

VOLUNTARY REMEDIATION PLAN APPLICATION

**139 BRAMPTON ROAD
SAVANNAH, CHATHAM COUNTY, GEORGIA
HSI SITE NO. 10208**

Submitted to:

**Georgia Department of Natural Resources
Hazardous Waste Management Branch
Suite 1462, East Tower
2 Martin Luther King Jr. Drive SE
Atlanta, Georgia 30334**

Prepared for:

**Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey
c/o Dwight Feemster, Esq
Duffy and Feemster, LLC
and
Rheem Manufacturing Company
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Prepared by:

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December 2010





engineering and constructing a better tomorrow

December 13, 2010

Ms. Alex Cleary
Program Manager, Hazardous Sites Response and Remediation
Georgia Department of Natural Resources
Hazardous Waste Management Branch
Suite 1462, East Tower
2 Martin Luther King Jr. Drive SE
Atlanta, Georgia 30334

Subject: Voluntary Remediation Plan Application
139 Brampton Road
Savannah, Chatham County, Georgia
HSI Site No. 10208


Dear Ms. Cleary:

On behalf of Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey, and Rheem Manufacturing Company, MACTEC Engineering and Consulting, Inc. respectfully submits this Voluntary Remediation Plan, completed application form and attached \$5,000.00 application fee to enroll the subject property in the Georgia Voluntary Remediation Program.

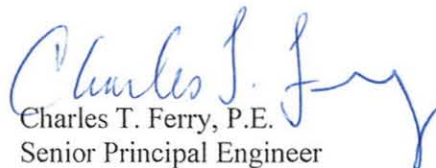
Please contact Chuck Ferry at 404-873-4761 with any questions you may have regarding this submittal.

Sincerely,

MACTEC Engineering and Consulting, Inc.



Tyler J. Boyles
Project Geologist



Charles T. Ferry, P.E.
Senior Principal Engineer

cc: Mr. Mark Smith, Branch Chief, Land Protection Branch
Ms. Hollister A. Hill, Troutman Sanders, LLP
Ms. Barbara Ann Cook, Rheem Manufacturing Company
Mr. Dwight Feemster, Duffy & Feemster, LLC

Project No. 6121-09-0220

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1.0 INTRODUCTION

This Voluntary Remediation Plan Application (VRPA) has been prepared for the 139 Brampton Road, Savannah, Georgia Property (Property). The Property is an approximately 11.1-acre parcel of land, identified on the Chatham County Tax Assessor's website as Tax Parcel IDs 1-0720-01-002. The Property is just over one mile west of the Savannah River, and is commercially developed with various structures which are currently leased for warehousing of wood construction products and for office space. Since January 15, 1980 the Property has been owned by the Trustee under Trust for Benefit of Brenda Heisey. A warranty deed with a legal description of the Property and tax plat map are included in Appendix A. Refer to Figure 1 for a Property location map. An aerial photograph of the Property and surrounding area is included as Figure 2.

Historically, the Property appears to have been initially developed in the early 1960s by Savannah Steel Drum for the reconditioning and manufacturing of drums. Savannah Steel Drum operated the facility from 1963 until its lease to Rheem Manufacturing Company (Rheem) in 1968. Rheem operated the facility in a similar manner until 1974 when Rheem ended its drum reconditioning activities and solely manufactured new drums until 1987. Georgia Drum leased the Property in 1987 and used the facility to manufacture new drums until 1994 when the Property was leased to Seaport Terminals of Georgia for warehousing and office space. Since 1994, this use has continued through several other commercial tenants including: Full Armor Transport, Quipco, Savannah Reload and Landmark Trucking Co.

On August 10, 2010, Mr. Tyler Boyles of MACTEC conducted a property visit and met with Mr. Dale Hendrix, Trustee Owner, and Mr. Billy Groves with Savannah Reload, current tenant. According to Mr. Groves, Savannah Reload receives shipments of wood, construction and paper products by rail and in sea-land containers. The products are unloaded and stored on-site until they are transported by truck.

The Property has been the subject of a number of environmental assessments conducted between 1985 and 2009, which revealed the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals in soil and groundwater. The Property was listed on the Hazardous Site Inventory in June 1994 as site number 10208 due to the presence of lead in soil and tetrachloroethene in groundwater.

1.1 PROPERTY ELIGIBILITY

This VRPA describes the proposed corrective actions consistent with provisions of the Georgia Voluntary Remediation Program Act, and is submitted with the intention of qualifying the Property's participation with the Voluntary Remediation Program (VRP).

The property meets the eligibility criteria for the VRP. A release of regulated substances has occurred on the Property. The Property is not listed on the National Priorities List, is not currently undergoing response activities required by an order of the Regional Administrator of the United States Environmental Protection Agency (EPA), and is not required to have a permit under Code Section 12-8-66. Qualifying the Property under the VRP would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or by similar authorization from the EPA. There are no, and never have been any, outstanding liens filed against the Property pursuant to Code Sections 12-8-96 and 12-13-12.

1.2 PREVIOUS DOCUMENTS

This VRPA is based at least partly on information obtained from the following assessment reports and other documents.

- Preliminary Assessment, prepared by Georgia EPD for U.S. EPA, dated September 1985.
- Report of Environmental Site Assessment, prepared by Dames & Moore at the time of the lease to Georgia Drum, dated December 7, 1987.
- Preliminary Reassessment, prepared by NUS Corporation for U.S. EPA, dated May 1988.
- Site Investigation, prepared by Georgia EPD for U.S. EPA, dated September 1988.
- Georgia Drum Underground Storage Tank Corrective Action Plan, prepared by EMC Engineering Services, Inc. for Georgia Drum in March 1993.
- Letter by Georgia EPD to the responsible parties, Listing of the 139 Brampton Road property on the Hazardous Site Inventory, dated June 29, 1994.
- HSRP Release Notification, submitted by Mr. Dale Hendrix (Trustee), dated August 12, 1994.
- Letter by Georgia EPD to Mr. Dale Hendrix (Trustee), requesting Compliance Status Report, dated January 26, 1995.
- Letter by Georgia EPD to Mr. Dale Hendrix (Trustee), Reclassified Site to Class 1 and Proposed Consent Order, dated August 14, 1995.

- Letter requesting the Site be "delisted" from the Hazardous Site Inventory, prepared by Golder Associates, Inc. for Adams & Ellis, former attorneys for Mr. Dale Hendrix (Trustee), dated March 13, 1996.
- Georgia EPD internal memorandum in response to request for "delisting," dated April 4, 1996.
- Letter by Georgia EPD to Mr. Dale Hendrix (Trustee), Notice of Violation, dated July 9, 1996.
- Letter by Georgia EPD to Adams & Ellis, former attorneys for Mr. Dale Hendrix (Trustee), rejected "delisting" request, dated July 17, 1996.
- Brampton Road Additional Information and Revised Scope of Work for the Compliance Status Report, prepared by Golder Associates, Inc., dated October 3, 1996.
- Administrative Order No. EPD-HSR-038 issued by Georgia EPD to responsible parties, dated January 10, 1997.
- Letter by responsible parties complying with Administrative Order No. EPD-HSR-038, dated January 27, 1997.
- Compliance Status Report, prepared by Golder Associates, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated June 9, 1997.
- Addendum to the Compliance Status Report, prepared by Golder Associates, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated July 1, 1998.
- Letter by Georgia EPD to Mr. Dale Hendrix (Trustee), Notice of Deficiency following review of Compliance Status Report, dated April 7, 1999.
- Revised Compliance Status Report and Corrective Action Plan, prepared by Golder Associates, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated May 11, 2000.
- Letter by Georgia EPD to Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, Notice of Deficiency following review of Compliance Status Report and Corrective Action Plan, dated May 3, 2001.
- Grounds for Exception to the Notice of Deficiency and Proposal for Additional Investigation, prepared by Golder Associates, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated May 22, 2001.
- Response to requirements of Notice of Deficiency and August 9, 2001 meeting, prepared by Golder Associates, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated August 22, 2001.
- Letter by Georgia EPD to Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, Final Determination to Notice of Deficiency for the Revised Compliance Status Report and Corrective Action Plan, dated February 19, 2009.
- Summary of Monitoring Well Reconnaissance, prepared by S&ME, Inc., for EnviroVac, dated April 6, 2009.
- Corrective Action Plan and Response to Final Determination Notice of Deficiency, prepared by MACTEC Engineering and Consulting, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated June 29, 2009.

- Voluntary Remediation Plan pursuant to Georgia Voluntary Remediation Program Act, prepared by MACTEC Engineering and Consulting, Inc. for Mr. Dale Hendrix (Trustee) and Rheem Manufacturing Company, dated June 29, 2009.

1.3 BACKGROUND

In 1985 the U.S. Environmental Protection Agency (EPA) Superfund program evaluated the Property using the Hazard Ranking System (HRS) for listing on the National Priority List (NPL). A Preliminary Assessment (PA) screening was performed at the Property in 1985 by the Georgia EPD and was reassessed again in 1988 by NUS Corporation to determine if further investigation was warranted. The U.S. EPA determined that additional assessment was necessary as a result of the findings from the Preliminary Assessments. As such, the Georgia EPD performed a Site Inspection (SI) in 1988 which consisted of a limited assessment of on-site soils and collection of groundwater samples from an on-site production well, as well as an off-site private drinking water well located approximately 1.5 miles to the southwest of the site and a Garden City public supply well. The results of the limited soil testing revealed lead at a concentration of 1,300 milligrams per kilogram (mg/kg) in a composite surface sample. No impacts of regulated constituents were detected in the three well water samples tested by Georgia EPD. Upon completion of the SI, the U.S. EPA determined that the release to soil and groundwater at the Property did not qualify for listing on the NPL and the Property was reclassified as No Further Remedial Action Planned (NFRAP).

Unrelated to the U.S. EPA site evaluation, Dames and Moore performed a limited environmental investigation in November 1987 as part of a potential property lease transaction. The limited environmental investigation consisted of collecting twenty-six soil samples and six groundwater samples from fifteen environmental borings, as well as three surface soil samples from a drainage ditch located on the southeastern edge of the property. A number of volatile organic compounds (VOCs), metals and petroleum constituents were detected in the soil and groundwater samples, and various metals were detected in the three surface soil samples.

According to the Dames and Moore Site Assessment Report dated December 7, 1987, eight underground storage tanks (USTs) were present at the Property in 1987, including: three diesel tanks at 4,000 gallons, three solvent tanks at 5,000 gallons, one diesel tank at 8,000 gallons and one oil tank at 3,000 gallons. Property records indicate the three 5,000-gallon tanks and one 3,000-gallon tank were removed in early 1988 and the remaining four tanks were removed in mid 1992 along with approximately 200 cubic yards of impacted soil. The Georgia USTMP was notified of a release during the UST removal activities on

June 11, 1992. Following the reported release to the USTMP, EMC Engineering Services, Inc., (EMC) prepared a UST Corrective Action Plan and Addendum to the Corrective Action Plan in 1993 for Georgia Drum. Results of EMC's UST investigation were provided to the Georgia Hazardous Site Response Group.

In June 1994, the Georgia EPD evaluated the soil and groundwater data from the November 1987 Dames and Moore investigation and the 1988 U.S. Site Investigation, as part of the Hazardous Site Response Act using the Reportable Quantity Screening Method (RQSM). The Georgia EPD listed the Property on the Hazardous Site Inventory (HSI) as site number 10208 due to the presence of lead in soil and tetrachloroethene in groundwater at levels exceeding a reportable quantity.

On behalf of the responsible parties, Golder Associates performed numerous environmental investigations in conjunction with the Property being listed on the HSI. The results of these investigations were documented in various submittals to the Georgia EPD and are summarized herein.

2.0 PROPERTY SETTING

Understanding the site setting is important in evaluating the fate and transport of contaminants in the subsurface. Refer to the geologic cross sections in Figure 4 and Figure 5.

2.1 PHYSICAL SETTING

The site topography is relatively level, ranging between elevations 15 to 20 feet above mean sea level. Buildings and driveways occupy most of the Property, with an area of heavy vegetation to the southeast of the developed property. A Norfolk-Southern rail line and spur track form the western and southern boundaries, across which is vegetated terrain to the Dundee Canal. Adjacent to the northeast is a warehouse operated by McDonald Ventures. Northeast of the adjacent warehouse property is a tributary of Dundee Canal.

2.2 SITE SPECIFIC GEOLOGY

The Property lies in the Coastal Plain Province of Georgia, an area underlain by a wedge of unconsolidated sediments beginning at the fall line and thickening to the southeast. The Coastal Plain is relatively level topographically and is highly dissected by streams. The area is underlain by a sequence of Cretaceous and younger sedimentary rocks resting on a basement of much older igneous, metamorphic and/or sedimentary rocks.

The subject Property is mapped as being underlain by alluvial deposits of recent to Quaternary age which consist of floodplain deposits and river terrace deposits of the nearby Savannah River. The recent and Quaternary alluvial deposits are underlain by the Hawthorne Group which locally occurs at a depth of approximately 30 to 50 feet and consists of gravel, sand and clayey sand. The Hawthorne Group is underlain by the Suwannee Limestone which consists of crystalline limestone and dolomite.

The numerous investigative borings completed at the Property identified the shallow subsurface material as sandy clay to an approximate elevation of 5 feet underlain by silty sand to an approximate elevation of -20 feet. Reportedly, a continuous clay unit, Berryville Clay, underlies the sandy clay and silty sand strata and several well borings appear to have encountered this clay unit.

2.3 SITE SPECIFIC HYDROLOGY

Groundwater in the Coastal Plain Physiographic Province typically consists of an unconfined surficial aquifer, underlain by an upper confining unit and the Floridan aquifer. Locally, the surficial aquifer, is not typically used for potable drinking water purposes, and consists of Miocene and Pliocene to Recent undifferentiated clastic sands, which are mixed and/or interbedded with clay, silt, shells or river gravel and extends to depths of approximately 90 to 100 feet below land surface. This aquifer is underlain by a confining unit, which ranges in thickness from 200 to 400 feet and consists primarily of clay.

The Floridan aquifer system is composed of three aquifers that include the Upper, Middle and Lower Floridan aquifers. The Upper Floridan aquifer is well documented as it provides an abundant supply of potable water for the area. The underlying Upper Floridan aquifer is recorded to be nearly 400 feet thick and ranges from approximately 300 to 800 feet below land surface in this area. Water supply wells are reported to be screened primarily in this aquifer. The Middle and Lower Floridan aquifers underlie the Upper Floridan aquifer. These aquifers are also used as secondary potable water sources to the Upper Floridan aquifer.

2.3.1 Groundwater Flow Direction

Typically, the water table or surficial aquifer is not a level surface, but a subdued reflection of the land surface. Depth to the surficial aquifer is variable, being dependent on many factors which include: the amount of rainfall, the permeability of the soil and the amount of groundwater being pumped in the area. Based on area topography, groundwater flow at the Site is expected to be generally to the southeast. According to the May 2000 CSR and CAP, the depths to groundwater ranged from approximately 2.5 feet to 20.8 feet and the demonstrated groundwater flow direction is to the east-southeast. Refer to Table 1 for the previously reported groundwater depths. The groundwater depths from eleven shallow monitoring wells west of Dundee Canal measured on March 29, 2000 were used to develop the groundwater elevation contours presented on the attached potentiometric surface map, Figure 6.

2.3.2 Hydraulic Conductivity

As detailed in the June 1997 CSR, May 2000 Revised CSR and August 2001 Responses to Requirements of Notice of Deficiency, variable head slug tests were performed in five wells to evaluate hydraulic conductivity. MW-4 and MW-5 were screened approximately 20 feet deep in silty sands and sandy clays. MW-7 and MW-11 were screened approximately 34 to 36 feet deep in clayey sand to silty clay (reportedly the Berryville Clay). MW-12 which is located across Dundee Canal was screened in silty clay

and sand. The hydraulic conductivity of the surficial aquifer varies from an average of 1.21 ft/day in the shallow wells to 5.57 ft/day in the deeper wells. Due to the fact that groundwater contamination has been predominately found in the shallower screened wells (W-4, W-5, GW-3 and GW-9) the average hydraulic conductivity value measured for MW-4 and MW-5 was utilized in the calculation of groundwater flow velocity. The hydraulic conductivity value for MW-4 and MW-5 was 1.41 ft/day and 1.01 ft/day, respectively, with an average hydraulic conductivity value of 1.21 ft/day.

Effective porosity was assumed to be 25% which is typical for these soil conditions. The formula used to calculate the groundwater flow rate is as follows (Applied Hydrology, C.W. Fetter, 1994):

$$\text{Velocity} = \frac{K i}{n_e}$$

where: K = hydraulic conductivity (feet per day) = 1.21 ft/day
i = hydraulic gradient (feet per foot) = 0.006 ft/ft
n_e = effective porosity (unitless) = 0.25

Based on the data input, an estimated groundwater velocity of 0.0294 feet/day, or approximately 10 feet/year was calculated.

3.0 REGULATED CONSTITUENTS

Results of soil and groundwater assessment activities indicate the presence of substances regulated under the Hazardous Site Response Act (HSRA) in soil and groundwater at the Property.

3.1 SOURCE

According to the May 11, 2000 "Revised Compliance Status Report and Corrective Action Plan" prepared by Golder Associates, the most likely source of the release at the Property was the previous operation (1963 to 1994) of drum reconditioning and manufacturing processes. All known ongoing contributions to subsurface impacts have been eliminated since 1994.

3.2 SOIL QUALITY CONDITIONS

The potential for soil contamination was investigated over a period of time between November 1987 and March 2000. The regulated substances identified in soil at the Site include: acenaphthalene (CAS No. 208-96-8), acenaphthylene (CAS No. 208-96-8), acetone (CAS No. 67-64-1), barium (CAS No. 7440-39-3), benzene (CAS No. 71-43-2), cadmium (CAS No. 7440-43-9), chromium (CAS No. 7440-47-3), chlorobenzene (CAS No. 108-90-7), chloroethene (CAS No. 9002-86-2), ethylbenzene (CAS No. 100-41-4), fluoranthene (CAS No. 206-44-0), fluorene (CAS No. 86-73-7), lead (CAS No. 7439-92-1), mercury (CAS No. 7439-97-6), naphthalene (CAS No. 91-20-3), nickel (CAS No. 7440-02-0), silver (CAS No. 12595-26-5), styrene (CAS No. 100-42-5), tetrachloroethene (CAS No. 127-18-4), toluene (CAS No. 108-88-3) and xylenes (CAS No. 133-020-7).

The assessment of soil contamination was accomplished through the installation and sampling of drilled soil borings and hand auger borings. Several sampling events included analysis of soil samples for metals and VOCs, with some SVOCs. These laboratory results are summarized in Table 4 and illustrated on Figure 7. Additional sampling events were specific to the analysis of lead in shallow soil samples. These laboratory results are summarized in Table 5 and the lateral extent of lead impacted soil is depicted on Figure 8. The following paragraphs describe the sampling events.

During Dames and Moore November 1987 assessment, a total of twenty-six soil samples collected from nine boring locations were tested for the presence of regulated constituents. The following constituents were detected above the laboratory detection limit, but below their HSRA Notification Concentration (NC): acenaphthalene, acenaphthylene, fluoranthene, fluoranthene, fluorene and naphthalene in one soil

sample; and benzene, ethylbenzene, toluene, and xylenes in one soil sample. Additionally, the metals barium, cadmium, chromium, lead, mercury and nickel, were detected in several soil samples above the laboratory detection limit, but below their HSRA NC.

In 1988, the Georgia EPD performed a Site Inspection (SI) which included the collection of one background soil sample and one surficial soil sample composited from four separate locations across the Site. The results of this limited soil testing are not presented herein due to the non-specific nature of the composite sample and the unknown location of the background sample.

Following the Property's listing on the HSI, Golder Associates performed numerous environmental investigations which focused primarily on the surficial lead impacts. A total of 131 soil samples have been tested for the presence of lead, with thirty-three samples containing lead concentrations in excess of the NC of 400 mg/kg.

Furthermore, Golder collected a total of twenty-four soil samples from various locations on-site and eleven soil samples from the adjacent off-site property to the south, which were tested for the presence of VOCs. The following VOC constituents were detected above the laboratory detection limit, but below their HSRA NC, in five soil samples collected on-Site: chlorobenzene, chloroethane, ethylbenzene, styrene, tetrachloroethene, toluene, and xylenes. Additionally, the VOCs acetone, ethylbenzene and xylenes were detected in one off-site soil sample above the laboratory detection limit, but below their HSRA NC.

Based on previous documentation, lead-impacted shallow soils have not been delineated to the default Type 1 risk reduction standard (RRS) on-site. As such, additional shallow soil characterization will be necessary to supplement the existing data to complete the lateral and vertical delineation of lead impacted soil. The proposed scope of further assessment is presented in Section 6.1 of this submittal.

