



**VIRGINIA DEPARTMENT OF ENVIRONMENT QUALITY**

**DIVISION OF LAND PROTECTION AND REVITALIZATION**

**OFFICE OF REMEDIATION PROGRAMS**

**STATEMENT OF BASIS**

**ALLIED CONCRETE PRODUCTS, LLC**

**FORMERLY SOLITE LLC**

**EPA ID NO. VAD042755082, VAD098443443**

**GIANT RESOURCE RECOVERY - ARVONIA, INC.**

**EPA ID NO. VAR000518878**

**ARVONIA, VIRGINIA**

**JUNE 30, 2016**

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## **1.0 INTRODUCTION**

### **1.1 Facility Name**

The Virginia Department of Environmental Quality (VDEQ) has prepared this Statement of Basis (SB) for the Allied Concrete Products, LLC (formerly referred to as Solite LLC) facility and the Giant Resource Recovery - Arvon Inc. facility located at State Road 652, Arvon, Virginia 23004 (hereinafter referred to respectively as the Allied facility and the GRRRA facility, and collectively as the Facility). The Facility was 917 acres at the time Corrective Action was initiated. In subsequent years parts of the property that were not within the operating area and were not subject to waste handling activities were sold. The current Allied facility consists of two parcels (Tax Map No. 30-32 and 30-33) totaling 223.477 acres owned by Allied Concrete Products, LLC. The current GRRRA facility consists of one parcel (Tax Map No. 30-36) of 34.86 acres owned by Giant Resource Recovery, Inc. The Facility includes EPA ID Nos. VAD042755082, VAD098443443, and VAR000518878.

The Facility is subject to the Corrective Action (CA) Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 to 6992k. Requirements of the Corrective Action Program have been made applicable to the Allied facility and to the GRRRA facility pursuant to Hazardous Waste Management permits issued by VDEQ (each a Permit and collectively the Permits). The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and waste constituents that have occurred at their property.

Information on the Corrective Action Program can be found by navigating <http://www.epa.gov/reg3wcmd/correctiveaction.htm>.

VDEQ has prepared this SB in cooperation with the United States Environmental Protection Agency (EPA) and is providing the opportunity for public comment and review on its proposal and the associated permit modification.

### **1.2 Proposed Decision**

This Statement of Basis explains VDEQ's proposed decision that further actions to remediate soil and groundwater, also known as corrective measures, are necessary to protect human health and the environment given current and reasonably anticipated future land use. VDEQ's proposed decision requires groundwater monitoring in certain areas of the Facility and the maintenance of certain property mechanisms known as Institutional Controls (ICs). ICs are generally non-engineered mechanisms such as administrative and/or legal controls that minimize or eliminate the potential for human exposure to contamination. The proposed corrective measures objectives are discussed in Section 4.0 and the proposed remedy and controls are discussed in Section 5.0 below.

This Statement of Basis summarizes information that can be found in greater detail in the work plans and reports reviewed by VDEQ and EPA, which can be found in the Administrative Record (AR). Attachments contain an index of documents for the AR and figures showing site location and the locations of Institutional Controls.

### **1.3 Public Participation**

Interested persons are invited to comment on VDEQ's proposed decision by reviewing this SB and the documents contained in the AR. The information presented in this SB can be found in greater detail in the work plans and reports submitted by the Facility to VDEQ and EPA. To gain a more comprehensive understanding of the RCRA activities that have been conducted at the Facility, VDEQ encourages the public to review these documents, which are found in the AR. A copy of the AR is available for public review, in paper or electronic format, from the VDEQ contact person, the address and telephone number of which is provided in Section 8.0 below.

When making a determination regarding the proposed decision, VDEQ will consider all written comments received during the comment period (see Section 8.0), and requirements of the Virginia Hazardous Waste Management Regulations and 40 CFR Part 124. Each person who has submitted comments will receive a written response from VDEQ. VDEQ will then incorporate the applicable portions of the final remedy into the Permits after comments have been addressed.

## **2.0 FACILITY BACKGROUND**

The following provides a detailed description of the operational and ownership history of the facility.

Solite Corporation owned and operated a lightweight aggregate manufacturing plant at the Arvon, Virginia Facility, commencing operations in 1951. Lightweight aggregate is used in the manufacture of lightweight masonry units, lightweight pre-cast elements, structural concrete, and other building materials. This lightweight aggregate, bearing the registered trade name Solite®, was used in numerous construction applications where its strength-to-weight ratio, insulating, fire resistant, weather resistant, and geotechnical properties were desired.

Solite® was manufactured in four rotary kilns located on the Facility. Solite® was produced by a carefully controlled rotary kiln process in which a specially prepared raw material (clay, shale, slate, and other materials) was fed into kilns fired at a minimum temperature of approximately 1,800° Fahrenheit (F) necessary to expand the raw material into lightweight aggregate. Initial operations utilized coal as a primary fuel source for the kilns. The kilns and associated raw material and finished product processing facilities were located on an approximately 917 acre tract of land situated in Buckingham County, Virginia, along both sides of State Road 652 in the Town of Arvon, Virginia. Raw materials were primarily obtained from the on-site slate quarry, the active portion of which is located south of State Road 652. To the north, the property borders the Slate River and then the James River east of its confluence with the Slate River. Buckingham Branch Rail Road bisects the former production area of the Facility.

Kilns 5, 6, 7, and 8 were constructed in 1951, 1952, 1961, and 1966 respectively. Kiln 5 ceased operations prior to 1991 and Kilns 6, 7, and 8 ceased operations by 2012. At the current time, all kilns and finish product processing facility equipment have been removed.

In the 1970s, the Facility began to use alternative liquid fuels, now classified as hazardous waste derived fuel, to provide the energy for lightweight aggregate production. The liquids, primarily spent solvents and other liquid hydrocarbons, were obtained from various generators including, but not limited to, furniture, automobiles, textile, pharmaceutical, and cosmetic manufacturers. Upon promulgation of the Resource Conservation and Recovery Act (RCRA), the fuel used at the facility became classified as hazardous because it was ignitable, which made the material suitable for use as fuel. Consequently, the tank farm portion of the Facility was transferred to Oldover Corporation, a subsidiary of Solite Corporation, and permitted as a hazardous waste storage facility under EPA ID No. VAD098443443.

At that time, the use of these flammable wastes as fuel (i.e. energy recovery) in lightweight aggregate kilns (i.e. industrial furnaces) was specifically exempted from RCRA permitting and therefore, the lightweight aggregate operations, owned and operated under Solite Corporation, were not permitted under RCRA at that time.

Upon promulgation of the RCRA Boiler and Industrial Furnace (BIF) regulations (August 21, 1991), the use of hazardous wastes as fuel in lightweight aggregate kilns was no longer exempt from RCRA permitting. Prior to permitting, the Facility operated under Interim Status under the BIF regulations and was later permitted under EPA ID No. VAD042755082 (under the company name Solite Corporation). The lightweight aggregate manufacturing operations later became subject to the Clean Air Act National Emission Standards for Hazardous Waste Combustors (HWC MACT regulations).

In 1999, Solite Corporation (including Oldover Corporation), was purchased by Giant Cement Holding, Inc. (GCHI). The tank farm facility's name was eventually changed to Giant Resource Recovery – Arvonía, Inc. and the lightweight aggregate facility continued to operate under the name “Solite Corporation.”

