ARM Group LLC
Engineers and Scientists

March 16, 2020

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

Re: Comment Response Letter:
Response and Development Work Plan (Rev. 1)
Area A: Sub-Parcel A10-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) is pleased to provide the enclosed revision of the Response and Development Work Plan (RADWP) for the portion of the Tradepoint Atlantic property designated as Area A: Sub-Parcel A10-1 (the Site). ARM is providing responses to comments received from the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) via emails on February 13, 2020 and February 28, 2020 regarding the previous submission of the Sub-Parcel A10-1 RADWP (Revision 0 dated February 12, 2020). Responses to the comments are given below; the original comments are included in italics with the responses following.

An updated version of the RADWP text (Revision 1) is provided as **Attachment 1**. Additional hard copy replacement pages (figures, etc.) are also provided as noted below. The enclosed CD provides a compiled PDF of the entire report with the inserted replacement pages, along with the updated electronic attachments. Revised cover and spine cardstock sheets are also provided for insertion into the binders currently held by the agencies.

1. *I would not assume that any water removed from the site does not contain chlorinated solvents at levels that preclude pretreatment prior to HCWWTP. Include specific levels of chlorinated VOCs that the treatment plant can accept. Provide specific procedures to ensure any dewatering fluids are tested and specific pre-treatment methods that may be applied to ensure the dewatering fluid is appropriately managed.*

   Pertaining to Barbara's initial comment re: dewatering, the Agencies have determined that all potentially contaminated trench water must be handled similarly to A11-1, contain, test, and then treat if necessary.

Section 5.2.2 has been modified to state that all dewatering fluids will be subject to containment, testing, and treatment. Specific requirements are provided in the designated section. The threshold for treatment of total volatile organic compounds (VOCs) at the Humphrey Creek Wastewater Treatment Plant (HCWWTP) is 1 ppm. There is no specific threshold for chlorinated VOCs versus total VOCs.

2. *The RADWP does not address the requirement for indoor air and sub-slab soil gas sampling to ensure effectiveness of the vapor barrier, prior to occupancy of the building and additional samples after the building is occupied. This step should be added to the schedule as well. Deed restrictions will also include the requirement to maintain the slab/vapor barrier and the O&M plan must contain specific requirements for repair of any future barrier penetrations.*

   Requirements for sub-slab soil gas and indoor air sampling have been added to Sections 4.2.5 and 5.5 of the RADWP. A new figure (**Figure 9**) is provided showing the sample locations to be utilized for future monitoring. The sampling events have also been added to the schedule in Section 7.0. Section 5.5 has been modified with the requested changes regarding repair and maintenance of the vapor barrier, including specific requirements for the future Operations and Maintenance Plan (O&M Plan).

3. *Section 1.0, Introduction: It is stated in the last paragraph of this section that the narrow western remnant will be addressed "with landscaped caps, or otherwise restricted." Explain the meaning of "otherwise restricted".*

   The narrow area outside of the development boundary on the western side of the parcel is directly adjacent to the roadway and includes some areas of steep terrain . It is expected that this area will be capped using landscaping caps, or alternatively fenced off ("otherwise restricted") from the neighboring areas of the property. The terminology has been modified in the RADWP.

4. *Section 4.1, Response Phase: Piezometer Abandonment - While it is understood that the temporary piezometers must be abandoned to allow for site construction, the Agencies expect that a monitoring well network will be installed post-construction to monitor the CVOC plume. These locations must be approved by the Agencies prior to installation.*

   Section 4.1 has been modified to state that a Work Plan will be submitted in the future for installation of monitoring wells at the Site. The Work Plan with the proposed locations will need to be approved by the agencies prior to implementation.

5. *Section 4.2.7 Stormwater Management: The section detailing the anticipated distance between the bottom of the stormwater management pond and bioretention pond, is this based on the site grade being elevated? Provide details on the planned site elevations.*

Also, in this section, specifically state the shallow groundwater elevations that are being referred to. From drawings it seems that the future wet pond is expected to extend approximately 2' bgs and the bioretention pond could be between 5' - 7' bgs. Confirm.

Additional discussion of groundwater and proposed surface elevations has been added to Section 4.2.7. As shown on the grading plan (**Appendix D** and **Figure 2**), the anticipated bottom of the stormwater pond is at elevation 9 feet above mean sea level (amsl) and the ground surface surrounding the pond will be at elevation 15 feet amsl, indicating that the depth of the pond will be roughly 6 feet. The current/existing grade in this area is at approximately 12 feet amsl. The bottom of the microbioretention facility is at elevation 16 feet amsl, with a surrounding ground surface elevation of 18 feet amsl, indicating that the depth of the microbioretention facility will be roughly 2 feet (the planting media and underlying stone will occupy an additional 5 to 6 feet as shown on the detail provided in **Appendix D**). The current/existing grade in this area is at approximately 17 feet amsl.

As shown on **Figure 10** and **Figure 11** (see comment #6), the groundwater elevations underlying the stormwater pond for the perched and shallow groundwater zones are at roughly 6 feet amsl (3 feet below the pond bottom) and 4 feet amsl (5 feet below the pond bottom), respectively. The groundwater elevations underlying the microbioretention facility for the perched and shallow groundwater zones are at roughly 16 to 17 feet amsl (roughly equal to the pond surface and within the planting media and underlying stone) and 5 to 6 feet amsl (10 feet below the pond surface), respectively. The perched groundwater zone is expected to be further depressed by the surface cap proposed in the development plan which will restrict infiltration.

6. *Provide a figure showing groundwater elevations.*

   Two new figures (**Figure 10** and **Figure 11**) have been added to the RADWP to show the groundwater elevations and interpolated elevation contours for the perched and shallow groundwater zones at the Site. The contours are overlaid on the development grading plan. These figures were constructed using the most recent groundwater gauging data obtained during the completion of the supplemental CVOC investigation.

7. *Confirm that there will not be any rail lines located within the development boundary, either newly installed or redeveloped historic rail lines.*

   There will not be any rail lines located within the development boundary.

8. *MDE must be notified prior to the installation of the vapor barrier on-site, as well as, prior to conducting the smoke test. Representatives will want to observe both of these activities and sufficient time must be provided to allow for a site visit.*

   Language has been added in Section 4.2.5 to address these requirements.

9. *Section 5.4: Once development is complete and permanent monitoring wells are installed on-site, a more accurate measure of groundwater elevations in the northeastern and eastern portions of the site will be available. These measurements will be used to define "deep" excavations as described in the 1st bullet in this section.*

   Language has been added in Section 5.4 to state how "deep" excavations will be defined.

Additional Revisions:

10. The third paragraph in the introduction (Section 1.0) has been deleted and replaced with a new section (Section 3.2.4) to discuss the soil gas survey which was recently completed as reported in the Sub-Parcel A10-1 Soil Gas Investigation Report dated March 7, 2020. The referenced report is also included as a new electronic attachment to the RADWP.

11. Statements in Section 4.2.7 and Section 5.2.2 which specified that the sediment basin in the northeastern portion of the Site would be lined during its initial construction have been removed. The pond will be installed initially as a temporary sediment basin, and later it will be lined and converted to a permanent stormwater management wet pond. Due to the presence of the perched groundwater zone, and underlying clay layer, groundwater mounding from infiltration which could potentially influence the shallow groundwater zone is not expected to be significant.

12. One minor change has been incorporated into the last sentence in Section 5.1.5 (Dust Control) to clarify that immediate reporting of dust from off-site sources to the VCP project team and Air and Radiation Administration (ARA) will be required only if sustained dust is observed above the action level (3.0 mg/m^3). Momentary or anomalous readings will not require reporting to these agencies

13. The third bullet in Section 6.0 was confusing/conflating the requirements of the approved health and safety controls and has been simplified. Similar statements in Section 3.3.2 and 5.3 are clearer and have been retained. It is understood that Modified Level D Personal Protective Equipment (PPE) will be used for the entire scope of intrusive work covered by this RADWP, despite the fact that none of the individual work tasks are currently anticipated to exceed the allowable exposure duration of 55 days.

14. Wetlands have been identified on the parcel and the Erosion and Sediment Control Plans are in the process of being permitted. Section 6.0 previously stated that there were no wetlands; therefore, this section has been appropriately updated.

15. The schedule in Section 7.0 has been updated.

If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group LLC at 410-290-7775.

Respectfully submitted,
ARM Group LLC

Taylor R. Smith, P.E.
Project Engineer

T. Neil Peters, P.E.
Senior Vice President

ATTACHMENT 1

RESPONSE AND DEVELOPMENT WORK PLAN

AREA A: SUB-PARCEL A10-1
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:

ENVIROANALYTICS GROUP
1515 Des Peres Road, Suite 300
Saint Louis, Missouri 63131

Prepared By:

ARM GROUP LLC
9175 Guilford Road
Suite 310
Columbia, Maryland 21046

ARM Project No. 160443M-9

Respectfully Submitted,

Joshua M. Barna, G.I.T.
Staff Geologist

T. Neil Peters, P.E.
Senior Vice President

Revision 1 – March 16, 2020

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1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of EnviroAnalytics Group, LLC (EAG), has prepared this Response and Development Work Plan (RADWP) for a portion of the Tradepoint Atlantic property that has been designated as Area A: Sub-Parcel A10-1 (the Site). Tradepoint Atlantic submitted a letter (**Appendix A**) requesting an expedited plan review to achieve construction deadlines for the proposed development on this Site. Parcel A10 is comprised of approximately 31.7 acres of the approximately 3,100-acre former plant property. As shown on **Figure 1**, Sub-Parcel A10-1 consists of approximately 29.0 acres located within Parcel A10.

As shown on **Figure 2** and **Figure 3**, Sub-Parcel A10-1 is slated for development and occupancy as a logistics center. The logistics center will include main office and warehouse space, with areas of approximately 5,560 square feet and 548,090 square feet, respectively. Associated water lines, sanitary sewer lines, storm drains, conventional and trailer parking, access roads, and interior roads are also proposed. The planned development activities will generally include grading; construction of a 553,650 square foot building; installation of utilities; and paving of parking areas and roadways. Subsequent site-use will involve workers in the on-site building, and truck drivers entering and leaving the Site with goods. Outside of the main development area designated as Sub-Parcel A10-1, temporary construction zones (not intended for permanent occupancy) with a total area of approximately 1.0 acre within the Limit of Disturbance (LOD) will be utilized to install the facility entrance and subgrade utility connections for the project.

The conduct of any environmental assessment and cleanup activities on the Tradepoint Atlantic property, as well as any associated development, is subject to the requirements outlined in the following agreements:

Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the Maryland Department of the Environment (MDE), effective September 12, 2014; and

- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the United States Environmental Protection Agency (USEPA), effective November 25, 2014.

Sub-Parcel A10-1 is part of the acreage that was removed (Carveout Area) from inclusion in the Multimedia Consent Decree between Bethlehem Steel Corporation, the USEPA, and the MDE (effective October 8, 1997) as documented in correspondence received from USEPA on September 12, 2014. Based on this agreement, USEPA determined that no further investigation or corrective measures will be required under the terms of the Consent Decree for the Carveout Area. However, the SA reflects that the property within the Carveout Area will remain subject to the USEPA's Resource Conservation and Recovery Act (RCRA) Corrective Action authorities.

An application to enter the full Tradepoint Atlantic property (3,100 acres) into the MDE Voluntary Cleanup Program (MDE-VCP) was submitted to the MDE and delivered on June 27, 2014. The property's current and anticipated future use is Tier 3 (Industrial), and plans for the property include demolition and redevelopment over several years.

In consultation with the MDE, Tradepoint Atlantic affirms that it desires to accelerate the assessment, remediation, and redevelopment of certain sub-parcels within the larger site due to current market conditions. To that end, the MDE and Tradepoint Atlantic agree that the Controlled Hazardous Substance (CHS) Act (Section 7-222 of the Environment Article) and the CHS Response Plan (Code of Maryland Regulations (COMAR) 26.14.02) shall serve as the governing statutory and regulatory authority for completing the development activities on the Sub-Parcel A10-1 and complement the statutory requirements of the VCP (Section 7-501 of the Environment Article). Upon submission of a RADWP and completion of any remedial activities for the sub-parcel, the MDE shall issue a No Further Action Letter (NFA) upon a recordation of an Environmental Covenant describing any necessary land use controls for the specific sub-parcel. At such time that all the sub-parcels within the larger parcel have completed remedial activities, Tradepoint Atlantic shall submit to the MDE a request for issuing a Certificate of Completion (COC) as well as all pertinent information concerning completion of remedial activities conducted on the parcel. Once the VCP has completed its review of the submitted information it shall issue a COC for the entire parcel described in Tradepoint Atlantic's VCP application.

Alternatively, Tradepoint Atlantic or other entity may elect to submit an application for a specific sub-parcel and submit it to the VCP for review and acceptance. If the application is received after the cleanup and redevelopment activities described in this RADWP are implemented and a NFA is issued by the MDE pursuant to the CHS Act, the VCP shall prepare a No Further Requirements Determination for the sub-parcel.

If Tradepoint Atlantic or other entity has not carried out cleanup and redevelopment activities described in the RADWP, the cleanup and redevelopment activities may be conducted under the oversight authority of either the VCP or the CHS Act, so long as those activities comport with this RADWP.

This RADWP provides a Site description and history; summary of environmental conditions identified by the Phase I Environmental Site Assessment (ESA); summary of relevant findings and environmental conditions identified by the Parcel A10 Phase II Investigation; a human health Screening Level Risk Assessment (SLRA) conducted for the identified conditions; and any necessary engineering and/or institutional controls to facilitate the planned Sub-Parcel A10-1 development and address the impacts and potential human health exposures. These controls include work practices and applicable protocols that are submitted for approval to support the development and use of the Site. Engineering/institutional controls approved and installed for this RADWP shall be described in closure certification documentation submitted to the MDE

demonstrating that exposure pathways on the Site are addressed in a manner that protects public health and the environment.

