

**CORRECTIVE ACTION PROCESS REPORT/PLAN COVER SHEET**  
**CHAPTER 245 - STORAGE TANK AND SPILL PREVENTION ACT**

**Storage Tank Facility ID #:** 51-33620

**Consultant Name:** Terraphase Engineering

**Consultant Mailing Address:** 100 Canal Pointe Boulevard, Suite 108, Princeton, NJ 08540

**Consultant Email Address:** kevin.long@terrphase.com

**Responsible Party Name:** Philadelphia Energy Solutions Refining and Marketing LLC

**Responsible Party Mailing Address:** 111 S. Wacker Dr Suite 3000, Chicago, IL 60606

**Responsible Party Email Address:** jjeray@hilcoglobal.com

**Media of Concern:**  **Soil**       **Groundwater**

**Contaminant(s) (e.g. unleaded gasoline):** petroleum products

**(check all that apply to the enclosed submission)**

- Remedial Action Progress Report**
- Risk Assessment Report** (e.g. vapor intrusion, ecological, or human health risk calculations)
- Site Characterization Report – Section 245.310(b)**
  - Residential       Nonresidential
- Site Characterization Report – Statewide Health or Background Standard**
  - Residential       Nonresidential
- Site Characterization Report – Site Specific Standard**
  - Residential       Nonresidential
- Remedial Action Plan – Statewide Health or Background Standard**
  - Residential       Nonresidential
- Remedial Action Plan – Site Specific Standard**
  - Residential       Nonresidential
- Remedial Action Completion Report – Statewide Health or Background Standard**
  - Residential       Nonresidential
- Remedial Action Completion Report – Site Specific Standard**
  - Residential       Nonresidential
- Post Remediation Care Report**
- Environmental Covenant**
  - Draft       Final
- Other:** \_\_\_\_\_

FINAL

# Remedial Action Plan - Tank Group 01

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Former Philadelphia Energy Solutions Refinery  
3144 West Passyunk Avenue, Philadelphia, Pennsylvania  
Incident No. 56446

*Prepared for*

Philadelphia Energy Solutions Refining and Marketing LLC  
111 S. Wacker Dr Suite 3000  
Chicago, Illinois 60606

*Prepared by*

Terraphase Engineering Inc.  
100 Canal Pointe Boulevard, Suite 108  
Princeton, New Jersey 08540

April 2022

Project Number P044.001.002

File: 20220407-Terraphase-RAP-PESRM-TG01\_final



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## Acronyms and Abbreviations

§	Section
25 PA Code 245	Title 25 of the Pennsylvania Code, Chapter 245
Act 2	Pennsylvania Land Recycling and Environmental Remediation Standards Act
Act 32	The Storage Tank and Spill Prevention Act
AST	aboveground storage tank
bgs	below ground surface
COC	constituents of concern
Evergreen	Evergreen Resources Group, LLC
Facility	former Philadelphia Energy Solutions refinery facility
ft	feet or foot
HRP	HRP Philadelphia Holdings, LLC
MSC	medium-specific concentrations
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PESRM	Philadelphia Energy Solutions Refining and Marketing LLC
RAP	Remedial Action Plan
Site	Tank Group 01
SHS	Statewide Health Standard
SPLP	Synthetic Precipitation Leaching Procedure
TC	total concentration
TDS	total dissolved solids
Terraphase	Terraphase Engineering Inc.
yd	yard(s)



# Certification

Pursuant to the requirements of the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), adopted May 19, 1995, which state that:

Interpretation of geologic and hydrogeologic data shall be prepared by a professional geologist licensed in this Commonwealth.

I hereby attest that, as a Professional Geologist licensed in the Commonwealth of Pennsylvania, I am familiar with, and have reviewed and/or prepared the interpretation of the geology and hydrogeology presented in this report, entitled *Remedial Action Plan – Tank Group 01, Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania*, dated April 2022.

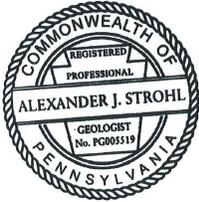
Based on the available data represented in the report, I believe that the geologic and hydrogeologic interpretations made herein are reasonable and accurate.



Alexander J. Strohl, PG  
Senior Staff Geologist

April 7, 2022

Date



# 1 Introduction

Terraphase Engineering, Inc. (Terraphase) has prepared this Remedial Action Plan (RAP), on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), for Tank Group 01 (the Site) which is located within the former Philadelphia Energy Solutions refinery facility (Facility). The Facility, which is undergoing closure activities in preparation for redevelopment, is located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania (**Figure 1**). Remediation activities are being conducted at the Facility under the Pennsylvania Land Recycling and Environmental Remediation Standards Act (“Act 2”) by both PESRM and Evergreen Resources Group, LLC (Evergreen)<sup>1</sup> in accordance with the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement.

Based on the findings of the *Site Characterization Report for Tank Group 01* (SCR; Terraphase 2022) additional actions are required to satisfy the provisions of The Storage Tank and Spill Prevention Act (Act 32); Title 25 of the Pennsylvania (PA) Code, Chapter 245 (25 PA Code 245), Subchapter D; and Terraphase’s *Aboveground Storage Tank Closure Work Plan* (2021), which was approved by the Pennsylvania Department of Environmental Protection (PADEP) on April 23, 2021. Closure of the aboveground storage tanks (ASTs) under Act 32 is being pursued through a group closure process, in which ASTs in the same general area (e.g., tank farm) have been demolished, removed, investigated, and evaluated at about the same time. Tank Group 01 (**Figure 2**) is located within a larger area of the Facility referred to as the Point Breeze Refinery North Yard. Evergreen is currently engaged in characterization and remediation work at the Facility under the Pennsylvania One Cleanup Program and the oversight of the PADEP and the United States Environmental Protection Agency (USEPA) (eFacts PF No. 749898). In its associated documentation, Evergreen has identified the North Yard as Area of Interest (AOI) 8. The specific ASTs addressed in this RAP include PB 663, PB 666, PB 668, and PB 672 (PADEP Nos. 074A, 043A, 008A, and 044A, respectively). These ASTs are part of the Facility’s No. 3 Tank Farm.

The Site Assessment sampling identified potential releases of regulated substances to the environment from ASTs PB 663, PB 666, and PB 668. As such, Terraphase submitted a Notification of Release to PADEP on June 23, 2021 (Incident No. 56446). Site Characterization soil sampling was subsequently performed in the tank group to adequately characterize the horizontal and vertical extent of concentrations greater than applicable medium-specific concentrations (MSCs). Soil samples were also collected to gather data to support an evaluation as to whether remedial action would be warranted or whether attainment of the Statewide Health Standard (SHS) could be achieved for the regulated substances stored in the tank system.