In 2005, the real estate on which the lightweight aggregate facility operated (and permit VAD042755082) was purchased from Solite Corporation by Solite, LLC, a subsidiary of Southern Aggregates, LLC, a separately owned and operated Virginia company, unaffiliated with GCHI or the former Solite Corporation. Also in 2005, Solite, LLC purchased the real estate on which the hazardous waste tank farm operated. Giant Resource Recovery – Arvonía, Inc. continued to operate the hazardous waste tank farm under permit VAD098443443 from 2005 until 2010. At that point, Solite, LLC took over operation of the tank farm and became the permittee under permit VAD098443443.

The only portion of the Facility that Solite, LLC did not buy in 2005 contained the former lightweight aggregate kiln dust settling pond (SWMU #9). That parcel was conveyed by Solite Corporation to Giant Resource Recovery, Inc. in 2005. In 2010, a separate Final Hazardous Waste Management Permit for the Corrective Action of Solid Waste Management Unit #9 (VAR000518878) was issued to Giant Resource Recovery – Arvonía, Inc.

In August 30, 2011, Solite, LLC transferred the property it owned at the Facility to Allied Concrete Products, LLC (Allied), and the name of the permittee under the two operating permits at the Facility (VAD098443443 and VAD042755082) was changed to Allied. Allied thereafter operated the tank farm and kilns until closure was completed in 2012 (all RCRA permitted units have completed RCRA closure). The corrective action requirements under the lightweight aggregate kiln permit VAD042755082 were transferred to the hazardous waste tank farm storage permit in 2013 and permit VAD042755082 was then allowed to expire. On June 30, 2015, Allied transferred the property it owned at the Facility to Eagle Real Estate, LLC, a related entity. Permit VAD098443443 issued to Allied and Permit VAR000518878 issued to GRRRA remain in effect for the completion of corrective action.

### 3.0 SUMMARY OF ENVIRONMENTAL HISTORY

Based on a review of files maintained by the DEQ and EPA Region 3, a number of solid waste management units (SWMUs) and an Area of Concern (AOC) were identified at the Facility. Site layout maps are included as Figures 1a and 1b showing the location of each SWMU and AOC. The following table lists each SWMU and AOC.

**SWMU and AOC Identification Table**

<b>Identification</b>	<b>SWMU/AOC Name</b>
S-1	Rotary Kiln No. 5
S-2	Rotary Kiln No. 6
S-3	Rotary Kiln No. 7
S-4	Rotary Kiln No. 8
S-5	Air Pollution Control Baghouse No. 7
S-6	Air Pollution Control Baghouse No. 8
S-7	Former APC Wet Scrubber
S-8	Former APC Wet Scrubber
S-9	Former Surface Impoundment – Scrubber Water
S-10	Used Oil Tank
S-11	Used Oil Tank Collection Cart
S-12	Parts Washer
S-13	Waste Dumpsters
S-14a,b,c	Septic Tanks and Drain Fields
S-15	Scrap Metal Area 1
S-16	Scrap Metal Area 2
S-17	Scrap Metal Area 3
S-18	Scrap Metal Area 4
S-19	Scrap Metal Area 5
S-20	Former Open Dumping Area
S-21	Former Landfill
S-22	Former Used Oil Tank
S-23	Former Brick Accumulation Area

S-24	Former Brick Accumulation Area
S-25	Permitted HW Tank Farm
S-26	Former Truck Loading/Unloading Area
S-27	Former Truck Loading/Unloading Area
S-28	Waste Transfer Pipelines
S-29	Non-Hazardous Waste Oil Tanks
S-30	Strainer Box
S-31	Underground Sump and Associated Piping
S-32	Heavy Oil Transfer Line
S-33	Former Underground Waste Transfer Pipeline
S-34	Laboratory Waste Collection Area
S-35	Runoff Collection Settling Pond
A-1	Finished Lightweight Aggregate Piles

Based on operating history and records, it was determined that no further investigation or action was necessary at SWMUs 12 through 21, 23, 24, 34, 35, and AOC A-1 in order to meet the goals of the Corrective Action program. Various site investigations focused on the remaining SWMUs and combined them into four areas. The four areas include Group K – Kilns, Group B – Baghouses, Group T – Tank Farm, and Group U - Used Oil Area. In addition, groundwater was characterized site-wide during the environmental investigations. Below is a summary of the Facility’s environmental investigations and activities.

**RCRA Closure Activities**

Allied Concrete Products, LLC (Allied) initiated RCRA Closure in accordance with the requirements of both Permits. Notification of intent to initiate final closure activities was completed on January 4, 2012 at which time final closure at both facilities commenced. Final Closure Reports for the Allied and GRRRA facilities were submitted to the VDEQ on August 8, 2012 and December 13, 2012 respectively. VDEQ approved closure for the entire Facility (EPA I.D. Nos. VAD098443443 and VAD042755082) on December 12, 2012 and February 26, 2013, respectively.

**RCRA Facility Investigation Activities**

The Facility’s Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) were identified in the National Corrective Action Prioritization System (NCAPS) Assessment report, dated April 17, 1997, which was prepared by the VDEQ in conjunction with the EPA Region 3. Additional SWMU and AOC identification was in the EPA Environmental Indicator Inspection Report dated July 21, 1999 using various numbering and nomenclature. In both documents, SWMUs were identified and migration pathways (groundwater, surface water, air, and soil) were evaluated for potential or actual contamination to determine the environmental priority ranking for the Facility.

In a preliminary sampling effort conducted on September 1 and 2 of 2004, the VDEQ collected 44 soil samples (including background and field duplicates) and four groundwater samples (QA/QC samples). An evaluation of the VDEQ collected data by Solite Corporation was submitted to VDEQ in a letter dated November 3, 2005. Subsequently, Solite, LLC (an independent company) performed site wide due diligence activities at the Solite Corporation facility associated with a potential property acquisition. Solite, LLC contracted with an environmental consultant (ERM) to perform a soil sampling investigation at the Facility. The Soil Sampling Investigation activities were performed in November 2004 and consisted of the collection of six soil and eight groundwater samples. A second soil investigation was completed at the Facility in June of 2010 when five additional soil samples were collected.

A conference call was held on June 17, 2010 and a subsequent letter was submitted recommending re-collection of two soil samples in the Tank Farm area to confirm the inconsistent analytical results for arsenic and vanadium as well as sampling of four groundwater wells. Approval for the sampling was provided by VDEQ on September 27, 2010 and the report of the results was submitted to VDEQ on February 9, 2011. The sample collection activities included the collection of five additional background samples and the development of 95% UCL background soil levels for metals. The soil results indicated that the original inconsistent results could not be duplicated. The report recommended further sampling of groundwater.

