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SUBJECT: Final Letter Work Plan for Baseline Sampling On-Base Groundwater Areas of Concern

1. Enclosed please find the Final Letter Work Plan for Baseline Sampling On-Base Groundwater Areas of Concern dated November 2006. The purpose of the groundwater sampling is to establish baseline conditions prior to developing the remedial designs.

2. This document is being provided for informational purposes. If you have any questions, please contact Cathy Jerrard at (315)330-3371.

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BRAC Environmental Coordinator

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Baseline Sampling
On-Base Groundwater Areas of Concern
Former Griffiss Air Force Base
Rome, New York

FINAL
LETTER WORK PLAN

Contract No. W912DQ-06-D-0012
Project No. 717-06-03

Revision 0.0
November 2006

FPM group

FINAL

LETTER WORK PLAN

Prepared for:

Baseline Sampling
On-Base Groundwater Areas of Concern
Former Griffiss Air Force Base
Rome, New York

through

United States Army Corps of Engineers
Kansas City District
Kansas City, MO 68102

Prepared by:

FPM Group, Ltd.
153 Brooks Road
Rome, NY 13441

In association with:
Parsons Infrastructure & Technology Group, Inc.
290 Elwood Davis Rd, Suite 312
Liverpool, NY 13088

Contract No. W912DQ-06-D-0012
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Appendix A

LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
bgs	Below ground surface
CB	Chlorobenzene
COC	Contaminant of concern
DCE	Dichlorethene
DOC	Dissolved organic carbon
E&E	Ecology and Environment, Inc.
FPM	FPM Group. Ltd.
FS	Feasibility Study
gpm	gallons per minute
LF6 TCE	Landfill 6 Trichloroethene
MNA	Monitored natural attenuation
NYSDEC	New York State Department of Environmental Concervation
OBGW	On-Base Groundwater
Parsons	Parsons Infrastructure and Technology Group, Inc.
PCE	Perchloroethene
PDI	predesign investigation
ppb	Parts per billion
TCE	Trichloroethene
USACE	United States Army Corps of Engineers
VC	Vinyl Chloride
WP	Work Plan
WSA	Weapon Storage Area

1.0 INTRODUCTION

This Letter Work Plan (WP) has been prepared by FPM Group, Ltd. (FPM) in association with Parsons Infrastructure and Technology Group, Inc. (Parsons), under contract to the United States Army Corps of Engineers (USACE), Kansas City District, Contract No. W912DQ-06-D-0012. FPM will be performing baseline groundwater sampling at the following On-Base Groundwater (OBGW) Areas of Concern (AOCs): Landfill 6 Trichloroethene (LF6 TCE), Building 817/Weapons Storage Area (WSA), AOC 9, Building 775/Pumphouse 3, and the Nosedocks/ Apron 2 Chlorinated Plume Site.

The objective of the baseline monitoring event is to collect groundwater data that is to be used in conjunction with the predesign investigation (PDI) results and the injection sampling results to establish baseline conditions prior to developing the remedial designs for each site. Constituents of concern (COCs) reported in previous investigations for these sites include the chlorinated ethenes (trichlorothene [TCE] and vinyl chloride [VC], in particular) and chlorobenzene. A more detailed history of each of the sites is provided below, along with a brief synopsis of the planned remedial design.

2.0 SITE BACKGROUND AND PROPOSED REMEDIAL DESIGN SUMMARY

2.1 Landfill 6 TCE

2.1.1 Site Background

The Landfill 6 TCE site plume is located downgradient to the west of the former Landfill 6. The most contaminated portion of the plume is located southwest of the landfill beneath the floodplain of Three Mile Creek. There is no evidence that volatile organic compound (VOC) contaminants have migrated to the creek. The contaminants exceeding New York State Department of Environmental Conservation (NYSDEC) Class GA Groundwater Standards are TCE, dichlorothene (DCE) and VC. In March 2004, the maximum TCE concentration was 2,140 parts per billion (ppb) and the maximum DCE concentration was 346 ppb. Both of these maximums were detected in wells located within a 1,600-square-foot area centered around well LF6MW-12. Figure 1 (see Appendix A) illustrates the total VOC concentrations exceeding 5 and 50 ppb in the LF6 TCE plume based on historical and 2004 monitoring data. (The PDI for the site included the installation of additional wells that will better define the size and magnitude of the hot spot surrounding well LF6MW-12).

The contaminated aquifer is comprised of silty sands with an average saturated thickness extending from 19 feet below ground surface (bgs) to 80 feet BGS, where shale bedrock is encountered. Contamination is not found in the bedrock. Due to a flat gradient, groundwater velocities at this site are extremely slow and have been estimated at less than 4 feet per year. In general, the direction of groundwater flow at the site is southwest. Groundwater studies at the site found relatively aerobic conditions and low dissolved organic carbon within the TCE/DCE

plume. The cis-1,2 DCE present in the plume may have been formed many years ago when the TCE degraded in the presence of landfill organics. There is no evidence that reductive dechlorination is occurring in the plume.

2.1.2 Proposed Remedial Design Summary

Groundwater extraction and treatment, as described in the Final Feasibility Study [FS] (E & E, 2005), will be combined with a hot spot reduction using an in situ bioreactor to accelerate VOC concentration reduction in the groundwater plume at this site. Groundwater will be extracted from three wells at a rate of 5 gallons per minute (gpm) each (for a total of 15 gpm) and treated at a nearby on-site treatment facility (discharges from this site will be combined with flows from the Building 775 site at a centrally located treatment building). The wells will be located near Six Mile Creek and within the estimated 50 ppb total VOC contour interval. The in situ bioreactor will be created by increasing and sustaining a high level of dissolved organic carbon (using vegetable oil) in the groundwater contaminated with greater than 500 ppb of total VOCs via several injection points located upgradient of the 500 ppb hot spot and the groundwater extraction system. There is no potential for DCE or VC to migrate from the site because it will be captured and treated in the downgradient extraction system. Each vegetable oil injection will dissolve over a two- to three-year period creating continuous biological reduction of VOCs downgradient of the injection points. The combination of upgradient organic injections and downgradient extraction will create an in situ bioreactor within the 500 ppb hot spot. The performance and long-term monitoring requirements will be established during remedial design.

