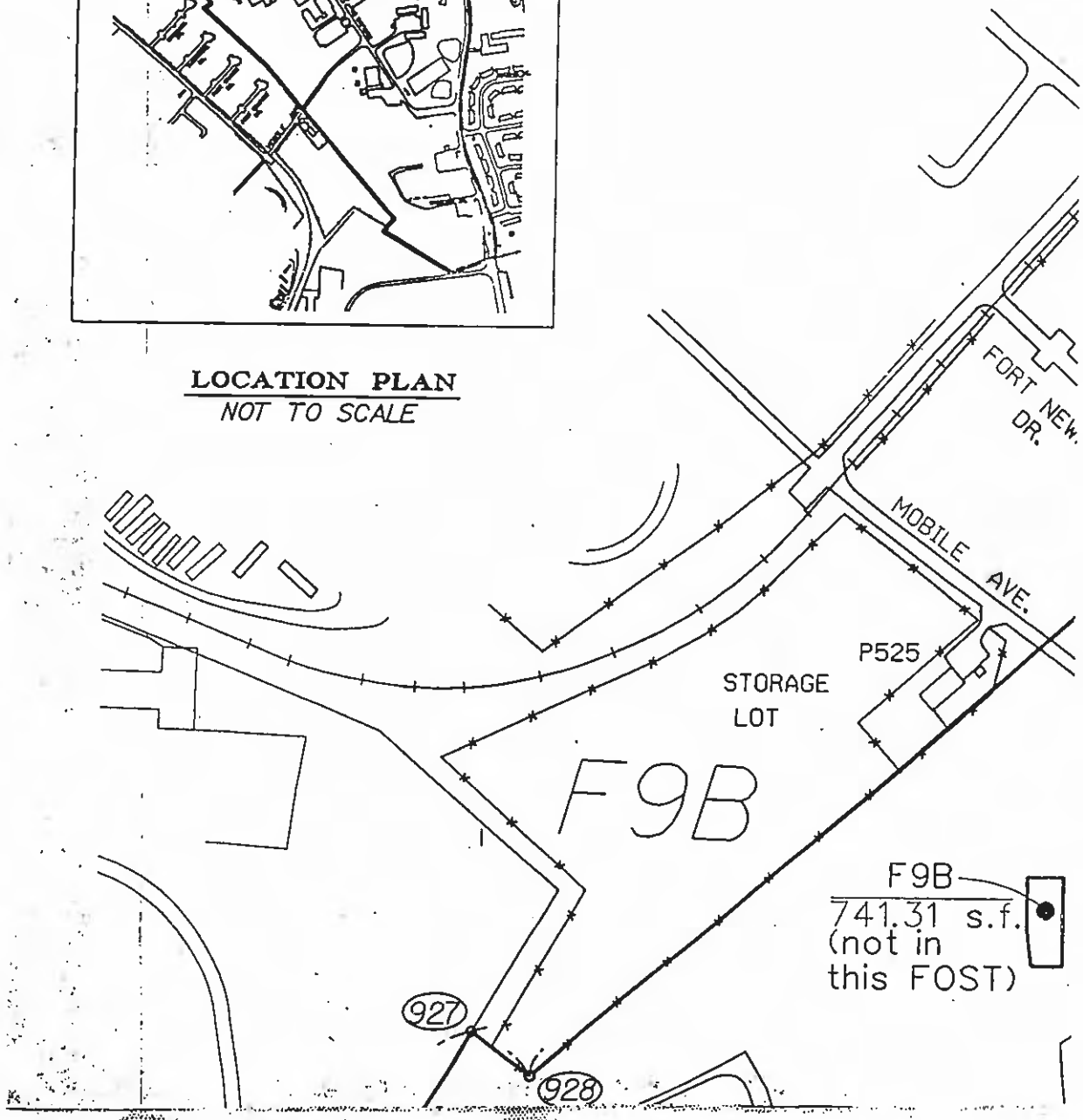
Project: CLOC Griffiss East

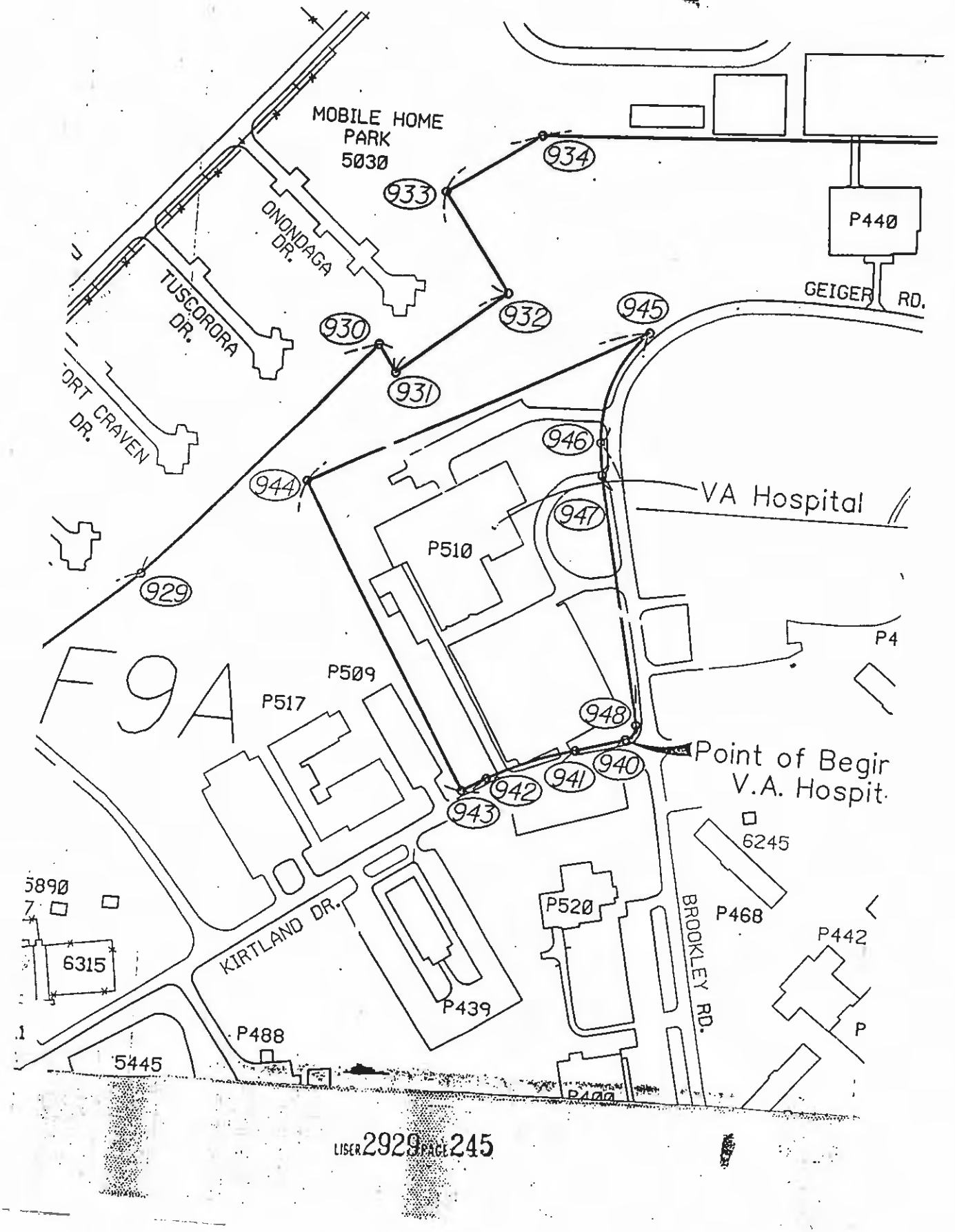
PIES SIGNED AND STAMPED IN RED

"EXHIBIT A"

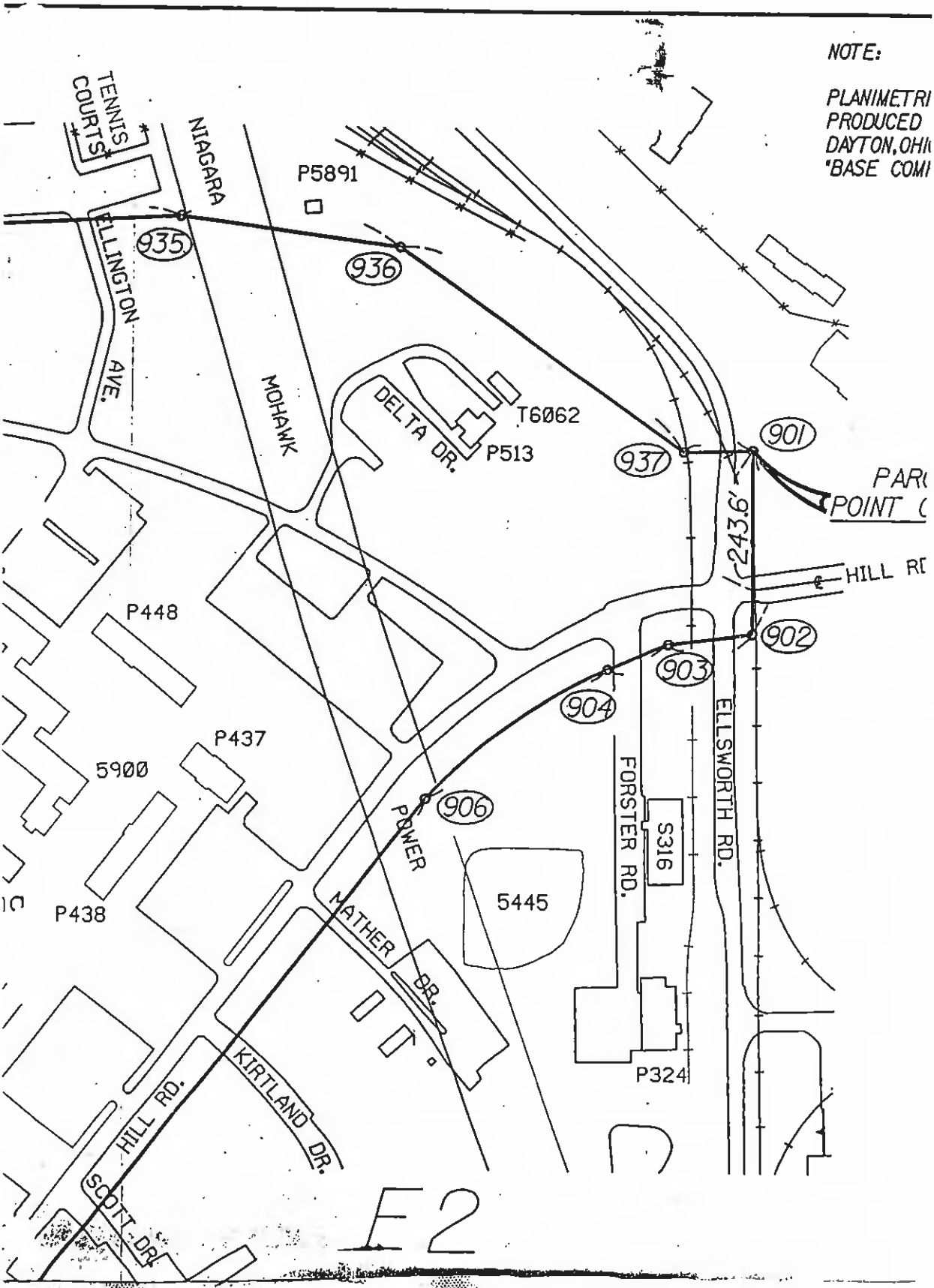


LOCATION PLAN
NOT TO SCALE





LIBER 2929 PAGE 245


NOTE:
PLANIMETRI
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TENNIS COURTS
NIAGARA
P5891
935
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ELLINGTON AVE.
MOHAWK
DELTA DR.
T6062
P513
937
901
PAR
POINT
243.6'
HILL RI
P448
902
903
904
P437
5900
ELLSWORTH RD.
FORSTER RD.
S316
906
POWER
5445
P438
MATHER DR.
P324
HILL RD.
KIRTLAND DR.
SCOTT DR.
E2

"THE ALTERATION OF SURVEY MAPS BY ANYONE OTHER THAN THE ORIGINAL PREPARER IS MISLEADING, CONFUSING AND NOT IN THE GENERAL WELFARE AND BENEFIT OF THE PUBLIC. LICENSED LAND SURVEYORS SHALL NOT ALTER MAPS, SURVEY PLANS OR SURVEY PLATS PREPARED BY OTHERS"

ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED LAND SURVEYOR, IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW

TA TAKEN FROM MAPPING
OOLPERT CONSULTANTS
ED: 01 SEPTEMBER, 1989.
ENSIVE PLNG. DIRECTIVE AFR 86-4

SURVEY COMPLETED 9/1/99

GRID NORTH

F9A'
INNING

PARCEL 'F9A'

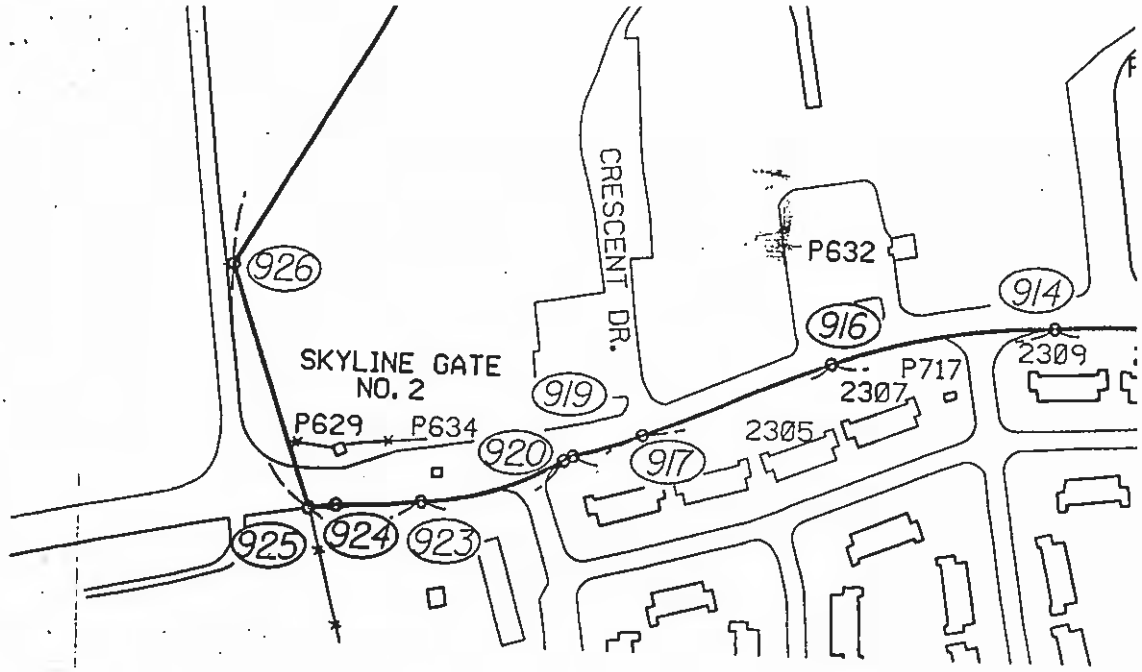
COURSE	DIRECTION	DISTANCE (FEET)
901 - 902	N89°02'52"E	328.33'
902 - 903	S07°27'27"E	148.13'
903 - 904	S22°49'52"E	115.73'
904 - 906	Radius 913.74' Chord Length 393.47' Chord Direction S35°41'40"E	
906 - 907	S52°05'06"E	1,606.08'
907 - 908	S07°11'18"E	863.78'
908 - 910	Radius 952.91' Chord Length 233.08' Chord Direction S00°31'38"E	
910 - 912	Radius 3,561.19' Chord Length 312.14' Chord Direction S07°17'54"W	
912 - 914	Radius 909.44' Chord Length 252.42' Chord Direction S10°45'32"W	
914 - 916	Radius 853.84 Chord Length 302.86 Chord Direction S10°45'23"E	

WATERS LAND SURVEYING
1307 N. James Street
Rome NY 13440
(315) 339-3639

P.L.S. No. 050027

TY MAP
ANDS TO BE CONVEYED TO
AL DEVELOPMENT AGENCY
NEIDA STATE OF NEW YORK

LIBER 2929 PAGE 247



AREA

5,891,498.2 ± sq.ft.
or
135.250 ± acres

Less V.A. Hospital
326,220.8 ± sq.ft.
or
7.489 ± acres

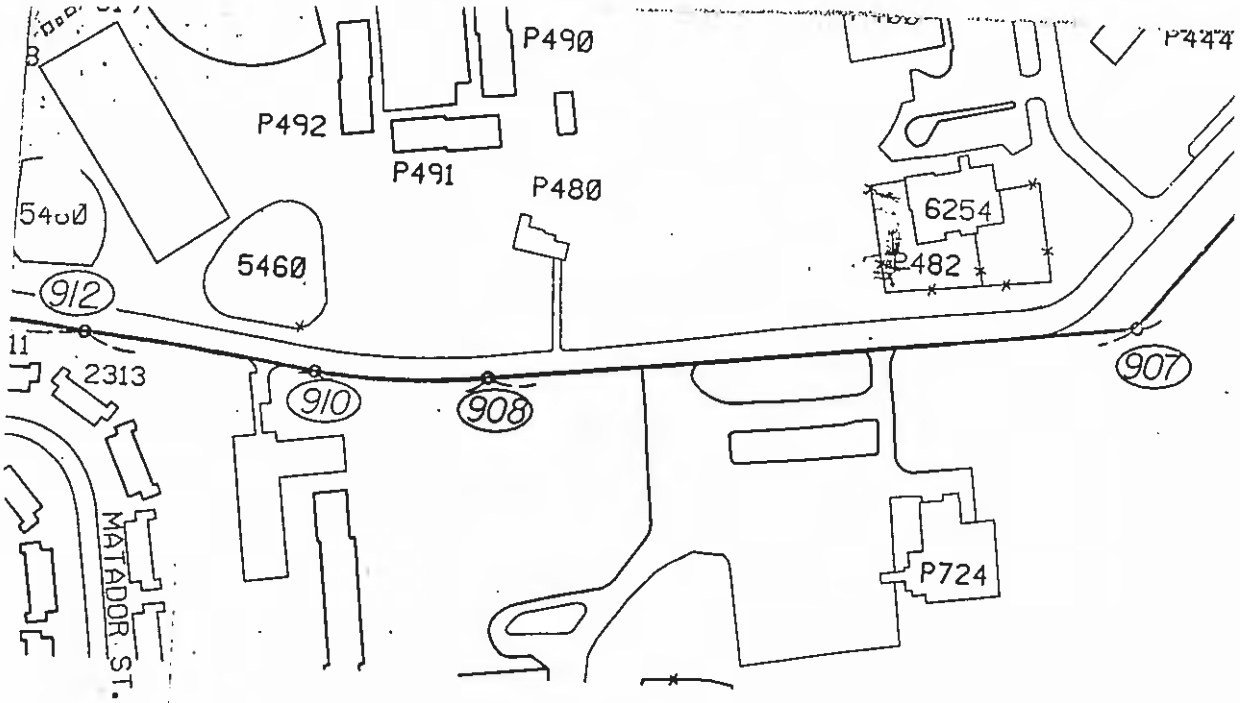
Less FOST F9B 741.31± sq.ft.

Remainder = 5,564,536.0 ± sq.ft.
or
127.744 ± acres

0' 0 200' 400'

SCALE BAR

Only copies from the original of this survey marked with the surveyor's signature and an ORIGINAL embossed or ink seal shall be considered valid true copies



THIS SURVEY WAS PREPARED FOR THE PARTIES AND PURPOSES INDICATED HEREON. ANY EXTENSION OF THE USE BEYOND THE PARTIES OR PURPOSE IS EXPRESSLY FORBIDDEN WITHOUT THE WRITTEN RELEASE OR PERMISSION OF WATERS LAND SURVEYING: Michael P. Waters P.L.S. No. 050027

CERTIFY TO:

AIR FORCE BASE CONVERSION AGENCY
ONEIDA COUNTY INDUSTRIAL DEVELOPMENT AGENCY
GRIFFISS LOCAL DEVELOPMENT CORPORATION

STATE MICH LICENSED

I hereby certify that this is an accurate map, made from an accurate field survey, and that this survey was prepared in accordance with the minimum standards set forth in "The Existing Code of Practice for Surveys" as adopted by the New York State Association of Professional Land Surveyors.

