COMPLIANCE STATUS REPORT

Southern Metal Finishing Company, LLC
1575 Huber Street, Atlanta, Fulton County, Georgia
HSI Number: 10689
Tax Parcel No. 17-0187-LL-059-6

Prepared for:
Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

Presented to:
Georgia Environmental Protection Division
Land Protection Branch
2 Martin Luther King Drive, S.E.
Suite 1154 East
Atlanta, Georgia 30334-9000

Prepared by:
AMEC Environment & Infrastructure, Inc.
1075 Big Shanty Road NW, Suite 100
Kennesaw, Georgia 30144

December 2014
AMEC Project No 6122130015

December 17, 2014

Mr. Larry Kloet
Georgia Environmental Protection Division
Land Protection Branch
2 Martin Luther King Drive, S.E.
Suite 1154 East
Atlanta, Georgia 30334-9000

Subject: **Compliance Status Report**
Southern Metal Finishing Company, LLC
1575 Huber Street, Atlanta, Fulton County, Georgia
HSI Number: 10689
Tax Parcel No. 17-0187-LL-059-6

Dear Mr. Kloet:

On behalf of Southern Metal Finishing Company LLC, as owner of the 1575 Huber Street property in Atlanta, Fulton County, Georgia, AMEC Environment & Infrastructure, Inc., respectfully submits this Compliance Status Report (CSR). The Southern Metal Finishing Site was accepted into the Georgia Voluntary Remediation Program (VRP) via a letter issued by EPD dated December 5, 2013. This CSR summarizes the existing soil and groundwater conditions at the 1575 Huber Street property as required by the approved Corrective Action Plan (CAP).

Based on the results of testing and observations during remediation efforts, the site is in compliance with applicable Risk Reduction Standards for soil and groundwater.

Please contact the undersigned if further information or clarification is necessary.

Sincerely,
AMEC Environment & Infrastructure, Inc.

Andrew Smits, P.G
Senior Geologist

Jerry Gaccetta, P.G
Project Manager

cc: James McClatchy, Southern Metal Finishing
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CERTIFICATION STATEMENT

I certify under penalty of law that this report and all attachments were prepared under my direction and in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the penalty of fine and imprisonment for knowing violations.

Based on my review of the findings of this report with respect to the risk reduction standards pursuant to the Voluntary Remediation Program ("VRP"), I have determined that the 1575 Huber Street site is in compliance with Type 1 Risk Reduction Standards for soil and Type 1 Risk Reduction Standards for groundwater.

James N McClatchey
Name

Title MANAGER

GROUNDWATER SCIENTIST STATEMENT

I certify that I am a qualified groundwater scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences of engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared in conjunction with others working under my direction.

12/17/14

Mr. Andrew Smits, P.G.
Georgia Registration No. 1874

ANDREW D. SMITS
No. 1874

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ACRONYMS

AMEC	AMEC Environment & Infrastructure, Inc.
ASI	Analytical Services, Inc.
BDCM	Bromodichloromethane
CAP	Corrective Action Plan
CE	Chlorinated Ethenes
CFS	Cubic Feet per Second
COC(s)	Constituents of Concern
CSR	Compliance Status Report
CVOCs	Chlorinated Volatile Organic Compounds
1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-Dichloroethene
1,2-DCA	1,2-Dichloroethane
DCE	Dichloroethene
EPD	(Georgia) Environmental Protection Division
Ft	Feet
Ft bgs	Feet below ground surface
GA	Georgia
GCAL	Gulf Coast Analytical Laboratories
HSA	Hollow Stem Auger
HSI	Hazardous Site Inventory
IDW	Investigation Derived Waste
ISCO	In-situ Chemical Oxidation
ISWQS	In-Stream Water Quality Standards
MDL	Method Detection Limit
mg/Kg	milligrams per kilogram (equivalent to ppm)
mg/L	milligrams per liter (equivalent to ppm)
MNA	Monitored Natural Attenuation
msl	Mean Sea Level
MS/MSD	Matrix Spike/Matric Spike Duplicate
NOD	Notice of Deficiency
OVM	Organic Vapor Meter
PCE	Tetrachloroethene
PID	Photoionization Detector
ppb	Parts per billion
ppm	Parts per million
PQL	Practical Quantitation Limit
PWR	Partially Weathered Rock
QA/QC	Quality Assurance/Quality Control
REA	Real Estate Advisory
RRS	Risk Reduction Standard
SDG	Sample Delivery Group
SESD	Science and Ecosystem Support Division
S&ME	Soil & Material Engineering
SMF	Southern Metal Finishing
Sq-ft	square feet
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
ug/L	Micrograms per Liter (equivalent to ppb)
ug/kg	Micrograms per kilogram (equivalent to ppb)

USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound
VRP	Voluntary Remediation Program
PVC	Polyvinylchloride
POD	Point of Demonstration

1.0 INTRODUCTION

Southern Metal Finishing Company, LLC ("SMF"), submitted a Voluntary Remediation Program (VRP) application to the Georgia Environmental Protection Division (EPD) in November 2011 for property located at 1575 Huber Street in Atlanta, Fulton County, Georgia (the "VRP Property"). The VRP Property was accepted into the VRP in December 2013. Southern Metal Finishing is submitting this Compliance Status Report (CSR) in response to acceptance of the site into VRP.

1.1 Current Site Description

The VRP property VRP Property consists of one parcel of land totaling 0.9504 acres at a latitude coordinate of 33°47' 51.83" North and a longitude coordinate of 84° 25' 24.99" West at an approximate elevation of 900 feet mean sea level (ft-msl). The tax parcel for SMF is identified in the Fulton County Tax Assessor Records as No. 17-0187-LL-059-6. The Plat and legal description are provided in Appendix A. A location map for the VRP Property is included as Figure 1.

Improvements to the VRP Property consist of an approximate 10,000 square foot (sq ft) shipping/receiving building. The shipping and receiving building was constructed circa 1948 and purchased by SMF in approximately 1965 from DuPont, which reportedly used it to warehouse agricultural chemical products. The majority of the property is paved, however the area south and west of the shipping/receiving building are grassed or wooded. A depiction of the VRP Property Layout is provided as Figure 2.

The VRP Property is currently surrounded by:

- North – Southern Aluminum Finishing
- South – Vacant (Formerly Glidden Paint Facility)
- East - Former Glidden Paint Facility Tank Farm and CSX Transportation Rail Road
- West - Huber Street with the Ellsworth Industrial Facility (former Macy's warehouse) beyond.

1.2 RELATIONSHIP TO WOODALL CREEK HSI SITE

The VRP Property is one parcel within the larger Hazardous Site Inventory (HSI) Woodall Creek Site (HSI Number 10689), which was initially identified for discretionary HSI listing by the Georgia EPD based on surface water concentrations of volatile organic compounds, principally tetrachloroethene [PCE] and trichloroethene [TCE], detected in nearby Woodall Creek. The VRP Property and six other properties were placed on the HSI on February 2, 2001. Figure 3 depicts the properties and site layout of the Woodall Creek Site. The Woodall Creek Site is currently being assessed under an EPD approved Corrective Action Plan (AMEC, December 2013).

Woodall Creek is located approximately 1,500 feet southwest of the SMF facility. The upper reaches of the Woodall Creek watershed, from the head waters near the Atlanta Water Plant to Chattahoochee Avenue, encompass approximately 520 acres. Land use within the watershed is principally industrial. From its' headwater, Woodall Creek flows west to northwest approximately 2.7 miles where it enters into Peachtree Creek which ultimately flows into the Chattahoochee River approximately 3 miles northwest of the site. The majority of Woodall Creek appears to follow a natural course with culverts at several road crossings.

Topography of the area generally slopes from the northeast to the southwest across the Woodall Creek Site with higher elevations occurring near the SMF and AKZO Paint Properties. Elevations range from approximately 900 ft msl at the VRP Property to approximately 820 ft msl at Woodall Creek.

The other properties that comprise the Woodall Creek HSI Site are summarized below.

AKZO Nobel Paints (Former Glidden Paint Facility, Former ICI Paint) - The former Glidden Paint Company facility is located on the southern and eastern boundary of the VRP Property and consists of an abandoned warehouse area, manufacturing area, and former tank farm/drum storage areas. This property comprises an area of approximately 13.6 acres.

Dobbins Mini-Warehouse Property (Former Huber Motor Express, Former Glidden Paint Facility) - The Dobbins Mini-Warehouse property is located on the west side of Huber Street, to the west of the Glidden facility and southwest of the VRP Property. This property, comprising 3.9 acres, was formerly owned and operated by Glidden as a truck terminal and maintenance facility.

Futurex (Ellsworth Realty Property) - The Ellsworth Realty property is an undeveloped, wooded property, approximately 3.6 acres in size and located approximately 400 feet southwest of the VRP Property on the east side of Ellsworth Industrial Drive. The property is adjacent to and directly west of the Dobbins Mini-Warehouse property.

Restaurant Supply Property (JMDH Real Estate) (Former Republic, Former Jodaco, Former Anderson, Former Case-Hoyt Property) - This parcel encompasses approximately 4.8 acres and is located approximately 500 feet southwest of the VRP Property at 1455 Ellsworth Industrial Drive. The Glidden property forms the eastern border of the Restaurant/Supply/ Jodaco/Anderson/Case-Hoyt property, the Dobbins Mini-Warehouse and the Ellsworth Realty property border to the north and Ellsworth Industrial Drive forms the western boundary of the property. The former Jodaco property has now been demolished and redeveloped as a Restaurant Depot. Excavations during the development indicated historical landfill operations in the area. Additionally, visual observations, sample results and strong odors in the excavated area provided evidence of impact from industrial operations. A Brownfields CAP/CSR report has been submitted to the EPD for the property.

Daltile Property (Former Reynolds Metal Property) - This property comprises an area of approximately 5.5 acres and is located on the east side of Ellsworth Industrial Drive, approximately 800 feet southwest of the VRP Property. The former Reynolds Metal property has now been converted into a Daltile, supplier of flooring. The Restaurant Depot Property forms the northern border of the property.

Midtown West Properties, (Former M-West, former Georgia Pacific, Former ABC Supply, BVV, LLC, Property) - The property is located at 1460 Ellsworth Industrial Drive, approximately 1,100 feet southwest of the VRP Property. The property consists of approximately 3.5 acres of land that existing structures were removed and re-graded in 2007. The property is located on the west side of Ellsworth Industrial Drive, southwest of the former Goodstone properties. Prior to Winter and ABC ownership, the property was owned by the Georgia-Pacific Corporation. In late 2005 or 2006 the ABC Supply Co. was acquired by Winter Properties under the Georgia Brownfield program. BVV, LLC (an apparent affiliate of Winter) demolished the existing structures with the intent of pursuing a common scheme of development with the existing M-West condominium project west of Woodall Creek. AMEC understands, however, that this project failed and that a lender, M-West 3Q10 Fund, LLC, managed by Anthem Capital Partners (the “M-West Lender”), acquired the former ABC Property from BVV, LLC by deed in lieu of foreclosure. The M-West Lender apparently caused the portion of the former ABC Property fronting on Ellsworth to be transferred to a new entity M-West Lots, LLC (“M-West Lots”). On May 10, 2012, Midtown West Partners, LLC purchased the Property from M-West Lots.

A seventh property, the former **Goodstone Property**, (Acquired by Midtown West Partners, LLC in 2011) while not part of the Woodall Creek HSI site, has been incorporated into the evaluation as part of the assessment activities. The Goodstone Property(s) is located immediately north of the Midtown West (former ABC Supply) property. Based on the groundwater plume delineation/evaluation activities, the subject properties (i.e., 1494 and 1510 Ellsworth Industrial Boulevard) have been impacted by Constituents of Concern (COCs) from the up-gradient source areas impacting Woodall Creek.

As of October 13, 2014, Midtown West and Goodstone Properties were sold to Stream Ellsworth, LLC. This sale includes the following:

- 1510 Ellsworth Industrial Boulevard (Tax Parcel ID #:17-0191-LL0210)
- 1494 Ellsworth Industrial Boulevard (Tax Parcel ID #: 17-0191-LL0202)
- 1460 Ellsworth Industrial Boulevard (Tax Parcel ID #:17-0191-LL0228 & -LL0426

For the purposes of this CSR, these properties are identified by the prior ownership, i.e., Midtown West and Goodstone.

1.3 PURPOSE

The purpose of this CSR is to document compliance of the VRP Property with applicable Risk Reduction Standards derived according to the VRP.

This CSR was compiled based on environmental conditions that have been documented in a series of investigations, corrective actions, and prescribed environmental monitoring performed at the VRP Property and neighboring Woodall Creek Site during the period between 2000 and 2014. This CSR is intended to demonstrate that environmental conditions currently existing on the VRP Property meet applicable remediation goals, including demonstrating through application of a USEPA-recognized fate-and-transport model that existing conditions on the VRP Property are not now causing, and will not cause or contribute in the future, to detectible concentrations of regulated substances in Woodall Creek. Furthermore, these environmental condition will not result in concentrations above Type 1 Risk Reduction Standards for groundwater at a hypothetical point of exposure 1000 feet down gradient from the delineated site contamination. Further, while not required under the VRP, this CSR is intended to demonstrate based on the model discussed below that groundwater impacts currently beneath the VRP Property are not expected to cause groundwater to exceed Type 1 risk reduction standards at a point of exposure 1000 feet from the VRP Property's boundary.

1.3 REGULATORY HISTORY

According to Soil & Materials Engineering (S&ME) (Site Assessment Report, May 2001), the first notice of a release of regulated substances associated with the VRP Property occurred in 1992, when elevated levels of chlorinated volatile organic compounds (CVOCs) were reported in a monitoring well installed in the Huber Street right-of-way adjacent to the VRP Property. According to the May 19, 1992 report, prepared by Metcalf and Eddy on behalf of Georgia Pacific Corporation, groundwater from this monitoring well contained 4,010 micrograms per liter (ug/l) PCE and 1,690 ug/l TCE. The initial monitoring well was subsequently abandoned and replaced by an adjacent monitoring well MW-14.

Subsequent to that initial assessment, further site investigation activities associated with the VRP Property began in April 2000 when, at EPD's request, SMF conducted an assessment to determine the source and magnitude of PCE and TCE on the VRP Property and surrounding parcels. S&ME completed a Site Assessment of those properties between October 2000 and March 2001. Activities included the completion of soil borings, monitoring well installation and soil and groundwater analysis for volatile organic analysis (VOC) using USEPA Method 8260B. The results of this investigation were summarized in a Site Assessment Report dated May 2001 (S&ME, 2001).

Looking beyond the VRP Property and other parcels owned by entities affiliated with SMF to the broader Woodall Creek HSI Site, extensive investigations have been documented over the years in a number of reports. A 2004 CSR and subsequent revisions (Peachtree Environmental, Inc., 2004) prepared and submitted to EPD contains detailed summaries of the investigations. A recap of this information is presented for background purposes. Figure 4 presents a summary of the existing monitoring well network and surface water sampling locations across parcels that currently comprise the Woodall Creek HSI Site.

1.3.1 Glidden Company/Dobbins Mini-Warehouse Property

***Groundwater Sampling Event, June* 1997**- Golder Associates, Inc., (Golder) was retained by ICI Paints North America (Glidden) to sample five (5) existing, groundwater monitoring wells (GW-1 through GW-5) on the former Glidden property that is now the Dobbins Mini-Warehouse property, 1522 Huber Street. These wells were previously sampled by Law Environmental, Inc. in 1991. The wells are located in the central and southern portion of the Dobbins Mini-Warehouse property in close proximity to the former Huber Motor Express truck maintenance facility. Analytical results from the Golder sampling event showed the highest PCE and TCE groundwater concentrations on this property were reported at GW-3, that was located adjacent to and down-gradient from the former truck maintenance building (southwest corner of the property). These findings were consistent with the 1991 Law analytical findings.

Underground Storage Tank Investigation Report, January 1998 - Post-closure assessment of two underground storage tanks (USTs) that were reportedly removed in June 1994 was completed in October 1987. The analytical results indicated one soil sample (GHRUST-2) contained 14 ug/kg of PCE. The location of this sample was underneath the current warehouse building on the Dobbins Mini-Warehouse property. In the 1998 Golder UST closure report additional areas of interest were also identified throughout the current and former Glidden properties. In all, over thirty-nine (39) potential source areas were identified by Golder.

Environmental Site Assessment, Glidden Paints and Wall Coverings, Huber Street Site, February 25, 2002- Golder completed a general assessment of the Glidden and Dobbins Mini-Warehouse properties in late February of 2002. Soil and groundwater samples were collected from multiple locations and submitted for laboratory analysis. PCE and TCE were detected in soil samples from only one of the borings, boring 8-2 (converted to Glidden well MW-2) at the 10-foot, 15-foot, and 30-foot depths which were report to contain 12 ug/kg, 11 ug/kg, and 380 ug/kg of PCE, respectively. TCE was also detected at a concentration of 39 ug/kg at a depth of 30-feet below ground surface (ft bgs)

The analytical results from eight groundwater samples collected by Golder reported low concentrations of PCE and/or TCE in three wells sampled in August 2001 (Glidden well MW-1, and SMF wells MW-12 and MW-13).

Compliance Status Report, Glidden Paints and Wall Coverings, January 16, 2004- This report summarized previous environmental investigations to date and even though the report was not in a "CSR format" it was submitted as a CSR. In general, Glidden suggested in this CSR submission that the SMF facility and not its own property/facility was the source of the PCE and TCE impacts to groundwater and Woodall Creek.

Compliance Status Report, Glidden Paints and Dobbins Properties, July 7, 2004 - The Georgia EPD responded to Glidden's January 2004 CSR with a Notice of Deficiency (NOD) letter dated November 26, 2003 and again on February 24, 2004. In response, Glidden submitted a CSR Addendum in July of 2004. The addendum included additional groundwater assessment and sampling of surface water in Woodall Creek. The results of the additional groundwater assessment and surface water assessments indicated that concentrations of PCE and daughter products in groundwater continue to decrease over time. Additionally, surface water analytical results indicated concentrations were below Georgia In-Stream Water Quality Standards.

Source Area Assessment – Dobbins Mini Warehouse, 2012 - In response to the soil exceedance identified at monitoring well MW-25 on the Dobbins Mini Warehouse property during Woodall Creek Sampling efforts, a soil source delineation program was initiated in February 2012 by Peachtree Environmental, Inc. The objective of this effort was to further delineate PCE soil impacts associated with the MW-25 exceedance. A total of 19 soil borings were completed using direct push technologies at points around MW-25 for the purpose of screening and analyzing soil samples. Soil samples were collected from each five foot interval from the zone exhibiting the highest PID reading. Soil samples were not collected from the interval above the groundwater surface to minimize the influence from volatilization of impacted groundwater into the soil sample.

Results indicated that eleven soil samples had a reported PCE concentration above the laboratory method detection limit (MDL). Results from the soil boring and sampling program indicated low levels of PCE in several samples, at concentrations that were well below levels that would be expected to be a continuing source of impacts to groundwater.

1.3.2 Jodaco (Restaurant Supply) Property

The following environmental assessments and reports have been conducted on the Jodaco Property:

Environmental Review Report, October 7, 1985 - Lockwood Greene Engineers, Inc. (Lockwood) prepared a report for the Case-Hoyt Atlanta (a lithographic printing operation and former occupant of the Jodaco Property), who was the property owner at that time. The stated purpose of the study was to conduct an environmental study of the operations, to determine if wastes generated by the plant presented potential violations of environmental regulations, and to recommend corrective action if potential violations existed. The findings of the investigation indicated that Case-Hoyt Atlanta utilized various solvents in cleanup and maintenance of machinery, stored naphtha and alcohol in two 5,000-gallon capacity underground storage tanks (USTs), and stored chemicals including cleaners, solvents, and lubricants, in 55-gallon drums. No soil or groundwater samples were collected as part of this effort.

Remedial Investigation - Institute of Paper Chemistry Property, October 28, 1988 - STS Consultants Ltd. (STS) conducted assessment activities for the Institute of Paper Chemistry (the prospective purchaser of the property at the time) in late 1988. The property was then owned by Anderson Properties. Background information in the report stated that MDN&T (a prior consultant retained by Anderson Properties) conducted an initial environmental reconnaissance and oversaw the removal of two chemical USTs and two fuel USTs. The recommendations provided as part of the STS report included sampling in the area of the former USTs to assess if any residual impact existed. The assessment identified various benzene, toluene, ethyl benzene, and xylene (BTEX) volatile organic compound in soil. Chlorinated volatile organics were apparently not included in the analytical suite for soil analysis.

Groundwater assessment included the collection and analysis of eight (8) samples. PCE and TCE were detected in all eight sample locations. PCE and TCE concentrations ranged from 173 and 110 ppb, respectively in groundwater samples collected in the vicinity of the removed chemical USTs (southeast corner of the property) to PCE and TCE concentrations of 8,620 and 10,260 ppb, respectively, in the vicinity of the former fuel USTs (northern and western portions of the property). The highest PCE and TCE groundwater impact was observed hydraulically down gradient from the former fuel USTs located near the western property boundary.

Draft Contamination Assessment Report, March 7, 1989 - Versar Inc. (Versar) was retained by Anderson Properties in early 1989 to perform property characterization activities to determine if chlorinated solvent impact to groundwater were the result of an up-gradient, off-property source. The scope of work for the assessment included the installation of two (2) groundwater monitoring wells on the Glidden property; one to the northeast (GW-1) and one to the north (GW-2) of the Anderson property and two (2) wells on the Anderson property at the northern (APW-1) and southern (APW-2) property boundaries. Hand auger soil samples were also included in the scope of work. These borings were installed in the embankment below a building on the southwest corner of the Glidden property between the Glidden and Anderson Properties. Analytical results of the four hand auger samples were below the laboratory detection limits for chlorinated volatile organic constituents. PCE and TCE were detected in each of the four monitoring wells at the following concentrations:

- GW-1 - PCE - 240 ug/L, TCE 90 ug/L;
- GW-2 - PCE - 1,900 ug/L, TCE - 1,600 ug/L;
- APW-1 - PCE - 480 ug/L, TCE - 720 ug/L; and
- APW-2 - PCE - 1,500 ug/L, TCE 2,100 ug/L.

Additional Assessment Activities, August 1989 - Law Environmental, Inc. (Law) was retained by Case-Hoyt Corporation in mid-1989 to review existing data from the property and to conduct additional assessment activities. The scope of work included the installation of four (4) additional monitoring wells (MW-1through MW-4) along the east and northeast sides of the Anderson property, the collection of four (4) soil samples from each monitoring well boring, and the sampling of new and existing monitoring wells. PCE and TCE were reported above the laboratory detection limit in a soil sample collected from soil from the installation of monitoring well MW-4 at a concentration of 0.013 mg/kg and 0.0056 mg/kg, respectively.

Exploration of Groundwater Plume, December, 1991- Law conducted additional assessment for Case-Hoyt Corporation in late 1991. The focus of the assessment activities were conducted on the Glidden property (now Dobbins Mini-Warehouse property) to the north of the Anderson/Case Hoyt property. Soil and groundwater samples were collected for laboratory analysis. Only one soil samples contained a reportable concentrations of PCE which was collected behind the former truck maintenance garage on the Glidden/Dobbins Mini-Warehouse property. Each of the newly installed monitoring wells (GW-3 through GW-5) were found to contain detectable PCE concentrations ranging from 210 ug/L to 6,600 ug/L and TCE concentrations ranging from 240 ug/L to 3,400 ug/L. The highest concentrations were detected in GW-3, located on the down-gradient side of the former truck maintenance area on the property.

Compliance Status Report, June 2003- Pyramid Environmental Consultants, Inc. (Pyramid) completed a CSR in response to the GEPD issuing Administrative Order HSR-349 on May 13, 2003. The CSR concluded that the chlorinated groundwater plume beneath the Jodaco property is not the result of Jodaco operations, but rather is entering the property from an up-gradient source to the northeast. The GEPD reviewed the CSR and issued a technical comment letter on November 26, 2003.

Revised Compliance Report for 1455 Ellsworth Industrial Drive, June2003 (Revised May 2004) - Pyramid prepared a response to the November 2003 EPD letter along with a Revised Compliance Status Report on June 3, 2004. Pyramid investigated the property from the time period of June 2003 to March 2004 installing a total of nine (9) soil borings, sampling of thirteen existing groundwater monitoring wells, and the installation of five (5) additional groundwater monitoring wells. Results of the investigative events concluded that soil impacted with chlorinated VOCs was the result of a "smear zone" of impacted groundwater from an off-property source migrating onto the property from the northeast.

1.3.3 Ellsworth Realty Property

Based upon review of available information, no environmental assessment reports have been found for the Ellsworth Realty property. Two groundwater monitoring wells (MW-5 and MW-6) are present on the property's southeastern corner. These monitoring wells were sampled by Jodaco in March of 2004 and included in Jodaco's May 2004 report. The analytical results of the samples collected show detectable concentrations of PCE and TCE.

1.3.4 Reynolds Metals Property

The following environmental assessments and reports have been conducted on the Reynolds Metals (Reynolds) Property:

Draft Phase I Environmental Site Assessment, Reynolds Aluminum, October 2001 - This assessment was conducted by Golder Associates in late 2001. Details of the findings of the report were not available for review. The GEPD issued Administrative Order EPD-HSR-333 to Reynolds on September 23, 2002 naming Reynolds as a potentially responsible party for regulated substances detected in Woodall Creek.

Site Investigation Report for Reynolds Metals Property, November 22, 2002 - A site investigations at the Reynolds property was completed in late 2002. This work consisted of collection of 19 soil samples and installation of four groundwater monitoring wells. Soil and groundwater concentrations of PCE and TCE were detected in samples collected from the installation of monitoring well MW-3 located on the northeast corner of the property. The conclusions of the report indicated the impact was originating from an off property source.

The GEPD reviewed the November 2002 Site Investigation Report and issued a NOD letter on November 26, 2003 requiring that a formal CSR be completed for the property. Reynolds responded to the NOD (January 30, 2004) letter and utilized the contents of the previously submitted Site Investigation Report to format and submit a CSR for the property.

Compliance Status Report, Woodall Creek Site and Reynolds Metal Property' August. 2004 - Reynolds submitted a formal CSR for the property in mid-2004. The CSR submission evaluated on and off-Property data for a report on current conditions of soil and groundwater based upon available information, The CSR concluded that the property was being affected from an off-Property source.

1.3.5 ABC Supply Company Property

The following environmental assessments and reports have been conducted on the ABC Supply Property:

Groundwater Contaminant Assessment, ABC Supply Facility, December 1991 - The ABC Supply Company (ABC) property was initially assessed by Golder in late 1991 as a result of litigation between Anderson Properties and Glidden Company. The scope of work included the installation of two groundwater monitoring wells (MW-1 and MW-2) on the ABC property. PCE and TCE were detected in samples collected from both wells. Groundwater was determined to be flowing in a southwest direction. As such, the report concluded that an off-property source to the northeast was likely responsible for the groundwater impact.

Phase 1 Environmental Site Assessment. ABC Supply Company, January 1999 - Hendricks Peachtree Development (Hendricks) purchased the property from Georgia Pacific in 1999. As such, a due diligence report was prepared. Real Estate Advisory, LLC (REA) conducted a Phase I Environmental Site Assessment (ESA) in early 1999 for Hendricks as part of the purchase of the ABC property. As part of the ESA, records were examined relative to past assessment activities. The ESA concluded that there were no soil source areas on the property. The property was scored for groundwater impact to determine if it would list on the Georgia

Hazardous Site Inventory (HSI). The GEPD responded to the initial scoring in a letter dated December 3, 1988 that the Property would not list on the HSI. However, in February 2, 2001, the GEPD included the property as part of the Woodall Creek Site, HSI Number 10689 due to detected chlorinated surface water impact to Woodall Creek.

Compliance Status Report, Woodall Creek Site, December 1, 2002 – REA prepared a CSR for Hendricks in late December of 2001. The scope of work included the installation of six (6) groundwater monitoring wells. The six newly installed wells, as well as the two former wells installed by Golder in 1991, were sampled as part of the CSR. Ten (10) surface water samples were also collected and analyzed. The conclusion of the CSR indicated that chlorinated VOC impact was present in groundwater on the property and in Woodall Creek. The origin of the groundwater and surface water impact were attributed to an off-property source.

1.3.6 Woodall Creek Phases I through IV Surface Water and Groundwater Sampling Summary

Between 2006 and 2009 a series of surface water and groundwater sampling efforts were completed by Peachtree Environmental, Inc., as part of the Woodall Creek Investigations. Phase I field work was performed between on September and November 2006. Phase I involved the collection of surface water samples along Woodall Creek, beginning at Ellsworth Industrial Boulevard and continuing at consecutive intervals of approximately fifty (50) feet to include sixteen (16) total surface water sampling locations (Figure 3). During Phase II, three additional surface water sampling locations approximately 100 feet apart commencing downstream from sample point No. 16 were added to the sampling program beginning in April 2007.

In 2008, Phase III sampling that included sampling from each of the previous surface water sampling location plus 6 new/additional locations as well as three new groundwater monitoring well (MW-1 through MW-3) locations was completed. The Phase III report, submitted in August 2008, attempted to bracket the groundwater plume intersecting Woodall Creek (i.e., locate the point of highest groundwater impact that may affect Woodall Creek). However, as the initial three wells (MW-1, MW-2, and MW-3) installed as part of the activities all showed COC impacts, the Phase III report proposed/recommended that two (2) additional wells be installed in an attempt to further bracket the groundwater plume. Groundwater monitoring wells MW-4 and MW-5 were installed on October 21, 2008, followed by two additional monitoring wells, MW-6 and MW-7, installed on January 8, 2009. The intent of the additional well installation and sampling was to complete bracketing of the groundwater plume intersecting/discharging to Woodall Creek. In order to determine the source area location for the groundwater plume.

After further attempts to bracket the impacted groundwater plume with monitoring wells (October 2008, January 2009), Phase IV work was implemented to further evaluate the source area(s) for noted impacts to groundwater. Phase IV involved the installation of twenty (20) groundwater monitoring wells and a synoptic sampling event of as many of the new wells and viable existing wells as could be accessed.

This site-wide monitoring event was planned to extend from the SMF facility to Woodall Creek and was intended to provide an overall Woodall Creek HSI Site/area wide assessment. Data from the entire area of impact (creek, and up-gradient groundwater from Woodall Creek) was proposed to be collected/analyzed during the same time period and allow for completion of an area wide assessment. However attempts at a site wide monitoring event were hampered by access restrictions on several of the Woodall Creek Properties.

In 2012, however, new owners granted access to the Midtown West and the M-West HOA properties. Peachtree Environmental, Inc. was then contracted to complete limited surface water and groundwater sampling efforts associated with these properties. During the period between April and July, Peachtree completed two surface water sampling events and two limited groundwater sampling events. The groundwater sampling effort, completed April 24, 2012 and June 11, 2012, included the collection of groundwater samples from eleven of the twelve monitoring wells located on the Midtown West Properties over the two events. Results from the investigations were documented in the Phase IV Report for Woodall Creek developed by Peachtree Environmental, Inc. (February, 2012)

1.3.7 2013 Revised Corrective Action Plan and Baseline Groundwater Sampling Investigation, Woodall Creek Site

In 2013, AMEC Environment & Infrastructure, Inc. (AMEC) prepared a revised CAP as part of the ongoing phased approach for evaluating and addressing chlorinated solvent impacts in Woodall Creek. This revised CAP was developed based on the original CAP submitted to the Georgia Environmental Protection Division (EPD) in January 2006, along with various CAP addendums prepared and submitted by Peachtree Environmental, Inc.,

Key objectives of this revised CAP will be to provide a detailed strategy for evaluating potential surface water quality impacts to Woodall Creek, particularly with regard to Georgia’s in-stream water quality criteria for chlorinated solvents. This CAP will:

- Address EPD comments dated October 1, 2012;
- Define the methodology for determining annual average or higher steam flow conditions in Woodall Creek;
- Present the updated conceptual site model;
- Identify additional data collection activities; and
- Define methods for implementing a monitored natural attenuation (MNA) remedy for the groundwater impacts going forward.

The Revised CAP was approved by EPD in January 2014. The initial effort included a site wide well survey to locate wells associated with the monitoring network for the Woodall Creek Site. The effort also include the installation of four additional wells. Two intermediate wells were strategically located to evaluate groundwater flow conditions near the basal section of the residuum above the bedrock surface nearer to Woodall Creek while two additional shallow monitoring wells were installed to further bracket the shallow groundwater plume. A synoptic water level measuring event was completed using each of the located wells as well as elevations from a survey of the Woodall Creek surface water sampling locations. Groundwater and surface water samples were collected from each location and analyzed for volatile organic analysis (VOC) by USEPA Method 8260B. Groundwater samples were additionally analyzed for Monitored Natural Attention (MNA) parameters, including; nitrate, sulfate and chloride by EPA method 9056A; methane, ethane and ethene by EPA method RSK-175.

Results from the baseline sampling effort were summarized by AMEC in the Baseline Sampling Report, June, 2014.

2.0 SOURCE AREA INVESTIGATIONS FOR THE VRP PROPERTY

The initial phases of assessment at the VRP Property and other parcels owned by entities affiliated with SMF focused on identifying the presence of PCE and TCE groundwater impact and investigations into possible on and off-site sources of these impacts. Assessment efforts were completed over the course of several years utilizing a variety of soil and groundwater assessment techniques. In response to the findings from these investigations, SMF executed several cleanup measures to remediate PCE and TCE concentrations identified on the VRP Property. A summary of the investigation and remedial efforts are summarized in this section.

2.1 Soil Investigation Summary VRP Property

The initial phases of source area assessments were conducted by S&ME in 2000/ 2001. Initial assessment efforts included assessment of two underground sanitary sewer lines, thought to be a possible source of a release. Based on the results of previous subsurface investigations, COCs in soil at the Site have included chlorinated and non-chlorinated VOCs, principally PCE, with minor detections of petroleum-related constituents. Table 1 presents a summary of soil delineation concentration criteria for COCs identified in soil at the VRP Property.

The assessment of soil contamination was accomplished through the installation and sampling of drilled soil borings, direct push borings and hand auger borings. The results of the soil laboratory analyses from the previous assessments are summarized in Tables 2 Appendix B.

2.1.1 S&ME 2001 Site Assessment

In response to the April 2000 EPD request to SMF and other property owners to conduct assessments to determine the source and magnitude of PCE and TCE groundwater contamination on their properties, SMF contracted S&ME to complete Site Assessment activities.

Underground Utility Location and Sediment Sampling

Underground utilities for the 2000 VRP Property inspection activities conducted by S&ME were identified and marked by RHO Services Inc. (RHO). The utility location field work was conducted in October 2000 and in March 2001. S&ME mapped the underground utility location data onto a scaled site plan (Appendix B, Figure 3).

Research on the sewer line connections and layout was conducted by S&ME at the City of Atlanta Public Works Department. The results of the research indicated that the sewer line that services a portion of the adjacent Glidden facility joins the sanitary sewer line that follows along the property boundary between SMF and Glidden. The sanitary sewer line adjacent to the VRP Property in Huber Street is also connected to, and downstream from several adjacent industrial facilities to the north of SMF.

RHO conducted internal video investigations of the sewer lines on the VRP Property in October of 2000 and March of 2001, as well as a portion of the sewer line below Huber Street. The inspection focused on identifying sewer conduit joints and cracks that might be a conduit for leaks, and connections that serve other properties. Several cracked areas were observed along the sewer line that services the Glidden property. The sewer tap leading to the Glidden Facility was also identified and located on the utility property plan. The isolated area of PCE and TCE impact on the VRP Property is situated along the location of that same sewer line where it crosses the southwest portion of the VRP Property, down-gradient from the Glidden property.

On March 15, 2001, S&ME sampled sewer water and sediment in manholes A-2 and A-3 depicted on Figure 3, Appendix B. The purpose of the sampling was to determine if concentrations of TCE or PCE were present in the sewer line that jointly served the SMF and Glidden facilities. The samples were submitted to the laboratory for analysis of TCE and PCE by Method 8260B. The results of the analysis indicated no detectable levels of PCE or TCE in the sewer water or sediment in the sewer line. Sampling data is summarized on Table 2, Appendix B.

2.1.3 Direct-Push Soil Sampling Source Assessment

In conjunction with Site Assessment efforts, SMF conducted direct-push (DPT) soil and groundwater sampling at 15 locations in the Huber Street right-of-way and along the railroad tracks south of the SMF Shipping and Receiving Building. The soil sampling conducted was directed at identifying a potential source of contamination from sanitary sewer lines located in Huber Street and along the southwestern VRP Property line. Eleven of these locations were placed in close proximity to the sanitary sewer lines. From these eleven locations, one soil sample was retrieved from above the sewer line and one from below the sewer line for laboratory analysis. Soil samples were also collected for laboratory analysis from one additional direct-push location (DPT-15), based on elevated organic vapor meter (OVM) screening results. The soil samples retrieved from the remaining direct-push locations were used for soil classification and volatile organic vapor screening, only.

Soil samples collected from above and/or below the sanitary sewer lines in Huber Street, and south of the Shipping and Receiving Building contained detectable levels of PCE and/or TCE at five locations. At each soil sample location where PCE or TCE was detected, the concentration was higher below the elevation of the sewer line. Soil PCE concentrations ranged from 110 ug/kg in the deep sample at DPT-5 to 4.7 micrograms per kilogram (ug/kg) in the deep sample at DPT-4. Reported concentrations of TCE ranged from 12 ug/kg in the deep sample DPT-5 to 6.9 ug/kg in deep sample DPT-6. Direct push soil sampling locations are depicted on Figure 4, Appendix B.

2.1.4 Soil Gas Survey Source Assessment, March 2002

A passive soil gas survey covering the southwestern portion of the VRP Property was completed by S&ME in March of 2002 to identify potential soil source areas. Previous groundwater analytical data from the May 2001 Site Assessment suggested that a chlorinated solvent source may be present in that area west of the shipping and receiving building.

The soil gas survey consisted of the installation of 71 passive soil gas collector tubes installed on a grid pattern. The grid pattern was most dense (collector spacing of approximately 15 feet) in the areas of the highest identified groundwater impact. The grid pattern was less dense (collector spacing of approximately 30 feet) over the remainder of the area. The approximate sample locations are shown on Figure 7, Appendix C.

The results of the soil survey indicated the highest accumulation of PCE soil gas was under the western portion of the Shipping and Receiving Building (labeled "One Story Brick Building" on Figure 7, Appendix C). Somewhat less elevated levels of PCE soil gas extended under the remainder of the Shipping and Receiving Building, and under portions of the pavement to the north of the building. A smaller, isolated area of elevated PCE soil gas was also located near MW-7 which is located northeast of the Shipping and Receiving Building. The areas of elevated soil gas results were confined to an area underneath a building, or underneath pavement. The unpaved areas included in the survey where groundwater contamination was known to exist had canister analysis results that were below or close to the analytical detection limit. Soil gas analytical data is depicted on Figure 7 and summarized on Table 2 Appendix C.

2.1.3 2002 S&ME Direct-Push Soil Sampling Source Assessment

In April 2002, S&ME under contract to SMF utilized the soil gas results to locate additional DPT soil sampling locations to target potential source areas and to define the horizontal and vertical extent of soil impact. Appendix C, Figure 9 depicts the April 2002 soil sampling locations. The initial samples were collected on April 3, 2002, from suspected source areas that were indicated in the soil gas survey. These areas were in and around the western portion of the Shipping and Receiving Building, and in the eastern area of this building. Additional mobilizations of the DPT rig on April 15, April 25, and May 28, 2002 were conducted in order to complete the delineation of identified soil contamination.

Soil samples collected from soil gas points displaying the highest impact under the western portion of the Shipping and Receiving Building contained PCE and TCE concentrations of up to 0.250 mg/kg and 0.150 mg/kg, respectively. Soil sampling in the parking lot to the north of the Shipping and Receiving Building identified a small area of moderate soil impact with PCE and TCE concentrations up to 2.600 mg/kg and 0.220 mg/kg, respectively. Soil sampling in the area of MW-7 detected PCE only, at a maximum concentration of 0.0099 milligrams per kilogram (mg/kg). Analytical data from the 2002 soil sampling events are summarized on Table 3, Appendix C.

2.1.4 Hand Auger Soil Sampling Source Assessment

In May and June, 2002, SMF conducted hand auger soil sampling in the area of the rail car siding, south of the Shipping and Receiving Building. The hand auger sampling was utilized to supplement other soil analytical data collected by direct push methods during delineation of soil contamination. Hand auger soil samples were submitted for laboratory analysis of VOC compounds to Analytical Services Inc. of Norcross, Georgia. Hand auger sampling results are summarized on Table 3 of Appendix C.

Soil sampling in the vicinity of MW-4 identified a possible source area for PCE impact. An area of shallow soil impacts extending to generally less than two feet in depth was identified just outside to the south of the Shipping and Receiving Building. A combination of DPT and hand auger soil sampling delineated the majority of impacted soil to be within a 160-foot by 15-foot area parallel to, and including the rail car siding that parallels the Shipping and Receiving Building near the southern VRP Property boundary. Within that area, the results of soil sample analysis indicated PCE concentrations ranging from 6.9 mg/kg to 96.0 mg/kg at six locations over a distance of approximately 70 feet. The soil impacts appeared to be limited to the upper two feet within fill material along the rail car siding. The fill material was composed primarily of red-brown sandy silt soil, however, a discontinuous dark gray-black surface layer extending 0.5 to 1-foot deep was composed of sandy soil mixed with what appeared to be woody organic material and glassy furnace clinker.

2.1.5 Dobbins Property Soil Gas Survey

In August of 2004, SMF conducted a soil gas survey of the Dobbins (former Glidden) property. The survey consisted of the installation of 100 passive soil gas collector tubes installed on a grid pattern covering an area of 70 feet long by 280 feet wide. No detectable volatile organics were found in the collected/analyzed samples. A layout and analytical summary of the 2004 soil gas survey is provided as Figure 10 of Appendix C,

2.1.6 Soil Delineation Summary

Based on the soil delineation efforts, and soil sampling analysis, the soil impacts appeared to be elevated along the south of the one story block building and one point north in the parking area north of the building. Concentrations of PCE and TCE were reported the 0- to 5 ft soil sampling interval at higher concentrations than samples collected at depth. Soil analytical results from each sampling interval for PCE, TCE, cis-1,2-dichloroethene (cis-1,2-DCE) and total benzene, toluene, ethyl benzene and xylene (BTEX); are presented in Appendix C, Figures 11A through 14B).

2.2 DELINEATION OF GROUNDWATER IMPACTS AT THE VRP PROPERTY

Groundwater sampling was first conducted at the VRP Property in 2000/2001 by S&ME during their Site Assessment of the property (S&ME, 2001). Since that time, a number of monitoring wells and groundwater sampling events have been completed to assess groundwater impacts at the VRP Property and surrounding parcels associated with the Woodall Creek Site.

2.2.1 S&ME 2000/2001 Site Assessment

Groundwater assessments efforts completed during the initial site assessment activities included conversion of the 14 soil borings to monitoring wells (MW-1 through MW-14). Monitoring wells were constructed with 10 or 15 ft wells screens and flush mount protective well vaults. Groundwater samples were collected from each well, with the exception of MW-11. In addition to sampling from monitoring wells, groundwater samples were also collected from discrete intervals using direct push groundwater sampling methods. In general, groundwater samples were obtained within 5-ft of the groundwater surface. At select locations, a second, “deep” groundwater sample was subsequently collected. Groundwater samples from monitoring wells and Direct Push sample locations were submitted for laboratory analysis of PCE and TCE by USEPA Method 5030B/8260B.

Groundwater potentiometric surface elevations were collected from the newly installed monitoring wells on February 5, 2001. Results from this effort indicated a groundwater flow direction to the southwest towards Woodall Creek.

In all, thirteen monitoring wells and nine direct push sample locations were sampled between October 2000 and March 2001. A site plan from the S&ME Site Assessment Report depicting the groundwater sampling locations in provided as Figure 5 of Appendix B. Results from the Site Assessment Sampling program indicated a maximum PCE and TCE concentrations of 1,800 ug/l and 440 ug/l, respectively at monitoring well MW-2 during the March 2001 groundwater sampling effort. Slightly below the previously recorded concentrations of 2,200 ug/l PCE and 500 ug/l TCE reported from MW-2 in the 2000 sampling event. Relevant summary tables and groundwater concentration maps are provided in Table 1 of Appendix B.

2.2.2 SMF 2006 to 2010 Annual Groundwater Monitoring

In response to the performance of the soil excavation work, injection of in-situ chemicals for oxidation purposes and SVE pilot testing activities in terms of the mass removal of halogenated organic compounds, it was recommended that annual groundwater sampling activities be performed on select monitoring wells in close proximity to the former SMF warehouse building as an indication of the potential success of the SVE activities in aiding in the restoration of groundwater quality at the Site.

Groundwater monitoring wells included in the SMF annual evaluation include the following:

- MW-2, MW-4, MW-9, MW-10, DS-3, DR-3, and PI-1

The locations of the monitoring wells are depicted In Figure 4.

Peachtree Environmental was contracted by SMF to complete the annual sampling activities. The initial annual sampling events were conducted in June 2006; August 2007; July 2008, July 2009 and October 2010. During each sampling event, groundwater samples collected were analyzed for volatile organic constituents (VOCs) using USEPA Method 8260B. A summary of these data are provided in Appendix D, Table 1.

The groundwater assessment activities conducted during these sampling events also included the measurement of well depths and groundwater elevation measurements in assessed wells, well purging, measurement of groundwater quality parameters, well sampling, and laboratory analysis. A summary of the groundwater elevations is presented in Appendix D, Table 2.

Groundwater results, as reported by Peachtree Environmental, Inc., indicated detectable concentrations of cis-1,2,-Dichloroethene, PCE and TCE. PCE was the highest reported COC in monitoring well PI-1 in 2006 at 12,000 ug/l. This level was considerably reduced by the 2010 groundwater sampling event to 15 ug/l. Reductions in PCE concentrations were also reported from monitoring wells, MW-2, MW-4, MW-9, MW-10, and DS-3. The 2010 groundwater samples results for PCE in monitoring well DR-3 had increased from 140 ug/l PCE in 2002 to 520 ug/l PCE in 2010.

Additional parameters reported in groundwater samples between 2000 and 2010 from the SMF wells included acetone, benzene chloroform, and ethyl benzene and cis-1,2-Dichloroethene. A Summary of groundwater sampling results and potentiometric measures in provided in Tables 1 through 3, Appendix D.

2.2.3 Woodall Creek Groundwater HSI Sampling

The properties comprising the Woodall Creek Site have been investigated by various parties since 2002. Subsequent to the initial effort, the majority of the groundwater sampling program was completed in conjunction with annual and semi-annual groundwater monitoring efforts for the Woodall Creek Site. Over the years new wells have been added. However, there has been little consistency in sampling of the entire network due to various access issues. In December 2013, EPD approved a Revised CAP for the Woodall Creek Site that included locating wells, synoptic groundwater measuring and sampling efforts. Additionally, samples for monitored natural attenuation parameters (MNA) were collected to assess degradation and support fate and transport model development. This initial Baseline sampling effort was completed by AMEC in March of 2014.

Four new wells were installed as part of this baseline effort to bracket the horizontal and vertical extent of the groundwater impacts. The March 2014 baseline groundwater sampling event included the collection of groundwater samples from all locatable pre-existing monitoring wells, newly installed monitoring wells, and wells added to the monitoring well inventory. The March 2014 sampling event included collection of groundwater samples from 64 monitoring wells from across the Site. Sample location coordinates and well construction details for each of the wells are presented in Table 2 and 3, respectively.

The March 2014 baseline groundwater sampling event was conducted from March 11 through 25, 2014. During this effort 64 monitoring wells located across the Woodall Creek Site were sampled. Groundwater samples were submitted for analysis of nitrate, sulfate and chloride by EPA method 9056A; methane, ethane and ethene by EPA method RSK-175; VOCs by EPA method 8260B and total organic carbon by EPA method 9060A.

Table 4 summarizes the data for the March 2014 sampling event in comparison to the each compounds established Type 1 Risk Reduction Standard (RRS). Table 5 provides a summary of key current and historic groundwater COCs. Figure 5 through Figure 10 depict distribution of concentrations for PCE, TCE, and cis-1,2-DCE in shallow and intermediate groundwater-bearing zones, as measured in March 2014.

In general, 2014 VOC groundwater results are lower when compared to historic groundwater VOC data. A summary of the current and historic groundwater quality for the Woodall Creek Site Wells is provided as Table 4. There is further evidence that the current plume footprint when compared to previous efforts has been reduced in maximum contaminant levels and footprint.

2.3.4 2014 Baseline Groundwater Sampling for the VRP Property

There are currently 20 groundwater monitoring wells that have been installed on the VRP Property to investigate the horizontal and vertical extent of groundwater impacts. These monitoring wells include wells installed on the VRP Property, surrounding properties and the Right of Way of Huber Street. In addition, several down-gradient monitoring points were installed on the Dobbins Property to assess the horizontal distribution of constituents in the shallow aquifer. Intermediate and deep monitoring points were also installed to assess vertical distribution. A summary of the SMF and Dobbins property wells and their locations is provided in Table 3 and Figure 4.

As shown in Table 5, concentrations of VOCs continued to decline in SMF monitoring wells between 2011 and 2014. Similar reductions can be observed in down-gradient groundwater samples. It should also be noted that the current PCE plume configuration mirrors the plume configuration as identified in the 2001 Site Assessment by S&ME (but at much lower concentrations). Furthermore, concentrations beneath the VRP Property over this time have decrease an order of magnitude. The maximum concentrations observed in 2001 at MW-2 was 1800 ug/l. The 2014 concentration of PCE in MW-2 is 129 ug/l. Taken together, this information indicates a stable plume which presents limited potential for down-gradient migration. Isoconcentration plume maps for PCE, and TCE for the VRP Property are provided as Figures 11 through14.

In addition, and as explained in Section 4.3, below, the Fate and Transport model indicates a maximum extent for detectible chlorinated ethenes to be a distance of 900 feet from the VRP Property and approximately 600 feet short of Woodall Creek. Given that, concentrations of PCE or TCE emanating from the VRP Property will be below the PQL prior to reaching Woodall Creek, there is no ongoing contribution of CEs from the VRP Property to the surface water impacts associated with Woodall Creek.

2.3 SUMMARY OF CORRECTIVE ACTIONS

A series of targeted soil and groundwater remediation efforts have been conducted on the VRP Property, including:

- In-situ chemical oxidation (ISCO) of soils.
- Excavation and off-site disposal of an area of impacted soils adjacent to the Shipping and Receiving Building loading and unloading area.
- A series of soil vapor extraction events within the Shipping and Receiving Building.

Details of remedial activities on the VRP Property are provided below.

2.3.1 2001 SMF Groundwater Permanganate Injections

S&ME completed several phases of investigation by the middle of 2001 and impacted groundwater (dissolved PCE and TCE) was identified in the southwest corner of the SMF facility. Although extensive sampling did not identify a precise source area or an origin for the impacts, the geometry of the groundwater plume indicated that a source could be near MW-2 and/or MW-4, in the former rail spur track area to the south of the Shipping and Receiving Building.

Based on information at the time, S&ME recommended conducting in-situ chemical oxidation (ISCO) in the area of impact. The treatment area was designed based on an assumed 5-foot radius of influence over a test area of approximately 9,300 square feet.

On June 19, 2001 through June 22, 2001 and June 25, 2001 through June 29, 2001, S&ME conducted the sodium permanganate injections. A truck-mounted DPT tool was utilized to inject the sodium permanganate solution at approximately 105 injection points over a regular grid pattern from the DPT penetration refusal depth up to the water table. At each injection location the truck-mounted DPT rig was used to advance to a point of refusal or a depth of approximately 32 feet, whichever was encountered first. The 32-foot depth limit was based on the elevation of the water table in the area of injection, and the objective to vertically cover 10-foot depth in the groundwater. Once the boring was completed, the rods were raised to open length of injection screen in the bottom of the boring. The pump injected a 5% sodium permanganate solution into the soil.

After conducting the permanganate injections, selected nearby and down gradient monitoring wells (MW-2, MW-3, MW-4, MW-14, and MW-15) were sampled on a periodic basis to assess the effectiveness of the injection at reducing PCE and TCE levels in groundwater. A Site Map Depicting the injection points is provided as Figure 3 of Appendix D. A summary of COCs from post injection sampling is provided on Table 1 of Appendix D.

2.3.2 July 2002 Soil Corrective Action VRP Property

Following the discovery of a thin layer of fill material exhibiting elevated PCE concentrations, SMF engaged GREENLEAF ENVIRONMENTAL, INC. (Greenleaf) to excavate and dispose impacted soils along the south side of the Shipping and Receiving Building where elevated concentrations of PCE and TCE had been identified. In total, approximately 195 tons of excavated soil was disposed of off-Property. Copies of the soil disposal manifests is provided as Appendix E.

A total of sixteen (16) post-excavation confirmation soil samples were collected and analyzed for constituents of concern as verification that no analyzed constituents remained in excess of applicable cleanup criteria. Based upon the results of post-excavation confirmatory soil testing, both PCE and TCE concentrations were reported below their respective Type I Risk Reduction Standard (RRS) criteria as calculated pursuant to the Rule for Hazardous Site Response which, of course would be even more conservative than RRS derived under the methods provided in the VRP. Figure 4 of Appendix D depicts the limits of the excavation and confirmation sampling results for PCE and TCE.

2.3.3 July/August 2004 Soil corrective Action VRP Property

During the summer of 2004, additional soil was excavated soil from within the area that is north of the Shipping and Receiving Building. The excavation was performed in connection with re-paving the loading area of the Shipping and Receiving Building. This corrective action is documented in 2008 groundwater monitoring report prepared by Peachtree. Excavation encountered a layer of what appeared to be municipal trash, as well as a layer of grey, sandy ash-like fill material. SMF determined that the trash material was unsuitable for use as backfill. Peachtree analyzed the trash material and the underlying grey, sandy ash-like material. Samples from the trash layer did not indicate the presence of site constituents. However, the underlying layer of grey, sandy ash-like material contained detectable concentrations of constituents of volatile organic materials ranging in concentration from 0.033 mg/kg to 1.33 mg/kg.

In response to this discovery, excavation activities were extended to remove soils and debris shown to be impacted with regulated constituents above potentially applicable RRS criteria. Based upon post-excavation analytical testing results, the horizontal and vertical delineation of impacted soils in this area of the property (i.e., north of the Shipping and Receiving) have been achieved and no impacted soils remained above Type 1 RRS.

Tables 5 and Figure 5 Appendix D, summarize soil analytical data and excavation limits findings from the 2004 SMF soil excavation event (Peachtree, 2004).

2.3.4 February 2005 Soil Vapor Extraction VRP Property

Subsequent to the submittal of the December 2004 CSR, a series of soil vapor extraction (SVE) field testing activities were completed at locations within the Shipping and Receiving and select groundwater monitoring wells at the Southern Metal Finishing facility. The intent of the SVE field testing activities was to aid/evaluate the remediation of any residual impacted soils near and/or underneath the Shipping and Receiving, which had not previously been addressed as part of the ISCO in-situ treatment and/or excavation activities.

The SVE network consisted of a total of six (6) extraction wells (SVE-1 to SVE-6) installed within the Shipping and Receiving (Figures 6 and 7, Appendix D). The radii of influence of the installed wells was determined to be approximately 60 feet. Soil vapors were removed from the SVE wells and select monitoring wells over a total of four (4) vapor extraction events. A summary of the SVE events are as follows:

SVE EVENT #1 - FEBRUARY 24, 2005

- Included SVE wells SVE-1 to SVE-4.
- Total of 4.34 lbs. of volatile organics removed.
- The highest recorded volatile organics removal (1.74 pounds) was from SVE-1 located closest to the western end of the Shipping and Receiving.

SVE EVENT #2 - MAY 16, 2005

- Included SVE wells SVE-5 and SVE-6 as well as groundwater monitoring wells MW-9 and MW-10.
- Total of 0.17 lbs. of volatile organics removed.
- The highest removal rate was observed in SVE-5 with 0.05 lbs.; while the lowest recovery rate was observed in monitoring well MW-9 with 0.033 lbs. removed.

SVE EVENT #3 - MAY 17, 2005

- Included groundwater monitoring wells MW-4, PI-1, DS-3 and DR-3.
- Total of 0.036 lbs. of volatile organics removed.
- The highest removal rate was observed in monitoring well MW-4 with 0.258 lbs.; while the lowest recovery rate was observed in well PI-1 with 0.0231 lbs. removed.

SVE EVENT #4 - MAY 18, 2005

- Included groundwater monitoring wells DS-1, DR-1, MW-6 and MW-7.
- Total of 2.77 lbs. of volatile organics removed.
- The highest removal rate recorded for any SVE event to date was observed in monitoring well MW-6 with 2.193 lbs.; while the lowest recovery rate during this SVE event was observed in well DR-1 with 0.0491 lbs. removed.

As a measure of the SVE technology's ability to effectuate the reduction of dissolved- phase contaminants in existing monitoring wells, a select number of pre and post- extraction groundwater samples were collected from select monitoring wells (PI-1, MW-4, DS-3, and DR-

3) and analyzed for volatile organic constituents. A comparison of the pre-to post-vacuum extraction analytical results revealed that MW-4 and PI-1 both had increased concentrations of PCE in the water column after SVE treatment. DS-3 and DR-3 had relatively the same measured PCE concentrations in the before and after groundwater analytical results.

Overall SVE technology demonstrated the removal of contaminant mass from subsurface areas at each of the various locations tested. The results suggest that additional VOCs may have existed in/around the western portion of the Shipping and Receiving Building (closest to Huber Street) as demonstrated by the amount of VOCs removed during SVE Event #1 from well SVE-1 (1.74 lbs.). Additional VOCs may also have existed under the extreme eastern edge of SMF's property (immediately down gradient from the former Glidden AST farm/piping system), as illustrated by the amount of VOCs recovered from MW-6 (2.193 lbs.) during SVE Event #4. MW-6 has also been noted historically to contain "free product" (believed to be mineral spirits or similar material from the adjacent Glidden tank farm) when this well has been sampled in the past.

2.4 NATURE AND EXTENT OF CURRENT SOIL AND GROUNDWATER IMPACTS

2.4.1 Nature and Extent of Soil Impacts at VRP Property

Numerous soil investigations have been completed on the VRP Property to define the nature and extent of detected chemicals of concern.

Measures by SMF to remediate these impacts through in situ treatments, excavation and soil vapor extraction efforts appear to have been successful in remediating soil impacts to below Type 1 RRS, based on both the soil confirmation sampling data and on the continuing decline in ground water concentrations in the vicinity of the VRP Property.

