

Construction Air Monitoring Plan
Wills Wharf Office Project

Baltimore Works Site
Baltimore, Maryland

25 April 2016

Revised 21 September 2016

By:
Environmental Resources Management, Inc.
Harbor Point Development LLC

For:
U.S. Environmental Protection Agency -
Region III and the Maryland Department of the
Environment

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LIST OF ACRONYMS

COC - Chain of Custody

CSSA - Cover Soil Stockpile Area CrVI - Hexavalent Chromium

° C - Degrees Celsius

° F - Degrees Fahrenheit

DDP - Detailed Development Plan

EPA - U.S. Environmental Protection Agency

ERG - Eastern Research Group

ERS - Environmental Remediation System

FM - Field Manager

HMS - Head Maintenance System Lpm - Liters per Minute

LSC - Layered Soil Cap

M³ - Cubic Meters

MDE - Maryland Department of the Environment

mg - Milligram

MMC - Multimedia Cap

NOAA - National Oceanic and Atmospheric Association

ng - Nanogram

NWS - National Weather Service

OAM - Offsite Air Monitor

LIST OF ACRONYMS (continued)

PAM - Perimeter Air Monitoring

PM - Project Manager

PVC - Polyvinyl Chloride

RAM - Real-time Aerosol Monitor

RPD - Relative Percent Difference

RH - Relative Humidity

QAPP - Quality Assurance Project Plan

Total PM - Total Particulate Matter

µg - Microgram

µm - Micron

WZ - Work Zone

1.0

INTRODUCTION

Harbor Point Development LLC (HPD or Developer) and its consultants have prepared this Construction Air Monitoring Plan (CAMP) for the Wills Wharf Office Project (Project). The Project is planned for a portion of the former AlliedSignal Baltimore Works Site (Site), located in Baltimore, Maryland.

This CAMP has been prepared as part of the Detailed Development Plan (DDP) for Project, and is to be used in conjunction with the Project Quality Assurance Project Plan (QAPP) for construction air monitoring, Material Handling Management Plan (MHMP), Spill Prevention and Response Plan (SPRP), and Storm Water Pollution Prevention Plan (SWPPP). This CAMP is applicable to development support activities as described in the DDP, and terminates post-construction following completion of the intrusive activities identified in the DDP.

This CAMP builds on the success of the Exelon Project (“Harbor Point Area 1, Phase 1 Development Project”) in controlling potential dust generating activities during construction. This success was documented in the Construction Air Monitoring Report prepared for the Exelon Project and submitted to the United States Environmental Protection Agency (EPA) and the Maryland Department of the environment (MDE) on 14 October 2015. Specifically, Best Management Practices (BMPs) implemented as part of the Exelon Project controlled dust, and as such will also be implemented as part of this Project.

1.1

LOCATION AND EXISTING ENVIRONMENTAL CONTROLS

The Site is located on a peninsula on the northeast shore of the Patapsco River of the Inner Harbor in the Fells Point section of Baltimore City. Historical operations at the Site resulted in impacts to soil and groundwater from hexavalent chromium (CrVI). Honeywell International Inc. (Honeywell), which acquired AlliedSignal, is responsible for operating and maintaining an Environmental Remediation System (ERS) that addresses the chromium impacted soil and groundwater at the Site. The Site consists of three Areas:

1. Area 1 is the principal location of the former AlliedSignal (now Honeywell) Baltimore Works Site, which included chromium processing production and support buildings on an area that covered approximately 14 acres;

2. Areas 2 and 3 were used for various industrial and warehousing operations, including chromate ore storage (Area 2) and brass foundry casting, oil blending and storage, coating/plastics production, lumber storage and foundry (Area 3). Areas 2 and 3 currently include the Thames Street Wharf (TSW) Office Building and its associated parking lots, where construction was completed in 2010. The Project will not disturb Area 3 or the TSW Office Building.

The ERS is a multi-component remedy that addresses Area 1, Area 2 and Area 3. The Project will only disturb the following ERS components:

1. Area 1
 - a. Multimedia Cap (MMC) in Area 1;
 - b. Perimeter Toe Drain;
 - c. Hydraulic Barrier (HB);
 - d. Head Maintenance System.
2. Area 2 - Layered Soil Cap (LSC).

1.3 *PROPOSED DEVELOPMENT*

The majority of the Project will occur in the western region of Area 2, south of Point Street (formerly Block Street) and west of the TSW Office Building. The construction of Wills Street as part of the Project will involve a limited area along the southeastern portion of Area 1. The Project will also include other non-designated areas that are outside of Area 1 or Area 2 but within the Project's limits of disturbance (LOD) as presented in the DDP.

The Project building, parking garage and Plaza will be constructed on pile foundations. Wills Street will be constructed as an earthen ramp with retaining walls. Prior to driving piles within 30 feet of the HB, the soil bentonite wall will be reinforced with sheet piles. This HB reinforcement work has been approved by the agencies as a Minor Modification to the Exelon Project.

Excavations for the Project will be performed to construct the lowest parking garage level and hotel lobby, prepare for pile installation, construct pile caps, and to install utilities. Excavation will be necessary to remove the existing asphalt pavement and cover soils as needed to install sheet piles, foundation piles, pile caps, utility and storm drainage

manholes, vaults and conduit duct banks. The Wills Wharf Office Building is being constructed to the east of Area 1, and as such the MMC synthetic layers in Area 1 will not be disturbed within the building footprint.

Piles will be driven in Area 1 and Area 2 or drilled in Area 2, requiring soil excavation in all areas where foundations are constructed. These excavations related to pile installations may include demolition and removal of abandoned foundation and concrete floors (e.g., obstructions left in place below the MMC in Area 1). The excavations will be performed with a sequence and process designed to: 1) minimize stormwater runoff and accumulation in excavations; 2) protect against dust generation; and 3) to eliminate exposure to workers of soil from below the MMC and the upper geotextile that is part of the LSC in Area 2.

In Area 1, pile driving will consist of sheet piles for the HB reinforcement and foundation piles for the retaining wall for Wills Street. These will essentially be linear features, roughly paralleling each set of piles (i.e., the piles will run north-south).

1.4 ***APPLICABILITY***

This CAMP pertains to the real-time monitoring for Total PM and the collection of air samples for laboratory analyses of hexavalent chromium (CrVI). Detailed procedures on quality assurance and quality control measures are found in the QAPP, as well as responses and notifications in the event of an exceedance of an action level.

Air monitoring is required during “intrusive activities” at the Project. For the purpose of this Plan, “intrusive activities” occur any time there is disturbance or exposure of the surface immediately below the MMC synthetic layers inside the HB in Area 1 or the upper geotextile that was constructed as part of the LSC in Area 2.

2.0 CONSTRUCTION AIR MONITORING

This section summarizes the key elements of construction air monitoring for the Project during intrusive activities. Additional air monitoring details are provided in the QAPP and its appendices. These supporting documents to the CAMP are substantively the same as those prepared for and approved by the agencies for the Exelon Project. However, they have been adjusted as appropriate to reflect lessons learned from the Exelon Project and the nuances of this Project.

2.1 FIXED AIR MONITORING LOCATIONS FOR TOTAL PM AND CRVI

Three fixed perimeter air monitoring locations will be established for construction air monitoring. Each fixed air monitoring station will consist of one DustTrak 8533 for Total PM and one BGI Model PQ-100 air sampler for CrVI. The fixed station monitors are designated as PWAM-1, PWAM-2 and PWAM-3 (“PWAM” is an abbreviation for Perimeter Wills Air Monitoring).

The fixed perimeter monitors locations are shown in Figure 1. The locations will be finalized in the field based on source of electric power, safe access, and security. During the course of the Project, these locations may be adjusted following approval by the agencies if warranted by work conditions, work areas, weather conditions, etc. Nonetheless, the intent of the planned locations is to place the monitoring stations between the construction and the nearest buildings:

- PWAM-1 is planned for placement between the Project and the TSW Office Building;
- PWAM-2 is planned for placement between the Project and the Point Street Apartments (under construction at the time that this CAMP was being prepared); and
- PWAM-3 is planned for placement between the Project and the Exelon building.

The fixed monitoring locations and equipment will be sited, to the extent possible, away from trees, buildings, roadways, or other obstacles that may cause undue influence on the measured concentrations according to 40 CFR Part 58, Appendix E. All sampler inlets will be

placed not less than 2 meters above ground level and have unrestricted air flow for at least 270 degrees around each sampler.

2.2 **WORK ZONE MONITORING STATION FOR TOTAL PM**

Work zone monitoring for real-time Total PM will also occur using a DustTrak 8533. Work zone monitoring will occur under the following conditions associated with the intrusive work expected in Area 1:

1. Reinforcement of the HB using sheet pile. This activity includes the preparation work, and HB restoration;
2. Driving foundation piles for the Wills Street retaining wall. This activity includes the preparation work.

2.2.1 **Work Zone Monitoring During HB Reinforcement**

A work zone monitor (also referred to herein as a “mobile station”) for Total PM will be established during HB reinforcement¹, inclusive of preparation and restoration of the soil bentonite wall. The location of the mobile station during HB reinforcement is described in the December 2015 Minor Modification (MM) that was approved by the agencies (a copy of the document and approvals is in Appendix A). As described in the MM, air monitoring in Area 1 using a mobile DustTrak is required any time the liner is penetrated and dams and eight inches of clean cover soil have not been installed over the material exposed below the MMC. The agencies’ requirement for eight inches of clean cover soil is found in EPA and MDE’s emails dated 15 January 2015, copies of which are also in Appendix A.

In conformance with the approved MM, the location of the mobile station will be adjusted as HB reinforcement progresses. The mobile station will be deployed within approximately 50 feet downwind of the intrusive work area unless certain field conditions occur that require optimizing the mobile station location as described in Section 2.2.3. The Work zone monitor will be set to sound an audible alarm in the event the Total PM action level is exceeded, providing immediate feedback to workers as to when dust generating activities might require additional controls.

¹ Since three CrVI samplers are planned for construction air monitoring during Area 1 intrusive work, work zone monitoring during HB reinforcement using two CrVI samplers as described in the MM is not planned for the Project.

Air monitoring for Total PM will be performed until dams have been constructed and eight inches of cover soil has been placed in the excavation to cover the material below the MMC during the following activities associated with HB reinforcement:

1. Removal of the geosynthetic materials covering the HB (referred to in the MM as the Soil Bentonite [SB] Barrier);
2. Sheet pile installation;
3. Extraction of a sheet pile. During this activity, work zone monitoring will occur regardless of the construction of the dams or placement of the cover soil;
4. HB restoration. The work zone monitor will be turned-off, but not powered-off, during dry bentonite powder blending, only, per the previously approved work zone monitoring plan for this activity as part of the Exelon Project. A copy of the correspondence with the agencies dated 27 April 2015 is found in Appendix A.

2.2.2 *Work Zone Monitoring During Foundation Pile Driving*

Work zone monitoring for Total PM using a DustTrak 8533 will occur at foundation pile driving locations in Area 1 during intrusive construction activity. The number of mobile monitoring locations will be dependent on the number of intrusive construction locations performed in the pile driving zone. If multiple and separate intrusive construction locations occur at the same time in the pile driving zone, each intrusive location will have one downwind monitoring station unless the activities are spaced no farther than 35 feet apart (i.e., one work station is required for intrusive activities occurring within a 35 foot distance).

The mobile station(s) will be deployed within approximately 50 feet downwind of the intrusive work area unless certain field conditions occur that require optimizing the mobile station location as described in Section 2.2.3. The Work zone monitors will be set to sound an audible alarm in the event the Total PM action level is exceeded, providing immediate feedback to workers as to when dust levels might require additional controls.

2.2.3 *Optimization of Work Zone Monitoring Due to Field Conditions*

During the course of intrusive construction activities at the Exelon Project, certain field conditions were encountered that lead to optimization of the construction air monitoring program. On these occasions, ERM in consultation with EPA and MDE evaluated the conditions using the following criteria:

1. Protection of human health and the environment;
2. Worker safety;
3. Consistency with the intent of the CAM Program; and
4. Practicability.

Building on this collaborative experience with the agencies from the Exelon Project, this CAMP includes the substantive aspects of those adjustments to work zone monitoring in the event that these conditions occur for this Project.

2.2.3.1 *Pile Driver Exhaust*

Pile driver exhaust has the potential to contribute greatly to Total PM concentrations detected by a work zone monitor, resulting in false positives. To address this situation, work zone monitoring will not be required at pile driving locations as long as the check dams, where needed, are installed and the work area is covered with either eight inches of clean cover soil or six inches of crushed gravel. At the end of the day, the interim cover will also be covered with plastic, secured in place with sand bags or other suitable means.

2.2.3.2 *Work Zone Monitoring Associated with Auger Spoils Generated During Obstruction Removal*

Augering may be used to clear obstructions, which will generate spoils from below the MMC. As described in the MHMP, preferably these materials will be direct loaded into lined roll-offs for proper off-site disposal. Depending on logistics and spatial constraints, however, direct loading of spoils may not be feasible. As an interim step before being placed in the roll-off, the spoils may be placed in a smaller "hopper." The hopper will then be moved and its contents emptied into the roll-off.

