BrightFields, Inc.

Appendix 15

FORMER GEORGETOWN SUBSTATION

GEORGETOWN, DELAWARE

SIRS ID: DE-1286

BrightFields, Inc.

GENERAL SITE INFORMATION

Site Name: Former Georgetown Substation

SIRS ID Number: DE-1286

Site Location and Description:

The former Georgetown Substation is located on the 200 block of North Race Street in Georgetown, Delaware between Depot Street and New Street (Figure 1). The site is approximately 0.35 acres in size and is comprised of one tax parcel (#135142012700). The property is bounded to the northwest by a daycare center; to the northeast by North Race Street, beyond which is a restaurant, community center, and vacant land; to the southeast by a commercial building; and to the southwest by residential properties. The surrounding land is generally residential, commercial, and some vacant properties.

Based on the 2009 Remedial Investigation/Focused Feasibility Study, there are no drainage paths, ditches, streams, or creeks, on or near the Site. The Site is fairly level. Surface water bodies nearby include Georgetown-Vaughn Ditch (approximately 2,500 feet to the west), Layton-Vaughn Ditch (approximately 4,750 feet to the southwest), McGee Ditch (approximately one mile south), Eli-Walls Ditch (approximately 3,500 feet to the southeast), and Savannah Ditch (approximately 4,000 feet to the north). Georgetown-Vaughn Ditch and Layton-Vaughn Ditch both discharge to Deep Creek, the Nanticoke River, and the Chesapeake Bay. McGee Ditch and Eli-Walls Ditch ultimately drain to the Indian River Bay. Savannah Ditch discharges to Ingram Branch and ultimately the Delaware Bay. Since the topography is so flat, the discharge point is assumed to be the closest surface water body, Georgetown-Vaughn Ditch.

The former Georgetown Substation is currently owned by Delmarva Power and Light, previously called Eastern Shore Gas and Electric Company. The property is maintained as vacant land. At present, no structures remain except a chain-link fence around the site. The majority of the site is vegetated with grass.

Previous Site Uses:

The site was historically used as a small diesel-powered electrical generating station from around 1910 through 1919. It was subsequently converted to an electrical substation with transformers, which is the most probable source of PCB contamination.

Site Regulatory Status:

This section briefly summarizes previous investigations performed on the site through the SIRS program. A current SIRS regulatory status is also included.

Phase II Environmental Site Assessment (EA Engineering, 1999)

In September 1995, Tetra Tech Inc. (Tetra Tech) performed a Phase II Environmental Assessment to investigate the extent, if any, of PCB and total petroleum hydrocarbon (TPH) contamination on site. In 1999, EA Engineering was contracted to summarize the 1995 Tetra Tech Environmental Site Assessment and offer recommendations for remedial action. EA Engineering assumed that Tetra Tech followed the August 1995 Work Plan and Field Sampling Plan.

Samples were collected from areas across the site including the former capacitor house, an unidentified building foundation west of the former capacitor house, and the former transformer pads. Tetra Tech investigated both surface and subsurface soil in a series of tiers. A composite sample was field screened and if the results were high enough, the investigation was expanded to activate samples horizontally and/or vertically, with each step as a new tier. A total of 17 composite samples (16 four-point and one two-point composite samples) and 59 discrete soil were field screened. From the screening results, 29 samples were selected for laboratory PCB analysis. The analytical results showed concentrations ranging from 0.25 mg/kg to 890 mg/kg, most of which showed significantly lower concentrations than the associated screening results.

For the TPH delineation, concentrations exceeding the screening level of 100 mg/kg were detected along the site border in the southwest, northwest, and northeast, as well as some areas within the site. The highest concentration was 3,200 mg/kg, found next to the former transformer pad by the northwestern site boundary in sample $09B1^{12}$ (located within 5 feet horizontally from 09B and collected from 12 inches below ground surface (bgs)).

EA Engineering recommended a total excavation of approximately 400 cubic yards of PCB contaminated soil. Approximately 17 tons of the soil would be classified as a Toxic Substance Control Act (TSCA) waste and need to be disposed of separately. The TPH contaminated soil was found to be mineral oil based, and therefore removal was not necessary.

A file review conducted by Environmental Alliance in 2001 did not show evidence that any remedial action had occurred on site.

Remedial Investigation/Focused Feasibility Study Report Former Conectiv Substation/Georgetown, Delaware (Environmental Alliance, 2009)

In April 2004, Environmental Alliance conducted an initial round of soil sampling using direct push and/or hand auger techniques. A total of 49 surface and subsurface soil samples were collected and sent to DNREC's laboratory for screening. Six surface soil samples, one subsurface soil sample, and a concrete chip sample were sent for laboratory PCB analysis. The presence of PCBs was confirmed in two surface samples, B-24-0-2 and B-27-0-2, at concentrations ranging from 0.35 mg/kg to 4.8 mg/kg. Both samples were collected in the vicinity of the same concrete transformer pad. PCBs were not detected in the subsurface soil sample or the concrete chip.

