Saraland Sports & Recreation Complex (Baseball/Softball Fields Area)
7365 Celeste Road, Saraland, Alabama
ADEM VCP Site #: 461-097-25009

Fact Sheet

A Voluntary Cleanup Program (VCP) Cleanup Plan has been found to be technically adequate by the Alabama Department of Environmental Management (ADEM) for **Saraland Sports & Recreation Complex (Baseball/Softball Fields Area)** in Saraland, Alabama. This fact sheet has been prepared to briefly advise the public of the principal legal and policy issues of the VCP.

I. VCP PROCESS

The VCP provides a mechanism for the implementation of a cleanup program that encourages applicants to voluntarily assess, remediate, and reuse rural and urban areas of actual or perceived contamination. The program does not relieve any "responsible person" for the liability for administrative, civil, or criminal fines or penalties which are otherwise authorized by law and imposed as a result of the illegal or unpermitted disposal of solid waste, hazardous waste, hazardous constituents, hazardous substances, petroleum products, and/or pollutants to the land, air, or waters of the State on an identified property. The program is designed to expedite the voluntary cleanup process and has been designed for entry at any stage of the cleanup process as long as all applicable criteria have been met up to the point of entry.

II. PROCEDURES FOR REACHING A FINAL DECISION

ADEM is proposing to issue for Saraland Sports & Recreation Complex (Baseball/Softball Fields Area) a Cleanup Plan for the site remediation. The Cleanup Plan includes a proposal to excavate impacted surface soils/Foreign Material and placement of clean fill and cover over the fields. This plan also proposes an environmental covenant for the site.

ADEM Admin Code R. 335-15-6-.02 requires that the public be given a 30-day comment period from the date of the notice. The comment period will begin on August 20, 2025 which is the date of publication of the public notice in major local newspaper(s) of general circulation and will end on September 19, 2025.

All persons wishing to comment on any of the conditions of the VCP Remediation should submit their comments in writing to ADEM, Permits and Services Division, 1400 Coliseum Blvd. (Zip 36110). P.O. Box 301463 (Zip 36130-1463) Montgomery, Alabama, ATTENTION: Mr. Russell Kelly. Written comments on the VCP activities should be submitted to ADEM and be received by 5:00 p.m. on January 5, 2024.

ADEM will consider all written comments received during the comment period while making a final decision on this issue. When ADEM makes its final decision, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final decision.

III. FACILITY DESIGN

Site investigation activities are summarized in Section 2.5 of the Cleanup Plan at the Saraland Sports & Recreation Complex (Baseball/Softball Fiields Area) located at 7365 Celeste Road, Saraland, Alabama. The Cleanup Plan proposes to excavate impacted surface soils/Foreign Material and placement of clean fill and cover over the fields. Excavated soils will be transported to the main pile within the Source Area. The plan also proposes an environmental covenant to restrict groundwater use, prohibit construction of a building within the Baseball/Softball Fields Area without an vapor mitigation system, implement a Soil Management Plan, and notify that PCB remediation waste is present at the site.

IV. TECHNICAL CONTACT

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VOLUNTARY CLEANUP PLAN – BASEBALL/SOFTBALL FIELDS AREA (REVISED)

THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, MOBILE COUNTY, ALABAMA

ADEM VCP SITE NO. 461-097-25009

PPM PROJECT NO. 20203301-WP

JUNE 18, 2025

PPM CONSULTANTS

VOLUNTARY CLEANUP PLAN – BASEBALL/SOFTBALL FIELDS AREA (REVISED)

FOR

THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, MOBILE COUNTY, ALABAMA

ADEM VCP SITE NO. 461-097-25009

PREPARED FOR:

CITY OF SARALAND
943 SARALAND BOULEVARD SOUTH
MOBILE, ALABAMA 36571

PPM PROJECT NO. 20203301-WP

JUNE 18, 2025

PREPARED BY:

MATTHEW J. EBBERT, P.G.
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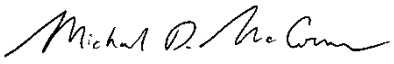
REVIEWED BY:



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CERTIFICATION PAGE

I certify that this Voluntary Cleanup Plan for the Baseball/Softball Fields of The Land Sportsplex, located along Celeste Road in Saraland, Mobile County, Alabama, and the plans, specifications, and technical data submitted within were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiring of the person or persons who directly gathered the enclosed information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Matthew J. Ebbert, P.G. No. 1131
Senior Geologist

06/18/25
Date

1.0 INTRODUCTION

PPM Consultants, Inc. (PPM) was retained by the City of Saraland, Alabama (the City) to prepare this Voluntary Cleanup Plan (VCP) for the Baseball/Softball Fields Area of The Land: Saraland Sports and Recreation Complex (Facility) located at 7365 Celeste Road in Saraland, Mobile County, Alabama. The work is being performed voluntarily by the City and data is being provided to the Alabama Department of Environmental Management (ADEM) Voluntary Cleanup Program.

A separate VCP will be developed for other portions of the Facility where impacted soils were derived from (Source Area) following completion of this scope of work.

The Facility is comprised of four contiguous parcels of land. The City also owns three adjoining parcels to the north that are not part of the Facility. The Facility is currently being developed into a sportsplex facility with numerous baseball, softball, soccer, and lacrosse fields; tennis courts; pickleball courts; playgrounds; parking lots; concession stands; and green space.

During development of the Facility, a light-gray to dark-gray silty material was discovered that is light in density and has an organic odor. This will be referred to as “Foreign Material” in this report and based on historical documents, is primarily alum mud waste generated by the former American Cyanamid Company. Based on the discovery of this material, the City retained PPM to collect representative samples of the Foreign Material to evaluate if regulated constituents of interest were contained within. Based on this evaluation, it was found that the Foreign Material does contain polychlorinated biphenyls (PCBs), pentachlorophenol (PCP), arsenic, and hexavalent chromium (chromium VI) at concentrations greater than the Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for residential use (November 2024). Based on this, additional assessment was performed to delineate the horizontal and vertical extents of this material, to coordinate PCB cleanup actions with the EPA and ADEM, to develop conceptual remedial alternatives, and to research the history of the Foreign Material.

2.0 BACKGROUND

2.1 FACILITY LOCATION

The Facility is currently being developed into a multi-use sports complex located at 7365 Celeste Road, on the west side of Celeste Road, in Saraland, Mobile County, Alabama. The Facility is comprised of four contiguous parcels (1806240000006.000, 1807250000001.000, 1904190000001.053, and 1909300000001.217) of land that total approximately 117 acres. The City also owns three contiguous parcels to the north (1806240000001.001, 1806240000004.001, and 1806240000005.000) that are not part of the Facility. The Facility is located in the south half of the southeast ¼ of Section 24 and the north half of the northeast ¼ of Section 25, Township 2 South, Range 2 West and the southwest ¼ of the southwest ¼ of Section 19 and the northwest ¼ of the northwest ¼ of Section 30, Township 2 South, Range 1 West of the Chickasaw, Alabama Quadrangle and the Kushla, Alabama Quadrangle. More specifically, the approximate center of the Facility is positioned at 30° 51’ 04" north latitude and 88° 07' 34" west longitude. The site location is shown in **Figure 1**, **Facility Location Map** and the proposed Facility layout is depicted on **Figure 2, Facility Map** in **Figures**.

2.2 ADJACENT AND SURROUNDING PROPERTIES

The Facility is bound to the north by vacant land and a closed landfill owned by the City. A City-owned fire station is also located to the northeast. Single-family residences are located further to the northeast. A water tower and vacant land are located further to the east and a residential neighborhood to the southeast. An additional residential neighborhood is under construction to the south and undeveloped land is located to the west. Adjacent and surrounding properties are shown in **Figure 3**, **Area Map**. Adjacent property owner information is provided in **Appendix A, Property Owner Information**. Owner information was obtained from the Mobile County Revenue Department website (Mobile County Revenue Commission).

2.3 SITE DESCRIPTION

The Facility is currently being developed into a multi-use sports complex facility. The City issued municipal bonds to construct the $72,000,000 project, with payments to be made from revenue generated by the development via sports tournaments and tourism. When completed, the Facility will have eight baseball/softball fields, batting cages, six tennis courts, four basketball courts, three pickleball courts, parking lots and roads, a maintenance

building, restroom facilities, concession stands, and green space. Five multi-use fields for soccer, lacrosse, and football were planned for the northern portion of the Facility; however, based on the presence of a significant volume of Foreign Material in that location associated with past disposal activities, these fields may not be constructed in this area. A power line transects the Facility from the northeast corner, southwest across the property. According to a survey map for the Facility, a pipeline transects northeast to southwest, along the southeastern property boundary. Access to the Facility from Celeste Road is present along the eastern property line.

Pre-construction topography of the Facility consisted of mounds and valleys with moderate to steep grades. The overall general topography slopes from the northwest corner of the property where the elevation is approximately 212 feet above mean sea level (AMSL) to the southwest corner where the elevation is approximately 65 feet AMSL. Full construction of the Facility is currently underway, with more than 100 construction personnel on site attempting to complete the Facility to accommodate sports events scheduled for the Spring of 2025. A drone survey was performed of the Facility in November 2024 and a composite aerial photograph of the northern portion of the Facility is presented as **Figure 4, Facility Aerial Photograph (November 2024)**.

The Facility contains two primary areas that contain PCBs, PCP, arsenic, and chromium VI and include the Baseball/Softball Fields Area, which is the subject of this Voluntary Cleanup Plan and the Source Area, which will be addressed at a later date. These areas are depicted on **Figure 4**.

2.4 FACILITY HISTORY

The history of the Facility was developed based on two previously completed Phase I Environmental Site Assessment (ESA) Reports, a Site Inspection Prioritization Report for the Brunson Clay Pits (including attachments within), information obtained from an EPA Freedom of Information Act (FOIA) request concerning the Brunson Clay Pits, and a review of aerial photographs for the Facility. The known history is as follows.

Phase I ESA – Jay Hill Parcel (January 2007)

Thompson Engineering (Thompson) performed a Phase I ESA for the City prior to purchase of the "Jay Hill Parcel", which is an approximate 20-acre parcel on the northern portion of the Facility (Parcel No. 1806240000006.000). The report states that the entire parcel was disturbed by past soil mining activities and this is confirmed by a review of

aerial photographs. The site was described at the time of the report as being covered by un-stabilized soils and covered by grass and heavy vegetation. A dry stream bed was observed on the western portion of the parcel. No structures were observed and an unimproved road entered the parcel from the northeast. A "minimal amount of solid waste" was observed on the parcel and included concrete rubble, asphalt, concrete pipe, galvanized pipe, and crushed coal.

Thompson reported that the parcel was undeveloped wooded land in 1940. Based on aerial photographs, approximately half of the property was a "clay pit" in 1966 and aerial photography from 1974 and 1980 show the site developed as a borrow pit. Based on interviews, the parcel was first used by Mr. W. D. Brunson as a sand and clay borrow pit in the mid-1960s. The soil mining activities ceased when the sand and clay reserves were depleted.

A review of regulatory records by Thompson found the parcel was listed as an EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) No Further Remedial Action Planned (NFRAP) facility. The EPA performed an initial assessment that was completed in October 1979 and a site inspection was completed in March 1980. The Preliminary Assessment was completed in September 1985 and the EPA assigned the site a "low" priority and it was removed from the CERCLIS inventory in December 1993.

According to a deed, South Coast Services, Inc. sold the property to Hill Builders, Inc.; however, a date was not included on the copy of the deed. The City acquired the Jay Hill Parcel from Hill Builders, Inc. on March 7, 2007.

The report states that interview remarks made by the operator of the borrow pit indicate that "waste" from American Cyanamid was deposited on the Jay Hill Parcel, when it was owned by W. D. Brunson. There was no information on the type of waste deposited on the property. Attempts to contact Mr. Bunson were made by Thompson; however, Mr. Bunson did not respond.

Phase I ESA – Saraland Sportsplex Site (October 2022)

Ephriam Environmental LLC (Ephriam) performed a Phase I ESA, for the City, of the entire Facility (four parcels) and the three contiguous properties owned by the City in October 2022. The assessment area encompassed approximately 178 acres of land. Ephriam described the site as having moderate relief from east to west, toward Bayou Sara.

The property at the time of the report was vegetated and vacant. The northern portion of the assessment area (north of the Facility) was identified as a solid waste landfill that has been capped since the early-1990s. Monitoring wells associated with the landfill were identified. Two detention ponds were observed on the parcel adjacent to the west of the closed landfill (northwest of the Facility). A borrow pit was observed on parcel numbers 1806240000006.000 (Jay Hill Parcel), 1807250000001.000 (south of Jay Hill Parcel), and 1909300000001.217 (east of previous parcel) on the Facility. Evidence of the former borrow pit included major erosional features and "quartz-based sediment that appeared to have a limonite staining." Heavy vegetation was seen in portions of the property and isolated wetlands were observed along the northern and western portions of the Jay Hill Parcel. Eleven mounds of fill material were identified during the ESA and were reported to appear to be "left over fill material and were not considered a recognized environmental condition (REC)." Pits from the former mining operation were identified on the parcels that were identified to be a former borrow pit and were not considered a REC. Solid waste, transformers, drums, stains, and underground storage tanks (USTs) were not identified by Ephriam during the ESA.

A Phase I Cultural Resource Assessment was performed as part of the Phase I ESA by Jason Gardner of Gulf South Past Recovery in November 2022. No artifacts or cultural resources were found. A wetland delineation was conducted by Ephriam in July and August 2022. Wetlands were found along tributaries of Bayou Sara and a seepage bog. Isolated wetlands were identified on the Jay Hill Parcel. Ephriam also conducted a threatened and endangered species survey. The survey concluded that no threatened and endangered species were identified.

Ephriam concluded that the only REC identified during the Phase I ESA was related to high lead concentrations in monitoring well MW-6, associated with the closed landfill on the adjacent property to the north.

EPA Site Inspection Prioritization Report – Brunson Clay Pits – November 1993

Based on the findings of the previously summarized Phase I ESA reports, PPM submitted a FOIA request to the EPA concerning the Brunson Clay Pits site. EPA provided one document based on the request, entitled Work Assignment No. C04119 – Site Inspection Prioritization Report – Brunson Clay Pits, dated November 10, 1993. The document contained several attachments, including previous reports, letters, analytical data, memos, and other information. The site no. was ALD980495691.

The report identified the Brunson Clay Pits as an inactive, 20-acre "landfill", that was used for "nonhazardous" industrial waste. The landfill is located adjacent to the south of the City solid waste landfill and appears to primarily be located on the Jay Hill Parcel. According to the report, the landfill was operated by Brunson Construction Company, Inc. from approximately 1973 through 1983.

According to the document and references within the document, approximately 100,000 cubic yards of "alum mud waste", generated by American Cyanamid Company were received by the landfill. In addition, approximately 200 cubic yards of "organic residue" consisting of paraffin, rosins, and soil and an undocumented quantity of pine bark were received by the landfill. Based on the description of the alum mud waste and the disposal location, PPM assumes that the Foreign Material is primarily comprised of alum mud waste. American Cyanamid previously operated a manufacturing facility in Mobile County, but the company was dissolved decades ago.

Multiple letters and communications were included in the report either to or from ADEM concerning the landfill and the waste. Based on these correspondences, it appears ADEM gave approval for Brunson and American Cyanamid to dispose of the industrial waste at the landfill. As the disposal occurred prior to the enactment of the Resource Conservation Recovery Act (RCRA), the site operators did not file a RCRA notification, and the site was never regulated or permitted under RCRA.

ADEM, the Alabama Water Improvement Commission, and/or the Division of Solid Waste & Vector Control, required a compacted clay liner below the landfill, daily cover over the material, and a final compacted clay cover of at least 2 feet in thickness, at closure of the landfill. Site preparation was to also include surface water controls, such as diking. Based on inspections by ADEM and contractors of ADEM, it appears that these requirements were generally met. Multiple ADEM inspections, including one dated July 28, 1985 (two years after final wastes were received), stated no hazardous substances appear to be present and no further action was necessary.

American Cyanamid provided analytical data to ADEM for samples collected from the alum mud waste prior to removal from the local plant. Ten samples were collected and analyzed for the eight RCRA metals and aluminum following Extraction Procedure (EP) toxicity testing. In addition, one sample was analyzed for bacteria, pH, conductivity, total organic carbon, total organic halogen, cyanides, sulfates, sulfides, flash point, and pesticides. Based on the results, the material analyzed was deemed non-hazardous and non-toxic.

Reference No. 17 of the document consisted of an EPA Potential Hazardous Waste Site, Site Inspection Report. The document does not state who completed the inspection or the date of the inspection. The form identifies that American Cyanamid delivered alum mud and organic residue waste. In addition, the form specifies the organic residue waste is approximately 40 percent paraffins, 40 percent rosins, and 20 percent surface soils. The form also notes that chromium waste and discarded chemical drums were disposed at the landfill.

ADEM received a grant from the EPA to conduct a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Waste Site Inventory Program of the landfill in March 1985. The research included multiple older documents, which are described above. One document stated there was a low potential threat from the material as it was covered. The waste material was described as "soil which has been subjected to sulfuric acid in production of alum". Another document states no further action is indicated at the site as no hazardous substances were present. Environmental Protection Systems, Inc. performed an Alabama RCRA 3012 Site Ranking Scheme and scored the site a 0, with no priority assessment.

Discovery of Foreign Material at the Facility – August 2024

Construction of the Facility began in early 2024, which included significant cut and fill site work to level the ground for the sports fields. On August 28, 2024, PPM received a call from personnel with Geotechnical Engineering and Testing, Inc. (GET) to request aid in determining the nature and source of an odor encountered in materials on the Jay Hill Parcel during excavation. Site personnel noted the odor seemed to be related to a particular type of soil/material that differed from native soils at the site. The material is hereafter referred to as "Foreign Material" in this plan.

2.5 SUMMARY OF HISTORICAL SITE ASSESSMENTS

Foreign Material is primarily found in two areas of the Facility that include the Source Area (on the northern parcel) and the Baseball/Softball Fields Area (currently under construction, southwest of the Source Area). The Source Area contains a main pile of Foreign Material that has an area of approximately 7.5 acres with a maximum measured thickness of 35 feet. Additional secondary piles of Foreign Material are located in the Source Area, west of the main pile. Foreign Material from the main pile was used as fill material under portions of field nos. 2, 3, and 4, which are within the Baseball/Softball Fields Area. The Foreign Material in the Baseball/Softball Fields Area was found in

distinct layers beneath each of the three fields at depths ranging from 2 feet below ground surface (BGS) to over 10 feet BGS. This supports the information provided by the general contractor at the Facility that the Foreign Material was used as fill material in the Baseball/Softball Fields Area. The layers range in thickness from approximately 2 feet to over 5 feet and are overlain by fill material not containing Foreign Material. For the majority of the locations with Foreign Material, distinct contact zones are present with the underlying soil and if present, with the overlying soil; however, Foreign Material is comingled with some surficial soil due to "tracking" of the material with heavy equipment.

Numerous soil borings and two monitoring wells were advanced within the Baseball/Softball Fields Area and are depicted on **Figure 5, Site Map – Baseball/Softball Fields Area**. Analytical data from the Foreign Material has three primary constituents (PCB-1248, PCP, and chromium VI) that exceed RSLs for residential or industrial soil. Based on analytical data, if Foreign Material is present in an area, one or more of these constituents are present. Arsenic was added as a constituent following these assessment activities. Minimal vertical migration of the constituents has been found and the underlying soil defines the vertical limits of concentrations that exceed an RSL. For the most part, the horizontal limits of Foreign Material and soil containing concentrations above a residential RSL have been defined. A summary of the analytical data from the Baseball/Softball Fields Area is included as **Table 1, Analytical Summary (Baseball/Softball Fields Area), Table**. Depictions of the extent of Foreign Material and constituents of concern (COC) impact are included as **Figure 6A, Horizontal Extent of PCBs in Baseball/Softball Fields Area, Figure 6B, Horizontal Extent of PCP in Baseball/Softball Fields Area,** and **Figure 6C, Horizontal Extent of Chromium VI in Baseball/Softball Fields Area**.

Nine monitoring wells were installed at the Facility with two monitoring wells (MW-6 and MW-9) installed within the Baseball/Softball Fields Area. Initial saturation was observed in borings for the nine monitoring wells at depths ranging from 22 to 38 feet BGS. Static water levels in the monitoring wells ranged from 13.10 to 38.20 feet below top of casing (BTOC) on November 18, 2024, and from 18.18 feet BTOC at upgradient monitoring well MW-1 to 41.34 feet BTOC at MW-7 on February 17, 2025. The general groundwater flow direction for both gauging events was to the west-southwest at approximate gradients of 0.035 to 0.038 feet/foot (ft/ft).

Two groundwater sampling events have been performed at the Facility. Groundwater analytical data from MW-6 and MW-9, within the Baseball/Softball Fields Area, did not contain detected concentrations of PCBs or chromium VI during either sampling event. An

estimated concentration of PCP was detected in the MW-6 sample during the November 2024 event and the value was below the laboratory detection limit and the EPA RSL. PCP was not detected in MW-6 during the February 2025 sampling event.

The groundwater analytical data and the analytical data from soil samples collected immediately beneath the Foreign Material at the Facility demonstrate that COCs from the Foreign Material are not migrating vertically and are not impacting groundwater.

Based on ADEM's preliminary comments to the Site Assessment Report for the Facility, PPM completed a study on the naturally occurring arsenic concentrations at the Facility. Four borings were advanced in the northeastern portion of the Facility in February 2025 and soil samples were collected from surface and subsurface soil samples. The samples were analyzed for total arsenic. Arsenic background concentrations were calculated for surface and subsurface soil using two times the arithmetic mean. A report detailing the study and the results was submitted to ADEM on March 13, 2025.

Based on ADEM's preliminary comments to the Site Assessment Report for the Facility, PPM collected a surface water sample and a sediment sample from the northeast corner of the west retention pond (located immediately to the west of the Baseball/Softball Fields Area). The samples were analyzed for PCBs, PCP, and chromium VI and neither sample contained a detected concentration of the analytes. A report detailing the work was submitted to ADEM on March 18, 2025.

3.0 CLEANUP RATIONALE AND STRATEGY

The objective of this Voluntary Cleanup Plan is to outline an approach to protect human health and the environment from COC-impact within the Baseball/Softball Fields Area. An Alabama Risk-Based Corrective Action (ARBCA) Evaluation was performed as part of this plan and is included as **Appendix B, ARBCA Evaluation – Baseball/Softball Fields Area**. Based on the findings of the ARBCA Evaluation, if a deed restriction is placed on the Facility that prohibits the use of groundwater and a separate deed restriction for the Baseball/Softball Fields Area that prohibits the construction of a building, without an engineered sub-slab ventilation system or vapor barrier, cumulative risks for residential (children and adults), commercial workers, and construction workers are below acceptable levels established by ADEM. However, as the Baseball/Softball Fields Area will be used as a recreation complex, the City has elected to perform additional measures to add levels of protection to human health and the environment.

These additional measures include removing surficial soils, installation of at least 2 feet of clean fill material over the area, and implementation of a Soil Management Plan. These are measures are discussed in further detail below.

A separate Risk-Based PCB Cleanup Work Plan has been prepared and submitted to the EPA Region IV PCB Program to address PCB impacts associated with the Toxic Substances Control Act (TSCA). The EPA issued correspondence dated May 14, 2025, that stated the work plan met the requirements for a self-implementing on-site cleanup and disposal of PCB remediation waste.

4.0 REMEDIAL ACTIONS

The following remedial action will be implemented:

- Completion of an ARBCA Evaluation
- Preparing and filing deed restrictions for the Facility and the Baseball/Softball Fields Area
- Excavation of impacted surface soils/Foreign Material within the Baseball/Softball Fields Area
- Placement of at least 2 feet of clean fill material over impacted soils and Foreign Material
- Implement a Soil Management Plan

4.1 ARBCA EVALUATION

- PPM completed an ARBCA Evaluation, in compliance with the ADEM ARBCA Guidance Manual, Version 3.0, dated February 2017. The ARBCA Evaluation identified PCB-1248, PCP, arsenic, and chromium VI as the COCs for the Baseball/Softball Fields Area. The maximum COC concentrations for surface soil, subsurface soil, and groundwater were used in the evaluation. Receptors included resident children, resident adults, commercial workers, and construction workers. Three models were performed with the first using current conditions and the second using anticipated data following implementation of this VCP. A third model was performed that used current conditions with adjusted exposure factors for residential receptors that more accurately predict the Reasonable Maximum Exposure for the use of the Facility. The models assumed that groundwater would not be utilized following placement of a deed restriction on the Facility. Indoor

inhalation was not a route of exposure as there are no buildings in the Baseball/Softball Fields Area. A deed restriction will be implemented for the area that will prohibit the construction of a building in the future, unless an engineered sub-slab ventilation system or vapor barrier is installed.

Based on the evaluation using current conditions with adjusted exposure factors, the cumulative risk to each receptor was below the acceptable limit established by ADEM. Based on the evaluation using future conditions with default exposure factors, cumulative risk was below the acceptable limit established by ADEM and decreased or remained the same as the current conditions. A copy of the ARBCA Evaluation is included as **Appendix B**.

