



Brownfield Assessment Work Plan

2501- 2509 Wrightsville Avenue (Brownfields # 16033-12-065)

2501, 2503, 2505, 2507, 2509 Wrightsville Avenue
Wilmington, New Hanover County, North Carolina

Headwater Project # A22-148

Prepared for:

Skunkworx, LLC
PO Box 262
Wrightsville Beach, North Carolina 28480

April 26, 2023



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Headwater Project # A20-157

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APPENDICES

Appendix A	Conceptual Development Plan
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1 Introduction

Headwater Geology, PLLC. (Headwater), on behalf of Skunkworx, LLC (Prospective Developer / PD), prepared this Brownfield Assessment Work Plan for the Wrightsville Avenue Brownfields Property (Brownfields Project # 16033-12-065), located at 2501, 2503, 2505, 2507, and 2509 Wrightsville Avenue in Wilmington, New Hanover County, North Carolina (Subject Site or Site). A Location Map is provided as Figure 1. Further details are depicted on Figure 2.

The PD intends to redevelop the Site as a mixed-use commercial / residential development with residential use being located on the second floor and above. This Work Plan was prepared to address Brownfields Program requirements to facilitate Site redevelopment.

1.1 Proposed Redevelopment

The proposed redevelopment includes the construction of an 8,370-square-foot 4-story building with 3 stories of residential above the ground floor of commercial use. The development also includes a parking lot with approximately 38 parking spaces and some limited greenspace.

A conceptual drawing of the proposed development is included as Appendix A.

1.2 Site Description

The Subject Site consists of one parcel and is currently a vacant lot with overgrown vegetation located the northern portion of the Site. According to New Hanover County Geographic Information System (GIS), the Subject Site is identified as the following:

Parcel ID	Address	Owner	Acreage	Zoning	Deed Book/Page
R05412-001-014-000	2501, 2503, 2505, 2507, 2509 Wrightsville Avenue	SKUNKWORX LLC	0.77	CS-Commercial Service	5937/1597

The site is bound on the north by dwellings and American Tire Distributors; on the east by dwellings; on the south by Wrightsville Avenue; followed by dwellings; and, on the west by Azalea Gas, a liquified natural gas distributor. A service station, Wrightsville Country Store, is located approximately 250 feet west of the site. Note that petroleum-impacted groundwater is present below the Wrightsville Country Store, including relatively low concentrations of volatile organic compounds (VOCs). The incident was closed with a Notice of Residual Petroleum deed restriction (Henry Nemargut Engineering 2019).

Based on the USGS topographic map, included as Figure 1, the Subject Site is relatively flat situated between 25 and 30 feet above mean sea level. Adjacent properties are generally cross gradient to the Subject Site.

According to the Geologic Map of North Carolina, the Site is located in the coastal plane, Comfort and New Hanover Member, consisting of skeletal limestone, locally dolomitized or phosphate-pebble conglomerate (DENR 1985).

Groundwater data obtained from on-site monitoring determined that groundwater flows toward the northwest and groundwater levels ranged from about 9 to 11 feet (presumably below ground surface) (ECS 2012).

1.3 Site History

Historical review indicates that the Site was likely occupied by a residential structure prior to 1946 and a commercial building constructed by at least 1946. This commercial structure was operated as a grocery store and burned down in the mid-1950's. It was replaced by two buildings which operated as a grill, laundromat, and office until being vacated in the 1990s. In March 2008, the on-Site buildings were demolished by the property owner's contractor. While the Department of Environmental Quality (DEQ) Site Locator Tool database indicates that a dry cleaner historically occupied the Site, no other evidence indicates the former laundromat performed dry cleaning activities.

Based on historical environmental reporting, it appears that the ash and burn debris from the grocery store was buried on-Site below the subsequently constructed buildings. As a result, significant soil and groundwater assessment was performed and the Site was entered into the Brownfields Program. Soil in certain areas of the Site is impacted with polycyclic aromatic hydrocarbons (PAHs) and certain metals. PAHs were not detected in groundwater. VOCs were not detected at elevated concentrations except in one sample at the southern border of the Site. The completed Brownfields Agreement for the Site includes certain LURs associated with Site development and usage (Headwater 2022).

1.4 Environmental Assessment Summary

Headwater obtained and reviewed historical Site documentation available on the DEQ's online database. The review included but was not limited to the following documents:

- *Phase I Environmental Site Assessment – Vacant Parcel of Land, 2501, 2503, 2505, 2507, and 2509 Wrightsville Avenue*, prepared by ECS Carolinas, LLP (ECS), and dated March 31, 2008
- *Phase I Remedial Investigation Report*, prepared by ECS and dated May 29, 2009
- *Remedial Investigation Report*, prepared by ECS and dated March 19, 2012
- *Cancellation of REC-Administrative Agreement & Change in Project Status* letter, prepared by Mr. Kim Caulk with NCDENR (DEQ's predecessor organization) and dated April 22, 2014

- *Notice of Brownfields Survey Plat*, prepared by Danford & Associated Land Surveying P.C. and dated June 2, 2014
- *Notice of Brownfields Property*, prepared by DENR, and dated December 4, 2015
- *DWM Brownfields Inspection Report*, prepared by Sam Watson with DEQ, and dated April 20, 2022

A summary of each document is included in the following subsections and pertinent documents are included in Appendix B.

1.4.1.1 Phase I Environmental Site Assessment

During ECS's site visit, the site consisted of vacant land with subsurface debris that was unearthed during demolition activities in 2008. The debris consisted of brick, terracotta pipe, metal piping, concrete, and metal. A "solvent odor" was reportedly observed in soil surrounding building footings during demolition. Two or three septic systems were observed near the footings on the southwest corner of the former building. A grocery store reportedly occupied the Site from about the mid 1940's to mid-1950's when another building was constructed and was operated as a laundromat and grill from the 1960's to 1990's. No evidence of dry-cleaning activities was identified.

ECS observed the installation of approximately 10 test pits on March 14, 2008. A few rusted metal containers and machine parts were observed, but the source of the "solvent odor" could not be identified. An ash layer was observed at about 3 to 4 feet below ground surface. Soil was field screened with a photoionization detector (PID) and a composite sample of soil from the test pits was collected and analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The PID screening did not identify organic vapors and VOCs were not detected in the soil samples. However, SVOC compounds were detected exceeding applicable standards (ECS 2008).

1.4.1.2 Phase I Remedial Investigation Report

Seven soil borings (S-1 to S-7) were advanced at the Site during this investigation. Samples were collected continuously and screened with a flame ionization detector (FID). One sample from each boring was collected and analyzed for VOCs, SVOCs, the 13 Priority Pollutant (PPL) Metals.

A total of three One-inch diameter temporary wells (TW-S-2, TW-S-5, and TW-S-6) were installed within these respective soil borings, developed, and sampled for the same parameters. Depth to water ranged from 9 to 11 feet below top of casing (note that ECS did not report depth to groundwater below ground surface [feet bgs]).

The results of the investigation indicated:

- VOCs were not identified in any of the soil or groundwater samples.

- SVOCs, specifically polyaromatic hydrocarbons (PAHs) were identified in samples S-1 to S-4, located on the southern portion of the Site, near the former building at a depth of 4 to 6 feet bgs. No SVOCs were detected above the 15A North Carolina Administrative Code 02L .0202 groundwater standards (2L Standards).
- Metals were detected in groundwater, but only lead and chromium exceeded the 2L Standards.
- ECS attributed these results to the presence of ash and burn debris from the original building in the 1950s (ECS 2009).

1.4.1.3 Remedial Investigation Report

According to ECS, the Site property was enrolled in the North Carolina Registered Environmental Consultant (REC) Program, and this assessment was performed to meet program requirements. Assessment activities included:

- 25 additional borings (S-8 to S-32) were advanced between 2009 and 2010 in three mobilizations. Soil samples were screened with an FID or PID or both and sampled for VOCs, SVOCs, and PPL metals.
- A ground penetrating radar (GPR) and electromagnetic (EM) survey was performed to identify subsurface structures.
- Two monitoring wells (MW-1 and MW-2) were installed near soil borings S-2 and S-6 and sampled for VOCs, SVOCs, and PPL metals.

Assessment results indicated that:

- The GPR assessment identified a sub-surface concrete vault at approximately 12-inches deep, presumably a septic tank on the southeastern portion of the Site near S-3, S-14, and S-22. Some additional minor metallic debris was suspected in the vicinity of S-13 and S-20. The EM survey indicated the potential presence of an underground storage tank, but subsequent GPR assessment did not confirm the presence of a tank.
- Arsenic was detected above the Industrial/Commercial Preliminary Soil Remediation Goal (PSRG) in multiple soil samples. Thallium was also detected above the Residential and Protection of Groundwater PSRGs.
- VOCs were not detected in soil above applicable standards (other than naphthalene). Various PAHs were detected in soil above applicable standards.
- Metals were not detected above 2L Standards in the newly installed monitoring wells when they were sampled using low-flow sampling techniques.
- Groundwater flow direction is to the northwest.

- Note that this report indicated that certain VOCs, including naphthalene, n-butyl benzene, 1-methylnapthalne, and 2-methylnapthalne were detected in soil samples S-31 at 3 to 4 and 6 to 7 feet bgs at concentrations exceeding the Industrial/Commercial PSRGs. However, based on review of the associated laboratory report, ECS made a decimal point error and reported these concentrations at 1,000 times the actual detected concentration. In actuality, these detections were below all PSRGs.
- VOCs were not detected in groundwater samples (ECS 2012).

1.4.1.4 Cancellation of REC-Administrative Agreement & Change in Project status

In this letter, DENR approved the cancellation of the voluntary cleanup, REC agreement for the Site. The REC cancellation corresponds with the Site's subsequent participation in the NC Brownfields Program.

1.4.1.5 Notice of Brownfields Survey Plat

The Brownfields Survey Plat indicates the location of all samples where a compound was detected exceeding applicable standards and is a requisite component of the Brownfields Agreement. A table summarizing compound concentrations exceeding 2L Standards and PSRGs is also included. The Plat indicates an Area of Known Contamination being present on the majority of the Site, located on it's southern portion.

1.4.1.6 Notice of Brownfields Property

The Notice of Brownfields Property (aka the Brownfields Agreement) includes certain land use restrictions (LURs). An abridged summary of LURs includes the following:

- No use of the property may occur other than for commercial or mixed-use which would include commercial and residential. Residential use would be single family or multi-family homes situated on the second floor or higher.
- No activities that encounter groundwater are permitted
- Soil in the Area of Known Contamination as indicated on the plat cannot be disturbed except in accordance with a plan approved by DEQ
- Areas not covered by a building or impervious surface must be capped with one foot of clean fill or landscaped in a manner approved by DEQ
- No buildings may be constructed on the Area of Known Contamination unless DEQ determines that the building's users would be protected from soil vapor intrusion or a plan for vapor intrusion mitigation is prepared by an engineer and approved by DEQ.
- None of the contaminants detected in media can be stored at the Site except in de minimis amounts for cleaning/housekeeping, etc.

- The property may not be used as a playground or childcare center or school, kennel, private animal pens, or horse riding
- Monitoring wells may not be damaged or destroyed without prior DEQ approval.
- Neither DEQ or a party conducting remediation at the property may be denied access to the property
- In January of each year, a LUR update must be submitted to DEQ.

1.4.1.7 DWM Brownfields Inspection Report

An inspection of the Site was performed by Mr. Sam Watson of DEQ on April 20, 2022. No violations were observed.

1.5 Historical Soil Assessment Summary

Headwater reviewed the soil assessment data included in the historical assessment reports (ECS 2009, ECS 2012). To facilitate this review, all constituents that exceeded either the Industrial/Commercial or Residential SRG were tabulated on Table 1. Specifically, constituent concentrations that were reported to be below a health based PSRG or exceeded only the Soil-to-Water PSRG were not included. Also, because arsenic is a ubiquitous naturally occurring compound, only concentrations of this compound that exceeded the Industrial/Commercial PSRG were included.

Further, multiple PSRGs, especially those associated with the PAH compounds have been revised upward since these assessments were performed. Multiple sample locations that historically exceeded a PSRG do not exceed the revised PSRGs.

Based on the data included in Table 1, sample locations that contained an exceedance in shallow soil (0 to 2 feet bgs) were plotted and summarized on Figure 5. Sample locations with an exceedance in deeper soil (greater than 2 feet bgs) were plotted on Figure 6. This data indicates that all locations with shallow soil exceedances will be capped with impervious surface, which is a generally acceptable method to prevent contact with contaminated soil in Brownfields redevelopment projects.

2 Proposed Assessment Activities

The Brownfields Agreement states that no building may be constructed the Area of Known Contamination unless DEQ determines that the building's users would be protected from soil vapor intrusion or a plan for vapor intrusion mitigation is prepared by an engineer and approved by DEQ. This requirement can be addressed with a vapor intrusion (soil gas sampling) assessment.

While abundant historical soil assessment has delineated soil impacts on-Site, some additional soil assessment is also proposed herein.

Proposed assessment activities include the collection of four (4) soil gas samples from within the proposed building footprint. The collection of three (3) groundwater samples within the building footprint are also proposed as historical VOC groundwater data on-Site is limited. Further, four soil borings will be advanced concurrently with the soil gas probes and up to five (5) additional soil borings are proposed to evaluate soil in other areas. From the soil borings, a total of three (3) soil samples will be collected based on field screening criteria.

Proposed sample locations in relation to the proposed development plan are shown on Figure 7.

2.1 Soil Borings and Soil Sampling

Headwater proposes to subcontract a North Carolina licensed direct-push technology (DPT) driller to install four (4) soil borings concurrently with the soil gas probe locations and advance up to five (5) additional soil borings.

Soil cores will be collected via dedicated Macro-Core™ sleeves in 5-foot intervals and will be screened with a photoionization detector (PID) for organic vapor content. Additionally, Headwater will visually observe the soil in the cores and record the characteristics of the soil (e.g., color, odor, and grain size).

A soil sample will be collected and submitted for analysis if field observations (olfactory or visual) indicate the presence of contamination, and/or if elevated readings from the PID are observed.

Soil borings are expected to be advanced to a terminal depth of generally up to 15 feet below ground surface (ft bgs) or to the groundwater table, or boring refusal, whichever is encountered first.

Soil samples will be collected in laboratory-provided containers, placed in a cooler on ice, and delivered to a North Carolina-certified laboratory. Headwater anticipates collecting three (3) soil samples to be analyzed for the following analyses or a combination of these analyses:

- VOCs by Environmental Protection Agency (EPA) Method 8260
- SVOCs by EPA Method 8270

- RCRA metals by EPA Method 6020 and 7471

The drilling tools will be decontaminated using an alconox wash and distilled water rinse between each soil sampling location.

2.2 Groundwater Samples

Following completion of the soil boring installation, a Geoprobe® Screen Point 22 Groundwater Sampler will be advanced in a location off-set from the boring by a few feet. The drilling rods will be advanced to a terminal depth and then raised to expose a 48-inch-long stainless-steel screen to the subsurface. The groundwater depth will be measured using a water level probe inserted into the drilling rods after approximately 10 to 15 minutes to allow groundwater levels to equilibrate. Dedicated polyethylene tubing will then be advanced through the drilling rods to the screen and a grab sample will be collected using a peristaltic pump. A total of three (3) groundwater samples will be collected and analyzed for VOCs by EPA Method 8260.

2.3 Soil Gas Samples

Soil gas sampling strategy was evaluated by preparing a conceptual site model for vapor intrusion which included review of historical assessment and conditions in the area of the building footprint and was prepared in general accordance with the DEQ's Vapor Intrusion Guidance (DEQ 2018). Soil gas probe installation, leak testing, and sampling is also described herein.

Vapor intrusion occurs when VOCs that are present in subsurface soil or groundwater volatilize, and the associated vapors migrate through soil and infiltrate the interior of a building through penetrations, cracks, or permeable surfaces of the building slab or foundation.

According to historical assessment data, VOCs have not been detected in three groundwater samples collected in 2009. Subsequent groundwater samples were not analyzed for VOCs. Other than naphthalene detected in sample S-31, VOCs were not detected in historical soil samples in excess of a health-based PSRG.

Based on the lack of VOC detections in this area, vapor intrusion risk for the proposed building is low. As such, limited soil gas samples are appropriate to further evaluate vapor intrusion risk for the proposed building. Note that soil screening will occur in the soil gas probe locations such that a biased-high sample does not occur as a result of installation within a limited area of impacted debris.

2.3.1 Soil Gas Probe Installation

Headwater will collect four (4) soil gas samples from probes installed within the proposed building footprint as depicted on Figure 7.

The soil gas samples will be obtained from temporary gas sampling probes installed by direct-push technology to a depth of approximately 5 to 7 feet bgs. ECS reported that depth to water

ranged from 9 to 11 feet below top of casing (note that ECS did not report depth to groundwater below ground surface).

After the boring is completed, polyethylene tubing with a particulate filter tip or stainless-steel screen will be installed in the boring. Sand will then be placed in the boring around the soil gas probe to a depth of approximately 6 inches above the top of the screen or filter tip. Hydrated bentonite pellets will be installed in lifts (i.e. a layer of bentonite will be added, then hydrated, then another layer of bentonite will be added and hydrated, etc.) to fill the annular space to the surface. A plastic valve will be placed on the tubing to prevent movement of air between the subsurface and ambient air space. Prior to installation of the probes, one field blank Summa canister sample will be collected through one of the soil gas probe assemblies.

The soil gas monitoring probes will be allowed to equilibrate overnight prior to leak testing and sampling.