This RAP was prepared to address on-site soil impacts based on the findings of the SCR in accordance with Act 32 and 25 PA Code 245 (Subchapter D). Section 2 discusses the SCR conclusions. Section 3

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<sup>1</sup> Evergreen Resources Management Operations, a series of Evergreen Resources Group, LLC, is managing the legacy remedial work for Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC (“Evergreen”) and Sunoco (R&M), LLC. For clarity, Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC and Evergreen shall be referred to collectively as “Evergreen” in this Report.



discusses the standards selected for the attainment demonstration and Section 4 presents the scope of the RAP. A summary of this RAP and its conclusions are presented in Section 5.



## 2 Site Characterization Report Conclusions

The SCR for the Site was provided to the PADEP on February 21, 2022. The specific ASTs evaluated in the SCR include PB 663, PB 666, PB 668, and PB 672 (PADEP Nos. 074A, 043A, 008A, and 044A, respectively; **Table 1**).

The Site Assessment sampling identified potential releases of regulated substances to the environment from ASTs PB 663, PB 666 and PB 668. As such, Terraphase submitted a Notification of Release to PADEP on June 23, 2021 (Incident No. 56446). Site Characterization soil sampling was subsequently performed in the tank group resulting in adequate delineation of the horizontal and vertical extent of constituents of concern (COC) concentrations greater than applicable MSCs. Concentrations of all COCs can be demonstrated to have attained SHS with the exception of lead in surface soil and benzene, toluene, naphthalene, and lead in subsurface soil. As described in the SCR, there is no evidence to indicate that elevated lead concentrations in soil, above applicable MSCs, are associated with releases to the environment from PB 663, PB 666, PB 668, and PB 672. It is more likely that elevated lead concentrations in the southwestern portion of the Site are associated with historical sources (e.g., potential lead smelter slag fill). Therefore, PESRM is not proposing a remedial action for lead. Lead impacts in soil will be addressed under Act 2 by Evergreen in accordance with the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement.

The on-site soil impacts that require remedial action as a result of potential AST-related releases consist of four areas adjacent to PB 663 (Area 1), PB 668 (Area 2), and PB 666 (Area 3 and Area 4), as depicted on **Figure 3**. Details regarding the proposed remedial action are provided in Section 4.

## 3 Selection of Standards

This section discusses land and groundwater use related to the Site and the selected standards.

### 3.1 Land and Groundwater Use

As noted in the parcel map included in **Appendix A**, and as captured in the conceptual imagery developed by Hilco Redevelopment Partners (<https://www.thebellwetherdistrict.com/>), the area encompassing the Site is being redeveloped into a state-of-the-art, multimodal industrial park and life sciences campus with ancillary rail infrastructure, energy infrastructure, marine capabilities, and commercial uses. Current and reasonably anticipated future land use in the area of the Site is non-residential. Following redevelopment, most of the area is also expected to be covered by hardscape (e.g., building pads, drive aisles, parking lots, roadways) or other features that will generally function as barriers to direct contact exposure.

The vapor intrusion exposure pathway is currently incomplete as there are no occupied structures in the area of the Site. As part of its redevelopment planning, PESRM plans to assess potential vapor intrusion exposure in areas where occupied buildings are planned. That assessment will evaluate whether conditions pose an unacceptable risk to future building occupants such that risk management action (e.g., remediation, vapor mitigation) is warranted. Because there is no current vapor intrusion exposure in this area, and because this future assessment is planned, vapor intrusion exposure in the Site area is not a current or reasonably expected future exposure scenario.

The water table aquifer is not used for a municipal or nearby communal potable water supply and future potable use of the water table aquifer is not reasonably expected. The Potomac-Raritan-Magothy aquifer system is used as a water supply in New Jersey. As discussed in the *Remedial Investigation Report, Area of Interest 8* (Stantec 2017), the aquifers of that system, chiefly the lower sand unit, can receive recharge via vertical leakage through confining units and direct recharge from younger deposits along their sub crop area in south Philadelphia, which includes a portion of AOI-8. Evergreen is in the process of evaluating the potential for migration of dissolved phase groundwater contamination into and along the lower aquifer. According to Evergreen, a potable survey was performed, and no current potable use was identified within one mile of the Facility. Also, according to Evergreen, the New Jersey Department of Environmental Protection (NJDEP) does not believe that contamination from the Facility is expected to impact drinking water in New Jersey in the future. However, because a non-use aquifer determination has not yet been established for the Facility or a site-specific risk assessment, documenting and supporting the position that potable use of groundwater is not a reasonably anticipated future exposure scenario, this RAP conservatively reflects the assumption that potential future potable use exposure to groundwater in the vicinity of the Facility is possible.

### 3.2 Selected Standard

PESRM has selected the SHS for the Site. Based upon current and reasonably anticipated future land and groundwater use at, and in the vicinity of, the Site, the following PADEP MSCs have been used to support the remedial action goals for ASTs PB 663, PB 666 and PB 668:



- Non-Residential Direct Contact Numeric Values for Surface Soil (0–2 feet [ft] below ground service [bgs])
- Non-Residential Direct Contact Numeric Values for Subsurface Soil (2–15 ft bgs)
- Non-Residential Soil-to-Groundwater Numeric Values for Used Aquifers (total dissolved solids [TDS]  $\leq$  2,500 milligrams per liter [mg/L])



## 4 Remedial Action Plan

Soil impacts at the Site will be addressed through either excavation and off-site disposal or management on Site in accordance with the PADEP-approved site-specific *Final Soil Management Plan* (SMP; HRP Philadelphia Holdings, LLC [HRP] 2020). The Site Assessment and Site Characterization sampling activities delineated the extent of the elevated chemical concentrations with respect to the selected SHS.

Prior to excavation/off-site disposal or management in accordance with the *Final Soil Management Plan*, PESRM proposes to determine an alternative (i.e., soil-specific) soil-to-groundwater value based on Synthetic Precipitation Leaching Procedure (SPLP) sampling. The final extent of each impacted soil volume will be determined based on an evaluation of the site-specific soil-to-groundwater values.

### 4.1 Remedial Action Evaluation

Several remedial action alternatives for the impacted soil in Tank Group 01 were evaluated prior to the selection of the proposed remedial action. Excavation of the impacted soil for transport to an off-site disposal location or on-site management, in accordance with the PADEP-approved-site-specific *Final Soil Management Plan*, is the selected alternative that provides the best balance of short- and long-term effectiveness and cost, while minimizing the threat to human health and the environment. By excavating and transporting the impacted soil from the Site or managing the excavated soil on the Site, any potential threat to future receptors at the Site will be removed or appropriately managed on Site in a specific area with appropriate institutional and/or engineering controls. Other possible remedial alternatives for the impacted soil such as soil blending, bioremediation, and soil washing were judged to be inappropriate, technically infeasible, or not cost-effective.