4.2 DEED RESTRICTION

The City has prepared an environmental covenant that includes deed restrictions associated with this Voluntary Cleanup Plan. The first deed restriction is for the entire Facility and prohibits the use of groundwater at the Facility. The second deed restriction prohibits the construction of a building within the Baseball/Softball Fields Area, without an engineer designed sub-slab ventilation system or vapor barrier. The third restriction is a reference to a Soil Management Plan if soil is disturbed within the Baseball/Softball Fields Area. The fourth and final restriction is a notification that PCB remediation waste is present at the Facility. The draft environmental covenant is included as **Appendix C, Draft Deed Restrictions**.

4.3 EXCAVATION AND PLACEMENT OF FILL MATERIAL

Analytical data from the Baseball/Softball Fields documents that the Foreign Material typically contains PCB-1248, PCP, and chromium VI. The Foreign Material in this area of the Facility is typically located in layers that range in thickness from a few inches up to 6 feet. In general, the Foreign Material is first encountered 6 to 10 feet BGS near field no. 4 (southern field) and near ground surface to 5 feet BGS near field nos. 2 and 3. The soil immediately above and beneath the Foreign Material layers did not contain detectable PCB concentrations. However, some surface soil contains fragments of Foreign Material which will be removed.

4.3.1 Excavation

Field no. 4 is near final grade and the Foreign Material is already covered by 6 to 10 feet of clean backfill material, with an additional 1 to 2 feet of fill to be added. In addition, a water removal system was constructed approximately 2 feet below the final grade that is designed to collect and redirect rainwater that infiltrates to that zone, beneath the field to a stormwater basin west of the field. The fields will be finished with artificial turf. Based on this, PPM proposes to leave the Foreign Material at this location which will be discussed further in **Section 4.3.3**.

Construction of field nos. 2 and 3 has started and several additional feet of fill material are required to complete the fields to final grade. As noted, some Foreign Material is present at or near ground surface and due to the work stoppage in the Baseball/Softball Fields Area following discovery of the Foreign Material, much of the surface soil within the Baseball/Softball Fields Area (excluding field no. 4) is not suitable for construction due to moisture content. This area has been exposed to rainfall for several months, and based on geotechnical specifications, must be removed and replaced with clean backfill in order to build upon. This soil will be removed and transported to the Source Area pile for disposal, and these actions will accommodate both construction requirements and remediation of the Foreign Material at the surface. Additionally, for areas where less than 2 feet of additional fill material is required to bring the area to the final design grade, at least 2 feet of soil will be removed with an excavator. New fill material will then be applied to these areas to cover the remaining Foreign Material and COC impact. The approximate excavation limits are depicted on **Figure 7, Excavation Limits**. The limits and dimensions of the excavation may be adjusted during implementation of this Voluntary Cleanup Plan to ensure that affected surface soil is excavated or covered.

A track hoe will be used to scrape the surface soil to create a “clean work face”. The excavated material will be placed in haul trucks and transported to the Source Area for disposal. Trucks and heavy equipment will not be allowed to travel from the work zone, across the clean work face. This work is scheduled to be completed during Spring of 2025 during wetter months, thus limiting dust issues. If dust becomes a concern, haul routes will be wetted with a water truck as needed to reduce the occurrence of dust.

4.3.2 Disposal of Excavated Soils

As noted, excavated soils will be transported to the main pile within the Source Area for disposal (**Figure 8, Disposal Area**). The material will be placed on top of the main pile, in existing open pits and trenches. Once all of the material has been staged in this area, a

temporary cover of new fill material, with a minimum thickness of 1 foot will be applied over the main pile. The temporary cover will be covered with hay or straw and grass seed will be applied. This is a temporary cover as the Source Area will be addressed at a later date under a separate Voluntary Cleanup Plan.

A fence has been installed around the Source Area and a temporary fence is present around the Baseball/Softball Fields Area. The contractor is maintaining erosion control features and stormwater conveyances as part of the ongoing construction stormwater permit requirements.

4.3.3 Covering of Foreign Material

To complete field nos. 2, 3, and 4, the batting cages, and areas between the fields, several feet of additional fill material will be applied to the majority of the Baseball/Softball Fields Area. For areas around the perimeter of the fields that do not include already designed additional fill material (**Figure 7**), 1.5 feet of compacted clay and a minimum of 0.5 feet of topsoil will be installed prior to seeding or sodding. The application of the fill material will be performed in accordance with the geotechnical and engineering designs for the Facility.

As previously noted, an engineered rainwater management system will be installed beneath each field to collect and convey surface water from the constructed fields. This collection system consists of a filter fabric installed above the compacted subgrade that slopes to perforated water collection piping. A minimum of 5 inches of drainage stone with a minimum of 1 inch of final grade rock will underlay the final turf. The water collection piping will drain to the stormwater retention basin located west of the Baseball/Softball Fields Area. The elevations of these water collection systems are above the Foreign Material in the Baseball/Softball Fields Area and will retard downward vertical migration of rainwater through the underlying Foreign Material, limiting potential impact to groundwater.

4.4 STORM WATER AND EROSION CONTROL

Erosion and sedimentation control measures will be established on the site to prevent soil particulate from migrating from the excavation areas via rainfall and stormwater runoff. Control measures may include, but are not limited to, silt fencing, hay bales, diversion berms, erosion control blankets and booms which will be installed around the excavations, stockpiles, and catch basins as needed to minimize particulate migration. Such measures are a part of the existing Best Management Practices (BMP) Plan being implemented at the

site during construction activities which include regular inspection to ensure storm water runoff and erosion are controlled.

4.5 HEAVY EQUIPMENT DECONTAMINATION

Decontamination will consist of dry-cleaning machinery and equipment as they leave areas containing Foreign Material at the surface. This will be performed at a decontamination pad and will consist of soil removal from the exterior of the equipment, including tires and wheels, tracks, buckets, booms, frames, etc. Brooms, shovels, and brushes will be used to perform the dry decontamination. If wet, caked soil is present on the trucks, water may be necessary to remove materials. If water is used, it will be collected and properly managed.

4.6 SOIL MANAGEMENT PLAN

During construction and following completion of the Facility, Foreign Material and COC-impacted soil within the Baseball/Softball Fields Area will have to be properly managed to prevent receptors from coming in contact with the material. Thus, a Soil Management Plan has been prepared for the Baseball/Softball Fields Area and is included as **Appendix D, Soil Management Plan – Baseball/Softball Fields Area**.

5.0 SCHEULE AND REPORTING

Field activities should take four to six weeks to complete and started in June 2025. The City has prepared the draft deed restriction/environmental covenant and is awaiting ADEM's approval prior to finalizing the covenant. Within 60 days of completion of the work elements of this Voluntary Cleanup Plan, a Voluntary Cleanup Report detailing the work performed will be prepared and submitted to ADEM. The report will contain figures, photographs, narrative discussions, and copies of the final of the deed restrictions.

6.0 REFERENCES

Alabama Department of Environmental Management, *Alabama Environmental Investigation and Remediation Guidance (AEIRG)*, *Revision 4.0*, February 2017.

Alabama Department of Environmental Management, *Alabama Risk-Based Corrective Action Guidance Manual*, *Revision 3.0*, February 2017.

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Ephriam Environmental LLC, *Phase I ESA – Saraland Sportsplex Site*, October 27, 2022.

Geotechnical Engineering Testing, Inc., *Soils Explorations and Geotechnical Engineering Studies for the Proposed "The Land" Sportsplex*, May 4, 2023.

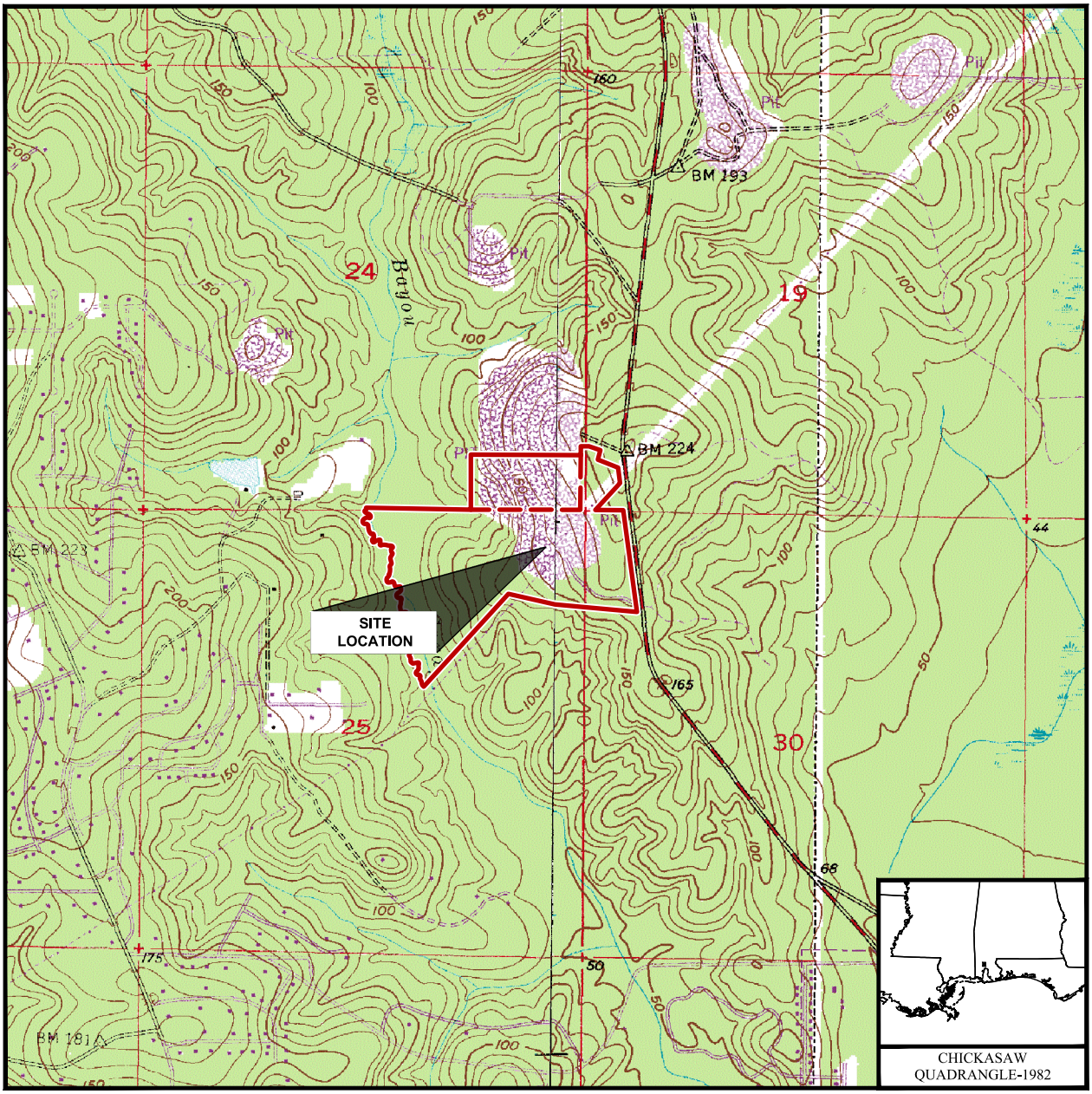
PPM Consultants, Inc., *Assessment Report*, December 20, 2024.

Thompson Engineering, *Phase I Environmental Site Assessment – Jay Hill Parcel*, January 30, 2007.

United States Geological Survey, *Chickasaw 7.5-Minute Quadrangle, Alabama*, 1982.

United States Geological Survey, *Kushla 7.5-Minute Quadrangle, Alabama*, 1986.

FIGURES



SCALE: 1 : 24,000

1 .5 0 1
MILES

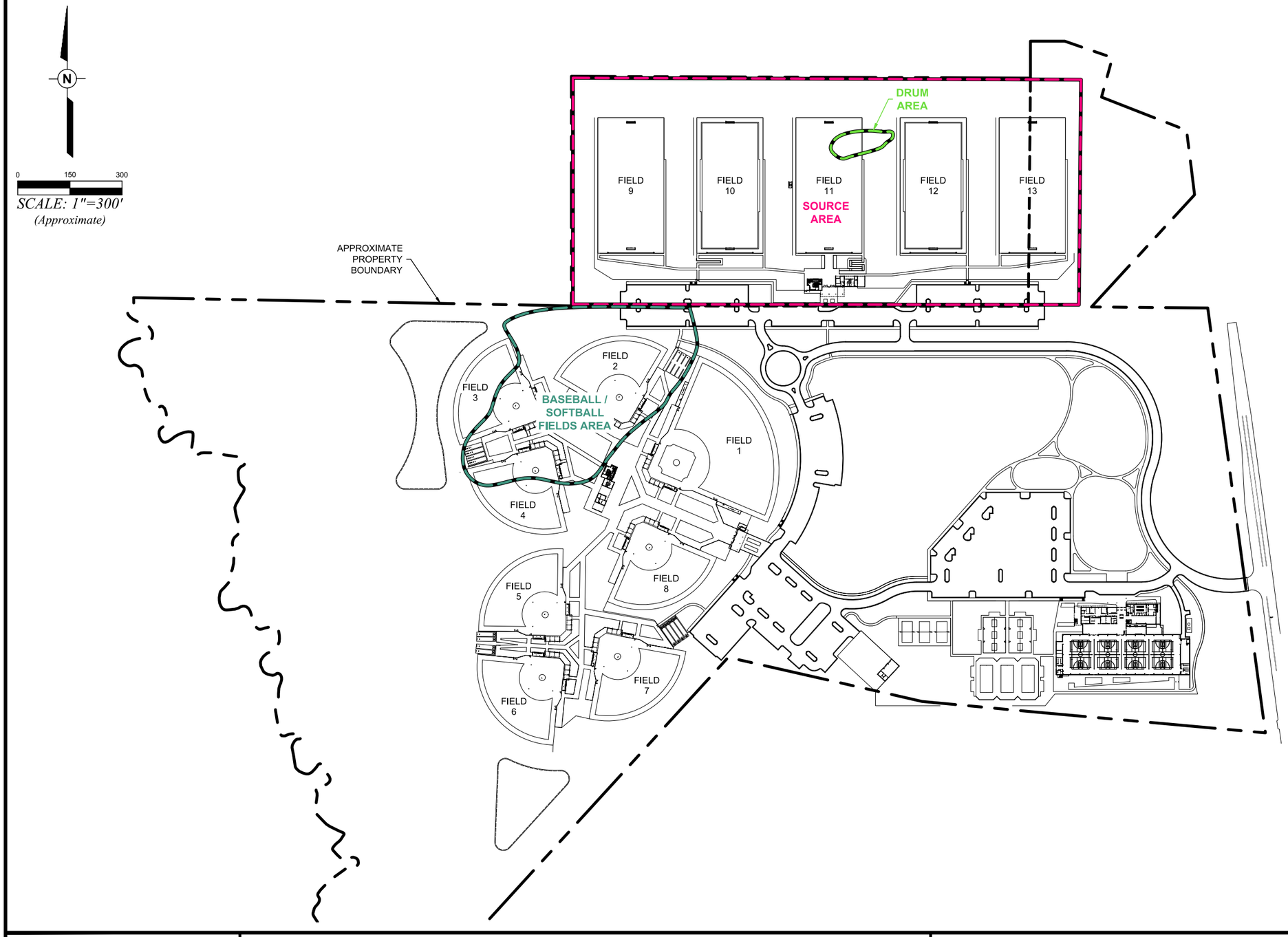
1000 0 1000 5000 10,000
FEET

1 0 KILOMETER 1 2
1000 0 METER 1000 2000

N

PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	FACILITY LOCATION MAP
DRAWN BY: BWH	DRAWN DATE: 02/23/25		FIGURE NUMBER 1
PROJECT NUMBER: 20203301	PHASE: WP		

NOTE:
PROPOSED CONSTRUCTION / FACILITY LAYOUT
PRIOR TO DISCOVERY OF FOREIGN MATERIAL.



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PROJECT NUMBER: 20203301	PHASE: WP

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

FACILITY MAP

FIGURE NUMBER
2

SOURCE: GOOGLE EARTH

PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	AREA MAP
DRAWN BY: BWH	DRAWN DATE: 02/23/25		FIGURE NUMBER 3
PROJECT NUMBER: 20203301	PHASE: WP		

SOURCE: DRONE IMAGERY TAKEN BY PPM CONSULTANTS, INC. (NOVEMBER 2024)

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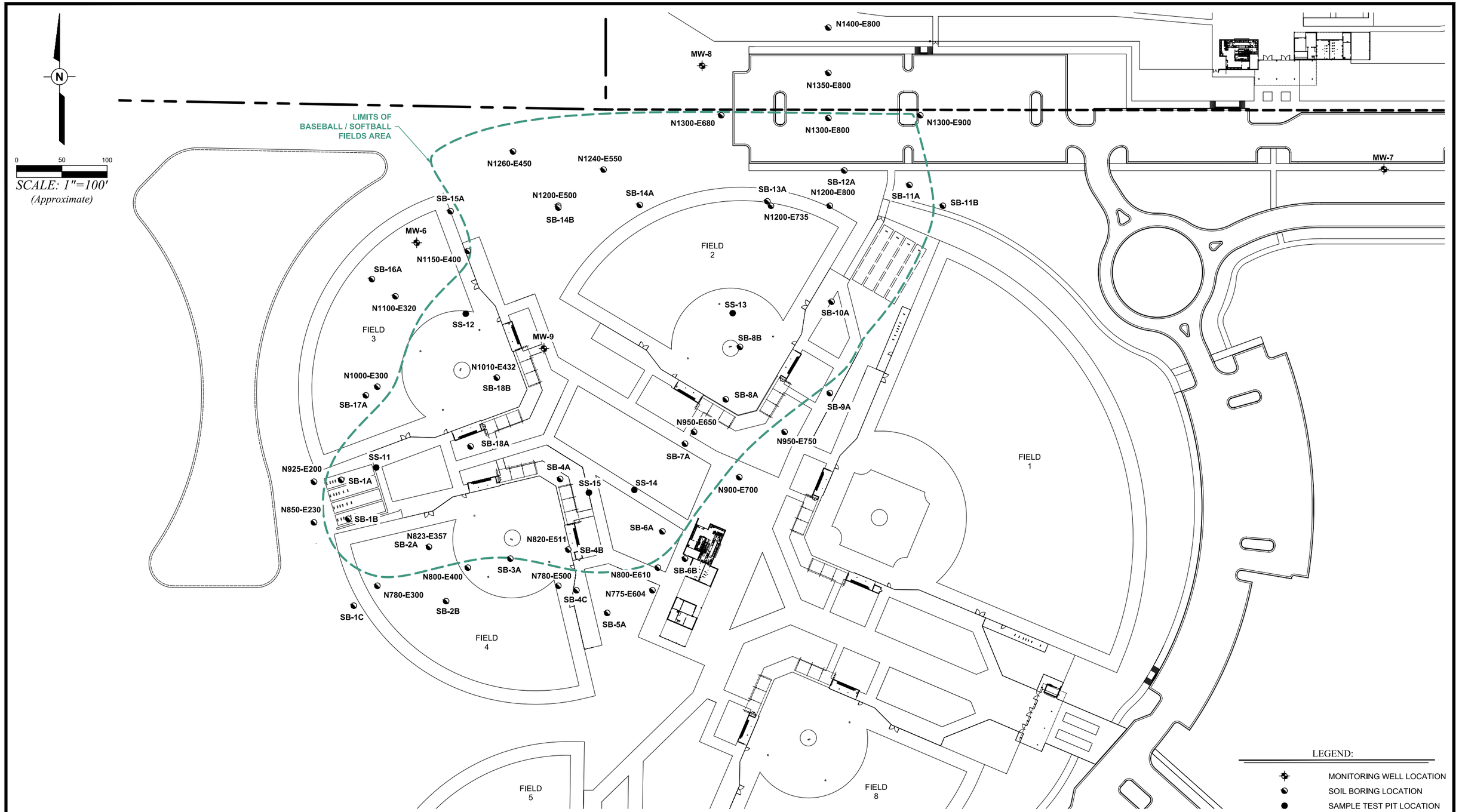
CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

FACILITY AERIAL PHOTOGRAPH
(NOVEMBER 2024)

FIGURE NUMBER
4



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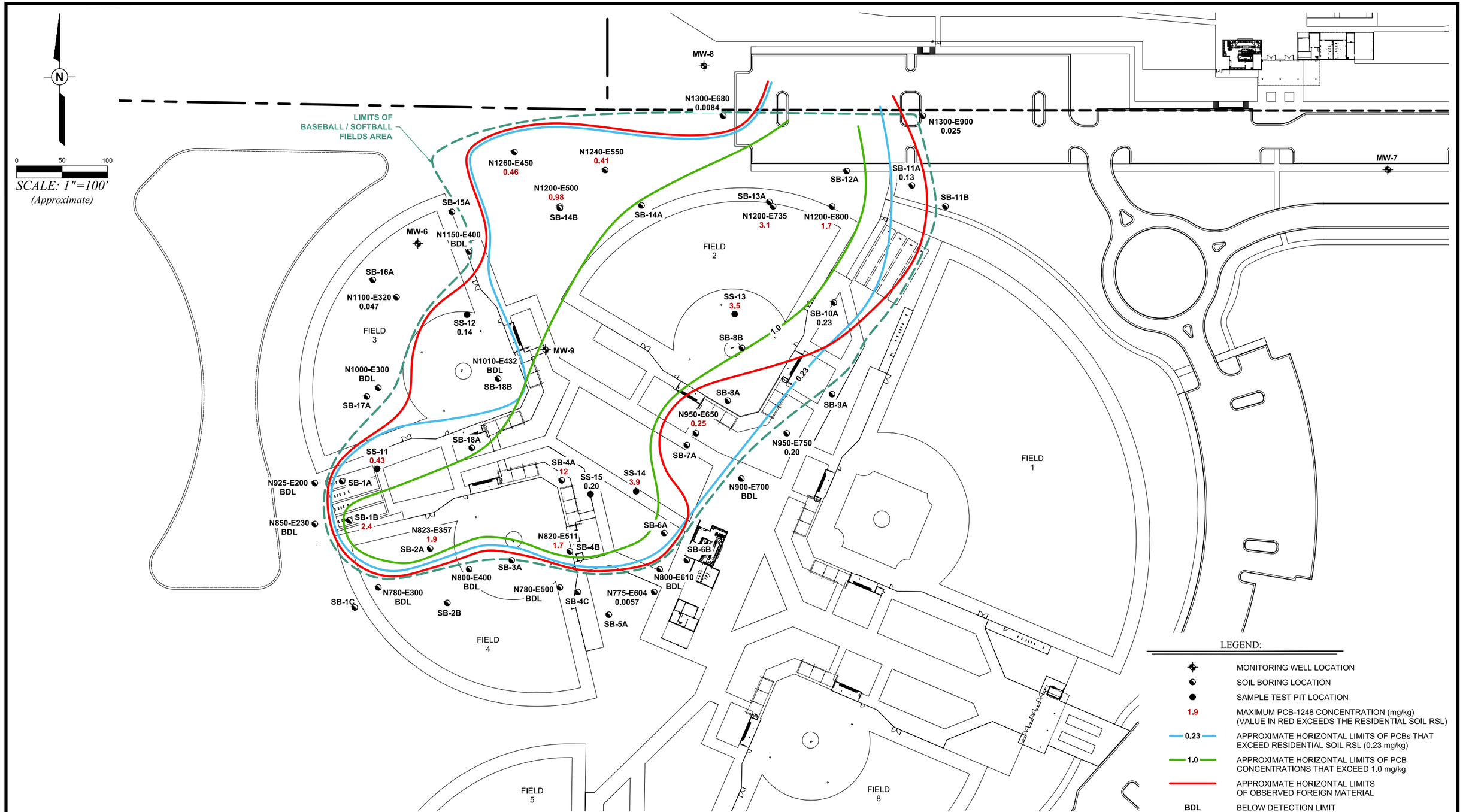
PROJECT NUMBER:	PHASE:
20203301	WP