3.3 GROUNDWATER QUALITY CONDITIONS

The regulated substances identified in groundwater at the Property include: 1,1 dichloroethane (CAS No. 75-34-3), 1,1 dichloroethene (CAS No. 75-34-4), 1,2 dichlorobenzene (CAS No. 95-50-1), 1,2 dichloroethane (CAS No. 107-06-2), 1,1,1-trichloroethane (CAS No. 71-55-6), 1,1,2-trichloroethane (CAS No. 79-00-5), 1,2 trans-dichloroethene (CAS No. 156-60-5), barium (CAS No. 7440-39-3), benzene (CAS No. 71-43-2), beryllium (CAS No. 7440-41-7), carbon tetrachloride (CAS No. 56-23-5),

chlorobenzene (CAS No. 108-90-7), chloroform (CAS No. 676-6-3), ethylbenzene (CAS No. 100-41-4), lead (CAS No. 7439-92-1), mercury (CAS No. 7439-97-6), methylene chloride (CAS No. 750-9-2), naphthalene (CAS No. 91-20-3), styrene (CAS No. 100-42-5), tetrachloroethene (CAS No. 127-18-4), trichloroethene (CAS No. 790-1-6), toluene (CAS No. 108-88-3), xylenes (CAS No. 133-020-7) and vinyl chloride (CAS No. 750-1-4).

During the course of the various assessments conducted between November 1987 and March 2000, a total of eighteen groundwater monitoring wells were installed on the Property and adjacent property. The results of the groundwater laboratory analyses from the previous sampling events are summarized in Table 6 and illustrated on Figure 9.

During the Dames and Moore November 1987 assessment, five groundwater monitoring wells, W-1 through W-5, were installed to characterize groundwater conditions at the Site. Groundwater testing indicated several VOCs, SVOCs and metals present in the groundwater. Tetrachloroethene (PCE) was present in three of the six wells, at concentrations ranging from 5.9 µg/L (micrograms per Liter) up to 1,800 µg/L.

EMC Engineering installed monitoring wells MW-1 and MW-5 in 1993, along with piezometers P-2 and P-3. VOCs were detected in a water sample from P-2.

In response to the Property's listing on the HSI, Golder Associates further assessed the groundwater conditions at the Site through the installation of the following twelve groundwater monitoring wells: GW-1, GW-2 and GW-3 in February/March 1997; GW-4, GW-5 and GW-6 in March/April 1998; GW-7 through GW-11 in October 1999; and GW-12 in March 2000. Three of these wells (GW-1, GW-2 and GW-3) were installed on the southern portion of the Property and the other nine wells were installed on the adjacent property to the east and south. Groundwater testing indicated several organic constituents were present in two of the on-site wells and four of the off-site wells. It was concluded that the groundwater impacts identified in the two off-site wells east of the Dundee Canal are not associated with the on-site release because of their distance and hydrologic separation from the Property.

A recent reconnaissance performed by S&ME, Inc., on April 2, 2009 discovered that six of the previous monitoring wells remain intact as identified on Figure 9.

3.4 SURFACE WATER QUALITY CONDITIONS

There is little relief on the Property with surface elevations ranging from approximately 20 feet above mean sea level along Brampton Road to elevation 15 feet east of the on-site buildings. The heavy vegetated area east and south of the Property slopes downward to below an elevation of 5 feet toward the Dundee Canal located approximately 500 feet to the southeast. Therefore, surface drainage on the Site is controlled by the Dundee Canal which merges into the Savannah River approximately 4,000 feet to the northeast of the Site. Golder Associates collected one surface water sample from the Dundee Canal in 1997 (SW-1) and one sample from its tributary northeast of the Site in 1998 (SW-2). These samples were tested for the presence of VOCs (EPA Method 8260B) and no VOCs were detected in the two surface water samples. There is no evidence to suggest that the nearest down gradient surface water body, the Dundee Canal, or its tributary have been impacted by releases at the Property. The results are summarized in Table 7 and illustrated on Figure 9.

4.0 DELINEATION CRITERIA

The data from previous investigations conducted between November 1987 and March 2000 were used to evaluate the extent of regulated constituents in soil, groundwater and surface water. Based on the results of previous subsurface investigations, as reported to the Hazardous Site Response Program (HSRP) and detailed above, the Constituents of Concern (COCs) for soil at the Site consist of various VOCs and metals, primarily lead.

The soil delineation concentration criteria using the Type 1 risk reduction standard (RRS) are presented in Table 3 for the known COCs.

4.1 SOIL

The data from previous investigations have been compiled most comprehensively in the following three submittals to the Hazardous Site Response Program (HSRP): June 1997 CSR, May 2000 Revised CSR and CAP and August 2001 Responses to Requirements of Notice of Deficiency. As detailed in these documents, previous soil testing has identified one regulated constituent, lead, above the default Type 1 RRS. Seventeen additional regulated constituents were also detected, but not at concentrations above their respective Type 1 RRS concentrations. Therefore, the delineation of all COCs in soil, except lead, is complete.

Following the Property being listed on the HSI, Golder Associates performed numerous environmental investigations which focused primarily on the surficial lead-impacts. A total of 131 soil samples have been tested for the presence of lead, with thirty-three samples containing lead concentrations in excess of the NC (and default non-residential Type 3 RRS) of 400 mg/kg.. The extent of lead impacts to shallow soils at the Property is summarized in Table 5 and on Figure 8. Although horizontal and vertical delineation has been achieved in most areas, it has not been completed at this time.

Note that lead impacted soils were detected on vacant property to the north of the Property in 1999, but that property has been redeveloped. A building now covers the area of lead impacted soils as shown on the aerial photograph (Refer to Figure 2). This property may be considered for inclusion as part of the Voluntary Remediation Plan in the future.

4.2 GROUNDWATER

During the course of the various assessments conducted between November 1987 and March 2000, groundwater analytical data was obtained for ten locations on the Property, three locations on adjacent Norfolk-Southern property southwest of the rail line and three locations on adjacent property northeast. Groundwater testing indicated several organic constituents were present in six of the on-site wells (W-4, W-5, P-2, MW-5, GW-1 and GW-3) and two wells (GW-8 and GW-9) on adjacent property to the northeast. It was also concluded that the groundwater impacts identified in two additional off-site wells (GW-6 and GW-12) would not be associated with the on-site release due to the hydrogeologic setting and their location east of the Dundee Canal water body.

Based on the lack of impacts to groundwater from well GW-2 which is near the most highly impacted wells W-4 and GW-3 and is screened in the underlying Berryville clay unit, the vertical extent of groundwater contamination does not extend below the surficial aquifer. The previous test results identified the presence of chlorinated VOCs in monitoring wells W-5 and GW-9 above the default Type 1 RRS as defined in HSRA Appendix III.

5.0 POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS AND REMEDIATION CRITERIA

An examination of potential exposure pathways and receptors was presented in previous reports and, in part, supplemented by recent research. Based on the data collected to date, the potential exposure pathways include:

- Potential exposure to regulated constituents in soil;
- Potential exposure to regulated constituents in groundwater;
- Potential exposure to regulated constituents in surface water;
- Potential exposure to regulated constituents due to vapor intrusion from impacted soil or groundwater beneath occupied buildings.

The subject Property is zoned heavy industrial and is located in close proximity to the Georgia Port Authority – Garden City Terminal Container Port in Savannah, Georgia. The Property is commercially developed with various structures which are currently leased for warehousing of wood construction products and for office space. Nearby property uses along Brampton Road and fronting along adjacent Main Street are zoned heavy industrial and commercial. The Property is bound to the south and southeast by rail lines, beyond which is undeveloped land that is heavily vegetated and essentially inaccessible. Unauthorized access to the Property is controlled through a partial enclosure provided by a fence on the northwest and south sides of the Property and railroad lines on the south-southeast side.

5.1 SOIL CRITERIA

One HSRA regulated constituent, lead, was detected in soil samples above the default residential Type 1 RRS of 75 mg/kg during previous environmental assessments. Twenty additional regulated constituents were also detected, but not at concentrations above their respective default Type 1 RRS. Therefore, lead is the only identified COC in soil which requires remediation.

Based on the industrial use of the Property and surrounding property, all lead-impacted properties are non-residential and, therefore, potential receptors include industrial workers, construction workers and utility workers. The applicable non-residential RRS for all constituents detected in soil on Site were presented in the May 2000 Revised CSR and August 2001 Responses to Requirements of Notice of Deficiency prepared by Golder Associates. In February 2009 the HSRP requested revisions to the calculations for RRS. MACTEC calculated the non-residential RRS based on the appropriate input

parameters and provided the HSRP a response "Corrective Action Plan and Response to Final Determination Notice of Deficiency," on June 29, 2009. The soil RRS calculations have been included in Appendix B.

As shown in Appendix B, with the exception of lead in surficial soils, the Property satisfies all non-residential RRS criteria calculated for potential exposure to soil for all regulated constituents detected on-Site. As shown on Figure 8, lead concentrations which exceeded the direct contact Type 4 RRS of 960 mg/kg in 10 soil samples on-site, with the maximum concentration of lead detected in soil at 18,000 mg/kg. As such, the route for direct exposure of commercial workers to impacted soil at the Property is currently complete as the surface cover in areas of the shallow soil impacts is comprised of a mixture of asphalt and gravel pavement, as well as grassed and wooded areas.

Although lead impacts to soil extend onto adjacent property to the northeast, concentrations do not exceed the Type 4 RRS of 960 mg/kg. In addition, this area is now covered by a building and floor slab so that direct exposure of commercial workers is incomplete.

To date, an evaluation of the potential for lead to leach from contaminated soils and impact groundwater has not been performed. However, in 1997 four samples (SI-12, SL-20, SL-31 and SL-35) were tested for leachability using the Toxicity Characteristic Leaching Procedure (TCLP). Based on this testing, no samples leached above the default Type 1 RRS for groundwater of 0.015 mg/L. In addition, the soil samples analyzed were not characteristically hazardous. Refer to the Table 8 for results of the TCLP testing.

The potential for lead to leach from contaminated soils and impact groundwater will be further evaluated through the testing of soils using the Synthetic Precipitation Leaching Procedure (SPLP). This testing may be used to refine the remediation criteria for lead in soil.

5.2 GROUNDWATER

Twenty-four HSRA regulated constituents were detected in groundwater at the subject Site during previous environmental assessments. The applicable RRS for the constituents detected in groundwater on Property were presented in the May 2000 Revised CSR and August 2001 Responses to Requirements of Notice of Deficiency prepared by Golder Associates. As stated previously, MACTEC submitted a response "Corrective Action Plan and Response to Final Determination Notice of Deficiency," on June

29, 2009, in reference to comments provided by the HSRP. The groundwater RRS calculations have been included in Appendix D. However, refer to Section 6.2 regarding the assertion that groundwater remediation is not required.

As reported in the May 2000 Revised CSR and CAP, the Site has been connected to a municipal water supply source at least since January 1994. Appendix C contains a water bill from January 1994, demonstrating the site was supplied municipal water at the time of listing on the HSI. Additionally, the adjacent property to the northeast is supplied by the municipal water source.

In support of the previous Voluntary Remediation Plan dated June 29, 2009, MACTEC assessed the potential presence of drinking water wells in the area of the Site using the publicly available sources of pertinent information. The locations of twenty-one potential groundwater wells, nineteen of which are industrial water supply wells, were identified within a two-mile radius of the Site. Based on the demonstrated groundwater flow direction to the east-southeast, no drinking water wells exist in the down gradient flow path of the contaminant plume as shown on Figure 10.

As discussed in Section 3.0, the Site lies in a hydrogeologic setting where groundwater typically consists of an unconfined surficial aquifer, underlain by an upper confining unit and the Floridan aquifer. Regional hydrogeologic conditions at the Site and surrounding areas indicate the first potable water is found in the Upper Floridan aquifer at least 300 feet below the site elevation. This aquifer is separated by an approximately 200 feet thick confining unit of the Floridan aquifer. During the Georgia EPD's SI in 1988, groundwater samples were collected from an on-site production well, as well as an off-site private drinking water well and a Garden City public supply well. No impacts of regulated constituents were detected in the three groundwater samples tested by Georgia EPD. This demonstrates that the drinking water supply wells in the area are not hydraulically connected to the on-site impacts and do not constitute potential receptors with respect to groundwater at the property. Therefore, the exposure pathway for human consumption of impacted groundwater is incomplete.

Based on the groundwater data obtained during previous assessments, groundwater concentrations are below the risk reduction standard for construction and utility workers in the event that ground-disturbing activities intercept groundwater in the future. Commercial/industrial workers are not expected to come into contact with groundwater. Therefore, the exposure pathway of any workers is incomplete.

5.3 NO ON-GOING SOURCE

With the removal of all USTs on-Site by 1992 and the termination of the on-site manufacturing activities associated with the identified soil and groundwater impacts in 1994, the known ongoing contributions to subsurface impacts have been eliminated. The Property is currently leased by various tenants for warehousing of wood construction products and for office space. Based on previous documentation and the RRS calculation presented in Appendix B, only lead-impacted shallow soils require remediation. Additionally, no dense non-aqueous phase liquid (DNAPL) has existed on site based on comparison of dissolved concentrations with aqueous solubility levels for the regulated substances in groundwater.

5.4 SURFACE WATER

Common environmental receptors in the area are surface water bodies and wetland areas. Previous surface water sampling provided no evidence to show discharges of Property groundwater contaminants have impacted the nearest down gradient surface water body, the Dundee Canal or its tributary canal. However, this potential will be further evaluated in conjunction with additional plume delineation activities.

5.5 VAPOR INTRUSION

The results of the subsurface investigations identified the presence of chlorinated solvents in the groundwater on the southern end of the subject Property. To date, an evaluation of the potential for vapor intrusion into structures from the groundwater contamination has not been performed. As such, the potential vapor exposure pathway will be evaluated in accordance with the February 22, 2004 USEPA "User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings."

6.0 PROPOSED REMEDIATION PLAN

It is the intent of the two responsible parties, Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey, and Rheem Manufacturing Company, to remove the Property from the HSI through implementation of an efficient Voluntary Remediation Program plan which is protective of human health and the environment. This section outlines the proposed corrective actions anticipated to satisfy the requirements set forth in the Georgia Voluntary Remediation Program Act.

Note that the on-site manufacturing activities associate with the identified soil and groundwater impacts ceased in 1994. Therefore, the analytical data obtained through the early 2000s are thought to be reasonably representative of subsurface conditions. However, the collection of additional data is planned as part of and as a refinement to the proposed Voluntary Remediation Program Plan.

6.1 SOIL

Based on previous documentation and the RRS presented in Appendix D, extensive soil testing has been conducted on site which has identified only lead-impacted shallow soils which require remediation. The delineated extent of lead-impacted soils exceeding the applicable RRS of 960 mg/kg is depicted on Figure 8. Further delineation of soil conditions through additional assessment is not anticipated at this time; rather, final delineation will likely be achieved at the time of soil removal through verification sampling and testing.

Identified areas of lead-impacted soil will be excavated to the appropriate limits as determined through excavation verification sampling. Excavated material that requires off-site disposal will be placed into roll-off boxes, stockpiled with appropriate cover and erosion control, or direct loaded onto trucks for immediate transport. The extent of excavation of impacted soil areas will be confirmed through verification sampling. Verification soil samples will be collected along each sidewall and at least every 25 linear feet to demonstrate compliance. Additionally, soil samples will be collected on the floor of every isolated subsurface excavation and at a rate of at least one sample per 1,000 square feet. Soil verification samples will be analyzed for lead (EPA Method 6010) to demonstrate compliance with applicable criteria. This criteria may incorporate provisions of the Voluntary Remediation Program, including but not limited to 12-8-102(b) and 12-8-108. The actual extent of the excavated area will depend upon the results of verification sampling.

During soil removal operations, field screening for odors, stains and organic vapors will be performed to identify any soils with the potential to contain VOCs or SVOC in excess of applicable RRS. Suspect soils identified through field screening will be appropriately analyzed and, if necessary, the Voluntary Remediation Program Plan will be amended.

Excavation, handling, transport, and disposal of the source material/soil will be performed using methods that (1) prevent contamination of the surrounding environment (soil, water, air), (2) are in accordance with federal, state, and local laws, and (3) protect personnel in the excavation area and adjacent areas.

Based on previous Toxicity Characteristic Leaching Procedure (TCLP) testing completed by Golder Associates, the soil is not characteristically hazardous. Therefore, disposal in a Subtitle D facility is anticipated. Stabilization of the lead-impacted soil by mixing it with an additive (such as Enviroblend) will be performed if necessary to meet Subtitle D disposal requirements. Excavated impacted soil will be transported in compliance with all applicable regulations for transporting such wastes and disposed at a pre-approved disposal facility permitted to accept the designated waste.

In the event additional subsurface investigation is warranted, soil samples may be collected and analyzed for the COCs detailed in Section 3.0. Identified areas of impacted soil exceeding applicable RRS will be treated in-situ and/or excavated to the limits determined through excavation delineation sampling. The chosen method will depend on practical considerations. Excavated material that requires off-site disposal will be placed into roll-off boxes, stockpiled with appropriate cover and erosion control, or direct loaded onto trucks for immediate transport.

The work will involve the handling of materials containing substances that are potentially detrimental to the health and safety of construction personnel. The work will be performed in compliance with applicable OSHA regulations in accordance with a project-specific Health, Safety and Emergency Response Plan.

6.2 GROUNDWATER

Pursuant to Code Section 12-8-107(g)(2), corrective action for groundwater is not required since a release exceeding a reportable quantity for groundwater does not now exist at the Property and did not exist at the time of listing on the inventory in 1994.

Using historical data, this assertion is supported by the following factors:

- No dense non-aqueous phase liquid (DNAPL) existed on Property at the time of listing or thereafter based on comparison of dissolved concentrations with aqueous solubility levels for the regulated substances in groundwater; and
- No groundwater exposure pathway has existed since before the time of listing in June 1994 because:
 - * Based on the demonstrated groundwater flow direction to the east-southeast (Golder 2000), no drinking water wells have historically existed in the down gradient flow path of the contaminant plume as shown on Figure 6.
 - * The Property lies in the Coastal Plain Province of Georgia and groundwater typically consists of an unconfined surficial aquifer, underlain by an upper confining unit and the Floridan aquifer. Regional hydrogeologic conditions at the Property and surrounding areas indicate the first potable water is found in the Upper Floridan aquifer at least 300 feet below the site elevation. This aquifer is separated by an approximately 200 feet thick confining unit of the Floridan aquifer. As such, the drinking water supply wells in the area are not hydrologically connected to the on-site impacts and do not constitute potential receptors with respect to groundwater at the property.
 - * The Property and adjacent affected property has been connected to a municipal water supply source at least since January 1994.
 - * There is little relief on the Property with surface elevations ranging from 20 to 15 feet above mean sea level. Surface drainage on the site is controlled by the Dundee Canal located approximately 500 feet to the southeast. No discharges of site groundwater contaminants have impacted the nearest down gradient surface water body, the Dundee Canal.
 - * The groundwater plume has not impacted any drinking water sources or surface water bodies.
- Using the "Guidance Manual for Reportable Quantities Screening Method" dated February 10, 1994, and considering no drinking water wells existed within three miles along the contaminant flow path, a score of 3.25 is calculated, which does not exceed the threshold of 10.0 for listing. Refer to Appendix E for the RQSM scoring sheet.

Notwithstanding the foregoing assertion, based on the results of the previous groundwater assessments, the lateral extent of VOCs in groundwater has not been delineated to the proposed groundwater delineation concentration criteria as required under the Voluntary Remediation Program. Specifically, additional delineation will be required downgradient of W-5 and GW-9 in order to provide horizontal delineation. A recent reconnaissance by S&ME discovered that six groundwater monitoring wells remain intact at the locations shown on Figure 9. Since the remaining wells cover a wide area, they will be sampled and analyzed for VOCs in an initial monitoring event as a comparison with the last set of groundwater data. Based on that monitoring event, and the historical groundwater flow pattern, supplemental well locations will be selected for the purpose of completing delineation of the contaminant plume in the shallow aquifer. Groundwater samples from the new wells will be analyzed for VOCs and

for natural attenuation parameters consistent with established technical protocols for evaluating natural attenuation of VOCs in groundwater. A "point of demonstration" well will then be established for fate and transport model verification monitoring.

6.3 SURFACE WATER

Golder Associates analyzed two surface water samples in 1997 for the presence of VOCs (EPA Method 8260B). Since no VOCs were detected in the two surface water samples collected from Dundee Canal and its tributary, there is no evidence to show discharges of site groundwater contaminants from the Property have impacted the nearest down gradient surface water body. However, if fate and transport modeling of the delineated groundwater contaminant plume indicates the potential for impacts to the Dundee Canal, the corrective action plan will be amended to include additional evaluation of surface waters.

6.4 VAPOR INTRUSION

Upon completion of groundwater delineation, the extent of the plume will be used to determine the structures with potential for exposure to vapor intrusion. If so, these structures will be evaluated in accordance with the February 22, 2004 USEPA "User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings."

6.5 REMEDIAL ACTION

An effective remedy for soil has been determined to be excavation and removal. At this time, it is expected that less than 2,000 cubic yards of soil will require disposal off-site. However, the scope of excavation activities will depend on accessibility, ground cover, utility disturbances and business disruption factors which are not currently known.