The hopper will be lined with poly-sheeting and excess sheeting will be draped over the spoils and secured to completely enclose the spoils. The

maximum height of the spoils in the hopper will be limited to a level that is equivalent to approximately six inches of freeboard below the lowest level of the top of the hopper. The top of the hopper will be angled such that the front and back of the hopper are not at the same level. Once the auger spoils are enclosed in poly-sheeting, a heavy equipment forklift or similar will be used to move and empty the auger spoils into a 30 cubic yard lined roll-off container with poly-sheeting secured on the adjacent ground surfaces.

During this process, a work zone DustTrak 8533 will be deployed downwind of the roll-off when the hopper is being emptied into the roll-off. This requirement for an additional work zone monitor is not necessary if the roll-off can be positioned such that the potential for dust generation can also be monitored by the DustTrak deployed within 50 feet of the intrusive work. When not in operation, the roll-off box will remain covered.

2.2.3.3 *Adjustment to Placement of Work Zone Monitor Downwind of Work Zone*

A work zone monitor may be offset 50 feet downwind of the work area if construction conditions or worker safety issues arise that make it difficult to station the monitor within 50 feet of the work area. If such an offset is necessary, an explanation including photographic documentation will be included in that day's mobile monitoring field sheet. To be clear, the total downwind distance of the monitor from the work zone will not exceed 100 feet without prior agency approval. Placement at a distance farther than 100 feet downwind of the work area requires prior approval from the agencies.

2.2.3.4 *Work Zone Monitoring During Restoration of the HB*

During restoration of the HB, dust created by the dry bentonite powder being blended into the existing cover soil and soil bentonite barrier can create dust and cause false positives for Total PM. To address this situation, there will be a temporary interruption of the collection and transmission of real-time Total PM data during the soil bentonite barrier restoration. This interruption will occur for approximately 15-minutes when dry bentonite powder is being blended into the existing cover soil and soil bentonite barrier. To be clear, the monitoring unit will not be shut down. This approach is consistent with that used for the Exelon Project as described in correspondence with the agencies dated 27 April 2015, a copy of which is found in Appendix A.

The real-time Total PM monitoring data will be collected or interrupted during the work sequence as follows:

1. Deploy the monitoring station downwind of the area of the soil bentonite restoration, perform the zero and flow calibration, and initiate Total PM monitoring and transmission prior to preparing the area of soil bentonite to be restored;
2. Interrupt monitoring data collection and transmission to the telemetry system server and dashboard immediately prior to the addition of the dry bentonite powder for blending into the existing cover soil and soil bentonite. The interruption of data collection and transmission will be accomplished by stopping the data transmission by sending a signal to the monitoring unit remotely, i.e., the unit will not need to be physically turned off such that the mobile station monitoring power will not be disrupted during this period and re-calibration will not be required;
3. Remotely send a signal to the mobile station to begin collecting and sending data to the telemetry system continuously until the addition of dry bentonite powder is required for the next section of soil bentonite barrier restoration.

2.3 *CONSTRUCTION MONITORING DURATION AND FREQUENCY*

The duration and frequency of air monitoring is as follows:

1. Total PM will be monitored at the three fixed perimeter stations (i.e., PWAM-1, PWAM-2, and PWAM-3) during intrusive activities in Area 1 or Area 2;
2. Work zone air monitoring for Total PM will be performed during intrusive activities in Area 1 under the conditions described above in Section 2;
3. Air sampling for CrVI with the BGI samplers will be performed at the fixed stations during intrusive work in Area 1.

Fixed perimeter air monitoring for Total PM will start and end prior to daily work hours beginning each work day. Collection of air samples for CrVI analyses by laboratory will occur over a 24-hour time period that overlaps with days during which intrusive activities are performed in Area 1.

ERM anticipates that the work week will be Monday through Friday, excluding holidays and weather permitting. As such, the 24-hour monitoring period will start on the Sunday evening or Monday morning prior to the start of the work week during which intrusive activities will occur and cease Friday evening after intrusive construction has ended for the week. However, this schedule may be adjusted in the future, depending on actual field conditions encountered, identified efficiencies for improvements, and the construction schedule, which at times may include weekend work.

2.4 *MONITORING EQUIPMENT*

2.4.1 *Total PM*

Total PM will be monitored at the work zones and fixed stations using DustTrak 8533 real-time dust monitors. The DustTrak Model 8533 is reported to monitor Total PM concentration for particles from 0.1 microns up to approximately 15 microns in diameter and uses the terminology of Total PM to describe the measurement. Should a monitor malfunction, the Field Manager (FM) or designee will deploy a spare monitor as soon as practicable during construction hours and will contact the equipment provider to deliver a replacement spare monitor.

The DustTrak Model 8533 will monitor Total PM concentration and store 1-minute averages on the internal data logger. Because the DustTrak Model 8533 will be operated in the Total PM mode rather than size-specific classifications, the factory-set photometric calibration factor (PCF) of 1.0 and size correction factor (SCF) of 1.0 will be used. As recommended by the manufacturer, the Ambient Air calibration factor will be selected to represent outdoor ambient dust. The DustTrak will be calibrated daily and maintained/operated according to the requirements specified in the Standard Operating Procedures (SOP) found in Appendix B of the QAPP.

The DustTrak Model 8533 monitor beginning flow rate will be calibrated to three (3) liters per minute (Lpm) (2 Lpm used for sample flow; 1 Lpm used for sheath flow). DustTrak Model 8533 monitors will be operated at three (3) Lpm and will be calibrated daily at the time of the CrVI sample recovery from the BGIs.

The monitoring instruments will be protected inside a waterproof case with an omni-directional air intake port, mounted on tripods or to parking light poles. The real-time monitor data loggers will be downloaded daily,

as practicable, to acquire the results of the previous 24-hour monitoring acquisition period to a personal computer via telemetry provided at each monitoring station.

2.4.2 *Air Samples for CrVI Analyses*

CrVI air samples will be collected using BGI Model PQ-100 samplers. The samplers will be protected inside a waterproof case with an omnidirectional air intake port, mounted on tripods or to parking light poles. Should a monitor malfunction, the FM or designee will deploy a spare monitor as soon as practicable during construction hours and will contact the equipment provider to deliver a replacement spare monitor.

The flows for each BGI sampler will be verified daily and maintained and operated in the field according to the requirements in the SOP found in Appendix B of the QAPP. The daily, total air volumes will be recorded on the sample collection sheets that are included as part of the QAPP SOP in Appendix B.

The BGI-PQ100 sampler will be calibrated to 15 Lpm, with the air sampling media attached to the sampler. Sampling for CrVI will be performed at approximately 15 Lpm for 24 hours. The samples are collected on 47 mm ashless cellulose filters (Whatman 541) that have been nitric acid washed and impregnated with sodium bicarbonate solution by the laboratory. The analytical laboratory (Eastern Research Group, Inc. [ERG]) will provide the pre-treated and pre-conditioned filters loaded in pre-cleaned filter cassettes.

2.4.3 *Handling and Managing CrVI Samples*

The filter cassettes sent by the laboratory will be sealed in zip lock plastic bags. The zip lock-sealed bag with the filter cassette and a pre-cleaned, glass funnel, sealed in a separate zip lock bag (“sample media”), will be placed by the laboratory in a plastic container with a numbered lid. The sealed container will be placed in a sealed zip lock bag (“sample container”), along with the chain of custody form. The sample containers will be packed into a cooler with ice packs prior for shipment from the laboratory to the field to maintain a nominal temperature of 0° C or less. The coolers will be sealed with tape and a chain of custody seal.

Upon receipt in the field from the laboratory, the sample containers will be removed from the coolers, logged in the freezer chain of custody and stored in the on-site secure freezer. The freezer chain of custody will include date and time placed into the freezer with the signature of the

Field Manager or designee placing them into the freezer, and the same information will be recorded upon retrieval from the freezer as discussed below.

At the beginning of each sampling day, sample containers retrieved from the on-site secure freezer for that day's sampling will be recorded as logged-out on the freezer chain of custody and will be placed in coolers with ice packs for transit from the freezer to the sampling locations. At the conclusion of each day's sampling, the sample media will be recovered, placed in the sealed sample containers, temporarily stored in coolers with ice packs during transit from the sampling stations to the on-site secure freezer, logged in to the freezer chain of custody and placed in the on-site, secured freezer to maintain a nominal temperature of 0° C or less.

For shipment of samples to the laboratory from the field, the sample containers will be logged out on the freezer log. The sample containers will then be shipped back to the laboratory inside the sealed zip lock-sealed bag in which they were received from the laboratory, along with the executed COC, fastened by rubber band to the sample container. The sample containers will be placed in a sturdy cooler with frozen ice packs to maintain a nominal temperature of 0° C. The cooler will be lined with plastic bubble wrap or other appropriate cushioning material for shipment back to the laboratory. The shipping coolers will be sealed with tape.

CrVI concentrations from submitted samples will be determined in the laboratory in accordance with the Standard Operating Procedure for the Preparation and Analysis of Hexavalent Chromium by Ion Chromatography prepared by Eastern Research Group, Inc. (ERG), dated February 2014, as provided in the SOP found in Appendix C of the QAPP. ERG's document references ASTM Standard Test Method D7614-12 Determination of Total Suspended Particulate (TSP) Hexavalent Chromium in Ambient Air Analyzed by Ion Chromatography (IC) and Spectrophotometric Measurements.

2.5

TRANSMISSION OF REAL-TIME TOTAL PM DATA

The real-time Total PM monitoring data transmitted by telemetry from the fixed stations will be continuously accessed during construction work hours from the telemetry dashboard operating on the personal computer located in the construction office trailer. The dashboard will be set to send an alert, by e-mail and text notifications, to the on-site FM and/or Field Technician (FT) if any of the monitors indicate an exceedance of the Total

PM Action Level or indicate a malfunctioning unit. In the event of an alert of an action level exceedance, corrective actions will be initiated in accordance with Standard Operating Procedures for Responses and Notifications to action level exceedances found in Appendix D of the QAPP.

2.6 *METEOROLOGICAL MONITORING STATION*

A meteorological monitoring station will be sited following EPA siting guidance in EPA-454/B-08-002 *Quality Assurance Handbook for Air Pollution Measurement Systems Volume IV: Meteorological Measurements Version 2.0 (Final)*, March 2008. The wind speed and direction sensors for the meteorological monitoring system will be situated approximately 10 meters above ground, mounted to one of the temporary construction office trailers housing the either Developer's or Contractor's representatives. The meteorological sensors will be calibrated on-site during installation following the guidance of EPA-454/B-08-002.

2.7 *WEBCAM AND TELEMETRY*

During the intrusive work, a video camera ("webcam") will be operated to stream images of the project operations to stakeholders inclusive of EPA and MDE. The webcam will be operated and maintained in a manner similar to that for the Area 1, Phase 1 Project (i.e., Exelon Project).

In addition to the webcam, a telemetry system will be used to provide real-time air monitoring data (Total PM) being collected under the CAMP. At a minimum, the data will include Total PM at fixed and mobile monitoring stations, and relevant meteorological data. The telemetric system will be operated and maintained in a manner similar to the Greenlight™ system used for the Area 1, Phase 1 Project. EPA and MDE will have access to the telemetric system on a real-time basis.

3.0 *QUALITY ASSURANCE AND QUALITY CONTROL.*

Under separate cover, the QAPP addresses all aspects of the construction monitoring program ranging from siting the sampling equipment to sampling and analytical procedures. The following sections summarize the data management, review and validation requirements described in the QAPP. Reference in this CAMP to ERM's Project manager (PM), Field Manager (FM), Field Technician (FT), and Quality Assurance (QA) Manager is inclusive of qualified designee if not otherwise stated. ERM notes that reference herein to a QA Manager is solely with respect to the construction air monitoring program and not as QA Manager for all construction related activities.

3.1 *DATA MANAGEMENT*

All data will be reviewed and verified for accuracy by ERM's FM. The FM will ensure that the field and technical data obtained for the project will provide the end user with acceptable data. All field and technical data shall be reviewed under the direction of FM, to ensure that the final data is accurate prior to the inclusion in the project report. The field data sheets, log books, and DustTrak data are reviewed by the FM weekly.

Real-time data processing for the Total PM monitoring results is summarized as follows:

- i. The field data sheets (real-time Total PM) and real-time instrument data logs are submitted (faxed, electronic, or hard copy) by field personnel to ERM's PM weekly;
- ii. Real-time Total PM concentration data will be provided as 15-minute averages based on one (1) minute frequency data collection; and
- iii. ERM's PM will store the information electronically into the project files and uploads the summary graphs to the project community website the next business day.