Further soil sampling for thallium detections were proposed in a December 2013 Risk Evaluation Sampling Plan that was approved by VDEQ in a letter on January 7, 2014. The soil samples were collected on January 28, 2014 and the results of previous sampling events were presented in the 2014 Comprehensive Site Evaluation Report. The Report was approved by VDEQ in a letter dated December 3, 2015. The results are summarized below:

### Soil Results

The 2014 Comprehensive Site Evaluation Report included a total of 63 soil samples that were collected in 2004, 2010 and 2014. The report included screening of the results using both Industrial and Residential RSLs for direct contact. A site conceptual model and risk assessment was included in the report. The results of the evaluation are as follows:

- No Volatile Organic Compounds (VOCs); Semi-Volatile Organic Compounds (SVOCs); or dioxins were detected in the soil samples above residential RSLs (unrestricted use).
- The following metals had at least one detection in exceedance of residential RSLs but below industrial RSLs: aluminum; antimony; arsenic; cadmium; cobalt; copper; iron; lead; manganese; selenium; and vanadium.
- Fifteen sample locations had at least one exceedance of the industrial screening criteria (industrial RSLs) for antimony; arsenic; cobalt; iron; manganese; and thallium. These samples were grouped into four primary areas which were individually evaluated in a risk assessment using an industrial use scenario. The results for site soils at the four areas indicated the carcinogenic risk is within EPA Region 3's acceptable cumulative risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and the



Hazard Index is below the acceptable level of 1 for non-carcinogens. Therefore, the results of the risk assessment showed the cumulative risk and hazard index are within the acceptable range/limit for an industrial use scenario. (Note – one of the four soil areas was subsequently split into two separate areas which resulted in there being a total of five soil areas identified below.)

### Groundwater Results

Groundwater was investigated through a monitoring well network consisting of nine monitoring and two background wells. The wells were installed in 1989 and 2004. Two of the wells were replaced in 2012. A total of 26 groundwater samples have been collected from 11 wells to date. The results of the groundwater evaluation are as follows:

- EPA and VDEQ utilize drinking water standards, namely MCLs, or tap water RSLs for constituents that do not have an MCL, for groundwater data screening purposes. Two monitoring wells contained select metals which exceeded the groundwater screening criteria:
  - MW-7 (arsenic, cobalt, and manganese); and
  - MW-8R (arsenic and manganese).
- No additional exceedances of RCRA metals, SVOCs or VOCs above applicable screening standards have been reported.
- Six monitoring wells were properly abandoned in 2015. Three monitoring wells (MW-1, MW-7, MW-8R) and two background wells (BW-1 and BW-2) remain at the Facility.
- A plan for groundwater monitoring was approved by VDEQ on March 24, 2015.

## **4.0 CORRECTIVE ACTION OBJECTIVES**

### A. Soils

DEQ has determined that industrial risk based levels are protective of human health and the environment for individual contaminants at this Facility provided that the five restricted soil areas of the Facility are not used for residential purposes. The designated soil restriction areas at the Allied facility are shown on Figure 2a (restricted soil areas #1 - #4), and the designated soil restriction area at the GRRA facility is shown on Figure 2b (restricted soil area #5). Therefore, DEQs Corrective Action Objective for Facility soils is to control exposure to the hazardous constituents remaining in soils by requiring compliance with and maintenance of land use restrictions at the restricted areas. In addition, an agency approved Materials Management Plan will be required for any soil excavation and/or management in these areas of the Facility. The requirement for a Materials Management Plan and the land use restrictions will be imposed in the Permits or in future UECA covenants.

## B. Groundwater

DEQ has determined that drinking water standards, namely MCLs or tap water RSLs for constituents that do not have an MCL, for contaminants are protective of human health and the environment for individual contaminants at this Facility. The Facility may elect to establish site-specific background concentrations in accordance with appropriate procedures, and utilize the site-specific background concentrations to compare with groundwater concentrations. Alternatively, DEQ may allow comparison to other risk-based criteria it approves. DEQ's Corrective Action Objectives for Facility groundwater are the following:

1. To control exposure to the hazardous constituents in the groundwater by requiring the compliance with and maintenance of a groundwater use restriction at the groundwater restricted area of the Facility as long as the Remedial Goal for the each constituent set forth on the chart below is exceeded. The groundwater restriction area is wholly within the Allied facility and is shown on Figure 3. This restriction will be imposed by the Permit applicable to the Allied facility and in a future UECA covenant applicable to the Allied facility; and
2. To monitor groundwater within the groundwater restriction area pursuant to the approved groundwater monitoring plan until such time as it can be shown that the concentrations of hazardous constituents set forth on the chart below demonstrate a generally stable or decreasing trend.

<b>Constituent</b>	<b>Remedial Goal*</b>	<b>Basis</b>
Arsenic	Highest of 10 ug/L or background	EPA Drinking Water MCL
Cobalt	Highest of 6 ug/L or background	EPA Tap Water RSL
Manganese	Highest of 430 ug/L or background	EPA Tap Water RSL

ug/L = micrograms per liter

\* The remedial goal is achieved when the concentration does not exceed the highest of the criteria referenced. The Allied facility may elect to establish site-specific background concentrations in accordance with established procedures, and utilize the site-specific background concentrations as the remedial goal upon approval by VDEQ. Alternatively, VDEQ may approve other risk-based criteria as the remedial goal.

## 5.0 SUMMARY OF PROPOSED REMEDY

### A. Summary

Under this proposed remedy, DEQ is requiring the following actions:

1. The Allied facility shall continue to monitor groundwater pursuant to the approved groundwater monitoring plan, and any revisions thereto, until such time

as such time as it can be shown that the concentrations of hazardous constituents set forth on the chart above demonstrate a generally stable or decreasing trend.

2. Maintain compliance with land use restrictions and institutional controls. Institutional controls will be imposed by the Permits or future UECA covenants. Institutional controls include:
  - A. The soils restriction areas of the Facility shall not be used for residential purposes or for children's (under the age of 16) daycare facilities, schools, or playground purposes.
  - B. Groundwater beneath the designated groundwater restriction area of the Allied facility shall not be used for any purposes except for environmental monitoring and testing, or for non-contact industrial use as may be approved by VDEQ. Any new groundwater wells installed in the designated groundwater restriction area must be approved VDEQ.
  - C. Excavation and/or management of soil in the soil restriction areas shall be conducted in accordance with a VDEQ-approved Materials Management Plan. Future modifications at the Facility that could be reasonably understood to adversely affect or interfere with the integrity or protectiveness of the final remedy will be evaluated to identify and address those potential impacts or interferences. No removal, disturbance, or alteration shall occur to any corrective action components installed at the soil and groundwater restriction areas of the property, including, but not limited to groundwater monitoring wells, without VDEQ approval.

Once the remedial goals set forth in the chart above are achieved for groundwater within the groundwater restriction area, the then current owner of the Allied facility may seek to modify the UECA covenant applicable to that facility to remove the groundwater use restriction.

#### B. Implementation

VDEQ proposes to implement the remedy through the Hazardous Waste Management Permits for Site-Wide Corrective Action and UECA covenants. Therefore, DEQ does not anticipate any regulatory constraints in implementing its remedy.

#### C. Reporting Requirements

Compliance with the institutional controls and groundwater monitoring requirements shall be evaluated, certified and reported to VDEQ in accordance with reporting requirements in the Permits and in future UECA covenants.

## 6.0 ENVIRONMENTAL INDICATORS

Under the Government Performance and Results Act ("GPRA"), EPA has set national goals to address RCRA corrective action facilities. Under GPRA, EPA evaluates two key environmental clean-up indicators for each facility: (1) Current Human Exposures Under

Control and (2) Migration of Contaminated Groundwater Under Control. The Facility met the Human Health indicator on February 14, 2002 (for EPA ID No. VAD098443443) and on September 26, 2005 (for EPA ID No. VAD042755082). The Facility met the Groundwater indicator on September 27, 2007 (for both VAD098443443 and VAD042755082).