2.4.2 Nature and Extent of Groundwater Impacts at VRP Property

Groundwater impacts at the VRP Property have been investigated since 2001. Comparison of the original PCE plume foot print by S&ME in 2001 (Appendix B, Figure 6) is consistent with the footprint on the VRP Property as measured in the 2014 Baseline sampling. The data demonstrates a significant reduction in PCE concentrations from an 1800 ug/l in 2001 to 129 ug/l. Given that the footprint has remained relatively constant, it appears that the plume is now stable. The presence of PCE degradation products in groundwater samples collected from VRP Property confirms biodegradation processes and natural attenuation are ongoing beneath the area. Groundwater impacts on the VRP Property have been delineated both horizontally and vertically with significant reduction in concentrations due to both natural and enhanced processes.

3.0 CHARACTERIZATION OF HYDROGEOLOGY

Geologic setting is an important factor when evaluating fate and transport of contaminants in the subsurface environment.

3.1 REGIONAL GEOLOGY

The property is located in the Piedmont geologic province the Appalachian Mountains. The Piedmont Province parallels the eastern edge of the North American continent across the area south of New England and east of the Blue Ridge geologic province. The Piedmont lies at the foot of mountainous areas east from the Blue Ridge. Its east boundary is defined by the Fall Line, where younger sedimentary strata of the Coastal Plain overlie igneous and metamorphic crystalline rocks of the Piedmont. On a regional scale, topography within the Piedmont slopes toward the coast with landscape morphology that typically consists of rolling terrain with gentle slopes, commonly punctuated by relatively steep-sided stream valleys.

3.2 SITE SPECIFIC GEOLOGY

The geology beneath the site consists of a mixture of fill, soil, and weathered residuum; saprolite; and bedrock (Figure. The current conceptual site model is based on previous work performed at the Woodall Creek site, and work performed by Arcadis at the former Square D Site (HSI No. 10829), located across Woodall Creek, due west across from the Woodall Creek Site. Based on this information, the CSM assumes Woodall Creek is a gaining stream, and functions as a discharge boundary for water in the residuum and bedrock from both sides of the valley (*Arcadis, 2012 Corrective Action Progress Report*).

Cross sections along the approximate flow path (**Figure 17**) were developed to further refine the Conceptual Site Model. As shown in **Figure 18**, the geology beneath the site is characterized by three distinct units:

***Soil and Residuum* –** Soils present in the general vicinity of the site have formed through in-place chemical and physical weathering of crystalline rock, or originate from (anthropogenic) fill material placed during development of the area. Typical profile in this area consists of clay-rich soil material near the ground surface where weathering is more advanced, transitioning to mixtures of sandy silt and silty mixtures of sand and sand-sized particles of rock, and eventually into weathered bedrock material (saprolite).

Saprolite – typically found as a transition from soil/residuum to competent bedrock. Saprolite contains weathered rock fragments, an overall increase in mica content, and commonly displays relict foliation (from the parent rock material). Can be relatively soft and poorly consolidated, generally becoming harder with depth and proximity to competent bedrock.

***Bedrock* -** composed of medium-grained foliated metamorphic rock (biotite gneiss), commonly fractured.

Based on data obtained through previous investigation, the soil/residuum unit beneath both the SMF and Woodall Creek Site includes native soil, backfill, and trash, debris and ash consistent with historical landfilling activities known to have taken place in this area. Data available from subsurface investigations in the area indicates landfill debris to be sporadically distributed throughout the Woodall Creek Site. At the VRP Property, soil excavation completed in areas south and north of the shipping/receiving building encountered layers of debris and ash-like material interpreted to be related to landfilling activities.

3.3 GROUNDWATER OCCURRENCE

In developed areas of the Piedmont, groundwater under water table conditions commonly resides within in a mantle consisting of soil, anthropogenic material (fill), and saprolitic residuum; and within structural fabric such as joints, fractures, and faults that are present in underlying crystalline rock. Groundwater recharge in the Piedmont is primarily from meteoric water that infiltrates soil and residuum to percolate under the influence of gravity into the surficial water table aquifer where it either enters deeper parts of the bedrock aquifer, is discharged as surface water, or eventually drains into sedimentary aquifers within the seaward-dipping strata of the Coastal Plain. Depth to the water table beneath the Piedmont is commonly variable, being dependent on many factors which include: amount of rainfall, permeability of soil and residuum, degree and extent of foliation and/or fractures in saprolite and underlying rock, and quantity of groundwater discharged from the underlying bedrock aquifer.

Groundwater generally flows in directions sub-parallel with the ground surface and under the influence of gravity toward a point of discharge such as surface water bodies or pumped groundwater wells. Given this premise and considering available topographic data for the site vicinity, groundwater in the water table beneath the VRP Property and surrounding area is expected to flow from higher elevations in the northeast toward lower elevations in the west and southwest parts of the area, eventually discharging to Woodall Creek.

Depths to groundwater beneath the VRP Property range from approximately 10 feet to approximately 15 feet below ground surface. On March 5, 2014, AMEC field personnel collected depth to water and total depth of well measurements in each of the located wells. In addition, surface water elevations were collected from staff gauges along Woodall Creek. Based on water level measurements groundwater flow is interpreted to be southwest toward Woodall Creek. Groundwater and Surface Water elevations from the March 2014 baseline event are presented in Table 6. A potentiometric surface Map is provided as Figure 19.

The calculated hydraulic gradient, based upon the March 2014 hydrogeologic characterization, ranged from about 0.01 to 0.03 feet/foot with an average of about 0.02 feet/foot. This is consistent with previously measured hydraulic gradients. The groundwater flow direction was also estimated from groundwater elevations measured at the property to be in a southwesterly direction. The hydraulic conductivity as measured by Peachtree in the CSR was estimated to average 3.15 x 10-5 cm/s (0.1 ft./day).

4.0 CONTAMINANT FATE AND TRANSPORT

Verification that the VRP Property meets the applicable Risk Reduction Standards as calculated pursuant to the VRP requires an understanding of the fate and transport of COCs, specifically with respect to PCE which has been identified as the principal chlorinated compound detected in surface water samples from Woodall Creek. Preparation of this CSR included development of a screening model using USEPA's BIOCHLOR to incorporate basic advective transport, adsorption, dispersion, and biodegradation of chlorinated ethenes (CEs) in order to better understand fate and transport of dissolved tetrachloroethene (PCE) that is currently located beneath the VRP Property. The screening model software (BIOCHLOR) was developed for USEPA and is designed to simulate conditions within a single-source plume, while accounting for advection, adsorption, dispersion, and biodegradation.

The BIOCHLOR model can be used to predict future concentrations of CEs within a modeled area based upon existing conditions within the model domain. In particular, the model developed for this CSR incorporates the likely points of groundwater discharge to surface water bodies in addition to simulating contaminant concentrations at a Point of Exposure (POE) identified according to the VRP and as detailed below. The model is used to evaluate future concentrations of CEs now beneath the VRP Property and determine potential for their contribution to impacts at a hypothetical POE ().

4.1 DESCRIPTION OF BIOCHLOR

BIOCHLOR is a screening model commonly used to evaluate natural attenuation of dissolved solvents in groundwater. The software, programmed in the Microsoft Excel spreadsheet environment is based on the Domenico analytical solute transport model and has the ability to simulate 1-dimensional advection, 3-dimensional dispersion, linear adsorption, and biotransformation by reductive dechlorination. Reductive dechlorination is recognized as the dominant biotransformation process at most chlorinated solvent sites. Dissolved solvent degradation is assumed to follow a sequential first order decay process. A first order decay is dependent only on the concentration (activity) of one reactant. They are described by the following formulas:

$$\frac{-d[A]}{dt} = r \text{ hence } r = k[A]$$

Where

$[A]$	is the concentration (activity) of reactant A
dt	is the change in time
$-d[A]$	is the change in concentration(activity) or reactant A
r	is the rate constant
k	is a constant

BIOCHLOR includes three different model types:

1. Solute transport without decay.
2. Solute transport with biotransformation modeled as a sequential first-order decay process.

3. Solute transport with biotransformation modeled as a sequential first-order decay process with 2 different reaction zones (i.e., each zone has a different set of rate coefficient values.

The second model type is used for the model developed for this CSR. Rationale for incorporating biotransformation through reductive dechlorination is provided below.

4.2 MODEL FOR VRP PROPERTY

The fate & transport analysis PCE concentration distribution associated with the VRP Property was modeled using BIOCHLOR version 2.2. The model is based on the configuration of the PCE plume that is illustrated in the maps provided herein and assumes a single plume originating on the VRP Property in the vicinity of well SMFMW-3, extending down the gradient into the vicinity of DPMW-2S and DPMW-3S, converging with the larger Woodall Creek plume which eventually discharges to Woodall Creek (Figures 5). The larger Woodall Creek plume concentrations are not reflected in the model – just contributions from the VRP Property. The model domain ends at a point 1500 feet down gradient, in the vicinity of Woodall Creek. This is assumed to be the point of groundwater discharge, based on topography and direction of groundwater flow at the site.

The BIOCHLOR model cannot mathematically accommodate and simulate a single contaminant source both before and after mass-removal remediation (within the same model). The model therefore assumes a non-remediated source, incorporating PCE concentrations at the source which reflect aquifer conditions prior to removal of the source material from the site. In this manner, the model presents a conservative simulation by discounting any reduction in groundwater concentrations that might be realized from the removal actions.

4.2.1 Evidence for Reductive Dechlorination

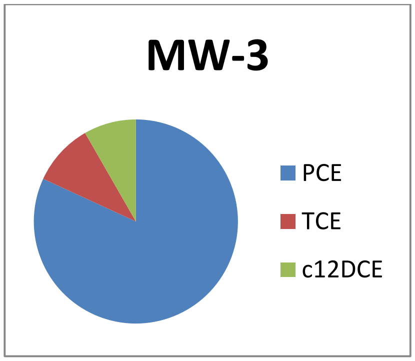
Tetrachloroethene (PCE) can be degraded by microorganisms via stepwise dechlorination, giving, in turn, trichloroethene (TCE), cis-1,2-dichloroethene (c12DCE), vinyl chloride (VC) and finally, ethene (Wiedemeier, et al., 1999). Other isomers of Dichloroethene are possible (trans 1,2 DCE and 1,1 DCE) but according to Bouwer (1994), these two isomers are produced in very small quantities relative to c12DCE during biodechlorination.

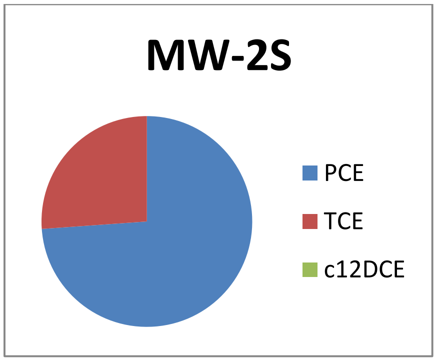
There are many indicators of biodechlorination of PCE such as decreasing concentrations, loss of CE mass over time, and changes in carbon isotope ratios for the remaining CEs. However, probably the strongest evidence is the presence of the dechlorination daughter products (TCE, cis-1,2-DCE, and VC) in a plume when there is no evidence of their release along with the PCE release. The presence of these daughter products is most reasonably explained by degradation of PCE (or both PCE and TCE in a mixed solvent release), especially if cis-1,2-DCE is the major DCE isomer and daughter products become the more prevalent CEs (in terms of overall molar concentration) in down-gradient areas of the plume. Such is the case at the VRP Property, where site data and operational history do not indicate a reasonable potential for a historical release of DCEs or VC at the site.

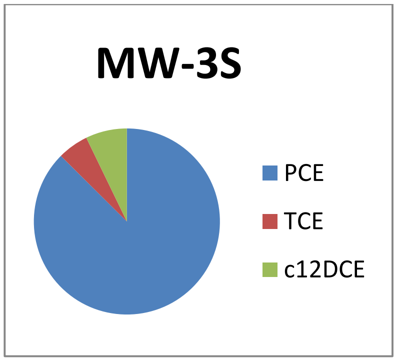
There is evidence of cis-1,2-DCE in several wells in the immediate vicinity of the source area at the VRP Property (Figures 9 and 10). Recent verification samples collected from three of the model wells (SMFMW-3, DPMW-2S, and DPMW-3S) appear below and indicate the presence of TCE and cis-1,2-DCE daughter products in groundwater within the model domain. The results represent CE distribution in the source (SMFMW-, first down-gradient well, second down-gradient well, respectively) are:

	March 2014 concentrations (mg/L)		
	SMFMW-3 (source)	MW-2S	MW-3S
PCE	0.0542	0.0202	0.0329
TCE	0.00516	0.00566	0.0016
cis-1,2-DCE	0.00321	0	0.00158

Pie chart expressions of relative distribution of chlorinated ethenes in 2014 samples from these three wells in the model (on a molar basis – to compare actual abundance and not mass which varies among the CEs), we see further evidence of appreciable cis-1,2-DCE both in the source area and further down the gradient.







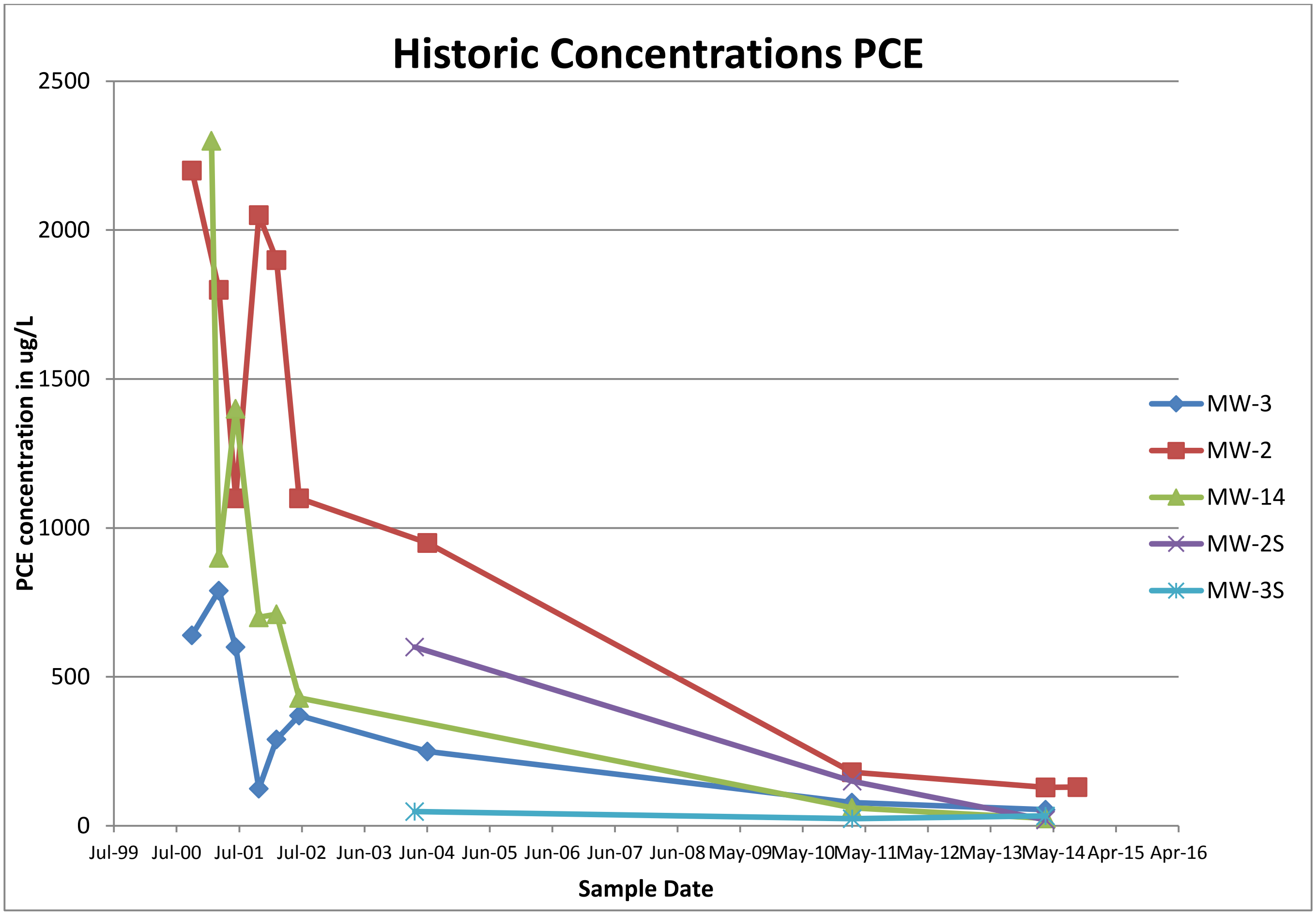
Based on these wells within the model domain, and considering the results from chemical analyses from other wells on the Woodall Creek site (outside the model), including detections of VC in wells near Woodall Creek, it is reasonable to assume biologically-mediated reductive dechlorination is an on-going process at the VRP Property, within the model domain, and across the Woodall Creek site.

4.2.2 Source Area

To maintain a conservative simulation, the model incorporates a continuing on-site source area 200 feet wide (approximate property width) by 22 feet deep (the approximate saturated aquifer thickness at MW-3) with a constant PCE concentration of 0.18 mg/L. This concentration is based on a groundwater sample collected from SMFMW-2 on 3/1/2011 and is assumed to be representative of current groundwater conditions across the former source area. This represents a conservative assumption for the source term because analytical data shows many of the measured concentrations of PCE within the former source area are now lower. This is due in large part to the removal actions which have been completed at the VRP Property. Rationale for the use of the 2011 source term is outlined below.

4.2.3 Mass Removal Actions and Effects on Modeling Source Area Concentrations:

A representative concentration for the source is essential for developing a reasonable and viable BIOCHLOR model. At this site, there has been remedial activities in the vicinity of the source area used for this model. These activities have included ISCO as injection of sodium permanganate in 2001, removal of contaminated soil in 2002 and 2004, and soil vapor extraction in February and May of 2005. Wells MW-2, MW-3, and MW-14 are in the area affected by remedial activities (Figure 15). The diagram below presents a chronological examination of the available analytical data for groundwater samples collected from wells within the model domain. In the March 2014 analyses, the PCE concentration in MW-2S is actually less than the PCE concentration in well MW-3S, which is further down the gradient.



This inverted pattern of concentrations in the source area runs counter to the logic of BIOCHLOR's mathematical model.

The most likely and probable explanation for this seemingly anomalous distribution of PCE concentrations between wells MW-2S and MW-3S can be found in soil corrective action that was completed at the VRP Property during the period between 2001 and 2005. In 2014, the distribution of detected PCE concentrations reflect lower concentrations of COCs emanating from the (remediated) source area, which have arrived at well MW-2S, but have yet to arrive at well MW-3S. The model incorporates a seepage velocity of approximately 66 feet per year between the source area MW-2S (and MW-3S) along with a retardation factor of 4.2 for dissolved PCE. Well MW-2S is approximately 106 feet down the gradient from the source area(s) at the southeast corner of the VRP Property. This calculates to an approximate travel time as:

Travel distance (ft) / seepage velocity (ft/yr) * Retardation Factor = travel time;

(106 ft) / (66 ft/yr)*4.2 = 6.75 yr

This yields an approximate travel time of 6.75 years for PCE to move from the SMF source area to well DPMW-2S, and predicts decreased COC concentrations (resulting from remediation events taking place as late as 2005) would have arrived at well DPMW-2S in the year 2010-2011. Therefore it appears that remediation events created a decrease in concentrations of dissolved-phase PCE concentrations, followed by a rebound of those concentrations. It is therefore presumed that the apparently anomalous concentration “reversal” observed between wells DPMW-2S and DPMW-3s during the subsequent sampling event can be related to the effectiveness of remediation efforts at the VRP Property.

To eliminate the anomalous results that this inverted pattern of contamination in the source are would produce, the BIOCHLOR model for the VRP Property incorporates an earlier complete data set reflecting a conservative, un-remediated source concentration (reflected by MW-2S and MW-3S samples in March 2011) and represents a maximum detected source area concentration from that particular sampling event. Overall, this data set constitutes a more conservative approach to the modeling of the plume, as it uses plume concentrations due to higher concentrations in the source area prior to remedial mass removal actions in-stead of using a post remedial action source area concentration. This will necessarily underestimate biotransformation rates and predict higher concentrations further from the source than will actually occur after the plume re-equilibrates to the remedial efforts.

4.3 INPUT AND ASSUMPTIONS

4.3.1 Point of Exposure

Under the VRP, a "Point of Exposure" (POE) refers to the nearest of: 1) the nearest down gradient drinking water supply well, 2) the likely nearest future location of a drinking water well, or 3) a hypothetical point of drinking water exposure located at a distance of 1000 feet down gradient from the delineated site contamination. The VRP Property is situated within an area to which drinking water is supplied by the City of Atlanta, therefore the POE for the VRP Property considers a hypothetical POE. Woodall Creek represents the extent of delineated contamination down gradient from the VRP Property. According to the definition, a hypothetical POE for the VRP Property would be 1000 feet down gradient from Woodall Creek. As demonstrated below, the model indicates a maximum extent for detectible impact extending only 900 feet from the VRP Property, corresponding with a point approximately 600 feet short of Woodall Creek. These results confirm that it is not necessary to model to any hypothetical POE that lies beyond the edge of Woodall Creek. To help ensure a conservative model, a hypothetical POE for the VRP Property is set at Woodall Creek.

4.3.2 Point of Demonstration

The VRP calls for the establishment of a “point of demonstration well” (POD well) located such that measurements from that well allow prediction of concentrations at the down-gradient POE. Well SMFMW-3 at the southwestern corner of the VRP Property was selected to represent the source area as the POD well for the purposes of the model.

The groundwater flow direction affecting contaminant migration across the SMF and Woodall Creek sites was measured to be generally toward the southwest. The results of the 2014 groundwater assessment indicate that the horizontal and vertical extent of TCE and PCE in groundwater has been delineated and extends along the west-southwest end of the VRP Property near SMFMW-3.

4.3.3 Input Parameters

The BIOCHLOR model is a screening level model and requires some simplifying assumptions: homogeneous hydrogeologic parameters across the model domain, a homogeneous decay rate (for CEs) throughout the decay zone of the model (only one zone used in this application); and (in this model) a continuing, constant concentration (no future mass reduction) at the source. Table 7 presents a summary of the key parameters of the BIOCHLOR simulation prepared for the VRP Property. Pertinent details for selected parameters appear below.

Seepage velocity *(ft./yr.)* – a function of several factors, most notably the hydraulic conductivity, porosity of the materials, and hydraulic gradient across the modeled area. At most sites, these factors can vary greatly both horizontally and vertically, and are normally adjusted during the calibration process. As a starting point for this parameter, the current model incorporated the seepage velocity of 300 ft/y identified in the VRP Application (Peachtree, 2013) and adjusted it as a calibration value.

Alpha x dispersion *(ft.)* – The BIOCHLOR documentation explains that “Dispersion refers to the process whereby a dissolved solvent will be spatially distributed longitudinally (along the direction of ground-water flow), transversely (perpendicular to ground-water flow), and vertically (downward) because of mechanical mixing and chemical diffusion in the aquifer. These processes develop the ‘plume’ shape that is the spatial distribution of the dissolved solvent mass in the aquifer.” The longitudinal dispersivity (“x”) is used to derive the transverse (“y” or across the plume) and vertical (“z” or depth-wise) dispersivities. Y = 0.1 X and Z = 0.01 X. “X” was determined using BIOCHLOR’s built in calculation 3 and an estimated plume length of 700 feet.

Soil bulk density (kg/L) – Soil bulk density is the mass of a volume of dry aquifer material. A value of 1.5 kg/L was used based on the previous S&ME 2004 model value. This value is slightly less than the model default value of 1.6 kg/L.

Fraction organic carbon (dimensionless) – because no site-specific value was available and to help ensure a conservative approach, the current model incorporates the default value of 0.001.

Simulation time (yr.) – approximate time since the release. For the current model, the release is assumed to have taken place sometime after development of the site. The current model uses a simulation time of 50 years, which corresponds with a release date of 1965, the approximate date the SMF facility became operational.

Modeled area width (ft.) – estimated value, assumed to be larger than the maximum width attained by the plume within the length of the model domain. Estimate is based on two-thirds of the model length.

Modeled area length (ft.) – length of the current model is defined as the map distance from the source past to the expected groundwater discharge point at the creek, approximately 1500 feet from the source and includes the Point of Demonstration (POD). For the current model, the POD is set at a point 1000 feet down the gradient from well SMFMW-3.

Degradation zone 1 length *(*ft*.)* – the length of the zone within the plume in which degradation of CEs is assumed to take place with essentially the same mechanisms and rates of degradation. It is; expressed as a distance along the modeled area length. BIOCHLOR can model up to two distinct degradation zones, but only one is used in this model exercise, so the entire model length is a single degradation zone.

Plume length (ft.) – length of the plume as initially defined by the input data; for this model, this distance is measured from the source area (SMFMW-3) to the approximate point at which the plume emanating from the source area at SMF converges with the larger plume in the area down-gradient from the VRP Property, approximately halfway between wells MW-26 and JPMW 21 (Figure 5).

Source thickness in saturated zone *(ft)* – assumed to be the saturated thickness of the surficial aquifer (above the bedrock) in the source area. Value was estimated using information available from well SMFMW-3, and is based on the depth-to-water measurement made in this well during the 2014 sampling event and estimated depth to the confining unit below the surficial aquifer.

Source width (ft.) – cross-sectional width of model source area in a direction perpendicular to the direction of groundwater flow (across the source area). This is estimated to be the approximate distance across the VRP Property as measured perpendicular to the direction of groundwater flow. Because the size and location of possible PCE sources on the VRP Property are not known, a very conservative estimate is made in assigning the entire property as a source.

PCE to DCE degradation lambda *(1/yr.)* – an expression of the dechlorination rate of PCE to TCE. This is the decay constant for the reaction and can be converted to a half-life using the following equation:

$$t_{1/2} = \frac{\ln(2)}{\lambda}$$

Where:
$t_{1/2}$ is half life
ln(2) is the natural logarithm of 2
λ is the decay constant

Initially, the model default value of 2.0 was used. This value was adjusted in calibration to 0.6. This final value is still within the model's suggested range of 0.07 to 1.2 which the model documentation quotes from Weidemeier et al. 1999.

The initial simulation was run for 50 years, the approximate time since beginning of operations at the site. The model was run to simulate future plume conditions at a number of periods out to 1000 years, as described below.

4.4 CALIBRATION

Groundwater seepage velocity was used as one calibration parameter to approximate the PCE concentrations observed at MW-2S and MW-3S during the 2011 sampling event. The final value after calibration was 66 feet per year (ft./yr.), which is not unreasonable for soil and saprolite although this value is somewhat less than the previously proposed seepage velocity of 300 ft/year developed using results from slug testing in selected monitoring wells at the Woodall Creek site (Peachtree, 2013).

Default adsorption rate was used as no site-specific data were available for this parameter. Default biodegradation rate for PCE was adjusted within the model-documentation suggested range. Final value after calibration was lambda = 0.6; being within the range of 0.07 to 1.2 that is suggested in the BIOCHLOR documentation.

4.5 SENSITIVITY ANALYSIS

Sensitivity analysis seeks to determine which parameter values supplied to the model, when varied slightly, causes the largest changes in model predictions. Once identified, these parameter values can potentially be measured most carefully and reduce uncertainty in model predictions most effectively. There is some overlap between the model calibration step and model sensitivity analysis. If a parameter value is attempted to be used in calibration, yet great changes in that value do not affect the model calibration, then that parameter is not particularly sensitive. On the other hand, if small changes to a parameter in calibrate make great changes in the model results that is likely a sensitive parameter.

For an analytical, screening level model like BIOCHLOR, where hydrogeologic parameters are not spatially varying and some site-specific data is often missing (site foc, for example), sensitivity analysis generally is much less complex.

For PCE fate and transport, major contributors of variability include foc and adsorption coefficient (which together determine the retardation factor for adsorption/advection), seepage velocity (which drives advection), and degradation constant (which determined degradation rate).

Foc and adsorption coefficient

Since available site-specific data did not address foc, the model default value was used. As can be seen from the equation defining the retardation factor (BIOCHLOR manual) this parameter has a great effect on the retardation factor:

$$R = \frac{1 + K_{oc} * f_{oc} * \rho_b}{n}$$

Where:

R is the retardation factor
Koc is organic carbon partitioning coefficient for PCE
foc is the fraction organic carbon
ρb is the bulk density
n is the effective porosity

Because no site-specific data was available (no idea of site-specific uncertainty), no formal sensitivity analysis was done for foc in this model, but from the equation, it is clear that an increase in foc would result in a dramatic increase in the value for R.

Seepage Velocity

Seepage velocity was used (successfully) as a calibration parameter. During the calibration, it was apparent that changing seepage velocity while holding other parameters constant could change the plume length prediction greatly. However, it is unlikely that the entire modeled area has a single seepage velocity (as assumed by BIOCHLOR) so future improvements in seepage velocity estimates would require some averaging techniques to come up with a single, appropriate value.

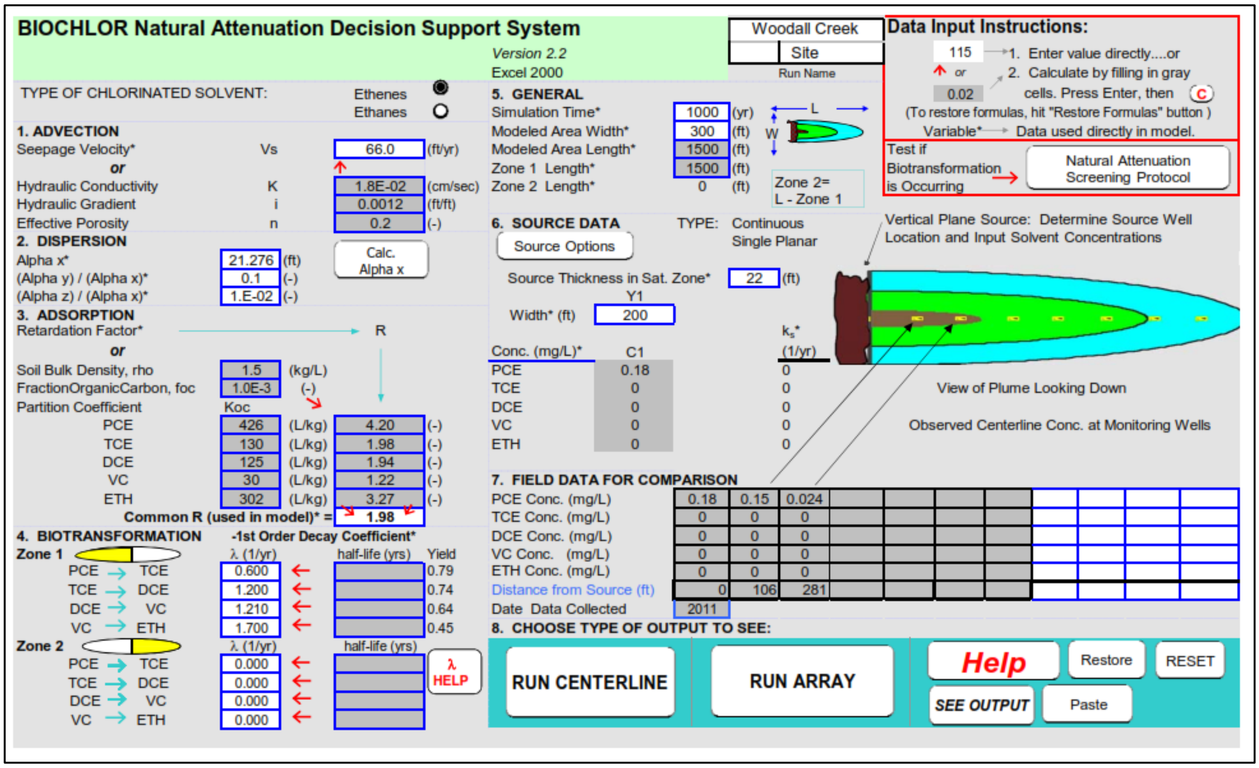
Degradation Constant for PCE to TCE

Once the extent of the plume was calibrated to field data, the actual concentration gradient along the plume was successfully calibrated with the degradation constant for PCE. This indicates the degradation constant is also a sensitive parameter since small changes in it created relatively large changes in the predicted concentrations along the plume (but bounded by having to be less than or equal to the no-degradation plume concentrations). Based on calibration experience and the distribution of daughter products in down gradient wells, the degradation is not a single-rate process, so future improvements in the degradation rate constant would also be dependent on an averaging technique for a site-specific value.

4.6 RESULTS AND DISCUSSION

Predictions of the Woodall Creek Model Scenario:

Using biodegradation, the model predicts current center-of-plume PCE concentrations of less than 0.33 ppb at a horizontal distance less than 900 feet from the source (SMFMW-3) after a period of 50 years from the postulated time of release in 1964. It should be noted that modeling results described herein, including simulations incorporating biodegradation, do not account for any added biodegradation or adsorption that will take place as contaminated groundwater moves through relatively organic-rich soil and alluvial deposits in the floodplain adjoining Woodall Creek.



BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Woodall Creek
Site
Run Name

Data Input Instructions:
115 → 1. Enter value directly....or
or 2. Calculate by filling in gray
0.02 cells. Press Enter, then C
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.
Test if Biotransformation is Occurring

TYPE OF CHLORINATED SOLVENT: Ethenes ● Ethanes ○

1. ADVECTION
Seepage Velocity* Vs 66.0 (ft/yr)
or
Hydraulic Conductivity K 1.8E-02 (cm/sec)
Hydraulic Gradient i 0.0012 (ft/ft)
Effective Porosity n 0.2 (-)

2. DISPERSION
Alpha x* 21.276 (ft)
(Alpha y) / (Alpha x)* 0.1 (-)
(Alpha z) / (Alpha x)* 1.E-02 (-)

3. ADSORPTION
Retardation Factor* → R
or
Soil Bulk Density, rho 1.5 (kg/L)
FractionOrganicCarbon, foc 1.0E-3 (-)

Partition Coefficient	Koc		R	
PCE	426	(L/kg)	4.20	(-)
TCE	130	(L/kg)	1.98	(-)
DCE	125	(L/kg)	1.94	(-)
VC	30	(L/kg)	1.22	(-)
ETH	302	(L/kg)	3.27	(-)

Common R (used in model)* = 1.98

4. BIOTRANSFORMATION **-1st Order Decay Coefficient***

Zone 1	λ (1/yr)	half-life (yrs)	Yield
PCE → TCE	0.600		0.79
TCE → DCE	1.200		0.74
DCE → VC	1.210		0.64
VC → ETH	1.700		0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.000	
TCE → DCE	0.000	
DCE → VC	0.000	
VC → ETH	0.000	

5. GENERAL
Simulation Time* 1000 (yr)
Modeled Area Width* 300 (ft)
Modeled Area Length* 1500 (ft)
Zone 1 Length* 1500 (ft)
Zone 2 Length* 0 (ft)
Zone 2= L - Zone 1

6. SOURCE DATA TYPE: Continuous Single Planar
Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations
Source Thickness in Sat. Zone* 22 (ft)
Y1
Width* (ft) 200

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	0.18	0
TCE	0	0
DCE	0	0
VC	0	0
ETH	0	0

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	0.18	0.15	0.024								
TCE Conc. (mg/L)	0	0	0								
DCE Conc. (mg/L)	0	0	0								
VC Conc. (mg/L)	0	0	0								
ETH Conc. (mg/L)	0	0	0								
Distance from Source (ft)	0	106	281								
Date Data Collected	2011										

8. CHOOSE TYPE OF OUTPUT TO SEE:

In addition to modeling current conditions, model predictions for future plume concentrations were calculated. These include model runs simulating plume conditions after 100, 200, 500, and 1000 total years (which correspond with points in time at 50, 150, 450, and 950 years into the future beyond 2014). Results for these runs are presented in Table 8 which includes center-line of plume concentrations for models (with and without biodegradation) at distance intervals of 150 feet in a direction down the gradient, out to a point that corresponds with the POE for the VRP Property, approximately 1500 feet from the source. When an allowance is made for biodegradation, the plume remains stable after 100 years (50 years into the future) without changes to predicted (future) concentrations, and without increases to concentrations in down-gradient areas. The model indicates that PCE within the plume dissipates to 5 ppb at a distance less than 300 feet down the gradient from the source on the VRP Property and attenuates to the PQL (0.2 ppb) within a distance 900 feet from the source. None of these down-gradient concentrations are predicted to change, even at the longest time period modeled (a point in time 950 years in the future).

The BIOCHLOR model was run through an iterative process of adjusting concentration at the source to determine a concentration for the PCE source term at which impacts might be anticipated in down-gradient areas. By incorporating biodegradation and retardation, results from this iterative process indicate that increasing the model source term to a concentration of 8 milligrams per liter (8 ppm) only raises predicted groundwater concentrations to 5 ug/L (5 ppb) at the "PQL distance" of 900 feet (described above) at a time 50 years into the future. The model thereby demonstrates that concentrations of PCE in groundwater at the POD would have to increase by multiple orders of magnitude in order to contribute detectible concentrations at the POE (Woodall Creek) which is 1500 feet from the VRP Property.

To help ensure a conservative approach to implementation of long-term monitoring at the VRP Property, a threshold concentration of 500 ug/L is proposed for PCE at the POD well (SMFMW-3). This concentration is approximately twice the highest concentration of PCE detected in groundwater beneath the VRP Property during 2014. Incorporating model input parameters, including biodegradation and retardation, the proposed threshold concentration of 500 ug/L in well SMFMW-3 corresponds with a model-predicted PCE concentration of 0.296 ug/L at a distance 900 feet from the VRP Property, with predicted concentrations below the PQL (0.2 ppb) at a distance approximately 500 feet short of the POE (Woodall Creek).

4.5 CONCLUSIONS FROM FATE & TRANSPORT ANALYSIS

Results from a highly conservative groundwater model indicates groundwater at the VRP Property is in compliance with Type 1 RRS at a hypothetical Point of Exposure (POE) pursuant to the VRP. The model indicates that PCE concentrations fall below detectable levels before reaching the hypothetical POE, and will continue to do so as the plume collapses. The model predicts that groundwater from the VRP Property will remain in compliance throughout the foreseeable future, with concentrations. Based on these results, groundwater at the VRP Property is in compliance with Type 1 Risk Reduction Standards with controls for groundwater.

Future confirmation of model predictions will be made through collection and analysis of groundwater samples from the POD well (SMFMW-3) as a part of the semi-annual MNA that is conducted for the Woodall Creek HSI site. Modeling predictions suggest a PCE concentration of 500 ug/L to be a reasonable threshold for comparison with analytical results from POD well SMFMW-3. Exceedance of a 500 ppb threshold value at the POD well would justify the initiation of evaluation of whether concentrations of PCE leaving the VRP Property will have the potential to contribute to impacts at the hypothetical POE although, based on current conditions, concentrations approaching that level appear very unlikely.

5.0 POTENTIAL RECEPTORS AND EXPOSURE PATHWAY ASSESSMENT

The following potential exposure pathways and receptors were considered for the VRP Property:

- Potential exposure to regulated constituents in soil;
- Potential exposure to regulated constituents in groundwater;
- Potential exposure to regulated constituents due to vapor intrusion from groundwater beneath the building.

5.1 SOIL CRITERIA

The potential for direct exposure to impacted soil at the Site is considered incomplete because impacted soil has been addressed by past remedies and residual impacted soil is covered by either paving or a commercial building.

5.2 GROUNDWATER CRITERIA

Per the 2011 VRP Application (Peachtree, 2011), points of groundwater withdrawal are not located within one (1) mile of the Site. Groundwater sampling completed in March 2014 indicates that chlorinated solvent concentrations have decreased since 2000. There is no indication of the presence of DNAPL in bedrock wells. The Site and surrounding areas are well developed. There are no current expansion plans within the vicinity of the groundwater plume, which has been laterally and vertically delineated. In addition, the average depth to the water table is greater than 17 feet as identified in the 11 monitoring wells located in the vicinity of the Shipping/Warehouse Building. Utilities in the area are shallow and exposure to groundwater during construction and utility work is unlikely.

5.3 POINT OF EXPOSURE FOR GROUNDWATER COMPLIANCE

Under the VRP, "Point of exposure" means the nearest of: (1) the closest existing down gradient drinking water supply well, (2) the likely nearest future location of a drinking water well, or (3) a hypothetical point of drinking water exposure located at a distance of 1000 feet down gradient from the delineated site contamination. In this case, Woodall Creek is closer than any of these three points. Therefore, Woodall Creek itself was chosen as the point of exposure although, as explained above in Section 4.0, The VRP calls for the establishment of a “point of demonstration well” located such that measurements from that will allow prediction of concentrations at the down-gradient Point of Exposure. For this Voluntary Compliance Status Report, a monitoring well located in the southwestern corner of the VRP Property [_MW-3_] is proposed as the Point of Demonstration well.

The groundwater flow direction affecting contaminant migration across the VRP Property and the entire Woodall Creek Site has been determined to be generally toward the southwest. Results of the 2014 baseline groundwater assessment indicate that the horizontal and vertical extent of TCE and PCE in groundwater has been delineated and is located primarily along the southwestern end of the VRP Property near MW-3. Results from recent groundwater sampling also indicate a definite decrease in areal extent of PCE contamination in and around the VRP Property since 2001. Furthermore, these results confirm the presence of daughter products

(TCE/c12DCE/VC) which indicate biodegradation of PCE is taking place within the aquifer on the VRP Property and in down-gradient areas.

AMEC utilized BIOCHLOR software to model fate and transport of PCE-impacted groundwater to evaluate potential for CE in groundwater to impact the POE at a distance approximately 1000 feet down gradient from the VRP Property boundary. ,. The model was calibrated by inputting known parameters such as hydraulic conductivity and hydraulic gradient, and groundwater VOC concentrations measured within the source area and in down-gradient wells. The BIOCHLOR model indicates PCE remaining at the VRP Property will not reach the POE at detectible concentrations. In addition, the PCE plume will continue to attenuate over time because the source material has been removed.

In summary, the concentrations of remaining CEs in groundwater that are attributable to the VRP Property are not predicted to cause or contribute to detectible concentrations in Woodall Creek now or in the future. Based on these results, groundwater at the VRP Property is in compliance with Type 1 Risk Reduction Standards with controls for groundwater. Continued compliance at the POE will be verified using results from analysis of groundwater collected from the POD well (SMFMW-3) during upcoming MNA sampling at the Woodall Creek Site. Results from the POD well will be compared with a proposed threshold value of 500 ug/L to evaluate potential changes in site conditions which might result in detectible concentrations of PCE at the POE.

5.4 VAPOR INTRUSION RISK EVALUATION

AMEC evaluated the potential impact of groundwater contamination on current and future indoor air quality for the Shipping/Receiving industrial building located at the Southern Metal Finishing Site. The Site is a long-term industrial facility and surrounding buildings are also used for industrial and commercial purposes. The Shipping/Receiving Building has large bay door openings on the north and south sides and a paved driveway and parking lot on the north side. This brick building has a slab on grade foundation with the first occupied space approximately 6 feet above ground surface. The working area is largely open with a small office area located on the western side of the building. This building is used to store manufactured goods before they are placed on trucks for transport and to receive goods used in manufacturing. Soil impacts in the vicinity of this building have been previously addressed. Maximum groundwater concentrations from monitoring wells located inside the buildings and surrounding the building were used to estimate worst-case potential exposures for current and future industrial/commercial workers that might be exposed to indoor air vapor emissions from the subsurface.

Eleven groundwater monitoring wells (SMFDR-3, SMFDS-3, SMFMW-1, SMFMW-2, SMFMW-3, SMFMW-4, SMFMW-6, SMFMW-9, SMFMW-10, AND SMWPI-1) located close to the current building were sampled in March 2011 and March 2014 for volatile organic compounds (VOCs) (Table 5, Figures 5 and 6). Data from samples collected prior to 2011 were not considered representative of current groundwater conditions. In 2011 and 2014, 23 VOCs were detected in one or more samples of the 18 collected groundwater samples, and these data are further considered in the indoor air risk evaluation. The range of detected groundwater VOC concentrations are listed on Table 9.

5.4.1 Exposure Assessment

In order to identify groundwater constituents of potential concern (COPCs) for the vapor intrusion pathway, the maximum detected groundwater concentrations were compared to target groundwater concentrations from USEPA's Vapor Intrusion Screening Level (VISL) Calculator Version 3.3.1. These screening levels are presented in Table 9 and are based on a residential exposure scenario with target carcinogenic risk of 10^{-6} and target hazard index of 0.1. As a result of this screening step, six constituents were identified as groundwater COPCs and carried through the vapor intrusion risk evaluation. Selected COPCs include chloroform, ethyl benzene, tetrachloroethene, trichloroethene, m & p- xylene, and o-xylenes.

These six VOCs in groundwater were evaluated as a potential source of volatile emissions into a current/future commercial use building located on the property. AMEC utilized the USEPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (USEPA, 2002) as a primary guidance document. In accordance with the guidance, AMEC estimated future indoor air concentrations at the site, using USEPA's Johnson and Ettinger Model for Subsurface Vapor Intrusion into Buildings (GW-ADV, Version 3.1) (the J&E Model) (USEPA, 2004).

Default and site-specific modeling parameters were used for estimating indoor air concentrations (Table 10). Based on site-specific measurements, the average depth to groundwater in the vicinity of the Shipping/Receiving Building is estimated at approximately 17.9 feet. The soil strata beneath the building include a fill layer and residuum layer. Both soil layers are mixtures of primarily silt and sand. The upper stratum of soil was classified as loam (L) for the purposes of modeling and was assumed to extend to a depth of 11 feet below ground surface. The residuum layer was classified as loamy sand (LS). Both classifications were selected in agreement with guidance provided in the J&E Model user's guide (USEPA, 2004). The Shipping/Receiving Building is approximately 200 feet by 62.5 feet with an estimated average ceiling height of 20 feet. This building is largely open-air with large bay areas on two sides of the building and is unlikely to accumulate vapors. As a conservative measure, the building was assumed to be enclosed. For the commercial land use scenario, an assumed air exchange rate of 1.5 exchanges per hour was used (mean rate for commercial buildings per Exposure Factors Handbook – 2011 Update, USEPA, 2011). Commercial/industrial workers were assumed to be exposed for 8 hours per day, for 250 days per year for 25 years (USEPA, 2014a).

5.4.2 Toxicity Assessment

Toxicity values [Inhalation Reference Concentrations (RfCs) and Unit Risk Factors (URFs)] used in this evaluation were obtained from the USEPA Integrated Risk Information System (IRIS, 2014) and USEPA's May 2014 Regional Screening Level Table (USEPA, 2014b). The toxicity values used in this assessment are listed on J&E Model outputs in Appendix F. The RfC is used to estimate non-carcinogenic inhalation hazards. The RfC is an estimate of the daily exposure to the human population (including sensitive subgroups such as children and the elderly) that is likely to be without an appreciable risk of deleterious effects. The estimated hazard is compared to a target hazard index (HI) of one. Cumulative hazards less than one are not likely to be associated with systemic or non-carcinogenic health risks.

Using the chemical-specific URF, the cumulative carcinogenic risk for the indoor vapor intrusion pathway was calculated and compared to a target risk of 10^{-5}. If the cumulative carcinogenic risk for site workers is less than 10^{-5}, risk is considered to be in the acceptable range under the Hazardous Site Response Act (HSRA). The URF is characterized as an upper-bound estimate designed to be protective of the majority of the human population.

5.4.3 Risk Characterization – Vapor Intrusion Modeling

The J&E Model was used to estimate indoor air concentrations with groundwater concentrations used as the input values and to calculate estimated cumulative incremental risks and hazards related to potential vapor intrusion into the site building (J&E Model outputs in Appendix F). The results of the vapor risk characterization are summarized on Table 11. The J&E Model incorporates both convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from the subsurface into indoor spaces located directly above the source of contamination. The model is a one-dimensional analytical solution to vapor transport into indoor spaces, relating the vapor concentration in the building to the chemical concentration at the subsurface source area.

The J&E Model assumes the structure is located above the subsurface impacts and volatile emissions will enter through the concrete floor slab. This model does not incorporate dispersion, dilution, or bio attenuation. However, in actuality, the concentrations of volatile compounds may naturally attenuate over time. The model also assumes an infinite subsurface contamination source, while the distribution under the building is not homogeneous. In general, the assumptions used in the J&E modeling would tend to overestimate indoor air concentrations.

The estimated incremental risk for industrial/commercial land use from groundwater vapor intrusion to indoor air is 8×10^{-8} (Table 11). The estimated hazard index (HI) for vapor intrusion to indoor air from the COPCs in groundwater is 0.01. The HI is less than one and the incremental risks are less than 1×10^{-5}. Based on these results, the vapor intrusion pathway would not pose an unacceptable hazard or risk to occupational receptors working in the Shipping/Receiving Building and would not be of concern to human health in the future.

5.4.4 Uncertainty Analysis

This assessment assumes uniform exposure across the site although groundwater concentrations vary by location. The assessment also assumes site workers will be exposed over a 25-year period for 250 days per year (USEPA, 2014a). These assumptions would tend to overestimate risks because commercial workers do not typically remain in the same job and location for 25 years. In addition, the detected constituents are subject to attenuation over time.

5.4.5 Conclusions from Risk Evaluation

Risk calculations were completed using the March 2011 and March 2014 maximum detected groundwater concentrations in the J&E Model in order to estimate the indoor air concentrations for COPCs. Risk and hazard associated with estimated indoor air exposures were then calculated by estimating indoor air exposure concentrations and comparing these concentrations to inhalation toxicity benchmarks.

Resulting estimated cumulative hazards and risks indicate no unacceptable risk or hazards for occupational receptors potentially exposed via indoor air vapor emissions.

5.5 Compliance with Risk Reduction Standards

The subject site is currently an industrial property. The Site lies in an area that is up the gradient from properties that are currently industrial and commercial in nature across a distance of more than 1,000 feet. Therefore, non-residential risk reduction standards (RRS) apply.

5.5.1 Soil Criteria

In soil confirmation samples collected during the 2004 soil excavation, low concentrations of PCE, TCE, and VC were detected at concentrations slightly exceeding Type 1 RRS as calculated under the Rules for Hazardous Site Response. However, confirmation samples collected after over excavation in those areas showed PCE and TCE well below their Type 1 RRS (Table 5, Appendix D). All other constituents detected were in compliance with Type 1 RRS. The soil RRS are presented in Table 1. Additional soil samples have not been collected from the VRP Property since 2004. This area was further addressed during multiple soil vapor extraction events in 2005. Because of the presence of the building and the paved areas around the north side of the building, exposure pathway is incomplete for direct contact with soil. Any residual levels of VOCs in soil are expected to be very low and not serve as a source of contamination to groundwater. Because constituent concentrations in soils are in compliance with Type 1 RRS as calculated under the Rules for Hazardous Site Response, no effort has been made to calculate an alternative Type 1 RRS under methods allowed by the VRP.

5.5.2 Groundwater Criteria

Twenty-one HSRA regulated constituents were detected in groundwater samples collected in 2011 and 2014. Results from a highly conservative groundwater model that originates at the POD, groundwater at the VRP Property is in compliance with Type 1 RRS for all constituents at the Point of Exposure (POE) pursuant to the VRP. Future confirmation of model predictions will be made through collection and analysis of groundwater samples from the POD well (SMFMW-3) as a part of the semi-annual MNA that is conducted for the Woodall Creek HSI site. Modeling predictions suggest a PCE concentration of 500 ug/L to be a very conservative value for comparison with analytical results from POD well SMFMW-3. Exceedance of 500 ppb threshold value at the POD well would justify the initiation of an evaluation of whether concentrations of PCE leaving the VRP Property will have the potential to contribute to impacts at the POE.

6.0 COMPLIANCE AT POINT OF DEMONSTRATION

Results from the highly conservative groundwater model indicate groundwater at the VRP Property to be in compliance with Type 1 RRS with controls at a hypothetical Point of Exposure (POE) pursuant to the VRP. Furthermore, the model predicts that concentrations at the POE will remain below detectable levels even in the event that POD concentrations increase during the short term. Continued compliance for groundwater will be verified using results from samples collected from the POD well during semi-annual MNA sampling at the Woodall Creek Site. Results from the POD well will be compared with a proposed threshold value of 500 ug/L for PCE to determine whether a need for evaluating potential changes in site conditions which might result in detectible concentrations of PCE at the hypothetical POE.

7.0 ENVIRONMENTAL COVENANT

To ensure that there is no potential future risk due to consumption of groundwater, the VRP Property owner shall file an Environmental Covenant with the Fulton County Superior Court within 120 days of EPD's notice of acceptance of this CSR and certification of compliance. The Environmental Covenant shall place a restriction on the extraction or use of groundwater from beneath the VRP Property for drinking water purposes.

8.0 FINDINGS AND CONCLUSIONS

Extensive soil and groundwater sampling efforts have been completed on the VRP Property since 2001. Based on these efforts, both soil and groundwater impacts have been delineated horizontally and vertically.

Soils excavated during remedial activities at SMF were taken off site for proper disposal. Manifests information has been provided in Appendix E. Soil remedial efforts have effectively reduced soil concentrations to below Type1 RRS.

Results of the 2014 baseline groundwater assessment indicate that horizontal and vertical extent of constituents in groundwater has been delineated and is located primarily along the southwestern end of the Site near MW-3. Groundwater impacts associated with the VRP Property have been delineated both horizontally and vertically to the Type 1 RRS.

Results from 2014 baseline groundwater sampling demonstrate a definite decrease in areal extent of PCE contamination in and around the VRP Property since 2001. Groundwater sampling results confirm the presence of daughter products (TCE/c12DCE/VC) which indicate biodegradation of PCE is taking place within the aquifer on the VRP Property and in down-gradient areas. In addition, the PCE plume will continue to attenuate over time because source material has been removed.

The VRP Property is situated within an area to which drinking water is supplied by the City of Atlanta, therefore analysis for this CSR considers a hypothetical POE. According to its definition, and based on results from the modeling (described above), a theoretical POE for the VRP Property is established at the edge of Woodall Creek to help ensure a conservative approach.

Results from a highly conservative groundwater model indicate groundwater at the VRP Property to be in compliance with Type 1 RRS at the Point of Exposure (POE) pursuant to the VRP. The model incorporates input parameters which are reasonable and representative of probable subsurface conditions, with a groundwater source term originating from a POD (well SMFMW-3) located at the down-gradient edge of the VRP Property. The model demonstrates that constituents within the plume attenuate to concentrations below detectable levels within a distance that falls short of the POE. Remaining COCs at the VRP Property will not reach the POE at concentrations exceeding Type 1 RRS, neither will they reach the POE at concentrations above the PQL. Previously completed removal actions on the VRP Property and continued collapse of the plume will enhance and contribute to improvement of these conditions over the long term. Furthermore, the model predicts that concentrations at the POE will remain below detectable levels even in the unlikely event concentrations at the POD increase during the short term. In summary, concentrations of remaining CEs in groundwater that are attributable to the VRP Property are not predicted to cause or contribute to exceedances of in-stream water quality standards in Woodall Creek now or in the future.

The estimated incremental risk for industrial/commercial land use from groundwater vapor intrusion to indoor air indicate no unacceptable risk or hazards for occupational receptors potentially exposed via indoor air vapor emissions.

There is an incomplete pathway for exposure to groundwater given that there are no drinking water wells or surface water bodies on the property. The exposure pathway for groundwater is restricted to groundwater discharge to Woodall Creek. However, a highly conservative fate and transport model indicates PCE currently dissipates to concentrations equivalent to the Type 1 RSS (5 ppb) at a distance that is less than 300 feet down the gradient from the source. Based on current source term, plume concentrations meet the In-stream criteria of 3.3 ppb short of a distance of 600 feet, and attenuate to the PQL (0.2 ppb) at a distance within 900 feet of the source. None of these concentrations or distances are predicted to change, even at the longest time period modeled (950 years in the future).

Based on previous remedial efforts performed on the VRP Property and the on-going natural attenuation of groundwater impacts, a no further response action is recommended for the VRP Property. Confirmation of model predictions will be made through collection and analysis of groundwater samples from well SMFMW-3 as part of the semi-annual MNA that is conducted for the Woodall Creek HSI site. A threshold concentration of 500 ug/L will be used as a comparison with analytical results from POD well SMFMW-3. Exceedance of this threshold value would justify initiation of action to determine whether concentrations of PCE leaving the VRP Property have potential to contribute impacts at the POE, or if there is a need for evaluating potential changes in site conditions which might result in detectible concentrations at the POE.

To ensure that there is no potential future risk due to consumption of groundwater, the VRP Property owner shall file an Environmental Covenant with the Fulton County Superior Court within 120 days of EPD’s notice of acceptance of this CSR and certification of compliance. The Environmental Covenant shall place a restriction on the extraction or use of groundwater from beneath the VRP Property for drinking water purposes.

