AECOM

AECOM
1350 Deming Way, Suite 100
Middleton, WI 53562

608.836.9800 tel
608.836.9767 fax

RECEIVED
MAR 23 2015
BY: VS

March 20, 2015

Ms. Vicky Stovall
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King Drive
Milwaukee, WI 53212

Re: Mercury Soil Investigation Work Plan
Veolia ES Technical Solutions, LLC
1275 Mineral Springs Drive
Port Washington, Wisconsin
FID#: 246076050
BRRTS #: 02-46-563238

Dear Ms. Stovall:

On behalf of Veolia ES Technical Solutions, LLC (Veolia), AECOM is submitting the appended Mercury Soil Investigation Work Plan for the Veolia facility located at 1275 Mineral Springs Drive in Port Washington, Wisconsin. The Work Plan is being conducted in accordance with Chapter NR716, Wisconsin Administrative Code, as required by the Wisconsin Department of Natural Resources (WDNR) in their Responsible Party (RP) letter, dated January 20, 2015.

If you have any questions or comments about the Work Plan, please contact me at (608) 828-8208.

Sincerely,

AECOM

Leo B Linnemanstons

Leo B. Linnemanstons, P.G.
Senior Project Hydrogeologist

Enclosure: As stated.

cc: Kevin Shaver, Veolia ES Technical Solutions, LLC (1 copy)

LBL/ak
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WORK PLAN
MERCURY SOIL INVESTIGATION
VEOLIA ES TECHNICAL SOLUTIONS, LLC.
PORT WASHINGTON, WISCONSIN

I. SITE INFORMATION
[NR 716.09(2)(A)(B) AND (C)]

- Project Title: Mercury Soil Investigation
  Veolia ES Technical Solutions, LLC.
  1275 Mineral Springs Drive
  Port Washington, Wisconsin

- Current Property Owner: Veolia ES Technical Solutions, LLC.
  Address: 700 E. Butterfield Road, Suite 201
  Lombard, Illinois 60148
  Phone: (630) 218-1500

- Client Contact: Mr. Kevin Shaver
  Veolia ES Technical Solutions, LLC
  1275 Mineral Springs Drive
  Port Washington, Wisconsin
  Phone: (262) 243-8909

- Consultant: AECOM Technical Services, Inc.
  Address: 1350 Deming Way
  Middleton, Wisconsin 53562
  Contact: Mr. Leo B. Linnemanstons
  Phone: (608) 828-8208

- Site Name: Veolia ES Technical Solutions, LLC.
  Mineral Springs Facility
  BRRTS#: 02-46-563238
  WDNR FID: 246076050
  EPA ID: WID988566543
  SIC Code: 4953
  NAICS Code: 56221

- Location: NW ¼, of the SE ¼ of Section 32 , T11N, R22E
  1275 Mineral Springs Drive
  City of Port Washington
  Ozaukee County, Wisconsin

II. SCOPING INFORMATION
[NR 716.09(2)(d)]

A. Background Information

1. Site Description

The Veolia ES Technical Solutions LLC. (Veolia) – Mineral Springs facility is located in an industrial park in the City of Port Washington (see Drawing A1). The rectangular shaped parcel comprises approximately 11 acres (see Drawing B1) and includes one site building. The approximate northern half of the facility consists of vacant land and a large pond. The majority of facility run-off discharges to this pond. There are two intermittent creeks running north-south approximately 500 feet east and west of the facility. The creeks ultimately discharge to Lake Michigan near the WE Energies power plant located to northeast. The southern half of the facility is comprised primarily of asphalt and concrete pavement, as well as the main facility building.

2. Site History

Historically, the Veolia property was used as agricultural land. For some period of time, the property was also used as a lawnmower test area by the neighboring Bolens/Garden Way lawn tractor factory. In 1989, the original hazardous waste facility was constructed by Aqua Tech. Subsequently, the facility was purchased by Superior Special Services, Inc., which through a series of mergers has also been known as Onyx Special Services, Inc., and currently Veolia.