## **7.0 FINANCIAL ASSURANCE**

Since the final remedy for the Facility is limited to institutional controls and periodic groundwater monitoring, financial assurance for corrective action is not warranted or required for the Facility.

## **8.0 PUBLIC PARTICIPATION**

Before DEQ makes a final decision on its proposed final remedy for the Facility, the public may participate in the decision selection process by reviewing this SB and documents contained in the Administrative Record for the Facility. The Administrative Record contains all information considered by DEQ in reaching this proposed decision. Interested parties are encouraged to review the Administrative Record and comment on DEQ's proposed decision. For additional information regarding the proposed remedy, please contact Mr. Ryan Kelly at (804) 698-4045 or [ryan.kelly@deq.virginia.gov](mailto:ryan.kelly@deq.virginia.gov).

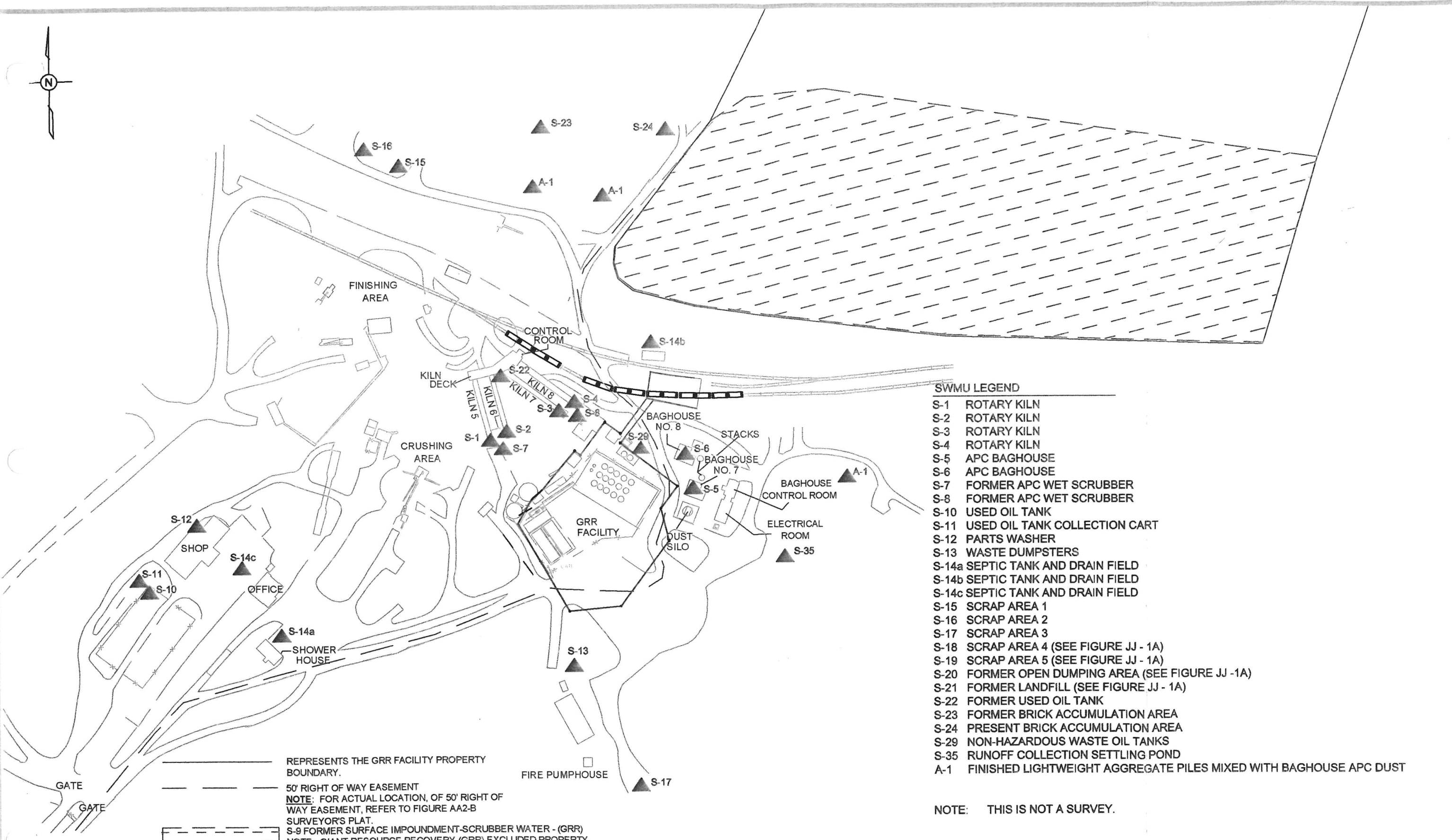
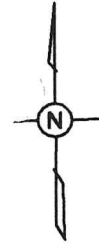
The public comment period will last sixty (60) calendar days from the date the notice is published in a local newspaper. Comments may be submitted by mail, fax, or e-mail to Mr. Russ McAvoy at the address listed below.

Virginia Department of Environmental Quality  
629 East Main Street  
P.O. Box 1105  
Richmond, VA 23218  
Contact: Mr. Russ McAvoy  
Phone: (804) 698 - 4194  
Email: [russell.mcavoy@deq.virginia.gov](mailto:russell.mcavoy@deq.virginia.gov)

DEQ will make a final decision after considering all comments, consistent with the applicable RCRA requirements and regulations. If the decision is substantially unchanged from the one in this Statement of Basis, DEQ will issue a final decision and inform all persons who submitted written comments or requested notice of DEQ's final determination. If the final decision is significantly different from the one proposed, DEQ will issue a public notice explaining the new decision and will reopen the comment period.

## **Attachments**

**Figure 1a – SWMU and AOC Location Map 1**



**SWMU LEGEND**

- S-1 ROTARY KILN
- S-2 ROTARY KILN
- S-3 ROTARY KILN
- S-4 ROTARY KILN
- S-5 APC BAGHOUSE
- S-6 APC BAGHOUSE
- S-7 FORMER APC WET SCRUBBER
- S-8 FORMER APC WET SCRUBBER
- S-10 USED OIL TANK
- S-11 USED OIL TANK COLLECTION CART
- S-12 PARTS WASHER
- S-13 WASTE DUMPSTERS
- S-14a SEPTIC TANK AND DRAIN FIELD
- S-14b SEPTIC TANK AND DRAIN FIELD
- S-14c SEPTIC TANK AND DRAIN FIELD
- S-15 SCRAP AREA 1
- S-16 SCRAP AREA 2
- S-17 SCRAP AREA 3
- S-18 SCRAP AREA 4 (SEE FIGURE JJ - 1A)
- S-19 SCRAP AREA 5 (SEE FIGURE JJ - 1A)
- S-20 FORMER OPEN DUMPING AREA (SEE FIGURE JJ - 1A)
- S-21 FORMER LANDFILL (SEE FIGURE JJ - 1A)
- S-22 FORMER USED OIL TANK
- S-23 FORMER BRICK ACCUMULATION AREA
- S-24 PRESENT BRICK ACCUMULATION AREA
- S-29 NON-HAZARDOUS WASTE OIL TANKS
- S-35 RUNOFF COLLECTION SETTLING POND
- A-1 FINISHED LIGHTWEIGHT AGGREGATE PILES MIXED WITH BAGHOUSE APC DUST