### 4.2 Remedial Action Proposal

The proposed remedial action is discussed in the following subsections.

#### 4.2.1 Soil-Specific Soil-to-Groundwater Evaluation

Terraphase will conduct remedial evaluation sampling in on-site areas identified with soil impacts (i.e., Areas 1 through 4). The sampling and evaluation will be conducted in accordance with Section II(B)(2)(c)(ii)(a) of the PA Act 2 *Land Recycling Program* Technical Guidance Manual (2021). Terraphase will use the remedial evaluation to obtain soil-specific soil-to-groundwater MSCs for benzene, toluene, and naphthalene.

PESRM will collect additional sample volume from eight of the previously collected sample locations. These additional sample volumes will be analyzed via SPLP methods for benzene, toluene, and naphthalene. The eight locations include the four highest reported total concentrations of benzene, toluene, and naphthalene that were reported during Site Assessment and Characterization sampling at the Site. Soil-specific soil-to-groundwater MSCs will be determined using the following methods:



- Determine the lowest total concentration (TC) that generates a failing SPLP result (i.e., leachate concentrations greater than the applicable groundwater MSCs). The alternative soil-to-groundwater MSC will be set as the next lowest TC.
- If all samples have a non-detect SPLP result, the alternative soil-to-groundwater MSC will be the TC corresponding to the highest concentration of each contaminant.
- If none of the samples generate a passing SPLP, additional samples may be obtained for additional TC/SPLP analyses to satisfy the above requirements for establishing an alternative soil-to-groundwater MSC.
- **Table 2** provides a summary of the proposed sample locations that will be analyzed for SPLP.

The proposed soil-specific soil-to-groundwater evaluation sample locations are depicted on **Figure 4a** (benzene), **Figure 4b** (toluene), and **Figure 4c** (naphthalene).

Based on the resulting soil-specific soil-to-groundwater MSCs, Terraphase will evaluate soil sampling data for Areas 1 through 4 at the Site and determine the final impacted soil volumes.

#### 4.2.2 Description of Remedial Action Technology

Based on the elevated chemical concentrations adjacent to certain on-site ASTs, excavation of the impacted soil for transport to an off-site disposal location or on-site management in accordance with the PADEP-approved site-specific *Final Soil Management Plan* (HRP 2020) was the selected alternative that provided the best balance of short- and long-term effectiveness and cost, while minimizing the threat to human health and the environment. If the excavated soil is to be transported off Site, the soil will be characterized pursuant to the disposal facility requirements prior to off-site transport. If managed on Site, soil generated from the Site area will be managed in accordance with the PADEP-approved site-specific *Final Soil Management Plan*.

#### 4.2.3 Identification of Remedial Action Areas

As discussed above, a comparison of soil sampling results to the soil-specific soil-to-groundwater MSCs will define the final impacted soil volumes. Based on the existing exceedances, and as depicted on Figure 3, the total size of the four areas will be no greater than approximately 18,500 square feet (ft<sup>2</sup>) with a proposed excavation depth of 6 ft bgs. Addressing soil in this area will achieve SHS for the following COCs: Area 1 – benzene, toluene; Area 2 – naphthalene; Area 3 – naphthalene; and Area 4 – benzene. Post-excavation sampling demonstration of attainment is discussed in Section 4.2.6.

#### 4.2.4 Permits

Given the nature and limited scope of the proposed remedial action activities, no permit approvals are anticipated.

## 4.2.5 Summary of Construction Facilities and Requirements

No specific construction facilities will be necessary at the Site for the implementation of the proposed remedial action.

## 4.2.6 Demonstration of Attainment

In accordance with 25 PA Code §250.703 (General attainment requirements for soil) and §250.707(b)(1), PESRM will collect confirmatory samples after soil is excavated for off-site disposal or relocated on site in accordance with the *Final Soil Management Plan*. Sampling points for demonstration of attainment for soils shall be selected to be random and representative, both horizontally and vertically, based on systematic random sampling.<sup>2</sup>

For statistical methods under § 250.707(b)(1)(i) (relating to statistical tests), the number of sample points required for each distinct area of contamination to demonstrate attainment shall be determined as follows:

For soil volumes equal to or less than 125 cubic yards (yd<sup>3</sup>), at least eight samples.

For soil volumes up to 3,000 yd<sup>3</sup>, at least 12 sample points.

For each additional soil volume of up to 3,000 yd<sup>3</sup>, an additional 12 sample points.

Additional sampling points may be required based on site-specific conditions.

The final soil volumes will be based on the soil-specific SPLP evaluation. As such, the final confirmatory sample locations and frequency will be based on the criteria described above. Confirmatory samples will be analyzed for the COCs identified above MSCs in each area (Areas 1–4, respectively). Excavation activities will continue until the results of the post-excavation soil sampling activities demonstrate that soil with COCs above the corresponding MSCs have achieved the direct contact SHS and/or soil-specific soil-to-groundwater.

## 4.2.7 Post-Remediation Care Requirements

If soil removed to achieve SHS is managed on Site, institutional and engineering controls will be implemented, as defined in the PADEP-approved *Final Soil Management Plan* (HRP 2020), in the location(s) where soil is managed. This location may not be within the defined limits of the Site. Nonetheless, an environmental covenant will be enacted for the area of the Facility where the impacted soil is managed through institutional and engineering controls as appropriate. This environmental covenant will ensure the maintenance of these controls as long as necessary to protect human health and the environment.

If soil removed to achieve SHS is sent for off-site disposal, no post-remediation care will be required.

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<sup>2</sup> Pursuant to PADEP's Systematic Random Sampling spreadsheet (updated June 2018).



## 4.2.8 Schedule

The proposed remedial action program will be implemented following PADEP review and approval of this RAP. A proposed schedule is provided below.

Task	Date
PADEP RAP Approval	To be determined.
Conduct SPLP Remedial Design Investigation	Within 30 days following RAP Approval.
Evaluate site-specific migration-to-groundwater standard	Within 30 days of SPLP sampling.
Implement Remedial Action	Within 30 days of determining soil-type -specific migration-to-groundwater MSC.
Prepare Remedial Action Completion Report	90 days following completion of soil excavation or management activities.

The remedial action implementation schedule will also be dependent on contractor availability.

## 5 Conclusion

Terraphase has prepared this RAP, on behalf of PESRM, to detail the planned remediation of soil impacts identified in the *Tank Group 01 Site Characterization Report* (Terraphase 2022). The activities described herein have satisfactorily addressed the requirements of Act 32 and 25 PA Code 245 (Subchapter D).

