RESPONSE ACTION PLAN

HYDE FIELD RESIDENTIAL PROPERTY
PORTIONS OF 10651 AND 10625 PISCATAWAY ROAD AND 4401 STEED ROAD
CLINTON, MARYLAND 20735

ECS PROJECT NO. 47:11866-H

FOR

MARYLAND DEPARTMENT OF THE ENVIRONMENT

JANUARY 10, 2024

January 10, 2024

Ms. Ronnie Anderson
Land and Materials Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230-1719

ECS Project No. 47:11866-H

Reference: Response Action Plan
Hyde Field Residential Property
Portions of 10651 and 10625 Piscataway Road and 4401 Steed Road
Clinton, Maryland 20735

Dear Ms. Anderson:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide you with this Response Action Plan (RAP) for the referenced property as part of the Maryland Department of the Environment (MDE) Voluntary Cleanup Program (VCP). The following document provides proposed remedial strategies for the site.

If you have any questions, please contact us at (410) 859-4300.

Respectfully submitted,

ECS Mid-Atlantic, LLC

Stephen T. Dessel
Environmental Senior Project Manager

Michael M. Bell, CHMM
Environmental Principal

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1.0 SITE OVERVIEW

On March 13, 2023, a Maryland Department of Environment (MDE) Voluntary Cleanup Program (VCP) application was submitted for the approximately 130.5-acre Hyde Field Residential Property. The application was subsequently accepted for participation in the VCP on November 8, 2023.

The proposed 130.5-acre Hyde Field Residential Property site is located on portions of 10651 and 10625 Piscataway Road and 4401 Steed Road, Clinton, Maryland 20735 and is hereby referenced as the "subject site" or "subject property". The current VCP Applicant is known as Hyde Field Acquisition LLC. At the request of Hyde Field Acquisition LLC (Client), ECS Mid-Atlantic, LLC (ECS) has prepared this Response Action Plan (RAP) for the subject site. This RAP has been prepared to allow for residential land use (Tier 1B, Residential) at the site upon completion of construction and officiated response actions.

1.1 Site Description

The site is located on located on portions of 10651 and 10625 Piscataway Road and 4401 Steed Road, Clinton, Maryland 20735 and is further identified as tax parcel numbers 05-0327833, 05-0328708, and 05-0360651.

The subject site encompasses a total of approximately 130.5 acres. The subject property is developed with the Washington Executive Airpark/Hyde Field. The subject site is developed with a primary office structure, an out-of-use former office structure, aircraft repair areas, several leasable aircraft storage hangars, a runway, and an aircraft refueling area. The onsite structures were reported to utilize municipally supplied potable water and on-site septic systems. The primary office structure was heated with heating oil stored in a 275-gallon aboveground storage tank (AST).

The subject property is located in a commercial/residential area of Clinton, Maryland. The subject property is bound to the north by undeveloped/wooded land that is part of larger Washington Executive Airpark/Hyde Field (i.e., the "parent property"). The subject property is bound on the northwest by undeveloped wooded/farmland and single-family residential development, on the northeast by a utility corridor and single-family residential development, on the southwest by the Piscataway Riding Stables and vehicle storage lots, and on the southeast by Piscataway Road, beyond which Miller Farms, Vision Christian Store, St. Job Baptist Church, and single-family residential development.

A site vicinity map, topographic map, and site features map are included as Figures 1, 2 and 3, respectively. A map showing the proposed residential site layout is included as Figure 4.

1.2 Site History

According to the Phase I Environmental Site Assessment (ESA) prepared by ECS dated November 17, 2022, it appears that the subject property and parent property were developed with sparse single-family dwellings as early as 1900 as well as agricultural land. By 1944, the subject site was partially developed with an airport, consisting of two runways and associated structures. Additional airfield support structures were depicted at the site over time. Circa 1993, surface mines were visible at the subject property and parent property, and by 1998 mine reclamation appeared to have begun. From 1998 to the time of site reconnaissance, reclamation fill materials were depicted on the northern portion of the subject property and in various areas of the parent property. By 1998, one of the two runways associated with the on-site airport appeared to have been removed from the site as part of these activities. The runway that was removed was known as the “north runway”.

1.3 Proposed Development

Proposed development of the subject site includes the demolition and removal of the current onsite structures as well as the construction of a residential community. The residential community will include single-family and townhome structures as well as a network of utilities, roadways, and residential amenities. The proposed use of the site is Tier 1 restricted use residential.

1.4 Physical Setting and Hydrogeology

As determined from the 7.5-minute USGS Topographic Map of the Anacostia, DC and Piscataway, MD Quadrangles, dated 2019, the site elevation is approximately 230 feet above mean sea level (MSL). No surface water bodies were observed on the subject property.

The subject site is located along the Coastal Plain Physiographic Province. The soils encountered in this area are generally from historical depositional events. In general, shallow unconfined groundwater movement within the overlying soils is controlled largely by topographic gradients. However, as the groundwater percolates downward, it becomes controlled by the subsurface geologic conditions. Thus, the direction of groundwater movement in the deeper aquifers may not be consistent with the reflecting topography.

Surface waters primarily recharge shallow aquifers by infiltration along higher elevations. Once in the shallow aquifer, the groundwater typically discharges into streams or other surface water bodies at lower elevations. The depth of the shallow water table is transient and can vary with seasonal fluctuations in precipitation. Groundwater movement in the shallow aquifer is generally from higher to lower elevations. As such, shallow groundwater is expected to flow generally to the northwest and southeast on different portions of the property towards the stream on the parent property.

2.0 SUMMARY OF PREVIOUS REPORTS AND SITE ASSESSMENTS

The results of previous environmental assessments were submitted to the MDE as part of the VCP application and are summarized below. It should be noted that several of the reports summarized below encompass both the subject property and the parent property, including all of Washington Executive Airpark/Hyde Field. The discussion below will focus only on the findings for the 130.5-acre subject site that is slated for residential development. A summary of the onsite sample data and sample locations is provided in Attachment A.

April 14, 1994 – PMT & Associates, Inc. Phase I ESA Update

The Phase I ESA Update report discusses surface mining activities on portions of the subject site as well as the parent property, including dumping of trash and debris at the end of the old north runway. According to the report, Clinton Air Maintenance had a used oil heater for their shop, and Eastern Petroleum began to service the airport for the recycling of used oil generated elsewhere at the airport..

March 20, 2006 – GTA Report of Phase I and Limited Phase II Environmental Site Assessment

GTA completed a Phase I and Limited Phase II ESA for the entire Washington Executive Airpark/Hyde Field (i.e., the parent property) on March 20, 2006. The Phase I ESA identified seven (7) areas of concern (AOCs) on the parent property. All of these AOCs were located onsite or on a portion of the subject property. The AOCs identified in the GTA Phase I are outlined below.

- AOC #1 and #2: Airplane and equipment maintenance has historically occurred at maintenance buildings located on the southern and central portions of the site.
- AOC #3: Several petroleum aboveground storage tanks (ASTs) and various containers of petroleum and chemical compounds were identified onsite. The majority of these ASTs and other containers were in generally good condition; however, some apparent spillage and/or leakage were observed adjacent to some ASTs.
- AOC #4 and #5: Three aviation fuel underground storage tanks (USTs) (AOC #4) and two heating oil USTs (AOC #5) were reportedly removed from the eastern portion of the site between 1995 and 2002 under Maryland Department of the Environment (MDE) supervision. Confirmatory samples collected from the UST excavations reported that petroleum impacted soil remained that was slightly above the MDE Residential Cleanup Standards (RCSs). In addition, product piping associated with the aviation fuel USTs reportedly remained on-site. Samples collected from a groundwater monitoring well that was reportedly installed after the removal of the heating oil USTs reportedly contained detectable petroleum contaminants during an initial sampling round. During a second sampling round, the well sample reportedly contained 1.1 parts per billion (ppb) of toluene but no other

detectable petroleum contaminants. The MDE cases associated with all of these USTs reportedly received regulatory closure.

- AOC #6: An additional UST was reportedly removed from the central portion of the site; however, no documentation regarding its removal was available to GTA.
- AOC#7: Surface mine reclamation activities reportedly occurred on the northern and western portions of the subject property, and reclamation activities were ongoing on the central and northern portions of the parent property. ECS notes that some of these surface mine reclamation activities were on the subject property, while others were off-site on the parent property.

GTA collected two near-surface soil samples within AOC #3 for laboratory analysis of total petroleum hydrocarbons (TPH) diesel range organics (DRO) and TPH gasoline range organics (GRO). Laboratory analytical results indicated TPH concentrations above the MDE RCSs.

GTA also advanced soil borings and collected groundwater samples proximate to AOCs #1, #2, #4, and #5. Laboratory analytical results indicated one soil sample from AOC #5 contained TPH above the RCS and one groundwater sample from AOC #4 contained TPH above the MDE Groundwater Cleanup Standard (GCS). No other laboratory analytical results exceeded their respective MDE cleanup standards.

GTA performed several test pits within and adjacent to reported fill areas on the subject property and the parent property (AOC #7). Laboratory analytical results did not indicate levels of TPH DRO or TPH GRO above their respective RCSs, and metal concentrations appeared to be generally consistent with naturally occurring concentrations.

The GTA Phase I ESA revealed no evidence of recognized environmental conditions (RECs) in connection with the subject property, except for the following:

- GTA encountered petroleum contamination adjacent to AOC #2. GTA recommended that additional soil and groundwater evaluation be conducted in this area.
- GTA encountered elevated levels of petroleum contamination in association with AOC #3. GTA recommended that these areas be further evaluated for soil impacts. Remnant piping from AOC #4 remained in place on the site. GTA recommended that this piping be removed, and an environmental evaluation be performed during the removal.
- GTA noted that various remedial actions had been performed on the site, and some areas of residual contamination had been identified; however, the MDE had not required further remedial action in these areas. GTA stated that if buried wastes, USTs, or contaminated media are encountered during future site activities, such materials should be removed and properly managed, and

an environmental evaluation of the area should be performed. Per MDE closure documents, such conditions, if encountered, should also be reported to the MDE.
- GTA recommended that their client request updated "Notice of Compliance" letters from the MDE for the on-site Leaking Underground Storage Tank (LUST) Cases.

ECS notes that GTA identified other RECs on the parent property, but only those RECs pertaining to the subject property are outlined above.

August 8, 2008 – GTA Limited Phase II Environmental Site Assessment

GTA performed a Limited Phase II ESA, dated August 8, 2008, that included a geophysical survey, test pitting, and soil borings, with soil and groundwater samples collected throughout the subject property and parent property. The following summarizes the laboratory analytical results and GTA's conclusions and recommendations for each AOC in the subject property:

- AOC #2: Results of the laboratory analysis from soil samples associated with AOC #2 reported concentrations of contaminants of potential concern below the MDE's Nonresidential Cleanup Standards (NRCSs) in the samples analyzed.
- AOC #3: GTA initially planned to excavate test pits in the general location of the reported ASTs and associated areas of spillage and leakage. However, GTA stated that no ASTs with visible spillage or leakage were identified in the area of AOC #3 on the date of site reconnaissance (July 8, 2008).
- AOC #4 and #5: GTA performed test pit excavations and groundwater sampling in the area of AOC #4 and #5. GTA did not record elevated photoionization detector (PID) readings above 50 ppm, nor were stained soil or unusual odors observed in association with the test pit excavations. The groundwater laboratory analytical results for the three downgradient/cross-gradient groundwater sample locations were below the laboratory's reporting limit for the compounds analyzed.

July 3, 2012 – ECS Phase I Environmental Site Assessment

ECS previously completed a Phase I ESA of the parent property, dated July 3, 2012 (ECS Project No. 02-6295). At the time of the report's completion, the subject site property was occupied by an airfield, airplane maintenance facilities, hangers, flight classrooms, and dwellings, and portions of the site were reclaimed from mining activities. The report indicated that the site utilized public water and septic systems; however, out-of-use private water wells were reportedly located at the site. Although RECs were identified that were associated with the parent property, only the RECs associated with the subject property are outlined below. The following RECs were identified:

- A suspect historic UST was identified to the northwest of Hangar #18. A previous geophysical survey also detected a subsurface anomaly with dimensions consistent with that of a UST to the west of the on-site airplane maintenance hangars.
- A leaking drum was observed to the northwest of the metal walled hangar located to the northwest of Gilley's Aviation.
- The on-site structures reportedly utilized septic systems and a potable water supply well. Additional drainpipes with unknown discharge points were observed southeast of Hangar #23 and #31. The potential discharge of hazardous materials and/or petroleum products through these pathways, including from the on-site Clinton Aero Maintenance, was identified as an REC.
- An AST with petroleum staining was observed to the southeast of Hangar #26.

The following historical recognized environmental conditions (HRECs) were identified on the subject property:

- USTs and leaking USTs were historically located at the site. The MDE provided oversight for UST removals as well as remedial actions and monitoring. Based on the results, the MDE closed the on-site LUST cases. However, according to the MDE, residual petroleum impacts may exist at the site at the former tank locations.
- Complaints of material dumping at the intersection of Steed Road and Piscataway Road (ERNS Case # NRC-87521) were documented. Subsequent assessment of fill material on-site "did not identify any environmental concerns associated with the fill and the case was closed."
- An area of waste oil dumping was reported on the subject property to the south of Gilley's Aviation. A subsurface evaluation was previously performed, and petroleum impacts to the soil were identified.

The following business environmental risks (BERs) were identified:

- As part of the previous assessment, ECS interviewed Ms. Molly Edsall with the MDE, project manager in charge of on-site mine reclamation (mining began in 1980s). Ms. Edsall stated that the site is in compliance with MDE mining and reclaiming operations, and the fill material brought to the site is required to be clean and is either tested or generated from "clean sites."
- Several empty or out-of-use ASTs were observed on-site.
- Active and inactive wells were reportedly located at the subject site.
- Historic structures, including dwellings, were reportedly located on-site, and may have utilized on-site wells, septic systems, or storage tanks.
- Several containers of petroleum products and hazardous materials were observed on-site.

April 5, 2013 – ECS Phase II Environmental Site Assessment

ECS prepared a Phase II ESA report for the parent property, dated April 5, 2013 (ECS Project No. 02-6295-B). The Phase II ESA was performed to address RECs identified in the 2012 Phase I ESA. The following conclusions and recommendations regarding the subject property were made:

- In regard to the suspect historic UST identified in the vicinity of Hangar #18, a ground penetrating radar (GPR) survey was performed to determine the extent of the tank, and four soil probes were advanced in the vicinity. Soil samples were collected from the borings and were analyzed for the presence of TPH DRO, TPH GRO, VOCs, semi-volatile organic compounds (SVOCs), and metals. No detected concentrations of contaminants of concern exceeded applicable MDE Residential Soil Cleanup Standards or Anticipated Typical Concentrations (ATCs). However, some evidence of petroleum was identified based upon field screening.
- With regard to the anomaly identified to the northwest of Gilley's Aviation, a test pit was advanced, and a groundwater sample was collected downgradient of the anomaly. No USTs were identified in the excavation, and concentrations of TPH or VOCs in the groundwater sample did not exceed applicable laboratory detection limits.
- The previously identified leaking drum was removed. No evidence of leakage or staining associated with the drum was observed.
- With regard to the on-site septic systems and drainpipes, ECS performed a geophysical survey and identified drainpipes to the southeast of Hangars #23 and #31. Four soil probes were advanced to assess the drain fields, and samples were analyzed for TPH DRO, TPH GRO, and VOCs. No concentrations of these contaminants of concern exceeded applicable residential cleanup standards. Two additional probes were advanced in the vicinity of the drainpipes, and one soil sample was collected and analyzed for TPH DRO, TPH GRO, VOCs, SVOCs, polychlorinated biphenyls (PCBs), and metals. No concentrations exceeded applicable cleanup standards or ATCs. Although no exceedances were detected, ECS recommended that the drainpipes be sealed or connected to a collection system.
- With regard to petroleum staining located beneath an on-site AST, another consultant excavated soils in this area to a depth of 1 foot below grade. No indicators of petroleum contamination were identified, with the exception of a faint petroleum odor. ECS concluded that the staining represented a *de minimis* condition.
- With regard to the aviation fuel USTs previously removed from the site, ECS collected two soil samples from the former tank field, which were analyzed for TPH DRO, TPH GRO, and VOCs. No concentrations of contaminants of concern exceeded applicable residential cleanup standards. Based on regulatory case closure and the results of this assessment, ECS concluded that the former on-site USTs did not represent an REC.

- With regard to heating oil USTs historically located at the site, ECS advanced four probes in the apparent location of the former USTs, as well as in an area of scrap metal identified by the GPR to the south and southeast of on-site aviation fuel ASTs. The soil samples were analyzed for the presence of TPH DRO, TPH GRO, and select samples were analyzed for VOCs, SVOCs, PCBs, and metals. An exceedance of TPH DRO was detected in one of the soil samples collected in the vicinity of the former heating oil UST.
- With regard to reported dumping at the intersection of Steed Road and Piscataway Road, two soil probes were advanced to the south of the referenced intersection, and soil samples were analyzed for TPH DRO and TPH GRO. No concentrations of contaminants of concern were detected in exceedance of applicable residential cleanup standards.

January 9, 2014 – ECS Subsurface Evaluation Report

ECS previously prepared a Subsurface Evaluation Report, dated January 9, 2014 (ECS Project No. 02-6295-C), the purpose of which was to further assess previously documented environmental concerns at the subject property.

- With regard to the suspect UST located to the northwest of Hangar #18, seven (7) additional soil probes were advanced, and samples were analyzed for TPH GRO. An exceedance of the residential standard was detected in one of the borings at a depth of 20 feet bgs. Additionally, eight (8) groundwater samples were collected, each of which was analyzed for the presence of TPH DRO, TPH GRO, and VOCs. Concentrations of benzene, TPH DRO, and TPH GRO were detected in several of the samples in exceedance of the applicable cleanup standards.
- With regard to the heating oil USTs historically located to the southeast of aviation fuel ASTs at the site, ECS collected 14 additional soil samples in the area, which were analyzed for the presence of TPH DRO. No exceedances of the residential cleanup standard were detected. Six (6) groundwater samples were collected and analyzed for the presence of TPH DRO, TPH GRO, and VOCs. TPH DRO was detected in each of the samples in exceedance of the applicable cleanup standard.
- With regard to reported waste oil dumping near Gilley's Aviation, nine (9) additional soil samples were collected and analyzed for TPH GRO, TPH DRO, toxicity characteristic leaching procedure (TCLP) metals, and arsenic. A concentration of TPH DRO was detected in exceedance of the residential standard in one of the borings at a depth of 15 feet bgs. Additionally, seven (7) groundwater samples were collected and analyzed for the presence of TPH DRO, TPH GRO, VOCs, and SVOCs. Elevated concentrations of TPH GRO, TPH DRO, and select VOCs and SVOCs were detected in the samples submitted for analysis.

April 26, 2021 – ECS Phase I Environmental Site Assessment

ECS previously prepared a Phase I ESA report, dated April 26, 2021 (ECS Project No. 47:11866), the purpose of which was to further assess previously documented environmental concerns at the subject site and parent property. Although RECs were identified on the parent property, only the RECs associated with the subject property are outlined below.

- Elevated concentrations of contaminants of concern have been identified on-site in the soil and groundwater during previous environmental assessments. Specifically, impacts to soil and/or groundwater were encountered in the vicinity of the anomaly at hangar 18, former heating oil USTs and in the vicinity of Gilley's Aviation. The documented presence of contaminants of concern at the subject site in exceedance of applicable regulatory cleanup standards is considered an REC of the subject site.

The following HREC was identified during this assessment that was associated with the subject property:

- Three gasoline USTs (two 6,000-gallon gasoline USTs and one 4,000-gallon gasoline UST) were removed from the subject site on May 15, 2002. OCP Case #96-1467PG1 appears to have been opened in association with these USTs' removal. Based upon assessments previously completed by ECS, it is understood that these USTs were removed with MDE oversight, and closure was issued following remediation and subsequent monitoring. Elevated concentrations of contaminants of concern were not detected in the vicinity of this historic tank field during subsequent subsurface evaluations performed by ECS. As a result, this listing is considered an HREC of the subject site. In addition, one permanently out of use 5,000-gallon gasoline UST was listed in association with the property. Based on previous assessments performed at the subject site by others, ECS understood that this listing is associated with a 5,000-gallon AST historically associated with the subject site. As a result, these listings were considered HRECs of the subject site.

The following business environmental risks (BERs) and/or additional considerations were identified that were associated with the subject property and/or the parent property:

- Surface mines and associated fill material were depicted at the subject property and the parent property beginning in 1993, continuing to the time of site reconnaissance. Based on previous interviews with the MDE project manager assigned to the subject site, ECS understood that the site's reclamation occurred in compliance with applicable MDE mining and reclamation regulations and that fill material brought on-site was either tested or generated from "clean sites" prior to transport to the subject site.

ECS prepared a Geotechnical Feasibility Report dated April 7, 2021 (ECS Project No. 01:30649), the purpose of which was to provide a geotechnical feasibility assessment for the potential redevelopment of the subject site with single-family development and/or townhomes. As part of this assessment, a total of 35 borings and ten (10) test pits were advanced throughout areas of fill at the subject property and/or parent property. Fill materials were encountered at depths ranging from 2 to 50 feet bgs, which was reported to contain demolition debris and large pieces of organic material (tree branches, root balls). This material was determined to be *"unsuitable for direct support of foundations or reuse as engineered fill unless it is screened to remove all debris and organic material."* Due to the depth of fill brought on-site and the soil surface covering, ECS was not able to verify the materials buried at the subject property. However, the presence of fill mounds containing demolition debris and/or organic material was considered a BER of the subject site.

- The previously conducted Phase I ESA prepared by ECS indicated that the site utilized public water and a septic system; however, out of use private water wells were reportedly located at the site. It was unclear if these wells had been abandoned since the time of the previous report's completion. The potential presence of these wells and the presence of a septic system was considered a BER of the subject site.

October 19, 2022 – ECS Subsurface Methane Monitoring Assessment

Organic material was encountered during geotechnical studies performed within the reclaimed mine areas on-site. As a result, ECS performed an assessment to monitor the subsurface for the presence of methane gas. A total of 20 methane monitoring points were installed at the subject property and/or parent property; however, two of the points (V-04 and V-05) appeared to have been destroyed by wildlife during the sampling point development.

No detectable concentrations of methane were encountered at the remaining 18 sample locations evaluated as part of this assessment. As a result, ECS concluded that based upon the screening results, no methane risk was identified for the future construction proposed at the subject property.

November 17, 2022 – ECS Phase I Environmental Site Assessment

ECS prepared a Phase I ESA report, dated November 17, 2022 (ECS Project No. 47:11866-D), the purpose of which was to further assess previously documented environmental concerns at the subject site and parent property. Although RECs were identified on the parent property, only the RECs associated with the subject property are outlined below.

- Elevated concentrations of contaminants of concern have been identified on-site in the soil and groundwater during previous environmental assessments. Specifically, impacts to soil and/or groundwater were encountered in the vicinity of the former heating oil USTs and in the vicinity of Gilley's Aviation. The documented presence of contaminants of concern at the subject site in exceedance of applicable regulatory cleanup standards is considered an REC of the subject site.