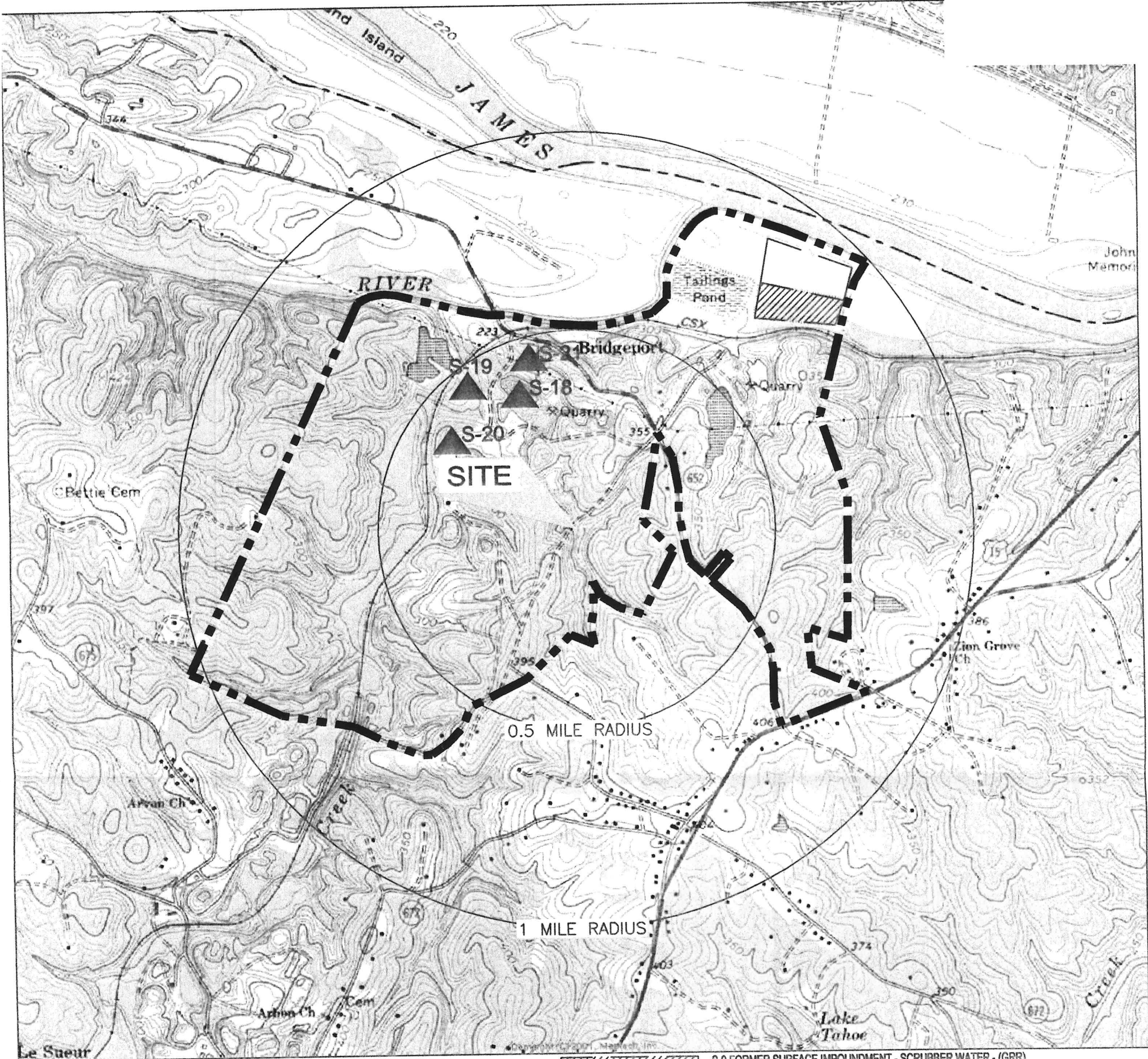
\_\_\_\_\_ REPRESENTS THE GRR FACILITY PROPERTY BOUNDARY.  
 - - - - - 50' RIGHT OF WAY EASEMENT  
 \_\_\_\_\_ NOTE: FOR ACTUAL LOCATION, OF 50' RIGHT OF WAY EASEMENT, REFER TO FIGURE AA2-B SURVEYOR'S PLAT.  
 - - - - - S-9 FORMER SURFACE IMPOUNDMENT-SCRUBBER WATER - (GRR)  
 NOTE: GIANT RESOURCE RECOVERY (GRR) EXCLUDED PROPERTY SWMU 9 APPROX. 14.88 ACRES OF THE EXCLUDED PARCEL WHICH IS APPROX. 34.86 ACRES  
 \_\_\_\_\_ REPRESENTS THE APPROX. 34.86 ACRE PROPERTY BOUNDARY OF THE PARCEL OWNED BY GRR  
 NOTE: SEE SOLITE CORPORATION SURVEY DATED JAN. 11, 2005 BY ENGINEERING DESIGN ASSOCIATES FOR COMPLETE PROPERTY BOUNDARY OF SWMU 9 PARCEL.

NOTE: THIS IS NOT A SURVEY.

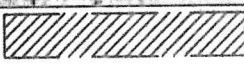
<b>SITE PLAN - SWMUs, HWMUs, &amp; AOCs</b>		Rev. 07/2005
SOLITE LLC, ARVONIA, VIRGINIA (EPA ID No. VAD042755082)		SCALE: 1" = 150'
		<b>JJ-1</b>

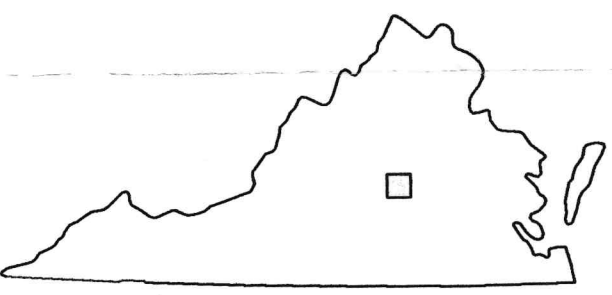
**Figure 1b – SWMU and AOC Location Map 2**



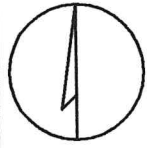



SOURCE: USGS 7.5 MINUTE SERIES  
 TOPOGRAPHIC QUADRANGLE 1987  
 ARVONIA, VIRGINIA  
 CONTOUR INTERVAL = 10'

 S-9 FORMER SURFACE IMPOUNDMENT - SCRUBBER WATER - (GRR)  
 NOTE: GIANT RESOURCE RECOVERY (GRR) EXCLUDED PROPERTY  
 SWMU 9 IS APPROX. 14.88 ACRES OF THE EXCLUDED PARCEL WHICH  
 IS APPROX. 34.86 ACRES  
 APPROXIMATE SITE BOUNDARY.  
 REPRESENTS THE 34.86 ACRE PROPERTY  
 BOUNDARY OF THE PARCEL OWNED BY GRR