The on-site soil impacts that require remedial action consist of four areas adjacent to PB 663 (Area 1), PB 668 (Area 2), and PB 666 (Areas 3 and 4), as depicted on Figure 3.

Soil impacts at the Site will be addressed via excavation and either transported for off-site disposal or managed on Site in accordance with the PADEP-approved, site-specific *Final Soil Management Plan* (HRP 2020). The Site Assessment and Site Characterization sampling activities delineate the extent of the elevated chemical concentrations with respect to the selected SHS.

Prior to excavation/off-site disposal or management in accordance with the *Final Soil Management Plan*, PESRM proposes to determine an alternative (i.e., soil-type -specific) soil-to-groundwater MSC based on SPLP sampling. The final soil areas and volume will be based upon a comparison of the soil sampling results from the area relative to the soil-type -specific soil-to-groundwater MSC.

If soil impacted above soil-type -specific soil-to-groundwater MSCs is managed on Site, PESRM will implement institutional and engineering controls, as appropriate, and will institute an environmental covenant for the portion of the Facility where the contaminated soil is managed. The vapor intrusion exposure pathway is currently incomplete as there are no occupied structures at the Site. As part of its redevelopment planning, PESRM will assess potential vapor intrusion exposure in areas where occupied buildings are planned. That assessment will evaluate whether conditions pose an unacceptable risk to future building occupants such that risk management action is warranted. Finally, if soil removed to achieve SHS is sent for off-site disposal, no post-remediation care will be required.

The demonstration of attainment to the SHS for all COCs associated with the closure of the Site will be presented in a Remedial Action Completion Report.

## 6 References

HRP Philadelphia Holdings, LLC (HRP). 2020. *Final Soil Management Plan*. June.

Pennsylvania Department of Environmental Protection (PADEP). 2017b. *Closure Requirements for Aboveground Storage Tank Systems*.

———. 2021. *Land Recycling Program Technical Guidance Manual*. March.

Stantec. 2017. *Remedial Investigation Report, Area of Interest 8*. December 21.

Terraphase Engineering Inc. (Terraphase). 2021. *Aboveground Storage Tank Closure Work Plan*. March.

———. 2022. *Site Characterization Report – Tank Group 01*. February.



# Tables

- 1 Aboveground Storage Tank Details
- 2 Site-Specific Soil-to-Groundwater Evaluation Sampling Plan



**Table 1**  
**Aboveground Storage Tank Details**  
Former Philadelphia Energy Solutions Refinery

Facility	State Regulation Number	Tank Number	Design Capacity (gal)	Primary Product	Regulatory Status	Facility ID	Status Modification Date	Tank Type	Double Bottom	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	GPS Survey Complete	Demo Complete	Storage Tanks Reg./Permit App Form Submitted	Release Notification	Incident No.
Point Breeze	008A	PB 668	449,400	Light Cycle Oil	R	51-33620	1/20/2021	Cone Roof	N	40	48		N**	Y	1/21/2021	6/23/2021	56446
Point Breeze	043A	PB 666	2,818,200	Heavy Gas Oil	R	51-33620	1/19/2021	Cone Roof	Y, Removed	100	48		N**	Y	1/20/2021	6/23/2021	56446
Point Breeze	044A	PB 672	2,818,200	Vacuum Gas Oil	R	51-33620	1/27/2021	Cone Roof	N	100	48		N**	Y	1/27/2021		
Point Breeze	074A	PB 663	2,935,800	Heavy Gas Oil	R	51-33620	3/25/2021	Cone Roof	N	102	48		N**	Y	4/20/2021	6/23/2021	56446

**Note:**

\*\* AST and piping were demolished and removed prior to JD2 recording key infrastructure features via GPS. Site assessment sampling points were identified using high resolution aerial photograph of the area with input from JD2.

**Abbreviations:**

R = Removed

**Table 2**  
**Soil-Specific Soil-to-Groundwater Evaluation Sampling Plan**  
Former Philadelphia Energy Solutions Refinery

Matrix	Area	Location ID	Sample ID	Sample Depth (feet bgs)	Analyses		
					8260		8270
					SPLP Benzene	SPLP Toluene	SPLP Naphthalene
Soil	Tank Group 01	PB-663-02	PB-663-02-3.0-3.5	3.0-3.5		X	
		PB-663-03	PB-663-03-2.0-2.5	2.0-2.5		X	
		PB-663-11	PB-663-11-1.5-2.0	1.5-2.0			X
		PB-666-11	PB-666-11-3.5-4.0	3.5-4.0	X		
		PB-666-12	PB-666-12-2.5-3.0	2.5-3.0	X		X
		PB-666-20	PB-666-20-3.5-4.0	3.5-4.0	X	X	
		PB-666-24	PB-666-24-3.5-4.0	3.5-4.0			X
		PB-668-06	PB-668-06-2.5-3.0	2.5-3.0	X	X	X