The remaining acreage of Parcel A10 will be addressed in future work associated with completion of the obligations of the ACO and associated VCP requirements. This work will include assessments of risk and, if necessary, RADWPs to address unacceptable risks associated with future land use. As noted above, temporary construction zones with a total area of approximately 1.0 acre will be utilized to install the facility entrance and subgrade utility connections for the project outside of the sub-parcel. The temporary utility work outside of the boundary of the Site is not intended to be the basis for the issuance of a NFA or a COC, although the scope of construction is covered by this RADWP.

Figure 4 highlights the remnant areas that exist outside of the sub-parcel development boundary (i.e., the Site), but inside the investigative Parcel A10. The narrow western remnant will be addressed concurrently with the implementation of the proposed development, and will be addressed with landscaped caps or restricted using fencing to ensure there are no surface soils remaining exposed between the Site boundary and the right-of-way of the adjacent Wharf Road. The larger northern remnant will either be covered by a separate Remnant SLRA Report if this area is expected to remain undeveloped, or it will be incorporated into a RADWP for the adjacent Parcel A18 as part of a separate development project.

2.0 SITE DESCRIPTION AND HISTORY

2.1 SITE DESCRIPTION

Parcel A10 includes an area of 31.7 acres as shown on **Figure 1**. The Sub-Parcel A10-1 development project consists of 29.0 acres intended for occupancy comprising much of Parcel A10. The development will include a logistics center totaling approximately 553,650 square feet (**Figure 2** and **Figure 3**). Outside of the main development area designated as Sub-Parcel A10-1, temporary construction zones (not intended for permanent occupancy) with a total area of approximately 1.0 acre within the construction LOD will be utilized to install the facility entrance and subgrade utility connections for the project. The Site is currently zoned Manufacturing Heavy-Industrial Major (MH-IM), and is not occupied. Several small historical structures and railways remain on the Site and will be required to be demolished during the proposed development. There is no groundwater use on-site or within the surrounding Tradepoint Atlantic property.

Parcel A10 is at an elevation of approximately 12 to 20 feet above mean sea level (amsl) in most areas. Across most of the Site, elevations are fairly uniform and overland flow appears to discharge across the northern boundary of the Site toward the stormwater impoundment in Parcel A16 located beyond Warehouse Road. According to Figure B-2 of the Stormwater Pollution Prevention Plan (SWPPP) Revision 6 dated February 22, 2018, runoff waters from Parcel A10 are ultimately directed to the Humphrey Creek Wastewater Treatment Plant (HCWWTP) via the Tin Mill Canal (TMC). Surface waters which are collected and treated at the HCWWTP ultimately flow through the National Pollutant Discharge Elimination System (NPDES) permitted Outfall 014, which discharges to Bear Creek across the western boundary of the Tradepoint Atlantic property.

2.2 SITE HISTORY

From the late 1800s until 2012, the production and manufacturing of steel was conducted at Sparrows Point. Iron and steel production operations and processes at Sparrows Point included raw material handling, coke production, sinter production, iron production, steel production, and semi-finished and finished product preparation. In 1970, Sparrows Point was the largest steel facility in the United States, producing hot and cold rolled sheets, coated materials, pipes, plates, and rod and wire. The steel making operations at the facility ceased in fall 2012.

The proposed Sub-Parcel A10-1 development project occupies the majority of Parcel A10. This area of the Tradepoint Atlantic property was formerly occupied by the Nelson Box Company facility including several lumber storage buildings and sheds. Other smaller buildings and facilities associated with the steel mill (Maintenance of Way Yard, ATEC Storeroom and Shop, Office, and Repair Shop) were also present at the Site. The Nelson Box Company building structure was located directly south of the lumber storage areas. Beginning in 1921, operations at the Nelson Box Company included the production of wood pallets, cable/wire reels, and industrial

packaging products. Through the years, the Nelson Box Company expanded its operations to produce crates, corrugated products, angleboard, and slipsheets, and more recently (post 1990) metal and plastic products. All large buildings associated with lumber storage and the Nelson Box Company have been demolished, although building slabs remain. Several smaller buildings associated with the Maintenance of Way Yard (ATEC Storeroom and Shop, Office, and Repair Shop) remain intact at the Site. These existing buildings will be required to be demolished during the proposed development. Numerous rail tracks occupy the central and northern portions of the Site, and will also be required to be removed. More information regarding the specific historical activities conducted at the Site can be found in the agency-approved Phase II Investigation Work Plan for Parcel A10 (Revision 3 dated April 21, 2016).

3.0 ENVIRONMENTAL SITE ASSESSMENT RESULTS

3.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT RESULTS

A Phase I ESA was completed by Weaver Boos Consultants for the entire Sparrows Point property on May 19, 2014. Weaver Boos completed site visits of Sparrows Point from February 19 through 21, 2014, for the purpose of characterizing current conditions at the former steel plant. The Phase I ESA identified particular features across the Tradepoint Atlantic property which presented potential risks to the environment. These Recognized Environmental Conditions (RECs) included buildings and process areas where releases of hazardous substances and/or petroleum products potentially may have occurred. The Phase I ESA also relied upon findings identified during a previous visual site inspection (VSI) conducted as part of the RCRA Facility Assessment (RFA) prepared by A.T. Kearney, Inc. dated August 1993, for the purpose of identifying Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) on the property. This 1991 VSI is regularly cited in the Description of Current Conditions (DCC) Report prepared by Rust Environment and Infrastructure, dated January 1998 (included with Weaver Boos' Phase I ESA).

Weaver Boos' distinction of a REC or Non-REC was based upon the findings of the DCC Report (which was prepared when the features remained on-site in 1998) or on observations of the general area during their site visit. Weaver Boos made the determination to identify a feature as a REC based on historical information, observations during the site visit, and prior knowledge and experience with similar facilities. The following RECs were identified in Sub-Parcel A10-1:

Hazardous Materials Storage (REC 10A, Finding 240):
During the Phase I site visit by Weaver Boos, a building was observed to contain a hazardous materials storage room. The ATEC facility was formerly responsible for roll (locomotive) repairs. The identified building held several above ground storage tanks (ASTs) and containers, the condition of which could not be determined due to restricted access (building locks). An additional AST with a hazardous materials label was observed along the western exterior wall. It is unknown whether any leaks or spills occurred.

Large Historical AST (REC 10B, Finding 241):
A large circular structure appearing to be an AST surrounded by a berm was identified on historical aerial photography. Based on the size and location, it is reasonable that the AST may have contained petroleum products. The condition of the tank and berm, as well as the exact contents and spill/leak history, are unknown.

Maintenance of Way Yard UST (REC 12A, Finding 246):
The Maintenance of Way Yard located north of the ATEC facility was identified as containing a 12,000-gallon gasoline underground storage tank (UST), listed as permanently out of service. Additionally, three fuel dispensers were observed outside of a building in the yard. It is unknown

whether the dispensers were associated with the UST, or if they had underground piping which may have leaked or spilled. It is unknown whether the UST was abandoned in place or removed.

Relevant SWMUs and AOCs were also identified as located on Figure 3-1 from the DCC Report. This figure generally shows the SWMUs, AOCs, and main facility areas within the property boundaries. There were no SWMUs or AOCs identified within the Sub-Parcel A10-1 boundary.

3.2 INVESTIGATION RESULTS – SUB-PARCEL A10-1

A Phase II Investigation specific to soil and groundwater conditions was performed for the area encompassing Sub-Parcel A10-1 in accordance with the requirements outlined in the ACO as further described in the agency-approved Phase II Investigation Work Plan for Parcel A10 (Revision 3 dated April 21, 2016). All soil and groundwater samples were collected and analyzed in accordance with agency-approved protocols during the Phase II Investigation, the specific details of which can be reviewed in the agency-approved Work Plan.

The Phase II Investigation was developed to target specific features which represented a potential release of hazardous substances and/or petroleum products to the environment, including the identified RECs, as well as numerous other targets defined from former operations that would have the potential for environmental contamination. Samples were also collected at site-wide locations to ensure full coverage of the investigation area. The full analytical results and conclusions of the investigation have been presented to the agencies in the Parcel A10 Phase II Investigation Report (Revision 1 dated July 8, 2019) which was approved on August 20, 2019. This RADWP summarizes the relevant soil and groundwater findings from the Phase II Investigation with respect to the proposed development of Sub-Parcel A10-1.

3.2.1 Phase II Soil Investigation Findings

Based on the scope of development for Sub-Parcel A10-1, all 78 soil samples collected from 33 soil borings during the Parcel A10 Phase II Investigation were selected for a representative evaluation of Sub-Parcel A10-1. The 33 boring locations are shown on **Figure 5**, and the samples obtained from these borings provided relevant analytical data for discussion of on-site conditions. Note that one of the selected soil borings, A10-027-SB, is located outside Sub-Parcel A10-1; however, data from this location has been included in this data evaluation because it is very close to the development boundary and characterizes soil in the northernmost portion of the sub-parcel. As described in the Phase II Investigation Report (Revision 1 dated July 8, 2019), no soil samples were recovered from boring A10-034-SB. However, a piezometer was installed, and groundwater samples were collected at this location.

Soil samples collected during the Phase II Investigation were analyzed for the USEPA Target Compound List (TCL) semi-volatile organic compounds (SVOCs), TCL volatile organic compounds (VOCs), total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline

range organics (GRO), USEPA Target Analyte List (TAL) metals, hexavalent chromium, and cyanide. During the implementation of the Parcel A10 Work Plan, TPH-DRO/GRO analysis was required at every location, but Oil & Grease analysis was not required or completed. Shallow soil samples (0 to 1 foot bgs) were also analyzed for polychlorinated biphenyls (PCBs). The laboratory Certificates of Analysis (including Chains of Custody) and relevant Data Validation Reports (50% validated soil data) are included as electronic attachments. The Data Validation Reports contain qualifier keys for the flags assigned to individual results in the attached summary tables.

Soil sample results were screened against the Project Action Limits (PALs) established in the property-wide Quality Assurance Project Plan (QAPP) dated April 5, 2016, or based on other direct agency guidance (e.g., TPH). **Table 1** and **Table 2** provide a summary of the detected organic compounds and inorganics in the soil samples collected from the 33 soil borings at the Site. **Figure S1** through **Figure S3** present the soil sample results that exceeded the PALs among these soil borings. The PALs for relevant polynuclear aromatic hydrocarbons (PAHs) have been adjusted upward based on revised toxicity data published in the USEPA Regional Screening Level (RSL) Composite Worker Soil Table. PAL exceedances in the Phase II Investigation soil samples relevant for the proposed development project were limited to five inorganics (arsenic, lead, manganese, thallium, and vanadium), three SVOCs (benzo[a]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene), and total PCBs.

Potential evidence of non-aqueous phase liquid (NAPL) was observed at a single soil boring location (A10-006-SB). These findings and supplemental activities that were completed at this location are further discussed in Section 3.2.5. Contingency measures to address the presence of NAPL which could be encountered during construction are addressed in subsequent sections of this RADWP.

3.2.2 Phase II Groundwater Investigation Findings

Groundwater conditions were investigated in accordance with the Parcel A10 Phase II Investigation Work Plan. During this groundwater investigation, samples were obtained from 11 temporary groundwater sample collection points (piezometers) within close proximity to Sub-Parcel A10-1. One permanent well (SG06-PDM001) located slightly to the north of the proposed development area was also sampled. The 12 groundwater points which provided relevant analytical data for the proposed development project are shown on **Figure 6**. There is no direct exposure risk for future Composite Workers at the Site because there is no use of groundwater on the Tradepoint Atlantic property; however, groundwater may be encountered in the sub-parcel during some construction tasks.

The groundwater samples were analyzed for TCL-VOCs, TCL-SVOCs, TAL-dissolved metals, TPH-DRO/GRO, dissolved hexavalent chromium, and total cyanide. The laboratory Certificates of Analysis (including Chains of Custody) and relevant Data Validation Reports (50% validated

groundwater data) are included as electronic attachments. The Data Validation Reports contain qualifier keys for the flags assigned to individual results in the attached summary tables.

The Phase II Investigation groundwater results were screened against the PALs established in the property-wide QAPP dated April 5, 2016, or based on other direct agency guidance (e.g., TPH). **Table 3** and **Table 4** provide a summary of the detected organic compounds and inorganics in the groundwater samples submitted for laboratory analysis, and **Figure GW1** through **Figure GW4** present the groundwater results that exceeded the PALs. Similar to the evaluation of soil data, the PALs for relevant PAHs have been adjusted upward based on revised toxicity data published in the USEPA RSL Resident Tapwater Table. PAL exceedances in the Phase II Investigation groundwater samples collected in the vicinity of the proposed development project consisted of seven VOCs (cis-1,2-dichloroethene and 1,2-dichlorethene (total), carbon tetrachloride, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride), four SVOCs (1,1-biphenyl, 1,4-dioxane, benz[a]anthracene, and naphthalene), TPH-DRO, TPH-GRO, and seven dissolved metals (arsenic, cobalt, iron, manganese, thallium, vanadium, and hexavalent chromium).

Each groundwater collection point was also inspected for evidence of NAPL using an oil-water interface probe prior to sampling. None of the groundwater sample collection points relevant for the proposed development project showed evidence of NAPL during these checks. If groundwater is encountered during development, it will be managed to prevent exposures in accordance with the dewatering requirements outlined in Section 5.2.