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

SITE MAP - BASEBALL / SOFTBALL FIELDS AREA

FIGURE NUMBER
5



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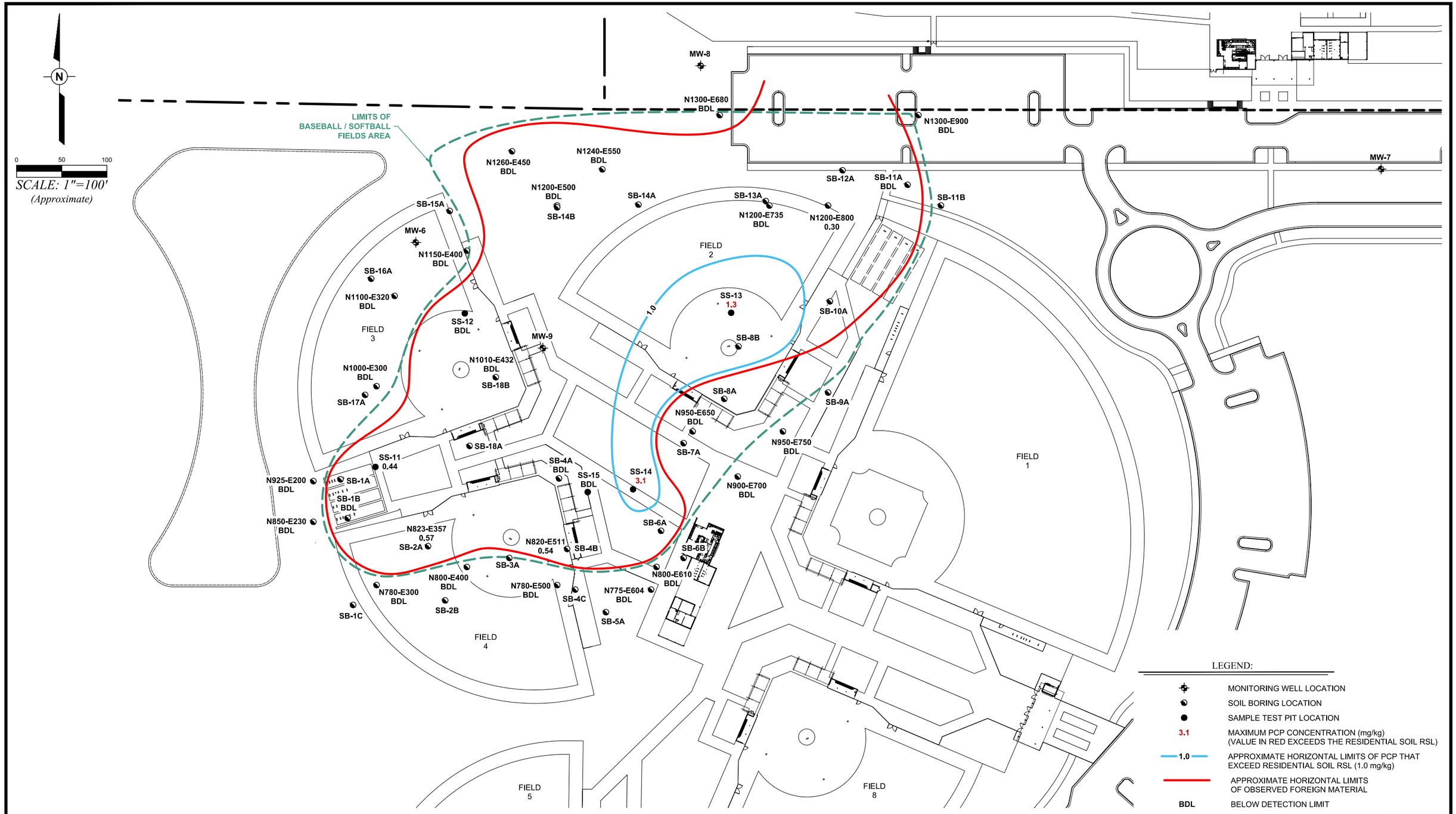
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

HORIZONTAL EXTENT OF PCBs IN BASEBALL / SOFTBALL AREA

FIGURE NUMBER
6A



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7365 CELESTE ROAD
SARALAND, ALABAMA

HORIZONTAL EXTENT OF PCP IN BASEBALL / SOFTBALL AREA

FIGURE NUMBER
6B

N

0 50 100

SCALE: 1"=100'
(Approximate)

LIMITS OF BASEBALL / SOFTBALL FIELDS AREA

MW-8
N1300-E680 0.65
N1300-E900 BDL
MW-7
N1260-E450 0.29
N1240-E550 0.69
N1200-E500 BDL
SB-14B
SB-14A
SB-13A
N1200-E735 0.55
N1200-E800 BDL
SB-12A
SB-11A 0.27
SB-11B
SB-15A
MW-6
N1150-E400 BDL
SB-16A
N1100-E320 BDL
FIELD 3
SS-12 0.41
MW-9
N1010-E432 BDL
SB-18B
N1000-E300 BDL
SB-17A
SB-18A
SS-11 0.40
N925-E200 0.90
SB-1A
SB-1B BDL
N850-E230 1.1
0.95
N823-E357 1.0
SB-2A
SB-3A
N820-E511 1.5
SB-4B
SB-4A BDL
SS-15 0.61
SS-14 1.5
N800-E400 0.31
N780-E500 1.3
N780-E300 BDL
SB-2B
SB-1C
SB-4C
N775-E604 0.64
SB-5A
FIELD 4
FIELD 2
0.95
SS-13 1.7
SB-8B
SB-8A
N950-E650 BDL
SB-7A
SB-6A
SB-6B
N800-E610 BDL
SB-10A
SB-9A
N950-E750 BDL
N900-E700 0.20
FIELD 1
FIELD 5
FIELD 8

LEGEND:

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SAMPLE TEST PIT LOCATION
- 1.7 — MAXIMUM CHROMIUM VI CONCENTRATION (mg/kg) (VALUE IN RED EXCEEDS THE RESIDENTIAL SOIL RSL)
- 0.95 — APPROXIMATE HORIZONTAL LIMITS OF CHROMIUM VI THAT EXCEED RESIDENTIAL SOIL RSL (0.95 mg/kg)
- APPROXIMATE HORIZONTAL LIMITS OF OBSERVED FOREIGN MATERIAL
- BDL — BELOW DETECTION LIMIT

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THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

HORIZONTAL EXTENT OF CHROMIUM VI IN BASEBALL / SOFTBALL AREA

FIGURE NUMBER
6C

N

0 50 100

SCALE: 1"=100'
(Approximate)

LIMITS OF
BASEBALL / SOFTBALL
FIELDS AREA

MW-7

FIELD
1

FIELD
2

FIELD
3

FIELD
4

FIELD
5

FIELD
8

LEGEND:

- FOREIGN MATERIAL AND COC IMPACT ALREADY COVERED BY BY MORE THAN 5' OF CLEAN FILL MATERIAL
- UPPER 1' OF SOIL WILL BE EXCAVATED AND SEVERAL FEET OF OF CLEAN FILL MATERIAL WILL BE ADDED TO CONSTRUCT FIELDS
- UPPER 2' OF SOIL WILL BE EXCAVATED AND A MINIMUM OF 2' OF CLEAN FILL MATERIAL WILL BE PLACED

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20203301	WP

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

EXCAVATION LIMITS

FIGURE NUMBER
7

SOURCE: DRONE IMAGERY TAKEN BY PPM CONSULTANTS, INC. (NOVEMBER 2024)

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CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

DISPOSAL AREA

FIGURE NUMBER
8

TABLE

TABLE 1
ANALYTICAL SUMMARY (BASEBALL/SOFTBALL FIELDS AREA)
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

SAMPLE LOCATION	SAMPLE DEPTH (ft BGS)	SAMPLE DATE	PCB-1248 (mg/kg)	PCP (mg/kg)	CHROMIUM VI (mg/kg)	VISUAL OBSERVATION NOTES	PLANNED REMEDIATION
RESIDENTIAL RSL			**0.23**	**1.0**	**0.95**		
INDUSTRIAL RSL			**0.94**	**4.0**	**20**		
SS-11	3-6	09/18/24	**0.43**	***0.44***	***0.40***	FM observed from 3-6'	Cover
SS-12	6-9	09/18/24	**0.14**	<0.20	***0.41***	FM observed from 6-9'	Cover
SS-13	1-2	09/18/24	**3.5**	***1.3***	**1.7**	FM observed from 1-2'	Cover
SS-14	0.5-2	09/18/24	**3.9**	**3.1**	**1.5**	FM observed from surface to 2'	Excavate
SS-15	0-1	09/18/24	***0.20***	<0.20	***0.61***	FM observed from surface to 1'	Excavate
SB-1A (N897 E260)	--	--	--	--	--	FM observed from 3-5.8'	Cover
SB-1B (N854 E268)	10-12	09/30/24	**2.4**	<0.20	***0.72***	FM observed from 10.7-12'	Already Covered
SB-1C (N758 E274)	--	--	--	--	--	No FM observed	None
SB-2A (N823 E357)	--	--	--	--	--	FM observed from 7.8-13'	Already Covered
SB-2B (N763 E376)	--	--	--	--	--	No FM observed	None
SB-3A (N810 E447)	--	--	--	--	--	No FM observed	None
SB-4A (N898 E502)	7-8	09/30/24	**12**	<0.19	<0.12	FM observed from 7-8'	Already Covered
SB-4B (N820 E511)	--	--	--	--	--	FM observed from 2.6-3.8'	Already Covered
SB-4C (N775 E520)	--	--	--	--	--	No FM observed	None
SB-5A (N750 E554)	--	--	--	--	--	No FM observed	None
SB-6A (N840 E615)	--	--	--	--	--	FM observed from 2.3-3'	Cover
SB-6B (N810 E640)	--	--	--	--	--	No FM observed	None
SB-7A (N937 E640)	--	--	--	--	--	No FM observed	Cover
SB-8A (N986 E685)	--	--	--	--	--	No FM observed	Cover
SB-8B (N1045 E700)	--	--	--	--	--	FM observed 1.7-3'	Cover
SB-9A (N993 E800)	--	--	--	--	--	No FM observed	None
SB-10A (N1094 E802)	--	--	--	--	--	FM observed 2.7-4'	Cover
SB-11A (N1223 E888)	2-2.4	10/01/24	**0.13**	<0.45	***0.27***	FM observed 2-2.4'	Cover
SB-11B (N1200 E925)	--	--	--	--	--	No FM observed	None
SB-12A (N1239 E816)	--	--	--	--	--	No FM observed	Cover
SB-13A (N1205 E731)	--	--	--	--	--	No FM observed	Cover
SB-14A (N1201 E590)	--	--	--	--	--	FM observed 1-2'	Cover
SB-14B (N1198 E500)	--	--	--	--	--	No FM observed	Cover
SB-15A (N1194 E381)	--	--	--	--	--	No FM observed	None
SB-16A (N1119 E294)	--	--	--	--	--	No FM observed	None
SB-17A (N987 E298)	--	--	--	--	--	No FM observed	None
SB-18A (N934 E403)	--	--	--	--	--	FM observed 2.5-4.2'	Cover
SB-18B (N1010 E432)	--	--	--	--	--	FM observed 2.5-3.3'	Cover
N1010-E432 (0-2")	0-2	10/02/24	<0.0036	<0.17	<0.11	No FM observed	Excavate
N1010-E432 (30-40")	2.5-3.33	10/02/24	<0.0044	<0.21	<0.13	FM observed 2.5-3.3'	Cover
N1010-E432 (4-5')	4-5	10/02/24	<0.0058	<0.27	<0.18	No FM observed	Cover
N1010-E432 (7-9')	7-9	10/02/24	NA	NA	NA	No FM observed	Cover
N1010-E432 (9-11')	9-11	10/02/24	NA	NA	NA	No FM observed	Cover
N823-E357 (6-8')	6-8	10/02/24	<0.0035	<0.17	<0.10	No FM observed	Already Covered
N823-E357 (9-12')	9-12	10/02/24	**1.9**	***0.57***	**0.53**	FM	Already Covered
N823-E357 (13-14')	13-14	10/02/24	<0.0039	<0.18	**1.0**	No FM observed	Already Covered
N823-E357 (16-18')	16-18	10/02/24	NA	NA	NA	No FM observed	Already Covered
N823-E357 (18-20')	18-20	10/02/24	NA	NA	NA	No FM observed	Already Covered
N820-E511 (0-2')	0-2	10/02/24	**0.12**	<0.19	<0.11	No FM observed	Excavate
N820-E511 (31-45")	2.6-3.75	10/02/24	**1.7**	***0.54***	<0.13	FM	Already Covered
N820-E511 (4-5')	4-5	10/02/24	<0.0038	<0.18	**1.5**	No FM observed	Already Covered
N820-E511 (7-9')	7-9	10/02/24	NA	NA	NA	No FM observed	Already Covered
N820-E511 (9-11')	9-11	10/02/24	NA	NA	NA	No FM observed	Already Covered
N1300-E900 (0-1')	0-1	10/04/24	<0.017	<0.33	<0.10	No FM observed	None
N1300-E900 (2-4')	2-4	10/04/24	**0.025**	<0.18	<0.10	No FM observed	None
N1200-E800 (0-1')	0-1	10/04/24	**1.7**	***0.30***	<0.11	No FM observed	Excavate
N1200-E800 (2-4')	2-4	10/04/24	**0.29**	<0.18	<0.11	No FM observed	Cover
N1200-E735 (0-1')	0-1	10/04/24	**3.1**	<0.19	**0.55**	No FM observed	Excavate
N1200-E735 (2-4')	2-4	10/04/24	<0.017	<0.34	**0.50**	No FM observed	Cover
N1200-E500 (0-1')	0-1	10/04/24	**0.98**	<0.20	<0.12	No FM observed	Excavate
N1200-E500 (2-4')	2-4	10/04/24	<0.0037	<0.19	<0.11	No FM observed	Cover
N1150-E400 (0-1')	0-1	10/04/24	<0.0033	<0.16	<0.097	No FM observed	None
N1150-E400 (2-4')	2-4	10/04/24	<0.0037	<0.17	<0.11	No FM observed	None
N1100-E320 (0-1')	0-1	10/04/24	<0.0035	<0.17	<0.11	No FM observed	None
N1100-E320 (2-4')	2-4	10/04/24	**0.047**	<0.17	<0.10	No FM observed	None
N1000-E300 (0-1')	0-1	10/04/24	<0.0033	<0.17	<0.10	No FM observed	None
N1000-E300 (2-4')	2-4	10/04/24	<0.0034	<0.17	<0.099	No FM observed	None
N780-E300 (0-1')	0-1	10/04/24	<0.0034	<0.16	<0.10	No FM observed	None
N780-E300 (2-4')	2-4	10/04/24	<0.0035	<0.16	<0.098	No FM observed	None
N800-E400 (6-8')	6-8	10/04/24	<0.0037	<0.18	**0.31**	No FM observed	None
N800-E400 (10-12')	10-12	10/04/24	<0.0036	<0.17	<0.11	No FM observed	None
N780-E500 (0-1')	0-1	10/04/24	<0.0035	<0.17	**0.47**	No FM observed	None
N780-E500 (2-4')	2-4	10/04/24	<0.0037	<0.19	**1.3**	No FM observed	None
N775-E604 (5-6')	5-6	10/04/24	***0.0057***	<0.18	**0.64**	No FM observed	None
N775-E604 (6-8')	6-8	10/04/24	<0.0037	<0.18	<0.11	No FM observed	None
N800-E610 (5-6')	5-6	10/04/24	<0.0034	<0.17	<0.10	No FM observed	None
N800-E610 (6-8')	6-8	10/04/24	<0.0039	<0.19	<0.12	No FM observed	None
N950-E650 (0-1')	0-1	10/04/24	**0.25**	<0.18	<0.11	No FM observed	Cover
N950-E650 (2-4')	2-4	10/04/24	<0.038	<0.35	<0.11	No FM observed	Cover
N950-E750 (0-1')	0-1	10/04/24	<0.037	<0.18	<0.11	No FM observed	None
N950-E750 (2-4')	2-4	10/04/24	**0.20**	<0.43	<0.14	No FM observed	None
N1240-E550 (0-1)	0-1	11/12/24	**0.41**	<0.20	**0.69**	No FM observed	Excavate
N1240-E550 (2-4)	2-4	11/12/24	**0.047**	<0.34	**0.60**	No FM observed	Cover
N1300-E680 (0-1)	0-1	11/13/24	***0.0084***	<0.17	**0.65**	No FM observed	Cover
N1300-E680 (2-4)	2-4	11/13/24	***0.0049***	<0.34	**0.28**	No FM observed	Cover
N1260-E450 (0-1)	0-1	11/13/24	**0.46**	<0.17	**0.29**	No FM observed	Excavate
N1260-E450 (2-4)	2-4	11/13/24	**0.17**	<0.17	**0.21**	No FM observed	Cover
N850-E230 (0-1)	0-1	11/13/24	<0.0035	<0.17	**0.20**	No FM observed	None
N850-E230 (2-4)	2-4	11/13/24	<0.0037	<0.19	**1.1**	No FM observed	None
N925-E200 (0-1)	0-1	11/13/24	<0.0036	<0.18	**0.90**	No FM observed	None
N925-E200 (2-4)	2-4	11/13/24	<0.0036	<0.34	**0.73**	No FM observed	None
N900-E700 (0-1)	0-1	11/13/24	<0.0034	<0.16	***0.20***	No FM observed	None
N900-E700 (2-4)	2-4	11/13/24	<0.0033	<0.34	***0.19***	No FM observed	None

Notes:

ft-BGS - Feet below ground surface
mg/kg - milligrams per kilogram
Polychlorinated Biphenyl (PCB) analysis conducted per EPA Method 8082A
Pentachlorophenol (PCP) analysis conducted per EPA Method 8270E
Chromium VI analysis conducted per EPA Method 7199
Bold *indicates value detected above method detection limit.*
Values in italics are estimated above the method detection limit and below the laboratory reporting limit
Concentrations are reported on dry-weight basis.
Cover - Indicates that construction of the Facility requires addition of at least 2 feet of new fill material
FM - Foreign Material
NA - Not Analyzed
RSL - EPA Regional Screening Level, November 2024
Detected concentration exceeds residential RSL
Detected concentration exceeds both residential and industrial RSL

Source: PPM Consultants, Inc.
PPM Project No. 20203301-WP

APPENDICES

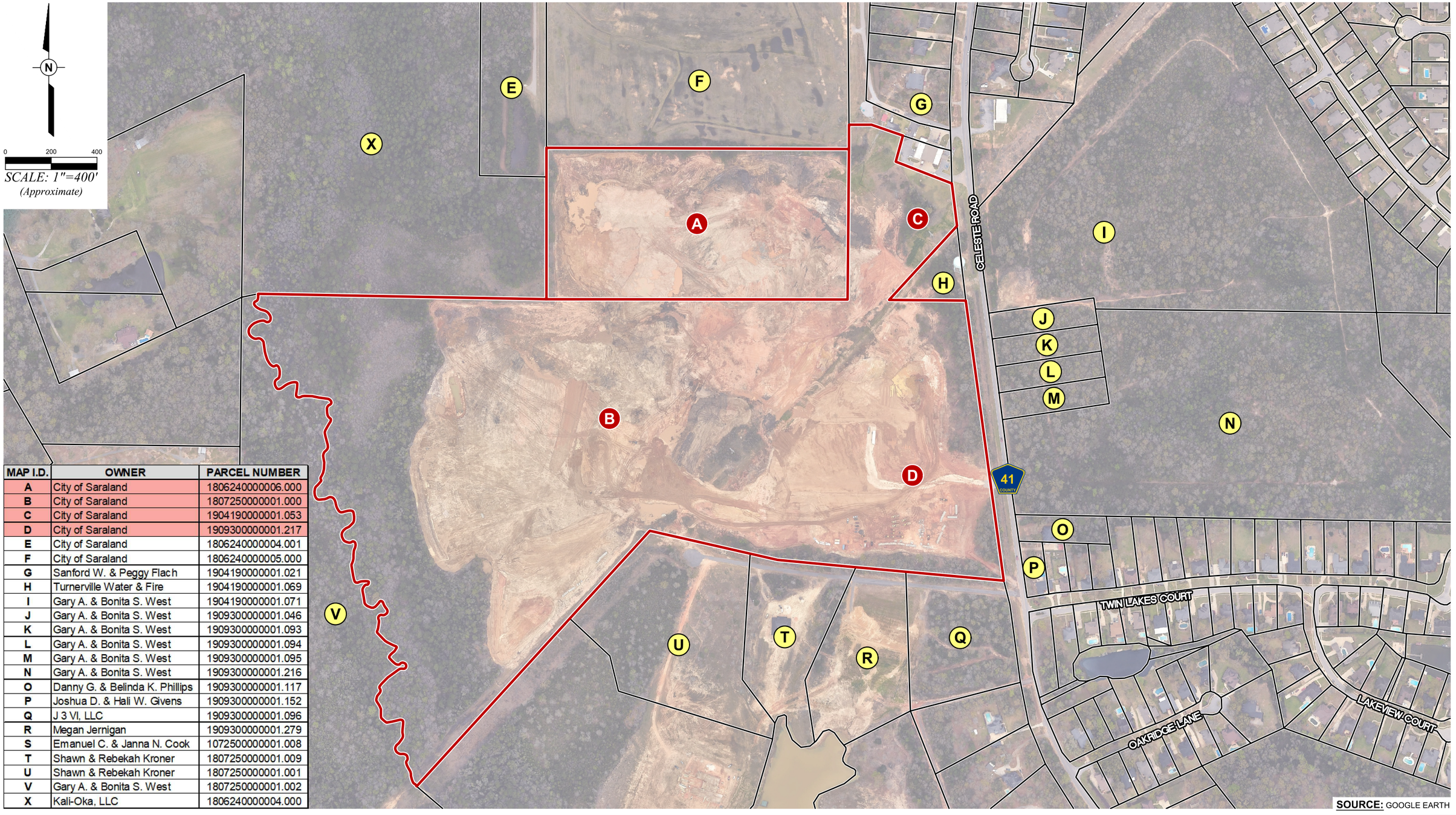
APPENDIX A – PROPERTY OWNER INFORMATION

APPENDIX A
PROPERTY OWNER INFORMATION
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

PARCEL NO.	OWNER	OWNER ADDRESS	LOCATION WITH RESPECT TO THE LAND SPORTSPLEX AND MAP ID
1806240000006.000	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (A)
1807250000001.000	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (B)
1904190000001.053	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (C)
1909300000001.217	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (D)
1806240000004.001	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	North (E)
1806240000005.000	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	North (F)
1904190000001.021	Sanford W. & Peggy Flach	7803 Celeste Road, Saraland, Alabama 36571	Northeast (G)
1904190000001.069	Turnerville Water & Fire	11230 Celeste Road, Saraland, Alabama 36571	Northeast (H)
1904190000001.071	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	Northeast (I)
1909300000001.046	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (J)
1909300000001.093	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (K)
1909300000001.094	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (L)
1909300000001.095	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (M)
1909300000001.216	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (N)
1909300000001.117	Danny G. & Belinda K. Phillips	6512 Celeste Road, Saraland, Alabama 36571	East (O)
1909300000001.152	Joshua D. & Hali W. Givens	3428 Twin Lakes Court, Saraland, Alabama 36571	Southeast (P)
1909300000001.096	J 3 VI, LLC	2646 Bramblewood Lane, Thompson Station, Tennessee 37179	Southeast (Q)
1909300000001.279	Megan Jernigan	491 Theophilus Road Creola, Alabama 36525	South (R)
1072500000001.008	Emanuel C. & Janna N. Cook	P.O. Box 178, Saraland, Alabama 36571	South (S)
1807250000001.009	Shawn & Rebekah Kroner	3701 Lafitte Road, Saraland, Alabama 36571	South (T)
1807250000001.001	Shawn & Rebekah Kroner	3701 Lafitte Road, Saraland, Alabama 36571	South (U)
1807250000001.002	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	Southwest & West (V)
1806240000004.000	Kali-Oka, LLC	1225 Arabella Street, New Orleans, Louisiana 70115	Northwest (X)

Notes: *Refer to Figure A, Property Ownership Map, Appendix A, for property locations*

Source: *PPM Consultants, Inc.*
Mobile County, Alabama Map Viewer - https://gis.bisclient.com/alabama/mobilecad/
PPM Project No. 20203301-SA



MAP I.D.	OWNER	PARCEL NUMBER
A	City of Saraland	1806240000006.000
B	City of Saraland	1807250000001.000
C	City of Saraland	1904190000001.053
D	City of Saraland	1909300000001.217
E	City of Saraland	1806240000004.001
F	City of Saraland	1806240000005.000
G	Sanford W. & Peggy Flach	1904190000001.021
H	Turnerville Water & Fire	1904190000001.069
I	Gary A. & Bonita S. West	1904190000001.071
J	Gary A. & Bonita S. West	1909300000001.046
K	Gary A. & Bonita S. West	1909300000001.093
L	Gary A. & Bonita S. West	1909300000001.094
M	Gary A. & Bonita S. West	1909300000001.095
N	Gary A. & Bonita S. West	1909300000001.216
O	Danny G. & Belinda K. Phillips	1909300000001.117
P	Joshua D. & Hali W. Givens	1909300000001.152
Q	J 3 VI, LLC	1909300000001.096
R	Megan Jernigan	1909300000001.279
S	Emanuel C. & Janna N. Cook	1072500000001.008
T	Shawn & Rebekah Kroner	1807250000001.009
U	Shawn & Rebekah Kroner	1807250000001.001
V	Gary A. & Bonita S. West	1807250000001.002
X	Kali-Oka, LLC	1806240000004.000

PPM CONSULTANTS, INC.
www.ppmco.com

DRAWN BY:	DRAWN DATE:
BWH	12/12/24
PROJECT NUMBER:	PHASE:
20203301	SA

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

PROPERTY OWNERSHIP MAP

FIGURE NUMBER
A

APPENDIX B – ARBCA EVALUATION – BASEBALL/SOFTBALL FIELDS AREA

ALABAMA RISK-BASED CORRECTIVE ACTION REPORT – BASEBALL/SOFTBALL FIELDS AREA (REVISED)

THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, MOBILE COUNTY, ALABAMA

PPM PROJECT NO. 20203301-SA

JUNE 18, 2025

PPM CONSULTANTS

ALABAMA RISK-BASED CORRECTIVE ACTION REPORT – BASEBALL/SOFTBALL FIELDS AREA (REVISED)

FOR

THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, MOBILE COUNTY, ALABAMA

PREPARED FOR:

CITY OF SARALAND
943 SARALAND BOULEVARD SOUTH
MOBILE, ALABAMA 36571

PPM PROJECT NO. 20203301-SA

JUNE 18, 2025

PREPARED BY:

REVIEWED BY:

MATTHEW J. EBBERT, P.G.
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ISAAC SMITH
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SPANISH FORT, ALABAMA 36527
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APPENDICES

1.0 INTRODUCTION

PPM Consultants, Inc. (PPM) was retained by the City of Saraland (the City) to conduct a Risk Assessment for the Baseball/Softball Fields Area of The Land: Saraland Sports and Recreation Complex (Facility) located at 7365 Celeste Road in Saraland, Mobile County, Alabama. This Risk Assessment was conducted in conformance with the Alabama Risk-Based Corrective Action (ARBCA) Guidance Manual, dated February 2017. This risk assessment only covers the Baseball/Softball Fields Area and does not include other portions of the Facility.