2.2 Building 817/WSA

2.2.1 Site Background

The Building 817/WSA site is located on the north side of the main runway between Building 817 and the culverted section of Six Mile Creek south of the former WSA. Building 817 was once used for electronics parts maintenance, and TCE and perchloroethene (PCE) were solvents used in small quantities at this location. The contaminants exceeding NYSDEC Class GA Groundwater Standards are TCE and PCE. In September 2004, the maximum TCE concentration was 90 ppb and the maximum PCE concentration was 72 ppb. Site groundwater flows south toward the culverted section of Six Mile Creek. The contaminated aquifer is composed of relatively uniform fine sands that begin 5 feet BGS and extend to shale bedrock at approximately 20 to 25 feet bgs. Contamination is not found in the bedrock. Groundwater velocities at this site have been estimated as high as 110 feet per year. In September 2004, a TCE concentration of 90 ppb was detected in downgradient well WSAVMW-17. Although there is no indication that the plume has migrated to Six Mile Creek, the level of contamination at WSAVMW-17 does indicate the potential for additional migration. Figure 2 (Appendix A) illustrates the September 2004 total volatile organic levels in groundwater. The TCE/PCE plume

does not contain other petroleum-based organics to stimulate reductive dechlorination. There is no significant cis-1,2-DCE in the plume.

2.2.2 Proposed Remedial Design Summary

The groundwater remediation approach proposed for this site is enhanced reductive dechlorination. In the unlikely event that DCE or VC migration is observed, an air sparging system will be installed upgradient of 6-mile creek. Enhanced reductive dechlorination will be accomplished with one injection of a vegetable oil/lactate emulsion in several rows/direct push injection points located in the suspected source area north of Perimeter Road as well as another row/points for the plume south of Perimeter Road if necessary. Unlike the short reaction time of oxidation injections, which only impact the contaminants within a few feet of the injection points, vegetable oil has the advantage of a delayed breakdown over a two- to three-year period creating long-term biological reduction of VOCs downgradient of the injection points. Given the relatively low concentrations of TCE and PCE in this plume, reductive dechlorination can be expected in two to three years. The second step of groundwater treatment will include a 150-foot line of air sparging wells constructed downgradient of well WSA-MW17, if needed. The purpose of this contingency sparging wall will be to remove any residual daughter products such as cis-1,2 DCE and/or VC from the aquifer through volatilization. The performance and long-term monitoring requirements will be established during remedial design.

2.3 AOC 9

2.3.1 Site Background

AOC 9 is a grass-covered area located on the north side of the main runway between the former WSA and Six Mile Creek. From 1943 to 1957, this area was used as a base landfill. Much of the landfill material was removed from the area in the 1950s as the WSA was constructed. The primary contaminant exceeding NYSDEC Class GA Groundwater Standards at this site is chlorobenzene (CB), with 1,2-dichlorbenzene, 1,4-dichlorobenzene, PCE, TCE, DCE and VC also exceeding Class GA Groundwater Standards by at least one order of magnitude.

The presence of cis-1,2 DCE and VC at increasing concentrations in the downgradient portion of the plume indicates that some reductive dechlorination of PCE and/or TCE is occurring. In September 2004, the maximum CB concentration of 1,320 ppb was recorded in Geoprobe Well GP44S2, which is located approximately 100 feet north of Perimeter Road. The source of VOC contamination remains unknown. Contaminated groundwater at the site flows southwest from the corner of the WSA toward an open section of Six Mile Creek. Based on groundwater monitoring wells installed on either side of Six Mile Creek, some of the CB contaminated groundwater is discharging to the creek and has also migrated beneath the creek. Because CB is highly soluble and mobile in groundwater, this compound is the most widespread contaminant at the site. Figure 3 (Appendix A) illustrates the September 2004 total VOC levels in groundwater.

The contaminated aquifer north of Perimeter Road is composed of silty-fine sands and coarse sands with discontinuous gravel seams. North of Perimeter Road, the aquifer is found in an interval from 10-25 feet BGS. South of Perimeter Road there is less overburden and the aquifer extends from one to 18 feet BGS. Shale bedrock underlies the aquifer, but contamination has not been detected in the bedrock. Groundwater velocities at this site have been estimated at 3,000 to 5,100 feet per year. Although the source of CB contamination at this site has never been identified, it is likely that a source exists in the unsaturated and/or saturated zone north of Perimeter Road. This would explain why CB concentrations remain above 1,000 ppb in an aquifer that is flowing so rapidly through sands and gravels.

2.3.2 Proposed Remedial Design Summary

As described in the Final FS (E & E, 2004), in-situ chemical oxidation using Fenton's Reageant will be used to treat the groundwater plume at this site. Approximately 350 injection points and two injections will be advanced at this site within the current 100 ppb chlorobenzene plume. The injections will be spaced appropriately to allow for refocusing of injections in remaining hot spots. The performance and long-term monitoring requirements will be established during remedial design.

2.4 Building 775/Pumphouse 3

2.4.1 Site Background

The Building 775 plume is located downgradient to the south of former maintenance facilities in Building 774 and 776, and former fuel pump house Building 775. Although the source has not been identified, solvent use in Building 775 was thought to be a primary source of TCE contamination. Solvent use was widespread in these facilities in the 1950s, 1960s and early 1970s. Figure 4 (Appendix A) illustrates the extent of VOC contamination downgradient of this maintenance area. The primary contaminant exceeding NYSDEC Class GA Groundwater Standards is TCE with minor detections of 1,1,1-trichloroethane (TCA) and PCE. Monitoring well 775VMW-5, located near the corner of Building 776, is the only well in the maintenance area that contains significant levels of TCE (99 ppb in September 2004). Most of the Building 775 plume appears to have migrated south toward Landfill 6. In September 2004, the maximum TCE concentration was 134 ppb (detected at well 775MW-20, located near the leading edge of the plume near Perimeter Road). TCE was detected at 132 ppb in well 775VMW-10, which is also located near the leading edge of the plume near Perimeter Road. TCE in both of these wells was detected in the bottom half of the sandy aquifer in screened intervals from 88 to 120 feet BGS. Nearby well LF6MW-1 is screened in the upper 10 feet of the aquifer and does not have detectable concentrations of TCE. Based on the current TCE distribution, it appears that the TCE was likely spilled in the upgradient maintenance area and has migrated southward and downward in the aquifer.