Elevated vapor intrusion (VI) risks/hazards primarily attributed to groundwater concentrations of tetrachloroethene and trichloroethene were identified at several locations during the Phase II Investigation. A cumulative risk assessment of each individual sample location indicated that cumulative VI non-cancer hazards exceeded the allowable limit at locations A10-025-PZ, A10-027-PZ, and A10-034-PZ, while cumulative cancer risks exceeded the allowable limit at locations A10-025-PZ and A10-027-PZ. Based on these risk-based exceedances, the Phase II Investigation Report for Parcel A10 recommended additional delineation to further define the nature and extent of the groundwater impacts. The recommended supplemental investigation work has since been completed as described below in Section 3.2.3.

3.2.3 CVOC Groundwater Supplemental Investigation Findings

Following completion of the Parcel A10 Phase II Investigation, elevated groundwater concentrations of several chlorinated volatile organic compounds (CVOCs), in particular tetrachloroethene and trichloroethene, were identified in groundwater below the Site. A Work Plan for Characterization of CVOCs in Groundwater dated September 5, 2019 was submitted and later approved by the agencies on September 9, 2019.

A total of 21 new temporary piezometers were installed in September 2019 to provide supplemental sampling points to determine the nature and extent of groundwater containing

elevated concentrations of CVOCs throughout Parcel A10. Seven existing piezometers were also included as additional sampling points, for a total of 28 proposed sample collection locations. The piezometers were installed as co-located pairs to investigate both the shallow groundwater aquifer as well as an overlying perched zone. Five piezometers in the perched zone did not yield adequate water to collect a sample. Groundwater samples were successfully collected in October 2019 from a total of 23 piezometers and analyzed for VOCs. **Table 5** provides a summary of the detected VOCs in the groundwater samples submitted for laboratory analysis during the supplemental investigation, and **Figure 7** presents the groundwater results that exceeded the PALs.

Figure 7 also highlights (in red) the locations that were identified with exceedances of the cumulative VI cancer or non-cancer criteria. **Table 6** provides the cumulative VI evaluation, including the original groundwater data collected during the Phase II Investigation as well as the more recent data collected during the supplemental CVOC investigation. During the supplemental CVOC investigation, the three shallow piezometers which had previously been identified with VI exceedances (A10-025(S)-PZ, A10-027(S)-PZ, and A10-034(S)-PZ) were confirmed, and two additional shallow piezometers (A10-035(S)-PZ and A10-039(S)-PZ) also exhibited VI exceedances. The five shallow groundwater locations with exceedances of the VI criteria are all located along the eastern side of Parcel A10. Tetrachloroethene and trichloroethene were confirmed as the most significant CVOCs in groundwater at the Site.

The complete findings of the supplemental CVOC investigation are provided in the Supplemental Investigation Report for CVOC Impacted Groundwater in Parcel A10 dated January 6, 2020. This report has been provided as an electronic attachment to the RADWP. Overall, the potential for unacceptable VI risks/hazards within Sub-Parcel A10-1 will require the installation of a vapor barrier to mitigate the potential for intrusion of contaminant vapors into the logistics center. The details of the proposed vapor barrier are provided in Section 4.2.5.

3.2.4 Soil Gas Investigation Findings

A limited environmental investigation was completed in February 2020, which included the collection of soil gas samples from the subsurface to further evaluate subsurface conditions and assess the potential for contaminant vapors to vertically migrate into the proposed logistics center. The investigation was conducted in accordance with the Proposed A10 Soil Gas Investigation Work Plan (email correspondence) dated February 7, 2020.

Soil gas samples were proposed to be co-located with five existing piezometers that were installed inside the proposed building footprint, and three additional piezometers that yielded the highest concentrations of CVOCs along the eastern property boundary in close proximity to the proposed building. One of the soil gas samples (A10-015-SG) was shifted roughly 150 feet to the north due to active demolition occurring on the Site in the immediate vicinity of the proposed location. The soil gas samples were collected using temporary monitoring probes installed to an approximate depth of 4 to 5 feet bgs, or 1-foot above the perched water table (whichever was shallower). After

conducting leak testing in accordance with the QAPP, soil gas samples were collected over a period of 60 minutes using 1-liter stainless-steel Summa Canisters. One of the proposed soil gas samples was not successfully collected, but a total of seven samples were collected and submitted for VOCs analysis via method TO-15.

The complete findings of the soil gas investigation are provided in the Sub-Parcel A10-1 Soil Gas Investigation Report dated March 7, 2020. This report has been provided as an electronic attachment to the RADWP. While there were several VOCs detected at low concentrations in the samples, none of the detected concentrations exceeded the applicable sub-slab soil gas PALs (or updated sub-slab soil gas criteria published by MDE in May 2019) in any of the samples. Further, the screening levels specified for sub-slab soil gas are believed to be conservative since the samples in this investigation were collected from the subsurface closer to the groundwater source. Based on the sampling results, there does not appear to be a significant risk to future workers via the VI to indoor air risk pathway. The proposed vapor barrier detailed within this RADWP appears to be adequate to mitigate any residual potential VI risk to future occupants.

3.2.5 Locations of Potential Concern

As noted above, concerns related to VI risks/hazards with respect to the proposed future use of the Site will be mitigated through installation of a vapor barrier. Other locations of potential concern which are subject to special requirements could include elevated lead, PCBs, or TPH in soil. The soil data for Sub-Parcel A10-1 were evaluated to determine the presence of any such locations of potential concern including: lead concentrations above 10,000 mg/kg, PCB concentrations above 50 mg/kg, or TPH concentrations above 6,200 mg/kg. There were no soil concentrations of lead, PCBs, or TPH above the specified criteria.

Locations with physical evidence of NAPL are also considered to be locations of potential concern with respect to proposed development. None of the groundwater sample collection points included in the preceding groundwater investigations exhibited evidence of NAPL. However, during field screening of the soil cores for the original Phase II investigation, one location (A10-006-SB) had observations of physical evidence of NAPL. A screening piezometer was subsequently installed to evaluate potential mobility. Following a detection of NAPL in the initial screening piezometer, a delineation network of additional temporary NAPL screening piezometers was installed to define the impacts. Both dense and light petroleum products (DNAPL and LNAPL) were identified in the delineation network. The methods and findings of the delineation investigation are provided in the Parcel A10 NAPL Delineation Completion Report (dated January 6, 2020), which has been included as an electronic attachment to this RADWP. The combined soil boring observation logs and piezometer construction logs from the delineation network are included in the NAPL Delineation Completion Report. The locations of the NAPL screening piezometers are also shown on **Figure 7**.

Upon MDE request, samples of NAPL were collected from delineation piezometers A10-006C-PZ (black DNAPL), A10-00E-PZ (black LNAPL), and A10-006K-PZ (pale gray DNAPL) for characterization on January 3, 2020. The samples were submitted to be analyzed for VOCs, SVOCs, and PCBs, as well as Whole Oil (ASTM D3328) and Full Scan (ASTM D5739) analytical testing to establish the "fingerprint" of the NAPL and to determine the chemical constituents that are present. The results of the sampling were provided to the agencies in the NAPL Characterization Results Transmittal Letter (dated January 23, 2020), which has been included as an electronic attachment to this RADWP.

Concurrently, a Test Pitting Work Plan (dated January 17, 2020) was prepared to further characterize the extent of the NAPL and to remove impacted material. The Test Pitting Work Plan has been included as an electronic attachment to this RADWP. The plan also included the gauging, surveying, groundwater sampling, and subsequent abandonment of the NAPL screening piezometers surrounding A10-006-PZ. The Test Pitting Work Plan was subsequently approved on January 21, 2020. While implementing the Test Pitting Work Plan in late January 2020, a UST was discovered within the perimeter of the NAPL delineation area. The UST was removed on February 3, 2020 with oversight provided by an MDE Oil Control Program (OCP) inspector. Documentation of the UST removal, along with the additional field tasks outlined in the Test Pitting Work Plan, will be summarized in a forthcoming letter report which will be included as an Addendum to the RADWP. The former UST was located within the proposed building footprint and approximately 75 feet away from the edge of the building (and approximately 100 feet away from the nearest utility). Given that the NAPL impacts were delineated via piezometers and subsequently addressed by excavation and UST removal, the future risk of NAPL migration from this area appears to be minimal.

3.3 HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT

3.3.1 Analysis Process

A human health Screening Level Risk Assessment (SLRA) has been completed based on the analytical data obtained from the characterization of surface and subsurface soils. This includes the soil data obtained during the preceding Phase II Investigation (discussed in Section 3.2.1). It should be noted that processed slag aggregate sourced from the Tradepoint Atlantic property will be used as the primary fill material and pavement subbase for this project; therefore, regardless of the findings of the Composite Worker baseline assessment, Sub-Parcel A10-1 will be subject to surface engineering controls (i.e., capping) unless separate approvals are received from the MDE following appropriate laboratory testing of the slag aggregate. The SLRA was conducted to further evaluate the existing soil conditions prior to the placement of the processed slag aggregate in support of the design of any additional response measures.

The SLRA included the following evaluation process:

Identification of Exposure Units (EUs): The Composite Worker SLRA was evaluated using a single site-wide EU (designated as EU1) with an area of 29.0 acres covering the entirety of Sub-Parcel A10-1. The Construction Worker SLRA was evaluated using a slightly expanded EU (designated as EU1-EXP), covering 30.0 acres in total which includes the additional construction worker areas incorporated within the LOD to address the facility entrance and utility connections outside of the sub-parcel.

Identification of Constituents of Potential Concern (COPCs): For the project-specific SLRA, compounds that were present at concentrations at or above the USEPA RSLs set at a target cancer risk of 1E-6 or target non-cancer Hazard Quotient (HQ) of 0.1 were identified as COPCs to be included in the SLRA. A COPC screening analysis is provided in **Table 7** to identify all compounds above the relevant screening levels.

Exposure Point Concentrations (EPCs): The COPC soil datasets for the site-wide EU were divided into surface (0 to 1 foot), subsurface (>1 foot), and pooled depths for estimation of potential EPCs. Thus, there are three soil datasets associated with the EU. A statistical analysis was performed for each COPC dataset using the ProUCL software (version 5.0) developed by the USEPA to determine representative reasonable maximum exposure (RME) values for the EPC for each constituent. The RME value is typically the 95% Upper Confidence Limit (UCL) of the mean. For lead, the arithmetic mean for each depth was calculated for comparison to the Adult Lead Model (ALM)-based values, and any individual results exceeding 10,000 mg/kg would be delineated for possible excavation and removal (if applicable). For PCBs, all results equaling or exceeding 50 mg/kg would be delineated for excavation and removal (if applicable).

Risk Ratios: The surface soil EPCs, subsurface soil EPCs, and pooled soil EPCs were compared to the USEPA RSLs for the Composite Worker and to site-specific Soil Screening Levels (SSLs) for the Construction Worker based on equations derived in the USEPA Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (OSWER 9355.4-24, December 2002). Risk ratios were calculated with a cancer risk of 1E-6 and a non-cancer HQ of 1. The risk ratios for the carcinogens were summed to develop a screening level estimate of the baseline cumulative cancer risk. The risk ratios for the non-carcinogens were segregated and summed by target organ to develop a screening level estimate of the baseline cumulative non-cancer hazard.

For the Construction Worker, site-specific risk-based evaluations were completed for a range of potential exposure frequencies to determine the maximum exposure frequency for the site-wide EU that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or Hazard Index (HI) of 1 for the individual target organs. This analysis indicated that the allowable exposure frequency before additional worker protections or more detailed job safety evaluations might be needed is 55 days.

There is no potential for direct human exposure to groundwater for a Composite Worker since groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized). In the event that construction/excavation leads to a potential Construction Worker exposure to groundwater during development, health and safety plans and management procedures shall be followed to limit exposure risk.

Assessment of Lead: For lead, the arithmetic mean concentrations for surface soils, subsurface soils, and pooled soils for the site-wide EU were compared to the applicable RSL (800 mg/kg) as an initial screening. If the mean concentrations for the EU were below the applicable RSL, the EU was identified as requiring no further action for lead. If a mean concentration exceeded the RSL, the mean values were compared to calculated ALM values (ALM Version dated 6/21/2009 updated with the 5/17/2017 OLEM Directive) with inputs of 1.8 for the geometric standard deviation and a blood baseline lead level of 0.6 ug/dL. The ALM calculation generates a soil lead concentration of 2,518 mg/kg, which is the most conservative (i.e., lowest) concentration which would yield a probability of 5% of a blood lead concentration of 10 ug/dL. If the arithmetic mean concentrations for the EU were below 2,518 mg/kg, the EU was identified as requiring no further action for lead. The lead averages and ALM screening levels are presented for surface, subsurface, and pooled soils in **Table 8**. Any individual results equaling or exceeding 10,000 mg/kg of lead would warrant additional delineation for possible excavation (if applicable).

Assessment of TPH-DRO/GRO: EPCs were not calculated for TPH-DRO/GRO. Instead, the individual results were compared to the PAL set to a HQ of 1 (6,200 mg/kg). No soil samples exceeded the PAL for TPH-DRO or TPH-GRO. Potential evidence of NAPL was observed at one soil boring location (A10-006-SB). This finding and subsequent response actions at this location are further discussed in Section 3.2.5. Contingency measures to address the potential presence of NAPL which could be encountered during construction are addressed in subsequent sections of this RADWP.

Risk Characterization Approach: Generally, if the baseline risk ratio for each non-carcinogenic COPC or cumulative target organ does not exceed 1 (with the exception of lead), and the sum of the risk ratios for the carcinogenic COPCs does not exceed a cumulative cancer risk of 1E-5, then a no further action determination will be recommended. If the baseline estimate of cumulative cancer risk exceeds 1E-5 but is less than or equal to 1E-4, then capping of the EU will be considered to be an acceptable remedy for the Composite Worker. For the Construction Worker, cumulative cancer risks exceeding 1E-5, but less than or equal to 1E-4, will be mitigated via site-specific health and safety requirements. The efficacy of capping for elevated non-cancer hazard will be evaluated in terms of the magnitude of exceedance and other factors such as bioavailability of the COPC.