Michael P. Waters, P.L.S. No. 50027

3/3d/00
Date

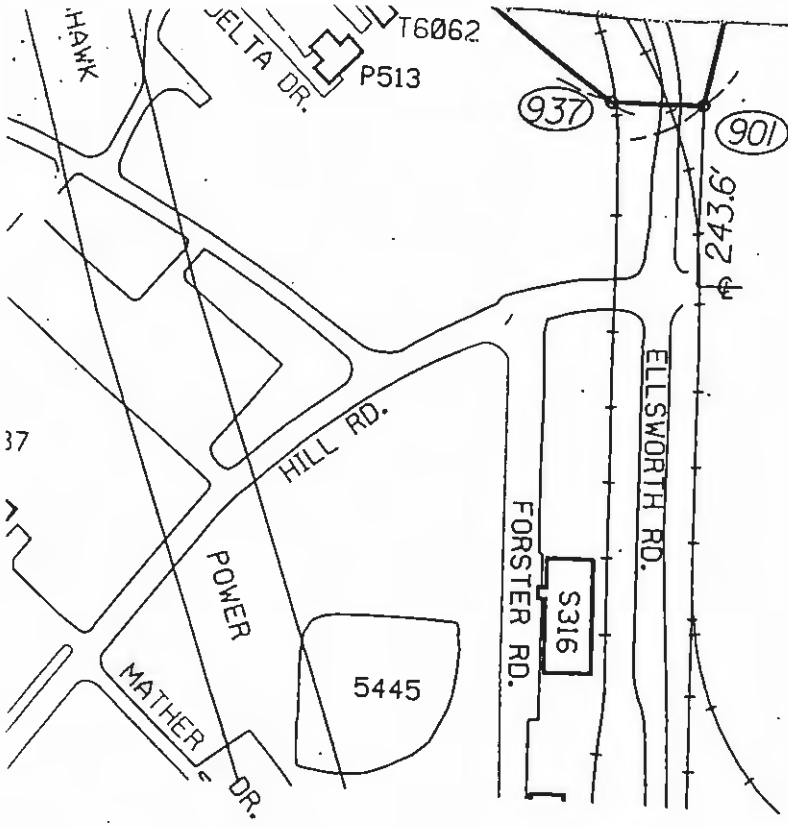
LIBER 2929 PAGE 249

V.A. Hospital

COURSE	DIRECTION	DISTANCE (FEET)
940 - 941	S14°02'16"E	99.43'
941 - 942	Radius 625.00' Chord Length 182.79' Chord Direction S22°26'47"E	
942 - 943	S30°51'18"E	52.69'
943 - 944	S59°18'25"W	670.00'
944 - 945	N26°47'24"W	713.36'
945- 946	Radius 235.00' Chord Length 218.31' Chord Direction S69°14'47"E	
946 - 947	N83°04'34"E	61.60'
947 - 948	N77°48'19"E	493.03'
948- 940	Radius 25.00' Chord Length 34.78' Chord Direction S58°06'59"E	

326,220.8± sq.ft.
or
7.489± acres

TRU



PROPER

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ONEIDA COUNTY INDUSTRI

CITY OF ROME COUNTY OF O

:PARED FOR THE PARTIES AND
IEREON. ANY EXTENSION OF
PARTIES OR PURPOSE IS EXPRESSLY
HE WRITTEN RELEASE OR PERMISSION
'EYING: Michael P. Waters P.L.S. No. 050027

' TO:

: CONVERSION AGENCY
'RIAL DEVELOPMENT AGENCY
'ELOPMENT CORPORATION

s an accurate map, made
urvey, and that this survey
ıce with the minimum standards
Code of Practice for Surveys"
'rk State Association
veyors.

STATE OF NEW YORK
MICHAEL P. WATERS
050027
LICENSED LAND SURVEYOR

0.50027

3/3/00
Date

Revisions
Scale: 1"=200'
Date: 11/27/99
Dgn: F9b.dgn
Proj No. *9989
F9B

Project: GLDC Griffiss Fost

ED AND STAMPED IN RED

"EXHIBIT A"

LIBER 2929 PAGE 251

"EXHIBIT A"

"THE ALTERATION OF SURVEY MAPS BY ANYONE OTHER THAN THE ORIGINAL PREPARER IS MISLEADING, CONFUSING AND NOT IN THE GENERAL WELFARE AND BENEFIT OF THE PUBLIC. LICENSED LAND SURVEYORS SHALL NOT ALTER MAPS, SURVEY PLANS OR SURVEY PLATS PREPARED BY OTHERS"

ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED LAND SURVEYOR, IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW

KEN FROM MAPPING
RT CONSULTANTS
SEPTEMBER, 1989.
E PLNG. DIRECTIVE AFR 86-4

SURVEY COMPLETED 11/16/99

GRID NORTH

"Park Drive Manor"

POINT OF BEGINNING
PARCEL 'F9B'

P5891

936

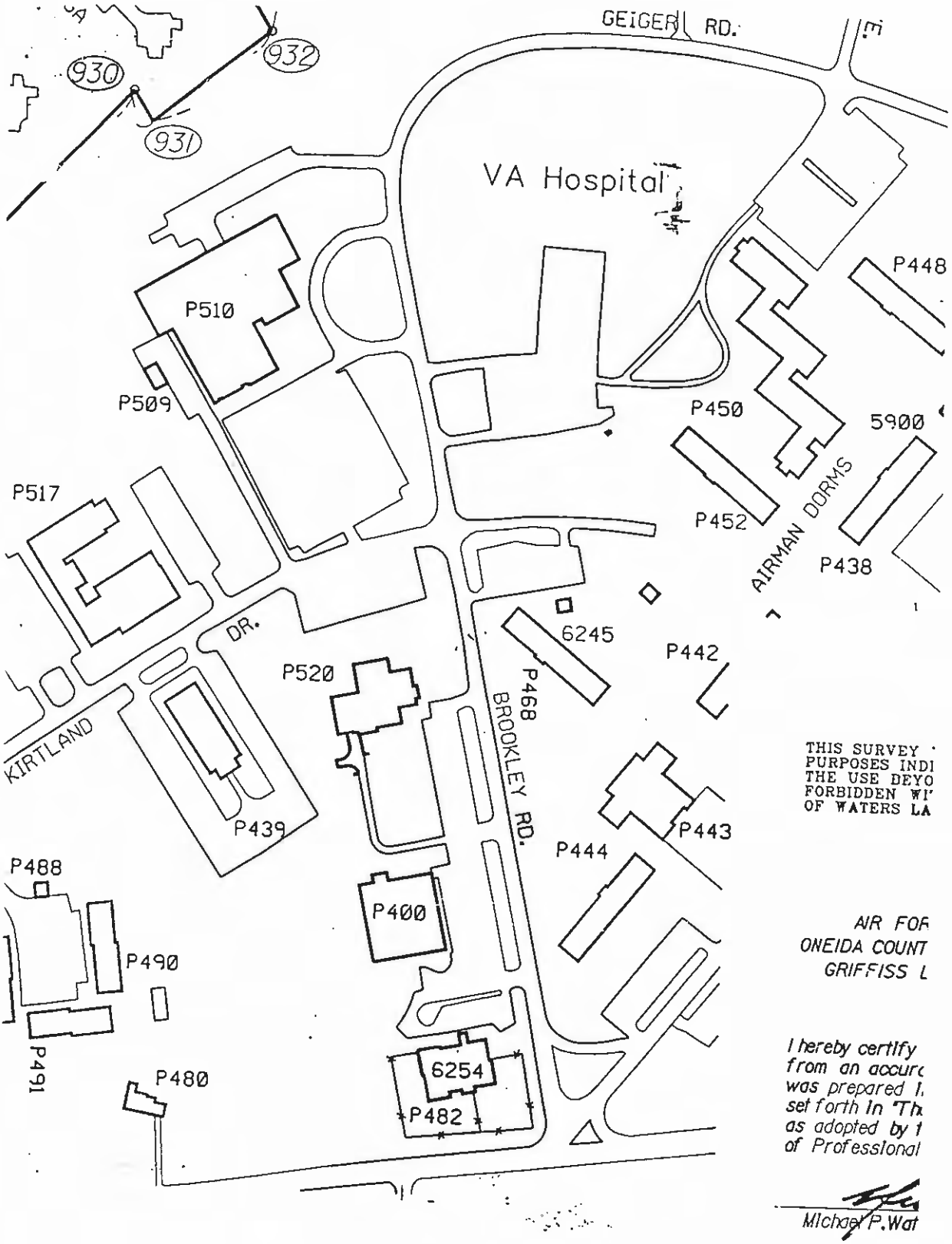
900

LIBER 2929 PAGE 252

TY MAP
ANDS TO BE CONVEYED TO
AL DEVELOPMENT AGENCY
NEIDA STATE OF NEW YORK

WATERS LAND SURVEYING
1307 N. James Street
Rome NY 13440
(315) 339-3639

P.L.S. No. 050027



THIS SURVEY
PURPOSES INDI
THE USE DEYO
FORBIDDEN WI
OF WATERS LA

AIR FOR
ONEIDA COUNT
GRIFFISS L

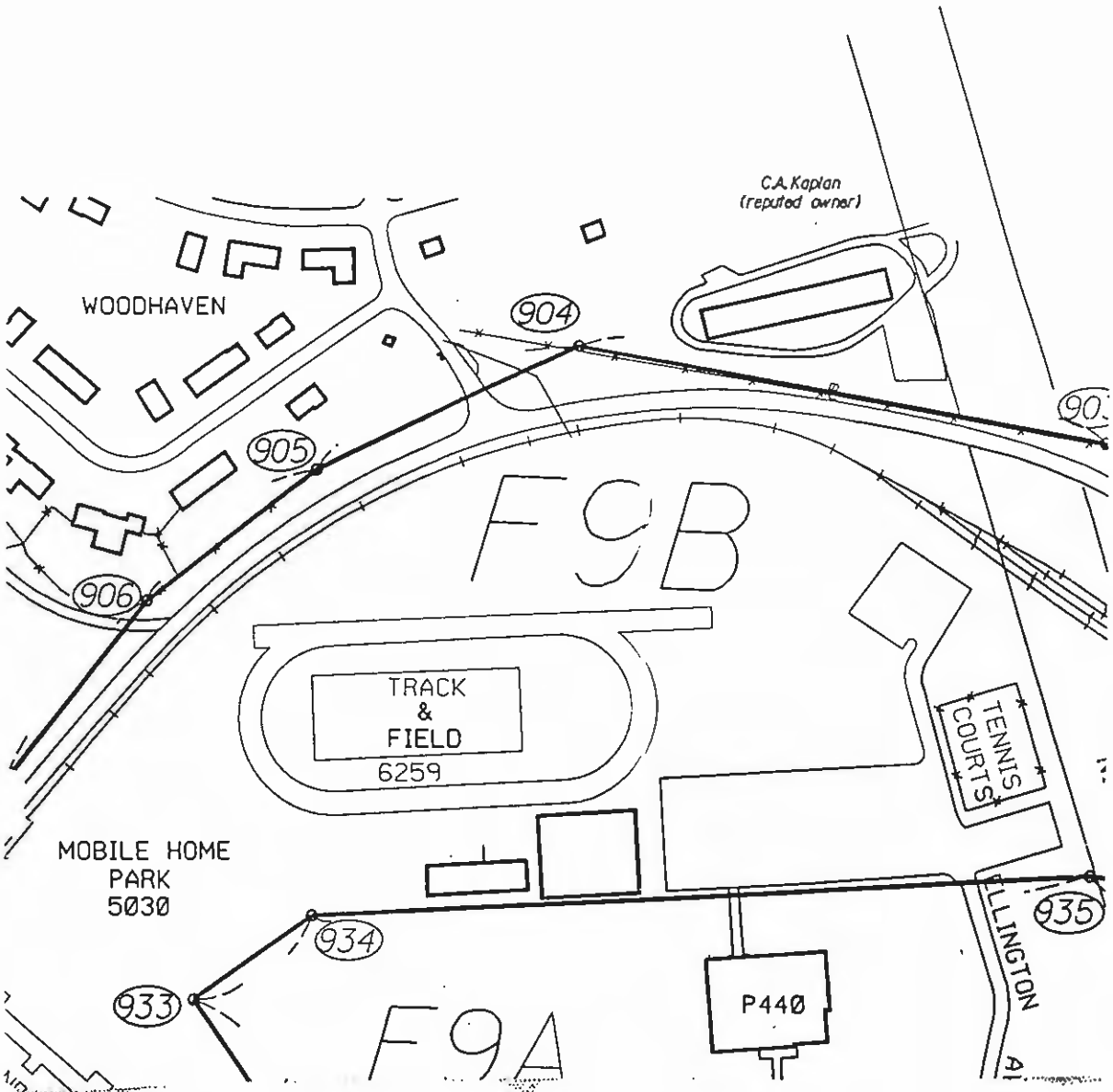
I hereby certify
from an accurc
was prepared I
set forth in "Th
as adopted by t
of Professional

Michael P. Wat

TRUE

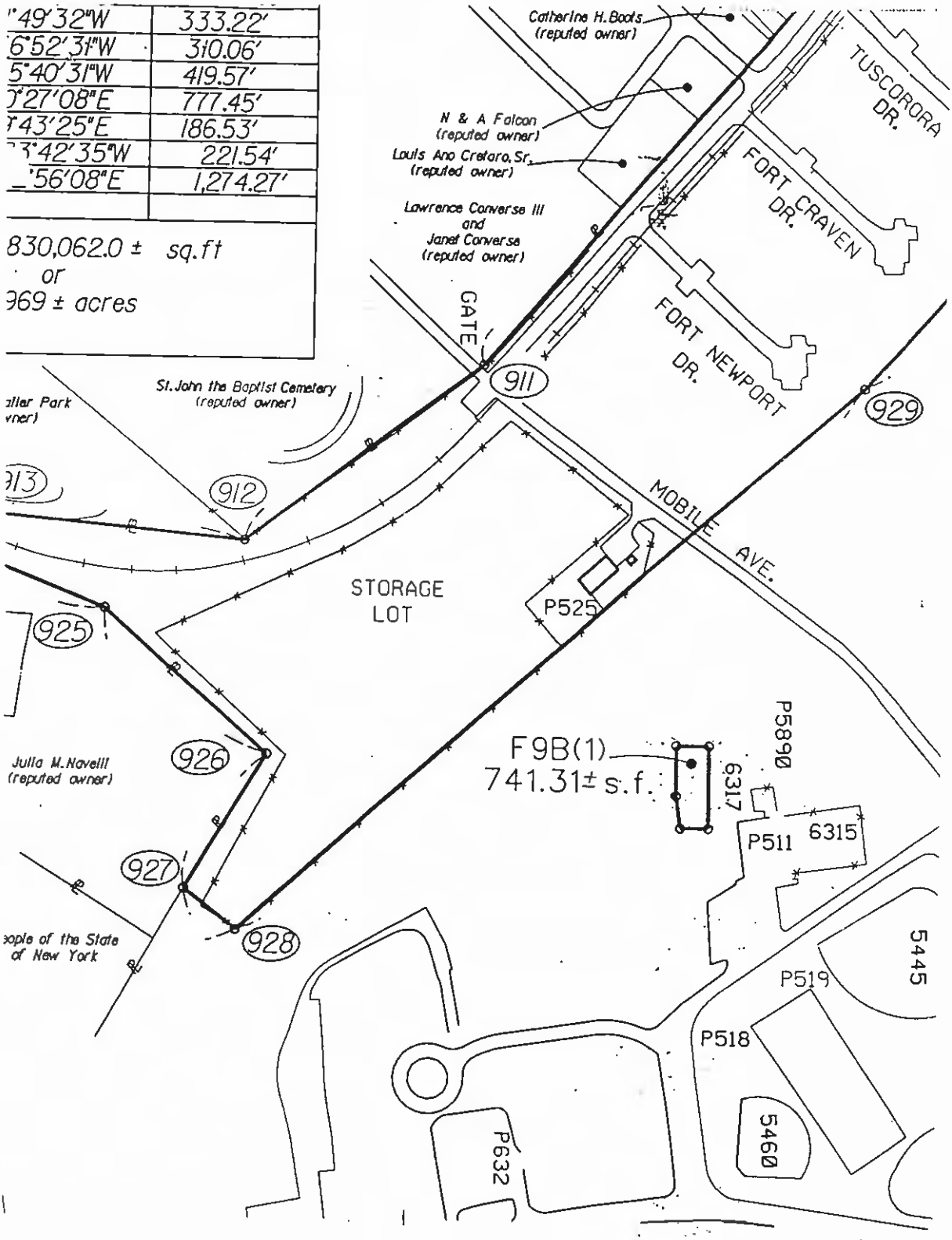
NOTE:

PLANIMETRIC D
PRODUCED BY
DAYTON, OHIO. D.
*BASE COMPRE



"49'32"W	333.22'
6°52'31"W	310.06'
5°40'31"W	419.57'
7°27'08"E	777.45'
7°43'25"E	186.53'
3°42'35"W	221.54'
_'56'08"E	1,274.27'

830,062.0 ± sq.ft
or
969 ± acres



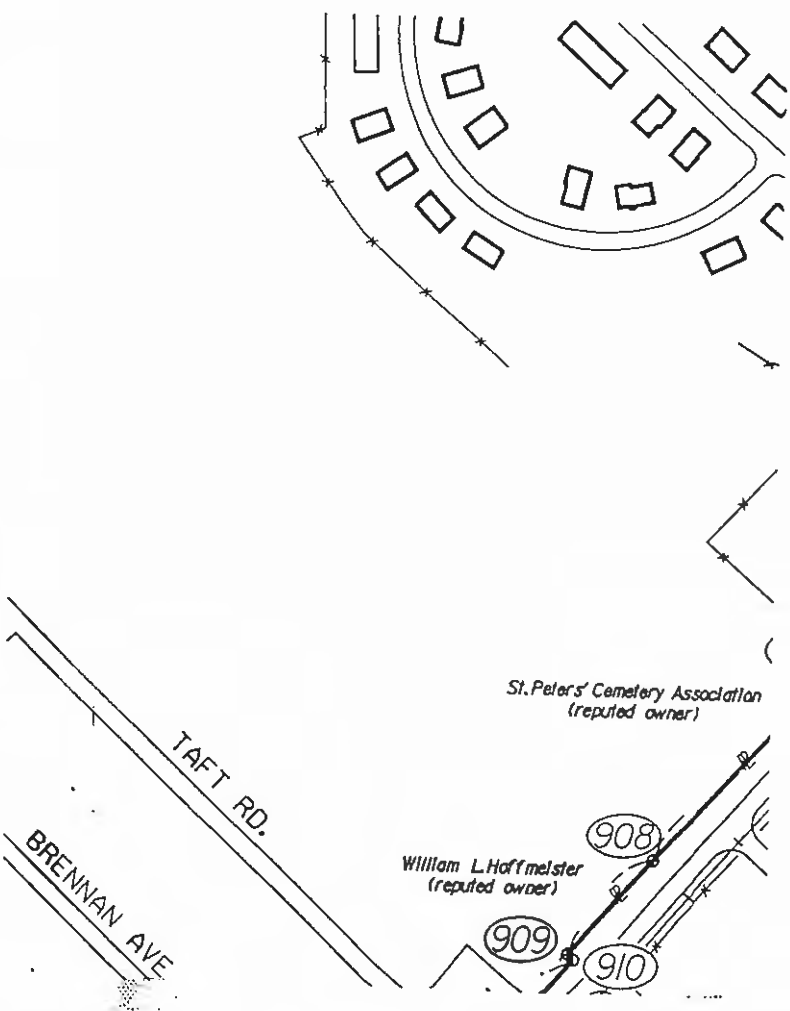
EL 'F9B'