The CrVI analytical data processing (for air samples analyzed for CrVI) procedure is summarized as follows:

1. Samples are sent to the laboratory under chain-of-custody;

2. The laboratory enters the sample information into their tracking system and performs the analysis;
3. The laboratory electronically submits raw data, sample results, and their QA information to ERM's PM;
4. ERM's PM submits the laboratory raw data, sample results and QA information to an independent third party validator. The validator will perform a Level II validation with 40% re-calculation of raw data. Data validation results will be reported using a Level IV template. Validation will follow EPA's *Guidance on Environmental Data Verification and Data Validation* (2002);
5. The third party validator electronically submits their validation report to ERM's PM;
6. ERM reviews the data validation report under the direction of ERM's QA Manager, and, if acceptable, stores all data into the project files. If unacceptable, ERM will request re-evaluation of the analytical dataset by the laboratory and then by the third-party data validator. ERM's PM will bring any unacceptable analytical result to the attention of EPA and MDE prior to a re-evaluation of the analytical data and will follow-up with the findings of the re- evaluation results on the next business day, as practicable;
7. Once the accuracy review is completed under the direction of ERM's QA Manager, the ERM FM will store the validated information electronically into ERM's project files and uploads the summary tables to the project website on the next business day, as practicable.

Data will be retained on file for one year after the cessation of air monitoring, and will be readily available for audits and data verification activities. After one year, hardcopy records and computer backup electronic media may be discarded.

3.2 DATA REVIEW AND VALIDATION

All data will be verified by a review of the completeness. Field operations will be fully documented, reviewed, and audited. The process of reviewing field data will involve evaluating field records for consistency

and completeness assuring that each sample result is fully supported by accurate metadata, reviewing QC and calibration information, summarizing deviations and determining their impact on data quality, summarizing the samples collected, and summary of the review in the project report.

All CrVI analytical results will undergo Level II third party data validation independent of ERM, including 40% raw data re-calculation. As such, the laboratory will provide Level II validation data packages in both hard copy and electronic format, including all raw data and calculations, summary data sheets and supporting quality assurance/quality control (QA/QC) and analytical information. Data validation results will be reported using a Level IV template.

Data qualifiers will be assigned using guidance for qualification outlined in EPA documents *EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (January 2010). If deficiencies are encountered or specific data appear to be problematic based on the initial data review, more extensive data review will be implemented, such as review of raw data. Data validation results will be reported using a Level IV template.

The quality of laboratory data will be evaluated based on precision, accuracy, representativeness, completeness, and comparability of the data generated by each type of analysis. The specific analytical criteria are provided in the Laboratory Analytical SOP in Appendix C of the QAPP.

4.0

ACTION LEVELS

The Total PM action level and CrVI concentration background threshold values (BTVs) to be used for construction air monitoring were previously established for the Exelon Project and were approved by the EPA and MDE. These same BTVs will be used for this Project as follows:

1. The work zone BTV for Total PM is 68 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). This BTV is applicable to the work zone mobile monitor in Area 1; or
2. The work zone BTV for Total PM will be adjusted to $118 \mu\text{g}/\text{m}^3$ under certain ambient weather conditions per the process described in Section 6 of this CAMP;
3. The perimeter BTV for Total PM is the National Ambient Air Quality Standard for PM_{10} of $150 \mu\text{g}/\text{m}^3$;
4. The CrVI BTV is 0.178 nanograms per cubic meter (ng/m^3).

Actions and notifications in response to an exceedance of a BTV are outlined in Appendix D of the QAPP.

5.0 ***REPORTING***

This section describes the types of reports that may be produced for the project. The types of reports that may be produced include daily data summary tables, event logs, data quality assessment reports, PE and audit reports, and the construction summary report.

5.1 ***DAILY DATA SUMMARY TABLES***

Electronic spreadsheet data summary tables with hourly airborne Total PM concentrations for each fixed DustTrak station, hourly wind speed, wind direction and daily rainfall will be prepared by the field staff daily, as practicable, for the previous 24-hour monitoring acquisition period.

The electronic spreadsheets will then be uploaded to ERM's project files and website the following business day following the data acquisition, as practicable, for access by the agencies and the public.

Following the receipt of the laboratory analytical results and once the CrVI analytical data has been validated by the third party; those analytical results will be added to the daily electronic spreadsheet summary tables and uploaded to ERM's project files and website the following business day, as practicable for access by the agencies and the public.

5.2 ***EVENT LOGS***

When applicable, event logs will be generated to identify nonconforming situations and corrective actions taken per the SOP for Response Actions and Notifications provided in Appendix D of the QAPP. Corrective actions to remedy a nonconforming situation in the field can be defined by the ERM FM, ERM QA Manager or ERM PM. A description of the required action will be documented in an event log. Corrective actions must be approved verbally by ERM's QA Manager and by both the EPA and MDE representatives prior to implementation. Upon implementation of the corrective action, the ERM QA Manager or PM will be provided with the completed event log, which becomes part of the project file.

Copies of completed event logs will also be provided electronically to the agencies within 24 hours of the event.

5.3 DATA QUALITY ASSESSMENT REPORTS

The FM will report to the PM on the progress of each phase of field work and any QA/QC issues associated with field activities.

The laboratory will maintain detailed procedures for record-keeping and reporting to support the validity of all analytical work. The Laboratory QA Manager will provide the ERM QA/QC Officer certification documentation, including audit reports, upon request.

Data quality assessment reports will be submitted electronically and hard copy to the agencies on a monthly basis throughout the intrusive construction activity duration. Field verification and data validation information will be included, electronically. The assessment reports will include the laboratory data packages for CrVI, third party data validation reports, and related metadata.

5.4 PERFORMANCE EVALUATION AND AUDIT REPORTS

As discussed in the QAPP, Section 3.1, laboratory Performance Evaluations and audits may be performed during the course of the project. If performed, the ERM QA Manager will prepare a report summarizing the results to be submitted to the agencies within two weeks of the audit.

5.5 SUMMARY DATA REPORTS

The final summary data report titled, “Wills Wharf Office Building Construction Air Monitoring Report”, will be prepared and distributed to the stake holders and will combine all of the interim reports described above, electronically.

6.0

OTHER PROVISIONS

During the course of the Exelon Project, certain unique field conditions occurred that required an adjustment to the approved CAMP. A description of these conditions and adjustments to the air monitoring program approved previously by the agencies are included in this CAMP, adapted for the Project. These provisions are included as proactive measures to minimize the potential for delays in the field if these same conditions arise.

6.1

ADJUSTMENT OF THE WORK ZONE TOTAL PM ACTION LEVEL DUE TO CERTAIN AMBIENT WEATHER CONDITIONS

The Total PM work zone dust action level for the mobile DustTrak in Area 1 may be modified under certain documented ambient conditions, e.g. fog or high absolute humidity, when the perimeter, fixed station Total PM concentrations exceed the work zone dust action level. Specifically, if the average of the three (3) perimeter, fixed stations are equal to or above the work zone dust action level of 68 $\mu\text{g}/\text{m}^3$ for three (3) consecutive 15-minute period averages, then the Work Zone dust action level may be increased to 118 $\mu\text{g}/\text{m}^3$. Conversely, if the average of the three (3) perimeter, fixed stations are below the work zone dust action level of 68 $\mu\text{g}/\text{m}^3$ for two (2) consecutive 15-minute period averages, then the work zone dust action level must be restored to 68 $\mu\text{g}/\text{m}^3$.

ERM's FM, shall notify the EPA and MDE by e-mail, providing a description of the current ambient conditions and graphically displayed data demonstrating the Total PM concentration values prior to increasing to the modified work zone dust action level, or reverting back to the previously established work zone dust action level. The "PAM Avg" value will be displayed by the telemetry system (expected to be the Greenlight system used for the Exelon Project). For example, in the Greenlight system this information was displayed in *Client Menu/Live List View* page and the graph was displayed on the *Client Menu/Current Block Averages Graph View* page below the work zone and perimeter graphs. The "PAM Avg" graph will be saved as a PNG file to document the Total PM concentrations. The reviewers will document that the values were reviewed and will initial and date the time reviewed.

6.2

CHECK ON POTENTIAL FOR CONSTANT READINGS FOR TOTAL PM

Total PM concentration readings provided from the fixed and mobile stations will also be monitored to ensure that the DustTrak equipment is not sending constant readings, i.e. values are not changing for a 15-minute duration as an indication of possible monitor malfunction. The telemetry system will include a constant reading algorithm that checks the current real-time data from the fixed and mobile stations for the 15 minutes and calculates the standard deviation.

Appendix D of the QAPP specifies the response actions and notifications in the event that this condition occurs. The following text summarizes the activities and set-up for the telemetry system.

If the standard deviation is below 0.01, the telemetry system will send an alert (text/email) to ERM's field personnel. Field personnel will respond to such alerts by inspecting the potentially malfunctioning unit and will resolve the possible malfunction as soon as practicable in accordance with the SOP found in Appendix D of the QAPP.

This algorithm applies to all stations in use at the site (mobile work zone station and fixed perimeter stations) and runs a check every 2 minutes. For example, the standard deviation will be calculated for minutes 1 through 15, 3 through 17, 5 through 19, etc. A more frequent check on the data may result in system failure. There will be no alerts during non-working or non-intrusive hours.

Additionally, ERM office and field staff will each review the reported Total PM values using the 1-hour graph provided by the telemetry system for each of the fixed and mobile stations twice per day at a minimum. The *Quality Control Live Data Check* table developed for tracking variable reported readings will be used to record these reviews. The reviewers will document that the values were reviewed and will initial and date the time reviewed.

If during these live data checks a station appears to be malfunctioning, the office staff will contact the field staff, or if the field staff makes this determination, the field personnel will respond to such alerts by inspecting the potentially malfunctioning unit and will resolve the possible malfunction as soon as practicable in accordance with the QAPP Appendix D SOP.

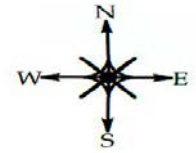
6.3

FOUNDATION PILE DECONTAMINATION IN THE EVENT OF EXTRACTION IN AREA 1

In the event that a pile needs to be extracted in Area 1, decontamination will be performed substantively consistent with the approach used for the Exelon Project. The procedures for pile decontamination are described in the MHMP. ERM will provide air monitoring by deploying one work zone monitor downwind during pile scraping decontamination;

FIGURES

Figure 1
Construction Perimeter Fixed Air Monitoring Locations
Wills Wharf Office Project
Baltimore, Maryland



PWAM - Perimeter Wills Air Monitor, locations are approximate.

APPENDIX A
REFERENCE DOCUMENTS

COVER SOIL DURING HB RESTORATION

Leonard Rafalko

From: Jeff Boggs
Sent: Thursday, January 15, 2015 4:08 PM
To: Fish, Russell; Prince, Ruth; Ed Dexter (ed.dexter@maryland.gov); Jim Leizear -MDE- (jim.leizear@maryland.gov)
Cc: Jonathan Flesher; Leonard Rafalko; Darren Quillen; Charles McClellan; greaves, bob; Eric Charlier; Fatzinger, Travis T NAP; Richard A DePasquale;; Martowska, Derek M NAP
Subject: RE: Sheet Pile Work Zone Monitoring

Thank you, Russ, for your quick response.

Jeff Boggs
ERM
443-803-8495

From: Fish, Russell [<mailto:Fish.Russell@epa.gov>]
Sent: Thursday, January 15, 2015 4:07 PM
To: Jeff Boggs; Prince, Ruth; Ed Dexter (ed.dexter@maryland.gov); Jim Leizear -MDE- (jim.leizear@maryland.gov)
Cc: Jonathan Flesher; Leonard Rafalko; Darren Quillen; Charles McClellan; greaves, bob; Eric Charlier; Fatzinger, Travis T NAP; Richard A DePasquale;; Martowska, Derek M NAP
Subject: RE: Sheet Pile Work Zone Monitoring

Jeff, We have no objections to this procedure.

Russell H. Fish
Office of Remediation 3LC20
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: (215) 814-3226
FAX: (215) 814-3113
email: fish.russell@epa.gov

From: Jeff Boggs [<mailto:Jeff.Boggs@erm.com>]
Sent: Thursday, January 15, 2015 4:02 PM
To: Fish, Russell; Prince, Ruth; Ed Dexter (ed.dexter@maryland.gov); Jim Leizear -MDE- (jim.leizear@maryland.gov)
Cc: Jonathan Flesher; Leonard Rafalko; Darren Quillen; Charles McClellan
Subject: Sheet Pile Work Zone Monitoring
Importance: High

Russ:

As a follow-up to ERM's telephone conversation this afternoon with Dr. Prince regarding work zone monitoring of sheet pile installation in the Wills Street soil-bentonite wall, ERM understands that we will discontinue this work zone monitoring effective Friday, January 16th. ERM will, however, deploy one work zone monitor downwind within a safe distance (>25 feet and <50 feet) during sheet pile extraction and decontamination by scraping loose material adhered to the sheet pile.

Your confirmation reply will be greatly appreciated.