Due to the grading activities including cut and fill which will be implemented during development at the Site, the SLRA was evaluated to determine baseline Composite and Construction Worker exposures to surface, subsurface, and pooled data. It should be noted that processed slag aggregate sourced from the Tradepoint Atlantic property will be used as the primary fill material and pavement subbase for this project; therefore, regardless of the findings of the Composite Worker baseline assessment, Sub-Parcel A10-1 will be subject to surface engineering controls (i.e., capping) unless separate approvals are received from the MDE following appropriate laboratory testing of the slag aggregate material. The goal of the SLRA is therefore to determine whether additional response actions beyond capping may be needed due to current conditions at the Site.

The USEPA's acceptable risk range is between 1E-6 and 1E-4. If the sum of the risk ratios for carcinogens exceeds a cumulative cancer risk of 1E-4, further analysis of site conditions will be required including the consideration of toxicity reduction in any proposal for a remedy. The magnitude of any non-carcinogen HI exceedances and bioavailability of the COPC will also dictate further analysis of site conditions including consideration of toxicity reduction in any proposal for a remedy. For lead, if the ALM results indicate that the mean concentrations would present a 5% to 10% probability of a blood concentration of 10 ug/dL for the EU, then capping of the EU would be an acceptable presumptive remedy. The mean soil lead concentrations corresponding to ALM probabilities of 5% and 10% are 2,518 mg/kg, and 3,216 mg/kg, respectively. If the ALM indicates that the mean concentrations would present a >10% probability of a blood concentration of 10 ug/dL for the EU, further analysis of site conditions including toxicity reduction will be completed such that the probability would be reduced to less than 10% after toxicity reduction, but before capping.

3.3.2 Sub-Parcel A10-1 SLRA Results and Risk Characterization

Soil data were divided into three datasets (surface, subsurface, and pooled) for Sub-Parcel A10-1 to evaluate potential exposure scenarios. Due to the grading activities including cut and fill which will be implemented during development at the Site, each of these potential exposure scenarios is relevant for both the Composite and Construction Worker.

EPCs were calculated for each soil dataset (i.e., surface, subsurface, and pooled surface/subsurface) in the site-wide EU. ProUCL output tables (with computed UCLs) derived from the data for each COPC in soils are provided as electronic attachments, with computations presented and EPCs calculated for COPCs within each of the three datasets. The ProUCL input tables are also included as electronic attachments. The results were evaluated to identify any samples that may require additional assessment or special management based on the risk characterization approach. The calculated EPCs for the surface, subsurface, and pooled exposure scenarios are provided in **Table 9**. These EPCs were used for both the Composite Worker and Construction Worker risk assessments.

As indicated above, the EPCs for lead are the average (i.e., arithmetic mean) values for each dataset. A lead evaluation spreadsheet, providing the computations to determine lead averages for each dataset, is also included as an electronic attachment. The average lead concentrations are presented for each dataset in **Table 8**, which indicates that neither surface, subsurface, nor pooled soils exceeded an average lead value of 800 mg/kg. The screening criterion for lead was set at an arithmetic mean of 800 mg/kg based on the RSL, with a secondary limit of 2,518 mg/kg based on the May 2017 updated ALM developed by the USEPA (corresponding to a 5% probability of a blood lead level of 10 ug/dL). There were no locations with detections of lead above 10,000 mg/kg.

None of the detections of PCBs included in the project-specific SLRA evaluation exceeded the mandatory excavation criterion of 50 mg/kg.

Composite Worker Assessment:

Risk ratios for the estimates of potential EPCs for the Composite Worker baseline scenario prior to the placement of slag aggregate at the Site are shown in **Table 10** (surface), **Table 11** (subsurface), and **Table 12** (pooled soils). The results are summarized as follows:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Composite Worker	EU1 (29.0 acres)	Surface Soil	Dermal = 2	5E-6
		Subsurface Soil	Dermal = 2	6E-6
		Surface & Subsurface Soil	Dermal = 2	5E-6

Based on the risk ratios for Sub-Parcel A10-1, environmental capping (100% of the Site) is an acceptable remedy to be protective of future Composite Workers for the surface, subsurface, and pooled exposure scenarios. None of the carcinogenic risk estimates for the Composite Worker were greater than 1E-4. Each scenario exceeded the non-cancer HI value of 1 for the dermal system target organ (HI=2), and the proposed capping remedy will provide adequate protection. Capping and institutional controls (to maintain the integrity of the cap) are suitable measures for the protection of the future Composite Worker for both cancer risks and non-cancer hazards. The capping remedy will additionally be protective of slag aggregate which will be used as the primary fill material and pavement subbase at the Site.

Construction Worker Assessment:

According to the work schedule provided by Tradepoint Atlantic, intrusive activities which could result in potential Construction Worker exposures are expected to be limited to four primary utility installation tasks:

- Domestic Water/Fire Loop: 4 weeks (20 exposure days) estimated
- Sanitary: 2 weeks (10 exposure days) estimated
- Stormwater: 6 weeks (30 exposure days) estimated
- Pond Excavation and Grading: 4 weeks (20 exposure days) estimated

Although the anticipated work period may be subject to change (see schedule in Section 7.0), the duration of these activities is not expected to increase. Construction Worker risks were evaluated for several exposure scenarios to determine the maximum exposure frequency for the side-wide EU1-EXP (which includes the additional construction worker areas as noted above) that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or HI of 1 for any individual target organ. Risk ratios for the estimates of potential EPCs for the Construction Worker scenario using the selected duration (55 work days) are shown in **Table 13** (surface), **Table 14** (subsurface), and **Table 15** (pooled soils). The variables entered for calculation of the site-specific Construction Worker SSLs (EU area, input assumptions, and exposure frequency) are indicated as notes on the tables. The spreadsheet used for computation of the site-specific Construction Worker SSLs is included in **Appendix B**. The results are summarized as follows:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Construction Worker	EU1-EXP (30.0 acres) (55 exposure days)	Surface Soil	none	2E-7
		Subsurface Soil	none	2E-7
		Surface & Subsurface Soil	none	2E-7

Using the selected exposure duration of 55 days, the carcinogenic risks were all less than 1E-5, and none of the non-carcinogens caused a cumulative HI to exceed 1 for any target organ system. These findings are below the acceptable limits for no further action established by the agencies. This evaluation indicates that additional site-specific health and safety requirements (beyond standard Level D protection) would be required only if the allowable exposure duration of 55 days were to be exceeded for an individual worker.

While no individual activity at the Site is anticipated to exceed 55 exposure days, completion of multiple activities by the same construction team, or construction schedule changes or delays could potentially cause the allowable exposure duration to be exceeded. In such an event, Construction Worker risks would be required to be mitigated, warranting additional site-specific health and safety requirements to be protective of workers. Upgraded Personal Protective Equipment (PPE) beyond standard Level D protection will be used for the entire scope of intrusive work covered by this RADWP as a protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. The modified Level D PPE requirements which will be applied during this project, including specific PPE details, planning,

tracking/supervision, enforcement, and documentation, are outlined in the PPE Standard Operational Procedure (SOP) provided as **Appendix C**.

Institutional controls will be required to be established for the protection of future Construction Workers in the event of any future long-term development which could include intrusive activities. The anticipated institutional controls, including notification requirements, health and safety requirements, and materials management requirements, are specified in Section 5.4.

3.3.3 Evaluation of Comprehensive Environmental Response, Compensation, and Liability Act Criteria

Results from the SLRA indicate that a site-wide remedy of capping with institutional controls will be acceptable to mitigate potential current and future Composite Worker risks resulting from on-site soil conditions. The potential for unacceptable VI risks/hazards resulting from the presence of CVOCs in the groundwater will require the installation of a vapor barrier to mitigate the potential for intrusion of contaminant vapors into the logistics center.

Site-specific health and safety controls will be implemented to mitigate Construction Worker risks within the sub-parcel. This includes using modified Level D PPE. The modified Level D PPE requirements will be implemented throughout the project duration in accordance with the PPE SOP provided as **Appendix C**. Institutional controls will also be required to be established for the protection of future Construction Workers in the event of any future long-term development which could include intrusive activities.

The proposed VCP capping remedy with installation of a sub-slab vapor barrier and institutional controls was evaluated for consistency with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Threshold Criteria and the Balancing Criteria. The Threshold Criteria assess the overall protection of human health and the environment, as well as achievement of media cleanup objectives and control of sources of releases at the Site. The Balancing Criteria assess long-term effectiveness and permanence; reduction of toxicity, mobility or volume; short-term effectiveness; implementability; cost effectiveness; and community and State acceptance.

Threshold Criteria:

Protect Human Health and the Environment: The assessment against this criterion evaluates how the remedy, as a whole, protects and maintains protection of human health and the environment. This criterion is satisfied when response actions are complete. The purpose of this remedy is to provide a protective barrier between human site users and impacted materials (and sub-slab vapors), and to protect the environment by preventing surface water from contacting potentially impacted materials in place. The capping and institutional control remedy would eliminate risk to current and future industrial workers by preventing exposure to areas of the Site where processed slag aggregate has been placed

or where soil concentrations exceed a cancer risk of 1E-5 or a HI of 1. Groundwater does not present a direct human health hazard since there is no groundwater use on the property, but the sub-slab vapor barrier will prevent the intrusion of contaminant vapors from the groundwater into the logistics center. Implementation of the proposed use restrictions will address the residual risk and will also protect future workers by eliminating or controlling potential exposure pathways, thus, reducing potential intake and contact of soil/groundwater COPCs by human receptors.

Achieve Media Cleanup Objective: The assessment against this criterion describes how the remedy meets the cleanup objective, which is risk reduction, appropriate for the expected current and reasonably anticipated future land use. The objective is to protect current/future Composite Workers and Construction Workers from potential exposures to COPCs present in soil or groundwater at levels that may result in risks of adverse health effects. The proposed capping of the site and institutional controls will prevent contact with any soil or groundwater exceeding the risk-based PAL screening levels. The sub-slab vapor barrier will prevent the intrusion of contaminant vapors into the logistics center. Given the controlled access and use restrictions, the proposed remedy will attain soil and groundwater objectives. The activity use restrictions will eliminate current and future unacceptable exposures to both soil and groundwater.

Control the Source of Releases: In its RCRA Corrective Action proposed remedies, USEPA seeks to eliminate or reduce further releases of hazardous wastes or hazardous constituents that may pose a threat to human health and the environment. Controlling the sources of contamination relates to the ability of the proposed remedy to reduce or eliminate, to the maximum extent practicable, further releases. Sampling results did not indicate localized, discernible source areas associated with the soil conditions observed at the Site, with the possible exception of NAPL at one location (A10-006-SB) which has since been addressed via the removal of a UST (see Section 3.2.5). The control measures included in the proposed remedy, such as Materials Management Plan requirements and groundwater use restrictions, provide a mechanism to control and reduce potential further releases of COPCs. This is achieved by eliminating the potential for groundwater use and requiring proper planning associated with intrusive activities.

Balancing Criteria:

Long-Term Reliability and Effectiveness: The assessment against this criterion evaluates the long-term effectiveness of the remedy in maintaining protection of human health and the environment after the response objectives have been met. The primary focus of this criterion is the extent and effectiveness of the controls that may be required to manage the risk posed by slag aggregate, treatment residuals, and/or untreated wastes. The proposed capping and vapor control measures have been proven to be effective in the long-term at similar sites with similar conditions. The capping remedy will permanently contain the

slag aggregate and other potentially contaminated media in place. In order for the cap to effectively act as a barrier, regular inspections will be required to determine if erosion or cracks have formed that could expose workers to contaminated materials.

Institutional controls will be implemented to protect future Composite and Construction Workers against inadvertent contact with potentially impacted media. The anticipated institutional controls are specified in Section 5.4. The Tenant will be required to sign onto the Environmental Covenant with restriction in the NFA. The proposed remedy will maintain protection of human health and the environment over time by controlling exposures to the hazardous constituents potentially remaining in slag aggregate or existing on-site media. The long-term effectiveness is high, as use restrictions are readily implementable and easily maintained. Given the historical, heavily industrial uses of the Site and the surrounding area, including the presence of landfills, land and groundwater use restrictions are expected to continue in the long term.

Reduction of Toxicity, Mobility, or Volume of Waste: The assessment against this criterion evaluates the anticipated performance of specific technologies that a remedial action alternative may employ. The removal of the UST and associated NAPL reduced the volume and mobility of waste at the Site. The capping remedy will prevent the spread of contaminants in wind-blown dust or stormwater and will prevent infiltration through the unsaturated zone from carrying contaminants to the groundwater. Thus, the mobility of contaminants will be reduced by the capping remedy.

Short-term Effectiveness: The assessment against this criterion examines how well the proposed remedy protects human health and the environment during the construction and implementation until response objectives have been met. This criterion also includes an estimate of the time required to achieve protection for either the entire site or individual elements associated with specific site areas or threats. The risks to the Construction Worker during remedy implementation are mitigated by executing the modified Level D PPE requirements outlined in **Appendix C**. The short-term risk to site workers following these upgraded health and safety measures during implementation of the remedy will be low, leading to a high level of short-term effectiveness for protection of future site users and the environment. Short-term effectiveness in protecting on-site workers and the environment will be achieved through establishing appropriate management, construction, health and safety, and security procedures. Proper water management protocols will be implemented to prevent discharges offsite. Security and fences will be used to maintain controlled access during construction.