The contaminated aquifer is comprised of silty sands with an average thickness extending from 60 feet bgs to 120 feet bgs where shale bedrock is encountered. Due to a relatively flat gradient, average groundwater velocities at this site are slow and have been estimated at approximately 10 feet per year. Higher velocities may exist in discontinuous seams of coarse sand and gravel. Contamination is not found in the bedrock. Groundwater studies at nearby Landfill 6 TCE site found relatively aerobic conditions and low dissolved organic carbon concentrations. The general absence of cis-1,2 DCE in the Building 775 plume confirms that reductive dechlorination is not occurring.

2.4.2 Proposed Remedial Design Summary

The proposed remedy at this site will include a system of five extraction wells. Two wells will be located near Perimeter Road and screened from 80 feet bgs to bedrock to collect and treat the TCE-contaminated water in the lower portion of the aquifer. The three wells located up the centerline of the plume will be screened from approximately 60 to 100 feet bgs to collect TCE from the upper and central depths of the plume. This configuration would maximize TCE mass removal from the 50 ppb core of the plume. An extraction rate of 6 gpm per well is proposed, for a total of 30 gpm. Extracted groundwater from nearby Landfill 6 will be combined with flows from this site at a nearby centrally located treatment building. The performance and long-term monitoring requirements will be established during remedial design.

2.5 Apron 2 Chlorinated Plume Site

2.5.1 Site Background

The chlorinated VOC contamination in the Apron 2 area is present as a plume approximately 2,800 feet long and 500 feet wide and appears to originate in the area of the nosedock wash water system near Building 786 (see Figure 5, Appendix A). Chlorinated solvent use probably occurred in all nosedock facilities and multiple small sources could exist along floor drains, sewer lines, and oil water separators. There are three primary contaminants exceeding NYSDEC Class GA Groundwater Standards: TCE, and its breakdown products cis-1,2 DCE and VC. The plume is commingled with several petroleum fuel plumes originating from the Apron 2 fueling system. At locations where TCE and fuel contaminants are commingled, significant reductive dechlorination is occurring and TCE is almost totally degraded to cis-1,2 DCE and VC. In April 2005, the maximum TCE concentration was 24 ppb as detected in well 782VMW-97. The level of TCE has been steadily decreasing and it appears that no significant source of TCE remains at the site. In April 2005, the maximum cis-1,2 DCE concentration was 54 ppb in well 782MW-10, located in the plume in an area with commingled fuel contamination. The maximum VC concentration was 130 ppb at well 782MW-96 which is also located in the center of fuel-contaminated groundwater. The commingled fuel plume is providing significant reductions in TCE and cis-1,2 DCE through well-documented reductive dechlorination processes. At many locations, MTBE and benzene are also present at levels exceeding NYSDEC Class GA

Groundwater Standards. MTBE and benzene plumes are being remediated under a separate contract.

The contaminated aquifer is located at 9 to 25 feet bgs with the shallow depth occurring in the vicinity of Six Mile Creek. The aquifer is composed of several well-defined layers, including a silty-sand layer in the upper 5 feet, a 5 to 15 feet thick coarse sand and gravel layer in the middle of the aquifer, and a 15 to 20 feet thick layer of till composed of fine sand, silt, and gravel resting on the shale bedrock. The total aquifer thickness ranges from 45 feet in the source areas to less than 20 feet in the downgradient areas near Six Mile Creek. Although the site has a relatively flat gradient, the high hydraulic conductivity of gravel layers has produced an estimated average groundwater velocity of 106 feet per year. This velocity seems reasonable given the 2,800 feet the VOC plume has migrated. Monitored Natural Attenuation (MNA) is recommended based on the reductive dechlorination occurring at the site. Aerobic degradation of VC is occurring near the leading edge of the plume; however, VC in the southern plume has migrated eastward to well 782MW-101 within 100 feet of Six Mile Creek. A contingency air sparging wall is planned to address the possibility of VC detections in the Creek.

2.5.2 Proposed Remedial Design Summary

The proposed remedy at the site is MNA, with a contingency plan to install a 250-foot wide air sparging barrier upgradient of Six Mile Creek if VC is detected above 2 ppb in the Creek. The aquifer at this location has a thick gravel layer that can be easily sparged to remove the VC approaching Six Mile Creek. During the first year, wells will be monitored quarterly for VOCs, Dissolved Organic Carbon (DOC), and geochemical parameters to assess MNA progress and biochemical conditions. The performance and long-term monitoring requirements will be established during remedial design.

3.0 PROPOSED SAMPLING ACTIVITY

The objective of the baseline monitoring is to collect groundwater data that is to be used in conjunction with the predesign investigation (PDI) results and the injection sampling results to establish baseline conditions at each of the sites prior to initiation of remedial design activity. Tables 1 through 5 summarize the complete sampling network at each site, respectively, for Landfill 6 TCE, Building 817/WSA, AOC 9, Building 775/Pumphouse 3, and the Apron 2 Chlorinated Plume Site. Figures 1 through 5 (see Appendix A) show all proposed sampling locations at each corresponding site.

The sampling event shall include the collection of groundwater samples from existing wells, and three new additional wells at the Apron 2 Chlorinated Plume Site: 782VMW-84D, 782VMW-121, and 782VMW-121D. The three new wells shall be installed in accordance with the procedures described in Section 5.5 of the Basewide FSP (FPM, 2005).

The scope of work for the baseline monitoring event was derived from several documents:

- The AOC9 sampling network was derived from the Final FS for AOC9: Weapons Storage Area (WSA) Landfill (E&E, October 2004). Several existing monitoring wells were not included because of their unfavorable location or screen interval with respect to the groundwater contamination. The network was revised to include several additional monitoring wells (AOC9MW-14 through -17; one well in the potential source area and three wells in the downgradient portion of the plume south of Perimeter Road) to more accurate track within plume conditions (Figure 3, Appendix A);
- The Building 817/WSA sampling network was derived from the Final FS (E&E, April 2005) and the Final FS Addendums/Supplement, (E&E, September 2006). The network was optimized by deleting some of the existing monitoring wells whose well screen was not in the appropriate groundwater zone or whose location would not yield significant data. Four additional monitoring wells (WSAMW-18, -19, -21, and -23) were installed at location that would provide significant information during sampling and which were screened at the proper interval to intercept COCs (Figure 2, Appendix A);
- The Building 775 (Pumphouse 3) sampling network was derived from the Final FS (E&E, April 2005) and the Final FS Addendums/Supplement (E&E, September 2006). Several existing monitoring wells are not part of the sampling network due to their location with respect to the groundwater contamination or their screen not being installed at the appropriate interval. Two additional monitoring wells (775MW-27 and -28) were installed at more favorable locations and screen intervals (Figure 4, Appendix A),
- The Landfill 6 TCE sampling network was derived from the Final FS (E&E, April 2005) and the Final FS Addendums/Supplement (E&E, September 2006). Several existing monitoring and injection wells are not part of the sampling network due to their location or screen interval with respect to the groundwater contamination or because they are already part of the Landfill 6 (Part 360) LTM monitoring network. Six additional monitoring wells (LF6MW-27 though -32) were installed at more favorable locations and screen intervals (Figure 4, Appendix A),
- The Apron 2 sampling network was derived from the Final Groundwater FS, Apron 2 Chlorinated Plume (E&E, August 2006). The network was expanded after EPA comments suggested installation of additional monitoring wells with deeper interval well screen to monitor any vertical plume migration. Three additional monitoring wells (one shallower well (782VMW-121) and two deeper screen interval wells (782VMW-84D and -121D) will be installed and monitored (Figure 5, Appendix A)