QUADRANGLE LOCATION

DRAFTED BY: MEI	<b>SITE PLAN - SMWUs</b>		
CHECKED BY: W.C.H.	<b>SOLITE CORPORATION ARVONIA, VIRGINIA EPA ID No. VAD042755082</b>		
NORTH 	NOTE: THIS IS NOT A SURVEY.		
	SCALE IN FEET 	DATE 07/20/05	FIGURE JJ-2

**Figure 2a – Soil Restriction Areas 1-4**

LINE TABLE - PARCEL 1		
LINE	BEARING	DISTANCE
L1	N19°26'35"E	83.90'
L2	S70°33'25"E	40.00'
L3	S19°26'35"W	83.90'
L4	N70°33'25"W	40.00'

LINE TABLE - PARCEL 2		
LINE	BEARING	DISTANCE
L5	N14°15'37"E	40.00'
L6	S75°44'23"E	82.94'
L7	S14°15'37"W	40.00'
L8	N75°44'23"W	82.94'

CURVE TABLE - PARCEL 3						
CURVE	RADIUS	DELTA ANGLE	LENGTH	TANGENT	CHORD BRNG	CHORD
C1	1541.46'	9°48'27"	263.86'	132.25'	S80°04'54"E	263.54'

CURVE TABLE - PARCEL 4						
CURVE	RADIUS	DELTA ANGLE	LENGTH	TANGENT	CHORD BRNG	CHORD
C2	1441.46'	8°44'43"	220.01'	110.22'	N79°33'02"W	219.80'

STATE GRID COORDINATES - PARCEL 1 NAD 83, VA SOUTH ZONE		
POINT	NORTH	EAST
1	3780915.178	11532870.362
2	3780994.294	11532898.291
3	3780980.979	11532936.009
4	3780901.863	11532908.081

STATE GRID COORDINATES - PARCEL 2 NAD 83, VA SOUTH ZONE		
POINT	NORTH	EAST
5	3781229.386	11532971.824
6	3781268.153	11532981.677
7	3781247.724	11533062.058
8	3781208.956	11533052.205

POINT		LAT. AND LONG. PARCEL 3	
9	LAT: 37.7092981 LON: -78.3254561		
10	LAT: 37.7092608 LON: -78.3252797		
11	LAT: 37.7091348 LON: -78.3243826		
12	LAT: 37.7090749 LON: -78.3243494		
13	LAT: 37.7088298 LON: -78.3235563		
14	LAT: 37.7087288 LON: -78.3235384		
15	LAT: 37.7081894 LON: -78.3235602		
16	LAT: 37.7080386 LON: -78.3243358		
17	LAT: 37.7078393 LON: -78.3248228		
18	LAT: 37.7083966 LON: -78.3248088		
19	LAT: 37.7085199 LON: -78.3247548		
20	LAT: 37.7089108 LON: -78.3252885		

LINE TABLE - PARCEL 3		
LINE	BEARING	DISTANCE
L9	S75°10'41"E	52.82'
L10	S23°51'18"E	23.84'
L11	N19°06'48"E	47.52'

STATE GRID COORDINATES - PARCEL 3 NAD 83, VA SOUTH ZONE		
POINT	NORTH	EAST
9	3781863.165	11533409.874
10	3781849.653	11533460.936
11	3781804.260	11533720.533
12	3781782.457	11533730.175
13	3781693.646	11533959.797
14	3781656.880	11533965.040
15	3781460.447	11533959.103
16	3781405.128	11533734.813
17	3781332.317	11533594.076
18	3781535.255	11533597.735
19	3781580.154	11533613.294
20	3781722.211	11533458.624

POINT		LAT. AND LONG. PARCEL 4	
21	LAT: 37.7096110 LON: -78.3255915		
22	LAT: 37.7096815 LON: -78.3256220		
23	LAT: 37.7109049 LON: -78.3242644		
24	LAT: 37.7113118 LON: -78.3231611		
25	LAT: 37.7094155 LON: -78.3244437		
26	LAT: 37.7095261 LON: -78.3251907		

LINE TABLE - PARCEL 4		
LINE	BEARING	DISTANCE
L12	N75°10'41"W	120.02'
L13	N19°04'42"W	27.12'

STATE GRID COORDINATES - PARCEL 4 NAD 83, VA SOUTH ZONE		
POINT	NORTH	EAST
21	3781977.028	11533370.494
22	3782002.658	11533361.629
23	3782448.858	11533753.546
24	3782597.641	11534072.430
25	3781906.460	11533702.676
26	3781946.325	11533486.518

POINT	LAT. AND LONG. PARCEL 1
1	LAT: 37.7066974 LON: -78.3273271
2	LAT: 37.7069146 LON: -78.3272301
3	LAT: 37.7068778 LON: -78.3270998
4	LAT: 37.7066607 LON: -78.3271968

POINT	LAT. AND LONG. PARCEL 2
5	LAT: 37.7075598 LON: -78.3269744
6	LAT: 37.7076662 LON: -78.3269401
7	LAT: 37.7076097 LON: -78.3266624
8	LAT: 37.7075033 LON: -78.3266967

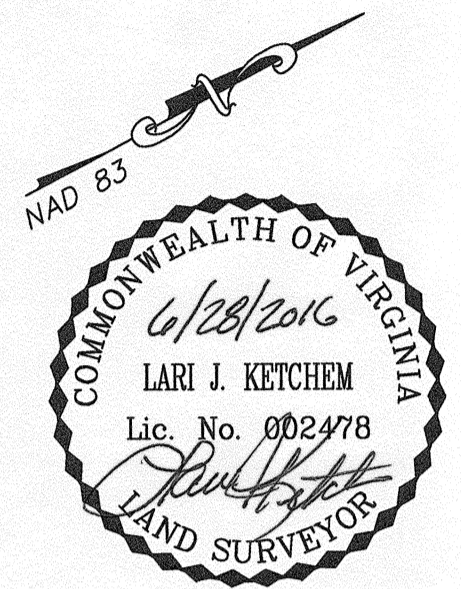
**RESTRICTED  
PARCEL 1  
0.077 ACRE**

**RESTRICTED  
PARCEL 2  
0.076 ACRE**

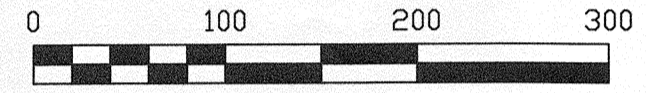
**RESTRICTED  
PARCEL 4  
4.206 ACRES**

**RESTRICTED  
PARCEL 3  
3.597 ACRES**

STATE GRID COORDINATES SOIL BORINGS & MONITORING WELLS NAD 83, VA SOUTH ZONE		
DESCRIPTION	NORTH	EAST
D-SB1	3780927.380	11532895.879
D-SB2	3780968.777	11532910.493
WO-SB1	3781243.843	11532996.134
WO-SB2	3781233.267	11533037.748
TF-SB1	3781517.544	11533697.432
TF-SB3	3781467.171	11533696.523
TF-SB4	3781527.877	11533861.095
TF-SB5	3781609.414	11533729.268
UO-SB1,2	3781618.835	11533854.859
B-SB2	3781639.188	11533848.576
B-SB3	3781589.891	11533858.736
B-SB4	3781651.291	11533864.825
K-SE1,2	3781778.772	11533544.874
SI-SB1	3782154.315	11534019.307
SI-SB2	3782494.743	11534088.398
SI-SB3	3782367.106	11533814.836
MON. WELL BW2	3780827.906	11532952.404
MON. WELL 5	3781595.478	11533812.577
MON. WELL 6R	3781787.736	11533845.370
MON. WELL 7	3781980.370	11533475.150