Further assessment and evaluation are necessary prior to the development and implementation of a final remedy, if any, for groundwater, surface water and vapor intrusion. The scope of these activities will continue to be developed. The Georgia EPD will be informed through regular updates regarding the progress of additional Property characterization. A final remediation plan will be submitted during one of the regular updates, which may consider inclusion of the adjacent property to the north.

7.0 PROJECTED MILESTONE SCHEDULE AND COST ESTIMATE

Upon EPD's acceptance of the Site into the Voluntary Remediation Program, a Work Plan will be prepared that describes the immediate planned activities, along with a Projected Milestone Schedule and cost estimate for their implementation and reporting. At that time, a financial assurance instrument will be issued to cover the anticipated cost to implement the Work Plan and the estimated cost of reasonably anticipated remedial action to implement a final remedy.

ATTACHMENT

VOLUNTARY REMEDIATION PLAN APPLICATION FORM AND CHECKLIST

Voluntary Investigation and Remediation Plan Application Form and Checklist

VRP APPLICANT INFORMATION

COMPANY NAME	Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey and Rheem Manufacturing Company				
CONTACT PERSON/TITLE	Hollister Hill				
ADDRESS	Bank of America Plaza, Suite 5200, 600 Peachtree Street NE, Atlanta, Georgia 30305				
PHONE	404-885-3366	FAX	404-962-6587	E-MAIL	Hollister.Hill@troutmansanders.com

GEORGIA CERTIFIED PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER OVERSEEING CLEANUP

NAME	Charles T. Ferry		GA PE/PG NUMBER	PE 10957	
COMPANY	MACTEC Engineering and Consulting, Inc.				
ADDRESS	396 Plasters Avenue				
PHONE	404-873-4761	FAX	404-817-0183	E-MAIL	ctferry@mactec.com

APPLICANT'S CERTIFICATION

In order to be considered a qualifying property for the VRP:


- (1) The property must have a release of regulated substances into the environment;
- (2) The property shall not be:
 - (A) Listed on the federal National Priorities List pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Section 9601.
 - (B) Currently undergoing response activities required by an order of the regional administrator of the federal Environmental Protection Agency; or
 - (C) A facility required to have a permit under Code Section 12-8-66.
- (3) Qualifying the property under this part would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from the United States Environmental Protection Agency.
- (4) Any lien filed under subsection (e) of Code Section 12-8-96 or subsection (b) of Code Section 12-13-12 against the property shall be satisfied or settled and released by the director pursuant to Code Section 12-8-94 or Code Section 12-13-6.

In order to be considered a participant under the VRP:

- (1) The participant must be the property owner of the voluntary remediation property or have express permission to enter another's property to perform corrective action.
- (2) The participant must not be in violation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, 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 possibility of fine and imprisonment for knowing violations.

I also certify that this property is eligible for the Voluntary Remediation Program (VRP) as defined in Code Section 12-8-105 and I am eligible as a participant as defined in Code Section 12-8-106.

APPLICANT'S SIGNATURE			
APPLICANT'S NAME/TITLE (PRINT)	Dale Hendrix, Sr. Trustee	DATE	12/14/10

Voluntary Remediation Plan Application Form and Checklist

VRP APPLICANT INFORMATION

COMPANY NAME	Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey and Rheem Manufacturing Company				
CONTACT PERSON/TITLE	Hollister Hill				
ADDRESS	Bank of America Plaza, Suite 5200, 600 Peachtree Street NE, Atlanta, Georgia 30305				
PHONE	404-885-3366	FAX	404-962-6587	E-MAIL	Hollister.Hill@troutmansanders.com

GEORGIA CERTIFIED PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER OVERSEEING CLEANUP

NAME	Charles T. Ferry		GA PE/PG NUMBER	PE 10957	
COMPANY	MACTEC Engineering and Consulting, Inc.				
ADDRESS	396 Plasters Avenue				
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 - (C) A facility required to have a permit under Code Section 12-8-66.
- (3) Qualifying the property under this part would not violate the terms and conditions under which the division operates and administers remedial programs by delegation or similar authorization from the United States Environmental Protection Agency.
- (4) Any lien filed under subsection (e) of Code Section 12-8-96 or subsection (b) of Code Section 12-13-12 against the property shall be satisfied or settled and released by the director pursuant to Code Section 12-8-94 or Code Section 12-13-6.

In order to be considered a participant under the VRP:


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- (2) The participant must not be in violation of any order, judgment, statute, rule, or regulation subject to the enforcement authority of the director.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, 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 possibility of fine and imprisonment for knowing violations.

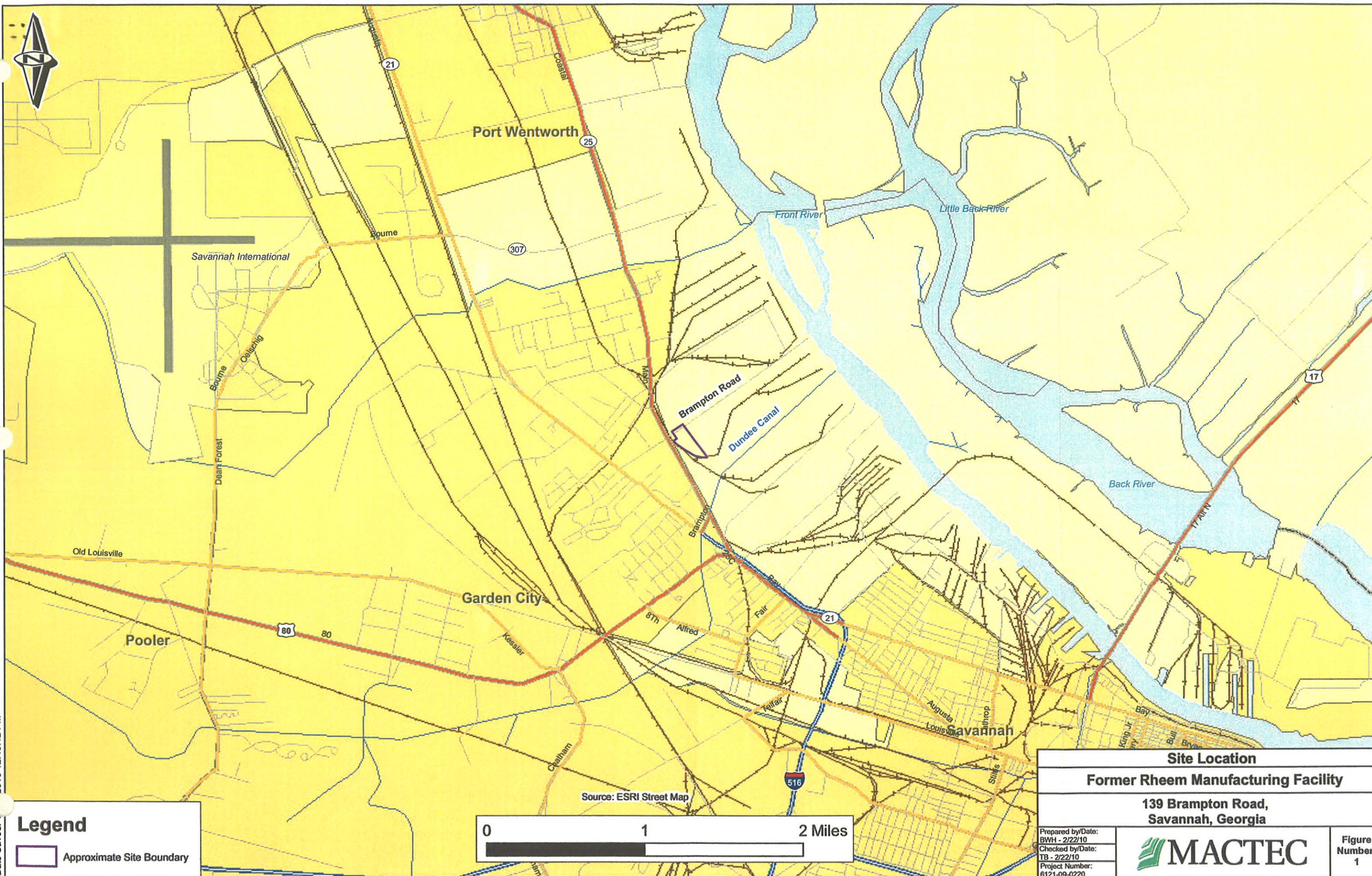
I also certify that this property is eligible for the Voluntary Remediation Program (VRP) as defined in Code Section 12-8-105 and I am eligible as a participant as defined in Code Section 12-8-106.

APPLICANT'S SIGNATURE	 for Rheem Manufacturing Company		
APPLICANT'S NAME/TITLE (PRINT)	Scott Bates, VP, Secretary & General Counsel	DATE	12/14/10

QUALIFYING PROPERTY INFORMATION (For additional qualifying properties, please refer to the last page of application form)			
HAZARDOUS SITE INVENTORY INFORMATION (if applicable)			
HSI Number	10208	Date HSI Site listed	June 29, 1994
HSI Facility Name	Rheem Manufacturing Company	NAICS CODE	332439 (former) / 926120 (current)
PROPERTY INFORMATION			
TAX PARCEL ID	1-0720-01-002	PROPERTY SIZE (ACRES)	11.1
PROPERTY ADDRESS	139 Brampton Road		
CITY	Savannah	COUNTY	Chatham
STATE	Georgia	ZIPCODE	31418
LATITUDE (decimal format)	32.108274	LONGITUDE (decimal format)	-81.145190
PROPERTY OWNER INFORMATION			
PROPERTY OWNER(S)	Dale Hendrix, Sr., Trustee under Trust for Benefit of Brenda Heisey	PHONE #	912-964-7760
MAILING ADDRESS	PO Box 7055		
CITY	Garden City	STATE/ZIPCODE	Georgia 31418
ITEM #	DESCRIPTION OF REQUIREMENT	Location in VRP (i.e. pg., Table #, Figure #, etc.)	For EPD Comment Only (Leave Blank)
1.	\$5,000 APPLICATION FEE IN THE FORM OF A CHECK PAYABLE TO THE GEORGIA DEPARTMENT OF NATURAL RESOURCES. (PLEASE LIST CHECK DATE AND CHECK NUMBER IN COLUMN TITLED "LOCATION IN VRP." PLEASE DO NOT INCLUDE A SCANNED COPY OF CHECK IN ELECTRONIC COPY OF APPLICATION.)	12/10/2010 Check #6000000234	
2.	WARRANTY DEED(S) FOR QUALIFYING PROPERTY.	Appendix A	
3.	TAX PLAT OR OTHER FIGURE INCLUDING QUALIFYING PROPERTY BOUNDARIES, ABUTTING PROPERTIES, AND TAX PARCEL IDENTIFICATION NUMBER(S).	Appendix A	
4.	ONE (1) PAPER COPY AND TWO (2) COMPACT DISC (CD) COPIES OF THE VOLUNTARY REMEDIATION PLAN IN A SEARCHABLE PORTABLE DOCUMENT FORMAT (PDF).	Attached	
5.	The VRP participant's initial plan and application must include, using all reasonably available current information to the extent known at the time of application, a graphic three-dimensional preliminary conceptual site model (CSM) including a preliminary remediation plan with a table of delineation standards, brief supporting text, charts, and figures (no more than 10 pages, total) that illustrates the site's surface and subsurface setting, the known or suspected source(s) of contamination, how contamination might move within the environment, the potential human health and ecological receptors, and the complete or incomplete exposure pathways that may exist at the site; the preliminary CSM must be updated as the investigation and remediation progresses and an up-to-date CSM must be included in each semi-annual status report submitted to the director by the participant; a PROJECTED MILESTONE SCHEDULE for investigation and remediation of the site, and after enrollment as a participant, must update the schedule in each semi-	Sections 3.0, 4.0, 5.0 and 6.0, Table 1 through 6, Figures 3 through 9, and Appendix C	

	<p>annual status report to the director describing implementation of the plan during the preceding period. A Gantt chart format is preferred for the milestone schedule.</p> <p>The following four (4) generic milestones are required in all initial plans with the results reported in the participant's next applicable semi-annual reports to the director. The director may extend the time for or waive these or other milestones in the participant's plan where the director determines, based on a showing by the participant, that a longer time period is reasonably necessary:</p>		
5.a.	Within the first 12 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern on property where access is available at the time of enrollment;	Section 4.0	
5.b.	Within the first 24 months after enrollment, the participant must complete horizontal delineation of the release and associated constituents of concern extending onto property for which access was not available at the time of enrollment;	Section 4.0	
5.c.	Within 30 months after enrollment, the participant must update the site CSM to include vertical delineation, finalize the remediation plan and provide a preliminary cost estimate for implementation of remediation and associated continuing actions; and	Section 4.0	
5.d.	Within 60 months after enrollment, the participant must submit the compliance status report required under the VRP, including the requisite certifications.	Section 4.0 Section 7.0	
6.	<p>SIGNED AND SEALED PE/PG CERTIFICATION AND SUPPORTING DOCUMENTATION:</p> <p>"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.</p> <p>Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.</p> <p>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 possibility of fine and imprisonment for knowing violations."</p> <p>Charles T. Ferry #10957 Printed Name and GA PE/PG Number</p> <p>Charles T. Ferry Signature and Stamp</p> <p>12/15/10 Date</p> 		

FIGURES



Legend

 Approximate Site Boundary

Source: ESRI Street Map

0 1 2 Miles

Site Location

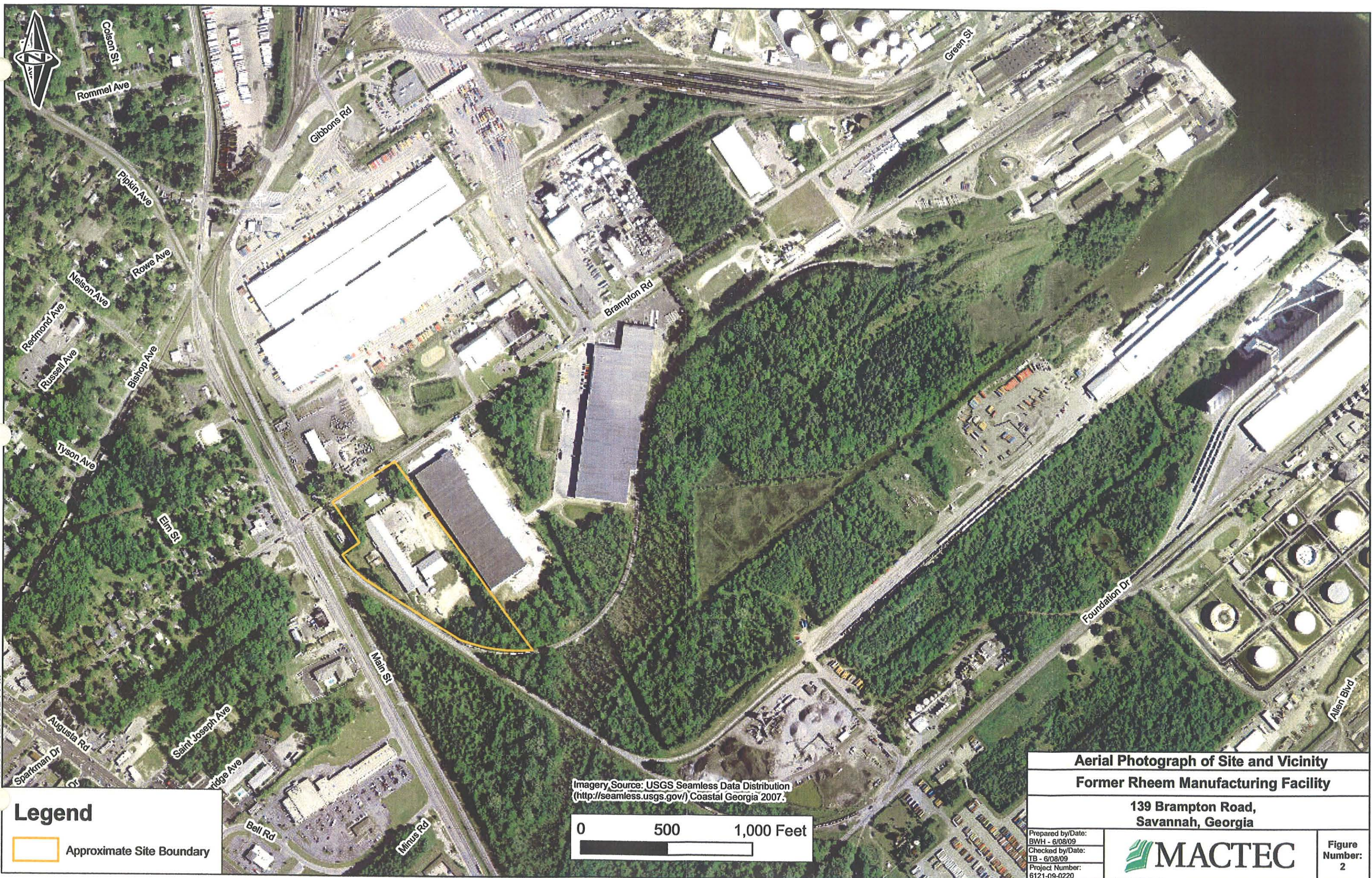
Former Rheem Manufacturing Facility

139 Brampton Road,
Savannah, Georgia

Prepared by/Date:
BWH - 2/22/10
Checked by/Date:
TB - 2/22/10
Project Number:
6121-09-0220

 **MACTEC**

Figure
Number:
1




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Legend

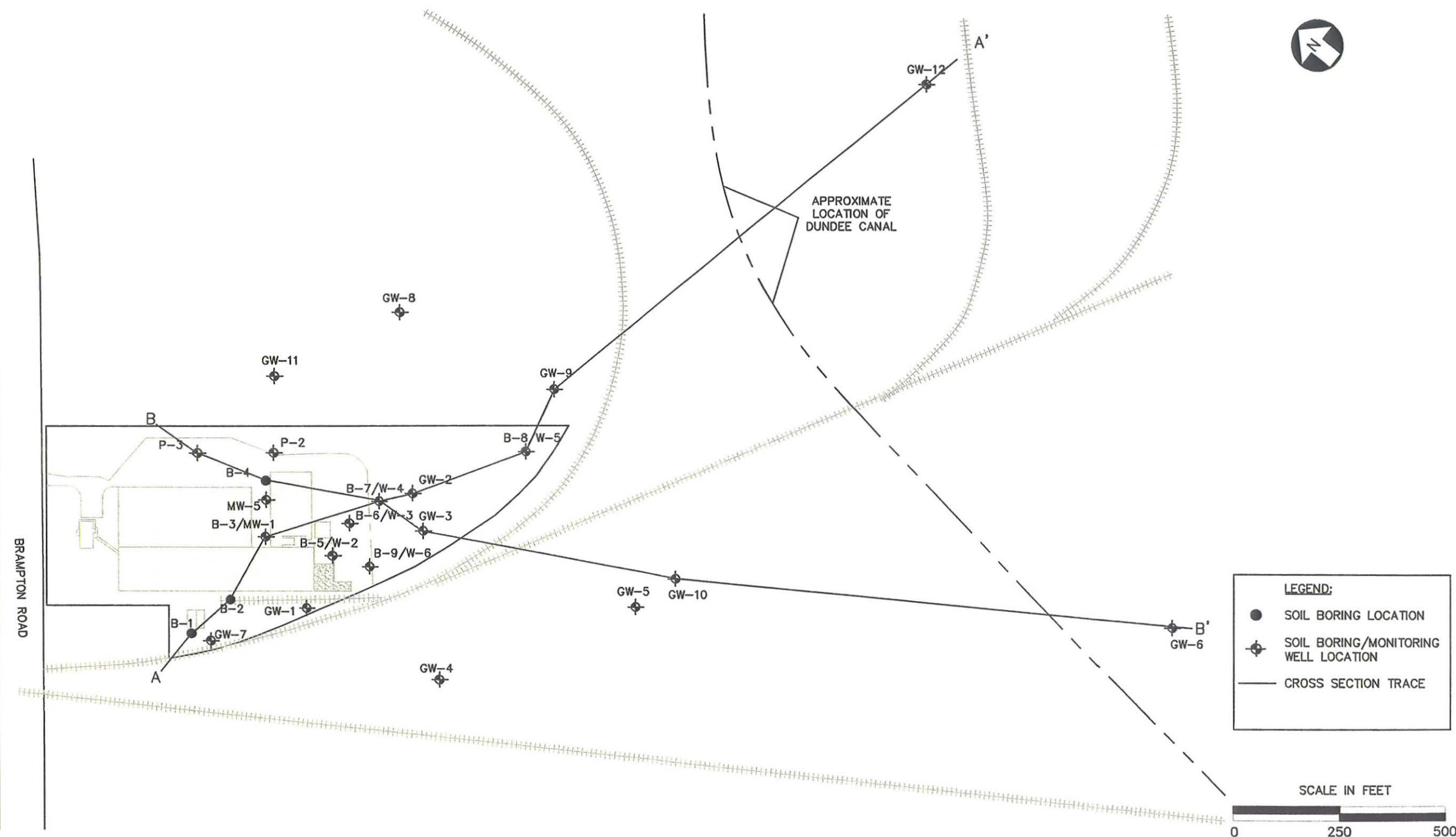
 Approximate Site Boundary

Imagery Source: USGS Seamless Data Distribution
(<http://seamless.usgs.gov/>) Coastal Georgia 2007.