All groundwater samples shall be collected using bladder pumps and the low-flow sampling procedure described in Section 6.1.1.1.2 in the Basewide FSP. All sampling field procedures (well installation at Apron 2 and sampling at all five sites) shall be performed in accordance with EPA-recommended practices and the Basewide FSP (FPM, 2005). All data obtained from the sampling event will be reviewed and evaluated in accordance with the Basewide QAPP based on the AFCEE QAPP (Version 4.0) (FPM, 2006), with AFCEE- and USACE-approved variances, and the AFCEE QAPP 4.0 qualifiers will apply. The QAPP together with the FSP form the Sampling and Analysis Plan (SAP).

The Health and Safety Plan associated with the Basewide FSP (FPM, 2003) will be operational in conjunction with this Work Plan.

4.0 REPORTING REQUIREMENTS

The results of the groundwater sampling shall be summarized in a Baseline Monitoring report. The report will document field activities, illustrate sampling locations on figures, and summarize the results in tabular and spatial formats. All data will be validated according to the AFCEE QAPP 4.0 and only validated data will be reported in the tables. Validation reports and validated lab data will be added to the report in an appendix. All raw lab data will also be provided in an appendix. All validation reports will be summarized in a separate quality control summary report (QCSR).

During sampling, daily chemical quality control reports (CQCRs) will be prepared to log all daily activities and to provide a record of any deviations from the approved SAP. These CQCRs will contain all field sampling forms, calibration data, signed COCs, and the daily health and safety meeting form. The CQCRs will be added to the Baseline Monitoring report in an appendix.

Data shall be compared to NYSDEC Groundwater Standards and Surface Water Standards, as applicable.

Table 1
Landfill 6 TCE Baseline Sample Analysis Summary

Sampling Locations	Screen Interval Depth (ft MSL)	Sampling Rationale	Target Analytes/ EPA Method Numbers	# of Samples[1]
LF6MW-16	408.41 - 418.41	Within 50 ppb contour	• VOCs – SW8260B • Sulfate – SW9056 • DOC – E415.1 • Methane/Ethane/ Ethene – RSK-175 • Field Parameters – ORP, Oxygen, pH	6
LF6IW-02	400.45 - 410.45	Within 50 ppb contour		
LF6VMW-13R	416.12 - 436.12	Downgradient extent		
LF6VMW-13RD[2]	413.41 - 433.41	Potential vertical migration		
LF6VMW-14	412.87 - 432.87	Downgradient extent		
LF6VMW-15R	426.61 - 436.61	Downgradient extent		
LF6VMW-26	45 – 55[3]	Within 50 ppb contour		
LF6MW-27[2]	400.48 - 420.48	Within 50 ppb contour		
LF6MW-28[2]	410.78 - 430.78	Within 50 ppb contour		
LF6MW-29[2]	431.54 - 451.54	Within 50 ppb contour		
LF6MW-30[2]	416.04 - 436.04	Within 50 ppb contour		
LF6MW-31[2]	400.17 - 420.17	Within 50 ppb contour		
LF6-MW-32[2]	420.06 - 440.06	Within 50 ppb contour		

Notes:
1 Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.
2 New monitoring well to be installed and sampled by EEEPC.
3 In ft below ground surface (bgs); well not yet surveyed.
N/A = Not available.

Table 2
Building 817/WSA Baseline Sample Analysis Summary

Sampling Locations	Screen Interval Depth (ft MSL)	Sampling Rationale	Target Analytes/ EPA Method Numbers	# of Samples[1]
LAWMW-9	490.84 - 500.84	Crossgradient	• VOCs – SW8260B • Sulfate – SW9056 • DOC – E415.1 • Methane/Ethane/ Ethene – RSK-175 • Field Parameters – ORP, Oxygen, pH	5
WSA-MW8	506.37 - 516.37	Upgradient		
WSA-MW9	474.6 - 479.6	Downgradient		
WSA-MW16	491.86 – 501.86	Within 100 ppb contour		
WSA-VMW17	16.2 – 26.2[3]	Within 100 ppb contour		
WSA-MW18[2]	500.89 - 505.89	Between B817 and Perimeter Road		
WSA-MW19[2]	495.07 - 500.07	Between MW-17 and VMW-17		
WSA-MW21[2]	486.68 - 496.68	Downgradient, within plume		
WSA-MW23[2]	494.92 - 504.92	Cross-gradient, outside plume boundary		

Notes:
1 Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.
2 New monitoring well to be installed and sampled by EEEPC.
3 In ft below ground surface (bgs); well not yet surveyed.
N/A = Not available.

Table 3
AOC 9 Baseline Sample Analysis Summary

Sampling Locations	Screen Interval Depth (ft MSL)	Sampling Rationale	Target Analytes/ EPA Method Numbers	# of Samples[1]
Wells				
G009-MW02	485.54 – 490.54	Downgradient	• VOCs – SW8260B • Nitrate – E353.2 • Chloride, Sulfate – SW9056 • DOC – E415.1 • Total Alkalinity – E310.1 • Field Measurements – Ferrous iron • Field Parameters – ORP, Oxygen, pH	10
G009-MW03	476.1 – 481.1	Downgradient, within 100 ppb contour		
G009-MW04	474.97 – 479.97	Downgradient, within 100 ppb contour		
AOC9-MW05	468.72 – 478.72	Downgradient		
AOC9-MW07	473.55 – 478.55	Downgradient, within 600 ppb contour		
AOC9-MW08	478.07 – 483.47	Within 600 ppb contour, hot spot		
AOC9-MW12	489.09 – 499.09	Within 600 ppb contour		
AOC9-MW14[2]	496.86 - 506.86	Within 100 ppb contour, upgradient		
AOC9-MW15[2]	487.99 - 492.99	Within 600 ppb contour		
AOC9-MW16[2]	484.79 - 489.79	Within 100 ppb contour		
AOC9-MW17[2]	475.44 - 480.44	Within 600 ppb contour, downgradient		
Surface Water	_____	_____	_____ • VOCs – SW8260B	
AOC9-SW1PM	--	Upgradient of plume in SMC		
AOC9-SW2PM	--	At location where plume meets SMC		
AOC9-SW3PM	--	Downgradient of plume in SMC		

Notes:
1 Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.
2 New monitoring well to be installed and sampled by EEEPC.
N/A = Not available.