In May 2004, three temporary monitoring wells were installed on the former Georgetown Substation site. Wells were screened starting at depths of 2 to 3 feet bgs and terminating at depths of 12 to 13 feet bgs. Samples were collected the same day. All groundwater samples were activated for PCB analysis, and were field-filtered before submission to the laboratory.

Based on laboratory analysis of the samples, PCBs were not detected in groundwater.

The results of the remedial investigation indicated that the primary driver of risk at the former Georgetown Substation site was arsenic in the soil, followed by PCBs. Due to the co-location of arsenic and PCB impacts, EA suggested that remediation of arsenic by excavation would also reduce the PCB risk. EA estimated that approximately 70 cubic yards of impacted soil would need to be excavated from the site.

Final Plan of Remedial Action (DNREC, 2009)

DNREC developed a Final Plan of Remedial Action (FPRA) to address arsenic, the main contaminant of concern on the site. They proposed sampling to define the contaminated area, followed by excavation and offsite disposal of arsenic-contaminated soil exceeding 11 ppm. Excavation would also remove PCBs, which were considered a minor contaminant. DNREC planned to issue a Certificate of Completion of Remedy upon conclusion of the excavation.

Remedial Action Closeout Report (Environmental Alliance, 2010)

Using data generated from the 2009 RI/FS, EA conducted a limited soil excavation targeting elevated arsenic in October 2009. Confirmatory samples were collected prior to the excavation,

and indicated that the planned boundaries of the excavation needed to be modified to ensure all elevated arsenic was removed. An area of approximately 4,500 square feet was excavated to a depth of 2 feet bgs. Due to the co-location of elevated arsenic and PCB contamination, removal of arsenic impacted soil also removed soil with elevated concentrations of PCBs. The remedial action also included the removal of concrete pads which has previously been used to hold electrical equipment. The concrete was broken into pieces and disposed along with the excavated soil. Following excavation, the excavated area was backfilled with DNREC-approved clean fill, re-graded, and vegetated with sod.

Current Regulatory Status:

The remedial action performed in 2009 remediated the site to be consistent with unrestricted use URS and additional remediation was not determined to be necessary. In 2010 it was no longer considered an active SIRS site and was removed from the list. In July 2011 DNREC issued a Certification of Completion of Remedy for the remediation performed at the Site.

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SUMMARY OF SITE PCB INFORMATION

Site Investigation PCB Findings:

PCBs were detected in 33 surface soil samples, with concentrations ranging from 0.0092 mg/kg to 890 mg/kg, and an additional 54 screened surface soil samples ranging from below 2.5 mg/kg to less than 10 mg/kg. PCBs were detected in one unsaturated subsurface soil screening sample, 6A-36 (3 feet below ground surface (bgs)), at a concentration of less than 2.5 mg/kg. No saturated subsurface soil samples were analyzed for PCBs. The highest of these concentrations were removed as part of the remedial action performed in 2009.

The calculated 95% upper confidence limit (UCL) of the mean of the concentration of total PCBs observed to be remaining in the surface soil (for overland flow calculations) is 4.7 mg/kg. There were no PCBs detected in groundwater.

Concentrations of PCBs on Site			
Sample Matrix	**Corresponding Figure**	**Analytical Methods**	**Range of Total PCBs**
Surface Soil	Figure 2	Method 8082 and Screening Data	Not detected to 890 mg/kg
Subsurface Soil (unsaturated)	Figure 3	Method 8082 and Screening Data	Not detected to < 2.5 mg/kg
Subsurface Soil (saturated)	Figure 4	Not Analyzed	Not Analyzed
Groundwater	Figure 5	Method 8082	Not Detected

A summary of all samples collected for PCB analyses are presented in Tables 1 through 3.

Acreage where PCBs detected:

The estimated surface soil area impacted by PCBs is 0.13 acres (Figure 2). The estimated subsurface unsaturated soil area impacted by PCBs is 0.01 acres (Figure 3). Based on the data reviewed and analyzed by BrightFields, no saturated subsurface soil samples were analyzed for PCBs so the respective area impacted by PCBs cannot be determined. In addition, the available data showed that the dissolved groundwater is not impacted by PCBs.

PCB Remediation Status:

The areas of elevated PCB detections (sample locations B-24 and B-27) have been excavated and backfilled to a depth varying between 2.5 feet and 3 feet bgs.

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PCB MASS LOADING SUMMARY

The PCB mass loading rate to surface water via overland flow was estimated for the Former Georgetown Substation Property. There were no reported concentrations of PCBs in the groundwater and no samples from the subsurface saturated zone were analyzed for PCBs; therefore, groundwater transport cannot be evaluated as a mechanism of transport for PCBs at the Property. A summary of the results is included below and the details of the calculations are included as attachments to this Appendix.

Overland Flow:

Overland flow has been determined on this site by using the Revised Universal Soil Loss Equation (RUSLE). The RUSLE predicts the long term average annual rate of erosion on an area based on rainfall patterns, soil type, topography, cover/canopy factors and support management practices. These specific factors are site specific and rely on local information of the site. A breakdown of the individual factors is presented below with a brief explanation of their choice.