0 500 1,000 Feet



Aerial Photograph of Site and Vicinity	
Former Rheem Manufacturing Facility	
139 Brampton Road, Savannah, Georgia	
Prepared by/Date: BWH - 6/08/09 Checked by/Date: TB - 6/08/09 Project Number: 6121-09-0220	 MACTEC
Figure Number: 2	

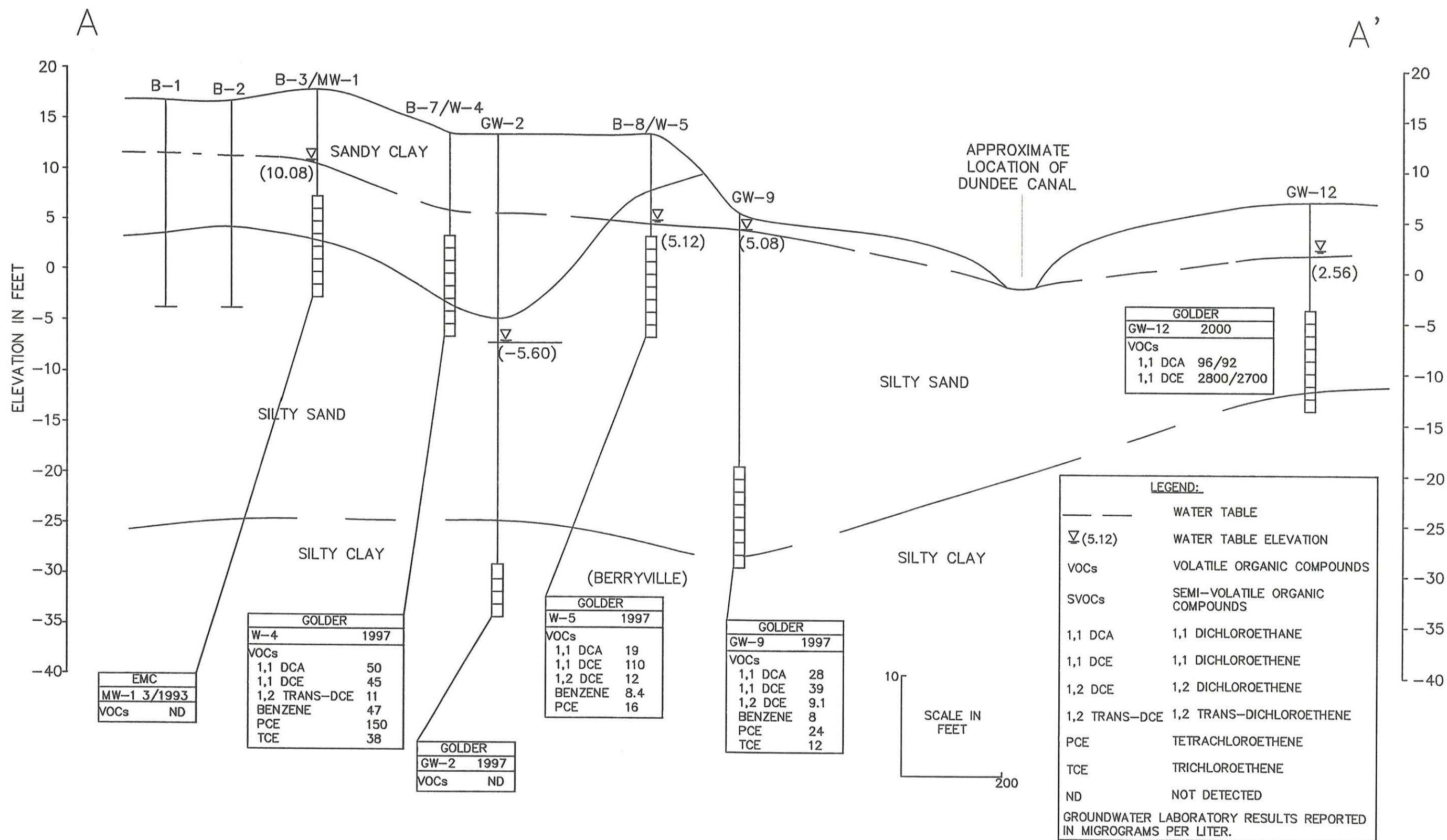


MACTEC
MACTEC Engineering and Consulting, Inc.
 396 PLASTERS AVENUE, N.E.
 ATLANTA, GEORGIA 30324 (404)873-4761

FORMER RHEEM
 MANUFACTURING FACILITY
 SAVANNAH, GEORGIA

SITE MAP WITH CROSS
 SECTION TRACE

Job Number 6121-09-0220	Task 01	Date OCT 2010	Scale AS SHOWN	Drawn By RLA	Reviewed By TJB	Figure 3
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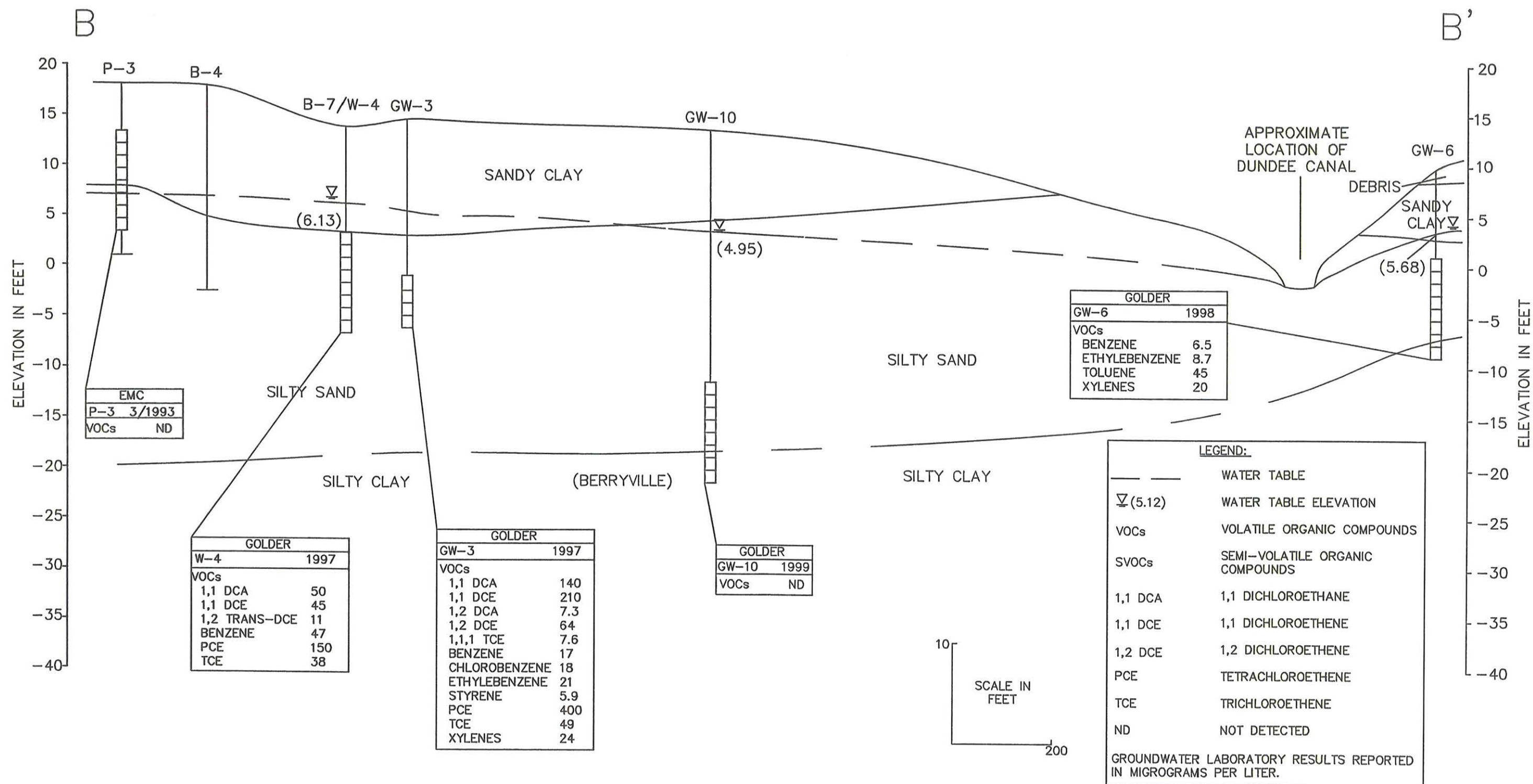
GROUNDWATER ELEVATIONS COLLECTED BY GOLDER ON MARCH 29, 2000 AND REPORTED IN THE REVISED CSR DATED MAY 2000.

MACTEC
Mactec Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324 (404)873-4761

FORMER RHEEM
MANUFACTURING FACILITY
SAVANNAH, GEORGIA

GEOLOGIC CROSS SECTION
A - A'

Job Number 6121-09-0220	Task 01	Date OCT 2010	Scale AS SHOWN	Drawn By TB	Approved By CTF	Figure 4
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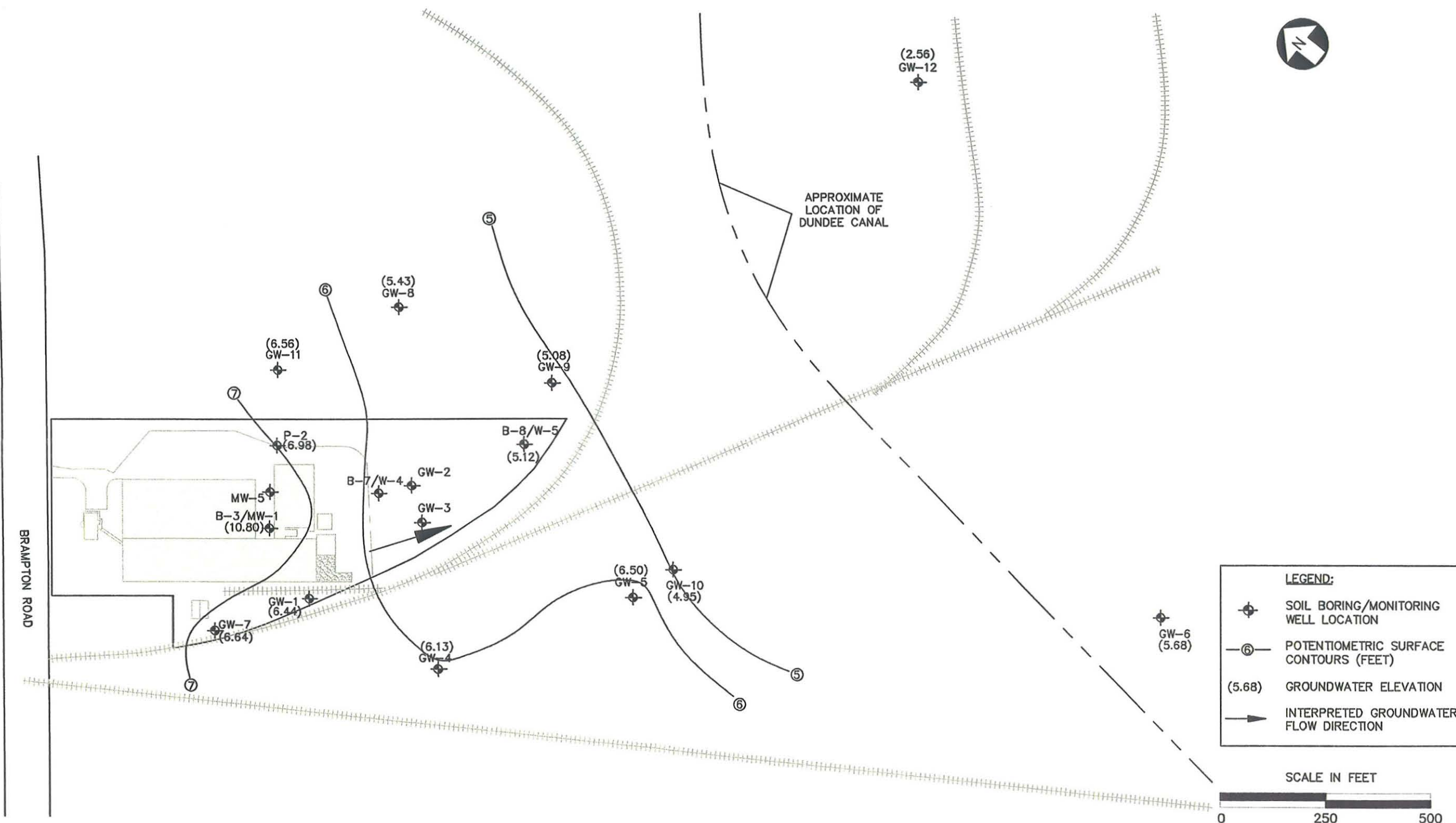
GROUNDWATER ELEVATIONS COLLECTED BY GOLDER ON MARCH 29, 2000 AND REPORTED IN THE REVISED CSR DATED MAY 2000.

MACTEC
Mactec Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324 (404)873-4761

FORMER RHEEM
MANUFACTURING FACILITY
SAVANNAH, GEORGIA

GEOLOGIC CROSS SECTION
B - B'

Job Number 6121-09-0220	Task 01	Date OCT 2010	Scale AS SHOWN	Drawn By TB	Approved By CTF	Figure 5
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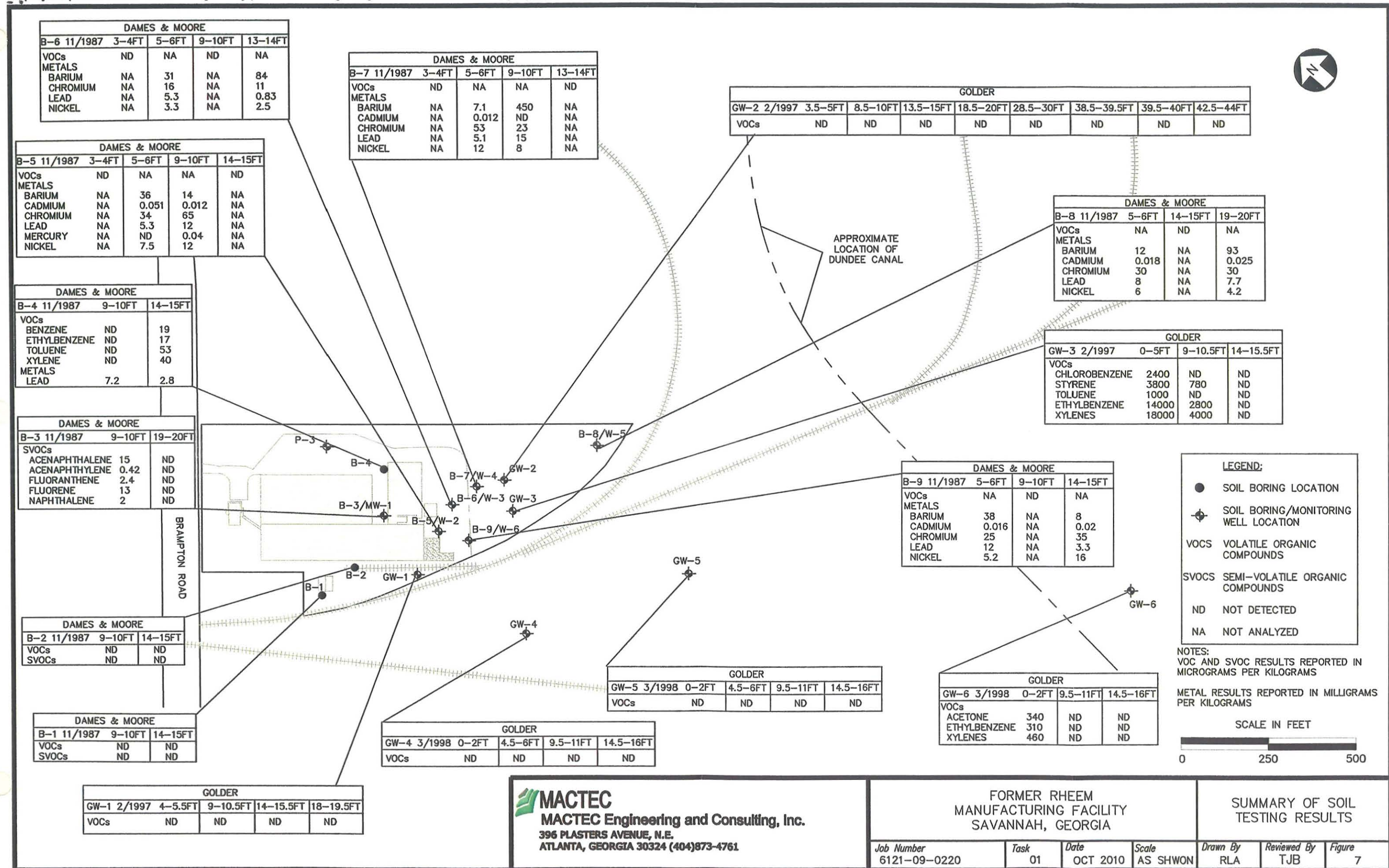
NOTE:
GROUNDWATER ELEVATION DATA COLLECTED BY GOLDER ON MARCH 29, 2000 AND
REPORTED IN THE REVISED CSR DATED MAY 2000.

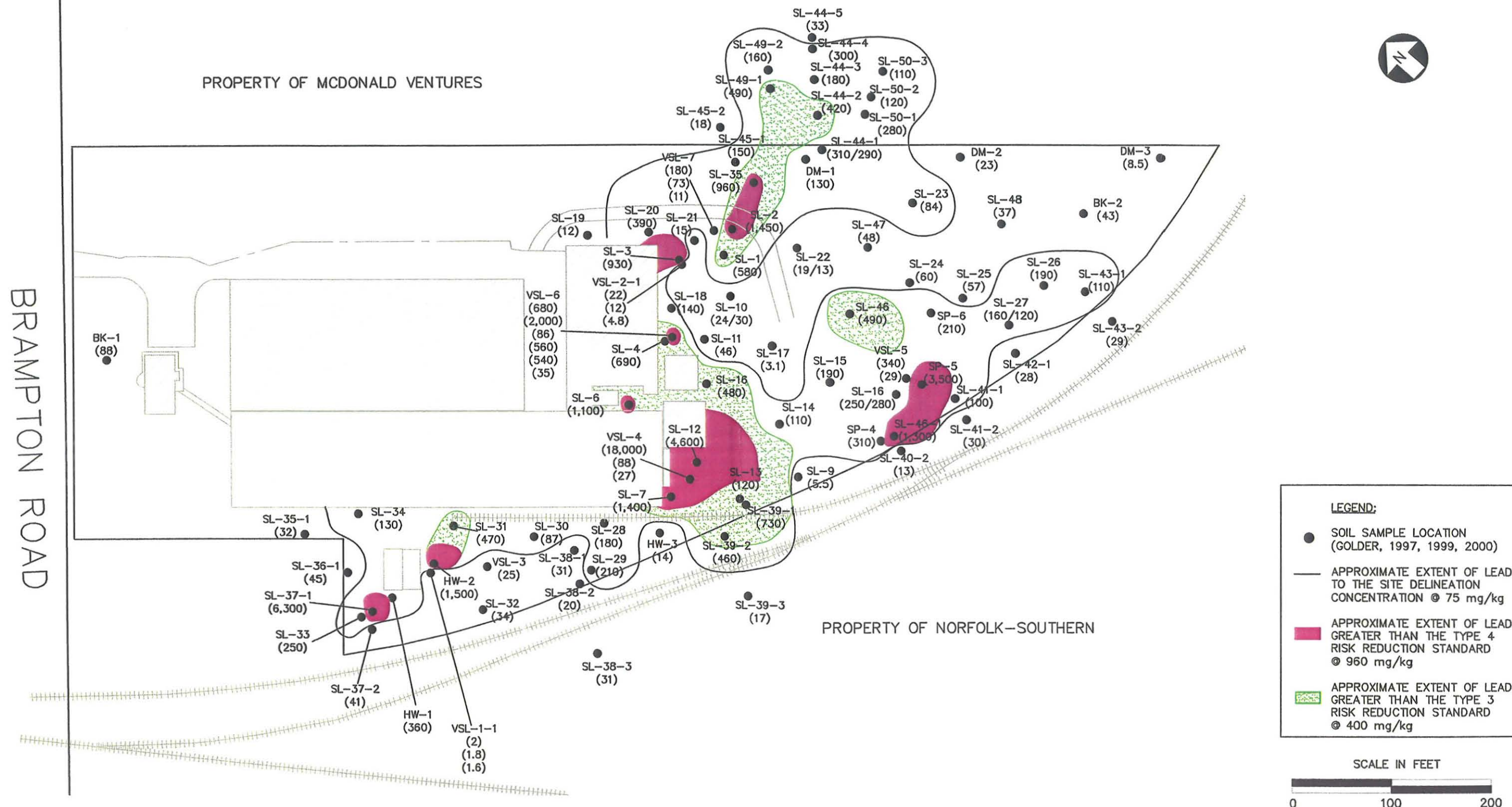
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SAVANNAH, GEORGIA