ECTION	DISTANCE (FEET)
09'24"E	263.33'
38'07"E	120.92'
08'09"W	625.01'
31'35"W	394.74'
57'01"E	1,129.28'
47'54"E	212.70'
12'05"E	230.44'
07'58"E	258.40'
42'05"W	62.13'
28'00"E	632.59'
06'28"E	1,418.96'
01'33"W	113.19'
24'19"W	266.53'
46'11"W	370.00'
8'06"W	749.21'
27'14"W	118.33'
13'41"W	186.43'
1,367.69' Length 641.87' Direction S05°56'02"E	
28'17"W	132.77'
472.69 Length 140.07' Direction N11°02'23"W	
05'02"W	10.00'
462.69' Length 607.22' Direction N05°15'06"W	
35"E	88.29'
12"E	99.49'
05'51"E	668.00'
01'07"E	438.80'
43"W	511.78'
53"W	857.59'
20"W	10.48'
32"W	167.17'
45"W	361.68'

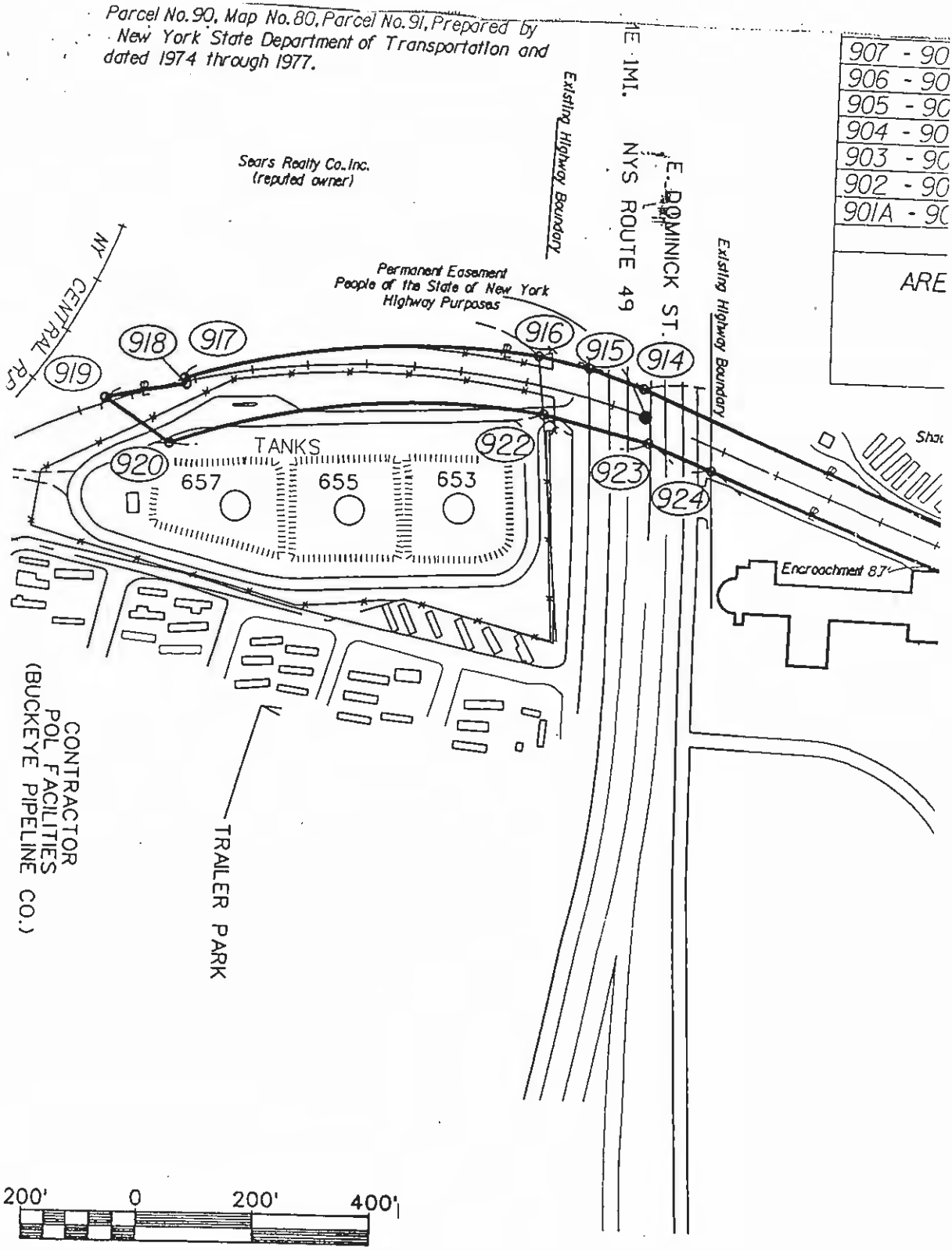
AREA = 2,830,062.0 ± sq.ft.
or
64.969 ± acres

Plus FOST F9B(1) 741.31 ± sq.ft.

Total = 2,830,803.3 ± sq.ft.
or
64.986 ± acres

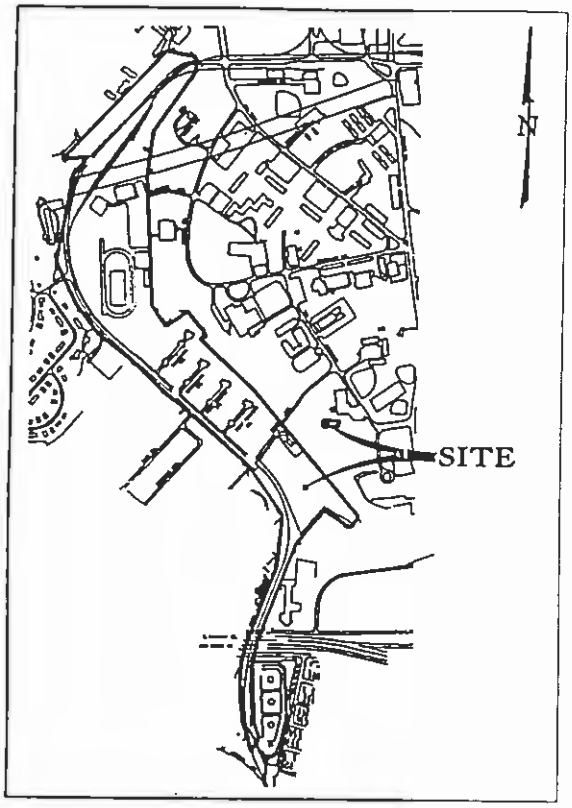


Parcel No. 90, Map No. 80, Parcel No. 91, Prepared by New York State Department of Transportation and dated 1974 through 1977.



Only copies from the original of this survey marked with the surveyor's signature and an ORIGINAL embossed or ink seal shall be considered valid true copies

LIBER 2929 PAGE 257



LOCATION PLAN
NOT TO SCALE

Reference:

1. Map entitled "Map Property of Julia M. Novelli" prepared by James P. McBurney and dated June 16, 1999.

2. Map Entitled "Tech Park Overview Plan Prepared by Bergmann Associates, and dated may 11, 1999

3. Map entitled "Air Combat Command Comprehensive Plan Real Estate Griffiss Air Force Base" Prepared by Department of the Air Force, dated 01 Sep 89, and revised 9/30/94.

4. Map entitled "Site Plan Park Drive Manor II prepared by Associated Architects of Syracuse and dated 4 February 1983.

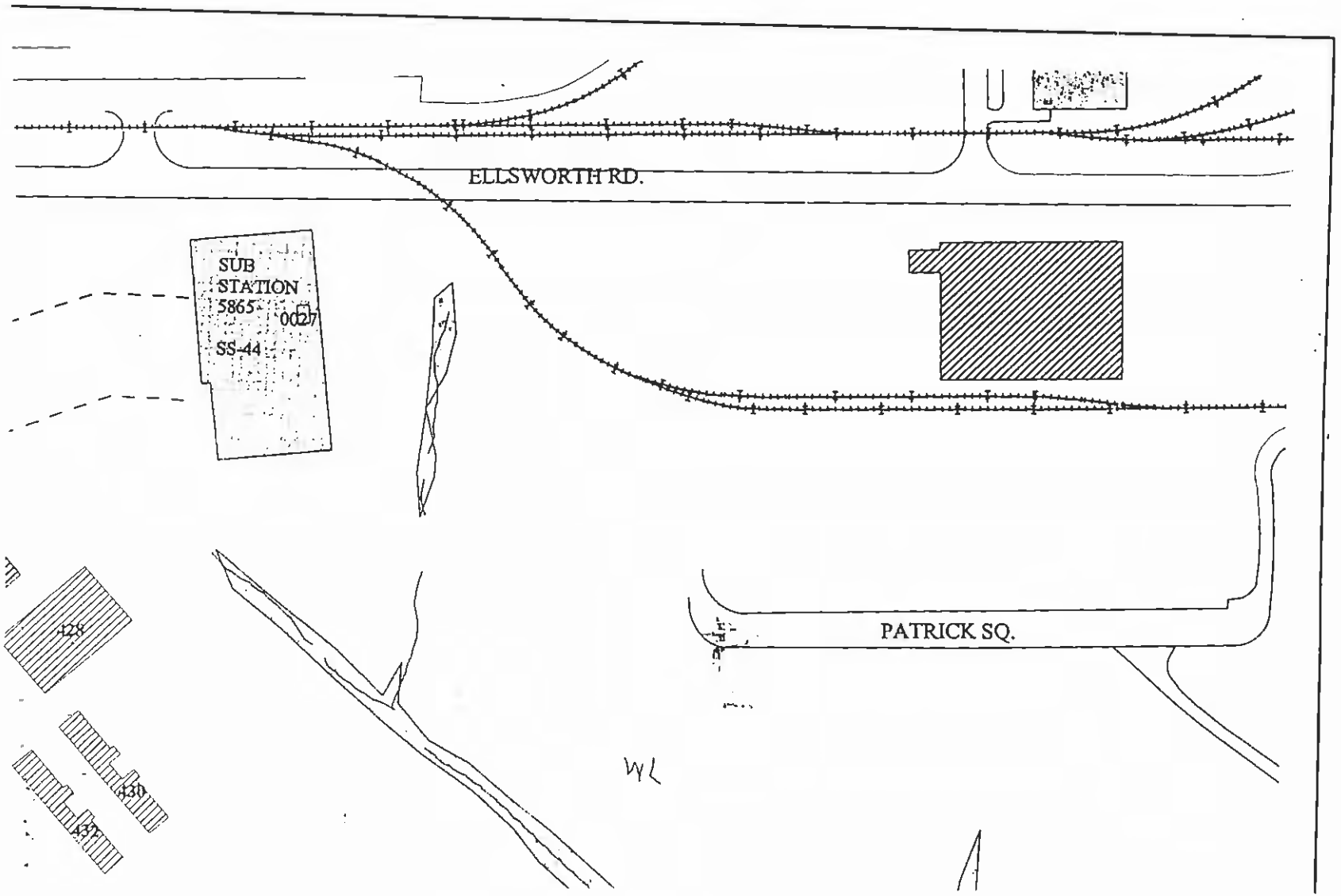
Highway Acquisition Maps Entitled "City of Rome: East Dominick Street Arterial Highway Brennan Avenue to East City Line". Map No. 46 Parcel No. 59, Map No. 59-R Parcel Nos. 71, 72, Map No. 65, Parcel Nos. 79, 80 Map No. 66, Parcel No. 81, Map No. 78.

PA

COURSE
900 - 90
901 - 937
937 - 93
936 - 93
935 - 93
934 - 93
933 - 93
932 - 93
931 - 930
930 - 92
929 - 92
928 - 92
927 - 92
926 - 92
925 - 92
924 - 92
923 - 92
922 - 92
920 - 919
919 - 918
918 - 917
917 - 916
916 - 915
915 - 914
914 - 913
913 - 912
912 - 911
911 - 910
910 - 909
909 - 908
908 - 907

RON

"EXHIBIT B"



LIBER 2929 PAGE 259

Ft.

Ft.

Ft.

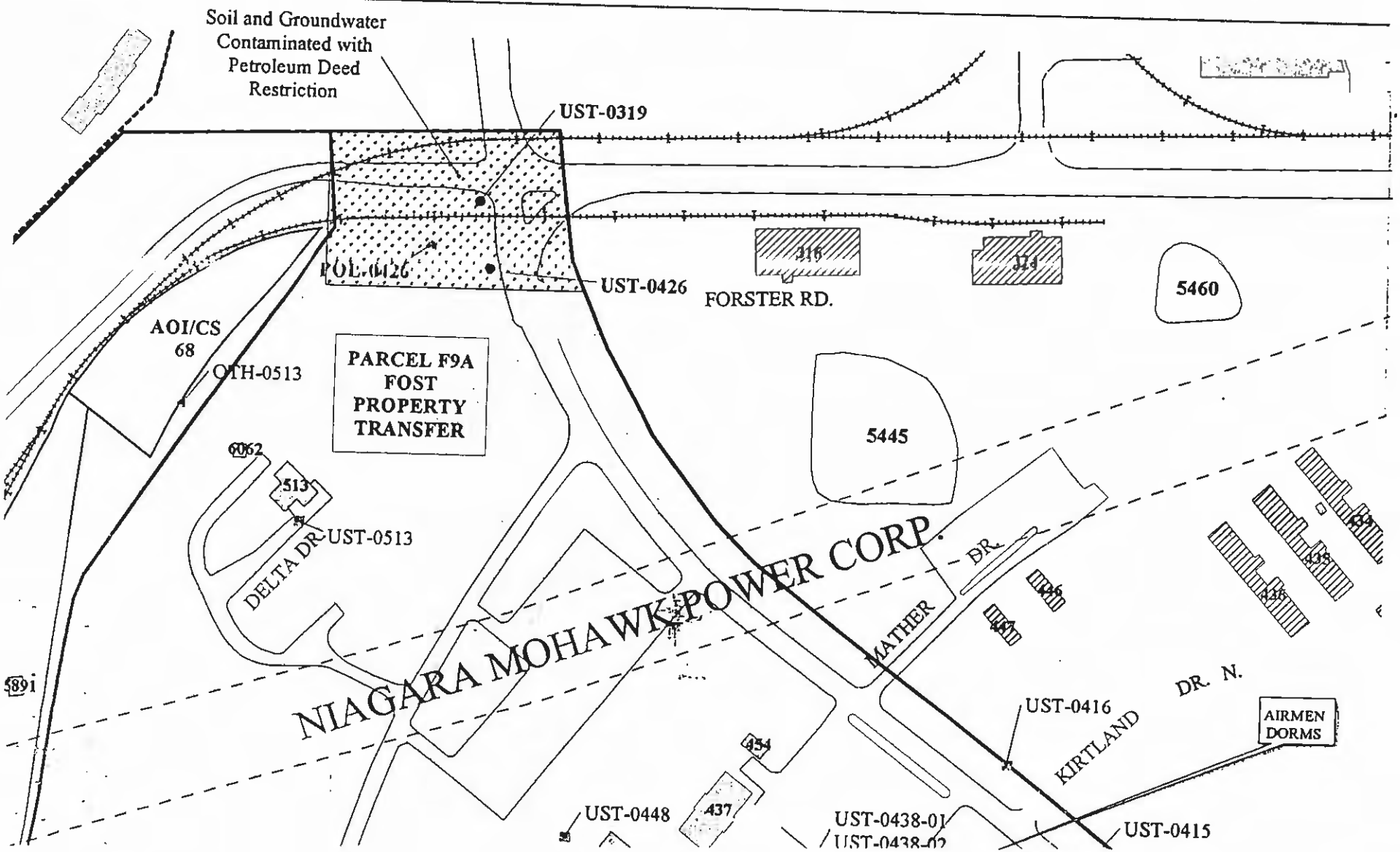
.LS
Ft.