Ground Cover and Canopy:

The surface cover and flow paths were assessed through aerial photography and available contour mapping (Delaware Data Mil, 2007). The cover/management factors (C) assigned to the erodible area and associated flow paths was 0.011, which corresponds to areas instituting a vegetative cover of weed-like plants over greater than 95% of the area.

Site Sediment and Erosion Control Practices:

Based on the aerial photography evaluation and review of site documents it does not appear that any sediment and erosion control practices are being implemented on Site.

Input Factors and Results:

A breakdown of the individual factors is presented below with a brief explanation of their choice.

Former Georgetown Substation

RUSLE Factors	Values Provided	Explanation of choice
R = rainfall-runoff erosivity index (10^2 ft-tonf-in/ac-hr-yr)	175	An appropriate value for R for the Site was determined using the Isoerodent Map of the Eastern U.S. from the Stormwater Phase II Final Rule Construction Rainfall Erosivity Waiver (USEPA, 2012).
K = soil erodibility (0.01 ton-ac-hr/ ac-ft-tonf-in)	0.15	The soil erodibility factor was selected from the National Resource Conservation Soil Survey Geographic Database (SSURGO).
ls = topographic factor (dimensionless)	0.01	The topographic factor was derived based on the slope and flow accumulation grids created in ArcGIS. An output LS grid was created and the average value for the grid is provided.
C = cover/management factor (dimensionless)	0.011	The cover/management factor C assigned to the erodible area was 0.011, which corresponds to areas instituting a vegetative cover of weed like plants over greater than 95% of the area.
P = support practice factor (dimensionless)	1	No documentation was provided indicating that any sediment and erosion controls are in place.
A = average annual soil loss estimate (ton/ac-yr)	0.003	The average soil loss estimate was generated by ArcGIS using the input factors listed above.
Erodible Area (acres)	0.13	The erodible area was calculated based on the pervious surfaces within the area of concern polygon for surface soil (Figure 6).

For factors that were not consistent across the site, rasters were used to characterize the variations. Due to the methodology utilized to derive the soil loss estimate, the numbers listed above cannot simply be multiplied.

The total estimated PCB loading via overland flow for the Former Georgetown Substation is **0.002 grams per year**. Please see attached table for specific variables.

Uncertainty Analysis Associated with Overland Flow:

Specific Areas and Degree of Uncertainty for the Former Georgetown Substation

	Samples Per Acre (site)	Chemical Data Quality*	Soil Type	Site Coverage	Map Quality	Average Distance to Discharge Point
Site Specific Information	377	Screening Data	Soil Database	Based on a thorough site assessment	Well Scaled Map; Adequately Scaled Maps	Approximately 2,200 feet
Degree of Uncertainty	Low	Moderate to High	Low	Low	Low to Moderate	High

* Primary analysis used in the historical samples

Sources of uncertainty for the Former Georgetown Substation include: The data utilized for the overland flow analysis was primarily Immunoassay screening data, with some Aroclor lab data. Although the site was fenced, it was a fairly small site which allowed for a thorough evaluation of surface coverage. The location data for the samples came from a well scaled map and two adequately scaled maps. Based on this evaluation the level of uncertainty associated with overland flow PCB mass loading from the Former Georgetown Substation is **Moderate.**

Groundwater Discharge Analysis:

No groundwater discharge analysis was performed for this site.

Site References:

Delaware Department of Natural Resources and Environmental Control (DNREC), 2009, Final Plan of Remedial Action, Former Georgetown Substation Site, July 2009.

Delaware Geological Survey, 2013, Delaware Data Mil, <http://datamil.delaware.gov/geonetwork/srv/en/main.home>, May 2013.

EA Engineering, Science, and Technology, 1999, Environmental Assessment, Former Electrical Substation, March 1999.

Environmental Alliance, Inc., 2009, Remedial Investigation/Focused Feasibility Study Report, Former Conectiv Substation, Revised March 2009.

Environmental Alliance, Inc., 2010, Remedial Action Closeout Report, Former Georgetown Substation, December 2009, Revised February 2010.