POTENTIOMETRIC
SURFACE MAP
(MARCH 2000)

Job Number 6121-09-0220	Task 01	Date OCT 2010	Scale AS SHOWN	Drawn By RLA	Reviewed By TJB	Figure 6
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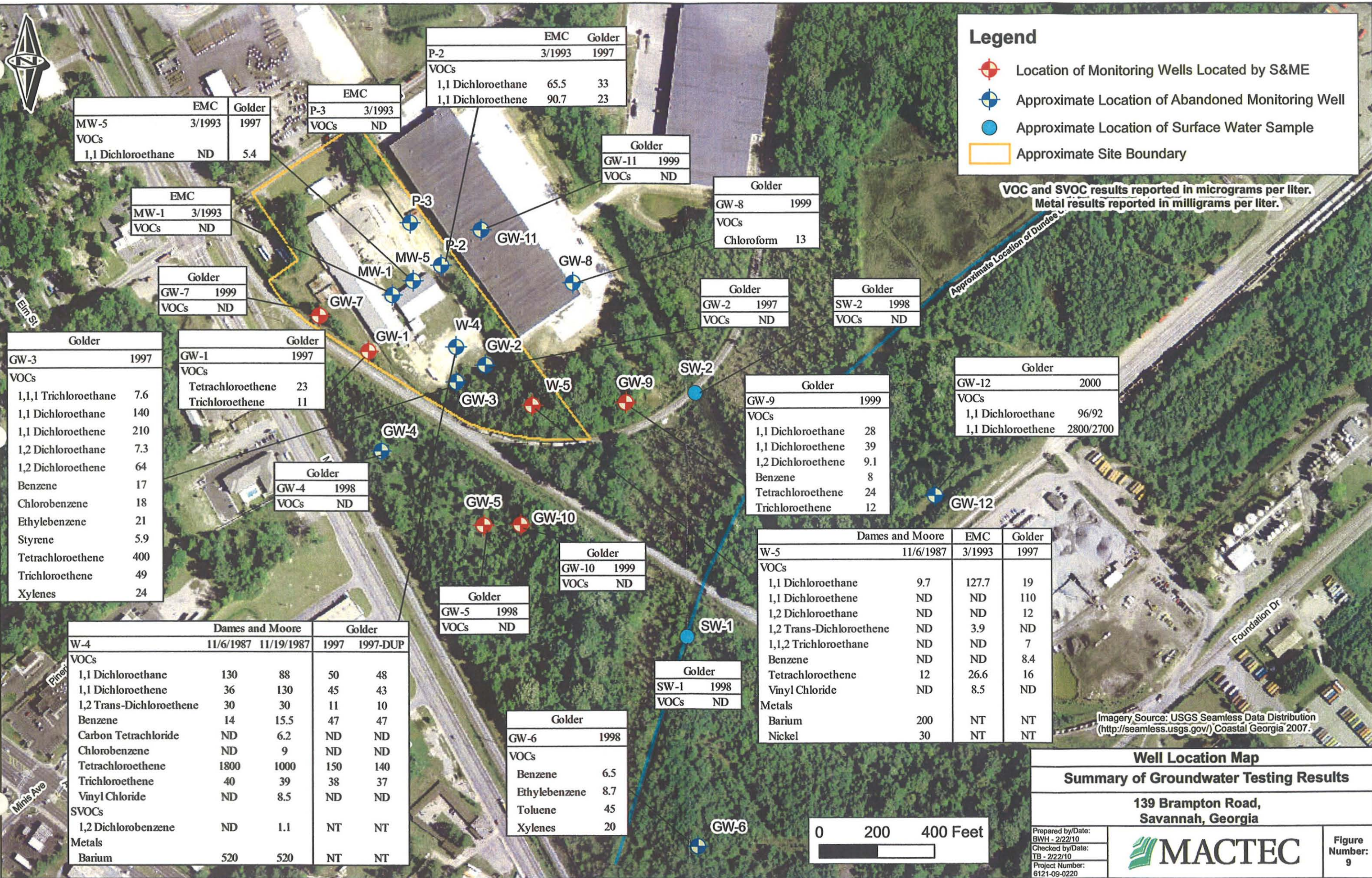
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FORMER RHEEM
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 SAVANNAH, GEORGIA

EXTENT OF LEAD
 IMPACTED SOIL

Job Number 6121-09-0220	Task 01	Date OCT 2010	Scale AS SHOWN	Drawn By RLA	Reviewed By TJB	Figure 8
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Path: G:\Rheem\mxd\fig3 Well Location_Map.mxd
Date Saved: 13/2010 12:51:27 PM



Legend

- Industrial Water Supply Well
- Public Water Supply Well
- Approximate Site Boundary
- 1/2, 1 and 2 Mile Buffers

Imagery Source: USGS Seamless Data Distribution
(<http://seamless.usgs.gov/>) Coastal Georgia 2007.

0 0.5 1 Miles

Water Usage Survey Map

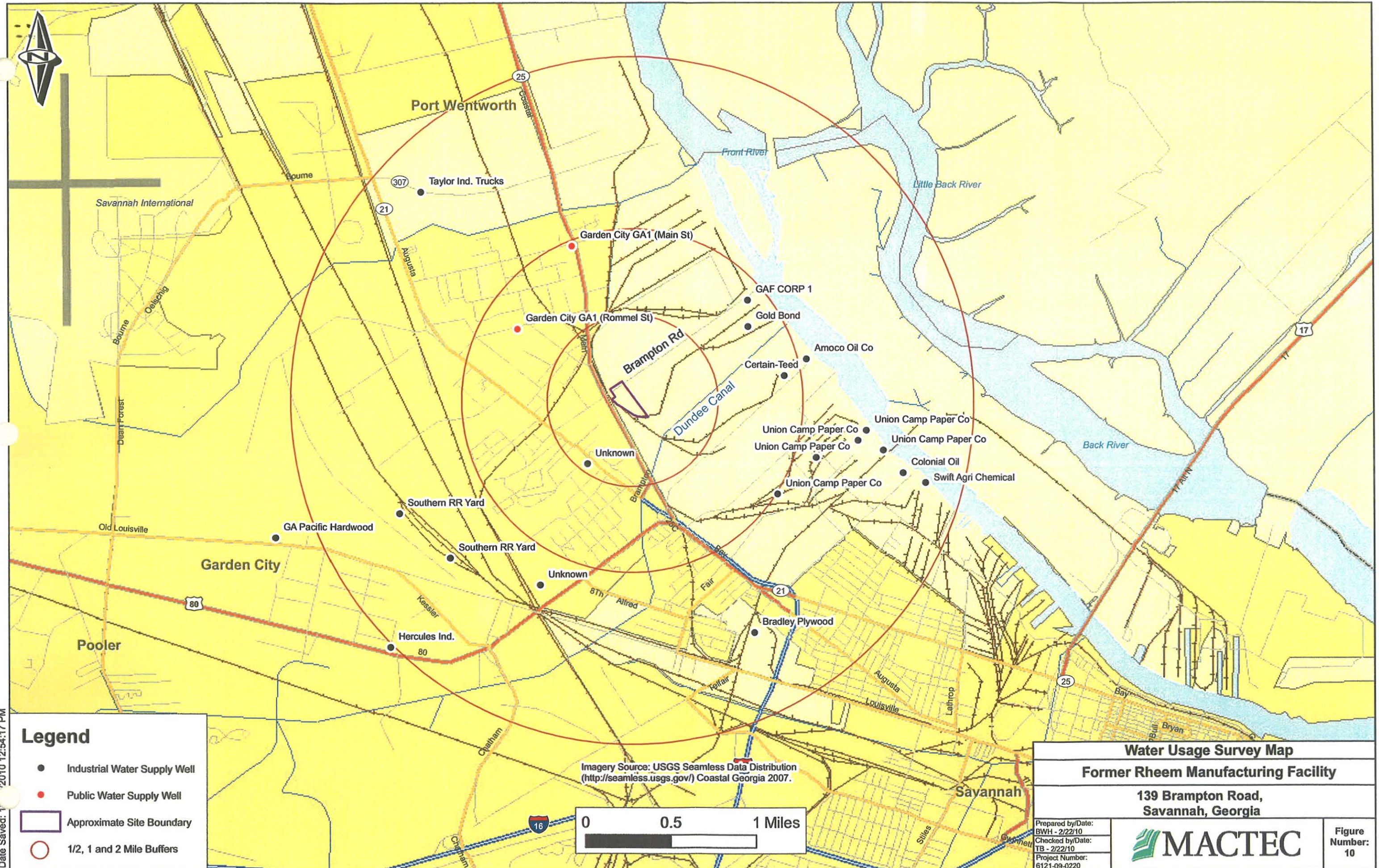
Former Rheem Manufacturing Facility

139 Brampton Road,
Savannah, Georgia

MACTEC

Figure
Number:
10

Prepared by/Date:
BWH - 2/22/10
Checked by/Date:
TB - 2/22/10
Project Number:
6121-09-0220



TABLES

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 1 - SUMMARY OF WATER LEVEL DATA

Monitoring Well	Approximate Depth BMP	Existing Well (4-6-2009)	TOC Elevation (ft. MSL)	March 27, 1987 Depth to Water (ft. BMP)	March 27, 1997 Water Level Elevation (ft. MSL)	April 1, 1998 Depth to Water (ft. BMP)	April 1, 1998 Water Level Elevation (ft. MSL)	October 7, 1999 Depth to Water (ft. BMP)	October 7, 1999 Water Level Elevation (ft. MSL)	March 29, 2000 Depth to Water (ft. BMP)	March 29, 2000 Water Level Elevation (ft. MSL)
W-1	15.50	No	14.69	8.05	6.64	NM	NM	NA	NA	NA	NA
W-5	20.30	Yes	14.67	9.34	5.33	7.71	6.96	9.03	5.64	9.55	5.12
P-3 (X-2)	NM	No	18.29	NA	NA	NA	NA	NA	NA	NA	NA
P-2 (X-1)	16.30	No	17.18	9.38	7.80	7.42	9.76	9.42	7.76	10.20	6.98
MW-1	14.00	No	18.51	NM	NM	NM	NM	8.95	9.56	7.71	10.80
MW-5	13.30	No	18.16	15.60	2.56	NM	NM	Abandoned 10/7/99	NA	NA	NA
GW-1	20.20	Yes	18.23	11.61	6.62	10.03	8.20	11.04	7.19	11.79	6.44
GW-2	56.50	No	14.69	20.80	-6.11	18.88	-4.19	19.54	-4.85	20.29	-5.60
GW-3	20.60	No	16.57	10.40	6.17	8.92	7.65	Abandoned 10/7/99	NA	NA	NA
GW-4	19.20	No	17.58	NA	NA	9.62	7.96	9.25	8.33	11.45	6.13
GW-5	19.30	Yes	18.12	NA	NA	10.40	7.72	9.82	8.30	11.62	6.50
GW-6	13.80	No	11.38	NA	NA	5.48	5.90	5.60	5.78	5.70	5.68
GW-7	34.00	Yes	17.52	NA	NA	NA	NA	10.10	7.42	10.88	6.64
GW-8	34.80	No	9.87	NA	NA	NA	NA	4.34	5.53	4.44	5.45
GW-9	33.70	Yes	6.13	NA	NA	NA	NA	0.94	5.19	1.05	5.08
GW-10	31.90	Yes	14.50	NA	NA	NA	NA	8.60	5.90	9.55	4.95
GW-11	37.45	No	12.95	NA	NA	NA	NA	5.84	7.11	6.39	6.56
GW-12	18.70	No	8.24	NA	NA	NA	NA	MA	NA	5.68	2.56
CANAL	NA	NA	10.87	NA	NA	NA	NA	10.40	0.47	12.35	-1.48

NOTES
BMP- Below Measuring Point
NA- Not Applicable
NM- Not Measured
NS- Not Surveyed
MSL- Mean Sea Level

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 2 - SUMMARY OF SLUG TEST DATA

Slugged Monitoring Well	Calculated Hydraulic Conductivity (K) Value	
	(centimeters/second)	(feet/day)
GW-4	4.98E-04	1.41
GW-5	3.56E-04	1.01
GW-7	2.91E-03	8.25
GW-11	1.02E-03	2.89
GW-12	1.05E-04	0.3
Geometric Mean K-	5.60E-04 cm/sec	1.59 feet/day

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 3 - SOIL DELINEATION CONCENTRATION CRITERIA
USING TYPE I RISK REDUCTION STANDARDS

Soil Delineation Concentration Criteria	
VOCs, µg/kg	
Acetone	400000
Benzene	500
Chlorobenzene	10000
Chloroethane	170
Ethylbenzene	70000
Styrene	14000
Xylenes	1000000
Toluene	100000
Tetrachloroethene	500
SVOCs, µg/kg	
Acenaphthalene	300000
Acenaphthylene	300000
Fluoranthene	500000
Fluorene	360000
Naphthalene	10460
Metals, mg/kg	
Barium	1000
Cadmium	2
Chromium	100
Lead	75
Nickel	50
Silver	2

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 4 - SUMMARY OF SOIL TESTING RESULTS

Sample ID Depth (feet) Date	Sed-1 11/1/87	Sed-2 11/1/87	Sed-3 11/1/87	B1-1 9-10 11/1/87	B1-2 14-15 11/1/87	B2-1 9-10 11/1/87	B2-2 14-15 11/1/87	B3-1 9-10 11/1/87	B3-2 19-20 11/1/87	B4-5 9-10 11/1/87	B4-6 14-15 11/1/87	B5-2 3-4 11/1/87	B5-3 5-6 11/1/87	B5-5 9-10 11/1/87	B5-6 14-15 11/1/87
METALS (mg/kg)															
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	130	31	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	36	14	NA
Cadmium	0.4	0.24	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.051	0.012	NA
Chromium	38	40	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	65	NA
Lead	130	23	8.5	NA	NA	NA	NA	NA	NA	7.2	2.8	NA	5.3	12	NA
Mercury	0.15	0.08	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.04	NA
Nickel	5.8	8.6	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5	12	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED VOLATILES (ug/kg)															
EPA 601/602	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA	ND
OTHER ORGANICS (ug/kg)															
Acenaphthalene	ND	ND	ND	ND	ND	ND	ND	15	ND	NA	NA	NA	NA	NA	NA
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	0.42	ND	NA	NA	NA	NA	NA	NA
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	2.4	ND	NA	NA	NA	NA	NA	NA
Fluorene	ND	ND	ND	ND	ND	ND	ND	13	ND	NA	NA	NA	NA	NA	NA
Naphthalene	ND	ND	ND	ND	ND	ND	ND	2	ND	NA	NA	NA	NA	NA	NA
Benzene	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	19	NA	ND	NA	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	17	NA	ND	NA	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	53	NA	ND	NA	ND
Xylene	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	40	NA	ND	NA	ND

Notes:
mg/kg - milligrams per kilograms
ug/kg - micrograms per kilograms
NA - not analyzed
ND - not detected

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 4 - SUMMARY OF SOIL TESTING RESULTS (CONTINUED)

Sample ID	B6-2	B6-3	B6-5	B6-6	B7-2	B7-3	B7-5	B7-6	B8-3	B8-6	B8-7	B9-3	B9-5	B9-6
Depth	3-4	5-6	9-10	13-14'	3-4'	5-6'	9-10'	13-14'	5-6'	14-15'	19-20'	5-6'	9-10'	14-15'
Date	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87	11/1/87
METALS (mg/kg)														
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	31	NA	84	NA	7.1	450	NA	12	NA	93	38	NA	8
Cadmium	NA	ND	NA	ND	NA	0.012	ND	NA	0.018	NA	0.025	0.016	NA	0.02
Chromium	NA	16	NA	11	NA	53	23	NA	30	NA	30	25	NA	35
Lead	NA	5.3	NA	0.83	NA	5.1	15	NA	8	NA	7.7	12	NA	3.3
Mercury	NA	ND	NA	ND	NA	ND	ND	NA	NA	NA	ND	ND	NA	ND
Nickel	NA	3.3	NA	2.5	NA	12	8	NA	6	NA	4.2	5.2	NA	16
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED VOLATILES (ug/kg)														
EPA 601/602	ND	NA	ND	NA	ND	NA	NA	ND	NA	ND	NA	NA	ND	NA
OTHER ORGANICS (ug/kg)														
Acenaphthalene	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	ND	NA	ND	NA	ND	NA	NA	ND	NA	ND	NA	NA	ND	NA
Ethylbenzene	ND	NA	ND	NA	ND	NA	NA	ND	NA	ND	NA	NA	ND	NA
Toluene	ND	NA	ND	NA	ND	NA	NA	ND	NA	ND	NA	NA	ND	NA
Xylene	ND	NA	ND	NA	ND	NA	NA	ND	NA	ND	NA	NA	ND	NA

Notes:

mg/kg - milligrams per kilograms

ug/kg - micrograms per kilograms

NA - not analyzed

ND - not detected

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 4 - SUMMARY OF SOIL TESTING RESULTS (CONTINUED)

Sample ID	Depth (ft)	Date	VOCs, ug/kg							
			Acetone	Chlorobenzene	Chloroethane	Ethylbenzene	Styrene	Tetrachloroethene	Toluene	Xylenes
GW-1	4-5.5	2/1997	ND	ND	ND	ND	ND	ND	ND	ND
	4-5.5 dup		ND	ND	ND	ND	ND	ND	ND	ND
	9-10.5		ND	ND	ND	ND	ND	ND	ND	ND
	14-15.5		ND	ND	ND	ND	ND	ND	ND	ND
	18-19.5		ND	ND	ND	ND	ND	ND	ND	ND
GW2-1	3.5-5	2/1997	ND	ND	ND	ND	ND	ND	ND	ND
	8.5-10		ND	ND	ND	ND	ND	ND	ND	ND
	13.5-15		ND	ND	ND	ND	ND	ND	ND	ND
	18.5-20		ND	ND	ND	ND	ND	ND	ND	ND
	28.5-30		ND	ND	ND	ND	ND	ND	ND	ND
	38.5-39.5		ND	ND	ND	ND	ND	ND	ND	ND
	39.5-40		ND	ND	ND	ND	ND	ND	ND	ND
	42.5-44		ND	ND	ND	ND	ND	ND	ND	ND
GW-3-1	0-5	2/1997	ND	2400	ND	14000	3800	ND	1000	18000
	9-10.5		ND	ND	ND	2800	780	ND	ND	4000
	14-15.5		ND	ND	ND	ND	ND	ND	ND	ND
GW-4-1	0-2	3/1998	ND	ND	ND	ND	ND	ND	ND	ND
GW-4-2	4.5-6		ND	ND	ND	ND	ND	ND	ND	ND
GW-4-3	9.5-11		ND	ND	ND	ND	ND	ND	ND	ND
GW-4-4	14.5-16		ND	ND	ND	ND	ND	ND	ND	ND
GW-5-1	0-2	2/1997	ND	ND	ND	ND	ND	ND	ND	ND
	4.5-6		ND	ND	ND	ND	ND	ND	ND	ND
	9.5-11		ND	ND	ND	ND	ND	ND	ND	ND
	14.5-16		ND	ND	ND	ND	ND	ND	ND	ND
GW-6-1	0-2	3/1998	340	ND	ND	310	ND	ND	ND	460
GW-6-3	9.5-11		ND	ND	ND	ND	ND	ND	ND	ND
GW-6-4	14.5-16		ND	ND	ND	ND	ND	ND	ND	ND
SL-2	0.5	2/1997	ND	ND	ND	ND	ND	ND	ND	ND
SL-6	0.5	2/1997	ND	ND	ND	ND	ND	ND	9.8	ND
SL-8	0.5	2/1997	ND	ND	22	ND	ND	16	59	8.8
SL-10	0.5	2/1997	ND	ND	ND	ND	ND	ND	8.8	ND
	0.5 dup	2/1997	ND	ND	ND	ND	ND	ND	ND	ND
SP-1	surface	3/1997	ND	ND	ND	ND	ND	ND	ND	ND
SP-2	surface	3/1997	ND	ND	ND	ND	ND	ND	ND	ND
SP-3	surface	3/1997	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

ug/kg - micrograms per kilograms

ND - not detected

139 BRAMTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 5 - SHALLOW SOIL LEAD EVALUATION DATA*

Sample ID	Lead (mg/kg)	Sample ID	Lead (mg/kg)	Sample ID	Lead (mg/kg)
SL-1	580	SL-30	87	SL-47	48
SL-2	1400	SL-31	470	SL-48	37
SL-3	930	SL-32	34	SL-49	490
SL-4	690	SL-33	250	SL-49	160
SL-5	1100	SL-34	130	SL-49 (dupe)	460
SL-6	480	SL-35	960	SL-50	280
SL-7	1400	SL-35A	32	SL-50	120
SL-8	1300	SL-36	45	SL-50	110
SL-9	5.5	SL-37	6300	SP-1	310
SL-10	24	SL-37	41	SP-2	350
SL-10 (dup)	30	SL-37 (dup)	3500	SP-3	210
SL-11	46	SL-38	31	SL-BK1	88
IIW-1	360	SL-38	20	SL-BK2	43
HW-2	1500	SL-38	31	VSL-1	2
IIW-3	14	SL-38 (dupe)	31	VSL-1	1.8
SL-12	4600	SL-39	730	VSL-1	1.6
SL-13	120	SL-39	460	VSL-2	22
SL-14	110	SL-39	17	VSL-2	12
SL-15	190	SL-40	1300	VSL-2	4.8
SL-16	250	SL-40	13	VSL-3	25
SL-16 (dup)	280	SL-41	100	VSL-4	18000
SL-17	3.1	SL-41	30	VSL-4	88
SL-18	140	SL-42	28	VSL-4	27
SL-19	12	SL-43	110	VSL-4 (dup)	30
SL-20	390	SL-43	29	VSL-5	340
SL-21	15	SL-43	310	VSL-5	29
SL-22	19	SL-44	420	VSL-5	680
SL-22 (dup)	13	SL-44	180	VSL-6	2000
SL-23	84	SL-44	300	VSL-6	86
SL-24	60	SL-44	33	VSL-6	560
SL-25	57	SL-44 (dup)	290	VSL-6	540
SL-26	190	SL-44 (dup)	31	VSL-6	35
SL-27	160	SL-45	150	VSL-7	180
SL-27 (dup)	120	SL-45	18	VSL-7	73
SL-28	180	SL-46	490	VSL-7	11
SL-29	210				

