



# ARM Group Inc.

Engineers and Scientists

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May 30, 2019

Ms. Barbara Brown  
Project Coordinator  
Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, MD 21230

Re: Delineation/Characterization of Lead  
Impacted Soil at B23-020-SB  
Area B: Parcel B23  
Tradepoint Atlantic  
Sparrows Point, MD 21219

Dear Ms. Brown:

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), initiated a Phase II Investigation of Parcel B23 (the Site) in July 2018. Parcel B23 is located within Area B of the Tradepoint Atlantic property located in Sparrows Point, Maryland. An initial review of the analytical soil results from the Phase II Investigation identified an elevated concentration of lead (14,100 mg/kg) in subsurface sample B23-020-SB-7, which was collected from boring B23-020-SB in the interval from 6 to 7 feet below ground surface (bgs). Because the lead concentration in sample B23-020-SB-7 exceeds 10,000 mg/kg (the mandatory delineation criterion), further investigation is warranted at this location.

Boring B23-020-SB targeted the Locomotive Shop in the southeastern portion of Parcel B23. The sampling target was selected to investigate potential impacts related to any historical activities which may have occurred in the vicinity of the Locomotive Shop. The locations of B23-020-SB and nearby Phase II Investigation borings, including the analytical lead results obtained at each location, are presented on **Figure 1**. The lead concentration in the shallow soil sample collected from the same location in the interval from 0.5 to 1.5 feet bgs (B23-020-SB-1.5) was significantly lower than the underlying sample (B23-020-SB-7). The lead concentration in B23-020-SB-1.5 (815 mg/kg) is slightly above the Project Action Limit (PAL) of 800 mg/kg. A soil sample was not collected from the deepest sampling interval (9 to 10 feet bgs) because groundwater was encountered at approximately 9.5 feet bgs in the soil core. The lead results obtained from all sample depths at the nearby soil boring locations B23-012-SB, B23-013-SB, B23-019-SB, and B23-021-SB (targeting the Locomotive Shop and nearby tanks/basins) were also significantly lower than the elevated lead concentration identified in sample B23-020-SB-7.

Shallow groundwater samples were collected within several hundred feet of soil boring B23-020-SB from three temporary groundwater sample collection points (B23-010-PZ, B23-015-PZ, and B23-021-PZ) and one groundwater monitoring well (SW-058-MWS). Lead was not detected in any of the four aqueous samples. The locations of the four groundwater sample collection points are presented on **Figure 2**. No additional groundwater sampling is proposed during this delineation investigation.

Despite the elevated concentration of lead detected in soil sample B23-020-SB-7 (14,100 mg/kg), the lower concentrations of lead in the overlying sample and at the nearby soil boring locations indicate that the elevated lead result in B23-020-SB-7 may not be indicative of widespread impacts. However, due to the elevated nature of the lead result in this sample, a supplemental investigation will be performed to determine the extent of any material containing elevated concentrations of lead (above the mandatory delineation criterion of 10,000 mg/kg). This document proposes the protocols to be followed during the soil lead delineation activities, which will be conducted in accordance with the Standard Operating Procedures (SOPs) and requirements given in the property-wide Quality Assurance Project Plan (QAPP). The investigation will be conducted under the property-wide Health and Safety Plan (HASP).

Delineation activities are proposed to determine if materials containing concentrations of lead above 10,000 mg/kg are present in the vicinity of boring B23-020-SB, and to define the horizontal and vertical extents of any such materials. An initial delineation grid with 20-foot spacing will be established around boring location B23-020-SB. Since B23-020-SB is located in a courtyard partially enclosed by the Locomotive Shop, delineation soil borings are proposed only to characterize potential lead contamination within the courtyard area (but not below the existing building). The delineation grid is restricted to the area east of B23-020-SB due to its proximity to the building's wall. The proposed delineation boring locations are indicated on **Figure 1**. It is anticipated that the final delineation boring locations may need to be modified in the field pending feedback received from Tradepoint Atlantic utility personnel.

At each delineation boring location, soil samples will be collected for analysis from the intervals of 0 to 1, 4 to 5, and 9 to 10 feet bgs using a Geoprobe® direct push rig. The initial location of interest (B23-020-SB) will also be resampled in accordance with this delineation plan. The shallow sample interval will be adjusted downward if a concrete slab or asphalt is present at the surface, and the soil sample will be collected from the 1-foot interval directly below the surface cover. Soil samples will not be collected from below the groundwater table. If groundwater is encountered above 10 feet bgs (expected based on available soil boring field logs), the deepest sample interval will be shifted to the 1-foot interval just above the groundwater table. The intermediate sample at location B23-020-SB will be adjusted to the 6 to 7 foot bgs interval to target the same interval as the original elevated sample.



Delineation soil samples will be submitted to Pace Analytical Services, Inc. (PACE) and analyzed for lead via USEPA Method 6010. Any soil waste generated during the delineation activities will be placed in designated drums and characterized via TCLP testing to determine the appropriate solid waste disposal requirements. Any (minimal) aqueous waste generated from decontamination fluids, etc. will be managed in bulk with waste from other investigations, and will be appropriately characterized prior to disposal.