**Abbreviations:**

bgs -- Below Ground Surface

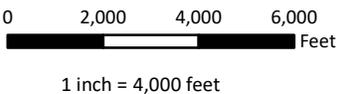
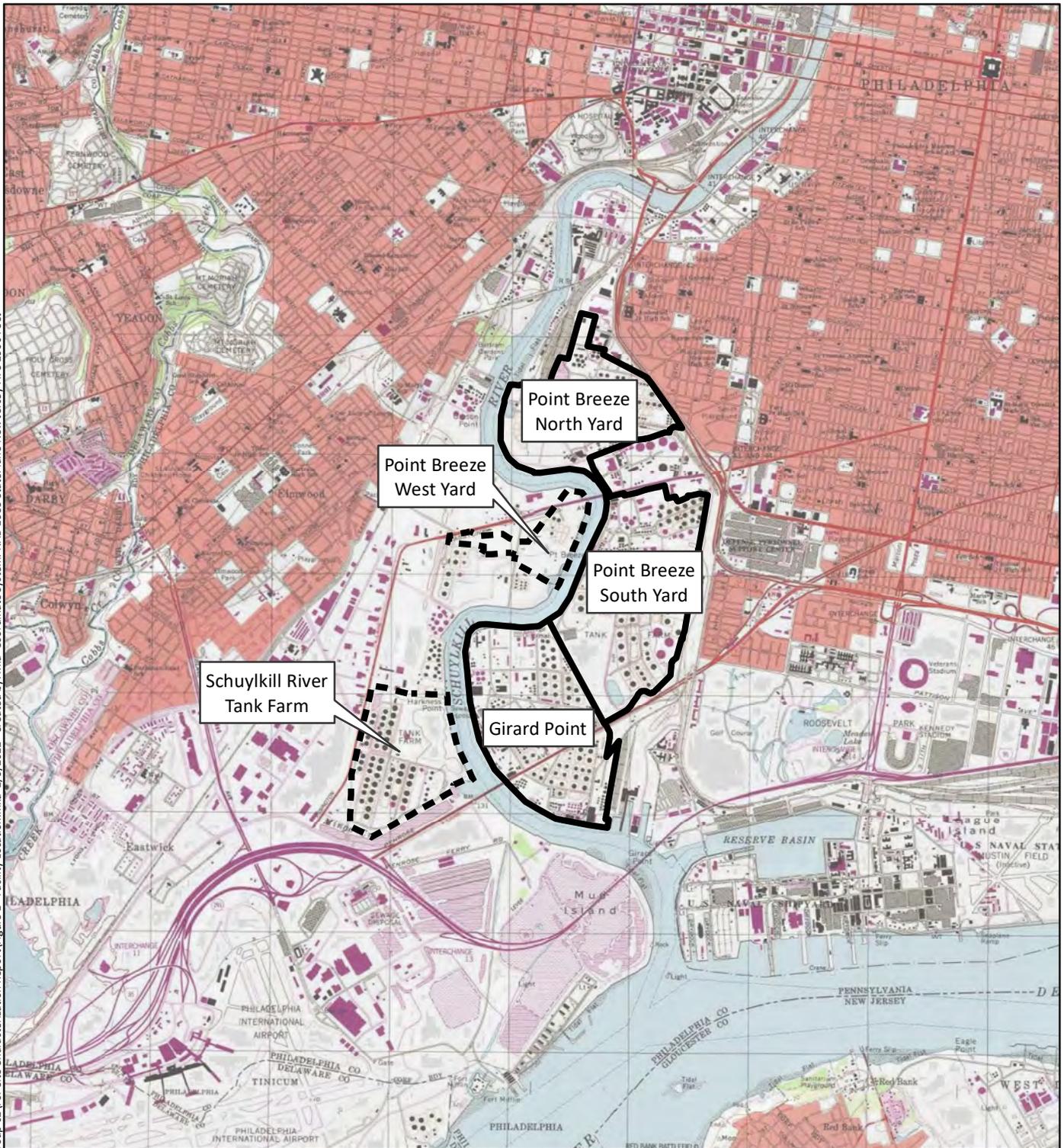
SPLP -- Synthetic Precipitation Leaching Procedure

# Figures

- 1 Facility Location
- 2 Tank Group 01 (Site)
- 3 Remedial Action Plan Tank Group 01
- 4a Proposed SPLP Soil Sample Locations Tank Group 01 (Benzene)
- 4b Proposed SPLP Soil Sample Locations Tank Group 01 (Toluene)
- 4c Proposed SPLP Soil Sample Locations Tank Group 01 (Naphthalene)



File: N:\GIS\Prj\p044.001\_PESRM-PE\WXD\AST\Work\Tank Group 02\For Site Characterization Report\Figure 1 - Facility Location.mxd 2/9/2022. Created by: Mia Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



**Legend**

- Subject to AST Closure Plan
- Not Subject to AST Closure Plan

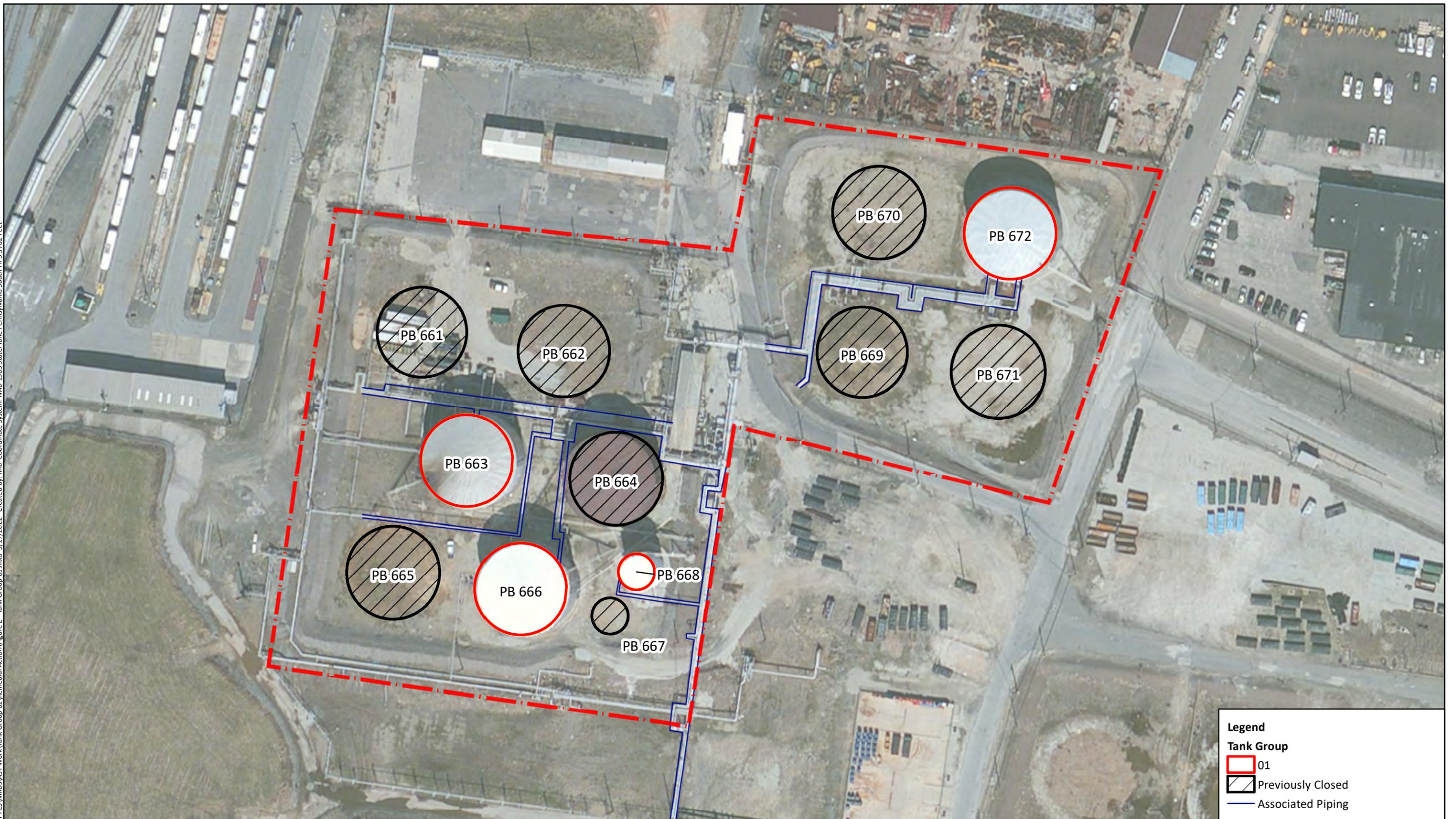
Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