Implementability: The assessment against this criterion evaluates the technical and administrative feasibility, including the availability of trained and experienced personnel, materials, and equipment. Technical feasibility includes the ability to construct and operate the technology, the reliability of the technology, and the ability to effectively monitor the

technology. Administrative feasibility includes the capability of obtaining permits, meeting permit requirements, and coordinating activities of governmental agencies. The proposed capping remedy for the Composite Worker area and the installation of the proposed vapor barrier below the logistics center will use readily available, typically acceptable, and proven technologies.

Cost Effectiveness: The assessment against this criterion evaluates the capital costs, annual Operating and Maintenance (O&M) costs, and the net present value (NPV) of this remedy relative to alternatives. The capping remedy remedial costs would be incurred as part of the proposed site development, regardless of the findings of the SLRA. The estimated costs for implementation of the vapor barrier are relatively low in both the short term and long term.

State Support / Agency Acceptance: MDE has been involved throughout the Site investigation process. The proposed use restrictions included in the proposed remedy are generally recognized as commonly employed measures for long-term stewardship. Ultimately State/MDE support will be evaluated based on comments received during the public comment period.

A capping remedy with vapor barrier installation and institutional controls would satisfy the CERCLA Threshold Criteria and the Balancing Criteria and would do so in a manner that ensures reliable implementation and effectiveness.

4.0 PROPOSED SITE DEVELOPMENT PLAN

Tradepoint Atlantic is proposing to construct a logistics center totaling approximately 553,650 square feet on Sub-Parcel A10-1. The proposed development will include permanent improvements on approximately 29.0 acres of land intended for occupancy within Parcel A10. The proposed future use of Sub-Parcel A10-1 is Tier 3 – Industrial. The remainder of Parcel A10 will be addressed in separate development plans in accordance with the requirements of the ACO that will include RADWPs, if necessary. Outside of the main development area, temporary construction zones with a total area of approximately 1.0 acre will be utilized to install the facility entrance and subgrade utility connections for the project. The temporary utility work outside of the boundary of the Site is not intended to be the basis for the issuance of a NFA or a COC, although the scope of construction work is covered by this RADWP. The Site (29.0 acres encompassing Sub-Parcel A10-1; excluding the temporary construction zones) will be fully capped by surface engineering controls.

Certain compounds are present in the soils located near the surface and in the subsurface at concentrations in excess of the PALs. Therefore, soil is considered a potential media of concern. Potential risks to future adult workers associated with impacts to soil and groundwater exceeding the PALs will be addressed through a remedy consisting of surface engineering controls (capping of the entire area with the installation of a vapor barrier) and institutional controls (deed restrictions). The development plan provides for a containment remedy and institutional controls that will mitigate future adult workers from contacting impacted soil at the Site. In addition, Tradepoint Atlantic has proposed the use of processed slag aggregate as the primary fill material and pavement subbase at the Site. The placement of materials other than approved clean fill, including slag aggregate, requires the installation of surface engineering controls regardless of the existing soil conditions. The potential for unacceptable VI risks/hazards resulting from the presence of CVOCs in the groundwater will require the installation of a vapor barrier to mitigate the potential for intrusion of contaminant vapors into the logistics center.

Future Construction Workers may contact impacted surface and/or subsurface soil during earth movement activities associated with construction activities, including within the temporary construction zones outside of the primary development area. The findings of the Construction Worker SLRA indicated that the screening level estimates of Construction Worker cancer risk for the site-specific 55-day exposure frequency was less than 1E-5 (the acceptable level for no further action) for the site-wide EU. Furthermore, no HI values above 1 were identified for any target organ using this exposure frequency.

Although the planned intrusive construction tasks are not anticipated to exceed the allowable exposure duration of 55 days, additional site-specific health and safety requirements will be implemented as a conservatism to be protective of workers. Upgraded PPE beyond standard Level D protection will be used in conjunction with the property-wide Health and Safety Plan (HASP)

for the entire scope of intrusive work covered by this RADWP as a protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. The modified Level D PPE requirements which will be applied during this project, including specific PPE details, planning, tracking/supervision, enforcement, and documentation, are outlined in the PPE SOP provided as **Appendix C**.

A restriction prohibiting the use of groundwater for any purpose at the Site will be included as an institutional control in the NFA and COC issued by the MDE, and a deed restriction prohibiting the use of groundwater will be filed. The groundwater use restriction will protect future Composite Workers from potential direct exposures. Proper water management is required to prevent unacceptable discharges or risks to Construction Workers during development. Work practices and health and safety plans governing groundwater encountered during excavation activities will provide protection for Construction Workers involved with development at the Site.

The development plan for the Site is shown on **Figure 2** and **Figure 3**, and the detailed development drawings (provided by Bohler Engineering and Merriman Pitt Anderson) are included as **Appendix D**. The process of constructing the proposed logistics center will involve the tasks listed below. As-built and regulatory documentation for the outlined tasks and procedures will be provided in a Sub-Parcel A10-1 Development Completion Report.

4.1 RESPONSE PHASE – PIEZOMETER ABANDONMENTS

As shown on **Figure 8**, all temporary groundwater sample collection points (piezometers) within Parcel A10 will be abandoned as part of this development. In accordance with standard methods, each piezometer will be gauged a final time on the abandonment date. The MDE will be notified if NAPL is detected in any piezometers which were not previously determined to be impacted. The piezometers will be properly abandoned in accordance with COMAR 26.04.04.34 through 36. **Figure 8** also shows the piezometers in the A10-006-PZ delineation network which have already been abandoned. The permanent groundwater monitoring well SG06-PDM001 will not be abandoned because it is located outside of the Sub-Parcel A10-1 LOD.

Records of all piezometer abandonments (including abandonment forms) will be included in the Development Completion Report. It is understood that the agencies will require the installation of additional permanent wells in the future following site development. A Work Plan will be submitted in the future for installation of monitoring wells at the Site. The Work Plan with the proposed locations will need to be approved by the agencies prior to implementation.

4.2 DEVELOPMENT PHASE

4.2.1 Erosion and Sediment Control Installation

Installation of erosion and sediment controls will be completed in accordance with the requirements of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control prior to any construction at the Site. Any soils which are disturbed during the installation of erosion and sediment controls will be replaced on-site below the cap.

4.2.2 Grading and Site Preparation

As indicated on the development plans in **Appendix D**, grading activities including both cut and fill will occur within the Sub-Parcel A10-1 boundary. Any material that is not suitable for compaction will be excavated and replaced with subbase material, although it is not anticipated that poor soils will be encountered. Borrow materials will be obtained from MDE-approved sources and will be documented prior to transport to the Site. Processed slag aggregate sourced from the Tradepoint Atlantic property or other materials approved by the MDE for industrial use may be used as fill, but the placement of materials other than approved clean fill will necessitate that the Site will be subject to surface engineering controls (i.e., capping). Fill sources shall be free of organic material, frozen material, or other deleterious material. In the case that there is excess material (not anticipated), the spoils will be stockpiled at a suitable location in accordance with the Materials Management Plan (MMP) for the Sparrows Point Facility (Papadopulos & Associates, et al., June 17, 2015). This work will be coordinated with MDE accordingly. No excess material will leave the 3,100-acre property without prior approval from MDE.

4.2.3 Installation of Structures and Underground Utilities

The logistics center building, parking lots, and other infrastructure associated with the development of Sub-Parcel A10-1 will be installed as shown on the development plans in **Appendix D**. Soils relocated or removed during construction may be replaced on-site below the cap, but soil removed from utility trenches cannot be used as fill within the utility trenches unless such materials are approved for this use by the VCP. Additional protocols for the installation of utilities at the Site are provided in Section 5.1.2. Any water removed will be sampled (if necessary) as described in Section 5.2 and (if acceptable) sent to the on-site HCWWTP.

4.2.4 Floor Slabs and Paving

Much of the Site will be covered with floor slabs or paving as indicated in the development plans provided in **Appendix D**. The paved areas will receive a layer of subbase material which will consist of compacted aggregate base, which may include processed slag aggregate sourced from the Tradepoint Atlantic property. The placement of processed slag aggregate or materials other than MDE-approved clean fill will necessitate that the Site will be subject to surface engineering controls (i.e., capping).

The required minimum thicknesses of all site-wide pavement sections which will serve as surface engineering controls are shown in the minimum capping section details provided in **Appendix E**. According to the development plans, all paved areas at the Site will be installed with a minimum of 4 inches of compacted aggregate base and a minimum of 4 inches of overlying pavement surface (asphalt or concrete), which meet these required minimum thicknesses.

4.2.5 Sub-Slab Vapor Barrier

As noted earlier, a sub-slab vapor barrier will be installed below the concrete floor slab of the logistics center to prevent the intrusion of VOC vapors to indoor air. The installation of the vapor barrier will address the potential for unacceptable VI risks/hazards resulting from the presence of CVOCs in the groundwater.

The vapor barrier will consist of a Drago® Wrap vapor barrier membrane that has been proven to be effective for similar applications. The barrier will be chemically resistant to the anticipated CVOC vapor concentrations, and will be sealed at all penetrations, seams, and edges. The manufacturer's information and seaming details for the selected Drago® Wrap vapor barrier are presented in **Appendix F**. Installation methods for the vapor barrier, including methods for ensuring the seams and any penetrations are sealed properly are included in **Appendix F** (see "Installation Instructions"). Detailed installation specifications have also been developed and are included in **Appendix F**. The manufacturer's recommended methods for sealing any seams or surface penetrations generally include overlapping pieces of the Drago® Wrap and then sealing with Drago® Tape or Drago® Sealant.

The MDE must be notified prior to the installation of the Drago® Wrap vapor barrier on-site. Sufficient time must be provided to allow for an MDE site visit and observation of the installation. The installation of the Drago® Wrap vapor barrier will be performed by a construction crew that will be trained for the installation by a certified technician or engineer from Stego® Industries (the manufacturer). The certified technician or engineer will review representative portions of the Drago® Wrap vapor barrier prior to concrete placement, and daily oversight during installation will be provided by the Environmental Professional (EP) providing oversight on the project. Following installation of the vapor barrier, and prior to concrete placement, a smoke test will be performed to confirm that the barrier is properly sealed at all penetrations, seams, and edges. The MDE must be notified prior to conducting the smoke test, with sufficient time to allow for the MDE to be present on-site during the smoke test. The EP will also provide oversight during the smoke test to document the results.

Alternate vapor barrier materials may be used in place of the Drago® Wrap if approved in advance by the EP, MDE, and USEPA, and if documentation is provided to demonstrate that the proposed alternative barrier material is equal to or better than the specified material with respect to chemical compatibility and its ability to prevent cross-migration of CVOC vapors.

A sampling program has been developed to ensure sub-slab soil gas and indoor air are monitored following the installation of the vapor barrier (see Section 5.5). The approximate locations of the proposed sub-slab soil gas monitoring points and co-located indoor air monitoring points are shown on **Figure 9**. Minor adjustments to the final locations of the monitoring points may be necessary following construction based on the final interior layout of the logistics center.

For the installation of each sub-slab monitoring point, a 6-inch diameter pilot-hole will be drilled through the concrete floor. The vapor barrier (below the concrete slab) will be carefully cut and peeled back to gain access to the subsurface. A hammer drill or hand auger will be used to create a shallow borehole that extends through the subgrade to a depth of 8 to 12 inches below the bottom of the floor slab. A 6-inch soil gas implant, constructed of double woven stainless-steel wire screen, will be attached to an appropriate length of polyethylene tubing and lowered to the bottom of the borehole. Once the implant and tubing are installed, the tubing will be capped with a three-way valve, and clean sand will be added around the implant to create a permeable layer that extends at least 2 inches above the implant. Bentonite will be added and hydrated to create a seal above the sand pack that extends to the vapor barrier, which will then be folded back into place prior to adding additional hydrated bentonite. Additional bentonite will be added until it is within the pilot-hole at least 2 inches above the vapor barrier. Concrete will be used to seal the hole to the surface and secure the surface completion.

4.2.6 Landscaping

The areas marked as "Proposed Area to be Landscaped" on the development plans (**Appendix D**) will be covered by landscaped caps. Additionally, any non-designated areas within the Site boundary will be required to be capped (most likely with landscaped caps). The western remnant shown on **Figure 4**, which is outside the formal development boundary but within the investigative Parcel A10, will also be capped with landscaped caps or restricted using fencing to ensure there are no surface soils remaining exposed between the Site boundary and the right-of-way of the adjacent Wharf Road.

The required minimum thicknesses of all site-wide landscaping sections which will serve as surface engineering controls are shown in the minimum capping section details provided in **Appendix E**. According to the development plans, all landscaped areas at the Site will be installed with a minimum of 6 inches of clean topsoil overlying 18 inches of clean fill, with an underlying geotextile marker fabric between the clean fill and the existing underlying material. The proposed landscape sections for the Site meet the minimum capping requirements.

4.2.7 Stormwater Management

The proposed stormwater utility layout for the Site is provided on the development plan drawings in **Appendix D**. New stormwater infrastructure will be installed throughout the Site, and will connect to existing subgrade stormwater utilities. The stormwater infrastructure will include one

new stormwater pond in the northeastern portion of the Site, and a microbioretention facility in the southeastern corner of the Site. The required minimum thicknesses of all pond sections which will serve as surface engineering controls are shown in the minimum capping section details provided in **Appendix E**. The stormwater pond and microbioretention facility will be installed with an impermeable PVC liner between the existing soil (or fill) and overlying clean material.

The stormwater pond will initially be installed as a temporary sediment basin during construction, and later converted to a permanent stormwater management wet pond. Accumulated water in the sediment basin may be pumped or otherwise conveyed via the proposed pond outlet structure to the discharge locations identified in Section 5.2.