The initial delineation phase has six proposed boring locations, including resampling the original location of interest. Based on the analytical results from this initial investigation, the sampling grid may be modified (with additional borings added) to improve the resolution of the delineation, or to expand the grid if any lead concentrations above 10,000 mg/kg are found at the edges of the initial grid. The findings of this investigation, including any expansion of the delineation scope proposed herein, will be provided to the agencies in a Supplemental Investigation Report. In the event that a remedial response action such as excavation is required in the future, a Work Plan would be provided under separate cover for agency review.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully submitted,  
ARM Group Inc.



Melissa A. Replogle, E.I.T.  
Staff Engineer



Eric S. Magdar, P.G.  
Vice President



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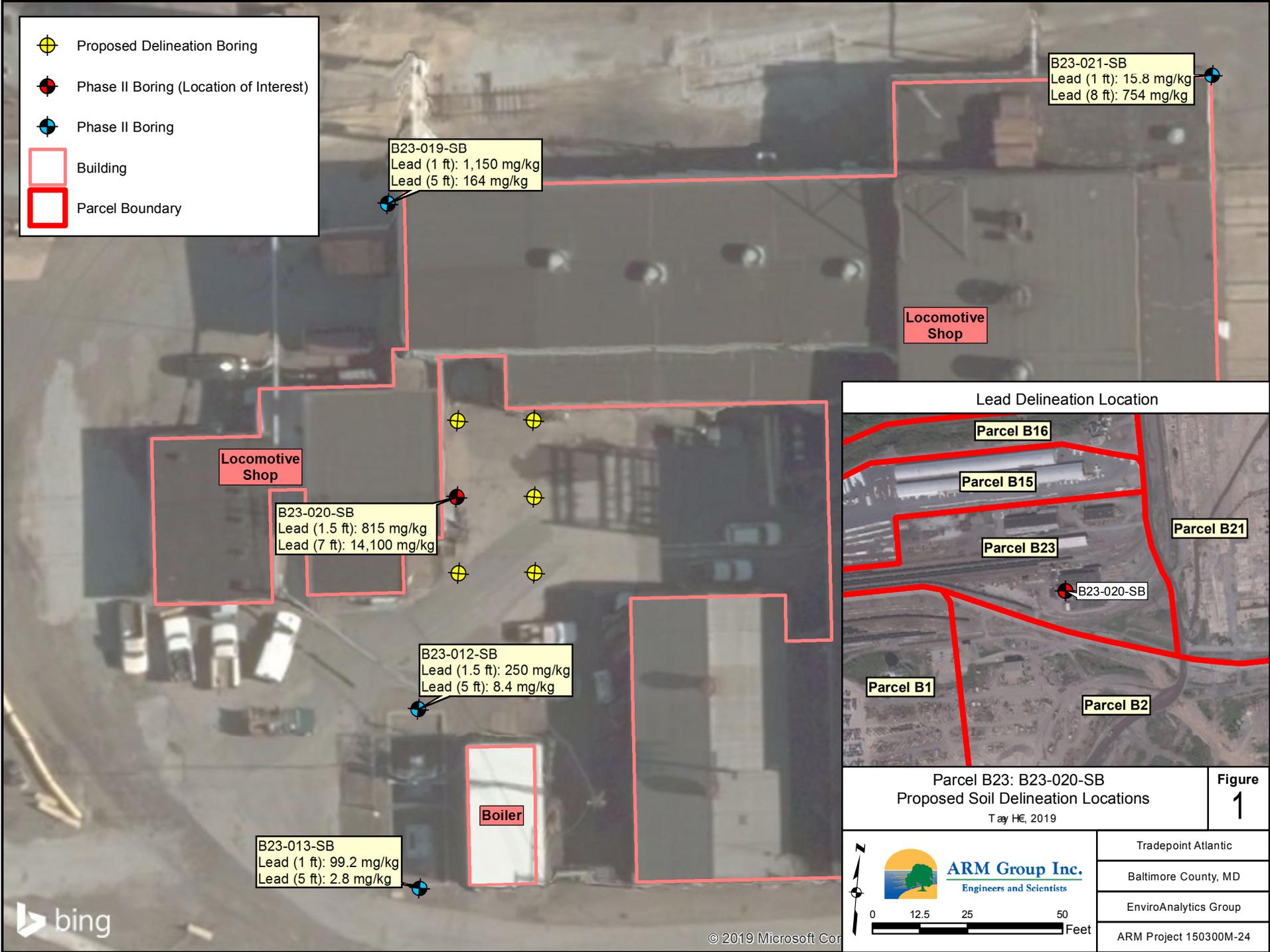
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## **FIGURES**

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-  Proposed Delineation Boring
-  Phase II Boring (Location of Interest)
-  Phase II Boring
-  Building
-  Parcel Boundary



Parcel B23: B23-020-SB  
 Proposed Soil Delineation Locations  
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| Tradepoint Atlantic    |
| Baltimore County, MD   |
| EnviroAnalytics Group  |
| ARM Project 150300M-24 |