<b>SAFETY FIRST</b>	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

**Facility Location**

**Figure 1**

File: N:\GIS\Project\044\_001\_PESRM-PES\MXDS\AST Work\Tank Group 01\Remedial Action\Figure 2 - Tank Group 01.mxd 3/17/2022 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

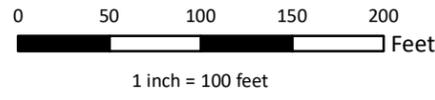


**Legend**

**Tank Group**

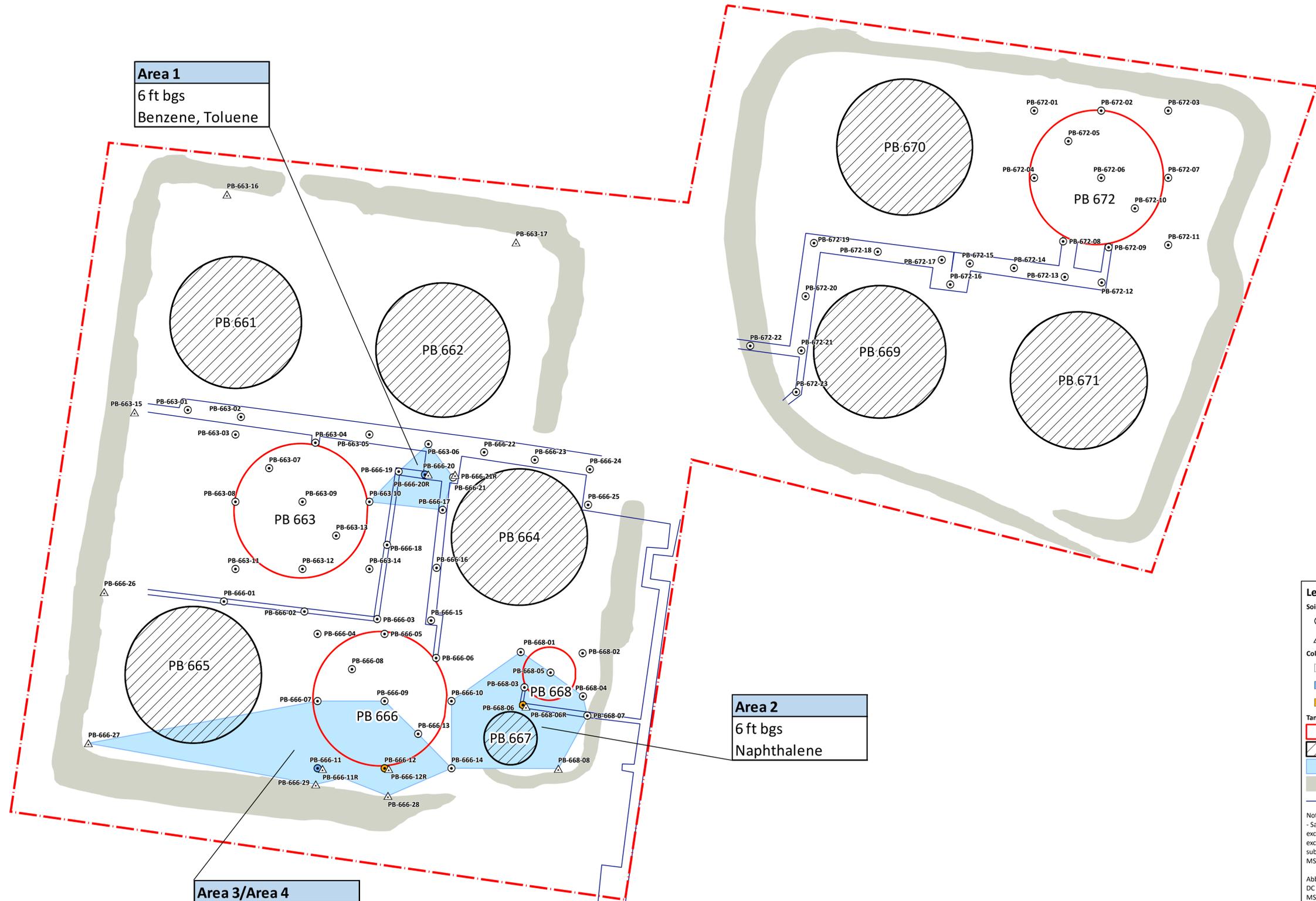
- 01
- Previously Closed
- Associated Piping

Notes:  
Aerial imagery source Maxar 10/19/2019



<b>SAFETY FIRST</b> 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	<b>Tank Group 01 (Site)</b>
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002		

**Figure 2**



**Area 1**  
6 ft bgs  
Benzene, Toluene

**Area 2**  
6 ft bgs  
Naphthalene

**Area 3/Area 4**  
6 ft bgs  
Benzene, Naphthalene

**Legend**

**Soil Sample Location**

- Site Assessment (circle with dot)
- Site Characterization (triangle)

**Color Scheme for Identifying Exceedances**

- None (white)
- S-GW MSC Only (light blue)
- NonRes DC and S-GW MSCs (yellow)

**Tank Group**

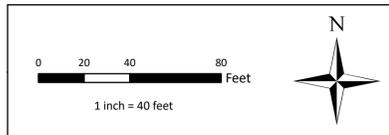
- 01 (red dashed line)
- Previously Closed (hatched circle)
- Approximate Extent of Proposed Excavation (light blue fill)
- Berm Boundary (grey fill)
- Associated Piping (blue line)

**Note**

- Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

**Abbreviations**

- DC - Direct Contact
- MSC - Medium Specific Concentrations
- S-GW - Soil-to-Groundwater