The purpose of this assessment is to evaluate whether concentrations of constituents of concern (COCs) in soil and groundwater meet applicable risk levels determined by the Alabama Department of Environmental Management (ADEM) and to establish Risk-Based Target Levels (RBTLs) for COCs, if required. The Risk Assessment includes the following work tasks:

1. Study of Facility history to determine Chemicals of Potential Concern (COPC).
2. Compilation and evaluation of all available soil analytical data.
3. Compilation and evaluation of groundwater analytical data.
4. Comparison of soil and groundwater data to current Environmental Protection Agency (EPA) Regional Screening Levels (RSLs).
5. Elimination of COPCs below RSLs to establish COCs for further evaluation.
6. Development of Site Conceptual Exposure Models (SCEMs) to determine complete pathways based on historical data.
8. Calculation of Cumulative Site Risk under current and future conditions.
9. Development of recommendations for future activities at the Facility.

2.0 SITE CHARACTERIZATION

2.1 SITE DESCRIPTION AND LAND USE

2.1.1 Location and Vicinity

The Facility is currently being developed into a multi-use sports complex located at 7365 Celeste Road in Saraland, Mobile County, Alabama. The Facility is comprised of four contiguous parcels (1806240000006.000, 1807250000001.000, 1904190000001.053, and

1909300000001.217) of land that total approximately 117 acres. The City also owns three contiguous parcels to the north (1806240000001.001, 1806240000004.001, and 1806240000005.000) that are not part of the Facility. The Facility is located in the south half of the southeast ¼ of Section 24 and the north half of the northeast ¼ of Section 25, Township 2 South, Range 2 West and the southwest ¼ of the southwest ¼ of Section 19 and the northwest ¼ of the northwest ¼ of Section 30, Township 2 South, Range 1 West of the Chickasaw, Alabama Quadrangle and the Kushla, Alabama Quadrangle. More specifically, the approximate center of the Facility is positioned at 30° 51' 04" north latitude and 88° 07' 34" west longitude. The Facility location is shown in **Figure 1**, **Facility Location Map** and the proposed Facility layout is depicted on **Figure 2, Facility Map** in **Figures**.

The Facility is bound to the north by vacant land and a closed landfill owned by the City. A City-owned fire station is also located to the northeast. Single-family residences are located further to the northeast. A water tower and vacant land are located further to the east and a residential neighborhood to the southeast. An additional residential neighborhood is under construction to the south and undeveloped land is located to the west. Adjacent and surrounding properties are shown in **Figure 3**, **Area Map**. Adjacent property owner information is provided in **Appendix A, Property Owner Information**. Owner information was obtained from the Mobile County Revenue Department website (Mobile County Revenue Commission).

The Baseball/Softball Fields Area is in the western-central portion of the sports complex and is comprised of field nos. 2, 3, and 4, batting cages, sidewalks, and green space. The area is depicted on **Figure 4, Site Map – Baseball/Softball Fields Area**.

2.1.2 Facility History

Phase I ESA – Jay Hill Parcel (January 2007)

Thompson Engineering (Thompson) performed a Phase I Environmental Site Assessment (ESA) for the City prior to purchase of the "Jay Hill Parcel", which is an approximate 20-acre parcel on the northern portion of the Facility (Parcel No. 1806240000006.000). The report states that the entire parcel was disturbed by past soil mining activities and this is confirmed by a review of aerial photographs. The site was described at the time of the report as being covered by un-stabilized soils and covered by grass and heavy vegetation. A dry stream bed was observed on the western portion of the parcel. No structures were observed and an unimproved road entered the parcel from the northeast. A "minimal

amount of solid waste" was observed on the parcel and included concrete rubble, asphalt, concrete pipe, galvanized pipe, and crushed coal.

Thompson reported that the parcel was undeveloped wooded land in 1940. Based on aerial photographs, approximately half of the property was a "clay pit" in 1966 and aerial photography from 1974 and 1980 show the site developed as a borrow pit. Based on interviews, the parcel was first used by Mr. W. D. Brunson as a sand and clay borrow pit in the mid-1960s. The soil mining activities ceased when the sand and clay reserves were depleted.

A review of regulatory records by Thompson found the parcel was listed as an EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) No Further Remedial Action Planned (NFRAP) facility. The EPA performed an initial assessment that was completed in October 1979 and a site inspection was completed in March 1980. The Preliminary Assessment was completed in September 1985 and the EPA assigned the site a "low" priority and it was removed from the CERCLIS inventory in December 1993.

According to a deed, South Coast Services, Inc. sold the property to Hill Builders, Inc.; however, a date was not included on the copy of the deed. The City acquired the Jay Hill Parcel from Hill Builders, Inc. on March 7, 2007.

The report states that interview remarks made by the operator of the borrow pit indicate that "waste" from American Cyanamid was deposited on the Jay Hill Parcel, when it was owned by W. D. Brunson. There was no information on the type of waste deposited on the property. Attempts to contact Mr. Bunson were made by Thompson; however, Mr. Bunson did not respond.

Phase I ESA – Saraland Sportsplex Site (October 2022)

Ephriam Environmental LLC (Ephriam) performed a Phase I ESA, for the City, of the entire Facility (four parcels) and the three contiguous properties owned by the City in October 2022. The assessment area encompassed approximately 178 acres of land. Ephriam described the site as having moderate relief from east to west, toward Bayou Sara. The property at the time of the report was vegetated and vacant. The northern portion of the assessment area (north of the Facility) was identified as a solid waste landfill that has been capped since the early-1990s. Monitoring wells associated with the landfill were identified. Two detention ponds were observed on the parcel adjacent to the west of the

closed landfill (northwest of the Facility). A borrow pit was observed on parcel Nos. 1806240000006.000 (Jay Hill Parcel), 1807250000001.000 (south of Jay Hill Parcel), and 1909300000001.217 (east of previous parcel) on the Facility. Evidence of the former borrow pit included major erosional features and "quartz-based sediment that appeared to have a limonite staining." Heavy vegetation was seen in portions of the property and isolated wetlands were observed along the northern and western portions of the Jay Hill Parcel. Eleven mounds of fill material were identified during the ESA and were reported to appear to be "left over fill material and were not considered a recognized environmental condition (REC)." Pits from the former mining operation were identified on the parcels that were identified to be a former borrow pit and were not considered a REC. Solid waste, transformers, drums, stains, and underground storage tanks (USTs) were not identified by Ephriam during the ESA.

A Phase I Cultural Resource Assessment was performed as part of the Phase I ESA by Jason Gardner of Gulf South Past Recovery in November 2022. No artifacts or cultural resources were found. A wetland delineation was conducted by Ephriam in July and August 2022. Wetlands were found along tributaries of Bayou Sara and a seepage bog. Isolated wetlands were identified on the Jay Hill Parcel. Ephriam also conducted a threatened and endangered species survey. The survey concluded that no threatened and endangered species were identified.

Ephriam concluded that the only REC identified during the Phase I ESA was related to high lead concentrations in monitoring well MW-6, associated with the closed landfill on the adjacent property to the north.

EPA Site Inspection Prioritization Report – Brunson Clay Pits – November 1993

Based on the findings of the previously summarized Phase I ESA reports, PPM submitted a Freedom of Information Act (FOIA) request to the EPA concerning the Brunson Clay Pits site. EPA provided one document based on the request, titled Work Assignment No. C04119 – Site Inspection Prioritization Report – Brunson Clay Pits, dated November 10, 1993. The document contained several attachments, including previous reports, letters, analytical data, memos, and other information. The site no. was ALD980495691.

The report identified the Brunson Clay Pits as an inactive, 20-acre "landfill", that was used for "nonhazardous" industrial waste. The landfill is located adjacent to the south of the City solid waste landfill and appears to primarily be located on the Jay Hill Parcel.

According to the report, the landfill was operated by Brunson Construction Company, Inc. from approximately 1973 through 1983.

According to the document and references within the document, approximately 100,000 cubic yards of "alum mud waste", generated by American Cyanamid Company were received by the landfill. In addition, approximately 200 cubic yards of "organic residue" consisting of paraffin, rosins, and soil and an undocumented quantity of pine bark were received by the landfill. Based on the description of the alum mud waste and the disposal location, PPM assumes that the Foreign Material is primarily comprised of alum mud waste. American Cyanamid previously operated a manufacturing facility in Mobile County, but the company was dissolved decades ago.

Multiple letters and communications were included in the report either to or from ADEM concerning the landfill and the waste. Based on these correspondences, it appears ADEM gave approval for Brunson and American Cyanamid to dispose of the industrial waste at the landfill. As the disposal occurred prior to the enactment of the Resource Conservation Recovery Act (RCRA), the site operators did not file a RCRA notification, and the site was never regulated or permitted under RCRA.

ADEM, the Alabama Water Improvement Commission, and/or the Division of Solid Waste & Vector Control, required a compacted clay liner below the landfill, daily cover over the material, and a final compacted clay cover of at least 2 feet in thickness, at closure of the landfill. Site preparation was to also include surface water controls, such as diking. Based on inspections by ADEM and contractors of ADEM, it appears that these requirements were generally met. Multiple ADEM inspections, including one dated July 28, 1985 (two years after final wastes were received), stated no hazardous substances appear to be present and no further action was necessary.

American Cyanamid provided analytical data to ADEM for samples collected from the alum mud waste prior to removal from the local plant. Ten samples were collected and analyzed for the eight RCRA metals and aluminum following Extraction Procedure (EP) toxicity testing. In addition, one sample was analyzed for bacteria, pH, conductivity, total organic carbon, total organic halogen, cyanides, sulfates, sulfides, flash point, and pesticides. Based on the results, the material analyzed was deemed non-hazardous and non-toxic.

Reference No. 17 of the document consisted of an EPA Potential Hazardous Waste Site, Site Inspection Report. The document does not state who completed the inspection or the

date of the inspection. The form identifies that American Cyamid delivered alum mud and organic residue waste. In addition, the form specifies the organic residue waste is approximately 40 percent paraffins, 40 percent rosins, and 20 percent surface soils. The form also notes that chromium waste and discarded chemical drums were disposed at the landfill.

ADEM received a grant from the EPA to conduct a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Waste Site Inventory Program of the landfill in March 1985. The research included multiple older documents, which are described above. One document stated there was a low potential threat from the material as it was covered. The waste material was described as "soil which has been subjected to sulfuric acid in production of alum". Another document states no further action is indicated at the site as no hazardous substances were present. Environmental Protection Systems, Inc. performed an Alabama RCRA 3012 Site Ranking Scheme and scored the site a 0, with no priority assessment.

Discovery of Foreign Material at the Facility – August 2024

Construction of the Facility began in early 2024, which included significant cut and fill site work to level the ground for the sports fields. On August 28, 2024, PPM received a call from personnel with Geotechnical Engineering and Testing, Inc. (GET) to request aid in determining the nature and source of an odor encountered in materials on the Jay Hill Parcel during excavation. Site personnel noted the odor seemed to be related to a particular type of soil/material that differed from native soils at the site. The material is hereafter referred to as "Foreign Material" in this report.

Site Assessment Activities – August through November 2025

Foreign Material is primarily found in two areas of the Facility that include the Source Area (on the northern parcel) and the Baseball/Softball Fields Area (currently under construction, southwest of the Source Area). The Source Area (not part of this risk assessment) contains a main pile of Foreign Material that has an area of approximately 7.5 acres with a maximum measured thickness of 35 feet. Additional secondary piles of Foreign Material are located in the Source Area, west of the main pile. Some of the Foreign Material from the main pile was used as fill material under field nos. 2, 3, and 4. The Foreign Material in the Baseball/Softball Fields Area was found in distinct layers beneath each of the three fields at depths ranging from 2 feet below ground surface (BGS) to over 10 feet BGS. This supports the information provided by the general contractor at

the Facility that some of the Foreign Material was used as fill material in the Baseball/Softball Fields Area. The layers ranged in thickness from approximately 2 feet to over 5 feet and were overlain by fill material not containing Foreign Material. For the majority of the locations with Foreign Material, distinct contact zones are present with the underlying soil and if present, with the overlying soil. However, Foreign Material is comingled with some surficial soil due to "tracking" of the material with heavy equipment.

Analytical data from the Foreign Material has three primary constituents [polychlorinated biphenyls (PCB-1248), pentachlorophenol (PCP), and chromium VI] that exceed RSLs for residential or industrial soil. For the most part, if Foreign Material is present in an area, one or more of these constituents are present. However, minimal vertical migration of the constituents has been found and the underlying soil defines the vertical limits of concentrations that exceed an RSL. For the most part, the horizontal limits of Foreign Material and soil containing concentrations above a residential RSL have been defined.

The Foreign Material contains PCBs all of which are Aroclor 1248. PCB concentrations within the Foreign Material in the Baseball/Softball Fields Area are 12 milligrams per kilogram (mg/kg) or less.

Initial saturation at the Facility was observed in borings for the nine monitoring wells at depths ranging from 22 to 38 feet BGS. Static water levels in the monitoring wells ranged from 13.10 to 38.20 feet below top of casing (BTOC) on November 18, 2024. The general groundwater flow direction across the Facility was to the west-southwest at an approximate gradient of 0.038 feet/foot (ft/ft).

Low concentrations of some volatile organic compounds (VOCs) were detected in some of the groundwater samples; however, all concentrations were below the RSLs. PCP was detected in the groundwater sample collected from MW-4 (Source Area) at a concentration slightly above the RSL. The remaining detected PCP and semi-volatile organic compounds (SVOC) concentrations were below the RSLs. The groundwater sample collected from MW-2 (Source Area) contained an estimated concentration (below the laboratory reporting limit) of PCB-1248 that exceeds the RSL. PCBs were not detected in the other groundwater samples. Chromium VI was only detected in the groundwater sample collected from MW-7 (Source Area) and was slightly above the RSL. The remaining detected metals concentrations were below the RSLs. PCBs and chromium VI were not detected in the groundwater samples collected from the Baseball/Softball Fields Area. A low concentration of 0.00041 milligrams per liter (mg/L) was detected in the groundwater

sampled collected from MW-6, within the Baseball/Softball Fields Area; however, the concentration was below the RSL.

The groundwater analytical data and the analytical data from soil samples collected immediately beneath the Foreign Material demonstrate that COCs from the Foreign Material are not migrating vertically and are not impacting groundwater.

Background Arsenic Concentrations in Soil – February and March 2025

Based on ADEM's preliminary comments to the Site Assessment Report for the Facility, PPM completed a study on the naturally occurring arsenic concentrations at the Facility. Four borings were advanced in the northeastern portion of the Facility in February 2025 and soil samples were collected from surface and subsurface soil samples. The samples were analyzed for total arsenic. Arsenic background concentrations were calculated for surface and subsurface soil using two times the arithmetic mean. A report detailing the study and the results was submitted to ADEM on March 13, 2025.

West Retention Pond Sampling Activities – February and March 2025

Based on ADEM's preliminary comments to the Site Assessment Report for the Facility, PPM collected a surface water sample and a sediment sample from the northeast corner of the west retention pond (located immediately to the west of the Baseball/Softball Fields Area). The samples were analyzed for PCBs, PCP, and chromium VI and neither sample contained a detected concentration of the analytes. A report detailing the work was submitted to ADEM on March 18, 2025.

Additional Assessment Report – Source Area - February through April 2025

PPM completed additional assessment of the Source Area (not part of this Risk Assessment) in February and March 2025. Numerous soil borings were advanced to visually delineate the horizontal extent of Foreign Material, to vertically delineate COC concentrations in native soil beneath sediment, to horizontally delineate COC concentrations within the Source Area, and to obtain additional data. Surface water samples were collected from the northwest detention pond and groundwater samples were collected from the monitoring well network at the Facility. Test trenches were performed in the Drum Area to visually inspect the soil around the pile of drums to evaluate if additional drums are present in this area.

The Source Area contains a main pile of Foreign Material that has an area of approximately 7.5 acres with a maximum measured thickness of 35 feet. Additional secondary piles of Foreign Material are located in the Source Area, west of the main pile. A detention pond (northwest detention pond) is located west of the main source pile and secondary piles and has collected sediment runoff from the Source Area. For the majority of the locations with Foreign Material, distinct contact zones are present with the underlying soil and if present, with the overlying soil. However, Foreign Material is comingled with some surficial soil due to "tracking" of the material with heavy equipment.

Analytical data from the Foreign Material has three primary constituents (PCB-1248, PCP, and chromium VI) that exceed RSLs for residential soil. Based on the assessment data, for the most part, if Foreign Material was present in an area, one or more of these constituents were present. However, minimal vertical migration of the constituents was observed, and the underlying soil defined the vertical limits of concentrations that exceed an RSL. The horizontal limits of Foreign Material and soil containing concentrations above a residential RSL were defined.

Remnants of approximately 10 drums and other miscellaneous debris were observed on the northern portion of the main pile in the Source Area. A viscous resin-like material, that quickly hardened upon exposure to the air, was observed near and within some of the drum remnants. Based on information obtained from interviews, the debris was uncovered from a small excavation adjacent to the soil pile. Analytical data from the drum liquid document that toluene and PCB-1248 were present at concentrations greater than RSLs for residential soils. The flashpoint of the material was reported as 110 degrees Fahrenheit. The soil sample collected just below the liquid did not have detectable concentrations of constituents above an RSL for residential soil. Trenches were performed to the northeast, east, and southeast of the drum pile and no indication of additional drums was observed. Based on this, the Drum Area is limited to the surficial soil pile on the northern edge of the source pile. As soil immediately adjacent to the hardened resin material did not exceed residential RSLs, no further investigation is required for this area. The forthcoming remediation plan will include removal and proper disposal of the drums, their contents, and adjacent soil as a conservative approach.

Initial saturation was observed in borings for the nine monitoring wells at depths ranging from 22 to 38 feet BGS. Static water levels in the monitoring wells ranged from 18.18 to 41.34 feet BTOC on February 17, 2025. The general groundwater flow direction was to the west-southwest at an approximate gradient of 0.035 ft/ft, consistent with the November 2024 gauging event.

PCBs were not detected in any of the groundwater samples. PCP was detected in the groundwater samples collected from MW-2 and MW-4 at concentrations slightly above the RSL. Chromium VI was only detected in the groundwater sample collected from MW-3 and was below the RSL.

The surface water samples collected from the northwest detention pond contained one detection of PCBs, which was detected above the ADEM Aquatic Life Criteria (ALC); however, the other two samples did not contain detected PCB concentrations. Therefore, the PCB result appears to either be an anomaly or related to suspended sediment. PCP was not detected in any of the surface water samples. Chromium VI was detected in each of the surface water samples, all at concentrations well below the ALC.

The groundwater analytical data and the analytical data from soil samples collected immediately beneath the Foreign Material demonstrate that COCs from the Foreign Material are not migrating vertically and are not impacting groundwater.

2.1.3 Current Land Use

The Facility is currently being developed into a multi-use sports complex facility. The City issued municipal bonds to construct the $72,000,000 project, with payments to be made from revenue generated by the development via sports tournaments and tourism. When completed, the Facility will have eight baseball/softball fields, batting cages, six tennis courts, four basketball courts, three pickleball courts, parking lots and roads, a maintenance building, restroom facilities, concession stands, and green space. Five multi-use fields for soccer, lacrosse, and football were planned for the northern portion of the Facility; however, based on the presence of Foreign Material in that location, these fields may not be constructed in this area. A power line transects the Facility from the northeast corner, southwest across the property. According to a survey map for the Facility, a pipeline transects northeast to southwest, along the southeastern property boundary. Access to the Facility from Celeste Road is present along the eastern property line.

Pre-construction topography of the Facility consisted of mounds and valleys with moderate to steep grades. The overall general topography slopes from the northwest corner of the property where the elevation is approximately 212 feet above mean sea level (AMSL) to the southwest corner where the elevation is approximately 65 feet AMSL. Full construction of the Facility is currently underway, with more than 100 construction personnel on site attempting to complete the Facility to accommodate sports events scheduled for the Spring of 2025. A drone survey was performed of the Facility in

November 2024 and a composite aerial photograph of the northern portion of the Facility is presented as **Figure 5, Facility Aerial Photograph (November 2024)**.

2.1.4 Future Land Use

The future land use of the Baseball/Softball Fields Area will consist of three fields used for baseball and softball, batting cages, and green space. Buildings will not be constructed within this area of the Facility.

2.2 FACILITY GEOLOGY, HYDROGEOLOGY, AND STRATIGRAPHY

2.2.1 Regional Geology and Stratigraphy

The Facility is located in the Southern Pine Hills region of the East Gulf Coastal Plain physiographic province (Sapp, 1975). The Facility elevation ranges from approximately 212 feet AMSL to the southwest corner where the elevation is approximately 65 feet AMSL. The primary formations in the area include the Miocene Series undifferentiated of Miocene age and the alluvial, coastal, and low terrace deposits of Holocene age (Osborne, et al, 1988). Small outcrops of the Citronelle Formation of Quaternary age are also present near the eastern boundary of the Facility.

The Miocene Series undifferentiated is composed of thin-bedded to massive fine to coarse quartz sand, gravelly sand, thin-bedded to massive clay, and sandy clays. The clays are plastic in part. Gravel is primarily composed of quartz and chert granules and pebbles. The alluvial, coastal, and low terrace deposits are comprised of very pale-orange to grayish orange varicolored fine to coarse quartz sand containing clay lenses and gravel in places. Gravel is comprised of quartz and chert pebbles. Streams include fine to medium quartz sand, silt, clay, peat, mud and ooze (Osborne, et al, 1988). The Citronelle Formation is comprised of moderate-reddish-brown deeply weathered fine to very course quartz sand and varicolored mottled lenticular beds of clay and clayey gravel. Limonite pebbles and lenses of limonite cemented sand occur locally in weathered exposures. The geology of the area is depicted on **Figure 6, Area Geologic Map**.

2.2.2 Regional Hydrogeology

The Pliocene-Miocene aquifer and the Alluvial-Coastal aquifer are the primary aquifers in the area. The Pliocene-Miocene aquifer includes the Citronelle Formation and the undifferentiated deposits of the Miocene Series, with no continuous confining layers

between the two units. The Alluvial-Coastal aquifer occurs in stream valleys and along the coast and is hydraulically connected to the underlying Pliocene-Miocene aquifer. This aquifer is primarily located east of the Facility. The soils at the Facility and surrounding area are highly permeable and allow rapid infiltration of surface water, thus the area is within the recharge area for the aquifers (Mooty, 1988). The Facility is located in an area that is susceptible to surface impact for the Pliocene-Miocene Aquifer, with portions located in the highly susceptible area (Mooty, 1988).

2.2.3 Facility Geology, Stratigraphy and Hydrogeology

Subsurface lithology was identified from visual inspection of soils encountered during the advancement of soil borings at the Facility. A geologic log for each of the soil borings is provided in **Appendix B, Boring Logs**.

The Foreign Material is visually distinguishable from the native soil and other fill material located at the Facility. The material is light- to dark-gray in color and is relatively light in density compared to the native surrounding soil. In addition, the Foreign Material has a very distinctive odor when encountered. For the majority of the Facility, including the Source Area and the Baseball/Softball Fields Areas, distinct contact lines are observed with the overlying and underlying soil. In erosional features and in the test pit sidewalls, the Foreign Material is heterogeneous in gray shadings and visual observations indicate the material was likely a slurry when it was deposited at the Facility as “swirl” patterns were observed at multiple locations.

Numerous soil borings were advanced on and around field nos. 2, 3, and 4 to obtain soil profiles for the backfill used to construct the fields to date (**Figure 4**). Foreign Material was identified in distinct layers beneath each of the three fields at depths ranging from 2 feet BGS to over 10 feet BGS. The layers ranged in thickness from approximately 2 feet to over 5 feet and were overlain by fill material not containing Foreign Material. Soils beneath the Foreign Material consisted of either fill material or native soil. The Foreign Material intervals are described in **Table 1, Analytical Summary (Baseball/Softball Fields Area), Tables** and in the boring logs included in **Appendix B**.