As shown on the grading plan (**Appendix D** and **Figure 2**), the anticipated bottom of the stormwater pond is at elevation 9 feet amsl and the ground surface surrounding the pond will be at elevation 15 feet amsl, indicating that the depth of the pond will be roughly 6 feet. The existing grade in this area is at approximately 12 feet amsl. The bottom of the microbioretention facility is at elevation 16 feet amsl, with a surrounding ground surface elevation of 18 feet amsl, indicating that the depth of the microbioretention facility will be roughly 2 feet (the planting media and underlying stone will occupy an additional 5 to 6 feet as shown on the detail in **Appendix D**). The existing grade in this area is at approximately 17 feet amsl.

Based on the known potentiometric surface of the shallow groundwater aquifer (which is impacted with CVOCs), the bottom elevations of the stormwater pond and microbioretention facility will be above the shallow groundwater. Therefore, it is not anticipated that the PVC liner will encounter groundwater that is significantly impacted with CVOCs, and an alternative liner material is not warranted. As shown on **Figure 10** and **Figure 11**, the groundwater elevations underlying the stormwater pond for the perched and shallow groundwater zones are at roughly 6 feet amsl (3 feet below the pond bottom) and 4 feet amsl (5 feet below the pond bottom), respectively. The groundwater elevations underlying the microbioretention facility for the perched and shallow groundwater zones are at roughly 16 to 17 feet amsl (roughly equal to the pond surface and within the planting media and underlying stone) and 5 to 6 feet amsl (10 feet below the pond surface), respectively. The perched groundwater zone is expected to be further depressed by the surface cap proposed in this development plan which will restrict infiltration.

Tradepoint Atlantic is currently working with the MDE Industrial & General Permits Division to renew the property-wide NPDES permit. The stormwater management systems for each parcel are reviewed and approved by Baltimore County for each individual development project. A full plan for the property will be designed once more parcels have been completed and there is a greater understanding of how the overall property will be developed. The agencies will be copied when the management plan is submitted.

5.0 DEVELOPMENT IMPLEMENTATION PROTOCOLS

5.1 DEVELOPMENT PHASE

This plan presents protocols for the handling of soils and fill materials in association with the development of Sub-Parcel A10-1. In particular, this plan highlights the minimum standards for construction practices and managing potentially contaminated materials to reduce potential risks to workers and the environment.

Several exceedances of the PALs were identified in soil samples across the Site. The PALs are set based on USEPA's RSLs for industrial soils, or other direct guidance from the MDE. Because PAL exceedances can present potential risks to human health and the environment at certain concentrations, this plan presents material management and other protocols to be followed during the work to adequately mitigate such potential risks for material remaining on-site during the development phase. There were no locations within the proposed development boundary with soil exceedances of the special management criteria for PCBs (50 mg/kg), lead (10,000 mg/kg) or TPH-DRO/GRO (6,200 mg/kg). NAPL was identified in the soil core at A10-006-SB as part of the A10 Phase II Investigation, which was later delineated through piezometer installation. The soil impacts were subsequently addressed by excavation and removal of a previously unknown UST. The future risk of NAPL migration from this area appears to be minimal. No additional action is proposed in this area, but soil screening will be especially important during any excavation of existing soil in this area.

Following completion of the SLRA, the screening level estimates of Construction Worker cancer risk for the site-specific 55-day exposure frequency were less than 1E-5 (the acceptable level for no further action) for the site-wide EU. Furthermore, none of the non-cancer hazards were elevated above the HI of 1 for any exposure scenario when the schedule for intrusive construction activities was limited to this exposure duration. Although the planned intrusive construction tasks are not anticipated to exceed the allowable exposure duration of 55 days, additional site-specific health and safety requirements will be implemented as a conservatism to be protective of workers. Upgraded PPE beyond standard Level D protection will be used in conjunction with the HASP for the entire scope of intrusive work covered by this RADWP as a protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. The modified Level D PPE requirements which will be applied during this project, including specific PPE details, planning, tracking/supervision, enforcement, and documentation, are outlined in the PPE SOP provided as **Appendix C**.

Based on the characterization of surface and subsurface soils and the associated SLRA findings, surface engineering controls are an acceptable remedy to be protective of future adult Composite Workers who otherwise could potentially contact surface soil (or relocated subsurface soil) at the Site. In addition, Tradepoint Atlantic has proposed the use of processed slag aggregate as the

primary fill material and pavement subbase at the Site. The placement of materials other than approved clean fill, including slag aggregate, requires the installation of surface engineering controls (i.e., capping) regardless of the existing soil conditions. The proposed capping sections will meet the required minimum thicknesses for surface engineering controls, which are provided in **Appendix E**. The potential for unacceptable VI risks/hazards resulting from the presence of CVOCs in the groundwater will require the installation of a vapor barrier to mitigate the potential for intrusion of contaminant vapors into the logistics center.

5.1.1 Erosion/Sediment Control

Erosion and sediment controls will be installed prior to commencing work in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. The erosion and sediment controls will be approved by the MDE. In addition, the following measures will be taken to prevent contaminated soil from exiting the Site:

- Stabilized construction entrance will be placed at site entrance.
- A dry street sweeper will be used as necessary on adjacent roads, and the swept dust will be collected and properly managed.
- Accumulated sediment removed from silt fence, and sediment traps if applicable, shall be periodically removed and returned to the Site.

5.1.2 Soil Excavation and Utility Trenching

A pre-excavation meeting shall be held to address proper operating procedures for working on-site and monitoring excavations and utility trenching in potentially contaminated material. This meeting shall include the construction manager and the EP providing oversight on the project. During the meeting, the construction manager and the EP shall review the proposed excavation/trenching locations and any associated utility inverts. The construction manager will be responsible for conveying all relevant information regarding excavation/grading and/or utility work to the workers who will be involved with these activities. The Utility Excavation NAPL Contingency Plan (discussed below) must also be reviewed during the pre-excavation meeting. The HASP and PPE SOP for the project shall also be reviewed and discussed.

There was a single soil boring with potential evidence of NAPL identified during the previous Phase II Investigation (A10-006-SB). The NAPL source (previously unknown UST) was subsequently addressed via a remedial excavation. No additional action is proposed, but soil screening will be especially important during any excavation of existing soil in this area.

The EP will provide oversight of soil excavation/trenching activities as described in Section 5.6. Soil excavation/trenching will occur during various phases of construction. In general, and based on the existing sampling information, all excavated materials are expected to be suitable for replacement on the Site. However, the EP will monitor the soil excavation activities for signs of

significantly contaminated material which may not be suitable for reuse (as described below). The EP will also be responsible for monitoring organic vapor concentrations in the worker breathing zone within utility trenches and excavations to determine whether any increased level of health and safety protection is required.

To the extent practical, all excavation activities should be conducted in a manner to minimize double or extra handling of materials. Any stockpiles shall be kept within the Site footprint, and in a location that is not subjected to concentrated stormwater runoff. Stockpiles shall be managed as necessary to prevent the erosion and off-site migration of stockpiled materials, and in accordance with the applicable provisions of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Soil designated for replacement on-site which does not otherwise exhibit evidence of contamination (as determined by the EP) may be managed in large stockpiles (no size restriction) as long as they remain within the erosion and sediment controls.

All utility trenches will be backfilled with bedding and backfill materials approved by the MDE for industrial use. A general utility cross section is provided as **Appendix G**. Additional preventative measures will be required if evidence of petroleum contamination is encountered, to prevent the discharge to, or migration of, petroleum product along a utility conduit. Contingency measures have been developed to ensure that utilities will be constructed in a manner that will prevent the migration of any encountered NAPL, and that excavated material will be properly managed. The Utility Excavation NAPL Contingency Plan (**Appendix H**) provides protocols to be followed if NAPL is encountered during the construction activities. Preventative measures to inhibit the spread of petroleum product will be conducted in accordance with this plan.

The EP will monitor all soil excavation and utility trenching activities for signs of potential contamination. In particular, soils will be monitored with a hand-held PID for potential VOCs, and will also be visually inspected for the presence of staining, petroleum waste materials, or other indications of significant contamination. If screening of excavated materials by the EP indicates the presence of conditions of potential concern (i.e., sustained PID readings greater than 10 ppm, visual staining, unsuitable waste materials, etc.), such materials shall be segregated for additional sampling and special management.

Excavated material exhibiting evidence of significant contamination shall be placed in stockpiles (not to exceed 500 cubic yards) on polyethylene sheeting and covered with polyethylene sheeting to minimize potential exposures and erosion when not in use. Materials stockpiled due to evidence of contamination will be sampled in accordance with waste disposal requirements and transported to an appropriate permitted disposal facility. Plans for analysis of segregated soils for any use other than disposal must be submitted to the MDE for approval.

Excavated material that is visibly impacted by NAPL will be segregated and managed in accordance with the requirements specified in the Utility Excavation NAPL Contingency Plan. Excavated material with indications of possible NAPL contamination will also be containerized or

placed in a stockpile (not to exceed 500 cubic yards) on polyethylene sheeting and covered with polyethylene sheeting until the material can be analyzed for TPH/Oil & Grease and PCBs (total) to characterize the material for appropriate disposal. The MDE will be notified if such materials are encountered during excavation or utility trenching activities.

5.1.3 Soil Sampling and Disposal

Excavated materials that are determined by the EP to warrant sampling and analysis because of elevated PID readings or other indications of potential contamination shall be sampled and analyzed to determine how the materials should be managed. If excavated and stockpiled, such materials should be covered with a polyethylene tarp to minimize potential exposures and erosion. All stockpiled soil may be considered for use as fill at this Site or on other areas of the property depending on the analytical results. A sampling Work Plan including a description of the material, estimated volume, and sampling parameters will be submitted to the MDE for approval. The resulting analytical data will be submitted to the MDE to determine the suitability of the material for reuse. If the MDE determines that the materials are unsuitable for reuse, the materials will be sampled to determine if they are classified as hazardous waste.

Soil material that is determined to be a hazardous waste shall be shipped off-site in accordance with applicable regulations to an appropriate and permitted RCRA disposal facility. Soil material may be taken to an appropriate non-hazardous landfill (including Greys Landfill) for proper disposal if the concentrations of excavated sampled materials indicate that the materials are not hazardous, but still are not suitable for reuse. The quantities of all materials that require disposal, if any, will be recorded and identified in the Development Completion Report.

5.1.4 Fill

Processed slag aggregate sourced from the Tradepoint Atlantic property will be used as the primary fill material for this project. The placement of processed slag aggregate or materials other than approved clean fill will necessitate that the Site will be subject to surface engineering controls (i.e., capping). Soil excavated on the sub-parcel has been determined to be suitable for re-use at the Site below the surface engineering controls, unless such materials are determined by the EP/MDE to be unsuitable for use as outlined in Section 5.1.2 and Section 5.1.3.

All over-excavated utility trenches will be backfilled with bedding and backfill approved by the MDE for industrial use. Soil removed from utility trenches cannot be used as fill within the utility trenches unless such materials are approved for this use by the VCP. As with structural fill, processed slag aggregate and other materials approved for industrial use can be used as backfill in utility trenches if the area will be covered by a VCP cap. Any utility backfill which will extend into the cap (i.e., top 2 feet of backfill in landscaped areas) must meet the VCP clean fill requirements, and a geotextile marker fabric will be placed between the VCP clean fill and any underlying material. Materials placed in areas outside of the Site boundary (i.e., within the

temporary construction zones outside of Sub-Parcel A10-1) must meet the VCP clean fill requirements, or be otherwise approved by the MDE prior to placement. A general utility detail drawing is provided as **Appendix G**. Material imported to the Site will be screened according to MDE guidance for suitability.

5.1.5 Dust Control

General construction operations, including soil excavation and transport, and trenching for utilities will be performed at the Site. These activities are anticipated to be performed in areas of soil impacted with COPCs. Best management practices should be undertaken at the Sparrows Point property as a whole to prevent the generation of dust which could impact other areas of the property outside of the immediate work zone. To limit worker exposure to contaminants borne on dust and windblown particulates, dust monitoring will be performed in the immediate work zone and at the upwind and downwind perimeter of the Site, and dust control measures will be implemented if warranted based on the monitoring results. The action level proposed for the purpose of determining the need for dust suppression techniques (e.g. watering and/or misting) during the development activities at the Site will be 3.0 mg/m^3. The lowest of the site-specific dust action levels, OSHA PELs, and ACGIH TLV was selected as the proposed action level.

The EP will be responsible for the dust monitoring program. Air monitoring will be performed using Met One Instruments, Inc. E-Sampler dust monitors or equivalent real-time air monitoring devices. The EP will set-up dust monitoring equipment at the outset of ground intrusive work or other dust-generating activities, and continuous dust monitoring will be performed during this work. In addition to work area monitoring, a dust monitor will be placed at selected perimeter locations that will correspond to the upwind and downwind boundaries based on the prevailing wind direction predicted for that day. The prevailing wind direction will be assessed during the day, and the positions of the perimeter monitors will be adjusted if there is a substantial shift in the prevailing wind direction.

Once all dust-generating activities are complete (which may occur at a later stage of the project once ground intrusive work has been completed or after the Site has been capped), the dust monitoring program may be discontinued. If additional dust-generating activities commence, additional dust monitoring activities will be performed.

If sustained dust concentrations exceed the action level (3.0 mg/m^3) at any of the monitoring locations as a result of conditions occurring at the Site, operations will be stopped temporarily until dust suppression can be implemented. Operations may be resumed once monitoring indicates that dust concentrations are below the action level. The background dust concentration will be utilized to evaluate whether Site activities are the source of the action level exceedance. The background dust concentration will be based on measurements over a minimum of a 1-hour period at the upwind Site boundary. The upwind data will be used to calculate a time weighted average

background dust concentration. As noted above, the locations of the perimeter dust monitors may be adjusted periodically if there is a substantial shift in the prevailing wind direction.