Notes:

* Single samples are from depth of 6 inches, multiple samples are at 6 inches intervals starting at a depth of 6 inches.

mg/kg - milligrams per kilograms

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 6 - SUMMARY OF GROUNDWATER TESTING DATA

Sample ID	IGW-1	GC-1	DW well	RMGW-1	W-1	W-2	W-2	W-3	W-4	W-4r	W-5	W-5	W-6	W-6	MW-1	MW-5	P-2	P-3
Date	8/24/88	8/23/88	11/19/87	8/24/88	11/6/87	11/6/87	1993	11/6/87	11/6/87	11/19/87	11/6/87	1993	11/16/87	1993	1993	1993	1993	1993
METALS (ug/l)																		
Arsenic	ND	ND		ND		NA			NA	NA	NA		NA					
Barium	ND	ND		ND		350		280	520	520	200		520					
Beryllium	NA	NA		NA		NA	3						NA					
Cadmium	ND	ND		ND		ND		ND	ND		ND		ND					
Chromium	ND	ND		ND		ND		ND	ND		ND		ND					
Lead	ND	ND		ND		20		40	ND	ND	ND		10					
Mercury	ND	ND		ND		ND	7	ND	ND	ND	ND		ND					
Nickel	ND	ND		ND		80		50	ND	ND	30		ND					
Selenium	ND	ND		ND		NA		NA	NA	NA	NA	NA	NA					
Silver	ND	ND		ND		NA		NA	NA	NA	NA	NA	NA					
CHLORINATED VOLATILES (ug/l)																		
1,1 Dichloroethane	ND	ND	ND	ND		24	41	20	130	88	9.7	127.7	3	ND	ND	ND	65.5	ND
1,1 Dichloroethene	ND	ND	ND	ND		25	485	8.8	36	130	44	ND	ND	ND	ND	ND	90.7	ND
1,1,1 Trichloroethane	ND	ND	ND	ND		18	40	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	ND	ND	ND	ND		ND	ND	40	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	ND	ND	ND	ND		ND	ND	51	ND	ND	6.3	ND	ND	ND	ND	ND	ND	ND
1,2 Trans-dichloroethene	ND	ND	ND	ND		93	ND	100	30	30	ND	ND	3.9	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND		ND	ND	ND	ND	6.2	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND		ND	ND	11	ND	9	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND		6.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND		5.9	ND	ND	1800	1000	12	26.6	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND		7.7	ND	95	40	39	ND	ND	17	6.6	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND		24	22.8	3.6	ND	8.5	ND	ND	ND	ND	ND	ND	ND	ND
Total Chlorinated Volatiles	0	0	0	0		204	589	338	2036	1312	72	154	24	7	0	0	156	0
OTHER ORGANICS (ug/l)																		
Benzene	NA			NA	NA	ND	15	12	14	5.5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	NA			NA	NA	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	NA			NA	NA	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol						ND					ND							
Naphthalene	NA			NA	20	ND	ND	NA	NA	NA	ND							

Notes:

All wells marked on site map except

IGW-1 - Dorothy Isaac well off-site

GC-1 - Garden City public supply well

DW well and RMGW-1 are on-site drinking water well

ug/l - micrograms per liter

NA - not analyzed

ND - not detected

blank - assumed not analyzed

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 6 - SUMMARY OF GROUNDWATER TESTING RESULTS (CONTINUED)

Date	1997								1999								2000
Location	Brampton Road Site								Norfolk Southern Property			Site	Norfolk Southern Property				
Sample ID	GW-1	GW-3	W-4	W-4 (dupe)	W-5	P-2	GW-2	MW-5	GW-4	GW-5	GW-6	GW-7	GW-8	GW-9	GW-10	GW-11	GW-12
VOCs (ug/L)																	
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	7.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	140	50	48	19	33	ND	5.4	ND	ND	ND	ND	ND	28	ND	ND	96/92
1,1-Dichloroethene	ND	210	45	43	110	23	ND	ND	ND	ND	ND	ND	ND	39	ND	ND	2800/2700
1,2-Dichloroethane	ND	7.3			12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	64	11	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.1	ND	ND	ND
Chlorobenzene	ND	18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	ND	ND
Styrene	ND	5.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	23	400	150	140	16	ND	ND	ND	ND	ND	ND	ND	ND	24	ND	ND	ND
Trichloroethene	11	49	38	37		ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	ND
Benzene	ND	17	47	47	8.4	ND	ND	ND	ND	ND	6.5	ND	ND	8	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	45	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	21	ND	ND	ND	ND	ND	ND	ND	ND	8.7	ND	ND	ND	ND	ND	ND
Xylenes	ND	24	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND
Total BTEX	0	62	47	47	8.4	0	0	0	0	0	80.2	0	0	8	0	0	0
Total Cl Vols	34	901.8	294	278	164	56	0	5.4	0	0	0	0	13	112.1	0	0	2896/2792

Notes

ug/L - micrograms per Liter

ND - not detected

blank - assumed not analyzed

139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 7 - SUMMARY OF SURFACE WATER TESTING RESULTS

Date	1998	
Location	Norfolk-Southern Property	
Sample ID	SW-1	SW-2
VOCs	ND	ND

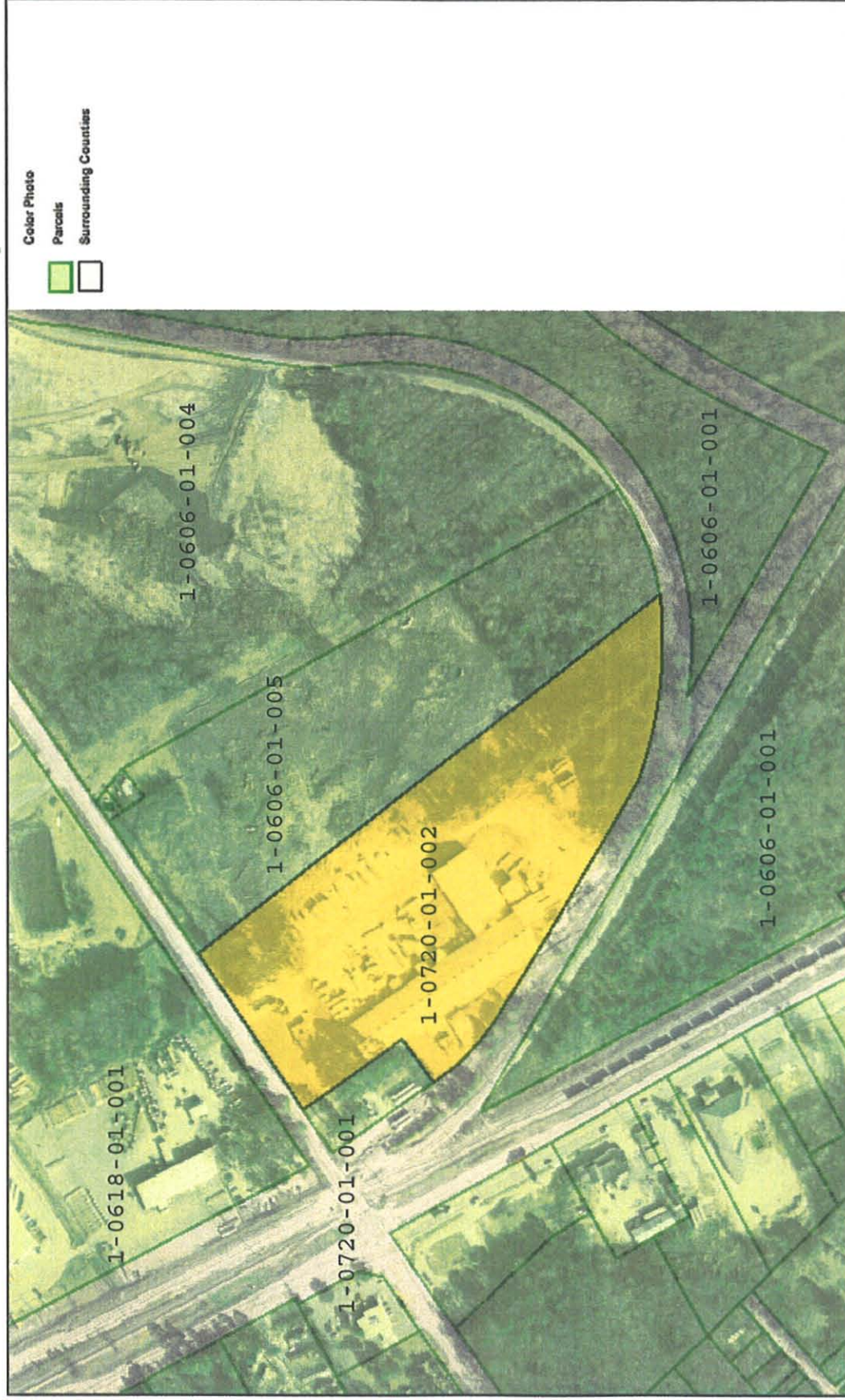
139 BRAMPTON ROAD SITE
SAVANNAH, GEORGIA

TABLE 8 - SUMMARY OF LEACHABILITY TESTING

Sample	Date	Total Lead (mg/kg)	Leached Lead (mg/l)
SL-12	3/1997	4600	0.006
SL-20	3/1997	390	0.01
SL-31	3/1997	470	0.008
SL-35	3/1997	960	0.013

APPENDIX A
LEGAL DESCRIPTION AND PLAT MAP

MapIT



0 149 feet

Tax Map

Return to:
Stanley E. Harris, Jr.
Duffy & Feemster, LLC
P.O. Box 10144, Savannah, GA 31412

RECEIVED FOR RECORD
2010 JUL -1 PM 4:20

DANIEL W. MASSEY
CLERK
SUPERIOR COURT OF CHATHAM CO. GA.

STATE OF GEORGIA)
)
COUNTY OF CHATHAM)

QUITCLAIM DEED

THIS INDENTURE, made this 25th day of June, 2010, between, WELLS FARGO BANK, N.A., a national banking association, successor to Wachovia Bank, N.A., successor to First Union National Bank of Georgia, successor to Savannah Bank & Trust Company of Savannah as Trustee under agreement with Van W. Pierce, f/b/o Brenda Heisey, as Party of the First Part, and L. DALE HENDRIX, a resident of Chatham County, Georgia, as Trustee of the Trust f/b/o Brenda Heisey under the Trust created January 15, 1980, as Party of the Second Part,

WITNESSETH:

That the said Party of the First Part for and in consideration of the sum of One (\$1.00) Dollar; cash in hand paid; the receipt and adequacy of which is hereby acknowledged, has bargained, sold, and does by these presents remise, release and forever QUITCLAIM to the said Party of the Second Part, his heirs, executors, administrators and assigns, all of the right, title, interest, claim or demand the said Party of the First Part has or may have had in and to the following described property, to-wit:

ALL that certain lot, tract or parcel of land situate, lying and being in the State of Georgia, County of Chatham, being depicted on a "Plat of an 11.098 Acre Portion of the Former Foundation Tract located near Garden City, Georgia", prepared on July 17, 1963, by Sewell & Associates, Inc. Engineers, recorded in Plat Record Book "O", folio 165 of the records of the office of the clerk of Superior Court of Chatham County, Georgia, and

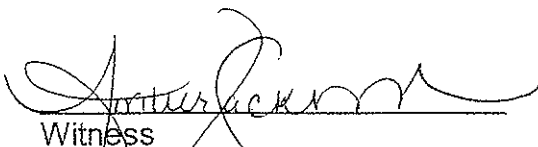
as described on the deed from Van W. Pierce to L. Dale Hendrix and the Savannah Bank & Trust Company, dated January 15, 1980, recorded in Deed Book 114-I, page 682 of the aforesaid clerk's records to which plat and deed express reference is made for a more particular description,


with all of the rights, members and appurtenances in anywise appertaining or belonging.

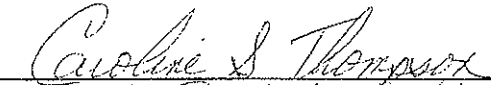
TO HAVE AND TO HOLD the said property and premises to the said Party of the Second Part so that neither the said Party of the First Part nor its successors and assigns, nor any person or persons claiming under the Party of the First Part, shall at any time by any ways or means, have, claim or demand any right or title to the aforesaid property and premises or its appurtenances or any right thereof.

IN WITNESS WHEREOF, the said Party of the First Part has hereunto caused these presents to be executed by duly authorized officers on the day and year first above written.

WELLS FARGO BANK, N.A. SUCCESSOR
TO WACHOVIA BANK, N.A., SUCCESSOR
TO FIRST UNION NATIONAL BANK OF
GEORGIA, SUCCESSOR TO SAVANNAH
BANK & TRUST COMPANY OF SAVANNAH

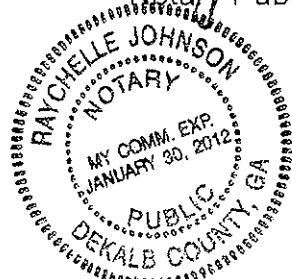

Witness

By: 
Title: Vice President - Forrest Williams

Attest: 
Title: Vice President Caroline S. Thompson

Signed, sealed and delivered on this
25th day of June, 2010, in
the presence of:


Notary Public, DeKalb County, GA.



FOR AFFIDAVIT FILED ON

Aug 12 1996 SEE

DEED BOOK 1201 FOLIO 440

DEP. CLERK, S.C.C., GA.

STATE OF GEORGIA
COUNTY OF CHATHAM

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THIS INDENTURE made and entered into this 15th day of January, 1980, by and between VAN W. PIERCE, Party of the First Part, and L. DALE HENDRIX and SAVANNAH BANK & TRUST COMPANY OF SAVANNAH, as Trustees under agreement with Van W. Pierce, dated January 15, 1980, Parties of the Second Part;

W I T N E S S E T H:

That the Party of the First Part, for and in consideration of the natural love and affection that he has for his daughter, Brenda P. Heisey, and her children, the beneficiaries of the trust referred to herein, has given, granted and conveyed and does hereby give, grant and convey unto the said Parties of the Second Part, their successors and assigns, the following described property, to-wit:

All that certain lot, tract or parcel of land situate, lying and being in the State of Georgia, County of Chatham, and being shown upon a map or plat entitled "Plat of an 11.098 Acre Portion of the Former Foundation Tract located near Garden City, Georgia" prepared on July 17, 1963, by Sewall & Associates, Inc., Engineers, and shown as "Survey for Savannah Steel Drum Corporation", which is of record in the Office of the Clerk of the Superior Court of Chatham County, Georgia, in Plat Record Book "0", Folio 165, and being more particularly described as follows: Commencing at the point of intersection between the Southern right of way line of Brampton Road and the Eastern right of way line of the main lead track to National Gypsum Company, of the Savannah & Atlanta Railway Company, and running thence North Fifty-five degrees Fifty minutes East (N 55° 50' E) along the Southern right of way line of Brampton Road a distance of One Hundred Fifty (150) feet to a concrete monument that is the point of BEGINNING; running thence North Fifty-five degrees Fifty minutes East (N 55° 50' E) along the Southern right of way line of Brampton Road a distance of Four Hundred Thirty (430) feet to a concrete monument; running thence South Thirty-four degrees Ten minutes East (S 34° 10' E) a distance of One Thousand Two Hundred Eighty-three and Fifty-five Hundredths (1,283.55) feet to a concrete monument; running thence South Eighty-six degrees Twenty-eight minutes West (S 86° 28' W) a distance of Fifty (50) feet to a stake; running thence North Eighty-nine degrees Thirty-five minutes West (N 89° 35' W) a distance of Fifty (50) feet to a stake; running thence North Eighty-four degrees Fifty-one minutes West (N 84° 51' W) a distance of Fifty (50) feet to a stake; running thence North Eighty degrees Forty-six minutes Thirty seconds West (N 80° 46' 30" W) a distance of Fifty (50) feet to a stake; running thence North Seventy-Five degrees Fifty-nine minutes West (N 75° 59' W) a distance of Fifty (50) feet to a stake; running thence North Seventy-one degrees Nineteen minutes Thirty Seconds West (N 71° 19' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-seven degrees Fifty-four minutes Thirty seconds West (N 67° 54' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-six degrees Fifteen minutes Thirty seconds West (N 66° 15' 30" W) a distance of

Fifty (50) feet to a stake; running thence North Sixty-five degrees Thirty-one minutes Thirty seconds West (N 65° 31' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-four degrees Two minutes Thirty seconds West (N 64° 02' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-one degrees Forty-Three minutes West (N 61° 43' W) a distance of Fifty (50) feet to a stake; running thence North Fifty-eight degrees Twenty minutes West (N 58° 20' W) a distance of Forty-eight (48) feet to a stake; running thence North Fifty-seven degrees Two Minutes West (N 57° 02' W) a distance of Two Hundred Seventy-nine (279) feet to a stake; running thence North Fifty-five degrees Forty-four minutes West (N 55° 44' W) a distance of Fifty (50) feet to a stake; running thence North Fifty-two degrees Fifty-nine minutes West (N 52° 59' W) a distance of Fifty (50) feet to a stake; running thence North Fifty degrees Thirty minutes Thirty seconds West (N 50° 30' 30" W) a distance of Fifty (50) feet to a stake; running thence North Forty-seven degrees Forty-five minutes Thirty seconds West (N 47° 45' 30" W) a distance of Fifty (50) feet to a stake; running thence North Forty-five degrees Seven minutes West (N 45° 07' W) a distance of Fifty (50) feet to a stake; running thence North Forty-four degrees Two Minutes West (N 44° 02' W) a distance of Thirty-two and Four Hundredths (32.04) feet to a concrete monument; running thence North Fifty-five degrees Fifty minutes East (N 55° 50' E) a distance of One Hundred Twenty-four and Fifteen Hundredths (124.15) feet to a concrete monument; running thence North Thirty-four degrees Ten minutes West (N 34° 10' W) a distance of Three Hundred (300) feet to a concrete monument that was the point of beginning; express reference is hereby made to the aforesaid plat for better determining the metes, bounds and dimensions of the property hereby conveyed.

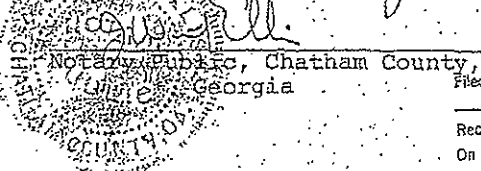
TO HAVE AND TO HOLD the said above-described property, together with all and singular the rights, members, improvements and appurtenances thereof to the same being, belonging, or in anywise appertaining to the said Parties of the Second Part, their successors and assigns forever.

IN WITNESS WHEREOF, the said Party of the First Part has hereunto set his hand and affixed his seal the day and year first above written.

Signed, sealed and delivered
in the presence of:

Richard B. Fillingim

Van W. Pierce (L.S.)
VAN W. PIERCE



Filed for Record At 3:51 O'Clock P M. On The
12 Day Of Feb 19 86
Recorded In Record Book 114 Folio 682
On The 12 Day Of Feb 19 86

CLERK SUPERIOR COURT, CHATHAM CO., GA.

To Dwight
Feemster

180K
440

RETURN TO: Dwight T. Feemster, Esq.
P.O. Box 10144
Savannah, GA 31412

FILED FOR RECORD
REC. BY 180-K
PG. 440

STATE OF GEORGIA)
COUNTY OF CHATHAM)

AFFIDAVIT

SEP 12 PM 4:08

440

THIS AFFIDAVIT is executed by L. Dale Hendrix, Sr., Trustee under the Agreement with Van W. Pierce dated January 15, 1980 For the Benefit of Brenda P. Heisey in accordance with the requirements of the Georgia Hazardous Response Act and Rule 391-3-19-08(2) of the Administrative Code of the Environmental Protection Division.