An initial zone of groundwater saturation, across the Facility, was observed in the soil from depths of 22 feet BGS in monitoring well MW-1 to 38 feet BGS in MW-7. Groundwater levels measured in all monitoring wells at the Facility on February 17, 2025, ranged from 18.18 feet BTOC at upgradient monitoring well MW-1 to 41.34 feet BTOC at MW-7, similar to the initial saturation observed in the soil cores. The depths to

groundwater during the February 2025 gauging event were 0.36 to 5.08 feet deeper than measured during the November 2024 event. The historical average depth to groundwater in the Baseball/Softball Fields Area (MW-6 and MW-9) was 21.17 feet or 645.1 centimeters. Based on these groundwater level measurements, groundwater flow was to the west-southwest. The hydraulic gradient between monitoring wells MW-1 and MW-9 in February 2025 was estimated to be 0.035 ft/ft. Groundwater elevation data are shown in **Table 2**, **Groundwater Elevation Survey Data**. **Figure 7**, **Groundwater Elevation Map (February 17, 2025)**, depicts the groundwater elevation and estimated flow direction.

The Point of Exposure (POE) is a hypothetical well assumed to be at the western property of the Facility. Based on the groundwater flow direction, the property boundary is located approximately 1,000 feet west-southwest of the Baseball/Softball Fields Area. It is noted that Bayou Sara, a receiving stream, is located along this property boundary and is a hydrogeologic barrier to groundwater movement further west-southwest.

2.3 WATER USE

2.3.1 Current Water Use

Groundwater is not currently in use at the Facility, and the City intends to place a deed restriction on the Facility prohibiting the use of groundwater at the Facility. PPM reviewed the United States Geologic Survey (USGS) database for active and inactive water wells. One inactive water well owned by the USGS was identified approximately 3,000 feet northeast of the Facility. The well is reported to be 90 feet in depth and completed in the Miocene Series. The well does not appear to be used as a water supply well. No active water wells were mapped within a 1-mile radius of the Facility. PPM also spoke with the Saraland Water Department and the Turnerville Water Department and neither have any water wells within a 1-mile radius of the Facility.

The upper portions of Bayou Sara comprise the western property boundary of the Facility. The stream is located approximately 175 feet from the western limit of the Facility construction in a heavily wooded area, and the topography slopes moderately for about 100 feet until flattening in the flood plain of the Bayou. The Bayou Sara subwatershed is part of the larger Mobile-Tensaw River Delta watershed. Bayou Sara originates in Turnerville approximately 10 miles north of the Facility, and flows southward and, in the lower reaches, turns more easterly, eventually reaching the Mobile River. From its origin to its confluence with the Mobile River, Bayou Sara descends less than 300 feet over approximately 20 miles, averaging a vertical drop of about 15 feet per mile. This Bayou

Sara subwatershed includes three physiographic regions: the Southern Pine Hills (SPH), the Coastal Lowlands (CL), and the Alluvial-Deltic Plain.

The portion of the Bayou located at the Facility is in the SPH Region and is characterized by terrigenous sediments. The Bayou is heavily forested near the Facility with no visible public access. The stream is small but perennial in this area, with a bank height of about 1 foot and a width less than 5 feet. Based on observed sediment and vegetation types in the forested area immediately surrounding the stream, water likely overflows from the main stream channel and inundates the forest for approximately 50 feet during periods of heavy rainfall or flooding. The water in the stream was observed to be moderately to darkly stained, likely due to tannic staining from the wetlands upstream. This section of Bayou Sara is classified as Fish and Wildlife.

2.3.2 Future Water Use

The future uses of surface water and groundwater to the Facility and in the surrounding area are not expected to change. In addition, the City intends to place a deed restriction on the Facility that prohibits the use of groundwater.

2.4 RELEASE SCENARIO AND SOURCE CHARACTERIZATION

2.4.1 Chemicals of Potential Concern

Based on data from the Site Assessment previously conducted in the Baseball/Softball Fields Area, the COPCs are limited to PCB-1248, PCP, arsenic, and chromium VI.

2.4.2 Distribution of COPCs

One Area of Interest has been identified for this risk assessment and includes the Baseball/Softball Fields Area. Soil within this area contains concentrations of all three COPCs at concentrations greater than the RSLs. Arsenic was not a COPC at the time of the assessment; however, Foreign Material from the Source Area contained concentrations slightly greater than the calculated background levels. Based on this, it is assumed that Foreign Material within the Baseball/Softball Fields Area may also contain arsenic concentrations greater than the calculated background levels. Groundwater data did not contain COPC concentrations that exceeded an RSL.

2.4.2.1 Soil

All of the soil COPCs are located in the risk assessment source area. As arsenic was not analyzed in the soil samples from the Baseball/Softball Fields Area, as a conservative approach the arsenic values from the Foreign Material within the Source Area are considered representative of the Baseball/Softball Fields Area. COPC data from the samples are summarized in **Table 1** and depicted on **Figure 8A, Horizontal Extent of PCBs in Baseball/Softball Fields Area, Figure 8B, Horizontal Extent of PCP in Baseball/Softball Fields Area,** and **Figure 8C, Horizontal Extent of Chromium VI in Baseball/Softball Fields Area**.

2.4.2.2 Groundwater

Groundwater analytical data from monitoring wells MW-6 and MW-9, located within the Baseball/Softball Fields Area did not contain detected concentrations of PCBs or chromium VI. Monitoring well MW-6 contained an estimated concentration of PCP (below the laboratory reporting limit) of 0.00041 mg/L, which is below the RSL of 0.0010 mg/L. The groundwater analytical data for all COPCs are summarized in **Table 3, Groundwater Analytical Summary (Baseball/Softball Fields Area)**.

3.0 REGIONAL SCREENING LEVEL EVALUATION

3.1 COMPARISON OF EXPOSURE DOMAIN CONCENTRATIONS WITH REGIONAL SCREENING LEVELS

In the screening process, subsurface soil and groundwater concentrations were compared to RSLs that were obtained from the EPA Regional Screening Levels Summary Table [Target Risk (TR) = 1E-6, Hazard Quotient (HQ) = 0.1], dated November 2024. For those COPCs where the EPA has established a Maximum Contaminant Level (MCL), the MCL was used rather than the RSL. Arsenic data from the Source Area were compared to the calculated background levels.

3.1.1 Soil

The soil samples collected from the Baseball/Softball Fields Area contained concentrations of each COPC (PCB-1248, PCP, and chromium VI) at levels greater than the RSLs for residential use. Refer to **Table 1** for a summary of COPC concentrations in soil. In

addition, arsenic is assumed to be present in soil within the Baseball/Softball Fields Area, at concentrations equal or less than those identified in the Foreign Material within the Source Area.

3.1.2 Groundwater

Maximum concentrations of groundwater analytical data from the Baseball/Softball Fields Area did not exceed the RSLs. Refer to **Table 3** for a summary of COPC concentrations in groundwater.

3.2 CHEMICALS OF CONCERN

COCs considered in the ARBCA are limited to those chemicals whose maximum concentration exceeded MCLs/RSLs (or calculated background level) in soil or groundwater. These include PCB-1248, PCP, arsenic, and chromium VI.

4.0 EXPOSURE ASSESSMENT

4.1 INTRODUCTION

4.1.1 Source

The source of COC impact in the Baseball/Softball Fields Area is the Foreign Material that was used as fill material for the construction of the fields and surrounding area. The horizontal and vertical extents of Foreign Material within the area have been defined by numerous soil borings and site observations. Additionally, COC data exceeding residential soil RSLs have been defined horizontally and vertically. Please refer to **Section 2.1.1** for further information about this work.

4.1.2 Transport Media

The Foreign Material is primarily located subsurface; however, Foreign Material is present in surface soil in some portions of the Baseball/Softball Fields Areas. Soil is the only medium containing COC concentrations exceeding an RSL; therefore, the transport media is erosion and leaching of COCs to groundwater. The primary groundwater flow direction is toward the west-southwest.

4.1.3 Receptors

The Facility will be utilized as a multi-sport recreation facility. The Baseball/Softball Fields Area will be utilized as baseball and softball fields and batting cages. On this basis, potential receptors include Residential Children and Adults; Commercial Workers; and Construction Workers.

4.1.4 Routes of Exposure

Current routes of exposure considered at the Baseball/Softball Fields Area for each impacted media and potential receptor include dermal contact, outdoor inhalation, and ingestion. However, following implementation of the Voluntary Cleanup Plan (VCP), surface soil with COC impact above RSLs will either be excavated or covered with at least 2 feet of clean fill material; thus, the only potential route of exposure will be outdoor inhalation. No buildings are planned to be constructed in the Baseball/Softball Fields Area and the City intends to place a deed restriction prohibiting construction of a building in this area, unless an engineer designed vapor mitigation is installed during construction. Therefore, the indoor inhalation route of exposure is not applicable. Ingestion of groundwater is not likely as no drinking water wells are located on the Facility and the City intends to place a deed restriction that prohibits the use of groundwater at the Facility. Private drinking water wells are not located in the vicinity of the Facility. Additionally, Bayou Sara forms the hydrogeologic downgradient property boundary (to the west) and is a hydraulic divide. Therefore, groundwater from the Baseball/Softball Fields Area does not migrate beyond Bayou Sara. Based on this groundwater resource protection is not applicable.

4.2 SITE DISCRETIZATION INTO EXPOSURE DOMAINS

Exposure domains for on-site were determined as follows:

Indoor Inhalation: Not applicable as no structures are or planned to be within the Baseball/Softball Fields Area.

Outdoor Inhalation: Resident Children, Resident Adults, On-site Commercial Workers, and Construction Workers have a potential to be exposed to the outdoor inhalation of vapors.

Dermal Contact and Ingestion of Soil (Current Only): Based on current conditions, Resident children, Resident Adults, Commercial Workers, and Construction Workers have potential to be exposed to dermal contact or ingestion from surface soil impacted by COCs. However, following implementation of the VCP, and associated Soil Management Plan, impacted surface soils will be either excavated or covered by at least 2 feet of clean fill material. In addition, the Soil Management Plan will address potential impact to Construction Workers. Therefore, the dermal contact and ingestion of soil will not be applicable after implementation of the VCP.

Ingestion of Groundwater: Groundwater beneath the Facility does not contain COC concentrations greater than the RSLs and no water supply wells are located on or in the vicinity of the Facility. Additionally, the City intends to place a deed restriction on the Facility prohibiting the use of groundwater. Bayou Sara forms the downgradient property boundary and is a receiving stream. Therefore, there is no exposure domain for this exposure route.

Exposure domains for off-site were determined as follows:

Indoor/Outdoor Inhalation: The area of soil impact is defined and confined within the Facility property boundaries and groundwater does not contain COC concentrations that exceed an RSL; therefore, off-site inhalation of vapors is not applicable.

4.3 SITE CONCEPTUAL EXPOSURE MODELS FOR EXPOSURE DOMAINS

4.3.1 SCEM for Current Conditions

The Baseball/Softball Fields Area is currently under construction in the development of a multi-use sports complex. Surface and subsurface soil within this area contains COC concentrations that exceed RSLs. Water supply to the facility and surrounding area is supplied by the City. There are no public drinking water wells or public drinking water surface intakes located within a 1-mile radius of the Facility and the Facility is not located within a Wellhead Protection Area.

Based on the RSL evaluation, there is currently a potential exposure from on-site surface soil for ingestion, dermal contact, and outdoor inhalation from subsurface soil to On-site Resident Children, On-site Resident Adults, Commercial Workers, and Construction Workers. For on-site groundwater, although COC concentrations do not exceed RSLs, the SCEM includes the potential for outdoor inhalation to On-site Resident Children, On-site

Resident Adults, Commercial Workers, and Construction Workers. The SCEM that was used to perform the Current Conditions ARBCA Evaluation is illustrated on the left side of **Figure 9**, **Site Conceptual Exposure Model**.

4.3.2 SCEM for Future Conditions

Following implementation of the VCP and completion of construction of the Baseball/Softball Fields Area, all surface soil will meet residential RSLs; therefore, ingestion and dermal contact will be eliminated. Based on the RSL revised evaluation, future conditions (following implementation of VCP and completion of construction) the SCEM includes a potential exposure from on-site subsurface soil for outdoor inhalation to On-site Resident Children, On-site Resident Adults, Commercial Workers, and Construction Workers. For on-site groundwater, although COC concentrations do not exceed RSLs, the SCEM includes the potential for outdoor inhalation to On-site Resident Children, On-site Resident Adults, Commercial Workers, and Construction Workers. The SCEM that was used to perform the Future Conditions ARBCA Evaluation is illustrated on the right side of **Figure 9**.

4.4 GROUNDWATER RESOURCE PROTECTION

According to the ARBCA Guidance Manual, the cleanup levels for soil and groundwater are required to be protective of the groundwater resource for likely future use. The POE is considered to be the downgradient property boundary relative to the source area and groundwater flow, located approximately 1,000 feet west-southwest of the soil source area, at Bayou Sara. Bayou Sara forms the downgradient property boundary and is a receiving stream. Based on this, groundwater flow west of Bayou Sara flows east to the receiving stream and there is not a location off-site where a hypothetical water well would receive groundwater from the Baseball/Softball Fields Area. Therefore, groundwater resource protection is not applicable to this risk assessment.

The Facility is connected to the City of Saraland utilities for water supply and has no plans or reason to install a water supply well at any location on the property. In addition, a deed restriction prohibiting the use of groundwater will be placed on the Facility.

The groundwater flow pattern for the Facility is to the west-southwest as depicted on **Figure 7**. The downgradient property boundary relative to the source area is shown on **Figure 5**.

4.5 SURFACE WATER PROTECTION

According to the ARBCA Guidance Manual, surface water protection should be evaluated if a surface water is located within 500 feet from the downgradient edge of the groundwater plume. A water retention basin is located adjacent to the west of the Baseball/Softball Fields Area. This structure was constructed to capture stormwater from the playing fields, sidewalks, landscaped areas, and the parking lots. During dry weather little to no water is present in the structure thus aquatic receptors are not present. Outflow from the structure only occurs during significant rainfall events. The feature is surrounded by a security fence that limits access to the retention pond. Based on all of this, PPM is of the opinion that this is not considered a surface water feature. In addition, a surface water sample and a sediment sample were collected in the northeastern portion of the structure in February 2025, near the inlet. COCs were not detected in these samples.

A groundwater plume is not present at the Facility and the source area is approximately 1,000 feet from the nearest surface water feature (Bayou Sara), based on groundwater flow to the west-southwest. Therefore, surface water protection is not applicable to this risk assessment.

5.0 RM-1 EVALUATION

5.1 EXPOSURE DOMAIN CONCENTRATIONS

Exposure Domain concentrations are summarized in **Section 3.1** of this report. COC concentrations for each impacted media are presented in **Table 1** and **Table 3**. Two models were run for the Baseball/Softball Fields Area. The first is the current conditions and includes all data from the Baseball/Softball Fields Area, assuming no further development of the fields and surrounding area. The second model is the future conditions and assumes that surface soil will either be excavated or several feet of fill material will be emplaced over the soil during construction of the baseball and softball fields. **Table 1** includes descriptions of remedial methods that will be implemented during construction/completion of the fields.

5.2 TOXICOLOGICAL PROPERTIES

Toxicological properties used in the Risk Management (RM)-1 evaluation were obtained from the Regional Screening Level Summary Table, dated November 2024.

5.3 PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties used in the RM-1 evaluation were obtained from the Regional Screening Level Chemical-specific Parameters Supporting Table, dated November 2024.

5.4 EXPOSURE FACTORS

Exposure factors used in the RM-1 evaluation were obtained from the Regional Screening Table User's Guide, dated November 2024.

5.5 FATE AND TRANSPORT PARAMETERS

Fate and transport factors used in the RM-1 evaluation were obtained from the Regional Screening Level User's Guide, dated November 2024. A "large source area" was assumed for the default options for source area dimensions.

5.6 RM-1 CUMULATIVE RISK EVALUATION

5.6.1 RM-1 Current Conditions

As noted, the current conditions assume that no further development will occur and models the current risk levels of the Baseball/Softball Fields Area. The maximum Hazard Index for each of the receptors was 0.139, for resident child, which is below the acceptable Hazard Index of 1.0. The maximum cumulative Individual Excess Lifetime Cancer Risk (IELCR) for each of the receptors was calculated to be 1.49E-05, for resident children, which is above the acceptable IELCR of 1.0E-05. This data is presented in **Table 4, RM-1 Calculated Cumulative Risk within Each Exposure Domain**. A copy of the ARBCA calculations is provided in **Appendix C, RM-1 Evaluations**.

5.6.2 RM-1 Future Conditions (Following Implementation of VCP)

As noted, the future conditions assume that surface soil and shallow soil will either be excavated or covered with several feet of fill material during completion of the Baseball/Softball Fields Area. The maximum Hazard Index for each of the receptors was 0.0343, for construction workers, which is below the acceptable Hazard Index of 1.0. The maximum cumulative IELCR for each of the receptors was calculated to be 1.00E-06, for

resident adults, which is below the acceptable IELCR of 1.0E-05. This data is presented in **Table 4**. A copy of the ARBCA calculations is provided in **Appendix C**.

5.7 RM-1 RISK MANAGEMENT RECOMMENDATIONS

The cumulative IELCR for resident children for current conditions is above the acceptable IELCR of 1.0E-05, and the cumulative Hazard Indices for all receptors for current conditions are below the acceptable Hazard Index of 1.0. The cumulative Hazard Indices for future conditions are below the acceptable Hazard Index of 1.0, and the cumulative IELCRs for future conditions are below the acceptable IELCR of 1.0E-05. Based on the cumulative IELCR for resident children using current conditions, PPM recommends proceeding to the RM-2 evaluation for current conditions. Based on the calculations for future conditions, no additional remediation is required in the Baseball/Softball Fields Area to meet cumulative risk levels, except for the completion of an environmental covenant. However, to be conservative, the City intends to scrape portions of the surface soil from the Baseball/Softball Fields Area and transport the material to the Source Area, while the main pile will be addressed at a later date. Then to complete the baseball and softball fields and the surrounding areas, several feet of clean fill material will be used to bring the existing grade to design grade.

6.0 RM-2 EVALUATION

6.1 EXPOSURE DOMAIN CONCENTRATIONS

Exposure Domain concentrations are summarized in **Section 3.1** of this report. COC concentrations for each impacted media are presented in **Table 1** and **Table 3**. One RM-2 model was run for the Baseball/Softball Fields Area that included the current conditions and includes all data from the Baseball/Softball Fields Area, assuming no further development of the fields and surrounding area.

6.2 TOXICOLOGICAL PROPERTIES

Toxicological properties used in the RM-2 evaluation were obtained from the Regional Screening Level Summary Table, dated November 2024, and remained the same as the RM-1 model.

6.3 PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties used in the RM-2 evaluation were obtained from the Regional Screening Level Chemical-specific Parameters Supporting Table, dated November 2024, and remained the same as the RM-1 model.

6.4 EXPOSURE FACTORS

The majority of the exposure factors used in the RM-2 evaluation were obtained from the Regional Screening Table User's Guide, dated November 2024; however, three parameters were adjusted to reflect conservative assumptions that more accurately reflect the current and future use of the Facility as a recreational sports complex facility. The following items include the exposure factors that were adjusted, the rationale, and appropriate references:

- Exposure Frequency (EF) – The default value of 350 days per year, for both children and adults, is based on the property being used as a residence. The Facility is a sports complex and individuals will not live at the property. The Facility is open from 5:00 p.m. until 9:00 p.m. during the week and has variable hours of operation on weekends. The majority of the users of the Baseball/Softball Fields Area are involved (player, coach, or spectator) with recreational leagues (baseball or softball). The average season is three to five months long and there are typically two seasons per year. Teams typically have two to three practices per week and one game per week. Practices and games for the various teams are rotated between this Facility and two other City parks; therefore, on average a team may use one of the three fields within the Baseball/Softball Fields Area once per week. Assuming two five-month seasons (43 weeks) with one practice and one game per week, a Reasonable Maximum Exposure (RME) for EF can be calculated to 86 days per year.

- Exposure Time (ET) – The default value of 24 hours per day, for both children and adults, is based on the property being used as a residence. As noted above, the Facility is a sports complex and individuals will not live at the property. The Facility is open from 5:00 p.m. until 9:00 p.m. during the week and has variable hours of operation on weekends. PPM utilized Table 16-20 (Time Spent in Selected Outdoor Locations – Outdoors Other Than Near a Residence or Vehicle Such as Parks, Golf Courses, or Farms) from the EPA Exposure Factors Handbook, dated 2011, to estimate appropriate ETs for the Baseball/Softball Fields Area, for children and adults. PPM utilized maximum of the 95th percentiles of the data for

each category. The reference table with highlights showing where the data were collected is included as **Appendix D, Exposure Factor Handbook Reference Table**. Based on this table, children spend 574 minutes per day and adults spend 635 minutes per day at parks, golf courses, or farms. These equate to REMs for ET of 9.6 hours per day and 10.6 hours per day, respectively. These are very conservative values as it assumes that all of the time spent by the individuals at a park in a given day is within the Baseball/Softball Fields Area, which is highly unlikely, especially given the park hours of operation.

6.5 FATE AND TRANSPORT PARAMETERS

Fate and transport factors used in the RM-2 evaluation were obtained from the Regional Screening Level User's Guide, dated November 2024. A "large source area" was assumed for the default options for source area dimensions.

6.6 RM-2 CUMULATIVE RISK EVALUATION (CURRENT CONDITIONS)

As noted, the current conditions assume that no further development will occur and models the current risk levels of the Baseball/Softball Fields Area. The maximum Hazard Index for each of the receptors was 0.0341, for resident children, which is below the acceptable Hazard Index of 1.0. The maximum cumulative IELCR for each of the receptors was calculated to be 3.65E-06, for resident children, which is below the acceptable IELCR of 1.0E-05. This data is presented in **Table 5, RM-2 Calculated Cumulative Risk within Each Exposure Domain**. A copy of the ARBCA calculations is provided in **Appendix E, RM-2 Evaluation**.

6.7 RM-2 RISK MANAGEMENT RECOMMENDATIONS

The RM-2 cumulative Hazard Indices for current conditions are below the acceptable Hazard Index of 1.0, and the cumulative IELCRs for current conditions are below the acceptable IELCR of 1.0E-05. Based on these calculations, no additional remediation is required in the Baseball/Softball Fields Area to meet cumulative risk levels, except for the completion of an environmental covenant. However, to be conservative, the City intends to scrape portions of the surface soil from the Baseball/Softball Fields Area and transport them to the Source Area, main pile (to be addressed at a later date). Then to complete the baseball and softball fields and the surrounding areas, several feet of clean fill material will be used to bring the existing grade to design grade.

7.0 CONCLUSIONS AND RECOMMENDATIONS

PPM concludes that RM-2 cumulative risks to residential children, residential adults, commercial workers, and construction workers from current and RM-1 cumulative risks to residential children, residential adults, commercial workers, and construction workers from future conditions are below ADEM-approved levels and risks to human health are not likely. The City intends to place an environmental covenant on the Baseball/Softball Fields Area that prohibits the construction of a building in the defined area, without the installation of an engineered vapor collection system or vapor barrier. A covenant will also be placed on the Facility that prohibits the use of groundwater. Although not warranted as a consequence of the risk assessment, as a measure of caution, the City also intends to remove or cover with several feet of clean fill material, the Foreign Material and impacted soil during construction of the Baseball/Softball Fields Area.