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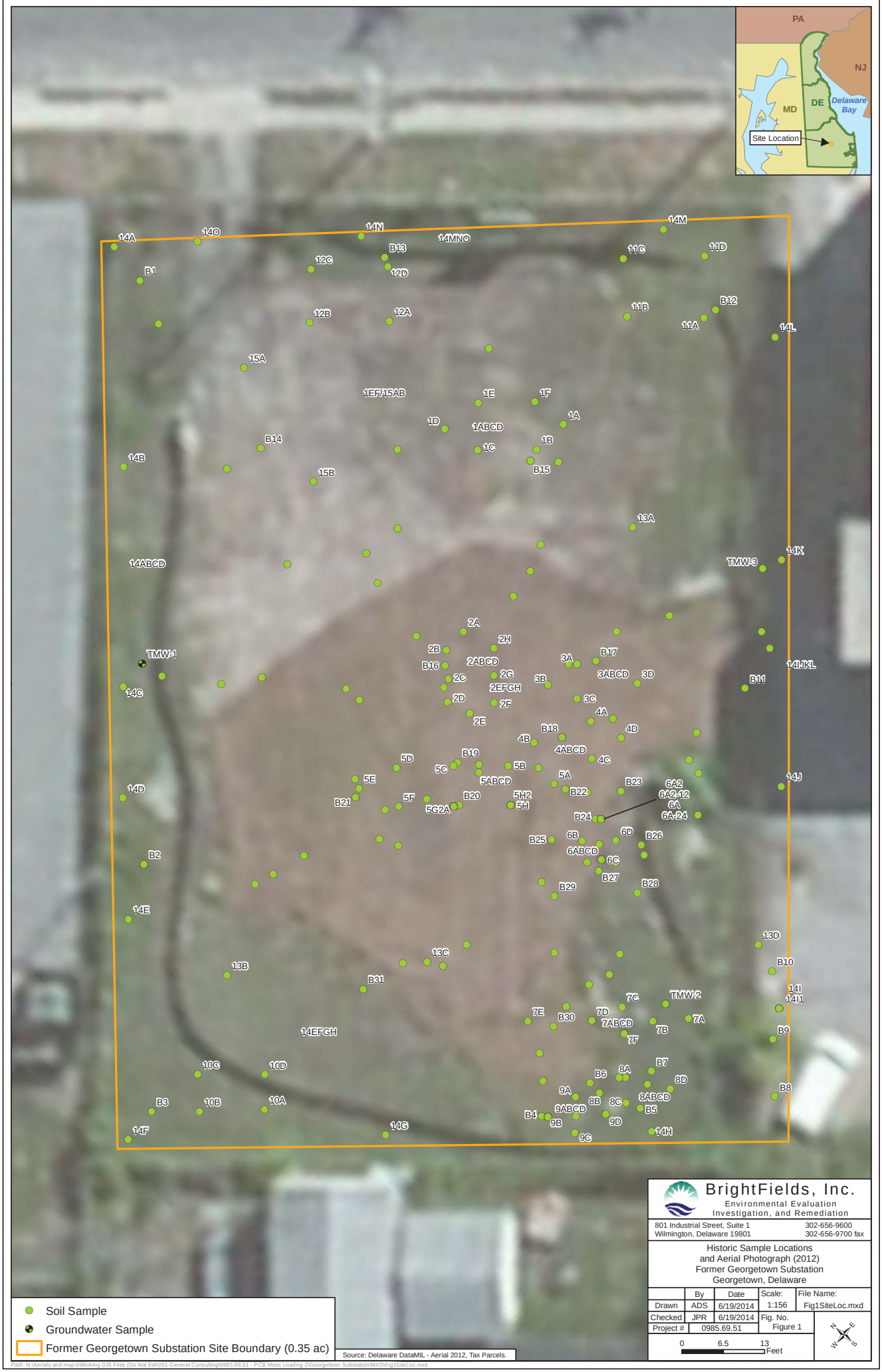
Figures



Soil Sample

Groundwater Sample

Former Georgetown Substation Site Boundary (0.35 ac)

Source: Delaware DataMIL - Aerial 2012, Tax Parcels.

Path: N:\Aerials and maps\Working GIS Files (Do Not Edit)\51 General Consulting\0985.69.51 - PCB Mass Loading 2\Georgetown Substation\MXD\Fig1SiteLoc.mxd