3. Previous Investigations

On April 25, 2002 the WDNR conducted an inspection of the facility to evaluate the site for Resource Conservation and Recovery Act (RCRA) corrective action issues. The results of the inspection are included in the Department's RCRA Facility Assessment (RFA) report dated July 3, 2003. The RFA report includes an examination of facility waste operations, a discussion of the facility's Solid Waste Management Units (SWMUs) and Areas of Concern (AOC), documentation of facility releases, and recommendations for further action.

In October 2004, an *RCRA Facility Investigation Report* (RFI Report) was submitted to the WDNR describing investigation activities performed based on the results of the WDNR's *RCRA Facility Assessment* dated July 3, 2003. In addition, the report also included additional sampling efforts described in the *Initial RFI Investigation Results* report sent to the WDNR on June 8, 2004, and subsequently approved by the WDNR in a June 21, 2004 telephone conversation with the MWH.

In January 2015, the WDNR issued a responsible party (RP) letter to Veolia regarding mercury soil contamination originally reported to the WDNR in the 2004

RFI Report. According to the RFI Report, mercury was detected above the RFI trigger level of 0.21 mg/kg at hand-auger location HA01, HA01A, HA01B, and HA01C. These sample locations were intended to evaluate potential soil impacts from at the base of the roof drainage spout (AOC #1, SWMU #4 and #5).

Initially, two hand-auger borings were conducted on April 22, 2004 as part of the RFI. One hand-auger boring (HA01) was located at the base of the fixed piping connected to the roof drainage spout, also located on the west side of the building (SWMU #4, #5, and AOC #1). Additional soil samples were collected on July 1, 2004 from three locations (HA01A, HA01B, and HA01C), as well as deeper samples from the 1.0 to 1.5 foot and 1.5 to 2.0 foot depth intervals at original location HA01. These deeper samples were necessitated by mercury concentrations above the prescribed trigger level in the initial samples.

Mercury was detected above the RFI trigger level at all four hand-auger locations. The additional sampling indicated that the total depth of impact above the RFI trigger level decreases the further one goes downstream in the drainage swale. For example, at the base of the roof drainage spout (furthest upstream location in the drainage swale) the total depth of impact is approximately 2.0 feet. At approximately 20 and 40 feet downstream, the total depth of impact is approximately 1.0 foot. At approximately 60 feet downstream, the total depth of impact is approximately 0.5 feet.

This work plan is for a site investigation to determine the magnitude and extent of mercury impacts and to provide sufficient information to make a remedial action determination.

III. SITE DESCRIPTION [NR 716.09(2)(e)]

A. Topography

Facility topography is primarily influenced by the asphalt parking lot grading. The parking lot elevations slope to a storm water collection basin located in the south-central portion of the lot. The topography of the remaining areas trend downward to the north and to the surface pond.

B. Site Drainage

Drainage at the facility is primarily towards the north, towards the pond, with secondary flow to Mineral Spring Drive to the east and Maritime Drive to the south.

C. Surficial Soils

According to the September 1970 Soil Survey of Ozaukee County published by the US Department of Agriculture, soils in the vicinity of the facility consist of the Kewaunee-Manaua Association type. These soils are characterized as well drained to somewhat poorly drained soils that have a subsoil of clay to silty clay loam formed in thin loess and silty clay glacial till.

D. Site Geology

The regional geology in the vicinity of the site consists of glacial drift overlying a sedimentary bedrock sequence. The sedimentary bedrock sequence consists of Cambrian to Devonian sandstones, shales, and dolostones. These sedimentary formations rest on the Precambrian basement consisting of igneous and metamorphic rock.

The stratigraphic sequence above the Precambrian basement begins with the Upper Cambrian Mt. Simon and Eau Claire Sandstone formations. Above the Cambrian formations are the Middle and Upper Ordovician St. Peter Sandstone, Galena and Platteville Dolostones, and Maquoketa Shale formations. These Ordovician formations are overlain by a sequence of Silurian dolostone formations capped by an erosional unconformity, on which a Middle Devonian dolostone and shale were deposited. The total thickness of the sedimentary sequence is approximately 1,500 to 2,000 feet. The sedimentary formations dip gently (1 to 5 degrees) to the east under Lake Michigan and form a north-south trending outcrop or subcrop pattern of progressively younger bedrock from west to east.