8.0 REFERENCES

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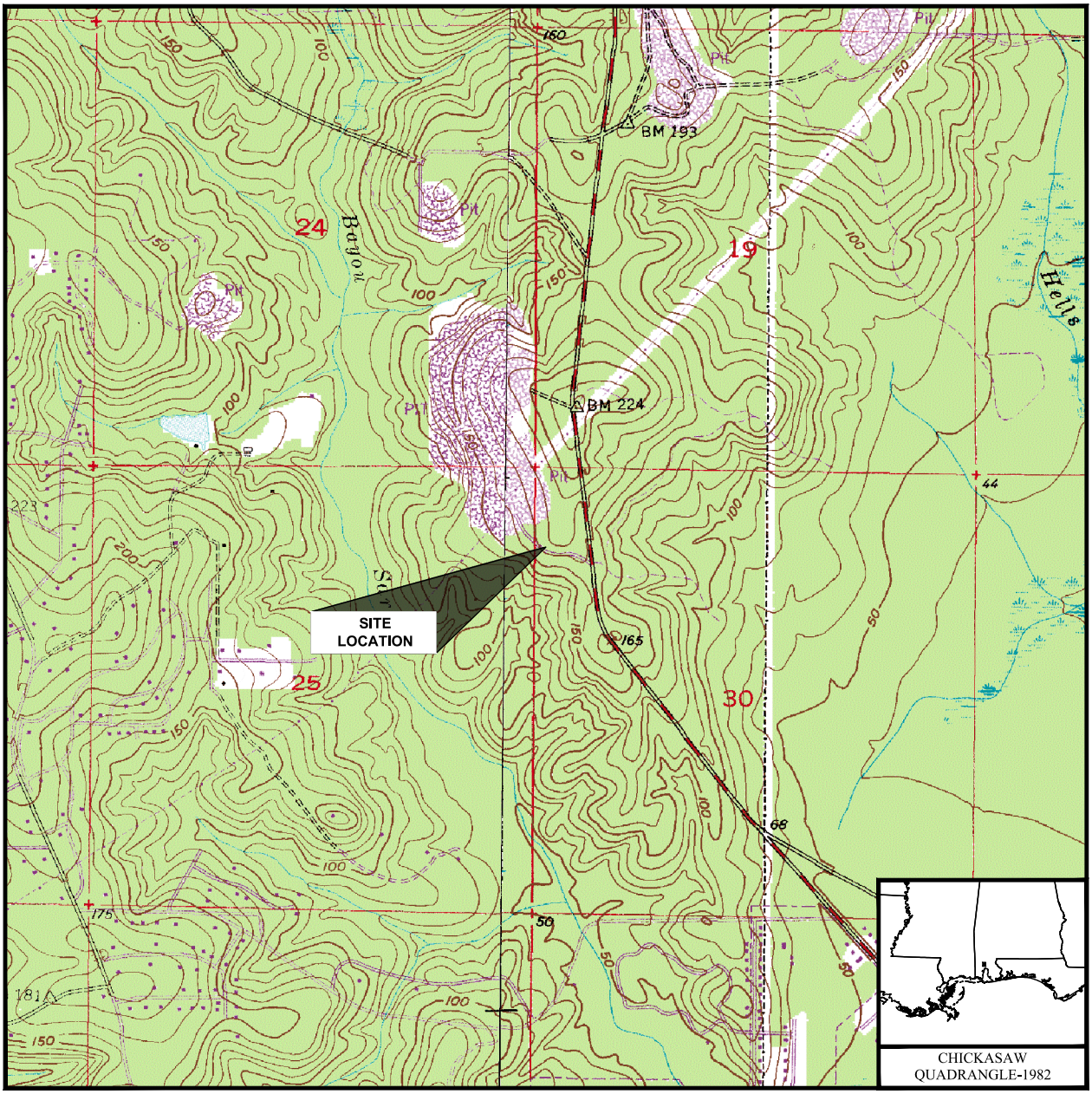
United States Geological Survey, *Kushla 7.5-Minute Quadrangle, Alabama*, 1986.

FIGURES



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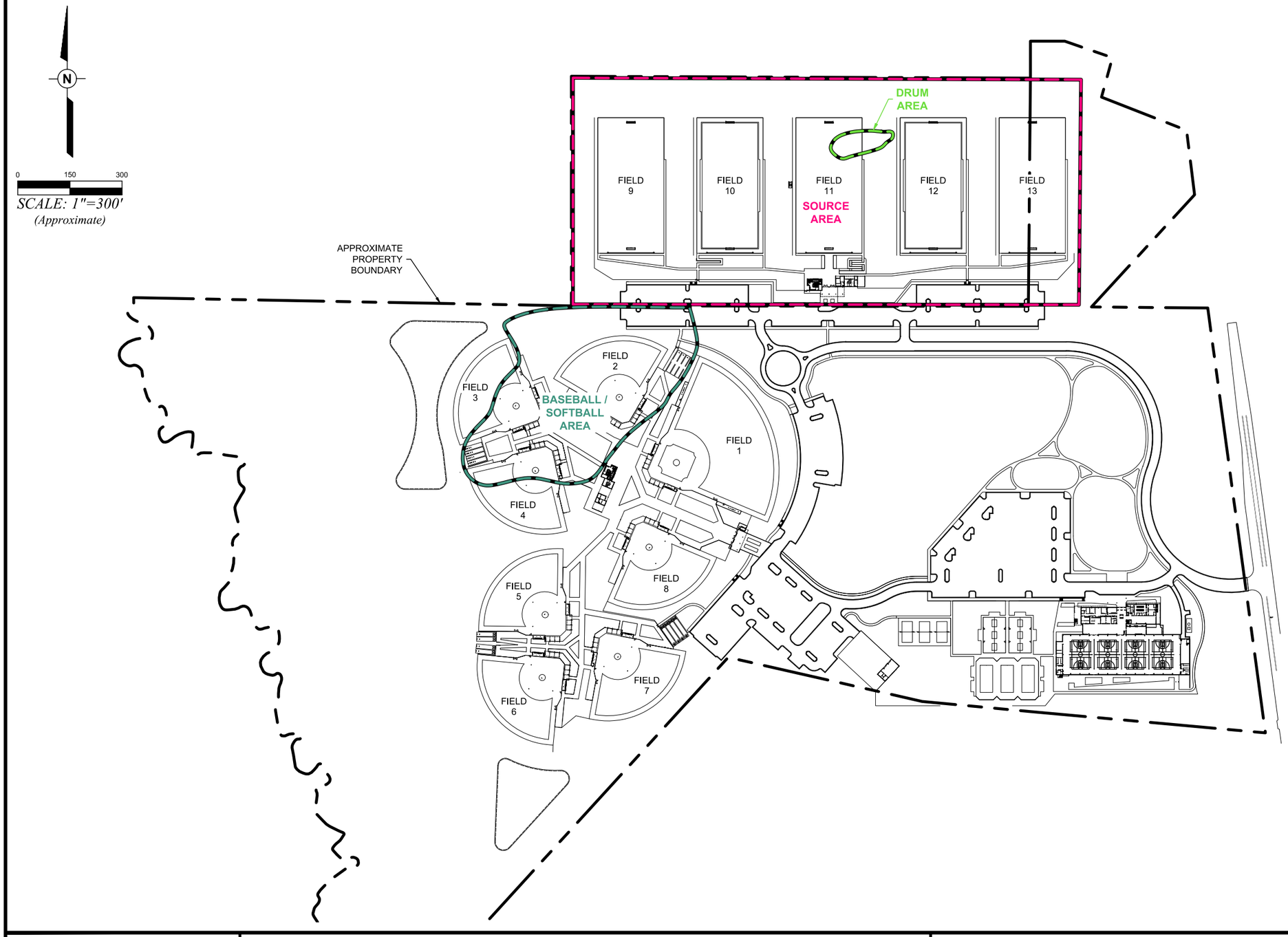
PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	FACILITY LOCATION MAP	FIGURE NUMBER 1
DRAWN BY: BWH	DRAWN DATE: 02/12/25			
PROJECT NUMBER: 20203301	PHASE: RA			

NOTE:
PROPOSED CONSTRUCTION / FACILITY LAYOUT
PRIOR TO DISCOVERY OF FOREIGN MATERIAL.



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DRAWN BY: BWH	DRAWN DATE: 02/12/25
PROJECT NUMBER: 20203301	PHASE: RA

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

FACILITY MAP

FIGURE NUMBER
2

SOURCE: GOOGLE EARTH

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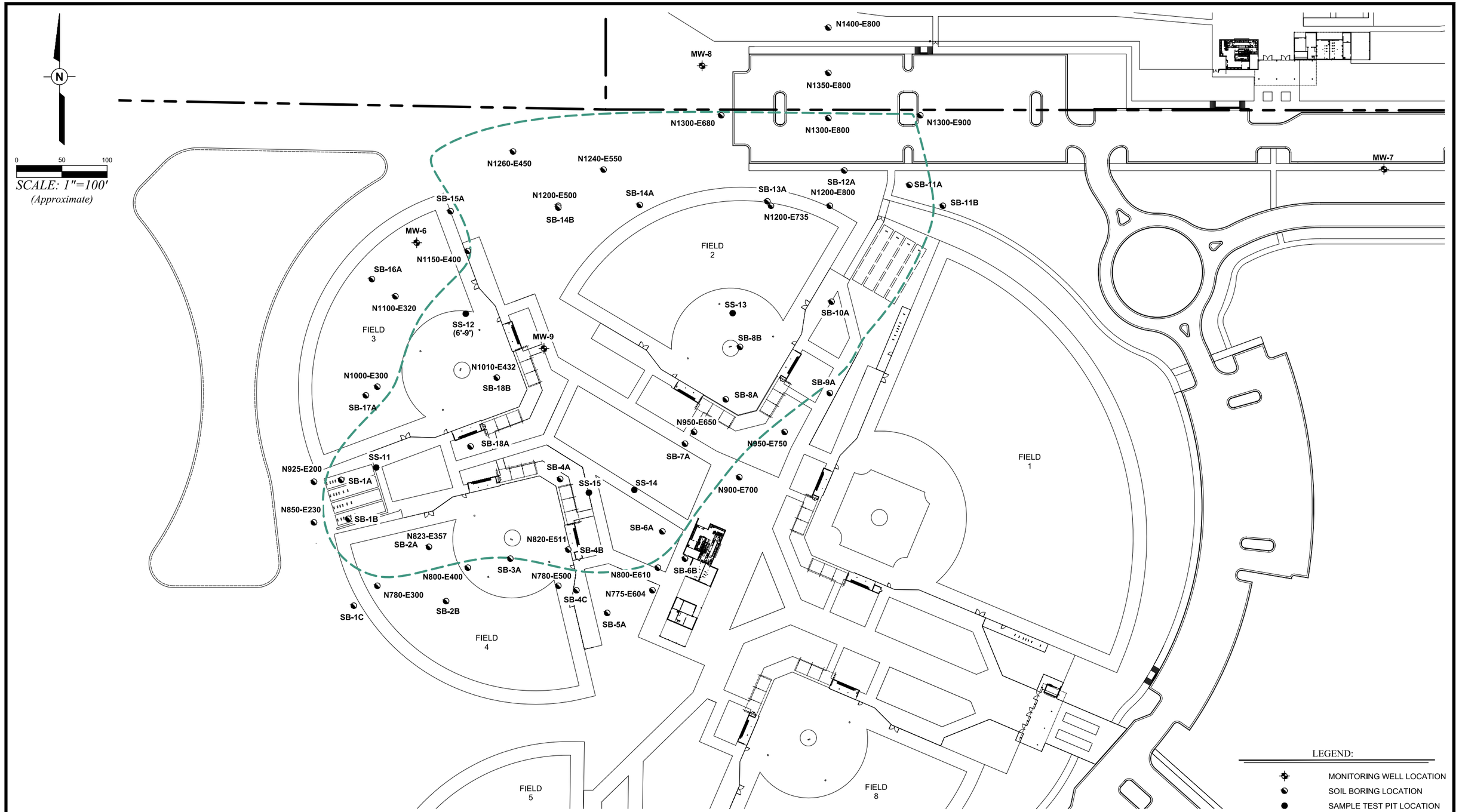
PROJECT NUMBER: 20203301	PHASE: RA

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

AREA MAP

FIGURE NUMBER
3



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PROJECT NUMBER:	PHASE:
20203301	RA

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

SITE MAP - BASEBALL / SOFTBALL FIELDS AREA

FIGURE NUMBER
4

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0 150 300

SCALE: 1"=300'
(Approximate)

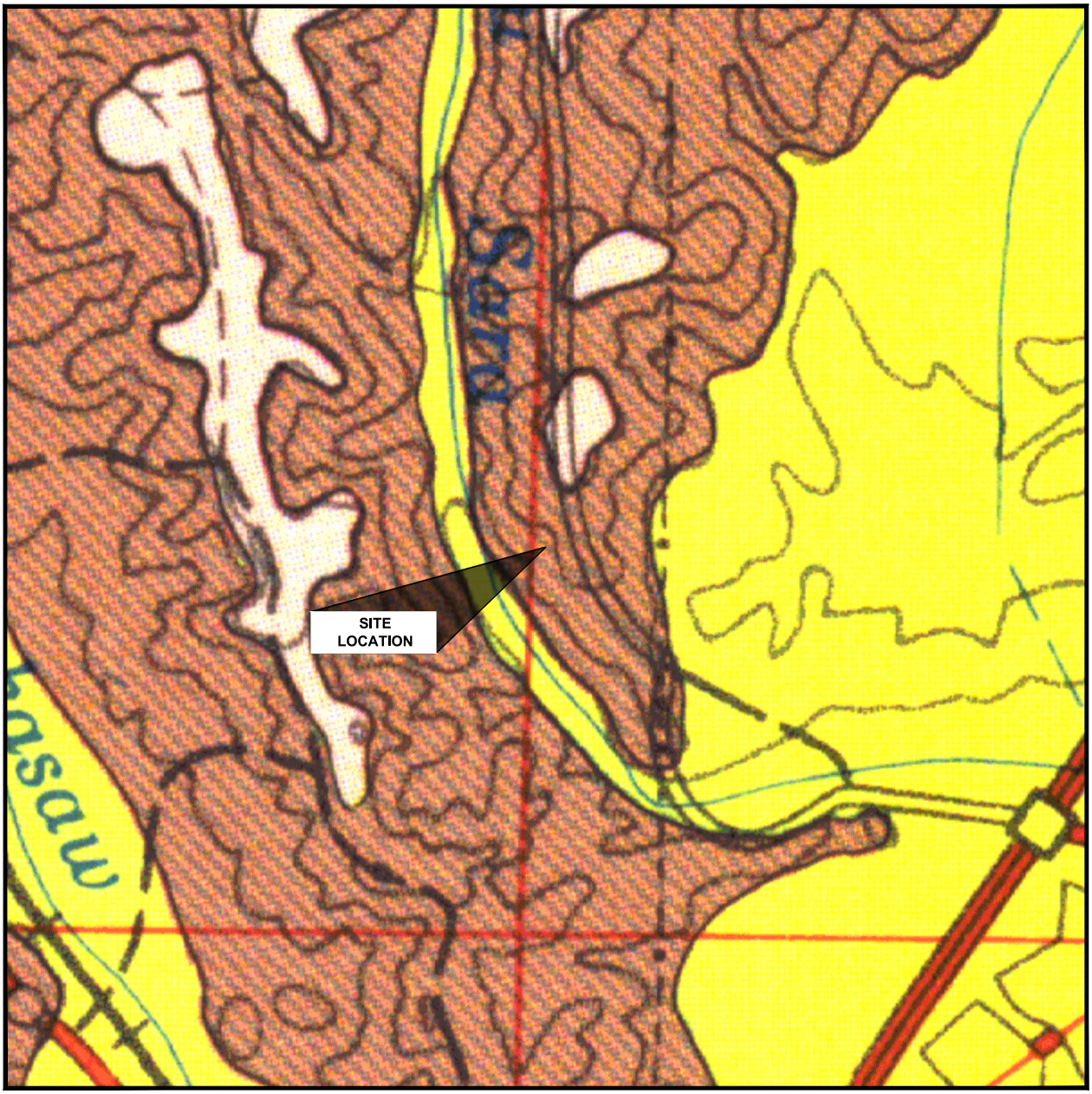
APPROXIMATE PROPERTY BOUNDARY

GROUNDWATER FLOW TO HYPOTHETICAL POINT OF EXPOSURE

SOURCE: DRONE IMAGERY TAKEN BY PPM CONSULTANTS, INC. (NOVEMBER 2024)

PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	FACILITY AERIAL PHOTOGRAPH (NOVEMBER 2024)
DRAWN BY: BWH	DRAWN DATE: 02/12/25		FIGURE NUMBER 5
PROJECT NUMBER: 20203301	PHASE: RA		

SOURCE: GEOLOGIC SURVEY OF ALABAMA SPECIAL MAP 220.



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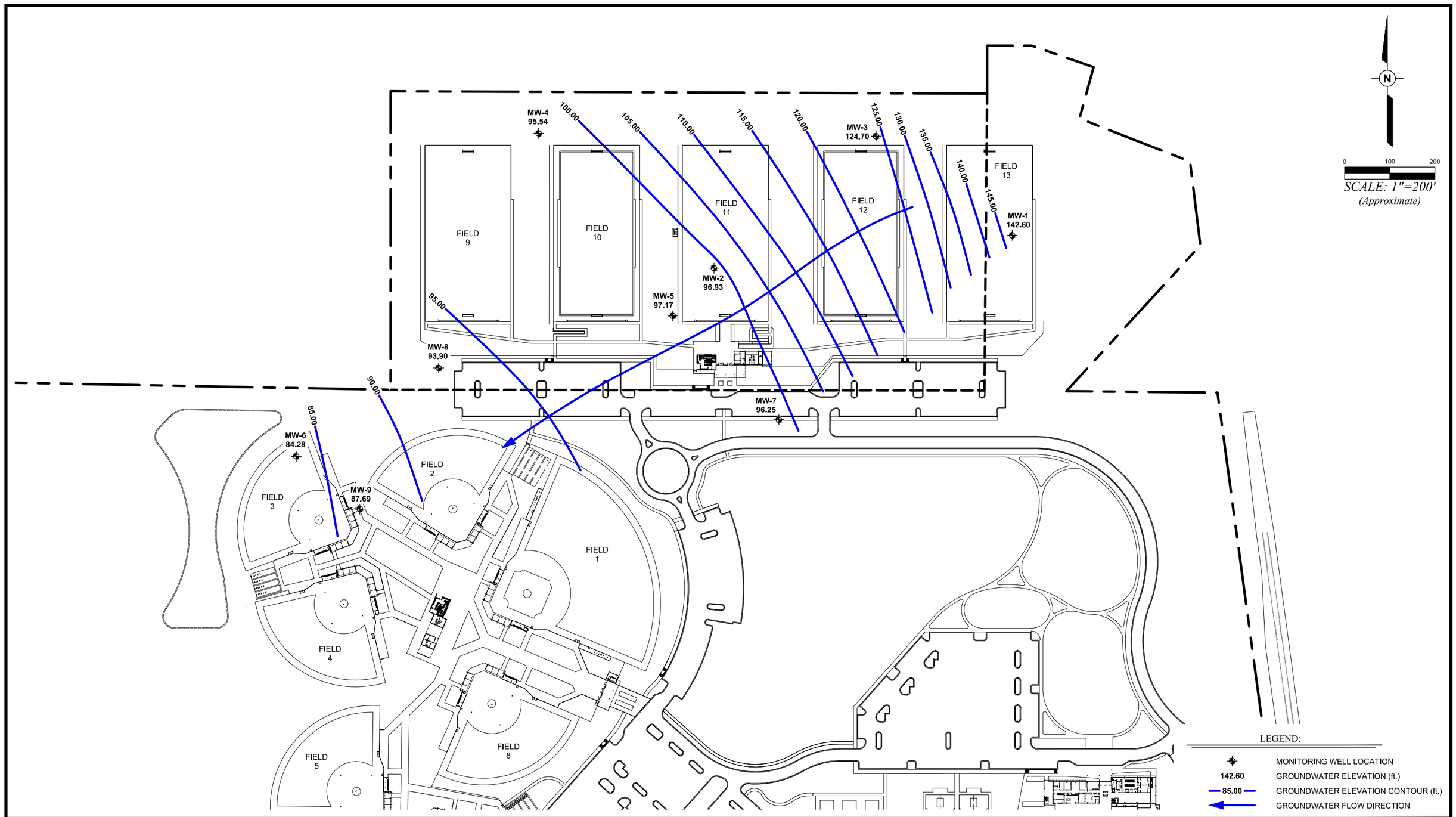
LEGEND:

Qalt ALLUVIAL, COASTAL AND LOW TERRACE DEPOSITS

Tm MIOCENE SERIES UNDIFFERENTIATED

PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	AREA GEOLOGIC MAP
DRAWN BY: BWH	DRAWN DATE: 02/12/25		FIGURE NUMBER 6
PROJECT NUMBER: 20203301	PHASE: RA		



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CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

GROUNDWATER ELEVATION MAP
(FEBRUARY 17, 2025)

FIGURE NUMBER
7

N

0 50 100

SCALE: 1"=100'
(Approximate)

MW-8
N1300-E680
0.0084
N1300-E900
0.025
MW-7
N1240-E550
0.41
N1260-E450
0.46
N1200-E500
0.98
SB-14B
SB-15A
MW-6
N1150-E400
BDL
SB-16A
N1100-E320
0.047
FIELD
3
SS-12
0.14
MW-9
N1010-E432
BDL
SB-18B
N1000-E300
BDL
SB-17A
SB-18A
SS-11
0.43
SB-1A
N925-E200
BDL
SB-1B
2.4
N850-E230
BDL
N823-E357
1.9
SB-2A
SB-3A
N800-E400
BDL
N780-E300
BDL
SB-1C
SB-2B
N780-E500
BDL
SB-4A
12
SS-15
0.20
SB-4C
N820-E511
1.7
SB-4B
SS-14
3.9
SB-6A
N775-E604
0.0057
SB-5A
FIELD
4
SB-14A
SB-13A
N1200-E735
3.1
N1200-E800
1.7
FIELD
2
SS-13
3.5
SB-8B
SB-8A
N950-E650
0.25
SB-7A
SB-6B
N800-E610
BDL
SB-12A
SB-11A
0.13
SB-11B
SB-10A
0.23
SB-9A
N950-E750
0.20
N900-E700
BDL
FIELD
1
FIELD
5
FIELD
8
1.0
0.23

LEGEND:

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SAMPLE TEST PIT LOCATION
- 1.9 — MAXIMUM PCB-1248 CONCENTRATION (mg/kg) (VALUE IN RED EXCEEDS THE RESIDENTIAL SOIL RSL)
- 0.23 — APPROXIMATE HORIZONTAL LIMITS OF PCBs THAT EXCEED RESIDENTIAL SOIL RSL (0.23 mg/kg)
- 1.0 — APPROXIMATE HORIZONTAL LIMITS OF PCB CONCENTRATIONS THAT EXCEED 1.0 mg/kg
- APPROXIMATE HORIZONTAL LIMITS OF OBSERVED FOREIGN MATERIAL
- BDL — BELOW DETECTION LIMIT

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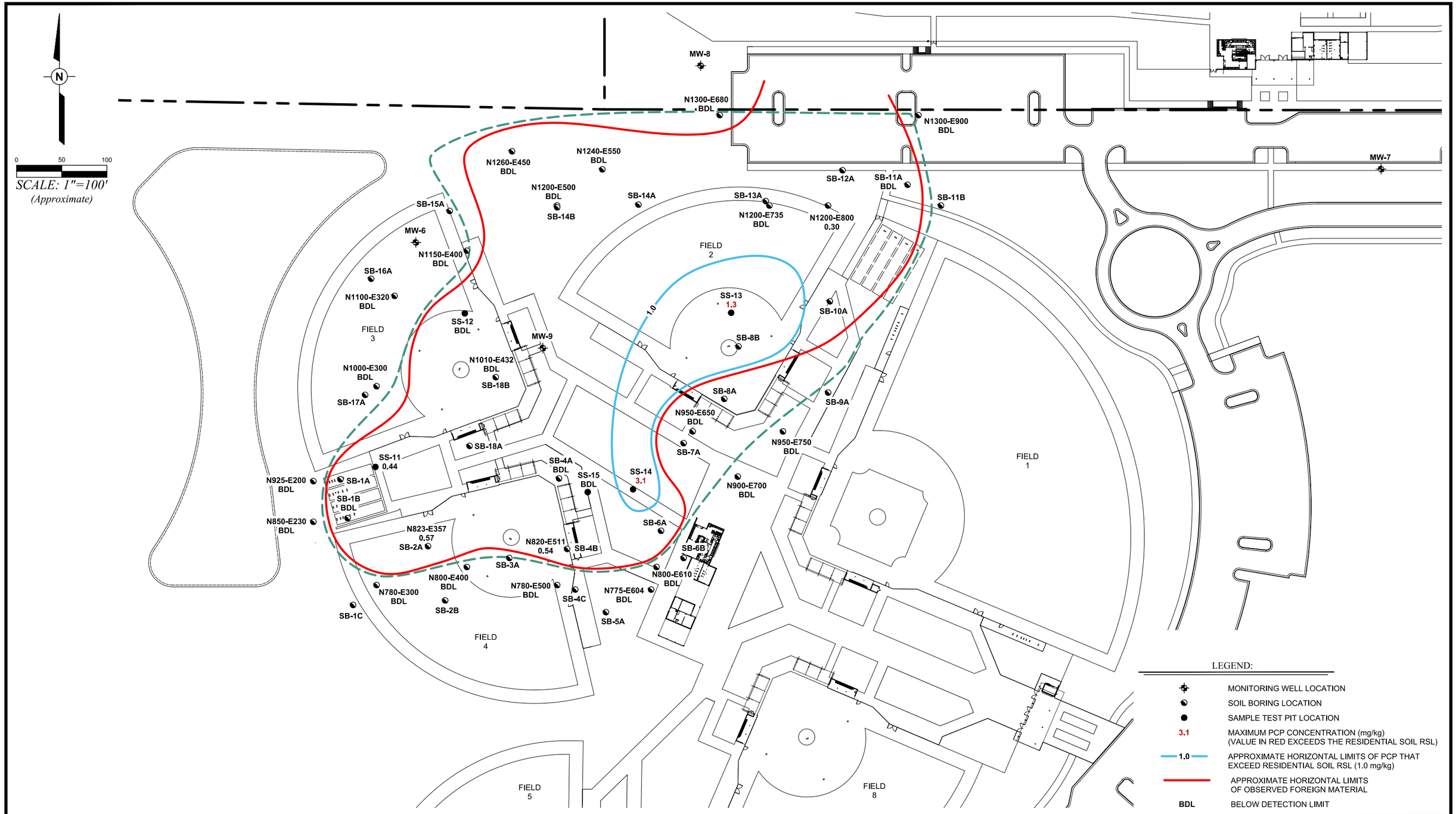
CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