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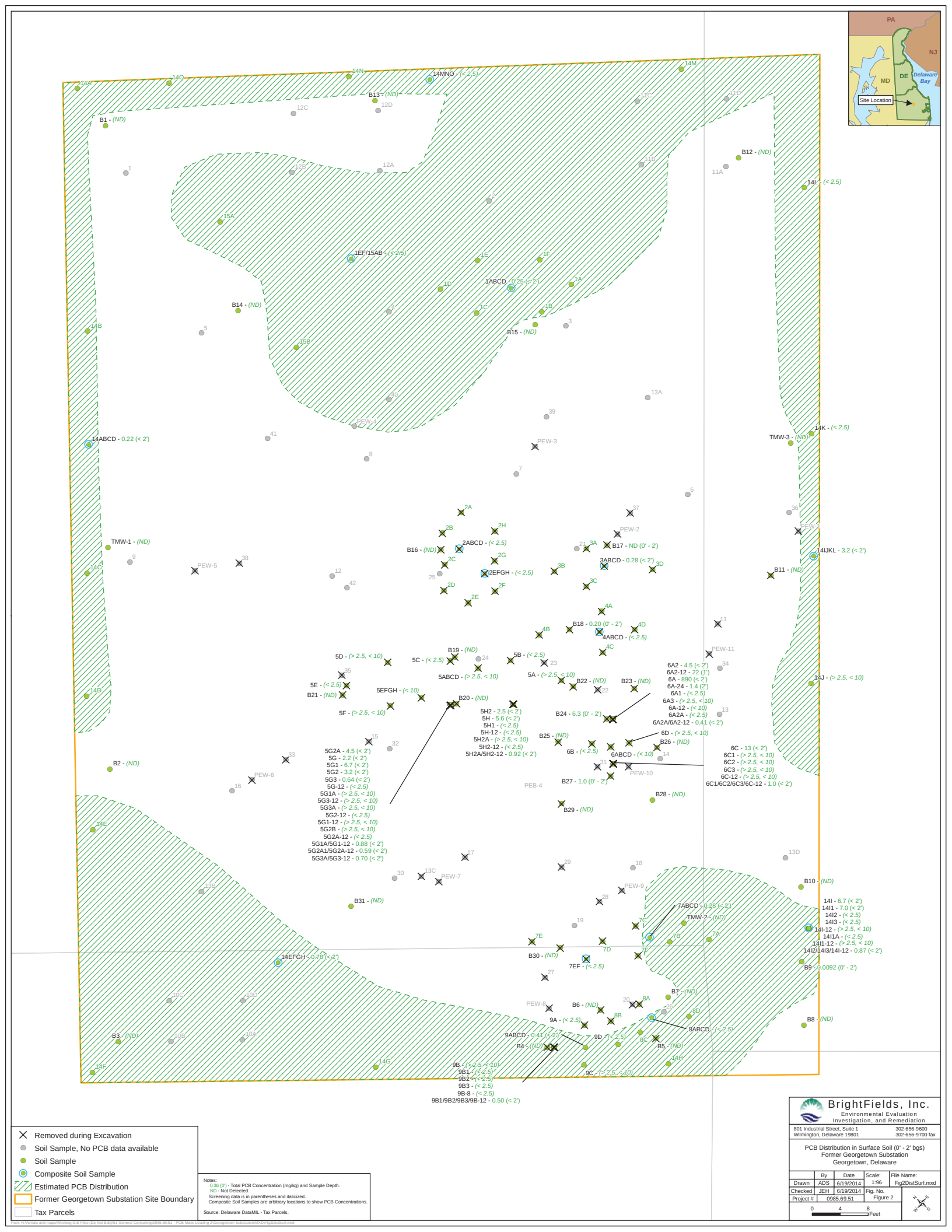
Historic Sample Locations
and Aerial Photograph (2012)
Former Georgetown Substation
Georgetown, Delaware

	By	Date	Scale:	File Name:
Drawn	ADS	6/19/2014	1:156	Fig1SiteLoc.mxd
Checked	JPR	6/19/2014	Fig. No.	Figure 1
Project #	0985.69.51			

0 6.5 13 Feet

N E S W



Removed during Excavation
Soil Sample, No PCB data available
Soil Sample
Composite Soil Sample
Estimated PCB Distribution
Former Georgetown Substation Site Boundary
Tax Parcels

Notes:
0.36 (0') - Total PCB Concentration (mg/kg) and Sample Depth.
ND - Not Detected.
Screening data is in parentheses and italicized.
Composite Soil Samples are arbitrary locations to show PCB Concentrations.

Source: Delaware DataMIL - Tax Parcels.

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PCB Distribution in Surface Soil (0' - 2' bgs)
Former Georgetown Substation
Georgetown, Delaware

	By	Date	Scale:	File Name:
Drawn	ADS	6/19/2014	1:96	Fig2DistSurf.mxd
Checked	JEH	6/19/2014	Fig. No.	
Project #	0985.69.51		Figure 2	

0 4 8 Feet

N W E S

RACE STREET

B1 - *(ND)*
1
2
B12 - *(ND)*
4
B15 - *(ND)*
3
TMW-3 - *(ND)*
8
7
6
PEB-2
TMW-1 - *(ND)*
38
21
12
25
42
B11 - *(ND)*
PEB-1
B18 - *(ND)*
11
24
23
22
B21 - *(ND)*
PEB-3
6A-36 - *(< 2.5)*
13
15
32
14
B2 - *(ND)*
PEB-4
B27 - ND (2' - 3')
17
18
B31 - *(ND)*
19
TMW-2 - *(ND)*
20
B3 - *(ND)*
B4 - *(ND)*

Soil Sample, No PCB data available
Soil Sample
Estimated PCB Distribution
Former Georgetown Substation Site Boundary
Tax Parcels

Notes:
ND (0') - Not Detected and Sample Depth.
Screening data (mg/kg) shown in parenthesis.

Source: Delaware DataMIL - Tax Parcels.

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PCB Distribution in Subsurface Unsaturated Soil
Former Georgetown Substation
Georgetown, Delaware

	By	Date	Scale:	File Name:
Drawn	ADS	6/19/2014	1:180	Fig3SS_UnSat.mxd
Checked	JPR	6/19/2014	Fig. No. Figure 3	
Project #	0985.69.51			

0 7.5 15 Feet

N E S W

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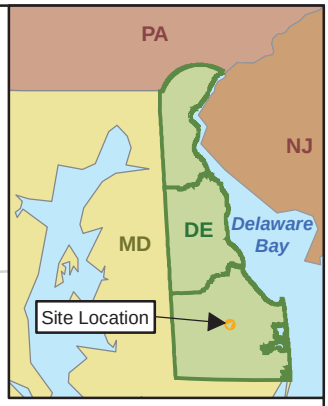

RACE STREET

Former Georgetown Substation Site Boundary

Tax Parcels

Source: Delaware DataMIL - Tax Parcels.