2.3.2 Soil Gas Probe Leak Testing

Prior to sampling activities, leak tests will be performed at each sample location using helium (a nontoxic gas that is absent from the subsurface environment) and a portable helium detector. Helium gas with a concentration of 100% will be introduced into a shroud covering the soil gas sample locations. The shroud will be constructed of a schedule 40 polyvinyl chloride (PVC) 8-inch diameter end cap and will include a plastic or brass hose barb, penetrating the shroud, to allow for the introduction of helium and a second port that the soil gas probe tubing will thread through. The base of the shroud and the soil gas probe tubing port will be sealed with soil and modeling compound, respectively. Vapor will be extracted from the probe using a hand-held helium detector while helium gas is applied into the shroud. If helium is detected, the surface seal will be amended and retested; a seal is confirmed by a helium detection of less than 10% of the applied gas concentration.

2.3.3 Soil Gas Sampling

Prior to sample collection, a portable vacuum pump or syringe will be used to purge approximately three volumes of the down-hole tubing and sample train. A summa cannister will then be attached to the soil gas probe and the valve on the sample train closed to test the swagelock fitting on the canister. The canister valve will be opened and the vacuum of the canister monitored. The swagelock fitting will be considered sufficient if there is no change in vacuum over a three minute period. Soil gas samples will be collected using 1-liter Summa canisters with 5-minute minimum collection valves. This will result in a flow of approximately 0.2 liters/minute. One duplicate sample will be collected by connecting a three-way connector and additional tubing to the soil gas probe valve so that the duplicate sample can be collected concurrently with the primary sample. Note that the sample time for the duplicate and associated sample will be calibrated for a 10-minute period, resulting in a flow rate of 0.2 liters/minute.

Following sample collection, the soil gas probes will be abandoned by removing the tubing and filling the void space with soil.

Soil gas sampling will be performed in general accordance with the DEQ's Vapor Intrusion Guidance (DEQ 2018), and the results will be compared to the Residential and Non-Residential Vapor Intrusion Screening Levels. Where applicable, vapor intrusion sampling will also be performed in general accordance with the most recent versions of the U.S. EPA Region IV SESD Field Branches Quality System and Technical Procedures guidance. All soil gas samples will be analyzed for VOCs using U.S. Environmental Protection Agency Method TO-15.

2.4 Quality Administration and Quality Control

Headwater will collect one soil duplicate sample, one groundwater duplicate sample, and one duplicate soil gas sample to measure laboratory reproducibility/precision. A trip blank will be included in all coolers shipped with VOC samples and will be analyzed for VOCs. A field blank air sample will be collected through the sampling assembly to measure background concentrations of VOCs.

Appropriate sample handling and chain of custody and data management procedures will be employed and the laboratory will be instructed to employ QA/QC procedures to ensure appropriate sample handling and analysis and to aid in the review and validation of the analytical data. QA/QC procedures will be conducted in accordance with the method protocols and will include regular equipment maintenance, equipment calibrations, and adherence to specific sample custody and data management procedures. The laboratory will be instructed to analyze samples in conjunction with appropriate blanks, laboratory duplicates, continuing calibration standards, surrogate standards, and matrix spiking standards in accordance with approved methodologies to monitor both instrument and analyst performance. Laboratory reporting limits for each analyte will be at or below appropriate screening criteria, where possible and "J flags" will be reported if necessary.

A copy of the laboratory analytical data report and QA package for each group of samples submitted to and analyzed by the subcontracted laboratory will be provided in an appendix to the final report. Laboratory QA data consistent with Level II documentation will be requested. A copy of the completed chain-of-custody record and shipping receipt will be appended to the corresponding laboratory analytical report included with the final report.

2.5 Investigative Derived Waste Management

Investigative derived waste (IDW), including soil cuttings and decontamination fluid will be managed in accordance with 15A NCAC 02T.1503 and 15A NCAC 02H. 0106. Review of historical assessment and operations at the Site has not indicated that impacted media is present in the vicinity of proposed sample locations. Because hazardous waste is not expected to present and IDW spreading is not expected to contravene water quality standards, the IDW will be thin-spread onsite in the vicinity of the boring from which they originated. If impacted media

(determined by visual or olfactory observations) is encountered, it will be containerized, characterized, and, if necessary, disposed of in a permitted facility.

2.6 Reporting

Following completion of assessment activities, a summary report will be prepared. The report will include field observations, tabulated sample analytical results compared to applicable standards, a map showing sample locations, and a copy of the laboratory analytical report. Soil samples will be compared to the Residential and Industrial/Commercial SRGs and soil gas samples will be compared to the Residential and Non-Residential Vapor Intrusion Screening Levels. Metals concentrations will also be compared literature values for background metals concentrations. If necessary, a Tier II Risk Evaluation will be performed using the DEQ Risk Calculator tool.

3 References

DENR, 1985. Geologic Map of North Carolina.

Danford & Associated Land Surveying P.C. 2014. *Notice of Brownfields Survey Plat*. June 2, 2014.

North Carolina Department of Environmental Quality (DEQ):

- 2014. *Cancellation of REC-Administrative Agreement & Change in Project Status* letter. April 22, 2014.
- 2015. *Notice of Brownfields Property*. December 4, 2015.
- 2022. *DWM Brownfields Inspection Report*. April 20, 2022.

DEQ, 2018. *Vapor Intrusion Guidance*. Division of Waste Management. March 2018.

ECS 2008. *Phase I Environmental Site Assessment – Vacant Parcel of Land, 2501, 2503, 2505, 2507, and 2509 Wrightsville Avenue*. March 31, 2008.

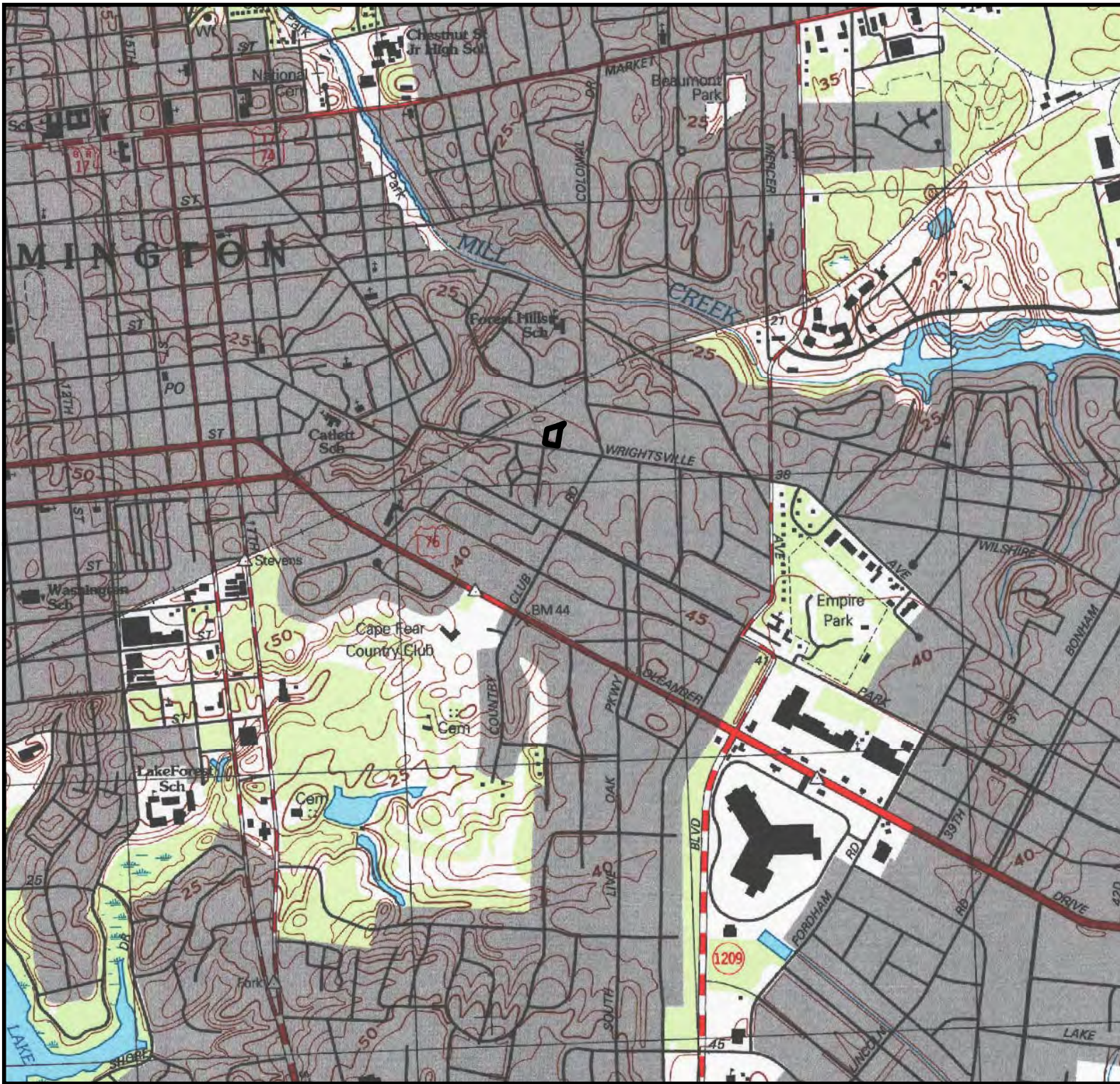
ECS 2009. *Phase I Remedial Investigation Report*. May 29, 2009.

ECS 2012. *Remedial Investigation Report*. March 19, 2012.

Headwater 2022. *Phase I Environmental Site Assessment*. July 29, 2022.

Henry Nemargut Engineering Services, Inc 2019. *Limited Site Assessment, Wrightsville Country Store, 2401 Wrightsville Ave*. January 2, 2019.

FIGURES



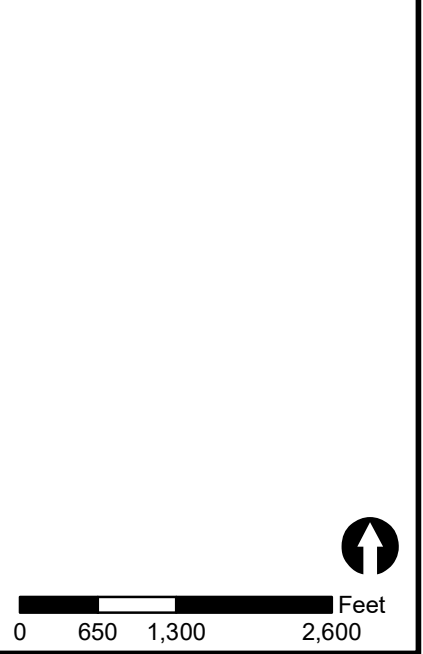
Date: 03/28/2023

Prepared By: DFH

**FIGURE 1
TOPOGRAPHIC MAP**
Wrightsville Avenue
Wilmington, New Hanover County
North Carolina
Headwater Project # A22-148

SOURCE
USGS
7.5-minute Topographic Quadrangle
Wilmington (1993)
Contour Interval = 5 feet
1 inch = 1600 feet

LEGEND
 Site Boundary





Date: 03/28/2023

Prepared By: DFH




**FIGURE 2
SITE MAP**
Wrightsville Avenue
Wilmington, New Hanover County
North Carolina
Headwater Project # A22-148


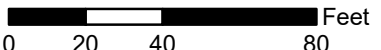
SOURCE
NC One Map
Latest Imagery

New Hanover County Parcels
New Hanover County Centerlines

1 inch = 50 feet

LEGEND

-  Site Boundary
-  Parcels
-  Centerlines


 Feet
0 20 40 80

Date: 03/28/2023

Prepared By: DFH

**FIGURE 3
CONCEPTUAL DEVELOPMENT
PLAN**

Wrightsville Avenue
Wilmington, New Hanover County
North Carolina
Headwater Project # A22-148




SOURCE

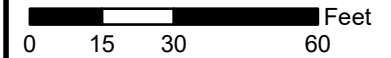
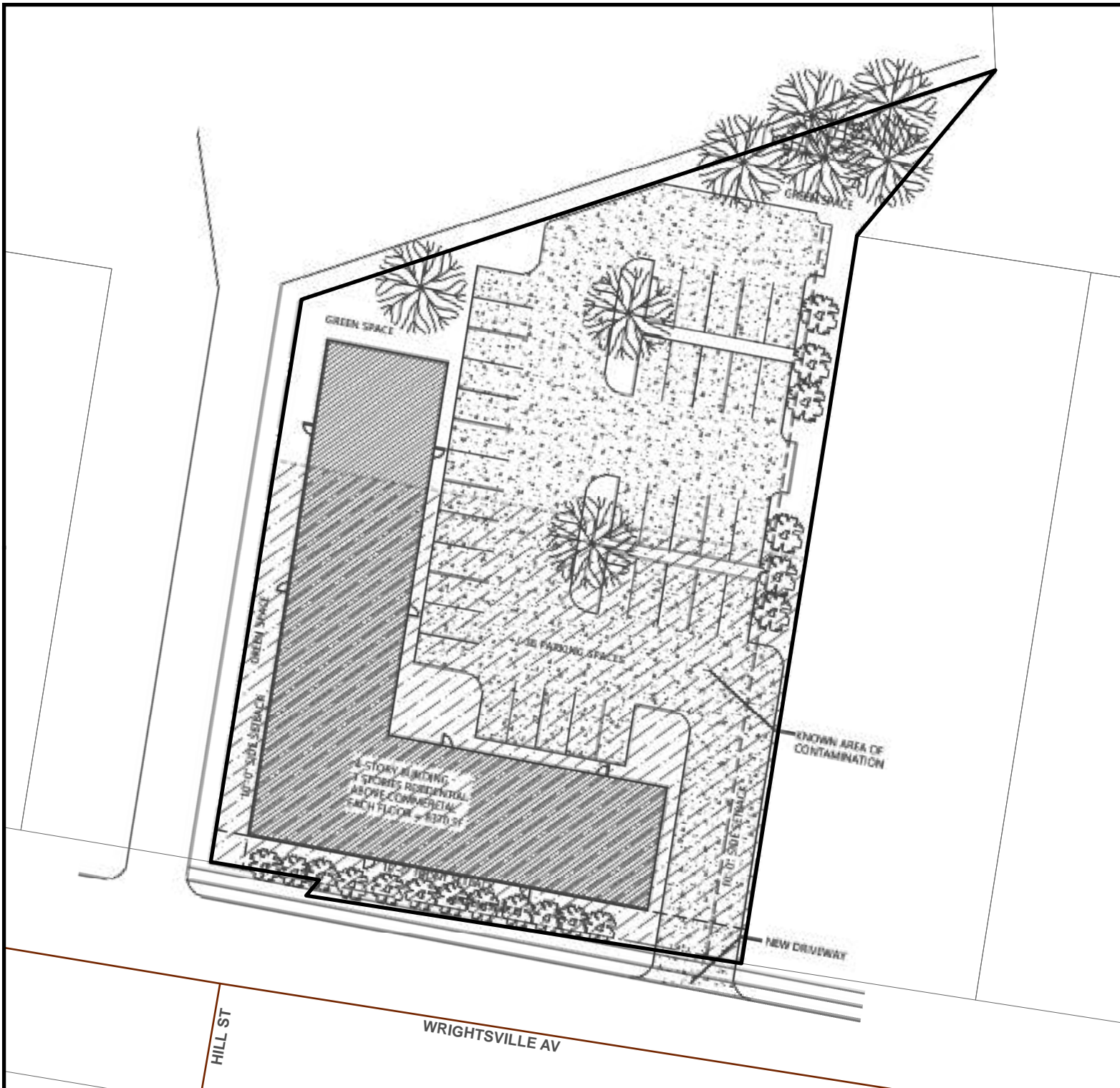
NC One Map
Latest Imagery

New Hanover County Parcels
New Hanover County Centerlines

1 inch = 40 feet

LEGEND

-  Site Boundary
-  Parcels
-  Centerlines



Date: 03/28/2023

Prepared By: DFH

**FIGURE 4
HISTORICAL SAMPLE
LOCATIONS MAP**

Wrightsville Avenue
Wilmington, New Hanover County
North Carolina
Headwater Project # A22-148



SOURCE

NC One Map
Latest Imagery

New Hanover County Parcels
New Hanover County Centerlines

1 inch = 40 feet

LEGEND

-  Site Boundary
-  Historical Sample Locations (2012)
-  Parcels
-  Centerlines



WRIGHTSVILLE AV




0 15 30 60 Feet

Date: 03/28/2023

Prepared By: DFH

**FIGURE 5
 SOIL EXCEEDANCES
 (0-2 FEET BGS)**





 Wrightsville Avenue
 Wilmington, New Hanover County
 North Carolina
 Headwater Project # A22-148