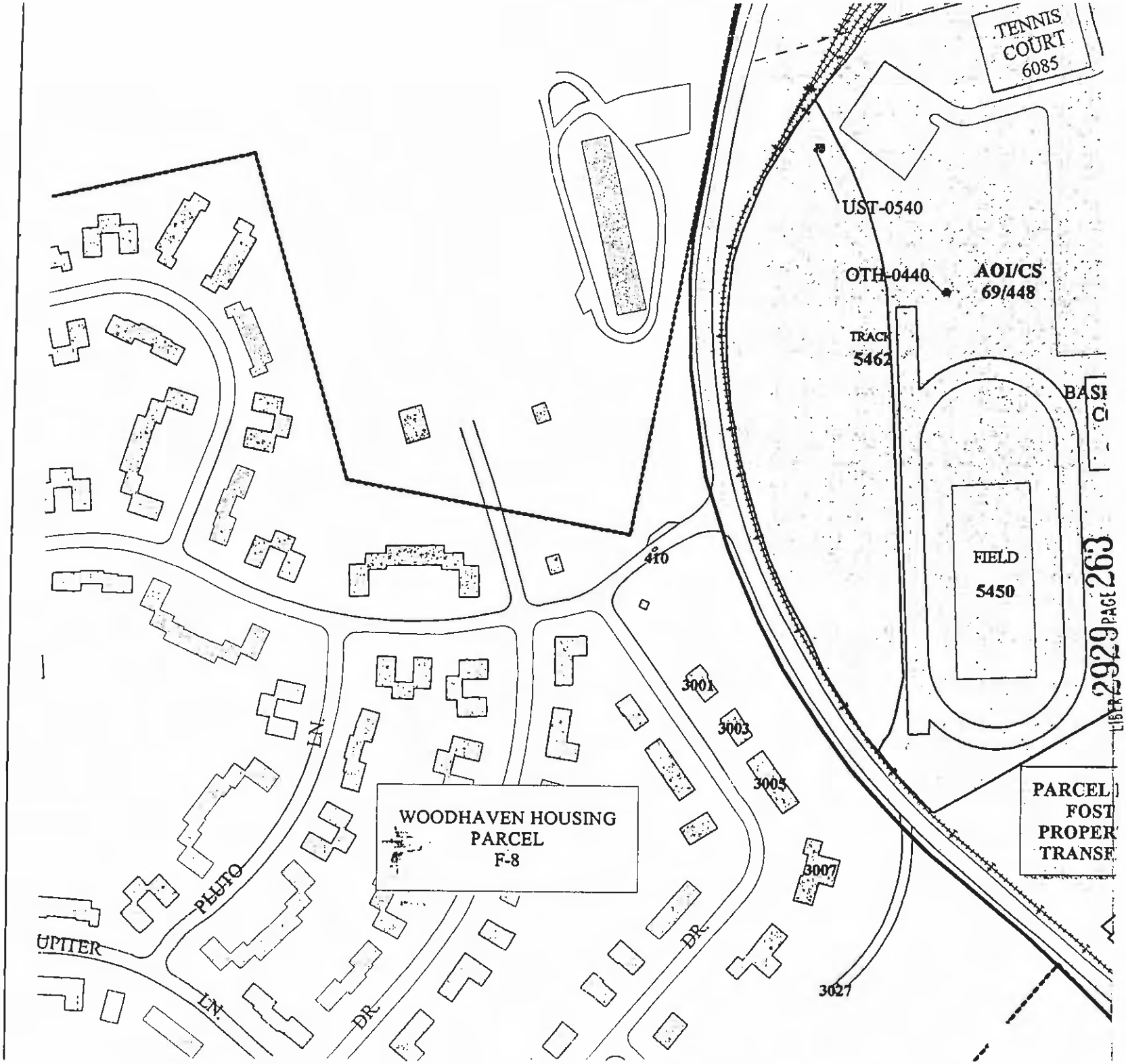
eage: 126.66

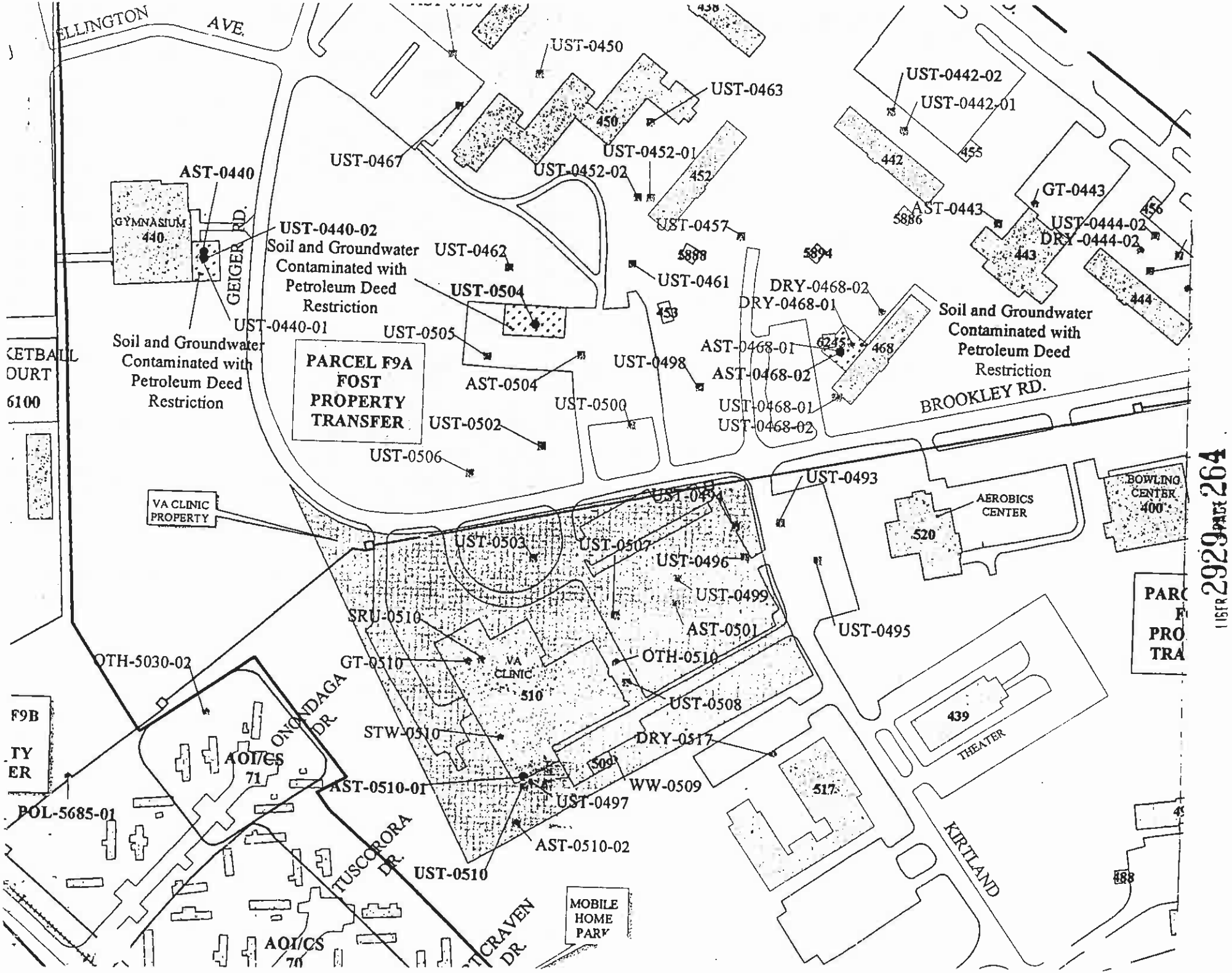
PARCEL
F9A and F9B
FOST

10/26/1999

LIBER 2929 PAGE 260

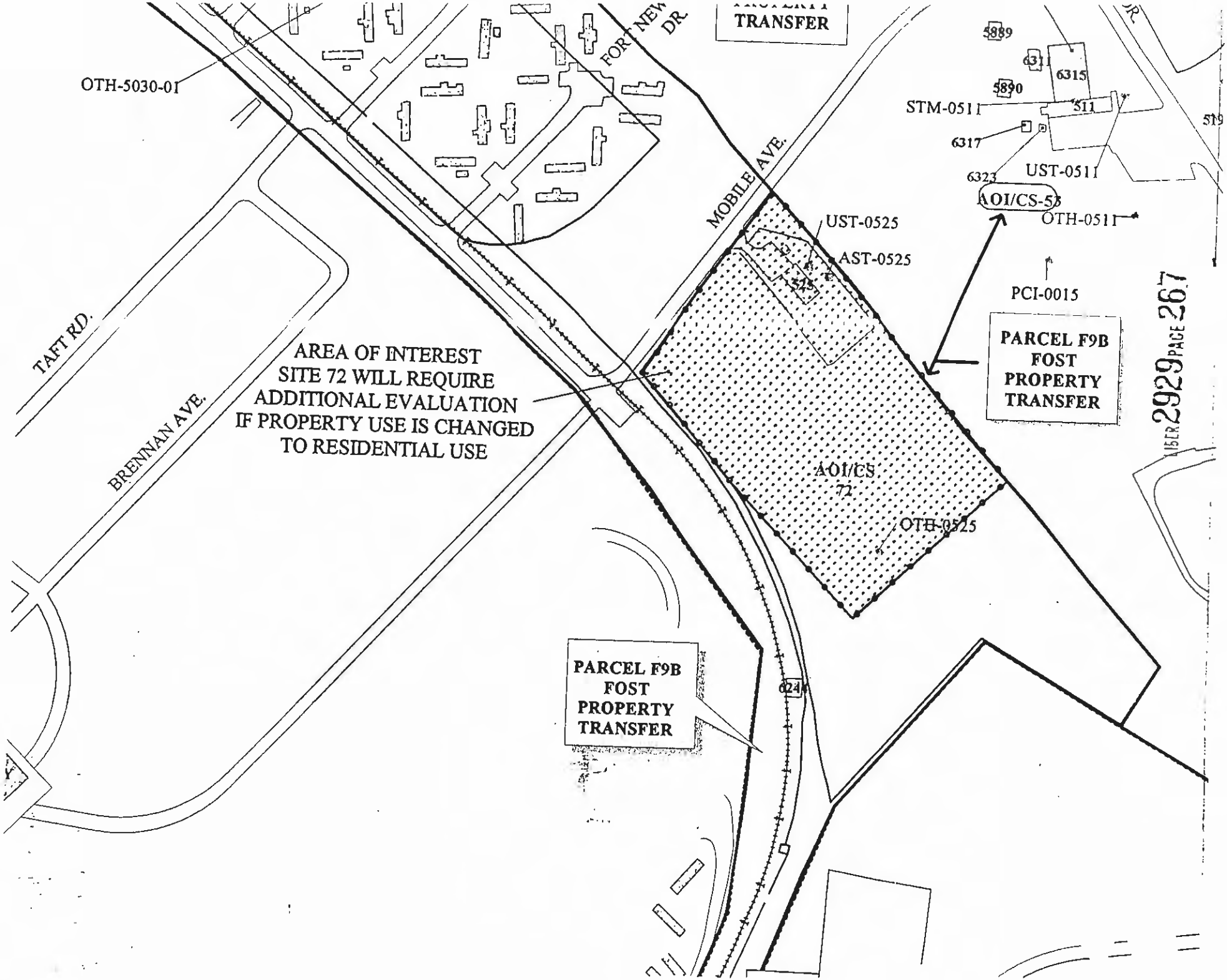



TENNIS COURT 6085
UST-0540
OTH-0440
AOI/CS 69/448
TRACK 5462
FIELD 5450
410
3001
3003
3005
3007
3027
WOODHAVEN HOUSING PARCEL F-8
PLUTO
LN.
UPTTER
LN.
DR.
DR.
PARCEL
FOST
PROPER
TRANSF
LIBER 2929 PAGE 263

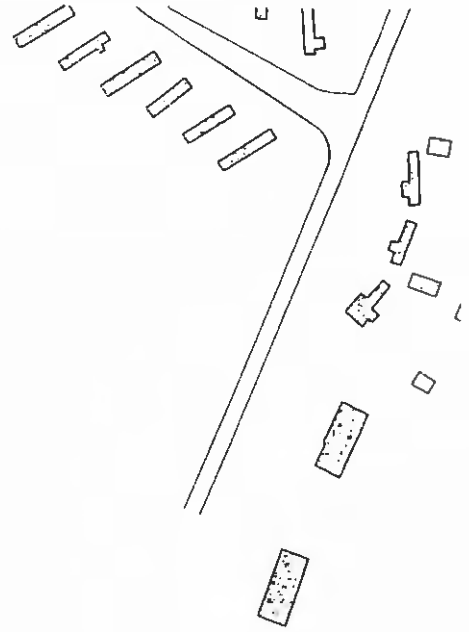


UST-0404
UST-0444-01
AST-0444
DRY-0444-01
UST-0402
UST-0400
CHILDCARE CENTER 482
UST-0485
UST-0480-01
480
UST-0480-01
UST-0483
UST-0481
FUTURE WAY
Soil and Groundwater Contaminated with Petroleum Deed Restriction
712
704
TENNIS COURT 5465
THOR AVE
FALCON AV
BASEBALL
492
491

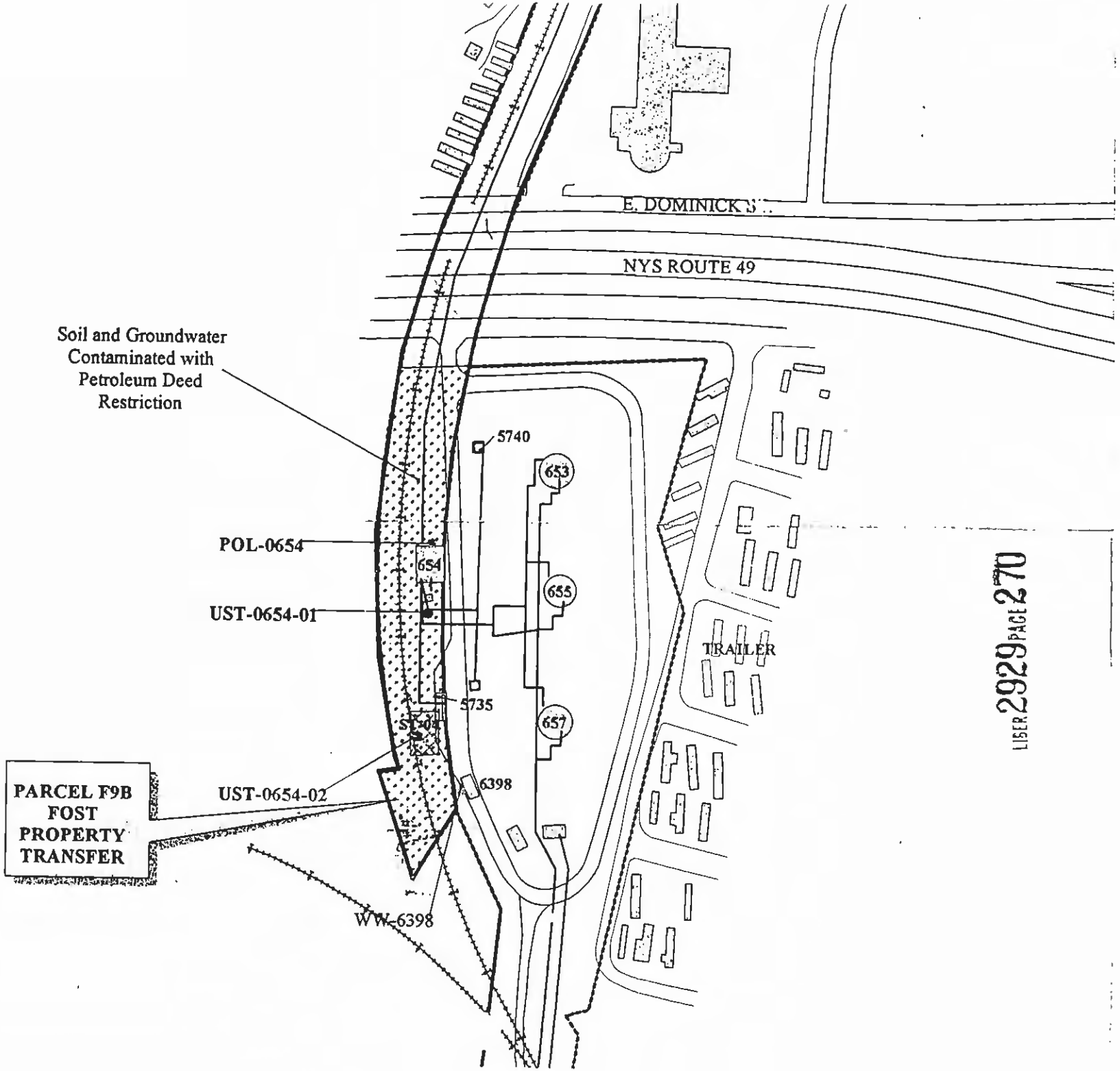
LIBER 2929 PAGE 266

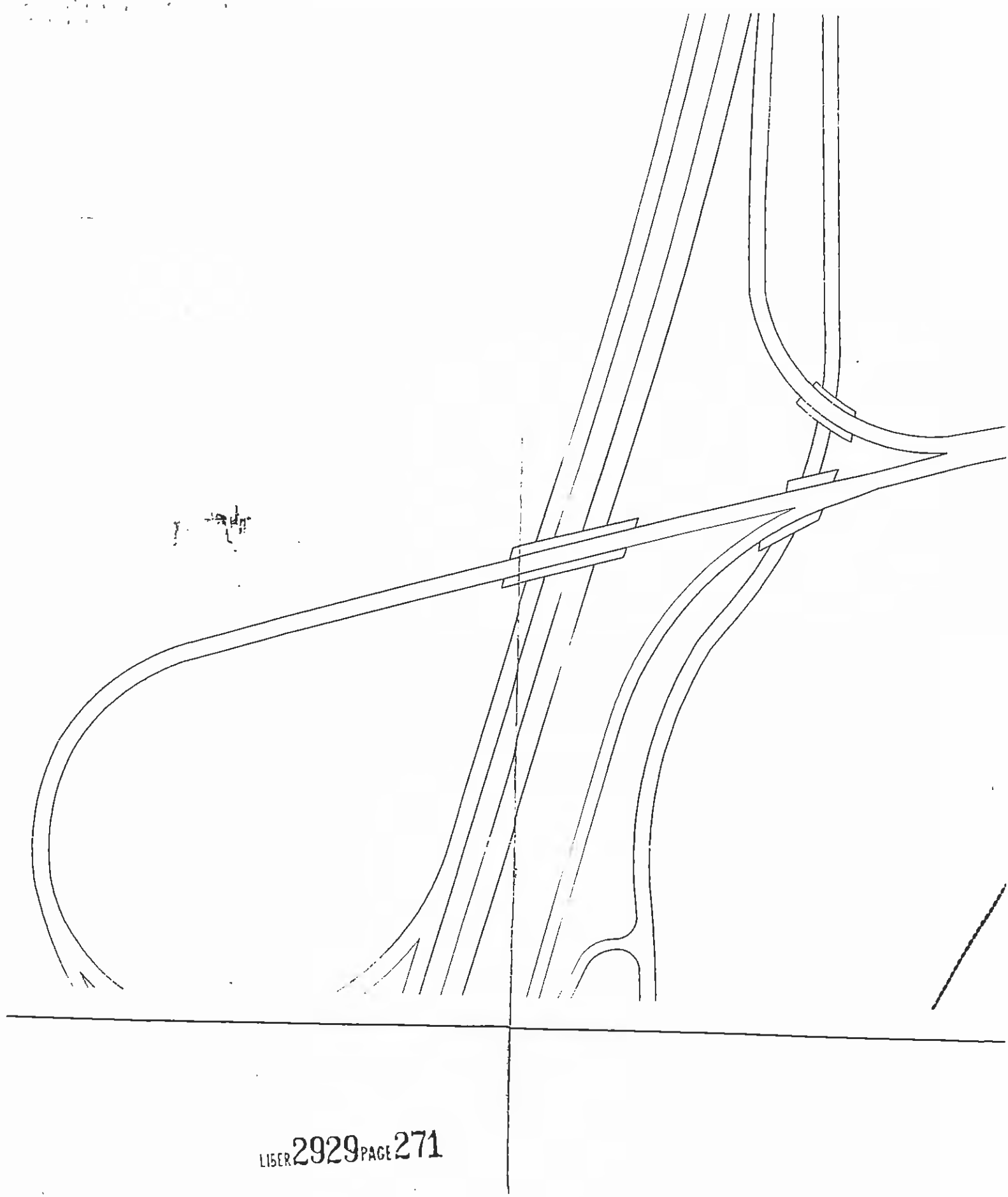

TRANSFER
FORT NEW DR.
OTH-5030-01
MOBILE AVE.
5889
6311
6315
5890
STM-0511
511
519
6317
6323
UST-0511
AOI/CS-53
OTH-0511
UST-0525
AST-0525
525
PCI-0015
PARCEL F9B
FOST
PROPERTY
TRANSFER
TAFT RD.
BRENNAN AVE.
AREA OF INTEREST
SITE 72 WILL REQUIRE
ADDITIONAL EVALUATION
IF PROPERTY USE IS CHANGED
TO RESIDENTIAL USE
AOI/CS
72
OTH-0525
624
PARCEL F9B
FOST
PROPERTY
TRANSFER
2929 PAGE 267

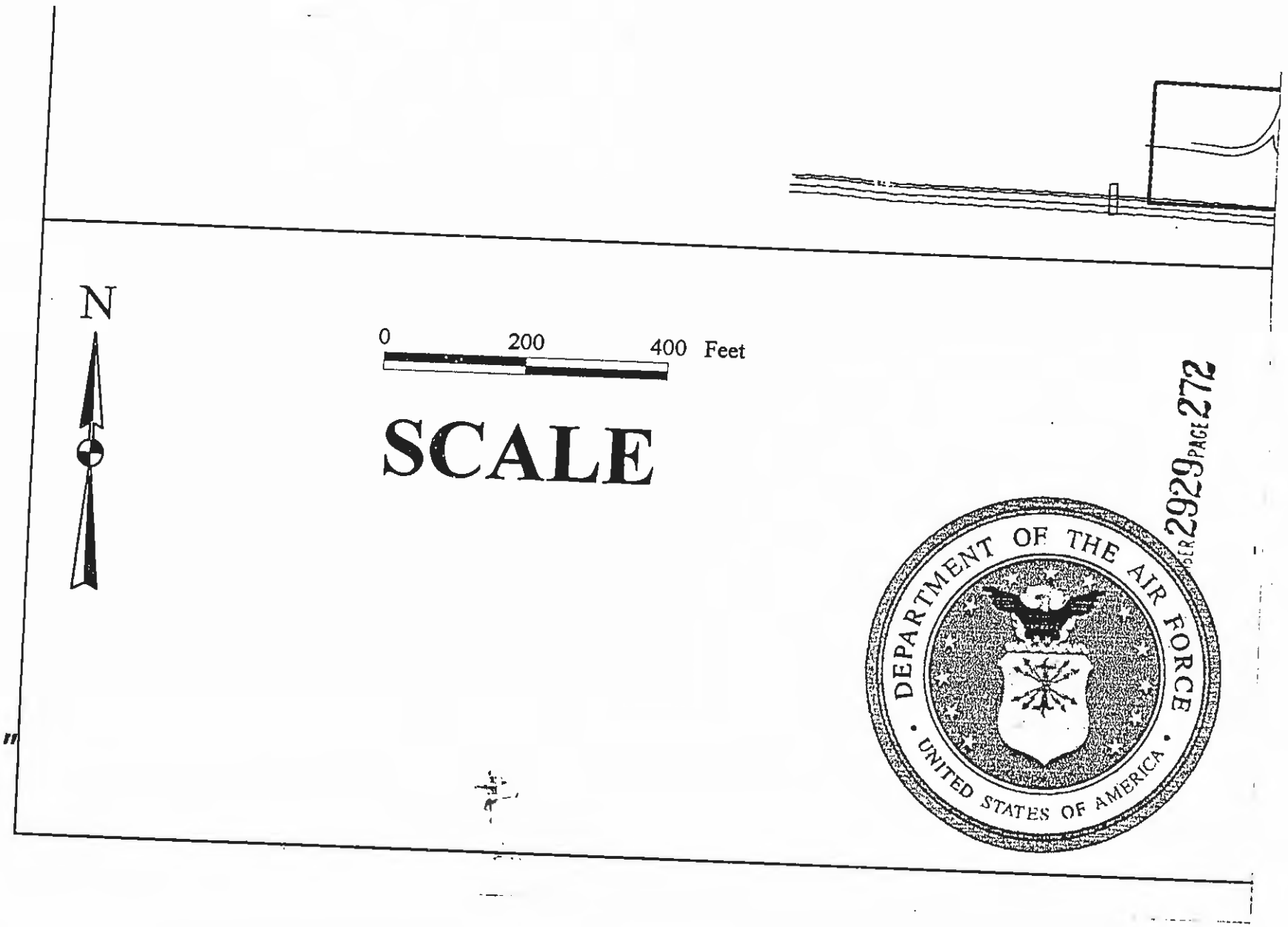
PARCEL F9A
FOST
PROPERTY
TRANSFER
AST-0632
UST-0626
632
CRESCENT DR.
SPT-0634
634
629
5460
717
2313
2311
2309
2307
2305
2303
2301
MATADOR ST.
SKYLINE HOUSING
PARCEL
F-11A
SNARK ST.
2002
2000
S. TITAN CIR.
N. TITAN CIR.
A1