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PCB Distribution in Subsurface Saturated Soil
Former Georgetown Substation
Georgetown, Delaware

	By	Date	Scale:	File Name:
Drawn	ADS	6/19/2014	1:300	Fig4SS_Sat.mxd
Checked	JPR	6/19/2014	Fig. No. Figure 4	
Project #	0985.69.51			

0 12.5 25 Feet

N E S W

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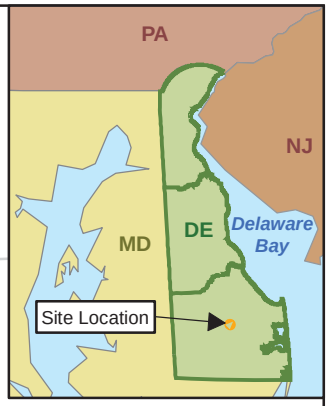

RACE STREET

TMW-3 - ND
TMW-3 - ND

TMW-1 - ND
TMW-1 - ND

TMW-2 - ND
TMW-2 - ND

Groundwater Sample
Former Georgetown Substation Site Boundary
Tax Parcels

Note:
ND - Not Detected
Samples showing multiple concentrations were filtered and not filtered.

Source: Delaware DataMIL - Tax Parcels.

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PCB Distribution in Groundwater
Former Georgetown Substation
Georgetown, Delaware

	By	Date	Scale:	File Name:
Drawn	ADS	6/19/2014	1:300	Fig5GW.mxd
Checked	JEH	6/19/2014	Fig. No.	Figure 5
Project #	0985.69.51			

0 12.5 25 Feet

N E S W

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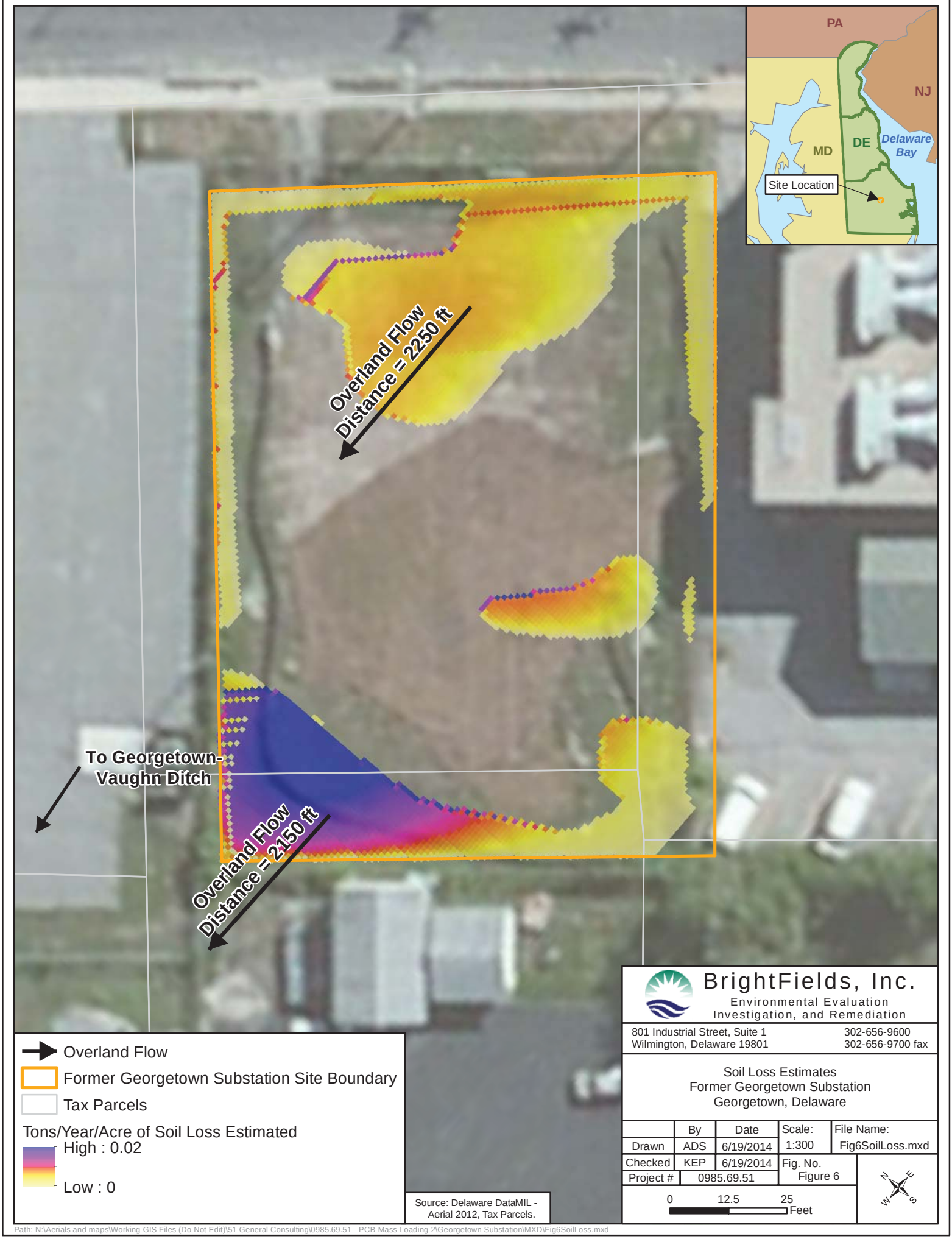