SOURCE

 NC One Map
 Latest Imagery


 New Hanover County Parcels
 New Hanover County Centerlines
 1 inch = 40 feet


LEGEND

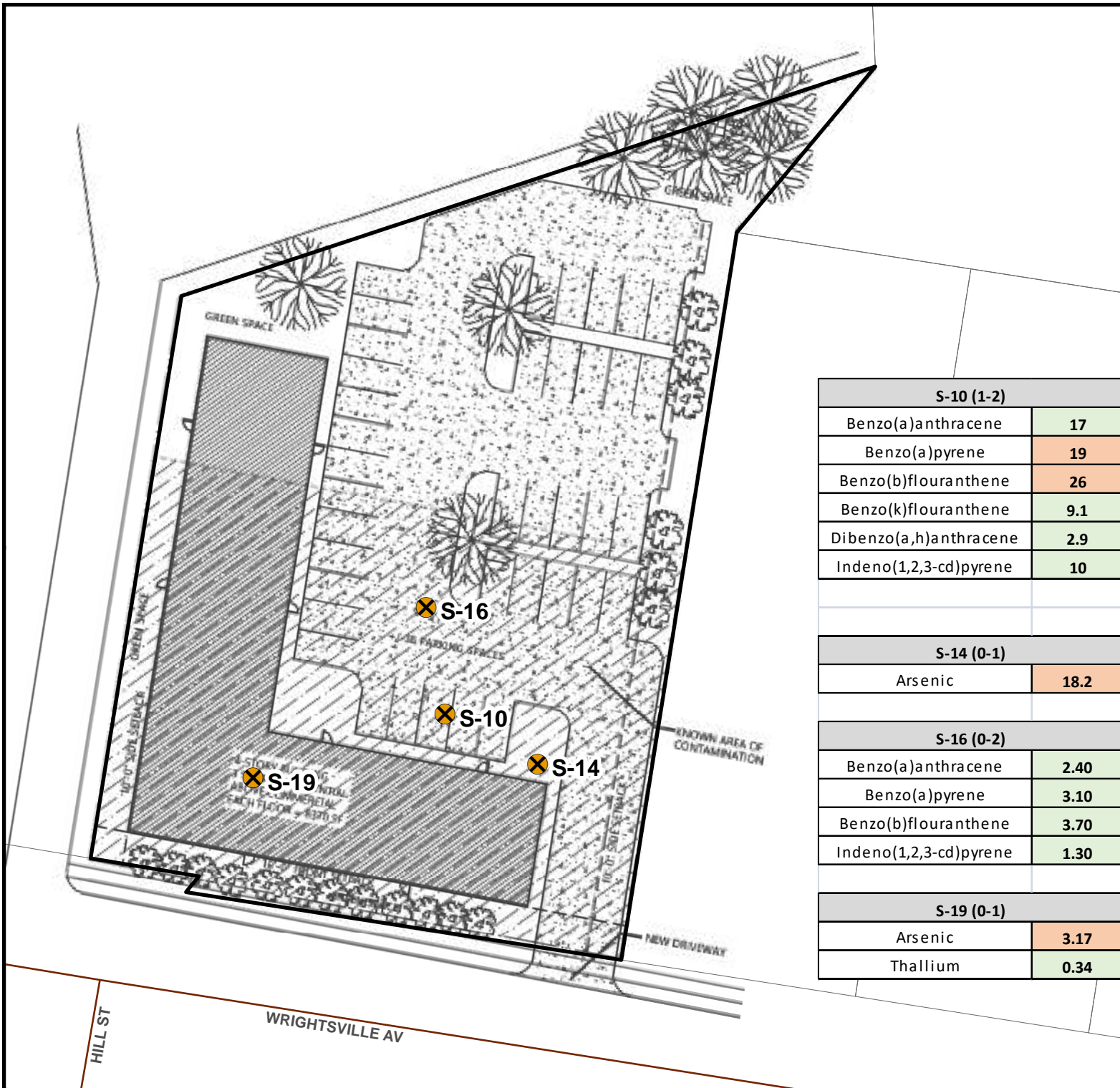
-  Site Boundary
-  Parcels
-  Centerlines
-  Soil Exceedances (0-2 Feet BGS)

Notes*

- Feet BGS – Feet below ground surface
- Only compounds that exceed health-based PSRGs are shown and only arsenic concentrations that exceed the Industrial and/or Commercial PSRG are included.

 Detected concentration is greater than Residential PSRG

 Detected concentration is greater than Industrial or Commercial PSRG


 0 15 30 60 Feet


S-10 (1-2)	
Benzo(a)anthracene	17
Benzo(a)pyrene	19
Benzo(b)flouranthene	26
Benzo(k)flouranthene	9.1
Dibenzo(a,h)anthracene	2.9
Indeno(1,2,3-cd)pyrene	10

S-14 (0-1)	
Arsenic	18.2

S-16 (0-2)	
Benzo(a)anthracene	2.40
Benzo(a)pyrene	3.10
Benzo(b)flouranthene	3.70
Indeno(1,2,3-cd)pyrene	1.30

S-19 (0-1)	
Arsenic	3.17
Thallium	0.34

Date: 03/28/2023

Prepared By: DFH

**FIGURE 6
SOIL EXCEEDANCES
(>2 FEET BGS)**

Wrightsville Avenue
Wilmington, New Hanover County
North Carolina
Headwater Project # A22-148

SOURCE

NC One Map
Latest Imagery

New Hanover County Parcels
New Hanover County Centerlines
1 inch = 40 feet

LEGEND

- Site Boundary
- Parcels
- Centerlines
- Soil Exceedances (>2 Feet BGS)

Notes*

- Feet BGS – Feet below ground surface
- Only compounds that exceed health-based PSRGs are shown and only arsenic concentrations that exceed the Industrial and/or Commercial PSRG are included.

Detected concentration is greater than Residential PSRG

Detected concentration is greater than Industrial or Commercial PSRG



S-2 (4)	
Arsenic	3.01

S-8 (2-3)	
Arsenic	12.2

S-8 (6-7)	
Arsenic	3

S-12 (2-3)	
Arsenic	3.12

S-14 (0-1)	
Arsenic	18.2

S-13 (3-4)	
Thallium	0.306

S-15 (3-4)	
Arsenic	161

S-16 (3-4)	
Benzo(a)anthracene	1.40
Benzo(a)pyrene	1.50
Benzo(b)flouranthene	1.80
Lead	427.00

S-21 (4-5)	
Arsenic	4.88

S-27 (6-7)	
Arsenic	10.5

S-31 (3-4)	
naphthalene	3.06
1-methylnaphthalene	26.1

S-31 (6-7)	
naphthalene	5.08
1-methylnaphthalene	17.6

Date: 03/28/2023

Prepared By: DFH

**FIGURE 7
PROPOSED SAMPLE
LOCATION MAP**

Wrightsville Avenue
Wilmington, New Hanover County
North Carolina
Headwater Project # A22-148







SOURCE

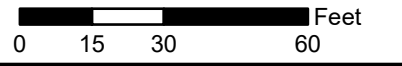
NC One Map
Latest Imagery

New Hanover County Parcels
New Hanover County Centerlines

1 inch = 40 feet

LEGEND

-  Centerlines
-  Site Boundary
-  Proposed Additional Soil Borings
-  Proposed Groundwater Samples
-  Proposed Soil Gas Location
-  Parcels



TABLES

Table 1
Historical Soil Analytical Health-Based Goal Exceedance Summary

Analysis:		Volatile and Semi-volatile Organic Compounds (mg/kg)							Metals (mg/kg)			
Analyte:		Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) flouranthene	Benzo(k) flouranthene	Dibenzo(a,h) anthracene	Indeno(1,2,3-cd)pyrene	naphthalene	1-methylnaphthalene	Arsenic*	Lead	Thallium
Residential PSRG (mg/kg):		1.1	1.1	1.1	11	1.1	1.1	2.1	18	0.68	400	0.16
Industrial/Commerical PSRG (mg/kg):		21	15	21	210	21	21	8.8	73	3.0*	800	2.3
Sample ID	Sample Depth (feet bgs)											
S-2	4									3.01		
S-8	2-3									12.2		
S-8	6-7									3.0		
S-10	1-2	17	19	26	9.1	2.9	10					
S-12	2-3									3.12		
S-14	0-1									18.2		
S-13	3-4											0.306
S-15	3-4									161		
S-16	0-2	2.40	3.10	3.70			1.30					
S-16	3-4	1.40	1.50	1.80							427	
S-19	0-1									3.17		0.34
S-21	4-5									4.88		
S-27	6-7									10.5		
S-31	3-4							3.06	26.1			
S-31	6-7							5.08	17.6			

Notes:
 Exceedances Only - This table shows only detections that exceed a health-based remediation goal. Note that only Arsenic detections that exceed the Industrial/Commercial goal are included due to the ubiquitous nature of this compound in background soil.

For a full list of analysis, see the Remeidial Investigation Report prepared by ECS and dated March 19, 2012.

PSRG - Preliminary Soil Remediation Goals, for Residential and Industrial/Commercial, North Carolina Department of Environmental Quality, July 2022

mg/kg: milligrams per kilogram

Feet bgs: Feet below ground surface

Detected concentration is greater than Residential PSRG

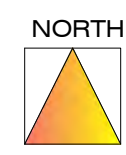
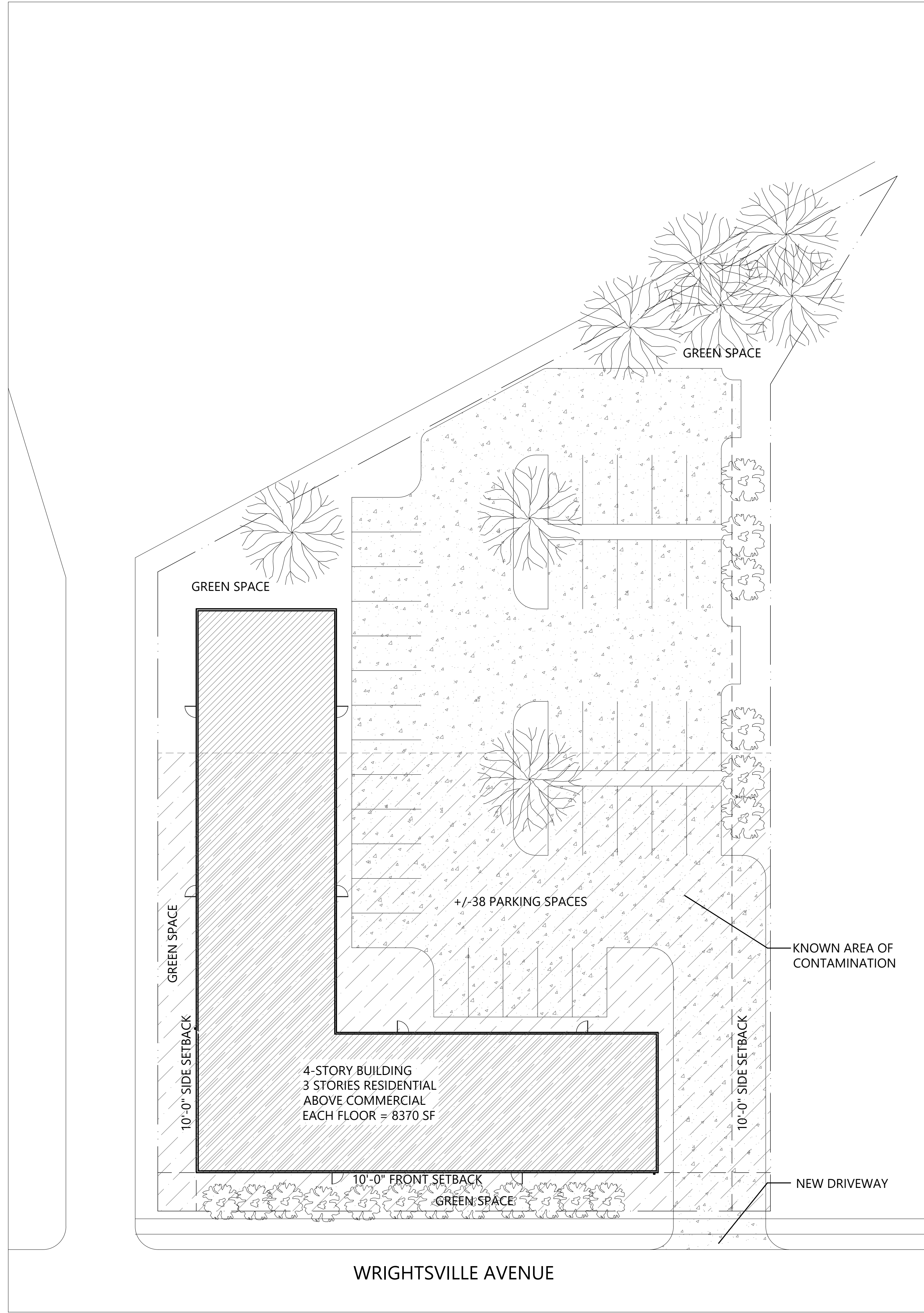
Detected concentration is greater than Industrial/Commercial PSRG

Bold: Detected result

NA - Constiuent not analyzed for

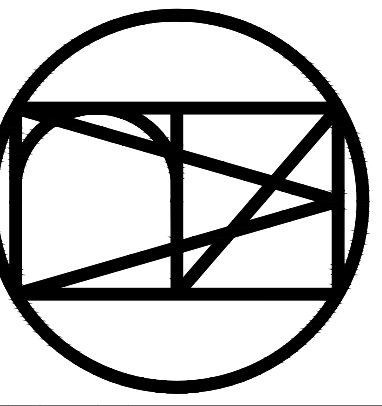
APPENDIX A
Conceptual Development Plan

THESE DRAWINGS ARE INSTRUMENTS OF THE ARCHITECTURAL SERVICES RENDERED BY ROMERO ARCHITECTURE PLLC. AS SUCH THEY ARE PROPERTY OF ROMERO ARCHITECTURE. THEY ARE NOT TO BE USED, COPIED OR REPRODUCED WITHOUT THE EXPRESS WRITTEN CONSENT OF ROMERO ARCHITECTURE PLLC.



1 SITE PLAN - GROUND FLOOR PLAN
SCALE 1/16" = 1'-0"

ARCHITECT



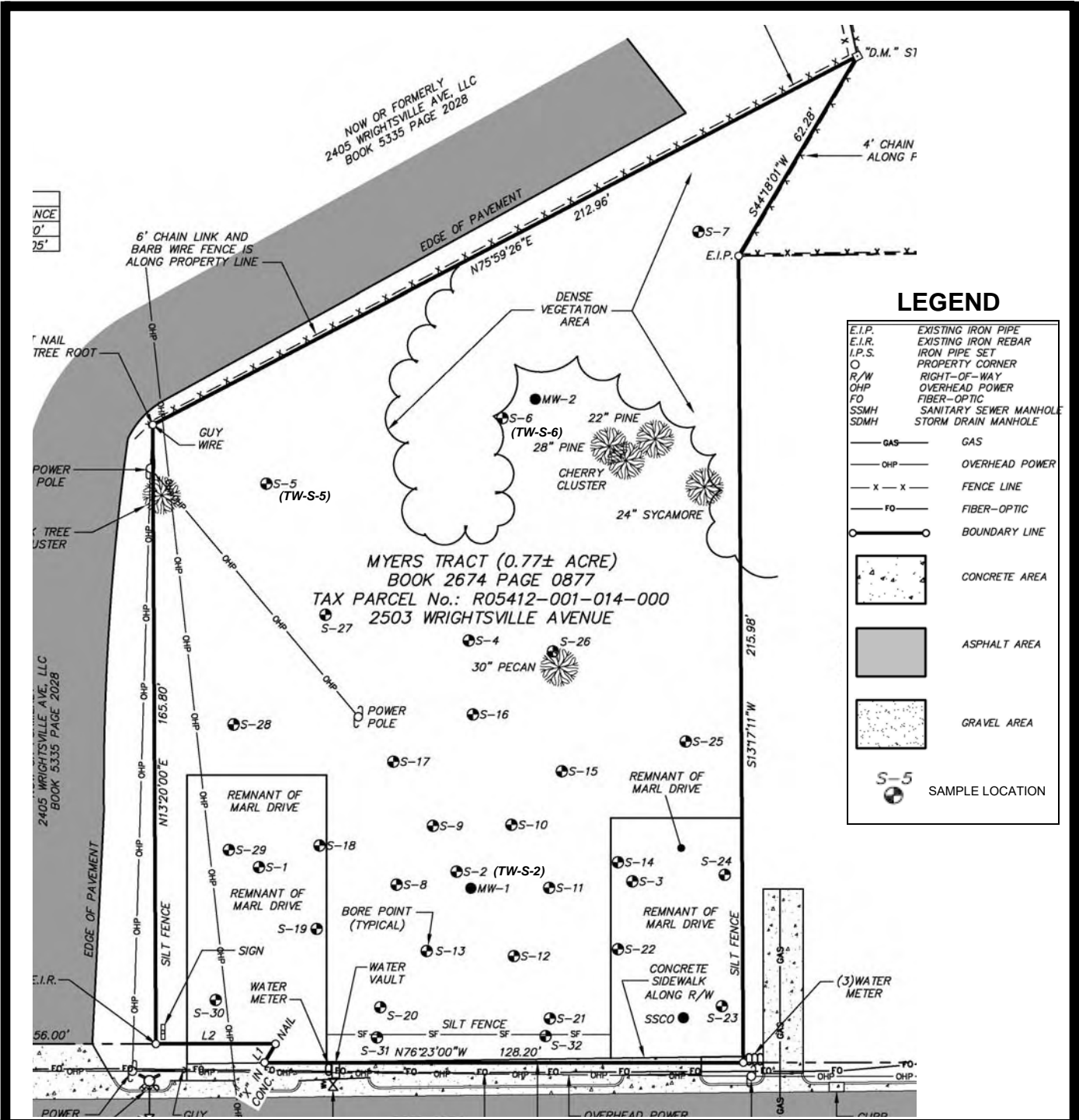
ROMERO ARCHITECTURE
2110 GREENFIELD STREET, #221
WILMINGTON, NORTH CAROLINA 28401
910.228.3137
www.romeroarchitecture.com

CARDAMONE DEVELOPMENT
2503 WRIGHTSVILLE AVENUE
WILMINGTON, NORTH CAROLINA 28403

A001 SITE PLAN - SCHEME 4

01.18.2023 ISSUED FOR OWNER REVIEW
02.22.2023 ISSUED FOR OWNER REVIEW
02.22.2023

APPENDIX B
***Remedial Investigation Report* Tables and**
Figures (ECS 2012)