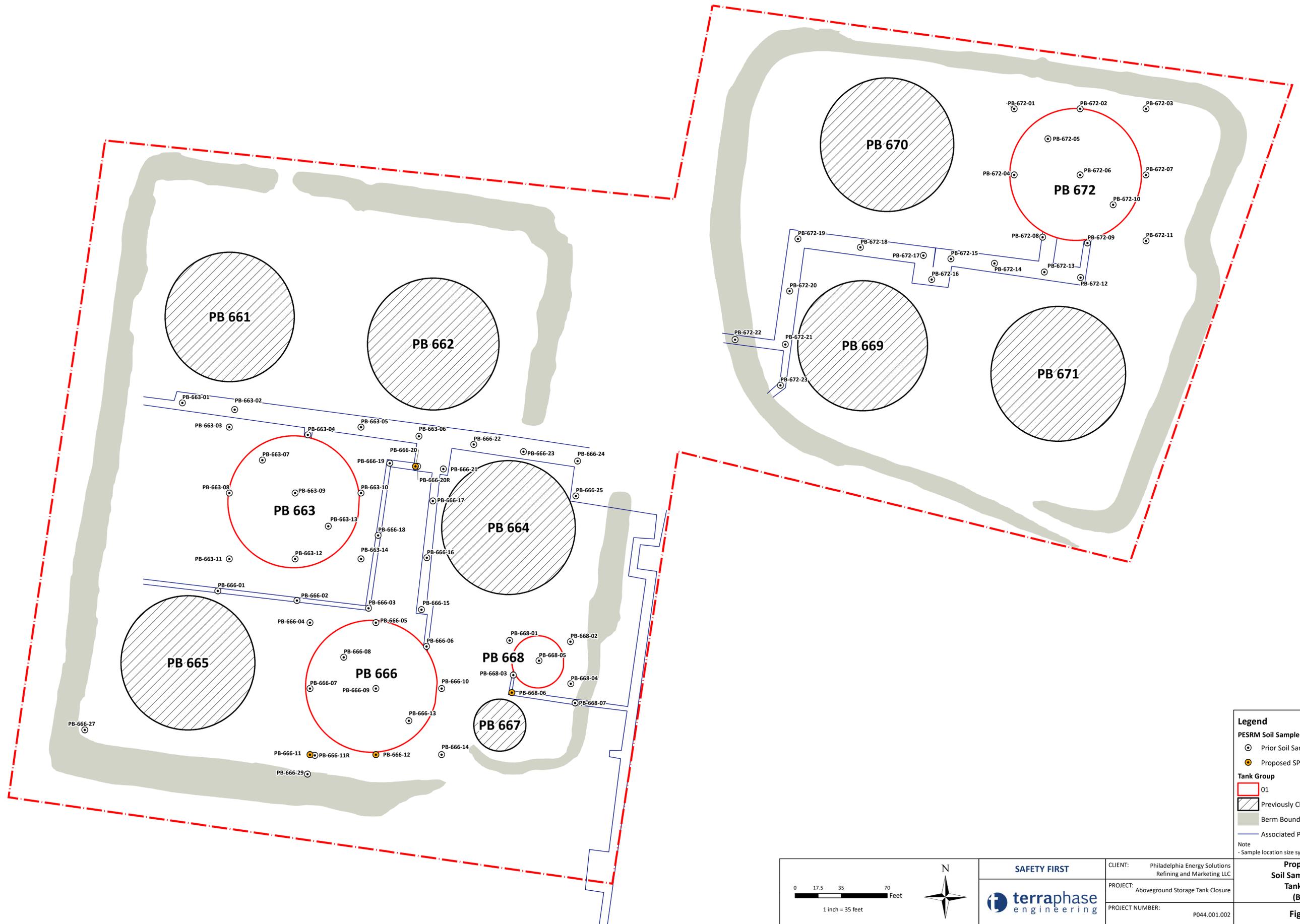


<b>SAFETY FIRST</b> 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

**Remedial Action Plan  
Tank Group 01**

**Figure 3**

File: N:\GIS\Projects\044\_001\_PESRM\Map\AST\_Work\Tank\_Group\_01\Remedial\_Action\2022\1818\_Proposed\_Sampling\_Locations\_Benzene.mxd 3/21/2022 Created by: BKW Checked by: NITIAI Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 5702 Feet



**Legend**

**PESRM Soil Sample Location**

- Prior Soil Sample Location
- Proposed SPLP Soil Sample Location

**Tank Group**

- 01
- Previously Closed
- Berm Boundary
- Associated Piping

Note  
- Sample location size symbolizes relative concentration.

0 17.5 35 70 Feet

1 inch = 35 feet

**SAFETY FIRST**

**terra phase engineering**

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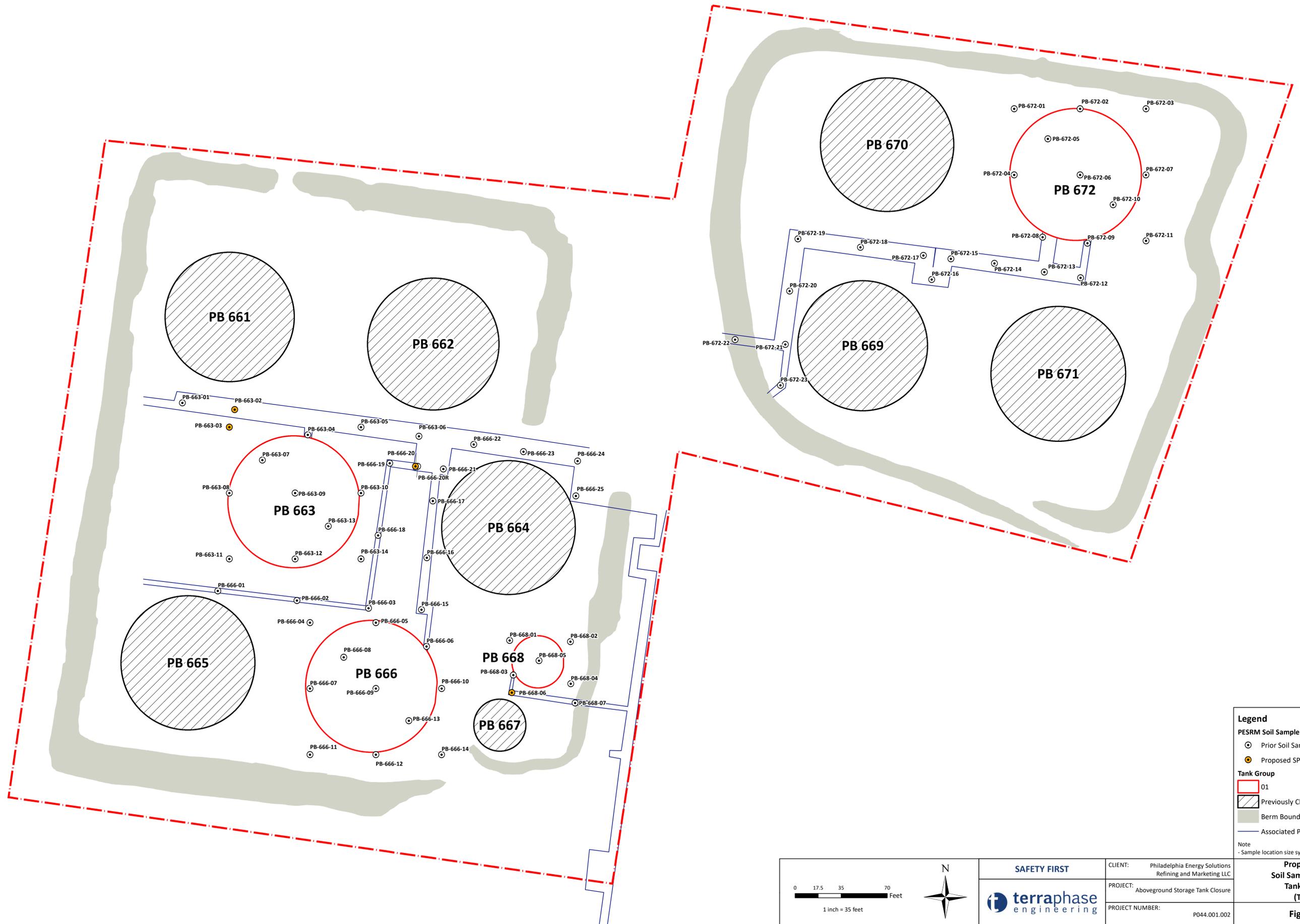
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