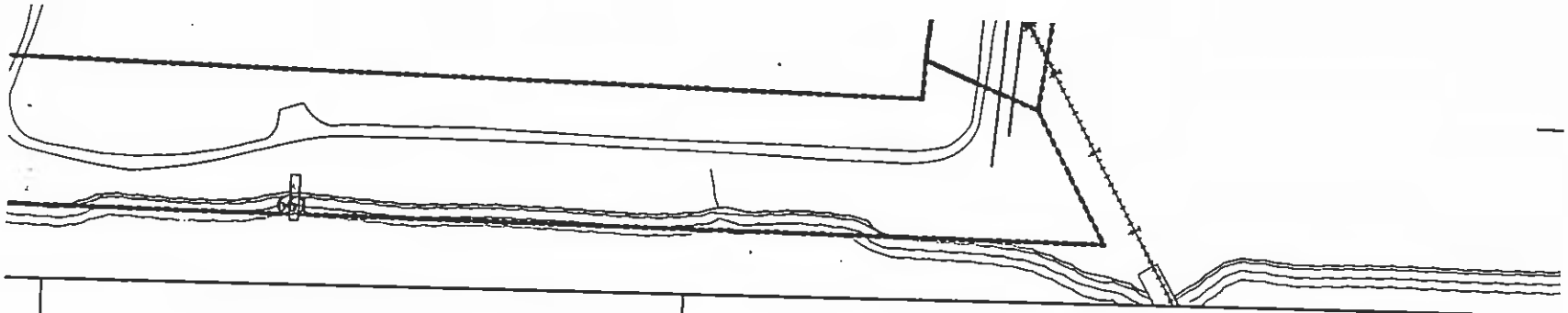
LIBER 2929 PAGE 269



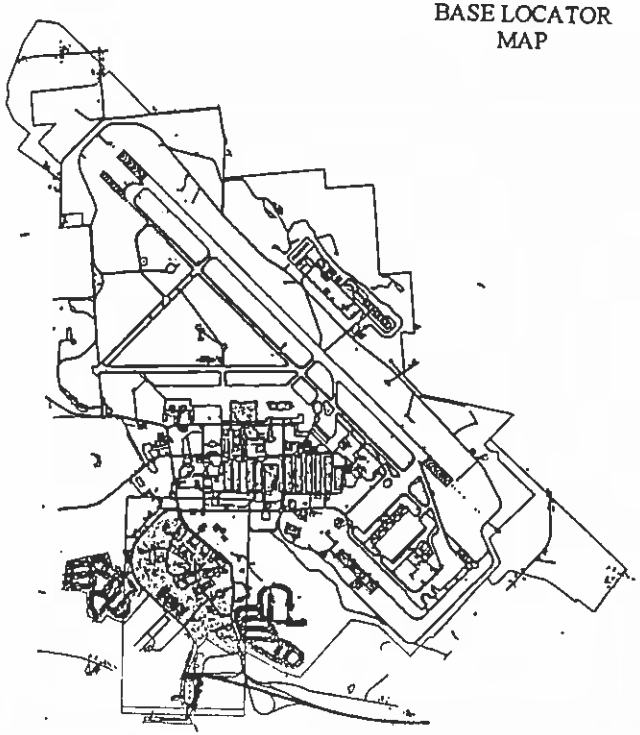




"EXHIBIT B"



BASE LOCATOR MAP



UST
- OPEN
- CLOSED

AST
- OPEN
- CLOSED

PIPELINE-PERTO
FENCE
POWERLINE
Rail.shp
ROADS
STREAMS/CREEKS
RECREATIONAL
AOI/CS
IRP SITES
WETLANDS

FACILITY
- EXISTING
- DEMO
- PETROLEUM DEED RESTRICTION
- PROPERTY BOUNDARY
- BASE BOUNDARY
- PARCEL F9

UST - (BOLD) Open Underground Storage Tank

UST - (Non-BOLD) Closed Underground Storage Tank

AST - (BOLD) Open Aboveground Storage Tank

AST - (Non-BOLD) Closed Aboveground Storage Tank

SRU - Silver Recovery Unit

SPT - Septic Tank System

POL - Hydrant Fueling and Pipeline-Related System

WW - Other Waste Water-Related System

OTH - Other Miscellaneous Environmental Factor

STW - Hazardous Waste/Waste Petroleum Product Storage Area

STM - Hazardous Material/Petroleum Product Storage Area

GT - Grease Trap

DRY - Drywell

PCI - Archaeology

VA CLINIC
- Area: 327619.908 Sq
- Perimeter: 2542.723 Ft.
- Acreage: 7.5211

PARCEL F-9A FOST
- Area: 5845004.50 Sq
- Perimeter: 11449.72 Ft.
- Acreage: 134.18

PARCEL F9B FOSET
- Area: 2831052.75 Sq
- Perimeter: 15412.30 Ft.
- Acreage: 64.99

PARCEL F9A and F9B TOTA
- Area: 8676057.25 Sq
- Perimeter: 16423.79 Ft.
- Acreage: 199.17

F-9A Acreage - VA Clinic Ac

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APPENDIX D
Deed for Parcels F-3A and F-3B

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GRI-EDC-2000-001-D-15
Parcels F-3A & B
Oneida County Industrial Development Agency

Saunders

*** DO NOT DETACH ***

Oneida County Clerk's Office

Recording Page

Receipt #:	157996	--------FEES-------	
Instrument #:	2004-009737	Recording and Filing:	136.00
Date:	05/03/2004	Transfer Tax:	0.00
Time:	04:00P	Basic Tax:	0.00
Doc Type:	DEED	Additional Tax:	0.00
1st OR:	UNITED STATES OF AME	Special Tax:	0.00
1st EE:	ONEIDA COUNTY INDUST	Withheld:	0.00
Town:	-	Total:	136.00
Pages:	18		
Serial #:	-	--------MORTGAGE TAX----	
Employee ID:	GP	Amount Taxed:	0.00
Transfer Tax #:	6994	-------TRANSFER TAX-------	
		Consideration Amount:	0.00

State of New York
County of Oneida

*** WARNING -

I hereby certify that the within and foregoing was recorded in the Oneida County Clerk's Office, State of New York.

This sheet constitutes the Clerks endorsement required by Section 316 of the Real Property Law of the State of New York.

Richard D. Allen
County Clerk

****
* *** DO NOT DETACH *** *
****

Richard D. Allen, Oneida County Clerk

2004-009737
05/03/2004 04:00PM
Page: 1 of 18

D

NEW YORK STATE DEED

I. PARTIES

THIS DEED is made and entered into by and between **THE UNITED STATES OF AMERICA,** acting by and through the Secretary of the Air Force, under and pursuant to the powers and authority contained in the Defense Base Closure and Realignment Act of 1990, as amended (10 U.S.C. § 2687 note), and delegations and regulations promulgated thereunder (the "Grantor"), and the ONEIDA COUNTY INDUSTRIAL DEVELOPMENT AGENCY, ("OCIDA"), an instrumentality and public benefit corporation of the State of New York (the "Grantee"). (Unless the context otherwise specifically provides, when used in this Deed, "Grantor" includes the assigns of the Grantor and "Air Force" includes any successor entity to the Department of the Air Force or any successor to the Secretary of the Air Force, and "Grantee" includes the successors and assigns of the Grantee.)

II. CONSIDERATION AND CONVEYANCE

WITNESSETH, THAT in consideration of the sum of TEN DOLLARS ($10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Grantor quitclaims to the Grantee, whose post office address is 153 Brooks Road, Rome New York 13441-4105, all the real property situated in the City of Rome, County of Oneida, and State of New York described as follows: The description is set forth on Exhibit A to this Deed

III. APPURTENANCES

TOGETHER WITH all the buildings and improvements erected thereon (except for wells, treatment facilities, systems, and related piping, used by the Grantor for environmental remediation and restoration), and all and singular the tenements, hereditaments, appurtenances, and improvements hereunto belonging, or in any wise appertaining (which, together with the real property above described, is called the "Property" in this Deed).

IV. EXCEPTIONS

A. The following described in Exhibit B to this Deed is hereby excepted from the Property: Exception No. 1. Lands known as AFRL-Rome Research Site Parcel No. 1 containing 7.897 acres, more or less. Exception No. 2. Lands containing 1.357 acres, more or less. Exception No. 3. Lands containing 0.562 acre, more or less.

B. ALSO EXCEPTING THERE FROM all utility systems owned by the Grantor, including, but not limited to, wire, cables, conduit, pipes, transformers, pumps, switching gear, poles, anchors, guys, towers, and appurtenant installations, structures, facilities, and equipment, reserving the right and easement in the Grantor to keep, operate, inspect, maintain, repair, remove, and replace such utility systems, or portions thereof, and for ingress to and egress from such systems. Not included in this exception are those parts of a utility system that serve only a specific building(s) or building lot(s), and that, in the practice of public utilities in Oneida County, New York, are operated and controlled by individual realty owners and not by utility providers.

V. RESERVATIONS

A. RESERVING UNTO THE GRANTOR all oil, gas, and other minerals resources of any kind or nature in the mineral estate of the Property, together with the right to prospect for, mine, and remove the same in accordance with applicable law.

B. AND FURTHER RESERVING UNTO THE GRANTOR, including the United States Enviromental Protection Agency ("EPA") and the State of New York (the "State"), and its and their respective officials, agents, employees, contractors, and subcontractors, access to the Property pursuant to CERCLA (as hereafter defined) section 120(h)(3)(A)(iii), (including the right of access to, and use of, utilities at reasonable cost to the Grantor), for the following purposes, either on the Property or on adjoining lands, and for such other purposes consistent with the Installation Restoration Program of the Grantor, or the Federal Facility Agreement (FFA), if applicable.

1. To conduct investigations and surveys, including, where necessary, drilling, soil and water sampling, testpitting, testing soil borings, and other activities related to the IRP or FFA, if applicable.

2. To inspect field activities of the Grantor and its contractors and subcontractors in implementing IRP or FFA, if applicable.

3. To conduct any test or survey required by the EPA or the State relating to the implementation of the IRP or FFA, if applicable, or to verify any data submitted to the EPA or the State by the Grantor relating to such conditions.

4. To conduct, operate, maintain, or undertake any other response, corrective, or remedial action as required or necessary under the IRP or FFA, if applicable, or the covenant of the Grantor in section VII.A. of this Deed, including, but not limited to, the installation of monitoring wells, pumping wells, and treatment facilities.

5. To monitor any environmental restrictive use covenants in this Deed and the effectiveness of any other land use or institutional control established by the Air Force on the Property, either by itself, by its contractor, by any public entity, including the State, or by a private entity registered in the State to monitor environmental covenants.

VI. CONDITION

A. The Grantee agrees to accept conveyance of the Property subject to all covenants, conditions, restrictions, easements, rights-of-way, reservations, rights, agreements, and encumbrances, whether or not of record.

B. The Grantee acknowledges that it has inspected, is aware of, and accepts the condition and state of repair of the Property, and that the Property is conveyed, "as is," "where is," without any representation, promise, agreement, or warranty on the part of the Grantor regarding such condition and state of repair, or regarding the making of any alterations, improvements, repairs, or additions. The Grantee further acknowledges that the Grantor shall not be liable for any latent or patent defects in the Property, except to the extent required by applicable law.

VII. NOTICES AND COVENANTS RELATED TO SECTION 120(h)(3) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) (42 U.S.C. §9620(h)(3)).

A. Pursuant to section 120(h)(3)(A)(i) of CERCLA, the following is notice of hazardous substances on the Property, and a description of remedial action concerning the Property.

1. The Grantor has made a complete search of its files and records. Exhibits C and D contain tables with the name of hazardous substances and waste stored for one year or more, or known to have been released or disposed of, on the Property; the quantity in kilograms and pounds of the hazardous substance stored for one year or more, or known to have been released, or disposed of, on the Property; and the dates on which such storage, release, or disposal took place.

2. A description of the remedial actions taken by the Grantor on the Property regarding hazardous substances is contained in Exhibit E.

3. Pursuant to section 120(h)(3)(A)(ii) of CERCLA, the United States covenants and warrants:

(a) that all remedial action necessary to protect human health and the environment with respect to hazardous substances remaining on the Property has been taken before the date of this Deed; and

(b) any additional remedial action found to be necessary after the date of this Deed for contamination on the Property existing prior to the date of this Deed will be conducted by the United States.

This warranty will not apply in any case in which any grantee of the Property, or any part thereof, is a potentially responsible party with respect to the Property before the date on which any grantee acquired an interest in the Property, or is a potentially responsible party as a result of an act or omission affecting the Property. For the purposes of this warranty, the phrase "remedial action necessary" does not include any performance by the United States, or payment to the Grantee from the United States, for additional remedial action that is required to facilitate use of the Property by the Grantee prohibited by the environmental use restrictive covenants set forth in section VII.B.below, as may be modified or released pursuant to section VII.C..

4. The United States has reserved access to the Property in the Reservations section of this Deed in order to perform any remedial or corrective action as required by CERCLA section 120(h)(3)(A)(iii).

NOTICE

BREACH OF ANY ENVIRONMENTAL USE RESTRICTIVE COVENANT IN SECTION VII.B. MAY AFFECT THE FOREGOING WARRANTY

B. Environmental Use Restrictive Covenants

1. For purposes of the environmental use restrictive covenants in this section, the term "Property" includes any part of the Property specifically described on Exhibits A and F to this Deed to which one or more of these environmental restrictive covenants may apply.

2. The following environmental use restrictive covenants are being created to protect human health and the environment with regard to residual contamination remaining on the Property and are a component of the remedial action referred to in section A.2 above:

(a) The Grantee covenants to use the Parcel F3A of the Property for only industrial/ commercial/ non-residential purposes, unless prior consent for a different use is obtained from the EPA and NYSDEC. There are no restrictions on the land use for Parcel F3B of the Property.

(b) The Grantee covenants not to extract, utilize, consume or permit any extraction, use, consumption, of any water from the aquifer below the surface of the ground within the Parcel F3A boundary unless the groundwater has been tested and found to meet all applicable standards and the Grantee first obtains the prior written approval from New York State Department of Health ("NYSDOH"). The Grantee further covenants to ensure that the aquifer will not be used in any way that could spread or exacerbate environmental contamination or open exposure pathways to humans or the environment. The Grantee and its successors and assignees covenant to comply with all applicable Federal and State laws and regulations with regard to activities affecting the groundwater in the aquifer. The Grantee will bear all costs associated with obtaining use of such water, including the costs of studies, analysis or remediation, without any cost whatsoever to the Grantor. There are no groundwater restrictions for the Parcel F3B Property.

(c) The Grantee covenants not to disturb, move, damage, mar, tamper with, interfere with, obstruct, or impede any wells and treatment facilities and systems, and related piping used in the environmental remediation and restoration on the Property.

3. It is the intent of the Grantor and the Grantee that the Environmental Use Restrictive Covenants in this section bind the Grantee and shall run with the land. It is also the intent of the Grantor and the Grantee that the Grantor will retain the right to enforce any restrictive covenant in this section through the chain of title, in addition to any State law that requires the State to enforce any restrictive covenant in this section. The Grantee covenants to insert all of this section in any deed to the Property that it delivers.

C. Release of Environmental Use Restrictive Covenant(s).

1. The Grantee may request from the United States a modification or release of one or more of the environmental use restrictive covenant(s) in whole or in part in this section, subject to the notification and concurrence or approval of the NYSDEC and/or NYSDOH and EPA Region 2. In the event the request of the Grantee for modification or release is approved by the United States, NYSDEC and/or NYSDOH, and EPA Region 2, the United States agrees to modify or release the covenant (the "Covenant Release") giving rise to such environmental use restriction in whole or in part. The Grantee understands and agrees that all costs associated with the Covenant Release shall be the sole responsibility of the Grantee, without any cost whatsoever to the United States. The United States shall deliver to the Grantee in recordable form the Covenant Release. The execution of the Covenant Release by the United States shall modify or release the environmental use restrictive covenant with respect to the Property in the Covenant Release.

2. In the event that the environmental use restrictive covenants contained in this section are no longer necessary, the United States will record any appropriate document modifying or removing such use restrictions, as appropriate.

3. The Grantee is notified in Exhibit E that an encapsulation project was completed in the Building 211 pipe vault. The Grantee covenants to be responsible for maintaining the integrity of the encapsulation and for complying with all applicable Federal, State and local laws relating to the disposal of demolition debris if Building 211 is demolished or modified.

VIII. OTHER COVENANTS

A. Lead-Based Paint ("LBP").

1. The Property may include improvements that are presumed to contain LBP because they are thought to have been constructed prior to 1978. The Grantee acknowledges receipt of the required disclosure in accordance with the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. § 4852d (Title X), of the presence of any known LBP and/or LBP hazards in target housing constructed prior to 1978. This disclosure includes the receipt of

available records and reports pertaining to LBP and/or LBP hazards; receipt of the lead hazard information pamphlet; and inclusion of the 24 C.F.R. Part 35, Subpart H and 40 C.F.R. Part 745, Subpart F disclosure and lead warning language in the Title X Lead-Based Paint Disclosure Statement in the contract of sale.

2. The Grantee covenants and agrees that, in any improvements on the Property defined as by Title X and constructed prior to 1978, LBP hazards will be disclosed to potential occupants in accordance with Title X before use of such improvements as a residential dwelling (as defined in Title X). Further, the Grantee covenants and agrees that LBP hazards in target housing constructed prior to 1960 will be abated in accordance with Title X before use and occupancy as a residential dwelling. "Target housing" means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than six [6] years of age resides, or is expected to reside, in such housing) or any zero-bedroom dwelling.

3. The Grantee covenants and agrees that in its use and occupancy of the Property, it will comply with Title X and all applicable Federal, State and local laws relating to LBP. The Grantee acknowledges that the Grantor assumes no liability for damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with LBP on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured.

4. The Grantee is responsible for managing all demolition debris that contains LBP and potential LBP in compliance with NYSDEC Solid Waste Regulations and other applicable laws and regulations.

B. Asbestos-Containing Materials ("ACM"). The Grantee is warned that the Property may contain current and former improvements, such as buildings, facilities, equipment, and pipelines, above and below the ground, that may contain ACM. The Grantee covenants and agrees that in its use and occupancy of the Property, it will comply with all applicable Federal, State, and local laws relating to asbestos, and that, except for any friable asbestos contained in construction or demolition debris that was disposed of or otherwise released on the Property prior to the date of this Deed, the Grantee will assume all responsibility and liability for the use, maintenance, handling, transportation, treatment, removal, disposal, or other activity causing, or leading to, contact of any kind whatsoever with asbestos on the Property. The Grantee acknowledges that the Grantor assumes no liability for property damages or damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured.

C. Ordnance. The risk associated with the possible presence of unexploded ordnance remaining on the Property was investigated by the Grantor and appropriate site clearance measures were performed. While not likely, the Grantee is hereby notified of the potential

presence of ordnance and ordnance-related material on the Property. The Grantee covenants to perform all ground-disturbing activities in a manner such that the identification of ordnance or ordnance-related material may occur. Upon discovery of any such ordnance and/or ordnance-related materials on the Property, the Grantee shall immediately cease work and notify the Grantor.

D. Hazards to Air Navigation. Prior to commencing any construction on, or alteration of, the Property, the Grantee covenants to comply with 14 C.F.R. Part 77 entitled "Objects Affecting Navigable Airspace," under the authority of the Federal Aviation Act of 1958, as amended.