According to publications of the Wisconsin Geological and Natural History Survey, the glacial drift that overlies the sedimentary formations in the vicinity of the site consists mostly of glacial tills deposited during the Wisconsinan Stage of the Pleistocene period. These glacial tills are mostly moraine deposits from multiple advances and retreats of the glacier. In some locations, ice-contact and outwash deposits were left during the last glacial retreat. The sequence of glacial tills deposited in the vicinity of the site starting from bedrock is the New Berlin, Oak Creek, and the Ozaukee tills. The New Berlin till consists of mostly very dense sand and gravel. The Oak Creek and Ozaukee tills consist mostly of very stiff to hard clay and silt. The total thickness of these glacial deposits is 50 to 150 ft in the vicinity of the site.

E. Site Hydrogeology

Groundwater in the vicinity of the site occurs in the glacial deposits and generally flows east towards Lake Michigan. Regional groundwater flow in the glacial and bedrock aquifers is east towards Lake Michigan. The glacial aquifer in the region consists of sand and gravel deposits, but in the vicinity of the site, these deposits are not extensive. Below the glacial aquifer are two major bedrock aquifers that are

separated by an aquitard. These bedrock aquifers are the dolostone aquifer and the sandstone aquifer, which are hydraulically separated by the Maquoketa Shale. Most private and public water supplies use the dolomite or sandstone aquifers.

Based on the finding of the RFI in 2004, the depth to water is likely to be approximately 10 ft below ground surface. This groundwater may be perched, and the actual depth to the regional water table may be deeper. Horizontal hydraulic gradients in the glacial aquifer are generally to the east but may vary locally due to topography. Vertical hydraulic gradients are generally down in the glacial aquifer, and groundwater from the glacial aquifer generally recharges the underlying dolostone aquifer. Horizontal hydraulic conductivity of the glacial deposits can range from 10^{-2} cm/sec in outwash deposits (sand and gravel) to 10^{-6} cm/sec in till deposits (clay and silt). Vertical hydraulic conductivity is generally an order of magnitude less than horizontal conductivity of the same material.

IV. SAMPLING PLAN
[NR 716.09(2)(f)]

A. Pre-Investigation Tasks

Prior to starting this Sampling Plan, a site visit will be conducted with representatives from Veolia and AECOM to mark out final sampling locations based on actual field conditions (e.g., underground utilities). Before initiating fieldwork, "Digger's Hotline" will be contacted to mark utilities and a project specific Health & Safety Plan will be prepared.

B. Site Investigation

Surface soil and groundwater samples will be collected near SWMU #4, #5, #6; AOC #1 at the facility (Drawing B1), to define the magnitude and extent of mercury impacts. The following sampling activities are included:

- Ten hand-auger soil borings
- One temporary monitoring well

1. Hand-Auger Soil Sampling

Hand-augured borings will be conducted at each location during the 2014 Sampling Plan, replicating the soil sampling conducted during the 2004 RFI.

- The first hand-augured locations will consist of four borings (HA01, HA01A, HA01B, and HA01C). The soil borings will be located at the base of the fixed piping connected to the roof drainage spout, and also located on the west side of the building (SWMU #4, #5, and AOC #1).
- Additional hand-auger boring locations (up to six) will be collected on the west side of the building. The soil sample locations will flank the HA01

locations to provide definition of the lateral and vertical extent of mercury impacts.

A decontaminated stainless steel bucket auger will be used to collect soil samples. Soil samples will be collected with increasing depth at each location. Initial samples will be collected at a depth of approximately 6-inches below the existing ground surface. Additional samples will be collected at successive 6-inch intervals until 36-inches in depth is reached. The samples from the selected depth intervals will be placed in a decontaminated stainless steel bowl, and then transferred to appropriate laboratory-supplied containers, labeled, and maintained in coolers at 4°C. Laboratory soil samples will be shipped in a cooler on ice via overnight courier under chain-of-custody protocol to a WDNR certified laboratory for analyses.