9.0 REFERENCES

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TABLES

Table 1
Soil Delineation Standards

Chemical of Concern	Type 1 RRS (Mg/KG)
Benzene	0.5
1,1-Dichloroethene (1,1-DCE)	0.7
cis-1,2-Dichloroethene (cis-1,2-DCE)	7
trans-1,2-Dichloroethene (trans-1,2-DCE)	10
Ethylbenzene	70
Tetrachloroethen (PCE)	0.5
Trichloroethen (TCE)	0.5
Vinyl Chloride (VC)	0.2
Total Xylenes	1,000

Table 2
Monitoring Well and Surface Water Sampling Point Coordinates
SMF and Woodall Creek Site
Atlanta, Fulton County, Georgia
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Well Number	Top of Casing Elevation	Longitude	Latitude	Water-Bearing Zone Monitoring Interval
SOUTHERN METAL FINISHING PROPERTY WELLS				
SMFMW-1	899.16	-84.424240	33.797907	Shallow
SMFMW-2	901.25	-84.424217	33.797658	Shallow
SMFMW-3	900.29	-84.424228	33.797563	Shallow
SMFMW-4	899.78	-84.423963	33.797564	Shallow
SMFMW-5	899.63	■	■	Shallow
SMFMW-6	901.17	-84.422945	33.797590	Shallow
SMFMW-7	906.35	-84.423405	33.797799	Shallow
SMFMW-8	899.85	■	■	Shallow
SMFMW-9	903.78	-84.423605	33.797698	Shallow
SMFMW-10	903.90	-84.423954	33.797669	Shallow
SMFMW-11	908.47	-84.422441	33.798423	Shallow
SMFMW-12	894.60	-84.424312	33.797333	Shallow
SMFMW-13	895.45	-84.424268	33.796809	Shallow
SMFMW-14	894.94	-84.424310	33.797632	Shallow
SMFMW-15	895.89	■	■	Shallow
SMFMW-16	898.27	■	■	Shallow
SMFMW-17	904.50	-84.423881	33.798143	Shallow
SMFMW-18	911.61	-84.422959	33.797997	Shallow
SMFPI-1	ND	-84.424508	33.797392	Shallow
SMFDS-1	906.19	■	■	Intermediate (Top of Bedrock)
SMFDS-2	894.54	■	■	Intermediate (Top of Bedrock)
SMFDS-3	900.04	-84.423977	33.797564	Intermediate (Top of Bedrock)
SMFDR-1	906.16	-84.423403	33.797708	Fractured Bedrock
SMFDR-2	894.65	-84.424319	33.797544	Fractured Bedrock
SMFDR-3	899.90	-84.423986	33.797512	Fractured Bedrock
SMFMW-1D	900.97	-84.424188	33.797564	Fractured Bedrock
MACY'S PROPERTY WELLS				
MPMW-15	896.40	-84.424423	33.797500	Shallow
MPMW-16	898.41			Shallow
MPMW-19	ND	-84.424910	33.797704	Shallow
DOBBINS PROPERTY WELLS				
DPMW-1	895.65	■	■	Shallow
DPMW-1S	895.99	-84.424527	33.797006	Shallow
DPMW-2	896.14	■	■	Shallow
DPMW-2S	895.29	-84.424508	33.797392	Shallow
DPMW-2I	895.71	-84.424556	33.797388	Intermediate (Top of Bedrock)
DPMW-3S	895.61	-84.424982	33.797118	Shallow
DPMW-3I	895.67	-84.424974	33.797103	Intermediate (Top of Bedrock)
DPMW-4S	895.80	-84.424484	33.797203	Shallow

Table 2
Monitoring Well and Surface Water Sampling Point Coordinates
SMF and Woodall Creek Site
Atlanta, Fulton County, Georgia
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Well Number	Top of Casing Elevation	Longitude	Latitude	Water-Bearing Zone Monitoring Interval
DPMW-4I	895.57	-84.424482	33.797168	Intermediate (Top of Bedrock)
DPMW-5S	ND	[redacted]	[redacted]	Shallow
DPMW-9	895.10	[redacted]	[redacted]	Shallow
DPMW-10	896.14	[redacted]	[redacted]	Shallow
DPMW-14	895.98	[redacted]	[redacted]	Shallow
DPMW-15	ND	[redacted]	[redacted]	Intermediate (Top of Bedrock)
DPMW-16	896.71	[redacted]	[redacted]	Fractured Bedrock
DPMW-25	895.58	-84.425535	33.796238	Shallow
DPMW-26	897.11	-84.425503	33.796686	Shallow
DPMW-27	901.30	-84.425267	33.796523	Shallow
DPMW-28	896.25	-84.425219	33.796240	Shallow
RESTAURANT SUPPLY (FORMER JODACO PROPERTY) WELLS				
JPMW-16	864.63	-84.426520	33.795497	Shallow
JPMW-17	864.52	-84.426480	33.795982	Shallow
JPMW-21	858.70	-84.426393	33.796169	Shallow
JPMW-22	866.76	-84.425868	33.796229	Shallow
JPMW-23	866.71	-84.425569	33.796144	Shallow
JPBRW-1	864.52	-84.426774	33.795462	Fractured Bedrock
DALTILE (FORMER REYNOLDS PROPERTY) WELLS				
RPMW-1	853.39	-84.426655	33.795329	Shallow
RPMW-2	871.62	-84.425394	33.794610	Shallow
RPMW-14	861.23	-84.426557	33.794992	Shallow
RPMW-15	861.44	-84.426530	33.795243	Shallow
RPMW-24	865.29	-84.425947	33.795425	Shallow
GOOSTONE PROPERTY WELLS (1494 & 1510 ELLSWORTH INDUSTRIAL BLVD.)				
GPMW-11	847.92	-84.427144	33.795542	Shallow
GPMW-18	846.48	-84.427926	33.796005	Shallow
GPMW-19	841.86	-84.427215	33.796167	Shallow
GPMW-20	848.27	-84.427218	33.796513	Shallow
M-WEST HOA (FORMER ABC SUPPLY PROPERTY) WELLS				
HOAMW-3	840.98	-84.428125	33.795378	Shallow
HOAMW-5	841.06	-84.428227	33.795490	Shallow
HOAMW-5I	843.89	-84.428256	33.795491	Intermediate (Top of Bedrock)
HOAMW-6	841.10	[redacted]	[redacted]	Shallow
HOAMW-14	857.36	-84.428780	33.797370	Shallow
MIDTOWN WEST (FORMER M-WEST LOTS/ABC SUPPLY PROPERTY) WELLS				
MTWMW-1	841.33	[redacted]	[redacted]	Shallow
MTWMW-2	839.37	[redacted]	[redacted]	Shallow
MTWMW-4	840.01	-84.427937	33.795276	Shallow
MTWMW-7	844.41	-84.427792	33.794544	Shallow
MTWMW-7I	844.59	-84.427788	33.794549	Intermediate (Top of Bedrock)
MTWMW-8	846.95	-84.427174	33.795009	Shallow
MTWMW-9	848.45	-84.427175	33.795153	Shallow

Table 2
Monitoring Well and Surface Water Sampling Point Coordinates
SMF and Woodall Creek Site
Atlanta, Fulton County, Georgia
(Page 3 of 3)

Well Number	Top of Casing Elevation	Longitude	Latitude	Water-Bearing Zone Monitoring Interval
MTWMW-10	849.43	-84.427168	33.795364	Shallow
MTWMW-12	845.66	-84.427170	33.794836	Shallow
MTWMW-13	ND	■	■	Shallow
GLIDDEN PROPERTY WELLS				
AKZMW-3	893.77	-84.424145	33.796212	Shallow
AKZMW-4	890.12	-84.423495	33.796700	Shallow
AKZMW-5	905.05	■	■	Shallow
AKZMW-6	899.36	-84.423323	33.797445	Shallow
AKZMW-7	897.80	-84.423570	33.797449	Shallow
AKZMW-8	894.89	-84.424036	33.797456	Shallow
AKZMW-17	901.46	■	■	Intermediate (Top of Bedrock)
AKZMW-18	901.44	■	■	Shallow
AKZMW-19	901.04	■	■	Shallow
AKZMW-20	899.60	■	■	Shallow
SURFACE WATER LOCATIONS				
S 01	NA	-84.427223	33.794021	NA
S 06	NA	-84.427805	33.794312	NA
S 09	NA	-84.428130	33.794952	NA
S 10	NA	-84.428144	33.795074	NA
S 11	NA	-84.428267	33.795220	NA
S 12	NA	-84.428341	33.795252	NA
S 13	NA	-84.428431	33.795304	NA
S 14	NA	-84.428487	33.795390	NA
S 15	NA	-84.428570	33.795516	NA
S 16	NA	-84.428680	33.795652	NA
S 17	NA	-84.428800	33.795799	NA
S 18	NA	-84.429050	33.796044	NA
S 19	NA	-84.429125	33.796259	NA
PB	NA	-84.429525	33.796633	NA

Notes:

Elevations are relative to the National Geodetic Vertical Datum of 1929 (mean sea level).

■ Denotes Monitoring Well Not Located

NA - Not Applicable

Table 2
Monitoring Well Construction Details
For SMF and Woodall Creek Site
Atlanta, Fulton County, Georgia
(Page 1 of 3)

Well Number	Date of Construction	Top of Casing Elevation	Total Well Depth (ft)	Type of Well	Water-Bearing Zone Monitoring Interval	Well Casing Length (ft)*	Well Screen Length (ft)
SOUTHERN METAL FINISHING PROPERTY WELLS							
SMFMW-1	10/4/2000	899.16	25	Type II	Shallow	10	15
SMFMW-2	10/4/2000	901.25	29	Type II	Shallow	14	15
SMFMW-3	10/4/2000	900.29	26	Type II	Shallow	11	15
SMFMW-4	10/5/2000	899.78	24	Type II	Shallow	9	15
SMFMW-5	10/5/2000	899.63	25	Type II	Shallow	10	15
SMFMW-6	10/19/2000	901.17	24	Type II	Shallow	9	15
SMFMW-7	10/19/2000	906.35	26	Type II	Shallow	11	15
SMFMW-8	10/19/2000	899.85	23.5	Type II	Shallow	8.5	15
SMFMW-9	11/10/2000	903.78	27	Type II	Shallow	12	15
SMFMW-10	11/10/2000	903.90	27	Type II	Shallow	12	15
SMFMW-11	11/10/2000	908.47	20	Type II	Shallow	10	10
SMFMW-12	1/29/2001	894.60	20.5	Type II	Shallow	10	10.5
SMFMW-13	1/29/2001	895.45	28	Type II	Shallow	13	15
SMFMW-14	1/29/2001	894.94	18.5	Type II	Shallow	8	10.5
SMFMW-15	5/4/2001	895.89	18.5	Type II	Shallow	8	10.5
SMFMW-16	5/4/2001	898.27	18.5	Type II	Shallow	8	10.5
SMFMW-17	7/19/2004	904.50	30	Type II	Shallow	20	10
SMFMW-18	7/19/2004	911.61	30	Type II	Shallow	20	10
SMFPI-1	3/24/2008	ND	35	Type II	Shallow	25	10
SMFDS-1	5/10/2002	906.19	37	Type III	Intermediate (Top of Bedrock)	28 (34.5)	2.5
SMFDS-2	5/10/2002	894.54	31	Type III	Intermediate (Top of Bedrock)	20 (28.5)	2.5
SMFDS-3	5/10/2002	900.04	37.5	Type III	Intermediate (Top of Bedrock)	15 (35)	2.5
SMFDR-1	8/3/2002	906.16	49	Type III	Fractured Bedrock	39 (44)	5
SMFDR-2	6/4/2002	894.65	42	Type III	Fractured Bedrock	33 (39.5)	2.5
SMFDR-3	6/4/2002	899.90	53.5	Type III	Fractured Bedrock	39 (51)	2.5
SMFMW-1D	8/3/2004	900.97	96.5	Type III	Fractured Bedrock	53 (65) (88)	Open Hole from 88 to 96.5
MACY'S PROPERTY WELLS							
MPMW-15	ND	896.40	18.1	Type II	Shallow	8.1	10
MPMW-16	ND	898.41	18.6	Type II	Shallow	8.6	10
MPMW-19	5/6/2005	ND	30	Type II	Shallow	15	15
DOBBINS PROPERTY WELLS							
DPMW-1	ND	895.65	35	Type II	Shallow	25	10
DPMW-1S	4/6/2004	895.99	25.5	Type II	Shallow	15.5	10
DPMW-2	ND	896.14	30	Type II	Shallow	20	10
DPMW-2S	4/9/2004	895.29	24.3	Type II	Shallow	14.3	10
DPMW-2I	4/13/2004	895.71	50	Type III	Intermediate (Top of Bedrock)	30 (40)	10
DPMW-3S	4/6/2004	895.61	30	Type II	Shallow	20	10
DPMW-3I	4/9/2004	895.67	50	Type III	Intermediate (Top of Bedrock)	30 (40)	10
DPMW-4S	4/13/2004	895.80	25.2	Type II	Shallow	15.2	10
DPMW-4I	4/16/2004	895.57	50	Type III	Intermediate (Top of Bedrock)	30 (40)	10
DPMW-5S	8/4/2004	ND	35	Type II	Shallow	25	10
DPMW-9	ND	895.10	50	Type II	Shallow	40	10

Table 2
Monitoring Well Construction Details
For SMF and Woodall Creek Site
Atlanta, Fulton County, Georgia
(Page 2 of 3)

Well Number	Date of Construction	Top of Casing Elevation	Total Well Depth (ft)	Type of Well	Water-Bearing Zone Monitoring Interval	Well Casing Length (ft)*	Well Screen Length (ft)
DPMW-10	ND	896.14	51.3	Type II	Shallow	41.3	10
DPMW-14	ND	895.98	50	Type II	Shallow	40	10
DPMW-15	ND	ND	86.7	Type II	Intermediate (Top of Bedrock)	76.7	10
DPMW-16	ND	896.71	96.8	Type III	Fractured Bedrock	Unknown	Open Hole from 89 to 96.8
DPMW-25	10/27/2010	895.58	50	Type II	Shallow	30	20
DPMW-26	10/27/2010	897.11	50	Type II	Shallow	30	20
DPMW-27	10/27/2010	901.30	50	Type II	Shallow	30	20
DPMW-28	10/27/2010	896.25	50	Type II	Shallow	30	20
RESTAURANT SUPPLY (FORMER JODACO PROPERTY) WELLS							
JPMW-16	3/24/2010	864.63	50	Type II	Shallow	20	30
JPMW-17	3/24/2010	864.52	50	Type II	Shallow	20	30
JPMW-21	6/10/2010	858.70	39	Type II	Shallow	9	30
JPMW-22	6/10/2010	866.76	50	Type II	Shallow	20	30
JPMW-23	6/10/2010	866.71	49	Type II	Shallow	19	30
JPBRW-1	ND	864.52	164.5	Type III	Fractured Bedrock	Unknown	Open Hole from 147.5 to 164.5
DALTILE (FORMER REYNOLDS PROPERTY) WELLS							
RPMW-1	Unknown	853.39	20	Unknown	Shallow	Unknown	Unknown
RPMW-2	Unknown	871.62	29	Unknown	Shallow	Unknown	Unknown
RPMW-14	3/24/2010	861.23	50	Type II	Shallow	25	25
RPMW-15	3/24/2010	861.44	50	Type II	Shallow	20	30
RPMW-24	6/10/2010	865.29	50	Type II	Shallow	20	30
GOOSTONE PROPERTY WELLS (1494 & 1510 ELLSWORTH INDUSTRIAL BLVD.)							
GPMW-11	7/30/2009	847.92	39	Type II	Shallow	14	25
GPMW-18	3/26/2010	846.48	40	Type II	Shallow	10	30
GPMW-19	3/26/2010	841.86	36.5	Type II	Shallow	11.5	25
GPMW-20	6/10/2010	848.27	40	Type II	Shallow	10	30
M-WEST HOA (FORMER ABC SUPPLY PROPERTY) WELLS							
HOAMW-3	7/9/2008	840.98	40	Type II	Shallow	10	30
HOAMW-5	10/31/2008	841.06	35	Type II	Shallow	10	25
HOAMW-5I	2/19/2014	843.89	38	Type III	Intermediate (Top of Bedrock)	33 (33)	5
HOAMW-6	1/8/2009	841.10	36	Type II	Shallow	11	25
HOAMW-14	2/18/2014	857.36	41	Type II	Shallow	26	15
MIDTOWN WEST (FORMER M-WEST LOTS/ABC SUPPLY PROPERTY) WELLS							
MTWMW-1	7/9/2008	841.33	40	Type II	Shallow	10	30
MTWMW-2	7/9/2008	839.37	39	Type II	Shallow	9	30
MTWMW-4	10/31/2008	840.01	36	Type II	Shallow	11	25
MTWMW-7	1/8/2009	844.41	40	Type II	Shallow	15	25
MTWMW-7I	2/19/2014	844.59	30	Type III	Intermediate (Top of Bedrock)	23 (25)	5
MTWMW-8	3/19/2009	846.95	40	Type II	Shallow	15	25
MTWMW-9	3/19/2009	848.45	35.5	Type II	Shallow	15.5	20
MTWMW-10	3/19/2009	849.43	35.5	Type II	Shallow	15.5	20
MTWMW-12	7/29/2009	845.66	38.0	Trype II	Shallow	13.0	25
MTWMW-13	7/29/2009	ND	11	Type II	Shallow	6	5
GLIDDEN PROPERTY WELLS							
AKZMW-3	ND	893.77	35	Type II	Shallow	25	10
AKZMW-4	ND	890.12	27	Type II	Shallow	17	10
AKZMW-5	ND	905.05	30	Type II	Shallow	20	10
AKZMW-6	ND	899.36	23	Type II	Shallow	13	10
AKZMW-7	ND	897.80	23	Type II	Shallow	13	10

Table 2
Monitoring Well Construction Details For SMF and Woodall Creek Site Atlanta, Fulton County, Georgia
(Page 3 of 3)

Well Number	Date of Construction	Top of Casing Elevation	Total Well Depth (ft)	Type of Well	Water-Bearing Zone Monitoring Interval	Well Casing Length (ft)*	Well Screen Length (ft)
AKZMW-8	ND	894.89	23	Type II	Shallow	13	10
AKZMW-17	ND	901.46	57.5	Type II	Intermediate (Top of Bedrock)	37.5	20
AKZMW-18	ND	901.44	25.5	Type II	Shallow	10.5	15
AKZMW-19	ND	901.04	25	Type II	Shallow	15	10
AKZMW-20	ND	899.60	24.7	Type II	Shallow	14.7	10

Notes:

*For Type III wells: outer casing depth (inner casing depth)

Elevations are relative to the National Geodetic Vertical Datum of 1929 (mean sea level).

ND - Data not know/elevation not determined/surveyed

Source: Peachtree Environmental, LLC, December 2011 Woodall Creek CAP Addendum

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
1 of 8

Well Designation			AKZMW-3		AKZMW-4		AKZMW-6		AKZMW-7		AKZMW-8		DPMW-1S		DPMW-25		DPMW-26	
Property Location			AKZO		AKZO		AKZO		AKZO		AKZO		Dobbins Property		Dobbins Property		Dobbins Property	
Sample Collection Date	Unit		13-Mar-14		13-Mar-14		13-Mar-14		13-Mar-14		13-Mar-14		14-Mar-14		24-Mar-14		21-Mar-14	
VOCs		**Type 1 RRS**																
1,1,1-Trichloroethane	ug/L	200	NR		NR		NR		NR		NR		0.123	U	0.123	U	0.123	U
1,1,2,2-Tetrachloroethane	ug/L	1	NR		NR		NR		NR		NR		0.109	U	0.109	U	0.109	U
1,1,2-Trichloroethane	ug/L	5	NR		NR		NR		NR		NR		0.159	U	0.159	U	0.159	U
1,1-Dichloroethane	ug/L	4000	NR		NR		NR		NR		NR		0.171	U	0.171	U	0.171	U
1,1-Dichloroethene	ug/L	7	0.208	U	0.208	U	0.208	U	0.208	U	0.208	U	0.208	U	0.208	U	0.208	U
1,2,4-Trichlorobenzene	ug/L	70	NR		NR		NR		NR		NR		0.105	U	0.105	U	0.105	U
1,2-Dibromo-3-chloropropane	ug/L	1	NR		NR		NR		NR		NR		0.194	U	0.194	U	0.194	U
1,2-Dibromoethane	ug/L	1	NR		NR		NR		NR		NR		0.102	U	0.102	U	0.102	U
1,2-Dichlorobenzene	ug/L	600	NR		NR		NR		NR		NR		0.135	U	0.135	U	0.135	U
1,2-Dichloroethane	ug/L	5	NR		NR		NR		NR		NR		0.116	U	0.116	U	0.116	U
1,2-Dichloropropane	ug/L	5	NR		NR		NR		NR		NR		0.150	U	0.15	U	0.15	U
1,3-Dichlorobenzene	ug/L	600	NR		NR		NR		NR		NR		0.138	U	0.138	U	0.138	U
1,4-Dichlorobenzene	ug/L	75	NR		NR		NR		NR		NR		0.083	U	0.083	U	0.083	U
2-Butanone	ug/L	2000	NR		NR		NR		NR		NR		0.142	U	0.142	U	0.142	U
2-Chloroethylvinyl ether	ug/L	RL	NR		NR		NR		NR		NR		0.146	U	0.146	U	0.146	U
2-Hexanone	ug/L	RL	NR		NR		NR		NR		NR		0.122	U	0.122	U	0.122	U
4-Methyl-2-pentanone	ug/L	200	NR		NR		NR		NR		NR		0.120	U	0.12	U	0.12	U
Acetone	ug/L	4000	NR		NR		NR		NR		NR		**0.876**	**J**	**3.61**	**J**	0.193	U
Benzene	ug/L	5	NR		NR		NR		NR		NR		0.111	U	0.111	U	0.111	U
Bromodichloromethane	ug/L	80	NR		NR		NR		NR		NR		0.083	U	0.083	U	0.083	U
Bromoform	ug/L	80	NR		NR		NR		NR		NR		0.215	U	**0.322**	**J**	0.215	U
Bromomethane	ug/L	10	NR		NR		NR		NR		NR		0.427	U	0.427	U	0.427	U
Carbon disulfide	ug/L	4000	NR		NR		NR		NR		NR		0.190	U	0.19	U	0.19	U
Carbon tetrachloride	ug/L	5	NR		NR		NR		NR		NR		0.248	U	0.248	U	0.248	U
Chlorobenzene	ug/L	100	NR		NR		NR		NR		NR		0.083	U	0.083	U	0.083	U
Chloroethane	ug/L	1	NR		NR		NR		NR		NR		0.235	U	0.235	U	0.235	U
Chloroform	ug/L	80	NR		NR		NR		NR		NR		**1.19**	**J**	**5.69**		**0.351**	**J**
Chloromethane	ug/L	3	NR		NR		NR		NR		NR		0.144	U	0.144	U	0.144	U
Cyclohexane	ug/L	1	NR		NR		NR		NR		NR		0.337	U	0.337	U	0.337	U
Dibromochloromethane	ug/L	80	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U
Dichlorodifluoromethane	ug/L	1000	NR		NR		NR		NR		NR		0.145	U	0.145	U	0.145	U
Ethylbenzene	ug/L	700	NR		NR		NR		NR		NR		0.109	U	0.109	U	0.109	U
Isopropylbenzene (Cumene)	ug/L	1	NR		NR		NR		NR		NR		0.13	U	0.13	U	0.13	U
Methyl Acetate	ug/L	RL	NR		NR		NR		NR		NR		0.159	U	0.159	U	0.159	U
Methylcyclohexane	ug/L	RL	NR		NR		NR		NR		NR		0.143	U	0.143	U	0.143	U
Methylene chloride	ug/L	5	NR		NR		NR		NR		NR		0.149	U	0.149	U	0.149	U
Styrene	ug/L	100	NR		NR		NR		NR		NR		0.089	U	0.089	U	0.089	U
Tetrachloroethene	ug/L	5	0.193	U	0.193	U	0.193	U	0.193	U	0.193	U	**1.32**	**J**	**63.8**		**37.7**	
Toluene	ug/L	1000	NR		NR		NR		NR		NR		0.122	U	0.122	U	0.122	U
Trichloroethene	ug/L	5	0.161	U	0.161	U	0.161	U	0.161	U	0.161	U	0.161	U	**7.59**		**11**	
Trichlorofluoromethane	ug/L	2000	NR		NR		NR		NR		NR		0.157	U	0.157	U	0.157	U
Trichlorotrifluoroethane	ug/L	RL	NR		NR		NR		NR		NR		0.158	U	0.158	U	0.158	U
Vinyl acetate	ug/L	RL	NR		NR		NR		NR		NR		0.151	U	0.151	U	0.151	U
Vinyl chloride	ug/L	2	NR		NR		NR		NR		NR		0.127	U	0.127	U	0.127	U
Xylene (total)	ug/L	10000	NR		NR		NR		NR		NR		0.179	U	0.179	U	0.179	U
cis-1,2-Dichloroethene	ug/L	70	0.103	U	0.103	U	0.103	U	0.103	U	0.103	U	0.103	U	**2.95**	**J**	**9.41**	
cis-1,3-Dichloropropene	ug/L	2	NR		NR		NR		NR		NR		0.124	U	0.124	U	0.124	U
m,p-Xylene	ug/L	RL	NR		NR		NR		NR		NR		0.123	U	0.123	U	0.123	U
o-Xylene	ug/L	RL	NR		NR		NR		NR		NR		0.055	U	0.055	U	0.055	U
tert-Butyl methyl ether (MTBE)	ug/L	RL	NR		NR		NR		NR		NR		0.078	U	0.078	U	0.078	U
trans-1,2-Dichloroethene	ug/L	100	NR		NR		NR		NR		NR		0.077	U	0.077	U	0.077	U
trans-1,3-Dichloropropene	ug/L	2	NR		NR		NR		NR		NR		0.128	U	0.128	U	0.128	U
MNA Parameters																		
Ethane	ug/L	NA	0.071	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	**0.998**	
Ethene	ug/L	NA	**120**	**J**	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U
Methane	ug/L	NA	**2670**		0.435	U	0.435	U	**0.615**	**J**	**31.9**		0.435	U	0.435	U	**2.06**	
Total Organic Carbon	mg/L	NA	**1.9**		0.30	U	0.30	U	**0.41**	**J**	**0.92**	**J**	0.30	U	**1.4**		**2.3**	
Sulfide	mg/L	NA	2	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U
Chloride	mg/L	NA	**0.826**		**3.43**		**1.51**		**2.05**		**3.32**		**1.7**		**8.63**		**0.899**	
Nitrate	mg/L	NA	**0.465**		0.05	U	**0.143**	**J**	0.05	U	0.05	U	**6.02**		**6.82**		**10.5**	
Sulfate	mg/L	NA	**7.29**		**10.1**		**12.5**		**11**		**6.19**		**28.6**		**17.4**		**24.8**	
Ferrous Iron (mg/L)	mg/L	NA	0.00		0.00		0.00		0.00		1.00		0.00		0.00		0.00	
Groundwater Quality																		
Temperature	C	NA	19.82		17.73		15.47		15.10		14.86		21.28		18.21		17.53	
pH	pH	NA	5.79		5.20		5.92		6.13		6.15		5.32		5.06		4.89	
Turbidity	NTU	NA	0.0		4.8		6.5		0.0		1.9		4.1		10.8		0.7	
Conductivity	mg/L	NA	0.084		0.079		0.169		0.210		0.144		0.131		0.178		0.143	
ORP	mV	NA	86		223		188		8		-41		242		259		264	
Dissolved Oxygen (mg/L)	mg/L	NA	1.13		2.23		2.81		0.48		0.48		5.79		1.69		0.77	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
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Well Designation	DPMW-27		DPMW-28		DPMW-2I		DUP-2 (DPMW-2I)		DPMW-2S		DPMW-3I		DPMW-3S		DPMW-4I		DPMW-4S	
Property Location	Dobbins Property		Dobbins Property		Dobbins Property		Dobbins Property		Dobbins Property		Dobbins Property		Dobbins Property		Dobbins Property		Dobbins Property	
Sample Collection Date	21-Mar-14		24-Mar-14		14-Mar-14		14-Mar-14		14-Mar-14		18-Mar-14		18-Mar-14		13-Mar-14		14-Mar-14	
VOCs																		
1,1,1-Trichloroethane	0.123	U	0.123	U	0.123U	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U
1,1,2,2-Tetrachloroethane	0.109	U	0.109	U	0.109U	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U
1,1,2-Trichloroethane	0.159	U	0.159	U	0.159U	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U
1,1-Dichloroethane	0.171	U	0.171	U	0.335	J	0.335	U	0.171	U	0.171	U	0.171	U	0.171	U	0.171	U
1,1-Dichloroethene	0.208	U	0.208	U	2.45	J	2.45	J	0.208	U	1.15	J	0.208	U	0.362	J	0.208	U
1,2,4-Trichlorobenzene	0.105	U	0.105	U	0.105U	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U
1,2-Dibromo-3-chloropropane	0.194	U	0.194	U	0.194U	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U
1,2-Dibromoethane	0.102	U	0.102	U	0.102U	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U
1,2-Dichlorobenzene	0.135	U	0.135	U	0.135U	U	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U
1,2-Dichloroethane	0.116	U	0.116	U	0.116U	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U
1,2-Dichloropropane	0.15	U	0.15	U	0.150U	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,3-Dichlorobenzene	0.138	U	0.138	U	0.138U	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U
1,4-Dichlorobenzene	0.083	U	0.083	U	0.083U	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U
2-Butanone	0.142	U	0.142	U	0.142U	U	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U
2-Chloroethylvinyl ether	0.146	U	0.146	U	0.146U	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U
2-Hexanone	0.122	U	0.122	U	0.122U	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U
4-Methyl-2-pentanone	0.12	U	0.12	U	0.120U	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
Acetone	1.07	J	1.96	J	0.193U	U	0.193	J	1.4	J	0.193	U	0.193	U	0.193	U	1.18	J
Benzene	0.111	U	0.111	U	0.111U	U	0.111	U	0.111	U	0.111	U	0.111	U	0.111	U	0.111	U
Bromodichloromethane	0.083	U	0.381	J	0.083U	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.202	J
Bromoform	0.215	U	0.215	U	0.215U	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U
Bromomethane	0.427	U	0.427	U	0.427U	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U
Carbon disulfide	0.19	U	0.19	U	0.190U	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Carbon tetrachloride	0.248	U	0.248	U	0.248U	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U
Chlorobenzene	0.083	U	0.083	U	0.083U	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U
Chloroethane	0.235	U	0.235	U	0.235U	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U
Chloroform	0.155	U	10.9		0.623	J	0.623	J	0.155	U	0.425	J	0.775	J	0.155	U	1.54	J
Chloromethane	0.144	U	0.144	U	0.144U	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U
Cyclohexane	0.337	U	0.337	U	0.337U	U	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U
Dibromochloromethane	0.054	U	0.054	U	0.054U	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U
Dichlorodifluoromethane	0.145	U	0.145	U	0.145U	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U
Ethylbenzene	0.109	U	0.109	U	0.109U	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U
Isopropylbenzene (Cumene)	0.13	U	0.13	U	0.130U	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Methyl Acetate	0.159	U	0.159	U	0.159U	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U
Methylcyclohexane	0.143	U	0.143	U	0.143U	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U
Methylene chloride	0.149	U	0.286	J	0.149U	U	0.149	U	0.149	U	0.149	U	0.149	U	0.149	U	0.149	U
Styrene	0.089	U	0.089	U	0.089U	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U
Tetrachloroethene	0.193	U	15.3		36.1		36.1		20.2		16.5		32.9		23.7		15.5	
Toluene	0.122	U	0.122	U	0.122U	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U
Trichloroethene	0.161	U	1.41	J	8.61		8.61		5.66		6.07		1.6	J	4.08	J	2.04	J
Trichlorofluoromethane	0.157	U	0.157	U	0.157U	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U
Trichlorotrifluoroethane	0.158	U	0.158	U	0.158U	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U
Vinyl acetate	0.151	U	0.151	U	0.151U	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U
Vinyl chloride	0.127	U	0.127	U	0.127U	U	0.127	U	0.127	U	0.127	U	0.127	U	0.127	U	0.127	U
Xylene (total)	0.179	U	0.179	U	0.179U	U	0.179	U	0.179	U	0.179	U	0.179	U	0.179	U	0.179	U
cis-1,2-Dichloroethene	0.103	U	0.103	U	5.54		5.54		0.103	U	3.32	J	1.58	J	0.688	J	0.103	U
cis-1,3-Dichloropropene	0.124	U	0.124	U	0.124U	U	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U
m,p-Xylene	0.123	U	0.123	U	0.123U	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U
o-Xylene	0.055	U	0.055	U	0.055U	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U
tert-Butyl methyl ether (MTBE)	0.078	U	0.078	U	0.078U	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U
trans-1,2-Dichloroethene	0.077	U	0.077	U	0.077U	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U
trans-1,3-Dichloropropene	0.128	U	0.128	U	0.128U	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U
MNA Parameters																		
Ethane	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U
Ethene	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U
Methane	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.505	J	0.435	U	0.435	U
Total Organic Carbon	2.5		1.4		0.75	J	0.3	J	0.30	U	1.4		0.95	J	0.68		0.72	J
Sulfide	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00		2.00	U	2.00	U	2.00	U
Chloride	11.7		2.04		34.4		35.2		2.93		1.86		2.37		3.16		1.94	
Nitrate	4.24		6.28		7.13		7.06		0.159	J	19.7		10.4		8.49		6.23	
Sulfate	20.5		20.8		25.8		26.3		11.4		62		79.8		14.7		13.2	
Ferrous Iron (mg/L)	0.00		0.00		0.00		NM		0.00		0.00		0.00		0.00		0.00	
Groundwater Quality																		
Temperature	20.52		17.36		19.82		NM		18.00		15.12		13.67		16.72		15.91	
pH	5.25		5.71		6.91		NM		6.22		5.58		4.79		6.73		4.94	
Turbidity	2.0		13.0		0.0		NM		0.0		15.4		9.4		9.9		5.2	
Conductivity	0.160		0.153		0.320		NM		0.209		0.330		0.295		0.207		0.102	
ORP	209		211		245		NM		173		99		191		127		285	
Dissolved Oxygen (mg/L)	1.80		2.80		1.44		NM		6.88		1.25		2.84		1.96		6.32	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
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Well Designation	**GPMW-11**		**GPMW-18**		**GPMW-19**		**GPMW-20**		**HOAMW-14**		**HOAMW-3**		**HOAMW-5**		**HOAMW-5I**		**JPBRW-1**	
Property Location	**Goodstone**		**Goodstone**		**Goodstone**		**Goodstone**		**M-West HOA**		**M-West HOA**		**M-West HOA**		**M-West HOA**		**Restaurant Supply**	
Sample Collection Date	**10-Mar-14**		**10-Mar-14**		**10-Mar-14**		**10-Mar-14**		**12-Mar-14**		**11-Mar-14**		**13-Mar-14**		**12-Mar-14**		**12-Mar-14**	
VOCs																		
1,1,1-Trichloroethane	0.123	U	0.246	U	0.615	U	0.123	U	0.123	U	0.246	U	0.246	U	0.246	U	0.123	U
1,1,2,2-Tetrachloroethane	0.109	U	0.218	U	0.546	U	0.109	U	0.109	U	0.218	U	0.218	U	0.218	U	0.109	U
1,1,2-Trichloroethane	0.159	U	0.318	U	0.795	U	0.159	U	0.159	U	0.318	U	0.318	U	0.318	U	0.159	U
1,1-Dichloroethane	0.171	U	0.342	U	0.856	U	0.171	U	0.171	U	0.342	U	0.342	U	0.342	U	0.171	U
1,1-Dichloroethene	0.208	U	**0.734**	J	1.04	U	0.208	U	0.208	U	0.416	U	0.416	U	0.416	U	0.208	U
1,2,4-Trichlorobenzene	0.105	U	0.21	U	0.526	U	0.105	U	0.105	U	0.210	U	0.21	U	0.21	U	0.105	U
1,2-Dibromo-3-chloropropane	0.194	U	0.388	U	0.971	U	0.194	U	0.194	U	0.388	U	0.388	U	0.388	U	0.194	U
1,2-Dibromoethane	0.102	U	0.205	U	0.512	U	0.102	U	0.102	U	0.205	U	0.205	U	0.205	U	0.102	U
1,2-Dichlorobenzene	0.135	U	0.27	U	0.674	U	0.135	U	0.135	U	0.270	U	0.27	U	0.27	U	0.135	U
1,2-Dichloroethane	0.116	U	0.232	U	0.581	U	0.116	U	0.116	U	0.232	U	0.232	U	0.232	U	0.116	U
1,2-Dichloropropane	0.15	U	0.301	U	0.752	U	0.15	U	0.15	U	0.301	U	0.301	U	0.301	U	0.15	U
1,3-Dichlorobenzene	0.138	U	0.275	U	0.689	U	0.138	U	0.138	U	0.275	U	0.275	U	0.275	U	0.138	U
1,4-Dichlorobenzene	0.083	U	0.166	U	0.416	U	0.083	U	0.083	U	0.166	U	0.166	U	0.166	U	0.083	U
2-Butanone	0.142	U	0.284	U	0.711	U	0.142	U	0.142	U	0.284	U	0.284	U	0.284	U	0.142	U
2-Chloroethylvinyl ether	0.146	U	0.291	U	0.729	U	0.146	U	0.146	U	0.291	U	0.291	U	0.291	U	0.146	U
2-Hexanone	0.122	U	0.245	U	0.612	U	0.122	U	0.122	U	0.245	U	0.245	U	0.245	U	0.122	U
4-Methyl-2-pentanone	0.12	U	0.24	U	0.6	U	0.12	U	0.12	U	0.240	U	0.24	U	0.24	U	0.12	U
Acetone	**0.926**	J	0.387	U	0.967	U	0.193	U	0.193	U	0.387	U	0.387	U	0.387	U	**5.85**	
Benzene	0.111	U	0.222	U	0.555	U	0.111	U	0.111	U	0.222	U	0.222	U	0.222	U	0.111	U
Bromodichloromethane	**0.18**	J	0.167	U	0.417	U	0.083	U	0.083	U	0.685	J	0.167	U	0.167	U	0.083	U
Bromoform	0.215	U	0.43	U	1.08	U	0.215	U	0.215	U	0.430	U	0.43	U	0.43	U	0.215	U
Bromomethane	0.427	U	0.854	U	2.14	U	0.427	U	0.427	U	0.854	U	0.854	U	0.854	U	0.427	U
Carbon disulfide	0.19	U	0.38	U	0.95	U	0.19	U	0.19	U	0.380	U	0.38	U	0.38	U	0.19	U
Carbon tetrachloride	0.248	U	0.496	U	1.24	U	0.248	U	0.248	U	0.496	U	0.496	U	0.496	U	0.248	U
Chlorobenzene	0.083	U	0.166	U	0.414	U	0.083	U	0.083	U	0.166	U	0.166	U	0.166	U	0.083	U
Chloroethane	0.235	U	0.47	U	1.18	U	0.235	U	0.235	U	0.470	U	0.47	U	0.47	U	0.235	U
Chloroform	**4.18**	J	**2.31**	J	**3.62**	J	**0.451**	J	0.155	U	6.26	J	**2.97**	J	**3.75**		0.155	U
Chloromethane	0.144	U	0.287	U	0.718	U	0.144	U	0.144	U	0.287	U	0.287	U	0.287	U	0.144	U
Cyclohexane	0.337	U	0.674	U	1.69	U	0.337	U	0.337	U	0.674	U	0.674	U	0.674	U	0.337	U
Dibromochloromethane	0.054	U	0.108	U	0.27	U	0.054	U	0.054	U	0.108	U	0.108	U	0.108	U	0.054	U
Dichlorodifluoromethane	0.145	U	0.29	U	0.724	U	0.145	U	0.145	U	0.290	U	0.29	U	0.29	U	0.145	U
Ethylbenzene	0.109	U	0.218	U	0.545	U	0.109	U	0.109	U	0.218	U	0.218	U	0.218	U	0.109	U
Isopropylbenzene (Cumene)	0.13	U	0.26	U	0.651	U	0.13	U	0.13	U	0.260	U	0.26	U	0.26	U	0.13	U
Methyl Acetate	0.159	U	0.319	U	0.797	U	0.159	U	0.159	U	0.319	U	0.319	U	0.319	U	0.159	U
Methylcyclohexane	0.143	U	0.287	U	0.717	U	0.143	U	0.143	U	0.287	U	0.287	U	0.287	U	0.143	U
Methylene chloride	0.149	U	0.298	U	0.745	U	0.149	U	0.149	U	0.298	U	0.298	U	0.298	U	0.149	U
Styrene	0.089	U	0.179	U	0.447	U	0.089	U	0.089	U	0.179	U	0.179	U	0.179	U	0.089	U
Tetrachloroethene	**18.3**		**261**		**306**		**30**		**0.858**	J	222		**252**		**216**		**3.42**	J
Toluene	0.122	U	0.244	U	0.609	U	0.122	U	0.122	U	0.244	U	0.244	U	0.244	U	0.122	U
Trichloroethene	**2.44**	J	**51.7**		**131**		**4.05**	J	**0.378**	J	91.9		96.1		**96.8**		**2.61**	J
Trichlorofluoromethane	0.157	U	0.314	U	0.785	U	0.157	U	**0.26**	J	0.314	U	0.314	U	0.314	U	0.157	U
Trichlorotrifluoroethane	0.158	U	0.316	U	0.79	U	0.158	U	0.158	U	0.316	U	0.316	U	0.316	U	0.158	U
Vinyl acetate	0.151	U	0.302	U	0.755	U	0.151	U	0.151	U	0.302	U	0.302	U	0.302	U	0.151	U
Vinyl chloride	0.127	U	0.254	U	0.636	U	0.127	U	0.127	U	0.254	U	0.254	U	0.254	U	0.127	U
Xylene (total)	0.179	U	0.358	U	0.894	U	0.179	U	0.179	U	0.358	U	0.358	U	0.358	U	0.179	U
cis-1,2-Dichloroethene	**0.389**	J	**106**		**164**		**6.22**		0.103	U	55.4		81.1		**87.9**		**2.7**	J
cis-1,3-Dichloropropene	0.124	U	0.248	U	0.621	U	0.124	U	0.124	U	0.248	U	0.248	U	0.248	U	0.124	U
m,p-Xylene	0.123	U	0.247	U	0.617	U	0.123	U	0.123	U	0.247	U	0.247	U	0.247	U	**0.154**	J
o-Xylene	0.055	U	0.111	U	0.277	U	0.055	U	0.055	U	0.111	U	0.111	U	0.111	U	0.055	U
tert-Butyl methyl ether (MTBE)	0.078	U	0.155	U	0.389	U	0.078	U	0.078	U	0.155	U	0.155	U	0.155	U	0.078	U
trans-1,2-Dichloroethene	0.077	U	**1.63**	J	**1.96**	J	0.077	U	0.077	U	0.597	J	**0.933**	J	0.154	U	0.077	U
trans-1,3-Dichloropropene	0.128	U	0.255	U	0.639	U	0.128	U	0.128	U	0.255	U	0.255	U	0.255	U	0.128	U
MNA Parameters																		
Ethane	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	**0.846**	J
Ethene	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	**3.01**	
Methane	0.435	U	0.435	U	**205**		0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U
Total Organic Carbon	**2.2**		0.3	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	**2.5**	
Sulfide	**2.6**		**2.2**		2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U
Chloride	**2**		**1.18**		**1.39**		**1.52**		**0.16**		**16.1**		**1.55**		**1.39**		**0.187**	J
Nitrate	**20.1**		**22.6**		**21.8**		**26.1**		**2.66**		**2.11**		**21.3**		**19.8**		**41.4**	
Sulfate	**27.9**		**11**		**7.44**		**18.4**		**16.1**		**51.9**		**16.1**		**17.1**		**21.1**	
Ferrous Iron (mg/L)	0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Groundwater Quality																		
Temperature	21.34		19.73		21.44		17.24		18.61		19.72		16.61		18.21		18.82	
pH	5.54		5.94		5.94		6.07		5.26		5.73		5.93		6.44		9.62	
Turbidity	1.5		3.5		9.8		4.7		71.3		0.0		0.0		5.2		40.2	
Conductivity	0.185		0.218		0.221		0.257		0.116		0.268		0.219		0.287		0.585	
ORP	233		201		146		204		250		231		225		129		-178	
Dissolved Oxygen (mg/L)	3.32		1.69		0.62		2.00		3.44		2.06		1.26		2.43		1.87	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
4 of 8