The following HREC was identified during this assessment that was associated with the subject property:

- Three gasoline USTs (two 6,000-gallon gasoline USTs and one 4,000-gallon gasoline UST) were removed from the subject site on May 15, 2002. OCP Case #96-1467PG1 appears to have been opened in association with these USTs' removal. Based upon assessments previously completed by ECS, it is understood that these USTs were removed with MDE oversight, and closure was issued following remediation and subsequent monitoring. Elevated concentrations of contaminants of concern were not detected in the vicinity of this historic tank field during subsequent subsurface evaluations performed by ECS. As a result, this listing is considered an HREC of the subject site. In addition, one permanently out of use 5,000-gallon gasoline UST was listed in association with the property. Based on previous assessments performed at the subject site by others, ECS understood that this listing is associated with a 5,000-gallon AST historically associated with the subject site. As a result, these listings were considered HRECs of the subject site.

The following business environmental risks (BERs) and/or additional considerations were identified that were associated with the subject property and/or the parent property:

- Surface mines and associated fill material were depicted at the subject property and the parent property beginning in 1993, continuing to the time of site reconnaissance. Based on previous interviews with the MDE project manager assigned to the subject site, ECS understood that the site's reclamation occurred in compliance with applicable MDE mining and reclamation regulations and that fill material brought on-site was either tested or generated from "clean sites" prior to transport to the subject site.

  ECS prepared a Geotechnical Feasibility Report dated April 7, 2021 (ECS Project No. 01:30649), the purpose of which was to provide a geotechnical feasibility assessment for the potential redevelopment of the subject site with single-family development and/or townhomes. As part of this assessment, a total of 35 borings and ten (10) test pits were advanced throughout areas of fill at the subject property and/or parent property. Fill materials were encountered at depths ranging from 2 to 50 feet bgs, which was reported to

contain demolition debris and large pieces of organic material (tree branches, root balls). This material was determined to be *"unsuitable for direct support of foundations or reuse as engineered fill unless it is screened to remove all debris and organic material."* Due to the depth of fill brought on-site and the soil surface covering, ECS was not able to verify the materials buried at the subject property. However, the presence of fill mounds containing demolition debris and/or organic material was considered a BER of the subject site.

- The previously conducted Phase I ESA prepared by ECS indicated that the site utilized public water and a septic system; however, out of use private water wells were reportedly located at the site. It was unclear if these wells had been abandoned since the time of the previous report's completion. The potential presence of these wells and the presence of a septic system was considered a BER of the subject site.

December 13, 2022 – ECS Hazardous Material and Petroleum Product Removal

On November 3, 2022, ECS personnel canvassed the subject property and entered each of the on-site maintenance structures, offices, and hangars in order to generate an inventory of all hazardous materials and petroleum products observed on-site.

After completing the inventory, ECS retained ACE Environmental to remove the petroleum and sludge contained within the onsite ASTs with a capacity of 275-gallons or less from the maintenance structures, hangars, offices, and building exteriors. ECS retained an additional subcontractor, ACV Environmental, to package, transport, and dispose of the remaining hazardous materials and petroleum products that were observed onsite during the inventory process. Additionally, RB Environmental Services, Inc. was retained to clean and remove from the site one 4,000-gallon jet fuel AST and one 10,000-gallon aviation fuel AST. With approval from the MDE, the 4,000-gallon jet fuel AST was removed from the site on December 1, 2022, and the 10,000-gallon aviation fuel AST was removed from the site on December 9, 2022.

All observed tanks, hazardous materials, and petroleum products were removed and disposed of properly off-site, except for the following:

- As instructed, the heating oil tank associated with the office remained onsite.
- Some retail sized containers of petroleum belonging to Mr. Stan Fetter remained in the office. These containers will reportedly be removed by Mr. Fetter when he vacates the site.
- ECS did not remove hazardous substances or petroleum products from the interior spaces of the farmhouse due to the current condition of the home as well as the historical residential use.
- The bulk quantities of hazardous materials and petroleum products were removed from Clinton Aero Maintenance, but some retail sized containers

remained as the tenant's personal property. The tenant at Clinton Aero Maintenance was still in the process of vacating the site and stated that these materials would be removed for use at his offsite facility. These remaining materials were *de minimis* in quantity.

ECS concluded that although some retain sized containers of hazardous materials and petroleum products may be discovered during the demolition phase of the project, ECS anticipated that the discovery of such items will be minimal.

January 26, 2023 – ECS Aboveground Storage Tank Closure Report

ECS prepared and submitted an AST Closure Report to the MDE Oil Control Program (OCP), dated January 26, 2023, documenting the removal of the 10,000-gallon aviation fuel storage AST and the 3,000-gallon Jet A Fuel storage AST. After the ASTs were properly removed by RB Environmental, ECS advanced 12 soil borings around the perimeter of the AST containment pads. ECS collected six (6) soil samples from around the perimeter of the 3,000-gallon Jet A Fuel AST and six (6) soil samples from around the perimeter of the 10,000-gallon Aviation Fuel AST. The soil samples were analyzed for the full suite of VOCs, including fuel oxygenates and naphthalene, via EPA Method 8260B, TPH DRO and TPH GRO via EPA Method 8015B, and lead via EPA Method 6020. Concentrations of contaminants of potential concern did not exceed applicable regulatory criteria in any of the confirmatory soil samples collected onsite..

September 11, 2023 – ECS Site Characterization Report

In an effort to further characterize the site to the satisfaction of the VCP, ECS performed additional soil sampling at the site in accordance with an MDE-approved Site Characterization Work Plan. ECS divided the site into seven (7) operational units (OUs) and employed a Geoprobe® to advance between 10 and 13 probes within each of the seven (7) OUs. The soil aliquots collected at each depth interval were used to generate representative composite samples for those intervals within each OU. In total, 22 representative composite soil samples were submitted for analysis.

The composite soil samples were analyzed for the following:

- Priority Pollutant Metals – EPA Method 6020
- Hexavalent Chromium – EPA Method 7196
- Pesticides – EPA Method 8081
- Polycyclic Aromatic Hydrocarbons (PAHs) – EPA Method 8270
- PCBs – EPA Method 8082

Additionally, during sample collection, the soil was field screened with a PID. No positive field indicators of petroleum hydrocarbon or VOCs were detected during the

sampling event, and therefore, no discrete grab samples were collected for additional analysis.

The results of the soil sampling from the 22 composite samples were compared to applicable MDE Soil Cleanup Standards for Residential Use. Based upon the laboratory analytical results, concentrations of contaminants of potential concern (COPCs) did not exceed Category 1 Residential Use Criteria.

Based upon the comprehensive data generated at the site to date, a total of four known areas of impact exist at the subject site. These areas include the following:

- Known Area of Impact 1, located along Piscataway Road and identified by the presence of a vent pipe near Hangar #18 and a potential underground storage tank with samples identifying the presence of gasoline range organics (GRO), in the soil and GRO, diesel range organics (DRO), benzene, and xylenes in the groundwater;

- Known Area of Impact 2, located along Piscataway Road and identified as the location of Aviation Fuel Tanks with samples identifying the presence of DRO in the soil and groundwater;

- Known Area of Impact 3, located northwest of the runway and identified as the former location of Gilley's Aircraft Maintenance with samples identifying the presence of arsenic and DRO and GRO in the soil and arsenic, polycyclic aromatic hydrocarbons (including naphthalene), and DRO in the groundwater; and

- Known Area of Impact 4, located northwest of the runway and the former Gilley's Aircraft Maintenance with samples identifying the presence of DRO in the soil.

The locations of each of these known areas of impact are provided in Attachment A. The following outlines the response actions proposed to mitigate impacts at the site.

3.0 RESPONSE ACTION PLAN DEVELOPMENT

A proposed response action plan to mitigate potential risk to receptors onsite is outlined below. Based upon the results of the previously conducted subsurface studies, soil and groundwater were identified as the media of concern at the site. ECS notes that for the purposes of this RAP, a groundwater use restriction will be established onsite.

Based upon the results of the soil sampling events summarized above, concentrations of TPH DRO were determined to represent surface soil contaminants of concern onsite. Also, concentrations of TPH GRO, TPH DRO, and arsenic were determined to represent subsurface soil contaminants of concern onsite. In addition, TPH DRO, TPH GRO, and select VOCs (Benzene and Naphthalene) and SVOCs (Acenaphthene, Fluoranthene, 2-Methylnaphthalene, and Phenanthrene) were determined to represent groundwater contaminants of concern onsite.

4.0 PROPOSED DEVELOPMENT AND FUTURE USE

The proposed redevelopment of the site will be Tier 1B, Restricted Residential. Proposed development of the subject site includes approximately 130.5 acres of residential land use. Specific redevelopment plans for the subject property have not been finalized but will be provided to the MDE upon receipt. Preliminary site development plans are included as Figure 4.

Upon development, the site will be serviced by public water and sanitary sewer services, and below grade stormwater, natural gas and electric utilities. To eliminate a potential exposure pathway, groundwater use will be restricted onsite.

5.0 EXPOSURE ASSESSMENT

As outlined above, the site is scheduled for redevelopment as residential Tier 1B, Restricted Residential Use according to MDE's land use descriptions.

Based upon the findings of the previously conducted subsurface evaluations, potential future exposure risks may exist at the site. As a result, the mitigation of identified exposure pathways to future occupants of the site is proposed. During site development, the potential exists for risks to construction workers and visitors to the site during construction through incidental ingestion, dermal exposure, or inhalation of fugitive dust. Currently there are no known residential or construction worker populations within the identified impacted areas. Construction is planned but has not yet commenced. The following is a summary of potential exposure pathways identified as well as potential receptors and proposed remedial actions.

Exhibit 1: Identified Potential Risks

Media	Exposure Pathway	Potential Receptor	Contaminants*
Surface Soil	Dermal Exposure	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH DRO
	Incidental Ingestion	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH DRO
	Inhalation of Fugitive Dust	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH DRO
Subsurface Soil	Dermal Exposure	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH GRO, TPH DRO, and arsenic
	Incidental Ingestion	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH GRO, TPH DRO, and arsenic
	Inhalation of Fugitive Dust	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH GRO, TPH DRO, and arsenic

Exhibit 1: Identified Potential Risks (continued)

Media	Exposure Pathway	Potential Receptor	Contaminants*
Groundwater	Dermal Exposure	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH GRO, TPH DRO, VOCs, SVOCs
	Incidental Ingestion	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH GRO, TPH DRO, VOCs, SVOCs
	Inhalation of Water Vapor	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	TPH GRO, TPH DRO, VOCs, SVOCs
Soil Gas	Inhalation of Soil Vapor	Construction Worker Onsite Resident (Adult, Youth, Child) or Visitor	None identified

* See Section 3.0 for a list of specific VOCs and SVOCs included as contaminants of concern for each media.

5.1 Surface/Subsurface Soil Dermal Exposure and Incidental Ingestion/Inhalation
In an effort to mitigate potential soil exposure risks to future residential populations, the impacted soil that was identified onsite will be excavated and sent offsite to an appropriate soil disposal facility that is permitted to accept impacted soil. ECS will provide oversight of the excavation activities to field screen and verify that the impacted soil from each area of known impact is removed. Confirmation samples will be collected from each area of known impact after excavation activities are complete, as discussed in Section 7.2 below.

The potential also exists for construction workers to encounter impacted soil during site development. The implementation of a site-specific health and safety plan (HASP) is expected to limit worker exposure to unsafe contact with impacted soil. The HASP is included as Attachment B.

Detailed proposed remedial strategies are outlined below in Section 7.0 below.

5.2 Groundwater
The proposed onsite structures will be serviced by public water and sewer. Additionally, the use of groundwater as a potable drinking water source at the site will be prohibited by an Environmental Covenant.

Based upon the proposed development plans, dewatering within areas of known impact during construction is not anticipated. However, groundwater may be encountered in other areas of the site during general construction activities. As a result, construction workers may come into contact with the groundwater during site development; however, this contact is

expected to be limited based upon the implementation of a site-specific HASP. Further details regarding possible groundwater discharge are discussed below.

5.3 Soil Vapor
COPCs have not been identified in soil vapor at the subject property.

5.4 Inhalation of Fugitive Dust
During onsite construction activities, soil may become airborne and construction workers may be exposed to this dust. Construction methods for the control of fugitive dust are included in the attached HASP and outlined in Section 7.6 below.

6.0 CLEAN UP CRITERIA

The cleanup criteria selected for soil are the higher of the Tier 1B, Restricted Residential Use standard or the MDE residential cleanup standards (October 2018, Cleanup Standards for Soil and Groundwater Interim Final Guidance, Update No. 3). Additionally, the cleanup criteria that will be selected for the post-excavation soil vapor confirmation samples are outlined in the MDE Vapor Intrusion Factsheet dated September 2019. Exhibit 2 below is the comprehensive list of Contaminants of Concern (COCs) identified onsite. The applicable cleanup criteria for COCs identified onsite are outlined below.

Exhibit 2: Proposed Cleanup Standards

Proposed Cleanup Criteria (Residential Soil)	
Soil Analyte	**Criteria**
TPH DRO	230 mg/kg
TPH GRO	230 mg/kg
Arsenic	10 mg/kg
Groundwater Analyte	**Criteria**
TPH DRO	47 µg/L
TPH GRO	47 µg/L
Benzene	5 µg/L
Naphthalene	0.65 µg/L
Acenaphthene	37 µg/L
Fluorene	24 µg/L
2-Methylnaphthalene	2.4 µg/L
Phenanthrene	180 µg/L

mg/kg = milligrams per kilogram (parts per million)
µg/L = micrograms per liter (parts per billion)

7.0 SELECTED TECHNOLOGY AND INSTITUTIONAL CONTROLS

The following is an outline of the remedial strategies proposed to protect potential receptors from exposure to the identified impacted soil and soil vapor at the subject site. The selected remedies are intended to sever the potentially complete exposure pathways so that there is no impact to potential receptors. This RAP includes proposed response actions including a health and safety plan, dust controls and a soil management plan. This RAP also includes recommendations for the restriction of the use of the subject site to Tier 1B, Restricted Residential Use according to MDE's Land Use descriptions as well as a groundwater use restriction.

7.1 Health and Safety Plan (HASP)

A site-specific HASP is included as Attachment B. The intent of the HASP is to reduce direct exposure to the impacted media identified onsite that may be encountered during construction activities. Applicable Occupational Safety and Health Administration (OSHA) regulations shall be followed during the implementation of this RAP. The Site-Specific Health and Safety Plan (HASP) will be maintained on-site for the duration of the RAP implementation activities. All personnel working on the property in any capacity will be notified of the HASP, and upon request, the HASP will be made available for review by all personnel working on the property in any capacity. A copy of the Site-Specific HASP and its signature log will be present onsite during construction activities.

This HASP will supplement the safety program for the general contractor (GC) and its subcontractors and is not intended to be a replacement to the GC's overall safety program. Information and recommendations contained in the HASP should be reviewed by onsite contractors and appropriate measures should be taken to protect the health and safety of their employees and subcontractors. This HASP is in no way intended to relieve the site personnel of their responsibility for site health and safety.

Primarily, the HASP will provide procedures to mitigate exposure and direct contact with potentially impacted media as well as the proper use of personal protective equipment during site activities.

7.2 Soil Excavation and Disposal

Prior to the commencement of site activities, all personnel who may encounter the identified impacted soil or groundwater should be informed of its presence. All remedial action work performed onsite including the excavation of the identified impacted soil will be performed in accordance with a Site Specific Health and Safety Plan. Additionally, the MDE Case Manager will be notified five business days in advance of any excavation within the areas of identified impacted soil.

A qualified environmental professional will oversee the excavation of the identified impacted soil and will be available to evaluate suspected impacted soils that may be discovered during site activities.

Known Area of Impact 1

As stated above, a vent pipe and potential UST were identified on the southern portion of the site near the location of former hangar #18 (Known Area of Impact 1). To further evaluate the anomaly detected during the previous geophysical survey, ECS proposes to excavate test pits in an effort to determine if the anomaly represents a UST. If the presence of a UST is confirmed during the excavation of the test pits, ECS will contact the MDE Oil Control Program (OCP) as well as the VCP and will close the UST under OCP oversight.

Additionally, ECS proposes to excavate the petroleum impacted soil identified within Known Area of Impact 1. Figures depicting the location of Known Area of Impact 1 as well as a summary of the soil and groundwater analytical results for this area are included in Attachment C. Based upon the sample results, ECS proposes to excavate an approximately 30 foot by 30 foot area to a depth of approximately 10 feet below grade. However, the excavation area will be expanded laterally if field indicators identify elevated concentration of petroleum hydrocarbons beyond the proposed excavation area. Note, Known Area of Impact 1 is located in an area of fill that will occur during site development. ECS understands that the residential soil standard exposure scenario is applicable from 0-10' Below Ground Surface (BGS) or to the zone of saturation.

The excavation of petroleum impacted soils will continue vertically and horizontally until concentrations of TPH-DRO in the post excavation samples are less than the proposed cleanup criteria. The approximate area of excavation is depicted in Attachment C.

Grab post excavation samples will be collected at a frequency of one per every 50 linear feet of side wall (minimum one per sidewall) and one per every 1,000 square feet of excavation bottom. The location of the post excavation soil samples will be determined by field screening and will be positively biased. If the excavation extends into the water table, no confirmation samples will be collected from the base of the excavation and confirmation samples in such a situation will be limited to sidewall only. Post excavation samples will be analyzed for TPH-DRO.

Known Area of Impact 2

Known Area of Impact 2 is located along Piscataway Road and identified as the location of the former aviation fuel tanks and a former heating oil UST. Several soil samples were collected to assess this area. However, concentrations of contaminants of concern were detected in excess of the MDE residential criteria in only one soil sample collected at the location of the former onsite heating oil UST. The elevated contaminant of concern in this sample was TPH-DRO at a depth of 2.5 to 3.5 feet below surface grade.

ECS proposes to excavate the petroleum impacted soil identified within Known Area of Impact 2. Figures depicting the location of Known Area of Impact 2 as well as a summary of the soil and groundwater analytical results for this area are included in Attachment D.

Based upon the sample results, ECS proposes to excavate an approximately 10 foot by 10 foot area to a depth of approximately 5 feet below grade. However, the excavation area will be expanded laterally if field indicators identify elevated concentration of petroleum hydrocarbons beyond the proposed excavation area. Note, Known Area of Impact 2 is located in an area of fill that will occur during site development.

The excavation of petroleum impacted soils will continue vertically and horizontally until concentrations of TPH-DRO in the post excavation sidewall and excavation bottom samples are less than the proposed cleanup criteria. The approximate area of excavation is depicted in Attachment D.

Grab post excavation samples will be collected at a frequency of one per every 50 linear feet of side wall (minimum one per sidewall) and one per every 1,000 square feet of excavation bottom. The location of the post excavation soil samples will be determined by field screening and will be positively biased. If the excavation extends into the water table, no confirmation samples will be collected from the base of the excavation and confirmation samples in such a situation will be limited to sidewall only. Post excavation samples will be analyzed for TPH-DRO.

Known Area of Impact 3

Known Area of Impact 3 is located northwest of the runway and is identified as the former location of Gilley's Aircraft Maintenance where arsenic, TPH-DRO and TPH-GRO were detected in the soil at concentrations exceeding MDE residential use criteria.

ECS proposes to excavate the impacted soil identified within Known Area of Impact 3. Figures depicting the location of Known Area of Impact 3 as well as a summary of the soil and groundwater analytical results for this area are included in Attachment E. Based upon the sample results, ECS proposes to excavate an approximately 85 foot by 85 foot area to a depth of approximately 13 feet below grade. However, the excavation area will be expanded laterally if field indicators identify elevated concentration of petroleum hydrocarbons beyond the proposed excavation area. Note, Known Area of Impact 3 is located in an area of fill that will occur during site development.

The excavation of impacted soils will continue vertically and horizontally until concentrations of Arsenic, TPH-DRO and TPH-GRO in the post excavation sidewall and excavation bottom samples are less than the proposed cleanup criteria. The approximate area of excavation is depicted in Attachment E.

Grab post excavation samples will be collected at a frequency of one per every 50 linear feet of side wall (minimum one per sidewall) and one per every 1,000 square feet of excavation bottom. The location of the post excavation soil samples will be determined by field screening and will be positively biased. If the excavation extends into the water table, no confirmation samples will be collected from the base of the excavation and confirmation

samples in such a situation will be limited to sidewall only. Post excavation samples will be analyzed for arsenic, TPH-GRO and TPH-DRO.

Known Area of Impact 4

Known Area of Impact 4 is located northwest of the former Gilley's Aircraft Maintenance where a single sample identified the presence of DRO in the stained surface soil.

ECS proposes to excavate the petroleum impacted soil identified within Known Area of Impact 4. Figures depicting the location of Known Area of Impact 4 as well as a summary of the soil analytical results for this area are included in Attachment F. Based upon the sample results, ECS proposes to excavate an approximately 10 foot by 10 foot area to a depth of approximately 5 feet below grade. However, the excavation area will be reduced or expanded laterally based upon field indicators. Note, Known Area of Impact 4 is located in an area of fill that will occur during site development.

The excavation of petroleum impacted soils will continue vertically and horizontally until concentrations of TPH-DRO in the post excavation sidewall and excavation bottom samples are less than the proposed cleanup criteria. The approximate area of excavation is depicted in Attachment F.

Grab post excavation samples will be collected at a frequency of one per every 50 linear feet of side wall (minimum one per sidewall) and one per every 1,000 square feet of excavation bottom. The location of the post excavation soil samples will be determined by field screening and will be positively biased. If the excavation extends into the water table, no confirmation samples will be collected from the base of the excavation and confirmation samples in such a situation will be limited to sidewall only. Post excavation samples will be analyzed for TPH-DRO.

Known Area of Impact Soil Excavation Summary

A summary of the proposed excavation areas associated with the Known Areas of Impact is provided below as Exhibit 3. The impacted soil will be disposed of at Soil Safe or Clean Earth and disposal manifest will be provided.

Exhibit 3 – Summary of the Four (4) Known Area of Impact Excavation Areas.

Excavation ID	Estimated Dimensions (ft)	Anticipated Tonnage	Anticipated Number of Grab Post Excavation Samples
Area 1	30 x 30 x 10	500	5
Area 2	10 x 10 x 5	30	5
Area 3	85 x 85 x 13	5,500	16
Area 4	10 x 10 x 5	30	5

If the excavation exceeds practical boundaries such as site borders, utility easements, depths or structural zones, the MDE will be notified and an addendum to this RAP will be prepared to propose additional mitigation measures.

7.2 Soil Management

If during the commencement of site activities, suspected areas of impacted soil are discovered that were not previously known, the site contractor will secure the area and contact ECS so that a determination of proper actions with regard to soil handling and management can be reached.

The following outlines the procedures proposed to comply with the requirements of the MDE for the handling and management of impacted soil that may be discovered during site development.

- In the event that the contractor encounters impacted soil or soils suspected of being impacted, the contractor shall notify ECS personnel who will screen or test the soil for compounds of potential concern. Any soil removed from the ground that exhibits an unusual color or odor should be assessed by ECS. Soil will be field screened for petroleum hydrocarbons and VOCs using physical observations as well as a 10.6 eV (electron-volt) PID.

- Petroleum impacted soil that is excavated or otherwise handled shall be loaded directly onto trucks or placed on plastic sheeting and shall be covered with plastic sheeting. At a minimum, the pile shall be covered at the end of each workday, when it is not being used, and during precipitation events, as applicable. The plastic sheeting shall have a minimum thickness of 6-mil and the edges of the plastic sheeting atop the pile shall be weighed down to keep the pile from becoming uncovered.