E. Wetlands. The Property contains wetlands protected under Federal and State laws and regulations which, among other things, restrict activities that involve the discharge of fill materials into wetlands, including, without limitation, the placement of fill materials; the building of any structure; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and dams and dikes. The Grantee covenants and agrees that in its use of the Property, it will comply with all Federal, State, and local laws minimizing the destruction, loss, or degradation of wetlands. Before locating new construction in wetlands, the Grantee shall contact the United States Army Corps of Engineers and obtain a permit or waiver under Section 404 of the Clean Water Act of 1977 as amended. For purposes of this provision, "new construction" includes structures, facilities, draining, dredging, channelizing, filling, diking, impounding, and related activities.

F. Non-Discrimination. The Grantee covenants not to discriminate upon the basis of race, color, religion, national origin, sex, age, or handicap in the use, occupancy, sale, or lease of the Property, or in its employment practices conducted thereon. This covenant shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit, nor shall it apply with respect to religion if the Property is on premises used primarily for religious purposes. The United States of America shall be deemed a beneficiary of this covenant without regard to whether it remains the owner of any land or interest therein in the locality of the Property.

X. MISCELLANEOUS

Each covenant of this Deed shall be deemed to touch and concern the land and shall run with the land.

XI. LIST OF EXHIBITS

The following Exhibits are attached to and made a part of this Deed:

A. Exhibit A - Survey Map
B. Exhibit B - Legal Description
C. Exhibit C - Notice of Hazardous Substances Stored
D. Exhibit D - Notice of Hazardous Waste Stored
E. Exhibit E - Notice of Hazardous Substances Released/Disposed Of
F. Exhibit F - Environmental Map

IN WITNESS WHEREOF, I have hereunto set my hand at the direction of the Secretary of the Air Force. Dated the 8 day of January, 2004.

THE UNITED STATES OF AMERICA
By the Secretary of the Air Force

By: Albert F. Lowas
ALBERT F. LOWAS, JR
Director
Air Force Real Property Agency

Signed in the presence of:

Audrey M. Jeen

PAUL C. MACPHERSON

Commonwealth of Virginia :

ss.

County of Arlington :

The foregoing instrument was acknowledged before me this 8th day of January, 2004 by Helen J. Woodland.

Helen J. Woodland
Notary Public
County of Arlington
Commonwealth of Virginia
My commission expires July 31, 2005

(seal)

HELEN JEANETTE WOODLAND
Notary Public
Commonwealth of Virginia
My Commission Expires Jul 31, 2005

Acceptance

The Grantee hereby accepts this Deed and agrees to be bound by all the agreements, covenants, conditions, restrictions, and reservations contained in it.

DATE: April 7, 2004

ONEIDA COUNTY INDUSTRIAL DEVELOPMENT AGENCY
(Grantee)

By: _____
Robert R. Calli
Chairman

Attest:

Teresa M. Seymore

WHEN RECORDED, RETURN TO:

DRAFTED BY:

Exhibit A

Exhibit A consists of a survey map entitled "Property Map Showing a Portion of Lands to be Conveyed to Oneida County Industrial Development Agency (Parcel F3), City of Rome, County of Oneida, State of New York" made by Michael P. Waters, P.L.S. No. 050027, dated December 3, 1997, last revised on March, 2004, which survey map is being filed in the Oneida County Clerk's Office concurrently herewith.

EXHIBIT B

ALL THOSE TRACTS, PIECES OR PARCELS OF LAND situate in the City of Rome, County of Oneida and State of New York, bounded and described as follows:

PARCEL F3A

Beginning at the intersection of the northerly street boundary of Floyd Avenue and the division line between the herein described parcel on the east and the lands of Salvatore Calcara (reputed owner) and the lands of Louis Ceci and Carol Ceci (reputed owner) on the west; said point being South 42° 31' 26" West, 380.12 feet from a capped iron rod found stamped "AFRL-14";

thence North 06° 33' 32" West along the last mentioned division line 199.78 feet to its intersection with the division line between the herein described parcel on the east and the lands of James Acchino (reputed owner), James A. DiCastro (reputed owner), Margaret Jones (reputed owner), and E. Pawlak, Sr. (reputed owner) on the west;

thence North 30° 23' 24" West along the last mentioned division line 1,424.73 feet to its intersection with the division line between the herein described parcel on the north and the aforementioned lands of Pawlak (reputed owner) on the south;

thence North 81° 43' 15" West along the last mentioned division line 106.67 feet to its intersection with the easterly street boundary of the existing Bell Road;

thence North 06° 18' 09" West along said easterly street boundary of the existing Bell Road 23.43 feet to a point;

thence through the lands of the The United States of America (reputed owner) the following thirteen (13) courses and distances;

1. North 41° 15' 32" East, 744.19 feet to a point;
2. North 40° 56' 03" East, 464.04 feet to a point;
3. South 46° 41' 52" East, 912.96 feet to a point;
4. South 01° 18' 51" East, 32.57 feet to a point;
5. North 88° 09' 03" East, 865.79 feet to a point;
6. North 01° 38' 04" West, 36.43 feet to a point;
7. North 88° 33' 36" East, 640.72 feet to a point;
8. South 01° 38' 04" East, 376.47 feet to a point;
9. North 88° 28' 22" East, 96.41 feet to a point;
10. South 01° 38' 34" East, 1,045.99 feet to a point;
11. South 88° 24' 10" West, 1,781.39 feet to a point;
12. South 50° 26' 00" West, 553.27 feet to a point;
13. North 40° 56' 49" West, 48.45 feet to a point to the place of beginning, being 4,256,353.1± square feet or 97.712 acres, more or less.

EXCEPTING AND RESERVING from said Parcel F3A the following three (3) parcels:

Exception No. 1

Beginning at a capped iron rod found stamped "AFRL-14" located on the northerly side of Floyd Avenue extended northeasterly; thence through Parcel F3A described above the following ten (10) courses and distances;

1. North 39° 53' 05" West, 256.54 feet to a capped iron rod found stamped "AFRL-15";
2. South 78° 35' 37" West, 150.04 feet to a capped iron rod found stamped "AFRL-16";
3. North 05° 30' 42" West, 224.95 feet to a capped iron rod found stamped "AFRL-17";
4. North 78° 41' 29" East, 264.94 feet to a capped iron rod found stamped "AFRL-18";
5. North 11° 07' 30" West, 253.28 feet to a capped iron rod found stamped "AFRL-19";
6. North 78° 56' 40" East, 403.09 feet to a capped iron rod found stamped "AFRL-10";
7. South 12° 15' 18" East, 118.28 feet to a capped iron rod found stamped "AFRL-11";
8. North 79° 10' 59" East, 84.87 feet to a capped iron rod found stamped "AFRL-12";
9. South 10° 29' 42" East, 314.68 feet to a capped iron rod found stamped "AFRL-13"
10. South 50° 40' 22" West, 567.70 feet to the place of beginning, being 343,993.3± square feet or 7.897 acres, more or less.

Exception No. 2

Beginning at a point in Parcel F3A described above; said point being North 81° 02' 22" East 66.00 feet from a capped iron rod found stamped "AFRL-13";

thence through Parcel F3A described above the following six (6) courses and distances;

1. North 10° 29' 43" West, 460.51 feet to a point;
2. North 44° 57' 07" East, 64.25 feet to a point;
3. South 65° 11' 41" East, 51.83 feet to a point;
4. South 34° 29' 58" East, 92.85 feet to a point;
5. South 18° 33' 54" East, 285.39 feet to a point;
6. South 49° 31' 10" West, 199.70 feet to the place of beginning, being 59,123.6± square feet or 1.357 acres, more or less.

Exception No. 3

Beginning at a point in Parcel F3A described above; said point being South 18° 58' 50" East 78.46 feet from a capped iron rod found stamped "AFRL-13";

thence through Parcel F3A described above the following four (4) courses and distances;

1. South 18° 58' 50" East, 144.71 feet to a point;
2. South 64° 11' 22" West, 121.14 feet to a point;
3. South 86° 46' 15" West, 169.91 feet to a point;

4. North 49° 18' 38" East, 305.47 feet to the place of beginning, being 24,486.9± square feet or 0.562 acre, more or less.

PARCEL F3B

Beginning at a point on the westerly side of Perimeter Road at its intersection with the centerline of Wright Settlement Road extended northeasterly; said point being easterly along said centerline of Wright Settlement Road extended northeasterly 870 ± feet from its intersection with the centerline of Pennystreet Road;

thence South 84° 09' 11" West through the lands of The United States of America (reputed owner) and along said Wright Settlement Road centerline 239.99 feet to its intersection with the division line between the herein described parcel on the east and the lands of James C. Thomas (reputed owner) on the west;

thence through the lands of The United States of America (reputed owner) the following two (2) courses and distances;

1. North 01° 12' 00" West, along the last mentioned division line and continuing along the division line between the herein described parcel on the east and the lands of T.J. Adams and D.M. Adams (reputed owners) on the west 368.17 feet to its intersection with the division line between the herein described parcel on the north and the aforementioned lands of T.J. Adams and D.M. Adams (reputed owners) on the south;
2. South 83° 45' 30" West along the last mentioned division line 657.69 feet to its intersection with the centerline of Pennystreet Road;

thence North 00° 55' 48" West along said centerline of Pennystreet Road 770.74 feet to a point;

thence through the lands of The United States of America (reputed owner) the following three (3) courses and distances;

1. South 66° 05' 14" East, 1,123.65 feet to a point;
2. Southerly along a curve to the right having a radius of 458.43 feet, a chord length of 250.51 feet and a chord direction of South 01° 04' 24" West;
3. South 18° 02' 55" West 354.27 feet to the place of beginning, being 611,646.4± square feet or 14.041 acres, more or less.

The above-described "Parcel F3A" and "Parcel F3B" are shown on a map entitled "Property Map Showing A Portion of Lands to be Conveyed to Oneida County Industrial Development Agency (Parcel F3), City of Rome, County of Oneida, State of New York"; made by Michael P. Waters, P.L.S. No. 50027, dated December 3, 1997, last revised March, 2004.

Exhibit C

Parcel F3
NOTICE OF HAZARDOUS SUBSTANCES STORED

Notice is hereby provided that the information set out below from the Basewide EBS and its Supplement provide notice of hazardous substances and their respective quantities that are known to have been stored for one (1) year or more within the F3 Parcel, Griffiss Air Force Base, and the dates that the storage took place. The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9620(h).

Building Number	Substance Stored	Regulatory Synonym(s)	CAS Registry Number	Dates Stored	Quantity (kg/year)
215	Ethylene Glycol		107-21-1	1992	2,003
	No 97 Fibrated Aluminum (asbestos)		1332-21-4	1992	6,259
216	Ethylene Glycol		107-21-1	1977	2,300
	Ethylene Glycol		107-21-1	1989	2,003
222	Methanol		67-56-1	1987	65,093
	Diazinon		333-41-5	1977-91	1,079
	Dichlorvos		62-73-7	1989-91	3,000
	Malathion		121-75-5	1987-91	1,878
255	Sulfuric Acid		7664-93-9	1987-92	18,845

Exhibit D

Parcel F3
NOTICE OF HAZARDOUS WASTE STORED

Notice is hereby provided that the information set out below from the Basewide EBS and its Supplement provide notice of hazardous wastes and their respective quantities that are known to have been stored (90 day maximum) within the F3 Parcel, Griffiss Air Force Base, and the dates that the storage took place. The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9620(h).

Building Number	Waste Stored	Regulatory Waste Number	Year	Quantity (lbs.)
216	Waste Antifreeze	D002	1989	1,252
	Neutralized Sulfuric/Lead Acid	D008	1989-90	5,424
218	Thinner/Paints Waste	D001	1991-92	8,280
	Thinner/Paints Waste	D001/F005	1992-93	11,300
	Thinner/Paints Waste	F005	1992	8,900
222	Pesticides	D001	1993	440
	Diazinon	F003	1990	80
255	Arsenic Solution	D004	1992	1,380
	Lead Acid Batteries	D008	1992	1,180

Exhibit E

Parcel F3
NOTICE OF HAZARDOUS SUBSTANCES RELEASED/DISPOSED OF

Notice is hereby provided that the information set out below from the Basewide Environmental Basewide Survey and its Supplement provide notice of hazardous substances that are known to have been released/disposed of on the F3 Parcel, Griffiss Air Force Base, and the dates the release took place. The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. § 9620(h).

Substance	CAS Registry Number	Quantity kg/pounds	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
trichloro-ethylene, semi-volatiles and metals	N. A	Unknown	Unknown	UN1710	Removal Action Completed	DRY-255
heavy metals, mercury	N. A	Unknown	Unknown	Unknown	Encapsulation Project Completed	DRY-211
semi-volatiles and heavy metals	N. A	Unknown	Unknown	Unknown	Removal Action Completed	DRY-222
semi-volatiles and heavy metals	N. A	Unknown	Unknown	Unknown	Removal Action Completed	WW-222

Exhibit F

Exhibit F consists of an environmental map entitled "Air Force Real Property Agency Finding of Suitability to Transfer Parcel F3, Griffiss Air Force Base, Rome, New York" made by the Department of the Air Force, Directorate of Engineering & Services DCS/Lee – Washington, D.C., dated November 24, 2003, which map is being filed in the Oneida county Clerk's Office concurrently herewith.

APPENDIX E
Standard Operating Procedures and Field Forms

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TABLE OF CONTENTS

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ATTACHMENTS

1 Sub-Surface Soil Sampling

1.1 Purpose and Scope

This Standard Operating Procedure (SOP) describes the equipment, materials, field procedures, and documentation procedures for collecting sub-surface soil samples using direct push or auger methods for soil characterization and chemical analysis.

Health and safety procedures and equipment to be used during soil sampling are described in a separate site-specific Site Safety and Health Plan (SSHP). These SOPs are intended to be used with the former Griffiss AFB Uniform Federal Policy Quality Assurance Project Plan (UFP QAPP), the existing former Griffiss AFB Field Sampling Plan (FSP) and with other SOPs listed below:

SOP No. 3, Sample Handling, Documentation, and Tracking

SOP No. 4, Decontamination

1.2 Equipment and Materials List

One of the following drilling equipment:

Direct push rig (e.g., Geoprobe® rig or similar) with appropriate drilling and sampling tools (sub-surface soil)

Hollow Stem Auger Kit and electric drill

Hand Auger

The following equipment and materials should be on site for sub-surface soil sampling regardless of the drilling equipment used:

Photoionization Detector (PID) (with 10.2 eV lamp)

Weighted tape measure and ruler with 0.01-foot increments

Surveyor's stakes and flags

Field logbook

Drilling Log form

Sample Collection Field Form

Stainless-steel bowl and spoon

Sample containers

Sample container labels

Label tape (clear)

Ziploc® bags

Paper towels

Digital Camera

Waterproof and permanent marking pens

Plastic sheeting

Trash bags

Ice chest with ice

Appropriate health and safety equipment, as specified in the SSHP

Appropriate decontamination supplies, as specified in SOP No. 8

Granular bentonite and potable water

1.3 Locating the Sampling Points

The facilities designated for sampling are shown on figures provided in the UFP-QAPP (Worksheet #17). The approximate soil sampling locations will be identified on site figures before field work commences. The exact soil sampling locations will be determined in the field. Sampling coordinates will be mapped on the front of the Drilling Log in the Location Sketch/Comments Area. The sampling locations will be defined in the investigation specific work plan similar to previous investigation and long term monitoring locations.

When each soil sampling location is identified in the field, the sampling point identification will be entered in the field logbook and on the Drilling Log. Include any information concerning nearby landmarks, or other information that will help to re-locate the point in the future. Mark the sample locations using surveyor's stakes and flags, and label the flag using indelible ink with the sample point identification. A field map will be prepared as the sampling points are laid out to identify locations and tie the locations to site landmarks (such as foundations) if available. If the surveyor's stake is offset from the sample location, the offset will be noted on the field map and the field logbook.

1.4 Soil Sampling Procedures

At several sampling sites, the sampling locations may be in concrete or asphalt covered areas. Therefore, at these locations, cores will be drilled through the concrete or asphalt at areas most likely to contain contamination (significant cracks or low points). Direct push technology will be utilized after the concrete has been cored. Direct push samples will be collected using a dual tube sampling system or a discrete interval, piston-type sampler (Geoprobe®, MacroCore®, or equivalent). With a dual tube system, the outer rods remain in the ground while the inner rod and sample liner are extracted to retrieve a soil sample from the desired interval. Soil samples may be collected continuously throughout the depth of the direct push boring or from discrete intervals. The direct push rods will be decontaminated between boring locations, but not between samples at the same boring since a new acetate liner is used for each sample.

With a piston-type sampler, a four-foot or five-foot-long stainless steel sampler with an acetate liner is advanced to the top of the desired sampling interval. The sampler is closed to soil during

advancement of the sampler to the desired sampling interval. When the top of the desired sampling interval is reached, a piston rod inside the sampler is unlocked through the drill rods, and the sampler is advanced to the bottom of the sampling interval. The sampler and all drill rods are then removed from the ground, and the acetate liner is removed from the piston sampler. Aside from the cutting shoe, the soil sampler never comes in contact with the soil sample. The cutting shoe is decontaminated after each sample collected, and a new acetate liner is used for every sample interval. The outer sampling barrel is decontaminated after each boring is completed. The sampling will be documented in the field logbook and drill log.

With a hand auger or hollow stem auger kit, the auger head will be advanced manually to the depth. Auger extensions will be used when sampling at depths exceeding 4 feet. Once the desired depth is achieved, the auger is removed for sample collection as described below. Following collection, the hand auger or hollow stem auger kit will be decontaminated. When using manual samplers, the sampling will be documented in the field logbook and Soil/Sediment sampling form.

At each sampling location, the sampler will be advanced by a combination of hydraulic vertical pressure and percussion hammering. Once the target depth is achieved, the sample will be withdrawn and the liner filled with the soil sample is retrieved.

The following procedures will be followed once the soil sample has been retrieved:

Don a clean pair of nitrile gloves.

Cut acetate sleeve to provide access to the soil sample (direct push sampling only).

Measure the recovery. Record the sampling interval and recovery on the drilling log.

Remove soil smear from the outside of the acetate sleeve and examine the sample, with particular attention for visible evidence of staining, odors, or other evidence of contamination. Record the soil description on the Drilling Log or Soil/Sediment Sampling Form.

Conduct PID screening of the soil. The soil with the highest PID levels will be collected for a sample.

The soil from the sampling interval will be removed from the liner and homogenized in a stainless-steel bowl. Once the soil has been homogenized, fill the appropriate sample containers as specified in the UFP - QAPP (Worksheet #19). Record the sample interval and analysis requested on the Drilling Log or Soil/Sediment Sampling Form and the chain of custody (COC).

Label, store, transport, and document the samples (depending on the use of the sample) according to SOP No. 7. The parameters for analysis and preservation are specified in UFP QAPP Worksheet #19.

If no other samples will be collected from the boring, abandon the boring by backfilling the hole with hydrated granular bentonite. Pour the granular bentonite down the hole in approximate 1-foot to 2-foot lifts, and then pour approximately 0.5 gallon of potable water down the hole to hydrate the bentonite. Continue this from the bottom of the hole to the surface.

1.5 Field Quality Assurance/Quality Control Samples

Field quality assurance/quality control (QA/QC) samples are designed to help identify potential sources of external sample contamination and evaluate potential error introduced by sample collection and handling. All QA/QC samples will be labeled with QA/QC identification numbers and sent to the laboratory with the other samples for analyses.

1.5.1 Field Blanks

Field blanks are QC samples collected to evaluate potential external contamination of samples and will consist of trip, ambient, and equipment blanks. The sample collection coordinator or the project QA/QC coordinator will designate these blanks. The blanks will be assigned a QA/QC identification number, stored in an iced cooler, and shipped to the laboratory with the other samples.

A trip blank serves as a check on sample contamination originating from the container or sample transport. A trip blank consists of a VOA vial which was filled with VOA-free water at the lab, transported to the site, kept in the same cooler as the normal samples throughout the entire sampling day, and shipped back to the laboratory with the normal samples. One trip blank will be sent with each cooler containing water samples for volatile organic analyses.