**Proposed SPLP Soil Sample Locations Tank Group 01 (Benzene)**

**Figure 4a**

File: N:\GIS\Projects\044\_001\_PESRM\Map\AST\_Work\Tank\_Group\_01\Remedial\_Action\20210818\_ProposedSPLP\_SamplingLocations\_Toluene.mxd 3/21/2022 Created by: BKW Checked by: INITIAL Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 5702 Feet



**Legend**

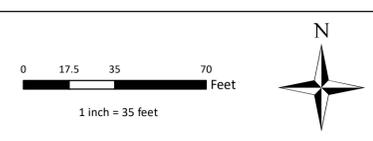
**PESRM Soil Sample Location**

- Prior Soil Sample Location
- Proposed SPLP Soil Sample Location

**Tank Group**

- 01
- Previously Closed
- Berm Boundary
- Associated Piping

Note  
- Sample location size symbolizes relative concentration.

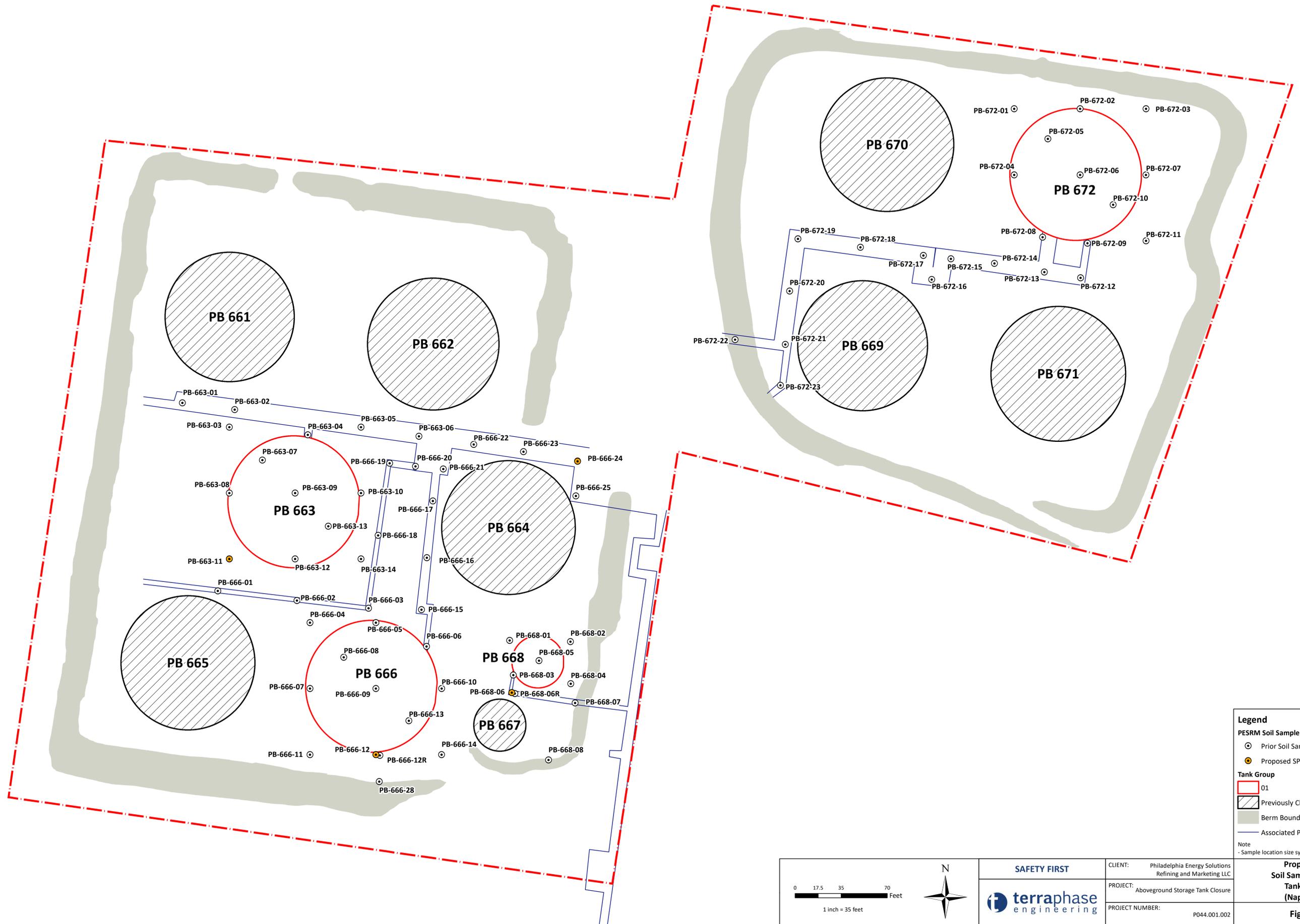


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**Proposed SPLP  
Soil Sample Locations  
Tank Group 01  
(Toluene)**

**Figure 4b**

File: N:\GIS\Projects\041\_001\_PESRM\PE\W003\AST\Work\Tank\_Group\_01\Remedial\_Action\2022\1818\_Proposed\_Sampling\_Locations\_-\_Naphthalene.mxd 3/21/2022 Created by: RWK Checked by: INITIAL\_Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



**Legend**

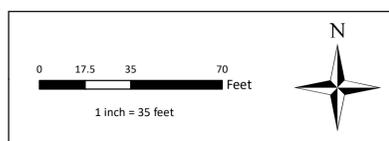
**PESRM Soil Sample Location**

- Prior Soil Sample Location
- Proposed SPLP Soil Sample Location

**Tank Group**

- 01
- ▨ Previously Closed
- Berm Boundary
- Associated Piping

Note  
- Sample location size symbolizes relative concentration.



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

**Proposed SPLP  
Soil Sample Locations  
Tank Group 01  
(Naphthalene)**

**Figure 4c**

# Appendix A

## Individual Parcel Map



# INDIVIDUAL PARCEL MAP