- Impacted soil or soil suspected of being impacted shall be staged in a designated location that is separate from any stockpiled unimpacted soil. Additionally, the impacted soil stockpile shall not be staged within 25 feet of a storm drain.

- ECS has already obtained soil disposal approval at Soil Safe, Inc. in Upper Marlboro, Maryland. All impacted materials must be transported in accordance with applicable regulations, and appropriate disposal documentation (disposal manifest) must be provided.

- If any undocumented USTs are encountered during development, the MDE will be notified, and the UST closed in accordance with applicable regulations.

- Per MDE soil use requirements, petroleum impacted soil that is handled during site construction will not be reused. Soils that are excavated that contain more than 230

parts per million (ppm) total petroleum hydrocarbons (TPH) or PID readings over 230 ppm, shall be properly handled, staged, and disposed of offsite.

7.3 Groundwater Considerations

Concentrations of TPH DRO, TPH GRO, and select VOCs (Benzene and Naphthalene) and SVOCs (Acenaphthene, Fluoranthene, 2-Methylnaphthalene, and Phenanthrene) have been detected in the groundwater at the subject site at concentrations exceeding MDE standards. As a result, ECS proposes to install sumps during the excavation of Known Area of Impact 1 and 3. During the excavation of these two areas, a vacuum truck will draw water from the excavated sump. Although no free phase petroleum product was identified onsite, the vacuum truck will help to control the potential accumulation of water in the excavation and will reduce the source of impacted groundwater onsite.

Although impacted groundwater has been identified on portions of the site, the proposed onsite structures will be serviced by public water and sewer. Additionally, the use of groundwater as a potable drinking water source at the site will continue to be prohibited by an Environmental Covenant. It is not anticipated that significant groundwater will be encountered during site development.

In the event that dewatering is required during construction, beyond the sumps discussed above, it is estimated that dewatering will produce an average of less than 10,000-gallons per day. The containerized groundwater will be field screened for pH, and samples will be submitted at a frequency of one sample for every 20,000-gallons of water for the following analysis: VOCs via EPA method 8260, TPH DRO and TPH GRO via EPA method 8015, dissolved RCRA 8 Metals via EPA method 6020, and SVOCs via EPA method 8270 in accordance with the terms of 17-HT permit Discharge Category C.

After the sample collection, no new water will be added to the container until the laboratory analytical results are received and the disposal method for the water is approved by the MDE. Frac tanks have an approximate capacity of 20,000-gallons. As a result, one characterization sample will be collected when the tank is at near 100% capacity.

In the event that the sampled and containerized water exceeds MDE discharge limits, the containerized water represented by the associated sample will be disposed of offsite and disposal manifests will be provided.

In the event that the sampled and containerized water does not exceed the MDE discharge limits, the water will be allowed to discharge onsite. The discharged water will be released through a hose from the frac tank. The outlet of the hose will be equipped with a sediment bag filter which the water will pass through prior to discharge. The filter bag will be placed within an onsite sediment trap which will be installed in accordance with state and local requirements. The effluent from the sediment traps and the effluent from the bag filter will be routinely monitored during construction to avoid sediment transportation to the onsite surface water.

Turbidity measurements for the effluent must not exceed the daily or monthly maximum outlined in the site permits. Typically, NPDES permits set a maximum daily turbidity threshold of 150 NTUs and a monthly turbidity average of 50 NTUs. If turbidity levels exceed applicable NTU thresholds, ECS will contact the MDE Water and Science Administration to obtain approval for the use of flocculant or other filtration systems onsite. The VCP will be copied on all correspondence to the Water and Science Administration.

Based upon the planned use of public utilities onsite, no groundwater use is planned. In order to eliminate the potential for impacts to receptors, an environmental covenant will be recorded in the land records to prohibit the use of groundwater at the subject property for any purpose other than environmental investigation, treatment or monitoring performed under an MDE-approved work plan.

7.4 Imported Fill Material

ECS understands that imported fill may be required as part of the site construction activities. The imported soil will be certified clean or characterized, in accordance with the recommendations of MDE case manager, prior to being transported to the property. Additionally, the analytical results of any characterization sampling for import fill will be provided to the MDE Project Manager for approval prior to importing fill onto the property.

The applicant understands that imported fill which must also be “clean fill” includes gravel, stone, CR-6 and other base materials which are generally certified virgin and uncontaminated by a letter from the quarry that supplies the material. The applicant also understands that the VCP accepts the use of clean fill from sources that provide bagged products to the commercial market, such as “Leafgro”, “Veteran Compost” or from other bagged/bulk commercial sources.

Any clean imported fill that is not placed directly into the excavation will be placed in designated stockpile areas. All clean fill documentation will be submitted to the MDE in the RAP completion report.

7.5 Heavy Equipment Decontamination

Machines, trucks, and heavy equipment may come into contact with the identified impacted soil during the excavation activities. As a result, bulk soil adhering to these machines will be removed and properly handled and managed prior to mobilization of the equipment to non-impacted portions of the site. If warranted, additional decontamination procedures will be developed onsite to establish appropriate decontamination procedures for preventing cross contamination.

7.6 Fugitive Dust

Soil with elevated concentrations of COCs has been identified on portions of the subject site. It is anticipated that this impacted soil will be disturbed during site development. In the event that airborne dust becomes visible during excavation, fugitive dust control measures will be implemented to mitigate the airborne movement of dust from exposed soil surfaces and to minimize health hazards. The fieldwork superintendent and/or owner's representative will oversee and direct dust control measures and will be responsible for maintaining appropriate dust controls. The Site-Specific HASP has been prepared to provide construction methods for controlling dust. These dust control measures are summarized below.

1. Excavation and soil grading activities will be conducted, to the extent possible, in targeted areas of the site so that the extent of activities potentially leading to dust generation will be relatively constrained.

2. Excavation and soil grading equipment will be operated, to the extent possible, in a manner which minimizes the generation of airborne dust. This may include:

    i. During dry site conditions equipment travel speeds should be reduced.

    ii. Reduced volume of soil removed per bucket during the excavation and loading of trucks.

    iii. Minimized height of soil free-fall from the bucket to the truck bed during excavation and loading.

3. Stabilization controls such as seeding and granular material cover (e.g., milled asphalt, crushed concrete, etc.) will be installed, if practical, following the completion of excavation and grading activities within each work area. Stabilization control measures will be inspected weekly and repairs, if any, will be completed immediately upon discovery of the condition requiring repair.

4. Routine water application within active work areas and traffic routes using a water truck or other water dispersing equipment. Non-active work areas will also receive as-needed water applications to control dust.

Street sweeping/cleaning of adjacent public roads will be performed as needed in the event of noticeable soil or credible complaints of soil accumulation in the roadways.

7.7 Institutional Controls

The MDE will issue an Environmental Covenant upon submittal and review of the RAP completion report that shows adequate and successful implementation of the RAP. The following activity and use limitations are proposed which the Owner and each subsequent owner of the Property shall abide by:

- Based upon the proposed use of the site as residential, the site will be established as Tier 1B, Restricted Residential Use.

- The groundwater under the property shall not be accessed, drilled or used for any non-investigative purpose. Any subsequent development or use of the Property shall only utilize the public water supply.

- All excavation work encountering groundwater at the site shall be conducted in accordance with an Occupational Safety and Health Administration (OSHA) compliant health and safety plan.

- Any soil or groundwater excavated, pumped or otherwise removed from the Site must be tested, properly characterized, and disposed of in an appropriate manner.

The final land use and institutional controls will be determined by the Department upon verification of the satisfactory implementation of the approved RAP and any RAP addendums, if required. An Operations and Maintenance Plan will be required as an Exhibit in the final Certificate of Completion and Environmental Covenant.

8.0 PERMITS, NOTIFICATIONS AND CONTINGENCIES

The participant will comply with all federal, State and local laws and regulations by obtaining all necessary approvals and permits to conduct all activities and implement this RAP. The MDE must be notified immediately of any previously unexpected conditions such as encountering free product, unidentified chemical containers, or other issues not contemplated in the RAP such as undiscovered contamination, changes to the RAP schedule, previously undiscovered storage tanks, other oil-related issues, and citations from regulatory entities related to health and safety practices. In addition, the VCP will be notified at least 5 business days prior to any planned property transfer of the entire Property or any portion of the Property. All notifications shall be made to the VCP project manager at 410-537-3493. If the VCP project manager is unavailable, the notifications must be made to another VCP staff member.

The VCP must be provided with all documentation and analytical reports generated as a result of any previously unidentified contamination. The participant understands that previously undiscovered contamination and/or previously undiscovered storage tanks or other oil-related issues may require an amendment to this RAP.

If the measures outlined in this RAP are determined to be insufficient, the VCP will be notified within 48 hours and a written amendment to this RAP will be prepared. The RAP addendum will provide a detailed description of the additional concerns identified at the site and will propose additional steps for the management and mitigation of the site. The implementation of the methods outlined in any RAP addendum must be approved by the MDE in writing prior to implementation.

9.0 HEALTH AND SAFETY PLAN

All applicable Occupational Safety and Health Administration (OSHA) regulations shall be followed during the implementation of this RAP. A Site-Specific Health and Safety Plan (HASP) has been developed for the property and is included as Attachment B. This HASP will be implemented and maintained on site for the duration of the RAP activities. All personnel will be made aware of and sign the HASP. The development of the HASP is the responsibility of the participant. On-site records of HASP signatures must be available to the Department upon request.

10.0 EVALUATION CRITERIA

Once the following conditions have been achieved, a Response Action Completion Report (RACR) will be submitted to the MDE requesting the issuance of a Certificate of Completion for the site.

- Excavation and offsite disposal of impacted soil within the four (4) known areas of impact and the collection of post excavation samples with concentrations of COPC less than the site specific cleanup criteria.

- Completion of mass grading and installation of primary utilities.

- In the event that undocumented impacted soil is encountered during development such as mass grading or utility installation, the impacted soil will be segregated as encountered during construction and disposed of at an approved facility.

- Provide the MDE with clean fill certification letters and/or data for all clean fill materials proposed for use on the property and obtain pre-approval for use of the material from the MDE prior to material placement. Provide the MDE with all tickets documenting the total volume of material used on the site.

- As appropriate, provide copies of certificates of disposal or manifests, as appropriate, to MDE for all environmental media generated from the site and disposed of off-site due to the implementation of the RAP.

- Provide the MDE with a RACR that provides all data and documentation that demonstrates to the satisfaction of the MDE that all RAP activities were implemented adequately and completely.

11.0 REPORTING

The VCP Project Manager will be notified in writing at least five business days prior to the implementation of the RAP activities. Monthly RAP Implementation Progress Reports will be submitted by the 15th day of the following month until the RAP has been fully implemented.

11.1 Progress Reports: Monthly

Progress Reports will be submitted during the period from RAP approval to submittal of the Completion Report. Submission of monthly progress reports to the MDE should detail corrective actions and RAP implementation, including environmental monitoring and sampling. The progress report will include a description of activities completed during the prior month, planned activities for the following month and relevant staffing or contact changes. The monthly progress report shall be submitted via an email to the VCP Project Manager by the 15th of the month for work completed the previous month (i.e., work performed during January 1 through January 31 would be detailed in a report submitted by February 15). If no RAP related activities occur during a month, the progress report must still be submitted but may consist of an email stating that no RAP activities have occurred.

11.2 Completion Report

A RAP Completion Report will be submitted that includes all field visit documentation, photo-documentation of completion of RAP milestones and demonstration that caps were adequately constructed to the RAP requirements, clean fill tickets, disposal tickets and manifests, and all sampling data. At a minimum, the RAP Completion Report will include:

a) A summary outlining the amount of clean fill imported onto the property as well as clean fill documentation.
b) Photo-documentation of project milestones.
c) A summary of the activities performed to complete the RAP.
d) A summary of site contractors with confirmation of the RAP and EC review.
e) Laboratory data sheets with analytical results for samples collected during the RAP implementation.
f) A map depicting the limits of the impacted soil excavation areas as well as a map depicting the location of all confirmatory samples collected at the property.
g) Waste disposal manifests and total volume of impacted soil disposed.
h) As appropriate, offsite soil reuse destination documentation.

12.0 SCHEDULE

Presented below is a schedule which projects the time frames for RAP implementation activities after receiving MDE's approval of this RAP. A revised schedule will be provided to the MDE if RAP activities have not begun within 12 months of receiving RAP approval. The VCP will be notified of any changes in the schedule of the RAP implementation.

Activity	Estimated Date
Submit Monthly Progress Reports	15th of each Month
Begin Site Excavation and Grading	Spring 2024
Petroleum Impacted Soil Excavation	Spring 2024
Soil Management and Dust Suppression	Approximately Spring 2024 through Summer 2025
Submit RACR	Winter 2025

It should be noted that the site construction schedule has not been finalized. Upon receipt of the site construction schedule, a revised implementation schedule may be provided.

13.0 ADMINISTRATIVE REQUIREMENTS

Written Agreement

If the Response Action Plan is approved by the Maryland Department of the Environment, the participant agrees, subject to the withdrawal provisions of Section 7-512 of the Environment Article, to comply with the provisions of the response action plan. The participant understands that if the participant fails to implement and complete the requirements of the approved plan and schedule, the Maryland Department of the Environment may reach an agreement with the participant to revise the schedule of completion in the approved Response Action Plan or, if an agreement cannot be reached, the Department may withdraw approval of the plan.

DocuSigned by:
Patrick Donahue *
0AF8113C64CD406...
(sign)

1/11/2024
Date

Patrick Donahue *
(print/type)

* As Vice President of Hyde Field Acquisition LLC, and not individually

14.0 ZONING CERTIFICATION

The participant hereby certifies that the property meets all applicable county and municipal zoning requirements. The participant acknowledges that there are significant penalties for knowingly falsifying any information required by MDE under Title 7, Subtitle 5 of the Environment Article, Annotated Code of Maryland, and that this certification is required to be included in a response action plan for the Voluntary Clean-up Program pursuant to Title 7, Subtitle 5 of the Environment Article, Annotated Code of Maryland.

DocuSigned by:
Patrick Donahue
9AF8113C64CD406...

*

(sign)

1/11/2024

Date

Patrick Donahue

*

(print/type)

* As Vice President of Hyde Field Acquisition LLC, and not individually

15.0 PERFORMANCE BOND

The participant understands its obligation to file a performance bond or other security with the MDE within 10 days of receiving approval of this RAP. The performance bond is to be used by MDE, if necessary, to secure and stabilize the property if the participant halts clean-up before the goals have been achieved. The following table summarizes the proposed performance bond for the project.

The participant understands that the obligation for the performance bond or other security remains in effect for the property and does not become void until issuance of the Certificate of Completion for the property or 16 months after withdrawal from the VCP. The participant acknowledges that failure to maintain the performance bond or other security for the property will result in withdrawal of its application from the VCP.

TASK	ESTIMATED COST
Installation and maintenance of a silt fence and sediment controls	**$10,000**
Signage	**$2,000**
Stabilization	**$5,000**
Installation of Access Restrictions	**$5,000**
TOTAL	**$22,000**

Figures

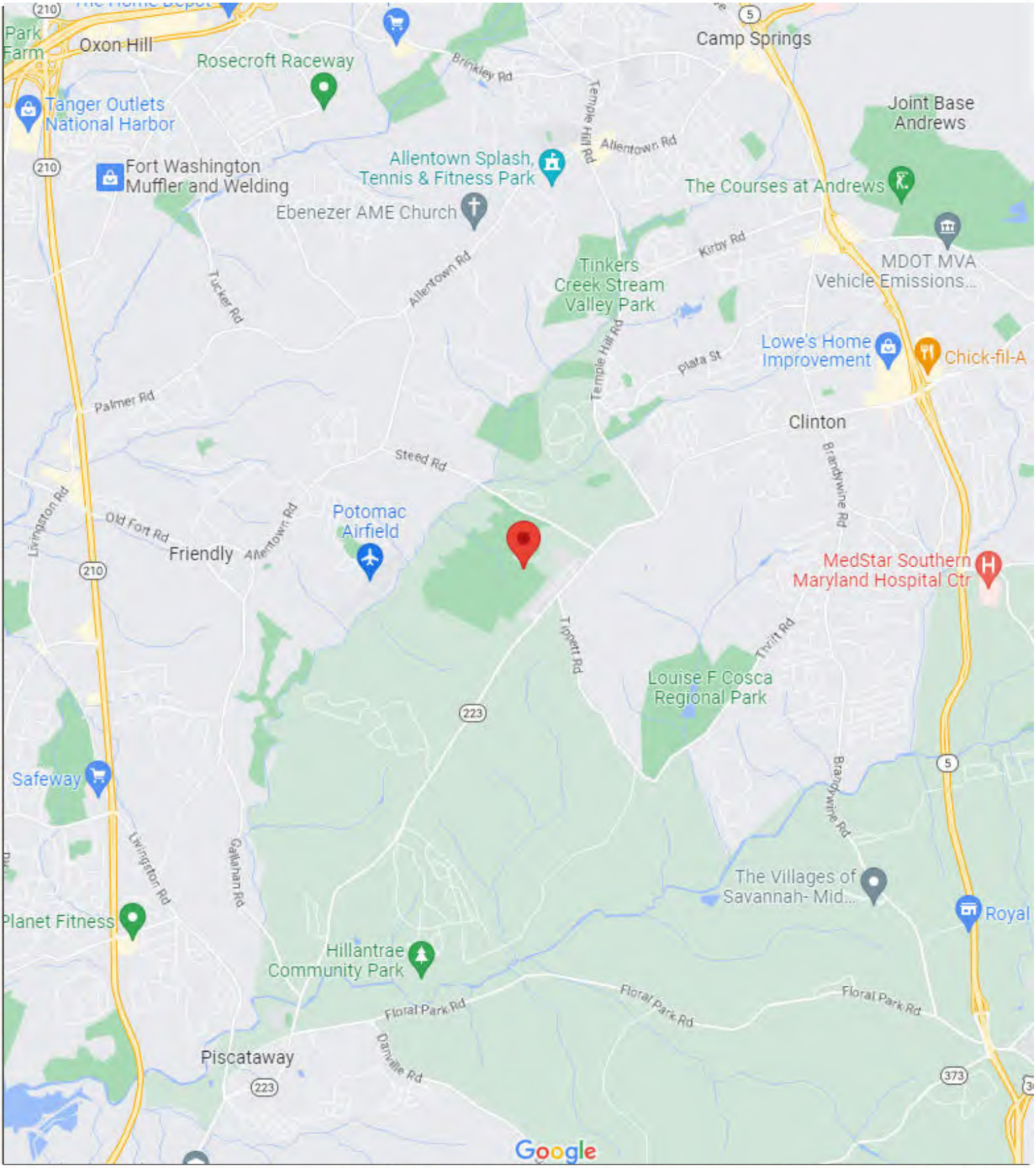


Figure 1

Site Location Map
Hyde Field
Piscataway Road & Steed Road
Clinton, Maryland 20735

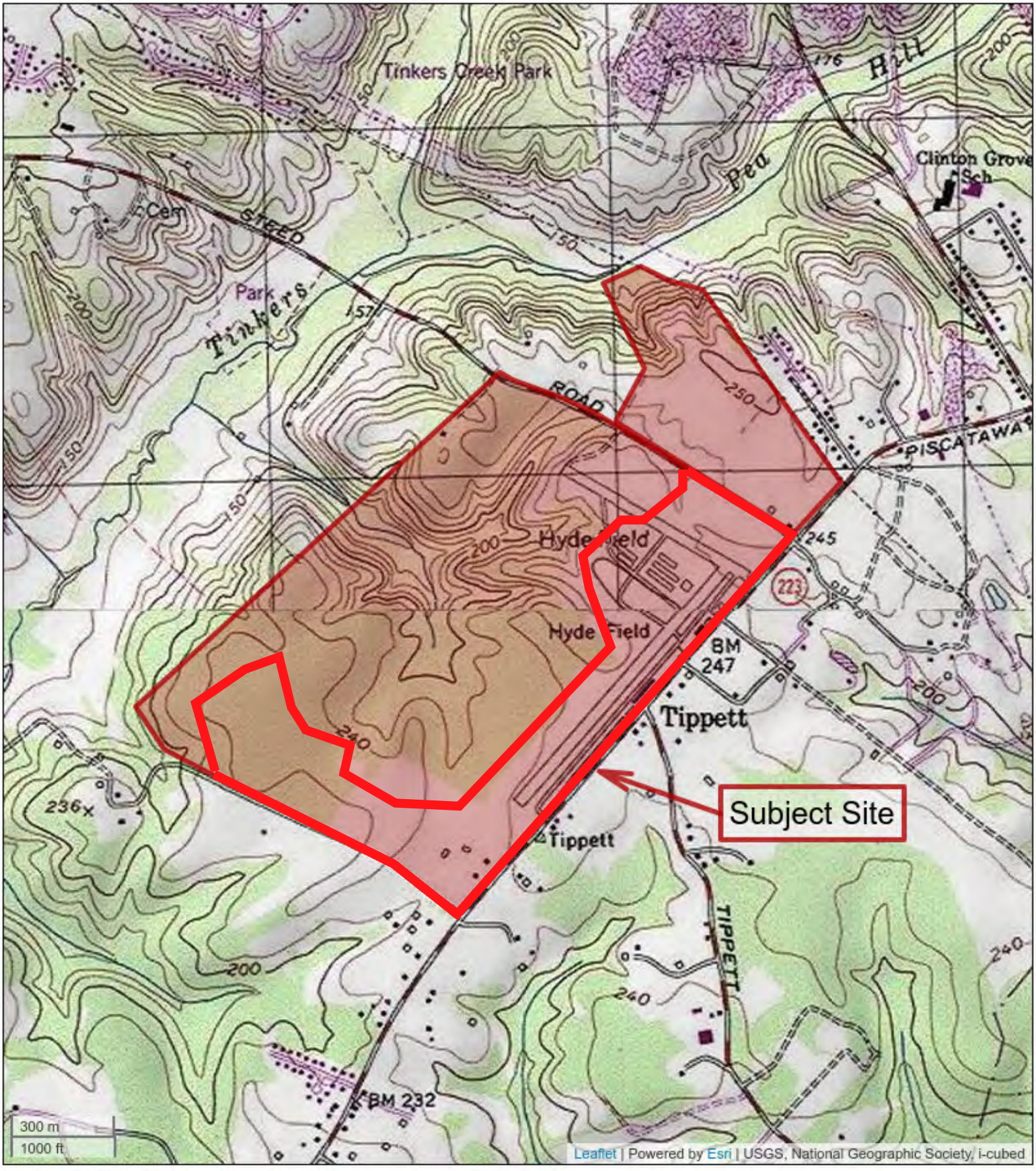
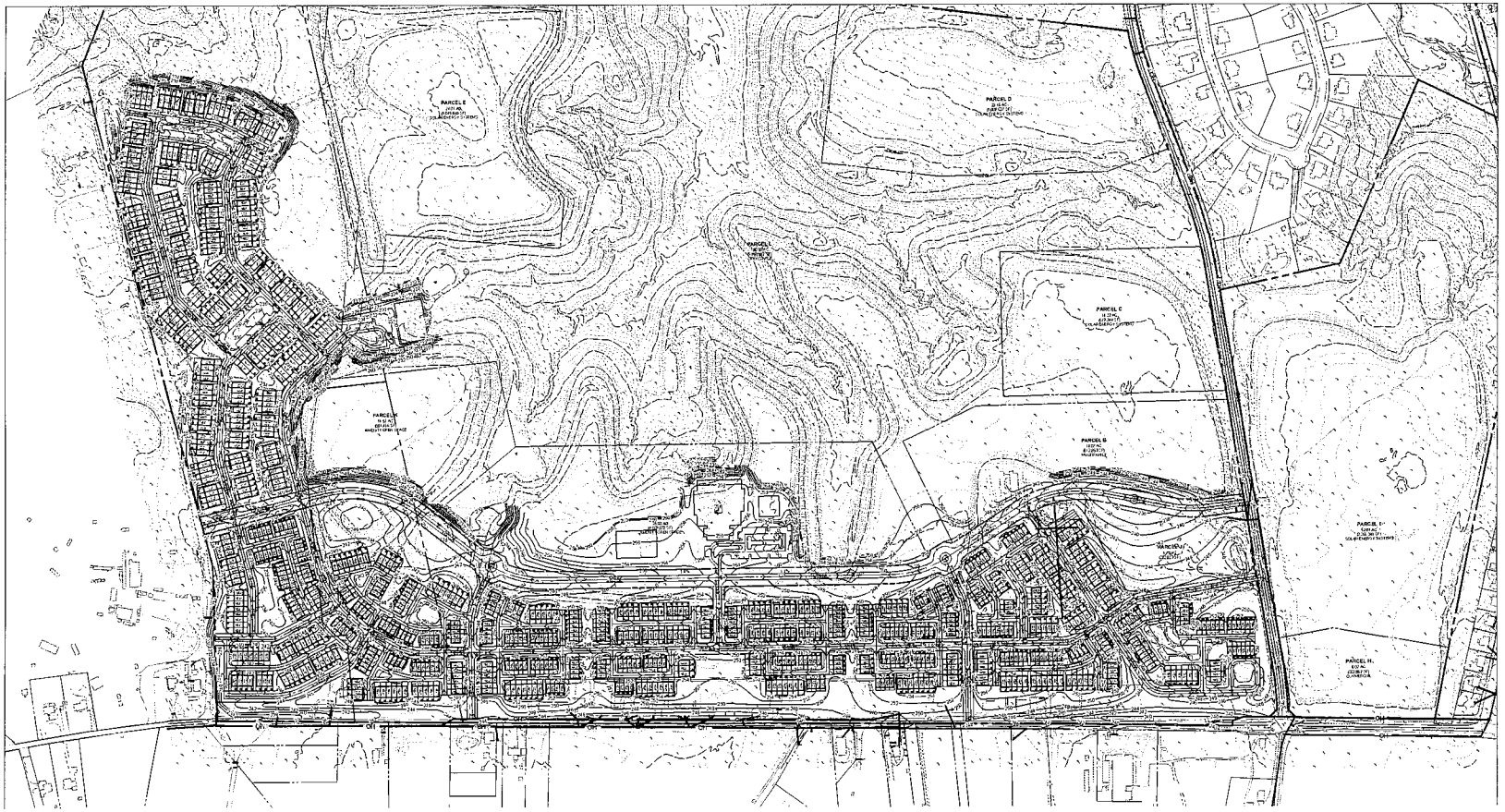