HORIZONTAL EXTENT OF PCBs IN BASEBALL / SOFTBALL AREA

FIGURE NUMBER
8A



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CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

HORIZONTAL EXTENT OF PCP IN BASEBALL / SOFTBALL AREA

FIGURE NUMBER
8B

N

0 50 100

SCALE: 1"=100'
(Approximate)

MW-8
N1300-E680
0.65
N1300-E900
BDL
MW-7
N1260-E450
0.29
N1240-E550
0.69
N1200-E500
BDL
SB-14B
SB-14A
SB-13A
N1200-E735
0.55
N1200-E800
BDL
SB-12A
SB-11A
0.27
SB-11B
SB-15A
MW-6
N1150-E400
BDL
SB-16A
N1100-E320
BDL
FIELD
2
0.95
SS-13
1.7
SB-10A
SB-8B
FIELD
3
SS-12
0.41
MW-9
N1010-E432
BDL
SB-18B
N1000-E300
BDL
SB-17A
SB-8A
SB-9A
N950-E650
BDL
N950-E750
BDL
SB-18A
SB-7A
SS-11
0.40
SB-4A
BDL
SS-15
0.61
SS-14
1.5
N900-E700
0.20
FIELD
1
N925-E200
0.90
SB-1A
0.95
SB-1B
BDL
N850-E230
1.1
N823-E357
1.0
SB-2A
N820-E511
1.5
SB-4B
SB-6A
SB-6B
SB-3A
N800-E400
0.31
N800-E610
BDL
N780-E300
BDL
N780-E500
1.3
N775-E604
0.64
SB-4C
SB-1C
SB-2B
SB-5A
FIELD
4
FIELD
5
FIELD
8

LEGEND:

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SAMPLE TEST PIT LOCATION
- 1.7 — MAXIMUM CHROMIUM VI CONCENTRATION (mg/kg) (VALUE IN RED EXCEEDS THE RESIDENTIAL SOIL RSL)
- 0.95 — APPROXIMATE HORIZONTAL LIMITS OF CHROMIUM VI THAT EXCEED RESIDENTIAL SOIL RSL (0.95 mg/kg)
- APPROXIMATE HORIZONTAL LIMITS OF OBSERVED FOREIGN MATERIAL
- BDL — BELOW DETECTION LIMIT

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CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

HORIZONTAL EXTENT OF CHROMIUM VI IN BASEBALL / SOFTBALL AREA

FIGURE NUMBER
8C

IMPACTED MEDIA	TRANSPORT MECHANISMS	EXPOSURE ROUTES	POTENTIAL RECEPTORS	CURRENT CONDITIONS								FUTURE CONDITIONS							
				ONSITE				OFFSITE				ONSITE				OFFSITE			
				RESIDENTS - CHILD	RESIDENTS - ADULT	COMMERCIAL WORKERS	CONSTRUCTION WORKERS	RESIDENTS - CHILD	RESIDENTS - ADULT	COMMERCIAL WORKERS	CONSTRUCTION WORKERS	RESIDENTS - CHILD	RESIDENTS - ADULT	COMMERCIAL WORKERS	CONSTRUCTION WORKERS	RESIDENTS - CHILD	RESIDENTS - ADULT	COMMERCIAL WORKERS	CONSTRUCTION WORKERS
AIR VAPORS			INDOOR INHALATION																
			OUTDOOR INHALATION																
SURFICIAL SOIL	WIND EROSION / DISPERSION / VOLATILIZATION / VAPOR MIGRATION		INHALATION OF VAPORS AND PARTICULATES, DERMAL CONTACT AND INGESTION									2	2	2	2				
			LEACHING TO GROUNDWATER									2	2	2	2				
SUBSURFACE SOILS	VOLATILIZATION / VAPOR MIGRATION		INDOOR INHALATION	1	1	1	1					1	1	1	1				
			OUTDOOR INHALATION																
			DERMAL CONTACT AND INGESTION									2	2	2					
			LEACHING TO GROUNDWATER																
GROUNDWATER	VOLATILIZATION / VAPOR MIGRATION		INDOOR INHALATION	1	1	1	1					1	1	1	1				
			OUTDOOR INHALATION																
			INGESTION	1	1	1	1					1	1	1	1				

	YES	NO
FREE PRODUCT?	☐	☒
UTILITIES THREATENED?	☐	☒
SURFACE WATERS WITHIN A 500' DOWN-GRADIENT?	☐	☒
ECOLOGICAL RECEPTORS?	☐	☒
GROUNDWATER PUBLIC WELL WITHIN 1 MILE?	☐	☒

1 - DEED RESTRICTIONS WILL PREVENT THIS EXPOSURE

2 - CONSTRUCTION AND SOIL MANAGEMENT PLAN WILL PREVENT THIS EXPOSURE

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BWH	02/12/25
PROJECT NUMBER:	PHASE:
20203301	RA

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

SITE CONCEPTUAL EXPOSURE MODEL

FIGURE NUMBER
9

TABLES

TABLE 1
ANALYTICAL SUMMARY (BASEBALL/SOFTBALL FIELDS AREA)
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

SAMPLE LOCATION	SAMPLE DEPTH (ft BGS)	SAMPLE DATE	PCB-1248 (mg/kg)	PCP (mg/kg)	CHROMIUM VI (mg/kg)	SAMPLE DESCRIPTION	VISUAL OBSERVATION NOTES	PLANNED REMEDIATION
RESIDENTIAL RSL			**0.23**	**1.0**	**0.95**			
INDUSTRIAL RSL			**0.94**	**4.0**	**20**			
SS-11	3-6	09/18/24	**0.43**	***0.44***	***0.40***	Foreign Material	FM observed from 3-6'	Cover
SS-12	6-9	09/18/24	**0.14**	<0.20	***0.41***	Foreign Material	FM observed from 6-9'	Cover
SS-13	1-2	09/18/24	**3.5**	***1.3***	**1.7**	Foreign Material	FM observed from 1-2'	Cover
SS-14	0.5-2	09/18/24	**3.9**	**3.1**	**1.5**	Foreign Material	FM observed from surface to 2'	Excavate
SS-15	0-1	09/18/24	***0.20***	<0.20	***0.61***	Foreign Material	FM observed from surface to 1'	Excavate
SB-1A (N897 E260)	--	--	--	--	--	--	FM observed from 3-5.8'	Cover
SB-1B (N854 E268)	10-12	09/30/24	**2.4**	<0.20	***0.72***	Foreign Material	FM observed from 10.7-12'	Already Covered
SB-1C (N758 E274)	--	--	--	--	--	--	No FM observed	None
SB-2A (N823 E357)	--	--	--	--	--	--	FM observed from 7.8-13'	Already Covered
SB-2B (N763 E376)	--	--	--	--	--	--	No FM observed	None
SB-3A (N810 E447)	--	--	--	--	--	--	No FM observed	None
SB-4A (N898 E502)	7-8	09/30/24	**12**	<0.19	<0.12	Foreign Material	FM observed from 7-8'	Already Covered
SB-4B (N820 E511)	--	--	--	--	--	--	FM observed from 2.6-3.8'	Already Covered
SB-4C (N775 E520)	--	--	--	--	--	--	No FM observed	None
SB-5A (N750 E554)	--	--	--	--	--	--	No FM observed	None
SB-6A (N840 E615)	--	--	--	--	--	--	FM observed from 2.3-3'	Cover
SB-6B (N810 E640)	--	--	--	--	--	--	No FM observed	None
SB-7A (N937 E640)	--	--	--	--	--	--	No FM observed	Cover
SB-8A (N986 E685)	--	--	--	--	--	--	No FM observed	Cover
SB-8B (N1045 E700)	--	--	--	--	--	--	FM observed 1.7-3'	Cover
SB-9A (N993 E800)	--	--	--	--	--	--	No FM observed	None
SB-10A (N1094 E802)	--	--	--	--	--	--	FM observed 2.7-4'	Cover
SB-11A (N1223 E888)	2-2.4	10/01/24	**0.13**	<0.45	***0.27***	Foreign Material	FM observed 2-2.4'	Cover
SB-11B (N1200 E925)	--	--	--	--	--	--	No FM observed	None
SB-12A (N1239 E816)	--	--	--	--	--	--	No FM observed	Cover
SB-13A (N1205 E731)	--	--	--	--	--	--	No FM observed	Cover
SB-14A (N1201 E590)	--	--	--	--	--	--	FM observed 1-2'	Cover
SB-14B (N1198 E500)	--	--	--	--	--	--	No FM observed	Cover
SB-15A (N1194 E381)	--	--	--	--	--	--	No FM observed	None
SB-16A (N1119 E294)	--	--	--	--	--	--	No FM observed	None
SB-17A (N987 E298)	--	--	--	--	--	--	No FM observed	None
SB-18A (N934 E403)	--	--	--	--	--	--	FM observed 2.5-4.2'	Cover
SB-18B (N1010 E432)	--	--	--	--	--	--	FM observed 2.5-3.3'	Cover
N1010-E432 (0-2")	0-2	10/02/24	<0.0036	<0.17	<0.11	Above Foreign Material	No FM observed	Excavate
N1010-E432 (30-40")	2.5-3.33	10/02/24	<0.0044	<0.21	<0.13	Foreign Material	FM observed 2.5-3.3'	Cover
N1010-E432 (4-5')	4-5	10/02/24	<0.0058	<0.27	<0.18	Below Foreign Material	No FM observed	Cover
N1010-E432 (7-9')	7-9	10/02/24	NA	NA	NA	NA	No FM observed	Cover
N1010-E432 (9-11')	9-11	10/02/24	NA	NA	NA	NA	No FM observed	Cover
N823-E357 (6-8')	6-8	10/02/24	<0.0035	<0.17	<0.10	Above Foreign Material	No FM observed	Already Covered
N823-E357 (9-12')	9-12	10/02/24	**1.9**	***0.57***	**0.53**	Foreign Material	FM	Already Covered
N823-E357 (13-14')	13-14	10/02/24	<0.0039	<0.18	**1.0**	Below Foreign Material	No FM observed	Already Covered
N823-E357 (16-18')	16-18	10/02/24	NA	NA	NA	NA	No FM observed	Already Covered
N823-E357 (18-20')	18-20	10/02/24	NA	NA	NA	NA	No FM observed	Already Covered
N820-E511 (0-2')	0-2	10/02/24	**0.12**	<0.19	<0.11	Above Foreign Material	No FM observed	Excavate
N820-E511 (31-45")	2.6-3.75	10/02/24	**1.7**	***0.54***	<0.13	Foreign Material	FM	Already Covered
N820-E511 (4-5')	4-5	10/02/24	<0.0038	<0.18	**1.5**	Below Foreign Material	No FM observed	Already Covered
N820-E511 (7-9')	7-9	10/02/24	NA	NA	NA	NA	No FM observed	Already Covered
N820-E511 (9-11')	9-11	10/02/24	NA	NA	NA	NA	No FM observed	Already Covered

TABLE 1
ANALYTICAL SUMMARY (BASEBALL/SOFTBALL FIELDS AREA)
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

SAMPLE LOCATION	SAMPLE DEPTH (ft BGS)	SAMPLE DATE	PCB-1248 (mg/kg)	PCP (mg/kg)	CHROMIUM VI (mg/kg)	SAMPLE DESCRIPTION	VISUAL OBSERVATION NOTES	PLANNED REMEDIATION
RESIDENTIAL RSL			**0.23**	**1.0**	**0.95**			
INDUSTRIAL RSL			**0.94**	**4.0**	**20**			
N1300-E900 (0-1')	0-1	10/04/24	<0.017	<0.33	<0.10	Delineation (even with adjacent Foreign Material)	No FM observed	None
N1300-E900 (2-4')	2-4	10/04/24	**0.025**	<0.18	<0.10	Delineation (below adjacent Foreign Material)	No FM observed	None
N1200-E800 (0-1')	0-1	10/04/24	**1.7**	***0.30***	<0.11	Delineation (even with adjacent Foreign Material)	No FM observed	Excavate
N1200-E800 (2-4')	2-4	10/04/24	**0.29**	<0.18	<0.11	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N1200-E735 (0-1')	0-1	10/04/24	**3.1**	<0.19	**0.55**	Delineation (even with adjacent Foreign Material)	No FM observed	Excavate
N1200-E735 (2-4')	2-4	10/04/24	<0.017	<0.34	**0.50**	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N1200-E500 (0-1')	0-1	10/04/24	**0.98**	<0.20	<0.12	Delineation (even with adjacent Foreign Material)	No FM observed	Excavate
N1200-E500 (2-4')	2-4	10/04/24	<0.0037	<0.19	<0.11	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N1150-E400 (0-1')	0-1	10/04/24	<0.0033	<0.16	<0.097	Delineation (even with adjacent Foreign Material)	No FM observed	None
N1150-E400 (2-4')	2-4	10/04/24	<0.0037	<0.17	<0.11	Delineation (below adjacent Foreign Material)	No FM observed	None
N1100-E320 (0-1')	0-1	10/04/24	<0.0035	<0.17	<0.11	Delineation (even with adjacent Foreign Material)	No FM observed	None
N1100-E320 (2-4')	2-4	10/04/24	**0.047**	<0.17	<0.10	Delineation (below adjacent Foreign Material)	No FM observed	None
N1000-E300 (0-1')	0-1	10/04/24	<0.0033	<0.17	<0.10	Delineation (even with adjacent Foreign Material)	No FM observed	None
N1000-E300 (2-4')	2-4	10/04/24	<0.0034	<0.17	<0.099	Delineation (below adjacent Foreign Material)	No FM observed	None
N780-E300 (0-1')	0-1	10/04/24	<0.0034	<0.16	<0.10	Delineation (even with adjacent Foreign Material)	No FM observed	None
N780-E300 (2-4')	2-4	10/04/24	<0.0035	<0.16	<0.098	Delineation (below adjacent Foreign Material)	No FM observed	None
N800-E400 (6-8')	6-8	10/04/24	<0.0037	<0.18	**0.31**	Delineation (even with adjacent Foreign Material)	No FM observed	None
N800-E400 (10-12')	10-12	10/04/24	<0.0036	<0.17	<0.11	Delineation (below adjacent Foreign Material)	No FM observed	None
N780-E500 (0-1')	0-1	10/04/24	<0.0035	<0.17	**0.47**	Delineation (even with adjacent Foreign Material)	No FM observed	None
N780-E500 (2-4')	2-4	10/04/24	<0.0037	<0.19	**1.3**	Delineation (below adjacent Foreign Material)	No FM observed	None
N775-E604 (5-6')	5-6	10/04/24	***0.0057***	<0.18	**0.64**	Delineation (even with adjacent Foreign Material)	No FM observed	None
N775-E604 (6-8')	6-8	10/04/24	<0.0037	<0.18	<0.11	Delineation (below adjacent Foreign Material)	No FM observed	None
N800-E610 (5-6')	5-6	10/04/24	<0.0034	<0.17	<0.10	Delineation (even with adjacent Foreign Material)	No FM observed	None
N800-E610 (6-8')	6-8	10/04/24	<0.0039	<0.19	<0.12	Delineation (below adjacent Foreign Material)	No FM observed	None
N950-E650 (0-1')	0-1	10/04/24	**0.25**	<0.18	<0.11	Delineation (even with adjacent Foreign Material)	No FM observed	Cover
N950-E650 (2-4')	2-4	10/04/24	<0.038	<0.35	<0.11	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N950-E750 (0-1')	0-1	10/04/24	<0.037	<0.18	<0.11	Delineation (even with adjacent Foreign Material)	No FM observed	None
N950-E750 (2-4')	2-4	10/04/24	**0.20**	<0.43	<0.14	Delineation (below adjacent Foreign Material)	No FM observed	None
N1240-E550 (0-1)	0-1	11/12/24	**0.41**	<0.20	**0.69**	Delineation (even with adjacent Foreign Material)	No FM observed	Excavate
N1240-E550 (2-4)	2-4	11/12/24	**0.047**	<0.34	**0.60**	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N1300-E680 (0-1)	0-1	11/13/24	***0.0084***	<0.17	**0.65**	Delineation (even with adjacent Foreign Material)	No FM observed	Cover
N1300-E680 (2-4)	2-4	11/13/24	***0.0049***	<0.34	**0.28**	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N1260-E450 (0-1)	0-1	11/13/24	**0.46**	<0.17	**0.29**	Delineation (even with adjacent Foreign Material)	No FM observed	Excavate
N1260-E450 (2-4)	2-4	11/13/24	**0.17**	<0.17	**0.21**	Delineation (below adjacent Foreign Material)	No FM observed	Cover
N850-E230 (0-1)	0-1	11/13/24	<0.0035	<0.17	**0.20**	Delineation (even with adjacent Foreign Material)	No FM observed	None
N850-E230 (2-4)	2-4	11/13/24	<0.0037	<0.19	**1.1**	Delineation (below adjacent Foreign Material)	No FM observed	None
N925-E200 (0-1)	0-1	11/13/24	<0.0036	<0.18	**0.90**	Delineation (even with adjacent Foreign Material)	No FM observed	None
N925-E200 (2-4)	2-4	11/13/24	<0.0036	<0.34	**0.73**	Delineation (below adjacent Foreign Material)	No FM observed	None
N900-E700 (0-1)	0-1	11/13/24	<0.0034	<0.16	***0.20***	Delineation (even with adjacent Foreign Material)	No FM observed	None
N900-E700 (2-4)	2-4	11/13/24	<0.0033	<0.34	***0.19***	Delineation (below adjacent Foreign Material)	No FM observed	None

Notes:

ft-BGS - Feet below ground surface
mg/kg - milligrams per kilogram
Polychlorinated Biphenyl (PCB) analysis conducted per EPA Method 8082A
Pentachlorophenol (PCP) analysis conducted per EPA Method 8270E
Chromium VI analysis conducted per EPA Method 7199
Bold *indicates value detected above method detection limit.*
Values in italics are estimated above the method detection limit and below the laboratory reporting limit
Concentrations are reported on dry-weight basis.
FM - Foreign Material
NA - Not Analyzed
RSL - EPA Regional Screening Level, November 2024
Detected concentration exceeds residential RSL
Detected concentration exceeds both residential and industrial RSL

Source: PPM Consultants, Inc. PPM Project No. 20203301-SA

PPM Consultants, Inc. PPM Project No. 20203301-SA

TABLE 2
GROUNDWATER ELEVATION SURVEY DATA
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL ELEVATION (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	GROUND-WATER ELEVATION (ft)
MW-1	11/18/24	157.4	160.78	30.0	23.38-33.38	13.10	147.68
	02/17/25			29.9		18.18	142.60
MW-2	11/18/24	129.1	132.45	35.0	28.35-38.35	33.10	99.35
	02/17/25			40.0		35.52	96.93
MW-3	11/18/24	152.4	155.67	45.0	38.30-48.30	29.58	126.09
	02/17/25			45.0		30.97	124.70
MW-4	11/18/24	111.9	115.39	31.0	24.49-34.49	19.22	96.17
	02/17/25			30.0		19.85	95.54
MW-5	11/18/24	122.7	126.19	35.0	28.49-38.49	27.90	98.29
	02/17/25			40.0		29.02	97.17
MW-6	11/18/24	101.7	105.55	34.0	27.85-37.85	19.82	85.73
	02/17/25			33.0		21.27	84.28
MW-7	11/18/24	134.4	137.59	47.0	40.19-50.19	38.20	99.39
	02/17/25			47.0		41.34	96.25
MW-8	11/18/24	111.0	114.38	30.6	23.98-33.98	20.12	94.26
	02/17/25			30.0		20.48	93.90
MW-9	11/18/24	105.3	109.99	31.0	25.69-35.69	21.27	88.72
	02/17/25			30.0		22.30	87.69

Notes: *ft-BTOC - feet below top of casing*
Elevations based on approximate NAVD88

Source: *PPM Consultants, Inc.*
PPM Project No. 20203301-SA

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY (BASEBALL/SOFTBALL FIELDS AREA)
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

SAMPLE LOCATION	SAMPLE DATE	PCB-1248 (mg/L)	PCP (mg/L)	CHROMIUM VI (mg/L)
MCL/RSL		**0.0000078**	**0.0010**	**0.00011**
MW-6	11/18/24	<0.00010	***0.00041***	<0.000012
	02/17/25	<0.00010	<0.00040	<0.000012
MW-9	11/18/24	<0.00010	<0.00041	<0.000012
	02/17/25	<0.00010	<0.00040	<0.000012

Notes:
Pentachlorphenol (PCP) analysis conducted per EPA Method 8270E
Polychlorinated Biphenyl (PCB) analysis conducted per EPA Method 8082A
Chromium VI analysis conducted per EPA Method 218.6
mg/L - milligrams per liter
Bold *indicates value detected above method detection limit.*
Values in italics are estimated above the method detection limit and below the laboratory reporting limit
MCL - EPA Maximum Contaminant Level, November 2024
RSL - EPA Regional Screening Level, November 2024 (used if an MCL has not been established for constituent)

Source:
PPM Consultants, Inc.
PPM Project No. 20203301-SA

TABLE 4
RM-1 CALCULATED CUMULATIVE RISK WITHIN EACH EXPOSURE DOMAIN
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

CURRENT CONDITIONS	
CUMULATIVE HAZARD INDEX	
EXPOSURE DOMAIN	**HAZARD INDEX**
Resident Child	0.139
Resident Adult	0.0139
Commercial Worker	0.00884
Construction Worker	0.0343
Acceptable Hazard Index	***1.0***
CUMULATIVE INDIVIDUAL EXCESS LIFETIME CANCER RISK (IELCR)	
EXPOSURE DOMAIN	**IELCR**
Resident Child	**1.49E-05**
Resident Adult	6.21E-06
Commercial Worker	4.45E-06
Construction Worker	7.46E-07
Acceptable IELCR	***1.00E-05***

FUTURE CONDITIONS	
CUMULATIVE HAZARD INDEX	
EXPOSURE DOMAIN	**HAZARD INDEX**
Resident Child	Not applicable
Resident Adult	Not applicable
Commercial Worker	Not applicable
Construction Worker	0.0343
Acceptable Hazard Index	***1.0***
CUMULATIVE INDIVIDUAL EXCESS LIFETIME CANCER RISK (IELCR)	
EXPOSURE DOMAIN	**IELCR**
Resident Child	3.00E-07
Resident Adult	1.00E-06
Commercial Worker	2.68E-07
Construction Worker	7.46E-07
Acceptable IELCR	***1.00E-05***

Note: ***Bold value*** *exceeds acceptable risk index*

Source: *PPM Consultants, Inc.*
PPM Project No. 20203301-SA

TABLE 5
RM-2 CALCULATED CUMULATIVE RISK WITHIN EACH EXPOSURE DOMAIN
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

CURRENT CONDITIONS	
CUMULATIVE HAZARD INDEX	
EXPOSURE DOMAIN	**HAZARD INDEX**
Resident Child	0.0341
Resident Adult	0.00341
Commercial Worker	0.00884
Construction Worker	0.0343
Acceptable Hazard Index	***1.0***
CUMULATIVE INDIVIDUAL EXCESS LIFETIME CANCER RISK (IELCR)	
EXPOSURE DOMAIN	**IELCR**
Resident Child	3.65E-06
Resident Adult	1.53E-06
Commercial Worker	4.45E-06
Construction Worker	7.46E-07
Acceptable IELCR	***1.00E-05***