The ambient blank serves as a check on sample contamination originating from ambient air during volatile organic compounds (VOCs) sample collection. An ambient blank consists of an empty VOA vial which is filled in the field with VOA free water. While pouring the sample, the water is given ample contact with ambient air conditions. The ambient blank is typically collected at the sampling location that potentially exhibits the largest ambient influence (near a busy road, airfield, etc.).

The equipment blank serves as a check on sample contamination originating from sampling equipment reuse during sample collection. The equipment blank consists of a set of sample bottles identical to the normal sample, which is filled with lab-grade water that is flushed over a decontamined, reusable piece of equipment.

1.5.2 Duplicate Samples

Duplicate samples are samples collected to assess precision of sampling and analysis. Duplicate samples will be collected at the same time and for the same parameters as the initial samples. All sampling containers will be filled in the following order: volatile or gaseous analyses first, then semi-volatile organic compounds (SVOCs), including polynuclear aromatic hydrocarbons (PAHs); metals; mercury; cyanide; total organic carbon; anions; other remaining analytes (no specific order). The initial sample containers will be filled first, and then the duplicate sample containers for the same parameter(s) and so on until all sample containers for both the initial sample and the duplicate sample have been filled. The duplicate samples will be handled, preserved, stored, and shipped in the same manner as the primary samples. The rate of duplicate sample collection is specified in the UFP-QAPP (Worksheet #20).

1.5.3 Matrix Spikes and Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses are used to assess the potential for matrix effects. Samples will be designated for MS/MSD analysis on the COC form and on the containers. It may be necessary to increase the sample volume for MS/MSD samples. If additional volume is necessary, the additional sample containers will be filled in the identical fashion as described above in the duplicate sample section. MS/MSD samples will be handled, preserved, stored, and shipped in the same manner as the primary samples. The rate of MS/MSD collection is specified in the UFP-QAPP (Worksheet #20).

1.6 Field Documentation

Field documentation for sub-surface soil sampling includes field logbooks and field forms. The most important aspect of field documentation is thorough, organized, and accurate record keeping. Two forms are used in the field during sub-surface soil sampling. These forms include the Drill Log and the Soil/Sediment Sampling Form. Each form is described in Section 1.6.2. An important factor of record keeping is the proper preservation and storage of all field documentation. To preserve the field documentation, the field notes and field forms are scanned and the electronic record of the field notes is stored in the project folder and backed up on additional hard drives to prevent data loss.

Additional forms including Health and Safety Meeting forms, Health and Safety Inspection forms, and COCs used during the sampling event are detailed in SOP No. 7.

1.6.1 Field Logbook

All information pertinent to soil sampling and not documented on the field forms will be recorded in a bound field logbook with consecutively numbered pages. The field logbook notes will be recorded in indelible ink. The field logbooks notes are entered to create an accurate record of the work performed so that the sampling activity can be reconstructed without relying on the memory of field personnel. Information documented in the field logbook may include information on date of notes, weather conditions, field personnel, site, mobilization, work performed including location and time, etc. After each day, field notes are reviewed by the field team leader or site responsible person for accuracy. Refer to SOP No. 7 for detailed procedures regarding documentation in the field logbook.

1.6.2 Field Forms

<u>Drill Log</u>

The Drilling Log contains the following minimum information:

Project name and number

Contractor company, field personnel

Boring Identifier

Drilling subcontractor company and name of drilling personnel

Site Identifier

Brand and model of drill rig

Sizes and types of drilling and sampling equipment

Surface elevation (if available, this may be entered later after the survey)

Date drilling started and finished

Overburden thickness, depth drilled into rock, and total depth of hole

Depth to water during drilling and depth to water after drilling with elapsed time

Number of geotechnical samples, type of samples, and core boxes (if cores are saved)

Number of chemical samples and requested analyses

Signature of field geologist who completed the Drilling Log field form

Field sketch showing the boring location

Sampling interval and measured sample recovery.

A description of the recovered soil sample in accordance with the Unified Soil Classification method for unconsolidated geologic materials. The descriptions should include origin, grain size, sorting, texture, structure, bedding, color, moisture content, and consistency.

Sample Identifier

Sample Collection Time

As applicable, field screening results, geotechnical samples, chemical samples, and blow counts (split-spoon sampling only).

As applicable, record pertinent observations (such as odors, staining, colors, changes in drill rod advancement, chatter, water, etc.) in the "Remarks" column.

If portions of the Drilling Log are not applicable (e.g., if samples are not collected for chemical analysis or if cores are not collected, etc.) record an "NA" in the appropriate location on the form.

Bore hole abandonment (method of abandonment)

Soil/Sediment Sampling Form

The Soil/Sediment Sampling Form contains the following minimum information:

Field personnel

Project name and number

Site Identifier

Sample Location Identifier

Sizes and types of sampling equipment

Date of sample

Sampling depth.

A description of the recovered soil sample. The descriptions should include origin, grain size, texture, structure, color, and odor.

Comments or Observations

Sample Identifier

Sample Collection Time

2 Surface Soil and Sediment Sampling

1.7 Purpose and Scope

The purpose of this section is to define the SOP for collecting surface soil and sediment samples at the former Griffiss AFB using hand tools. This SOP describes the equipment, field procedures, and QA/QC procedures implemented for the using the Dutch auger, hollow stem auger (HSA), hand auger or shovel for surface soil and sediment sampling.

This SOP is intended to be used together with the FSP and other appropriate SOPs. Health and safety procedures and equipment for the investigation are detailed in the project SSHP.

Applicable SOPs are listed below:

SOP No. 3, Sample Handling, Documentation, and Tracking

SOP No. 4, Decontamination

1.8 Equipment and Materials List

One of the following hand-drilling equipment:

Stainless steel hand auger or hand trowel

Hollow stem auger

Dutch auger

Shovel

The following equipment and materials should be on site for surface soil or sediment sampling, regardless of the equipment used:

Surveyor's stakes and flags

Field logbook

Field Sampling Forms

Stainless-steel bowl and spoon

Sample containers

Sample container labels

Label tape (clear)

Ziploc® bags

Paper towels

Digital camera

Waterproof and permanent marking pens

Trash bags

Ice chest with ice

Appropriate health and safety equipment, as specified in the SSHP

Appropriate decontamination supplies, as specified in SOP No. 8

1.9 Locating the Sampling Points

Surface soil and sediment sampling locations will be identified in the site specific WP and will be identical to current LTM sample locations. The sampling locations designated for sampling are shown on figures in the UFP-QAPP (Worksheet #17). At the time of locating each sampling point, enter the sampling point identification in the field logbook and LTM sample location maps.

Sediment sampling locations will be detailed in the site specific WP and will be identical to the current LTM sample locations. These locations have been plotted on sampling location maps for each site. The sample locations will be identified in the field by fiberglass stakes with ID tags.

1.10 Surface Soil and Sediment Sampling Procedures

The following procedures will be followed to collect surface soil and sediment samples:

Decontaminate sampling equipment according to SOP No. 8.

Don a clean pair of nitrile gloves.

Clear and remove vegetation and surface debris as necessary.

Collect a sample using hand drilling equipment and deposit it in a stainless steel bowl or Ziploc® bags.

Homogenize the sample with a stainless steel spoon or by manipulating the Ziploc® bag. Remove any rocks and gravel or foreign material that might interfere with the sample collection.

Deposit an aliquot of the homogenized soil into the sampling container.

Label, store, transport, and document the samples (depending on the use of the sample) according to SOP No. 7. The parameters for analysis and preservation are specified in Worksheet #19 of the project-specific UFP QAPP.

1.11 Field Quality Assurance/Quality Control Samples

Field QA/QC samples are designed to help identify potential sources of external sample contamination and evaluate potential error introduced by sample collection and handling. All QA/QC samples will be labeled with QA/QC identification numbers and sent to the laboratory with the other samples for analyses.

1.11.1 Field Blanks

Field blanks are QC samples that check for potential external contamination of samples and will consist of trip, ambient, and equipment blanks. The sample collection coordinator or the project QA/QC coordinator will designate these blanks. The blanks will be assigned a QA/QC identification number, stored in an iced cooler, and shipped to the laboratory with the other samples.

A trip blank serves as a check on sample contamination originating from the container or sample transport. A trip blank consists of a VOA vial which was filled with VOA-free water at the lab, transported to the site, kept in the same cooler as the normal samples throughout the entire sampling day, and shipped back to the laboratory with the normal samples. One trip blank will be sent with each cooler containing water samples for volatile organic analyses.

The ambient blank serves as a check on sample contamination originating from ambient air during VOCs sample collection. An ambient blank consists of an empty VOA vial which is filled in the field with VOA free water. While pouring the sample, the water is given ample contact with ambient air conditions. The ambient blank is typically collected at the sampling location that potentially exhibits the largest ambient influence (near a busy road, airfield, etc.)

The equipment blank serves as a check on sample contamination originating from sampling equipment reuse during sample collection. The equipment blank consists of a set of sample bottles identical to the normal sample, which is filled with lab-grade water that is flushed over a decontamined, reusable piece of equipment.

1.11.2 Duplicate Samples

Duplicate samples are samples collected to assess precision of sampling and analysis. Duplicate samples will be collected at the same time and for the same parameters as the initial samples. All sampling containers will be filled in the following order: volatile or gaseous analyses first, then SVOCs, including PAHs; metals; mercury; cyanide; total organic carbon; anions; other remaining analytes (no specific order). The initial sample containers will be filled first, and then the duplicate sample containers for the same parameter(s) and so on until all necessary sample containers for both the initial sample and the duplicate sample have been filled. The duplicate samples will be handled, preserved, stored, and shipped in the same manner as the primary samples. The rate of duplicate sample collection is specified in the UFP-QAPP (Worksheet #20).

1.11.3 Matrix Spikes and Matrix Spike Duplicates

MS and (MSD analyses are used to assess the potential for matrix effects. Samples will be designated for MS/MSD analysis on the COC form and on the containers. It may be necessary to increase the sample volume for MS/MSD samples. If additional volume is necessary, the additional sample container will be filled in the identical fashion as described above in the duplicate sample section. MS/MSD samples will be handled, preserved, stored, and shipped in

the same manner as the primary samples. The rate of MS/MSD collection is specified in the UFP-QAPP (Worksheet #20).

1.12 Field Documentation

Field documentation for surface soil/sediment sampling includes field logbooks and field forms. The most important aspect of field documentation is thorough, organized, and accurate record keeping. The field form includes the soil/sediment sampling form and is described in section 4.6.2. An important factor of record keeping is the proper preservation and storage of all field documentation. To preserve the field documentation, the field notes and field forms are scanned and the electronic record of the field notes is stored in the project folder and backed up on additional hard drives to prevent data loss. The field forms will also be provided in the Daily CQCRs.

Additional forms including Health and Safety Meeting forms, Health and Safety Inspection forms, and COCs used during the sampling event are detailed in SOP No. 7.

1.12.1 Field Logbook

All information pertinent to soil sampling and not documented on the field forms will be recorded in a bound field logbook with consecutively numbered pages. The field logbook notes will be recorded in indelible ink. The field logbooks notes are entered to create an accurate record of the work performed so that the sampling activity can be reconstructed without relying on the memory of field personnel. Information documented in the field logbook may include information on date of notes, weather conditions, field personnel, site, mobilization, work performed including location and time, etc. After each day, field notes are reviewed by the field team leader or site responsible person for accuracy. Refer to SOP No. 7 for detailed procedures regarding documentation in the field logbook.

1.12.2 Field Forms

<u>Soil/Sediment Sampling Form</u>

The Soil/Sediment Sampling Form contains the following minimum information:

Field personnel

Project name and number

Site Identifier

Sample Location Identifier

Sizes and types of sampling equipment

Date of sample

Sampling depth.

A description of the recovered soil sample. The descriptions should include origin, grain size, texture, structure, color, and odor.

Comments or Observations

Sample Identifier

Sample Collection Time

3 Sample Handling, Documentation, and Tracking

1.13 Purpose and Scope

This SOP describes the procedures for sample handling, documentation, and tracking. This SOP is intended to be used with the UFP-QAPP, FSP and with other SOPs listed below:

SOP No. 1, Soil Sampling

SOP No. 2, Surface Soil and Sediment Sampling

1.14 Sample Identification

The sampling locations, sample types, and naming conventions will be established prior to field activities. On-site personnel will obtain assistance in defining any special sampling requirements from the FPM Project Manager or designated Task Manager. Each sample will have a discrete, alpha-numeric sample identification (ID). A unique sample ID is needed to track each sample during the life of this project. In addition, the sample IDs will be used in the database to identify and retrieve the analytical results received from the laboratory. Each sample ID will be assigned at the time of sampling.

Sample ID

The sample ID will be designated as follows: Site Code, Sample Type and Sampling Location Indicator, Sample Depth Identifier, and Sample Type Qualifier.

Site Code

The first segment consists of two to five alphanumeric characters that designate the site code. Site codes for monitoring wells named in previous Griffiss AFB sampling efforts (Law, 1996; FPM, 2001) are listed below:

- LF1 Landfill 1

For the sample designated "LF1M0213AA", the "LF1" indicates that the site from which the sample was obtained, is the Landfill 1 AOC Site.

Sample Type and Sampling Location Indicator

The second segment consists of one or two alphanumeric characters that indicate the sample type and sampling location indicator. Sample types are as shown below:

- M Groundwater from monitoring well sampling locations
- T Groundwater from direct-push groundwater samples that were not completed as permanent monitoring wells (i.e., temporary well point)
- SW Surface water sample
- SD Sediment sample

- SS Soil Sample
- FS Fish Tissue Sample
- IA Indoor Air
- OA Outdoor Air
- SSV Sub-slab Vapor

The two-digit number following the sample indicator completes the identification of the sampling location at a specific site. For example, for the sample "LF1M0213AA", the "M" indicates that the sample was groundwater taken from a monitoring well, and the "02" indicates that this sample was taken from monitoring well LF1MW-02.

Sample Depth Identifier

The third segment consists of two numerical characters that will be used to identify the depth in feet below TOIC the sample was taken. For the sample designated "LF1M0213AA", the "13" indicates that the sample was obtained at a depth of 13 feet below TOIC.

Sample Type Qualifier

The fourth segment is two alphabetic characters used to designate the type of sample. The first letter denotes the round of sampling completed (e.g., "A" for first quarterly sampling round, "B" for second quarterly sampling round, etc.). The sample types will be identified by the second character as listed below:

- A = Primary sample
- B = Primary sample
- C = Field duplicate groundwater sample
- D = Matrix Spike Duplicate (MSD)
- E = Equipment blank
- F = Ambient blank
- R = Trip blank
- S = Matrix Spike (MS)

The letter A or B appearing at the end of a sample number indicates that the sample is a primary sample. These letters will be selected randomly to mask the predominance of primary samples over QA/QC samples. This system was devised to minimize the likelihood that the laboratory personnel can distinguish the primary samples from the QA/QC samples using the sample identification.

To complete the example, the sample number "LF1M0213AA", would therefore indicate a primary first-round groundwater sample taken from monitoring well LF1MW-02 at 13 feet below TOIC at the Landfill 1 AOC Site.

1.15 Sample Labels

Sample labels will be completed as much as possible by a designated member of the sampling team prior to beginning field-sampling activities each day. All sample labels will be filled out using waterproof ink. For the pre-designated sampling events (LTM), labels are preprinted by the lab using the COCs developed during sample planning. At a minimum, each label will contain the following information:

Sampler's company affiliation

Site location

Sample ID

Date and time of sample collection

Analyses required

Method of preservation (if any) used

Sample matrix (i.e., soil, groundwater, surface water)

Sampler's signature or initials

1.16 Sample Handling Procedures

This section discusses proper sample containers, preservatives, and handling and shipping procedures. The UFP-QAPP summarizes the information contained in this section and also includes the sample holding times for each analyte.

1.16.1 Sample Containers

Certified, commercially clean sample containers will be obtained from the contract analytical lab. Required preservatives will be prepared and placed in the containers at the laboratory prior to shipment to the site. Appropriate sample containers for the specific analyses required will be listed in the UFP-QAPP (Worksheet #19).

1.16.2 Sample Preservation

Sample preservation efforts will commence at the time of sample collection and will continue until analyses are performed. Samples will be stored on ice at 4°C in coolers immediately following collection. Chemical preservatives, if necessary, will be added to the sample containers by the laboratory prior to shipment to the field, unless otherwise specified in the UFP-QAPP.

1.16.3 Sample Handling and Shipping

The sample containers will be wiped clean of all sample residue and then wrapped in protective packing material (bubble wrap) and taped. Samples will be single-bagged with plastic bags and then placed upright in an iced cooler. A COC form will accompany each cooler.

Coolers will be picked up at the FPM Rome office by the lab courier or shipped by overnight express carrier to the analytical laboratory. All samples must be shipped for laboratory receipt and analyses within specific holding times (UFP QAPP, Worksheet #19). This may require daily shipment of samples with short holding times. The condition of all samples as received and temperature of all coolers will be reported by the laboratory.

1.16.4 Holding Times and Analyses

The holding time is specified as the maximum allowable time between sample collection and analysis and/or extraction, based on the analyte of interest and stability factors, and preservative (if any) used. Allowable holding times are listed in the UFP-QAPP (Worksheet #19).

1.17 Sample Documentation and Tracking

This section describes documentation required in the field notes, on the field sampling forms, on the Daily CQCRs, and on the COCs.

1.17.1 Field Logbook

The purpose of the field log book is to provide a chronological account of all field activities for future reference. Activities logging will be performed to include sufficient information so that the sampling activity can be reconstructed without relying on the memory of field personnel. The logbooks will be kept in the field team member's possession or in a secure place during the investigation. Following the investigation, the logbooks will become a part of the final project file.

All entries in logbooks will be made in waterproof ink and corrections will consist of line-out deletions that are initialed and dated. The following information (as applicable) shall be recorded in the header of the field log book:

Sampler’s printed name and signature

Names of other field personnel (CAPE Team and any CAPE Team subcontractors) and site visitors

Date (month, day, year)

General weather conditions

The following information (as applicable) shall be recorded in the field log book:

Results of equipment calibration

Time and location of sampling (including approximate distance to adjacent landmarks if possible)

Documentation of field measurement results such as total depths and depth to groundwater in monitoring wells.

Sample Identification and time of collection

Any QA/QC sample collected

Decontamination information

Brief discussion of any field decisions, unusual conditions, problems encountered and corrective action taken, and/or changes required by field conditions

Signature and date by person responsible for writing the field notes

In addition to field books, sample forms will also be prepared in the field. The sampling forms will contain the results of any field measurements, sample identification and sampling time. The field measurements included in the sampling form include water chemistry readings. A description of the sampling field forms are included in the sampling matrix specific sections.

1.17.2 Daily Chemical Quality Control Report

Daily CQCRs will be prepared to supplement the information recorded in the field logbook. Daily CQCRs will be prepared by members of the field sampling team and cross-checked for completeness at the end of each day by the sampling team leader and/or Field Manager. They will be signed and dated by individuals making entries. Daily CQCRs will be forwarded to the Quality Assurance Officer for review and approval. The Daily CQCRs will include the following information:

Project name

Project number

Personnel on site

Visitor on site

Subcontractors on site

Weather conditions

Field work performed

Quality control and health and safety activities

Name and title of person completing the Daily CQCR

1.17.3 Chain of Custody

During field sampling activities, traceability of the sample must be maintained from the time that the samples are collected until laboratory data are issued. Information concerning samples collection will be recorded in the field logbook as described above. Information on the custody, transfer, handling, and shipping of samples will be recorded on a COC form.

The sampler will be responsible for initialing and completing the COC. The sampler will sign the COC when the sampler relinquishes the samples to the lab courier. One COC will be completed daily for the site's samples. The COC will contain the following information:

Sampler's signature and affiliation

Project name

Date and time of collection

Sample ID

Sample type

Analyses requested

Number of containers per sample per analysis

Signature of persons relinquishing custody, dates, and times

Signature of persons accepting custody, dates, and times

Method of shipment

Shipping air bill number (if applicable)

The person responsible for sample shipment to the laboratory will sign the COC form, and retain a copy of the form, document the method of shipment, and send the original copy of the COC form with the samples. Copies of the COC forms documenting custody changes and all custody documentation will be received in the lab packages and kept in the central files. The original COCs will remain with the samples until final disposition of the samples by the laboratory. The analytical laboratory will dispose of the samples in an appropriate manner 60 to 90 days after data reporting.