Figure 2

Topographic Map
Hyde Field
Piscataway Road & Steed Road
Clinton, Maryland 20735

Figure 3 - Proposed Site Features Map



GRAPHIC SCALE

1 INCH = 200 FT

PRELIMINARY NOT FOR CONSTRUCTION

REVISION	DATE	REVISION	DATE	REVISION	DATE

RODGERS CONSULTING

1101 Mercantile Lane, Suite 203, Largo, Maryland 20774
Ph: 301.948.4700 Fax: 301.948.6256 www.rodgers.com

	BY	DATE
BASE DATA		
DESIGNED	Rodgers	2022
DRAWN	BAM	01/2023
REVIEWED	CWH	01/2023
RODGERS CONTACT: Charles Howe		

RELEASE FOR: _____

BY: _____ DATE: _____

Preliminary Grading Exhibit

SCALE: 1"=200'

JOB No.:

DATE: JANUARY 2023

SHEET No.:

H:\00 Prince Georges\Hyde Park\xx.xxx\Exhibits\Preliminary Road Exhibit\Preliminary Grading Exhibit_2023 01 17.dwg

Attachment A

Historic Site Data

SURFACE SAMPLING SUMMARY			
ID	**Summary**	**PID Reading (ppm)**	**Rationale**
SS-1	Excavated to one foot bgs. Retained one-foot soil sample (SS-1) for laboratory analysis.	Surface = 244* 0ne foot bgs = <10*	Stained soil observed under or adjacent to petroleum ASTs
SS-2	Excavated to two feet bgs. Retained two-foot soil sample (SS-2) for laboratory analysis.	Surface = 528* 0ne foot bgs = 259* Two feet bgs = 24*	
SS-3	Excavated to one foot bgs. No samples retained for lab analysis.	Surface = 0*	
SS-4	Excavated to one foot bgs. No samples retained for lab analysis.	Surface = 0*	

Notes:

- Soil samples collected February 10, 2006.
- * = Suspected petroleum odor noted in sample.

SURFACE SOIL LABORATORY ANALYSIS RESULTS		
Sample Identification	**Analysis Parameter**	
	TPH-DRO	**TPH-GRO**
SS-1	56	**320 LF/HF**
SS-2	**13,000**	**2,300**
MDE RCS	230	230

SUBSURFACE SOIL LABORATORY ANALYSIS RESULTS (TEST PITS)												
Sample Identification	**TS-1**	**TS-2**	**TS-3**	**TS-4**	**TS-5**	**TS-6**	**TS-7**	**TS-8**	**TS-9**	**TS-10**	**ATC**	**MDE RCS**
Test Pit No.	TP-23	TP-25	TP-36A	TP-39	TP-40	TP-52	TP-56	TP-59	TP-68	TP-73	NA	NA
Depth (feet)	5	13	1	2	6	4	2	3	5	12	NA	NA
TPH DRO	ND	ND	51 HF	ND	ND	ND	ND	ND	26 HF	ND	NA	230
TPH GRO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	230
Arsenic	1.7	**4.2**	2.8	3.0	2.6	2.8	2.1	2.2	1.8	2.0	3.6	2.0
Barium	99	19	32	28	30	80	85	34	38	7.0	73	550
Total Chromium	75	20	13	18	13	16	21	11	13	9.2	28	12,023*
Lead	14	9.7	40	12	5.2	11	19	7.6	45	4.5	45	400
Other Metals	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Various	Various

Notes:

- Soil samples collected February 7, 2006 through February 14, 2006.
- Results expressed in ppm.
- ATC = Anticipated Typical Concentration for the Eastern Region of Maryland. According to the *MDE Cleanup Standards for Soil and Groundwater: Interim Final Guidance (Update No. 1)*, ATC levels serve as general indicators of background levels for metals in the state of Maryland. Additionally, "When an ATC concentration for a given province exceeds the Proposed Maryland Cleanup Standards (Residential), the ATC value for the appropriate province may be proposed as an acceptable alternative to the risk derived value presented in the Proposed Maryland Cleanup Standards (Residential)."
- Exceedances of the RCS and ATC are presented in **bold**.
- * = Based on the sum of the trivalent and hexavalent RCS values.
- NA = Not applicable
- ND = Not detected above the practical quantitation limit (PQL)
- HF = Heavier fuel/oil pattern observed in sample.

SUBSURFACE SOIL ANALYSIS RESULTS (BORINGS)							
ge Object mple Identification	**S-1**	**S-2**	**S-3**	**S-4**	**S-5**	**S-6**	**MDE RCS**
Boring No.	B-32	B-33	B-36	B-37	B-38	B-39	NA
Depth (feet)	10	20	20	25	20	20	NA
TPH DRO	**1,900**	ND	ND	ND	ND	ND	230
TPH GRO	**530**	ND	17	ND	ND	ND	230
Ethylbenzene	ND	ND	ND	ND	ND	ND	780
Xylenes	0.013 j	ND	ND	ND	ND	ND	NA*
Napthalene	2.2	0.003 j	ND	ND	ND	ND	160
4-methyl-2-pentanone (MIBK)	ND	ND	1.1	ND	ND	ND	630
Other VOCs	ND	ND	ND	ND	ND	ND	Various

Notes:

- Soil samples collected February 7, 2006 through February 14, 2006.
- TPH DRO, TPH GRO, and VOC results ppm.
- NA = not applicable/not established .
- ND = Not detected above the PQL.
- * = Based on the sum of the m-, p-, and o-xylenes RCS values.
- Exceedances of the RCS are presented in **bold**.

GROUNDWATER ANALYSIS RESULTS							
Sample Identification	**W-1**	**W-2**	**W-3**	**W-4**	**W-5**	**W-6**	**MDE GCS**
Boring No.	B-32	B-33	B-36	B-20	B-29	Well (MW-1)	NA
TPH-GRO	ND	ND	**0.310**	ND	ND	ND	0.047
TPH-DRO	ND	ND	ND	ND	ND	ND	0.047
Methylcyclohexane	ND	ND	0.042	ND	ND	ND	NA
Naphthalene	0.002	ND	ND	0.002	ND	ND	0.01
Methyl-t-butyl ether	ND	ND	ND	0.008	0.004	ND	0.02
Other VOCs	ND	ND	ND	ND	ND	ND	Various

Notes:

- Groundwater samples collected February 7, 2006 through February 22, 2006.
- TPH DRO, TPH GRO, and VOC results are expressed in ppm.
- NA = not applicable/not established
- Exceedances of the GCS are presented in **bold**.

Test Pit and Soil Boring Sampling Summary

SAMPLE ID	BORING/ TEST PIT	APPROXIMATE SAMPLE DEPTH	AOC	LABORATORY ANALYSIS
No sample	UST-1		AOC #4: Aviation fuel USTs	No sample
FUST	UST-1	Groundwater	AOC #4: Aviation fuel USTs	VOCs,TPH DRO and GRO, and lead
No sample	Fuel Reel		Former fuel reel	No sample
FI	FI	Groundwater	AOC #4: Aviation fuel USTs	VOCs,TPH DRO and GRO, and lead
UST-2	UST-s	Groundwater	AOC #6: Potential UST	VOCs, TPH DRO and GRO, and lead
KH-TP-4.5	KH-TP	4-5 feet bgs	AOC #2: Airplane and equipment maintenance	VOCs, TPH DRO and GRO, and lead
KH-TP-7.5	KH-TP	7-8 feet bgs	AOC #2: Airplane and equipment maintenance	VOCs, TPH DRO and GRO, and lead
DG	DG	Groundwater	General groundwater evaluation	VOCs,TPH DRO and GRO, and lead

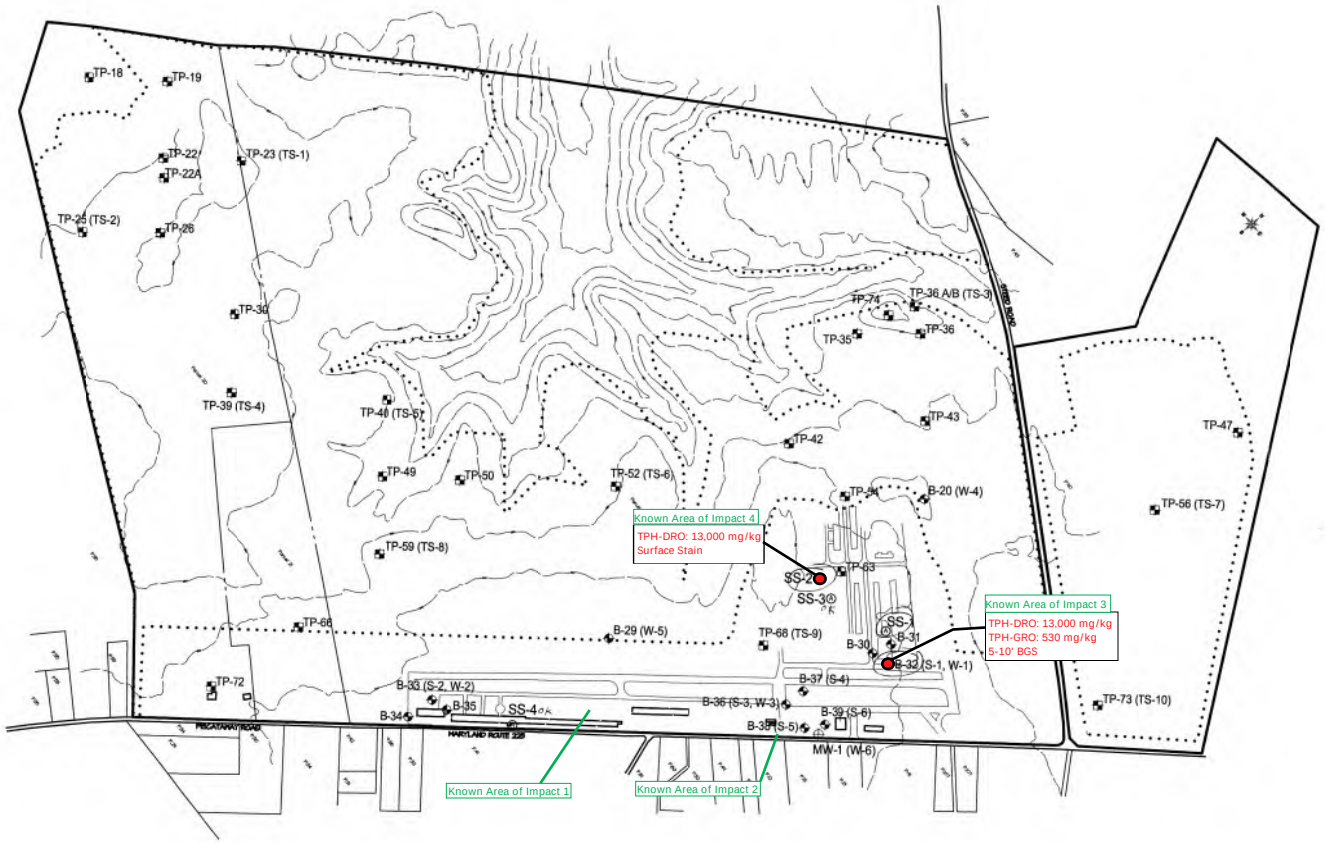
Notes:
VOCs = Volatile Organic Compounds
TPH = Total Petroleum Hydrocarbons
GRO = Gasoline Range Organics
DRO = Diesel Range Organics

Concentrations of contaminants of concern were non-detectable in each of the above samples with the exception of KH-TP which is summarized below.

SUBSURFACE SOIL LABORATORY ANALYSIS RESULTS (TEST PITS)				
Sample Identification	**KH-TP-4.5**	**KH-TP-7.5**	**ATC**	**MDE NRCS**
Test Pit No.	KH-TP	KH-TP	NA	NA
Depth (feet)	4.5	7.5	NA	NA
TPH DRO	ND	490	NA	620
TPH GRO	ND	17	NA	620
Lead	28	6.7	45	400
VOCS				
Acetone	30	0.019	NA	92,000
Ethylbenzene	ND	0.011	NA	10,000
Isopropylbenzene	ND	0.068	NA	10,000
Naphthalene	ND	0.150	NA	2,000
Other VOCs	ND	ND	NA	Various

Notes:

- Soil samples collected July 8, 2008.
- Results expressed in ppm.
- ATC = Anticipated Typical Concentration for the Eastern Region of Maryland. According to the *MDE Cleanup Standards for Soil and Groundwater: Interim Final Guidance (Update No. 2)*, ATC levels serve as general indicators of background levels for metals in the state of Maryland. Additionally, "When an ATC concentration for a given province exceeds the Proposed Maryland Cleanup Standards (Residential), the ATC value for the appropriate province may be proposed as an acceptable alternative to the risk derived value presented in the Proposed Maryland Cleanup Standards (Residential)."
- NA = Not applicable.
- ND = Not detected above the laboratory's reporting limit.



LEGEND

- B-36 (S-3, W-3) — Denotes approximate locations of test borings performed (and groundwater and soil samples collected) by GTA, February 2006.
- TP-52 (TS-6) — Denotes approximate locations of test pits performed (and soil samples collected) by GTA , February 2006.
- A TP-52 (TS-6) — Denotes approximate locations of leaking ASTs and surface soil samples collected by GTA , February 2006.
- MW-1 (W-6) — Denotes approximate location of previously installed groundwater monitoring well and groundwater sample collected by GTA , February 2006.
- Denotes approximate building locations.
- Denotes approximate subject property boundaries.
- Denotes approximate parcel boundaries.
- Denotes approximate mining extents.

NOTES

1. Base Map based on "Natural Resources Inventory" Map dated January 2006, prepared by Ben Dyer Associates, Inc.
2. Mining extents based on a 2004 aerial photograph, information provided by an owner representative, and a 1995 Hyde Field Gravel Extraction Site Grading & Sediment Control for Mining Plan prepared by Archibald Mining & Minerals, Inc.
3. This information should be considered approximate.
4. Test boring and test pit locations were selected by GTA and field located by Ben Dyer Associates, Inc. via instrumented survey.
5. Surface sample and groundwater monitoring well locations were identified using handheld Global Positioning Satellite (GPS) technology. Due to intrinsic accuracy limitations of GPS technology, the locations marked using GPS technology should be considered approximate.

GRAPHIC SCALE

GTA

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
14280 Park Center Drive, Suite A
Laurel, Maryland 20707
(410) 792-9446 or (301) 470-4470
FAX (410) 792-7395

FIGURE 6
Sample Location Plan

HYDE FIELD
Prince George's County, Maryland

DATE	REVISIONS

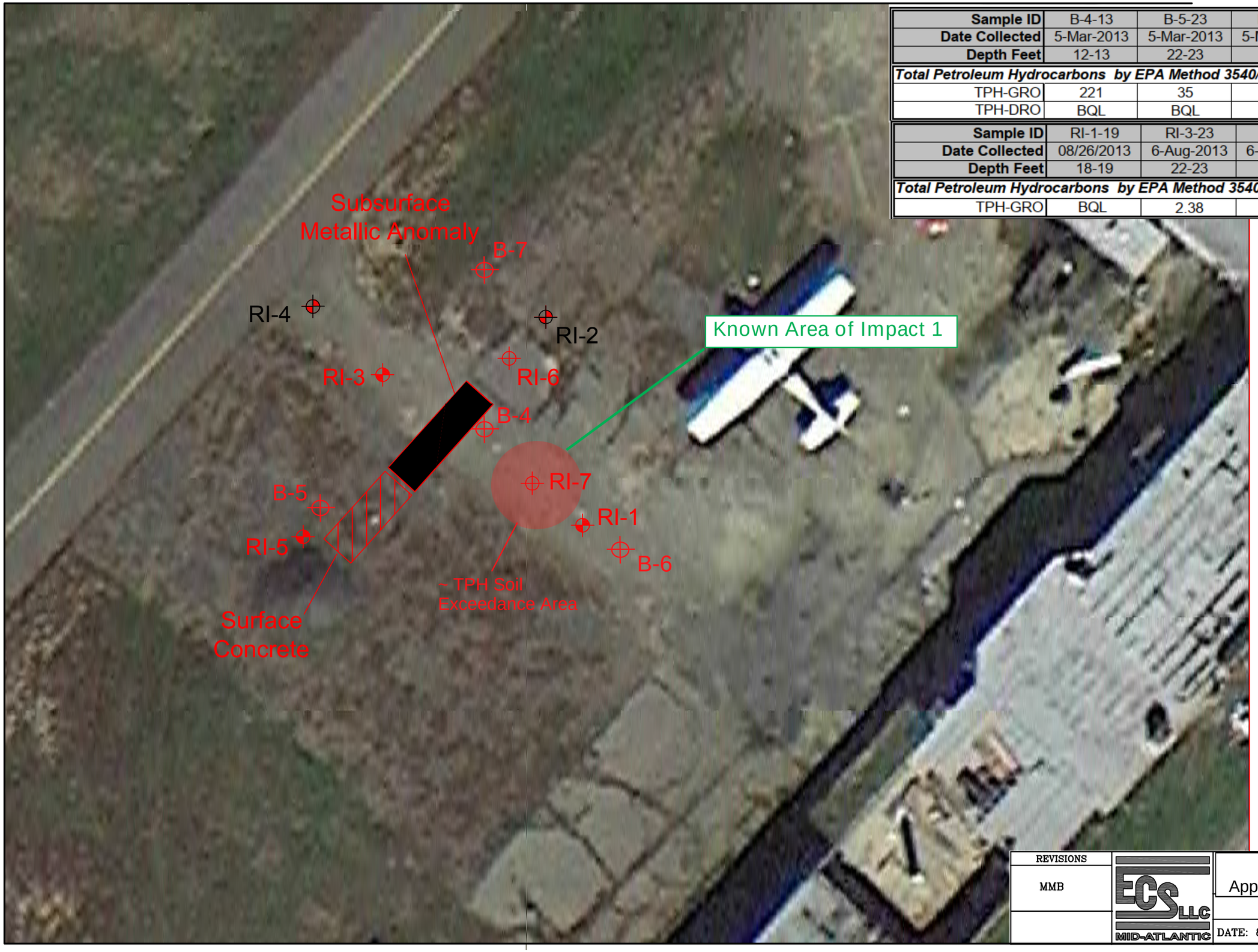
JOB NO.: 051495
SCALE: 1"=300'
DATE: March 2006
DRAWN BY: KPP
REVIEW BY: SJS
SHEET: 1 OF 1

Soil sample exceedances are outlined in RED

Tables and Figures Associated with Previous Sampling Even

ECS Subsurface Evaluations 2013 and 2014

Tables and Figures Associated with Previous Sampling Events



Sample ID	B-4-13	B-5-23	B-6-19	B-7-21
Date Collected	5-Mar-2013	5-Mar-2013	5-Mar-2013	5-Mar-2013
Depth Feet	12-13	22-23	18-19	20-21
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)				
TPH-GRO	221	35	BQL	0.18
TPH-DRO	BQL	BQL	BQL	BQL

Sample ID	RI-1-19	RI-3-23	RI-5-19	RI-6-22	RI-7-20
Date Collected	08/26/2013	6-Aug-2013	6-Aug-2013	6-Aug-2013	6-Aug-2013
Depth Feet	18-19	22-23	18-19	21-22	19-20
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)					
TPH-GRO	BQL	2.38	BQL	92.7	**437**

LEGEND:

RI-4 ⊕: No Soil Sample Analyzed

No VOC Exceedances in Soil Samples B-4, B-5 or B-7

No Metals, PCB or SVOC Exceedances in Sample B-4

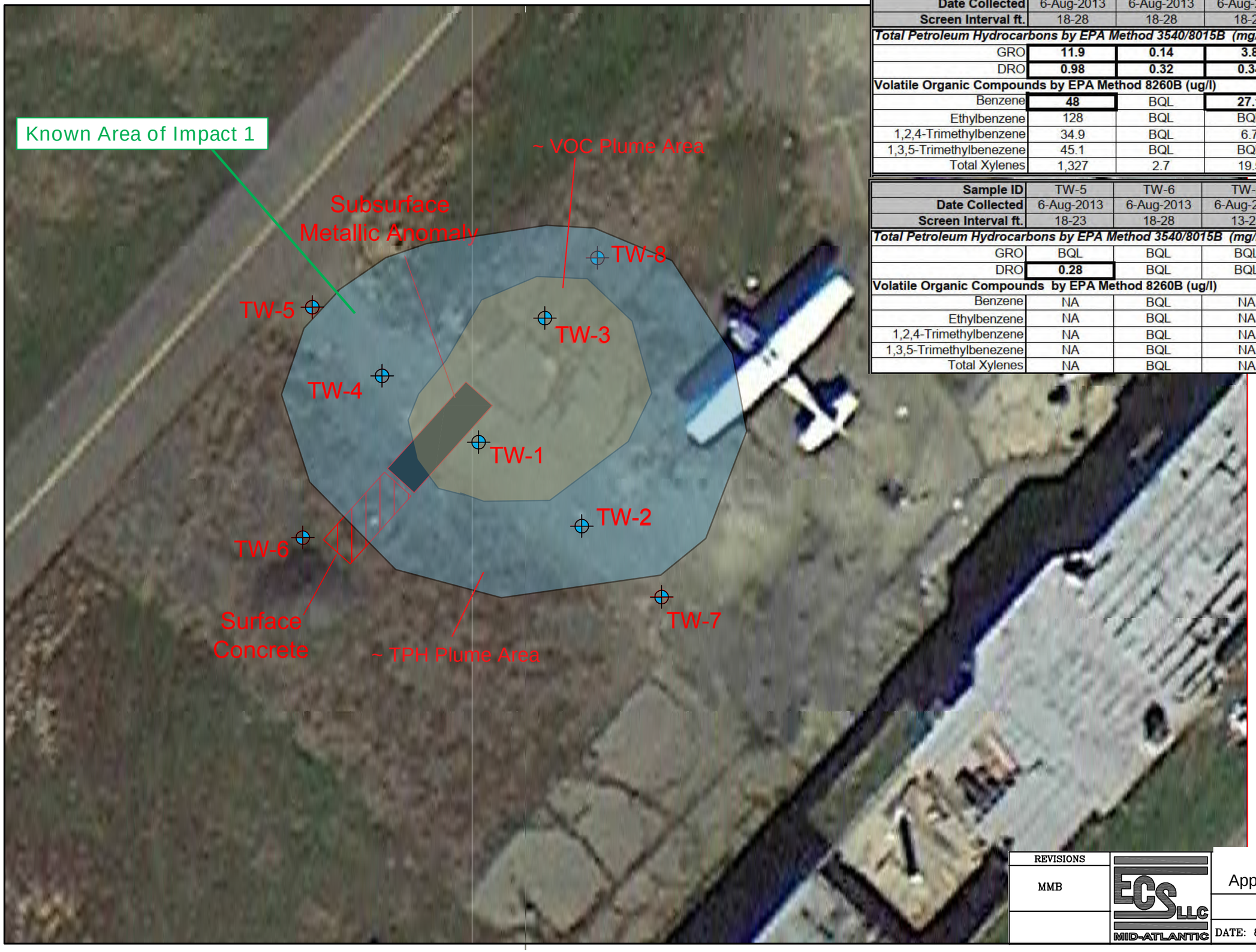
REVISIONS
MMB

ECS LLC MID-ATLANTIC

Vent Pipe Hangar #18
Apparent UST Soil Data Summary
HYDE FIELD

DATE: 8/2013 | SCALE 1"=15' | JOB#02-6295-C

Tables and Figures Associated with Previous Sam vents



Sample ID	TW-1	TW-2	TW-3	TW-4	MDE Groundwater
Date Collected	6-Aug-2013	6-Aug-2013	6-Aug-2013	6-Aug-2013	Cleanup
Screen Interval ft.	18-28	18-28	18-28	18-28	Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)					
GRO	**11.9**	**0.14**	**3.8**	**11.7**	0.047
DRO	**0.98**	**0.32**	**0.34**	**18.1**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)					
Benzene	**48**	BQL	**27.1**	BQL	5
Ethylbenzene	128	BQL	BQL	124	700
1,2,4-Trimethylbenzene	34.9	BQL	6.7	45.1	NP
1,3,5-Trimethylbenezene	45.1	BQL	BQL	68.6	NP
Total Xylenes	1,327	2.7	19.5	1,863	10,000

Sample ID	TW-5	TW-6	TW-7	TW-8	MDE Groundwater
Date Collected	6-Aug-2013	6-Aug-2013	6-Aug-2013	7-Aug-2013	Cleanup
Screen Interval ft.	18-23	18-28	13-23	18-23	Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)					
GRO	BQL	BQL	BQL	BQL	0.047
DRO	**0.28**	BQL	BQL	**0.43**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)					
Benzene	NA	BQL	NA	4.1	5
Ethylbenzene	NA	BQL	NA	BQL	700
1,2,4-Trimethylbenzene	NA	BQL	NA	NA	NP
1,3,5-Trimethylbenezene	NA	BQL	NA	NA	NP
Total Xylenes	NA	BQL	NA	BQL	10,000

REVISIONS	ECS LLC MID-ATLANTIC	Vent Pipe Hangar #18 Apparent UST GW Data Summary		
MMB		HYDE FIELD		
		DATE: 8/2013	SCALE 1"=15'	JOB#02-6295-C

Tables and Figures Associated with Previous Sampling Events

Sample ID	B-8-12	B-9-3.5	B-10-18	B-11-18	B-14-18
Date Collected	5-Mar-2013	7-Mar-2013	7-Mar-2013	7-Mar-2013	7-Mar-2013
Depth Feet	11-12	2.5-3.5	17-18	17-18	17-18
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)					
TPH-GRO	89.4	4.85	BQL	BQL	BQL
TPH-DRO	119	**394**	BQL	BQL	BQL

Sample ID	RI-9-7	RI-10-21	RI-11-20	RI-14-19	RI-15-7
Date Collected	7-Aug-2013	7-Aug-2013	7-Aug-2013	8-Aug-2013	8-Aug-2013
Depth Feet	6-7	20-21	19-20	18-19	6-7
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)					
TPH-DRO	BQL	BQL	BQL	BQL	78

Sample ID	RI-18-10	RI-19-6	RI-20-6	RI-30-6
Date Collected	8-Aug-2013	8-Aug-2013	8-Aug-2013	8-Aug-2013
Depth Feet	9-10	5-6	5-6	5-6
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)				
TPH-DRO	ND	ND	ND	88

B-10
RI-10
RI-11
B-14
RI-20
RI-8
B-8
RI-12
RI-19
RI-18
B-11
B-9
RI-30
RI-17
RI-9
RI-13
RI-14
RI-15
RI-16
Known Area of Impact 2
~ TPH Soil Exceedance Area

LEGEND:

RI-4 ⊕: No Soil Sample Analyzed

No VOC Exceedances in Soil Samples B-8, B-9 or B-11

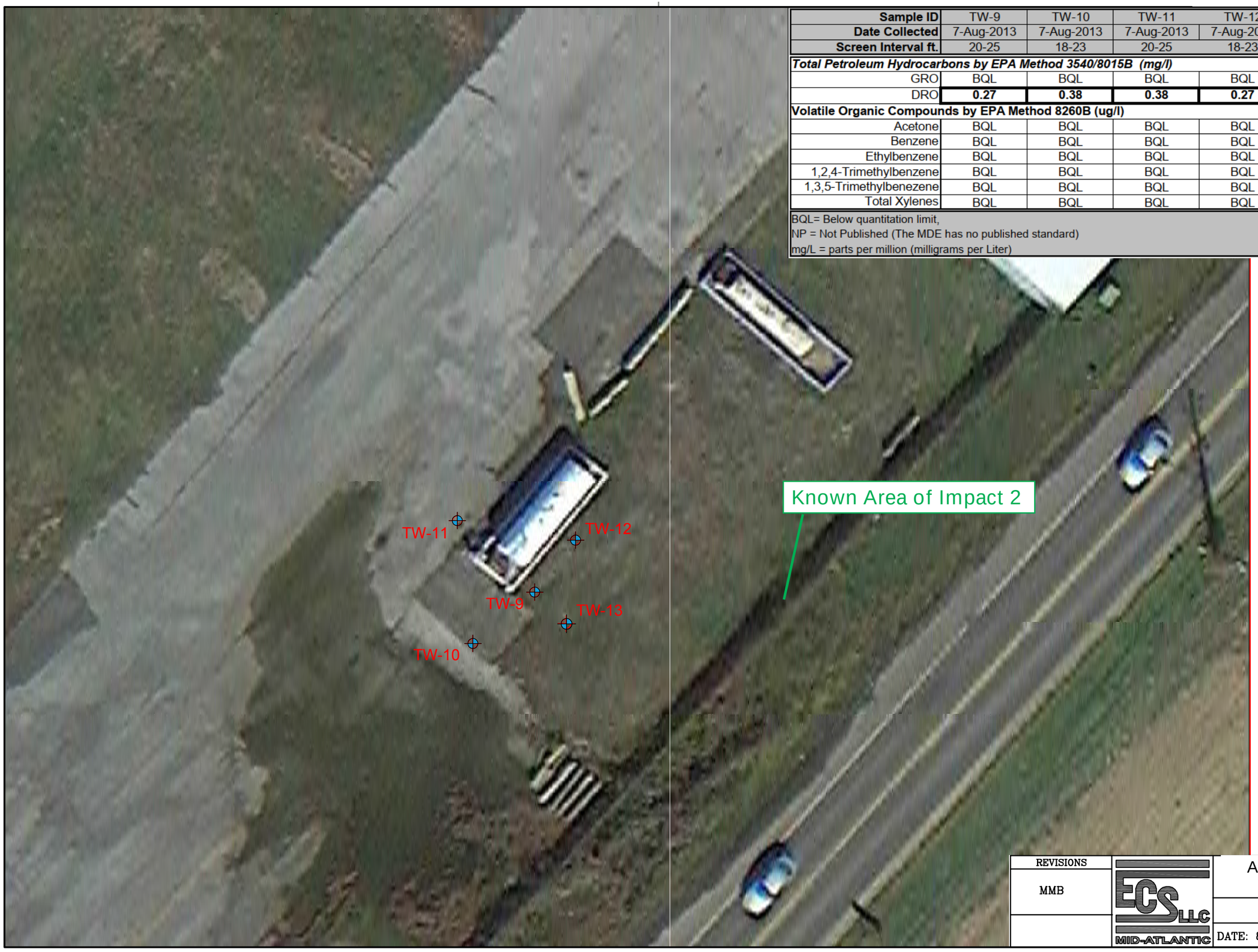
No Metals, PCB or SVOC Exceedances in Sample B-8

Tables and Figures Associated with Previous Sam

REVISIONS	ECS LLC MID-ATLANTIC	ASTs and Former Heating Oil UST Soil Data Summary		
MMB		HYDE FIELD		
		DATE: 8/2013	Scale 1"=20'	JOB#02-6295-C

Sample ID	TW-9	TW-10	TW-11	TW-12	TW-13	MDE Groundwater
Date Collected	7-Aug-2013	7-Aug-2013	7-Aug-2013	7-Aug-2013	7-Aug-2013	Cleanup
Screen Interval ft.	20-25	18-23	20-25	18-23	20-25	Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)						
GRO	BQL	BQL	BQL	BQL	BQL	0.047
DRO	**0.27**	**0.38**	**0.38**	**0.27**	**0.26**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)						
Acetone	BQL	BQL	BQL	BQL	44	550
Benzene	BQL	BQL	BQL	BQL	BQL	5
Ethylbenzene	BQL	BQL	BQL	BQL	BQL	700
1,2,4-Trimethylbenzene	BQL	BQL	BQL	BQL	BQL	NP
1,3,5-Trimethylbenezene	BQL	BQL	BQL	BQL	BQL	NP
Total Xylenes	BQL	BQL	BQL	BQL	BQL	10,000

BQL= Below quantitation limit,
NP = Not Published (The MDE has no published standard)
mg/L = parts per million (milligrams per Liter)



REVISIONS	ECS LLC MID-ATLANTIC	ASTs and Former Heating Oil UST GW Data Summary		
MMB		HYDE FIELD		
		DATE: 8/2013	Scale 1"=20'	JOB#02-6295-C

Tables and Figures Associated with Previous Submittal

Sample ID	RI-23-15	RI-24-15	RI-25-9	RI-26-12	RI-28-12	RI-29-7
Date Collected	8-Aug-2013	8-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013
Depth Feet	14-15	14-15	8-9	11-12	11-12	6-7
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)						
TPH-GRO	2.61	ND	46.6	NA	ND	4.42
TPH-DRO	**367**	ND	147	NA	ND	ND

Sample ID	B-18-10	B-20-9
Date Collected	7-Mar-2013	7-Mar-2013
Depth Feet	9-10	8-9
Total Petroleum Hydrocarbons by EPA Method		
TPH-GRO	3	36
TPH-DRO	**777**	**245**

B-23
B-19
RI-28
RI-29
RI-21
RI-22
B-18
RI-23
B-20
B-22
RI-27
RI-25
RI-24
RI-26
B-21
Known Area of Impact 3
~ TPH Soil Exceedance Area

LEGEND:

RI-4 ⊕ : No Soil Sample Analyzed

No VOC, PCB, or SVOC Exceedances in Soil Samples B-18 or B-20

Tables and Figures Associated with Previous Sam

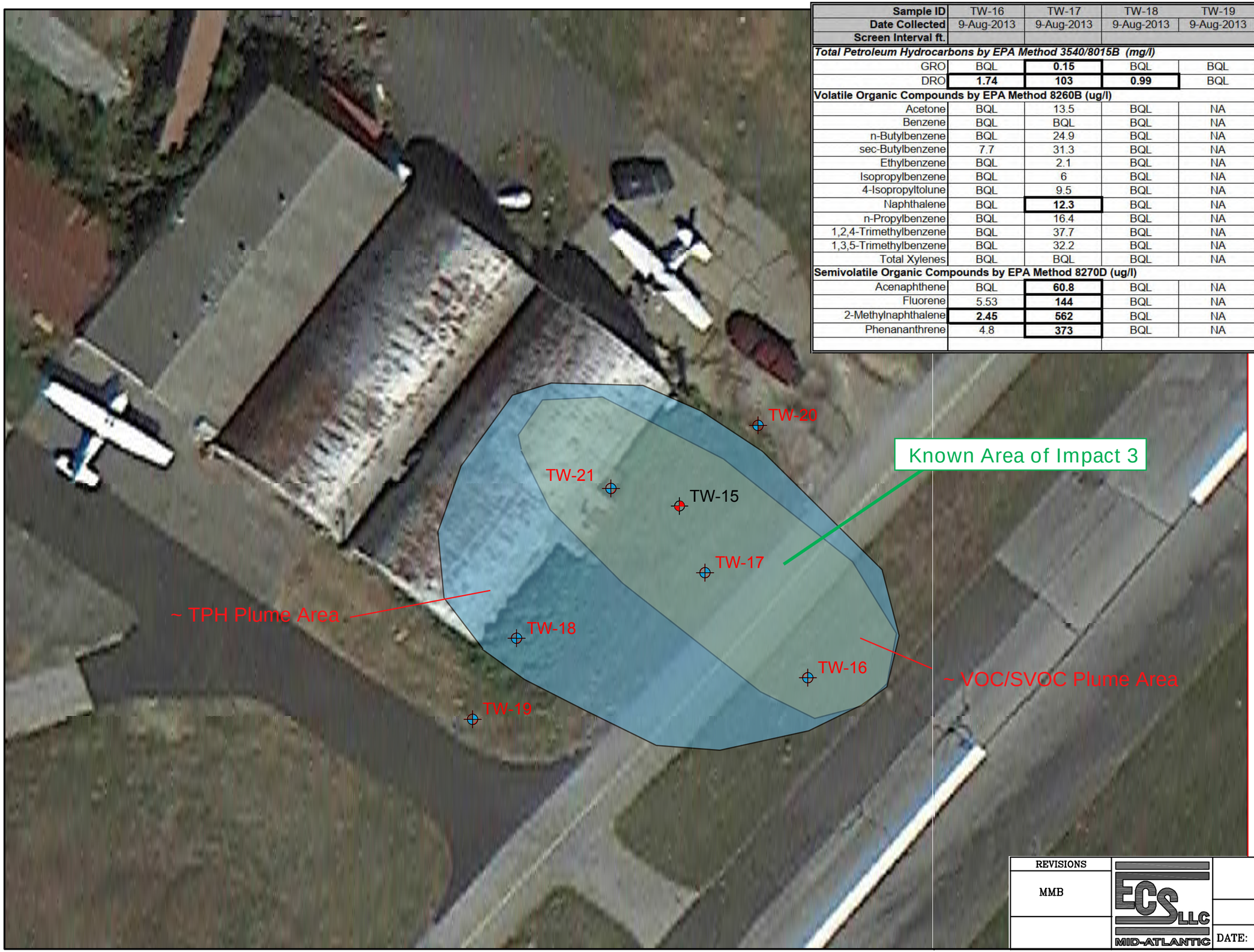
REVISIONS	ECS LLC MID-ATLANTIC	Gilley's Aviation TPH Soil Data Summary		
MMB		HYDE FIELD		
		DATE: 8/2013	SCALE 1"=20'	JOB#02-6295-C

Sample ID	RI-23-15	RI-24-15	RI-25-9	RI-26-12	RI-28-12	RI-29-7
Date Collected	8-Aug-2013	8-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013
Depth Feet	14-15	14-15	8-9	11-12	11-12	6-7
Metals by EPA Method 7060A (mg/kg)						
Arsenic	**7.93**	1.93	**50.3**	0.81	**5.45**	2.23

Sample ID	B-18-10	B-20-9	MDE Residential	MDE Non-Residential
Date Collected	7-Mar-2013	7-Mar-2013	Soil Cleanup	Soil Cleanup
Depth Feet	9-10	8-9	Standard	Standard
Metals (mg/kg)				
Arsenic	3.6	**69.7**	3.6*	1.9
Barium	18.5	35.3	73*	20,000
Chromium	11.5	18	28*	310
Lead	6.36	11.5	45*	1,000
Selenium	BQL	BQL	2.2*	510
Polychlorinated BiPhenyls by EPA Method				
PCBs	BQL	BQL	0.32	1.4
Semi-Volatile Organic Compounds by EPA Method 8270D (mg/kg)				
Acenaphthene	BQL	0.15 J	470	6,100
Fluorene	BQL	0.19 J	310	4,100
2-Methylnaphthalene	BQL	1.82	31	410
Naphthalene	BQL	0.2 J	160	2,000
Phenanthrene	0.17 J	0.44	2,300	31,000

REVISIONS	ECS LLC MID-ATLANTIC	Gilley's Aviation Arsenic Soil Data Summary		
MMB		HYDE FIELD		
		DATE: 8/2013	SCALE 1"=20'	JOB#02-6295-C

Sample ID	TW-16	TW-17	TW-18	TW-19	TW-20	TW-21	MDE Groundwater
Date Collected	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	Cleanup
Screen Interval ft.							Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)							
GRO	BQL	**0.15**	BQL	BQL	BQL	BQL	0.047
DRO	**1.74**	**103**	**0.99**	BQL	BQL	**0.88**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)							
Acetone	BQL	13.5	BQL	NA	46.3	BQL	550
Benzene	BQL	BQL	BQL	NA	BQL	BQL	5
n-Butylbenzene	BQL	24.9	BQL	NA	BQL	BQL	NP
sec-Butylbenzene	7.7	31.3	BQL	NA	BQL	BQL	NP
Ethylbenzene	BQL	2.1	BQL	NA	BQL	BQL	700
Isopropylbenzene	BQL	6	BQL	NA	BQL	BQL	66
4-Isopropyltolune	BQL	9.5	BQL	NA	BQL	BQL	NP
Naphthalene	BQL	**12.3**	BQL	NA	BQL	BQL	0.65
n-Propylbenzene	BQL	16.4	BQL	NA	BQL	BQL	NP
1,2,4-Trimethylbenzene	BQL	37.7	BQL	NA	BQL	BQL	NP
1,3,5-Trimethylbenzene	BQL	32.2	BQL	NA	BQL	BQL	NP
Total Xylenes	BQL	BQL	BQL	NA	BQL	BQL	10,000
Semivolatile Organic Compounds by EPA Method 8270D (ug/l)							
Acenaphthene	BQL	**60.8**	BQL	NA	BQL	BQL	37
Fluorene	5.53	**144**	BQL	NA	BQL	3.15	24
2-Methylnaphthalene	**2.45**	**562**	BQL	NA	BQL	**4.00**	2.4
Phenananthrene	4.8	**373**	BQL	NA	BQL	3.55	180



LEGEND:

TW-15 ⊕ : No GW Sample Analyzed

REVISIONS	ECS LLC MID-ATLANTIC	Gilley's Aviation GW Data Summary	
MMB		HYDE FIELD	
		DATE: 8/2013	SCALE 1"=20' | JOB#02-6295-C

Tables and Figures Associated with Previous Sampling Events

Attachment B

HASP

CONSTRUCTION WORKER HEALTH AND SAFETY PLAN FOR ENVIRONMENTAL CONCERNS

HYDE FIELD RESIDENTIAL PROPERTY
PORTIONS OF 10651 AND 10625 PISCATAWAY ROAD AND 4401 STEED ROAD
CLINTON, MARYLAND 20735

ECS PROJECT NO. 47:11866-H

FOR

HYDE FIELD ACQUISITION LLC

JANAURY 8, 2024

January 8, 2024

Ms. Ronnie Anderson
Land and Materials Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230-1719

ECS Project No. 47:11866-H

Reference: Construction Worker Health and Safety Plan for Environmental Concerns
Hyde Field Residential Property
Portions of 10651 and 10625 Piscataway Road and 4401 Steed Road
Clinton, Maryland 20735

Dear Ms. Anderson:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide this Health and Safety Plan (HASP) for the above referenced property. If there are questions regarding this report, or a need for further information, please contact us at 410-859-4300.

Respectfully submitted,

ECS MID-ATLANTIC, LLC

Stephen T. Dessel
Environmental Senior Project Manager

Michael M. Bell, CHMM
Environmental Principal

HYDE FIELD RESIDENTIAL PROPERTY
PORTIONS OF 10651 AND 10625 PISCATAWAY ROAD AND 4401 STEED ROAD
CLINTON, MARYLAND 20735

ECS PROJECT NO. 47:11866-H

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ATTACHMENTS:

Attachment A Site Inspection Log
Attachment B Health and Safety Briefing/Site Orientation Record/Hazard Communication
Attachment C Incident Report and/or Discovery of a Potential Hazard

1.0 OVERVIEW

Emergency Information

Phone Numbers:	Hospital #:	911	Ambulance #:	911
	Fire #:	911	Police #:	911

Hospital Name & Address: Medstar Southern Maryland Hospital Center, 7503 Surratts Road, Clinton, MD 20735

Directions and Street Map of Route to Nearest Hospital Attached: ☒ Yes (See Below) ☐ No

Other Emergency Contact: Michael Bell Phone #: 443-677-5053

Location of Nearest Phone: Onsite cell phones

Have Necessary Underground Utility Notifications for Subsurface Work Been Made? ☐ Yes ☐ Not Applicable

Work has not yet begun. Miss Utility must be notified and subsurface utilities located prior to any subsurface work.

Scope of Work

Site Description:	The site will be undeveloped land at the outset of this HASP. The site was formerly utilized as an airfield. Additionally, portions of the site were historically used as a surface mine which has since been reclaimed. Potential contaminants of concern at the site include petroleum hydrocarbons, volatile organic compounds, semi-volatile organic compounds, and metals
Specific Tasks Performed by ECS:	Excavation monitoring and sampling.
Concurrent Tasks to be Performed by Others:	Building demolition and site grading.