Approximate Scale
1 inch = 40 feet

FIGURE 3: SAMPLE LOCATION MAP

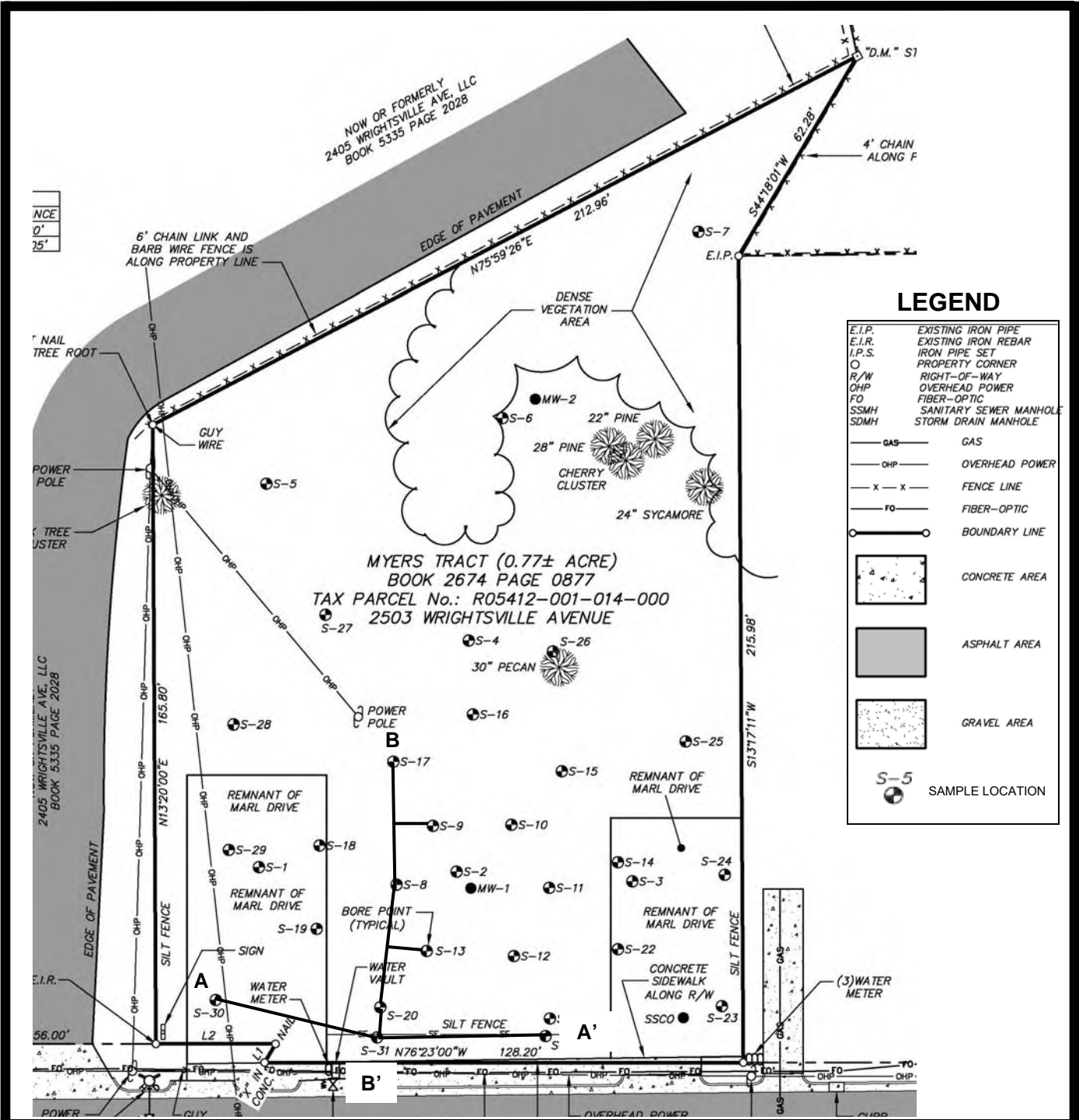
Source: Site Survey, January 2008



Remedial Investigation Work Plan
2501, 2503, 2507 and 2509
Wrightsville Ave.
Wilmington, North Carolina



ECS Project No. 22-13842E
March 2012



Approximate Scale

1 inch = 40 feet

FIGURE 5: CROSS SECTIONS (A-A' and B-B')

Source: Site Survey, January 2008

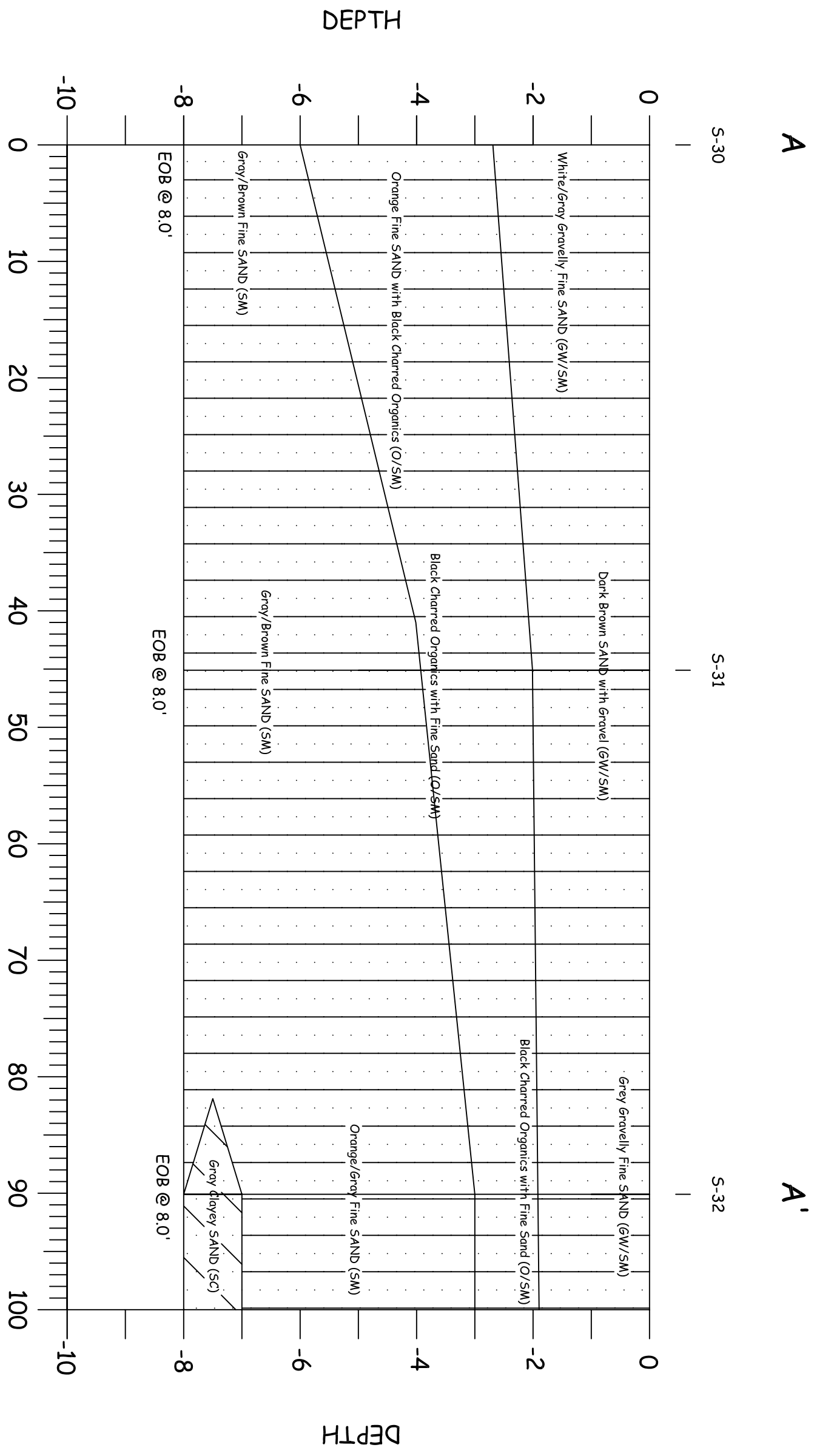


Remedial Investigation Work Plan
 2501, 2503, 2507 and 2509
 Wrightsville Ave.
 Wilmington, North Carolina



ECS Project No. 22-13842E
 March 2012

SOIL CLASSIFICATION LEGEND		SURFACE MATERIALS		ROCK TYPES		SYMBOL LEGEND	
	FILL - FILL (GROSS/PROB) OF ALL TYPES		TOPSOIL		IGNEOUS		WATER LEVEL - DURING DRILLING/SAMPLING
	GW - WELL GRADED GRAVEL		ASPHALT		METAMORPHIC		WATER LEVEL - BEFORE CASTING REMOVAL
	GM - SILTY GRAVEL		GRAVEL		SEDIMENTARY		WATER LEVEL - AFTER CASTING REMOVAL
	GP - POORLY GRADED GRAVEL		CONCRETE				WATER LEVEL - AFTER 24 HOURS
	GC - CLAYEY GRAVEL		VOID				
	SW - WELL GRADED SAND						
	ST - SHELBY TUBE						
	ML - LOW PLASTICITY SILT						
	CL - LOW PLASTICITY CLAY						
	MH - HIGH PLASTICITY SILT						
	RC - ROCK CORE						
	SM - SILTY SAND						
	SP - POORLY GRADED SAND						
	SC - CLAYEY SAND						
	PM - PRESSURE METER						
	CH - HIGH PLASTICITY CLAY						
	OH - HIGH PLASTICITY ORGANIC SILTS AND CLAYS						
	OL - LOW PLASTICITY ORGANIC SILTS AND CLAY						
	PT - PEAT						
	WR - WEATHERED ROCK						

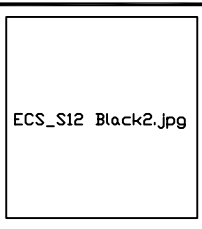


SCALE

VERTICAL SCALE 1/2"=1'

HORIZONTAL SCALE 1"=10'

Geologic Cross-Section A-A'