Well Designation	**JPMW-16**		**JPMW-17**		**JPMW-21**		**JPMW-22**		**JPMW-23**		**MPMW-15**		**MPMW-19**		**MTWMW-08**		**MTWMW-10**	
Property Location	**Restaurant Supply**		**Restaurant Supply**		**Restaurant Supply**		**Restaurant Supply**		**Restaurant Supply**		**Macys Property**		**Macys Property**		**Midtown West Partners**		**Midtown West Partners**	
Sample Collection Date	**12-Mar-14**		**11-Mar-14**		**11-Mar-14**		**11-Mar-14**		**12-Mar-14**		**14-Mar-14**		**12-Mar-14**		**11-Mar-14**		**10-Mar-14**	
VOCs																		
1,1,1-Trichloroethane	0.246	U	0.123	U	0.123	U	0.246	U	0.123	U	0.123	U	0.123	U	1.23	U	0.123	U
1,1,2,2-Tetrachloroethane	0.218	U	0.109	U	0.109	U	0.218	U	0.109	U	0.109	U	0.109	U	1.09	U	0.109	U
1,1,2-Trichloroethane	0.318	U	0.159	U	0.159	U	0.318	U	0.159	U	0.159	U	0.159	U	1.59	U	0.159	U
1,1-Dichloroethane	0.342	U	0.171	U	0.171	U	0.342	U	0.171	U	0.171	U	**3.06**	**J**	1.71	U	0.171	U
1,1-Dichloroethene	0.416	U	0.208	U	**0.345**	**J**	**1.22**	**J**	**1.66**	**J**	0.208	U	0.208	U	2.08	U	0.208	U
1,2,4-Trichlorobenzene	0.21	U	0.105	U	0.105	U	0.21	U	0.105	U	0.105	U	0.105	U	1.05	U	0.105	U
1,2-Dibromo-3-chloropropane	0.388	U	0.194	U	0.194	U	0.388	U	0.194	U	0.194	U	0.194	U	1.94	U	0.194	U
1,2-Dibromoethane	0.205	U	0.102	U	0.102	U	0.205	U	0.102	U	0.102	U	0.102	U	1.02	U	0.102	U
1,2-Dichlorobenzene	0.27	U	0.135	U	0.135	U	0.27	U	0.135	U	0.135	U	0.135	U	1.35	U	0.135	U
1,2-Dichloroethane	0.232	U	0.116	U	0.116	U	0.232	U	0.116	U	0.116	U	0.116	U	1.16	U	0.116	U
1,2-Dichloropropane	0.301	U	0.15	U	0.15	U	0.301	U	0.15	U	0.15	U	0.15	U	1.5	U	0.15	U
1,3-Dichlorobenzene	0.275	U	0.138	U	0.138	U	0.275	U	0.138	U	0.138	U	0.138	U	1.38	U	0.138	U
1,4-Dichlorobenzene	0.166	U	0.083	U	0.083	U	0.166	U	0.083	U	0.083	U	0.083	U	0.831	U	0.083	U
2-Butanone	0.284	U	0.142	U	0.142	U	0.284	U	0.142	U	0.142	U	0.142	U	1.42	U	0.142	U
2-Chloroethylvinyl ether	0.291	U	0.146	U	0.146	U	0.291	U	0.146	U	0.146	U	0.146	U	1.46	U	0.146	U
2-Hexanone	0.245	U	0.122	U	0.122	U	0.245	U	0.122	U	0.122	U	0.122	U	1.22	U	0.122	U
4-Methyl-2-pentanone	0.24	U	0.12	U	0.12	U	0.24	U	0.12	U	0.12	U	0.12	U	1.2	U	0.12	U
Acetone	**6.23**	**J**	0.193	U	0.193	U	0.387	U	0.193	U	**0.727**	**J**	0.193	U	1.93	U	0.193	U
Benzene	0.222	U	0.111	U	0.111	U	**4.98**	**J**	**0.989**	**J**	0.111	U	0.111	U	1.11	U	0.111	U
Bromodichloromethane	0.167	U	0.083	U	**2.28**	**J**	0.167	U	0.083	U	0.083	U	0.083	U	0.834	U	0.083	U
Bromoform	0.43	U	0.215	U	0.215	U	0.43	U	0.215	U	0.215	U	0.215	U	2.15	U	0.215	U
Bromomethane	0.854	U	0.427	U	0.427	U	0.854	U	0.427	U	0.427	U	0.427	U	4.27	U	0.427	U
Carbon disulfide	0.38	U	0.19	U	0.19	U	0.38	U	0.19	U	0.19	U	0.19	U	1.9	U	0.19	U
Carbon tetrachloride	0.496	U	0.248	U	0.248	U	0.496	U	0.248	U	0.248	U	0.248	U	2.48	U	0.248	U
Chlorobenzene	0.166	U	0.083	U	0.083	U	0.166	U	0.083	U	0.083	U	0.083	U	0.828	U	0.083	U
Chloroethane	0.47	U	0.235	U	0.235	U	0.47	U	0.235	U	0.235	U	0.235	U	2.35	U	0.235	U
Chloroform	**1.53**	**J**	**1.51**	**J**	**17.2**		**2.07**	**J**	**0.855**	**J**	**0.229**	**J**	0.155	U	**2.77**	**J**	**0.854**	**J**
Chloromethane	0.287	U	0.144	U	0.144	U	0.287	U	0.144	U	0.144	U	0.144	U	1.44	U	0.144	U
Cyclohexane	0.674	U	0.337	U	0.337	U	0.674	U	0.337	U	0.337	U	0.337	U	3.37	U	**0.971**	**J**
Dibromochloromethane	0.108	U	0.054	U	0.054	U	0.108	U	0.054	U	0.054	U	0.054	U	0.539	U	0.054	U
Dichlorodifluoromethane	0.29	U	0.145	U	0.145	U	0.29	U	0.145	U	0.145	U	0.145	U	1.45	U	0.145	U
Ethylbenzene	0.218	U	0.109	U	0.109	U	0.218	U	0.109	U	0.109	U	0.109	U	1.09	U	0.109	U
Isopropylbenzene (Cumene)	0.26	U	0.13	U	0.13	U	0.26	U	0.13	U	0.13	U	0.13	U	1.3	U	**0.727**	**J**
Methyl Acetate	0.319	U	0.159	U	0.159	U	0.319	U	0.159	U	0.159	U	0.159	U	1.59	U	0.159	U
Methylcyclohexane	0.287	U	0.143	U	0.143	U	0.287	U	0.143	U	0.143	U	0.143	U	1.43	U	**1.36**	**J**
Methylene chloride	0.298	U	0.149	U	0.149	U	0.298	U	0.149	U	0.149	U	0.149	U	1.49	U	0.149	U
Styrene	0.179	U	0.089	U	0.089	U	0.179	U	0.089	U	0.089	U	0.089	U	0.894	U	0.089	U
Tetrachloroethene	**262**		**67.4**		**152**		**142**		**111**		**1.07**	**J**	**2.64**	**J**	**665**		**61.3**	
Toluene	0.244	U	0.122	U	0.122	U	0.244	U	0.122	U	0.122	U	0.122	U	1.22	U	0.122	U
Trichloroethene	**177**		**10.7**		**33**		**16.6**		**35.1**		0.161	U	**1.91**	**J**	**310**		**12.6**	
Trichlorofluoromethane	0.314	U	0.157	U	0.157	U	0.314	U	0.157	U	0.157	U	0.157	U	1.57	U	0.157	U
Trichlorotrifluoroethane	0.316	U	0.158	U	0.158	U	0.316	U	0.158	U	0.158	U	0.158	U	1.58	U	0.158	U
Vinyl acetate	0.302	U	0.151	U	0.151	U	0.302	U	0.151	U	0.151	U	0.151	U	1.51	U	0.151	U
Vinyl chloride	0.254	U	0.127	U	0.127	U	0.254	U	0.127	U	0.127	U	0.127	U	1.27	U	0.127	U
Xylene (total)	0.358	U	0.179	U	0.179	U	0.358	U	0.179	U	0.179	U	0.179	U	1.79	U	**6.3**	**J**
cis-1,2-Dichloroethene	**44.3**		**5.45**		**39**		**21.8**		**39.5**		0.103	U	0.103	U	**48.4**	**J**	**1.57**	**J**
cis-1,3-Dichloropropene	0.248	U	0.124	U	0.124	U	0.248	U	0.124	U	0.124	U	0.124	U	1.24	U	0.124	U
m,p-Xylene	0.247	U	0.123	U	0.123	U	0.247	U	0.123	U	0.123	U	0.123	U	1.23	U	0.123	U
o-Xylene	0.111	U	0.055	U	0.055	U	0.111	U	0.055	U	0.055	U	0.055	U	0.554	U	**6.3**	
tert-Butyl methyl ether (MTBE)	0.155	U	0.078	U	0.078	U	0.155	U	0.078	U	0.078	U	**0.551**	**J**	0.777	U	0.078	U
trans-1,2-Dichloroethene	0.154	U	0.077	U	0.077	U	0.154	U	0.077	U	0.077	U	0.077	U	0.769	U	0.077	U
trans-1,3-Dichloropropene	0.255	U	0.128	U	0.128	U	0.255	U	0.128	U	0.128	U	0.128	U	1.28	U	0.128	U
MNA Parameters																		
Ethane	0.087	U	0.087	U	0.087	U	**1.57**		0.087	U	0.087	U	0.087	U	0.087	U	0.087	U
Ethene	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U
Methane	0.435	U	0.435	U	0.435	U	**5.02**		**479**		0.435	U	0.435	U	0.435	U	**0.544**	**J**
Total Organic Carbon	0.30	U	0.30	U	0.30	U	0.3	U	0.3	U	**2.1**		0.30	U	0.30	U	0.3	U
Sulfide	2.00	U	2.00	U	2.00	U	2	U	2	U	2	U	2.00	U	2.00	U	2	U
Chloride	**2.83**		**3.37**		**0.831**		**1.82**		**0.868**		**0.633**		**1.65**		**2.05**		**2.06**	
Nitrate	**10**		**10.9**		**17.1**		**12.3**		**11.7**		**12.8**		**43.8**		**12.5**		**13.1**	
Sulfate	**20.5**		**40.1**		**11.3**		**35.6**		**20.4**		**14.7**		**12**		**23**		**41.8**	
Ferrous Iron (mg/L)	0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Groundwater Quality																		
Temperature	20.68		22.14		21.20		24.96		17.34		12.02		17.80		21.69		21.58	
pH	5.66		5.99		5.73		5.48		5.93		6.25		3.95		5.41		5.93	
Turbidity	12.4		7.4		482.0		5.0		56.9		0.0		0.0		4.8		6.3	
Conductivity	0.198		0.226		0.218		0.191		0.192		0.243		6.270		0.165		0.227	
ORP	187		169		181		298		153		167		275		264		125	
Dissolved Oxygen (mg/L)	1.47		4.97		1.38		0.46		1.85		3.05		1.60		1.13		1.88	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
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Well Designation	**MTWMW-12**		**MTWMW-4**		**MTWMW-7**		**MTWMW-7I**		**MTWMW-9**		**DUP-1 (MTWMW-9)**		**RPMW-1**		**RPMW-14**		**RPMW-15**	
Property Location	**Midtown West Partners**		**Midtown West Partners**		**Midtown West Partners**		**Midtown West Partners**		**Midtown West Partners**		**Midtown West Partners**		**Daltile**		**Daltile**		**Daltile**	
Sample Collection Date	**11-Mar-14**		**11-Mar-14**		**10-Mar-14**		**10-Mar-14**		**11-Mar-14**		**11-Mar-14**		**12-Mar-14**		**10-Mar-14**		**11-Mar-14**	
VOCs																		
1,1,1-Trichloroethane	0.123	U	0.246	U	0.123	U	**0.933**	**J**	0.615	U	0.615	U	1.23	U	0.246	U	0.246	U
1,1,2,2-Tetrachloroethane	0.109	U	0.218	U	0.109	U	0.109	U	0.546	U	0.546	U	1.09	U	0.218	U	0.218	U
1,1,2-Trichloroethane	0.159	U	0.318	U	0.159	U	0.159	U	0.795	U	0.795	U	1.59	U	0.318	U	0.318	U
1,1-Dichloroethane	0.171	U	0.342	U	**1.71**	**J**	**1.86**	**J**	0.856	U	0.856	U	1.71	U	0.342	U	0.342	U
1,1-Dichloroethene	0.208	U	0.416	U	**5.15**		**8.58**		1.04	U	1.04	U	2.08	U	0.416	U	0.416	U
1,2,4-Trichlorobenzene	0.105	U	0.21	U	0.105	U	0.105	U	0.526	U	0.526	U	1.05	U	0.21	U	0.21	U
1,2-Dibromo-3-chloropropane	0.194	U	0.388	U	0.194	U	0.194	U	0.971	U	0.971	U	1.94	U	0.388	U	0.388	U
1,2-Dibromoethane	0.102	U	0.205	U	0.102	U	0.102	U	0.512	U	0.512	U	1.02	U	0.205	U	0.205	U
1,2-Dichlorobenzene	0.135	U	0.27	U	0.135	U	0.135	U	0.674	U	0.674	U	1.35	U	0.27	U	0.27	U
1,2-Dichloroethane	0.116	U	0.232	U	0.116	U	0.116	U	0.581	U	0.581	U	1.16	U	0.232	U	0.232	U
1,2-Dichloropropane	0.15	U	0.301	U	0.15	U	0.15	U	0.752	U	0.752	U	1.5	U	0.301	U	0.301	U
1,3-Dichlorobenzene	0.138	U	0.275	U	0.138	U	0.138	U	0.689	U	0.689	U	1.38	U	0.275	U	0.275	U
1,4-Dichlorobenzene	0.083	U	0.166	U	0.083	U	0.083	U	0.416	U	0.416	U	0.831	U	0.166	U	0.166	U
2-Butanone	0.142	U	0.284	U	0.142	U	0.142	U	0.711	U	0.711	U	1.42	U	0.284	U	0.284	U
2-Chloroethylvinyl ether	0.146	U	0.291	U	0.146	U	0.146	U	0.729	U	0.729	U	1.46	U	0.291	U	0.291	U
2-Hexanone	0.122	U	0.245	U	0.122	U	0.122	U	0.612	U	0.612	U	1.22	U	0.245	U	0.245	U
4-Methyl-2-pentanone	0.12	U	0.24	U	0.12	U	0.12	U	0.6	U	0.6	U	1.2	U	0.24	U	0.24	U
Acetone	0.193	U	0.387	U	0.193	U	0.193	U	0.967	U	0.967	U	1.93	U	0.387	U	**6.33**	**J**
Benzene	0.111	U	0.222	U	0.111	U	0.111	U	0.555	U	0.555	U	1.11	U	**0.359**	**J**	0.222	U
Bromodichloromethane	0.083	U	**0.855**	**J**	0.083	U	0.083	U	0.417	U	0.417	U	0.834	U	0.167	U	0.167	U
Bromoform	0.215	U	0.43	U	0.215	U	0.215	U	1.08	U	1.08	U	2.15	U	0.43	U	0.43	U
Bromomethane	0.427	U	0.854	U	0.427	U	0.427	U	2.14	U	2.14	U	4.27	U	0.854	U	0.854	U
Carbon disulfide	0.19	U	0.38	U	0.19	U	0.19	U	0.95	U	0.95	U	1.9	U	0.38	U	0.38	U
Carbon tetrachloride	0.248	U	0.496	U	0.248	U	0.248	U	1.24	U	1.24	U	2.48	U	0.496	U	0.496	U
Chlorobenzene	0.083	U	0.166	U	0.083	U	0.083	U	0.414	U	0.414	U	0.828	U	0.166	U	0.166	U
Chloroethane	0.235	U	0.47	U	0.235	U	0.235	U	1.18	U	1.18	U	2.35	U	0.47	U	0.47	U
Chloroform	0.155	U	**15.8**		0.155	U	**0.394**	**J**	**2.09**	**J**	**2.14**	**J**	**3.96**	**J**	0.31	U	0.31	U
Chloromethane	0.144	U	0.287	U	0.144	U	0.144	U	0.718	U	0.718	U	1.44	U	0.287	U	0.287	U
Cyclohexane	0.337	U	0.674	U	0.337	U	0.337	U	1.69	U	1.69	U	3.37	U	0.674	U	0.674	U
Dibromochloromethane	0.054	U	0.108	U	0.054	U	0.054	U	0.27	U	0.27	U	0.539	U	0.108	U	0.108	U
Dichlorodifluoromethane	0.145	U	0.29	U	0.145	U	0.145	U	0.724	U	0.724	U	1.45	U	0.29	U	0.29	U
Ethylbenzene	0.109	U	0.218	U	0.109	U	0.109	U	0.545	U	0.545	U	1.09	U	0.218	U	0.218	U
Isopropylbenzene (Cumene)	0.13	U	0.26	U	0.13	U	0.13	U	0.651	U	0.651	U	1.3	U	0.26	U	0.26	U
Methyl Acetate	0.159	U	0.319	U	0.159	U	0.159	U	0.797	U	0.797	U	1.59	U	0.319	U	0.319	U
Methylcyclohexane	0.143	U	0.287	U	0.143	U	**0.676**	**J**	0.717	U	0.717	U	1.43	U	0.287	U	0.287	U
Methylene chloride	0.149	U	0.298	U	0.149	U	0.149	U	0.745	U	0.745	U	1.49	U	0.298	U	0.298	U
Styrene	0.089	U	0.179	U	0.089	U	0.089	U	0.447	U	0.447	U	0.894	U	0.179	U	0.179	U
Tetrachloroethene	**0.323**	**J**	**172**		**33.3**		**82.9**		**455**		**445**		**788**		**190**		**362**	
Toluene	0.122	U	0.244	U	0.122	U	0.122	U	0.609	U	0.609	U	1.22	U	0.244	U	0.244	U
Trichloroethene	0.161	U	**55.7**		**34.1**		**64.1**		**241**		**241**		**641**		**72.6**		**158**	
Trichlorofluoromethane	0.157	U	0.314	U	0.157	U	0.157	U	0.785	U	0.785	U	1.57	U	0.314	U	0.314	U
Trichlorotrifluoroethane	0.158	U	0.316	U	0.158	U	0.158	U	0.79	U	0.79	U	1.58	U	0.316	U	0.316	U
Vinyl acetate	0.151	U	0.302	U	0.151	U	0.151	U	0.755	U	0.755	U	1.51	U	0.302	U	0.302	U
Vinyl chloride	0.127	U	0.254	U	**23.2**		**16.7**		0.636	U	0.636	U	1.27	U	0.254	U	0.254	U
Xylene (total)	0.179	U	0.358	U	0.179	U	0.179	U	0.894	U	0.894	U	1.79	U	0.358	U	0.358	U
cis-1,2-Dichloroethene	0.103	U	**27.7**		**49.4**		**43**		**49**		**51.3**		**167**		**0.556J**	**J**	**3.13**	**J**
cis-1,3-Dichloropropene	0.124	U	0.248	U	0.124	U	0.124	U	0.621	U	0.621	U	1.24	U	0.248	U	0.248	U
m,p-Xylene	0.123	U	0.247	U	0.123	U	0.123	U	0.617	U	0.617	U	1.23	U	0.247	U	0.247	U
o-Xylene	0.055	U	0.111	U	0.055	U	0.055	U	0.277	U	0.277	U	0.554	U	0.111	U	0.111	U
tert-Butyl methyl ether (MTBE)	0.078	U	0.155	U	0.078	U	0.078	U	0.389	U	0.389	U	0.777	U	0.155	U	0.155	U
trans-1,2-Dichloroethene	0.077	U	0.154	U	**1.05**	**J**	**0.799**	**J**	0.385	U	0.385	U	0.077	U	0.154	U	0.154	U
trans-1,3-Dichloropropene	0.128	U	0.255	U	0.128	U	0.128	U	0.639	U	0.639	U	0.128	U	0.255	U	0.255	U
MNA Parameters																		
Ethane	0.087	U	0.087	U	**6.32**		**3.99**		0.087	U	0.087	U	0.087	U	0.087	U	0.087	U
Ethene	0.071	U	0.071	U	**1.34**		**0.981**		0.071	U	0.071	U	0.071	U	0.071	U	0.071	U
Methane	**525**		**6.88**		**3800**		**2360**		0.435	U	0.435	U	0.435	U	**24.8**		**2.93**	
Total Organic Carbon	0.3	U	0.3	U	0.3	U	0.3	U	0.30	U	0.30	U	0.30	U	0.3	U	0.3	U
Sulfide	2	U	2	U	2	U	2	U	2.00	U	2.00	U	2.00	U	2	U	2	U
Chloride	**0.47**		**2.13**		0.05	U	**0.142**		**3.03**		**2.99**		**3.06**		**0.895**		**1.51**	
Nitrate	**24**		**16.4**		**9.2**		**10.2**		**12.7**		**12.7**		**15.1**		**10.5**		**16.2**	
Sulfate	**32**		**33.8**		**14.6**		**32.1**		**32.2**		**32.7**		**23.8**		**17.5**		**29.9**	
Ferrous Iron (mg/L)	0.00		0.50		2.75		1.50		0.00		NM		0.00		0.00		0.00	
Groundwater Quality																		
Temperature	21.80		27.73		17.67		19.14		18.43		NM		20.54		23.47		25.44	
pH	6.11		3.74		6.52		6.45		5.77		NM		3.88		5.52		5.72	
Turbidity	3.8		1.5		12.8		8.8		1.1		NM		9.7		7.9		0.0	
Conductivity	0.308		0.150		0.453		0.413		0.215		NM		0.174		0.206		0.219	
ORP	145		251		-76		-3		232		NM		261		500		107	
Dissolved Oxygen (mg/L)	0.27		1.96		1.47		0.97		2.57		NM		2.63		0.48		0.38	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
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Well Designation	**RPMW-2**		**RPMW-24**		**SMFDR-1**		**SMFDR-2**		**SMFDR-3**		**SMFDS-3**		**SMFMW-1**		**DUP-4 (SMFMW-1)**		**SMFMW-10**	
Property Location	**Daltile**		**Daltile**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**	
Sample Collection Date	**10-Mar-14**		**10-Mar-14**		**20-Mar-14**		**14-Mar-14**		**19-Mar-14**		**19-Mar-14**		**19-Mar-14**		**19-Mar-14**		**24-Mar-14**	
VOCs																		
1,1,1-Trichloroethane	0.123	U	0.615	U	0.123	U	0.123	U	0.246	U	0.123	U	0.123	U	0.123	U	0.123	U
1,1,2,2-Tetrachloroethane	0.109	U	0.546	U	0.109	U	0.109	U	0.218	U	0.109	U	0.109	U	0.109	U	0.109	U
1,1,2-Trichloroethane	0.159	U	0.795	U	0.159	U	0.159	U	0.318	U	0.159	U	0.159	U	0.159	U	0.159	U
1,1-Dichloroethane	0.171	U	0.856	U	0.171	U	0.171	U	0.342	U	0.171	U	0.171	U	0.171	U	0.171	U
1,1-Dichloroethene	0.208	U	1.04	U	0.208	U	**1.22**	**J**	0.416	U	0.208	U	0.208	U	0.208	U	0.208	U
1,2,4-Trichlorobenzene	0.105	U	0.526	U	0.105	U	0.105	U	0.21	U	0.105	U	0.105	U	0.105	U	0.105	U
1,2-Dibromo-3-chloropropane	0.194	U	0.971	U	0.194	U	0.194	U	0.388	U	0.194	U	0.194	U	0.194	U	0.194	U
1,2-Dibromoethane	0.102	U	0.512	U	0.102	U	0.102	U	0.205	U	0.102	U	0.102	U	0.102	U	0.102	U
1,2-Dichlorobenzene	0.135	U	0.674	U	0.135	U	0.135	U	0.27	U	0.135	U	0.135	U	0.135	U	0.135	U
1,2-Dichloroethane	0.116	U	0.581	U	0.116	U	0.116	U	0.232	U	0.116	U	0.116	U	0.116	U	0.116	U
1,2-Dichloropropane	0.150	U	0.752	U	0.150	U	0.150	U	0.301	U	0.150	U	0.150	U	0.150	U	0.150	U
1,3-Dichlorobenzene	0.138	U	0.689	U	0.138	U	0.138	U	0.275	U	0.138	U	0.138	U	0.138	U	0.138	U
1,4-Dichlorobenzene	0.083	U	0.416	U	0.083	U	0.083	U	0.166	U	0.083	U	0.083	U	0.083	U	0.083	U
2-Butanone	0.142	U	0.711	U	0.142	U	0.142	U	0.284	U	0.142	U	0.142	U	0.142	U	0.142	U
2-Chloroethylvinyl ether	0.146	U	0.729	U	0.146	U	0.146	U	0.291	U	0.146	U	0.146	U	0.146	U	0.146	U
2-Hexanone	0.122	U	0.612	U	0.122	U	0.122	U	0.245	U	0.122	U	0.122	U	0.122	U	0.122	U
4-Methyl-2-pentanone	0.120	U	0.6	U	0.120	U	0.120	U	0.24	U	0.120	U	0.120	U	0.120	U	0.120	U
Acetone	0.193	U	0.967	U	**2.48**	**J**	0.193	U	**0.746**	**J**	**1.09**	**J**	**0.762**	**J**	**0.653**	J	**2.86**	**J**
Benzene	0.111	U	0.555	U	0.111	U	0.111	U	0.222	U	0.111	U	0.111	U	0.111	U	0.111	U
Bromodichloromethane	0.083	U	0.417	U	0.083	U	0.083	U	0.167	U	0.083	U	0.083	U	0.083	U	0.083	U
Bromoform	0.215	U	1.08	U	0.215	U	0.215	U	0.43	U	0.215	U	0.215	U	0.215	U	**0.33**	**J**
Bromomethane	0.427	U	2.14	U	0.427	U	0.427	U	0.854	U	0.427	U	0.427	U	0.427	U	0.427	U
Carbon disulfide	0.19	U	0.95	U	0.19	U	0.19	U	0.38	U	0.19	U	0.19	U	0.19	U	0.190	U
Carbon tetrachloride	0.248	U	1.24	U	0.248	U	0.248	U	0.496	U	0.248	U	0.248	U	0.248	U	0.248	U
Chlorobenzene	0.083	U	0.414	U	0.083	U	0.083	U	0.166	U	0.083	U	0.083	U	0.083	U	0.083	U
Chloroethane	0.235	U	1.18	U	0.235	U	0.235	U	0.47	U	0.235	U	0.235	U	0.235	U	0.235	U
Chloroform	0.155	U	**1.65**	**J**	0.155	U	0.155	U	0.31	U	0.155	U	**0.686**	**J**	**0.687**	J	0.155	U
Chloromethane	0.144	U	0.718	U	0.144	U	0.144	U	0.287	U	0.144	U	0.144	U	0.144	U	0.144	U
Cyclohexane	0.337	U	1.69	U	0.337	U	0.337	U	0.674	U	0.337	U	0.337	U	0.337	U	0.337	U
Dibromochloromethane	0.054	U	0.27	U	0.054	U	0.054	U	0.108	U	0.054	U	0.054	U	0.054	U	0.054	U
Dichlorodifluoromethane	0.145	U	0.724	U	0.145	U	0.145	U	0.29	U	0.145	U	0.145	U	0.145	U	0.145	U
Ethylbenzene	0.109	U	0.545	U	0.109	U	0.109	U	0.218	U	0.109	U	**0.317**	**J**	0.109	U	0.109	U
Isopropylbenzene (Cumene)	0.13	U	0.651	U	0.13	U	0.13	U	0.26	U	0.13	U	0.13	U	0.13	U	0.130	U
Methyl Acetate	0.159	U	0.797	U	0.159	U	0.159	U	0.319	U	0.159	U	0.159	U	0.159	U	0.159	U
Methylcyclohexane	0.143	U	0.717	U	0.143	U	0.143	U	0.287	U	0.143	U	**0.465**	**J**	0.143	U	0.143	U
Methylene chloride	0.149	U	0.745	U	**0.176**	**J**	0.149	U	0.298	U	0.149	U	0.149	U	0.149	U	**0.161**	**J**
Styrene	0.089	U	0.447	U	0.089	U	0.089	U	0.179	U	0.089	U	0.089	U	0.089	U	0.089	U
Tetrachloroethene	**2.68**	**J**	**516**		**1.78**	**J**	**2.92**	**J**	**260**		**12.6**		**4.58**	**J**	**4.96**	J	**7.69**	
Toluene	0.122	U	0.609	U	0.122	U	0.122	U	0.244	U	0.122	U	0.122	U	0.122	U	0.122	U
Trichloroethene	**0.769**	**J**	**208**		0.161	U	**4.21**	**J**	**7.53**	**J**	0.161	U	**1.43**	**J**	**1.63**	J	**0.189**	**J**
Trichlorofluoromethane	0.157	U	0.785	U	0.157	U	0.157	U	0.314	U	0.157	U	0.157	U	0.157	U	0.157	U
Trichlorotrifluoroethane	0.158	U	0.79	U	0.158	U	0.158	U	0.316	U	0.158	U	0.158	U	0.158	U	0.158	U
Vinyl acetate	0.151	U	0.755	U	0.151	U	0.151	U	0.302	U	0.151	U	0.151	U	0.151	U	0.151	U
Vinyl chloride	0.127	U	0.636	U	0.127	U	0.127	U	0.254	U	0.127	U	0.127	U	0.127	U	0.127	U
Xylene (total)	0.179	U	0.894	U	0.179	U	0.179	U	**2.83**	**J**	0.179	U	**1.21**	**J**	0.179	U	0.179	U
cis-1,2-Dichloroethene	0.103	U	**23.5**	**J**	0.533	U	**0.208**	**J**	**1.77**	**J**	**2.1**		**0.515**	**J**	0.533	U	**0.708**	**J**
cis-1,3-Dichloropropene	0.124	U	0.621	U	0.124	U	0.124	U	0.248	U	0.124	U	0.124	U	0.124	U	0.124	U
m,p-Xylene	0.123	U	0.617	U	0.123	U	0.123	U	**1.56**	**J**	0.123	U	**0.761**	**J**	0.123	U	0.214	U
o-Xylene	0.055	U	0.277	U	0.055	U	0.055	U	**1.27**	**J**	0.055	U	**0.452**	**J**	0.055	U	0.055	U
tert-Butyl methyl ether (MTBE)	0.078	U	0.389	U	0.078	U	0.078	U	0.155	U	0.078	U	0.078	U	0.078	U	0.078	U
trans-1,2-Dichloroethene	0.077	U	0.385	U	0.077	U	0.077	U	0.154	U	0.077	U	0.077	U	0.077	U	0.077	U
trans-1,3-Dichloropropene	0.128	U	0.639	U	0.128	U	0.128	U	0.255	U	0.128	U	0.128	U	0.128	U	0.128	U
MNA Parameters																		
Ethane	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U
Ethene	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U
Methane	**0.544**	**J**	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U
Total Organic Carbon	0.3	U	0.30	U	**3.0**		**1**		0.30	U	**0.66**	**J**	**2.7**		1.4		**0.35**	**J**
Sulfide	2	U	2.00	U	2	U	2	U	2.00	U	2	U	2	U	2	U	2	
Chloride	**0.139**	**J**	**25.6**		**7.14**		**2.63**		**21.7**		**16.9**		**21.3**		**20.1**		**3.38**	
Nitrate	**7.23**		**6.24**		**8.79**		**30.7**		**10.3**		**13.9**		**1.49**		**1.45**		**17.8**	
Sulfate	**10.6**		**46.5**		**81.5**		**26.6**		**34.2**		**48.7**		**26**		**27**		**5.28**	
Ferrous Iron (mg/L)	0.00		0.00		0.00		0.00		0.00		0.00		0.00		NM		0.00	
Groundwater Quality																		
Temperature	15.92		26.52		18.25		17.24		14.28		16.76		18.31		NM		17.40	
pH	5.54		5.83		5.87		5.75		6.14		5.61		4.86		NM		5.23	
Turbidity	18.9		15.6		3.5		16.8		0.5		0.0		2.0		NM		0.0	
Conductivity	0.115		0.272		0.584		0.278		0.351		0.356		0.191		NM		0.144	
ORP	176		220		229		248		265		284		352		NM		266	
Dissolved Oxygen (mg/L)	1.39		1.79		0.40		1.73		6.42		3.77		4.35		NM		7.10	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
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Well Designation	**SMFMW-11**		**SMFMW-12**		**SMFMW-13**		**SMFMW-14**		**SMFMW-17**		**SMFMW-18**		**SMFMW-1D**		**SMFMW-2**		**SMFMW-3**	
Property Location	**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**	
Sample Collection Date	**20-Mar-14**		**13-Mar-14**		**18-Mar-14**		**20-Mar-14**		**20-Mar-14**		**21-Mar-14**		**18-Mar-14**		**19-Mar-14**		**18-Mar-14**	
VOCs																		
1,1,1-Trichloroethane	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U
1,1,2,2-Tetrachloroethane	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U
1,1,2-Trichloroethane	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U
1,1-Dichloroethane	0.171	U	0.171	U	0.171	U	0.171	U	**0.646**	**J**	0.171	U	**0.584**	**J**	0.171	U	0.171	U
1,1-Dichloroethene	0.208	U	0.208	U	0.208	U	0.208	U	**0.436**	**J**	0.208	U	**1.11**	**J**	0.208	U	0.208	U
1,2,4-Trichlorobenzene	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U
1,2-Dibromo-3-chloropropane	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U
1,2-Dibromoethane	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U
1,2-Dichlorobenzene	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U	0.135	U
1,2-Dichloroethane	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U
1,2-Dichloropropane	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U
1,3-Dichlorobenzene	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U
1,4-Dichlorobenzene	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U
2-Butanone	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U	0.142	U
2-Chloroethylvinyl ether	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U
2-Hexanone	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U
4-Methyl-2-pentanone	0.120	U	0.120	U	0.120	U	0.120	U	0.120	U	0.120	U	0.120	U	0.120	U	0.120	U
Acetone	**2.38**	**J**	0.193	U	0.193	U	**2.38**	**J**	**2.45**	**J**	0.193	U	0.193	U	**0.65**	**J**	0.193	U
Benzene	0.111	U	0.111	U	0.111	U	0.111	U	0.111	U	**0.208**	**J**	0.111	U	0.111	U	0.111	U
Bromodichloromethane	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	**0.322**	**J**
Bromoform	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U
Bromomethane	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U
Carbon disulfide	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U
Carbon tetrachloride	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U
Chlorobenzene	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U
Chloroethane	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U
Chloroform	0.155	U	0.155	U	0.155	U	**0.227**	**J**	0.155	U	**0.172**	**J**	**0.436**	**J**	**2.16**	**J**	**3.45**	**J**
Chloromethane	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U
Cyclohexane	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U	0.337	U
Dibromochloromethane	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U
Dichlorodifluoromethane	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U
Ethylbenzene	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U
Isopropylbenzene (Cumene)	0.130	U	0.130	U	0.130	U	0.130	U	0.130	U	0.130	U	0.130	U	0.130	U	0.130	U
Methyl Acetate	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U
Methylcyclohexane	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U
Methylene chloride	0.149	U	0.149	U	0.149	U	0.149	U	**0.187**	**J**	0.149	U	0.149	U	0.149	U	0.149	U
Styrene	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U
Tetrachloroethene	0.193	U	**2.18**	**J**	**2.65**	**J**	**25.2**		0.193	U	**2.92**	**J**	**1.67**	**J**	**129**		**54.2**	
Toluene	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U	0.122	U
Trichloroethene	0.161	U	0.161	U	0.161	U	**5.37**		0.161	U	**0.86**	**J**	**4.13**	**J**	**23.8**		**5.16**	
Trichlorofluoromethane	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U
Trichlorotrifluoroethane	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U
Vinyl acetate	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U
Vinyl chloride	0.127	U	0.127	U	0.127	U	0.127	U	0.127	U	**0.992**	**J**	0.127	U	0.127	U	0.127	U
Xylene (total)	0.179	U	0.179	U	0.179	U	0.179	U	0.179	U	0.214	U	0.214	U	0.214	U	0.214	U
cis-1,2-Dichloroethene	0.103	U	0.103	U	0.103	U	**0.34**	**J**	0.103	U	**4.19**	**J**	0.103	U	**3.21**		**0.274**	**J**
cis-1,3-Dichloropropene	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U	0.124	U
m,p-Xylene	0.214	U	0.214	U	0.214	U	0.214	U	0.214	U	0.214	U	0.214	U	0.214	U	0.214	U
o-Xylene	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U
tert-Butyl methyl ether (MTBE)	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U
trans-1,2-Dichloroethene	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U
trans-1,3-Dichloropropene	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U
MNA Parameters																		
Ethane	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U	0.087	U
Ethene	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U	0.071	U
Methane	**207**		0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U	0.435	U
Total Organic Carbon	**3.4**		0.30	U	0.30	U	**1.0**		**2.5**		**6.1**		**1.3**		0.3	U	**1.2**	
Sulfide	2	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	**2.4**	
Chloride	0.05	U	**1.14**		**2.26**		**4.73**		**12.5**		**4.75**		**2.67**		**20**		**22**	
Nitrate	**5.95**	U	0.050U	U	**0.465**		**1.81**		**2.98**		**8.72**		**22.9**		**6.84**		**14.5**	
Sulfate	**103**		**8.14**		**13.2**		**127**		**36**		**106**		**23.1**		**28.1**		**7.67**	
Ferrous Iron (mg/L)	1.50		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Groundwater Quality																		
Temperature	18.35		15.33		17.31		20.00		20.19		16.62		15.13		16.92		14.36	
pH	6.68		6.05		6.13		5.98		5.95		7.35		6.07		4.59		4.38	
Turbidity	2.8		0.0		2.6		0.3		0.0		0.0		0.0		1.1		0.3	
Conductivity	0.783		0.134		0.121		0.465		0.274		1.380		0.260		0.238		0.279	
ORP	-66		201		145		154		224		220		238		376		375	
Dissolved Oxygen (mg/L)	0.62		6.54		4.12		1.66		0.91		4.09		3.59		3.01		6.18	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 4
SUMMARY OF 2014 BASELINE GROUNDWATER ANALYTICAL RESULTS
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Well Designation	**SMFMW-4**		**SMFMW-6**		**SMFMW-7**		**SMFMW-9**		**SMFPI-1**		**DUP-5 (SMFPI-1)**	
Property Location	**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**		**Southern Metal Finishing**	
Sample Collection Date	**18-Mar-14**		**21-Mar-14**		**20-Mar-14**		**24-Mar-14**		**19-Mar-14**		**19-Mar-14**	
VOCs												
1,1,1-Trichloroethane	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U	0.123	U
1,1,2,2-Tetrachloroethane	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U
1,1,2-Trichloroethane	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U
1,1-Dichloroethane	0.171	U	0.171	U	0.171	U	0.171	U	0.171	U	0.171	U
1,1-Dichloroethene	0.208	U	0.208	U	0.208	U	0.208	U	0.208	U	0.208	U
1,2,4-Trichlorobenzene	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U	0.105	U
1,2-Dibromo-3-chloropropane	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U	0.194	U
1,2-Dibromoethane	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U	0.102	U
1,2-Dichlorobenzene	0.135	U	**0.683**	**J**	0.135	U	0.135	U	0.135	U	0.135	U
1,2-Dichloroethane	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U	0.116	U
1,2-Dichloropropane	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U	0.150	U
1,3-Dichlorobenzene	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U	0.138	U
1,4-Dichlorobenzene	0.083	U	**0.203**	**J**	0.083	U	0.083	U	0.083	U	0.083	U
2-Butanone	0.142	U	**1.71**	**J**	0.142	U	0.142	U	0.142	U	0.142	U
2-Chloroethylvinyl ether	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U	0.146	U
2-Hexanone	0.122	U	**7.03**		0.122	U	0.122	U	0.122	U	0.122	U
4-Methyl-2-pentanone	0.120	U	**0.977**	**J**	0.120	U	0.120	U	0.120	U	0.120	U
Acetone	0.193	U	**6.01**		**3.37**	**J**	**2.36**	**J**	**0.736**	**J**	**0.666**	J
Benzene	0.111	U	0.111	U	0.111	U	0.111	U	0.111	U	0.111	U
Bromodichloromethane	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U
Bromoform	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U	0.215	U
Bromomethane	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U
Carbon disulfide	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U	0.190	U
Carbon tetrachloride	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U	0.248	U
Chlorobenzene	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U
Chloroethane	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U	0.235	U
Chloroform	0.155	U	0.155	U	0.155	U	0.155	U	0.155	U	0.155	U
Chloromethane	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U	0.144	U
Cyclohexane	0.337	U	**0.78**	**J**	0.337	U	0.337	U	0.337	U	0.337	U
Dibromochloromethane	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	0.054	U
Dichlorodifluoromethane	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U	0.145	U
Ethylbenzene	0.109	U	**22.4**		0.109	U	0.109	U	0.109	U	0.109	U
Isopropylbenzene (Cumene)	0.130	U	**24.4**		0.130	U	0.130	U	0.130	U	0.130	U
Methyl Acetate	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U	0.159	U
Methylcyclohexane	0.143	U	**4.05**	**J**	0.143	U	0.143	U	0.143	U	0.143	U
Methylene chloride	0.149	U	0.149	U	**0.17**	**J**	**0.189**	**J**	0.149	U	0.149	U
Styrene	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U	0.089	U
Tetrachloroethene	**4.29**	**J**	**25.1**		**15.6**		**3.36**	**J**	**6.41**		**6.38**	
Toluene	0.122	U	**1.24**	**J**	0.122	U	0.122	U	0.122	U	0.122	U
Trichloroethene	0.161	U	**1.25**	**J**	0.161	U	0.161	U	0.161	U	0.161	U
Trichlorofluoromethane	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U
Trichlorotrifluoroethane	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U	0.158	U
Vinyl acetate	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U	0.151	U
Vinyl chloride	0.127	U	0.127	U	0.127	U	0.127	U	0.127	U	0.127	U
Xylene (total)	0.214	U	**159**		0.214	U	0.214	U	0.214	U	0.214	U
cis-1,2-Dichloroethene	0.103	U	**0.337**	**J**	0.103	U	0.103	U	**1.14J**	**J**	**1.31**	J
cis-1,3-Dichloropropene	0.124	U	0.124U	U	0.124	U	0.124	U	0.124	U	0.124	U
m,p-Xylene	0.214	U	**42.3**		0.214	U	0.214	U	0.214	U	0.214	U
o-Xylene	0.055	U	**117**		0.055	U	0.055	U	0.055	U	0.055	U
tert-Butyl methyl ether (MTBE)	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U	0.078	U
trans-1,2-Dichloroethene	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U	0.077	U
trans-1,3-Dichloropropene	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U	0.128	U
MNA Parameters												
Ethane	0.087	U	**0.539**	**J**	0.087	U	0.087U	U	0.087U	U	0.087U	U
Ethene	0.071	U	0.071	U	0.071	U	0.071U	U	0.071U	U	0.071U	U
Methane	0.435	U	**6.2**		0.435	U	0.435U	U	0.435U	U	0.435U	U
Total Organic Carbon	**0.78**	**J**	**16.5**		0.30	U	**0.75J**		0.30U	U	0.3	U
Sulfide	2.00		2.00	U	2.00	U	2.00U	U	2.00U	U	2.00U	U
Chloride	**0.071**	**J**	**0.113**	**J**	**3.37**		**0.796**		**31.9**		**31.6**	
Nitrate	**5.48**		**3.94**		**0.319**		**13.6**		**9.64**		**9.21**	
Sulfate	**40.6**		**30.5**		**15.2**		**52**		**46.4**		**46.1**	
Ferrous Iron (mg/L)	0.00		0.00		0.00		0.00		0.00		NM	
Groundwater Quality												
Temperature	14.46		18.52		18.11		16.90		14.09		NM	
pH	5.75		5.76		5.94		5.39		5.54		NM	
Turbidity	0.0		0.1		0.4		3.1		4.1		NM	
Conductivity	0.220		0.171		0.110		0.245		0.379		NM	
ORP	98		-69		212		241		259		NM	
Dissolved Oxygen (mg/L)	1.04		0.56		7.26		5.42		4.35		NM	

Notes: NM - Not Measured
ug/l - microgram per liter
J- estimated value
u - compound below the meathod detection limit

TABLE 5
Summary of Current and Historic Site-Wide Groundwater Quality Results
Woodall Creek Site, Atlanta, Fulton County, Georgia
(page 1 of 7)

Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
SMFDR-1	SMFDR-1	3/20/2014	<0.208	**2.48J**	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**1.78J**	<0.161
SMFDR-2	SMFDR-2	3/14/2014	**1.22J**	<0.193	<0.111	<0.155	**0.208J**	<0.109	<0.130	<0.123	<0.143	<0.055	**2.92J**	**4.21J**
SMFDR-3	SMFDR-3	3/19/2014	<0.416	**0.746J**	<0.222	<0.310	**1.77J**	<0.218	<0.260	**1.56J**	<0.287	**1.27J**	**260**	**7.53J**
SMFDS-3	SMFDS-3	3/19/2014	<0.208	**1.09J**	<0.111	<0.155	**2.10J**	<0.109	<0.130	<0.123	<0.143	<0.055	**12.6**	<0.161
SMFMW-1		3/1/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	**7.4**
SMFMW-1	SMFMW-1	3/19/2014	<0.208	**0.762J**	**0.130J**	**0.686J**	**0.515J**	**0.317J**	<0.130	**0.761J**	**0.465J**	**0.452J**	**4.58J**	**1.43J**
DUP-4 (SMFMW-1)	DUP-4 (SMFMW-1)	3/19/2014	**0.208**	**0.653J**	**0.111**	**0.687J**	**0.533**	**0.109**	**0.13**	**0.123**	**0.143**	**0.055**	**4.96J**	**1.63J**
SMFMW-2		3/1/2011	<5	<50	<5	<5	**14**	<5	<5	<5	<5	<5	**180**	**35**
SMFMW-2	SMFMW-2	3/19/2014	<0.208	**0.650J**	<0.111	**2.16J**	**3.21J**	<0.109	<0.130	<0.123	<0.143	<0.055	**129**	**23.8**
SMFMW-3		2/28/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	**78**	**8**
SMFMW-3	SMFMW-3	3/18/2014	<0.208	<0.193	<0.111	**3.45J**	**0.274J**	<0.109	<0.130	<0.123	<0.143	<0.055	**54.2**	**5.16**
SMFMW-4		2/28/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	**16**	<5
SMFMW-4	SMFMW-4	3/18/2014	<0.208	<0.193	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**4.29J**	<0.161
SMFMW-6		2/28/2011	<5	<50	<5	<5	<5	**130**	**77**	**250**	**23**	**460**	**48**	<5
SMFMW-6	SMFMW-6	3/21/2014	<0.208	**6.01**	<0.111	<0.155	**0.337J**	**22.4**	**24.4**	**42.3**	**4.05J**	**117**	**25.1**	**1.25J**
SMFMW-7		2/28/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	**10**	<5
SMFMW-7	SMFMW-7	3/20/2014	<0.208	**3.37J**	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**15.6**	<0.161
SMFMW-9		2/28/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	**5.8**	<5
SMFMW-9	SMFMW-9	3/24/2014	<0.208	**2.36J**	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**3.36J**	<0.161
SMFMW-10		3/1/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMFMW-10	SMFMW-10	3/24/2014	<0.208	**2.86J**	<0.111	<0.155	**0.708J**	<0.109	<0.130	<0.123	<0.143	<0.055	**7.69**	**0.189J**
SMFMW-11		2/28/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMFMW-11	SMFMW-11	3/20/2014	<0.208	**2.38J**	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	<0.193	<0.161
SMFMW-12		3/2/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMFMW-12	SMFMW-12	3/13/2014	<0.208	<0.193	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**2.18J**	<0.161
SMFMW-13			<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	**11**	<5

Notes:

Concentrations in micrograms per liter

< - result below the method detection limit

J - result estimated between method detection limit and reporting limit

TABLE 5
Summary of Current and Historic Site-Wide Groundwater Quality Results
Woodall Creek Site, Atlanta, Fulton County, Georgia
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Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
SMFMW-13	SMFMW-13	3/18/2014	<0.208	<0.193	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**2.65J**	<0.161
SMFMW-14		3/1/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	**60**	**6.7**
SMFMW-14	SMFMW-14	3/20/2014	<0.208	**2.38J**	<0.111	**0.227J**	**0.340J**	<0.109	<0.130	<0.123	<0.143	<0.055	**25.2**	**5.37**
SMFMW-17		3/1/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMFMW-17	SMFMW-17	3/20/2014	0.436J	**2.45J**	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	<0.193	<0.161
SMFMW-18		2/28/2011	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMFMW-18	SMFMW-18	3/21/2014	<0.208	<0.193	**0.208J**	**0.172J**	**4.19J**	<0.109	<0.130	<0.123	<0.143	<0.055	**2.92J**	**0.860J**
SMFMW-1D	SMFMW-1D	3/18/2014	**1.11J**	<0.193	<0.111	**0.436J**	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**1.67J**	**4.13J**
SMWPI-1	SMWPI-1	3/19/2014	<0.208	**0.736J**	<0.111	<0.155	**1.14J**	<0.109	<0.130	<0.123	<0.143	<0.055	**6.41**	<0.161
DUP-5 (SMFPI-1)	DUP-5 (SMFPI-1)	3/19/2014	<0.208	**0.666J**	<0.111	<0.155	**1.31J**	<0.109	<0.130	<0.123	<0.143	<0.055	**6.38**	<0.161
AKZMW-3	AKZMW-3	3/13/2014	<0.208	NA	NA	NA	<0.103	NA	NA	NA	NA	NA	<0.193	<0.161
AKZMW-4	AKZMW-4	3/13/2014	<0.208	NA	NA	NA	<0.103	NA	NA	NA	NA	NA	<0.193	<0.161
AKZMW-6	AKZMW-6	3/13/2014	<0.208	NA	NA	NA	<0.103	NA	NA	NA	NA	NA	<0.193	<0.161
AKZMW-7	AKZMW-7	3/13/2014	<0.208	NA	NA	NA	<0.103	NA	NA	NA	NA	NA	<0.193	<0.161
AKZMW-8	AKZMW-8	3/13/2014	<0.208	NA	NA	NA	<0.103	NA	NA	NA	NA	NA	<0.193	<0.161
MW-1 (ABC)		7/10/2008	< 5	< 20	< 5	< 5	**71**	< 5	< 5	< 10	< 5	< 5	**200**	**260**
MW-1 (ABC)		11/5/2008	< 5	< 20	< 5	< 5	**190**	< 5	< 5	< 10	< 5	< 5	**240**	**330**
MW-1 (ABC)		1/14/2009	< 5	< 20	< 5	< 5	**210**	< 5	< 5	< 10	< 5	< 5	**230**	**260**
MW-1 (ABC)		8/3/2009	**5.4**	< 50	< 5	< 5	**260**	< 5	NR	NR	NR	NR	**310**	**260**
MW-1 (ABC)		4/1/2010	< 5	< 50	< 5	< 5	**420**	< 5	< 5	< 10	< 5	< 5	**250**	**200**
MW-1 (ABC)		6/13/2012	<2.0	<100	<2.0	<2.0	**390**	<2.0	<10	< 5	< 5	< 5	**62**	**57**
MW-2 (ABC)		7/10/2008	< 5	< 50	< 5	< 5	**120**	< 5	< 5	< 10	< 5	< 5	**130**	**110**
MW-2 (ABC)		11/5/2008	< 5	< 50	< 5	< 5	**64**	< 5	< 5	< 10	< 5	< 5	**150**	**110**
MW-2 (ABC)		1/14/2009	< 5	< 20	< 5	< 5	**48**	< 5	< 5	< 10	< 5	< 5	**130**	**91**

Notes:

Concentrations in micrograms per liter

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TABLE 5
Summary of Current and Historic Site-Wide Groundwater Quality Results
Woodall Creek Site, Atlanta, Fulton County, Georgia
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Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
MW-2 (ABC)		8/3/2009	< 5	< 20	< 5	< 5	**49**	< 5	< 5	< 10	< 5	< 5	**93**	**88**
MW-2 (ABC)		4/1/2010	< 5	< 20	< 5	< 5	**39**	< 5	< 5	< 10	NR	< 5	**330**	**160**
MW-3 (ABC)		7/1/2008	<5	< 50	< 5	< 5	**190**	< 5	< 5	NR	< 5	< 5	**820**	**530**
MW-3 (ABC)		11/5/2008	< 5	< 50	< 5	< 5	**170**	< 5	**5.1**	< 10	< 5	< 5	**1200**	**760**
MW-3 (ABC)		1/14/2009	< 5	< 50	< 5	< 5	**150**	< 5	< 5	< 10	15	< 5	**820**	**530**
MW-3 (ABC)		8/3/2009	< 5	< 50	< 5	< 5	**140**	< 5	< 5	< 10	< 5	< 5	**900**	**520**
MW-3 (ABC)		4/1/2010	< 5	< 20	< 5	< 5	**150**	< 5	< 5	< 10	**6.5**	< 5	**950**	**480**
MW-3 (ABC)		6/13/2012	<2.0	<100	<2.0	<2.0	**97**	<2.0	<10	< 5	< 5	< 5	**400**	**210**
MW-4 (ABC)		11/5/2008	< 5	< 20	< 5	< 5	**70**	< 5	< 5	< 10	<5	< 5	**450**	**270**
MW-4 (ABC)		1/14/2009	< 5	< 20	< 5	< 5	**72**	< 5	< 5	< 10	< 5	< 5	**490**	**290**
MW-4 (ABC)		8/3/2009	<5	< 50	< 5	< 5	**87**	< 5	< 5	NR	**6.5**	NR	**620**	**310**
MW-4 (ABC)		4/1/2010	< 5	< 50	< 5	< 5	**100**	< 5	< 5	< 10	<5	< 5	**610**	**270**
MW-4 (ABC)		6/13/2012	<2.0	<100	<2.0	<2.0	**39**	<2.0	<10	< 5	< 5	< 5	**200**	**100**
MW-4 (ABC)	MTWMW-4	3/11/2014	<0.416	<0.387	<0.222	15.8	**27.7**	<0.218	<0.260	<0.247	<0.287	<0.111	**172**	**55.7**
MW-5 (ABC)		11/5/2008	< 5	< 50	< 5	**8.6**	**170**	< 5	< 5	< 10	< 5	< 5	**440**	**290**
MW-5 (ABC)		1/14/2009	< 5	< 50	< 5	**6.2**	**140**	< 5	< 5	< 10	< 5	< 5	**460**	**290**
MW-5 (ABC)		8/3/2009	< 5	< 50	< 5	< 5	**140**	< 5	< 5	< 10	< 5	< 5	**570**	**290**
MW-5 (ABC)		4/1/2010	< 5	< 20	< 5	< 5	**170**	< 5	< 5	< 10	< 5	< 5	**450**	**260**
MW-5 (ABC)		4/24/2012	<5	< 50	< 5	< 5	**130**	< 5	< 5	< 5	< 5	< 5	**430**	**200**
MW-6 (ABC)		1/14/2009	< 5	< 20	< 5	< 5	**58**	< 5	< 5	< 10	< 5	< 5	**52**	**52**
MW-6 (ABC)		8/3/2009	< 5	< 50	< 5	< 5	**100**	< 5	< 5	NR	< 5	NR	**240**	**170**
MW-6 (ABC)		4/1/2010	< 5	< 50	< 5	< 5	**110**	< 5	< 5	< 10	< 5	< 5	**260**	**200**
MW-6 (ABC)		4/24/2012	< 5	< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	**320**	**190**
MW-7 (ABC)		1/14/2009	**19**	< 50	< 5	< 5	**11**	< 5	< 5	< 10	< 5	< 5	**260**	**210**
MW-7 (ABC)		8/3/2009	**32**	< 50	< 5	< 5	**10**	< 5	< 5	< 10	< 5	< 5	**240**	**190**
MW-7 (ABC)		4/1/2010	**8.2**	< 20	< 5	< 5	**6.4**	< 5	< 5	< 10	< 5	< 5	**46**	**50**

Notes:
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TABLE 5
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Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
MW-7 (ABC)		6/13/2012	**23**	<100	<2.0	<2.0	**16.0**	<2.0	<10	< 5	< 5	< 5	**270**	**190**
MW-7 (ABC)	MTWMW-7	3/10/2014	**5.15**	<0.193	<0.111	<0.155	**49.4**	<0.109	<0.130	<0.123	<0.143	<0.055	**33**	**34**
MW-8 (ABC)		3/31/2009	< 5	< 20	< 5	< 5	**51**	< 5	< 5	< 10	< 5	< 5	**1,500**	**740**
MW-8 (ABC)		8/3/2009	< 5	< 20	< 5	< 5	**59**	< 5	< 5	< 10	**11**	< 5	**1,500**	**670**
MW-8 (ABC)		4/1/2010	<5	< 50	< 5	< 5	**31**	< 5	< 5	NR	<5	NR	**670**	**380**
MW-8 (ABC)		6/11/2012	<2.0	<100	<2.0	<2.0	**53**	<2.0	<10	< 5	<5	< 5	**610**	**360**
MW-8 (ABC)	MTWMW-08	3/11/2014	<2.08	<1.93	<1.11	**2.77J**	**48.4J**	<1.09	<1.30	<1.23	<1.43	<0.554	**665**	**310**
MW-9 (ABC)		3/31/2009	< 5	< 50	< 5	< 5	**93**	< 5	< 5	< 10	< 5	< 5	**1,000**	**560**
MW-9 (ABC)		8/3/2009	<5	< 50	< 5	< 5	**120**	< 5	< 5	< 10	< 5	< 5	**990**	**580**
MW-9 (ABC)		4/10/2010	<5	< 50	< 5	< 5	**30**	< 10	< 5	< 10	< 5	< 5	**220**	**160**
MW-9 (ABC)		6/11/2012	<2.0	<100	<2.0	<2.0	**80**	<2.0	<10	< 5	< 5	< 5	**500**	**310**
MW-9 (ABC)	MTWMW-9	3/11/2014	<0.416	<0.967	<0.555	**2.09J**	**49**	<0.545	<0.651	<0.617	<0.717	<0.277	**455**	**241**
MW-9 (ABC)	DUP-1 (MTWMW-9)	3/11/2014	<0.416	<0.967	<0.555	**2.14J**	**51.3**	<0.545	<0.651	<0.617	<0.717	<0.277	**445**	**241**
MW-10 (ABC)		3/31/2009	< 5	< 20	< 5	< 5	**12**	< 5	< 5	< 10	< 5	< 5	**260**	**77**
MW-10 (ABC)		8/3/2009	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**110**	**30**
MW-10 (ABC)		4/10/2010	< 5	< 20	< 5	< 5	**6.8**	< 5	< 5	< 10	< 5	< 5	**94**	**28**
MW-10 (ABC)		6/11/2012	<2.0	<100	<2.0	<2.0	**6.3**	<2.0	<10	< 5	< 5	< 5	**86**	**20**
MW-10 (ABC)	MTWMW-10	3/10/2014	<0.208	<0.193	<0.111	**0.854J**	**1.57J**	<0.109	**0.727J**	<0.123	**1.36J**	**6.3**	**61.3**	**12.6**
MW-11 (Goodstone)		8/3/2009	<5	< 50	< 5	**16**	< 5	< 5	< 5	NR	< 5	NR	**31**	**5.4**
MW-11 (Goodstone)		4/1/2010	< 5	< 50	< 5	**5.7**	**5.4**	< 5	< 5	< 10	< 5	< 5	**48**	**18**
MW-11 (Goodstone)		3/7/2011	< 5	< 50	< 5	< 5	**27**	< 5	< 5	< 10	< 5	< 5	**290**	**86**
MW-11 (Goodstone)	GPMW-11	3/10/2014	<0.208	**0.926J**	<0.111	**4.18J**	**0.389J**	<0.109	<0.130	<0.123	<0.143	<0.055	**18**	**2.44J**
MW-12 (ABC)		8/3/2009	<5	< 50	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**14**	**7**

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TABLE 5
Summary of Current and Historic Site-Wide Groundwater Quality Results
Woodall Creek Site, Atlanta, Fulton County, Georgia
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Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
MW-12 (ABC)		4/1/2010	<5	< 50	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**56**	**37**
MW-12 (ABC)		6/13/2012	<2.0	<100	<2.0	<2.0	<2.0	<2.0	<10	< 5	< 5	< 5	<2	<2.0
MW-12 (ABC)	MTWMW-12	3/11/2014	<0.208	<0.193	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**0.323J**	<0.161
MW-13 (ABC)		8/3/2009	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	<5	< 5
MW-13 (ABC)		4/24/2012	< 5	< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
HOAMW-14	HOAMW-14	3/12/2014	<0.208	<0.193	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**0.858J**	**0.378J**
HOAMW-3	HOAMW-3	3/11/2014	0.416	0.387	0.222	**6.26J**	**55.4**	**0.218**	**0.26**	**0.247**	**0.287**	**0.111**	**222**	**91.9**
HOAMW-5	HOAMW-5	3/13/2014	<0.416	<0.387	<0.222	**2.97J**	**81.1**	<0.218	<0.260	<0.247	<0.287	<0.111	**252**	**96.1**
RPMW-1	RPMW-1	3/12/2014	<2.08	<1.93	<1.11	**3.96J**	**167**	<1.09	<1.30	<1.23	<1.43	<0.554	**788**	**641**
RPMW-2	RPMW-2	3/10/2014	<0.208	<0.193	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**2.68J**	**0.769J**
MW-14 (DAL)		4/1/2010	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**140**	**56**
MW-14 (DAL)		3/7/2011	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**360**	**130**
MW-14 (DAL)	RPMW-14	3/10/2014	<0.416	<0.387	**0.359J**	<0.310	0.556J	<0.218	<0.260	<0.247	<0.287	<0.111	**190**	**73**
MW-15 (DAL)		4/10/2010	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**630**	**380**
MW-15 (DAL)		3/7/2011	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	**11**	< 5	**780**	**310**
MW-15 (DAL)	RPMW-15	3/11/2014	<0.416	6.33J	<0.222	<0.310	3.13J	<0.218	<0.260	<0.247	**<0.287**	<0.111	**362**	**158**
MW-16 (RS)		4/1/2010	< 5	< 50	< 5	< 5	**170**	< 5	< 5	NR	< 5	NR	**1,000**	**810**
MW-16 (RS)		3/11/2011	< 5	< 50	< 5	< 5	**240**	< 5	< 5	NR	< 5	NR	**1,600**	**930**
MW-16 (RS)	JPMW-16	3/12/2014	<0.416	**6.23J**	<0.222	**1.53J**	**44**	<0.218	<0.260	<0.247	<0.287	<0.111	**262**	**177**
MW-17 (RS)		4/1/2010	< 5	< 50	< 5	<5	**14**	< 5	< 5	< 10	< 5	< 5	**140**	**36**
MW-17 (RS)		3/11/2011	< 5	< 50	< 5	<5	**72**	< 5	< 5	< 10	< 5	< 5	**340**	**92**
MW-17 (RS)	JPMW-17	3/11/2014	<0.208	<0.193	<0.111	**1.51J**	**5**	<0.109	<0.130	<0.123	<0.143	<0.055	**67**	**11**
MW-18 (Goodstone)		4/1/2010	< 5	**71**	< 5	<5	**220**	< 5	< 5	< 10	< 5	< 5	**310**	**160**

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Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
MW-18 (Goodstone)		3/8/2011	< 5	< 50	< 5	<5	**250**	< 5	< 5	< 10	< 5	< 5	**370**	**130**
MW-18 (Goodstone)	GPMW-18	3/10/2014	**0.734J**	<0.387	<0.222	**2.31J**	**106**	<0.218	<0.260	<0.247	<0.287	<0.111	**261**	**52**
MW-19 (Goodstone)		4/1/2010	< 5	**190**	< 5	< 5	**180**	**93**	< 5	<10	< 5	**440**	**270**	**170**
MW-19 (Goodstone)		3/8/2011	< 5	< 50	< 5	< 5	**190**	< 5	< 5	<10	< 5	< 5	**500**	**190**
MW-19 (Goodstone)	GPMW-19	3/10/2014	<1.04	<0.967	<0.555	**3.62J**	**164**	<0.545	<0.651	<0.617	<0.717	<0.277	**306**	**131**
MW-20 (Goodstone)		6/10/2010	< 5	< 20	< 5	< 5	**9.3**	< 5	< 5	< 10	< 5	< 5	**110**	**12**
MW-20 (Goodstone)		3/8/2011	< 5	< 20	< 5	< 5	**14**	< 5	< 5	< 10	< 5	< 5	**120**	**15**
MW-20 (Goodstone)	GPMW-20	3/10/2014	<0.208	<0.193	<0.111	**0.451J**	**6**	<0.109	<0.130	<0.123	<0.143	<0.055	**30**	**4.05J**
MW-21 (RS)		6/10/2010	< 5	< 20	< 5	< 5	**120**	< 5	< 5	< 10	< 5	< 5	**290**	**120**
MW-21 (RS)		3/8/2011	< 5	< 20	< 5	< 5	**99**	< 5	< 5	< 10	< 5	< 5	**330**	**100**
MW-21 (RS)	JPMW-21	3/11/2014	**0.345J**	<0.193	<0.111	**17.2**	**39**	<0.109	<0.130	<0.123	<0.143	<0.055	**152**	**33**
MW-22 (RS)		6/10/2010	< 5	< 20	**7.5**	<5	**250**	< 5	< 5	< 10	< 5	< 5	**1,300**	**230**
MW-22 (RS)		3/8/2011	< 5	< 20	**13**	**6.2**	**290**	< 5	< 5	< 10	< 5	< 5	**1,400**	**190**
MW-22 (RS)	JPMW-22	3/11/2014	**1.22J**	<0.387	**4.98J**	**2.07J**	**22**	<0.218	<0.260	<0.247	<0.287	<0.111	**142**	**17**
MW-22D* (RS)		3/8/2011	< 5	< 20	**14**	**6.1**	**320**	< 5	< 5	< 10	<5	< 5	**1,400**	**200**
MW-23 (RS)		6/10/2010	< 5	< 20	**1.5**	< 5	**53**	< 5	< 5	< 10	<5	< 5	**350**	**110**
MW-23 (RS)		3/8/2011	< 5	< 20	< 5	< 5	**52**	< 5	< 5	< 10	< 5	< 5	**460**	**120**
MW-23 (RS)	JPMW-23	3/12/2014	**1.66J**	<0.193	**0.989J**	**0.855J**	**40**	<0.109	<0.130	<0.123	<0.143	<0.055	**111**	**35**
MW-24 (DAL)		6/10/2010	<5	< 50	< 5	< 5	**12**	< 5	< 5	NR	< 5	NR	**1,100**	**380**

Notes:

Concentrations in micrograms per liter

< - result below the method detection limit

J - result estimated between method detection limit and reporting limit

TABLE 5

Summary of Current and Historic Site-Wide Groundwater Quality Results

Woodall Creek Site, Atlanta, Fulton County, Georgia

(page 7 of 7)

Well Designation (Property Location)	2014 Well Designation	Sample Date	1,1-Dichloroethene	Acetone	Benzene	Chloroform	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	Methylcyclohexane	o-Xylene	Tetrachloroethene	Trichloroethene
MW-24 (DAL)		3/7/2011	<5	< 50	< 5	< 5	**18**	< 5	< 5	NR	<5	NR	**1,200**	**400**
MW-24 (DAL)	RPMW-24	3/10/2014	<1.04	<0.967	<0.555	**1.65J**	**23.5J**	<0.545	<0.651	<0.617	<0.717	<0.277	**516**	**208**
MW-1 (Dobbins)	DPMW-1S	3/14/2014	<0.208	0.876J	<0.111	**1.19J**	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**1.32J**	<0.161
MW-2 (Dobbins)	DPMW-2S	3/14/2014	<0.208	1.40J	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**20**	**6**
MW-3 (Dobbins)	DPMW-3S	3/18/2014	<0.208	<0.193	<0.111	**0.775J**	**1.58J**	<0.109	<0.130	<0.123	<0.143	<0.055	**33**	**1.60J**
MW-4 (Dobbins)	DPMW-4S	3/14/2014	<0.208	1.18J	<0.111	**1.54J**	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**16**	**2.04J**
MW-25 (Dobbins)		10/28/2010	< 5	< 5	< 5	**8.7**	**8.8**	< 5	< 5	< 5	<5	< 5	**120**	**13**
MW-25 (Dobbins)		3/3/2011	< 5	< 5	< 5	< 5	**16**	< 5	< 5	< 5	< 5	< 5	**110**	**28**
MW-25 (Dobbins)	DPMW-25	3/24/2014	<0.208	**3.61J**	<0.111	**5.69**	**2.95J**	<0.109	<0.130	<0.123	<0.143	<0.055	**64**	**8**
MW-26 (Dobbins)		10/28/2010	<5	< 5	**5.3**	< 5	**12**	< 5	< 5	< 10	< 5	< 5	**28**	**5.8**
MW-26 (Dobbins)		3/3/2011	<5	< 5	**5.2**	< 5	**14**	< 5	< 5	< 10	< 5	< 5	**29**	**5.7**
MW-26 (Dobbins)	DPMW-26	3/21/2014	<0.208	<0.193	<0.111	**0.351J**	**9**	<0.109	<0.130	<0.123	<0.143	<0.055	**38**	**11.0**
MW-27 (Dobbins)		10/28/2010	< 5	< 20	< 5	< 5	**89**	< 5	< 5	< 10	< 5	< 5	**250**	**88**
MW-27 (Dobbins)		3/3/2011	< 5	< 20	< 5	< 5	**77**	< 5	< 5	< 10	< 5	< 5	**260**	**85**
MW-27 (Dobbins)	DPMW-27	3/21/2014	<0.208	**1.07J**	<0.111	<0.155	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	<0.193	<0.161
MW-28 (Dobbins)		10/28/2010	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**70**	**10**
MW-28 (Dobbins)		3/3/2011	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**50**	**6.6**
MW-28D* (Dobbins)		3/3/2011	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 5	**51**	**6**
MW-28 (Dobbins)	DPMW-28	3/24/2014	<0.208	**1.96J**	<0.111	**10.9**	<0.103	<0.109	<0.130	<0.123	<0.143	<0.055	**15**	**1.41J**

Notes:
Concentrations in micrograms per liter
< - result below the method detection limit
J - result estimated between method detection limit and reporting limit

Table 6
Summary of Groundwater Elevation Data Collected March 5, 2014
Woodall Creek Site
Atlanta, Fulton County, Georgia
(Page 1 of 3)

Well Number	Date Measured	Top of Casing Elevation	Well Casing Length (ft)*	Well Screen Length (ft)	Depth to Water (feet BTOC)	Potentiometric Elevation (feet)
SOUTHERN METAL FINISHING PROPERTY WELLS						
SMFMW-1	3/5/2014	899.16	10	15	15.46	883.70
SMFMW-2	3/5/2014	901.25	14	15	15.75	885.50
SMFMW-3	3/5/2014	900.29	11	15	16.71	883.58
SMFMW-4	3/5/2014	899.78	9	15	13.44	886.34
SMFMW-5	NM	899.63	10	15	Not Found	NA
SMFMW-6	3/5/2014	901.17	9	15	14.35	886.82
SMFMW-7	3/5/2014	906.35	11	15	16.87	889.48
SMFMW-8	NM	899.85	8.5	15	Destroyed	NA
SMFMW-9	3/5/2014	903.78	12	15	15.42	888.36
SMFMW-10	3/5/2014	903.90	12	15	16.80	887.10
SMFMW-11	NM	908.47	10	10	Not Found	NA
SMFMW-12	3/5/2014	894.60	10	10.5	12.65	881.95
SMFMW-13	3/5/2014	895.45	13	15	17.19	878.26
SMFMW-14	3/5/2014	894.94	8	10.5	9.95	884.99
SMFMW-15	NM	895.89	8	10.5	Not Found	NA
SMFMW-16	NM	898.27	8	10.5	Not Found	NA
SMFMW-17	3/5/2014	904.50	20	10	16.17	888.33
SMFMW-18	NM	911.61	20	10	Not Measured	NA
SMFPI-1	3/5/2014	ND	25	10	13.55	NA
SMFDS-1	NM	906.19	28 (34.5)	2.5	Not Found	NA
SMFDS-2	NM	894.54	20 (28.5)	2.5	Not Found	NA
SMFDS-3	3/5/2014	900.04	15 (35)	2.5	13.76	886.28
SMFDR-1	3/5/2014	906.16	39 (44)	5	16.81	889.35
SMFDR-2	NM	894.65	33 (39.5)	2.5	Not Found	NA
SMFDR-3	3/5/2014	899.90	39 (51)	2.5	13.97	885.93
SMFMW-1D	3/5/2014	900.97	53 (65) (88)	Open Hole from 88 to 96.5	15.68	885.29
MACY'S PROPERTY WELLS						
MPMW-15	3/5/2014	896.40	8.1	10	11.85	884.55
MPMW-16	NM	898.41	8.6	10	Not Found	NA
MPMW-19	3/5/2014	ND	15	15	13.76	NA
DOBBINS PROPERTY WELLS						
DPMW-1	NM	895.65	25	10	Not Found	NA
DPMW-1S	3/5/2014	895.99	15.5	10	19.90	876.09
DPMW-2	3/5/2014	896.14	20	10	15.75	880.39
DPMW-2S	3/5/2014	895.29	14.3	10	14.28	881.01
DPMW-2I	3/5/2014	895.71	30 (40)	10	16.20	879.51
DPMW-3S	3/5/2014	895.61	20	10	25.95	869.66
DPMW-3I	3/5/2014	895.67	30 (40)	10	25.15	870.52
DPMW-4S	3/5/2014	895.80	15.2	10	16.65	879.15
DPMW-4I	3/5/2014	895.57	30 (40)	10	17.26	878.31
DPMW-5S	NM	ND	25	10	Not Found	NA

Table 6
Summary of Groundwater Elevation Data Collected March 5, 2014
Woodall Creek Site
Atlanta, Fulton County, Georgia
(Page 2 of 3)

Well Number	Date Measured	Top of Casing Elevation	Well Casing Length (ft)*	Well Screen Length (ft)	Depth to Water (feet BTOC)	Potentiometric Elevation (feet)
DPMW-9	NM	895.10	40	10	Not Found	NA
DPMW-10	NM	896.14	41.3	10	Not Found	NA
DPMW-14	NM	895.98	40	10	Not Found	NA
DPMW-15	NM	ND	76.7	10	Not Found	NA
DPMW-16	NM	896.71	Unknown	Open Hole from 89 to 96.8	Not Found	NA
DPMW-25	3/5/2014	895.58	30	20	37.60	857.98
DPMW-26	3/5/2014	897.11	30	20	34.60	862.51
DPMW-27	3/5/2014	901.30	30	20	39.14	862.16
DPMW-28	3/5/2014	896.25	30	20	36.65	859.60
RESTAURANT SUPPLY (FORMER JODACO PROPERTY) WELLS						
JPMW-16	3/5/2014	864.63	20	30	19.72	844.91
JPMW-17	3/5/2014	864.52	20	30	13.95	850.57
JPMW-21	3/5/2014	858.70	9	30	5.65	853.05
JPMW-22	3/5/2014	866.76	20	30	11.20	855.56
JPMW-23	3/5/2014	866.71	19	30	9.99	856.72
JPBRW-1	3/5/2014	864.52	Unknown	Open Hole from 147.5 to 164.5	30.55	833.97
DALTILE (FORMER REYNOLDS PROPERTY) WELLS						
RPMW-1	3/5/2014	853.39	Unknown	Unknown	11.71	841.68
RPMW-2	3/5/2014	871.62	Unknown	Unknown	22.73	848.89
RPMW-14	3/5/2014	861.23	25	25	25.13	836.10
RPMW-15	3/5/2014	861.44	20	30	20.75	840.69
RPMW-24	3/5/2014	865.29	20	30	16.44	848.85
GOOSTONE PROPERTY WELLS (1494 & 1510 ELLSWORTH INDUSTRIAL BLVD.)						
GPMW-11	3/5/2014	847.92	14	25	11.00	836.92
GPMW-18	3/5/2014	846.48	10	30	9.45	837.03
GPMW-19	3/5/2014	841.86	11.5	25	12.17	829.69
GPMW-20	3/5/2014	848.27	10	30	10.21	838.06
M-WEST HOA (FORMER ABC SUPPLY PROPERTY) WELLS						
HOAMW-3	3/5/2014	840.98	10	30	15.80	825.18
HOAMW-5	NM	841.06	10	25	Not Found	NA
HOAMW-5I	3/5/2014	843.89	33 (33)	5	20.13	823.76
HOAMW-6	NM	841.10	11	25	NM	NA
HOAMW-14	3/5/2014	857.36	26	15	32.90	824.46
MIDTOWN WEST (FORMER M-WEST LOTS/ABC SUPPLY PROPERTY) WELLS						
MTWMW-1	3/5/2014	841.33	10	30	14.35	826.98
MTWMW-2	NM	839.37	9	30	Not Found	NA
MTWMW-4	3/5/2014	840.01	11	25	12.76	827.25
MTWMW-7	3/5/2014	844.41	15	25	4.84	839.57
MTWMW-7I	3/5/2014	844.59	23 (25)	5	15.75	828.84
MTWMW-8	3/5/2014	846.95	15	25	14.20	832.75
MTWMW-9	3/5/2014	848.45	15.5	20	14.91	833.54
MTWMW-10	3/5/2014	849.43	15.5	20	14.16	835.27

Table 6
Summary of Groundwater Elevation Data Collected March 5, 2014
Woodall Creek Site
Atlanta, Fulton County, Georgia
(Page 3 of 3)

Well Number	Date Measured	Top of Casing Elevation	Well Casing Length (ft)*	Well Screen Length (ft)	Depth to Water (feet BTOC)	Potentiometric Elevation (feet)
MTWMW-12	3/5/2014	845.66	13.0	25	13.32	832.34
MTWMW-13	NM	ND	6	5	Not Found	NA
GLIDDEN PROPERTY WELLS						
AKZMW-3	3/5/2014	893.77	25	10	23.37	870.40
AKZMW-4	3/5/2014	890.12	17	10	11.46	878.66
AKZMW-5	NM	905.05	20	10	Not Found	NA
AKZMW-6	3/5/2014	899.36	13	10	10.93	888.43
AKZMW-7	3/5/2014	897.80	13	10	9.54	888.26
AKZMW-8	3/5/2014	894.89	13	10	9.54	885.35
AKZMW-17	NM	901.46	37.5	20	Not Found	NA
AKZMW-18	NM	901.44	10.5	15	Not Found	NA
AKZMW-19	NM	901.04	15	10	Not Found	NA
AKZMW-20	NM	899.60	14.7	10	Not Found	NA
Woodall Creek Surface Water Sampling Points						
S01	4/1/2014	NA	NA	NA	NA	833.15
S06	4/1/2014	NA	NA	NA	NA	828.91
S09	4/1/2014	NA	NA	NA	NA	822.36
S10	4/1/2014	NA	NA	NA	NA	821.12
S11	4/1/2014	NA	NA	NA	NA	822.84
S12	4/1/2014	NA	NA	NA	NA	820.76
S14	4/1/2014	NA	NA	NA	NA	819.87
S14	4/1/2014	NA	NA	NA	NA	820.05
S15	4/1/2014	NA	NA	NA	NA	819.29
S16	4/1/2014	NA	NA	NA	NA	819.26
S17	4/1/2014	NA	NA	NA	NA	819.62
S18	4/1/2014	NA	NA	NA	NA	822.08
S19	4/1/2014	NA	NA	NA	NA	818.81
PB	4/1/2014	NA	NA	NA	NA	817.31

Notes:

*For Type III wells: outer casing depth (inner casing depth)

Elevations are relative to the National Geodetic Vertical Datum of 1929 (mean sea level).