Does this project include confined space entry? ☐ yes ☒ no (Environmental Scope)

ECS Roles and Responsibilities:

Name	Project Title/Assigned Role	Telephone Numbers
Matt Koss	ECS Director of Corporate Health and Safety	Work: 571-287-7027 Cell: 571-353-0249
Michael M. Bell	ECS Project Principal	work: 410-859-4300 cell: 443-677-5053
Varies	Field Personnel	work: 410-859-4300 cell: Varies

2.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared to address health and safety procedures for construction or other activities where soil, vapor or groundwater contamination may be encountered during the course of work at the Site. This HASP is intended to generally comply with requirements under 29 CFR 1910.120 and the U.S. Environmental Protection Agency (EPA) Standard Operating Safety Guidelines for Hazardous Waste Operations. This document is not meant to be a substitute or replacement for an overall site safety and health program (SSHP) which ensures compliance with other OSHA regulations related to hazard communication, confined space, excavation, first aid, etc. It shall be the General Contractor's responsibility, independent of this HASP, to comply with all other related OSHA regulations outside of those covered under this plan under 29 CFR 1910.120.

The General Contractor should designate a Site Safety Officer (SSO) to implement the requirements of this plan, in addition to any other OSHA safety requirements. All site activities should be performed in accordance with the documents listed above. At the discretion of the SSO, certain individuals performing work activities that are included in this HASP may be required to complete the required training programs and maintain qualification through annual refresher training.

It is the responsibility of the contractor performing the work to implement this HASP and ensure that all requirements are met and procedures are followed.

This HASP was prepared using the available information regarding specific site conditions identified in the historical environmental assessment reports for the site. The health and safety specifications included in this HASP are based on publicly available data and established exposure limits for the identified contaminants present on the site.

3.0 SITE ORGANIZATION

The General Contractor is responsible for implementing this plan and ensuring that work on this project is performed in accordance with the provisions contained in this HASP and any other federal, state, and local safety and health regulations as they apply to the work they are performing. The General Contractor's Site Superintendent will designate a competent person as defined under Occupational Safety and Health Administration (OSHA), in their employment, as a Site Safety Officer (SSO). The SSO has full responsibility and authority to implement this Plan and to verify compliance with applicable OSHA, EPA, and other environmental, health, and safety guidance and regulations at the site. The SSO will report to the Site Superintendent and will be onsite or readily available to the site during all work operations and will have the authority to halt site work if unsafe conditions are observed and until such conditions are corrected.

The SSO is typically also responsible for the following:

- Maintaining a physical copy of this HASP on-site;
- Providing subordinate personnel and subcontractors a copy of this HASP, and briefing them on its content;
- Giving Hazard Awareness Orientation to all persons entering areas of known or suspected contamination, including visitors to the site;
- Enforcing the applicable provisions of this HASP and preparing an inspection log;
- Inspecting equipment in compliance with applicable federal, state or local safety regulations;
- Enforcement of corrective actions to mitigate unsafe conditions; and
- Investigation of accidents or injuries.

During the construction or any other activity where subsurface soil or groundwater may be encountered, site workers are responsible for complying with this HASP, using the proper personal protective equipment (PPE), reporting unsafe acts and conditions, and following the work and safety and health instructions of the site superintendent and SSO.

Field Personnel

All personnel that will be directly involved in the onsite execution of this HASP are responsible for:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees and being alert to all potentially harmful site conditions and operations.

- Performing only those tasks that they believe they can do safely and without harm to themselves and others,

- Immediately reporting any accidents, injuries, and/or unsafe situations or working conditions.

- Notifying the SSHO of any special medical conditions of which they are aware (e.g., allergies, seizures, pregnancy, and diabetes) that may result in an increased health or safety risk to themselves or others, and, if necessary, ensuring that all onsite personnel are aware of the condition.

- Preventing leaks, spills, or other releases to the environment of all onsite contaminants or chemical materials that might have been brought onsite, to the greatest extent possible. In the event a leak or spillage occurs, personnel are responsible for stopping the leak, containing the spillage, notifying the SSO, and cleaning up immediately using only those safe and effective cleanup measures as may be directed by the SSO. Personnel shall not engage in spill containment or cleanup if conditions are not safe.

- Adhering to contamination avoidance practices to include avoiding splashing materials to the greatest extent possible; avoiding walking through puddles, mud, etc.; and avoiding kneeling on the ground and leaning or sitting on contaminated equipment or the ground whenever possible.

- Practicing good housekeeping procedures by keeping the work area neat, clean, and orderly to the maximum extent possible.

- Reporting all injuries to their supervisor.

- Remaining alert to changing weather conditions and avoid working in conditions that could escalate potential site hazards, such as lightning, rain, and extreme heat or cold.

- Complying with the HASP and all health and safety recommendations, precautions, and the proper use of the different levels of PPE, as determined by this HASP and/or the SSO.

- ECS Field Personnel will be HAZWOPER-trained and will generally be on-site for all intrusive activities such as trenching for utility installation or any excavation that would result in potential worker exposure.

4.0 HAZARD/RISK ASSESSMENT

This section describes potential chemical, physical and environmental hazards that may be encountered at the site and the control measures that should be implemented to minimize or eliminate each hazard.

The primary contaminants of potential concern (COPCs) for construction workers at the Site are total petroleum hydrocarbons (TPH) diesel range organics (DRO), TPH gasoline range organics (GRO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. Equipment and controls proposed for use onsite to mitigate exposure to COPCs are outlined in Exhibit 1. Additionally, information and procedures for the proper use and implementation of the equipment and controls is outlined below.

Exhibit 1: Equipment and Controls

Monitoring Equipment [1] ☒ PID Type: Lamp Energy: 10.6 eV ☒ Cal gas and equipment type: 100 PPM Isobutylene ☐ LEL Meter ☐ Others: **Other Equipment & Gear [2]** ☒ 10# ABC Fire Extinguisher when gasoline powered equipment is present ☒ Caution Tape ☒ Traffic Cones or Stanchions ☒ Decon Buckets, Brushes, Detergent, Towels and	**Personal Protective Equipment** ☒ Hearing Protection ☒ Hardhat ☒ Outer Gloves Type: Latex/Nitrile ☒ Steel-toed boots/shoes ☒ Eye Protection with side shields ☒ Traffic Vest

1. All direct reading instruments must be referenced on site at least once/day (pre- and post-sampling) using a cal-gas reference standard and in accordance with the manufacturer's instructions. Monitoring using direct reading instruments should be continuous while there is disturbance of material (e.g., soil or fill).

2. A sufficient exclusion zone is required wherever necessary to control access to equipment, field personnel for decontamination and/or potential hazardous exposure situations.

3. Bulk soil should be removed from the tracks, tires, blades and buckets of all equipment when mobilizing offsite or from impacted areas to non-impacted areas of the site.

4.1 Air Monitoring Instruments and Action Levels:

Anticipated Chemical Hazards: Soil contamination exposure through inhalation of fugitive dust by on-site construction workers; Direct contact between on-site construction workers and contaminated soil, and inhalation of volatiles by on-site construction workers. A photoionization detector (PID) will be used to monitor VOCs.

Dust levels during on-site construction activities will be visually monitored. This includes soil excavation, grading, and movement of soils on the property during grading. If visible dust is observed, dust control measures will be implemented. If visible dust is not controlled using the methods outlined in the Response Action Plan (RAP), operations will cease, and additional dust control measures will be implemented.

Exhibit 2: Photo-Ionization Detector (PID) - Breathing Zone Readings:

0.0 to 25 ppm	Remain in Level D personal protective equipment. Continue monitoring.
> 25 ppm	Use colorimetric tubes or other chemical specific devices to verify Permissible Exposure Limit (PEL) contaminant levels. Cease work and consult with Site Supervisor if levels of benzene exceed 0.5 ppm on a sustained basis. If benzene levels exceed 1 ppm on a sustained basis or 5 ppm on a short term basis, secure operations, withdraw from work area, and discontinue work at that location until the area can be further evaluated.

4.2 Hazard Assessment: Physical Hazards

NA **Confined Space Entry (CSE)**. Confined space entry means the *potentially hazardous* entry into any space which, by design, has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include but are not limited to storage tanks, compartments of ships, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines. Other environments which must be treated as confined spaces include *test pits, and basements, garages, warehouses and other indoor areas where mechanical (i.e., diesel, propane, gasoline or similarly powered) equipment must be operated for drilling or test pitting purposes*. Confined space entry should be allowed only when absolutely necessary, and then only when all requirements of ECS's Confined Space Entry Control Program, and/or CSE Program Supplement for Indoor Drilling (and Similar Operations) and/or Trench and Excavation Safety and Health Guide (and CSE Program Supplement), contained in the Health and Safety Program Manual, have been satisfied.

☒ **Construction Hazards, Drill Rigs, Backhoes, etc.** The use of drill rigs, backhoes and other heavy equipment represent potentially serious construction hazards. Whenever such equipment is used, personnel in the vicinity should be limited to those who must be there to complete their assigned duties. All personnel must avoid standing within the turning radius of the equipment or below any suspended load. Job sites must be kept as clean, orderly and sanitary as possible. When water is used, care must be taken to avoid creating muddy or slippery conditions. If slippery conditions are unavoidable, barriers and warning signs must be used to warn of these dangers.

Never turn your back to operating machinery. Never wear loose clothing, jewelry, hair or other personal items around rotating equipment or other equipment that may catch or ensnare loose clothing, jewelry, hair or other personal items. Always stand far enough away from operating machinery to prevent accident contact which may result from mechanical or human error.

Additionally, the following basic personal protective measures must be observed: **Hardhats** must be worn to protect against bumps or falling objects. **Safety glasses** must be worn by all workers in the vicinity of drill rigs or other sources of flying objects. Goggles, face shields or other forms of eye protection must be worn when necessary to protect against chemicals or other hazards. **Steel-toed safety shoes or boots** are also required. Unless otherwise specified, normal **work clothes** must be worn. Gloves are also required whenever necessary to protect against hazardous contact, cuts, abrasions or other possible skin hazards.

☒ **Electrical**. OSHA regulations require that employees who may be exposed to electrical equipment be trained to recognize the associated hazards and the appropriate control methods. All **extension cords** used for portable tools or other equipment must be designed for hard or extra usage and be (three-wire) grounded. All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, and other locations where moisture/water contact may occur, must be equipped with **ground-fault circuit interrupters (GFCI)** units. GFCI units must be attached directly to or as close as possible to the receptacle. GFCI located away from the receptacle will not protect any wiring between the receptacle and the GFCI unit. Only the wiring plugged into the GFCI and outward will be protected by the GFCI. All **(temporary lighting)** lamps for general illumination must

be protected from accidental breakage. Metal case sockets must be grounded. Portable lighting in wet or conductive locations should be 12 volts or less.

☒ **Drums and Buried Drums**. As a precautionary measure, personnel must assume that *labeled* and *unlabeled drums* encountered during field activities contain hazardous materials until their contents can be confirmed and characterized. Personnel should recognize that drums are frequently mislabeled, particularly drums that are reused.

Only trained and authorized personnel should be allowed to perform drum handling. Prior to any handling, drums must be visually inspected to gain as much information as possible about their contents. Trained field personnel must look for signs of deterioration such as corrosion, rust or leaks, and for signs that the drum is under pressure such as swelling or bulging. Drum-type and drumhead configuration may provide the observer with information about the type of material inside, (i.e., a removable lid is designed to contain solids, while the presence of a bung indicates liquid storage).

Although not usually anticipated, buried drums can be encountered when digging test pits. Therefore, the following provisions must be observed if drums are encountered. Machine excavation (i.e., backhoe) should cease immediately anytime a drum is encountered. The appropriate management personnel should be notified immediately. All ECS personnel should be instructed to immediately leave the work area.

Even authorized personnel must not enter an excavation where drums have been uncovered, even for monitoring purposes, unless all provisions of OSHA's trenching and excavation standard have been met and the appropriate level of personal protective equipment (PPE) is utilized. Sampling of unknown drums usually requires Level B protection. Buried drums must not be moved unless it can be accomplished in a safe manner and over-pack drums are available.

☒ **Fire and Explosion**. The possibility of flammable materials being encountered during field activities must be recognized and the appropriate steps necessary to minimize fire and explosion must be observed. This includes situations where *excessive organic vapors, free product or methane* are, or may be, encountered. When this occurs, monitoring with a combustible gas indicator (LEL), is required.

Keep flammable and combustible materials away from heat, sparks and open flames; do not smoke around flammable or combustible materials; provide an ABC rated fire extinguisher appropriate for the materials present, and if applicable keep all flammable and combustible liquids in approved and properly labeled safety containers.

NA Landfill/Methane Hazards. Fire and explosion should be regarded as one of, if not the, most significant potential hazards associated with drilling operations and other intrusive work conducted at a landfill. Accordingly, all sources of ignition must be fully controlled. Failure to control ignition sources could result in fire, explosion and pose a serious threat to life and health. Control methods may include forced ventilation and/or filling the borehole with enough water to inhibit the release of methane and other gases which would otherwise escape through the top of the borehole.

If forced (mechanical) ventilation is to be used, all such equipment must be approved for Class I, Division I hazardous atmospheres. The blower must be positioned to blow across the top of the borehole so that gases and vapors may be diluted as they exit the borehole. Do not attempt to suck out the gases or vapors. Blowers, all other mechanical equipment, and tools which could release sparks or static electricity must be bonded and grounded.

Regardless of the gas/vapor control method used, the atmosphere surrounding the borehole must be frequently monitored using direct reading instruments approved for Class I, Division I hazardous atmospheres. Monitoring should be conducted within 1 to 2 feet of the top of the borehole. Do not insert sampling devices into the borehole. The use of tubing connected to a remote instrument is recommended. Never approach the auger or drill shaft while it is in operation. Always notify the operator when about to take a reading.

Regardless of actual instrument readings, if all sources of ignition cannot be controlled, operations should be immediately shut down if readings equal or exceed 10% of LEL and the area evacuated until ignition sources have been eliminated. Ignition sources include, but are not limited to: smoking, static electricity, lighting, open flames, spontaneously ignitable substances, frictional heat or sparks, hot surfaces, radiant heat, electrical sparks, stray currents, cutting and welding, and ovens, furnaces and heating equipment.

☒ **Heat and Cold Stress**. Overexposure to temperature extremes can represent significant risks to personnel if simple precautions are not observed. Typical control measures designed to prevent **heat stress** include dressing properly, drinking plenty of the right fluids, and establishing an appropriate work/break regimen. Typical control measures designed to prevent **cold stress** also include dressing properly and establishing an appropriate work/break regimen. In hot conditions, employees should drink one cup of cool liquid every 20 minutes. Water shall be available at the site; however, as noted above, no eating, drinking or smoking shall occur in areas where exposure to contaminated soils and/or groundwater may occur. Therefore, a designated break area should be established by the contractor outside the work zone where water may be safely provided to workers.

☒ **Moving Vehicles, Traffic Safety**. All vehicular traffic routes which could impact worker safety must be identified and communicated. Whenever necessary, barriers or other methods must be established to prevent injury from moving vehicles. Traffic vests must be worn by personnel working near moving vehicular traffic. This is particularly important when field activities are conducted in parking lots, driveways, ramps or roadways.

☒ **Noise**. Noise exposure can be affected by many factors including the number and types of noise sources (continuous vs. intermittent or impact), and the proximity to noise intensifying structures such as walls or buildings which cause noise to bounce back or echo. The single most important factor effecting total noise exposure is distance from the source. The closer one is to the source the louder the noise. The operation of a drill rig, backhoe or other mechanical equipment can be sources of significant noise exposure. In order to reduce the exposure to this noise, personnel working in areas of excessive noise must use hearing protectors (ear plugs or earmuffs).

Rule-of-Thumb: Wherever actual data from sound level meters or noise dosimeters is unavailable and it is necessary to raise one's voice above a normal conversational level to communicate with others within 3 to 5 feet away, hearing protection should be worn.

☒ **Overhead Utilities and Hazards**. Overhead hazards can include low hanging structures which can cause injury due to bumping into them. Other overhead hazards include *falling objects, suspended loads, swinging loads and rotating equipment*. Hardhats must be worn by personnel in areas where these types of physical hazards may be encountered. Barriers or other methods must also be used to exclude personnel from these areas were appropriate. Electrical wires are another significant overhead hazard. According to OSHA (29 CFR 1926.550), *the minimum clearance which must be maintained from overhead electrical wires is 10 feet* from an electrical source rated $\leq$ 50 kV. Sources rated > 50 kV require a minimum clearance of 10 feet plus 0.4 inch per kV above 50 kV.

☒ **Pedestrian Traffic**. The uncontrolled presence of pedestrians on a drilling or excavation site can be hazardous to both pedestrians and site workers. Prior to the initiation of site activities, the site should be surveyed to determine if, when and where pedestrian may gain access. This includes walkways, parking lots, gates and doorways. Barriers or caution tape should be used to exclude all pedestrian traffic. *Exclusion of pedestrian traffic is intended to prevent injury to the pedestrians and eliminate distractions which could cause injury to ECS personnel or other site workers*.

☒ **Test Pit and/or other Excavations**. All provisions of the OSHA trenching and excavation standard (29 CFR 1926.650-652) contained in the Health and Safety Manual must be followed during excavation activities. This includes *all test pit excavation and sampling activities*. The estimated location of utility installations, such as sewer, telephone, electric, water lines and other underground installations that may reasonably be expected to be encountered during excavation work, must be determined prior to opening an excavation.

Excavations in contaminated or potentially contaminated areas considered confined spaces must be tested for confined spaces atmospheric hazards prior to entry. Excavations should not be entered if other means are available to perform the task requiring entry. If entry into an excavation is required, the atmosphere within the space must be monitored by a trained person to assure that oxygen concentrations are at greater than or equal to 19.5 percent, that combustible gas levels are less than 10 percent, and that vapor levels are within applicable safe exposure (PEL and TLV) limits.

A ladder or similar means of egress must be located in excavations greater than 4 feet in depth so as to require no more than 25 feet of lateral travel for employees. *No person should be allowed to enter an excavation in type*

B or C soil greater than 5 feet in depth unless the walls of the excavation have been protected using an approved shield (trench box), an approved shoring system, or the walls have been sloped back to an angle of 34 degrees, the excavation is free of accumulated water, and the excavation has been tested for hazardous atmospheres as noted previously (if contamination believed present). If personnel enter an excavation, the spoils pile and all materials must be placed at least 2 feet from the edge of the excavation to prevent the materials from rolling into the excavation. *Personnel must remain at least 2 feet away from the edge of the excavation at all times*. Upon completion of a test pit exploration, the excavation should be backfilled and graded. Excavation should never be left open unless absolutely necessary, and then only with proper barricading and controls to prevent accidental injury.

☒ **Underground Utilities and Hazards**. The identification of underground storage tanks (USTs), pipes, utilities and other underground hazards is critically important prior to all drilling, excavating and other intrusive activities. In accordance with OSHA 29 CFR 1926.650, *the estimated location of utility installations, such as sewer, telephone, electric, water lines and other underground installations that may reasonably be expected to be encountered* during excavation work, *must be determined* prior to opening an excavation. Where public utilities may exist, the utility agencies or operators must be contacted directly or through a utility-sponsored service such as *Miss Utility*. Where other underground hazards may exist, reasonable attempts must be made to identify their locations as well. *Failure to identify underground hazards can lead to fire, explosion, flooding, electrocution or other life threatening accidents.*

NA Water Hazards and Boat Sampling. The collection of water or sediment samples on or immediately adjacent to a body of water can pose significant hazards. In addition to the slip, trip and fall hazards associated with wet surfaces, the potential for drowning accidents must be recognized. These hazards can be intensified by the use of some personnel protective equipment (PPE), particularly if respiratory protection is worn. OSHA 29 CFR 1926.106 requires that all employees working over or near water, where the danger of drowning exists, *must wear a U.S. Coast Guard-approved life jacket or buoyant work vest*. Ring buoys and emergency *standby personnel* must also be in place.

4.2.1 Summary of Physical Hazards and Related Concerns

General physical hazards that may be associated with site activities include slips, trips, falls, contact and crushing-type injuries, eye abrasions, noise, contusions, lacerations, flammability, and heat-stress concerns. The potential for such hazards necessitates the use of gloves and safety shoes or boots that meet American National Standards Institute (ANSI) Z41.1, eye protection that meets ANSI Z87.1, and hard hats that meet ANSI Z89.1 levels of protection. All PPE use, equipment, and associated training must also meet appropriate requirements under OSHA.

The primary form of site control will be perimeter fencing. Signage will be posted prohibiting unauthorized entry. Access to the site will be restricted to reduce the potential for exposure to its health and safety hazards. During hours of site operation, site entry and exit will be permitted only at identified locations.

4.3 Hazard Assessment: Chemical Hazards

☒ **Chemicals Subject to OSHA Hazard Communication**. All applicable fuels and chemicals used in field activities such as solvents, reagents, decontamination solutions, or any other hazardous chemical must be listed and accompanied by the required labels, Material Safety Data Sheets (MSDS), and employee training documentation (OSHA 1910.1200). Such chemicals stored in containers with a capacity of 55 gallons or greater shall have secondary containment. Requirement for secondary containment does not apply to tanks mounted on vehicles. Those persons brining any quantity of fuel or hazardous substances onsite are responsible for having adequate spill response and spill containment materials for the volume imported to the site.

NA Asbestos. Disturbance of building materials in buildings built prior to 1980 must be evaluated for the presence of asbestos-containing materials by an accredited ECS inspector. The inspection and/or removal of asbestos-based or asbestos-containing building materials is regulated by some major cities and several states. Regulations require individuals who conduct building inspections for the presence of asbestos or collect samples of asbestos containing materials to be licensed or certified. ECS employees must determine the applicability of these regulations prior to any activities involving asbestos. The primary health effects of asbestos exposure include asbestosis (a scarring of the lungs), lung cancer, mesothelioma and other forms of cancer. Exposure to asbestos is regulated by a comprehensive OSHA standard (29 CFR 1910.1001).

☒ **BTEX Compounds**. Exposure to the vapors of **benzene, ethyl benzene, toluene** and **xylenes** above their respective permissible exposure limits (PELs), as defined by the Occupational Safety and Health Administration (OSHA), may produce irritation of the mucous membranes of the upper respiratory tract, nose and mouth. Overexposure may also result in the depression of the central nervous system. Symptoms of such exposure include drowsiness, headache, fatigue and drunken-like behavior. Benzene has been determined to be carcinogenic, targeting blood-forming organs and bone marrow. The odor threshold for benzene is higher than the PEL and employees may be overexposed to benzene without sensing its presence, therefore, detector tubes must be utilized to evaluate airborne concentrations as outlined above.

The vapor pressures of these compounds are high enough to generate significant quantities of airborne vapor. On sites where high concentrations of these compounds are present, a potential inhalation hazard to the field team during subsurface investigations can result. However, if the site is open and the anticipated quantities of BTEX contamination are small (i.e., part per million concentrations in the soil or groundwater), overexposure potential will also be small.

☒ **Carbon Monoxide**. Carbon monoxide (CO) is a gas usually formed by the incomplete combustion of various fuels. Welding, cutting and the operation internal combustion engines can produce significant quantities of CO. Amounts of CO can quickly rise to hazardous levels in poorly ventilated areas. CO is odorless and colorless. It cannot be detected without appropriate monitoring equipment. LEL/O_2 meters and H-Nu/photoionizing detectors are <u>not</u> appropriate for the detection of CO. A direct reading instrument, calibrated for CO, should be used. Common symptoms of overexposure include pounding of the heart, a dull headache, flashes before the eyes, dizziness, ringing in the ears and nausea. These symptoms must not be relied upon in place of an appropriately calibrated monitoring instrument. Exposures should not exceed 15 ppm. Exposures above 15 ppm require the use of supplied air respirators. Air purifying respirators are not approved for protection against CO.