1. This affidavit is being prepared in compliance with O.C.G.A. § 44-2-20 and is to be recorded in the office of the Clerk of the Superior Court of Chatham County, Georgia, in compliance with O.C.G.A. § 44-2-22.

2. The property in question is described as follows:

All that certain lot, tract or parcel of land situate, lying and being in the State of Georgia, County of Chatham; and being shown upon a map or plat entitled "Plat of an 11.098 Acre Portion of the Former Foundation tract located near Garden City, Georgia" prepared on July 17, 1963, by Sewell & Associates, Inc., Engineers, and shown as "Survey for Savannah Steel Drum Corporation", which is of record in the Office of the Clerk of the Superior Court of Chatham County, Georgia, in Plat Record Book "O", Folio 165, and being more particularly described as follows: Commencing at the point of intersection between the Southern right of way line of Brampton Road and the Eastern right of way line of the main lead tract to National Gypsum Company, of the Savannah & Atlanta Railway Company, and running thence North Fifty-five degrees Fifty minutes East (N 55° 50' E) along the Southern right of way line of Brampton Road a distance of One Hundred Fifty (150) feet to a concrete monument that is the point of BEGINNING; running thence North Fifty-five degrees Fifty minutes East (N 55° 50' E) along the Southern right of way line of Brampton Road a distance of Four Hundred Thirty (430) feet to a concrete monument; running thence South Thirty-four degrees Ten minutes East (S 34° 10' E) a distance of One Thousand Two Hundred Eighty-three and Fifty-five Hundredths (1,283.55) feet to a concrete monument; running thence South Eighty-six degrees Twenty-eight minutes West (S 86° 28' W) a distance of Fifty (50) feet to a stake; running thence North Eighty-nine degrees Thirty-five minutes West (N 89° 35' W) a distance of Fifty (50) feet to a stake; running thence North Eighty-four degrees Fifty-one minutes West (N 84° 51' W) a distance of Fifty (50) feet to a stake; running thence North Eighty degrees Forty-six minutes Thirty seconds West (N 80° 46' 30" W) a distance of Fifty (50) feet

14.00
5844104001 08/12/96 TOTAL

to a stake; running thence North Seventy-Five degrees Fifty-nine minutes West (N 75° 59' W) a distance of Fifty (50) feet to a stake; running thence North Seventy-one degrees Nineteen minutes Thirty Seconds West (N 71° 19' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-seven degrees Fifty-four minutes Thirty seconds West (N 67° 54' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-six degrees Fifteen minutes Thirty seconds West (N 66° 15' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-five degrees Thirty-one minutes Thirty seconds West (N 65° 31' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-four degrees Two minutes Thirty seconds West (N 64° 02' 30" W) a distance of Fifty (50) feet to a stake; running thence North Sixty-one degrees Forty-three minutes West (N 61° 43' W) a distance of Fifty (50) feet to a stake; running thence North Fifty-eight degrees Twenty minutes West (N 58° 20' W) a distance of Forty-eight (48) feet to a stake; running thence North Fifty-seven degrees Two minutes West (N 57° 02' W) a distance of Two Hundred Seventy-nine (279) feet to a stake; running thence North Fifty-five degrees Forty-four minutes West (N 55° 44' W) a distance of Fifty (50) feet to a stake; running thence North Fifty-two degrees Fifty-nine minutes West (N 52° 59' W) a distance of Fifty (50) feet to a stake; running thence North Fifty degrees Thirty minutes Thirty seconds West (N 50° 30' 30" W) a distance of Fifty (50) feet to a stake; running thence North Forty-seven degrees Forty-five minutes Thirty seconds West (N 47° 45' 30" W) a distance of Fifty (50) feet to a stake; running thence North Forty-five degrees Seven minutes West (N 45° 07' W) a distance of Fifty (50) feet to a stake; running thence North Forty-four degrees two minutes West (N 44° 02' W) a distance of Thirty-two and Four Hundredths (32.04) feet to a concrete monument; running thence North Fifty-five degrees Fifty minutes East (N 55° 50' E) a distance of One Hundred Twenty-four and Fifteen hundredths (124.15) feet to a concrete monument; running thence North Thirty-four degrees Ten minutes West (N 34° 10' W) a distance of three Hundred (300) feet to a concrete monument that was the point of beginning; express reference is hereby made to the aforesaid plat for better determining the metes, bounds and dimensions of the property hereby conveyed.

3. This property is the same property transferred by a gift deed from Van W. Pierce to L. Dale Hendrix and Savannah Bank and Trust Company of Savannah as Trustees under Agreement with Van W. Pierce dated January 15, 1980 for the Benefit of Brenda Heisey, filed for record with the Clerk of the Superior Court of Chatham County on February 12, 1980 in Deed Book 114I, folio 682.

4. On the 14th day of August, 1995, the Director of the Environmental Division informed L. Dale Hendrix as Trustee that the above described property was classified on the Division's

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Hazardous Site Inventory and was in need of corrective action.

5. Accordingly, the Owner hereby files this Affidavit and states as follows:

(a) This property has been listed on the State's Hazardous Site Inventory and has been designated as needing corrective action due to the presence of hazardous waste, hazardous constituents, or hazardous substances regulated under State law. Contact the property owner or the Georgia Environmental Protection Division for further information concerning this property. This notice is provided in compliance with the Georgia Hazardous Site Response Act.

(b) The owner of the property can be located at Hendrix Machinery, Inc. 1725 Old Dean Forest Road, Savannah, Georgia, 31403 .

Respectfully submitted this 24th day of August, 1996.

BY:

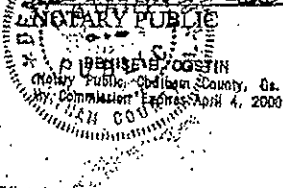
L. Dale Hendrix

L. DALE HENDRIX, SR., as Trustee Under the Agreement with Van Pierce dated January 15, 1980 for the Benefit of Brenda P. Heisey.

Sworn to and subscribed before me
this 14 day of August, 1996:

[Signature]

Witness: *[Signature]*



APPENDIX B
RISK REDUCTION STANDARD CALCULATIONS

Table 1
Toxicity Values

PARAMETER	Chronic Reference Dose		Cancer Slope Factor		Weight of Evidence	Source for Chronic RfDs and SFs
	Oral (RfDo)	Inhalation (RfDi)	Oral (SFo)	Inhalation (SFi)		
	(mg/kg/day)	(mg/kg/day)	(mg/kg/day)-1	(mg/kg/day)-1		
<u>Volatile Organic Compounds (VOCs)</u>						
Acetone	9.0E-01	8.9E+00	ND	ND	NA	IRIS, ATSDR
Benzene	4.0E-03	8.6E-03	5.5E-02	2.7E-02	A	IRIS
Chlorobenzene	2.0E-02	1.4E-02	ND	ND	D	IRIS, PPRTV
Chloroethane	ND	2.9E+00	ND	ND	NA	IRIS
Ethylbenzene	1.0E-01	2.9E-01	1.1E-02	8.8E-03	D	CALEPA, IRIS
Styrene	2.0E-01	2.9E-01	ND	ND	NA	IRIS
Tetrachloroethene	1.0E-02	7.7E-02	5.4E-01	2.1E-02	NA	IRIS, Cal EPA, ATSDR
Toluene	8.0E-02	1.4E+00	ND	ND	D	IRIS
Xylenes, mixture	2.0E-01	2.9E-02	ND	ND	NA	IRIS
<u>Semi-volatile Organic Compounds</u>						
Acenaphthene	6.0E-02	ND	ND	ND	NA	IRIS
Acenaphthylene	ND	ND	ND	ND	D	NA
Fluoranthene	4.0E-02	ND	ND	ND	D	IRIS
Fluorene	4.0E-02	ND	ND	ND	D	IRIS
Naphthalene	2.0E-02	8.6E-04	ND	1.2E-01	C	IRIS, CALEPA
<u>Metals</u>						
Barium	2.0E-01	1.4E-04	ND	ND	D	IRIS
Cadmium (Diet)	1.0E-03	2.9E-06	ND	6.3E+00	B1	IRIS, ATSDR
Chromium III (Insoluble Salts)	1.5E+00	ND	ND	ND	D	IRIS
Chromium VI (Particulates)	3.0E-03	2.9E-05	5.0E-01	2.9E+02	A/D	IRIS, NEW JERSEY
Lead	ND	ND	ND	ND	B2	NCEA
Nickel Soluble Salts	2.0E-02	2.6E-05	ND	9.1E-01		IRIS
Silver	5.0E-03	ND	ND	ND	D	IRIS

SOURCES: EPA Regional Screening Level Table, May 2010.
 IRIS Integrated Risk Information System
 PPRTV Provisional Peer Reviewed Toxicity Values
 CALEPA California Environmental Protection Agency
 HEAST Health Exposure Assessment Summary Tables
 ATSDR Agency for Toxic Substances and Disease Registry
 NCEA National Center for Environmental Assessment
 NJ New Jersey Department of Environmental Protection
 ND No Data
 NA Not Available

Table 3
Type 1 and Type 3 Soil RRS, mg/kg

PARAMETER	Volatilization Factor (m³/kg)	HSRA Type I Soil Criteria (mg/kg) (a)	HSRA Appendix I Value (mg/kg) (b)	Type I Groundwater RRS (mg/L) (c)	Type 1 GW RRS x 100 (mg/kg)	Number 1 (mg/kg) (d)	Risk-Based Residential Type 1		Risk-Based Soil Type 1 RRS (mg/kg) (g)	Overall Type 1 RRS (mg/kg) (h)	Risk-Based Nonresidential Type 3		Risk-Based Soil Type 3 RRS (mg/kg) (g)	Subsurface Soil Type 3 RRS (mg/kg) (i)	Surface Soil Type 3 RRS (mg/kg) (j)
							Noncarcinogenic (mg/kg) (e)	Carcinogenic (mg/kg) (f)			Noncarcinogenic (mg/kg) (e)	Carcinogenic (mg/kg) (f)			
Volatile Organic Compounds (VOCs)															
Acetone															
Benzene	4.5E+03	ND	2.0E-02	5.0E-03	5.0E-01	5.0E-01	1.8E+02	1.8E+01	1.8E+01	5.0E-01	1.9E+02	2.3E+01	2.3E+01	5.0E-01	5.0E-01
Chlorobenzene	8.6E+03	ND	4.2E+00	1.0E-01	1.0E+01	1.0E+01	5.6E+02	ND	5.6E+02	1.0E+01	6.1E+02	ND	6.1E+02	1.0E+01	1.0E+01
Ethylbenzene	7.7E+03	ND	2.0E+01	7.0E-01	7.0E+01	7.0E+01	9.3E+03	9.2E+01	9.2E+01	7.0E+01	1.1E+04	1.2E+02	1.2E+02	7.0E+01	7.0E+01
Styrene	1.3E+04	ND	1.4E+01	1.0E-01	1.0E+01	1.4E+01	1.6E+04	ND	1.6E+04	1.4E+01	1.8E+04	ND	1.8E+04	1.4E+01	1.4E+01
Tetrachloroethene	2.7E+03	ND	1.8E-01	5.0E-03	5.0E-01	5.0E-01	8.6E+02	9.5E+00	9.5E+00	5.0E-01	1.0E+03	1.5E+01	1.5E+01	5.0E-01	5.0E-01
Toluene	5.6E+03	ND	1.4E+01	1.0E+00	1.0E+02	1.0E+02	2.2E+04	ND	2.2E+04	1.0E+02	3.2E+04	ND	3.2E+04	1.0E+02	1.0E+02
Xylenes, mixture	7.9E+03	ND	2.0E+01	1.0E+01	1.0E+03	1.0E+03	1.1E+03	ND	1.1E+03	1.0E+03	1.2E+03	ND	1.2E+03	1.0E+03	1.0E+03
SVOCs															
Acenaphthene	2.0E+05	ND	3.0E+02	2.0E+00	2.0E+02	3.0E+02	3.8E+04	ND	3.8E+04	3.0E+02	1.2E+05	ND	1.2E+05	3.0E+02	3.0E+02
Acenaphthylene	NA	ND	1.3E+02	2.0E-04	2.0E-02	1.3E+02	ND	ND	ND	1.3E+02	ND	ND	ND	1.3E+02	1.3E+02
Fluoranthene	NA	ND	5.0E+02	1.0E+00	1.0E+02	5.0E+02	2.6E+04	ND	2.6E+04	5.0E+02	8.2E+04	ND	8.2E+04	5.0E+02	5.0E+02
Fluorene	3.9E+05	ND	3.6E+02	1.0E+00	1.0E+02	3.6E+02	2.6E+04	ND	2.6E+04	3.6E+02	8.2E+04	ND	8.2E+04	3.6E+02	3.6E+02
Naphthalene	6.5E+04	ND	1.0E+02	2.0E-02	2.0E+00	1.0E+02	2.6E+02	1.0E+01	1.0E+01	1.0E+01	2.8E+02	7.7E+02	2.8E+02	1.0E+02	1.0E+02
Metals															
Barium	NA	1.0E+03	5.0E+02	2.0E+00	2.0E+02	5.0E+02	1.2E+05	ND	1.2E+05	1.0E+03	3.6E+05	ND	3.6E+05	1.0E+03	1.0E+03
Cadmium (Diet)	NA	2.0E+00	3.9E+01	5.0E-03	5.0E-01	3.9E+01	6.3E+02	8.3E+04	6.3E+02	2.0E+00	2.0E+03	1.1E+05	2.0E+03	3.9E+01	3.9E+01
Chromium III (Insoluble Salts)	NA	1.0E+02	1.2E+03	1.0E-01	1.0E+01	1.2E+03	9.6E+05	ND	9.6E+05	1.0E+02	3.1E+06	ND	3.1E+06	1.2E+03	1.2E+03
Chromium VI (Particulates)	NA	1.0E+02	1.2E+03	1.0E-01	1.0E+01	1.2E+03	1.9E+03	2.9E+01	2.9E+01	1.0E+02	6.1E+03	1.1E+02	1.1E+02	1.2E+03	1.1E+02
Lead	NA	7.5E+01	4.0E+02	1.5E-02	1.5E+00	4.0E+02	ND	ND	ND	7.5E+01	ND	ND	4.0E+02	4.0E+02	4.0E+02
Nickel Soluble Salts	NA	5.0E+01	4.2E+02	1.0E-01	1.0E+01	4.2E+02	1.3E+04	5.8E+05	1.3E+04	5.0E+01	3.8E+04	7.3E+05	3.8E+04	4.2E+02	4.2E+02
Silver	NA	2.0E+00	1.0E+01	1.0E-01	1.0E+01	1.0E+01	3.2E+03	ND	3.2E+03	2.0E+00	1.0E+04	ND	1.0E+04	1.0E+01	1.0E+01

- Notes:
- (a) Table 2, Appendix III of HSRA regulations
- (b) Appendix I of HSRA regulations. Value is the soil concentration that triggers notification requirements.
- (c) Table 1, Appendix III of HSRA regulations. For those substances not listed, reporting limit used as the Type 1 groundwater RRS
- (d) Value is the highest of the Appendix I value and the groundwater RRS x 100
- (e)
$$\frac{THI \times BW \times ATn \times 365 \text{ days/year}}{EF \times ED \times [(1/RfD) \times (1/VF + 1/PEF) \times InhR] + (1/RfD_0 \times Irs \times CF)}$$
- (f)
$$\frac{TR \times BW \times ATc \times 365 \text{ days/year}}{EF \times ED \times [(SF_1 \times (1/VF + 1/PEF) \times InhR) + (SF_0 \times Irs \times CF)]}$$
- (g) Minimum of noncarcinogenic and carcinogenic concentrations.
- (h) Minimum concentration of Number 1 and Type 1 RRS.
- (i) Maximum concentration of Number 1 and HSRA Type 1 Soil Criteria
- (j) Minimum concentration of the risk-based soil Type 3 RRS and the subsurface soil Type 3 RRS.
- RL Reporting Limit
- RRS Risk Reduction Standard
- GW Groundwater
- ND Not Determined - Can not be calculated

Exposure Parameters	Residential Type 1	Nonresidential Type 3	Unit
	1	1	
Total Hazard Index (THI)			unitless
Target Risk (TR)	1.E-05	1.E-05	unitless
Body Weight (BW)	70	70	kg
Averaging Time, Carcinogen (ATc)	70	70	yr
Averaging Time, Noncarcinogen (ATn)	30	25	yr
Exposure Duration (ED)	30	25	yr
Exposure Frequency (EF)	350	250	days/yr
Soil Ingestion Rate (IRs)	114	50	mg/day
Air Inhalation Rate (InhR)	15	20	m ³ /day
Particulate Emission Factor (PEF)	4.63E+09	4.63E+09	m ³ /kg
Conversion Factor (CF)	1.E-06	1.E-06	kg/mg
Volatilization Factor (VF)	Chemical-specific	Chemical-specific	m ³ /kg

Table 4
Soil to Ground water Leachability

	K _d	K _{oc}	Source	θ _w	θ _a	H'	θ _w +θ _a *H'/b _s	Groundwater Type 1/3 RRS (C _w , mg/L)	C _w *1	Pathway Type 1/3 C _s (mg/kg)	Groundwater Type 2 RRS (C _w , mg/L)	C _w *1	Pathway Type 2 C _s (mg/kg)	Residential Soil Leaching Criteria (3)	Industrial Worker Groundwater Type 4 RRS (C _w , mg/L)	C _w *1	Pathway Type 4 C _s (mg/kg)	Industrial Worker Soil Leaching Criteria (4)	Construction Worker Groundwater Type 4 RRS (C _w , mg/L)	C _w *1	Pathway Type 4 C _s (mg/kg)	Construction Worker Soil Leaching Criteria (4)
	(L/kg) (1)	(L/kg) (2)				(unitless)																
Volatile Organic Compounds (VOCs)																						
Acetone																						
Benzene	2.9E-01	1.5E+02	RSL	3.0E-01	1.3E-01	2.3E-01	2.2E-01	5.0E-03	5.0E-03	2.6E-03	4.5E-03	4.5E-03	2.3E-03	2.6E-03	8.8E-03	8.8E-03	4.5E-03	4.5E-03	3.4E-01	3.4E-01	1.7E-01	1.7E-01
Chlorobenzene	4.7E-01	2.3E+02	RSL	3.0E-01	1.3E-01	1.3E-01	2.1E-01	1.0E-01	1.0E-01	6.8E-02	2.7E-02	2.7E-02	1.8E-02	6.8E-02	1.3E-01	1.3E-01	9.1E-02	9.1E-02	5.7E-01	5.7E-01	3.8E-01	3.8E-01
Chloroethane	4.5E-02	2.2E+01	RSL	3.0E-01	1.3E-01	4.5E-01	2.4E-01	1.0E-03	1.0E-03	2.8E-04	6.0E+00	6.0E+00	1.7E+00	1.7E+00	3.0E+01	3.0E+01	8.4E+00	8.4E+00	1.2E+02	1.2E+02	3.3E+01	3.3E+01
Ethylbenzene	8.9E-01	4.5E+02	RSL	3.0E-01	1.3E-01	3.2E-01	2.3E-01	7.0E-01	7.0E-01	7.8E-01	1.5E-02	1.5E-02	1.7E-02	7.8E-01	2.9E-02	2.9E-02	3.2E-02	7.8E-01	6.4E+00	6.4E+00	7.1E+00	7.1E+00
Styrene	8.9E-01	4.5E+02	RSL	3.0E-01	1.3E-01	1.1E-01	2.1E-01	1.0E-01	1.0E-01	1.1E-01	5.1E-01	5.1E-01	5.6E-01	5.6E-01	2.6E+00	2.6E+00	2.9E+00	2.9E+00	1.2E+01	1.2E+01	1.3E+01	1.3E+01
Tetrachloroethene	1.9E-01	9.5E+01	RSL	3.0E-01	1.3E-01	7.2E-01	2.6E-01	5.0E-03	5.0E-03	2.3E-03	1.3E-03	1.3E-03	6.0E-04	2.3E-03	3.8E-03	3.8E-03	1.7E-03	2.3E-03	1.9E+00	1.9E+00	8.7E-01	8.7E-01
Toluene	4.7E-01	2.3E+02	RSL	3.0E-01	1.3E-01	2.7E-01	2.2E-01	1.0E+00	1.0E+00	6.9E-01	8.8E-01	8.8E-01	6.1E-01	6.9E-01	5.2E+00	5.2E+00	3.6E+00	3.6E+00	4.5E+01	4.5E+01	3.1E+01	3.1E+01
Xylenes, mixture	7.7E-01	3.8E+02	RSL	3.0E-01	1.3E-01	2.1E-01	2.2E-01	1.0E+01	1.0E+01	9.8E+00	5.9E-02	5.9E-02	5.8E-02	9.8E+00	2.9E-01	2.9E-01	2.9E-01	9.8E+00	1.2E+00	1.2E+00	1.2E+00	9.8E+00
Semi-volatile Organic Compounds																						
Acenaphthene	1.0E+01	5.0E+03	RSL	3.0E-01	1.3E-01	7.5E-03	2.0E-01	2.0E+00	2.0E+00	2.1E+01	9.4E-01	9.4E-01	9.6E+00	2.1E+01	6.1E+00	6.1E+00	6.3E+01	6.3E+01	1.5E+02	1.5E+02	1.6E+03	1.6E+03
Acenaphthylene	1.9E+00	9.5E+02	HSDB	3.0E-01	1.3E-01	4.6E-04	2.0E-01	2.0E-04	2.0E-04	4.2E-04	ND	NA	NA	4.2E-04	ND	NA	NA	4.2E-04	ND	NA	NA	4.2E-04
Fluoranthene	1.1E+02	5.5E+04	RSL	3.0E-01	1.3E-01	3.6E-04	2.0E-01	1.0E+00	1.0E+00	1.1E+02	6.3E-01	6.3E-01	7.0E+01	1.1E+02	4.1E+00	4.1E+00	4.5E+02	4.5E+02	1.0E+02	1.0E+02	1.1E+04	1.1E+04
Fluorene	1.8E+01	9.2E+03	RSL	3.0E-01	1.3E-01	3.9E-03	2.0E-01	1.0E+00	1.0E+00	1.9E+01	6.3E-01	6.3E-01	1.2E+01	1.9E+01	4.1E+00	4.1E+00	7.6E+01	7.6E+01	1.0E+02	1.0E+02	1.9E+03	1.9E+03
Naphthalene	3.1E+00	1.5E+03	RSL	3.0E-01	1.3E-01	1.8E-02	2.0E-01	2.0E-02	2.0E-02	6.6E-02	1.4E-03	1.4E-03	4.7E-03	6.6E-02	2.4E-03	2.4E-03	7.8E-03	6.6E-02	3.5E-02	3.5E-02	1.2E-01	1.2E-01
Metals																						
Barium	4.1E+01		RSL	3.0E-01	1.3E-01	0.0E+00	2.0E-01	2.0E+00	2.0E+00	8.2E+01	3.1E+00	3.1E+00	1.3E+02	1.3E+02	2.0E+01	2.0E+01	8.4E+02	8.4E+02	5.1E+02	5.1E+02	2.1E+04	2.1E+04
Cadmium	7.5E+01		RSL	3.0E-01	1.3E-01	0.0E+00	2.0E-01	5.0E-03	5.0E-03	3.8E-01	7.8E-03	7.8E-03	5.9E-01	5.9E-01	5.1E-02	5.1E-02	3.8E+00	3.8E+00	1.3E+00	1.3E+00	9.6E+01	9.6E+01
Chromium III (Insoluble Salts)	1.8E+06		RSL	3.0E-01	1.3E-01	0.0E+00	2.0E-01	1.0E-01	1.0E-01	1.8E+05	2.3E+01	2.3E+01	4.2E+07	4.2E+07	1.5E+02	1.5E+02	2.8E+08	2.8E+08	3.8E+03	3.8E+03	6.9E+09	6.9E+09
Chromium VI (Particulates)	1.9E+01		RSL	3.0E-01	1.3E-01	0.0E+00	2.0E-01	1.0E-01	1.0E-01	1.9E+00	1.7E-03	1.7E-03	3.3E-02	1.9E+00	5.7E-03	5.7E-03	1.1E-01	1.9E+00	7.2E+00	7.2E+00	1.4E+02	1.4E+02
Lead	NA	NA	SS	3.0E-01	1.3E-01	0.0E+00	2.0E-01	1.5E-02	1.5E-02	9.6E+02	ND	NA	NA	9.6E+02	1.5E-02	1.5E-02	9.6E+02	9.6E+02	ND	NA	NA	9.6E+02
Nickel Soluble Salts	6.5E+01		RSL	3.0E-01	1.3E-01	0.0E+00	2.0E-01	1.0E-01	1.0E-01	6.5E+00	3.1E-01	3.1E-01	2.0E+01	2.0E+01	2.0E+00	2.0E+00	1.3E+02	1.3E+02	5.1E+01	5.1E+01	3.3E+03	3.3E+03
Silver	8.3E+00		RSL	3.0E-01	1.3E-01	0.0E+00	2.0E-01	1.0E-01	1.0E-01	8.5E-01	7.8E-02	7.8E-02	6.6E-01	8.5E-01	5.1E-01	5.1E-01	4.3E+00	4.3E+00	1.3E+01	1.3E+01	1.1E+02	1.1E+02