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Soil Loss Estimates
Former Georgetown Substation
Georgetown, Delaware

	By	Date	Scale:	File Name:
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Checked	KEP	6/19/2014	Fig. No. Figure 6	
Project #	0985.69.51			

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Tables

Table 1
PCB Screening Results For Soil
Former Georgetown Substation (DE-1286)
Georgetown, DE

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Total PCBs
					DNREC-SIRS Screening Level (January 2014) (mg/kg)
					NCA
1ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
1EF/15AB	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
2ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
2EFGH	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
3ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
4ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5B	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5C	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5D	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5EFGH	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5E	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5F	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5G	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5G-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5G1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5G1-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5G1A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5G2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5G2-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5G2A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5G2A-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5G2B	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5G3	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5G3-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5G3A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
5H	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5H-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5H1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5H2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
5H2-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
5H2A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
6ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
6A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
6A-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
6A-24	2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
6A1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
6A2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
6A2-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
6A2A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
6A3	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
6A-36	3'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5

Table 1
PCB Screening Results For Soil
Former Georgetown Substation (DE-1286)
Georgetown, DE

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Total PCBs
					DNREC-SIRS Screening Level (January 2014) (mg/kg)
					NCA
6B	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
6C	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
6C-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
6C1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
6C2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
6C3	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
6D	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
7ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
7EF	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
8ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
9ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
9A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
9B	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
9B-8	0.67'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
9B1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
9B2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
9B3	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
9C	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
9D	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14EFGH	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14IJKL	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
14I	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
14I-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
14I1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 10
14I1-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
14I1A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14I2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14I3	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14J	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	> 2.5, < 10
14K	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14L	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
14MNO	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	< 2.5
B1	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B1	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B2	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B2	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B3	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B3	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B4	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B4	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B5	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B6	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND

Table 1
PCB Screening Results For Soil
Former Georgetown Substation (DE-1286)
Georgetown, DE

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Total PCBs
					DNREC-SIRS Screening Level (January 2014) (mg/kg)
					NCA
B7	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B8	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B9	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B10	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B11	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B11	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B12	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B12	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B13	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B14	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B15	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B15	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B16	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B17	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B18	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B18	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B19	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B20	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B21	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B21	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B22	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B23	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B24	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B25	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B26	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B27	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B27	2' - 3'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B28	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B29	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B30	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B31	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
B31	6' - 7'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
TMW-1	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
TMW-1	5' - 6'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
TMW-2	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
TMW-2	5' - 6'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
TMW-3	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND
TMW-3	5' - 6'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	ND

Note: All results reported in mg/kg.

Qualifiers:
bgs - Below ground surface
NCA - No criteria available
ND - Not detected

Table 2
PCB Analytical Results For Soil
Former Georgetown Substation (DE-1286)
Georgetown, DE