Thank you,

Jeff Boggs

Senior Technical Advisor | ERM

510 S. Ann Street

Baltimore, MD 21231

Mobile: 443-803-8495

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Leonard Rafalko

From: Ed Dexter -MDE- <ed.dexter@maryland.gov>
Sent: Thursday, January 15, 2015 4:10 PM
To: Fish, Russell
Cc: Jeff Boggs; Prince, Ruth; Jim Leizear -MDE- (jim.leizear@maryland.gov); Jonathan Flesher; Leonard Rafalko; Darren Quillen; Charles McClellan; greaves, bob; Eric Charlier; Fatzinger, Travis T NAP; Richard A DePasquale,; Martowska, Derek M NAP; Ed.Dexter@maryland.gov; Mark Mank (mark.mank@maryland.gov)
Subject: Re: Sheet Pile Work Zone Monitoring

We conversed, conferred, and otherwise hobnobbed with our fellow regulators at EPA concerning this matter, and concur with their non-objection to the proposed plan for monitoring the sheet pile decon henceforth.

On Thu, Jan 15, 2015 at 4:06 PM, Fish, Russell <Fish.Russell@epa.gov> wrote:

Jeff, We have no objections to this procedure.

Russell H. Fish

Office of Remediation 3LC20

U.S. Environmental Protection Agency

1650 Arch Street

Philadelphia, PA 19103-2029

Phone: [\(215\) 814-3226](tel:(215)814-3226)

FAX: [\(215\) 814-3113](tel:(215)814-3113)

email: fish.russell@epa.gov

From: Jeff Boggs [mailto:Jeff.Boggs@erm.com]
Sent: Thursday, January 15, 2015 4:02 PM
To: Fish, Russell; Prince, Ruth; Ed Dexter (ed.dexter@maryland.gov); Jim Leizear -MDE- (jim.leizear@maryland.gov)
Cc: Jonathan Flesher; Leonard Rafalko; Darren Quillen; Charles McClellan
Subject: Sheet Pile Work Zone Monitoring
Importance: High

Russ:

As a follow-up to ERM's telephone conversation this afternoon with Dr. Prince regarding work zone monitoring of sheet pile installation in the Wills Street soil-bentonite wall, ERM understands that we will discontinue this work zone monitoring effective Friday, January 16th. ERM will, however, deploy one work zone monitor downwind within a safe distance (>25 feet and <50 feet) during sheet pile extraction and decontamination by scraping loose material adhered to the sheet pile.

Your confirmation reply will be greatly appreciated.

Thank you,

Jeff Boggs

Senior Technical Advisor|ERM

510 S. Ann Street

Baltimore, MD 21231

Mobile: [443-803-8495](tel:443-803-8495)

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--

Edward M. Dexter, P.G., Administrator
Solid Waste Program
Maryland Department of the Environment
1800 Washington Blvd., Suite 605
Baltimore MD 21230-1719

Phone (410) 537-3315

Facsimile (410) 537-3842

Please note new email address: ed.dexter@maryland.gov

Leonard Rafalko

From: Leonard Rafalko
Sent: Friday, February 06, 2015 3:33 PM
To: russ fish (fish.russell@epa.gov)
Cc: ed.dexter@maryland.gov; Prince, Ruth; Jeff Boggs; 'Jonathan Flesher'; Darren Quillen; Charles McClellan
Subject: Sheet Piles - Wills Street

Russ, as a follow-up to yesterday afternoon's teleconference call, ERM understands the requirements below will be implemented for sheet pile installation into the soil-bentonite (SB) slurry wall along Wills Street:

- Following removal of the concrete protection slab and geosynthetic layers and leaving the existing protective soil that covers the slurry wall, LLDPE dams will be installed along the east and west sides of the trench wall at the toe-of-slope;
- The contractor is to then place a minimum of 8-inches of cover soil across the SB wall extending from the east to the west side of the trench wall (i.e. between the LLDPE dams); and
- Work zone air monitoring will not be required as this cover soil cap provides protection from the potential for possibly contaminated soil dust emissions from the sheet pile installation activity and provides a "clean" working surface for the sheet pile installation crew.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway
Suite 200
Malvern, PA 19355

+1 484-913-0428 (direct)
+1 410-991-9460 (mobile)
+1 484-913-0300 (main)
+1 484-913-0301 (fax)

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AIR MONITORING PLAN FOR THE SOUTH INTERVAL

Leonard Rafalko

From: Oduwole, Moshood <Oduwole.Moshood@epa.gov>
Sent: Wednesday, December 23, 2015 8:42 AM
To: Jonathan Flesher (jflesher@beattydevelopment.com)
Cc: Jonathan Flesher (jflesher@beattydevelopment.com); Marco Greenberg (mgreenberg@beattydevelopment.com); Matthew Gillis (Matt.Gillis@ch2m.com); Marty Reif (marty.reif@ch2m.com); Bob.Steele@CH2M.com; French, Chris; Darren Quillen; Tyler Newton; Leonard Rafalko; ed.dexter@maryland.gov; Fish, Russell
Subject: RE: Updated Air Monitoring Plan for Sheet Pile Driving - Wills Street South Interval

Dear Mr Flesher:

The United States Environmental Protection Agency (USEPA) has completed the review of the document titled *Air Monitoring During Sheet Pile Installation and Soil Bentonite Barrier Restoration Along Wills Street for Point Street Apartments and Garage, Harbor Point, Baltimore, MD*, submitted by Mr. Leonard Rafalko of ERM via email on December 16, 2015. In accordance with Section IV.19.a(i) of the Agreement and Covenant Not to Sue SBER Harbor Point, LLC and Harbor Point Development, LLC Docket No: 03-2003-0088TH, USEPA hereby approves the Updated Air Monitoring Plan.

Please provide two hard copies of the document for USEPA record purposes. Do not hesitate to contact me if you have any questions.

Regards,



Moshood G. Oduwole

US EPA Region III

Land and Chemicals Division

Office of Remediation (3LC20)

T: 215.814.3362 * oduwole.moshood@epa.gov * www.epa.gov

From: Leonard Rafalko [<mailto:Leonard.Rafalko@erm.com>]
Sent: Wednesday, December 16, 2015 2:27 PM
To: Oduwole, Moshood <Oduwole.Moshood@epa.gov>; ed.dexter@maryland.gov; Fish, Russell <Fish.Russell@epa.gov>
Cc: Jonathan Flesher (jflesher@beattydevelopment.com) <jflesher@beattydevelopment.com>; Marco Greenberg (mgreenberg@beattydevelopment.com) <mgreenberg@beattydevelopment.com>; Matthew Gillis (Matt.Gillis@ch2m.com) <Matt.Gillis@ch2m.com>; Marty Reif (marty.reif@ch2m.com) <marty.reif@ch2m.com>; Bob.Steele@CH2M.com; French, Chris <Chris.French@Honeywell.com>; Darren Quillen <Darren.Quillen@erm.com>; Tyler Newton <Tyler.Newton@erm.com>
Subject: Updated Air Monitoring Plan for Sheet Pile Driving - Wills Street South Interval

Good afternoon, as discussed with Mr. Russ Fish on 11 December 2015, and Mr. Mashood Oduwole and Mr. Ed Dexter on 15 December 2015, Environmental Resources Management, Inc. (ERM) has prepared this updated air monitoring plan, along with Certification, to be implemented during sheet pile driving into the Soil Bentonite (SB) barrier in Wills Street, and related SB barrier restoration. For your convenience, ERM has also provided a redline version of the narrative so you can easily see the minor adjustments that were made to the approved document.

Please reach out to me with questions, if any. Your prompt review, as your schedule permits, is greatly appreciated.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway
Suite 200
Malvern, PA 19355

+1 484-913-0428 (direct)
+1 410-991-9460 (mobile)
+1 484-913-0300 (main)
+1 484-913-0301 (fax)

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Please visit ERM's web site: <http://www.erm.com>

Leonard Rafalko

From: Ed Dexter -MDE- <ed.dexter@maryland.gov>
Sent: Wednesday, December 23, 2015 1:11 PM
To: Leonard Rafalko
Cc: Darren Quillen; Ankit Kafle; Jonathan Flesher; Richelle hanson -MDE-; Jeff Boggs; Oduwole, Moshood; Gina Schoregge; Jim.Leizear@Maryland.gov; Brian Coblentz -MDE-; Matthew Gillis (Matt.Gillis@ch2m.com); Olga Patov -MDE-
Subject: RE: Wills Wharf

Dear Mssrs. Refalko and Flesher,
The updated air monitoring plan for the South Interval Sheet Pile work is approved.

On Dec 23, 2015 7:01 AM, "Leonard Rafalko" <Leonard.Rafalko@erm.com> wrote:

Thanks Ed, note also that EPA has approved the updated air monitoring plan for the South Interval. Moshood will be providing me with a letter stating as such. I understand that MDE is reviewing the document, so please reach out to me with any questions.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway

Suite 200

Malvern, PA 19355

+1 [484-913-0428](tel:484-913-0428) (direct)

+1 [410-991-9460](tel:410-991-9460) (mobile)

+1 [484-913-0300](tel:484-913-0300) (main)

+1 [484-913-0301](tel:484-913-0301) (fax)

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From: Ed Dexter -MDE- [mailto:ed.dexter@maryland.gov]

Sent: Wednesday, December 23, 2015 7:00 AM

To: Leonard Rafalko

Cc: Darren Quillen; Richelle hanson -MDE-; Ankit Kafle; Jonathan Flesher; Jeff Boggs; Gina Schoregge (gschoregge@mrce.com); Oduwole, Moshood; Coblenz, Brian; Jim Leizear -MDE-; Matthew Gillis (Matt.Gillis@ch2m.com); Olga Patov -MDE-

Subject: RE: Wills Wharf

Correct. Happy holidays, and be safe.

On Dec 23, 2015 6:38 AM, "Leonard Rafalko" <Leonard.Rafalko@erm.com> wrote:

Thank you, Ed. So to recap, ERM understands that neither EPA nor MDE object to common cover soil stockpiles or a common decontamination pad and staging area, pending MDE's comments below. ERM appreciates your consideration. Have a Merry Christmas and Happy New Year.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway

Suite 200

Malvern, PA 19355

+1 [484-913-0428](tel:484-913-0428) (direct)

+1 [410-991-9460](tel:410-991-9460) (mobile)

+1 [484-913-0300](tel:484-913-0300) (main)

+1 [484-913-0301](tel:484-913-0301) (fax)

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From: Ed Dexter -MDE- [mailto:ed.dexter@maryland.gov]

Sent: Tuesday, December 22, 2015 5:15 PM

To: Leonard Rafalko

Cc: Oduwole, Moshood; Darren Quillen; Jonathan Flesher; Richelle hanson -MDE- (richelle.hanson@maryland.gov); Gina Schoregge (gschoregge@mrce.com); Matthew Gillis (Matt.Gillis@ch2m.com); Ankit Kafle; Jeff Boggs; Jim Leizear -MDE-; Olga Patov -MDE-; Coblentz, Brian
Subject: Re: Wills Wharf

No objection here either, subject to the precise locations selected, and the construction, of course.

On Tue, Dec 22, 2015 at 5:11 PM, Leonard Rafalko <Leonard.Rafalko@erm.com> wrote:

Hi Moshood, I understand from our discussion today by telephone that EPA has no comment to ERM's proposed use of a common stockpile for cover soil and a common decontamination pad and staging area, and will defer to MDE.

From: Leonard Rafalko [<mailto:Leonard.Rafalko@erm.com>]

Sent: Friday, December 18, 2015 4:16 PM

To: Oduwole, Moshood <Oduwole.Moshood@epa.gov>; Fish, Russell <Fish.Russell@epa.gov>; ed.dexter@maryland.gov

Cc: Richelle hanson -MDE- (richelle.hanson@maryland.gov) <richelle.hanson@maryland.gov>; Jonathan Flesher <jflesher@beattydevelopment.com>; Darren Quillen <Darren.Quillen@erm.com>; Jeff Boggs <Jeff.Boggs@erm.com>; Gina Schoregge (gschoregge@mrce.com) <gschoregge@mrce.com>; Matt Morgan <mmorgan@mrags.com>; Ankit Kafle <Ankit.Kafle@erm.com>

Subject: Wills Wharf

Good afternoon, as I have noted during conversations with folks over the last week or so, the DDP for Wills Wharf is coming together and the team is identifying some challenges that need to be addressed. One of these challenges is spatial constraints. Between production, traffic, storage, etc. space within the Limit of Disturbance (LOD) is at a premium (the attached figure shows the LOD for the Project).

As a means of maximizing use of the space, I wanted to propose two concepts to MDE and EPA before we spend too much time on the design. Note that I shared these concepts a little bit ago by phone with Richelle Hanson of Maryland's VCP for the VCP perspective:

1. Cover Soil Stockpile – ERM is proposing a common stockpile that would be for cover soil generated from within the Project's LOD. VCP was agreeable to the concept, pending review of the design details, which would be in the DDP. However, VCP prohibits the use of cover soil from Area 2 (see attached figure) for re-

use on property intended for residential land use. The Wills Wharf project is not intended for residential land use but mixed commercial space consisting of an office and hotel, parking garage and general site development (streets, utilities, landscaping, etc.).