Table 4
Building 775/Pumphouse 3 Baseline Sample Analysis Summary

Sampling Locations	Screen Interval Depth (ft MSL)	Sampling Rationale	Target Analytes/ EPA Method Numbers	# of Samples[1]
775MW-2	447.64 – 457.64	Upgradient	• VOCs – 8260B	8
775VMW-5	442.94 – 452.94	Within 50 ppb contour		
775MW-6	439.18 – 449.18	Within 50 ppb contour		
775VMW-8	439.29 – 449.29	Within 50 ppb contour		
775VMW-9	412.92 – 427.92	Downgradient		
775VMW-10	412.14 – 427.14	Within 50 ppb contour		
775MW-20	398.33 – 408.33	Within 500 ppb contour		
775VMW-20R	403.85 – 413.85	Downgradient		
775MW-27[2]	435.19 - 455.19	Within 50 ppb contour		
775MW-28[2]	426.68 - 446.68	Within 50 ppb contour		

Notes:
1 Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.
2 New monitoring well to be installed and sampled by EEEPC.
N/A = Not available.

Table 5
Apron 2 Chlorinated Plume Site Baseline Sample Analysis Summary

Sampling Locations	Screen Interval Depth (ft MSL)	Sampling Rationale	Target Analytes/ EPA Method Numbers	# of Samples[1]
Wells				
782VMW-76	444.86 – 434.86	Downgradient within plume	• VOCs – 8260B	16
782VMW-78	446.26 – 436.26	Downgradient within plume		
782VMW-81	437.71 – 427.71	Downgradient within plume (source area)	Natural Attenuation Parameters:	
782VMW-84	441.9 – 431.9	Downgradient within plume	• Nitrate – E353.2	
782VMW-84D[2]	430 - 420	Potential vertical migration of plume	• Chloride, Sulfate – SW9056	
782VMW-93	447.79 – 437.79	Downgradient within plume	• DOC – E415.1	
782VMW-96	444.13 – 434.13	Downgradient within plume	• Total Alkalinity – E310.1	
782VMW-98	452.06 – 442.06	Upgradient (source area)	• Field Measurements – Ferrous iron	
782VMW-101	444.11 – 429.11	Downgradient within plume		
782VMW-105B	450.37 – 435.37	Within plume (source area)		
782MW-10	458.79 – 443.79	Downgradient within plume		
782VMW-121[2]	440 - 430	Downgradient		
782VMW-121D[2]	430 - 420	Potential vertical migration of plume		
Surface Water	_____	_____	_____	
782SW-115	--	Potential contaminant receptor	• VOCs – SW8260B	
782SW-118	--	Potential contaminant receptor		
782SW-119	--	Potential contaminant receptor		

Notes:
1. Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.
2. New monitoring well to be installed; well screen interval is an approximation based on nearby wells.
3. N/A = Not available.

5.0 REFERENCES

Ecology and Environment, Inc. (E & E), Final Feasibility Study Addendums/Supplement, Former Griffiss Air Force Base, Rome, New York, September 2006.

Ecology and Environment, Inc. (E & E), Final Feasibility Study Report for AOC 9: Weapons Storage Area (WSA) Landfill, Former Griffiss Air Force Base, Rome, New York, October 2004.

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Ecology and Environment, Inc. (E & E), Final Groundwater Feasibility Study, Nosedocks/Apron 2 Chlorinated Plume, Former Griffiss Air Force Base, Rome, New York, E&E, August 2006.

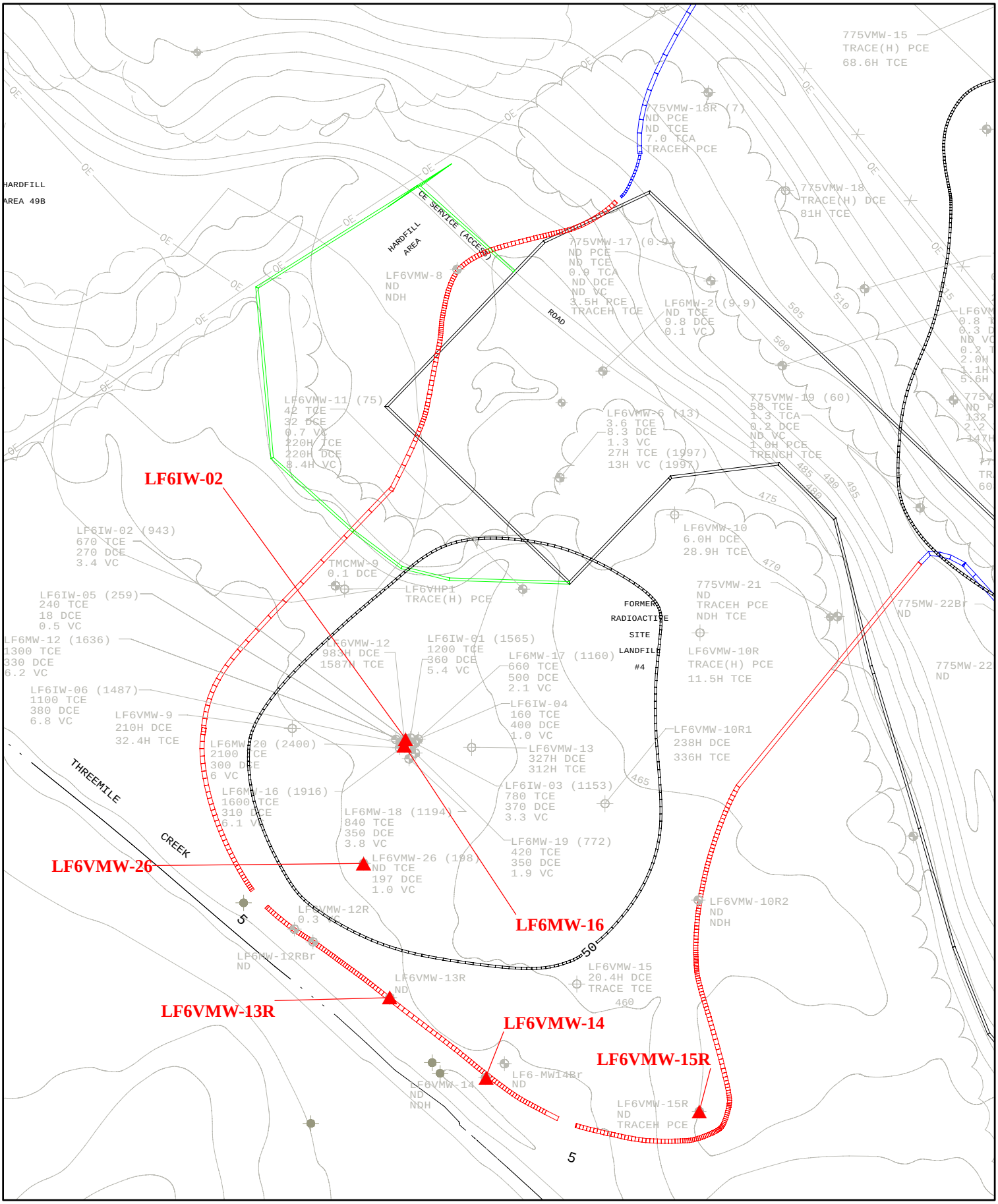
Ecology and Environment, Inc. (E & E), Final Work Plan for Predesign Investigations at Landfill 6 TCE, Building 817/WSA, Building 775, and AOC 9, Former Griffiss Air Force Base, Rome, New York, Contract No. W912DQ-06-D-0012, July 2006.