NM - Not Measured, well not located

NA - Not Applicable

Table 7 - Summary of Model Parameters

Model Quantity	Value in Model	Final Value After Calibration	Units	Source of Value
seepage velocity	300	66	ft/yr	Start from model parameters proposed in VRP Application; adjusted during calibration
alpha x dispersion	21.28		feet	As calculated by BIOCHLOR tool using option 3 and PL=700 feet
soil bulk density	1.5		kg/L	From S&ME 2004 previous modeling at site
fraction organic carbon	1.00E-03		(decimal fraction)	BIOCHLOR default
simulation time	50		years	Approximate time since SMF Site became operational
modeled area width	1000		feet	Estimated from 2/3 model length
modeled area length	1500		feet	estimated from map distance along potentiometric surface between SMFMW-3 (source) and Woodall Creek
degradation zone 1 length	1500		feet	Entire model length is same degradation regime
Plume length	700		feet	Approximate distance to interface between modeled SMF plume and down-gradient plume – a point
Source thickness in saturated zone	9.29		feet	Saturated thickness to top of bedrock zone; estimated from conditions at well SMFMW-3
source width	200		feet	Estimate of property width in source area
PCE to DCE degradation lambda	2	0.6	1/year	Start from BIOCHLOR default - adjust within range given in model suggested range

Table 8. Biochlor Predicted Concentrations

	Distance in feet and concentrations in mg/L										
PCE @ 50 years (current)	0	150	300	450	600	750	900	1050	1200	1350	1500
No Degradation	**0.18**	**0.178926**	**0.169852**	**0.156299**	**0.142501**	**0.129905**	**0.118688**	**0.108265**	**0.09715**	**0.083111**	**0.064709**
Biotransformation	**0.18**	**0.055555**	**0.016374**	**0.004678**	0.001324	0.000375	0.000107	3.04E-05	8.73E-06	2.52E-06	7.27E-07

	Distance in feet and concentrations in mg/L										
PCE @ 100 years (current + 50)	0	150	300	450	600	750	900	1050	1200	1350	1500
No Degradation	**0.18**	**0.178926**	**0.169852**	**0.156299**	**0.142505**	**0.129941**	**0.118917**	**0.109352**	**0.101061**	**0.093848**	**0.087539**
Biotransformation	**0.18**	**0.055555**	**0.016374**	**0.004678**	0.001324	0.000375	0.000107	3.04E-05	8.73E-06	2.52E-06	7.29E-07

	Distance in feet and concentrations in mg/L										
PCE @ 200 years (current + 150)	0	150	300	450	600	750	900	1050	1200	1350	1500
No Degradation	**0.18**	**0.178926**	**0.169852**	**0.156299**	**0.142505**	**0.129941**	**0.118917**	**0.109352**	**0.101061**	**0.093848**	**0.087539**
Biotransformation	**0.18**	**0.055555**	**0.016374**	**0.004678**	0.001324	0.000375	0.000107	3.04E-05	8.73E-06	2.52E-06	7.29E-07

	Distance in feet and concentrations in mg/L										
PCE @ 500 years (current + 450)	0	150	300	450	600	750	900	1050	1200	1350	1500
No Degradation	**0.18**	**0.178926**	**0.169852**	**0.156299**	**0.142505**	**0.129941**	**0.118917**	**0.109352**	**0.101061**	**0.093848**	**0.087539**
Biotransformation	**0.18**	**0.055555**	**0.016374**	**0.004678**	0.001324	0.000375	0.000107	3.04E-05	8.73E-06	2.52E-06	7.29E-07

	Distance in feet and concentrations in mg/L										
PCE @ 1000 years (current + 950)	0	150	300	450	600	750	900	1050	1200	1350	1500
No Degradation	**0.18**	**0.178926**	**0.169852**	**0.156299**	**0.142505**	**0.129941**	**0.118917**	**0.109352**	**0.101061**	**0.093848**	**0.087539**
Biotransformation	**0.18**	**0.055555**	**0.016374**	**0.004678**	0.001324	0.000375	0.000107	3.04E-05	8.73E-06	2.52E-06	7.29E-07

Highlighted boxes exceed PCE PQL of 0.2 ppb

Bolded boxes exceed in-stream criteria of 3.3 ppb

Underlined boxes exceed Type 1 RRS of 5 ppb

Table 9
OCCURANCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN GROUNDWATER
Southern Metal Finishing, Atlanta, GA

Analyte	Number of Detects	Number of Samples	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Location of Maximum Detected Concentration	Range of Detection Limits	Vapor Intrusion Ground Water Screening Level (ug/L)(a)	MDC > Ground Water Screening Level?	COPC? (b)	Rationale for COPC selection
1,1-Dichloroethane	1	11	0.584 J	0.584 J	SMFMW-1D	0.171 -- 0.342	9.7	No	No	BSL
1,1-Dichloroethene	1	18	1.1 J	1.1 J	SMFMW-1D	0.208 -- 5	24	No	No	BSL
1,2-Dichlorobenzene	1	11	0.683 J	0.683 J	SMFMW-6	0.135 -- 0.27	390	No	No	BSL
1,4-Dichlorobenzene	1	11	0.203 J	0.203 J	SMFMW-6	0.083 -- 0.166	3.7	No	No	BSL
2-Butanone	1	11	1.71 J	1.71 J	SMFMW-6	0.142 -- 0.284	290000	No	No	BSL
2-Hexanone	1	11	7.03	7.03	SMFMW-6	0.122 -- 0.245	1100	No	No	BSL
4-Methyl-2-pentanone	1	11	0.977 J	0.977 J	SMFMW-6	0.12 -- 0.24	76000	No	No	BSL
Acetone	8	18	0.65 J	6.01	SMFMW-6	0.193 -- 50	2900000	No	No	BSL
Benzene	1	18	0.13	0.13	SMFMW-1	0.111 -- 5	2.1	No	No	BSL
Bromodichloromethane	1	11	0.322 J	0.322 J	SMFMW-3	0.083 -- 0.167	1.2	No	No	BSL
Bromoform	1	11	0.33 J	0.33 J	SMFMW-10	0.215 -- 0.43	NV	No	No	BSL
Chloroform	4	18	0.436	3.45 J	SMFMW-3	0.155 -- 5	1	Yes	**Yes**	**ASL**
cis-1,2-Dichloroethene	9	18	0.274 J	14	SMFMW-2	0.103 -- 5	NA	NA	No	BSL
Cyclohexane	1	11	0.78 J	0.78 J	SMFMW-6	0.337 -- 0.674	130	No	No	BSL
Ethylbenzene	3	18	0.317 J	130	SMFMW-6	0.109 -- 5	4.8	Yes	**Yes**	**ASL**
Isopropylbenzene (Cumene)	2	18	24.4	77	SMFMW-6	0.13 -- 5	130	No	No	BSL
m,p-Xylene	4	18	0.761 J	250	SMFMW-6	0.123 -- 5	49	Yes	**Yes**	**ASL**
Methylcyclohexane	3	18	0.465 J	23	SMFMW-6	0.143 -- 5	NA	NA	No	BSL
Methylene chloride	2	11	0.161 J	0.189 J	SMFMW-9	0.149 -- 0.298	590	No	No	BSL
o-Xylene	4	18	0.452 J	460	SMFMW-6	0.055 -- 5	68	Yes	**Yes**	**ASL**
Tetrachloroethene	16	18	1.67 J	260	SMFDR-3	5 -- 5	7.8	Yes	**Yes**	**ASL**
Toluene	1	11	1.24 J	1.24 J	SMFMW-6	0.122 -- 0.244	2600	No	No	BSL
Trichloroethene	10	18	0.189 J	35	SMFMW-2	0.161 -- 5	0.68	Yes	**Yes**	**ASL**

PREPARED BY/DATE:SAG 8/18/14
CHECKED BY/DATE: LMS 8/26/14

Notes:
Parameters in bold are selected as COPCs for groundwater.
ug/L= micrograms per liter
COPC = Constituent of Potential Concern
MDC = Maximum Detected Concentration
NV = Not volatile
NA = No screening criteria for the VI pathway

[a] Target Ground Water Concentration from the Vapor Intrusion Screening Level Calculator. The average groundwater temperature is assumed to be 19.4 °C based on the geographic location of the site

(b) Chemical selected as a COPC if maximum detected concentration is greater than groundwater screening level.

Rationale Codes:	ASL -	Selected as COPC because maximum detected concentration is above the screening level
	BSL-	Below Screening Level

Table 10
Occupational Assumptions Used in Johnson & Ettinger Model (GW-ADV)
Southern Metal Finishing
Atlanta, GA

Parameter	Value	Justification
Average Water Temp.	19.4 °C	Regional average (67° F)
Depth Below Grade to Enclosed Space Floor	15 cm	Slab on grade foundation - assumption
Depth Below Grade to Groundwater /Thickness of Soil Stratum	546 cm	Site-specific (17.9 ft); based on monitoring well data
Stratum A Soil Vapor Permeability	L	Loam; site-specific to 11 feet below ground surface
SCS Soil Type Stratum A	L	Loam; site-specific
Stratum B Soil Vapor Permeability	LS	Loamy sand; site-specific to water table
SCS Soil Type Stratum B	LS	Loam sand; site-specific
Soil Dry Bulk Density Stratum A	1.59 g/cm^3	Loam – Model value
Soil Total Porosity Stratum A	0.399 unitless	Loam – Model value
Soil Water-filled Porosity Stratum A	0.148 cm^3/cm^3	Loam – Model value
Soil Dry Bulk Density Stratum B	1.62 g/cm^3	Loamy sand – Model value
Soil Total Porosity Stratum B	0.39 unitless	Loamy sand – Model value
Soil Water-filled Porosity Stratum B	0.076 cm^3/cm^3	Loamy sand – Model value
Enclosed Space Floor Thickness	10 cm	Model Default
Soil-Building Pressure Differential	40 g/cm-s^2	Model default
Enclosed Space Floor Length	6096 cm	Site-specific (200 ft)
Enclosed Space Floor Width	1905 cm	Site-specific (62.5 ft)
Enclosed Space Height	610 cm	Eave height (20 ft); site-specific.
Floor-Wall Seam Crack Width	0.1 cm	Model default
Indoor Air Exchange Rate	1.5/hr	Exposure Factors Handbook – 2011 Update. Mean for commercial buildings
Averaging Time, Carcinogens	70 years	Model default
Averaging Time, Noncarcinogens	25 years	Default for occupational
Exposure Duration	25 years	Default for occupational
Exposure Frequency	250 days/year	Default for occupational
Target Risk for Carcinogens	1 x 10^{-5} unitless	Target Risk
Target Hazard for Noncarcinogens	1 unitless	Target Hazard

Prepared by: LMS 8/22/14
Checked by: MKB 8/26/14

Table 11

Summary of Indoor Air Vapor Intrusion Hazards and Risks [(a)]

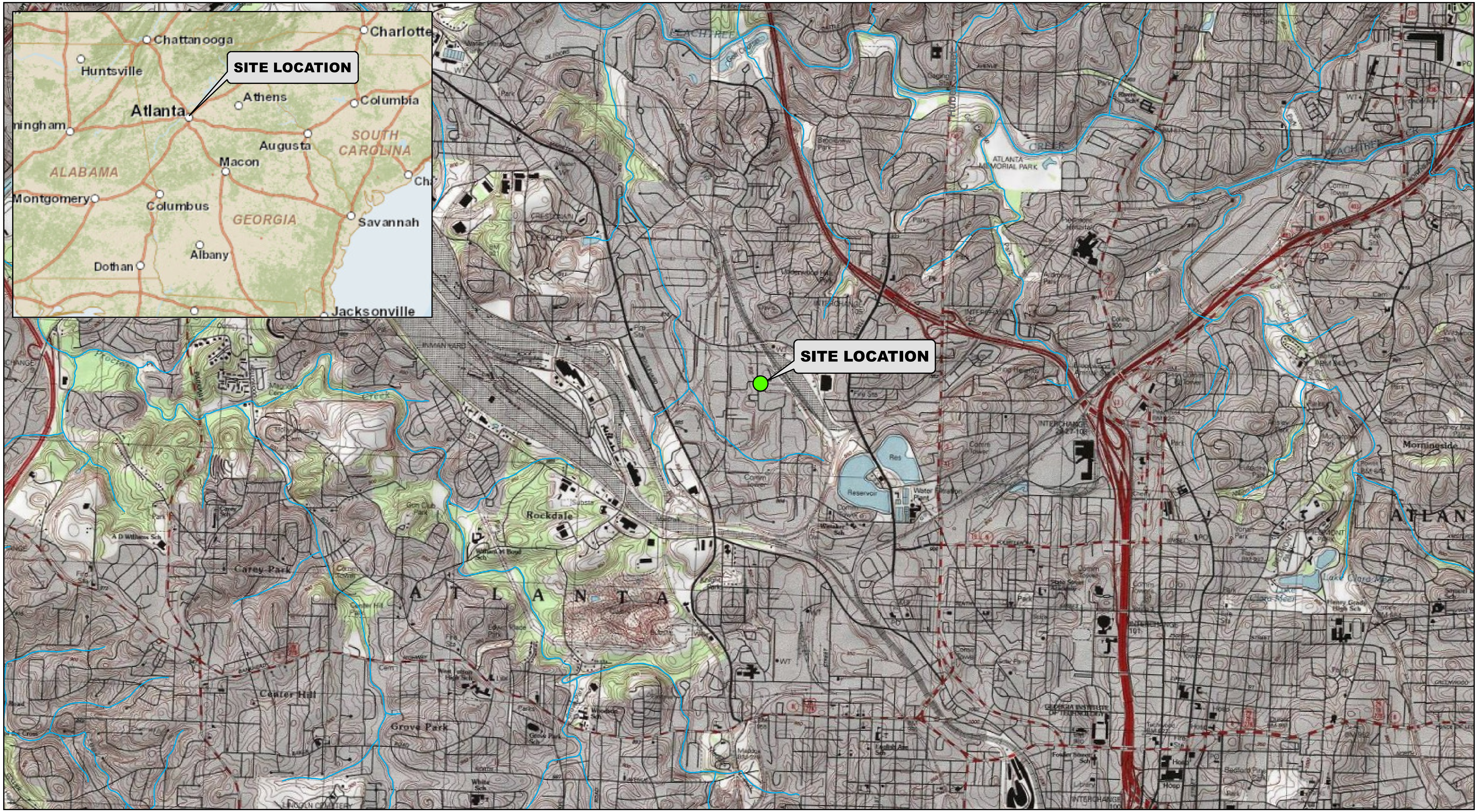
Parameter	Hazard Index	Excess Cancer Risk
Chloroform	5.60E-06	4.50E-09
Ethylbenzene	4.10E-05	3.60E-08
Tetrachloroethylene	4.50E-03	1.70E-08
Trichloroethylene	7.20E-03	2.10E-08
m,p-Xylenes	7.20E-04	--
o-Xylene	9.40E-04	--
Total	0.01	8E-08

(a) Based on Johnson & Ettinger Modeling outputs

Prepared/Date: LMS 8/27/14

Checked/Date: SAG 8/27/14

FIGURES



Southern Metal Finishing Company, LLC

1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 1
Southern Metal Finishing Site
Site Location
Atlanta, Fulton County, Georgia

0 150 300 600 900 1,200 1,500 1,800 Meters

0 1,250 2,500 5,000 7,500 10,000 Feet

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig1_SiteLoc.mxd

Date Saved: 11/6/2014

Drawn: TDN

PROJ: 6122130015

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 2
Layout of
Southern Metal Finishing Site

0 5 10 20 30 40 50 60 Meters
0 37.5 75 150 225 300 Feet

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig2_SiteLayout.mxd
Date Saved: 12/1/2014

Drawn: TDN
PROJ: 6122130015

▨ VRP Property

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 12.5 25 50 75 100 125 150 Meters

0 100 200 400 600 800 Feet

FIGURE 3
Woodall Creek Site
HSI Site Map

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig3_HSI.mxd
Date Saved: 12/1/2014

Drawn: TDN PROJ: 6122130015

⊕ Groundwater Monitoring Well

● Surface Water Sample Location

▨ VRP Property

Southern Metal Finishing Company, LLC

1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 4
Woodall Creek Site
Groundwater and Surface Water
Sampling Locations

0 12.5 25 50 75 100 125 150 Meters

0 100 200 400 600 800 Feet

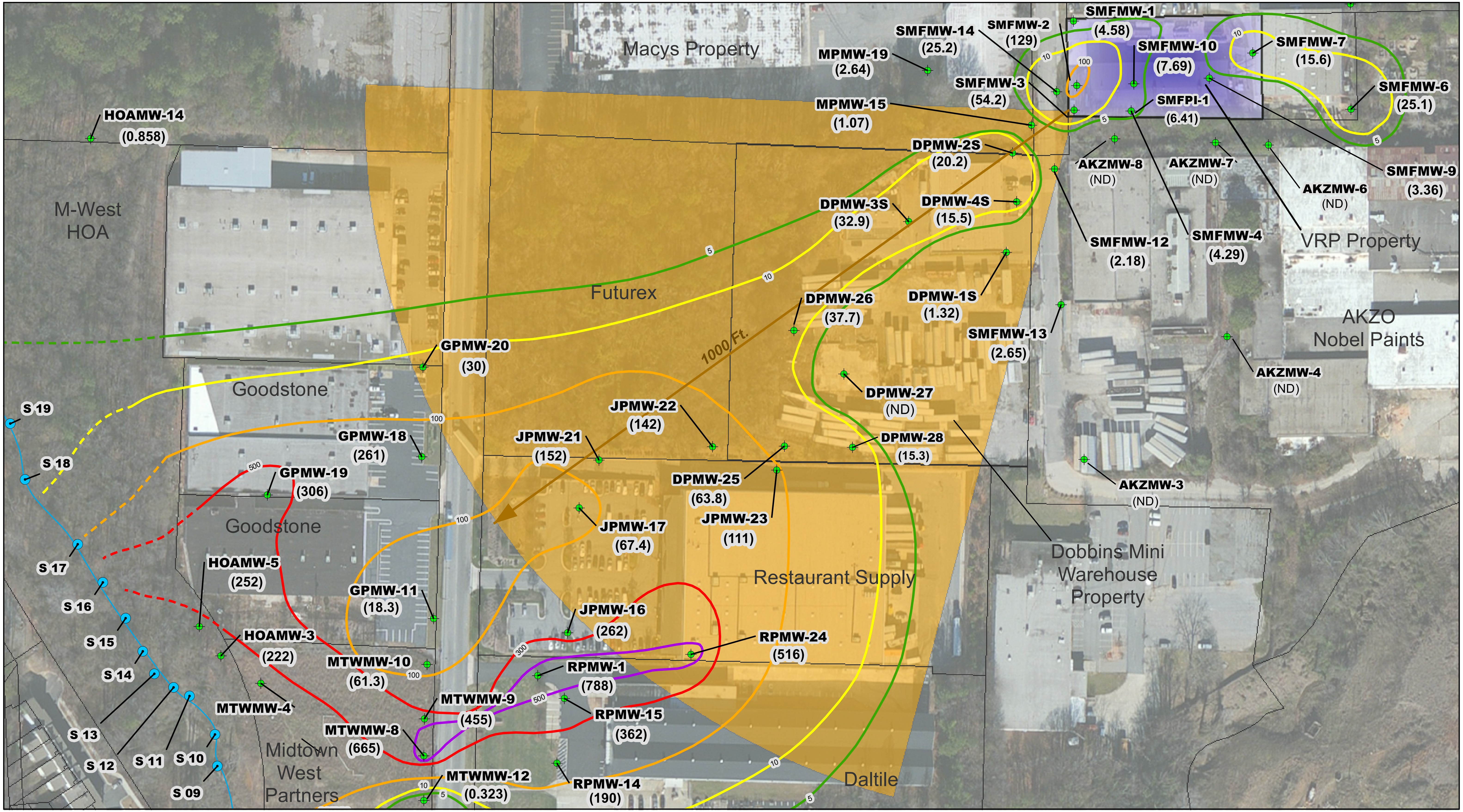
NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig4_SamplingLoc.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015



Concentration Contour (ug/L)

- 5
- 10
- 100
- 300
- 500

*contour dashed where inferred

- ⊕ Shallow Groundwater Monitoring Well
- ● Surface Water Sample Location
- 🟧 Point of Demonstration at SMFMW-3
- 🟪 VRP Property

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 7.5 15 30 45 60 75 90 Meters

0 62.5 125 250 375 500 Feet

FIGURE 5
Woodall Creek Site
PCE Isoconcentration Map March 2014
Shallow Groundwater Bearing Zone

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig5_PCEShallow.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015

⊕ Intermediate Groundwater Monitoring Well with PCE Concentrations (ug/L)

🟪 VRP Property

Southern Metal Finishing Company, LLC

1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 6
Woodall Creek Site
PCE Concentration Map March 2014
Intermediate Groundwater Bearing Zone

0 10 20 40 60 80 100 120 Meters

0 87.5 175 350 525 700 Feet

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig6_PCEInt.mxd
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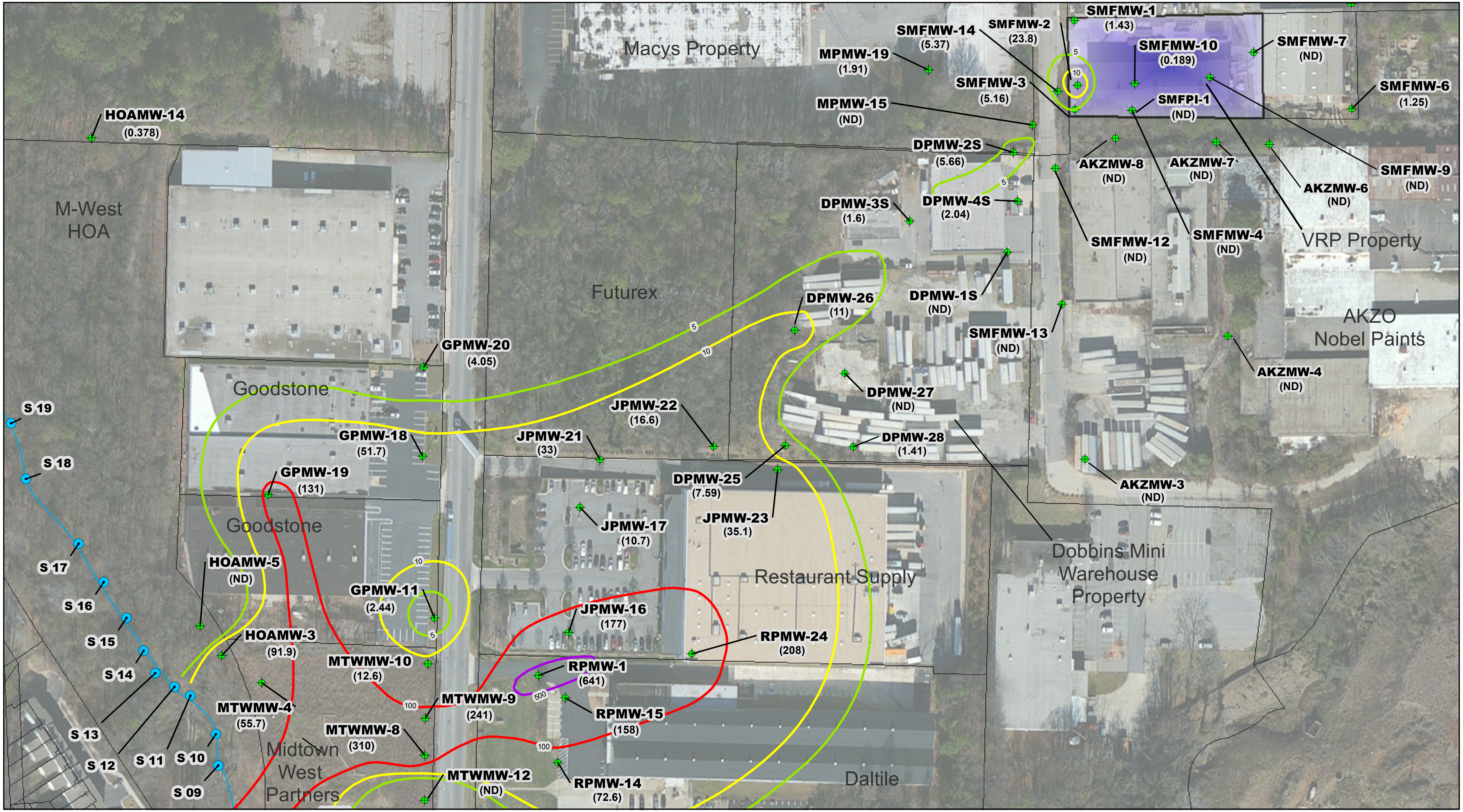
Drawn: TDN

PROJ: 6122130015



Concentration Contour (ug/L)
🟩 5
🟨 10
🟥 100
🟪 500
*contour dashed where inferred

⊕ Shallow Groundwater Monitoring Well
⊙ Surface Water Sample Location
▨ VRP Property

Southern Metal
Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 7
Woodall Creek Site
TCE Isoconcentration Map March 2014
Shallow Groundwater Bearing Zone

0 7.5 15 30 45 60 75 90 Meters
0 62.5 125 250 375 500 Feet

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig7_TCEShallow.mxd
Date Saved: 12/1/2014

Drawn: TDN
PROJ: 6122130015

⊕ Intermediate Groundwater Monitoring Well with TCE Concentrations (ug/L)

▨ VRP Property

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 8
Woodall Creek Site
TCE Concentration Map March 2014
Intermediate Groundwater Bearing Zone

0 10 20 40 60 80 100 120 Meters

0 87.5 175 350 525 700 Feet

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig8_TCEInt.mxd
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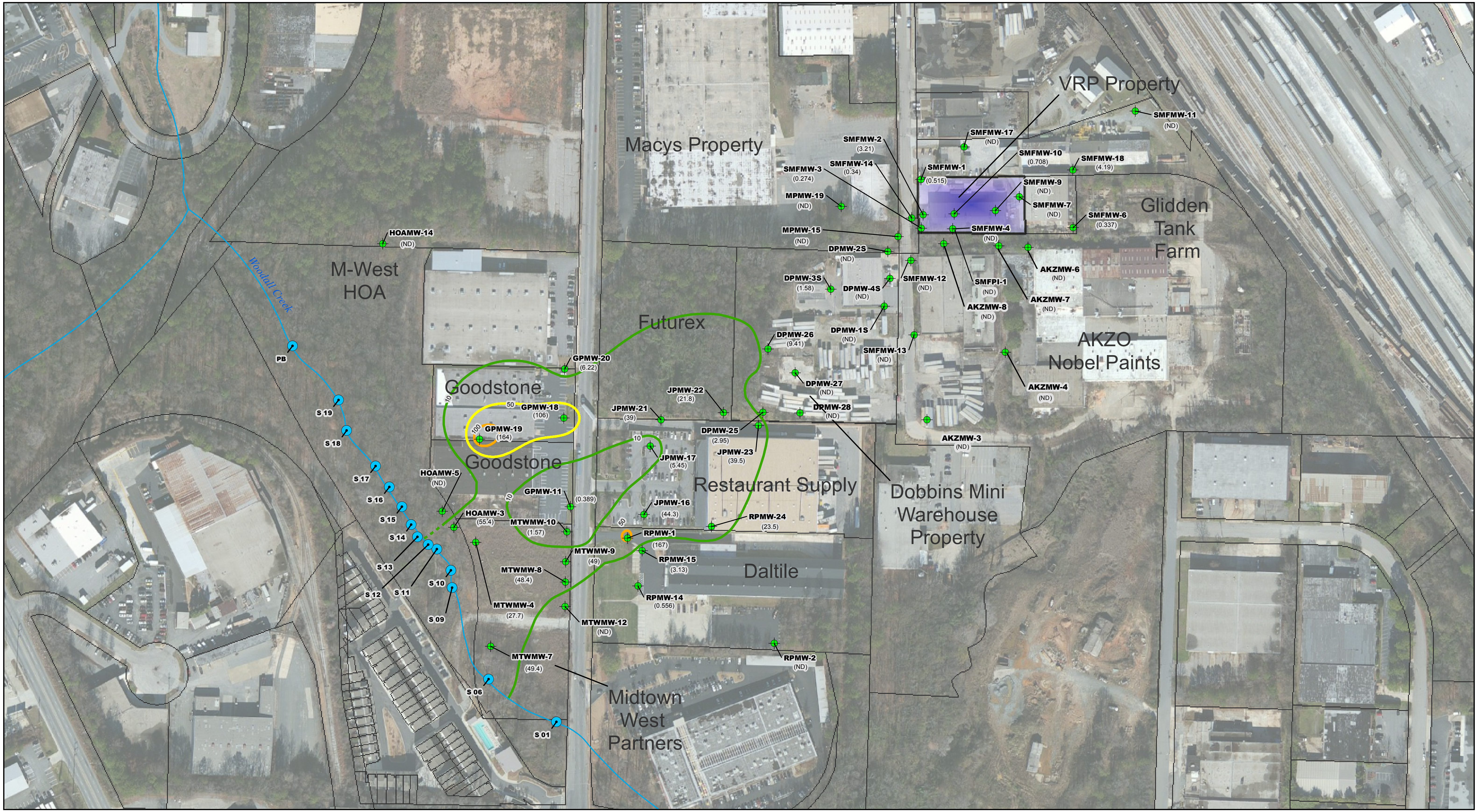

Concentration Contour (ug/L)

🟩 10

🟨 50

🟧 100

*contour dashed where inferred

✚ Shallow Groundwater Monitoring Well

● Surface Water Sample Location

▨ VRP Property

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 12.5 25 50 75 100 125 150 Meters

0 100 200 400 600 800 Feet

FIGURE 9
Woodall Creek Site
cis-1,2 DCE Isoconcentration Map March 2014
Shallow Groundwater Bearing Zone

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig9_DCEShallow.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015

⊕ Intermediate Groundwater Monitoring Well with cis-1,2 DCE Concentrations (ug/L)

▨ VRP Property

Southern Metal Finishing Company, LLC

1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 10 20 40 60 80 100 120 Meters

0 87.5 175 350 525 700 Feet

FIGURE 10
Woodall Creek Site
cis-1,2 DCE Concentration Map March 2014
Intermediate Groundwater Bearing Zone

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig10_cis12DCEInt.mxd

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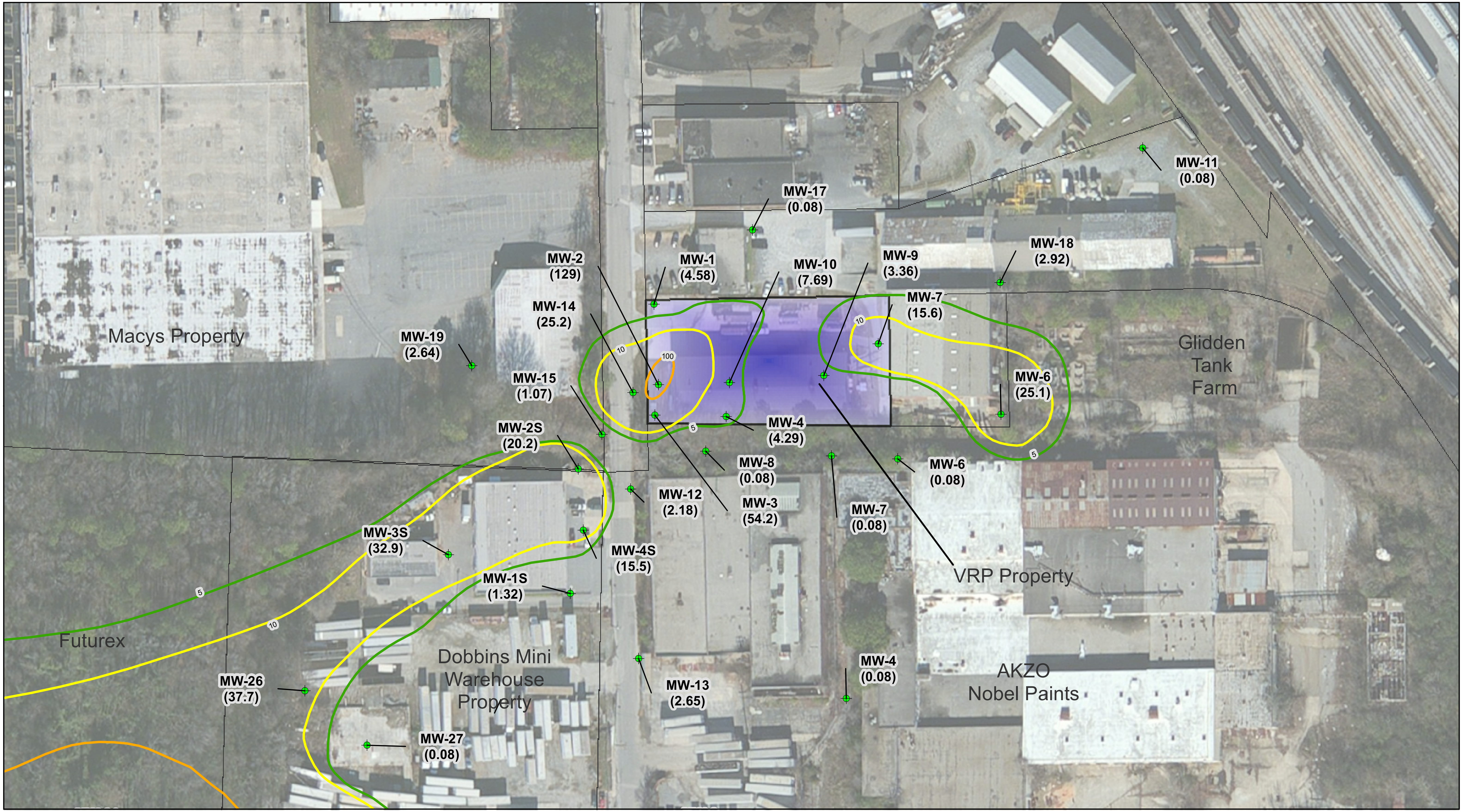
Drawn: TDN

PROJ: 6122130015



Concentration Contour (ug/L)
🟩 5
🟨 10
🟧 100
🟥 300
🟪 500
*contour dashed where inferred

⌖ Shallow Groundwater Monitoring Well
⊙ Surface Water Sample Location
▨ VRP Property

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 5 10 20 30 40 50 60 Meters
0 50 100 200 300 400 Feet

FIGURE 11
Southern Metal Finishing Site
PCE Isoconcentration Map March 2014
Shallow Groundwater Bearing Zone

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig11_PCEShalSMF.mxd
Date Saved: 12/1/2014
Drawn: TDN
PROJ: 6122130015

⊕ Intermediate Groundwater Monitoring Well
with PCE Concentrations (ug/L)

▭ VRP Property

Southern Metal
Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

FIGURE 12
Woodall Creek Site
PCE Concentration Map March 2014
Intermediate Groundwater Bearing Zone

0 5 10 20 30 40 50 60 Meters

0 50 100 200 300 400 Feet

NOTES:

-Base map imagery obtained through
ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig12_PCEIntSMF.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015

Concentration Contour (ug/L)

- 🟩 5
- 🟨 10
- 🟥 100
- 🟪 500

*contour dashed where inferred

- ⊕ Shallow Groundwater Monitoring Well
- ⊙ Surface Water Sample Location
- ▨ VRP Property

Southern Metal
Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

0 5 10 20 30 40 50 60 Meters

0 50 100 200 300 400 Feet

N

FIGURE 13
Southern Metal Finishing Site
TCE Isoconcentration Map March 2014
Shallow Groundwater Bearing Zone

NOTES:

-Base map imagery obtained through
ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig13_TCEShalSMF.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015

⌖ Intermediate Groundwater Monitoring Well
with TCE Concentrations (ug/L)

▨ VRP Property

**Southern Metal
Finishing Company, LLC**

1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

FIGURE 14
Woodall Creek Site
TCE Concentration Map March 2014
Intermediate Groundwater Bearing Zone

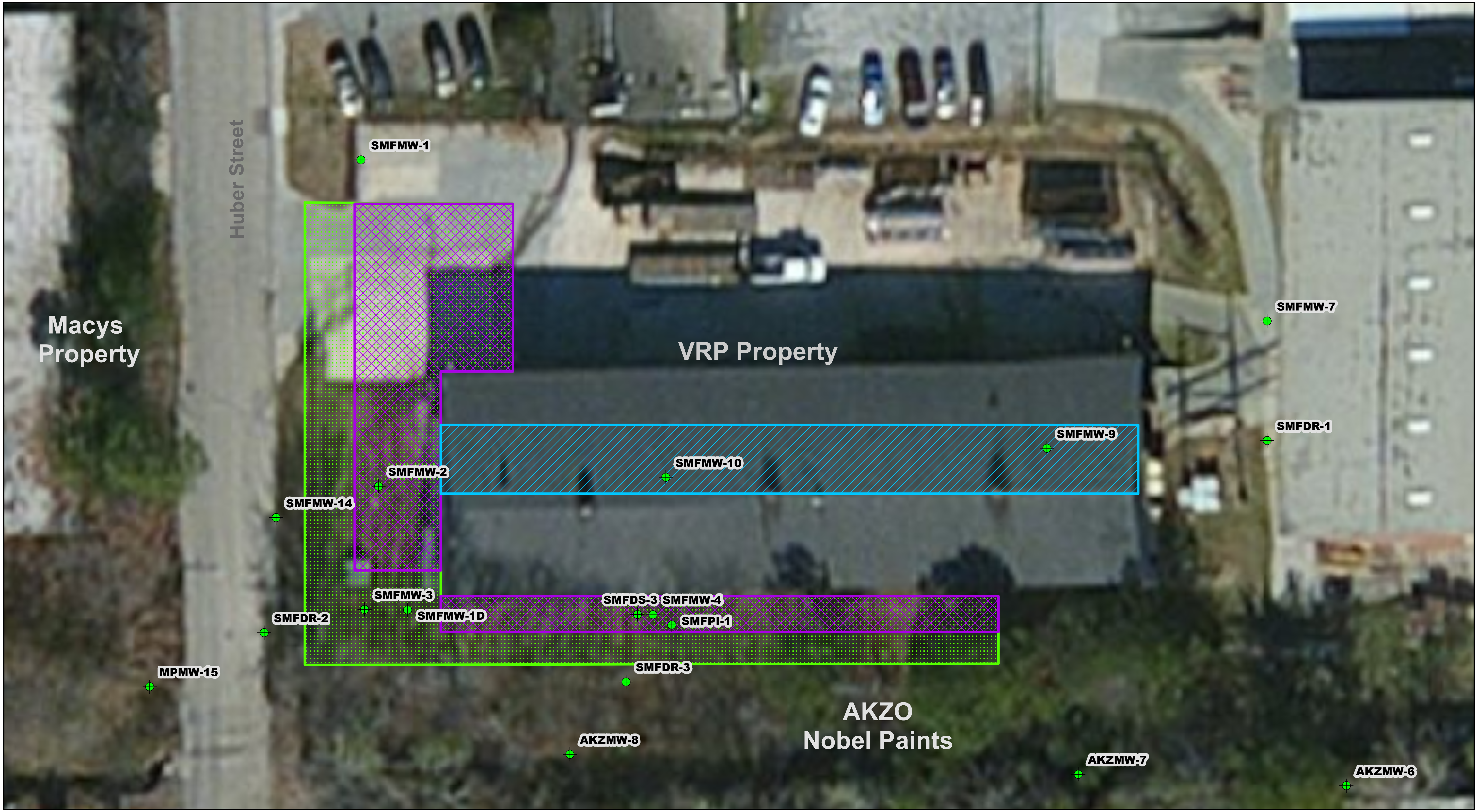
NOTES:

-Base map imagery obtained through
ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig14_TCEIntSMF.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015



Corrective Action

- 🟪 Soil Excavation
- 🟩 ISCO Injections
- 🟦 Soil Vapor Extraction

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 1.5 3 6 9 12 15 18 Meters
0 12.5 25 50 75 100 Feet

FIGURE 15
Soil and Groundwater Corrective Action at Southern Metal Finishing

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig15_CorAct.mxd
Date Saved: 12/1/2014
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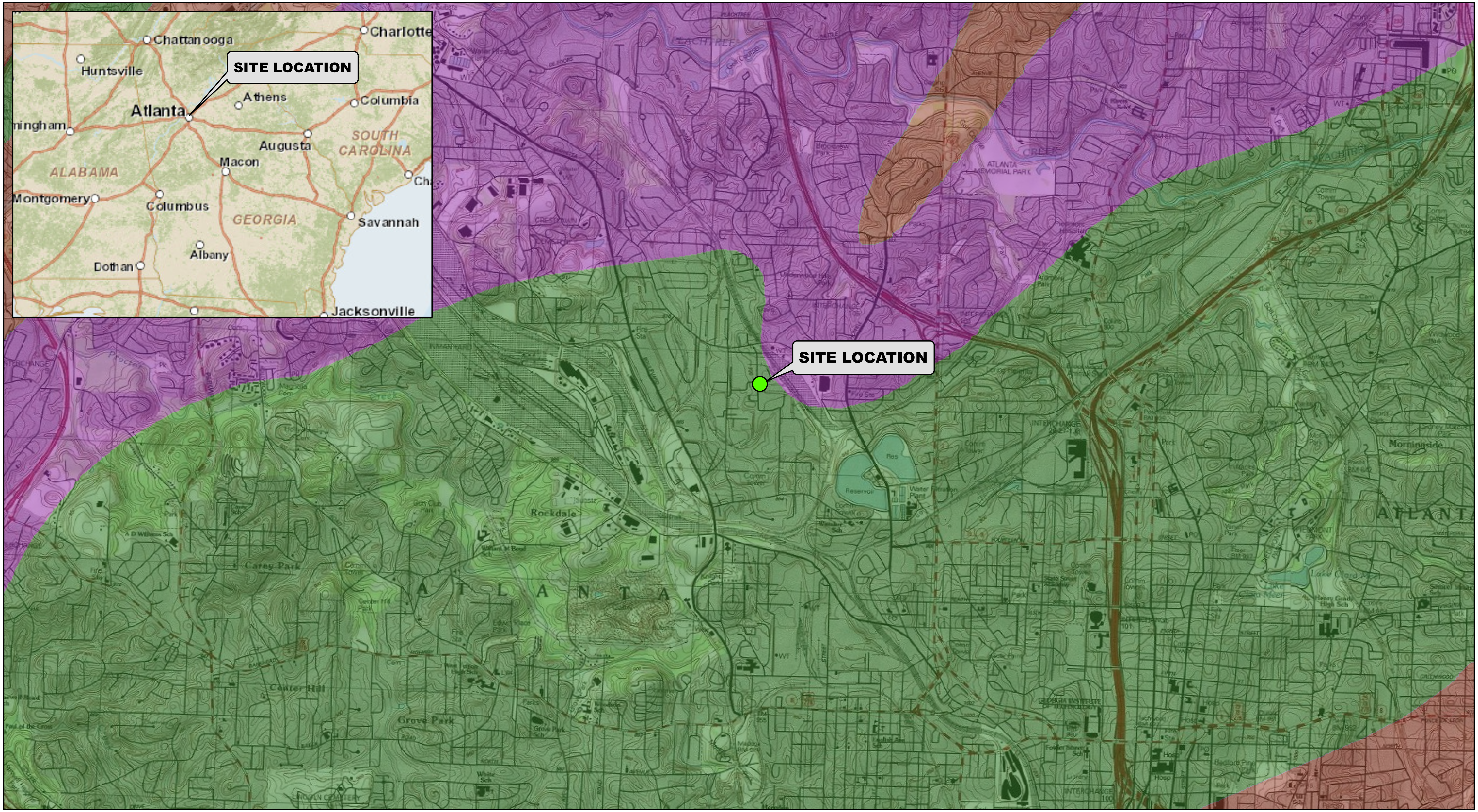


Geologic Rock Type

🟩 Biotite Gneiss

🟪 Granite

🟫 Mica Schist

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 150 300 600 900 1,200 1,500 1,800 Meters

0 1,250 2,500 5,000 7,500 10,000 Feet

FIGURE 16
Southern Metal Finishing Site
Geologic Setting
Atlanta, Fulton County, Georgia

NOTES:

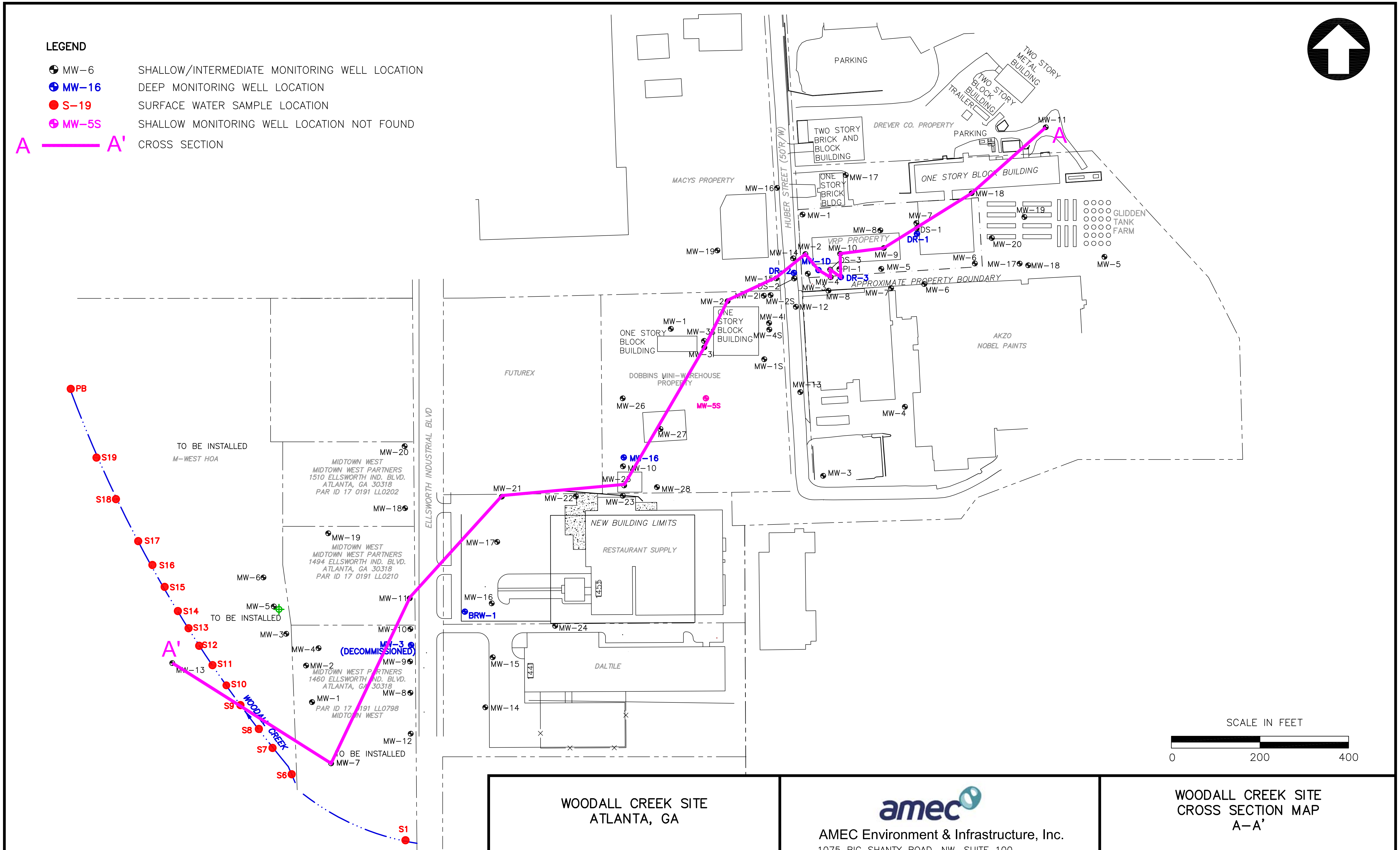
-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig16_Geologic.mxd

Date Saved: 11/6/2014

Drawn: TDN

PROJ: 6122130015



SOURCE: DRAWING CREATED BY PEACHTREE ENVIRONMENTAL INC.

WOODALL CREEK SITE
ATLANTA, GA

amec
AMEC Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

WOODALL CREEK SITE
CROSS SECTION MAP
A–A'

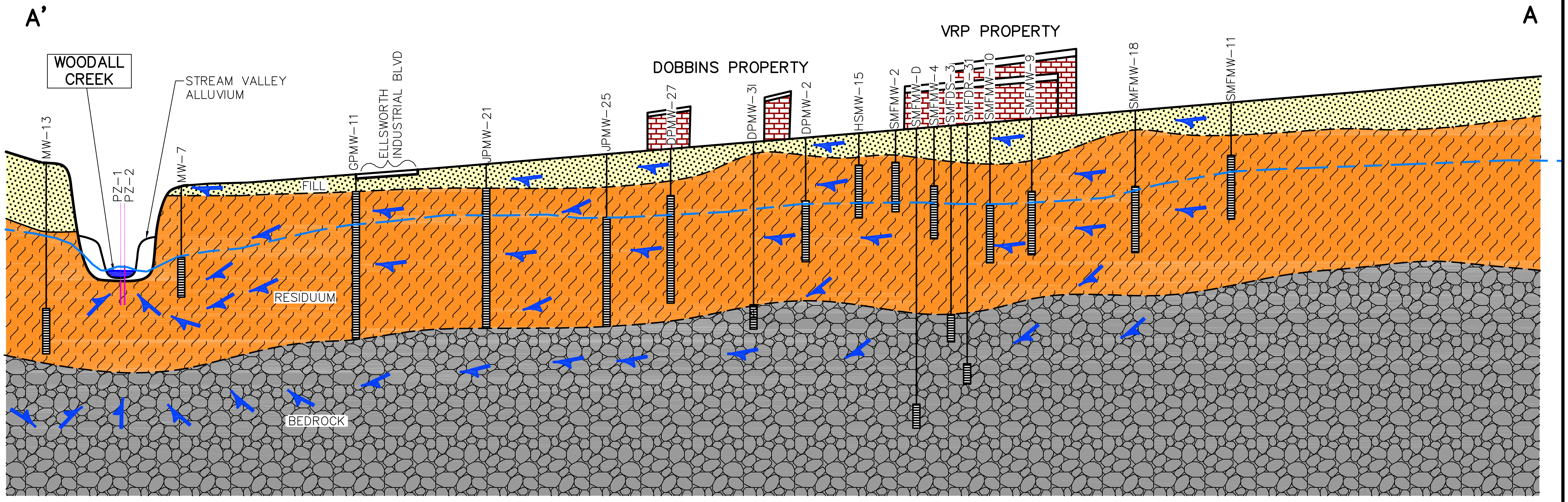
JOB NO. 6122–13–0015

FIGURE 17

PREPARED BY/DATE

CHECKED BY/DATE

J:\WOODALL CREEK\CAD\CROSS SECTION.dwg – Layout1 12/01/2014 3:46pm Tonya.Gladstone



LEGEND

▨ FILL

▨ RESIDUMM

▨ BEDROCK

– – – APPROXIMATE DEPTH TO WATER

➘ APPROXIMATE GROUNDWATER FLOW DIRECTION

SCALE IN FEET

0 200 400

WOODALL CREEK SITE
ATLANTA, GA

AMEC Environment & Infrastructure, Inc.
1075 BIG SHANTY ROAD, NW, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421–3400

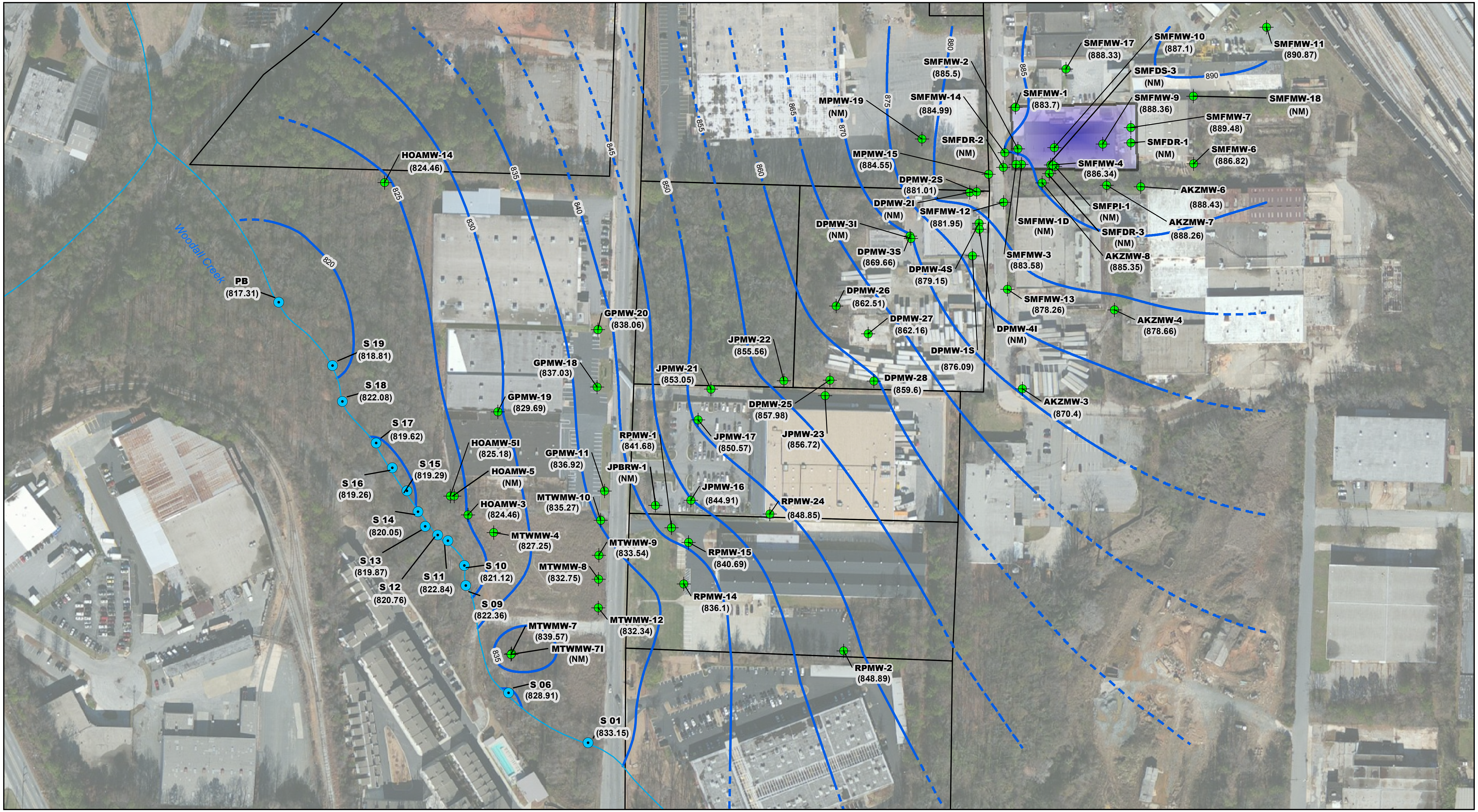
CONCEPTUAL SITE MODEL
GEOLOGIC CROSS SECTION A–A'

JOB NO. 6122–13–0015

FIGURE 18

PREPARED BY/DATE

CHECKED BY/DATE



🟢 Groundwater Monitoring Well

🔵 Surface Water Sample Location

*groundwater elevation measured in feet above mean sea level

▨ VRP Property

Southern Metal Finishing Company, LLC
1581 Huber Street, N.W.
Atlanta, Georgia 30381-7701

N

0 12.5 25 50 75 100 125 150 Meters

0 100 200 400 600 800 Feet

FIGURE 19
Woodall Creek Site
March 2014 Potentiometric Surface
Shallow Groundwater Bearing Zone

NOTES:

-Base map imagery obtained through ESRI Online Services

C:\Project\Woodall Creek\mxd\CSRNov14\Fig19_POT.mxd
Date Saved: 12/1/2014

Drawn: TDN

PROJ: 6122130015

APPENDIX A

Legal Description and Plat Map

PARID: 17 0187 LL0596
SOUTHERN METAL FINISHNG CO INC **1575 HUBER ST NW**

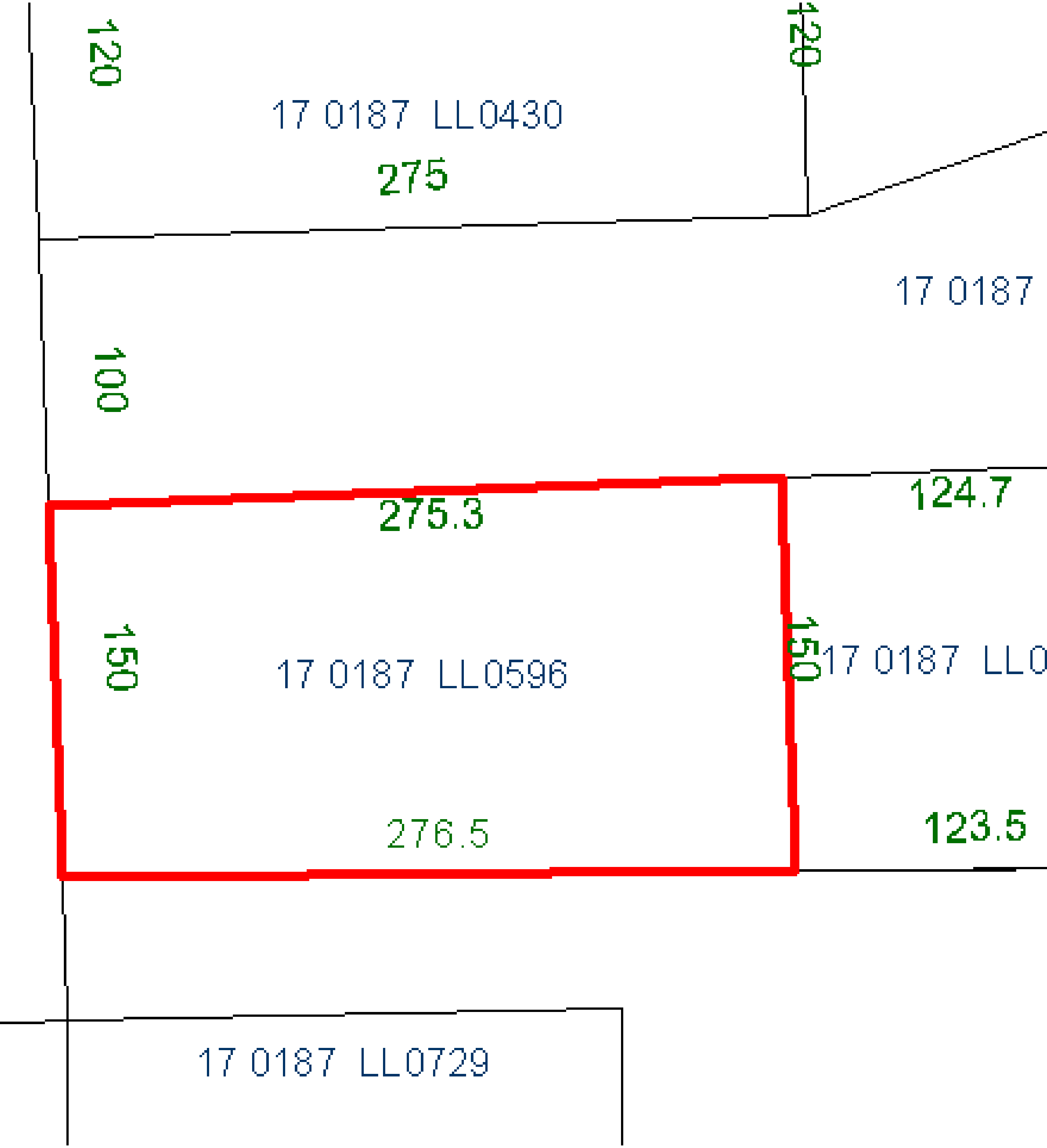
Parcel

Parcel ID	17 -0187- LL-059-6
Address	1575 HUBER ST
City	ATL
Neighborhood	C404
Class	I3
Land Use Code	398-Warehouse (bulk)
Acres	.9504
Utilities	1-ALL PUBLIC/-/-
Tax District	05
Tax Year	2010

Owner(s)

Owner Name	SOUTHERN METAL FINISHNG CO INC
Owner Name 2	

Disclaimer


120
120
17 0187 LL0430
275
17 0187
100
124.7
275.3
150
17 0187 LL0596
150
17 0187 LL0
276.5
123.5
17 0187 LL0729

Title No. 209,544-A RFE/nwh 233

1951417

Lawyers Title Insurance Corporation

ATLANTA BRANCH OFFICE

GEORGIA STATE OFFICE
TITLE BUILDING
ATLANTA 3, GEORGIA

WARRANTY DEED

STATE OF **GEORGIA**, COUNTY OF **FULTON.**

THIS INDENTURE, Made the **13th** day of **July**, in the year one thousand nine hundred **sixty-five**, between

WAREHOUSES, INC.

of the County of **Fulton**, and State of Georgia, as party or parties of the first part, hereinafter called Grantor, and

MARVIN R. McCLATCHEY

as party or parties of the second part, hereinafter called Grantee (the words "Grantor" and "Grantee" to include their respective heirs, successors and assigns where the context requires or permits).