2. Decon Pad and Staging Area – Similar to Exelon, the Project will include a decon pad and staging area. ERM is proposing a common decon pad and staging area to maximize land use during construction. VCP was agreeable to the concept, pending review of the design details, which would be in the DDP. The staging area would be used in the event that material intended for off-site disposal cannot be direct loaded and transported off Site, although the intent is for direct load. If not direct loaded, such material would be placed in covered roll offs and temporarily staged in this area (“staging area”) pending transportation and disposal.

So, I would like to talk through these concepts on Monday. I understand that Richelle is out but we have already talked. Please let me know your availability on Monday so I can set up a call.

Thanks very much.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway

Suite 200

Malvern, PA 19355

+1 [484-913-0428](tel:+14849130428) (direct)

+1 [410-991-9460](tel:+14109919460) (mobile)

+1 [484-913-0300](tel:+14849130300) (main)

+1 [484-913-0301](tel:+14849130301) (fax)

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Edward M. Dexter, P.G., Administrator
Solid Waste Program
Maryland Department of the Environment
1800 Washington Blvd., Suite 605
Baltimore MD 21230-1719
Phone [\(410\) 537-3315](tel:4105373315)
Facsimile [\(410\) 537-3842](tel:4105373842)

Please note new email address: ed.dexter@maryland.gov

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system. Thank you,

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**Environmental
Resources
Management**

75 Valley Stream Parkway
Suite 200
Malvern, PA 19355
(484) 913-0300
(484) 913-0301 (fax)
www.erm.com

16 December 2015

Mr. Jonathan Flesher
Beatty Development Group, LLC
1300 Thames Street, Suite 10
Baltimore, MD 21231



Subject: Air Monitoring During Sheet Pile Installation and Soil Bentonite Barrier Restoration Along Wills Street for Point Street Apartments and Garage, Harbor Point, Baltimore, MD

Dear Mr. Flesher:

I, Leonard G. Rafalko, working as Partner of the firm Environmental Resources Management, Inc. (ERM) certify that to the best of my knowledge and in my professional opinion that Attachment A, which addresses air monitoring during the referenced activity, meets the Consent Decree requirements as stated below.

Pursuant to the Consent Decree by and between the United States Environmental Protection Agency, the Maryland Department of the Environment and Allied-Signal Baltimore Works, as amended, Article V, Paragraph 16, I certify on behalf of Beatty Development Group, LLC. that the improvements described in Attachment A will not:

- (a) Interfere with the efficacy of the corrective measures or Honeywell's ability to comply with the Performance Standards, the Groundwater Gradient Monitoring Plan, the Surface Water Monitoring Plan, the Environmental Media Monitoring Plan, and the Surface Soil Monitoring Plan, or any other monitoring plan in effect.
- (b) Increase risks to health or the environment from the conditions at the site.

Sincerely,



Leonard Rafalko
Partner in Charge

Environmental Resources Management

Attachment A

cc: Darren Quillen, Jeff Boggs

ATTACHMENT A

Memorandum from L. Rafalko of ERM to J. Flesher of BDG

8 June 2015; Updated 23 September 2015; Updated 16 December 2015

Memorandum

Environmental
Resources
Management

To: Jonathan Flesher
cc: Jeff Boggs, Darren Quillen

200 Harry S Truman
Parkway
Suite 200
Annapolis, MD 21401
Fax 410-266-8192

Company: BDG

From: Lenny Rafalko

File number: 0199768.13.2

Date: 8 June 2015; Updated 23 September 2015; Updated 16 December 2015

Subject: Sheet Pile Installation and Soil Bentonite Barrier Restoration for Point Street Apartments, Harbor Point, Baltimore, Maryland

As discussed with Mr. Russ Fish on 11 December 2015, and Mr. Mashood Oduwole and Mr. Ed Dexter on 15 December 2015, Environmental Resources Management, Inc. (ERM) has prepared this updated air monitoring plan to be implemented during sheet pile driving into the Soil Bentonite (SB) barrier (attached Figure 1), and related SB barrier restoration. For clarity, this air monitoring plan is part of the Minor Modification (MM, which was submitted under separate cover) that addresses the sheet pile work to be performed along Wills Street. The MM addresses sheet pile driving all the way south along the SB barrier in Wills Street to the water. This air monitoring plan provides the means and methods to be followed for air monitoring as the sheet pile extension proceeds south to its termination.

As directed by the United States Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE) in separate emails dated 5 June 2015, this plan includes the requirement that particulate monitoring be performed any time the liner is penetrated and dams or clean cover soil has not been installed. The emails from EPA and MDE are found in Attachment A.

Since EPA's approval of this air monitoring plan by its email dated 5 June 2015 to ERM, the decontamination pad and Modu Tank area berms have been removed. As such, this air monitoring plan has been updated to identify the location and construction of the decontamination pad to be used in the event a sheet pile needs to be extracted and decontaminated. The decontamination pad will be constructed prior to sheet pile driving.

Since the developer plans on implementing the MM incrementally, Figure 1 shows the spatial placement of the decontamination pad and air monitoring locations relative to the first 85-foot increment of sheet pile driving. Future work

beyond the initial 85 feet of sheet pile will be considered a field change requiring the transmittal to the agencies (i.e., collectively EPA and MDE) of a revised figure showing the new placement of the decontamination pad and the air monitors. Figure 1 has been updated to reflect the telephone discussions between ERM, EPA and MDE on 11 and 15 December 2015.

The expectation for the field change is that the decontamination pad and air monitoring locations would be shifted southward for the next section of sheet pile driving and spatially comparable to the extent practicable with that shown in Figure 1. Nonetheless, Agency approval of the new locations for the decontamination pad and air monitoring locations (i.e., the field change) is required prior to proceeding with sheet pile driving beyond the initial 85 feet. The submission of the revised figure to the agencies will include narrative referencing this air monitoring plan as the means and methods to be followed during sheet pile driving.

1 REMOVAL OF THE GEOSYNTHETIC MATERIALS COVERING THE SB-BARRIER

Real-time total particulate matter (TPM) monitoring, using one work zone unit to be deployed within 50 feet downwind of the work area, will be initiated following the removal of the geosynthetic materials covering the SB barrier footprint during test pit explorations. The test pits will be advanced to ensure the location of the center of the SB barrier. To be clear, particulate monitoring using a DustTrak monitor is to be performed any time the liner is penetrated and dams or clean cover soil has not been installed.

Additionally, hexavalent chromium (CrVI) sampling will be accomplished by deploying two BGI samplers (labeled as PSAM-1 and PSAM-2 in Figure 1) approximately 100 feet downwind of the work area to collect a 24-hour duration sample for laboratory analysis. Air monitoring will occur until the clean cover soil is placed over the SB barrier footprint exposed prior to sheet pile installation, as described below in Section 2. Real-time TPM data will be accessed by telemetry during the monitoring period and will be exported for incorporation into the Field Sheet documentation.

In the event that field conditions (e.g., the pile driving crane location needs to be adjusted based on unanticipated field conditions or constraints) dictate the need to modify the locations of the mobile unit or PSAM-1 and/or PSAM-2, EPA and MDE will be notified in advance to approve the re-locations.

Note that the two BGI samplers will also be the same for the activities described under Sections 2 and 3 below. That is, the BGI samplers will not be moved for the duration of the work unless approved by EPA and MDE.

2 SHEET PILE INSTALLATION

Consistent with the approved work zone air monitoring requirements implemented during the Exelon HQ phase of the Harbor Point development project, air monitoring will not be required during sheet pile installation given that there will be a minimum eight inches of clean cover soil placed over the SB barrier footprint exposed prior to sheet pile installation. Should a sheet pile need to be extracted, one work zone monitor will be deployed within 50 feet downwind during extraction to remove soil bentonite from the sheet pile following established procedures previously approved by the agencies. To be clear, particulate monitoring using a DustTrak is to be performed any time the liner is penetrated and dams or clean cover soil has not been installed.

Real-time TPM data will be accessed by telemetry during the monitoring period and will be exported for incorporation into the Field Sheet documentation. The sheet pile will then be wrapped in poly-sheeting and moved into the decontamination pad to be power-washed. The decontamination pad will be constructed prior to sheet pile driving, and located to the west of Wills Street as shown in Figure 1 (attached). The design for the decontamination pad is found in Attachment B. Any liquids or solids generated during decontamination activities will be managed in accordance with the Area 1, Phase 1 Material Handling and Management Plan dated 3 December 2013.

CrVI sampling will be accomplished using the two fixed station BGI samplers (PSAM-1 and PSAM-2) deployed on the east side (i.e., prevailing downwind direction) of the SB barrier as shown in Figure 1 and described above in Section 1.

3 SOIL BENTONITE WALL RESTORATION

Soil bentonite restoration will be initiated following the sheet pile installation (or completed segments) as was performed during the Exelon HQ phase of the Harbor Point development project. A work zone monitor will be deployed within 50 feet downwind and will provide real-time TPM data that will be accessed by telemetry. The work zone monitor will be turned-off, but not powered-off, during dry bentonite powder blending, only, per the previously approved work zone monitoring plan for this activity.

CrVI sampling will be accomplished using the two fixed station BGI samplers (PSAM-1 and PSAM-2) discussed above under Sections 1 and 2.

4 BGI SAMPLERS AND DATA VALIDATION

The required 24-hour sampling period for the BGIs will be initiated before (either the prior day or the same day): 1) the removal of the geosynthetic materials covering the SB barrier footprint during test pit explorations; 2) sheet pile installation; or 3) soil bentonite restoration activities. A subset of the BGI samples (i.e., ERM does not anticipate that all BGI samples will be analyzed) will be submitted to ERG Laboratory (ERG) anytime the following conditions occur:

1. CrVI samples will be submitted daily to ERG for CrVI analyses during removal of the geosynthetic materials covering the SB barrier footprint, during test pit explorations, and during SB barrier restoration.
2. During sheet pile driving, CrVI samples will be analyzed by ERG **only** if a sheet pile is extracted during the 24-hour sampling period.

The results of the CrVI analyses will be reported by ERG within a standard turnaround time period. The BGI samplers will be calibrated before and after the sampling period per the approved Construction Air Monitoring Program plans. The CrVI sampling media will be deployed, recovered and shipped to ERG daily, except on Friday work days as the laboratory does not receive samples on Saturdays. ERG will transmit the CrVI results directly to the third-part independent data validation firm to prepare Level IV Data Validation Reports. The CrVI laboratory results and data validation reports will be forwarded to the agencies upon receipt.

The CrVI samples will be analyzed by ERG in accordance with the Standard Operating Procedure for the Preparation and Analysis of Hexavalent Chromium by Ion Chromatography prepared by ERG, dated February 2014, as provided in Appendix C of the Area 1, Phase 1 Quality Assurance Project Plan (QAPP). ERG's document references ASTM Standard Test Method D7614-12 Determination of Total Suspended Particulate (TSP) Hexavalent Chromium in Ambient Air Analyzed by Ion Chromatography (IC) and Spectrophotometric Measurements.

5 OTHER PROJECT LOGISTICS

As discussed with EPA and MDE on 11 and 15 December 2015, this update to the air monitoring plan also identifies certain logistical issues based on

constructability identified by the contractors that will uncover and restore the SB barrier, and drive the sheet piles. As shown in Figure 1:

1. The decontamination pad will be located near the southern terminus of the approximate 85-foot increment of sheet pile driving. The decontamination pad will lie within Area 1;
2. Material excavated as part of the work and intended for proper off-site disposal shall be direct loaded for off-site disposal into trucks to be located along Wills Street;
3. Cover soil excavated as part of the work will be temporarily stockpiled in the second cover soil stockpile. This material will be covered except during placement or removal of cover soil. The cover soil will be reused for restoration of the SB barrier. Any remaining cover soil will be reused on Site as either common backfill material for construction of Wills Street, Point Street, Wills Wharf or as utility backfill.

* * * * *

Please call me at 410-991-9460 if you have any questions.