The soil samples will be analyzed for mercury by Method 7471B. The deeper sample from each location would only be analyzed for mercury if the concentration in the surface, or subsequent deeper, sample exceeded the site investigation trigger level of 0.21 mg/kg.

2. Groundwater Monitoring

One temporary groundwater monitoring well will be installed to determine if residual soil impacts have affected groundwater. The monitoring well will be installed just downgradient of the HA01 handauger locations near the northwest corner of building (Drawing B1).

A boring will be advanced to approximately five feet below the water table (estimated total depth of 16 feet). The boring will be conducted using a drilling rig equipped with 4.25-in.–ID hollow stem augers. Continuous soil samples will be collected to log soil stratigraphy. Each soil sample will be visually classified using American Society for Testing and Materials (ASTM) D-2488 Standard Method for Classification of Soils in the Field. Information on each completed soil boring will be recorded directly on a standard soil boring log form in the field.

The temporary monitoring well will be installed in the boring and will be constructed of 2-inch diameter Schedule 40 PVC pipe casing and well screen. The well screen will be 10 feet long with a standard slot size of 0.010 inches, and will be set to intersect the shallow water table. Filter pack sand will be placed around the screened interval, and an annular seal of bentonite will be placed to the surface. The monitoring well will be completed with a stick-up protector and locking cap.

The well will be developed using a submersible pump or bailer. The well will be gently surged and pumped or bailed to remove the sediments in the well and filter pack after installation. Development will continue until purge water is visually clear or the well goes dry. The well will then be allowed adequate time to accumulate water for sampling purposes.

An initial and second round of groundwater samples will be collected from the new monitoring well. Prior to sampling, a water level will be taken to calculate the approximate volume of water present in the well. The well will then be purged until three (3) well volumes are removed or the well is purged dry. A peristaltic pump and new tubing will be used to collect the water samples. The tubing will extend down to the approximate midpoint of the well screen to limit turbidity in the sample.

Groundwater samples submitted for analysis will be immediately placed in appropriate laboratory-supplied containers, preserved (if necessary), labeled, and maintained in coolers at 4°C. The exception is the samples for dissolved analysis will first be field-filtered with a 45 micron filter. The total and dissolved samples will be analyzed for mercury by Method 7470A.

V. REPORTING
[NR 716.15]

Based on the information collected during the investigation, a report will be prepared describing the results. The report will address the mercury concentrations in the soil and groundwater. The report will contain text, drawings, tables and appendices describing the results.

A. Sampling Methods, Including Preservation and Delivery

Samples submitted for analysis will be immediately placed in appropriate laboratory-supplied containers, labeled, and maintained in coolers at 4°C. A State of Wisconsin certified laboratory will perform laboratory analyses. Standard sample chain-of-custody procedures will be followed for sample handling and shipment.

B. Parameters and Analytical Methods

1. Soil, Groundwater, and Sediment

- Total mercury in soils by Method 7471B
- Total and dissolved mercury in groundwater by Method 7470A

C. Description of Quality Control and Quality Assurance

One duplicate hand-auger sample will be collected for mercury analysis. One field blank will accompany the groundwater sample for analysis.

D. Procedures to Prevent Cross-Contamination

Equipment used to advance boreholes or sampling tools (e.g., drill rods, hand-auger) will be decontaminated prior to the start of work, between each subsurface sampling location, and upon leaving the site. The soil and groundwater sampling equipment

(e.g., water level indicator, bowls) will be decontaminated before use, between sample locations, and at the conclusion of sampling.

The procedures outlined below will be used to decontaminate field sampling equipment.

- Wash equipment with laboratory-grade Alconox detergent and rinse with potable tap water from an approved potable water source to remove visible contamination.
- Rinse equipment with distilled or deionized water.
- Record information concerning decontamination methodology, date, time, and personnel in the field logbook.

Borehole drilling equipment will be decontaminated on a decontamination pad using a hot water pressure washer. Decontamination fluids and solids will be contained and disposed in the same manner as the investigation derived wastes.