WITNESSETH that: Grantor, for and in consideration of the sum of **TEN DOLLARS AND OTHER VALUABLE CONSIDERATIONS------------------------($10.00**) DOLLARS in hand paid at and before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, has granted, bargained, sold, aliened, conveyed and confirmed, and by these presents does grant, bargain, sell, alien, convey and confirm unto the said Grantee,

ALL THAT TRACT OR PARCEL OF LAND lying and being in Land Lot 187 of the 17th District of Fulton County, Georgia, and being more particularly described as follows:

BEGINNING at an iron pin on the east side of Huber Street 911.4 feet south, as measured along the east side of Huber Street, from the southeast corner of Huber Street and Old Chattahoochee Avenue; thence east along a line which forms an interior angle of 90 degrees with the east side of Huber Street, 275.3 feet to an iron pin; thence south along a line which forms an interior angle of 90 degrees 27 minutes with the line last run, 150 feet to an iron pin; thence west along a line which forms an interior angle of 89 degrees 33 minutes with the line last run, 276.5 feet to an iron pin on the east side of Huber Street; thence north along the east side of Huber Street which forms an interior angle of 90 degrees with the line last run, 150 feet to the iron pin at the point of beginning, as shown by plat of survey for M. R. McClatchey, ~~xxxxx~~, by H. V. Fitzpatrick, C. E., dated July, 1965, being improved property known as 1575 Huber Street, according to the present system of numbering buildings in the City of Atlanta.

FILED
FULTON CO. GA.
JUL 13 4 02 PM '65
CLERK, SUPERIOR COURT

RECORDED
FULTON CO. GA.
JUL 16 '65
CLERK, SUPERIOR COURT

TO HAVE AND TO HOLD the said tract or parcel of land, with all and singular the rights, members and appurtenances thereof, to the same being, belonging, or in anywise appertaining, to the only proper use, benefit and behoof of the said Grantee forever in FEE SIMPLE.

AND THE SAID Grantor will warrant and forever defend the right and title to the above described property unto the said Grantee against the claims of all persons whomsoever.

IN WITNESS WHEREOF, the Grantor has signed and sealed this deed, the day and year above written.

Signed, sealed and delivered in presence of:

(Unofficial Witness)

(Notary Public)
Notary Public, Georgia State at Large
My Commission Expires Jan. 25, 1966

N.P. SEAL

WAREHOUSES, INC. (Seal)

BY: Felix de Golian Jr. (Seal)

~~XX.~~ PRESIDENT (Seal)

CORP. SEAL

BOOK 4446 PAGE 63

WARRANTY DEED

FROM

WAREHOUSES, INC. Lloyd Investment Co.

TO

MARVIN R. McCLATCHEY

GEORGIA, Fulton County.

Clerk's Office, Superior Court

Filed for Record 13 day

of July 1965,

at 4:02 P. M., and Recorded in Deed

Book 4446 Folio 63

July 16, 1965.

Clerk.

Lawyers Title
Insurance Corporation

ATLANTA BRANCH OFFICE
TITLE BUILDING
ATLANTA, GEORGIA

WARRANTY DEED—Form 36 MILLER'S BOOK & OFFICE SUPPLY CO., ATLANTA

STANDARD WARRANTY DEED

STATE OF GEORGIA,

Fulton County

THIS INDENTURE, made this 15th day of May in the year of our Lord One Thousand Nine Hundred and Sixty-seven

Between MARVIN R. McCLATCHEY

of the State of Georgia and County of Fulton of the first part and SOUTHERN METAL FINISHING COMPANY, INC.

of the State of Georgia and County of Fulton of the second part.

WITNESSETH: That the said party of the first part, for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration DOLLARS in hand paid at and before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, has granted, bargained, sold and conveyed and by these presents does grant, bargain, sell and convey unto the said party of the second part, its successors ~~heirs~~ and assigns, all those tracts and parcels ~~that tract and parcel~~ of land ~~lying and being in~~ more particularly described as follows:

Tract #1:

All that tract or parcel of land lying and being in the City of Atlanta, Georgia, in Land Lot 187 of the 17th District of Fulton County, Georgia, and more particularly described as follows:

BEGINNING at a point on the northern side of the right of way of the main Spur Track of the Seaboard Airline Railroad Company, 276.5 feet easterly, as measured along the northern side of the right of way of said spur track, from the intersection of the northern side of said right of way and the eastern side of Huber Street, formerly Myatt Street; running thence easterly along the northern side of said right of way of said spur track, 123.5 feet to a point at the southwesterly corner of the property, now or formerly owned by The Glidden Company, a corporation; running thence northerly along the westerly line of said Glidden Company property, 150 feet to the southerly line of the property conveyed by Hugh C. Dobbins to M. R. McClatchey, Jr. by deed dated July 11, 1946, recorded in Deed Book 2143, page 241, Fulton County Records; running thence westerly along the southerly line of said McClatchey, Jr. property, 124.7 feet to a point that is 275.3 feet easterly, as measured along said line extended westerly to the eastern side of Huber Street, from the eastern side of Huber Street, said line extended westerly intersects the eastern line of Huber Street at a point 911.4 feet southerly, as measured along the eastern side of Huber Street, from the intersection of the eastern side of Huber Street, and the southern side of Old Chattahoochee Avenue; running thence southerly 150 feet to the point of beginning, as more particularly shown on the plat for "M. R. McClatchey, Jr." by H. V. Fitzpatrick, C. E., dated May, 1962.

Tract #2:

All that tract or parcel of land lying and being in Land Lot 187 of the 17th District of Fulton County, Georgia, and more particularly described as follows:

BEGINNING at an iron pin on the east side of Huber Street 911.4 feet south, as measured along the east side of Huber Street, from the southeast corner of Huber Street and Old Chattahoochee Avenue; thence east along a line which forms an interior angle of 90 degrees with the east side of Huber Street, 275.3 feet to an iron pin; thence south along a line which forms an interior angle of 90 degrees 27 minutes with the line last run, 150 feet to an iron pin; thence west along a line which forms an interior angle of 89 degrees 33 minutes with the line last run, 276.5 feet to an iron pin on the east side of Huber Street; thence north along the east side of Huber Street which forms an interior angle of 90 degrees with the line last run, 150 feet to the iron pin at the point of beginning, as shown by plat of survey for M. R. McClatchey, by H. V. Fitzpatrick, C. E., dated July, 1965, being improved property known as 1575 Huber Street, according to the present system of numbering buildings in the City of Atlanta.

TO HAVE AND TO HOLD the said bargained premises, together with all and singular the rights, members and appurtenances thereof, to the same being, belonging or in any wise appertaining, to the only proper use, benefit and behoof of............the said party........of the second part, its successors ~~heirs~~ and assigns forever, IN FEE SIMPLE.

And the said party....of the first part, for its........................heirs, executors and administrators will warrant and forever defend the right and title to the above described property unto the said party.........of the second part, its successors ~~heirs~~ and assigns, against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, That the said party......of the first part has hereunto set his..............hand and affixed his seal........., the day and year above written.

Signed, sealed and delivered in the presence of

Elizabeth A. Cathcart

Judith A. Hilton

Notary Public

Marvin R. McClatchey (Seal)
Marvin R. McClatchey

(Seal)

(Seal)

(Seal)

(Seal)

WARRANTY DEED

FROM

MARVIN R. McCLATCHEY

TO

SOUTHERN METAL FINISHING COMPANY, INC.

GEORGIA, Fulton County.
Clerk's Office Superior Court
Filed for Record at..........o'clock........M.
.............................., 19........
Recorded Book..........Folio..........
.............................., 19........
..............................Clerk

STANDARD WARRANTY DEED
MILLER'S BOOK & OFFICE SUPPLY CO., ATLANTA

APPENDIX B
Tables and Figures Excerpts from the 2001 S&ME Site Assessment

Table 1
Ground Water Analytical Results
Southern Metals Finishing
Atlanta, Georgia
S&ME Project No. 1654-00-223

Sample Location	Date Sampled	Tetrachloroethene (µg/l)	Trichloroethene (µg/l)
MW-1	10/9/00	9.2	20
	3/14/01	13	20
MW-2	10/9/00	2,200	500
	3/13/01	1,800	440
MW-3	10/9/00	640	370
	3/13/01	790	400
MW-4	10/9/00	8,600	27
	3/13/01	1,300	10
MW-5	10/9/00	68	BRL
	3/13/01	BRL	BRL
MW-6	10/24/00	36	BRL
	3/14/01	32	BRL
MW-7	10/24/00	51	BRL
	3/14/01	71	BRL
MW-8	10/24/00	6.4	BRL
	3/14/01	7.7	BRL
MW-9	11/17/00	42	BRL
	3/14/01	48	BRL
MW-10	11/17/00	43	BRL
	3/14/01	38	BRL
MW-11	11/17/00	BRL	BRL
	3/14/01	NS	NS
MW-12	1/30/01	11	BRL
	3/14/01	7.7	BRL
MW-13	1/30/01	17	BRL
	3/16/01	13	BRL
MW-14	1/30/01	2,300	590
	3/13/01	900	310
DPT1	3/14/01	BRL	BRL
DPT-3 (shallow)	3/13/01	BRL	BRL
DPT-3 (deep)	3/13/01	BRL	BRL
DPT-5 (shallow)	3/13/01	12	14
DPT-5 (deep)	3/13/01	23	12
DPT-6 (shallow)	3/14/01	100	370
DPT-6 (deep)	3/14/01	61	250
DPT-8 (shallow)	3/14/01	41	6.8
DPT-8 (deep)	3/14/01	50	24
DPT-10 (shallow)	3/14/01	55	BRL
DPT-10 (deep)	3/14/01	96	BRL
DPT-13 (shallow)	3/15/01	220	73
DPT-13 (deep)	3/15/01	11	45
DPT-14	3/15/01	BRL	BRL
DPT-15	3/15/01	BRL	BRL

BRL Below Reporting Limit

Checked By: ____________________

Table 2
Soil Analytical Results
Southern Metals Finishing
Atlanta, Georgia
S&ME Project No. 1654-00-223

Sample Location	Sample Depth (ft)	Date Sampled	Tetrachloroethene (µg/kg)	Trichloroethene (µg/kg)
DPT-2	7	3/15/01	BRL	BRL
	11.5	3/15/01	BRL	BRL
DPT-3	5	3/13/01	BRL	BRL
	13	3/13/01	BRL	BRL
DPT-4	5	3/13/01	BRL	BRL
	13	3/13/01	4.7	BRL
DPT-5	5	3/13/01	75	11
	13	3/13/01	110	12
DPT-6	5	3/14/01	18	BRL
	14	3/14/01	50	6.9
DPT-7	11	3/14/01	BRL	BRL
	15.5	3/14/01	20	9.6
DPT-8	12	3/14/01	4.9	BRL
	14.5	3/14/01	6.9	BRL
DPT-9	8	3/14/01	BRL	BRL
	14	3/14/01	BRL	BRL
DPT-10	5	3/14/01	BRL	BRL
	14.5	3/14/01	BRL	BRL
DPT-11	8	3/15/01	BRL	BRL
	14	3/15/01	BRL	BRL
DPT-12	8	3/15/01	BRL	BRL
	14	3/15/01	BRL	BRL
DPT-15	3.5	3/15/01	BRL	BRL
	15.5	3/15/01	BRL	BRL
Manhole A-2 Sludge	--	3/16/01	BRL	BRL
Manhole A-3 Sludge	--	3/16/01	BRL	BRL

BRL Below Reporting Limit

Checked By:

Table 3
Water Table Elevations
Southern Metals Finishing
Atlanta, Georgia
S&ME Project No. 1654-00-223

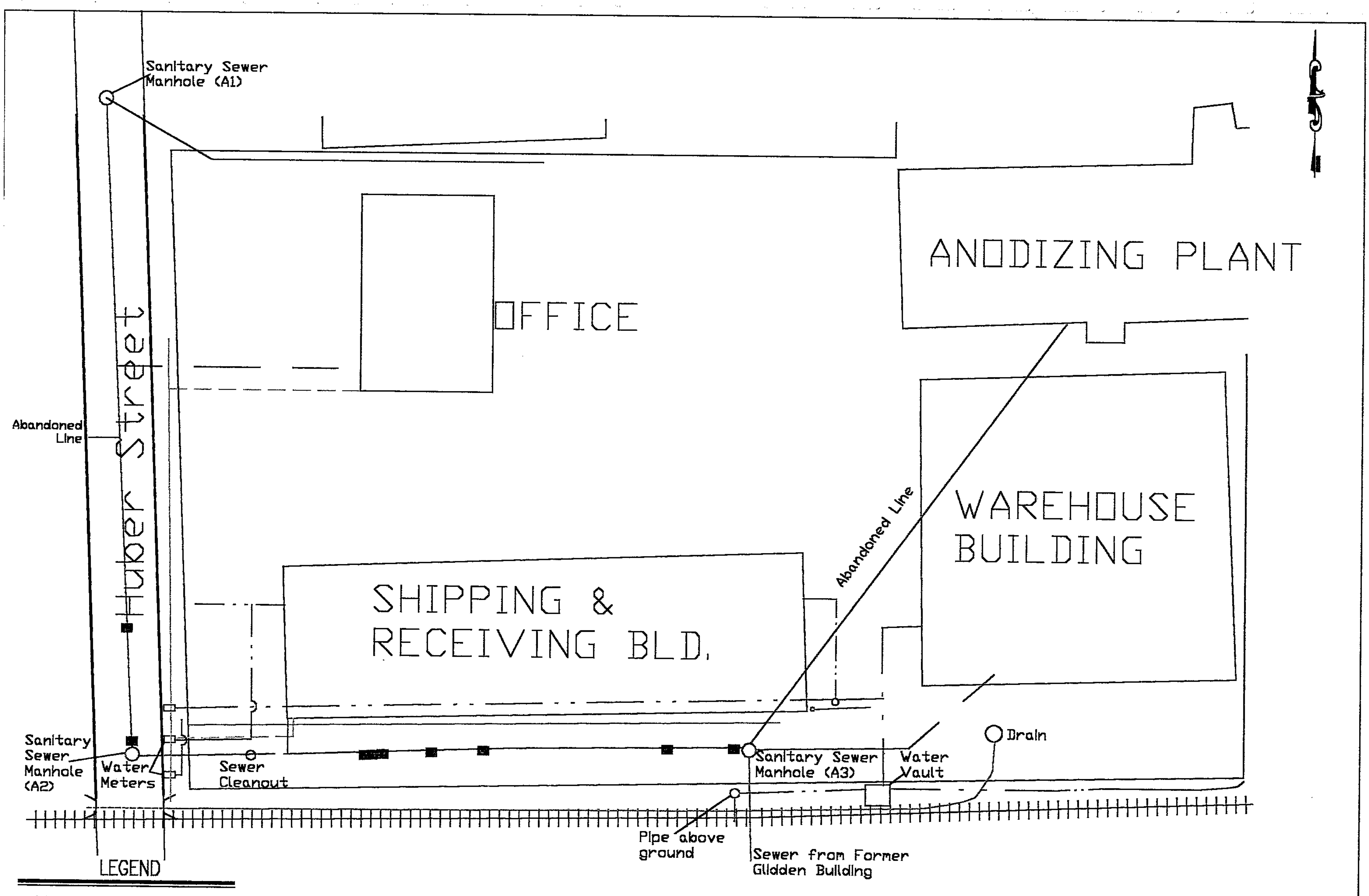
Well Number	Date Measured	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Ground Water Elevation (ft.)
MW-1	10/9/00	94.80	15.01	79.79
	10/27/00		15.37	79.43
	11/21/00		15.28	79.52
	2/5/01		14.58	80.22
	3/13/01		13.88	80.92
MW-2	10/9/00	97.65	18.57	79.08
	10/27/00		18.97	78.68
	11/21/00		18.90	78.75
	2/5/01		18.13	79.52
	3/13/01		17.30	80.35
MW-3	10/9/00	95.43	16.67	78.76
	10/27/00		17.17	78.26
	11/21/00		17.00	78.43
	2/5/01		16.20	79.23
	3/13/01		15.28	80.15
MW-4	10/9/00	95.43	15.68	79.75
	10/27/00		16.44	78.99
	11/21/00		16.37	79.06
	2/5/01		15.42	80.01
	3/13/01		14.32	81.11
MW-5	10/9/00	95.46	13.74	81.72
	10/27/00		14.66	80.80
	11/21/00		14.43	81.03
	2/5/01		13.44	82.02
	3/13/01		12.42	83.04
MW-6	10/24/00	96.82	15.95	80.87
	10/27/00		15.96	80.86
	11/21/00		16.00	80.82
	2/5/01		15.27	81.55
	3/14/01		14.61	82.21
MW-7	10/24/00	101.95	18.94	83.01
	10/27/00		18.97	82.98
	11/21/00		19.26	82.69
	2/5/01		18.57	83.38
	3/14/01		17.94	84.01

Table 3 (continued)
Water Table Elevations
Southern Metals Finishing
Atlanta, Georgia
S&ME Project No. 1654-00-223

Well Number	Date Measured	Top of Casing Elevation (ft.)	Depth to Water (ft.)	Ground Water Elevation (ft.)
MW-8	10/24/00	95.82	13.46	82.36
	10/27/00		13.55	82.27
	11/21/00		13.76	82.06
	2/5/01		13.00	82.82
	3/14/01		12.58	83.24
MW-9	11/17/00	99.45	17.82	81.63
	11/21/00		17.77	81.68
	2/5/01		16.97	82.48
	3/14/01		16.38	83.07
MW-10	11/17/00	99.54	19.38	80.16
	11/21/00		19.29	80.25
	2/5/01		18.55	80.99
	3/14/01		17.81	81.73
MW-11	11/17/00	104.06	18.00	86.06
	11/21/00		18.32	85.74
	2/5/01		18.45	85.61
MW-12	2/5/01	90.11	14.00	76.11
	3/14/01		13.28	76.83
MW-13	2/5/01	91.06	18.38	72.68
	3/14/01		17.91	73.15
MW-14	2/05/01	90.49	11.36	79.13
	3/13/01		10.37	80.12

1. Top of casing elevation measured from a reference benchmark at the southwest corner of the warehouse.
   Assumed reference elevation 100.00.
2. Depth to water measured using a Water Level Indicator (Model 51453)

Checked By:



LEGEND

Water Line —·—·—
Gas Line — — —
Storm Drain ————
Sanitary Sewer ————
Sanitary Sewer Cracks ■

SCALE: 1" = 50'
CHECKED BY: T.S.L.
DRAWN BY: B.J.W
DATE: 03/26/01

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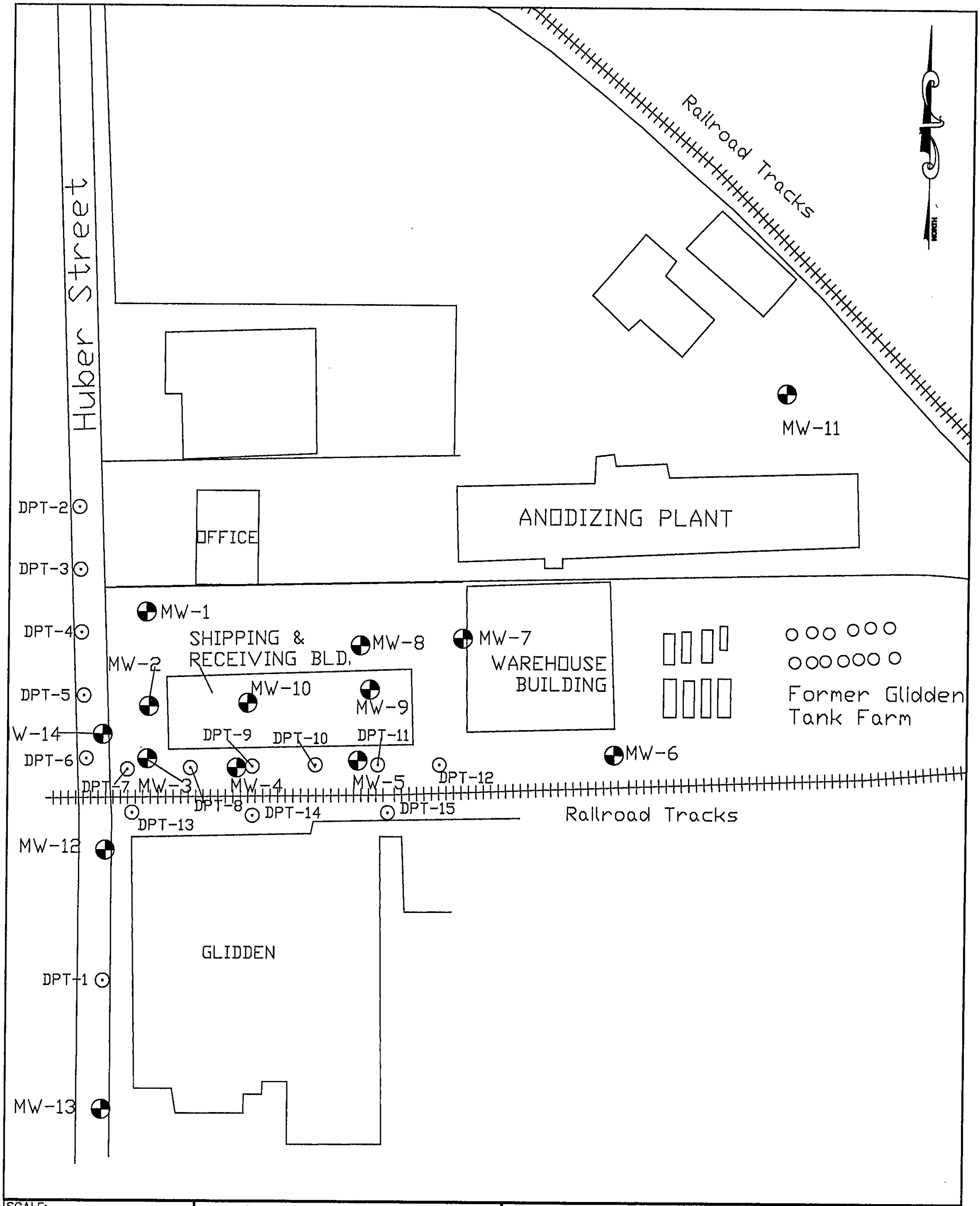
Utility Locations
Southern Aluminum Facility
1581 Huber Street
Atlanta, Georgia

JOB NO. 1654-00-223F

FIGURE NO. 3



SCALE: 1"=100'

CHECKED BY: TL

DRAWN BY: JM

DATE: 04/18/01

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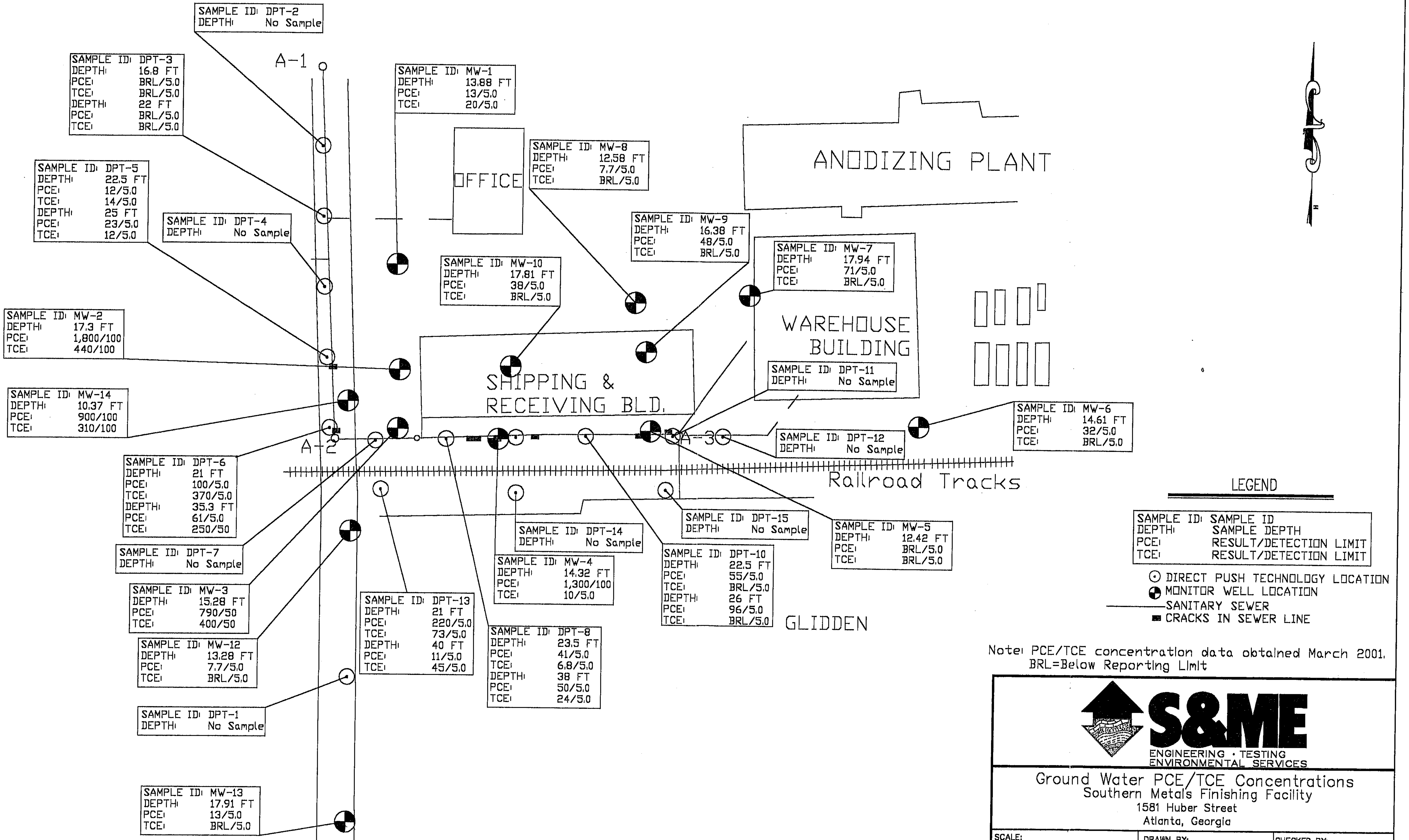
Site Plan

Southern Metal Finishing Facility
1581 Huber Street
Atlanta, Georgia

JOB NO: 1654-00-223F

FIGURE NO. 4



Note: PCE/TCE concentration data obtained March 2001.
BRL=Below Reporting Limit

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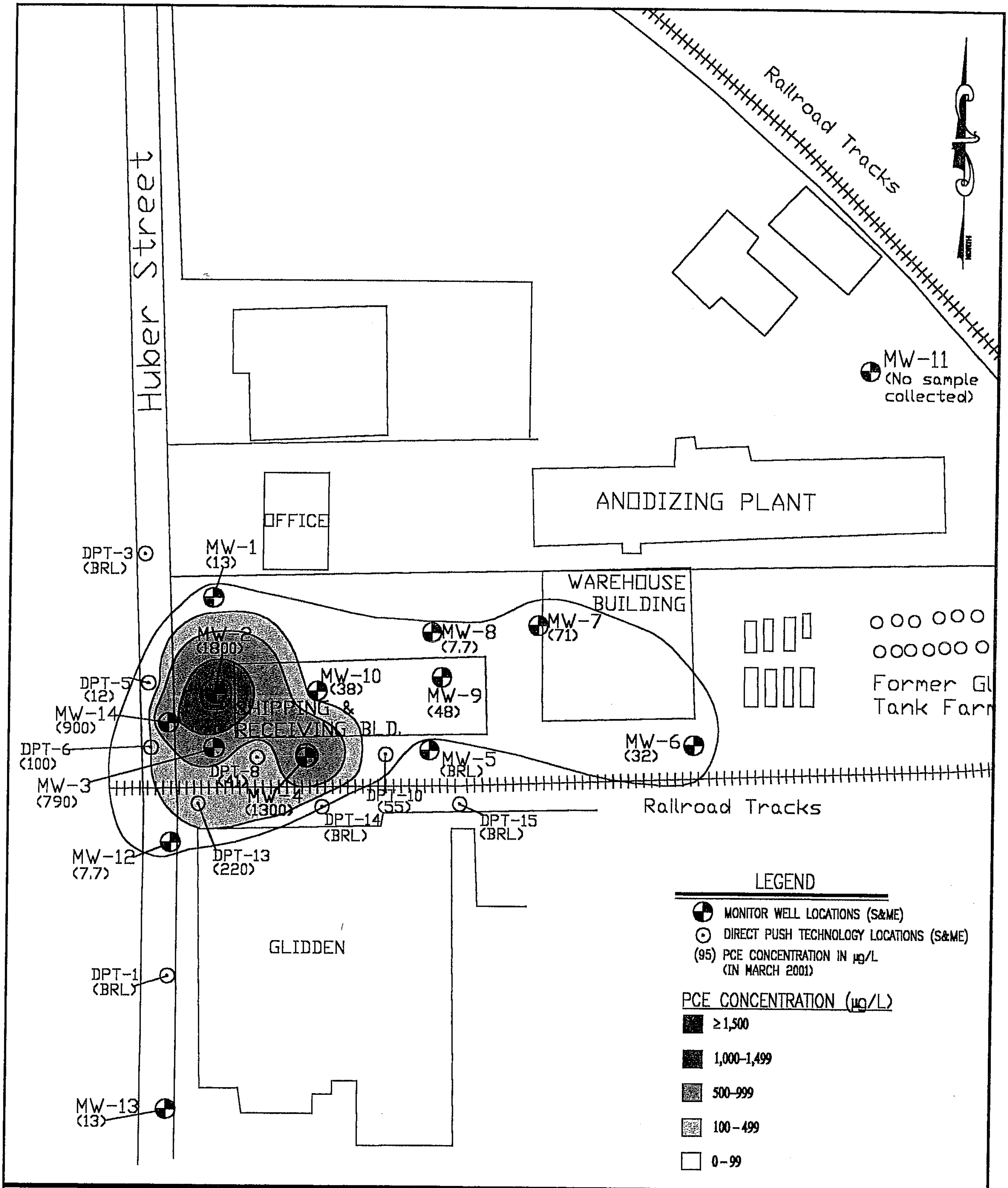
Ground Water PCE/TCE Concentrations
Southern Metals Finishing Facility
1581 Huber Street
Atlanta, Georgia

SCALE: 1"= 60'	DRAWN BY: JM	CHECKED BY: TSL
JOB NO. 1654-00-223F	DATE: 04/19/01	FIGURE NO. 5



SCALE: 1"=100'

CHECKED BY: TL

DRAWN BY: JM

DATE: 04/18/01

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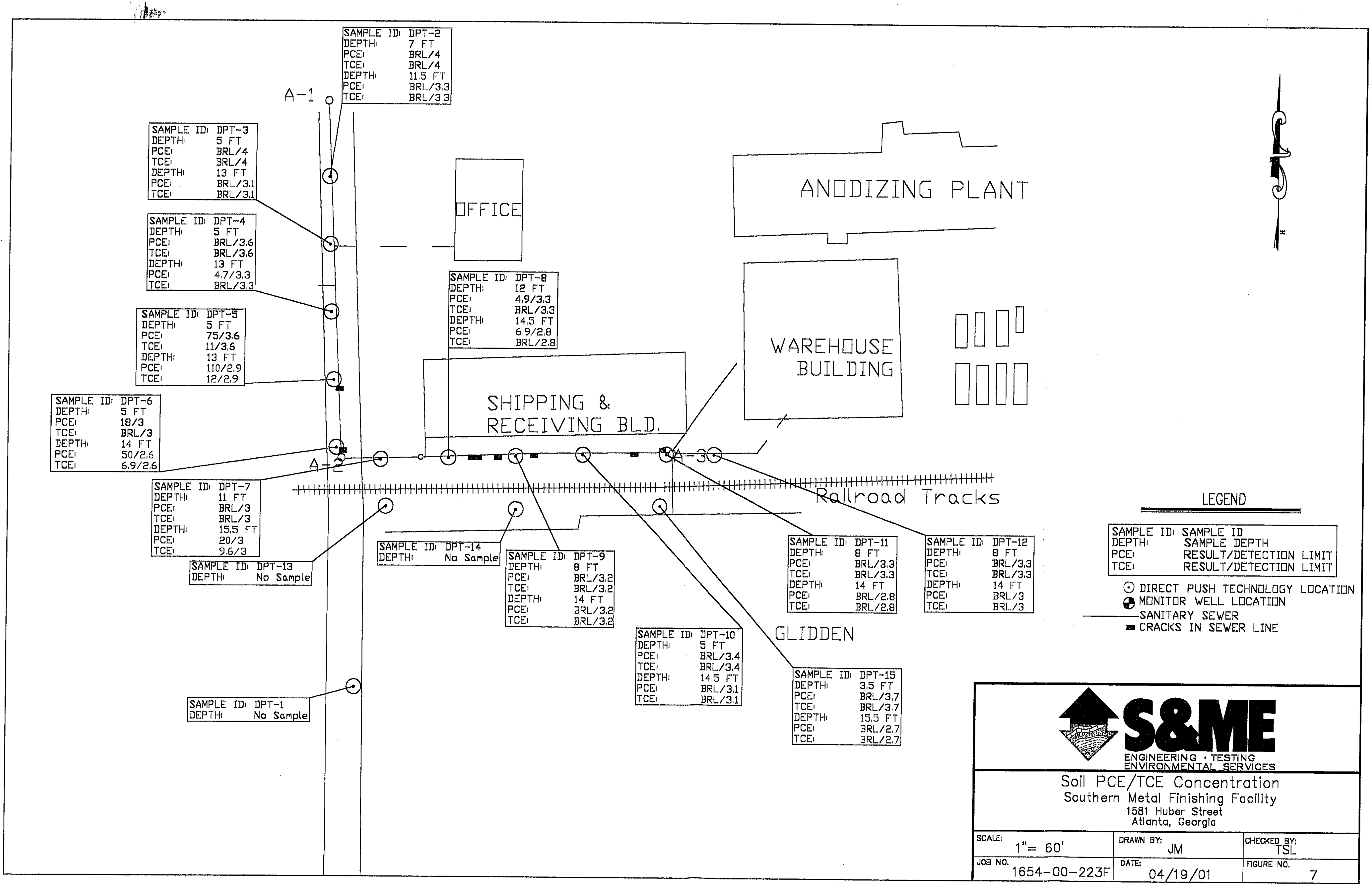
PCE Plume in Shallow Ground Water
Southern Metal Finishing Facility
1581 Huber Street
Atlanta, Georgia

JOB NO: 1654-00-223F

FIGURE NO. 6



SAMPLE ID:	DPT-1
DEPTH:	No Sample

SAMPLE ID:	DPT-2
DEPTH:	7 FT
PCE:	BRL/4
TCE:	BRL/4
DEPTH:	11.5 FT
PCE:	BRL/3.3
TCE:	BRL/3.3

SAMPLE ID:	DPT-3
DEPTH:	5 FT
PCE:	BRL/4
TCE:	BRL/4
DEPTH:	13 FT
PCE:	BRL/3.1
TCE:	BRL/3.1

SAMPLE ID:	DPT-4
DEPTH:	5 FT
PCE:	BRL/3.6
TCE:	BRL/3.6
DEPTH:	13 FT
PCE:	4.7/3.3
TCE:	BRL/3.3

SAMPLE ID:	DPT-5
DEPTH:	5 FT
PCE:	75/3.6
TCE:	11/3.6
DEPTH:	13 FT
PCE:	110/2.9
TCE:	12/2.9

SAMPLE ID:	DPT-6
DEPTH:	5 FT
PCE:	18/3
TCE:	BRL/3
DEPTH:	14 FT
PCE:	50/2.6
TCE:	6.9/2.6

SAMPLE ID:	DPT-7
DEPTH:	11 FT
PCE:	BRL/3
TCE:	BRL/3
DEPTH:	15.5 FT
PCE:	20/3
TCE:	9.6/3

SAMPLE ID:	DPT-8
DEPTH:	12 FT
PCE:	4.9/3.3
TCE:	BRL/3.3
DEPTH:	14.5 FT
PCE:	6.9/2.8
TCE:	BRL/2.8

SAMPLE ID:	DPT-9
DEPTH:	8 FT
PCE:	BRL/3.2
TCE:	BRL/3.2
DEPTH:	14 FT
PCE:	BRL/3.2
TCE:	BRL/3.2

SAMPLE ID:	DPT-10
DEPTH:	5 FT
PCE:	BRL/3.4
TCE:	BRL/3.4
DEPTH:	14.5 FT
PCE:	BRL/3.1
TCE:	BRL/3.1

SAMPLE ID:	DPT-11
DEPTH:	8 FT
PCE:	BRL/3.3
TCE:	BRL/3.3
DEPTH:	14 FT
PCE:	BRL/2.8
TCE:	BRL/2.8

SAMPLE ID:	DPT-12
DEPTH:	8 FT
PCE:	BRL/3.3
TCE:	BRL/3.3
DEPTH:	14 FT
PCE:	BRL/3
TCE:	BRL/3

SAMPLE ID:	DPT-13
DEPTH:	No Sample

SAMPLE ID:	DPT-14
DEPTH:	No Sample

SAMPLE ID:	DPT-15
DEPTH:	3.5 FT
PCE:	BRL/3.7
TCE:	BRL/3.7
DEPTH:	15.5 FT
PCE:	BRL/2.7
TCE:	BRL/2.7

LEGEND

SAMPLE ID:	SAMPLE ID
DEPTH:	SAMPLE DEPTH
PCE:	RESULT/DETECTION LIMIT
TCE:	RESULT/DETECTION LIMIT

⊙ DIRECT PUSH TECHNOLOGY LOCATION
● MONITOR WELL LOCATION
— SANITARY SEWER
■ CRACKS IN SEWER LINE

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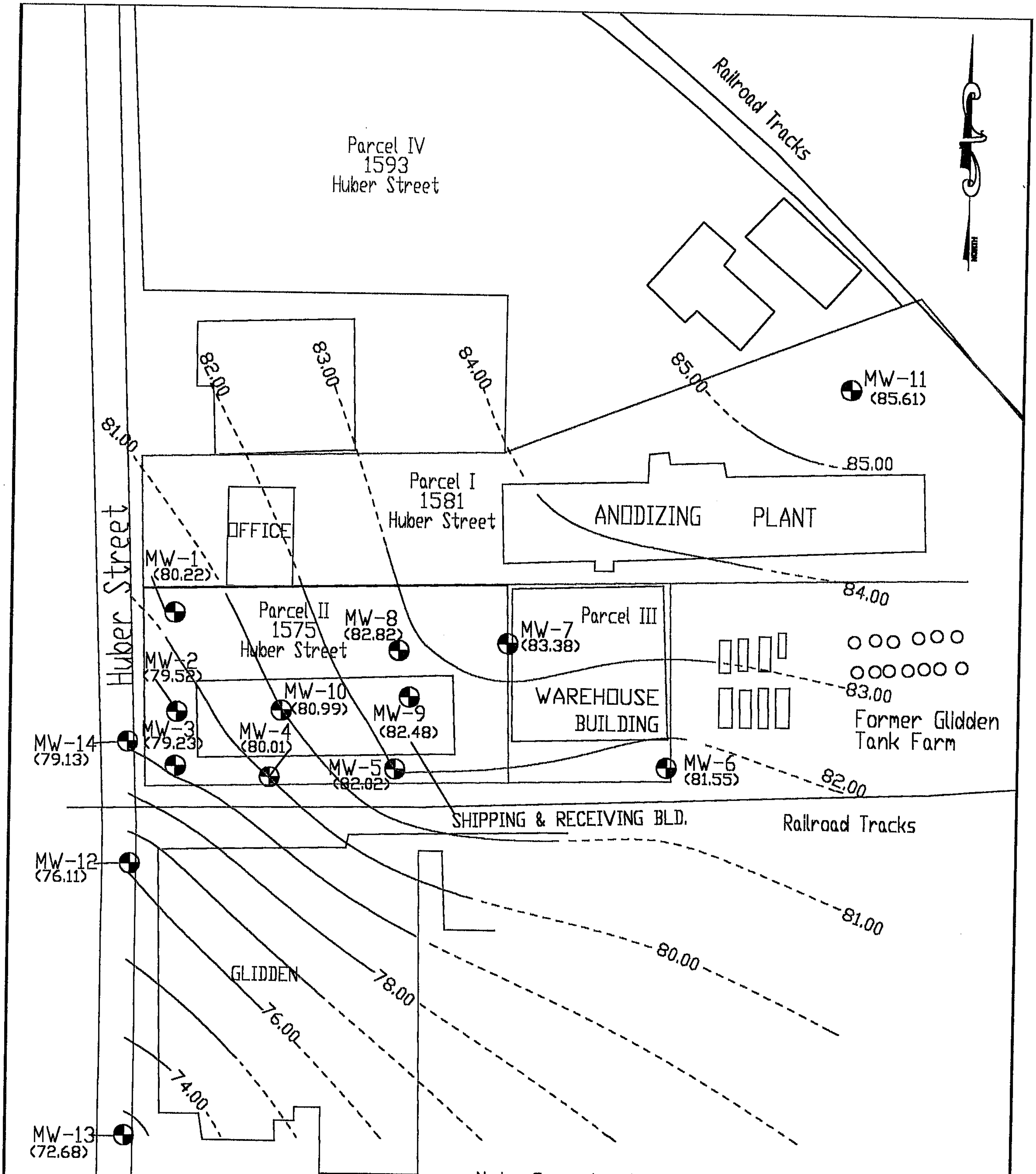
Soil PCE/TCE Concentration
Southern Metal Finishing Facility
1581 Huber Street
Atlanta, Georgia

SCALE: 1"= 60'	DRAWN BY: JM	CHECKED BY: TSL
JOB NO. 1654-00-223F	DATE: 04/19/01	FIGURE NO. 7



Note: Ground water elevation data obtained 02-05-01.
Ground water elevation in feet.

Golden Software Surfer 7.0

SCALE: 1"=100'
CHECKED BY: EBE
DRAWN BY: JM
DATE: 02/05/01

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Ground Water Potentiometric Map
Southern Aluminum Facility
1581 Huber Street
Atlanta, Georgia

JOB NO: 1654-00-223D

FIGURE NO. 8

APPENDIX C
Table and Figure Excerpts from the 2004 Peachtree Environmental, Inc. CSR

SOUTHERN METAL FINISHING COMPANY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 2
Summary of 2002 Southern Metals Soil Gas Analytical Results

Sample ID	Date Collected	PCE (ng)	TCE (ng)	Benzene (ng)	Toluene (ng)	Ethylbenzene (ng)	Total Xylene (ng)	α-pinene (ng)*	p-isopropyltoluene (ng)	Chloroform (ng)	cis-1,2-DCE (ng)	trans-1,2-DCE (ng)
A-1	3/22/02	1,490	300	<50.0	<50.0	<50.0	42.8J	ND	<50.0	<50.0	<50.0	<50.0
A-3	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	15.3	<50.0	<50.0	<50.0	<50.0
A-4	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	15.0	<50.0	<50.0	<50.0	<50.0
A-5	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	1,970	<50.0	<50.0	<50.0	<50.0
A-6	3/21/02	748	151	<50.0	727	122	340	79.7	238	<50.0	<50.0	<50.0
A-7	3/21/02	82.2	116	<50.0	<50.0	<50.0	<100.0	797	<50.0	<50.0	<50.0	<50.0
A-8	3/21/02	<50.0	64.2	<50.0	<50.0	<50.0	<100.0	188	<50.0	<50.0	<50.0	<50.0
A-9	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
A-11	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
A-12	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	199	ND	<50.0	<50.0	<50.0	<50.0
A-14	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
A-15	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	220	ND	<50.0	<50.0	<50.0	<50.0
B-1	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-2	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-3	3/21/02	20.5J	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-4	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-5	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	186	ND	97.2	<50.0	<50.0	<50.0
B-6	3/21/02	74.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-7	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-8	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-9	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
B-10	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-1	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-2	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-3	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-4	3/21/02	410	692	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-5	3/22/02	124	306	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-6	3/21/02	741	726	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-7	3/21/02	193	799	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-8	3/21/02	546	1,013	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-9	3/21/02	80.6	333	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-11	3/21/02	6.1J	100	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
C-12	3/21/02	<50.0	19.4J	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0

SOUTHERN METAL FINISHING COMPANY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 2
Summary of 2002 Southern Metals Soil Gas Analytical Results

Sample ID	Date Collected	PCE (ng)	TCE (ng)	Benzene (ng)	Toluene (ng)	Ethylbenzene (ng)	Total Xylene (ng)	α-pinene (ng)*	p-isopropyltoluene (ng)	Chloroform (ng)	cis-1,2-DCE (ng)	trans-1,2-DCE (ng)
C-13	3/21/02	<50.0	217	<50.0	106	<50.0	68.6J	ND	<50.0	<50.0	<50.0	<50.0
C.2-15	3/21/02	<50.0	40.3J	<50.0	20.6J	<50.0	41.8J	ND	<50.0	<50.0	<50.0	<50.0
D-1	3/21/02	<50.0	16.0J	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
D-2	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
D-3	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
D-5	3/22/02	12,300E	3,030	<50.0	48.9J	25.5J	78.3J	ND	<50.0	<50.0	<50.0	<50.0
D-9	3/22/02	7,140E	1,200	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
D-11	3/21/02	3,010	769	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
D-12	3/21/02	512	186	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
D-13	3/21/02	394	92.9	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
E-1	3/21/02	20.5J	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
E-2	3/21/02	<50.0	<50.0	<50.0	<50.0	<50.0	47.0J	ND	<50.0	<50.0	<50.0	<50.0
E-3	3/21/02	8.9J	<50.0	<50.0	20.6J	<50.0	49.5J	ND	<50.0	21.9J	<50.0	<50.0
E-5	3/22/02	12,500E	1,510	<50.0	<50.0	<50.0	112	ND	<50.0	<50.0	<50.0	<50.0
E-7	3/22/02	8,940	311	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
E-9	3/22/02	8,720	767	<50.0	62	36.7	109	ND	<50.0	<50.0	<50.0	<50.0
E-11	3/21/02	2,536	521	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
E-13	3/21/02	534	122	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
E-15	3/21/02	2,520	18.4J	<50.0	<50.0	<50.0	55.2J	ND	<50.0	<50.0	<50.0	<50.0
F-0.5	3/21/02	9.0J	<50.0	<50.0	<50.0	<50.0	32.6J	ND	<50.0	<50.0	<50.0	<50.0
F-2	3/21/02	7.8J	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
F-3	3/21/02	4.6J	<50.0	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
G-1	3/22/02	1,510	56.4	<50.0	<50.0	<50.0	47.2J	ND	<50.0	<50.0	<50.0	<50.0
G-3	3/22/02	2,180	103	<50.0	<50.0	<50.0	67.3J	ND	<50.0	<50.0	690	10.3J
G-5	3/22/02	3,150	150	<50.0	<50.0	<50.0	57.0J	ND	<50.0	<50.0	<50.0	<50.0
G-7	3/22/02	12,400E	2,080	45.3J	30.9J	48.8J	170	ND	<50.0	<50.0	<50.0	<50.0
G-9	3/22/02	6,760	332	<50.0	70.3	44.1J	145	ND	<50.0	<50.0	<50.0	<50.0
G-11	3/22/02	2,820	318	<50.0	<50.0	28.5J	112	ND	<50.0	<50.0	<50.0	<50.0
G-12	3/22/02	1,010	127	<50.0	<50.0	31.0J	137	ND	<50.0	<50.0	<50.0	<50.0
G-13	3/22/02	714	46.0J	<50.0	24.3J	39.7J	153	ND	<50.0	<50.0	<50.0	<50.0
G-14	3/22/02	613	<50.0	<50.0	<50.0	<50.0	163	ND	<50.0	<50.0	<50.0	<50.0

SOUTHERN METAL FINISHING COMPANY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 2
Summary of 2002 Southern Metals Soil Gas Analytical Results

Sample ID	Date Collected	PCE (ng)	TCE (ng)	Benzene (ng)	Toluene (ng)	Ethylbenzene (ng)	Total Xylene (ng)	α-pinene (ng)*	p-isopropyltoluene (ng)	Chloroform (ng)	cis-1,2-DCE (ng)	trans-1,2-DCE (ng)
G-15	3/22/02	2,890	24.8J	<50.0	121	480	770	ND	<50.0	<50.0	<50.0	<50.0
H-1	3/22/02	<50.0	22.9J	628	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
H-3	3/22/02	126	73.2	148	<50.0	<50.0	<100.0	ND	<50.0	<50.0	11.4J	<50.0
H-11	3/22/02	2,880	94.3	<50.0	<50.0	<50.0	<100.0	ND	<50.0	<50.0	<50.0	<50.0
H-12	3/22/02	2,330	82.5	<50.0	<50.0	<50.0	46.5J	ND	<50.0	<50.0	<50.0	<50.0
H-14	3/22/02	847	29.5J	<50.0	<50.0	405	3,300	ND	<50.0	<50.0	<50.0	<50.0
H-15	3/22/02	745	20.0J	<50.0	182	740	2,480	ND	<50.0	<50.0	<50.0	<50.0

Notes:

Table based upon S&ME Interm Status Report, December 2002 (Revised August 2004)

ND = Not detected. a-pinene was detected in some but not all of the samples. It was detected qualitatively, not quanitatively, through a library search per S&ME request. The reported values were calculated as estimated based on area response in comparison of the closest eluting internal standard. It is not listed as an analyzed constituent where not deteced and a practical quantitation limit cannot be established.

* = α (alpha)-pinene results are estimated.