Attachments

/lgr

FIGURE

Figure 1 (Updated 16 December 2015)



600 S. Easton Street, Suite 200, Baltimore, MD 21202
Phone: 410.752.7299

client/developer: Beatty Development Group
1800 Thomas Street, Suite 101
Baltimore, MD 21202
P: 410.352.1100

design consultant: Etkus Manfredi Architects
300 N. Street
Boston, MA 02109
P: 617.426.7552

structural engineer: Tadjer Cohen Edelson & Associates
Silver Spring, MD 20903
P: 301.588.3111

mep & hvac engineer: Vanderweil
405 N. York Street
Alexandria, VA 22314-1913
P: 703.581.9702

foundation engineer: Mueser Rutledge Consulting Engineers
14 Penn Plaza, 25th Floor
New York, NY 10119
P: 212.224.2222

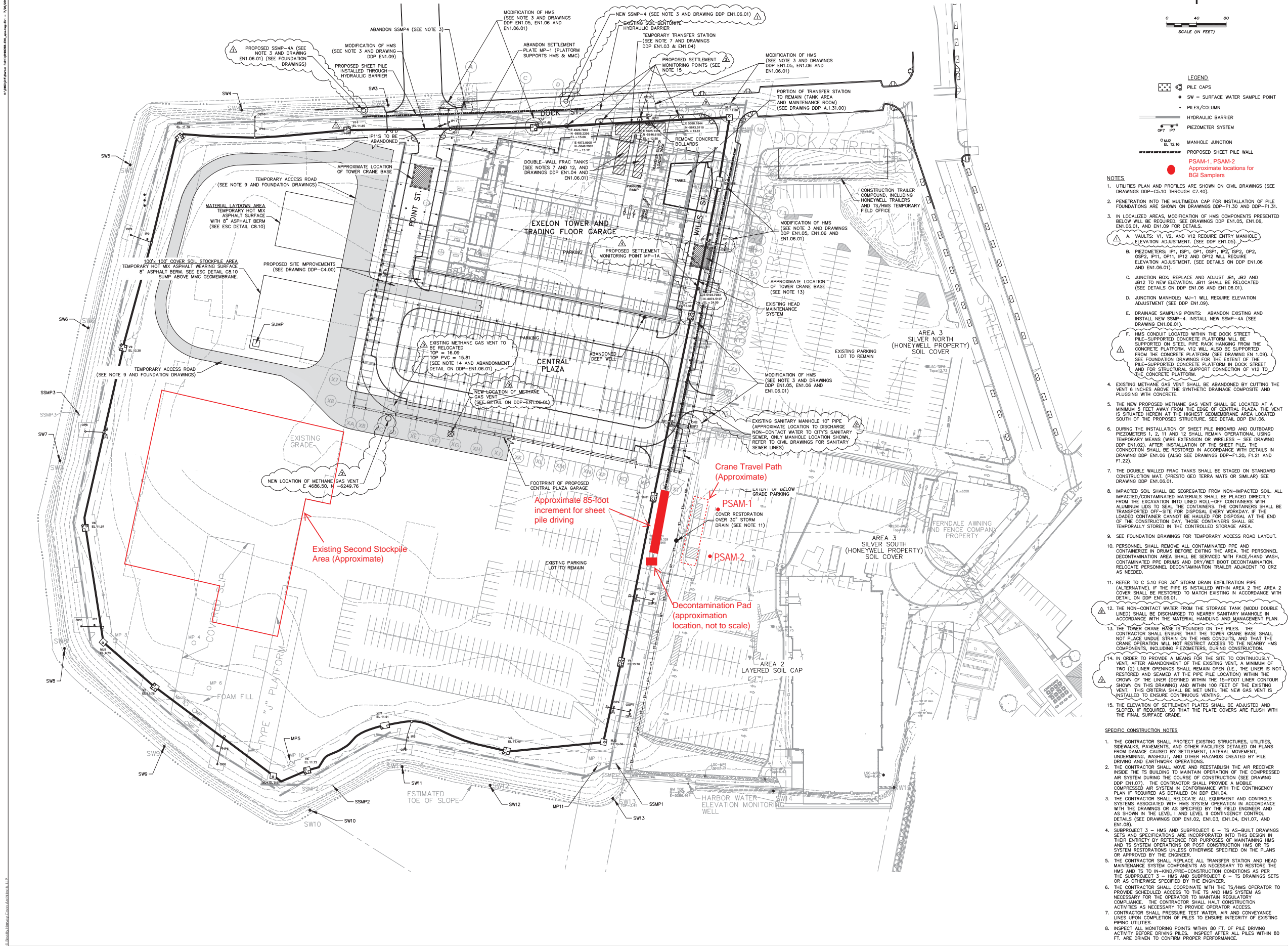
civil engineer: Rummel, Klepper & Kahl
81 Market Street
Baltimore, MD 21201-5922
P: 410.752.7299

landscape architect: Mahari Rykiel Associates
800 Wyman Park Drive, Suite 301
Baltimore, Maryland 21211
P: 410.255.4601

environmental engineer: Environmental Resources Management
200 Navy 51 Harbor Parkway, Suite 401
Annapolis, Maryland 21403
P: 410.266.0054

EXELON BLDG & PLAZA GARAGE

HARBOR PHASE 1
AREA 1 PART 1
DDP SUBMISSION
8/1/13
(REVISED 12/3/13)
(APPROVED BY EPA
AND MDE ON
12/5/13)



- LEGEND**
- PILE CAPS
 - SW = SURFACE WATER SAMPLE POINT
 - PILES/COLUMN
 - HYDRAULIC BARRIER
 - PIEZOMETER SYSTEM
 - MANHOLE JUNCTION
 - PROPOSED SHEET PILE WALL
 - PSAM-1, PSAM-2
Approximate locations for BGI Samplers

- NOTES**
- UTILITIES PLAN AND PROFILES ARE SHOWN ON CIVIL DRAWINGS (SEE DRAWINGS DDP-C5.10 THROUGH C7.40).
 - PENETRATION INTO THE MULTIMEDIA CAP FOR INSTALLATION OF PILE FOUNDATIONS ARE SHOWN ON DRAWINGS DDP-F1.30 AND DDP-F1.31.
 - IN LOCALIZED AREAS, MODIFICATION OF HMS COMPONENTS PRESENTED BELOW WILL BE REQUIRED. SEE DRAWINGS DDP EN1.05, EN1.06, EN1.06.01, AND EN1.09 FOR DETAILS.
 - A. VAULTS: V1, V2, AND V12 REQUIRE ENTRY MANHOLE ELEVATION ADJUSTMENT. (SEE DDP EN1.05).
 - B. PIEZOMETERS: IP1, ISP1, OP1, DSP1, IP2, ISP2, OP2, DSP2, IP11, OP11, IP12 AND OP12 WILL REQUIRE ELEVATION ADJUSTMENT. (SEE DETAILS ON DDP EN1.06 AND EN1.06.01).
 - C. JUNCTION BOX: REPLACE AND ADJUST JB1, JB2 AND JB12 TO NEW ELEVATION. JB1 SHALL BE RELOCATED (SEE DETAILS ON DDP EN1.06 AND EN1.06.01).
 - D. JUNCTION MANHOLE: MJ-1 WILL REQUIRE ELEVATION ADJUSTMENT (SEE DDP EN1.09).
 - E. DRAINAGE SAMPLING POINTS: ABANDON EXISTING AND INSTALL NEW SSMP-4. INSTALL NEW SSMP-4A (SEE DRAWING EN1.06.01).
 - F. HMS CONDUIT LOCATED WITHIN THE DOCK STREET PILE-SUPPORTED CONCRETE PLATFORM WILL BE SUPPORTED ON STEEL PIPE RACK HANGING FROM THE CONCRETE PLATFORM. V12 WILL ALSO BE SUPPORTED FROM THE CONCRETE PLATFORM (SEE DRAWING EN 1.09). SEE FOUNDATION DRAWINGS FOR THE EXTENT OF PILE-SUPPORTED CONCRETE PLATFORM IN DOCK STREET AND FOR STRUCTURAL SUPPORT CONNECTION OF V12 TO THE CONCRETE PLATFORM.
 - EXISTING METHANE GAS VENT SHALL BE ABANDONED BY CUTTING THE VENT 6 INCHES ABOVE THE SYNTHETIC DRAINAGE COMPOSITE AND PLUGGING WITH CONCRETE.
 - THE NEW PROPOSED METHANE GAS VENT SHALL BE LOCATED AT A MINIMUM 5 FEET AWAY FROM THE EDGE OF CENTRAL PLAZA. THE VENT IS SITUATED HEREIN AT THE HIGHEST GEOMEMBRANE AREA LOCATED SOUTH OF THE PROPOSED STRUCTURE. SEE DETAIL DDP EN1.06.01.
 - DURING THE INSTALLATION OF SHEET PILE INBOARD AND OUTBOARD PIEZOMETERS 1, 2, 11 AND 12 SHALL REMAIN OPERATIONAL USING TEMPORARY MEANS (WIRE EXTENSION OR WIRELESS - SEE DRAWING DDP EN1.02) AFTER INSTALLATION OF SHEET PILE. THE CONNECTION SHALL BE RESTORED IN ACCORDANCE WITH DETAILS IN DRAWING DDP EN1.06 (ALSO SEE DRAWINGS DDP-F1.20, F1.21 AND F1.22).
 - THE DOUBLE WALLED FRAC TANKS SHALL BE STAGED ON STANDARD CONSTRUCTION MAT, (PRESTO GEO TERRA MATS OR SIMILAR) SEE DRAWING DDP EN1.06.01.
 - IMPACTED SOIL SHALL BE SEGREGATED FROM NON-IMPACTED SOIL. ALL IMPACTED/CONTAMINATED MATERIALS SHALL BE PLACED DIRECTLY FROM THE EXCAVATION INTO LINED ROLL-OFF CONTAINERS WITH ALUMINUM LIDS TO SEAL THE CONTAINERS. THE CONTAINERS SHALL BE TRANSPORTED OFF-SITE FOR DISPOSAL. EVERY WORKDAY, IF THE LOADED CONTAINER CANNOT BE HAULED FOR DISPOSAL AT THE END OF THE CONSTRUCTION DAY, THOSE CONTAINERS SHALL BE TEMPORARILY STORED IN THE CONTROLLED STORAGE AREA.
 - SEE FOUNDATION DRAWINGS FOR TEMPORARY ACCESS ROAD LAYOUT.
 - PERSONNEL SHALL REMOVE ALL CONTAMINATED PPE AND CONTAINERIZE IN DRUMS BEFORE EXITING THE AREA. THE PERSONNEL DECONTAMINATION AREA SHALL BE SERVICED WITH FACE/HAND WASH, CONTAMINATED PPE DRUMS AND DRY/WET BOOT DECONTAMINATION. RELOCATE PERSONNEL DECONTAMINATION TRAILER ADJACENT TO CRZ AS NEEDED.
 - REFER TO C.5.10 FOR 30" STORM DRAIN INFILTRATION PIPE (ALTERNATIVE). IF THE PIPE IS INSTALLED WITHIN AREA 2 THE AREA 2 COVER SHALL BE RESTORED TO MATCH EXISTING IN ACCORDANCE WITH DETAIL ON DDP EN1.06.01.
 - THE NON-CONTACT WATER FROM THE STORAGE TANK (MODU DOUBLE LINED) SHALL BE DISCHARGED TO NEARBY SANITARY MANHOLE IN ACCORDANCE WITH THE MATERIAL HANDLING AND MANAGEMENT PLAN.
 - THE TOWER CRANE BASE IS FOUND ON THE PILES. THE CONTRACTOR SHALL ENSURE THAT THE TOWER CRANE BASE SHALL NOT PLACE UNLIE STRAIN ON THE HMS CONDUITS, AND THAT THE CRANE OPERATION WILL NOT RESTRICT ACCESS TO THE NEARBY HMS COMPONENTS, INCLUDING PIEZOMETERS, DURING CONSTRUCTION.
 - IN ORDER TO PROVIDE A MEANS FOR THE SITE TO CONTINUOUSLY VENT AFTER ABANDONMENT OF THE EXISTING VENT, A MINIMUM OF TWO (2) LINER OPENINGS SHALL REMAIN OPEN (I.E. THE LINER IS NOT RESTORED AND SEALED AT THE PIPE PILE LOCATION) WITHIN THE CROWN OF THE LINER (DEFINED WITHIN THE 15-FOOT LINER CONTOUR SHOWN ON THIS DRAWING) AND WITHIN 100 FEET OF THE EXISTING VENT. THIS CRITERIA SHALL BE MET UNTIL THE NEW GAS VENT IS INSTALLED TO ENSURE CONTINUOUS VENTING.
 - THE ELEVATION OF SETTLEMENT PLATES SHALL BE ADJUSTED AND SLOPED, IF REQUIRED, SO THAT THE PLATE COVERS ARE FLUSH WITH THE FINAL SURFACE GRADE.