N/F  
ALLIED CONCRETE  
PRODUCTS LLC  
D.B. 394, PG. 224  
TM 30-33



**FIGURE 2**  
**COMPILED PLAT SHOWING  
TAX PARCELS TM 30-32 AND TM 30-33  
LYING ON THE NORTH AND SOUTH LINES  
OF THE BUCKINGHAM BRANCH RAILROAD  
CO. R/W AND THE EAST LINE OF ROUTE  
NO. 652, BRIDGEPORT ROAD**

MARSHALL DISTRICT, BUCKINGHAM COUNTY, VIRGINIA  
DATE: JUNE 28, 2016 SCALE: 1" = 100'  
DRAWN BY: LJK CHECKED BY: LJK

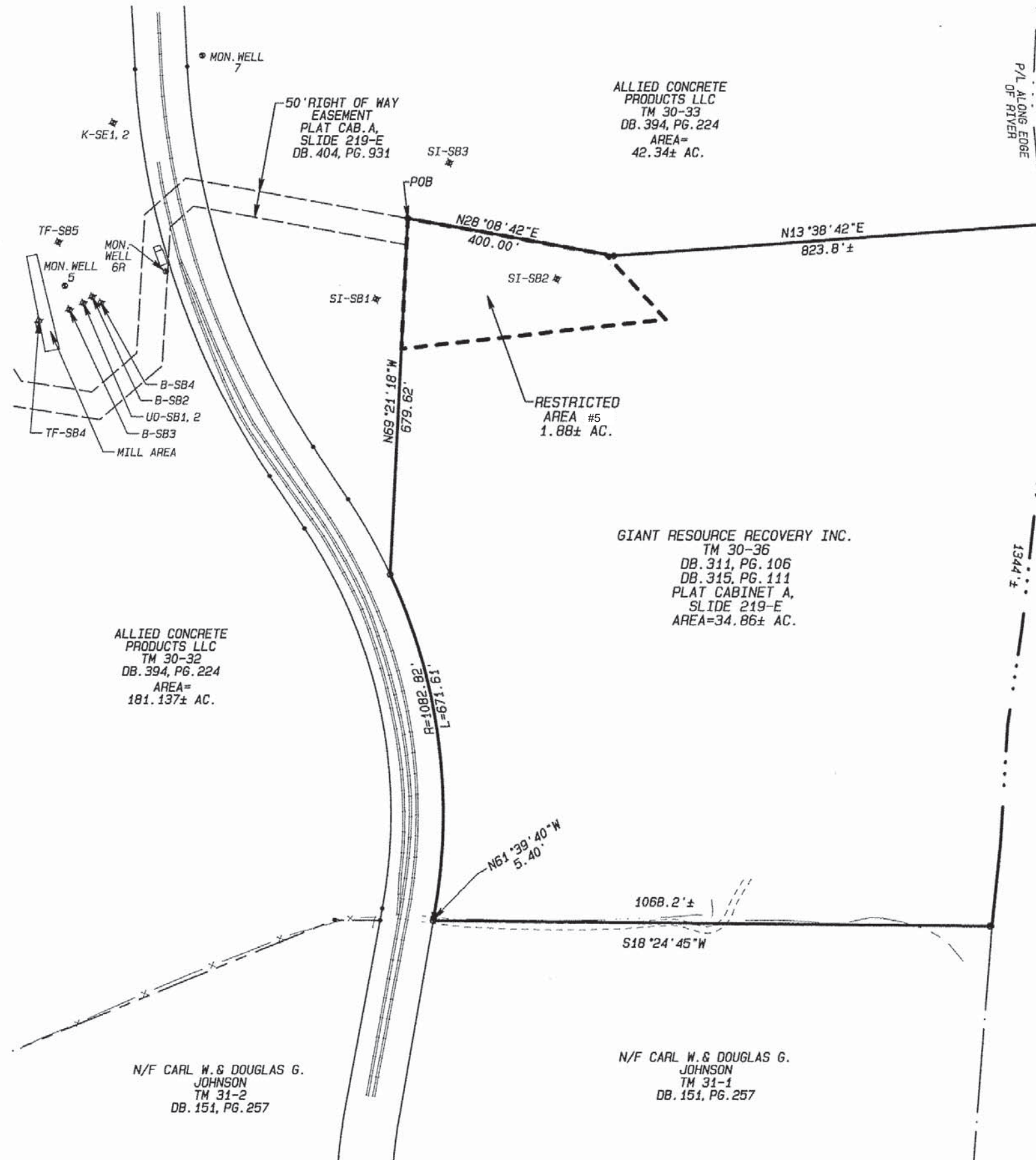
**KOONTZ-BRYANT, P.C.**  
Site Development Solutions  
1703 N. PARHAM ROAD  
RICHMOND, VIRGINIA 23229  
(804) 740-9200 (804) 740-7338 Fax  
kbpc@koontzbryant.com

**Figure 2b – Soil Restriction Area 5**

REFERENCE:

THIS PROPERTY APPEARS TO FALL WITHIN ZONE 'X.A.' AS SHOWN ON FIRM FLOOD INSURANCE RATE MAP.  
 NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT.  
 THE BOUNDARY INFORMATION WAS TAKEN FROM FORMER PLATS BY  
 ENGINEERING DESIGN ASSOCIATES DATED MAY 7, 2013 & JANUARY 11, 2005.  
 REFERENCE MAP BY MICHAEL SURVEYING & MAPPING, P.C.  
 DATED DECEMBER 18, 2012 FOR STATE PLANE COORDINATE  
 VALUES.

GRAPHIC SCALE 1"=200'



LATITUDE - LONGITUDE  
 RESTRICTED AREA #5

POB -78.3237892°	37.7103832°
-78.3231611°	37.7113118°
-78.3226303°	37.7115076°
-78.3229829°	37.7101405°
POB -78.3237892°	37.7103832°