SOUTHERN METAL FINISHING COMPANY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 3
Summary of 2002 Soil Analytical Results

Location	Sample ID	Date	Depth (feet)	PCE (ug/kg)	TCE (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Total Xylene (ug/kg)	1,1-DCA (ug/kg)	1,1-DCE (ug/kg)	cis-1,2-DCE (ug/kg)
A-5	**A-5-4**	4/15/02	4	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3
A-7	**A-7-8**	4/15/02	8	<6.6	<6.6	<6.6	<6.6	<6.6	<6.6	<6.6	<6.6	<6.6
A-9	**A-9-5**	4/15/02	5	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
A-10	**A-10-1**	4/25/02	1	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
A-12	**HA14-1.5**	5/23/02	1.5	<7.8	<7.8	<7.8	<7.8	<7.8	<7.8	<7.8	<7.8	<7.8
B-7	**HA4-2.0**	5/23/02	2	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
B-9	**HA 6-2.0**	5/23/02	2	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
B-10	**HA9-2.0**	5/23/02	2	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
B-12	**HA10-2.0**	5/23/02	2	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
C-4	**DPT-C4**	4/3/02	8	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9
C-4	**HA1-0.6**	5/23/02	0.6	230	99	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7
C-5	**C-5-2**	4/15/02	2	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
C-5	**HA2-0.5**	5/23/02	0.5	150	59	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
C-5	**HA2-2.0**	5/23/02	2	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
C-7	**DPT-C7**	4/3/02	1	24,000	8,600	<590	<590	<590	<590	<590	<590	<590
C-7	**C-7-1B**	4/15/02	1	5,100	1,200	<630	<630	<630	<630	<630	<630	<630
C-7	**C-7-12**	4/15/02	12	12	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
C-8	**HA5-.05**	5/23/02	0.5	47	43	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5
C-8	**HA5-2.0**	5/23/02	2	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9
C-9	**C-9-1**	4/15/02	1	31,000	14,000	<590	<590	<590	<590	<590	<590	<590
C-9	**C-9-12**	4/15/02	12	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3
C-10	**C-10-0.5**	4/25/02	0.5	6,900	4,200	<300	<300	<300	<300	<300	<300	<300
C-10	**C-10-12**	4/25/02	12	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
C-10	**HA8-2.0**	5/23/02	2	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
C-11	**C-11-0.5**	4/25/02	0.5	96,000	16,000	<280	<280	<280	<280	<280	<280	<280
C-11	**C-11-12**	4/25/02	12	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
C-12	**HA11-2.0**	5/23/02	2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
C-13	**C-13-0.5**	4/25/02	0.5	7.0	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
C-13	**HA12-2.0**	5/23/02	2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
C-14	**HA13-0.5**	5/23/02	0.5	<7.1J	<7.1J	<7.1J	<7.1J	<7.1J	<7.1J	<7.1J	<7.1J	<7.1J
C.5-7	**C.5-7-4**	4/25/02	4	15	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
C.5-7	**HA3-2.0**	5/23/02	2	12	<6.5	<6.5	<6.5	<6.5	<6.5	<6.5	<6.5	<6.5
C.5-7	**HA3-3.0**	5/23/02	3	7.9	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
C.5-9	**HA7-2.0**	5/23/02	2	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
D-3	**D-3-2**	4/25/02	2	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
D-5	**D-5-12**	4/15/02	12	11	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
D-5	**DPT-D5**	4/3/02	4	21	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
D-5	**D-5-4B**	4/15/02	4	44	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
D-7	**D-7-8**	4/15/02	8	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1

SOUTHERN METAL FINISHING COMPANY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 3
Summary of 2002 Soil Analytical Results

Location	Sample ID	Date	Depth (feet)	PCE (ug/kg)	TCE (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Total Xylene (ug/kg)	1,1-DCA (ug/kg)	1,1-DCE (ug/kg)	cis-1,2-DCE (ug/kg)
D-10	**D-10-4**	4/25/02	4	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9
E-5	**DPT-E5**	4/3/02	4	250	150	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	6.9
E-5	**E-5-12.5**	4/15/02	12.5	31	12	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
E-7	**E-7-4**	4/15/02	4	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
E-15	**E-15-4**	4/15/02	4	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
F-3	**DPT-F3**	4/3/02	8	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	12
G-1	**G-1-4**	5/28/02	4	<5.8	<5.8	120	<5.8	<5.8	25	<5.8	<5.8	74
G-1	**G-1-12.5**	5/28/02	12.5	<7.1	<7.1	7.6	<7.1	<7.1	<7.1	<7.1	<7.1	8.3
G-3	**G-3-2**	4/25/02	2	33	11	520	<5.9	<5.9	29	<5.9	<5.9	910
G-3	**G-3-12**	4/25/02	12	<7.6	<7.6	7.8	<7.6	<7.6	<7.6	<7.6	<7.6	<7.6
G-5	**DPT-G5**	4/3/02	12	68	<6.3	15	<6.3	<6.3	<6.3	<6.3	<6.3	11
G-5	**G-5-12.5**	4/25/02	12.5	120	18	55	<6.3	<6.3	<6.3	<6.3	<6.3	57
G.5-5	**G.5-5-2**	4/25/02	2	2,600	220	34	8.9	<5.9	<5.9	<5.9	7.8	1,300
G.5-5	**G.5-5-12**	4/25/02	12	<6.3	<6.3	23	<6.3	<6.3	<6.3	<6.3	<6.3	12
G-7	**DPT-G7**	4/3/02	4	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	14
G-14	**G-14-5**	4/15/02	5	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
G-15	**DPT-G15**	4/3/02	8	6.5E	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8
G-15	**G-15-16**	4/25/02	16	9.9	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
G-16	**G-16-2**	4/25/02	2	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
H-15	**H-15-4**	4/15/02	4	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1
I-3	**I-3-1**	5/28/02	1	10	6	22	<6.0	<6.0	8.7	<6.0	<6.0	<6.0
I-3	**I-3-12**	5/28/02	12	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
I-5	**I-5-4**	5/28/02	4	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3
J-3	**J-3-4**	5/28/02	4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4	<6.4
HA15-1.5	**HA15-1.5**	6/20/02	1.5	<5.6	<5.6	11	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6

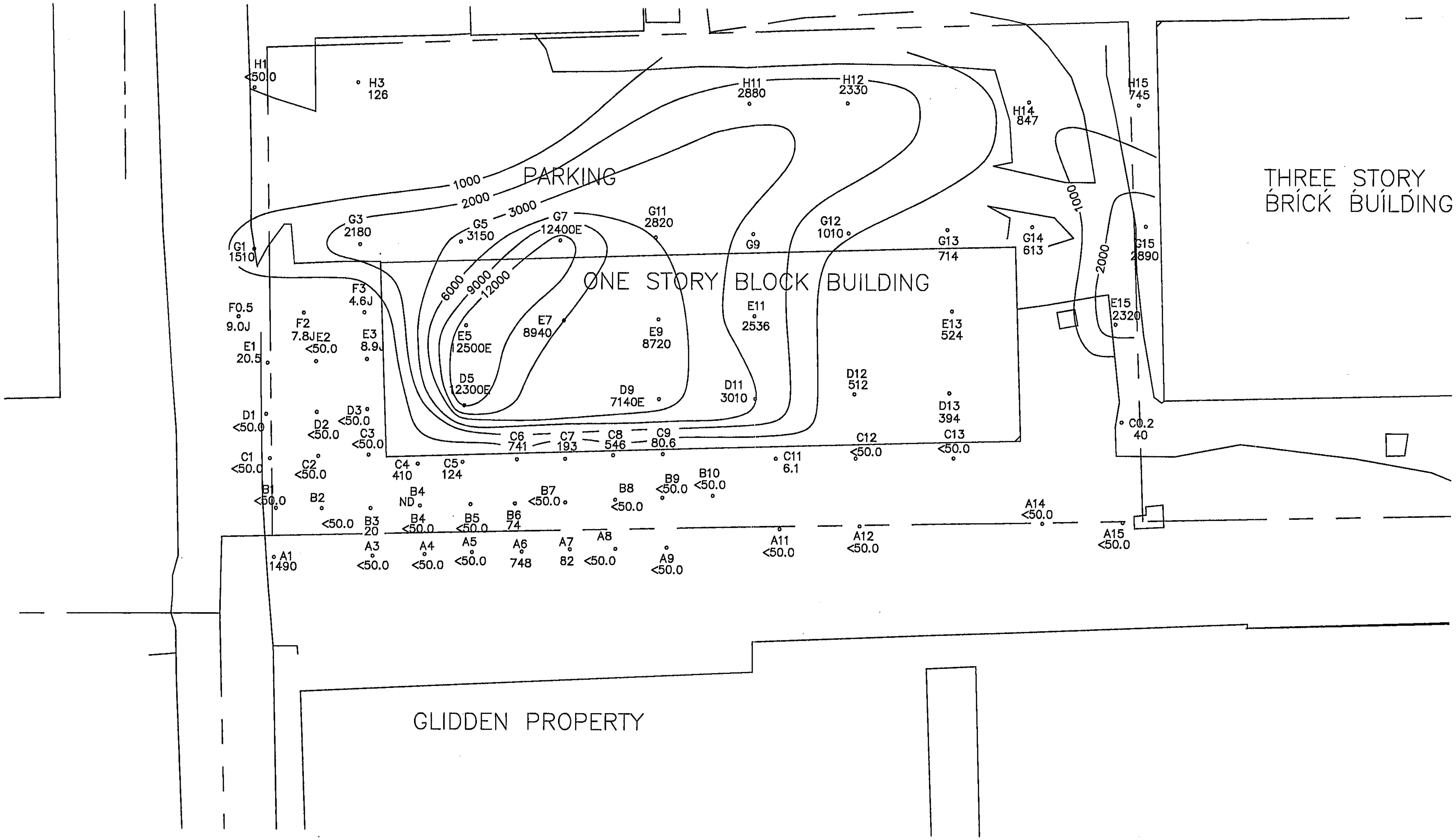
Notes:

Table based upon S&ME Interm Status Report, December 2002 (Revised August 2004)

Sample DPT-D-5 was also Below Detection Limits for TCLP-SVOC's, TCLP-VOC's, and SVOC's,

J = Estimated concentration. Concentration less than the practical quantitation limit.

E= Estimated concentration. Concentration greater than the upper quantiation limit.



0 15 30 60

SCALE: 1" = 30'

NOTES

1. SOIL GAS SAMPLES COLLECTED MARCH 2002
2. GAS RESULTS IN NANOGRAM UNITS
3. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● GAS COLLECTOR LOCATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

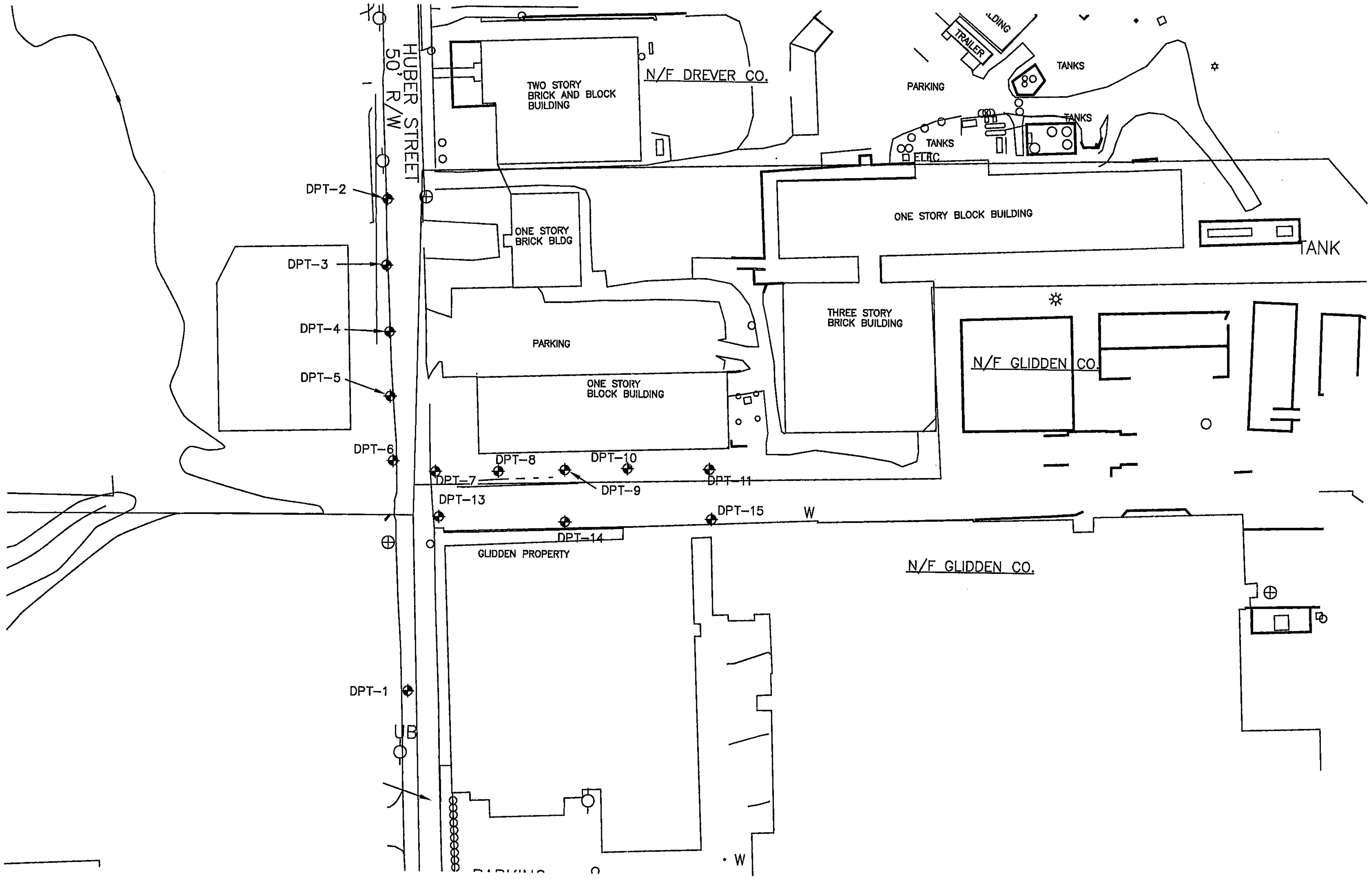
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

2002 SOUTHERN METALS SOIL GAS SURVEY

DRAWING NO. **7**
SMF 2665



0 40 80 160

SCALE: 1" = 80'

NOTES

ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

⯐	DIRECT PUSH SAMPLE LOCATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

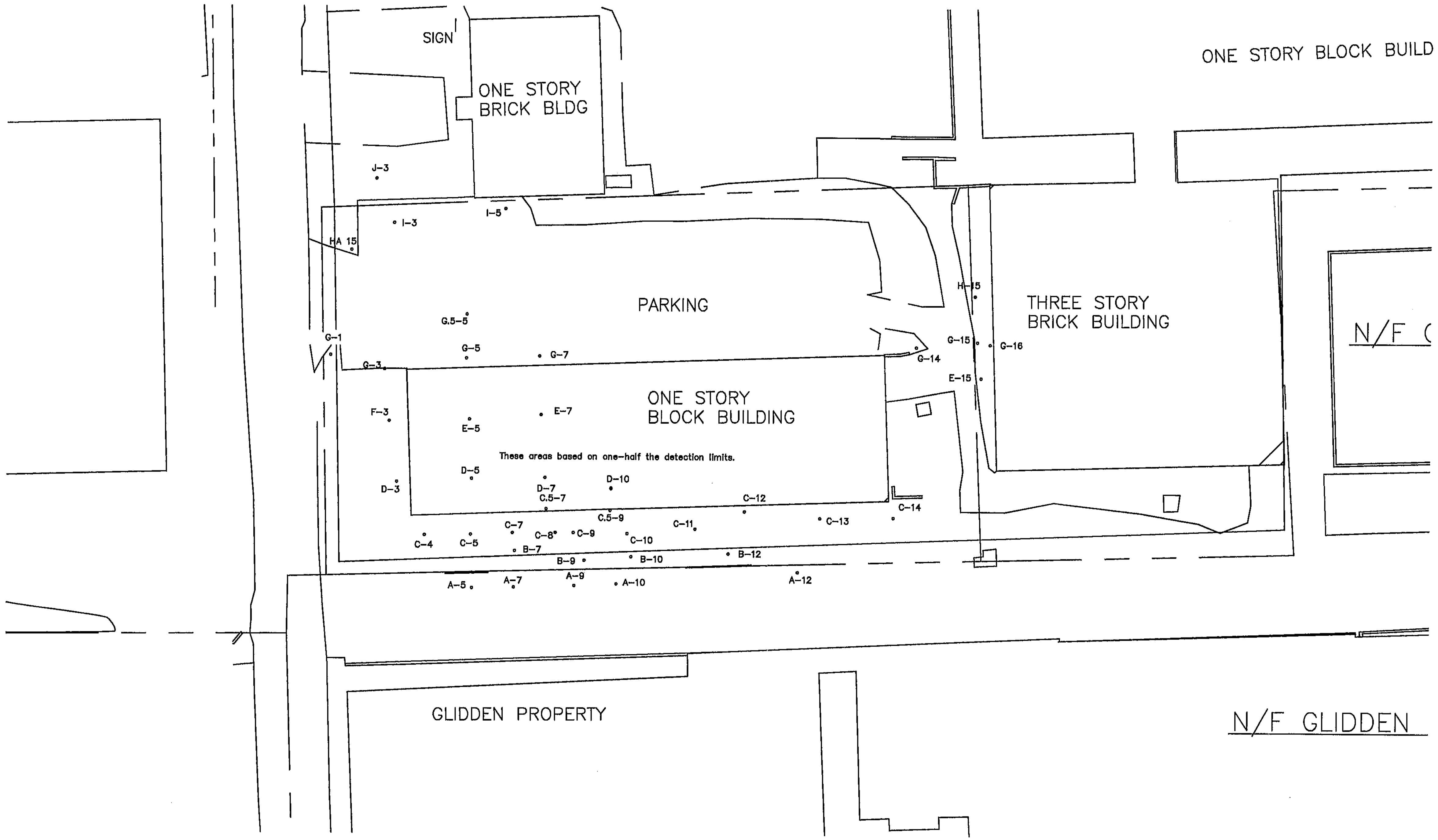
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

MARCH 2001 SOIL SAMPLING LOCATION

DRAWING NO.
8
SMF
2665



0 20 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN µg/kg
3. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

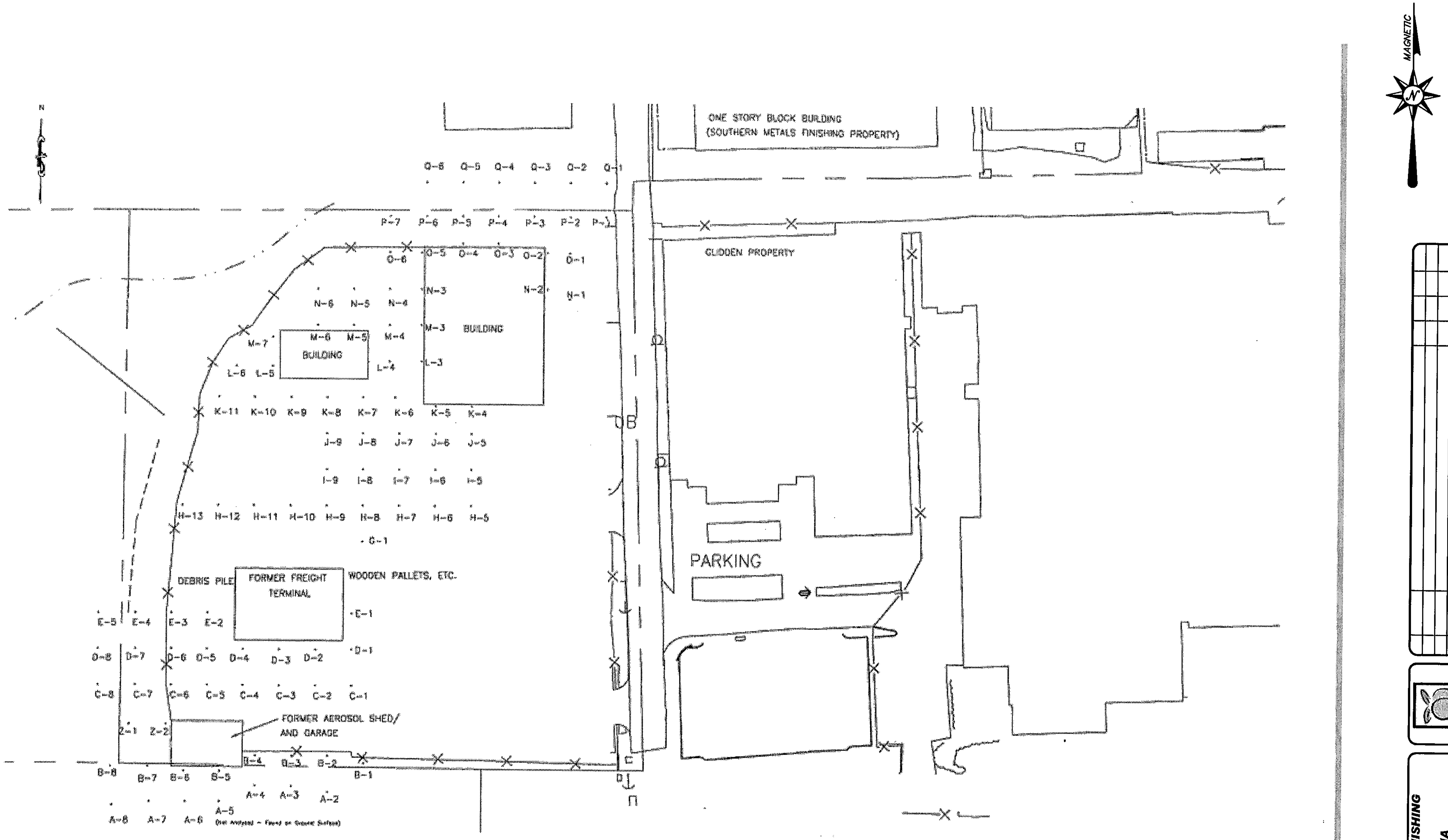
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

APRIL 2002 SOIL SAMPLING LOCATIONS

DRAWING NO. 9
SMF 2665



LEGEND

o SOIL GAS SAMPLING LOCATION

ORIGINAL FIGURE PROVIDED BY S&ME

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

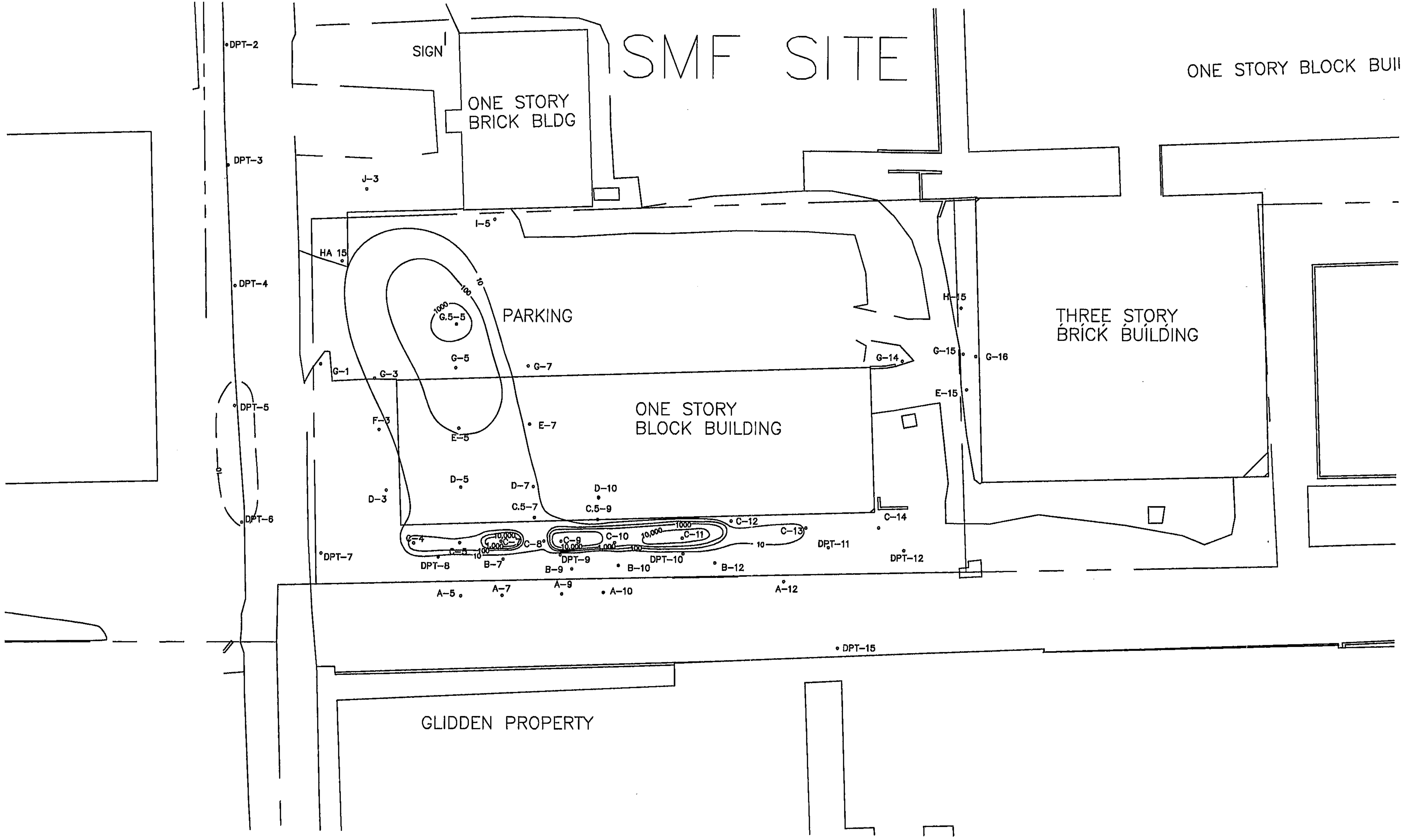
Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

2004 DOBBINS SOIL GAS SURVEY

DRAWING NO. 10

SMF
2885



0 20 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN $\mu g/kg$
3. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION (0–5 ft)

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

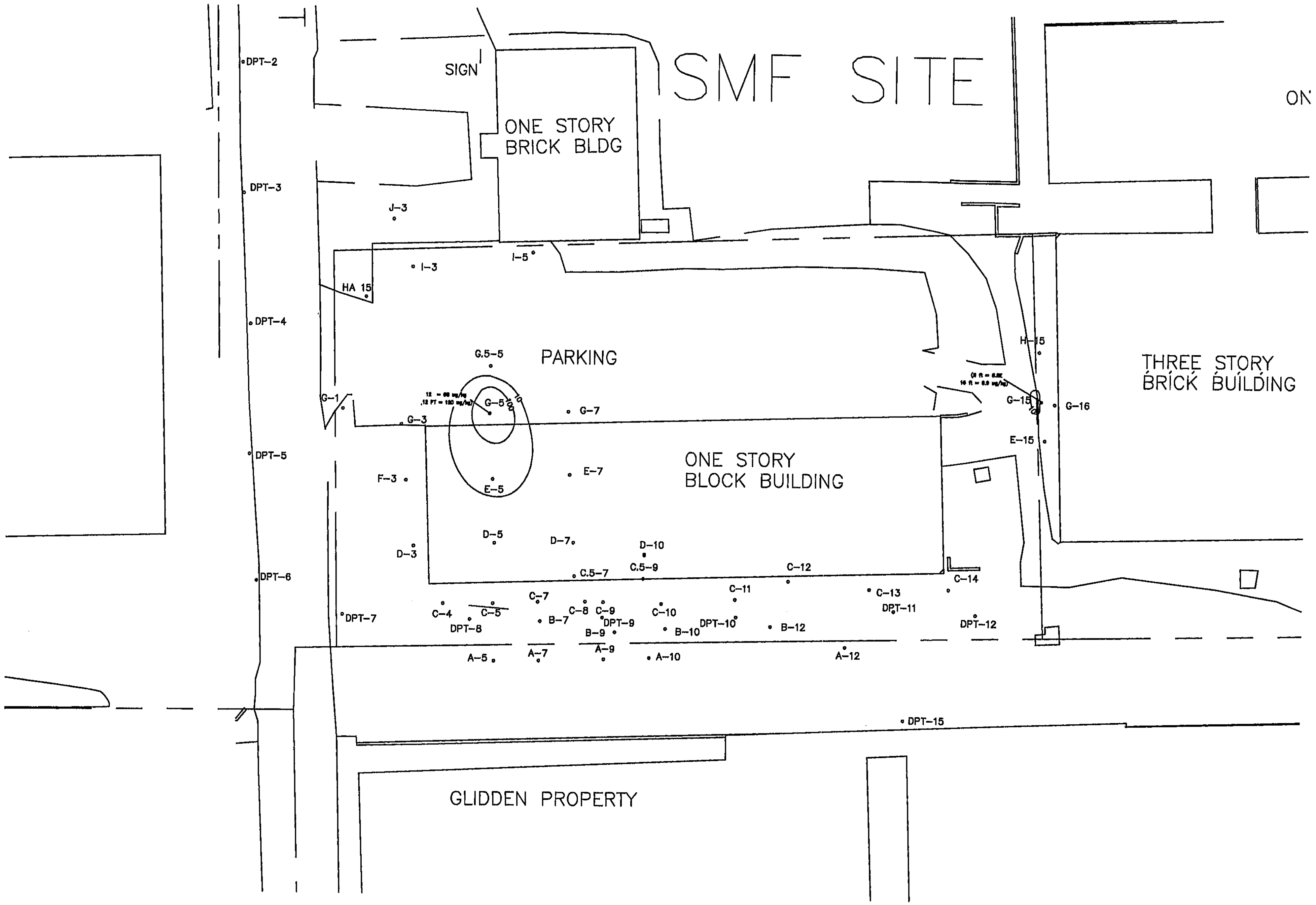
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF PCE IN SOIL - 0' TO 5'

DRAWING NO.
11A
SMF
2665



0 20 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN µg/kg
3. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION (0-5 ft)

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

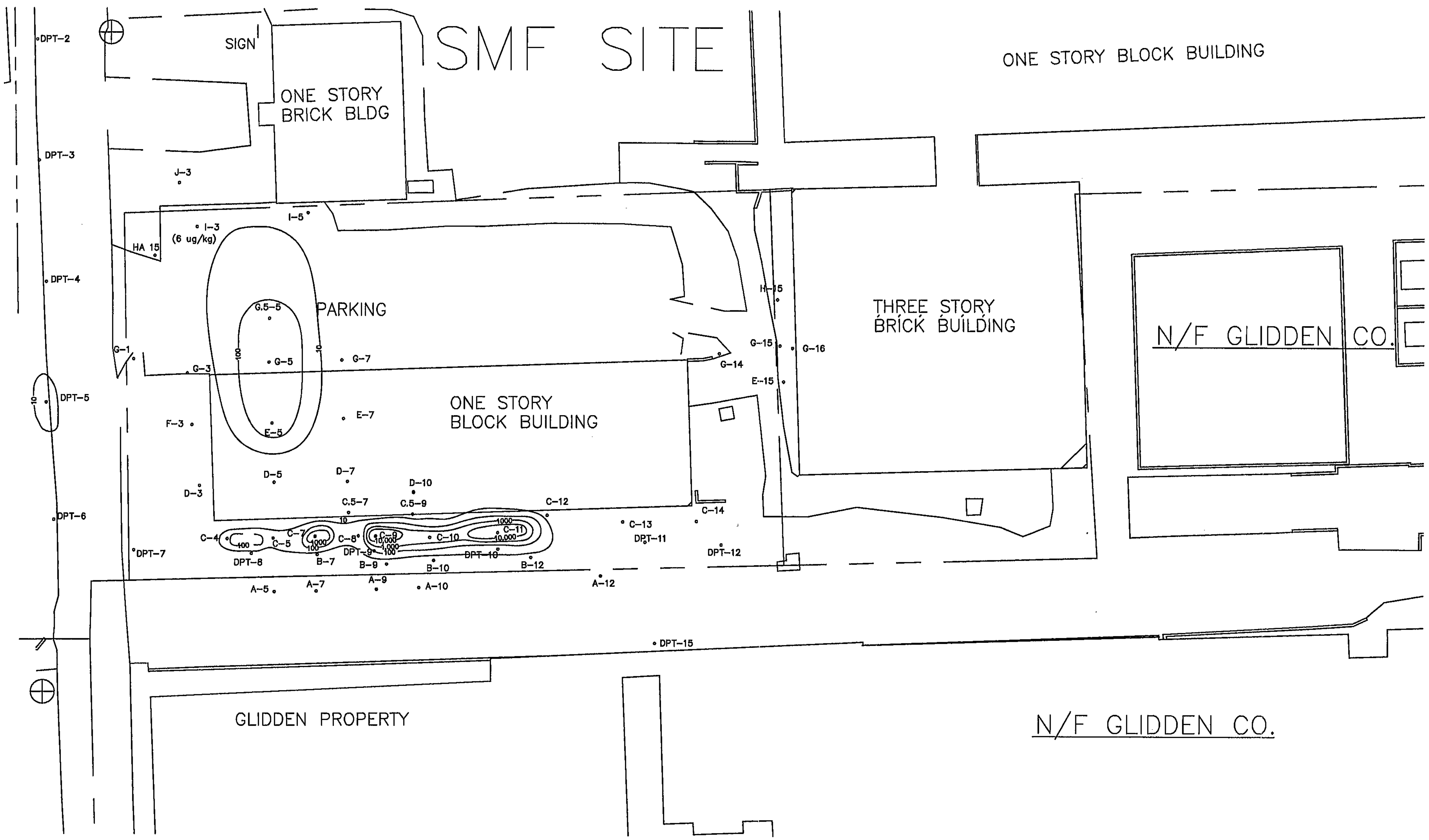
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF PCE IN SOIL - 5' TO 12'

DRAWING NO. 11B
SMF
2665



0 20 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN $\mu g/kg$
3. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION (0–5 ft)

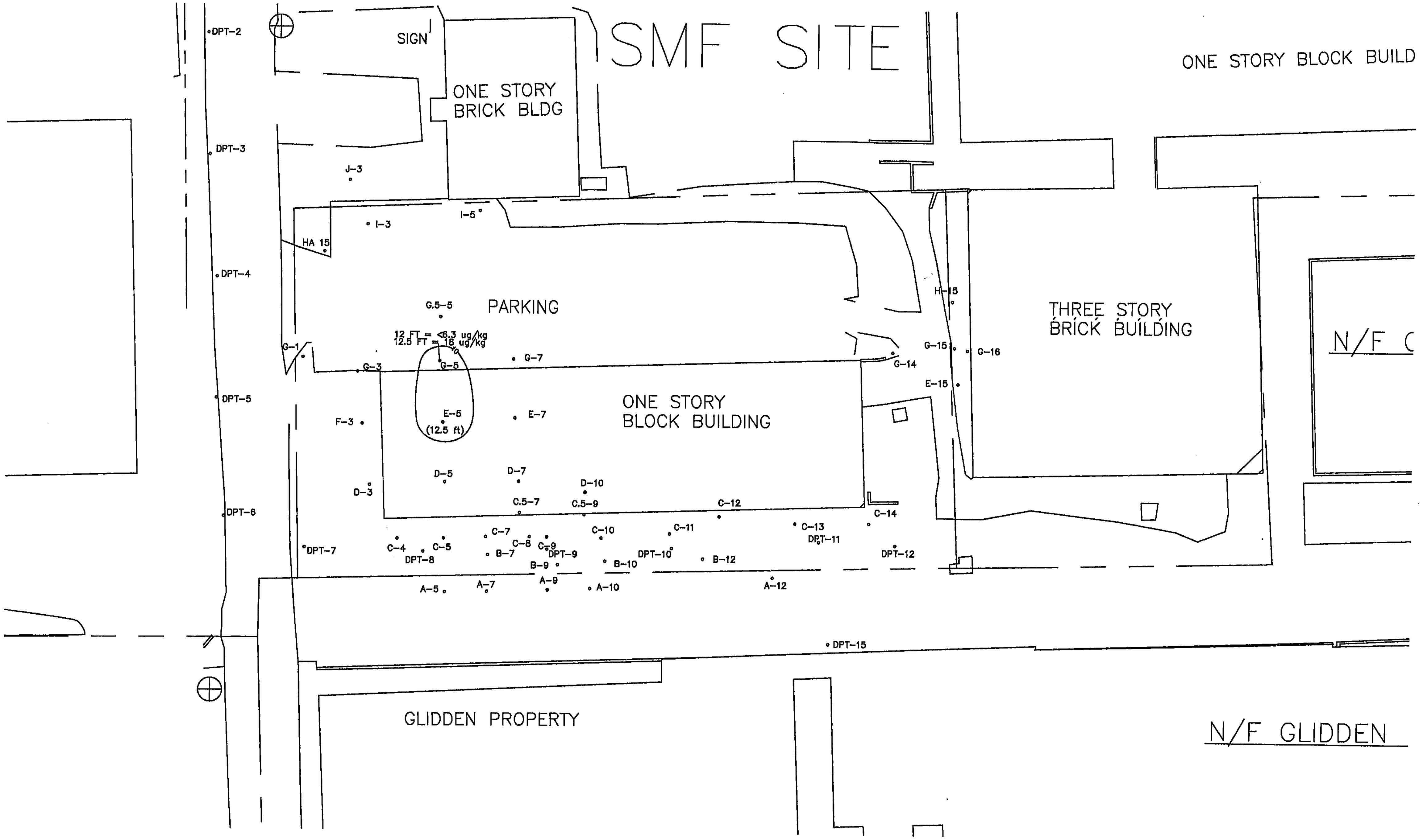
REV	DATE	DESCRIPTION

DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF TCE IN SOIL - 0' TO 5'

DRAWING NO.
12A
SMF
2665



0 10 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN µg/kg

LEGEND

- SOIL SAMPLE LOCATION (0-5 ft)

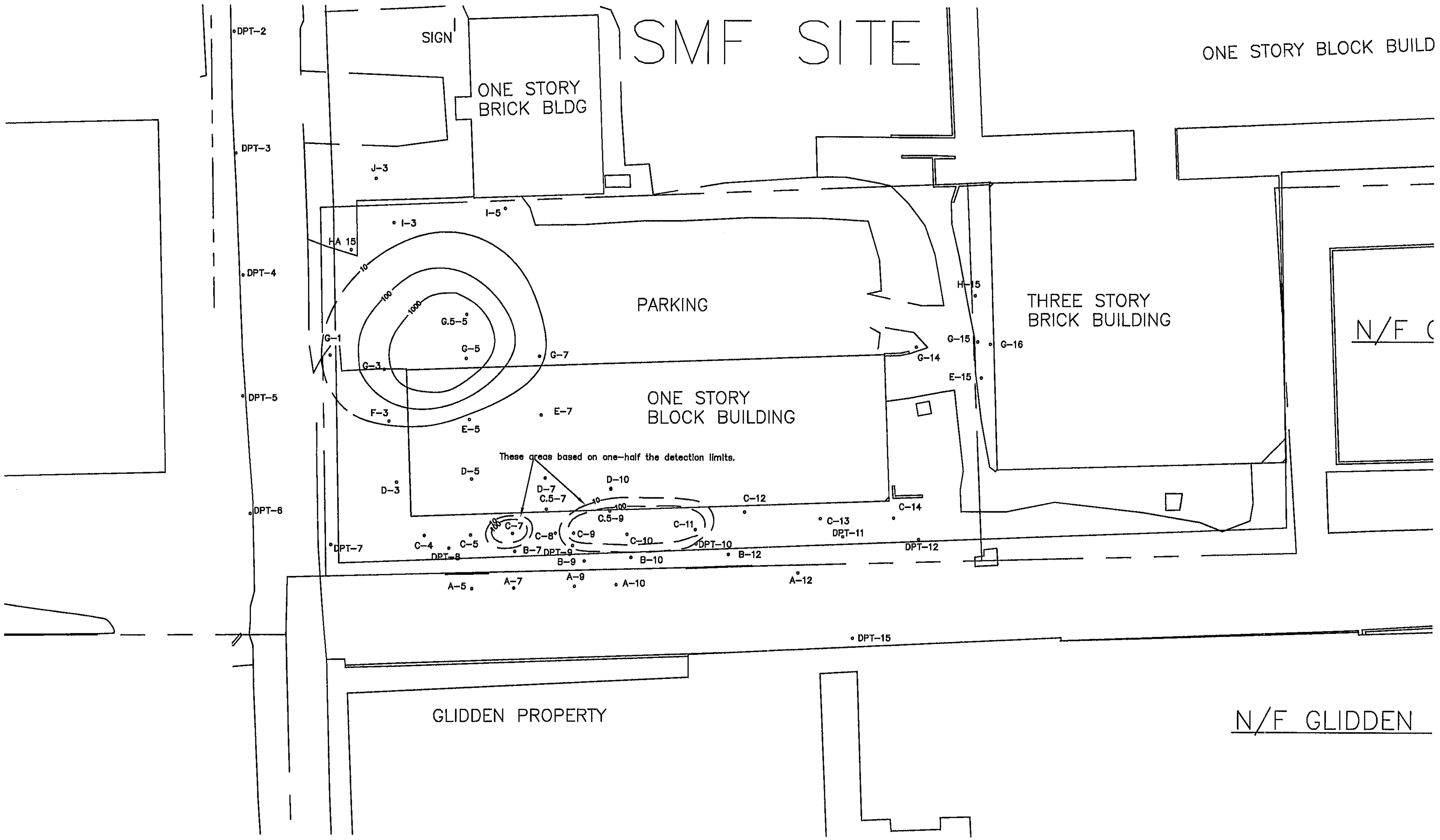
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 12/1/04
DWN BY SAME
DES BY N/A
CHK BY
APP BY

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF TCE IN SOIL - 5' TO 12'

DRAWING NO.
12B
SMF
2665



0 20 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN $\mu g/kg$
3. TCE and PCE only analytes tested for in DPT-2 -DPT-12 and DPT-15 in March 2001
4. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

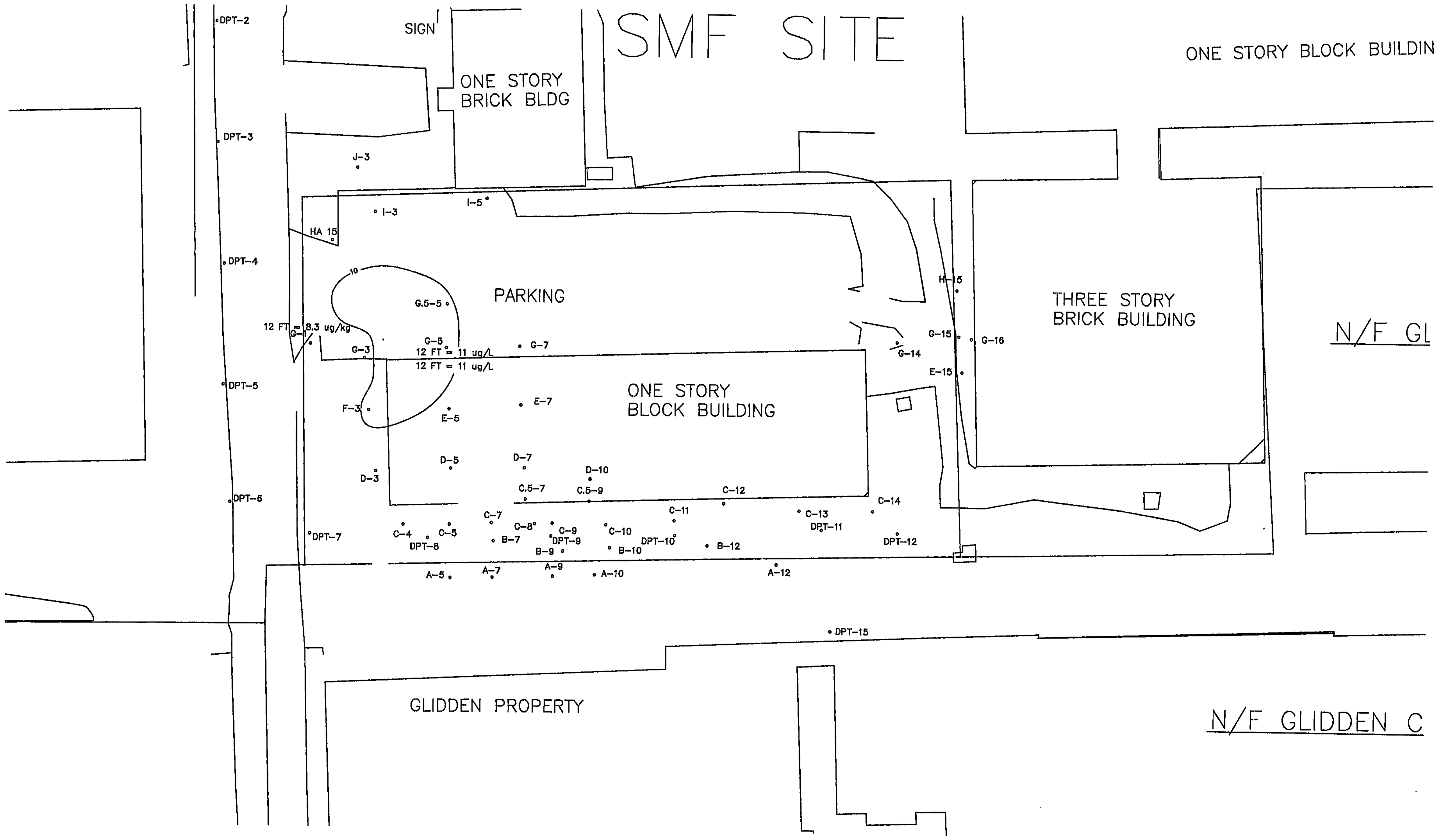
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF cis-1,2-DCE IN SOIL - 0' TO 5'

DRAWING NO.
13A
SMF
2885



0 20 40 80

SCALE: 1" = 40'

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN µg/kg
3. TCE and PCE only analytes tested for in DPT-2 -DPT-12 and DPT-15 in March 2001
4. ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION

REV	DATE	DWN BY	DES BY	CHK BY	APP BY

DESCRIPTION

DATE OF ISSUE 12/1/04

DWN BY S&ME

DES BY JPC

CHK BY

APP BY

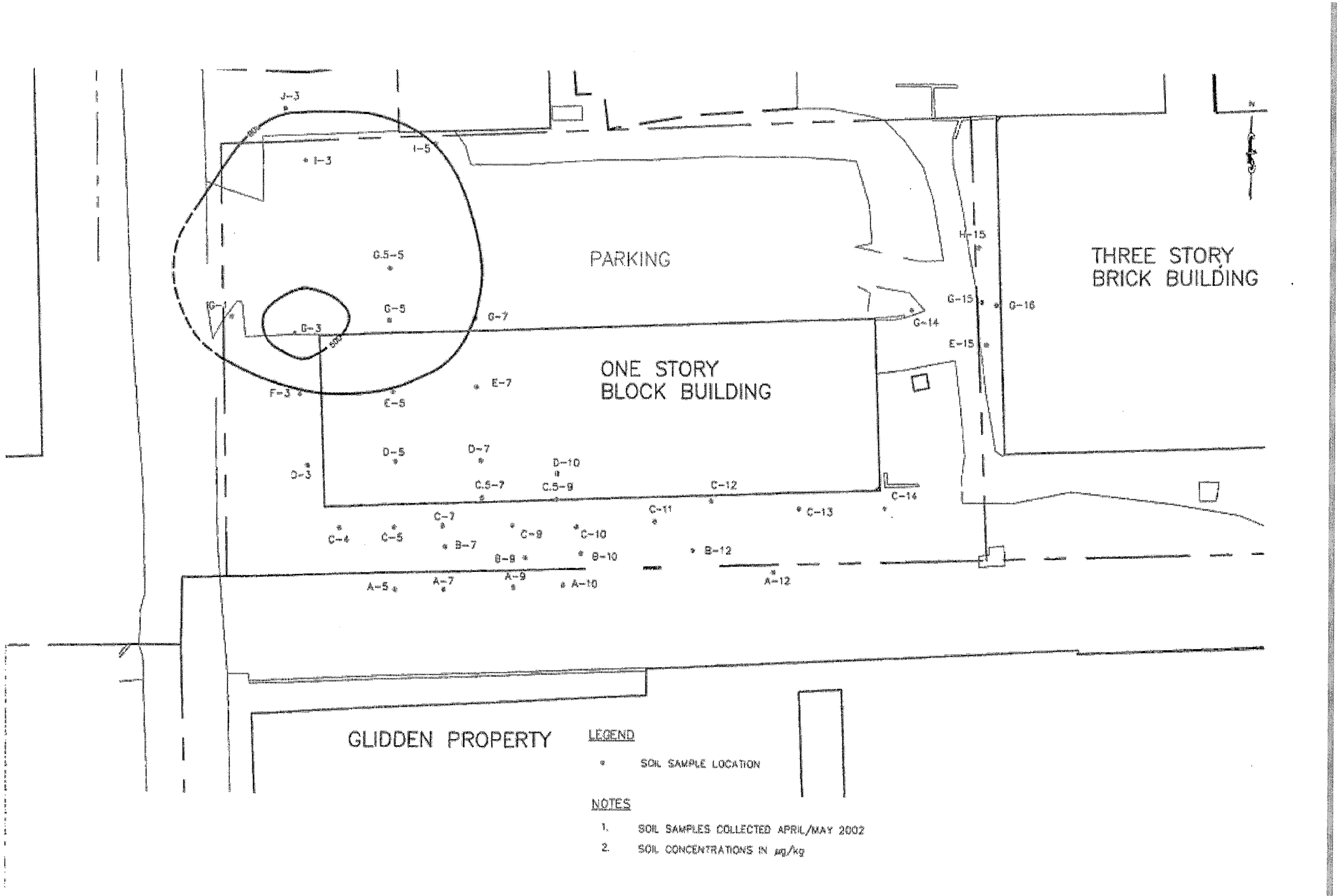
Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF cis-1,2-DCE IN SOIL - 5' TO 12'

DRAWING NO.
13B

SMF
2665

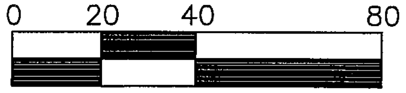


LEGEND

* SOIL SAMPLE LOCATION

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN µg/kg



SCALE: 1" = 40'

NOTES

ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

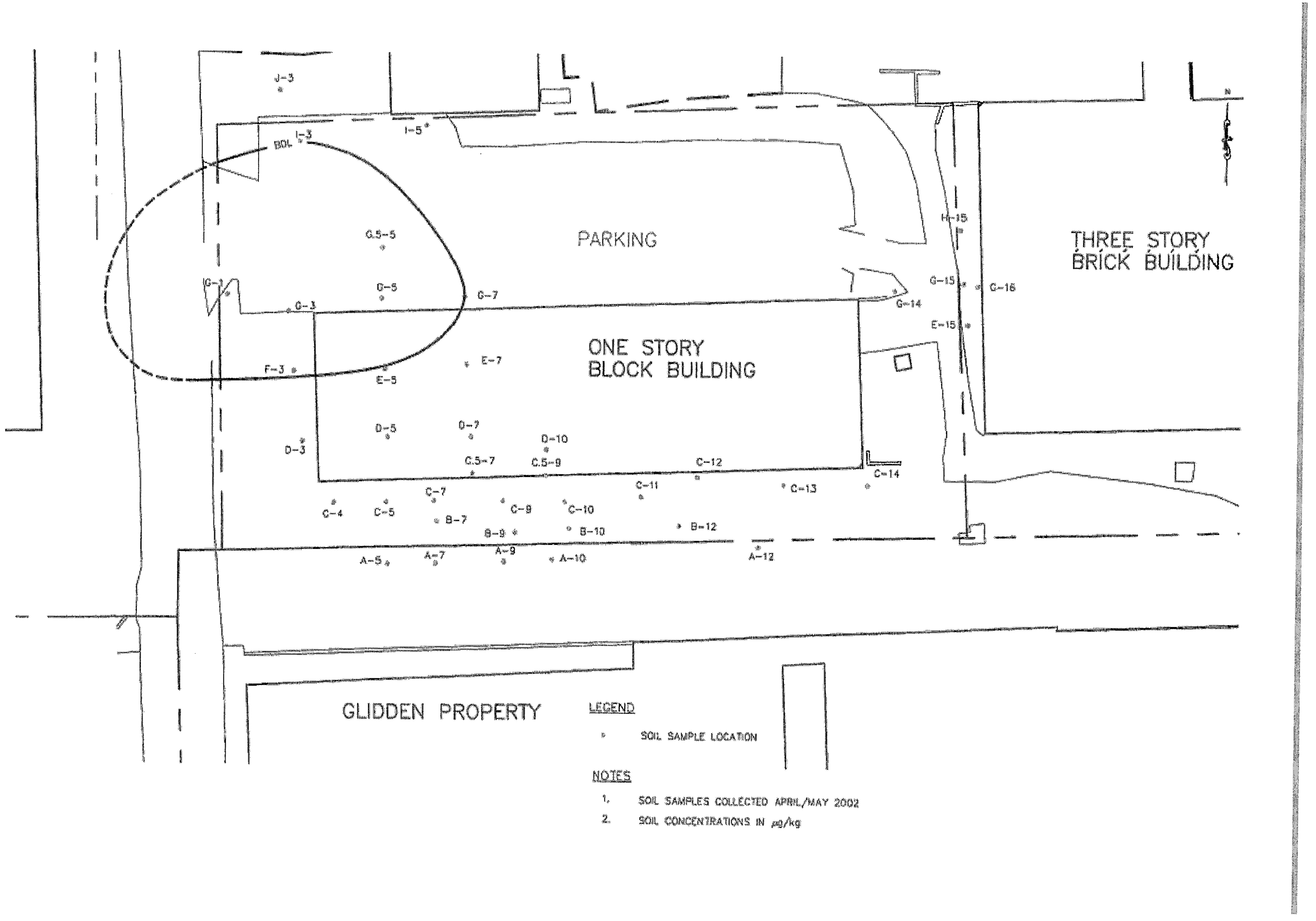
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

EXTENT OF BTEX IN SOIL - 0' TO 5'

DRAWING NO.
14A
SMF
2665



LEGEND

* SOIL SAMPLE LOCATION

NOTES

1. SOIL SAMPLES COLLECTED APRIL/MAY 2002
2. SOIL CONCENTRATIONS IN µg/kg

0 20 40 80

SCALE: 1" = 40'

NOTES

ORIGINAL FIGURE PROVIDED BY S&ME

LEGEND

● SOIL SAMPLE LOCATION

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

SOUTHERN METALS FINISHING
HUBER STREEET
ATLANTA, GEORGIA

EXTENT OF BTEX IN SOIL - 5' TO 12'

DRAWING NO.
14B
SMF
2665

APPENDIX D
Corrective Action Documents

VOLUNTARY REMEDIATION PLAN APPLICATION
SOUTHERN METAL FINISHING PROPERTY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 1
Summary of Historical Groundwater Analytical Testing Results for Wells on SMF Property

Well/Sample ID	Sampling Date	Acetone	Benzene	Chloroform	Ethylbenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene
		Analytical Results (ug/L)								
MW-1	10/9/2000	NA	NA	NA	NA	NA	NA	NA	**9.2**	**20**
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**13**	**20**
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**6.2**	**6.1**
MW-2	10/9/2000	NA	NA	NA	NA	NA	NA	NA	**2,200**	**500**
	3/13/2001	NA	NA	NA	NA	NA	NA	NA	**1,800**	**440**
	6/18/2001	NA	NA	NA	NA	NA	NA	NA	**1,100**	**230**
	10/29/2001	NA	NA	NA	NA	NA	NA	NA	**1,800**	**290**
	2/8/2002	NA	<20.0	<20.0	<20.0	<20.0	<20.0	**24**	**1,900**	**190**
	6/17/2002	NA	**20**	**17**	<2.0	<2.0	<2.0	<2.0	**1,100**	**6**
	6/24/2004	<50.0	<5.0	**7.3**	<5.0	<5.0	<5.0	**9.2**	**950**	**79**
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**50**	**580**	**84**
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**38**	**380**	**24**
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**33**	**180**	**25**
	7/30/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**16**	**140**	**25**
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**81**	**16**
MW-3	10/9/2000	NA	NA	NA	NA	NA	NA	NA	**640**	**370**
	3/13/2001	NA	NA	NA	NA	NA	NA	NA	**790**	**400**
	6/18/2001	NA	NA	NA	NA	NA	NA	NA	**600**	**220**
	10/29/2001	NA	NA	NA	NA	NA	NA	NA	**129**	<2.0
	2/8/2002	NA	<2.0	**4**	<2.0	<2.0	<2.0	**9**	**290**	**110**
	6/17/2002	NA	<2.0	**5**	<2.0	<2.0	<2.0	**9**	**370**	**100**
	6/25/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.2**	**250**	**30**
MW-4	10/9/2000	NA	NA	NA	NA	NA	NA	NA	**8,600**	**27**
	3/13/2001	NA	NA	NA	NA	NA	NA	NA	**1,300**	**10**
	6/18/2001	NA	NA	NA	NA	NA	NA	NA	**1,600**	**8.5**
	10/29/2001	NA	NA	NA	NA	NA	NA	NA	**5,000**	**14**
	11/20/2001	NA	NA	NA	NA	NA	NA	NA	**1,300**	**12**
	2/8/2002	NA	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	**2,900**	<50.0
	6/17/2002	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**4,300**	**9**
	7/6/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**910**	<5.0
	11/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**170**	<5.0
	5/16/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**260**	<5.0
	5/23/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**1,300**	<5.0
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**780**	<5.0
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**56**	<5.0
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**1,100**	<5.0
	9/15/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**20**	<5.0
	10/7/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**21**	<5.0
	7/31/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**15**	<5.0
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**10**	<5.0
MW-5	10/9/2000	NA	NA	NA	NA	NA	NA	NA	**68**	<5.0
	3/13/2001	NA	NA	NA	NA	NA	NA	NA	<5.0	<5.0
	6/23/2004	**71**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	10/24/2000	NA	NA	NA	NA	NA	NA	NA	**36**	<5.0
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**32**	<5.0
	6/25/2004	**190**	<5.0	<5.0	**93**	<5.0	<5.0	<5.0	**42**	<5.0
MW-7	10/24/2000	NA	NA	NA	NA	NA	NA	NA	**51**	<5.0
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**71**	<5.0
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**30**	<5.0
MW-8	10/24/2000	NA	NA	NA	NA	NA	NA	NA	**6.4**	<5.0
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**7.7**	<5.0
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

VOLUNTARY REMEDIATION PLAN APPLICATION
SOUTHERN METAL FINISHING PROPERTY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 1
Summary of Historical Groundwater Analytical Testing Results for Wells on SMF Property

Well/Sample ID	Sampling Date	Acetone	Benzene	Chloroform	Ethylbenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene
		Analytical Results (ug/L)								
MW-9	11/17/2000	NA	NA	NA	NA	NA	NA	NA	**42**	<5.0
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**48**	<5.0
	6/24/2004	**77**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**13**	<5.0
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.5**	<5.0
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**6.1**	<5.0
	7/30/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**5.8**	<5.0
MW-10	11/17/2000	NA	NA	NA	NA	NA	NA	NA	**43**	<5.0
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**38**	<5.0
	6/24/2004	**43**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**26**	<5.0
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**18**	<5.0
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**12**	<5.0
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**6.9**	<5.0
	7/30/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.7**	<5.0
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**5.4**	<5.0
MW-11	11/17/2000	NA	NA	NA	NA	NA	NA	NA	<5.0	<5.0
	6/23/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-12	1/30/2001	NA	<5.0	NA	<5.0	<5.0	<5.0	NA	**11**	<5.0
	3/14/2001	NA	NA	NA	NA	NA	NA	NA	**7.7**	<5.0
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-13	1/30/2001	NA	<5.0	NA	<5.0	<5.0	<5.0	NA	**17**	<5.0
	3/16/2001	NA	NA	NA	NA	NA	NA	NA	**13**	<5.0
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**13**	<5.0
	7/7/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**8.9**	<5.0
MW-14	1/30/2001	NA	**290**	NA	<5.0	<5.0	<5.0	NA	**2,300**	**590**
	3/13/2001	NA	**270**	**36**	<5.0	<5.0	<5.0	**400**	**900**	**310**
	6/18/2001	NA	NA	NA	NA	NA	NA	NA	**1,400**	**300**
	10/29/2001	NA	NA	NA	NA	NA	NA	NA	**870**	**200**
	2/8/2002	NA	**110**	**11**	<2.0	<2.0	<2.0	<2.0	**710**	**170**
	6/17/2002	NA	**79**	**8**	<2.0	<2.0	<2.0	**95**	**430**	**120**
	6/24/2004	<50.0	**18**	**6**	<5.0	<5.0	<5.0	**32**	**600**	**85**
MW-15	5/4/2001	NA	**19**	NA	<5.0	<5.0	<5.0	NA	**830**	<5.0
	6/18/2001	NA	NA	NA	NA	NA	NA	NA	**78**	<5.0
	10/29/2001	NA	NA	NA	NA	NA	NA	NA	**490**	<5.0
	2/8/2002	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**24**	<5.0
	6/17/2002	NA	**11**	<2.0	<2.0	<2.0	<2.0	**18**	**110**	<5.0
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-16	5/4/2001	NA	<5.0	NA	<5.0	<5.0	<5.0	NA	<5.0	<5.0
	6/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-17	7/21/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-18	7/21/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
DS-1	5/14/2002	NA	<2.0	**6**	<2.0	<2.0	<2.0	<2.0	**23**	<2.0
	7/6/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**36**	**85**
DR-1	6/20/2002	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**23**	<2.0
DS-2	5/14/2002	NA	<2.0	**20**	<2.0	<2.0	<2.0	<2.0	**5**	**23**
	7/7/2004	<50.0	<5.0	<5.0	<5.0	<5.0	**5.5**	<5.0	**8.5**	**70**
DR-2	6/20/2002	NA	<2.0	**5**	<2.0	**2**	**28**	<2.0	**8**	**74**

VOLUNTARY REMEDIATION PLAN APPLICATION
SOUTHERN METAL FINISHING PROPERTY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 1
Summary of Historical Groundwater Analytical Testing Results for Wells on SMF Property

Well/Sample ID	Sampling Date	Acetone	Benzene	Chloroform	Ethylbenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene
		Analytical Results (ug/L)								
DS-3	5/14/2002	NA	**4**	**23**	<2.0	<2.0	<2.0	<2.0	**19**	<2.0
	7/6/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**14**	**100**	<5.0
	11/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**16**	**100**	<5.0
	5/16/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**21**	**130**	<5.0
	5/23/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**21**	**130**	<5.0
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**120**	**6**
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**66**	<5.0
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**22**	**48**	<5.0
	7/31/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**16**	**34**	<5.0
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.6**	**59**	<5.0
DR-3	6/20/2002	NA	<2.0	<2.0	<2.0	<2.0	<2.0	**4**	**140**	**57**
	11/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.1**	**170**	**13**
	5/16/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**8.5**	**180**	**15**
	5/23/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.2**	**190**	**13**
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**8.2**	**200**	**13**
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**11**	**380**	**23**
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**8.8**	**330**	**21**
	7/31/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.2**	**620**	**14**
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.4**	**520**	**11**
MW1D	8/4/2004	<50.0	**8**	**8**	**8**	<5.0	**12**	<5.0	**7.4**	**32**
	11/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	**12**	<5.0	**5.7**	**21**
PI-1*	11/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.2	**3,200**	<5.0
	6/23/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**12,000**	**5**
	6/25/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**8,200**	<5.0
	11/24/2004	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**6.2**	**3,200**	<5.0
	5/16/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**5.8**	**1,400**	<5.0
	5/23/2005	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.3**	**2,200**	<5.0
	6/29/2006	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**6.4**	**39**	<5.0
	8/23/2007	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**13**	**39**	<5.0
	7/11/2008	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**15**	**24**	<5.0
	7/31/2009	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**14**	**23**	<5.0
	10/12/2010	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	**6.4**	**15**	<5.0

NOTES:

* - Due to uncertainty regarding the well construction, the well was decomissioned and a replacement well installed.