- SPECIFIC CONSTRUCTION NOTES**
- THE CONTRACTOR SHALL PROTECT EXISTING STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES DETAILED ON PLANS FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY PILE DRIVING AND EARTHWORK OPERATIONS.
 - THE CONTRACTOR SHALL MOVE AND REESTABLISH THE AIR RECEIVER INSIDE THE TS BUILDING TO MAINTAIN OPERATION OF THE COMPRESSED AIR SYSTEM DURING THE COURSE OF CONSTRUCTION (SEE DRAWING DDP EN1.07). THE CONTRACTOR SHALL PROVIDE A MOBILE COMPRESSED AIR SYSTEM IN CONFORMANCE WITH THE CONTINGENCY PLAN IF REQUIRED AS DETAILED ON DDP EN1.04.
 - THE CONTRACTOR SHALL RELOCATE ALL EQUIPMENT AND CONTROLS SYSTEMS ASSOCIATED WITH HMS SYSTEM OPERATION IN ACCORDANCE WITH THE DRAWINGS OR AS SPECIFIED BY THE FIELD ENGINEER, AND AS SHOWN IN THE LEVEL I AND LEVEL II CONTINGENCY CONTROL DETAILS (SEE DRAWINGS DDP EN1.02, EN1.03, EN1.04, EN1.07, AND EN1.08).
 - SUBPROJECT 3 - HMS AND SUBPROJECT 6 - TS AS-BUILT DRAWINGS SETS AND SPECIFICATIONS ARE INCORPORATED INTO THIS DESIGN IN THEIR ENTIRETY BY REFERENCE FOR PURPOSES OF MAINTAINING HMS AND TS SYSTEM OPERATIONS OR POST CONSTRUCTION HMS OR TS SYSTEM RESTORATIONS UNLESS OTHERWISE SPECIFIED ON THE PLANS OR APPROVED BY THE ENGINEER.
 - THE CONTRACTOR SHALL REPLACE ALL TRANSFER STATION AND HEAD MAINTENANCE SYSTEM COMPONENTS AS NECESSARY TO RESTORE THE HMS AND TS TO IN-KIND/PRE-CONSTRUCTION CONDITIONS AS PER THE SUBPROJECT 3 - HMS AND SUBPROJECT 6 - TS DRAWINGS SETS OR AS OTHERWISE SPECIFIED BY THE ENGINEER.
 - THE CONTRACTOR SHALL COORDINATE WITH THE TS/HMS OPERATOR TO PROVIDE SCHEDULED ACCESS TO THE TS AND HMS SYSTEM AS NECESSARY FOR THE OPERATOR TO MAINTAIN REGULATORY COMPLIANCE. THE CONTRACTOR SHALL HALT CONSTRUCTION ACTIVITIES AS NECESSARY TO PROVIDE OPERATOR ACCESS.
 - CONTRACTOR SHALL PRESSURE TEST WATER, AIR AND CONVEYANCE LINES UPON COMPLETION OF PILES TO ENSURE INTEGRITY OF EXISTING PIPING UTILITIES.
 - INSPECT ALL MONITORING POINTS WITHIN 80 FT. OF PILE DRIVING ACTIVITY BEFORE DRIVING PILES. INSPECT AFTER ALL PILES WITHIN 80 FT. ARE DRIVEN TO CONFIRM PROPER PERFORMANCE.

issued date	description

revision date	description
7/18/2014	REVISED NOTES DUE TO VE CHANGES, REVISED LOCATION OF SSMP-4 AND SSMP-4A, REVISED WALL 11 MODIFICATIONS REFERENCES
5/9/2014	REVISED PER EXHIBIT COMMENT
5/4/2015	REVISED LOCATIONS OF SETTLEMENT PLATES AND METHANE VENT PER AS-077
5/18/2015	REVISED MP-1A LOCATION PER AS-077

ENVIRONMENTAL
REMEDIALATION
SYSTEM
IMPROVEMENTS

date: 8/1/13
drawn by: ERM
checked by: AK
scale: NOTED
project number: 019768
sheet number: scaled inch

DDP EN1.01

ATTACHMENT A
EPA AND MDE EMAILS 5 JUNE 2015

Leonard Rafalko

From: Fish, Russell <Fish.Russell@epa.gov>
Sent: Friday, June 05, 2015 2:32 PM
To: Leonard Rafalko; ed.dexter@maryland.gov
Cc: Prince, Ruth; Mark Mank -MDE- (mark.mank@maryland.gov); Jonathan Flesher; Jeff Boggs; Darren Quillen; greaves, bob; Christopher French; Eric Charlier; Fatzinger, Travis T NAP
Subject: RE: Harbor Point - Point Street Sheet Pile Air Monitoring

Lenny, EPA has reviewed the revised AMP and request that you include a clarifying sentence in the narrative to articulate that dustrack monitoring is required any time the liner is penetrated and dams or clean cover soil has not been installed. Based upon including language to capture this situation, EPA finds this AMP to be acceptable for inclusion in the Wills St. Sheet Pile Extension Minor Mod. Should you have any questions or want to discuss this further please contact me at the number listed below.

Thank you,

Russell H. Fish
Office of Remediation 3LC20
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: (215) 814-3226
FAX: (215) 814-3113
email: fish.russell@epa.gov

From: Leonard Rafalko [<mailto:Leonard.Rafalko@erm.com>]
Sent: Friday, May 22, 2015 3:29 PM
To: Fish, Russell; ed.dexter@maryland.gov
Cc: Prince, Ruth; Mark Mank -MDE- (mark.mank@maryland.gov); Jonathan Flesher; Jeff Boggs; Darren Quillen; greaves, bob; Christopher French
Subject: Harbor Point - Point Street Sheet Pile Air Monitoring

Hi, attached is the referenced document for review and approval by EPA and MDE. I understand that Russ is out next week. Nonetheless, if there are any questions or comments please reach out to me so that we can keep moving forward and are prepared to wrap it up once Russ returns.

Everyone have a wonderful holiday weekend.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway
Suite 200
Malvern, PA 19355

+1 484-913-0428 (direct)
+1 410-991-9460 (mobile)
+1 484-913-0300 (main)
+1 484-913-0301 (fax)

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Please visit ERM's web site: <http://www.erm.com>

Leonard Rafalko

From: Ed Dexter -MDE- <ed.dexter@maryland.gov>
Sent: Friday, June 05, 2015 3:23 PM
To: Fish, Russell
Cc: greaves.bob@epa.gov; Eric.J.Charlier@usace.army.mil; Leonard Rafalko; Jonathan Flesher
Subject: RE: Harbor Point - Point Street Sheet Pile Air Monitoring

We concur with the provisional AMP approval, and are similarly situated with respect to the other two items.

On Jun 5, 2015 3:17 PM, "Fish, Russell" <Fish.Russell@epa.gov> wrote:

Jonathan, In response to the items below:

1. I just sent Lenny an email accepting the AMP for the Wills St. Ext. with a request to add one clarification sentence. We view this AMP as part (attachment??) of the upcoming minor mod for Wills St. Sheet Pile Extension minor mod design package. With respect to that mod, it is our understanding that there will be an associated SB wall raising component and the associated permeability testing. Recognizing from emails in the past week that there was some confusion with respect to this sampling and testing for the north interval, I believe there would be value in not only stating the ASTM method but also including in the mod an SOP for sample collection and lab testing. I'll get you something more specific on this next week.
2. Yes we are on track to get you a response for the Point St. DDP on or before June 22nd.
3. Infiltration gallery minor mod – I have asked the COE team to give this a quick look and should have you something next week.

Have a great weekend.

Russell H. Fish

Office of Remediation 3LC20

U.S. Environmental Protection Agency

1650 Arch Street

Philadelphia, PA 19103-2029

Phone: [\(215\) 814-3226](tel:2158143226)

FAX: [\(215\) 814-3113](tel:2158143113)

email: fish.russell@epa.gov

From: Jonathan Flesher [mailto:jflesher@beattydevelopment.com]

Sent: Friday, June 05, 2015 10:51 AM

To: Fish, Russell; Ed Dexter -MDE-

Cc: Leonard Rafalko

Subject: Re: Harbor Point - Point Street Sheet Pile Air Monitoring

Russ and Ed,

I hope all is well and you are enjoying your Friday mornings without Harbor Point meetings! I wanted to follow up with you on a few outstanding items:

Things that are in your court:

- The referenced Point Street sheet pile air monitoring proposal made on May 22nd
- The Point Street DDP (expected response no-later-than June 22 - are we on track?)
- Infiltration gallery deletion MM submitted on May 27th

Things in my court:

- Providing the outstanding permeability test results with final analysis (will send when I receive from MRCE - asked for update today)
- Responding to the barrier augmentation extension in Wills Street south of current location (the air monitoring proposal above is part of that - the other part will come from a MRCE response and should have that any day)
- MM for the temp parking lot earthen ramp (this will be accompanied with a plan for the extension of the on-cap parking lot which would be completed (as the previous lot was) within the requirements of the 2003 interim use plan thereby not requiring formal approval) This item is currently being reviewed by Honeywell.

Please let me know if I'm missing anything.

Jonathan

On May 22, 2015, at 3:29 PM, Leonard Rafalko <Leonard.Rafalko@erm.com> wrote:

Hi, attached is the referenced document for review and approval by EPA and MDE. I understand that Russ is out next week. Nonetheless, if there are any questions or comments please reach out to me so that we can keep moving forward and are prepared to wrap it up once Russ returns.

Everyone have a wonderful holiday weekend.

Thank You

Leonard (Lenny) Rafalko | Partner | ERM

75 Valley Stream Parkway

Suite 200

Malvern, PA 19355

+1 [484-913-0428](tel:+14849130428) (direct)

+1 [410-991-9460](tel:+14109919460) (mobile)

+1 [484-913-0300](tel:+14849130300) (main)

+1 [484-913-0301](tel:+14849130301) (fax)

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Please visit ERM's web site: <http://www.erm.com>

<Point Street Air Monitoring Sheet Pile Extension rev_2015-05-22.pdf>

ATTACHMENT B
TEMPORARY DECONTAMINATION PAD DESIGN



**14 Brick Kiln Court
Northampton, PA 18067
Ph: (484) 275-6900
Fax: (484) 275-6970
www.ewmi-info.com**

**Mr. Jeff Ayers
Armada Hoffler Construction Co., Inc.
1300 Thames Street
Suite 30
Baltimore, MD 21202**

RE: HARBOR POINT - SHEET PILE DECONTAMINATION - TEMPORARY LOCATION

Dear Mr. Ayers:

Environmental Waste Minimization, Inc. (EWMI) is pleased to provide *Armada Hoffler Properties - Construction, LLC (AHP)* with the following proposed plan for the construction of a temporary decontamination area for future remediation work.

Sheet Pile Decontamination - Temporary Location Construction

The following activities will be conducted to construct a temporary decontamination pad to allow contained power washing of the sheet piles if such pile(s) need to be extracted. The decontamination pad will be constructed prior to commencing with sheet pile driving. The design of the pile decontamination area is discussed below and presented in the photographs and sketches provided herein. The design includes two separate containment layers (provides redundancy for containing materials generated during decontamination) to provide sufficient containment of the wash water and materials, as well as two separate geotextile layers to protect the containment layers.

1. Temporary decontamination pad construction will proceed as follows and prior to commencing with sheet pile driving:
 - a. Prior to construction of the decon pad, the area will be “broom” cleaned and swept debris removed if it would affect the integrity of the pad. Cushion geotextile will be laid out over the proposed location for the containment berms. The geotextile will provide a barrier between the ground surface and the containment berm to prevent any possible puncture.
 - b. The two 12’ x 50’ x 1’ secondary containment berms (See attached photograph 1) will then be laid out and abutted end to end to provide an approximate 100’ pad length (See attached sketch). The two berms will act as a secondary containment measure to collect any rinse water

that should escape the primary poly layer. The abutted area between the berms will be sealed using 10 mil poly sheeting and clamps to secure the seam.

- c. Next, 4' high temporary chain-link fence (See attached photograph 2 as an example of the fencing) will be erected around the perimeter of the berm location. Sand bags will be used to secure the free standing fence panels. The temporary fence will be constructed approximately 4' away from the containment berm. This will give the sides of the decon "trough" a 45 degree angle that will allow overspray, if any, from the pressure washing operation to be collected and drained to the bottom of the basin for collection and containerization.
 - d. Woven geotextile fabric will be draped from one side of the temporary fence, across the containment berms and up over the other side of the temporary fence. This will provide abrasion protection for the containment berms and also support the primary poly layer. The fabric will be clamped to the top of the temporary fence to secure it.
 - e. The final construction step for the temporary decontamination pad will be to place a 10 mil poly barrier across the entire width and length of the decon area. The sheet of poly will measure 20' x 100' to seamlessly cover the decontamination area. The poly will lie on top of the woven geotextile and will also be secured with clamps to the top rails of the temporary fence. Sand bags or other ballast will be used to secure the poly within the berm. Each half of the decon pad will slope away from the midpoint, toward the outside edge and both ends will contain a sump pump for rinse water collection.
 - f. Additional geotextile will be folded and laid down to provide a cushion for the poly layer. 4' x 8' x 3/4" plywood sheets will then be placed to provide additional support under the wood cribbing which will bear the sheet piles. 6"x6" and 4"x4" nominal lumber will be used to hold and provide slope for the piles requiring decontamination.
2. If it is determined that a sheet pile requires extraction the pile will be scraped to remove any loose debris and will then be wrapped with polyethylene sheeting for transport to the temporary decon pad location as detailed below:
- a. The pile will be extracted (Pile Driving Contractor) high enough such that workers in Modified Level D PPE can scrape the material back into the excavation from which it is being extracted. Once scraped, the pile will be wrapped in plastic and the pile will be extracted again (i.e., the process is repeated) to a workable elevation for scraping. These steps are repeated until the entire pile is extracted. Upon completion, the process will result in a fully scraped pile that is wrapped in plastic.
 - b. The soil-bentonite and other material (e.g., native clay) scraped or sloughed from the piles essentially falls back into the SB wall. This material will then be covered with approximately 8 inches of cover soil (i.e., Area 1 cover soil) to create a temporary working surface. This material will be removed from the trench and properly disposed off site when the SB wall is restored.
-

3. Following the pad construction, the decontamination activities can commence if a sheet pile is extracted:
 - a. The piles will be laid in the decon location on the wood cribbing where the pressure washing will be performed. Subsequent to a pile being placed in the decon pad, a thorough inspection will be performed to ensure no damage occurred to any of the components. Any damage will be repaired prior to commencing decon activities. Hot water pressure washers may be required during sub-freezing temperatures, but standard cold-water pressure washing will be utilized for the majority of the pile cleaning.
 - b. The power wash water will be transferred out of the decon pad using submersible sump pumps located in the low point of each half of the pad area. The water will be containerized in totes or a frac tank for future disposal. The totes or frac tank will be positioned in a secondary containment structure adjacent to the decontamination location.