4 Decontamination

1.18 Purpose and Scope

This SOP describes the equipment, materials, field procedures, and documentation procedures for decontaminating sampling equipment and personnel. The procedures presented below are intended to be used with other SOPs listed below:

SOP No. 1, Soil Sampling

SOP No. 2, Surface Soil and Sediment Sampling

The overall objective of an environmental sampling program is to obtain samples that accurately represent the chemical, physical, and/or biological conditions at the sampling site. Extraneous contaminants can be brought onto the sampling location and/or introduced into the medium of interest during the sampling program (e.g. using sampling equipment that is not properly or fully decontaminated). Trace quantities of contaminants can consequently be captured in a sample and lead to false positive analytical results and, ultimately, to an incorrect assessment of the contaminant conditions associated with the site. Decontamination of sampling equipment (e.g., all non-disposable equipment that will come in direct contact with samples) and field support equipment (e.g., drill rigs, vehicles) is, therefore, required prior to, between, and after uses to ensure that sampling cross-contamination is prevented, and that on-site contaminants are not carried off-site.

1.19 Equipment and Materials List

The following is a list of equipment that may be needed to perform decontamination:

Brushes

Wash tubs

Buckets

Scrapers, flat bladed

Hot water – high-pressure sprayer

Sponges or paper towels

Liquinox® detergent (or equivalent)

Potable tap water

Laboratory-grade de-ionized water

Garden-type water sprayers

Appropriate Health and Safety equipment (i.e., nitrile gloves, safety glasses, etc.)

Appropriate containers for Investigation Derived Waste (IDW).

1.20 Decontamination Procedures

Site activities should be conducted with the general goal of preventing the contamination of personnel and equipment. CAPE Team sampling personnel will bag monitoring instruments, avoid contact with obvious contamination, and employ dust suppression methods as necessary to reduce the probability of becoming contaminated and, therefore, reduce the need and extent of decontamination. However, some type of decontamination will always be required on site.

1.20.1 Decontamination Solutions

A decontamination solution should be capable of removing, or converting to a harmless substance, the chemical of concern without harming the object being decontaminated. The preferred solution is a mixture of detergent and water, which is a relatively safe option compared to chemical decontaminants. A solution recommended for decontaminating consists of 1 to 1.5 tablespoons of Liquinox® per gallon of warm water. Skin should be decontaminated by washing with hand soap and water. The decontamination solution must be changed when it no longer foams or when it becomes dirty. Rinse water must be changed when it becomes discolored, begins to foam, or when the decontamination solution cannot be removed.

1.20.2 Personnel Decontamination

A sample personnel decontamination set-up guideline and equipment and supplies list are included in the SSHP.

1.20.3 Sampling Equipment Decontamination

The following steps will be used to decontaminate sampling equipment:

Personnel will dress in suitable safety equipment to reduce personal exposure as required by the SSHP. Typically for LTM programs, this includes personnel in level D PPE (long pants, long sleeve shirts, steel toe boots, and nitrile gloves).

Gross contamination on equipment will be scraped off at the sampling or construction site with a flat bladed scrape.

Equipment that cannot be damaged by water will be placed in a 5-gallon bucket containing a Liquinox® solution or low-sudsing non-phosphate detergent along with potable water and scrubbed with a bristle brush or similar utensil. Equipment will be rinsed with tap water in a second wash tub followed by a de-ionized water rinse.

Equipment that may be damaged by immersion in water will be carefully wiped clean using a sponge and detergent water and rinsed with de-ionized water. Care will be taken to prevent equipment damage.

Following decontamination, equipment will be placed in a clean area or on clean plastic sheeting to prevent contact with contaminated soil. If the equipment is not used immediately after decontamination, the equipment will be covered or wrapped in plastic sheeting, foil, or heavy-duty trash bags to minimize potential contact with contaminants.

1.20.4 Direct Push Equipment Decontamination

Direct push rigs will be decontaminated at a decontamination station located near the staging area. Direct push rods will be decontaminated at the various drilling locations. The following steps will be used to decontaminate direct push equipment:

The direct push rig will be decontaminated upon mobilization to the site and demobilization from the site. The direct push rods will be decontaminated between each boring location.

Personnel will dress in suitable PPE to reduce personal exposure as required by the SSHP.

Equipment showing gross contamination or having caked-on soil cuttings will be scraped with a flat-bladed scraper at the sampling or construction site.

The direct push rods will be washed with a hot water, high-pressure sprayer then rinsed with potable water. OSHA requires that proper PPE must be worn when operating pressure-washing equipment. A rain suit, boots, hard hat, and a face shield are recommended to be worn. All personnel must be kept out of the path of steam or water spray.

Following decontamination, direct push rods will be placed on a clean area. If the direct push rods are not used immediately, they must be stored in a designated clean area.

1.20.5 Equipment Leaving the Site

Vehicles used for activities in non-contaminated areas shall be cleaned on an as-needed basis, as determined by the Site Safety and Health Officer (SSHO), using soap and water on the outside and vacuuming the inside. On-site cleaning will be required for very dirty vehicles leaving the area or equipment that has been operated in contaminated areas. Drilling and trailers used in contaminated areas will be pressure washed before the equipment is removed from the site to limit exposure of off-site personnel to potential contaminants.

1.20.6 Responsible Authority

Decontamination operations at each hazardous waste site shall be supervised by the SSHO. The SSHO is responsible for ensuring that all personnel follow decontamination procedures and that all contaminated equipment is adequately decontaminated. The SSHO is also responsible for maintaining the decontamination zone and managing the wastes generated from the decontamination process.

1.20.7 Investigation Derived Waste

Liquid wastewater from decontamination will be drummed and properly disposed of. Solid waste, including sample liners and PPE, will be bagged and removed from the site as household waste.

1.21 Emergency Decontamination

Emergency decontamination procedures should be followed if necessary to prevent the loss of life or severe injury. In the case of threat to life, decontamination should be delayed until the victim is stabilized; however, decontamination should always be performed first, when practical, if it can be done without interfering with essential lifesaving techniques or first aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life. During an emergency, provisions must also be made for protecting medical personnel and disposing of contaminated clothing or equipment.

1.22 Documentation

Sampling personnel will be responsible for documenting the decontamination of sampling and drilling equipment. The documentation will be recorded with waterproof ink in the sampler's field notebook with consecutively numbered pages. The information entered in the field book concerning decontamination will include the following:

Decontamination personnel

Date and start and end times

Decontamination observations

Weather conditions

IDW handling

5 Equipment Calibration

1.23 Purpose and Scope

This SOP describes the procedures for equipment calibration and documentation. This SOP is intended to be used with the UFP-QAPP, FSP and with other SOPs listed below:

SOP No. 1, Soil Sampling

SOP No. 2, Surface Soil and Sediment Sampling

1.24 Equipment and Materials List

The following section provide a list of equipment that may be needed to perform equipment calibration.

PID, miniRAE

PID, miniRAE

Tedlar bag

Isobutylene (100 ppm)

Calibration log for PID

1.25 Equipment Calibration Procedures

The following provides the procedures for the calibration of the PID miniRAE.

PID miniRAE:

Zero Calibration

Turn on PID to Zero Calibration menu.

Press [Y/+] to start calibration.

Press [MODE] to quit and return to the main calibration display.

Zero calibration starts.

When Zero calibration is complete, you see this message: Zeroing is done!, Reading = 0.000 ppm.

Span Calibration

Turn on PID to Scan Calibration menu.

The span gas is first be filled into a Tedlar bag.

Connect the calibration adapter to the inlet port of the instrument, and connect the tubing to the regulator or Tedlar bag.

Press [Y/+] to enter Span calibration.

Turn on your span calibration gas.

Press [Y/+] to initiate calibration.

Span calibration starts and displays this message: Calibrating...

When Span calibration is complete, you see this message: Span 1 is done!, Reading = 100.0 ppm

Per the Mini RAE manual, there is no set range of what is allowed above or below 100 ppm. The Manual simply states that the “reading should be very close to the span gas value”.

1.26 Documentation:

Documentation for equipment calibration forms which are included in Daily CQCRs. The calibration forms include:

Equipment model and number

Date

Calibration personnel

Standard calibration values

Scan gas concentration for PID calibration

Standard calibration solution parameters for water quality

6 XRF SAMPLING

6.1 Purpose and Scope

The purpose of this document is to define the Standard Operating Procedure (SOP) for *in-situ* and *ex-situ* field screening of soil samples using a portable Innov-X x-ray fluorescence (XRF) analyzer, or a similar portable XRF analyzer. The following sections provide descriptions of equipment, field procedures, and quality assurance/quality control (QA/QC) procedures which are to be implemented for the *in-situ* and *ex-situ* field screening of soil samples. Specific sample locations and frequency of sample collection will be presented in site-specific Work Plans (WPs).

These procedures are intended to be used together with the Closure Plan and other appropriate SOPs. Health and safety procedures and equipment used during the investigation are detailed in the Site Health and Safety Plan (SSHP). Applicable SOPs are listed below:

SOP No. 3 – Sample Handling, Documentation and Tracking

6.2 Equipment

The following list of items will be used for collecting and analyzing a soil sample under the following procedures.

Innov-X XRF analyzer, or equivalent, and accessories [including National Institute of Standards and Technology (NIST) traceable calibration standards for lead]

Field logbook

Calculator, or equivalent

Waterproof, black ink marker/pen

Vinyl stake flags (three or more colors) at least 36 inches long

Butcher’s paper, waxed paper, or equivalent

Ruler or tape measurer

Sealable, plastic bags

Packing tape

Trowel or equivalent hand tool

Hand auger

Drying oven or similar device (optional)

Soil moisture probe (optional)

Camera (digital or disposable)

6.3 Instrument Operation

Each make and model of XRF analyzer has its own specific start-up, calibration, and operating procedures. The User's Manual will provide the information necessary to ensure the instrument is being used in the appropriate manner. XRF analyzer operators must follow the procedures listed in the User's Manual when working with XRF analyzers.

6.3.1 Battery Life

XRF analyzer battery life is approximately eight hours. Due to the high volume of samples that will be analyzed during the *in-situ* and *ex-situ* field screening activities, it is recommended that new batteries be inserted at the start of each work day. Instrument calibration must occur each time the batteries are replaced. Record the date and time the batteries are replaced in the field logbook.

6.3.2 Safety

XRF analyzers emit X-rays which can be harmful to human health. XRF analyzer operators must be trained in the use of XRF analyzers. Additionally, the XRF analyzer operator should make field personnel aware of the following information:

XRF analyzers emit radiation

Radiation exposure is negligible with the proper use of the XRF analyzer, and low with the occasional incorrect use of the XRF analyzer

Field staff working with, or in the vicinity of, an XRF analyzer must practice "ALARA," which means that all radiation exposure should be "As Low As Reasonably Achievable." This can be achieved by following these guidelines:

Do not put fingers or any other body part in front of the analyzer window

Verify that no one stands within three paces of the analyzer window when the instrument is operating

Correct operation of the instrument involves leaving one hand on the handle, and making sure the other hand is away from the window

XRF analyzers must be used in a safe manner.

6.4 Calibration and Verification

Instrument calibration and sample preparation method verifications are necessary to ensure that the XRF analyzer is operating properly and reporting accurate results. Field calibration and method verification checks will also be conducted while the XRF analyzer is being used at the work site. XRF analyzer calibration will follow the procedures listed in the User's Manual and in the following sections. Typically, rented XRF units will be calibrated by the rental company prior to delivery. Record the results of the included calibration sheet in the field logbook. If calibration is conducted by field staff, then record the calibration and method verification checks

in the field logbook. Additional calibration and method verification checks include the following:

Start of Day

- Energy Calibration

Before and after XRF unit shutdown

- Instrument Blank
- Method Blank – *ex-situ* testing only
- Calibration Verification

6.4.1 Energy Calibration

An energy calibration check will be performed each time an XRF analyzer is started. Innov-X analyzers automatically complete this calibration check when the unit is started (Innov-X 1998). For non-Innov-X analyzers, consult the User's Manual for the energy calibration procedures. Record the results of the energy calibration check in the field logbook.

6.4.2 Instrument Blank

An instrument blank check must be conducted to verify that there is no contamination on the analyzer window. An instrument blank check will be conducted at least once per day or once per 20 samples. The instrument blank check will be conducted using the silicon dioxide (SiO_2) blank provided with the analyzer. Record the results of the instrument blank checks in the field logbook.

6.4.3 Calibration Verification

A calibration verification test must be conducted at the start of XRF analyzer use, and before XRF analyzer shutdown or once every four hours of analyzer use. To conduct the calibration verification, the operator should place the media standard (provided with the Innov-X XRF analyzer) in front of the analyzer window and perform a 30-second test. The result of the test should be within 20 percent of the standard value. Record the results of the calibration verifications in the field logbook. Normally, three media standards low, medium, and high) are read.

6.5 *In-Situ* Field Screening

In-situ field screening will be used to approximate of the extent of soil contamination at a work site, and to identify locations for further *ex-situ* field screening. Each work site will typically be canvassed by a series of pre-determined intervals. Additional screening locations should be established where visual evidence of contamination is present (e.g., the presence of lead pellets at a trap range), or the results of other field tests (e.g, hand-held electromagnetometer sweep and/or previous XRF readings). These screening sample locations will be identified using a staked grid.

A system for the identification of sample locations and screening results should be established at each work site; the following flag-based system will be used:

1) Start at one end of a transect. This will typically be the first *in-situ* screening location.

2) Record the position of the screening location using a GPS unit, if available.

3) Obtain an *in-situ* screening result. Follow the procedures given in the User's Manual for operating the XRF analyzer. Make sure the *in-situ* screening location is flat and clear of vegetation and debris prior to analysis. The XRF analyzer window must be flush with the ground surface.

4) Mark the sample location identifier and the *in-situ* field screening result on a vinyl stake flag. Locations will be flagged if a field screening result is greater than 50 parts per million (ppm).

5) Place the vinyl stake flag in the ground. Make sure that it is visible above any debris or vegetation that may be present at the work site.

6) Record the sample identifier, the time the *in-situ* field sample was screened, and the *in-situ* screening result in the field logbook.

7) Wipe off the XRF analyzer window.

8) Repeat steps 1 through 7 for each location until all locations have been screened.

9) Take one or more photographs of the work site when the *in-situ* field screening has been completed.

6.6 *Ex-Situ* Sample Collection and Field Screening

Once the *in-situ* field screening has been completed, additional *ex-situ* field screening may be completed for subsurface samples following the steps provided below. The sample locations chosen for *ex-situ* field screening will be left to the discretion of the contractor project manager, or designee.

The following steps outline the procedure for collecting an *ex-situ* field sample.

1) Record the sample location and time of collection in the field log book and on a Soil Sample Collection Field Sheet. Record any information about the sample location that is out of the ordinary (e.g., discoloration, odor, the presence of man-made items, etc.), especially the presence of projectile or clay pigeon fragments.

2) Using a permanent maker or pen, write the sample identifier and the time of sample collection on a sealable plastic bag.

3) Don a clean pair of nitrile gloves.

4) Clear the sample location of any vegetation or debris.

5) Using a clean trowel, collect the sample from a 4-inch by 4-inch square that is 0 to 6 inches deep. This should yield enough soil to fill an 8-ounce jar.

6) Place the sample material in the sealable plastic bag. Remove any foreign objects, such as rocks and pebbles, twigs, or roots from the sample. Clay pigeon fragments, lead projectile fragments, or other small arms debris may be present at some work sites. Remove these small arms-related items from the sample and place them is a separate, labeled container. Record the presence of these items in the field logbook, the Sample Collection Field Sheet and also take a photograph of them.

7) Dry the sample if it appears to be too moist. The sample may be too moist if it appears to be clumpy or excessively cohesive. The drying process may range from opening the plastic bag and exposing the sample to the open air, to placing the sample in a drying oven. The drying method used will be based on site conditions and the time required for sample result returns.

8) Manually homogenize the sample material by manipulating the soil through the sealable plastic bag. Keep the sealable plastic bag between the soil and your hand. Do not reach into the sealable plastic bag unless it is absolutely necessary. Continue this process until no clumps of soil remain. Note: homogenization is the most important factor in acquiring reliable XRF results (USEPA 1998).

9) Place the sealable plastic sample bag on a flat, non-metallic surface. Flatten the sample until it is of a uniform thickness. The sample should be approximately one-half inch thick at the point where it will be analyzed.

10) Obtain three *ex-situ* screening results from each bag. Each reading should be taken in a different location on the bag for a minimum of 30 seconds. Follow the procedures given in the User's Manual for operating the XRF analyzer. Sampling duration may be increased up to 120 seconds to improve the accuracy of the reading. The three sample readings should have a relative standard deviation (RSD) $\leq$ 20 percent for samples with concentrations > 50 parts per million (ppm) and $\leq$ 50% percent for samples with concentrations < 50 ppm.

11) Record the data in the field logbook and on a Soil Sample Collection Field Sheet. Include the time and date of the XRF analysis.

12) Retain the sample for possible further analysis or confirmation sampling.

13) Decontaminate all sampling equipment that came into contact with the sample material. Dispose of IDW according to procedures listed in Section 5 of this Appendix.

6.6.1 Sub-Surface Soil Samples

Sub-surface soil samples (i.e. six inches below ground surface) may also be collected for *ex-situ* field screening, if required. The purpose of the sub-surface soil sample screening is to address

the depth of potential soil contamination. Note: If no samples collected during the initial *ex-situ* field screening exceed the site sensitivity goal, there is no need to further evaluate sub-surface soils.

The following steps outline the procedure for screening samples for *ex-situ* sub-surface soil sample.

1) Scrape edge of Geoprobe core with hand tool and remove debris smearing the sides.

2) Acquire one 30-second reading at each six inch interval

3) Soil samples will be collected from each boring at the deepest interval exceeding 50 ppm for lead

Follow steps 1 through 13 in Section 6.6 to collect and analyze the sub-surface soil samples. If the screening level is equal to or does not exceed the sensitivity goal, then no further sampling is necessary.

6.6.2 Sample Drying

Soil samples with more than 20 percent moisture may create errors in the XRF field screening results (USEPA 1998). However, studies indicate that the relative accuracy of the XRF field screening results is not strongly influenced by soil moisture (USEPA 1998). Additionally, most modern XRF analyzers have built in correction measures for moisture which means that moisture does not have a significant impact on accuracy (Innov-X 2003). Based on this and site conditions, the project team should evaluate the need for drying and the drying methodology.

Avoid collecting *ex-situ* field screening samples during or immediately after precipitation events. Use a soil moisture probe, if available, to determine the soil moisture percentage prior to collecting a sample. As a general guideline, if the soil is excessively clumpy or cohesive, it may need to be dried. If drying is required, USEPA Method 6200 recommends (but does not require) drying a small aliquot of the sample (20 to 50 grams) in a convection or toaster oven set at 150 degrees Celsius (°C). Use of a microwave oven is discouraged because it may introduce variability within the sample. This method of drying the sample is not well suited to situations or sites where quick results are needed.

Another sample drying option is to place the soil on a clean, disposable surface, such as butcher's paper or waxed paper, and allow the ambient air temperature to dry the sample. The soil may be homogenized at this time, which will also speed up the drying process.

The method used to dry soil samples (if necessary) will be recorded in the field logbook.

6.7 Leaving the Work Site

At the completion of work at each site, all vinyl stake flags must be removed from the ground. Decontaminate and retain the flags for possible future use. Dispose of any vinyl stake flags which may have become damaged.

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Attachment 1
Field Forms

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SOIL / SEDIMENT SAMPLING FORM

Project: _____ Sampled by: _____

Site and Site Code (**SITEID**): _____

Sampling Location ID. (**LOCID**): _____

Date (**LOGDATE**): _____ Time: _____

FIELD OBSERVATIONS:

Sample Depth or Interval	**Material Description/ Color**

Comments/Observations:

_____

_____

_____

_____

Sample Time: _____ Sample ID: _____

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