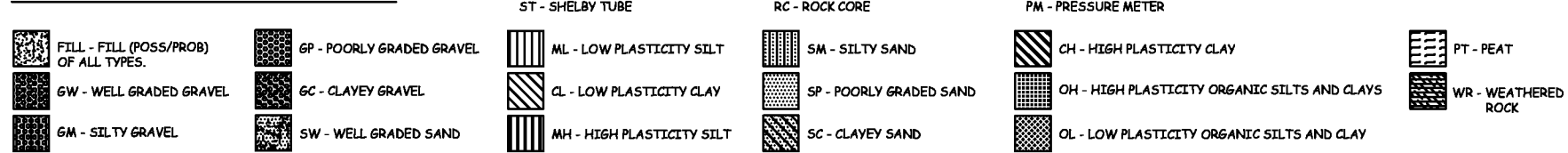
Remedial Investigation

Wrightsville Avenue

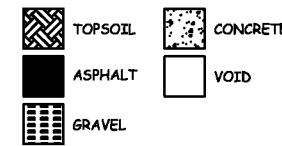
Wilmington, North Carolina

ECS REVISIONS	
ENGINEER	DRAFTING
WEG	
SCALE See Note	
PROJECT NO. 22-13842	
SHEET FIGURE 6	
DATE 10/31/11	

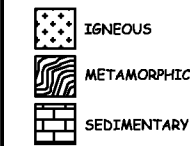
SOIL CLASSIFICATION LEGEND



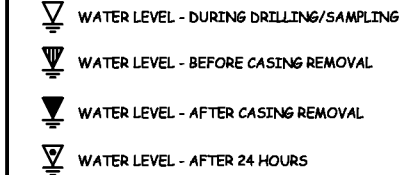
SURFACE MATERIALS



ROCK TYPES



SYMBOL LEGEND



**Remedial Investigation
Wrightsville Avenue
Wilmington, North Carolina**

ECS_S12 Black2.jpg

**Geologic
Cross-Section
B-B'**

ECS REVISIONS

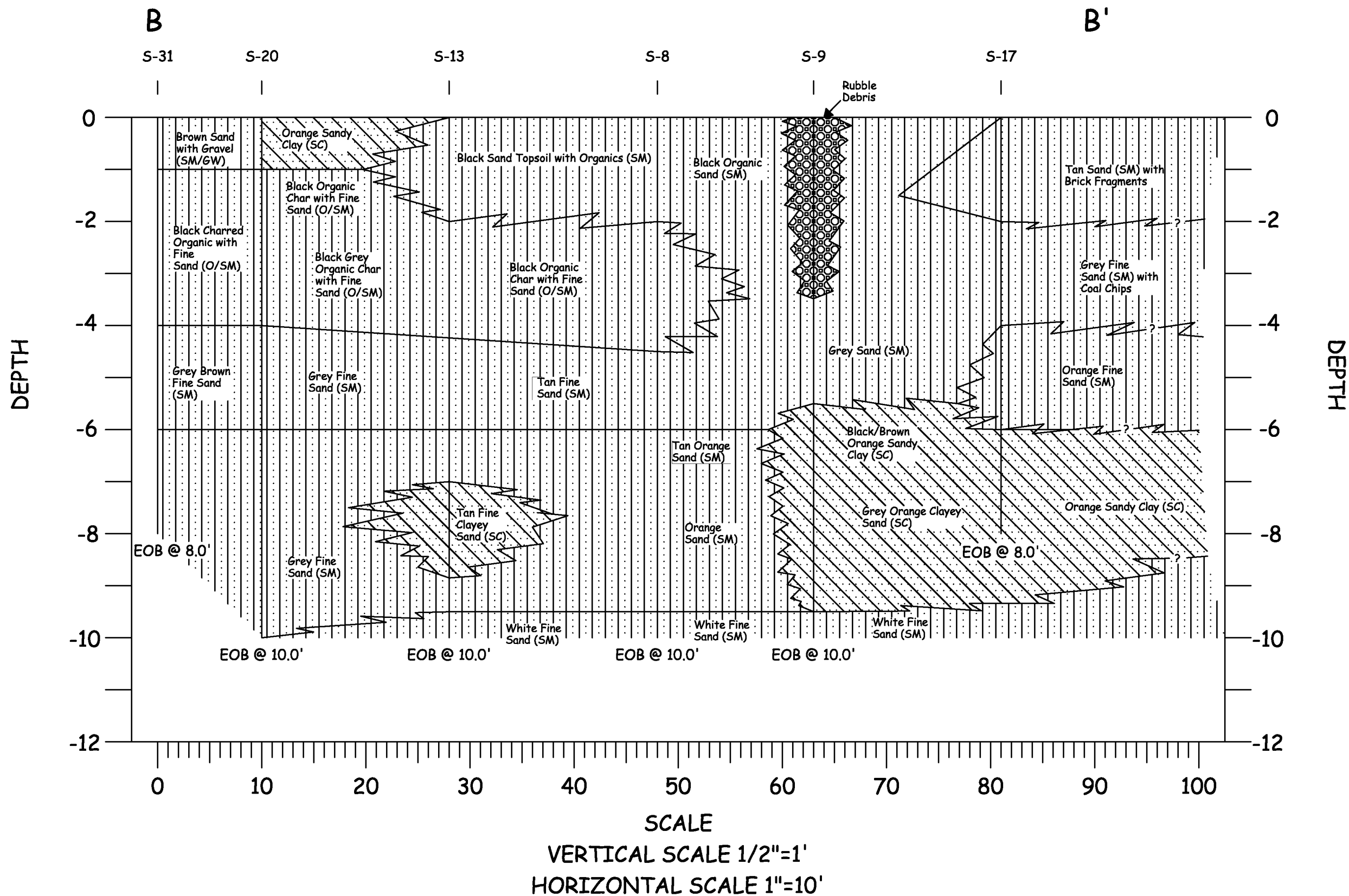
ENGINEER DRAFTING
WEG

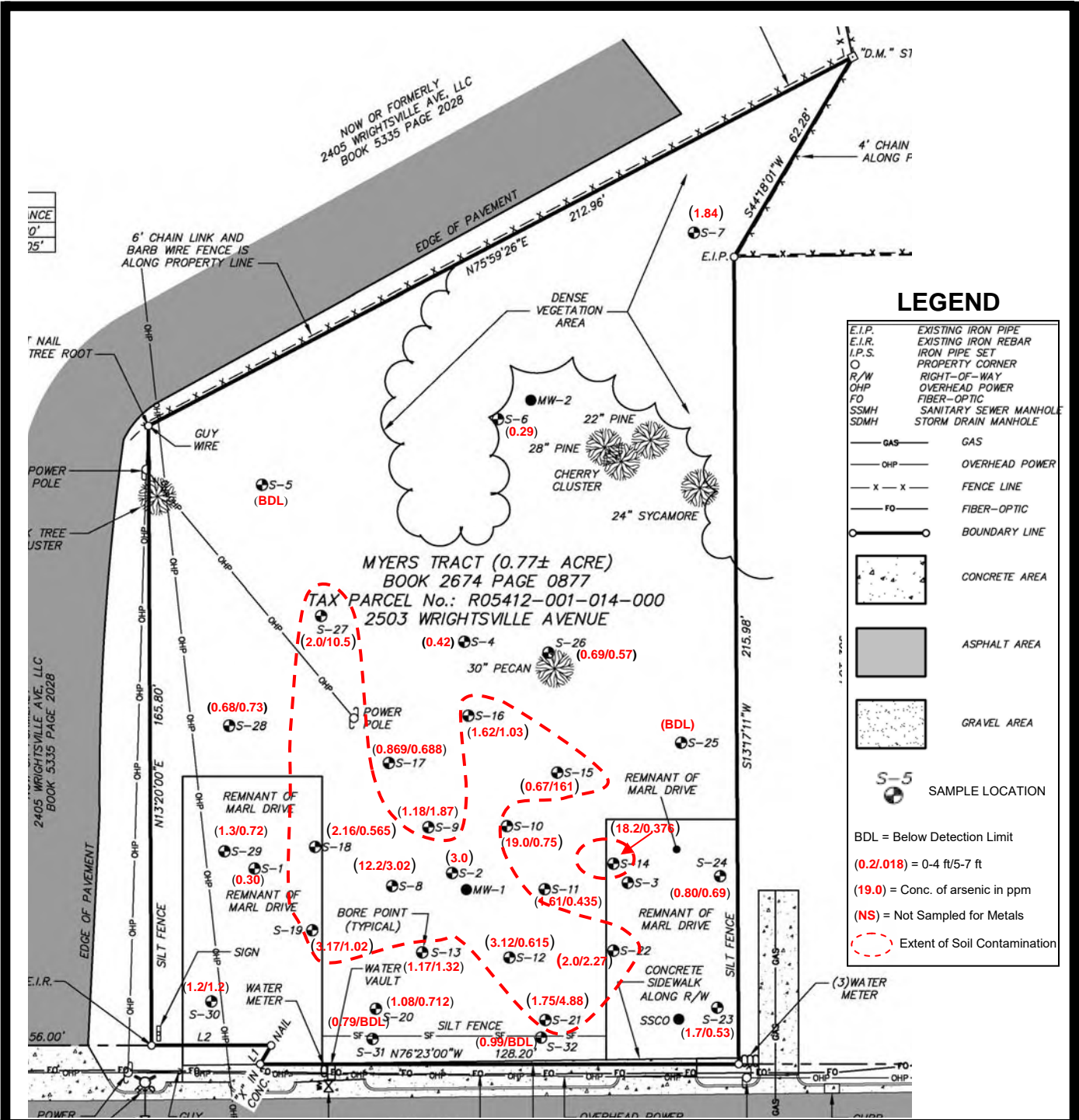
SCALE See Note

PROJECT NO. 22-13842

SHEET FIGURE 7

DATE 10/31/11





Approximate Scale
 1 inch = 40 feet

FIGURE 8: ARSENIC CONCENTRATION MAP

Source: Site Survey, January 2008

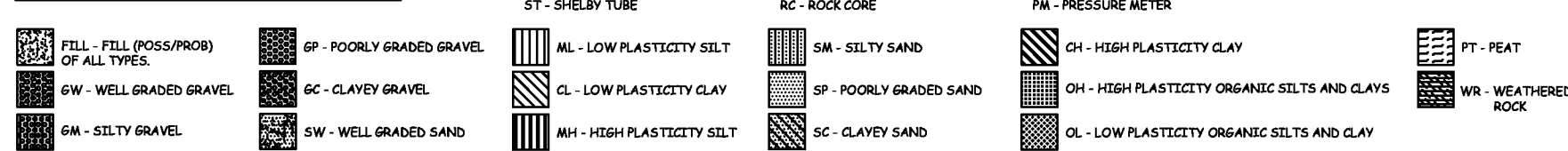


Remedial Investigation Work Plan
 2501, 2503, 2507 and 2509
 Wrightsville Ave.
 Wilmington, North Carolina

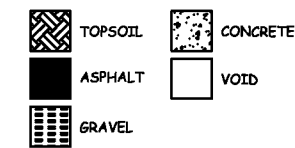


ECS Project No. 22-13842E
 March 2012

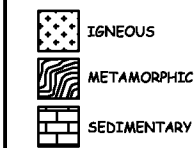
SOIL CLASSIFICATION LEGEND



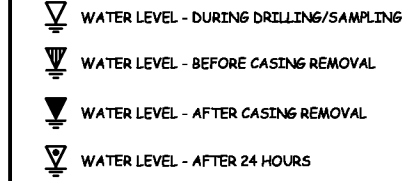
SURFACE MATERIALS



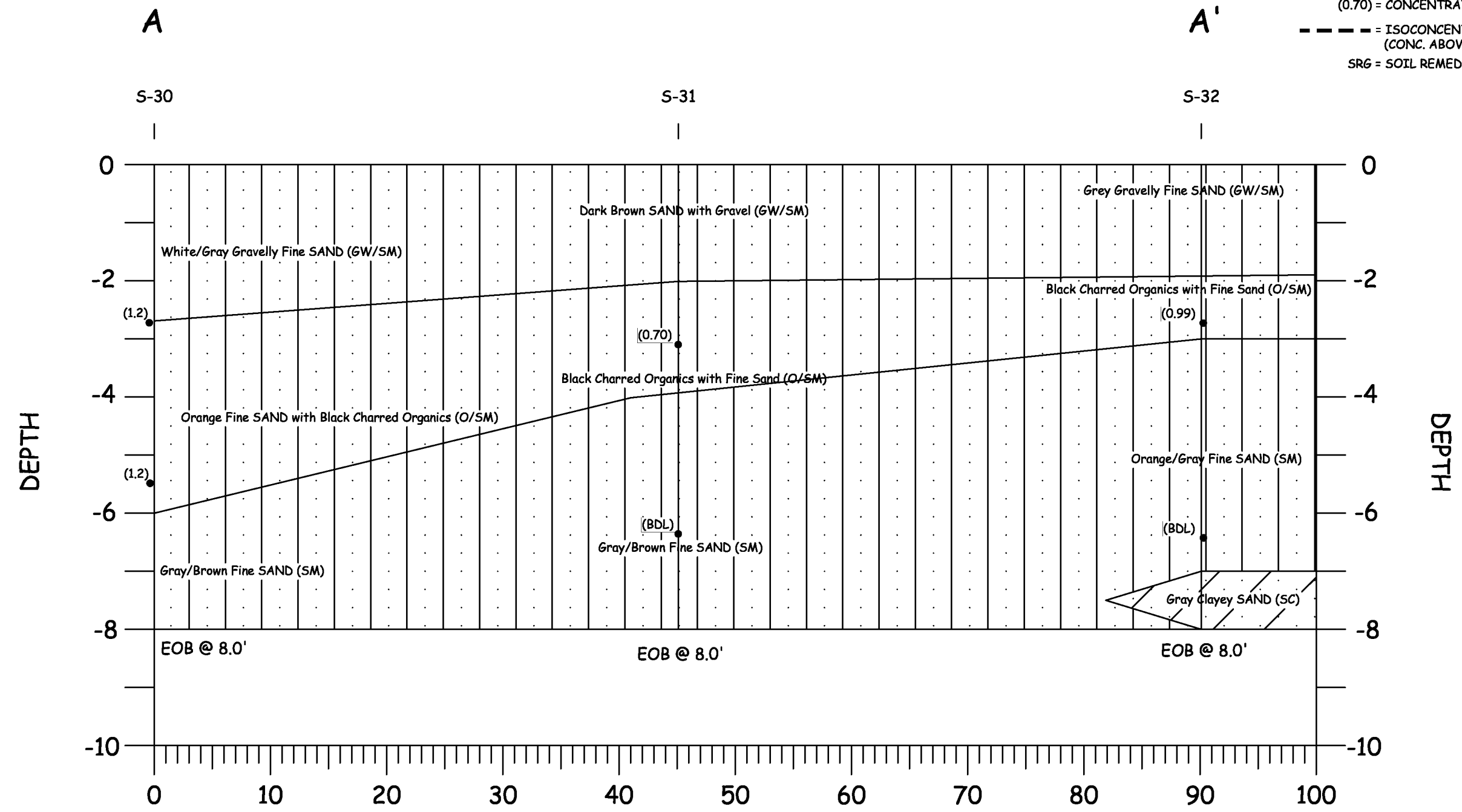
ROCK TYPES



SYMBOL LEGEND



BDL = BELOW DETECTION LIMIT
 (0.70) = CONCENTRATION IN PPM
 - - - = ISOCONCENTRATION LINE (CONC. ABOVE SRG)
 SRG = SOIL REMEDIATION GOAL



SCALE
 VERTICAL SCALE 1/2"=1'
 HORIZONTAL SCALE 1"=10'

**Remedial Investigation
 Wrightsville Avenue
 Wilmington, North Carolina**

ECS_S12 Black2.jpg

**Vertical Extent
 of Arsenic
 A-A'**

ECS REVISIONS

ENGINEER	DRAFTING
	WEG

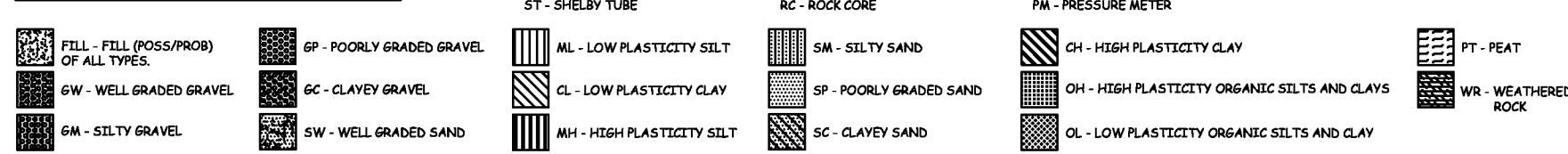
SCALE See Note

PROJECT NO. 22-13842

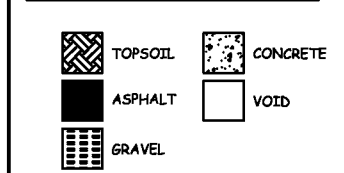
SHEET FIGURE 9

DATE 10/31/11

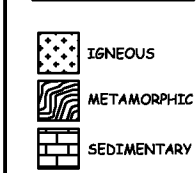
SOIL CLASSIFICATION LEGEND



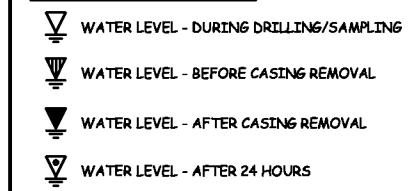
SURFACE MATERIALS



ROCK TYPES



SYMBOL LEGEND



BDL = BELOW DETECTION LIMIT
 (0.42) = CONCENTRATION IN PPM
 - - - = ISOCONCENTRATION LINE (CONC. ABOVE SRG)
 SRG = SOIL REMEDIATION GOAL

**Remedial Investigation
 Wrightsville Avenue
 Wilmington, North Carolina**

ECS_s12_black2.jpg

**Vertical Extent
 of Arsenic
 B-B'**

ECS REVISIONS

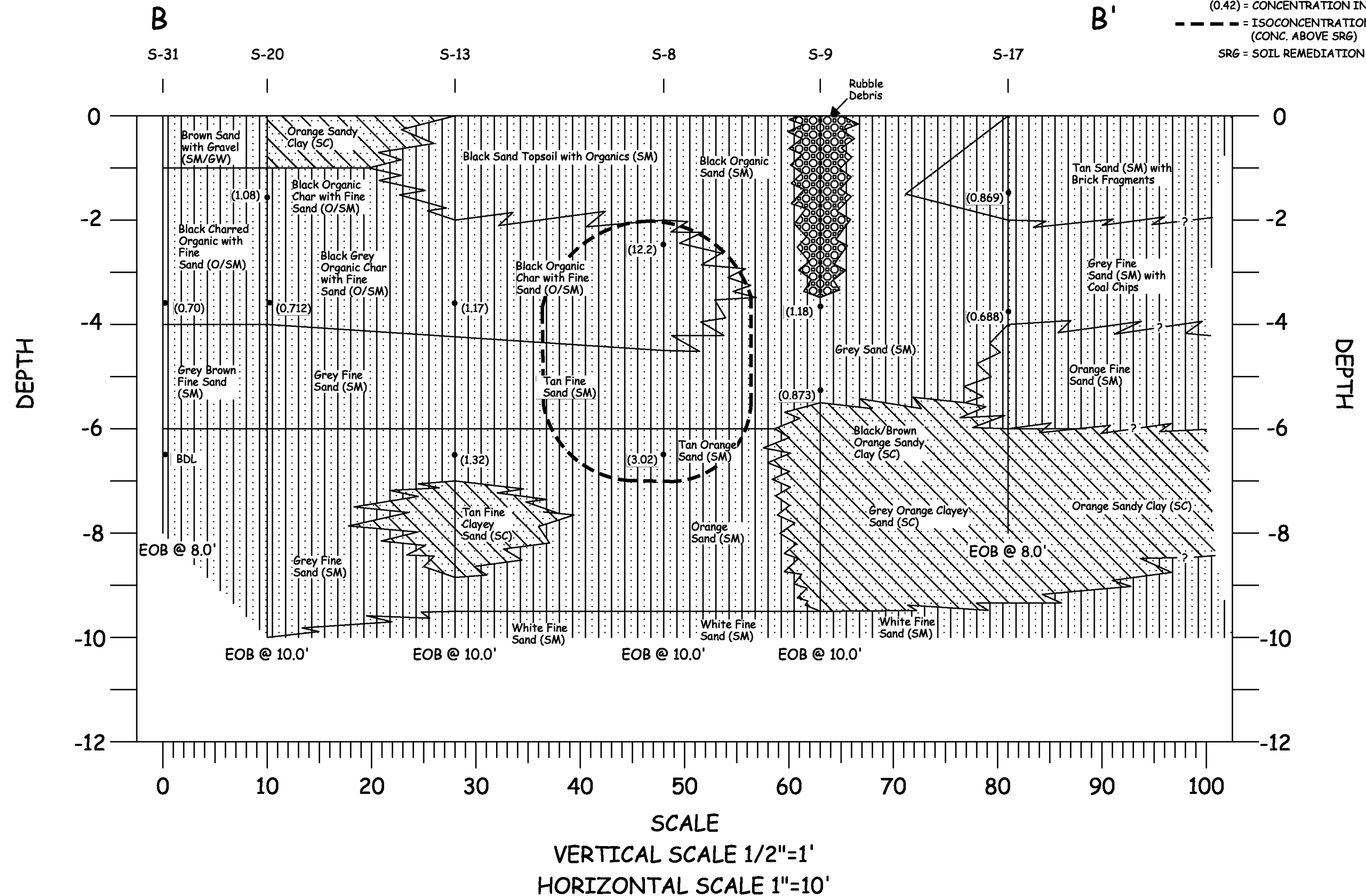
ENGINEER	DRAFTING
	WEG

SCALE See Note

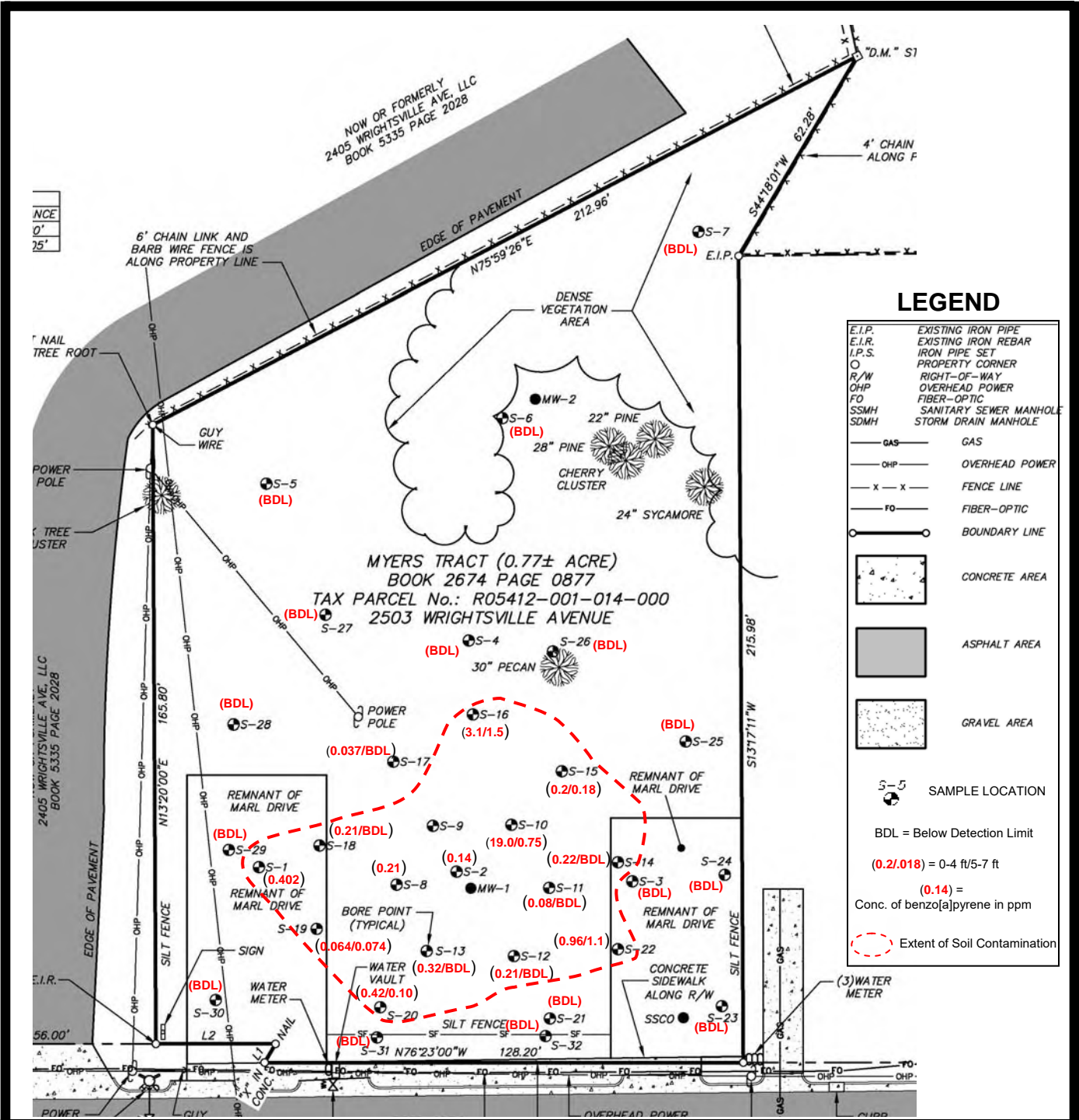
PROJECT NO. 22-13842

SHEET FIGURE 10

DATE 10/31/11



VERTICAL SCALE 1/2"=1'
 HORIZONTAL SCALE 1"=10'