NA Chlorinated Organic Compounds. Exposure to the vapors of many chlorinated organic compounds such as vinyl chloride, tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene and 1,2-dichloroethylene above their respective permissible exposure limits (PELs) will result in similar symptoms. The actual PELs as set by the Occupational Safety and Health Administration (OSHA) vary depending on the specific compound. Overexposure to the vapor of these compounds can cause irritation of the eyes, nose and throat. The liquid if splashed in the eyes, may cause burning irritation and damage. Repeated or prolonged skin contact with the liquid may cause dermatitis. Acute overexposure to chlorinated hydrocarbons depresses the central nervous system exhibiting such symptoms as drowsiness, dizziness, headache, blurred vision, incoordination, mental confusion, flushed skin, tremors, nausea, vomiting, fatigue and cardiac arrhythmia. Alcohol may make symptoms of overexposure worse. If alcohol has been consumed, the overexposed worker may become flushed. Some of these compounds are considered to be potential human carcinogens. Exposure to *vinyl chloride* is regulated by a comprehensive OSHA standard (29 CFR 1910.1017).

☒ **Chromium Compounds**. Hexavalent chromium compounds, upon contact with the skin can cause ulceration and possibly an allergic reaction. Inhalation of hexavalent chromium dusts is irritating and corrosive to the mucous membranes of the upper respiratory tract. Chrome ulcers and chrome dermatitis are common occupational health effects from prolonged and repeated exposure to hexavalent chromium compounds. Acute exposures to hexavalent chromium dusts may cause coughing or wheezing, pain on deep inspiration, tearing, inflammation of the conjunctiva, nasal itch and soreness or ulceration of the nasal septum. Certain forms of hexavalent chromium have been found to cause increased respiratory cancer among workers.

Trivalent chromium compounds (chromic oxide) are generally considered to be of lower toxicity, although dermatitis may occur as a result of direct handling.

☒ **Fuel Oil**. See Petroleum Hydrocarbons (PHC)

☒ **Gasoline**. See BTEX Compounds, and Tetraethyl and Tetramethyl Lead.

NA Herbicides. Some of the commonly used herbicides present a low toxicity to man. However, other herbicides pose more serious problems. Organophosphorus and carbamate herbicides, if inhaled or ingested can interfere with the functioning of the central nervous system. Many herbicides can be readily absorbed through the skin to cause systemic effects. In addition to being absorbed through the skin, many herbicides, upon contact with the skin, may cause discoloring, skin irritation or dermatitis. Contaminants of commercial preparations of chlorinated phenoxy herbicides such as 2,4,5-T include 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin). Dioxin is a known mutagen and a suspect carcinogen.

NA Hydrogen Sulfide (H_2S). Hydrogen sulfide, characterized by its "rotten egg" odor, is produced by the decomposition of sulfur-containing organic matter. It is found in many of the same areas where methane is

found such as landfills, swamps, sewers and sewer treatment facilities. An important characteristic of H_2S is its ability to cause a decrease in one's ability to detect its presence by smell. So although one may no longer be able to smell it, it could still be present in harmful concentrations.

The symptoms of over exposure include headache, dizziness, staggering and nausea. Severe over exposure can cause respiratory failure, coma, and death. The current OSHA PEL is 10 ppm as an 8-hour TWA. The ACGIH TLV is the same.

NA **Lead Paint**. The inspection and/or removal, sanding, grinding, etc. of lead-based or lead-containing paints is now strictly regulated by OSHA. States may require individuals who conduct lead paint inspections or collect samples of lead paint to be licensed or certified. Employees must determine the applicability of these regulations prior to any activities involving lead paint. For additional health information, see Metal Compounds.

☒ **Metal Compounds**. Overexposure to metal compounds has been associated with a variety of local and systemic health hazards, both acute and chronic in nature, with chronic effects being most significant. Direct contact with the dusts of some metal compounds can result in contact or allergic dermatitis. Repeated contact with arsenic compounds may result in hyperpigmentation. Cases of skin cancer due to the trivalent inorganic arsenic compounds have been documented. The moist mucous membranes, particularly the conjunctivae, are most sensitive to the irritating effects of arsenic. Copper particles embedded in the eye result in a pronounced foreign body reaction with a characteristic discoloration of eye tissue.

Inhalation of copper and zinc dusts and fumes above their established PELs may result in flu-like symptoms known as "metal fume fever." Prolonged and repeated inhalation of the dusts of inorganic arsenic compounds above the established PEL may result in weakness, loss of appetite, a sense of heaviness in the stomach and vomiting. Respiratory problems such as cough, hoarseness and chest pain usually precede the gastrointestinal problems. Chronic overexposure to the dusts of inorganic arsenic may result in lung cancer.

The early symptoms of lead poisoning are usually nonspecific. Symptoms include sleep disturbances, decreased physical fitness, headache, decreased appetite and abdominal pains. Chronic overexposure may result in severe colic and severe abdominal cramping. The central nervous system (CNS) may also be adversely affected when lead is either inhaled or ingested in large quantities for extended periods of time. The peripheral nerve is usually affected. "Wrist drop" is peculiar to such CNS damage. Lead has also been characterized as a male and female reproductive toxin as well as a fetotoxin. Exposure to lead (Pb) is regulated by a comprehensive OSHA standard (29 CFR 1910.1025).

NA **Methane**. Methane is an odorless, colorless, tasteless, gas that cannot be detected by an H-Nu or similar photoionizing detector (PID). When present in high concentrations in air, methane acts primarily as a simple asphyxiant without other significant physiologic effects. Simple asphyxiants dilute or displace oxygen below that required to maintain blood levels sufficient for normal tissue respiration.

Methane has a lower explosive limit (LEL) of 5 percent and an upper explosive limit (UEL) of 15 percent. The LEL of a substance is the minimum concentration of gas or vapor in air below which the substance will not burn when exposed to a source of ignition. This concentration is expressed in percent by volume. Below this concentration, the mixture is "too lean" to burn or explode. The UEL of a substance is the maximum concentration of gas or vapor in air above which the substance will not burn when exposed to a source of ignition. Above this concentration, the mixture is "too rich" to burn or explode. The explosive range is the range of concentrations between the LEL and UEL where the gas-air mixture will support combustion. For methane this range is 5 to 15 percent.

NA **Pesticides**. Pesticides can be grouped into three major categories: organophosphates, carbamate and chlorinated hydrocarbons. The **actual** permissible exposure limits (PELs) as set by the Occupational Safety and Health Administration (OSHA), vary depending on the specific compound. Organophosphates, including Diazinon, Malathion and Parathion, are quickly absorbed into the body by inhalation, ingestion and direct skin contact. The symptoms of exposure include headache, fatigue, dizziness, blurred vision, sweating, cramps, nausea and vomiting. More severe symptoms can include tightness of the chest, muscle spasms, seizures and unconsciousness. It should also be noted that the Malathion and Parathion PELs both carry the *Skin* notation, indicating that these compounds adversely affect or penetrate the skin. OSHA specifies that skin exposure to substances carrying this designation be prevent or reduced through the use of the appropriate personal protective equipment (PPE).

Chlorinated Hydrocarbons such as Chlordane, DDT and Heptachlor can cause dizziness, nausea, abdominal pain and vomiting. The more severe symptoms include epileptic like seizures, rapid heartbeat, coma and death. These compounds also carry the OSHA *Skin* notation. The symptoms of exposure to carbamate such Carbaryl (also known as Sevin) are similar to those described for the organophosphates. However, the OSHA exposure limit for Carbaryl *does not* carry the Skin notation.

☒ **Petroleum Hydrocarbons (PHCs)**. Petroleum Hydrocarbons such as fuel oil are generally considered to be of low toxicity. Recommended airborne exposure limits have not been established for these vapors. However, inhalation of low concentrations of the vapor may cause mucous membrane irritation. Inhalation of high concentrations of the vapor may cause pulmonary edema. Repeated or prolonged direct skin contact with the oil may produce skin irritation as a result of defatting. Protective measures, such as the wearing of chemically resistant gloves, to minimize contact are addressed elsewhere in this plan. Because of the relatively low vapor pressures associated with PHCs, an inhalation hazard in the outdoor environment is not likely. If excavation activities result in nuisance petroleum odors, an odor-suppression foam may be utilized.

NA Polychlorinated Biphenyls (PCBs). Prolonged skin contact with PCBs may cause the formation of comedones, sebaceous cysts, and/or pustules (a condition known as chloracne). PCBs are considered to be suspect carcinogens and may also cause reproductive damage.

The OSHA permissible exposure limits (PELs) for PCBs are as follows:

Compound	*PEL (8-hour time-weighted average)*
Chlorodiphenyl (42% Chlorine)	1 mg/m^3-Skin
Chlorodiphenyl (54% Chlorine)	0.5 mg/m^3 -Skin

It should be noted that PCBs have extremely low vapor pressures (0.001 mm Hg @ 42% Chlorine and 0.00006 mm Hg @ 54% Chlorine). This makes it unlikely that any significant vapor concentration (i.e., exposures above the OSHA PEL) will be created in the ambient environment. This minimizes the potential for any health hazards to arise due to inhalation unless the source is heated or generates an airborne mist. If generated, vapor or mists above the PEL may cause irritation of the eyes, nose, and throat. The exposure limits noted above are considered low enough to prevent systemic effects, but it is not known if these levels will prevent local effects. It should also be noted that both PELs carry the *Skin* notation, indicating that these compounds adversely affect or penetrate the skin. OSHA specifies that skin exposure to substances carrying this designation be prevented or reduced through the use of the appropriate personal protective equipment (PPE).

☒ **Polycyclic Aromatic Hydrocarbons (PAHs)**. Due to the relatively low vapor pressure of PAH compounds, vapor hazards at ambient temperatures are not expected to occur. However, repeated contact with certain PAH compounds has been associated with the development of skin cancer. Contact of PAH compounds with the skin may cause photosensitization of the skin, producing skin burns after subsequent exposure to ultraviolet radiation. Protective measures, such as the wearing of chemically resistant gloves, are appropriate when handling PAH contaminated materials.

NA Tetraethyl and Tetramethyl Lead. Both compounds are used as anti-knock ingredients in gasoline. The inhalation of tetraethyl lead dusts may result in irritation of the respiratory tract. This dust, when in contact with moist skin or eye membranes, may cause itching, burning and transient redness.

The direct absorption of a sufficient quantity of tetraethyl lead, whether briefly at a high rate, or for prolonged periods at a low rate, may cause acute intoxication of the central nervous system. Mild degrees of intoxication may cause headache, anxiety, insomnia, nervous excitation and minor gastrointestinal disturbances.

☒ **Volatile Organic Compounds (VOCs)**. See BTEX compounds and Chlorinated Organic Compounds.

4.3.1 Summary of Chemical Hazards and Related Concerns

Based on the COPC at the site and the proposed scope of work, the primary potential routes of exposure are dermal, ingestion and inhalation. Dermal absorption and ingestion may be possible for any worker in direct contact with soil and/or groundwater. This route of exposure will be minimized with appropriate personal protective equipment (PPE) and appropriate hygiene practices including the availability of hand washing facilities and appropriate training. The inhalation exposure route will be minimized through use of engineering controls, administrative controls and onsite monitoring. Exposure by ingestion via hand to mouth contact or direct ingestion of soil and/or groundwater is possible. This route of exposure will be minimized with appropriate hygiene practices and appropriate training.

- Hand washing and changing facilities shall be made available in general as part of the implementation of this HASP. Employees should change clothes prior to leaving the work site, or wear disposable overclothing if there is a potential for significant contact with contaminated soil or groundwater. Clothing that comes into contact with contaminated soils and/or groundwater should be washed separately from other household laundry. Contaminated clothing should not be worn offsite unless properly handled.

- Strict policies should be maintained at the site with regard to no eating, smoking or drinking in work areas were impacted soils or groundwater are exposed.

- Dust suppression methods should be utilized to reduce fugitive dust emissions, and minimize worker exposure to airborne dust via inhalation, ingestion and/or dermal contact. If based upon monitoring results, dust emissions exceed action levels, corrective dust control measures should be taken immediately in the affected area.

- If soil and/or groundwater conditions are encountered which require personal protective equipment at Level C or above, a temporary Exclusion Zone boundary will be established to limit access to the area. The limits of the Exclusion Zone will be determined in the field based on the task, monitoring results and weather conditions.

- Personnel and equipment decontamination is necessary on sites with contaminated soils. Personnel decontamination will consist of:

    - Removing and disposing of disposable coveralls or other outerwear (if used);
    - Washing off safety footwear;
    - Proper cleaning or disposal of gloves; and
    - Thorough washing of face, arms and hands.

- Decontamination of equipment should be performed. Equipment that comes in direct contact with impacted soil should be cleaned prior to exiting the site. Decontamination of large equipment should consist of physically removing gross contamination with shovels and brushes. The SSO may also require a detergent and water, high pressure wash with a clean water rinse. The Site Superintendent and the SSO will be responsible for determining if decontamination solutions must be containerized. To prevent wastewater run-off, equipment decontamination should be conducted in a contained area that consists of an impervious surface that is sloped to drain collected water into an open excavation or to an appropriately labeled 55-gallon drum. At the end of each day, the lid should be placed on each drum and properly secured. When the drum is full, the lid should be secured, and it should be removed from the site and taken to an appropriate facility for disposal.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Generally, personal protection for earthwork operations at the site is expected to be Level D or Modified Level D and will be adjusted as needed based upon site observations. Levels of PPE are described below. PPE above Modified Level D is not anticipated. In the event PPE above Modified Level D is required, this plan will need to be adjusted.

Level D Protection

Level D protection, consisting of the following items, is required for site workers who may encounter contaminated soil.

- Sleeved shirt and long pants;
- Outer nitrile gloves for material handling (inner nitrile or similar surgical gloves are recommended when practical) and leather work gloves when shoveling soil containing petroleum hydrocarbons (gloves to be disposed of properly according to local and state regulations if used for handling contaminated soils);
- Steel-toed safety boots;
- Safety glasses; and
- Hardhat.

Other personal protection readily available for use, if necessary, includes the following:

- Chemical-resistant outer gloves; and
- Hearing protection.

Modified Level D Protection

If site conditions and/or exposure monitoring results indicate that worker exposure will exceed the PELs, or where groundwater or splashing conditions are present, personnel will upgrade to Modified Level D personal protective equipment. A Level D Modified personal protective equipment ensemble consists of Level D PPE along with the addition of polylaminated Tyvek coveralls and chemically resistant boots and gloves.

In addition, workers who come in direct contact with impacted soil and/or groundwater should take precautions to reduce exposures. This may require workers, from time to time, to don modified Level D PPE. Modified Level D protection includes standard Level D safety gear with the addition of Tyvek coveralls, raingear or similar clothing to prevent dermal contact with contaminated soil/water to prevent work clothes from becoming contaminated. Modified Level D does not include wearing an air-purifying respirator.

If workers will come into contact with groundwater, or if splashing hazards exist at the site, the following PPE should be made available:

- Chemical-resistant coveralls (i.e., Tyvek™)
- Chemical-resistant gloves
- Chemical-resistant boot covers or rubber boots
- Goggles (if potential splash hazard exists)

It is recommended that employees bring extra clothes to work every day in the event that they come into contact with contaminated soil or groundwater. If a worker does come into contact with contaminated soil or groundwater, they should change their clothes prior to leaving the Site to prevent exposure to others (i.e. riders of public transportation, business owners, family members, etc.). Clothes that have come into

contact with contaminated soil or groundwater should be laundered separately from other household clothing or laundry. Any disposable protective clothing utilized (i.e., Tyvek suits, gloves, etc.) should be removed daily and placed into a properly labeled waste drum. Each day, the lid should be placed on each drum and properly secured. When the drum is full, the lid should be secured, and it should be removed from the site for disposal. Other non-disposable personal protective equipment should be decontaminated on-site.

Hand washing facilities should also be made available onsite, regardless of the level of PPE required. Employees are required to wash hands before breaks, before meals, and before leaving the site at the end of a shift.

6.0 EMERGENCY PROCEDURES

This section outlines the procedures to be followed in the event of an emergency in association with the work being performed at the Site, including those associated with site evacuation, first aid and emergency assistance. In addition to the requirements outlines in this section, the Contractor shall also comply with First Aid requirements as outlined under 29 CFR 1926.50 and under the Blood Borne Pathogen standard.

6.1 First Aid

A fire extinguisher and a first aid kit should be kept onsite while work is being performed. General first aid procedures are outlined below:

- **Skin/Eye Contact**: Use copious amounts of soap and water. Wash and rinse the affected area thoroughly, then provide appropriate medical attention if required. The affected area should be washed for at least 15 minutes upon chemical contact.
- **Inhalation:** Move to fresh air and, if necessary, transport to hospital. Any loss of consciousness or exposure to airborne toxic substances, even if the individual appears to have fully recovered, will require immediate treatment by a qualified physician**.**
- **Ingestion:** Notify the Poison Control Center and emergency medical facility and transport the individual to the nearest emergency medical facility.
- **Puncture Wound or Laceration:** Apply direct compression to stop or slow flow of blood. Transport the individual to the nearest emergency medical facility immediately.

All personnel should be aware of the potential to transmit disease from contact with bodily fluids. Personnel should assume that all bodily fluids are potentially infectious and use appropriate precautions. Controls to be considered are as follows:

- Use of the victims hand to control initial bleeding;
- Use of available PPE (gloves, etc.) to prevent contact;
- Wash promptly after contact with bodily fluids;
- Use barrier mask while giving CPR;
- Wash any work surface that contacted bodily fluids using a 10:1 solution of water to bleach as soon as possible.

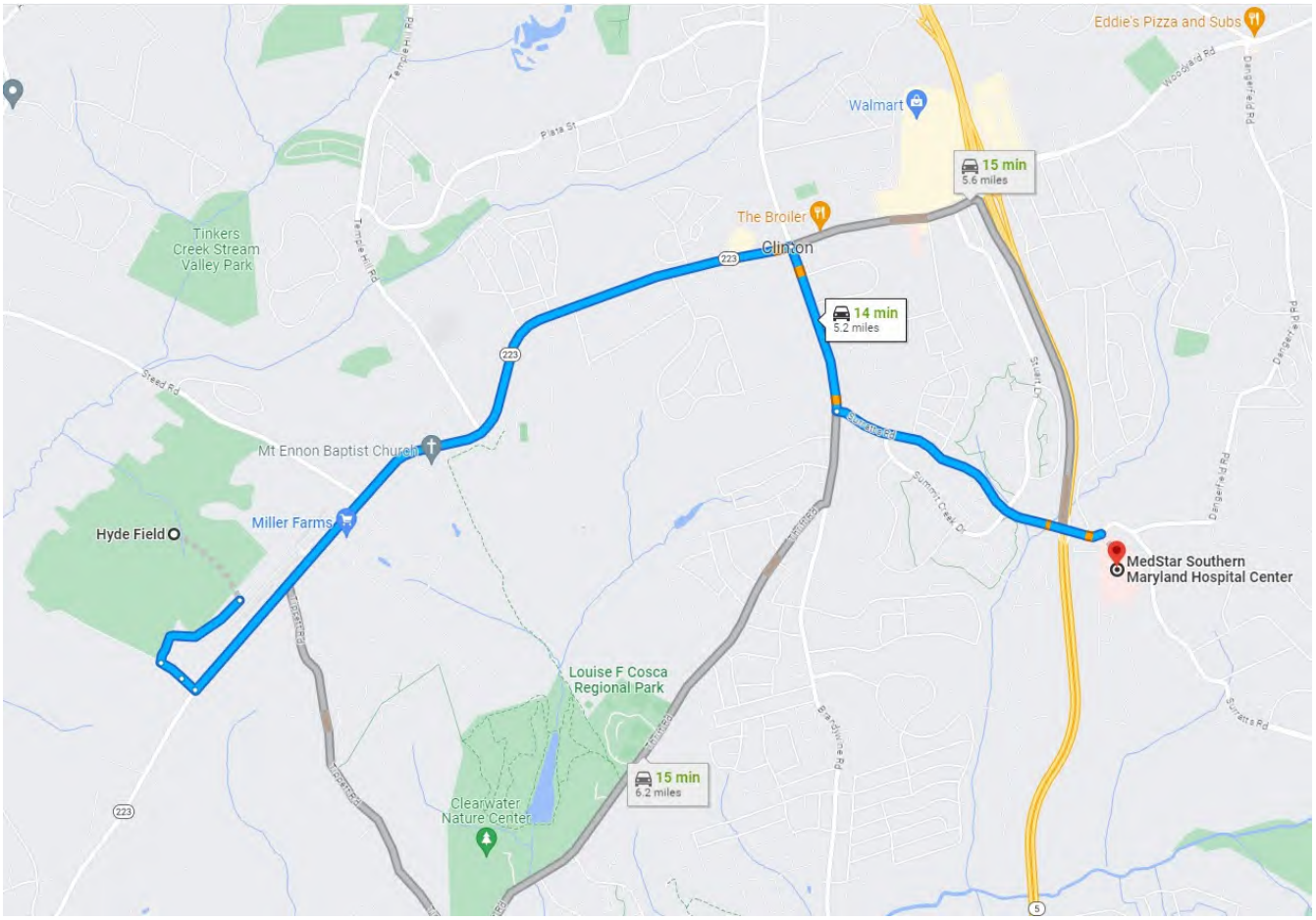
If an injured individual requires medical attention beyond the capabilities of the first aid kit, the individual should be transported to Medstar Southern Maryland Hospital Center. A map illustrating the route to the hospital is attached. The Site Safety Officer will be responsible for preparing a written report of all emergencies/accidents/injuries.

6.2 Emergency Assistance

The name and telephone number of police, fire and other emergency response agencies are included. The name, telephone number and address of the Medstar Southern Maryland Hospital Center are also included below.

Emergency Services		**Medical Centers**
Fire/Rescue	911	Medstar Southern Maryland Hospital Center
Police	911	7503 Surratts Road, Clinton, Maryland 20735
Poison Control Center	(800) 222-1222	(301) 868-8000
National Response Center	(800) 424-8802	

MAP/DIRECTIONS TO MEDSTAR SOUTHERN MARYLAND HOSPITAL CENTER
7503 SURRATTS ROAD, CLINTON, MARYLAND 20735
(301) 868-8000



Directions

Exit the site by turning left onto Piscataway Road traveling northeast.

Travel ~2.9 miles and turn right onto Brandywine Road.

Travel ~0.6 miles and turn left onto Surratts Road.

Travel ~1.1 miles. The entrance to the emergency room will be on your right, follow signs to the Emergency Room.

7.0 TRAINING

In accordance with CFR 1910.1200, all persons entering areas of known or suspected contamination, including visitors, will be given a Hazard Awareness Orientation by the SSO. The orientation will include a description of the health and safety concerns, the potential implications associated with the contaminated soil and actions to limit exposure such as using appropriate PPE and the importance of washing hands/face when exiting the work area. The safety training should include a description of the chemical hazards (particularly the pollutants found in soil and/or vapor) found on site and methods to reduce and prevent worker exposure to those chemicals. The SSO shall maintain records identifying the name of each individual who has received hazard awareness communication and the date of the training.