As applicable, air monitoring will be conducted during development implementation activities to assess levels of exposure to Site workers, establish that the work zone designations are valid, and verify that respiratory protection being worn by personnel, if needed, is adequate. Concurrent with the work zone air monitoring, perimeter air monitoring will also be performed at the upwind and downwind Site boundaries to ensure contaminants are not migrating off-site. The concentration measured at the downwind perimeter shall not exceed the action level of 3.0 mg/m^3, unless caused by background dust from upwind of the Site. If exceedances of the action level are identified downwind for more than five minutes, the background dust concentration shall be evaluated to determine whether the action level exceedances are attributable to Site conditions. If on-site activities are the source of the exceedances, dust control measures and additional monitoring will be implemented. The dust suppression measures may include wetting or misting using a hose connected to a water supply or a water truck stationed at the Site.

Dust control measures will be implemented as described above to address dust generated as a result of construction activities conducted at the Site. However, based on the nature of the area and/or ongoing activities surrounding the Site, it is possible that windblown particulates may come from surrounding areas. As discussed above, the dust concentration in the upwind portion of the Site will be considered when monitoring dust levels in the work area. A pre-construction meeting will be held to discuss the potential of windblown particulates from other activities impacting the air monitoring required for this RADWP. Site contact information will be provided to address the possibility of upwind dust impacts. If sustained dust is observed above the action level (3.0 mg/m^3) and it is believed to originate from off-site (i.e., upwind) sources, this will immediately be reported to the MDE-VCP project team, as well as the MDE Air and Radiation Administration (ARA).

5.2 WATER MANAGEMENT

This plan presents the protocols for handling any groundwater or surface water that needs to be removed to facilitate construction of the proposed Sub-Parcel A10-1 development.

5.2.1 Groundwater PAL Exceedances

A total of 12 groundwater samples (as shown on **Figure 6**) were collected during the preceding Phase II Investigation from 11 temporary groundwater sample collection points (piezometers) and one permanent monitoring well within and surrounding the Site. Aqueous PAL exceedances in groundwater in the vicinity of the development LOD included both inorganic and organic compounds. The aqueous PAL exceedances obtained during the Parcel A10 Phase II Investigation are summarized on **Figure GW1** through **Figure GW4**. Additional groundwater samples were also collected from a total of 23 piezometers as part of the CVOC Supplemental Investigation, and the groundwater PAL exceedances among the supplemental VOC data are provided on **Figure 7**.

While the concentrations of PAL exceedances are not deemed to be a significant human health hazard for future Composite Workers since there is no on-site groundwater use which could lead to direct exposures, proper water management is required during construction to prevent unacceptable discharges or risks to Construction Workers.

5.2.2 **Dewatering**

Dewatering may be necessary during the installation of underground utilities and within excavations/trenches. If dewatering is required, it shall be done in accordance with all local, state, and federal regulations. Water that collects in excavations/trenches due to intrusion of groundwater, stormwater, and/or dust control waters will be transported to the HCWWTP. The water will be treated and discharged in accordance with NPDES Permit No. 90-DP-0064A; I. Special Conditions; A.4; Effluent Limitations and Monitoring Requirements.

The EP will inspect any water that collects in the excavations/trenches. If the water exhibits indications of significant contamination (sheen, odor, discoloration, presence of product), or if the excavation/trench is within a known area of significant groundwater contamination (if groundwater is the source of the intrusive water) or a significant Phase II Investigation target, the water may be sampled and analyzed for some or all of the analyses listed below. The analyses run will be dependent on the suspected source of contamination and local site conditions. It is notable that the groundwater in the shallow aquifer contains concentrations of VOCs which exceed the threshold levels for acceptable treatment at the HCWWTP (listed below). These data are shown on **Figure 7**. Therefore, any water that collects in excavations/trenches due to infiltration must be contained, pre-treated, and tested prior to discharge. The water will be treated using filter bags to remove suspended solids and carbon vessels to remove VOCs. At a minimum the water shall be analyzed for VOCs after treatment and prior to discharge. There is no specific threshold for CVOCs versus total VOCs for treatment at the HCWWTP.

The results of the analyses will be reviewed by the HCWWTP operator to determine if any wastewater treatment system adjustments are necessary. If the results of the analyses are above the threshold levels listed below, the water will be further evaluated to confirm acceptable treatment at the HCWWTP, or will be evaluated to design an appropriate pre-treatment option. Alternatively, the water may be disposed of at an appropriate off-site facility.

Analysis	**Threshold Levels**
• Total metals by USEPA Method 6020A	1,000 ppm
• PCBs by USEPA Method 8082	>Non-Detect
• SVOCs by USEPA Method 8270C	1 ppm
• VOCs by USEPA Method 8260B	1 ppm
• Oil & Grease by USEPA Method 1664	200 ppm

Following pre-treatment and testing, any water that must be sent to the HCWWTP will be pumped to the stormwater impoundment in Parcel A16 to the north (which discharges to the TMC), or otherwise pumped directly to the TMC. Water in the TMC feeds into the HCWWTP where it is treated prior to release into Bear Creek. Once the sediment basin/stormwater pond in the northeastern portion of the Site is completed (see Section 4.2.7), dewatering fluids may be discharged at this location following pre-treatment. The stormwater pond will initially be installed as a temporary sediment basin during construction, and later converted to a permanent stormwater management wet pond. Accumulated water in the sediment basin may be pumped or otherwise conveyed via the proposed pond outlet structure to the discharge locations identified above. Any water discharged directly to the impoundment in Parcel A16 or the TMC will be pumped through a filter bag or equivalent to remove suspended solids prior to discharge. Documentation of the discharge location(s) shall be provided in the Development Completion Report.

Documentation of the water testing, as well as the selected disposal option, will be reported to the MDE in the Development Completion Report. Any permits or permit modifications related to dewatering will be provided to the agencies as addenda to this RADWP.

5.3 HEALTH AND SAFETY

A property-wide HASP (**Appendix I**) has been developed and is attached to this plan to present the minimum requirements for worker health and safety protection for all development projects. All contractors working on the Site must prepare their own HASP that provides a level of protection at least as much as that provided by the attached HASP. Alternately, on-site contractors may elect to adopt the HASP provided.

General health and safety controls (level D protection) are adequate to mitigate potential risk to Construction Workers for a duration of up to 55 exposure days. While no individual activity at the Site is anticipated to exceed 55 exposure days, completion of multiple activities by the same construction team, or construction schedule changes or delays could potentially cause the allowable exposure duration to be exceeded. Modified Level D PPE will be used for the entire scope of intrusive work covered by this RADWP as an additional protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. Health and safety controls outlined in the HASP and PPE SOP will mitigate any potential risk to Construction Workers from contacting impacted soil and groundwater during development. The modified Level D PPE requirements planned for this development project, including specific PPE details, planning, tracking/supervision, enforcement, and documentation, are outlined in the PPE SOP provided as **Appendix C**. The EP will be responsible for monitoring organic vapor concentrations in the worker breathing zone within the utility trenches and excavations to determine whether any increased level of health and safety protection (including engineering controls and/or PPE) is required.

Prior to commencing work, the contractor must conduct an on-site safety meeting for all personnel. All personnel must be made aware of the HASP and the PPE SOP. Detailed safety information shall be provided to personnel who may be exposed to COPCs. Workers will be responsible for following established safety procedures to prevent contact with potentially contaminated material.

5.4 INSTITUTIONAL CONTROLS (FUTURE LAND USE CONTROLS)

Long-term conditions related to future use of the Site will be placed on the RADWP approval, NFA, and COC. These conditions are anticipated to include the following:

- A restriction prohibiting the use of groundwater for any purpose at the Site and a requirement to characterize, containerize, and properly dispose of groundwater in the event of deep excavations encountering groundwater. The entire Tradepoint Atlantic property will be subject to the groundwater use restriction.
    - Once development is complete and permanent monitoring wells are installed at the Site (see Section 4.1) a more accurate measure of groundwater elevations in the northeastern and eastern portions of the site will be available. These measurements will be used to define "deep" excavations as described above.
- Notice to the MDE at least 30 days prior to any future soil disturbances that are expected to breach the approved capping remedy (i.e., through the pavement cap or marker fabric in landscaped areas).
- Notice to the USEPA at least 30 days prior to any future soil disturbances that are expected to breach the approved capping remedy, only if the proposed duration of intrusive activity would exceed the allowable exposure duration determined in the SLRA and the contractor will not use the modified Level D PPE specified in the approved SOP.
- Requirement for a HASP in the event of any future excavations at the Site.
- Complete appropriate characterization and disposal of any material excavated at the Site in accordance with applicable local, state and federal requirements.
- Implementation of inspection procedures and maintenance of the containment remedies.

The responsible party will file the above deed restrictions as defined by the MDE-VCP in the NFA and COC. The Tenant will be required to sign onto the Environmental Covenant with restriction in the NFA. Tradepoint Atlantic will notify the Tenant of this requirement and will provide MDE with contact information for the Tenant prior to issuance of the NFA.

5.5 POST REMEDIATION REQUIREMENTS

Post remediation requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site. Deed restrictions will be recorded within 30 days after receipt of the final NFA. In addition, the MDE and USEPA will be provided with a written notice of any future excavations (as applicable) in accordance with the requirements given in Section 5.4. Written notice of planned excavation activities will include the proposed date(s) for the excavation, location of the excavation, health and safety protocols (as required), clean fill source (as required), and proposed characterization and disposal requirements.

Additional requirements will include inspection procedures and maintenance of the containment remedies to minimize degradation which could lead to future exposures. An Operations and Maintenance Plan (O&M Plan) will be submitted in the future for MDE approval. This O&M Plan will include long-term inspection and maintenance requirements for the capped areas of the Site as well as the vapor barrier. The responsible party will perform cap/barrier inspections, perform maintenance of the cap/barrier, and retain inspection records, as required by the O&M Plan. The O&M Plan must include specific requirements for the repair of any future penetrations of the vapor barrier below the floor slab.

The responsible party will also perform indoor air and/or sub-slab soil gas sampling as required. A sampling program has been developed to ensure sub-slab soil gas and indoor air are monitored following the installation of the vapor barrier. The proposed monitoring point locations are shown on **Figure 9**. Minor adjustments to the final locations of the monitoring points may be necessary following construction based on the final interior layout of the logistics center. One round of pre-occupancy sub-slab soil gas sampling will be performed using the new monitoring points following their installation. If the results of the initial round of sub-slab soil gas sampling are below the PALs, then the building will be occupied and a subsequent post-occupancy round of indoor air and sub-slab soil gas sampling will be performed between December 2020 and March 2021. If the pre-occupancy sub-slab soil gas results indicate the presence of a potentially unacceptable VI risk (i.e., exceedances of the PALs), then the subsequent round of indoor air and sub-slab soil gas sampling will be performed prior to occupancy, and any additional monitoring and/or response measures will be coordinated with the MDE and USEPA as needed.

5.6 CONSTRUCTION OVERSIGHT

Construction Oversight by an EP will ensure and document that the project is built as designed and appropriate environmental and safety protocols are followed. Upon completion, the EP will certify that the project is constructed in accordance with this RADWP.

The EP will monitor all soil excavation and utility trenching activities for signs of potential contamination that may not have been previously identified. In particular, soils will be monitored with a hand-held PID for potential VOCs, and will also be visually inspected for staining,

petroleum waste materials, or other indications of significant contamination. If screening of excavated materials by the EP indicates the presence of conditions of potential concern (i.e., sustained PID readings greater than 10 ppm, visual staining, unsuitable waste materials, etc.), such materials shall be segregated for additional sampling and special management (as described in Section 5.1.2; Soil Excavation and Utility Trenching). The EP will also perform routine periodic breathing zone monitoring and PPE spot checks during ground intrusive activities. The EP will also inspect any water that collects in the excavations/trenches on an as-needed basis to coordinate appropriate sampling prior to disposal (as described in Section 5.2.2; Dewatering).

Daily inspections, as necessary, will be performed during general site grading and cap construction activities. The EP will verify that the Drago® Wrap vapor barrier is installed in accordance with the manufacturers specifications and any seams or penetrations are sealed properly (as described in Section 4.2.5; Sub-Slab Vapor Barrier), appropriate fill materials are being used (as described in Section 5.1.4; Fill), dust monitoring and control measures are being implemented as appropriate (as described in Section 5.1.5; Dust Control), the requirements of the HASP and the PPE SOP are being enforced as applicable (as described in Section 5.3; Health and Safety), and surface engineering controls are being installed with the appropriate thicknesses (shown on the RADWP attachments). Oversight by an EP will not be required during construction activities which do not have a significant environmental component, such as above-grade building construction.

Records shall be provided by the EP to document:

- Compliance with soil screening requirements
- Proper water management, including documentation of any testing and water disposal
- Observations of construction activities during site grading and cap construction
- Proper construction of sub-slab vapor barrier
- Proper cap thickness and construction

6.0 PERMITS, NOTIFICATIONS AND CONTINGENCIES

The participant and their contractors will comply with all local, state, and federal laws and regulations by obtaining any necessary approvals and permits to conduct the activities contained herein. Any permits or permit modifications from State or local authorities will be provided as addenda to this RADWP.

A grading permit is required if the proposed grading disturbs over 5,000 square feet of surface area or over 100 cubic yards of earth. A grading permit is required for any grading activities in any watercourse, floodplain, wetland area, buffers (stream and within 100 feet of tidal water), habitat protection areas or forest buffer areas (includes forest conservation areas). Erosion and Sediment Control Plans will be submitted to, and approved by, the MDE prior to initiation of land disturbance for development.

Wetlands have been identified within the project area, so a permit will be required from the MDE Water Resources Administration. The Erosion and Sediment Control Plans are in the process of being permitted.