Approximate Scale

1 inch = 40 feet

Source: Site Survey, January 2008

FIGURE 11: BENZO[a]PYRENE CONCENTRATION MAP

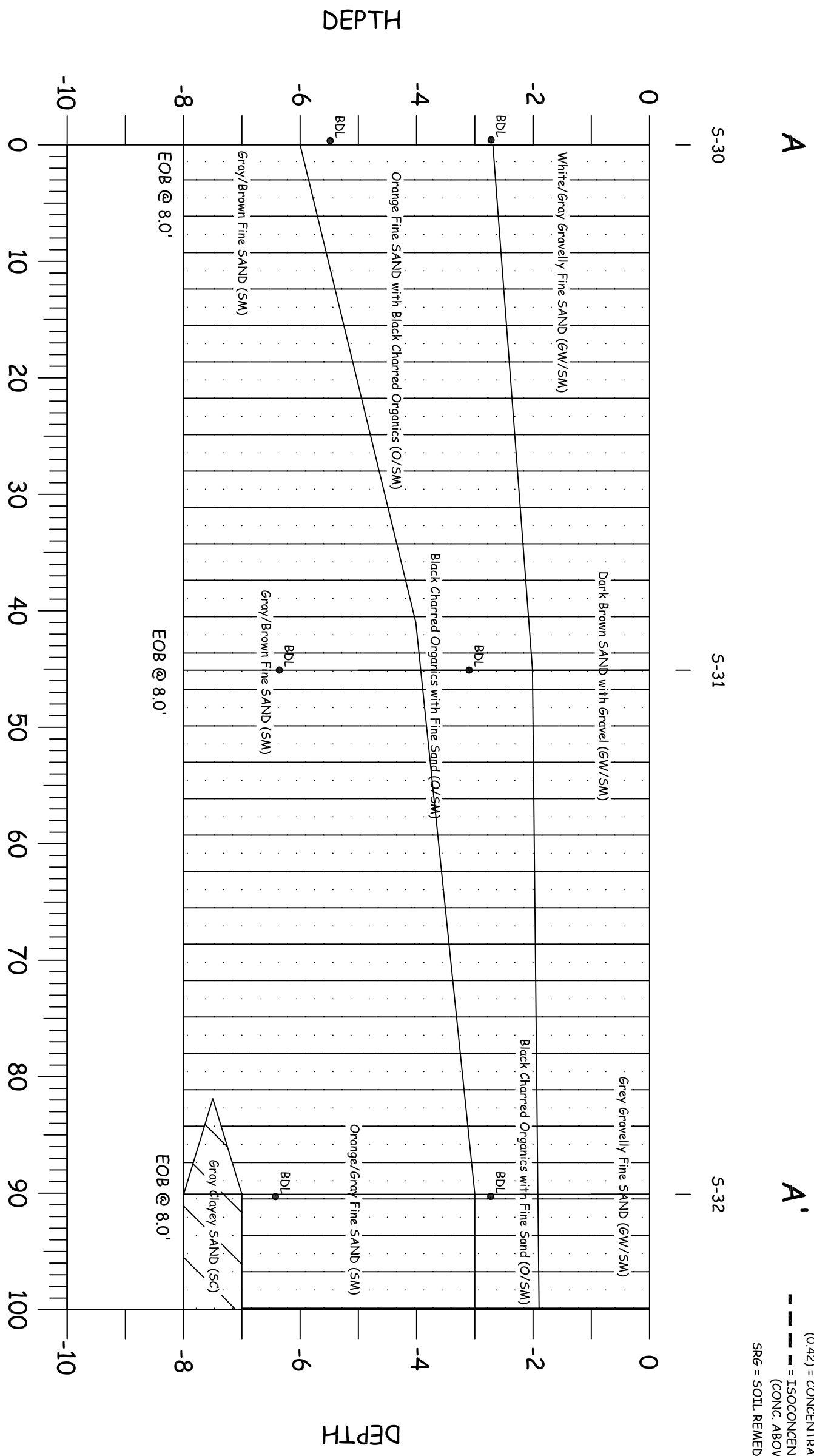


Remedial Investigation Work Plan
 2501, 2503, 2507 and 2509
 Wrightsville Ave.
 Wilmington, North Carolina



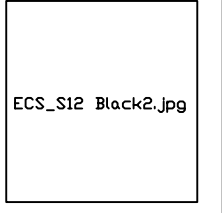
ECS Project No. 22-13842E
 March 2012

SOIL CLASSIFICATION LEGEND		SURFACE MATERIALS		ROCK TYPES		SYMBOL LEGEND	
	FILL - FILL (GROSS/PROB) OF ALL TYPES		TOPSOIL		IGNEOUS		WATER LEVEL - DURING DRILLING/SAMPLING
	GW - WELL GRADED GRAVEL		ASPHALT		METAMORPHIC		WATER LEVEL - BEFORE CASTING REMOVAL
	GM - SILTY GRAVEL		VOID		SEDIMENTARY		WATER LEVEL - AFTER CASTING REMOVAL
	GP - POORLY GRADED GRAVEL		CONCRETE				WATER LEVEL - AFTER 24 HOURS
	GC - CLAYEY GRAVEL						
	SW - WELL GRADED SAND						
	ST - SHELBY TUBE						
	ML - LOW PLASTICITY SILT						
	CL - LOW PLASTICITY CLAY						
	MH - HIGH PLASTICITY SILT						
	RC - ROCK CORE						
	SM - SILTY SAND						
	SP - POORLY GRADED SAND						
	SC - CLAYEY SAND						
	PM - PRESSURE METER						
	CH - HIGH PLASTICITY CLAY						
	OH - HIGH PLASTICITY ORGANIC SILTS AND CLAYS						
	OL - LOW PLASTICITY ORGANIC SILTS AND CLAY						
	PT - PEAT						
	WR - WEATHERED ROCK						



SCALE
 VERTICAL SCALE 1/2"=1'
 HORIZONTAL SCALE 1"=10'

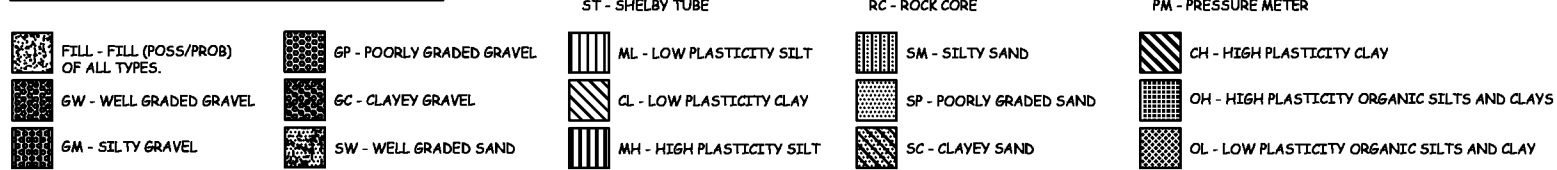
Remedial Investigation Wrightsville Avenue Wilmington, North Carolina



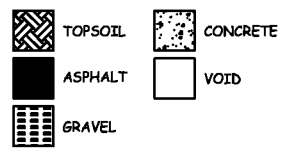
Vertical Extent of Benzo[a]pyrene A-A'

ECS REVISIONS	
ENGINEER	DRAFTING
WEG	
SCALE: See Note	
PROJECT NO.: 22-13842	
SHEET: FIGURE 12	
DATE: 10/31/11	

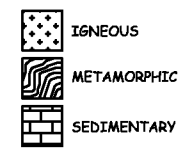
SOIL CLASSIFICATION LEGEND



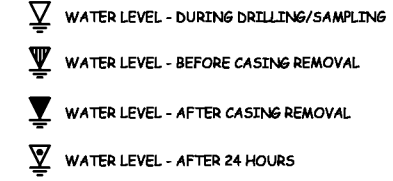
SURFACE MATERIALS



ROCK TYPES



SYMBOL LEGEND



BDL = BELOW DETECTION LIMIT
 (0.42) = CONCENTRATION IN PPM
 - - - = ISOCONCENTRATION LINE (CONC. ABOVE SRG)
 SRG = SOIL REMEDIATION GOAL

**Remedial Investigation
 Wrightsville Avenue
 Wilmington, North Carolina**

ECS_S12 Black2.jpg

**Vertical Extent
 of Benzo[a]pyrene
 B-B'**

ECS REVISIONS

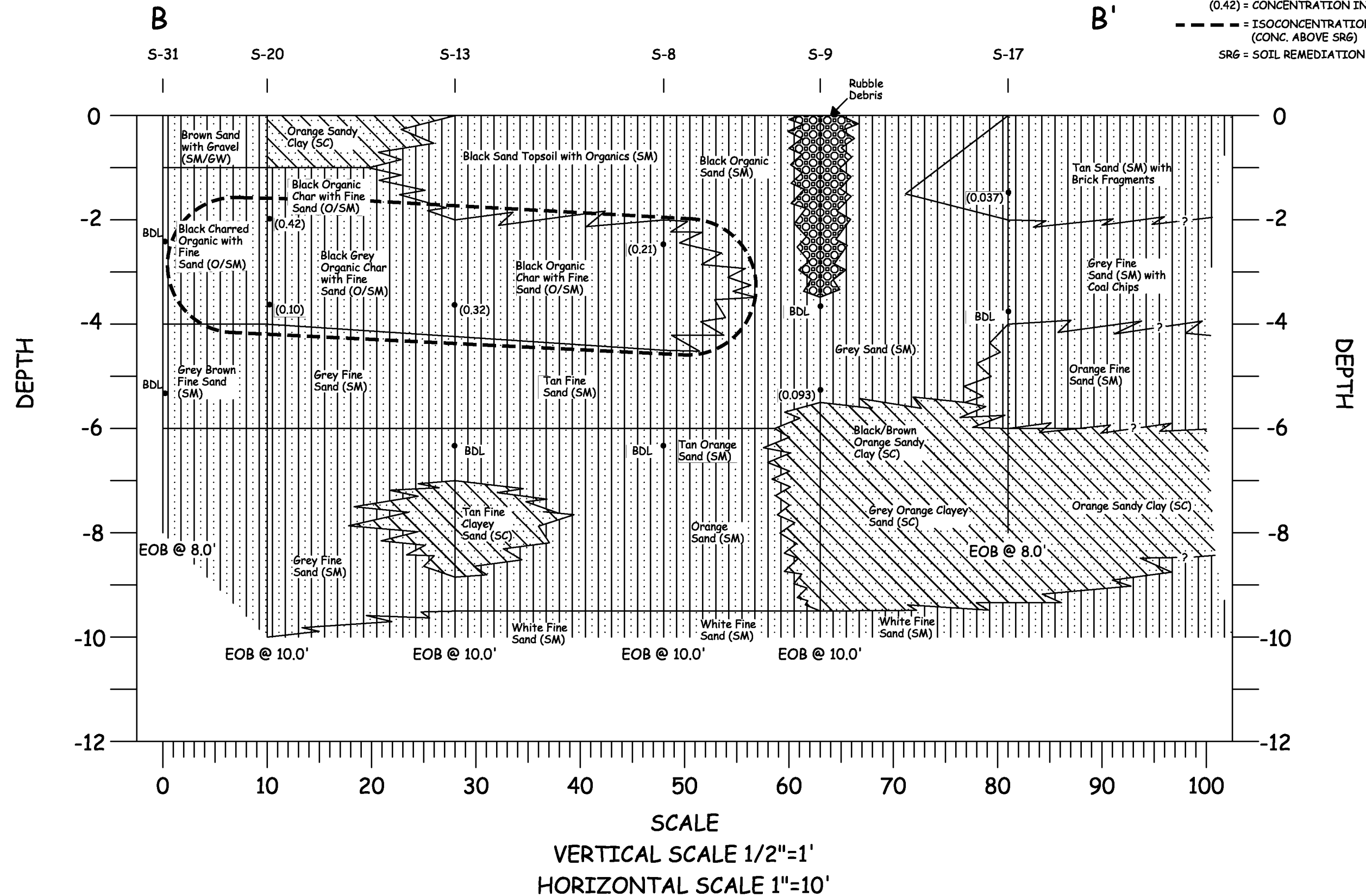
ENGINEER DRAFTING
 WEG

SCALE See Note

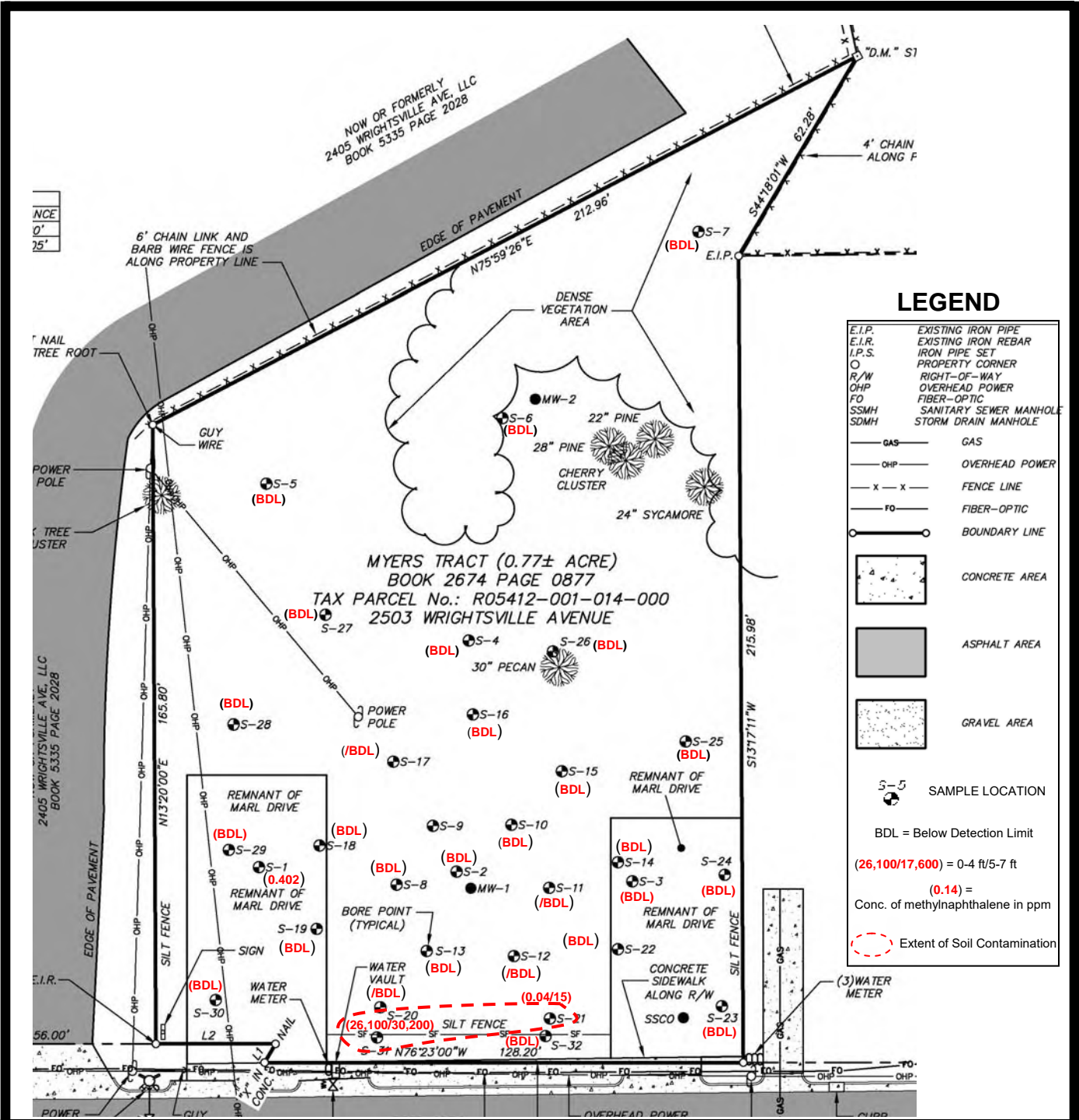
PROJECT NO. 22-13842

SHEET FIGURE 13

DATE 10/31/11



VERTICAL SCALE 1/2"=1'
 HORIZONTAL SCALE 1"=10'



Approximate Scale

1 inch = 40 feet

Source: Site Survey, January 2008

FIGURE 14 : PAH CONCENTRATION MAP



Remedial Investigation Work Plan
 2501, 2503, 2507 and 2509
 Wrightsville Ave.
 Wilmington, North Carolina



ECS Project No. 22-13842E
 March 2012

TABLE 1: SUMMARY OF MONITORING WELL AND GROUNDWATER ELEVATION DATA

Well No.				Depth of Well ²	March 24, 2009		November 23, 2009		April 8, 2009		November 19, 2010	
	Top of Casing	Bottom of Screen	Top of Screen		Static Water Level ³		Static Water Level ³		Static Water Level ³		Static Water Level ³	
					Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
TW-1	101.83	81.83	91.83	20.0	9.17	92.66	--		--		--	
TW-2	100.63	80.63	90.63	20.0	9.54	91.09	--		--		--	
TW-3	102.33	82.33	92.33	20.0	11.03	91.30	--		--		--	
MW-1	100.35	80.35	90.35	20.0	--	NA	6.87	93.48	5.70	94.65	7.46	92.89
MW-2	101.15	81.15	91.15	20.0	--	NA	9.00	92.15	7.61	93.54	9.39	91.76

Notes:

All data in feet (ft)

¹ Elevations surveyed from arbitrary 100 ft. temporary benchmark, with a different beachmark for TW and MW