"520" - Numbers in bold are reported at concentrations in excess of the laboratory method detection limit.

VOLUNTARY REMEDIATION PLAN APPLICATION
SOUTHERN METAL FINISHING PROPERTY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 2
Depth to Water Measurements and Monitoring Well Top of Casing Elevations

Well I.D.	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet)	Water Level Elevation (feet)
Southern Metal Finishing Property Wells				
SMFMW-18	02/28/11	911.61	23.21	888.40
SMFMW-6	02/28/11	901.17	16.45	884.72
SMFMW-11	02/28/11	908.47	19.60	888.87
SMFMW-7	02/28/11	906.35	19.79	886.56
SMFMWDS-1	02/28/11	906.19	19.48	886.71
SMFMW-3	02/28/11	900.29	17.71	882.58
SMFMW-4	02/28/11	899.78	16.71	883.07
SMFMW-17	03/01/11	904.50	18.70	885.80
SMFMWDS-3	03/01/11	900.04	16.99	883.05
SMFMW-9	03/01/11	903.78	18.32	885.46
SMFMW-10	03/01/11	903.90	19.98	883.92
SMFMW-1	03/01/11	899.16	16.93	882.23
SMFMW-2	03/01/11	901.25	18.74	882.51
Dobbins Property Wells				
DPMW-2	03/17/11	896.14	17.63	878.51
DPMW-4S	03/02/11	895.80	19.65	876.15
DPMW-4I	03/02/11	895.57	19.17	876.40
DPMW-26	03/02/11	897.11	36.25	860.86
DPMW-3S	03/02/11	895.61	27.63	867.98
DPMW-3I	03/02/11	895.67	27.61	868.06
DPMW-1S	03/02/11	895.99	22.91	873.08
DPMW-2S	03/03/11	895.29	17.20	878.09
DPMW-2I	03/03/11	895.71	18.65	877.06
DPMW-27	03/03/11	901.30	40.64	860.66
DPMW-25	03/03/11	895.58	39.11	856.47
DPMW-10	03/03/11	896.14	38.81	857.33
DPMW-28	03/03/11	896.25	37.55	858.70
Daltile (Former Reynolds Property) Wells				
RPMW-14	03/07/11	861.23	26.31	834.92
RPMW-15	03/07/11	861.44	21.45	839.99
RPMW-24	03/07/11	865.29	17.52	847.77
Goodstone Property Wells (1494 & 1510 Ellsworth Industrial Blvd.)				
GPMW-11	03/07/11	847.92	12.36	835.56
GPMW-19	03/08/11	841.86	12.91	828.95
GPMW-20	03/08/11	848.27	10.93	837.34
GPMW-18	03/08/11	846.48	10.28	836.20
Restaurant Supply (Former Jodaco Property) Wells				
JPMW-23	03/08/11	866.71	11.22	855.49
JPMW-22	03/08/11	866.76	12.60	854.16
JPMW-21	03/08/11	858.70	7.06	851.64
JPMW-16	03/11/11	864.63	20.95	843.68
JPMW-17	03/11/11	864.52	14.75	849.77
Huber Street Right-of-Way Wells				
SMFMW-12	03/02/11	894.60	15.88	878.72
SMFMW-13	03/01/11	895.45	20.15	875.30
SMFMW-14	03/01/11	894.94	12.90	882.04
HSMW-15	03/14/11	895.89	13.91	881.98
SMFMW-16	03/01/11	898.27	DRY	NA
SMFMW-DS-2	03/02/11	894.54	13.06	881.48
Macy's Property Well				
MPMW-19	03/21/11	ND	12.30	-

NOTES:

ND - Not Determined.

VOLUNTARY REMEDIATION PLAN APPLICATION
SOUTHERN METAL FINISHING PROPERTY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 3

Summary of Groundwater Analytical Testing Results

Sample Designation	WC-0311-SMFMW-1	WC-0311-SMFMW-2	WC-0211-SMFMW-3	WC-0211-SMFMW-4	WC-0211-SMFMW-6	WC-0211-SMFMW-7	WC-0211-SMFMW-9
Sample Date	3/1/2011	3/1/2011	2/28/2011	2/28/2011	2/28/2011	2/28/2011	2/28/2011
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	< 5	**14**	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	**130**	< 5	< 5
Isopropylbenzene	< 5	< 5	< 5	< 5	**77**	< 5	< 5
m,p-Xylene	< 5	< 5	< 5	< 5	**250**	< 5	< 5
Methylcyclohexane	< 5	< 5	< 5	< 5	**23**	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5	**460**	< 5	< 5
Tetrachloroethene	< 5	**180**	**78**	**16**	**48**	**10**	**5.8**
Trichloroethene	**7.4**	**35**	**7.6**	< 5	< 5	< 5	< 5

Sample Designation	WC-0311-SMFMW-10	WC-0211-SMFMW-11	WC-0311-SMFMW-12	WC-0311-SMFMW-13	WC-0311-SMFMW-14	WC-0211-SMFMW-17	WC-0211-SMFMW-18
Sample Date	3/1/2011	2/28/2011	3/2/2011	3/2/2011	3/1/2011	3/1/2011	2/28/2011
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Isopropylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylcyclohexane	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	< 5	< 5	< 5	**11**	**60**	< 5	< 5
Trichloroethene	< 5	< 5	< 5	< 5	**6.7**	< 5	< 5

Sample Designation	WC-0311-SMFMWDS-1	WC-0311-SMFMWDS-2	WC-0311-SMFMWDS-3	WC-0311-SMFMWDS-3D*	WC-0311-DPMW-10	WC-0311-DPMW-1S	WC-0311-DPMW-25
Sample Date	3/2/2011	3/2/2011	3/1/2011	3/1/2011	3/3/2011	3/2/2011	3/3/2011
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	< 5	< 5	< 5	< 5	**5.2**	**6.2**	< 5
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	**6.3**	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Isopropylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylcyclohexane	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	**11**	**7.7**	**76**	**66**	**71**	< 5	**110**
Trichloroethene	< 5	< 5	< 5	< 5	**11**	< 5	**28**

Sample Designation	WC-0311-DPMW-26	WC-0311-DPMW-27	WC-0311-DPMW-28	WC-0311-DPMW-28D*	WC-0311-DPMW-2I	WC-0311-DPMW-2S	WC-0311-DPMW-3I
Sample Date	3/3/2011	3/3/2011	3/3/2011	3/3/2011	3/3/2011	3/3/2011	3/2/2011
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	**6.7**	< 5	< 5
Acetone	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	**5.2**	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	< 5	< 5	< 5	< 5	< 5	**6.6**	< 5
cis-1,2-Dichloroethene	**14**	**77**	< 5	< 5	< 5	**9.3**	**6.3**
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Isopropylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylcyclohexane	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	**29**	**260**	**50**	**51**	**23**	**150**	**49**
Trichloroethene	**5.7**	**85**	**6.6**	**5.5**	**17**	**18**	**15**

NOTES:

"**260**" - Bolded / shaded numbers exceed laboratory method detection limit and/or Risk Reduction Standard.

"*" - Denotes duplicate sample.

VOLUNTARY REMEDIATION PLAN APPLICATION
SOUTHERN METAL FINISHING PROPERTY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 3
Summary of Groundater Analytical Testing Results

Sample Designation	**WC-0311-DPMW-3S**	**WC-0311-DPMW-4I**	**WC-0311-DPMW-4S**	**WC-0311-DPMW-4I-D***	**WC-0311-DPMW-2**	**WC-0311-JPMW-16**	**WC-0311-JPMW-17**
Sample Date	3/2/2011	3/2/2011	3/2/2011	3/2/2011	3/17/2011	311/2011	3/11/2011
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	**180**	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5	**240**	**72**
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Isopropylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylcyclohexane	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	**24**	**110**	**7.2**	**110**	<5	**1,600**	**340**
Trichloroethene	< 5	**38**	< 5	**36**	<5	**930**	**92**

Sample Designation	**WC-0311-JPMW-21**	**WC-0311-JPMW-22**	**WC-0311-JPMW-22D***	**WC-0311-JPMW-23**	**WC-0311-GPMW-11**	**WC-0311-GPMW-18**	**WC-0311-GPMW-19**
Sample Date	3/8/2011	3/8/2011	3/8/2011	3/8/2011	3/7/2011	3/8/2011	3/8/2011
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Acetone	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 5	**13**	**14**	< 5	< 5	< 5	< 5
Chloroform	< 5	**6.2**	**6.1**	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	**99**	**290**	**320**	**52**	**27**	**250**	**190**
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Isopropylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylcyclohexane	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	**330**	**1,400**	**1,400**	**460**	**290**	**370**	**500**
Trichloroethene	**100**	**190**	**200**	**120**	**86**	**130**	**190**

Sample Designation	**WC-0311-GPMW-20**	**WC-0311-HSMW-15**	**WC-0311-RPMW-14**	**WC-0311-RPMW-15**	**WC-0311-RPMW-24**	**WC-0311-MPMW-19**	
Sample Date	3/8/2011	3/14/2011	3/7/2011	3/7/2011	3/7/2011	3/21/2011	
Volatile Organic Compounds	LABORATORY RESULTS (ug/L)						
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	
Acetone	< 50	< 50	< 50	< 50	< 50	< 50	
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	
Chloroform	< 5	< 5	< 5	< 5	< 5	< 5	
cis-1,2-Dichloroethene	**14**	< 5	< 5	< 5	**18**	< 5	
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	
Isopropylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	
m,p-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	
Methylcyclohexane	< 5	< 5	< 5	< 5	< 5	< 5	
o-Xylene	< 5	< 5	< 5	< 5	< 5	< 5	
Tetrachloroethene	**120**	< 5	**360**	**780**	**1,200**	<5	
Trichloroethene	**15**	< 5	**130**	**310**	**400**	<5	

NOTES:

"260" - Bolded / shaded numbers exceed laboratory method detection limit and/or Risk Reduction Standard.

"*" - Denotes duplicate sample.

SOUTHERN METAL FINISHING COMPANY
ATLANTA, FULTON COUNTY, GEORGIA

TABLE 5
Summary of 2004 Soil Excavation Confirmation Results

Sample ID	Date	Depth (feet)	PCE (ug/kg)	TCE (ug/kg)	Benzene (ug/kg)	Cyclohexane (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Methylcyclothexane (ug/kg)	Total Xylene (ug/kg)	Vinyl Chloride (ug/kg)	1,1-DCA (ug/kg)	1,1-DCE (ug/kg)	2-Butanone (ug/kg)	cis-1,2-DCE (ug/kg)
SCB-1	7/13/04	4	46	<4.6	17	<4.6	<4.6	<4.6	<4.6	<4.6	<9.2	<4.6	<4.6	<9.2	14
SCB-2	8/2/04	8	84	20	16	<5.7	<5.7	<5.7	<5.7	<5.7	<11	<5.7	<5.7	<11	<5.7
SCSW-1	7/13/04	5	200	66	65	<5.2	<5.2	<5.2	<5.2	<5.2	17	<5.2	<5.2	<10	170
SCSW-2	7/13/04	1	480	52	47	<3.7	<3.7	<3.7	<3.7	<3.7	<7.5	<3.7	<3.7	<7.5	58
SCSW-3	7/13/04	1.5	8.3	<5.7	<5.7	<5.7	<5.7	<5.7	<5.7	<5.7	<11	<5.7	<5.7	<11	25
SCSW-4 [1]	7/13/04	2	1000	65	110	<5.4	<5.4	<5.4	7.3	<5.4	<11	<5.4	<5.4	<11	150
SCSW-5 [1]	8/2/04	2	580	130	120	8.6	6.4	<6.0	11	<6.0	290	<6.0	<6.0	<12	110
SCSW-6 [1]	8/2/04	2	2300	<290	1700	<290	<290	<290	<290	<290	<580	<290	<290	2300	4600
SCSW-7 [1]	8/2/04	2	1200	170	170	<5.8	<5.8	<5.8	6.8	7.4	<12	<5.8	<5.8	<12	57
SCSW-8	8/10/04	8	<600	74	88	<4.1	15	<4.1	5.4	20	<8.2	<4.1	<4.1	<8.2	<600
SCSW-9	8/16/04	0.6	86	80	<6.5	<6.5	<6.5	<6.5	<6.5	<6.5	<13	<6.5	<6.5	<13	33
SCSW-10	8/16/04	2	38	15	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<14	<6.8	<6.8	<14	<6.8
SCSW-11	8/16/04	0.5	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<7.7	<3.9	<3.9	8.8	< 3.9
STOCKPILE #1 [2]	7/22/04	NA	42	11	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<12	<5.9	<5.9	<12	9.6
STOCKPILE #2 [2]	7/22/04	NA	110	25	8.7	<5.5	<5.5	<5.5	<5.5	<5.5	<11	<5.5	<5.5	<11	19
STOCKPILE #3 [2]	7/22/04	NA	120	25	9.6	<6.4	<6.4	<6.4	<6.4	<6.4	<13	<6.4	<6.4	<13	15
STOCKPILE #4 [2]	8/4/04	NA	72	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<15	<7.5	<7.5	<15	8.4
BSS-1 [3]	7/15/04	0.5	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<16	<8.0	<8.0	<16	<8.0

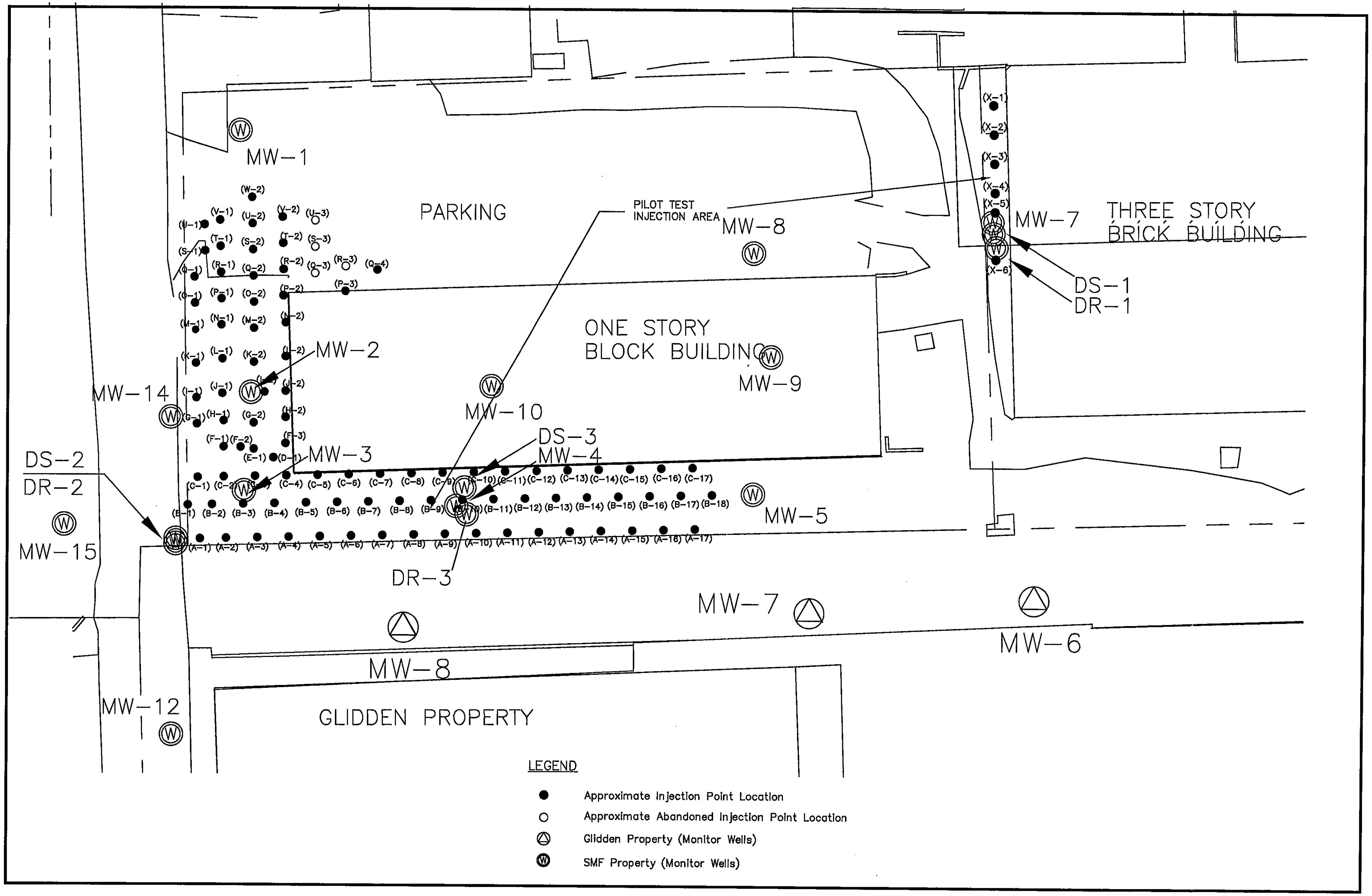
Notes:

NA - Not Applicable.

[1] - Soil confirmation sidewall sample results are not applicable or representative of remaining soil conditions as over-excavation beyond these sample locations were conducted based on these result results being in excess of the Default Type 1 and/or 3 RRS.

[2] - Stockpile confirmation sample results are applicable and representative of remaining soil conditions as testing results were below the Default Type 1 and 3 RRS and stockpiled soils were used as backfill.

[3] - Sample represents an off-site borrow source confirmation sample and is applicable and representative of remaining soil conditions as testing results were below the Default Type 1 and 3 RRS and borrow source was utilized as additional fill for excavated areas.



LEGEND

●	Approximate Injection Point Location
○	Approximate Abandoned Injection Point Location
△	Glidden Property (Monitor Wells)
Ⓦ	SMF Property (Monitor Wells)

0 15 30 60

SCALE: 1" = 30'

NOTES

ORIGINAL FIGURE PROVIDED BY S&ME

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

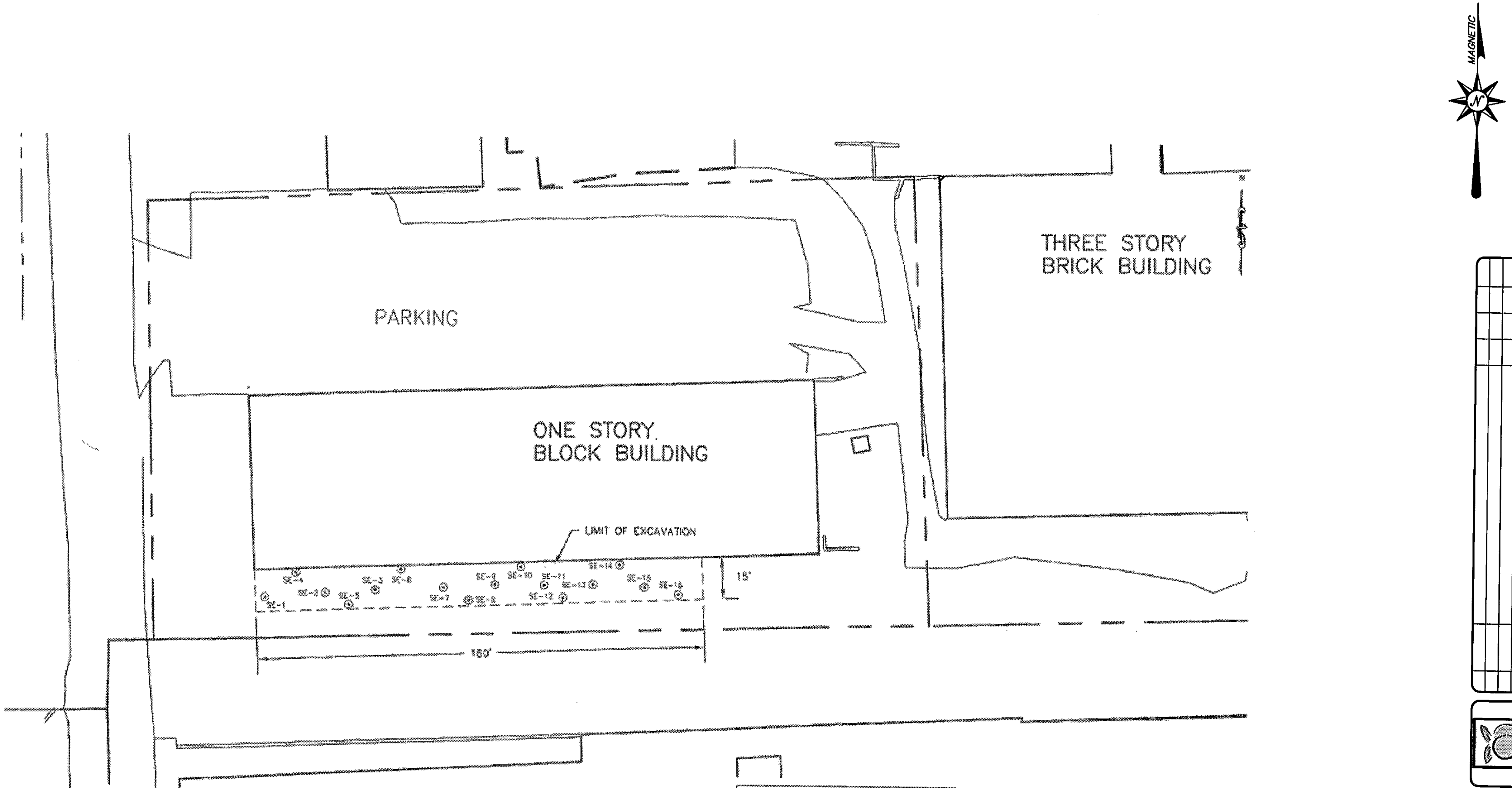
PERMANGANATE GROUNDWATER PILOT
TESTING LOCATIONS

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

DRAWING NO.
3
SMF
2665



SAMPLE LOCATION	DATE	PCE (µg/kg)	TCE (µg/kg)
SE-1	9-25-02	BDL	BDL
SE-2	9-25-02	BDL	BDL
SE-3	9-25-02	BDL	BDL
SE-4	9-30-02	29	11
SE-5	9-30-02	BDL	BDL
SE-6	9-30-02	140	65
SE-7	9-30-02	BDL	BDL
SE-8	9-30-02	BDL	BDL
SE-9	9-30-02	BDL	BDL
SE-10	9-30-02	BDL	BDL
SE-11	9-30-02	BDL	BDL
SE-12	9-30-02	BDL	BDL
SE-13	9-30-02	BDL	BDL
SE-14	9-30-02	BDL	BDL
SE-15	9-30-02	BDL	BDL
SE-16	9-30-02	BDL	BDL

LEGEND

⊛ SOIL SAMPLE LOCATION

ORIGINAL FIGURE PROVIDED BY S&ME

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

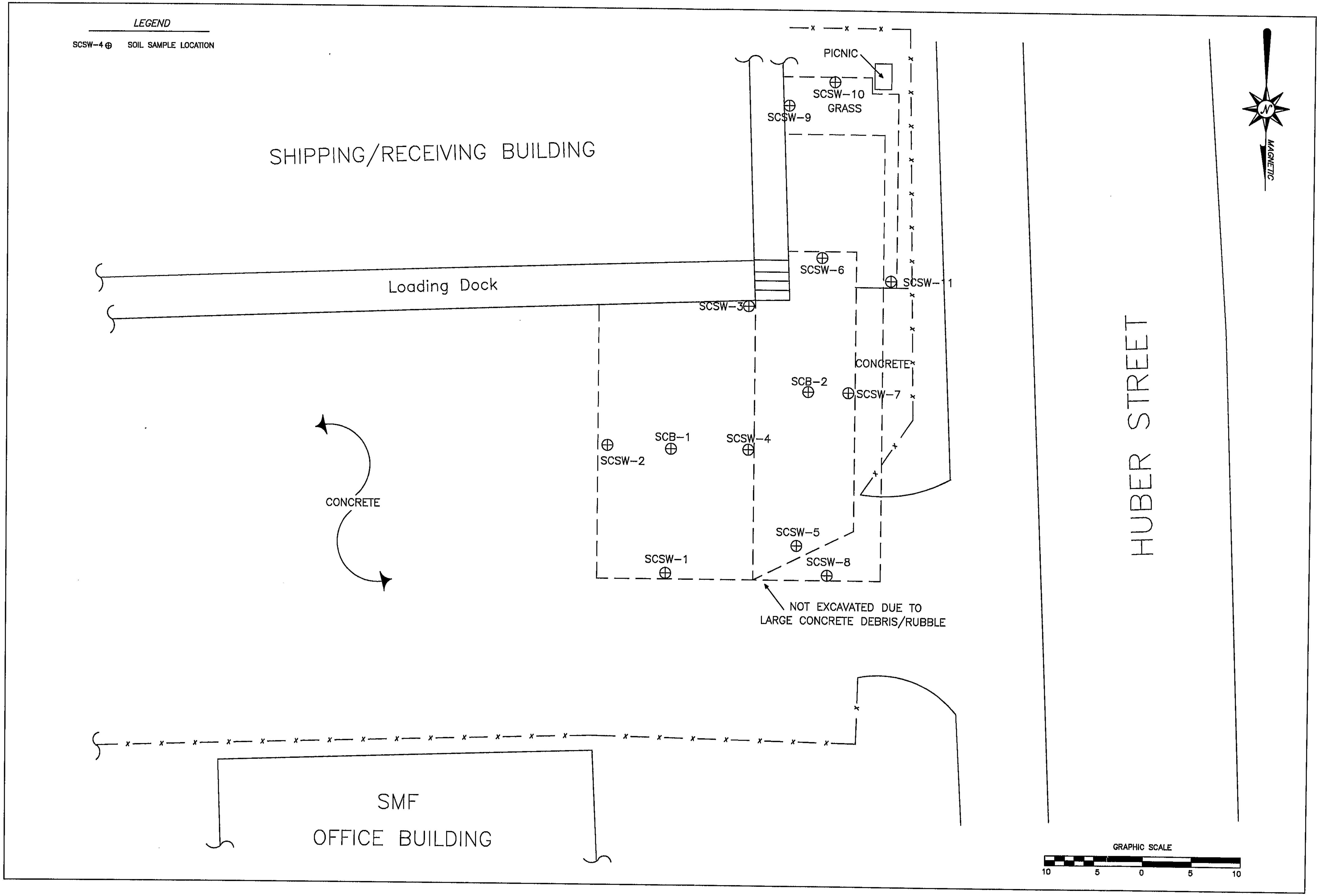
DATE OF ISSUE 12/1/04
DWN BY S&ME
DES BY N/A
CHK BY
APP BY

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

2002 SOIL EXCAVATION CONFIRMATION
LOCATIONS AND RESULTS

DRAWING NO.
4
SMF
2665



REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

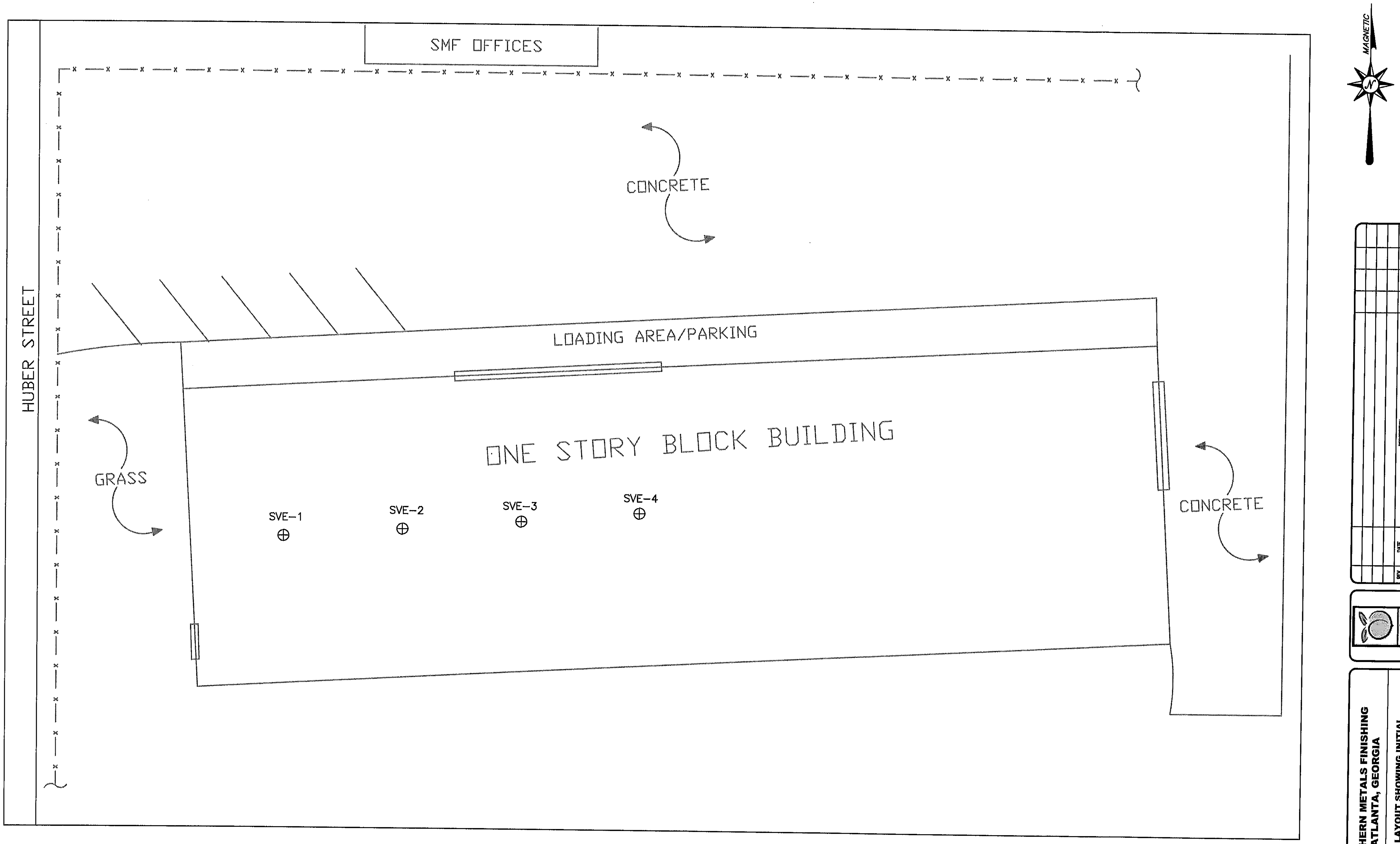
DATE OF ISSUE 12/1/04
DWN BY JPC
DES BY MHW
CHK BY WHL
APP BY CHM

Peachtree Environmental

SOUTHERN METALS FINISHING
HUBER STREET
ATLANTA, GEORGIA

SOIL EXCAVATION SAMPLE LOCATIONS

DRAWING NO.
5
SMF
2633



LEGEND

MW-1 ⊙ MONITORING WELL LOCATION

⊕ INITIAL SOIL VAPOR EXTRACTION POINTS

GRAPHIC SCALE

15 0 15

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

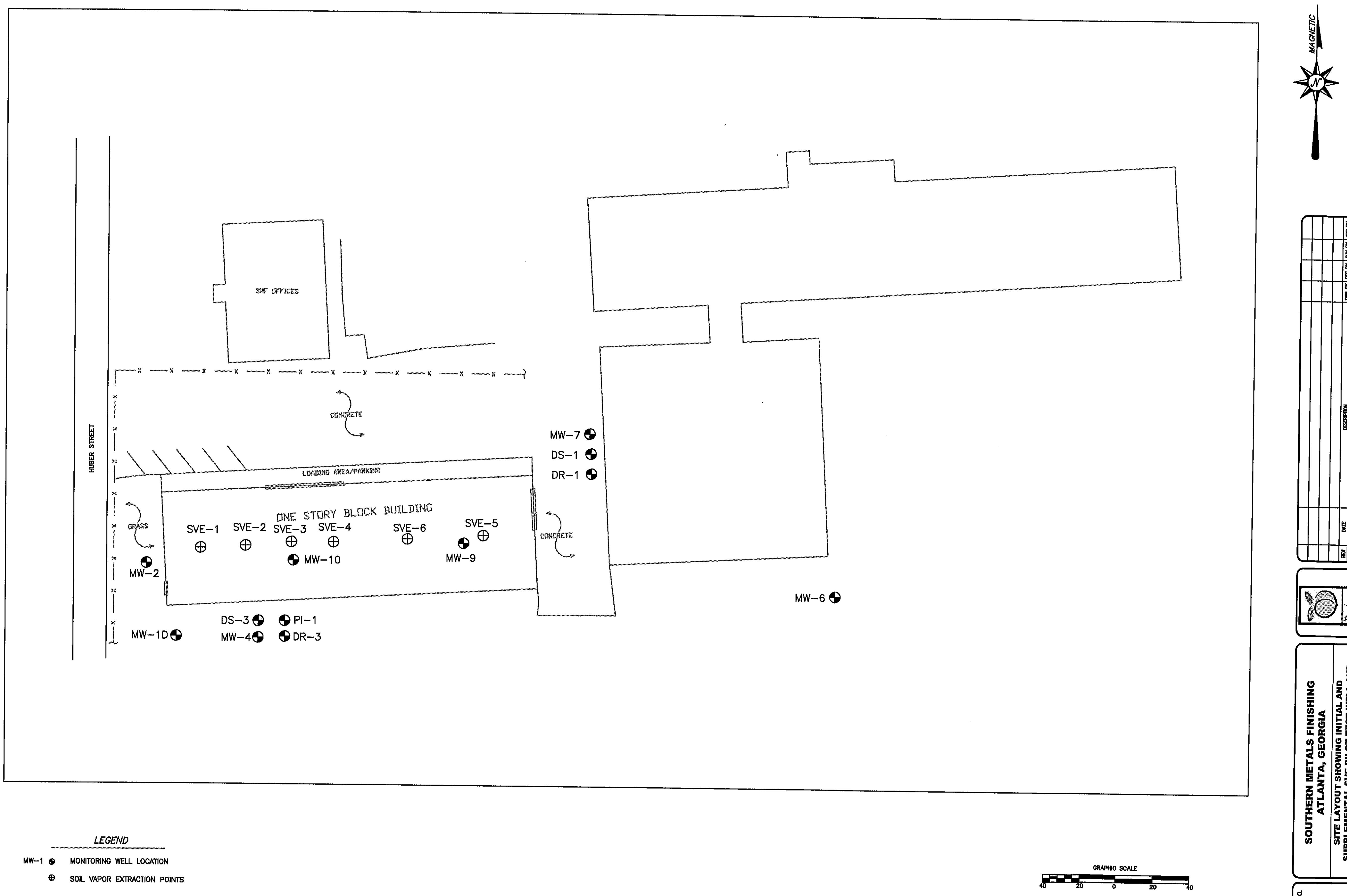
DATE OF ISSUE 7/22/08
DWN BY JPC
DES BY MHW
CHK BY WHL
APP BY CHM

Peachtree Environmental

SOUTHERN METALS FINISHING
ATLANTA, GEORGIA

SITE LAYOUT SHOWING INITIAL SVE PILOT TEST WELLS

FIGURE NO.
6
SMF
2665



REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 7/22/08
DWN BY JPC
DES BY MHW
CHK BY WHL
APP BY CHM

Peachtree Environmental

SOUTHERN METALS FINISHING
ATLANTA, GEORGIA

SITE LAYOUT SHOWING INITIAL AND SUPPLEMENTAL SVE PILOT TEST WELL AND GROUNDWATER MONITORING WELLS

FIGURE NO.
7
SMF
2665

APPENDIX E
Soil Disposal Manifests SMF

ATTACHMENT 19

SOIL DISPOSAL MANIFESTS

2P

EAGLE POINT LANDFILL

8880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

DATE:07/29/04
TIME:09:28

TICKET #: 263108

CUSTOMER:0067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: SM213 TRAILER: 25 VEHICLE: Dump Truck

ORIGIN: 30 - Fulton County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 72843

	LBS	TNS
GROSS	66080	33.04
TARE	42000	21.00
NET	24080	12.04

NOTE:
SPECIALS:

SIGNATURE:

Non Hazardous
Waste Manifest

FOR OFFICE USE ONLY

Customer Acct. No. 000731
Ticket No. 263108

MANIFEST NO: 02843

Generator

Name SOUTHERN METAL FINISHIN Generating Location 1525 HUBER ST
Address 1581 HUBER ST
ATLANTA, GA 30318
Phone No. 404 355 1560 I.D. No. 107

Profile No.	Waste Description	Quantity	Units
107	NON REGULATED SOIL	16	T
		12.04	

Codes
D - Drum
T - Tons
Y - Yards
O - Other

I hereby certify under the penalty of law that the above listed material (s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That such waste has been properly described, classified and packaged and is in proper condition for transportation according to applicable regulations. Should this designation change, I will immediately notify Eagle Point Landfill.

Authorized Agent's Name (print) - 7/28/04 Date Signature

Transporter

Transporters' Name Siskey Hauling Telephone 866-340-1313
Address 4917 South Cobb Dr Driver's Name Dwight Murray
Smyrna Ga Vehicle's No. 213

I hereby certify that the above material was picked up at the Generator site listed above and delivered without incident to the disposal facility listed below.

Shipment Date Driver's Signature Delivery Date Driver's Signature

Disposal Facility

Site Name Eagle Point Landfill Telephone No. (770) 781-2721*Fax 678-648-3123
Address 8880 Old Federal Road Permit No. 058-012D (MSWL)
Ball Ground, Georgia 30107 Time:

I hereby certify that the above material has been accepted and that information presented on this document is true and correct.

Authorized Agent's Name 7-29-04 Date Signature

2P

EAGLE POINT LANDFILL

9800 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)731-2721

DATE:07/30/04
TIME:13:07

TICKT # 263447

CUSTOMER:2047-1
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: 9242 TRAILER: VEHICLE: Rolloff

ORIGIN: 10 - Forsyth County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 7304

	LBS	TNS
GROSS	69060	34.53
TARE	38040	19.02
NET	31020	15.51

NOTE:
SPECIALS:

SIGNATURE:

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 40[illegible]

2. Page 1 of

3. Generator's Name and Mailing Address

Southern Aluminum Finishing
1581 Huber Street, NW
Atlanta, GA 30318 - 3781

404-355-1560

4. Generator's Phone (   )

5. Transporter 1 Company Name

6. US EPA ID Number

A. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

Eagle Point Landfill
8880 Old Federal Road
Ball Ground, GA 30107

10. US EPA ID Number

C. Facility's Phone

770-781-2721

11. Waste Shipping Name and Description	12. Containers		13. Total Quantity	14. Unit Wt/Vol
	No.	Type		
a. Non-Hazardous, Non-Regulated Soil				
b.				
c.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name Terrance Lalount

Signature

Month 7 Day 30 Year 04

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name Robert Simard

Signature

Month 07 Day 30 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month 7 Day 30 Year 04

FAC

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

ORIGINAL - RETURN TO GENERATOR

SD

EAGLE POINT LANDFILL

8880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

TICKET #: 266052

DATE:08/11/04
TIME:10:28

CUSTOMER:0067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: SH232 TRAILER: VEHICLE: Dump Truck

ORIGIN: 30 - Fulton County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 08-11-04

	LBS	TNS
GROSS	57060	28.53
TARE	23900	11.95
NET	33160	16.58

NOTE:
SPECIALS:

SIGNATURE:

2160052

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 0000

2. Page 1 of 1

3. Generator's Name and Mailing Address Southern Metal Finishing
1581 Huber St
Atlanta, GA 30319

4. Generator's Phone ( ) 404-355-1560

5. Transporter 1 Company Name Siskey Hauling

6. US EPA ID Number N/A

A. Transporter's Phone 404-696-6316

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address Eagle Point Landfill
Old Federal Road
Ballground, GA 30358

10. US EPA ID Number N/A

C. Facility's Phone 770-781-2721

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous, Non-Regulated Soil Approval:	01	TT	18	T
b.			16.58	
c.				
d.				

Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name JAMES N MCCLATCHEY
Signature James N McClatchey
Month 8 Day 10 Year 04

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name GARY L. COOPER
Signature Gary L. Cooper
Month 8 Day 11 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name
Signature
Month 8 Day 11 Year 04

GENERATOR

TRANSPORTER

FACILITY

ORIGINAL - RETURN TO GENERATOR

2P

EAGLE POINT LANDFILL

2880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

TICKET #: 266114

DATE:08/11/04
TIME:12:29

CUSTOMER:2067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: SIS233 TRAILER: VEHICLE: Dump Truck

ORIGIN: 10 - Forsyth County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: A1104

	LBS	TNS
GROSS	59760	29.88
TARE	23920	11.96
NET	35840	17.92

NOTE:
SPECIALS:

SIGNATURE:

81104

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 0000

2. Page 1 of 1

3. Generator's Name and Mailing Address Southern Metal Finishing
1581 Huber St
Atlanta, GA 30319

4. Generator's Phone ( ) 404-355-1560

5. Transporter 1 Company Name Siskey Hauling

6. US EPA ID Number N/A

A. Transporter's Phone 404-696-6316

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Eagle Point Landfill
~~8880~~ Old Federal Road
Ballground, GA 30358

10. US EPA ID Number N/A

C. Facility's Phone 770-781-272

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous, Non-Regulated Soil Approval:	01	TT	18	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name JAMES McCLATCHEY

Signature James M McClatchey

Month 8 Day 11 Year 04

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name Scott McDowell

Signature Scott McDowell

Month 08 Day 11 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space - 8880 Old Federal Rd
Ball Ground, Ga 30107

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month 8 Day 11 Year 04

GENERATOR

TRANSPORTER

FACILITY

ORIGINAL - RETURN TO GENERATOR

2D

EAGLE POINT LANDFILL

8880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

TICKET #: 266133

DATE:08/11/04
TIME:13:19

CUSTOMER:0067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: SIS232 TRAILER: VEHICLE: Dump Truck

ORIGIN: 30 - Fulton County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 81104-1

	LBS	TNS
GROSS	57820	28.91
TARE	23720	11.86
NET	34100	17.05

NOTE:
SPECIALS:

SIGNATURE:____________________

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.
Manifest Document No. 0000
2. Page 1 of 1

3. Generator's Name and Mailing Address Southern Metal Finishing
1581 Huber St
Atlanta, GA 30319
4. Generator's Phone ( ) 404-355-1560

5. Transporter 1 Company Name Siskey Hauling
6. US EPA ID Number N/A
A. Transporter's Phone 404-696-6316

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address Eagle Point Landfill
8880 Old Federal Road
Ballground, GA 30358
10. US EPA ID Number N/A
C. Facility's Phone 770-781-2721

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous, Non-Regulated Soil Approval:	01	TT	~~18~~ 17.05	T
b.				
c.				
d.				

GENERATOR

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name JAMES N McCLATCHEY
Signature James N McClatchey
Month 8 Day 11 Year 04

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Gary L. Cooper
Signature Gary L. Cooper
Month 8 Day 11 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space
8880 Old Federal Rd
Ball Ground. Ga 30107

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name K Milke
Signature K Milke
Month 8 Day 11 Year 04

ORIGINAL - RETURN TO GENERATOR

20

EAGLE POINT LANDFILL

8880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

DATE:08/11/04
TIME:09:49

TICKET #: 266036

CUSTOMER:0067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: SH2336 TRAILER: VEHICLE: Dump Truck

ORIGIN: 30 - Fulton County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 08-11-04

	LBS	TNS
GROSS	62520	31.26
TARE	24240	12.12
NET	38280	19.14

NOTE:
SPECIALS:

SIGNATURE:________________

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.
Manifest Document No. 0000-
2. Page 1 of 1

3. Generator's Name and Mailing Address Southern Metal Finishing
1581 Huber St
Atlanta, GA 30319

4. Generator's Phone ( ) 404-355-1560

5. Transporter 1 Company Name Sisky Hauling
6. US EPA ID Number N/A
A. Transporter's Phone 404-696-6316

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address
Eagle Point Landfill
8880 old Federal Road
Ballground, GA 30358

10. US EPA ID Number N/A
C. Facility's Phone 770-781-2721

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous, Non-Regulated Soil Approval:	01	TT	18	T
b.			19.14	
c.				
d.				

GENERATOR

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name JAMES McCLATCHEY
Signature James McClatchey
Month 8 Day 10 Year 04

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Scott McDowell
Signature Scott McDowell
Month 8 Day 11 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name
Signature Cheryl
Month 08 Day 11 Year 04

ORIGINAL - RETURN TO GENERATOR

2P

EAGLE POINT LANDFILL

8880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

TICKET #: 266173

DATE:08/11/04
TIME:15:02

CUSTOMER:0067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: SIS233 TRAILER: VEHICLE: Dump Truck

ORIGIN: 10 - Forsyth County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 4038

	LBS	TNS
GROSS	57480	28.74
TARE	23940	11.97
NET	33540	16.77

NOTE:
SPECIALS:

SIGNATURE:______________________________

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. GACESQG

Manifest Document No. 40583

2. Page 1 of 1

3. Generator's Name and Mailing Address
Southern Metal Finishing
1581 Huber Street
Atlanta, GA 30318

4. Generator's Phone ( ) 404-355-1560

5. Transporter 1 Company Name: Siskey Hauling

6. US EPA ID Number: N/A

A. Transporter's Phone: 404-696-6316

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Eagle Point Landfill
8880 Old Federal Road
Ball Ground, GA 30107

10. US EPA ID Number

C. Facility's Phone: 770-781-2721

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. ~~Non-Hazardous, Non-Regulated Soil~~ Approval: 107	01	TT	18	T
b.			16.77	T
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: JAMES N MCCLATCHEY
Signature: James N McClatchey
Month 8 Day 11 Year 04

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Scott McDonell
Signature: Scott McDonell
Month 08 Day 11 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name
Signature
Month 8 Day 11 Year 04

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL - RETURN TO GENERATOR

20

EAGLE POINT LANDFILL

8880 OLD FEDERAL ROAD
BALL GROUND, GA 30107
(770)781-2721

TICKET #: 266193

DATE:08/11/04
TIME:16:07

CUSTOMER:0067-11
Greenleaf Env
4335 S. Lee Street
Buford GA 30518

TRUCK: 919232 TRAILER: VEHICLE: Dump Truck

ORIGIN: 30 - Fulton County
DESTINATION: 20 - Work Face
MATERIAL: 40 - Contaminated Soil
MANIFEST: 40392

	LBS	TNS
GROSS	57580	28.79
TARE	23620	11.81
NET	33960	16.98

NOTE:
SPECIALS:

SIGNATURE:______________________________

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. GACESQG

Manifest Document No. 40382

2. Page 1 of 1

3. Generator's Name and Mailing Address
Southern Metal Finishing
1581 Huber Street
Atlanta, GA 30318

4. Generator's Phone ( ) 404-355-1560

5. Transporter 1 Company Name: Siskey Hauling

6. US EPA ID Number: N/A

A. Transporter's Phone: 404-696-6316

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Eagle Point Landfill
8880 Old Federal Road
Ball Ground, GA 30107

10. US EPA ID Number

C. Facility's Phone: 770-781-2721

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous, Non-Regulated Soil Approval: 107	01	TT	18	T
b.			16.98	T
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: JAMES N MCCUTCHEY
Signature: James N McCutchey
Month 8 Day 11 Year 04

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: GARY L. COOPER
Signature: Gary L. Cooper
Month 8 Day 11 Year 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name
Signature
Month 8 Day 11 Year 04

GENERATOR

TRANSPORTER

FACILITY

ORIGINAL - RETURN TO GENERATOR

APPENDIX F
J&E Model Inputs

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES ☒ X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663	3.45E+00	Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (^{o}C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
19.4	15	546	335	211		B	LS	L		

MORE ↓

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-fillec porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
L	1.59	0.399	0.148	LS	1.62	0.39	0.076				

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm-s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	6096	1905	610	0.1	1.5	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1

Used to calculate risk-based groundwater concentration.

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)
7.69E-02	1.09E-05	3.67E-03	25	6,988	334.32	536.40	3.18E+01	7.95E+03	2.3E-05	9.8E-02

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
7.88E+08	531	0.251	0.314	ERROR	0.257	1.88E-09	0.854	1.61E-09	18.75	0.39	0.087	0.303	16,002

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.95E+06	1.19E+07	1.35E-04	15	7,456	2.88E-03	1.20E-01	1.78E-04	4.84E-03	1.07E-02	0.00E+00	1.62E-04	2.66E-03	531

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	4.15E+02	0.10	6.36E+00	4.84E-03	1.60E+03	3.66E+03	1.95E-06	8.07E-04	2.3E-05	9.8E-02

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (μg/L)	Indoor exposure groundwater conc., noncarcinogen (μg/L)	Risk-based indoor exposure groundwater conc., (μg/L)	Pure component water solubility, S (μg/L)	Final indoor exposure groundwater conc., (μg/L)
NA	NA	NA	7.95E+06	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.5E-09	5.6E-06

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES ☒

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
100414	1.30E+02	Ethylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
19.4	15	546	335	211		B	LS	L		

MORE ↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-fillec porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
L	1.59	0.399	0.148	LS	1.62	0.39	0.076				

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	6096	1905	610	0.1	1.5	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1

Used to calculate risk-based groundwater concentration.

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)
6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	4.46E+02	1.69E+02	2.5E-06	1.0E+00

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
7.88E+08	531	0.251	0.314	ERROR	0.257	1.88E-09	0.854	1.61E-09	18.75	0.39	0.087	0.303	16,002

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, $D^{eff}{}_A$ (cm^2/s)	Stratum B effective diffusion coefficient, $D^{eff}{}_B$ (cm^2/s)	Stratum C effective diffusion coefficient, $D^{eff}{}_C$ (cm^2/s)	Capillary zone effective diffusion coefficient, $D^{eff}{}_{cz}$ (cm^2/s)	Total overall effective diffusion coefficient, $D^{eff}{}_T$ (cm^2/s)	Diffusion path length, L_d (cm)
2.95E+06	1.19E+07	1.35E-04	15	10,047	5.70E-03	2.37E-01	1.78E-04	4.31E-03	9.51E-03	0.00E+00	1.39E-04	2.31E-03	531

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)
15	3.08E+04	0.10	6.36E+00	4.31E-03	1.60E+03	1.01E+04	1.92E-06	5.92E-02	2.5E-06	1.0E+00

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (μg/L)	Indoor exposure groundwater conc., noncarcinogen (μg/L)	Risk-based indoor exposure groundwater conc., (μg/L)	Pure component water solubility, S (μg/L)	Final indoor exposure groundwater conc., (μg/L)
NA	NA	NA	1.69E+05	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.6E-08	4.1E-05

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (μg/L)	Chemical
108383	2.50E+02	m-Xylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
19.4	15	546	335	211		B	LS	L		

MORE ↓

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-fillec porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
Lookup Soil Parameters				Lookup Soil Parameters				Lookup Soil Parameters			
L	1.59	0.399	0.148	LS	1.62	0.39	0.076				

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	6096	1905	610	0.1	1.5	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	4.07E+02	1.61E+02	0.0E+00	1.0E-01

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
7.88E+08	531	0.251	0.314	ERROR	0.257	1.88E-09	0.854	1.61E-09	18.75	0.39	0.087	0.303	16,002

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.95E+06	1.19E+07	1.35E-04	15	10,145	5.28E-03	2.20E-01	1.78E-04	4.41E-03	9.72E-03	0.00E+00	1.42E-04	2.36E-03	531

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	5.49E+04	0.10	6.36E+00	4.41E-03	1.60E+03	8.24E+03	1.92E-06	1.06E-01	NA	1.0E-01

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (μg/L)	Indoor exposure groundwater conc., noncarcinogen (μg/L)	Risk-based indoor exposure groundwater conc., (μg/L)	Pure component water solubility, S (μg/L)	Final indoor exposure groundwater conc., (μg/L)
NA	NA	NA	1.61E+05	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	7.2E-04

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES X

ENTER	ENTER	
Chemical CAS No. (numbers only, no dashes)	Initial groundwater conc., C_W (µg/L)	Chemical
95476	4.60E+02	o-Xylene

MORE ↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		ENTER
			Totals must add up to value of L_{WT} (cell G28)							
Average soil/ groundwater temperature, T_S (^oC)	Depth below grade to bottom of enclosed space floor, L_F (cm)	Depth below grade to water table, L_{WT} (cm)	Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)	Soil stratum directly above water table, (Enter A, B, or C)	SCS soil type directly above water table	Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	User-defined stratum A soil vapor permeability, k_v (cm^2)
19.4	15	546	335	211		B	LS	L		

MORE ↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Stratum A SCS soil type Lookup Soil Parameters	Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	Stratum A soil total porosity, n^A (unitless)	Stratum A soil water-fillec porosity, θ_w^A (cm^3/cm^3)	Stratum B SCS soil type Lookup Soil Parameters	Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	Stratum B soil total porosity, n^B (unitless)	Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	Stratum C SCS soil type Lookup Soil Parameters	Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	Stratum C soil total porosity, n^C (unitless)	Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
L	1.59	0.399	0.148	LS	1.62	0.39	0.076				

MORE ↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		ENTER
Enclosed space floor thickness, L_{crack} (cm)	Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	Enclosed space floor length, L_B (cm)	Enclosed space floor width, W_B (cm)	Enclosed space height, H_B (cm)	Floor-wall seam crack width, w (cm)	Indoor air exchange rate, ER (1/h)		Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	6096	1905	610	0.1	1.5		

MORE ↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Averaging time for carcinogens, AT_C (yrs)	Averaging time for noncarcinogens, AT_{NC} (yrs)	Exposure duration, ED (yrs)	Exposure frequency, EF (days/yr)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1

Used to calculate risk-based groundwater concentration.

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	3.83E+02	1.78E+02	0.0E+00	1.0E-01

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
7.88E+08	531	0.251	0.314	ERROR	0.257	1.88E-09	0.854	1.61E-09	18.75	0.39	0.087	0.303	16,002

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.95E+06	1.19E+07	1.35E-04	15	10,298	3.71E-03	1.55E-01	1.78E-04	4.34E-03	9.57E-03	0.00E+00	1.42E-04	2.35E-03	531

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	7.11E+04	0.10	6.36E+00	4.34E-03	1.60E+03	9.49E+03	1.92E-06	1.37E-01	NA	1.0E-01

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (μg/L)	Indoor exposure groundwater conc., noncarcinogen (μg/L)	Risk-based indoor exposure groundwater conc., (μg/L)	Pure component water solubility, S (μg/L)	Final indoor exposure groundwater conc., (μg/L)
NA	NA	NA	1.78E+05	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	9.4E-04

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL
DOWN
TO "END"

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES ☒

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (μg/L)	Chemical
127184	2.60E+02	Tetrachloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (^{o}C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
19.4	15	546	335	211		B	LS	L		

MORE ↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-fillec porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
L	1.59	0.399	0.148	LS	1.62	0.39	0.076				

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	6096	1905	610	0.1	1.5	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1

Used to calculate risk-based groundwater concentration.

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)
5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	9.49E+01	2.06E+02	2.6E-07	4.0E-02

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
7.88E+08	531	0.251	0.314	ERROR	0.257	1.88E-09	0.854	1.61E-09	18.75	0.39	0.087	0.303	16,002

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, $D^{eff}{}_A$ (cm^2/s)	Stratum B effective diffusion coefficient, $D^{eff}{}_B$ (cm^2/s)	Stratum C effective diffusion coefficient, $D^{eff}{}_C$ (cm^2/s)	Capillary zone effective diffusion coefficient, $D^{eff}{}_{cz}$ (cm^2/s)	Total overall effective diffusion coefficient, $D^{eff}{}_T$ (cm^2/s)	Diffusion path length, L_d (cm)
2.95E+06	1.19E+07	1.35E-04	15	9,458	1.30E-02	5.43E-01	1.78E-04	3.18E-03	7.01E-03	0.00E+00	1.01E-04	1.70E-03	531

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	1.41E+05	0.10	6.36E+00	3.18E-03	1.60E+03	2.70E+05	1.84E-06	2.60E-01	2.6E-07	4.0E-02

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	NA	NA	2.06E+05	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.7E-08	4.5E-03

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL
DOWN
TO "END"

END

DATA ENTRY SHEET

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES ☒

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
79016	3.50E+01	Trichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)		ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)						OR	
19.4	15	546	335	211		B	LS	L		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-fillec porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
L	1.59	0.399	0.148	LS	1.62	0.39	0.076				

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	6096	1905	610	0.1	1.5	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	6.07E+01	1.28E+03	4.1E-06	2.0E-03

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
7.88E+08	531	0.251	0.314	ERROR	0.257	1.88E-09	0.854	1.61E-09	18.75	0.39	0.087	0.303	16,002

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
2.95E+06	1.19E+07	1.35E-04	15	8,440	7.50E-03	3.12E-01	1.78E-04	4.32E-03	9.54E-03	0.00E+00	1.39E-04	2.32E-03	531

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	1.09E+04	0.10	6.36E+00	4.32E-03	1.60E+03	9.83E+03	1.92E-06	2.10E-02	4.1E-06	2.0E-03

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (μg/L)	Indoor exposure groundwater conc., noncarcinogen (μg/L)	Risk-based indoor exposure groundwater conc., (μg/L)	Pure component water solubility, S (μg/L)	Final indoor exposure groundwater conc., (μg/L)
NA	NA	NA	1.28E+06	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.1E-08	7.2E-03

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

APPENDIX G
Risk Reduction Calculations for Soil and Groundwater