4. Final completion of decontamination and removal of the pad:
 - a. Upon completion of the final pile washing, the pad location will be used to decontaminate the remaining small equipment used during construction. Any accumulated solids and the geosynthetic layers will be removed and placed in a lined roll-off for disposal. A final wash of the secondary containment berm will be performed and the rinse water will be containerized. The two berms and temporary fence can then be demobilized.

Respectfully,



Philip J Reinsmith
Project Manager



PHOTOGRAPH 2



4' x 8' PROTECTIVE PLYWOOD (TYP.)

WOOD CRIBBING TO SUPPORT SHEET PILES

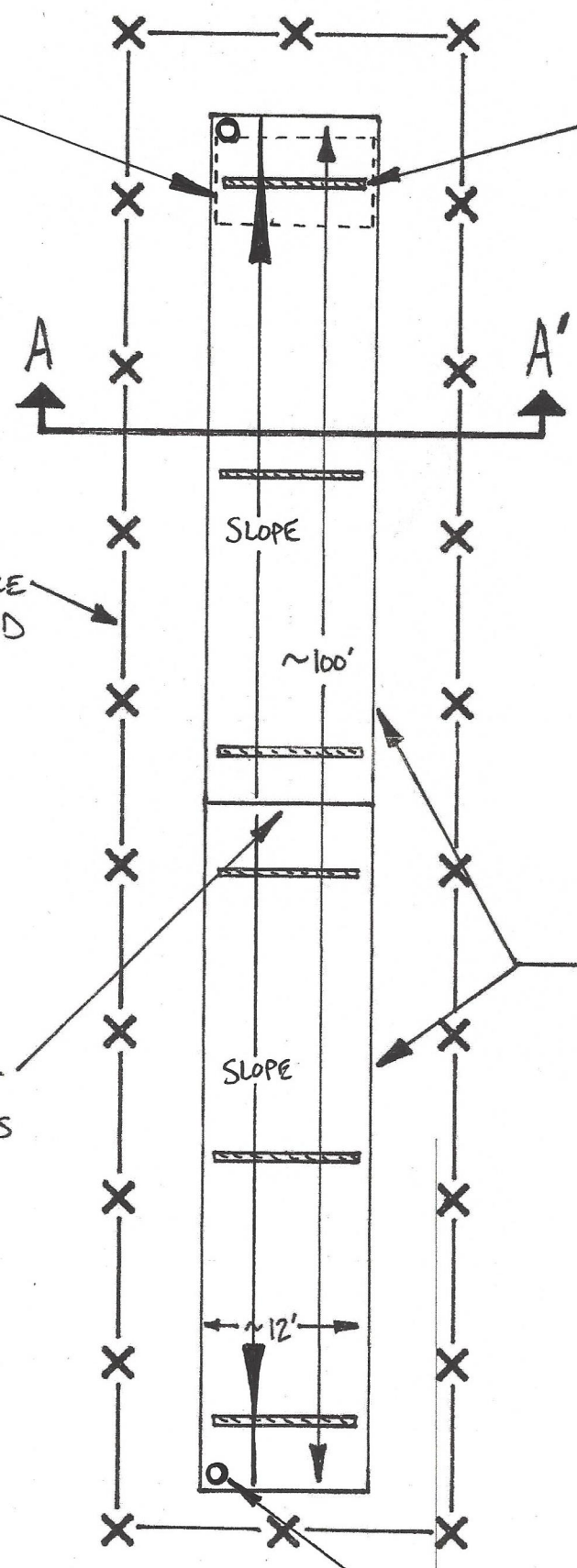
TEMPORARY FREE-STANDING CONSTRUCTION FENCE (4' TYP.) W/ SAND BAG BALLAST

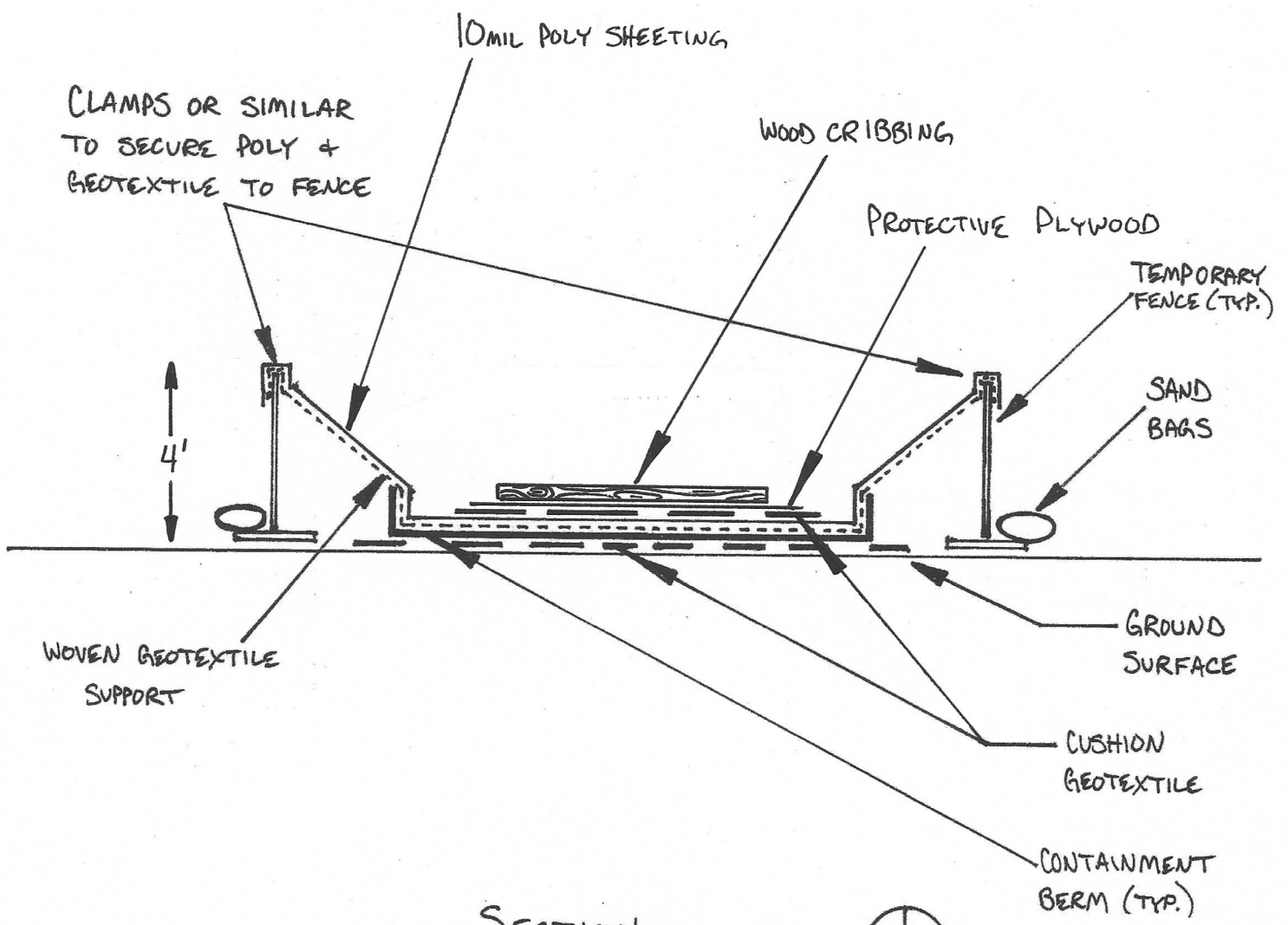
POLY OR SIMILAR TO SEAL JOINT B/T CONTAINMENT BERMES

TWO (2) - 12' x 50' x 12" CONTAINMENT BERMES (TYP.)

SUMP PUMP FOR RINSE WATER COLLECTION

SCALE: 1" = 12'
0' 3' 6' 9' 12'





SECTION

SCALE: 1/4" = 1'



***TEMPORARY CESSATION OF AIR MONITORING DURING
BLENDING ACTIVITIES ASSOCIATED WITH THE HB RESTORATION***

**Environmental
Resources
Management**

75 Valley Stream Parkway
Suite 200
Malvern, PA 19355
(484) 913-0300
(484) 913-0301 (fax)
www.erm.com

27 April 2015

Sent via email (Fish.Russell@epa.gov and ed.dexter@maryland.gov)

Reference: 0199768.13.2

Mr. Russell H. Fish
Remedial Project Manager
Environmental Protection Agency
1650 Arch Street, Mail Code 3LC20
Philadelphia, PA 19103-2029

Mr. Ed Dexter, P.G., Administrator
Solid Waste Program
Maryland Department of the Environment
1800 Washington Blvd
Baltimore, MD 21230



Subject: Proposed Improvements and Related Certification to the Exelon Project
Construction Air Monitoring Program, Honeywell Baltimore Works Site-
Area 1, Phase 1

Dear Mr. Fish and Mr. Dexter:

As we discussed previously, Environmental Resources Management, Inc. (ERM) has prepared this letter on behalf of Harbor Point Development LLC (HPD or the Developer) to request approval from the United States Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE) to modify specific aspects of the approved Air Monitoring Program for the Exelon Project as described in this letter. ERM notes that these proposed improvements only address the Exelon project.

Proposed Improvements to the Exelon Air Monitoring Program

1. Eliminate the off-site National Aquarium fixed station location (OAM-1). The Old Town fixed station (OAM-2) shall continue to be an active real-time total particulate matter (TPM) monitoring and hexavalent chromium sampling location for the remainder of the intrusive work.
2. Eliminate real-time total particulate matter monitoring at the existing and approved, new cover soil stockpile areas.
3. Deploy one, real-time total particulate matter monitor downwind and adjacent to the new methane gas vent location during installation.
4. Temporarily interrupt collection and transmission of real-time TPM monitoring data during the soil bentonite barrier restoration for approximately 15-minutes only when dry bentonite powder is being blended into the existing cover soil and soil bentonite barrier. The monitoring unit will not be shut down. The purpose of this temporary interruption of real-time TPM monitoring data is to eliminate the issuance of TPM exceedances (i.e., false positives) associated with dry bentonite powder dust emissions during this specific activity. The real-time TPM monitoring data will be collected or interrupted during the work sequence as follows:

- a. Deploy one, mobile monitoring station downwind of the area of the soil bentonite restoration, perform the zero and flow calibration, and initiate real-time TPM monitoring data collection and transmission prior to preparing the area of soil bentonite to be restored;
- b. Interrupt the real-time TPM monitoring data collection and transmission to the system server and dashboard immediately prior to the addition of the dry bentonite powder for bending into the existing cover soil and soil bentonite. The interruption of data collection and transmission will be accomplished by stopping the data transmission to the dashboard by sending a signal to the monitoring unit remotely, i.e., the unit will not need to be physically turned off such that the mobile station monitoring power will not be disrupted during this period and re-calibration will not be required.
- c. Remotely send a signal to the mobile station to begin collecting and sending data to the system server and dashboard continuously until the addition of dry bentonite powder required for the next section of soil bentonite barrier restoration as described above.

Certification

I, Leonard G. Rafalko, working as Partner of the firm Environmental Resources Management, Inc. (ERM) certify that to the best of my knowledge and in my professional opinion that the proposed improvements to the air monitoring program for the Exelon project as described above meet the Consent Decree requirements as stated below.

Pursuant to the Consent Decree by and between the United States Environmental Protection Agency, the Maryland Department of the Environment and Allied-Signal Baltimore Works, as amended, Article V, Paragraph 16, I certify on behalf of Beatty Development Group, LLC. that the improvements described above will not

- (a) Interfere with the efficacy of the corrective measures or Honeywell's ability to comply with the Performance Standards, the Groundwater Gradient Monitoring Plan, the Surface Water Monitoring Plan, the Environmental Media Monitoring Plan, and the Surface Soil Monitoring Plan, or any other monitoring plan in effect.
- (b) Increase risks to health or the environment from the conditions at the site.

* * * * *

Please call me at 484-913-0428 if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Leonard G. Rafalko". The signature is fluid and cursive, with a large initial 'L' and 'R'.

Leonard Rafalko
Partner in Charge

Environmental Resources Management

cc: Jonathan Flesher, Ruth Prince, Bob Greaves, Mark Mank, Chris French, Darren Quillen, Jeff Boggs,