² Depth of well measured from land surface

³ Static water level measured from top of casing

TABLE 2: SUMMARY OF SOIL SAMPLE RESULTS - METALS

Phase	Phase I									Comparison Standard		
Location	S-1	S-1	S-2	S-3	S-4	S-5	Dup S-5	S-6	S-7	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs	Maximum Background Concentration
Depth	Composite	4ft	4ft	4 ft	6ft	10ft	10ft	9ft	3ft			
Date	3/14/08	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09			
Antimony	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.90	82	0.87
Arsenic	NA	0.30	3.01	BDL	0.42	BDL	<0.28	0.29	1.84	5.8	1.6	1.84
Beryllium	NA	0.017	0.055	0.010	0.027	0.021	0.015	0.018	0.041	63	400	0.04
Barium	NA	6.90	61.3	1.45	6.09	3.64	1.99	3.04	13.1	580	38,000	13.1
Cadmium	NA	0.042	0.404	BDL	0.112	BDL	BDL	BDL	BDL	3.0	160	0.85
Chromium	NA	2.97	6.46	1.05	7.55	3.07	1.89	3.83	11.4	360,000	100,000	21.5
Copper	NA	0.729	9.71	0.182	2.13	0.228	0.095	0.290	0.949	700	8,200	21.5
Lead	NA	7.76	53.3	1.61	11.2	2.55	1.67	2.56	5.08	270	800	5.08
Nickel	NA	0.55	2.62	0.17	1.49	0.61	0.35	0.67	1.89	130	4,000	1.89
Selenium	NA	BDL	1.19	0.40	0.99	BDL	BDL	BDL	2.38	2.1	1,000	3.28
Silver	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.4	1,000	0.56
Thallium	NA	BDL	BDL	BDL	0.30	BDL	BDL	BDL	BDL	0.28	2.0	BDL
Zinc	NA	13.2	196	BDL	13.7	2.06	NA	BDL	3.21	1,200	62,000	191
Mercury	NA	BDL	0.05	BDL	0.01	BDL	BDL	BDL	0.04	1.0	62.0	0.06

Notes:

Concentrations presented in parts per million or ppm
 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
 SRG = Soil Remediation Goal, August 2011
 NA = Not analyzed for this compound or metal
 NS = No standard established at this time

TABLE 2: SUMMARY OF SOIL SAMPLE RESULTS - METALS (CONTINUED)

Phase	Phase II													Comparison Standard		
Location	S8-2-3	S8-6-7	S9-3-5	S9-5-6	Dup 9	S10-1-2	S10-5-6	S11-0-2	S11-6-7	S12-2-3	S12-6-7	S13-3-4	S13-6-7	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs	Maximum Background Concentration
Depth	2-3 ft	6-7 ft	3-5ft	5-6ft	3-5ft	1-2ft	5-6ft	0-2ft	6-7ft	2-3ft	6-7ft	3-4ft	6-7ft			
Date	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09			
Antimony	0.537	BDL	0.279	0.533	0.164	0.622	0.601	0.271	BDL	0.475	0.141	0.290	0.218	0.90	82	0.87
Arsenic	12.2	3.02	1.18	1.87	0.873	0.864	0.799	1.61	0.435	3.12	0.619	1.17	1.32	5.8	1.6	1.84
Beryllium	0.196	0.0325	BDL	0.0361	BDL	0.0413	0.0412	0.0483	BDL	0.0884	BDL	0.0433	0.0184	63	400	0.04
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	38,000	13.1
Cadmium	0.157	0.011	BDL	0.0206	BDL	0.104	0.0126	BDL	0.0532	0.192	BDL	0.0948	BDL	3.0	160	0.85
Chromium	5.09	7.01	1.95	7.62	1.99	4.32	8.21	5.89	1.48	4.3	3.37	2.61	5.57	360,000	100,000	21.5
Copper	10.8	1.12	0.591	2.72	0.543	8.29	3.66	2.26	BDL	13.3	0.311	3.11	0.785	700	8,200	21.5
Lead	42.7	3.30	1.69	15.6	1.84	76.4	19.4	23.4	1.34	53.8	3.03	28.6	3.09	270	800	5.08
Nickel	3.32	0.539	0.813	1.38	0.883	2.00	2.29	0.751	BDL	1.63	0.574	0.968	0.928	130	4,000	1.89
Selenium	0.325	BDL	0.300	BDL	0.208	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.135	2.1	1,000	3.28
Silver	BDL	BDL	BDL	BDL	BDL	0.167	0.188	BDL	BDL	BDL	BDL	BDL	BDL	3.4	1,000	0.56
Thallium	BDL	0.200	0.166	0.113	0.193	BDL	BDL	0.128	0.177	0.265	BDL	0.306	BDL	0.28	2.0	BDL
Zinc	67.3	4.38	3.11	20.1	2.69	65.2	21.0	51.8	2.34	114	4.68	32.0	1.97	1,200	62,000	191
Mercury	0.0352	0.0145	0.0141	0.0252	0.0143	0.163	0.0334	0.00955	BDL	0.0151	BDL	0.0156	BDL	1.0	62.0	0.06

Notes:

Concentrations presented in parts per million or ppm
 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
 SRG = Soil Remediation Goal, August 2011
 NA = Not analyzed for this compound or metal
 NS = No standard established at this time

TABLE 2: SUMMARY OF SOIL SAMPLE RESULTS - METALS (CONTINUED)

Phase	Phase II													Comparison Standard		
Location	S14-0-1	S14-3-4	S15-0-1	S15-3-4	S16-0-2	S16-3-4	S17-1-2	S17-3-4	S18-1-2	S18-3-4	S19-0-1	S19-2-3	Dup 19	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs	Maximum Background Concentration
Depth	0-1ft	3-4ft	0-1ft	3-4ft	0-2ft	3-4ft	1-2ft	3-4ft	1-2ft	3-4ft	0-1 ft	2-3ft	2-3ft			
Date	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10			
Antimony	1.36	BDL	0.338	2.16	0.223	1.57	0.477	0.331	0.240	BDL	0.588	0.558	BDL	0.90	82	0.87
Arsenic	18.2	0.376	0.670	161	1.62	1.03	0.869	0.688	2.16	0.565	3.17	1.02	0.732	5.8	1.6	1.84
Beryllium	0.534	BDL	0.0444	1.93	0.0348	0.0295	0.0168	0.0276	0.0407	BDL	0.105	0.0457	0.0375	63	400	0.04
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	38,000	13.1
Cadmium	0.518	BDL	0.0826	0.393	0.195	0.266	0.120	BDL	0.423	0.0450	0.249	0.125	0.101	3.0	160	0.85
Chromium	12.6	0.895	3.52	10.6	6.27	6.59	1.55	3.77	6.37	1.04	5.32	3.23	4.01	360,000	100,000	21.5
Copper	31.2	BDL	3.53	45.6	5.71	6.70	3.31	0.626	13.2	1.15	2.90	5.68	2.79	700	8,200	21.5
Lead	308	1.27	39.6	38.5	37.5	427	70.0	3.39	178	7.62	16.7	98.3	26.7	270	800	5.08
Nickel	9.04	BDL	0.848	23.7	1.91	2.03	0.760	0.763	3.58	0.539	5.27	1.59	0.605	130	4,000	1.89
Selenium	1.75	0.237	BDL	2.05	BDL	0.148	BDL	BDL	0.210	BDL	BDL	0.227	BDL	2.1	1,000	3.28
Silver	0.758	BDL	0.223	0.495	0.235	0.265	0.167	0.128	0.435	BDL	0.933	0.289	BDL	3.4	1,000	0.56
Thallium	BDL	0.128	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.340	BDL	BDL	0.28	2.0	BDL
Zinc	140	BDL	32.3	62.7	60.7	140	81.1	BDL	113	23.0	22.7	61.5	20.0	1,200	62,000	191
Mercury	0.0474	BDL	0.0193	0.0544	0.0984	0.103	0.0464	0.0473	0.0848	0.0555	0.0514	0.115	0.0331	1.0	62.0	0.06

Notes:

Concentrations presented in parts per million or ppm
 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
 SRG = Soil Remediation Goal, August 2011
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TABLE 2: SUMMARY OF SOIL SAMPLE RESULTS - METALS (CONTINUED)

Phase	Phase II											Comparison Standard		
Location	S20-1-2	S20-3-4	S21-2-3	S21-4-5	S22-1-2	S22-3-4	S23-3-4	S23-5-6	Dup 23	24-3-4	S24-5-6	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs	Maximum Background Concentration
Depth	1-2ft	3-4ft	2-3ft	4-5ft	1-2ft	3-4ft	3-4ft	5-6ft	5-6ft	3-4ft	5-6ft			
Date	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10			
Antimony	0.298	0.209	0.273	0.329	0.383	0.538	BDL	BDL	BDL	BDL	BDL	0.90	82	0.87
Arsenic	1.08	0.712	1.75	4.88	2.00	2.27	1.7	0.53	0.82	0.80	0.69	5.8	1.6	1.84
Beryllium	0.0499	0.0282	0.0635	0.0827	0.0766	0.124	BDL	BDL	BDL	BDL	BDL	63	400	0.04
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	38,000	13.1
Cadmium	0.113	0.0526	0.163	0.154	0.0407	0.615	BDL	BDL	BDL	BDL	BDL	3.0	160	0.85
Chromium	3.07	1.68	4.86	5.08	5.42	5.29	4.9	5.4	3.0	1.9	5.3	360,000	100,000	21.5
Copper	4.92	1.48	5.06	8.14	5.44	5.22	1.0	BDL	BDL	1.3	1.2	700	8,200	21.5
Lead	48.9	13.1	43.4	45.0	23.6	70.1	3.7	2.7	1.9	1.9	3.3	270	800	5.08
Nickel	0.963	BDL	1.72	1.89	1.33	2.35	1.1	0.98	0.65	0.73	1.0	130	4,000	1.89
Selenium	BDL	BDL	BDL	BDL	BDL	0.738	BDL	BDL	BDL	BDL	BDL	2.1	1,000	3.28
Silver	0.193	BDL	0.287	0.279	0.249	0.554	BDL	BDL	BDL	BDL	BDL	3.4	1,000	0.56
Thallium	BDL	BDL	BDL	BDL	0.161	BDL	BDL	BDL	BDL	BDL	BDL	0.28	2.0	BDL
Zinc	51.5	13.6	46.5	93.4	23.0	97.2	1.5	BDL	BDL	2.3	2.2	1,200	62,000	191
Mercury	0.0736	0.0170	0.0315	0.0504	0.0324	0.0311	0.031	0.033	0.0085	0.063	0.025	1.0	62.0	0.06

Notes:

Concentrations presented in parts per million or ppm

Bold concentrations over Protection of Groundwater SRG

Red concentrations over Preliminary Industrial Health-Based SRG

SRG = Soil Remediation Goal, August 2011

NA = Not analyzed for this compound or metal

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TABLE 2: SUMMARY OF SOIL SAMPLE RESULTS - METALS (CONTINUED)

Phase	Phase II										Comparison Standard		
Location	S25-3-4	S25-5-6	26-2-3	26-5-6	S27-3-4	S27-6-7	S28-1-2	S28-5-6	S29-3-4	S29-5-6	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs	Maximum Background Concentration
Depth	3-4ft	5-6ft	2-3ft	5-6ft	3-4ft	6-7 ft	1-2ft	5-6ft	3-4ft	5-6ft			
Date	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10			
Antimony	BDL	BDL	BDL	0.42	BDL	BDL	BDL	BDL	BDL	BDL	0.90	82	0.87
Arsenic	BDL	BDL	0.69	0.57	2.0	10.5	0.68	0.73	1.3	0.71	5.8	1.6	1.84
Beryllium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	63	400	0.04
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	38,000	13.1
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	0.17	BDL	BDL	BDL	3.0	160	0.85
Chromium	2.2	7.3	5.1	7.0	6.1	3.1	2.6	5.2	2.8	5.9	360,000	100,000	21.5
Copper	1.1	1.5	0.69	0.55	BDL	BDL	3.5	1.2	3.4	1.4	700	8,200	21.5
Lead	2.7	3.5	2.3	3.6	2.7	3.0	24.9	3.1	15.7	10.8	270	800	5.08
Nickel	BDL	0.91	1.3	1.4	1.2	0.98	0.98	1.0	0.87	0.91	130	4,000	1.89
Selenium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.1	1,000	3.28
Silver	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.4	1,000	0.56
Thallium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.28	2.0	BDL
Zinc	1.9	7.3	2.3	2.4	2.1	1.0	49.4	5.6	15.1	7.6	1,200	62,000	191
Mercury	0.029	0.038	0.021	0.015	0.050	BDL	0.090	0.011	0.051	0.019	1.0	62.0	0.06

Notes:

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TABLE 2: SUMMARY OF SOIL SAMPLE RESULTS - METALS (CONTINUED)

Phase	Phase II						Comparison Standard		
Location	S30-2-3	S30-5-6	S31-3-4	S31-6-7	S32-3-4	S32-6-7	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs	Maximum Background Concentration
Depth	2-3ft	5-6ft	3-4ft	6-7 ft	3-4ft	6-7 ft			
Date	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10			
Antimony	0.87	BDL	BDL	BDL	0.42	BDL	0.90	82	0.87
Arsenic	1.2	1.2	0.70	BDL	0.99	BDL	5.8	1.6	1.84
Beryllium	BDL	BDL	BDL	BDL	BDL	BDL	63	400	0.04
Barium	NA	NA	NA	NA	NA	NA	580	38,000	13.1
Cadmium	0.85	BDL	BDL	BDL	BDL	BDL	3.0	160	0.85
Chromium	4.3	4.0	3.4	3.3	6.3	3.8	360,000	100,000	21.5
Copper	21.5	0.55	0.48	0.66	BDL	BDL	700	8,200	21.5
Lead	92.3	2.5	2.6	2.6	3.4	2.6	270	800	5.08
Nickel	1.2	0.65	1.2	0.94	0.87	BDL	130	4,000	1.89
Selenium	BDL	BDL	BDL	BDL	BDL	BDL	2.1	1,000	3.28
Silver	0.56	BDL	BDL	BDL	BDL	BDL	3.4	1,000	0.56
Thallium	BDL	BDL	BDL	BDL	BDL	BDL	0.28	2.0	BDL
Zinc	191	BDL	1.9	BDL	BDL	BDL	1,200	62,000	191
Mercury	0.047	0.021	0.034	0.014	0.054	0.0078	1.0	62.0	0.06

Notes:

Concentrations presented in parts per million or ppm

Bold concentrations over Protection of Groundwater SRG

Red concentrations over Preliminary Industrial Health-Based SRG

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TABLE 3: SUMMARY OF SOIL SAMPLE RESULTS - VOLATILE AND SEMI-VOLATILE ORGANICS

Phase Location	Phase I									Comparison Standard	
	S-1	S-1	S-2	S-3	S-4	S-5	Dup S-5	S-6	S-7	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs
Depth	Composite	4ft	4ft	4 ft	6ft	10ft	10ft	9ft	3ft		
Date	3/14/08	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09	3/24/09		
4-Isopropyltoluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.68	NS
Acetone	BDL	0.0065	BDL	0.0049	0.023	BDL	BDL	BDL	BDL	24	100,000
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0073	5.4
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.1	27
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.21	18
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	260
n-Butyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.4	110
sec-Butylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.2	NS
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0012	2.80
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	2.6
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.5	820
1-Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.055	99
2- Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	370
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.4	6,600
Acenaphthylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	21	NS
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	660	34,000
Benzo[a]anthracene	0.355	BDL	0.093	BDL	BDL	BDL	BDL	BDL	BDL	0.18	2.1
Benzo[a]pyrene	0.402	BDL	0.14	BDL	BDL	BDL	BDL	BDL	BDL	0.059	0.21
Benzo[b]fluoranthene	0.620	BDL	0.22	BDL	0.064	BDL	BDL	BDL	BDL	0.60	2.1
Benzo[g,h,i]perylene	BDL	BDL	0.11	BDL	0.040	BDL	BDL	BDL	BDL	7,800	NS
Benzo[k]fluoranthene	BDL	BDL	0.076	BDL	BDL	BDL	BDL	BDL	BDL	5.9	21
Chrysene	0.425	BDL	0.14	BDL	0.040	BDL	BDL	BDL	BDL	18	21
Dibenzo(a,h)anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.19	0.21
Fluoranthene	0.693	0.045	0.23	BDL	0.049	BDL	BDL	BDL	BDL	330	4,400
Fluorene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	56	4,400
Indeno[1,2,3-cd]pyrene	BDL	BDL	0.10	BDL	BDL	BDL	BDL	BDL	BDL	2.0	2.1
Phenanthrene	BDL	BDL	0.055	BDL	BDL	BDL	BDL	BDL	BDL	68	NS
Pyrene	0.693	0.037	0.20	BDL	0.040	BDL	BDL	BDL	BDL	220	3,400

Notes:

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 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
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TABLE 3: SUMMARY OF SOIL SAMPLE RESULTS - VOLATILE AND SEMI-VOLATILE ORGANICS (CONTINUED)