JAMES RIVER

PLAT OF PROPERTY SITUATED EAST OF ROUTE NO. 652 AND NORTH OF ROUTE NO. 15

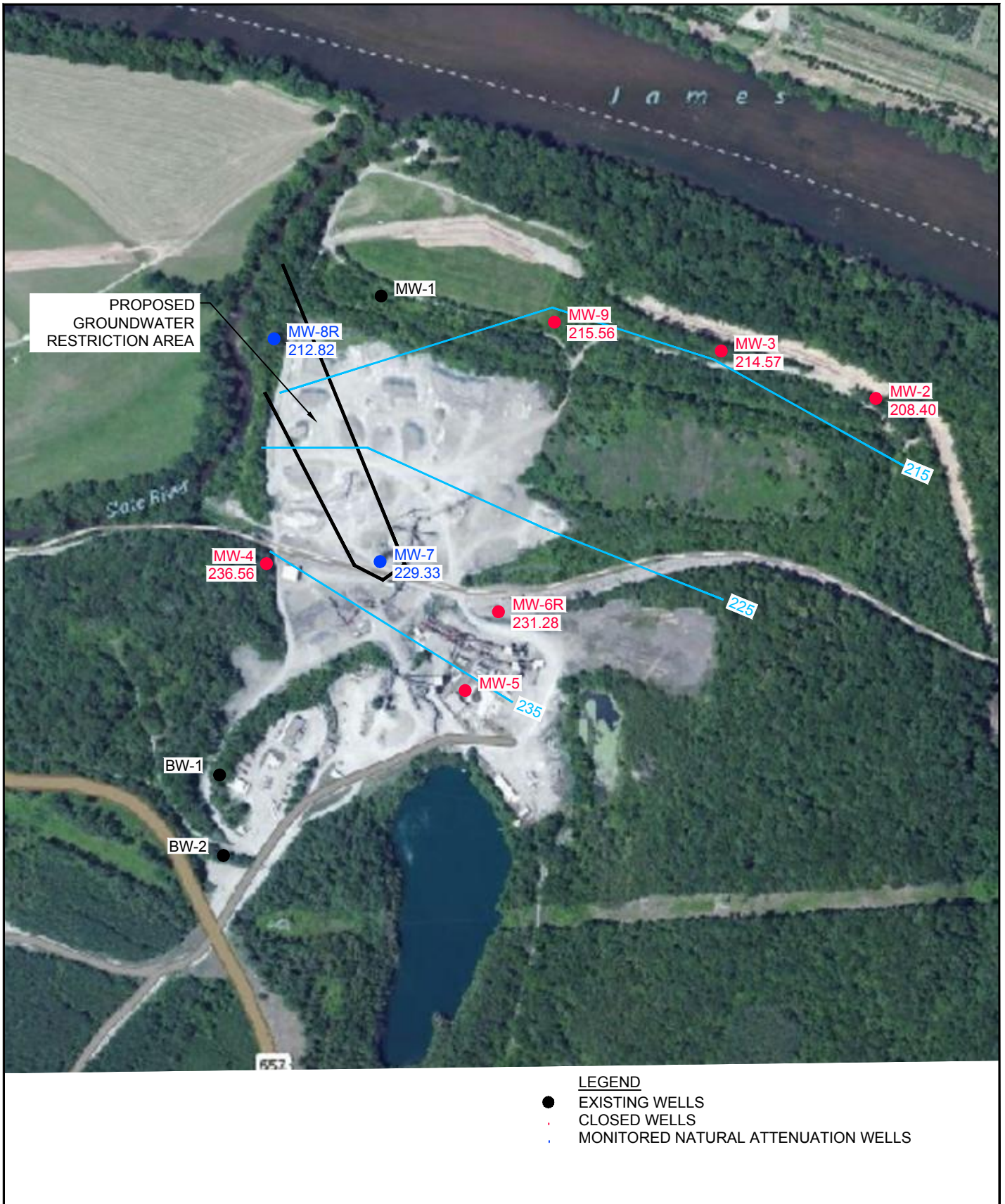
MARSHALL DISTRICT, BUCKINGHAM COUNTY, VIRGINIA  
 I HEREBY CERTIFY THAT THIS SURVEY, TO THE BEST OF MY KNOWLEDGE AND BELIEF, IS CORRECT AND COMPLIES WITH THE MINIMUM PROCEDURES AND STANDARDS ESTABLISHED BY THE VIRGINIA STATE BOARD OF ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS AND LANDSCAPE ARCHITECTS.

**ENGINEERING DESIGN ASSOCIATES, INC.**

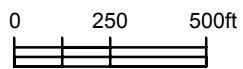
P.O. BOX 50067 RICHMOND, VIRGINIA 23250 (804) 236-0190

DATE: MARCH 9, 2015 SCALE: 1" = 200' JOB No: 14247

**Figure 3 – Groundwater Restriction Area and Monitoring Well Locations**



Source: Microsoft Product Screen Shot(s) Reprinted with permission from Microsoft Corporation, Acquisition Date May 2010 - July 2010, Accessed: 2016



GIANT RESOURCE RECOVERY  
 11045 BRIDGEPORT ROAD  
 ARVONIA, VIRGINIA  
**PROPOSED GROUNDWATER RESTRICTION AREA**

11109688-01  
 Feb 11, 2016

**FIGURE 1**

**Administrative Record – Index of Documents for Statement of Basis**



ALLIED CONCRETE PRODUCTS, LLC  
EPA ID NO. VAD042755082, VAD098443443

GIANT RESOURCE RECOVERY - ARVONIA, INC.  
EPA ID NO. VAR000518878  
Arvonias, Virginia

ADMINISTRATIVE RECORD  
INDEX OF DOCUMENTS FOR STATEMENT OF BASIS

This index includes documents that the Virginia Department of Environmental Quality (VDEQ) relied upon to develop and propose the final remedy selection determination described in the Statement of Basis. These documents were prepared for the Allied Concrete Products, LLC/Giant Resource Recovery - Arvonias, Inc. facility and are listed chronologically by document date.

1. April 17, 1997, *National Corrective Action Prioritization System (NCAPS) Assessment and Ranking for Solite Corporation Arvonias, Virginia*. VDEQ.
2. September 28, 1999, *Environmental Indicator Determination; Site Visit and Administrative Record*, VDEQ.
3. February 12, 2002, *Documentation of Environmental Indicator Determination – Current Human Exposures Under Control*, USEPA Region 3.
4. September 26, 2005, *Documentation of Environmental Indicator Determination – Current Human Exposures Under Control*, VDEQ.
5. November 3, 2005, *Evaluation of DEQ Collected Data - Revision 1*, Solite Corporation.
6. September 27, 2007, *Documentation of Environmental Indicator Determination – Migration of Contaminated Groundwater Under Control*, VDEQ.
7. July 29, 2010, *Response to June 17, 2010 Conference Call*, One Environmental Group LLC.
8. September 27, 2010, *Response to June 17, 2010 Conference Call – Comments/Approval of Sampling*, VDEQ.
9. February 9, 2011, *November 2010 Confirmatory Sampling Results*, One Environmental Group LLC.

10. January 4, 2012, *Notification of RCRA Closure*, Allied Concrete Products LLC.
11. August 8, 2012, *Kiln and Baghouse Closure Report*, Allied Concrete Products LLC.
12. December 12, 2012, *Approval of Final Closure: Closure Certifications and Final Closure Report Addressing the Kilns (2), and Air Pollution Control Equipment*, VDEQ.
13. December 13, 2012, *Tank Farm Closure Report*, Allied Concrete Products LLC.
14. February 26, 2013, *Approval of Final Closure: Closure Certifications and Final Closure Report Addressing the Tanks (15), Tank Farm Secondary Containment Pad and Tanker Truck Unloading Secondary Containment Pad and Associated Ancillary Equipment*, VDEQ.
15. December 5, 2013, *December 2013 Risk Evaluation Sampling Plan*, One Environmental Group LLC.
16. January 7, 2014, *December 2013 Risk Evaluation Sampling Plan – Approval*, VDEQ.
17. March 21, 2014, *Groundwater Monitoring Workplan and Proposed Well Closures*, One Environmental Group LLC.
18. April 2014, *2014 Comprehensive Site Evaluation Report*, One Environmental Group LLC.
19. March 24, 2015, *Groundwater Monitoring Workplan and Proposed Well Closures – Conditional Approval*, VDEQ.
20. December 3, 2015, *2014 Comprehensive Site Evaluation Report – Approval*, VDEQ.