Contingency measures will include the following:

1. The MDE will be notified immediately of any previously undiscovered contamination, previously undiscovered storage tanks and other oil-related issues, and citations from regulatory entities related to health and safety practices.

2. Any significant change to the implementation schedule will be noted in the progress reports to MDE.

3. Modified Level D PPE will be used for the entire scope of intrusive work covered by this RADWP as a protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. The modified Level D PPE requirements which will be applied during this project are outlined in the PPE SOP provided as **Appendix C**. If it is not possible to implement the PPE SOP as provided, the agencies will be notified and a RADWP Addendum will be submitted to detail any appropriate mitigative measures.

7.0 IMPLEMENTATION SCHEDULE

Progress reports will be submitted to the MDE on a quarterly basis. Each quarterly progress report will include, at a minimum, a discussion of the following information regarding tasks completed during the specified quarter:

- Development Progress
- Dust Monitoring
- Water Management
- Soil Management (imported materials, screening, stockpiling)
- Soil Sampling and Disposal
- Notable Occurrences (if applicable)
- Additional Associated Work (if applicable)

The proposed implementation schedule is shown below:

Task	**Proposed Completion Date**
Anticipated RADWP Approval	February 28, 2020 (approved to proceed with work) March 20, 2020 (final RADWP approval)

Task	**Proposed Completion Date**
Groundwater Network Abandonments	March 17, 2020

Task	**Proposed Completion Date**
Installation of Erosion and Sediment Controls	March 2020 (start)
Slag (or Alternative Fill) Delivery and Placement	March 2020 (start)
Site Preparation/Grading – Building Pad & Parking	March 2020 (start)
Utility Installations: Domestic Water/Fire Loop (4 weeks) Sanitary (2 weeks) Stormwater (6 weeks) Pond Excavation and Grading (4 weeks)	April 2020 (start)

Construction of Building	April 2020 (start)
Installation of Pavements	July 2020 (start)
Pre-Occupancy Sub-Slab Soil Gas Monitoring	November 2020
Submittal of Development Completion Report/ Notice of Completion of Remedial Actions*	December 2020
Post-Occupancy Indoor Air & Sub-Slab Soil Gas Monitoring	December 2020 to March 2021
Request for NFA from the MDE	January 2021
Recordation of institutional controls in the land records office of Baltimore County	Within 30 days of receiving the approval of NFA from the MDE
Submit proof of recordation with Baltimore County	Upon receipt from Baltimore County

*Notice of Completion of Remedial Actions will be prepared by Professional Engineer registered in Maryland and submitted with the Development Completion Report to certify that the work is consistent with the requirements of this RADWP and the Site is suitable for occupancy and use.

FIGURES

Parcel A16

Parcel A18

Parcel A10

Parcel B7

EXPRESS PLAN

WAREHOUSE

FUTURE PRODUCTION AREA

LINE 1

OFFICE

Indoor Air Monitoring Point

Sub-Slab Soil Gas Monitoring Point

Development Boundary

Proposed Building

Additional Construction Worker Area

Parcel Boundary

ARM Group LLC
Engineers and Scientists

0 100 200 400 Feet

Sub-Parcel A10-1
Proposed Monitoring Point Locations
Sub-Slab Soil Gas and Indoor Air

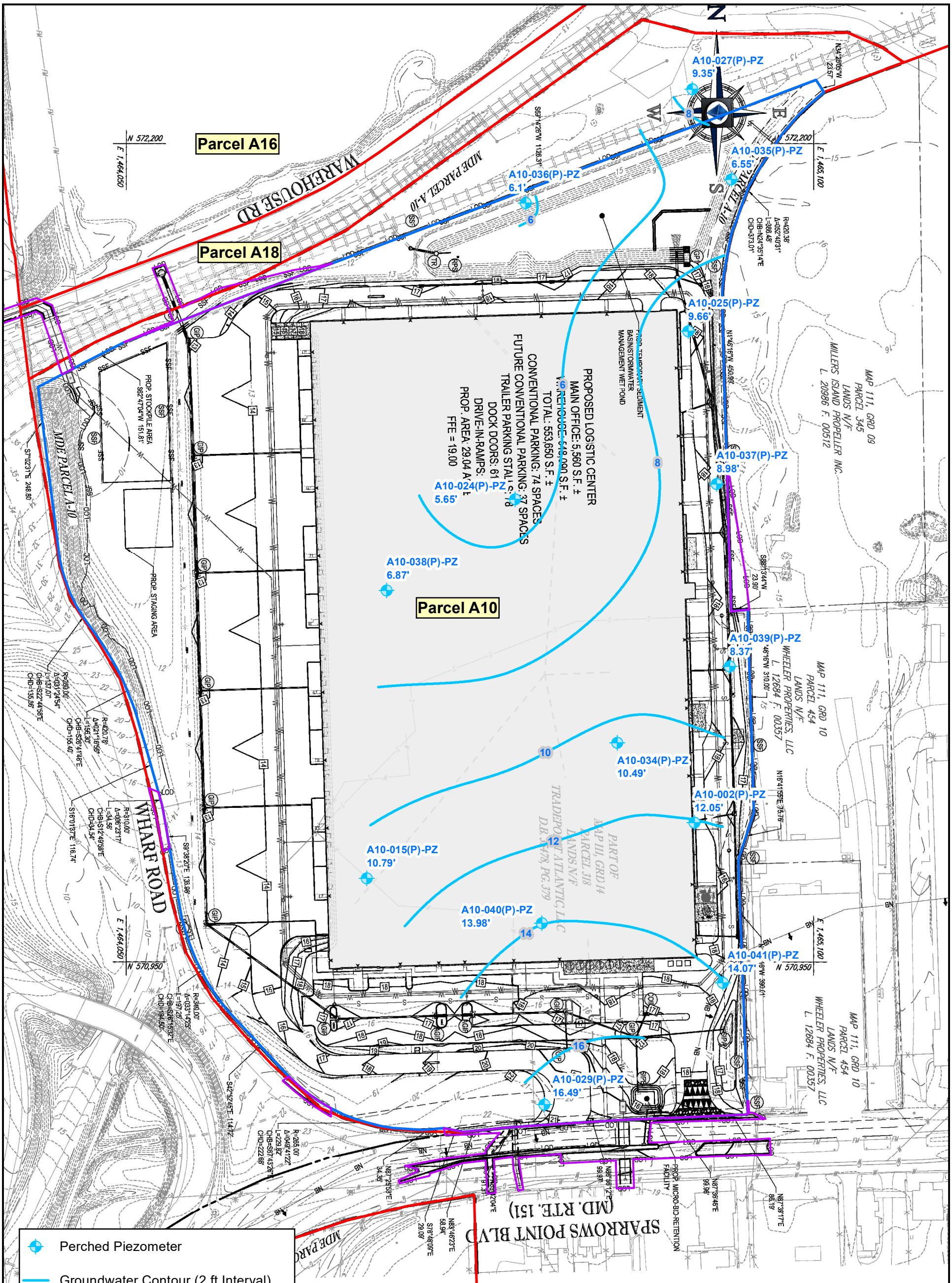
March 9, 2020

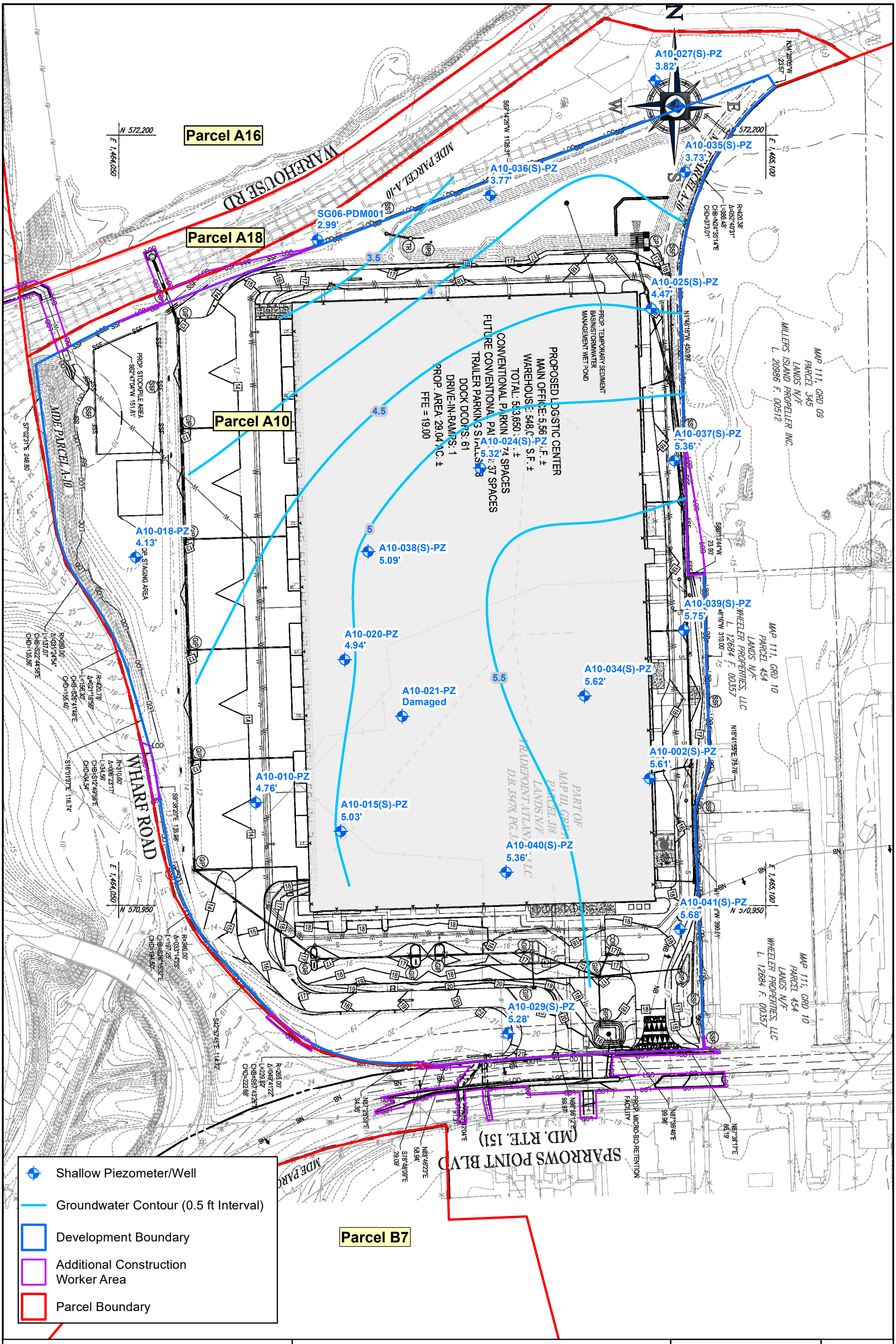
EnviroAnalytics Group
ARM Project 160443M-9

Tradepoint Atlantic
Baltimore County, MD

Figure

9


Parcel A16
Parcel A18
Parcel A10
Parcel B7
WAREHOUSE RD
WHARF ROAD
SPARROWS POINT BLVD (MD. RTE. 151)
MDE PARCEL A-10
A10-027(P)-PZ
9.35'
A10-035(P)-PZ
6.55'
A10-036(P)-PZ
6.1'
A10-025(P)-PZ
9.66'
A10-037(P)-PZ
8.98'
A10-024(P)-PZ
5.65'
A10-038(P)-PZ
6.87'
A10-039(P)-PZ
8.37'
A10-034(P)-PZ
10.49'
A10-002(P)-PZ
12.05'
A10-015(P)-PZ
10.79'
A10-040(P)-PZ
13.98'
A10-041(P)-PZ
14.07'
A10-029(P)-PZ
16.49'
PROPOSED LOGISTIC CENTER
MAIN OFFICE: 5,560 S.F. ±
WAREHOUSE: 548,090 S.F. ±
TOTAL: 553,650 S.F. ±
CONVENTIONAL PARKING: 74 SPACES
FUTURE CONVENTIONAL PARKING: 37 SPACES
TRAILER PARKING STALLS: 178
DOCK DOORS: 61
DRIVE-IN-RAMPS:
PROP. AREA: 29.04 A'± ±
FFE = 19.00
PROP. TEMPORARY SEDIMENT BASIN/STORMWATER MANAGEMENT WET POND
PROP. STAGING AREA
PROP. STOCKPILE AREA
PROP. MICRO-BIO-RETENTION FACILITY
MILLERS ISLAND PROPELLER INC. L. 20986 F. 00512 MAP 111, GRD 09 PARCEL 345 LANDS N/F
WHEELER PROPERTIES, LLC L. 12684 F. 00357 MAP 111, GRD 10 PARCEL 454 LANDS N/F
TRADEPOINT ATLANTIC, LLC D.B. 5478, PG. 379 PART OF MAP 111, GRD14 PARCEL 318 LANDS N/F
N 572,200
E 1,464,050
E 1,465,100
N 570,950
Perched Piezometer
Groundwater Contour (2 ft Interval)
Development Boundary
Additional Construction Worker Area
Parcel Boundary
0
100
200
400
Feet
ARM Group LLC
Engineers and Scientists
Sub-Parcel A10-1
Perched Groundwater Contour Map (ft amsl)
Grading Plan
March 9, 2020
EnviroAnalytics Group
ARM Project 160443M-9
Tradepoint Atlantic
Baltimore County, MD
Figure
10



ARM Group LLC
Engineers and Scientists

Sub-Parcel A10-1
Shallow Groundwater Contour Map (ft amsl)
Grading Plan

March 9, 2020

EnviroAnalytics Group
ARM Project 160443M-9

Tradepoint Atlantic
Baltimore County, MD

Figure
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