FPM Group, Ltd., Draft Quality Assurance Project Plan (QAPP) for Long Term Monitoring Program, Griffiss Air Force Base, October 2006.

FPM Group, Ltd., Draft Site Safety and Health Plan, Long-Term Monitoring Program, Former Griffiss Air Force Base, Revision 0.0, June 2003.

FPM Group, Ltd., Field Sampling Plan for Long Term Monitoring Program, Griffiss Air Force Base, Revision 3.0, March 2005.

APPENDIX A
FIGURES 1 through 5



LEGEND FEATURES

- BASELINE MONITORING WELL
- TOTAL VOC PLUME (ug/L)

N

0 75 150

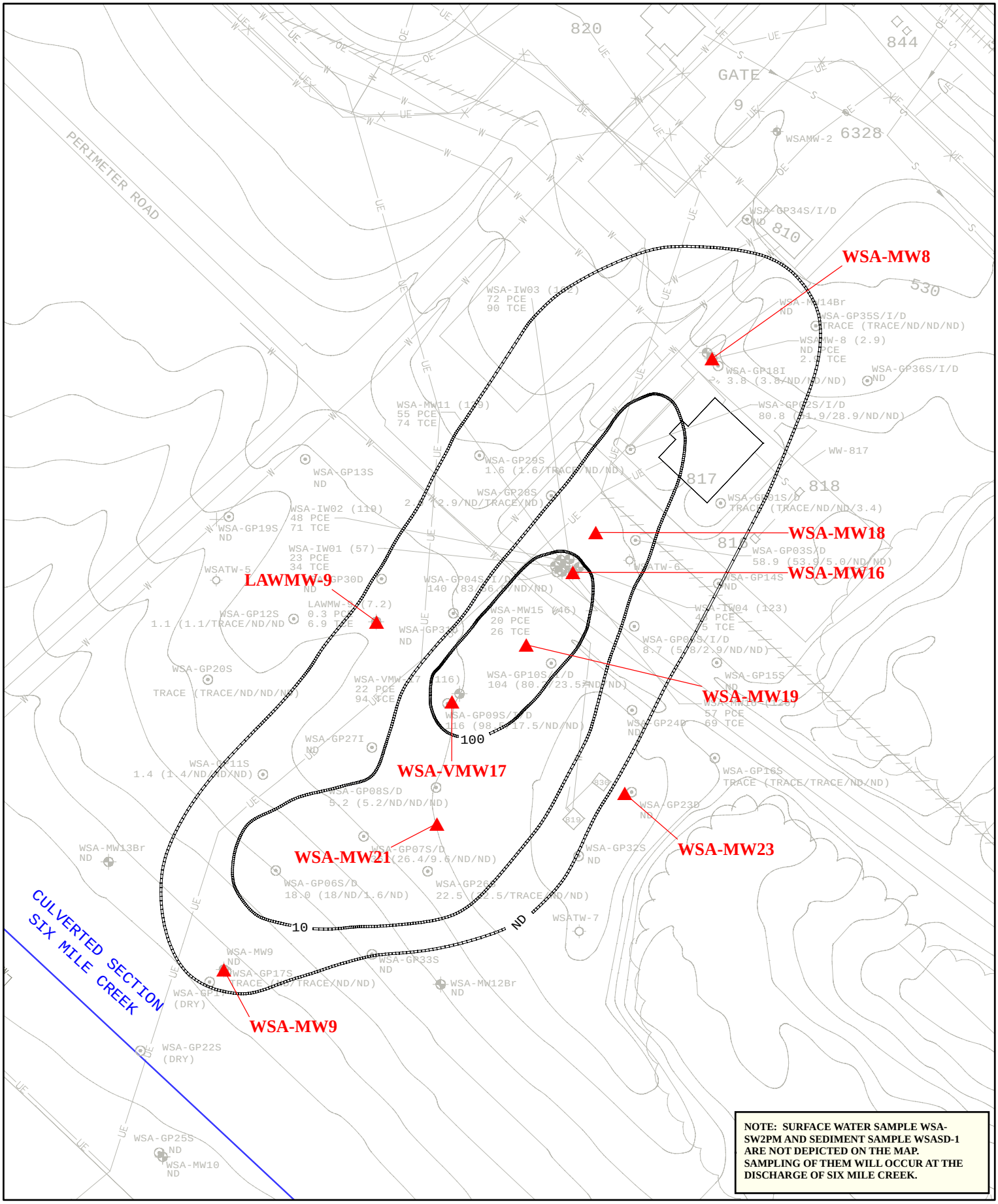
Feet

Figure 1: Landfill 6 TCE

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group

Date: 10/03/2006



LEGEND FEATURES

- BASELINE MONITORING WELL
- TOTAL VOC PLUME (ug/L)