Sample Identification	Sample Depth (feet bgs)	Sampling Company	Report Name	Report Date	Aroclor-1016		Aroclor-1221		Aroclor-1232		Aroclor-1242		Aroclor-1248		Aroclor-1254		Aroclor-1260	
					DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.39		DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.14		DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.14		DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.22		DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.22		DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.11		DNREC-SIRS Screening Level (January 2014) (mg/kg) 0.22	
1ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.25**	
3ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.28**	
5G	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.12	U	0.24	U	0.12	U	0.12	U	0.12	U	0.12	U	**2.2**	
5G1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.21	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U	**6.7**	
5G1A/5G1-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.88**	
5G2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.13	U	0.26	U	0.13	U	0.13	U	0.13	U	0.13	U	**3.2**	
5G2A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.12	U	0.24	U	0.12	U	0.12	U	0.12	U	0.12	U	**4.5**	
5G2A1/5G2A-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.59**	
5G3	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.64**	
5G3A/5G3-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.7**	
5H	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.26	U	0.52	U	0.26	U	0.26	U	0.26	U	0.26	U	**5.6**	
5H2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.12	U	0.24	U	0.12	U	0.12	U	0.12	U	0.12	U	**2.5**	
5H2A/5H2-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.92**	
6A	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	25	U	50	U	25	U	25	U	25	U	25	U	**890**	
6A-24	2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**1.4**	
6A2	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.2	U	0.4	U	0.2	U	0.2	U	0.2	U	0.2	U	**4.5**	
6A2-12	1'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	1.1	U	2.2	U	1.1	U	1.1	U	1.1	U	1.1	U	**22**	
6A2A/6A2-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.41**	
6C	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	**12.5**	
6C1/6C2/6C3/6C-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**1**	
7ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.28**	
9ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.41**	
9B1/9B2/9B3/9B-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.5**	
14ABCD	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	0.22	
14EFGH	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.78**	
14IJKL	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**3.2**	
14I	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.26	U	0.52	U	0.26	U	0.26	U	0.26	U	0.26	U	**6.7**	
14I1	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.26	U	0.52	U	0.26	U	0.26	U	0.26	U	0.26	U	**7**	
14I2/14I3/14I-12	< 2'	Tetra Tech	Georgetown Substation Phase II Environmental Site Assessment	1995	0.033	U	0.067	U	0.033	U	0.033	U	0.033	U	0.033	U	**0.87**	
B9	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.0055	U	0.0049	U	0.0038	U	0.0038	U	0.0038	U	0.0042	U	0.0092	J
B17	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.019	U	0.057	U	0.025	U	0.023	U	0.034	U	0.019	U	0.019	U
B18	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.038	U	0.11	U	0.049	U	0.046	U	0.069	U	0.038	U	0.2	
B24	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.11	U	0.1	U	0.076	U	0.076	U	0.076	U	**4.8**		**1.5**	
B27	0' - 2'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.028	U	0.025	U	0.019	U	0.019	U	0.019	U	**0.66**		**0.35**	
B27	2' - 3'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.0054	U	0.0049	U	0.0037	U	0.0037	U	0.0037	U	0.0042	U	0.0037	U

Note: All results reported in mg/kg.

Qualifiers:
bgs - Below ground surface
NCA - No criteria available
U - Sample not detected above the laboratory method detection limit
J - Estimated value
NA - Not available from reports provided to Brightfields
Bold and shaded - Exceeds DNREC-SIRS January 2014 Screening Levels

Table 3
PCB Analytical Results For Groundwater
Former Georgetown Substation (DE-1286)
Georgetown, DE

Sample Identification	Screen Depth (feet bgs)	Sampling Company	Report Name	Report Date	Aroclor-1016 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.11		Aroclor-1221 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.004*		Aroclor-1232 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.004*		Aroclor-1242 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.034*		Aroclor-1248 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.034*		Aroclor-1254 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.031*		Aroclor-1260 DNREC-SIRS Screening Level (January 2014) (ug/L) 0.034*	
TMW-1	3' - 13'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.19	U	0.39	U	0.097	U	0.19	U	0.29	U	0.19	U	0.29	U
TMW-1	3' - 13'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.096	U	0.16	U	0.096	U	0.096	U	0.096	U	0.096	U	0.096	U
TMW-2	2' - 12'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.096	U	0.16	U	0.096	U	0.096	U	0.096	U	0.096	U	0.096	U
TMW-2	2' - 12'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.19	U	0.39	U	0.097	U	0.19	U	0.29	U	0.19	U	0.29	U
TMW-3	2.5' - 12.5'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.096	U	0.16	U	0.096	U	0.096	U	0.096	U	0.096	U	0.096	U
TMW-3	2.5' - 12.5'	Environmental Alliance	Remedial Investigation / Focused Feasibility Study	Mar-09	0.2	U	0.4	U	0.099	U	0.2	U	0.3	U	0.2	U	0.3	U

Note: All results reported in ug/L.

Qualifiers:
bgs - Below ground surface
* - Screening level likely below the routine method detection limit
U - Sample not detected above the laboratory method detection limit

BrightFields, Inc.

Site Photographs

The middle of the site (taken from Race Street on the northeast boundary) which is mainly covered in short grass and has small elevation changes (<1 ft).

Some patchy areas and overgrown weeds along the northwestern border.

The southeast portion of the site where the site boundary cover ranges from short weeds to large trees in the south.

Looking towards the eastern corner of the site where the fence is covered in thick weeds and small trees.

BrightFields, Inc.

Overland Flow Calculations

PCB Loading Calculations from the Revised Universal Soil Loss Equation (RUSLE)
Former Georgetown Substation (DE-1286)
Georgetown, DE

Surface PCB Concentration | 4.7 | mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	175	10^2 ft-tonf-in/ac-hr-yr
K	Soil Erodibility	0.15	0.01 ton-ac-hr/ ac-ft-tonf-in
	Erodible Area	0.13	Acres
LS	Topographic Factor	0.01	Dimensionless
C	Cover and Management Factor	0.011	Dimensionless
P	Support Practice Factor	1	Dimensionless
A	Average Annual Soil Loss	0.003	ton/ac-yr

PCB Loading via Overland Flow | 0.002 | **grams/year - PCBs**

BrightFields, Inc.

Groundwater Transport Calculations

(Not Applicable)