E. Investigative Waste Handling

To meet WDNR requirements, the following protocols will be used during this investigation for storage and disposal of investigation-derived waste such as soil cuttings, purged groundwater, decontamination fluids, water, and disposable equipment.

1. Soil Cuttings

Soil generated during the investigation will be placed in sealed 55-gallon drums. The soil will be characterized and disposed by Veolia in accordance with applicable state and federal regulations.

2. Groundwater and Decontamination Water

Groundwater and decontamination water will be contained in DOT-approved 55-gal drums. The water will be characterized and disposed by Veolia in accordance with applicable state and federal regulations.

3. Disposable Equipment

Disposable equipment (e.g., sampling gloves, protective clothing.) will be collected and disposed of off-site by the contractor in accordance with applicable regulations.

F. How Results Will be Used

Upon completion of the field activities and receipt of analytical results, a report will be prepared which summarizes the investigation. The report will be prepared in consideration of ch. NR 716.15, Wis. Adm. Code requirements. The report will include a discussion of field investigation methods, log of soil boring, monitoring well construction and development form, soil boring abandonment form, tabulated field and laboratory data, laboratory reports with chain-of-custody documentation, a site location map and a site features map.

VI. SITE RESTORATION
[NR 716.09(2)(g)]

The facility will be returned to its original condition. Minimal disruption is expected.

VII. ANTICIPATED SCHEDULE
[NR 716.09(2)(h)]

The following schedule approximates the time frame in which the investigation will be performed.

Task	Estimated Duration
Pre-Investigation Tasks	1 week
Field Activities	2 weeks (depends on well recharge)
Laboratory Analysis	2 to 3 weeks
Site Investigation Report	2 to 3 weeks
Project Management	Ongoing
ESTIMATED TOTAL	6 to 8 weeks

LBL/KDS
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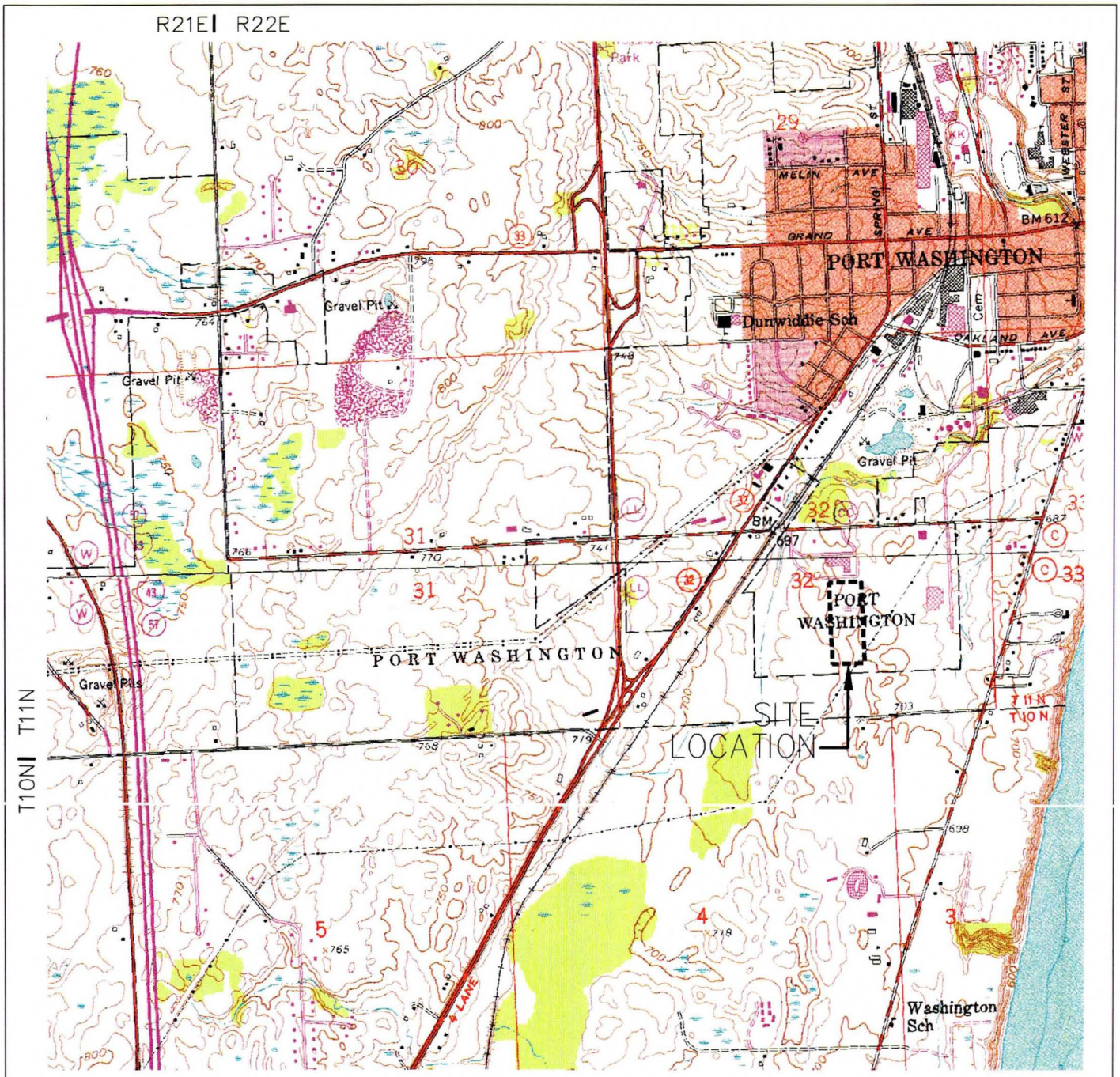