N

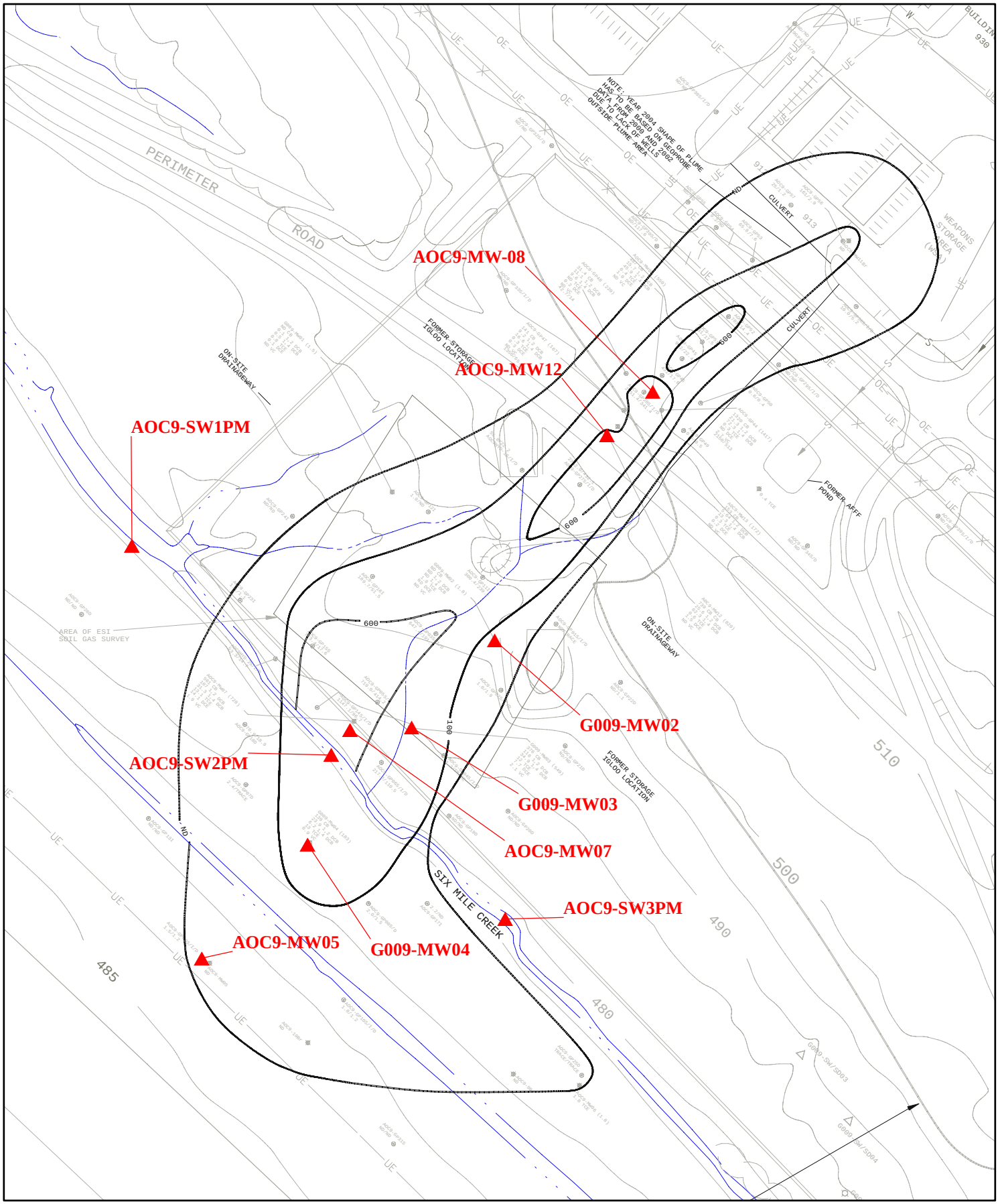
0 85 170 Feet

Figure 2: Building 817 / WSA

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group

Date: 11/02/2006



LEGEND FEATURES

- ▲ BASELINE MONITORING WELL
- — TOTAL VOC PLUME (ug/L)