NA Not Available
ND No Data Available
RSL EPA Regional Screening Level
HSDB Toxic Hazardous Substances Data Base
1. K_d values taken from USEPA Regional Screening Table User's Guide.
2. K_{oc} values taken from the EPA RSL Chemical-specific Parameters Supporting Table May 2010 unless otherwise noted. K_d = K_{oc} * f_{oc}, where f_{oc} equals 0.002.
3. Residential leaching value is the higher of the values based on the Type 1 and Type 2 groundwater RRS.
4. Non-residential leaching value is the higher of the values based on Type 3 and Type 4 groundwater RRS.

SS Site-specific leaching value for lead based on leach test results, 1997:

Sample	Total Lead (mg/kg)	Leached Lead (mg/l)
SL-12	4600	0.006
SL-20	390	0.01
SL-31	470	0.008
SL-35	960	0.013

θ_w Water-filled soil porosity = 0.3 (L/L)
θ_a Air-filled soil porosity = 0.13 (L/L)
H' Dimensionless Henry Law Constant (HLC x 41) (unitless)
b_s Dry soil bulk density = 1.5 kg/L
RRS Risk Reduction Standard
C_w Target Leachate Concentration (mg/L)
C_s Screening Level in soil (mg/kg)

Table 5
Type 2 Soil RRS, mg/kg

DRAFT

PARAMETER	Volatilization Factor (m ³ /kg)	Residential Leaching DAF=1 (mg/kg)	Risk-Based Residential Child Noncarcinogenic (mg/kg) (a)	Risk-Based Residential Child Carcinogenic (mg/kg) (b)	Risk-Based Residential Adult Noncarcinogenic (mg/kg) (a)	Risk-Based Residential Adult Carcinogenic (mg/kg) (b)	Risk-Based Soil Type 2 RRS (mg/kg) (c)	Overall Type 2 RRS DAF=1 (mg/kg) (d)
Volatile Organic Compounds (VOCs)								
Acetone	4.3E+03	2.6E+05	5.6E+01	1.8E+01	1.4E+02	1.4E+01	1.4E+01	2.6E+03
Benzene	8.6E+03	6.8E+02	1.2E+02	ND	4.3E+02	ND	1.2E+02	6.8E+02
Chlorobenzene	1.1E+03	1.7E+00	3.2E+03	ND	1.1E+01	ND	3.2E+03	1.7E+00
Chloroethane (Ethyl chloride)	7.7E+03	7.8E+01	1.8E+03	9.4E+01	7.3E+03	7.1E+01	7.1E+01	7.8E+01
Fluorobenzene	1.3E+03	5.6E+01	3.1E+03	ND	1.2E+04	ND	3.1E+03	5.6E+01
Styrene	2.7E+03	2.3E+03	1.7E+02	8.1E+00	6.8E+02	8.0E+00	8.0E+00	2.3E+03
Tetrachloroethene	5.6E+03	6.9E+01	3.6E+03	ND	1.9E+04	ND	3.6E+03	6.9E+01
Toluene	7.9E+03	9.8E+00	2.3E+02	ND	8.3E+02	ND	2.3E+02	9.8E+00
Xylenes, mixture								
SVOCs								
Acenaphthene	2.0E+05	2.1E+01	4.7E+03	ND	4.4E+04	ND	4.7E+03	2.1E+01
Acenaphthylene	NA	4.2E+04	ND	ND	ND	ND	ND	4.2E+04
Benzo[a]anthracene	NA	1.1E+02	3.1E+03	ND	2.9E+04	ND	3.1E+03	1.1E+02
Benzo[a]pyrene	3.9E+05	1.9E+01	3.1E+03	ND	2.9E+04	ND	3.1E+03	1.9E+01
Benzo[b]fluoranthene	6.3E+04	6.6E+02	5.6E+01	1.1E+01	2.0E+02	4.6E+02	1.1E+01	6.6E+02
Metals								
Barium	NA	1.3E+02	1.5E+04	ND	1.4E+05	ND	1.5E+04	1.3E+02
Cadmium (Total)	NA	5.9E+01	7.8E+01	8.9E+04	7.2E+02	7.8E+01	7.8E+01	5.9E+01
Chromium III (hexavalent sulfate)	NA	4.2E+07	1.2E+05	ND	1.1E+06	ND	1.2E+05	1.2E+05
Chromium VI (hexavalent)	NA	1.9E+00	2.3E+02	1.8E+01	2.2E+03	3.3E+01	1.8E+01	1.9E+00
Lead	NA	9.6E+02	4.3E+02	ND	ND	ND	4.3E+02	9.6E+02
Silver	NA	8.5E+01	3.9E+02	ND	3.7E+03	ND	3.9E+02	8.5E+01

Notes:
RRS (b)
RRS (b)

Risk Reduction Standard
Not Determined - Can not be calculated

(a)
$$EF \times ED \times (URD \times (1/VT + 1/VEP) \times InRO) + (URD \times In \times CP)$$

(b)
$$EF \times ED \times (URD \times (1/VT + 1/VEP) \times InRO) + (URD \times In \times CP)$$

(c)
$$EF \times ED \times (URD \times (1/VT + 1/VEP) \times InRO) + (URD \times In \times CP)$$

(d)
$$EF \times ED \times (URD \times (1/VT + 1/VEP) \times InRO) + (URD \times In \times CP)$$

Minimum of noncarcinogenic and carcinogenic concentrations
Minimum concentration of Leaching Value and Risk-based Value

Exposure Parameters

Total Hazard Index (THI)

Target Risk (TR)

Block Weight (BW)

Absorption Time, Cactinone (ATc)

Absorption Time, Novecactinone (ATn)

Exposure Duration (ED)

Exposure Frequency (EF)

Soil Ingestion Rate (IRs)

Air Inhalation Rate (InIR)

Particulate Emission Factor (PEF)

Conversion Factor (CF)

Volatilization Factor (VF)

Residential Child Type 2
Residential Adult Type 2

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
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1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

1E-05
1E-06

Table 6
Type 4 Soil RRS, mg/kg
Default Industrial Worker

PARAMETER	Volatilization Factor (m ³ /kg)	Nonresidential Leaching DAF=1 (mg/kg)	Risk-Based Industrial Worker		Risk-Based Soil IW Type 4 RRS (mg/kg) (c)	Overall IW Type 4 RRS DAF=1 (mg/kg) (d)
			Noncarcinogenic (mg/kg) (a)	Carcinogenic (mg/kg) (b)		
Volatile Organic Compounds (VOCs)						
Acetone						
Benzene	4.5E+03	4.5E-03	1.9E+02	2.3E+01	2.3E+01	4.5E-03
Chlorobenzene	8.6E+03	9.1E-02	6.1E+02	ND	6.1E+02	9.1E-02
Chloroethane (Ethyl chloride)	1.1E+03	8.4E+00	1.6E+04	ND	1.6E+04	8.4E+00
Styrene	1.3E+04	2.9E+00	1.8E+04	ND	1.8E+04	2.9E+00
Tetrachloroethene	2.7E+03	2.3E-03	1.0E+03	1.5E+01	1.5E+01	2.3E-03
Toluene	5.6E+03	3.6E+00	3.2E+04	ND	3.2E+04	3.6E+00
Xylenes, mixture	7.9E+03	9.8E+00	1.2E+03	ND	1.2E+03	9.8E+00
SVOCs						
Acenaphthene	2.0E+03	6.3E+01	1.2E+03	ND	1.2E+03	6.3E+01
Acenaphthylene	NA	4.2E-04	ND	ND	ND	4.2E-04
Fluoranthene	NA	4.5E+02	8.2E+04	ND	8.2E+04	4.5E+02
Fluorene	3.9E+03	7.6E+01	8.2E+04	ND	8.2E+04	7.6E+01
Naphthalene	6.3E+04	6.6E-02	2.8E+02	1.3E+01	1.3E+01	6.6E-02
Metals						
Barium	NA	8.4E+02	3.6E+03	ND	3.6E+03	8.4E+02
Cadmium (Diet)	NA	3.8E+00	2.0E+03	1.1E+03	2.0E+03	3.8E+00
Chromium III (Insoluble Salts)	NA	2.8E+08	3.1E+06	ND	3.1E+06	3.1E+06
Chromium VI (Particulates)	NA	1.9E+00	6.1E+03	1.1E+02	1.1E+02	1.9E+00
Lead	NA	9.6E+02	1.3E+03	ND	1.3E+03	9.6E+02
Nickel Soluble Salts	NA	1.3E+02	3.8E+04	7.3E+03	3.8E+04	1.3E+02
Silver	NA	4.3E+00	1.0E+04	ND	1.0E+04	4.3E+00

Notes:
RRS Risk Reduction Standard
ND Not Determined - Can not be calculated

(a)
$$\frac{THI \times BW \times ATn \times 365 \text{ days/year}}{EF \times ED \times [(1/IR) \times (1/VF + 1/PEF) \times InhR] + (1/IR) \times Irs \times CF}$$

(b)
$$\frac{TR \times BW \times ATc \times 365 \text{ days/year}}{EF \times ED \times [(SFI \times (1/VF + 1/PEF) \times InhR) + (SFI \times Irs \times CF)]}$$

- (c) Minimum of noncarcinogenic and carcinogenic concentrations
(d) Minimum concentration of Leaching Value and Risk-based Value.

Exposure Parameters

	Industrial Worker Type 4	Unit
Total Hazard Index (THI)	1	unitless
Target Risk (TR)	1.E-05	unitless
Body Weight (BW)	70	kg
Averaging Time, Carcinogen (ATc)	70	yr
Averaging Time, Noncarcinogen (ATn)	25	yr
Exposure Duration (ED)	25	yr
Exposure Frequency (EF)	250	days/yr
Soil Ingestion Rate (IRs)	50	mg/day
Air Inhalation Rate (InhR)	20	m ³ /day
Particulate Emission Factor (PEF)	4.63E+09	m ³ /kg
Conversion Factor (CF)	1.E-06	kg/mg
Volatilization Factor (VF)	Chemical-specific	m ³ /kg

Table 7
Summary of Soil RRS

PARAMETER	Type 1 RRS mg/kg	Type 2 RRS DAF of 1 mg/kg	Type 3 RRS Surface mg/kg	Type 3 RRS Subsurface mg/kg	Type 4 RRS IW DAF of 1 mg/kg
<u>Volatile Organic Compounds (VOCs)</u>					
Acetone					
Benzene	5.0E-01	2.6E-03	5.0E-01	5.0E-01	4.5E-03
Chlorobenzene	1.0E+01	6.8E-02	1.0E+01	1.0E+01	9.1E-02
Chloroethane (Ethyl chloride)	1.7E-01	1.7E+00	1.7E-01	1.7E-01	8.4E+00
Ethylbenzene	7.0E+01	7.8E-01	7.0E+01	7.0E+01	7.8E-01
Styrene	1.4E+01	5.6E-01	1.4E+01	1.4E+01	2.9E+00
Tetrachloroethene	5.0E-01	2.3E-03	5.0E-01	5.0E-01	2.3E-03
Toluene	1.0E+02	6.9E-01	1.0E+02	1.0E+02	3.6E+00
Xylenes, mixture	1.0E+03	9.8E+00	1.0E+03	1.0E+03	9.8E+00
<u>SVOCS</u>					
Acenaphthene	3.0E+02	2.1E+01	3.0E+02	3.0E+02	6.3E+01
Acenaphthylene	1.3E+02	4.2E-04	1.3E+02	1.3E+02	4.2E-04
Fluoranthene	5.0E+02	1.1E+02	5.0E+02	5.0E+02	4.5E+02
Fluorene	3.6E+02	1.9E+01	3.6E+02	3.6E+02	7.6E+01
Naphthalene	1.0E+01	6.6E-02	1.0E+02	1.0E+02	6.6E-02
<u>Metals</u>					
Barium	1.0E+03	1.3E+02	1.0E+03	1.0E+03	8.4E+02
Cadmium (Diet)	2.0E+00	5.9E-01	3.9E+01	3.9E+01	3.8E+00
Chromium III (Insoluble Salts)	1.0E+02	1.2E+05	1.2E+03	1.2E+03	3.1E+06
Chromium VI (Particulates)	1.0E+02	1.9E+00	1.1E+02	1.2E+03	1.9E+00
Lead	7.5E+01	4.2E+02	4.0E+02	4.0E+02	9.6E+02
Nickel Soluble Salts	5.0E+01	2.0E+01	4.2E+02	4.2E+02	1.3E+02
Silver	2.0E+00	8.5E-01	1.0E+01	1.0E+01	4.3E+00

APPENDIX C
1994 WATER BILL



CITY OF
Savannah

REVENUE DEPARTMENT
UTILITY SERVICES DIVISION
P.O. BOX 1968
SAVANNAH, GEORGIA 31402-1968

Phone: (912)651-6460 Customer Service

Fax: (912)650-7821

Fax Transmission

To: CLINTON

Location: 139 Brampton Rd

To Fax Number: (912) 232-6137

Date: 12/9/10 Time: _____

From: Sue @ Sav. Water Services

This transmission contains 4 pages, including the cover sheet. If you do not receive all pages, please call (912)651-6466.

Comments: Clinton:

Pg. 1 - Info. pg.

Pg. 2 - "Comments" page in our system

Pg. 3 - First bill: 01/28/94 w/ consumption of

4 units of water.

Sue

CITY OF SAVANNAH
UTILITY SERVICES
PO BOX 1228
SAVANNAH GA 31402-1968

pts76 CCSUB 1.12.1Inquiry on Utility Information by Account * 12/09 10:30

Account	Street No	Prefix	Street Name	Suffix Apt	Zip Code
057565B	139		BRAMPTON RD SEAPORT	TERM	31408-2205

First Name	MI	Last or Company Name	Billing Name Line 2
		BRAMPTON ENTERPRISE LLC	

Current Balance Due	Phone Number	Last Billing Amount	Last Payment Amount
93.18	912/232-8336	46.59	159.42

Billing Information	Service Information
1 Billing Information	11 Primary Service Information
2 Misc Billing Information	12 Miscellaneous Service Info
3 Credit Terms Information	13 Meter Information
4 Guarantor and Deposit	14 Historical Reads and Cons.
5 Current Bill Codes	15 Penalty and Interest
6 Billing and Payment History	16 Comments
7 Invoice Facsimile	Revenue Enforcement Info
8 Accounts Receivable Detail	20 Agreement Information

21-Address 22-Bill Name 23-Meter No 24-House No 25-Old Acct Enter Option:

CITY OF SAVANNAH
UTILITY SERVICES
PO BOX 1228
SAVANNAH GA 31402-1968

pts76 CCSUB 1.12.1

Comment Maintenance

12/09 10:30

Account Street No Prefix
057565B 139

Street Name
BRAMPTON RD SEAPORT

Suffix Apt Zip Code
TERM 31408-2205

Billing Name Line 1
BRAMPTON ENTERPRISE LLC

Billing Name Line 2

Billing Phone
912/232-8336

Comment # 1 of 8

Date 07/09/94 Time 07:33PM

Operator

Ln#

Comments

001 AMERICAN DIST/LOGISC ONLY RENTING SPACE FROM GA DRUM FOR

002 A COUPLE OF MONTHS TON 940126

Option? F B # / :

CITY OF SAVANNAH
UTILITY SERVICES
PO BOX 1228
SAVANNAH GA 31402-1968

pts76 CCSUB 1.12.1 * Inquire on Service Information *

12/09 10:30

Account	Street No Prefix	Street Name	Suffix	Apt	Zip Code
057565B	139	BRAMPTON RD	SEAPORT TERM		31408-2205

Start Dt	Fr	Book	SqNo	AltR1	Ct	Alt	Rt	2	Dwell	Seq	Cl	Rd	Stand	Water	In/Out	City
03/03/94	M	40I	310	9	I				1	B	0					2

Mode:L Line#: #Lines:202

Water Information	Water Consumption	Reader Alert Information
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Lat :	Ln#	Read Date	Consumption
Pump:	193	11/30/94	0
Main:	194	10/27/94	0
Area: 06	195	09/30/94	8
Pipe:	196	08/31/94	2
	197	07/29/94	1

Refuse Information	Assessor's Parcels
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Area:	198	05/28/94	1
	199	04/28/94	2
	200	03/29/94	4
Sewer Information	201	02/27/94	2
Area:	202	01/28/94	4
Main:			

CITY OF SAVANNAH
UTILITY SERVICES
PO BOX 1228
SAVANNAH GA 31402-1968

APPENDIX D
SUMMARY OF PROFESSIONAL ENGINEER'S SERVICES

Charles T. Ferry, P.E.
Summary of Hours and Services - Voluntary Remediation Plan
Rheem Manufacturing Company
HSI Site No. 10208
MACTEC Project No. 6121-09-0220

Submittal to EPD dated 6/29/09 (returned without approval)

40.5 hours between 6/8/09 and 6/29/09

Services included review of existing data and preparation of submittal

Revised Application Submittal to EPD dated 12/13/10

32.5 hours invoiced between 2/17/10 and 12/13/10

Services included client consultation and preparation of submittal