Phase	Phase II												Comparison Standard		
Location	S8-2-3	S8-6-7	S9-3-5	S9-5-6	Dup S-9	S10-1-2	S10-5-6	S11-0-2	S11-6-7	S12-2-3	S12-6-7	S13-3-4	S13-6-7	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs
Depth	2-3 ft	6-7 ft	3-5ft	5-6ft	3-5ft	1-2ft	5-6ft	0-2ft	6-7ft	2-3ft	6-7ft	3-4ft	6-7ft		
Date	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09	11/23/09		
4-Isopropyltoluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.68	NS
Acetone	BDL	BDL	BDL	BDL	BDL	0.016	0.0069	BDL	0.0059	BDL	BDL	BDL	BDL	24	10,000
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0073	5.4
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.1	27
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.21	18
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	260
n-Butyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.4	110
sec-Butylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.2	NS
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0012	2.80
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	2.6
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.5	820
1-Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	99
2- Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	370
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.4	6,600
Acenaphthylene	0.041	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	210	NS
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	660	34,000
Benzo[a]anthracene	0.17	BDL	BDL	0.091	BDL	17	0.68	0.098	BDL	0.17	BDL	0.25	BDL	0.18	2.1
Benzo[a]pyrene	0.21	BDL	BDL	0.093	BDL	19	0.75	0.080	BDL	0.21	BDL	0.32	BDL	0.059	0.21
Benzo[b]fluoranthene	0.34	BDL	BDL	0.12	BDL	26	1.0	0.12	BDL	0.35	BDL	0.50	BDL	0.60	2.1
Benzo[g,h,i]perylene	0.15	BDL	BDL	0.053	BDL	12	0.48	0.049	BDL	0.14	BDL	0.16	BDL	7,800	NS
Benzo[k]fluoranthene	0.11	BDL	BDL	0.050	BDL	9.1	0.35	0.053	BDL	0.11	BDL	0.17	BDL	5.9	21
Chrysene	0.19	BDL	BDL	0.092	BDL	15	0.57	0.10	BDL	0.21	BDL	0.31	BDL	18	210
Dibenzo(a,h)anthracene	BDL	BDL	BDL	BDL	BDL	2.9	0.10	BDL	BDL	BDL	BDL	BDL	BDL	0.19	0.21
Fluoranthene	0.26	BDL	BDL	0.17	BDL	30	1.2	0.25	BDL	0.37	BDL	0.51	BDL	330	4,400
Fluorene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	56	460
Indeno[1,2,3-cd]pyrene	0.12	BDL	BDL	0.052	BDL	10	0.42	BDL	BDL	0.13	BDL	0.15	BDL	2.0	2.1
Phenanthrene	0.081	BDL	BDL	0.052	BDL	1.0	0.044	0.12	BDL	0.11	BDL	0.16	BDL	68	NS
Pyrene	0.26	BDL	BDL	0.16	BDL	31	1.1	0.22	BDL	0.32	BDL	0.41	BDL	220	3400

Notes:

Concentrations presented in parts per million or ppm

Bold concentrations over Protection of Groundwater SRG

Red concentrations over Preliminary Industrial Health-Based SRG

SRG = Soil Remediation Goal, August 2011

NA = Not analyzed for this compound or metal

NS = No standard established at this time

TABLE 3: SUMMARY OF SOIL SAMPLE RESULTS - VOLATILE AND SEMI-VOLATILE ORGANICS (CONTINUED)

Phase	Phase II													Comparison Standard	
Location	S14-0-1	S14-3-4	S15-0-1	S15-3-4	S16-0-2	S16-3-4	S17-1-2	S17-3-4	S18-1-2	S18-3-4	S19-0-1	S19-2-3	Dup S-19	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs
Depth	0-1ft	3-4ft	0-1ft	3-4ft	0-2ft	3-4ft	1-2ft	3-4ft	1-2ft	3-4ft	0-1 ft	2-3ft	2-3ft		
Date	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10		
4-Isopropyltoluene	0.00072	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.68	NS
Acetone	0.082	0.014	0.0049	0.017	0.0040	0.014	0.052	0.0054	BDL	0.011	0.0043	0.0076	0.011	24	10,000
Benzene	0.00063	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0073	5.4
Ethylbenzene	0.00072	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.1	27
Naphthalene	0.0032	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.21	18
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	260
n-Butyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.4	110
sec-Butylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.2	NS
1,1,2,2-Tetrachloroethane	BDL	0.000051	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0012	2.80
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	2.6
Toluene	0.00067	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.5	820
1-Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	99
2- Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	370
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.4	6,600
Acenaphthylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	210	NS
Anthracene	BDL	BDL	BDL	BDL	0.078	0.17	BDL	BDL	BDL	BDL	BDL	BDL	BDL	660	34,000
Benzo[a]anthracene	0.15	BDL	0.14	0.16	2.4	1.4	BDL	BDL	0.096	BDL	0.054	0.074	0.17	0.18	2.1
Benzo[a]pyrene	0.22	BDL	0.20	0.18	3.1	1.5	0.037	BDL	0.12	BDL	0.064	0.074	0.19	0.059	0.21
Benzo[b]fluoranthene	0.26	BDL	0.27	0.25	3.7	1.8	0.059	BDL	0.15	0.040	0.097	0.10	0.25	0.60	2.1
Benzo[g,h,i]perylene	0.16	BDL	0.15	0.12	1.3	0.52	BDL	BDL	0.070	BDL	0.050	0.055	0.094	7,800	NS
Benzo[k]fluoranthene	0.089	BDL	0.088	0.086	1.2	0.64	BDL	BDL	0.059	BDL	BDL	0.037	0.081	5.9	21
Chrysene	0.17	BDL	0.16	0.17	2.1	1.3	BDL	BDL	0.10	BDL	0.072	0.063	0.17	18	210
Dibenzo(a,h)anthracene	0.042	BDL	BDL	BDL	0.30	0.18	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.19	0.21
Fluoranthene	0.19	BDL	0.23	0.35	4.1	2.2	0.055	BDL	0.19	BDL	0.11	0.13	0.36	330	4,400
Fluorene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	56	460
Indeno[1,2,3-cd]pyrene	0.14	BDL	0.13	0.10	1.3	0.55	BDL	BDL	0.066	BDL	0.043	0.048	0.094	2.0	2.1
Phenanthrene	BDL	BDL	0.044	0.15	0.14	0.49	BDL	BDL	0.063	BDL	BDL	0.052	0.12	68	NS
Pyrene	0.20	BDL	0.21	0.28	4.1	1.9	0.048	BDL	0.17	BDL	0.11	0.11	0.29	220	3400

Notes:

Concentrations presented in parts per million or ppm

Bold concentrations over Protection of Groundwater SRG

Red concentrations over Preliminary Industrial Health-Based SRG

SRG = Soil Remediation Goal, August 2011

NA = Not analyzed for this compound or metal

NS = No standard established at this time

TABLE 3: SUMMARY OF SOIL SAMPLE RESULTS - VOLATILE AND SEMI-VOLATILE ORGANICS (CONTINUED)

Phase Location	Phase II											Comparison Standard	
	S20-1-2	S20-3-4	S21-2-3	S21-4-5	S22-1-2	S22-3-4	S23-3-4	S23-5-6	Dup S-23	24-3-4	S24-5-6	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs
Depth	1-2ft	3-4ft	2-3ft	4-5ft	1-2ft	3-4ft	3-4ft	5-6ft	5-6ft	3-4ft	5-6ft		
Date	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	2/23/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10		
4-Isopropyltoluene	BDL	BDL	BDL	BDL	BDL	0.00067	BDL	BDL	BDL	BDL	BDL	0.68	NS
Acetone	0.0090	0.016	BDL	BDL	0.028	0.024	BDL	BDL	BDL	BDL	BDL	24	10,000
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0073	5.4
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.1	27
Naphthalene	0.051	BDL	0.051	1.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.21	18
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	260
n-Butyl Benzene	BDL	BDL	BDL	0.037	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.4	110
sec-Butylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.2	NS
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0012	2.80
Tetrachloroethene	BDL	BDL	BDL	BDL	0.0051	BDL	BDL	BDL	BDL	BDL	BDL	0.005	2.6
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.5	820
1-Methylnaphthalene	BDL	BDL	0.040	15	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	99
2-Methylnaphthalene	0.040	BDL	0.095	2.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	370
Acenaphthene	BDL	BDL	BDL	0.34	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.4	6,600
Acenaphthylene	0.13	BDL	BDL	BDL	BDL	0.17	BDL	BDL	BDL	BDL	BDL	210	NS
Anthracene	0.22	BDL	BDL	0.47	BDL	0.094	BDL	BDL	BDL	BDL	BDL	660	34,000
Benzo[a]anthracene	0.48	0.092	BDL	BDL	0.078	0.80	BDL	BDL	BDL	BDL	BDL	0.18	2.1
Benzo[a]pyrene	0.42	0.10	BDL	BDL	0.096	1.1	BDL	BDL	BDL	BDL	BDL	0.059	0.21
Benzo[b]fluoranthene	0.57	0.14	BDL	BDL	0.14	1.4	BDL	BDL	BDL	BDL	BDL	0.60	2.1
Benzo[g,h,i]perylene	0.19	0.059	BDL	BDL	BDL	0.53	BDL	BDL	BDL	BDL	BDL	7,800	NS
Benzo[k]fluoranthene	0.19	0.055	BDL	BDL	0.048	0.48	BDL	BDL	BDL	BDL	BDL	5.9	21
Chrysene	0.47	0.092	BDL	BDL	0.096	0.90	BDL	BDL	BDL	BDL	BDL	18	210
Dibenzo(a,h)anthracene	0.066	BDL	BDL	BDL	BDL	0.053	BDL	BDL	BDL	BDL	BDL	0.19	0.21
Fluoranthene	1.1	0.17	BDL	BDL	0.15	1.6	BDL	BDL	BDL	BDL	BDL	330	4,400
Fluorene	0.095	BDL	BDL	1.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	56	460
Indeno[1,2,3-cd]pyrene	0.20	0.055	BDL	BDL	BDL	0.56	BDL	BDL	BDL	BDL	BDL	2.0	2.1
Phenanthrene	0.83	0.059	BDL	BDL	0.059	0.41	BDL	BDL	BDL	BDL	BDL	68	NS
Pyrene	0.82	0.14	BDL	BDL	0.14	1.3	BDL	BDL	BDL	BDL	BDL	220	3400

Notes:

Concentrations presented in parts per million or ppm
 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
 SRG = Soil Remediation Goal, August 2011
 NA = Not analyzed for this compound or metal
 NS = No standard established at this time

TABLE 3: SUMMARY OF SOIL SAMPLE RESULTS - VOLATILE AND SEMI-VOLATILE ORGANICS (CONTINUED)

Phase	Phase II										Comparison Standard	
	Location	S25-3-4	S25-5-6	26-2-3	26-5-6	S27-3-4	S27-6-7	S28-1-2	S28-5-6	S29-3-4	S29-5-6	Protection of Groundwater SRGs
Depth	3-4ft	5-6ft	2-3 ft	5-6ft	3-4ft	6-7ft	1-2ft	5-6ft	3-4ft	5-6ft		
Date	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10		
4-Isopropyltoluene	BDL	BDL	BDL	BDL	BDL	BDL	28.6	BDL	BDL	BDL	0.68	NS
Acetone	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	24	10,000
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0073	5.4
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.1	27
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.21	18
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	260
n-Butyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.4	110
sec-Butylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.2	NS
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0012	2.80
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	2.6
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.5	820
1-Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.005	99
2- Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	370
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.4	6,600
Acenaphthylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	210	NS
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	660	34,000
Benzo[a]anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.18	2.1
Benzo[a]pyrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.059	0.21
Benzo[b]fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.60	2.1
Benzo[g,h,i]perylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	7,800	NS
Benzo[k]fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.9	21
Chrysene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	18	210
Dibenzo(a,h)anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.19	0.21
Fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	330	4,400
Fluorene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	56	460
Indeno[1,2,3-cd]pyrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.0	2.1
Phenanthrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	68	NS
Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	220	3400

Notes:

Concentrations presented in parts per million or ppm
 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
 SRG = Soil Remediation Goal, August 2011
 NA = Not analyzed for this compound or metal
 NS = No standard established at this time

TABLE 3: SUMMARY OF SOIL SAMPLE RESULTS - VOLATILE AND SEMI-VOLATILE ORGANICS (CONTINUED)

Phase	Phase II						Comparison Standard	
	S30-2-3	S30-5-6	S31-3-4	S31-6-7	S32-3-4	S32-6-7	Protection of Groundwater SRGs	Preliminary Industrial Health Based SRGs
Location	2-3 ft	5-6ft	3-4ft	6-7ft	3-4ft	6-7ft		
Depth	2-3 ft	5-6ft	3-4ft	6-7ft	3-4ft	6-7ft		
Date	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10	11/19/10		
4-Isopropyltoluene	BDL	BDL	BDL	BDL	BDL	BDL	0.68	NS
Acetone	BDL	BDL	BDL	BDL	BDL	BDL	24	10,000
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	0.0073	5.4
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	8.1	27
Naphthalene	BDL	BDL	3,060	5,080	BDL	BDL	0.21	18
n-Propylbenzene	BDL	BDL	BDL	175	BDL	BDL	1.5	260
n-Butyl Benzene	BDL	BDL	508	621	BDL	BDL	2.4	110
sec-Butylbenzene	BDL	BDL	697	818	BDL	BDL	2.2	NS
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	BDL	BDL	BDL	0.0012	2.80
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	0.005	2.6
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	5.5	820
1-Methylnaphthalene	BDL	BDL	26,100	17,600	BDL	BDL	0.005	99
2- Methylnaphthalene	BDL	BDL	40,100	30,200	BDL	BDL	1.6	370
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	8.4	6,600
Acenaphthylene	BDL	BDL	BDL	BDL	BDL	BDL	210	NS
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	660	34,000
Benzo[a]anthracene	BDL	BDL	BDL	BDL	BDL	BDL	0.18	2.1
Benzo[a]pyrene	BDL	BDL	BDL	BDL	BDL	BDL	0.059	0.21
Benzo[b]fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	0.60	2.1
Benzo[g,h,i]perylene	BDL	BDL	BDL	BDL	BDL	BDL	7,800	NS
Benzo[k]fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	5.9	21
Chrysene	BDL	BDL	BDL	BDL	BDL	BDL	18	210
Dibenzo(a,h)anthracene	BDL	BDL	BDL	BDL	BDL	BDL	0.19	0.21
Fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	330	4,400
Fluorene	BDL	BDL	785	BDL	BDL	BDL	56	460
Indeno[1,2,3-cd]pyrene	BDL	BDL	BDL	BDL	BDL	BDL	2.0	2.1
Phenanthrene	BDL	BDL	BDL	BDL	BDL	BDL	68	NS
Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	220	3400

Notes:

Concentrations presented in parts per million or ppm
 Bold concentrations over Protection of Groundwater SRG
 Red concentrations over Preliminary Industrial Health-Based SRG
 SRG = Soil Remediation Goal, August 2011
 NA = Not analyzed for this compound or metal
 NS = No standard established at this time

TABLE 4: SUMMARY OF GROUNDWATER SAMPLE RESULTS

Location/Compound	TW-S-2	TW-S-5	Dup (TW-S-5)	TW-S-6	MW-1			Dup (MW-1)		MW-2			Dup (MW-2)	Comaprison Criteria
Sample Date	3/24/09	3/24/09	3/24/09	3/24/09	11/23/09	4/8/10	11/19/10	11/23/09	11/19/10	11/23/09	4/8/10	11/19/10	4/8/10	NCAC 2L Standard
Volatiles by Method 8260B	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
Semi-Volatile Analysis By Method 8270C														
Benzoic acid	BDL	BDL	BDL	BDL	8.9	<3.6	NA	<3.6	NA	<3.6	<3.6	NA	<3.6	30,000
Bis(2-ethylhexyl)phthalate	<1.9	1.9	<1.9	<1.9	<2.6	<2.6	NA	<2.6	<2.6	3.8	<2.6	NA	<2.6	3
Di-n-butylphthalate	BDL	BDL	BDL	BDL	1.5	<1.4	NA	2.0	NA	1.9	<1.4	NA	<1.4	700
Metals by Methods 6010B and 7074A														
Antimony	BDL	BDL	BDL	BDL	0.152	<0.220	<5.0	0.129	<5.0	0.175	<0.220	<5.0	<0.220	1
Arsenic	22.5	15.5	13.3	33.9	6.28	16.5	<5.0	6.39	<5.0	18.3	40.0	<5.0	51.2	10
Beryllium	1.08	0.33	0.38	1.34	2.30	0.260	<1.0	2.18	<1.0	0.233	0.463	<1.0	0.456	4
Cadmium	0.20	<0.09	<0.09	0.09	<0.360	<0.360	<1.0	<0.360	<1.0	<0.360	<0.360	<1.0	<0.360	2
Chromium	110	18.6	20.1	112	253	65.1	<5.0	236	<5.0	31.0	101	<5.0	81.4	10
Copper	15.4	2.65	3.65	11.0	47.2	18.1	<5.0	43.3	<5.0	2.31	12.1	<5.0	8.22	1,000
Lead	50.8	9.1	11.4	57.0	130	40.2	<5.0	121	<5.0	21.1	56.6	<5.0	50.8	15
Mercury	0.16	<0.11	<0.11	0.14	0.457	<0.0540	<0.20	0.449	<0.20	<0.0540	0.0873	<0.20	0.0972	1
Nickel	26.7	4.4	4.6	28.1	32.9	10.8	<5.0	30.2	<5.0	5.37	13.9	<5.0	9.6	100
Selenium	<3.4	14.8	19.5	<3.4	<2.70	8.64	<10.0	<2.70	<10.0	<2.70	1.75	<10.0	1.21	20
Silver	<1.0	<1.0	<1.0	<1.0	<1.90	3.36	<5.0	<1.90	<5.0	<1.90	3.85	<5.0	4.94	20
Thallium	0.194	0.044	0.038	0.230	0.510	0.129	<10.0	0.361	<10.0	<0.110	0.133	<10.0	0.135	0.2
Zinc	68.0	28.8	16.5	54.3	78.0	67.9	19.6	74.1	19.3	15.7	52.8	<10.0	35.8	1,000

Notes:
 Concntrations presented in parts per billion (ppb)
 Bold concentrations exceed the NCAC 2L Groundwater Standards
 BDL = Below Detection Limit
 NA = Not Analyzed for this compound or metal
 NS = No Standard