NOTE

BASE MAP DEVELOPED FROM THE PORT WASHINGTON WEST, WISCONSIN AND CEDARBURG, WISCONSIN 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAPS, DATED 1959. PHOTOREVISED 1971 AND 1976 WITH MINOR REVISION 1994. U.S.G.S. AERIAL PHOTOGRAPHS DATED MARCH 31, 2000 WERE ALSO USED TO LOCATE THE SITE.

QUADRANGLE LOCATION

north

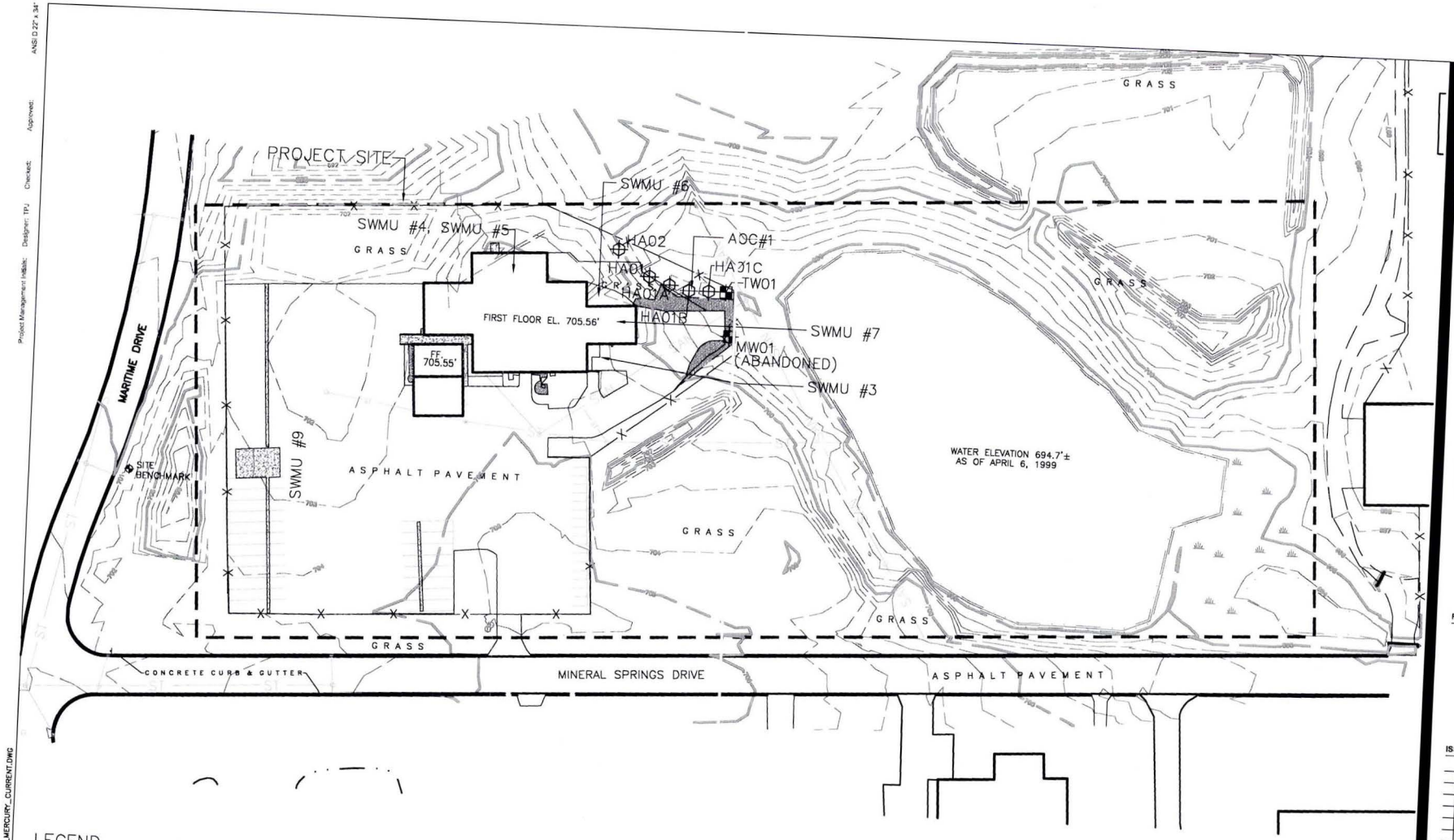
0 2000 4000

SCALE IN FEET

VEOLIA ES
1275 MINERAL SPRINGS DRIVE
PORT WASHINGTON, WI
Project No.: 60330814

SITE LOCATION MAP

AECOM



LEGEND

HA01	HAND AUGER BORING LOCATION AND NUMBER
TW01	TEMPORARY GROUNDWATER MONITORING WELL LOCATION AND NUMBER
SWMU #1	SOLID WASTE MANAGEMENT UNIT LOCATION AND NUMBER
AOC #1	AREA OF CONCERN LOCATION AND NUMBER

NOTES

1. BASE MAP DEVELOPED FROM A DRAWING "TOPOGRAPHIC MAP", PREPARED BY STS CONSULTANTS LTD., VERNON HILLS, ILLINOIS, PROJECT NO. 86008, DATED APRIL 14, 1999.
2. BEARINGS AND GRID REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM – SOUTH ZONE.
3. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1929. SITE BENCHMARK: NE FLANGE BOLT ON HYDRANT NORTH SIDE OF MARITIME DRIVE. ELEVATION = 703.22.
4. TOPOGRAPHIC MAPPING PREPARED FROM FIELD SURVEYS COMPLETED ON APRIL 7, 1999.

north

0 100 200
SCALE IN FEET

AECOM

PROJECT
MERCURY INVESTIGATION

CLIENT
VEOLIA ES TECHNICAL SOLUTIONS, LLC
1275 MINERAL SPRINGS DRIVE
PORT WASHINGTON, WISCONSIN

CONSULTANT
AECOM
1350 DEMING WAY SUITE 100
MIDDLETON, WI 53562
608-836-9800 tel
608-836-9767 fax
www.aecom.com

SUB-CONSULTANTS

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER
60330814

SHEET TITLE
SITE FEATURES AND SAMPLE LOCATION MAP

SHEET NUMBER
1 of 1

Project Management Initials: Designer: TPJ Checked: Approved: ANSI D 22" x 34"

Plotted By: ocrolyi
Plot File Date Created: Mar/20/2015 9:48 AM
Layout-Sheet Name: LAYOUT2
Filename: P:\60330814\400_TECHNICAL\CAD\B1_MERCURY_CURRENT.DWG