Based on physical and chemical hazards known or suspected to be present on the project site. All construction workers which may contact or be exposed to environmentally impacted soils or vapor will be required to be OSHA HAZWOPER trained (40 hour and 8 hour refresher) as appropriate to the site conditions (OSHA HAZWOPER 29 CFR 1910.120 HASP). Additionally, a full-time health and safety supervisor will be on-site for all intrusive activities.

It should be understood that the HAZWOPER standard requires employers to include in their medical surveillance program employees who are or may be exposed to hazardous substances or health hazards at or above permissible exposure levels for 30 days or more per year (1910.120(f)(2)(i)). The site safety officer will determine the level of training and medical surveillance required for site personnel.

8.0 DOCUMENTATION TO BE COMPLETED ON SITE

- A Site Inspection Log (Attachment A) must be completed at the initiation of on-site activities and as directed by the SSO during on-site activities.
- A Site Health and Safety Briefing/ Site Orientation Record (Attachment B) must be completed at the initiation of on-site activities and as directed by the SSO during on-site activities. (Note: The actual briefing may be conducted off site, in the office for example, if conditions preclude or render impractical its completion on site.)
- Incident Report and/or Discovery of a Potential Hazard (Attachment C) is to be completed on an as needed basis.

Note, these attached forms are provided as an example. The SSO may require separate forms or a differing recording frequency. The SSO is the ultimate authority for health and safety onsite. In the event that the procedures outlined in this plan do not comply with the requirements of the SSO or the project HASP, the SSO has the authority to alter the terms of this plan in accordance with OSHA or other applicable regulations.

Attachment A
Site Inspection Log

PROJECT NAME: Hyde Field Residential Property	**LOCATION: Portions of 10651 and 10625 Piscataway Road and 4401 Steed Road, Clinton, Maryland 20735**
PROJECT NUMBER: 47:11866-H	**DATE:**
PROJECT MANAGER: Michael Bell	**COMPLETED BY:**
SITE DESCRIPTION AND NATURE OF WORK: Excavation and Construction	

HAZARD COMMUNICATION
[ ]Chemical hazards identified
[ ]All containers properly labeled
[ ]Site safety briefing completed and documented

ACCIDENTS/EMERGENCY INFO
[ ]First aid personnel identified
[ ]Hospital location identified
[ ]Police/Fire/Ambulance phone numbers available
[ ]Incident investigation forms available
[ ]Fire extinguisher present

SANITATION
[ ]Washing facilities available
[ ]Toilet facilities available
[ ]Approved trash receptacle available
[ ]Water/refreshments available

STORAGE
[ ]Tools/Drill tooling/supplies safely stacked to prevent rolling or collapse
[ ]Work areas and passage ways kept clear

HOUSEKEEPING
[ ]Work areas clean and orderly
[ ]Storage areas clean and orderly
[ ]Combustible scrap/debris removed regularly
[ ]Waste containers of flammable or toxic materials covered

OVERHEAD HAZARDS
[ ] minimum clearance maintained
[ ]All sources of falling objects/swinging loads/ rotating equipment identified
[ ]Barriers or other methods in place to prevent injury due to overhead hazards

UNDERGROUND HAZARDS
[ ]All underground hazards identified and communicated to workers on site
[ ]Utility/Dig-Safe clearance confirmed
[ ]Clearance dates: _____
[ ]Clearance ID#: _____

EXCAVATIONS and TRENCHES
[ ]All personnel and storage at least 2^{ft} from top edge of excavation
[ ]Ladder in place
[ ]Guarding/barriers in place

VEHICULAR TRAFFIC
[ ]All vehicular traffic routes which could impact worker safety identified and communicated
[ ]Barriers or other methods established to prevent injury from moving vehicles

PEDESTRIAN TRAFFIC/SITE CONTROL
[ ]All walkways which could be impacted by site activities identified and communicated
[ ]Barriers or other methods established to prevent pedestrian injury from site activities

ENVIRONMENTAL HAZARDS
[ ]Poisonous plants/stinging or biting insects/vermin/sewage/etc. identified and communicated

COMMENTS/OTHER HAZARDS_____
_____
_____
_____
_____
_____
_____

x = OK
NA = Not Applicable

Attachment B
Health and Safety Briefing/Site Orientation Record/Hazard Communication

This is to verify that I, the undersigned, have been provided with a site (orientation) briefing, including hazard communication, regarding the safety and health considerations at the Hyde Field Residential Property site in Clinton, Maryland. I agree to abide by my employer's site-specific safety and health plan and other safety or health requirements applicable to the site.

Name (Print)	Signature	Company	Date

Site (orientation) briefing conducted by: _____ Date:_____

Attachment C
Incident Report And/Or Discovery Of A Potential Hazard

CHECK ALL THAT APPLY: _____Hazard Identified _____Injury/Illness _____Property Damage

Project Name:_____Project Number:_____Today's Date_____

Date and Time Incident Occurred: _____Site Supervisor's Name: _____

1) Describe the incident or potential hazard:

_____

_____

2) Machine or tools involved:_____

3) Names of employees involved in incident:_____

4) What personal protective was being worn when incident occurred? _____

5) Please answer the following four questions. For responses marked yes, please elaborate on the lines below.

Was anyone injured? ___Yes ___No Was first aid administered? ___Yes ___No

Was medical treatment sought? ___Yes ___No Was there property damage? ___Yes ___No

_____

_____

6) What steps were taken to prevent a re-occurrence?_____

_____

_____

_____

7) What changes in process, procedure, or equipment would you recommend? _____

_____

8) If the report is for an existing or potential hazard, has the entity controlling the hazard or potential hazard bee notified in writing? _____Yes _____No

9) Additional comments_____

_____

Name and signature of person preparing this form_____

Branch Office Manager: Health and Safety Coordinator:
Corporate Director of Health and Safety: Other:

Note: If the space provided on this form is insufficient, provide additional information on separate paper and attach.
The completed investigation report must be submitted to the SSO within five days.

Attachment C

Known Area of Impact 1 Summary

Sample ID	TW-1	TW-2	TW-3	TW-4	MDE Groundwater
Date Collected	6-Aug-2013	6-Aug-2013	6-Aug-2013	6-Aug-2013	Cleanup
Screen Interval ft.	18-28	18-28	18-28	18-28	Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)					
GRO	**11.9**	**0.14**	**3.8**	**11.7**	0.047
DRO	**0.98**	**0.32**	**0.34**	**18.1**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)					
Benzene	**48**	BQL	**27.1**	BQL	5
Ethylbenzene	128	BQL	BQL	124	700
1,2,4-Trimethylbenzene	34.9	BQL	6.7	45.1	NP
1,3,5-Trimethylbenezene	45.1	BQL	BQL	68.6	NP
Total Xylenes	1,327	2.7	19.5	1,863	10,000

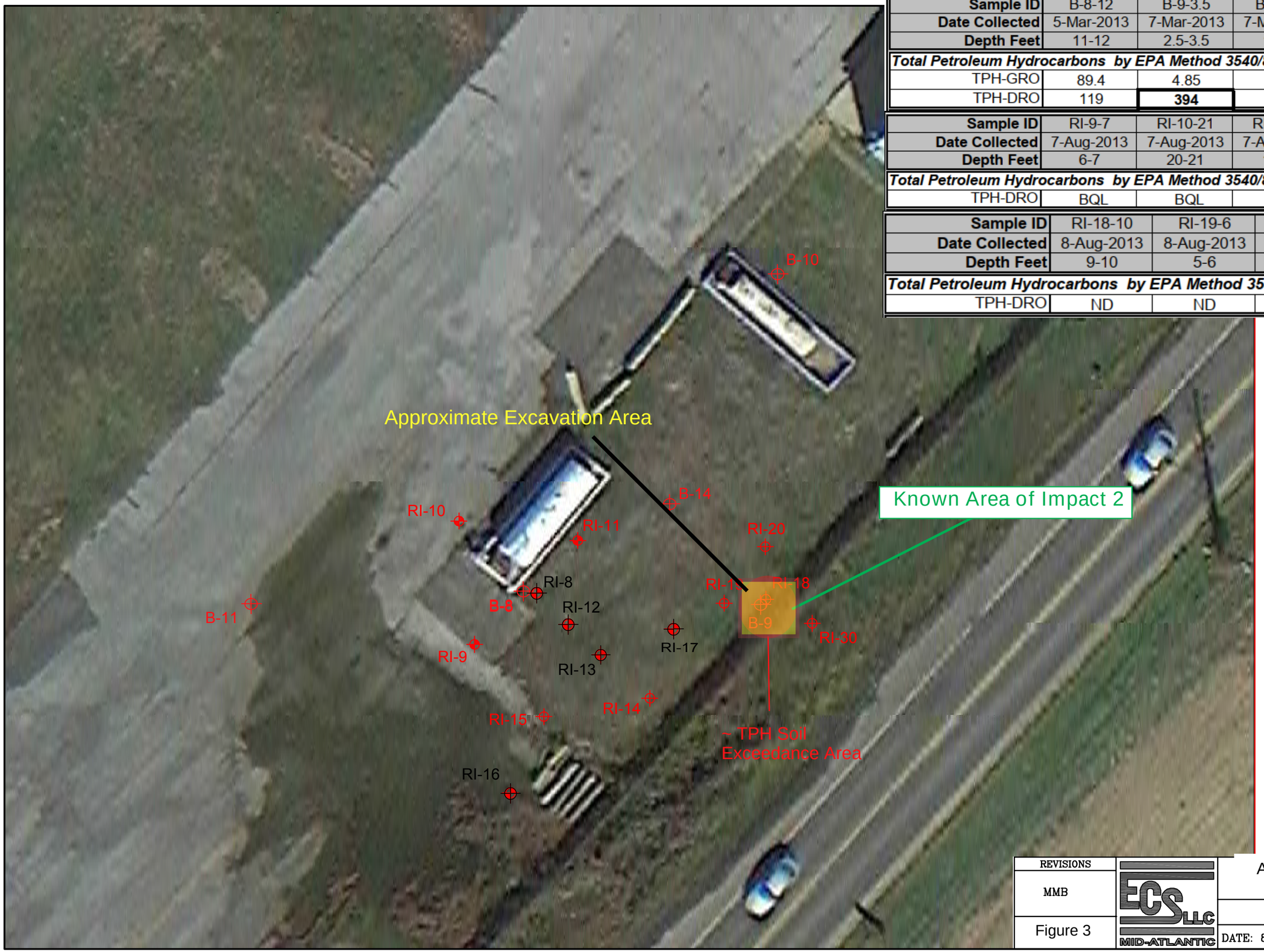
Sample ID	TW-5	TW-6	TW-7	TW-8	MDE Groundwater
Date Collected	6-Aug-2013	6-Aug-2013	6-Aug-2013	7-Aug-2013	Cleanup
Screen Interval ft.	18-23	18-28	13-23	18-23	Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)					
GRO	BQL	BQL	BQL	BQL	0.047
DRO	**0.28**	BQL	BQL	**0.43**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)					
Benzene	NA	BQL	NA	4.1	5
Ethylbenzene	NA	BQL	NA	BQL	700
1,2,4-Trimethylbenzene	NA	BQL	NA	NA	NP
1,3,5-Trimethylbenezene	NA	BQL	NA	NA	NP
Total Xylenes	NA	BQL	NA	BQL	10,000

REVISIONS		Vent Pipe Hangar #18 Apparent UST GW Data Summary		
MMB	ECS LLC MID-ATLANTIC	HYDE FIELD		
Figure 2		DATE: 8/2013	SCALE 1"=15'	JOB#02-6295-C

Tables and Figures Associated with Previous Sampling Events

Attachment D

Known Area of Impact 2 Summary



Sample ID	B-8-12	B-9-3.5	B-10-18	B-11-18	B-14-18
Date Collected	5-Mar-2013	7-Mar-2013	7-Mar-2013	7-Mar-2013	7-Mar-2013
Depth Feet	11-12	2.5-3.5	17-18	17-18	17-18
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)					
TPH-GRO	89.4	4.85	BQL	BQL	BQL
TPH-DRO	119	**394**	BQL	BQL	BQL

Sample ID	RI-9-7	RI-10-21	RI-11-20	RI-14-19	RI-15-7
Date Collected	7-Aug-2013	7-Aug-2013	7-Aug-2013	8-Aug-2013	8-Aug-2013
Depth Feet	6-7	20-21	19-20	18-19	6-7
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)					
TPH-DRO	BQL	BQL	BQL	BQL	78

Sample ID	RI-18-10	RI-19-6	RI-20-6	RI-30-6
Date Collected	8-Aug-2013	8-Aug-2013	8-Aug-2013	8-Aug-2013
Depth Feet	9-10	5-6	5-6	5-6
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/kg)				
TPH-DRO	ND	ND	ND	88

LEGEND:

RI-4 ⊕: No Soil Sample Analyzed

No VOC Exceedances in Soil Samples B-8, B-9 or B-11

No Metals, PCB or SVOC Exceedances in Sample B-8

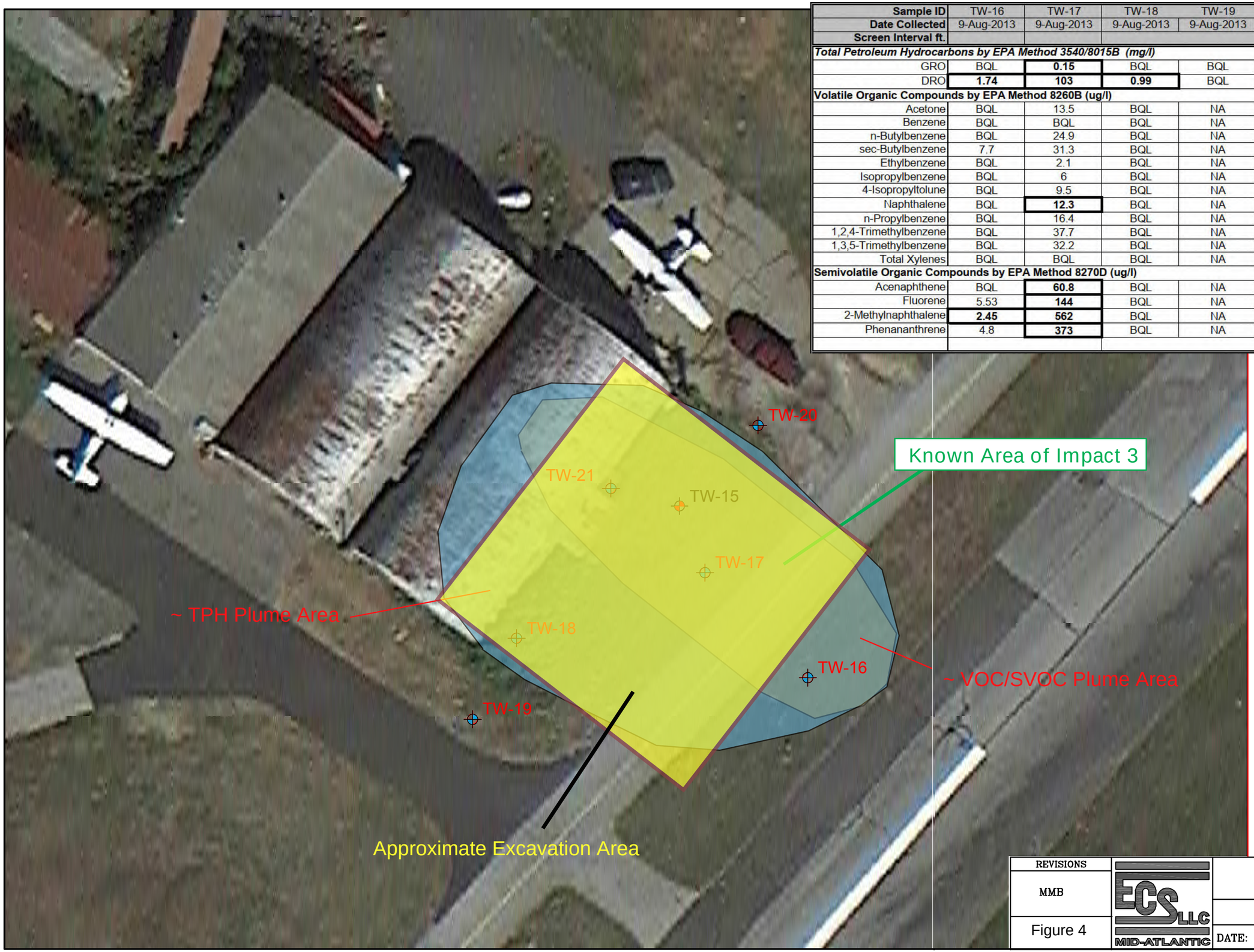
Tables and Figures Associated with Previous Sam

REVISIONS	ECS LLC MID-ATLANTIC	ASTs and Former Heating Oil UST Soil Data Summary		
MMB		HYDE FIELD		
Figure 3		DATE: 8/2013	Scale 1"=20'	JOB#02-6295-C

Attachment E

Known Area of Impact 3 Summary

Sample ID	TW-16	TW-17	TW-18	TW-19	TW-20	TW-21	MDE Groundwater
Date Collected	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	9-Aug-2013	Cleanup
Screen Interval ft.							Standards
Total Petroleum Hydrocarbons by EPA Method 3540/8015B (mg/l)							
GRO	BQL	**0.15**	BQL	BQL	BQL	BQL	0.047
DRO	**1.74**	**103**	**0.99**	BQL	BQL	**0.88**	0.047
Volatile Organic Compounds by EPA Method 8260B (ug/l)							
Acetone	BQL	13.5	BQL	NA	46.3	BQL	550
Benzene	BQL	BQL	BQL	NA	BQL	BQL	5
n-Butylbenzene	BQL	24.9	BQL	NA	BQL	BQL	NP
sec-Butylbenzene	7.7	31.3	BQL	NA	BQL	BQL	NP
Ethylbenzene	BQL	2.1	BQL	NA	BQL	BQL	700
Isopropylbenzene	BQL	6	BQL	NA	BQL	BQL	66
4-Isopropyltolune	BQL	9.5	BQL	NA	BQL	BQL	NP
Naphthalene	BQL	**12.3**	BQL	NA	BQL	BQL	0.65
n-Propylbenzene	BQL	16.4	BQL	NA	BQL	BQL	NP
1,2,4-Trimethylbenzene	BQL	37.7	BQL	NA	BQL	BQL	NP
1,3,5-Trimethylbenzene	BQL	32.2	BQL	NA	BQL	BQL	NP
Total Xylenes	BQL	BQL	BQL	NA	BQL	BQL	10,000
Semivolatile Organic Compounds by EPA Method 8270D (ug/l)							
Acenaphthene	BQL	**60.8**	BQL	NA	BQL	BQL	37
Fluorene	5.53	**144**	BQL	NA	BQL	3.15	24
2-Methylnaphthalene	**2.45**	**562**	BQL	NA	BQL	**4.00**	2.4
Phenananthrene	4.8	**373**	BQL	NA	BQL	3.55	180



LEGEND:

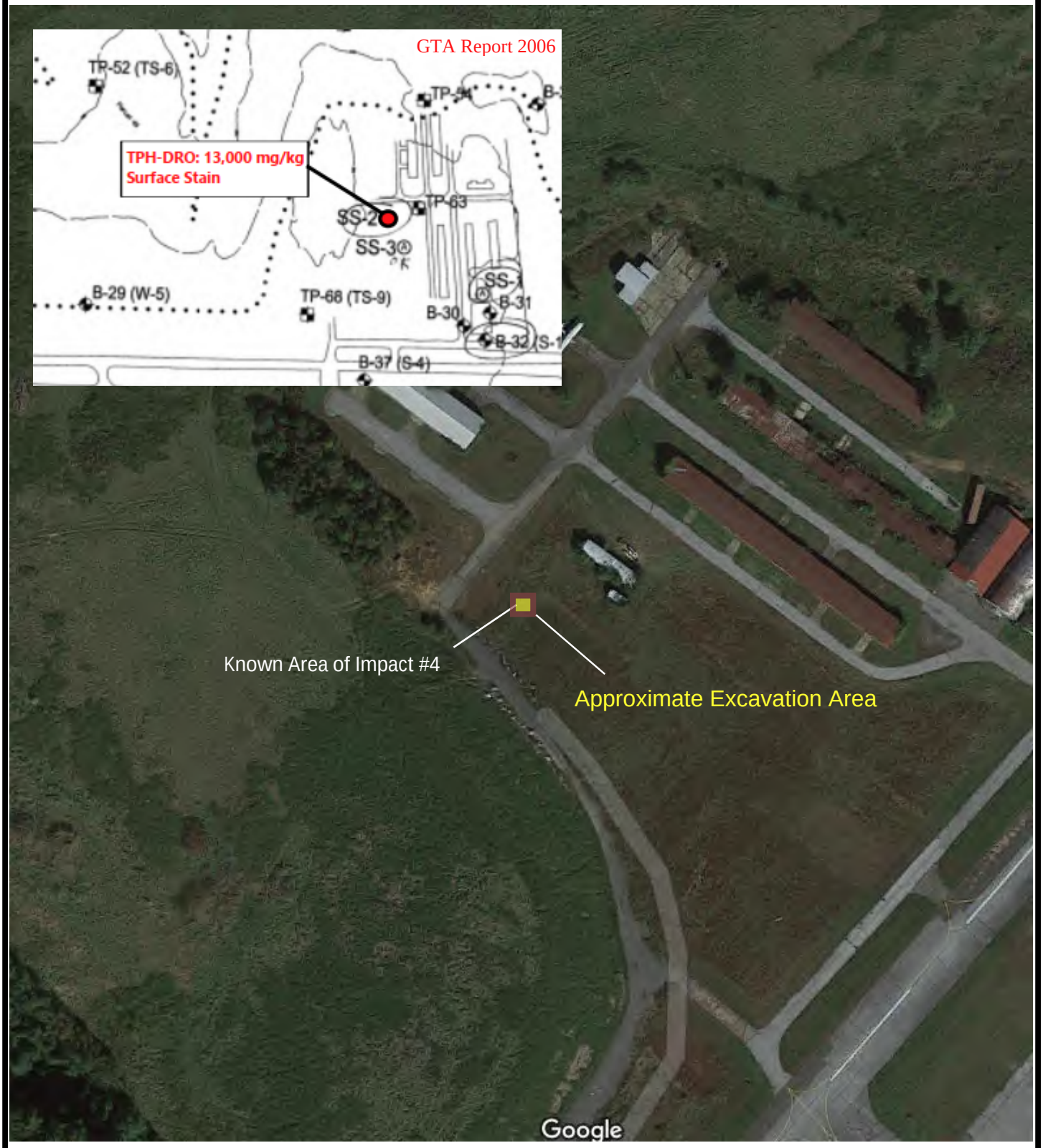
TW-15 ⊕ : No GW Sample Analyzed

Tables and Figures Associated with Previous Sampling Events

REVISIONS		Gilley's Aviation GW Data Summary		
MMB	ECS LLC MID-ATLANTIC	HYDE FIELD		
Figure 4		DATE: 8/2013	SCALE 1"=20'	JOB#02-6295-C

Attachment F

Known Area of Impact 4 Summary



SAMPLE LOCATION DIAGRAM

HYDE FIELD HIGH FREQUENCY RECREATIONAL USE AREA

PORTIONS OF 10051, 10625, 10651 PISCATAWAY ROAD AND 4401 STEED ROAD
CLINTON, MARYLAND 20735

ENGINEER	MMB
SCALE	
PROJECT NO.	47:11866-G
FIGURE	5
DATE	9/20/2023