N

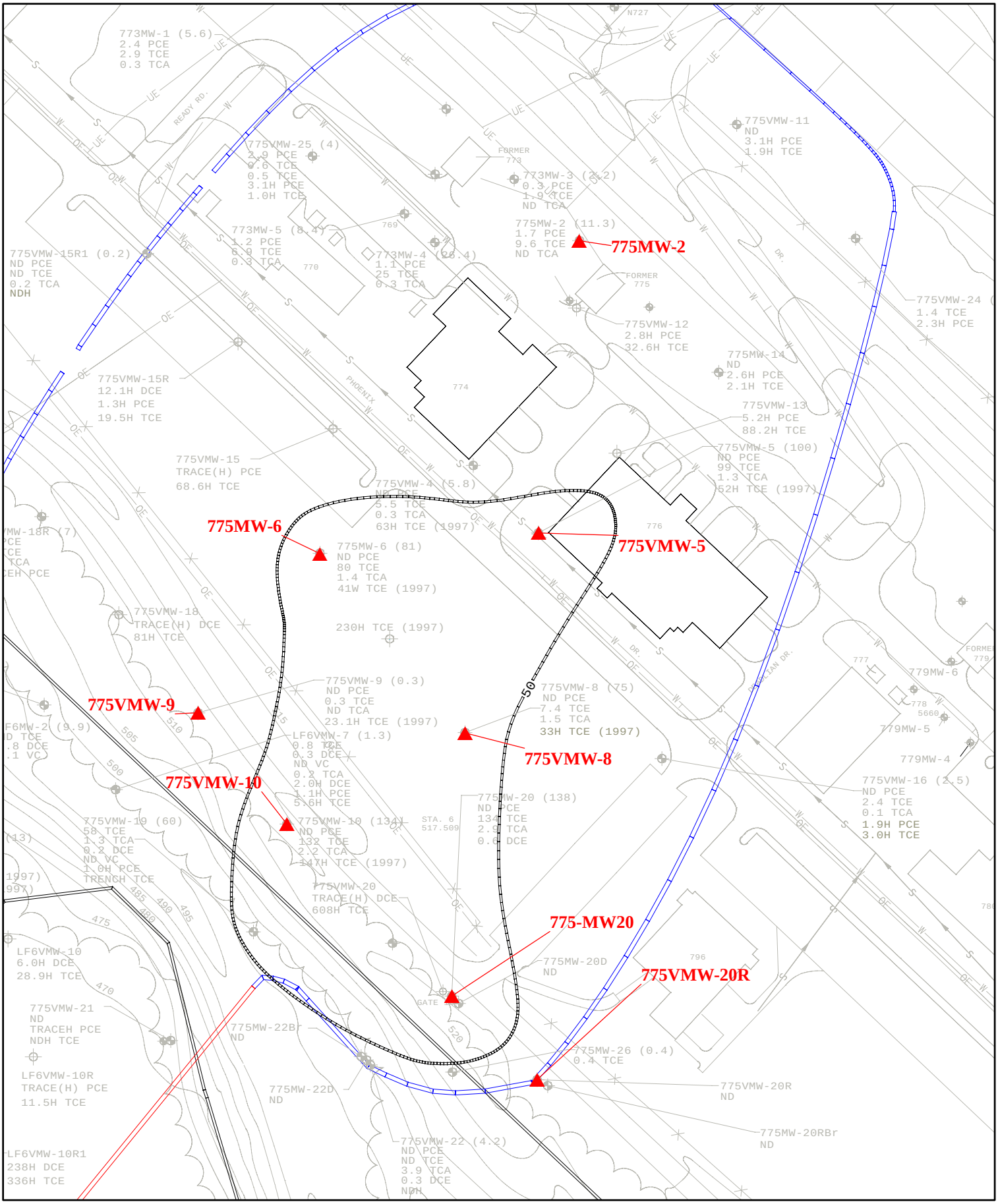
0 75 150 Feet

Figure 3: AOC 9

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group

Date: 10/03/2006



LEGEND FEATURES

- ▲ BASELINE MONITORING WELL
- — TOTAL VOC PLUME (ug/L)

N

0 75 150

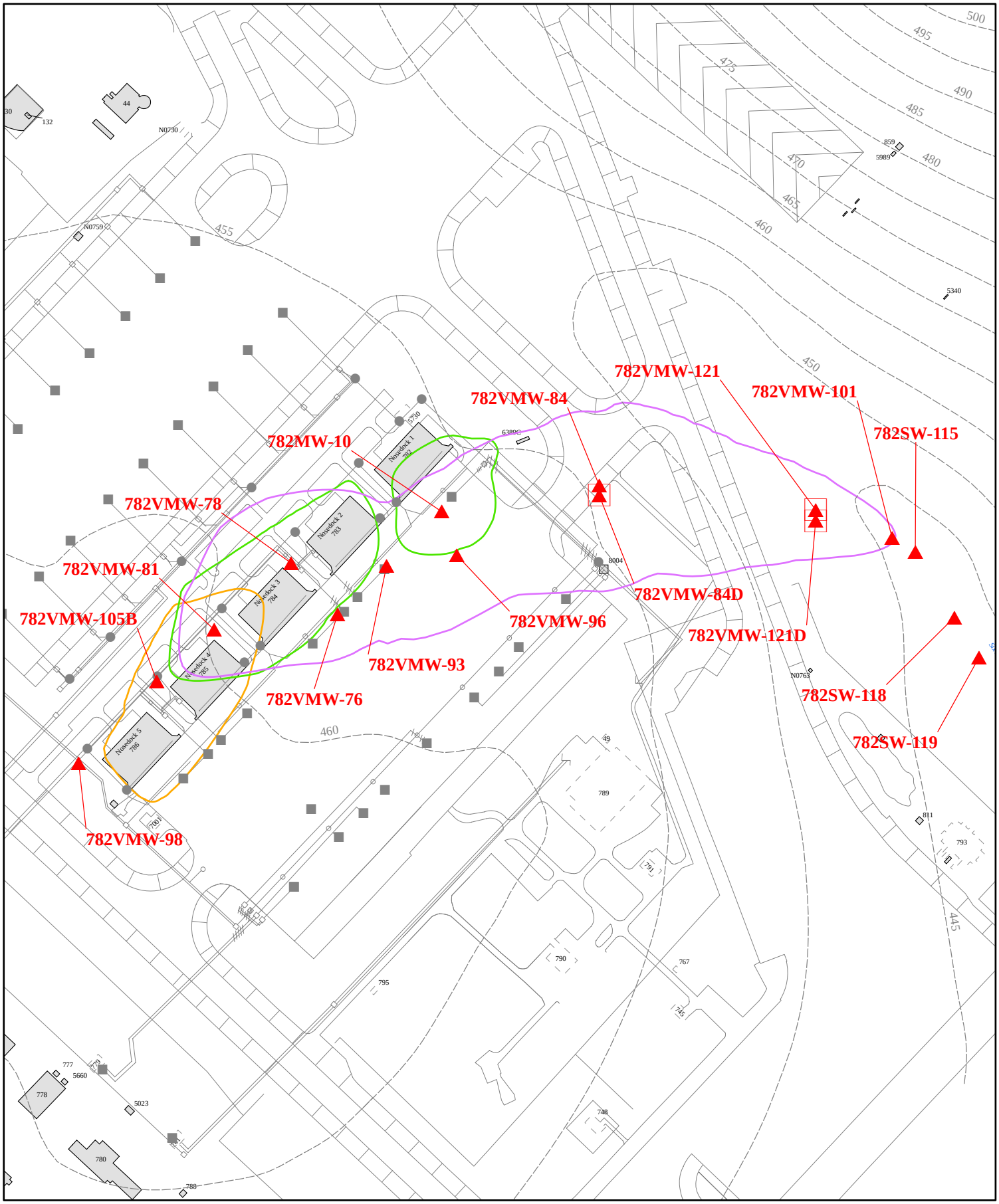
Feet

Figure 4: Building 775

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group

Date: 10/03/2006



LEGEND FEATURES

- NEW MONITORING WELL
- BASELINE MONITORING WELL
- TCE Contamination 5 µg/L
- VC Contamination 2 µg/L
- DCE Contamination 5 µg/L

N

0 100 200 400 Feet

Figure 5: Nosedocks/Apron 2

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group

Date: 10/03/2006