Source: *PPM Consultants, Inc.*
PPM Project No. 20203301-SA

APPENDICES

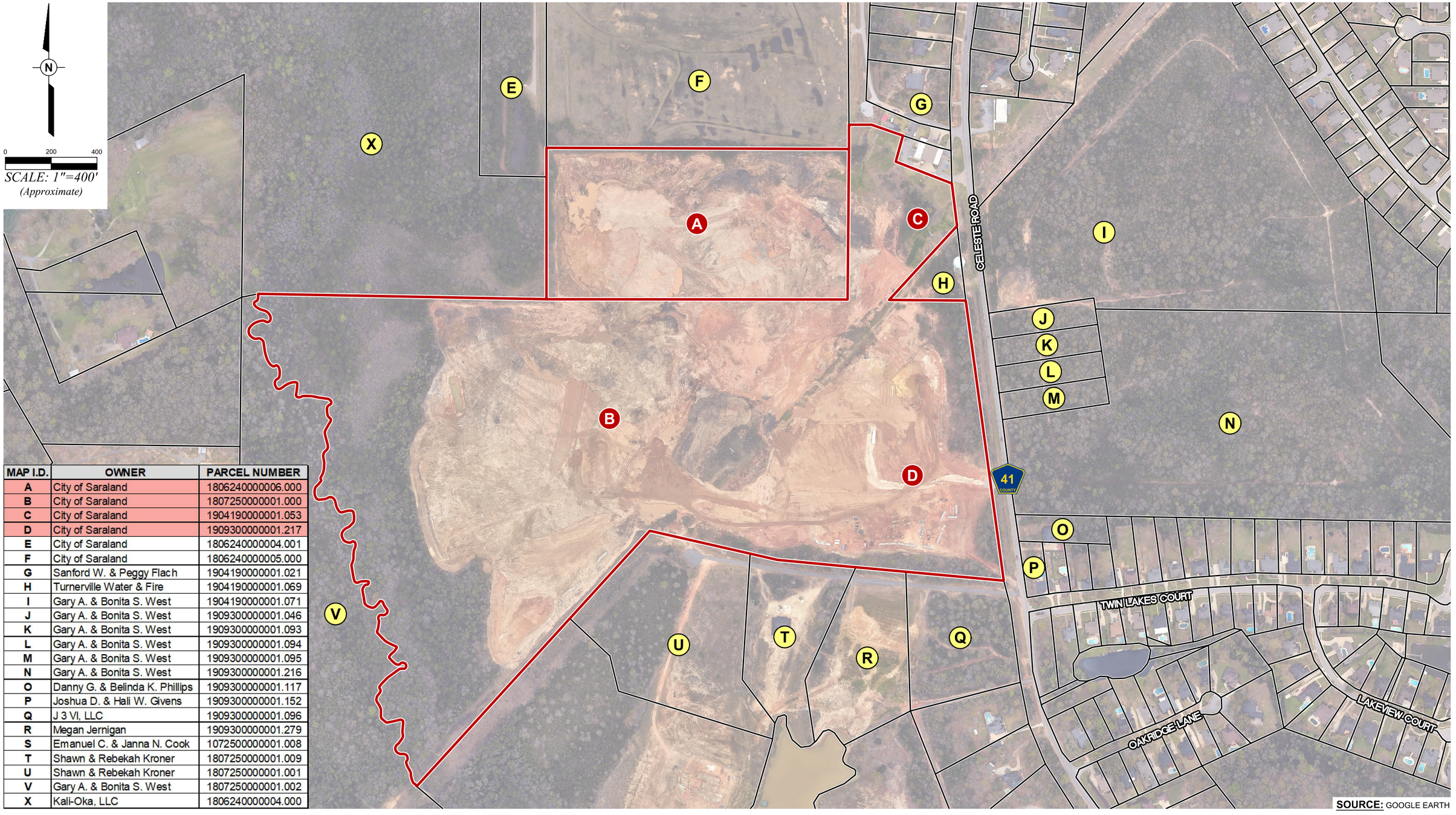
APPENDIX A – PROPERTY OWNER INFORMATION

APPENDIX A
PROPERTY OWNER INFORMATION
THE LAND: SARALAND SPORTS & RECREATION COMPLEX

PARCEL NO.	OWNER	OWNER ADDRESS	LOCATION WITH RESPECT TO THE LAND SPORTSPLEX AND MAP ID
1806240000006.000	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (A)
1807250000001.000	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (B)
1904190000001.053	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (C)
1909300000001.217	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	Subject Property (D)
1806240000004.001	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	North (E)
1806240000005.000	City of Saraland	943 Saraland Boulevard S., Saraland, Alabama 36571	North (F)
1904190000001.021	Sanford W. & Peggy Flach	7803 Celeste Road, Saraland, Alabama 36571	Northeast (G)
1904190000001.069	Turnerville Water & Fire	11230 Celeste Road, Saraland, Alabama 36571	Northeast (H)
1904190000001.071	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	Northeast (I)
1909300000001.046	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (J)
1909300000001.093	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (K)
1909300000001.094	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (L)
1909300000001.095	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (M)
1909300000001.216	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	East (N)
1909300000001.117	Danny G. & Belinda K. Phillips	6512 Celeste Road, Saraland, Alabama 36571	East (O)
1909300000001.152	Joshua D. & Hali W. Givens	3428 Twin Lakes Court, Saraland, Alabama 36571	Southeast (P)
1909300000001.096	J 3 VI, LLC	2646 Bramblewood Lane, Thompson Station, Tennessee 37179	Southeast (Q)
1909300000001.279	Megan Jernigan	491 Theophilus Road Creola, Alabama 36525	South (R)
1072500000001.008	Emanuel C. & Janna N. Cook	P.O. Box 178, Saraland, Alabama 36571	South (S)
1807250000001.009	Shawn & Rebekah Kroner	3701 Lafitte Road, Saraland, Alabama 36571	South (T)
1807250000001.001	Shawn & Rebekah Kroner	3701 Lafitte Road, Saraland, Alabama 36571	South (U)
1807250000001.002	Gary A. & Bonita S. West	5555 Celeste Road, Saraland, Alabama 36571	Southwest & West (V)
1806240000004.000	Kali-Oka, LLC	1225 Arabella Street, New Orleans, Louisiana 70115	Northwest (X)

Notes: *Refer to Figure A, Property Ownership Map, Appendix A, for property locations*

Source: *PPM Consultants, Inc.*
Mobile County, Alabama Map Viewer - https://gis.bisclient.com/alabama/mobilecad/
PPM Project No. 20203301-SA



MAP I.D.	OWNER	PARCEL NUMBER
A	City of Saraland	1806240000006.000
B	City of Saraland	1807250000001.000
C	City of Saraland	1904190000001.053
D	City of Saraland	1909300000001.217
E	City of Saraland	1806240000004.001
F	City of Saraland	1806240000005.000
G	Sanford W. & Peggy Flach	1904190000001.021
H	Turnerville Water & Fire	1904190000001.069
I	Gary A. & Bonita S. West	1904190000001.071
J	Gary A. & Bonita S. West	1909300000001.046
K	Gary A. & Bonita S. West	1909300000001.093
L	Gary A. & Bonita S. West	1909300000001.094
M	Gary A. & Bonita S. West	1909300000001.095
N	Gary A. & Bonita S. West	1909300000001.216
O	Danny G. & Belinda K. Phillips	1909300000001.117
P	Joshua D. & Hali W. Givens	1909300000001.152
Q	J 3 VI, LLC	1909300000001.096
R	Megan Jernigan	1909300000001.279
S	Emanuel C. & Janna N. Cook	1072500000001.008
T	Shawn & Rebekah Kroner	1807250000001.009
U	Shawn & Rebekah Kroner	1807250000001.001
V	Gary A. & Bonita S. West	1807250000001.002
X	Kali-Oka, LLC	1806240000004.000

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DRAWN BY:	DRAWN DATE:
BWH	12/12/24
PROJECT NUMBER:	PHASE:
20203301	SA

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

PROPERTY OWNERSHIP MAP

FIGURE NUMBER
A

APPENDIX B – BORING LOGS

LOG OF BORING: SB-1A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1305
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SM		SILTY SAND, red, brown, and tan.				0
		SC		CLAYEY SAND, tan, black, and gray, FM present. (36"-70")				
5								5
		SC		CLAYEY SAND, organic odor, black and tan.				
10								10
		SC		CLAYEY SAND, orange, red, and tan.				
				SB-1A TD @ 14' BGS.				
15								15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-1A.bor

LOG OF BORING: SB-1B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1345
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	18 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY.				0
		SP		SAND, red, tan, and brown.				
5								5
		SP		SAA, with gray and black.				
10		SP		SAA, with white and gray, FM present. (128"-144")				10
15		FB		PEAT Material, black and some red.				15
				SB-1B TD @ 18' BGS.				
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-1B.bor

LOG OF BORING: SB-1C

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1425
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	18 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY.				0
		SP		SAND, orange, brown, and tan.				
5								5
		CL		SANDY CLAY, tan and black, organic smell.				
10								10
		CL		SAA, with red.				
15								15
				SB-1C TD @ 18' BGS.				
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-1C.bor

LOG OF BORING: SB-2A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1500
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	16 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0				SAND, orange and tan, FM Present. (94"-156")				0
5		SP						5
10								10
15		CL		SANDY CLAY, brown and orange, organic smell.				15
				SB-2A TD @ 18' BGS.				
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-2A.bor

LOG OF BORING: SB-2B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1520
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	18 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, orange, red, and tan.				0
5		SC		CLAYEY SAND, brown, orange, and yellow, organic smell.				5
10		SP		SAND, white, gray, and red.				10
15				SB-2B TD @ 18' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-2B.bor

LOG OF BORING: SB-3A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1550
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0				SAND, orange, red, and white.				0
5		SP						5
10		CL		CLAY, gray and yellow, organic odor.				10
				SB-3A TD @ 14' BGS.				
15								15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

LOG OF BORING: SB-4A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1605
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, orange, red, and brown.				0
5		SC		CLAYEY SAND, brown, black, and gray. FM Present. (84"-96").				5
10		SC		SAA, with organic materials.				10
15				SB-4A TD @ 14' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-4A.bor

LOG OF BORING: SB-4B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	9.30.24/1630
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY.				0
		CL		CLAY, red, gray, and brown, FM Present. (31"-45")				
5								5
10								10
				SB-4B TD @ 14' BGS.				
15								15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-4B.bor

LOG OF BORING: SB-4C

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/0830
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, tan, orange, and red.				0
5		CL		CLAY, tan, gray, and red.				5
10		SC		CLAYEY SAND, tan and yellow, organic material.				10
15				SB-4C TD @ 14' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-4C.bor

LOG OF BORING: SB-5A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/0935
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0				CLAY, tan, orange, gray, and red.				0
5		CL						5
10		SP		SAND, tan, gray, and pink.				10
15				SB-5A TD @ 14' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-5A.bor

LOG OF BORING: SB-6A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1200
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	14 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY.				0
		SC		CLAYEY SAND, brown, red, and tan. FM Present. (26"-43")				
5								5
		SC		CLAYEY SAND, black and gray, organic material.				
10								10
				SB-6A TD @ 14' BGS.				
15								15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-6A.bor

LOG OF BORING: SB-6B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1400
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	20 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0				SAND, tan, brown, and red.				0
5		SP						5
10								10
15		SC		CLAYEY SAND, orange and tan.				15
20				SB-6B TD @ 20' BGS.				20
25								25

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-6B.bor

LOG OF BORING: SB-7A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1330
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	18 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, tan and orange.				0
5		SC		CLAYEY SAND, black, tan, and gray.				5
10								10
15		SC		SAA, red and orange.				15
				SB-7A TD @ 18' BGS.				
20								20
25								25

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-7A.bor

LOG OF BORING: SB-8A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1430
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, tan and white.				0
5		SC		CLAYEY SAND, black and red, organic material.				5
10		CL		CLAY, tan.				10
15		SP		SAND, white and tan.				15
				SB-8A TD @ 15' BGS.				
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-8A.bor

LOG OF BORING: SB-8B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1450
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY				0
		SC		CLAYEY SAND, black and gray, organic material. FM Present (20"-36")				
5								5
10		CL		CLAY, red, tan and orange.				10
		SP		SAND, white. orange, and tan.				
15				SB-8B TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-8B.bor

LOG OF BORING: SB-9A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1515
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SC		CLAYEY SAND, tan and yellow.				0
5		CL		CLAY, tan, gray, and red.				5
10		SP		SAND, white and tan.				10
15				SB-9A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-9A.bor

LOG OF BORING: SB-10A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1535
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, brown and tan, FM Present (33"-48").				0
5		CL		CLAY, orange and tan.				5
10								10
15				SB-10A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-10A.bor

LOG OF BORING: SB-11A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1610
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY				0
		SC		CLAYEY SAND, black, brown, and red, organic material, FM Present. (24"-29")				
5								5
10								10
15				SB-11A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-11A.bor

LOG OF BORING: SB-11B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.1.24/1630
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	20 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, brown, tan, and red.				0
5								5
10		SP		SAA, brown, gray, and tan, organic material.				10
15		CL		CLAY, tan, orange, white, and red.				15
20				SB-11B TD @ 20' BGS.				20
25								25

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-11B.bor

LOG OF BORING: SB-12A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/0700
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, orange and gray.				0
		SC		CLAYEY SAND, black and gray, large deposit of organic materials.				
5								5
10								10
		SP		SAND, orange and gray.				
15				SB-12A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-12A.bor

LOG OF BORING: SB-13A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/0745
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, gray and tan.				0
5		SC		CLAYEY SAND, black and tan, organic materials.				5
10		SP		SAND, orange, tan, and gray.				10
15				SB-13A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-13A.bor

LOG OF BORING: SB-14A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/0830
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY				0
		FB		PEAT material, black and gray, FM Present.(12"-24")				
5								5
		SP		SAND, orange and tan.				
10								10
15				SB-14A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-14A.bor

LOG OF BORING: SB-14B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/0910
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, brown and tan.				0
5		SC		CLAYEY SAND, black and brown, organic material.				5
10								10
15				SB-14B TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-14B.bor

LOG OF BORING: SB-15A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/0930
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, tan and white.				0
5		CL		SANDY CLAY, black and red, organic material.				5
10								10
15				SB-15A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-15A.bor

LOG OF BORING: SB-16A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/0950
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0				SAND, brown, tan, and black.				0
5		SP						5
10								10
15		CL		SAA, organic material.				15
				SB-16A TD @ 15' BGS.				
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-16A.bor

LOG OF BORING: SB-17A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/1010
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		SP		SAND, brown and red.				0
5		SP		SAA, black and brown, organic material.				5
10								10
15				SB-17A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-17A.bor

LOG OF BORING: SB-18A

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/1100
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY.				0
		SP		SAND, brown and tan, organic material, FM Present. (30"-50")				
5								5
		SC		CLAYEY SAND, orange and tan.				
10								10
15				SB-18A TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-18A.bor

LOG OF BORING: SB-18B

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

Date / Time:	10.2.24/1120
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	15 ft. BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0		NR		NO RECOVERY.				0
		SP		SAND, orange and tan, organic material, FM Present. (30"-40")				
5								5
		CL		SANDY CLAY, gray, red, and tan.				
10								10
15				SB-18B TD @ 15' BGS.				15
20								20

NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-31-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-18B.bor

LOG OF BORING: SB-30/MW-6

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

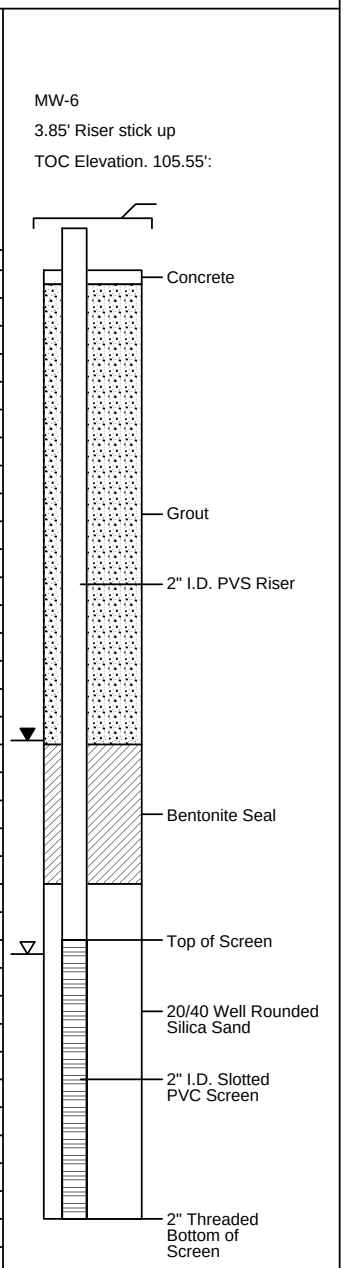
Date / Time:	11.11.24/1500
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	37 ft. BGS
Initial Saturation (ft)/Date:	26 ft. BGS
Static GW level (ft)/Date:	18.35 ft. BGS
Surface Elevation (ft):	101.7' AMSL
Sampling Interval:	Continuous

Well Information:

Well Type:	Type II
Well Purpose:	Monitoring
Well Construction Date:	11.4.24
Total Well Depth:	37.85'
Screened Interval:	37.85-27.85 ft. BTOC
Screen Slot Size:	0.01"
Development Method:	Sub. Pump
Gallons Purged:	17

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Elevation 101.7'	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery
0					CLAYEY SAND, orange and tan.			
10			SC					
20								
25			FB		PEAT, black.			
			SP		SAND, gray.			
30			FB		PEAT, black and brown.			
35			SP		SAND, orange, gray, and tan.			
40					SB-30 TD @ 37' BGS.			



NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

12-20-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-30_MW-6.bor

LOG OF BORING: SB-33/MW-9

PPM CONSULTANTS

Client / Site Information:

Client:	City of Saraland
Site:	The Land Sports Complex
Location:	Saraland, AL
Agency Interest No.:	
PPM Project No.:	20203301.SA
Project Type:	SA

Boring Information:

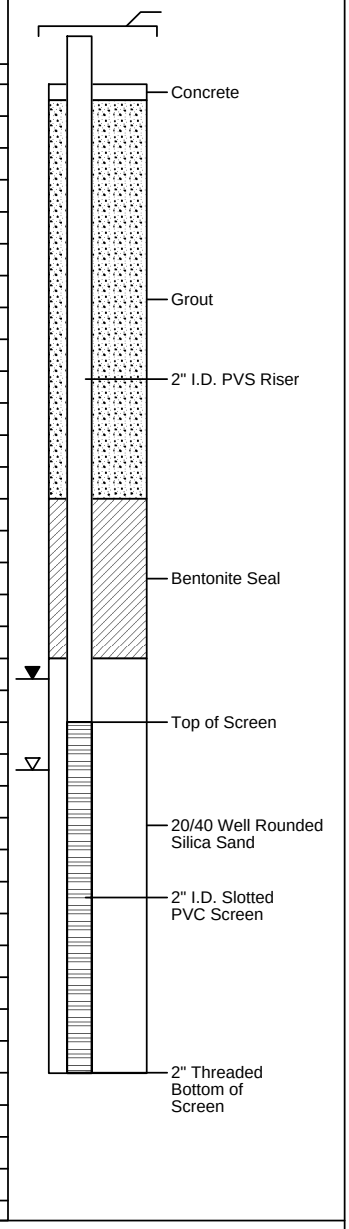
Date / Time:	11.11.24/1155
Logged By:	L.Carson
Drilling Company / Driller:	WHE
Drilling Method:	Geo Probe
Total Boring Depth:	30 ft. BGS
Initial Saturation (ft)/Date:	23 ft. BGS
Static GW level (ft)/Date:	20.15 ft. BGS
Surface Elevation (ft):	105.3' AMSL
Sampling Interval:	Continuous

Well Information:

Well Type:	Type II
Well Purpose:	Monitoring
Well Construction Date:	11.11.24
Total Well Depth:	35.69
Screened Interval:	35.69-25.69 ft. BTOC
Screen Slot Size:	0.01"
Development Method:	Sub. Pump
Gallons Purged:	30

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Elevation 105.3'	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Headspace Concentration (ppmv)	Percent Recovery
0			SC		CLAYEY SAND, orange and tan.			
			FB		Foreign Material (FM).			
5			SC		CLAYEY SAND, red and orange.			
10			FB		PEAT, black.			
15		▼						
20		▽	CL		CLAY, red, gray, and orange.			
25			SP		SAND, orange and tan.			
30					SB-33 TD @@ 31' BGS.			
35								



NOTES:

- Soil descriptions generally based on visual inspection / professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils -Visual-Manual Procedure. Laboratory testing not conducted, and the data should not be used for engineering purposes.

12-20-2024 O:_overhead\Boring Logs\2024 boring logs\The Land-20203301\SB-33_MW-9.bor

APPENDIX C – RM-1 EVALUATIONS

CURRENT CONDITIONS – RM-1 EVALUATION

ALABAMA RISK-BASED CORRECTIVE ACTION (ARBCA) COMPUTATIONAL SOFTWARE

TITLE | SITE INFORMATION | MAIN MENU

SITE No.	461-097-25009
SITE NAME	The Land: Saraland Sports & Rec. - Baseball/Softball
ADDRESS	7365 Celeste Road
	Saraland, Alabama
CONTACT NAME	Matthew J. Ebbert, P.G.
TELEPHONE NO.	205-836-5650

MAIN MENU

I N P U T — RM-1 (●) RM-2 ( )

SITE

MUTAGENIC (●) NON-MUTAGENIC ( )

ABBREVIATIONS

1. USER-SPECIFIED COCs & PROPERTIES (OPTIONAL)
2. SELECT COCs
3. EXPOSURE MODEL
4. TARGET RISK
5. PHYSICAL AND CHEMICAL PROPERTIES OF COCs
6. TOXICOLOGICAL PROPERTIES OF COCs
7. EXPOSURE FACTORS
8. FATE AND TRANSPORT PARAMETERS
9. BUILDING/ADVECTIVE VAPOR FLUX PARAMETERS
10. PROTECTION OF GROUNDWATER USE
11. PROTECTION OF SURFACE WATER
12. CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS
13. SOIL & GW PROTECTIVE OF INDOOR INHALATION
14. CLEAN-UP LEVEL CALCULATION

O U T P U T

FORWARD MODE MENU

BACKWARD MODE MENU

EXPOSURE MODEL

SITE: 461-097-25009

Source and Exposure Pathways	Resident *	Commercial Worker	Trespasser	Construction Worker **
Air				
Indoor Air	☑	☑	☑	N/A
Outdoor Air	☑	☑	☑	☑
Surficial Soil (0 to 1 ft.)				
Dermal Contact	☑	☑	☑	☑
Ingestion	☑	☑	☑	☑
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Outdoor Inhalation of Particulates	☑	☑	☑	☑
or				
Combined Pathway: Outdoor Inhalation of vapor emissions and particulates, Ingestion, and Dermal Contact	☑	☑	☑	☑
Subsurface Soil (> 1 ft. to watertable)				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emission	☑	☑	☑	N/A
Soil Vapor				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Groundwater (First Encountered Zone)				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Ingestion	☑	N/A	N/A	N/A
Indoor Inhalation of Vapors from Water Use	☑	N/A	N/A	N/A
Combined Pathway: Ingestion and Inhalation of Vapors from Water Use	☑	N/A	N/A	N/A

Other Exposure Pathways

Protection of Groundwater Use	☑
Protection of Surface Water	☑
Soil & Groundwater Protective of Indoor Inhalation	
Resident	☑
Commercial Worker	☑
Trespasser	☐

* Includes calculations for child, and adult.

** For construction worker, thickness of surficial soil is from ground surface to depth of construction.

N/A Not Applicable

SITE: 461-097-25009 **TARGET RISK**

Parameter	Symbol	Default Value	Value Used	Comment
Potential Carcinogenic Health Effects				
Individual Excessive Lifetime Cancer Risk for all chemicals and all exposure pathways	TR_{cum}	1.00E-05	1.00E-05	Default Value
Potential Non-Carcinogenic Health Effects				
Hazard Index for all chemicals and all exposure pathways	HI	1.0	1.0	Default Value

SITE: 461-097-25009

PHYSICAL AND CHEMICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern	Molecular Weight (MW) [g/mol]	Water Solubility (S) [mg/L]	Henry's Law Constant (H) [L-water/L-air]	Org. Carbon Adsorption Coeff. (K_{oc}) [cm^3/g]	Soil-Water Sorption Coeff. Vadose Zone (K_{sv}) [cm^3-water /g-soil]	Soil-Water Sorption Coeff. Saturated zone (K_{SS}) [cm^3 /g]	Molecular Diffusion Coefficient		Saturated Soil Concentration [mg/kg]
							in air (D^a) [cm^2/s]	in water (D^w) [cm^2/s]	
Pentachlorophenol	2.66E+02	1.40E+01	1.00E-06	5.92E+02	1.18E+00	1.18E+00	2.95E-02	8.01E-06	1.79E+01
PCB - Arochlor 1248	2.92E+02	1.00E-01	1.80E-02	7.65E+04	1.53E+02	1.53E+02	2.41E-02	6.18E-06	1.53E+01
Arsenic	7.49E+01	NA	NA	NA	2.90E+01	2.90E+01	NA	NA	NA
Chromium (VI)	5.20E+01	1.69E+06	NA	NA	1.90E+01	1.90E+01	NA	NA	3.23E+07

NA: Not Available

The values in red are calculated.

SITE: 461-097-25009

TOXICOLOGICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern	Oral (SF_o) [kg-day/mg]	Inh. (IUR) [$\mu_{g/m^3}]^{-1}$	Oral (RfD_o) [mg/kg-day]	Inh. (RfC) [mg/m^3]	Absorption Factor: Oral (RAF_o) [--]	Absorption Factor: Dermal (RAF_d) [--]	Is Chemical Mutagen? Yes/No
Pentachlorophenol	4.00E-01	5.10E-06	5.00E-03	NA	1	0.25	No
PCB - Arochlor 1248	2.00E+00	5.71E-04	NA	NA	1	0.14	No
Arsenic	1.50E+00	4.30E-03	3.00E-04	1.50E-05	1	0.03	No
Chromium (VI)	1.60E-01	1.10E-02	9.00E-04	3.00E-05	0.025	NA	Yes

NA: Not Available

SITE: 461-097-25009 **EXPOSURE FACTORS**

(Page 1 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Averaging Time for Carcinogen	AT_c	year	70	70	Default Value
Averaging Time for Non-Carcinogen	AT_n	year	=ED	=ED	Default Value
Body Weight:					
Resident Child	BW	kg	15	15	Default Value
Resident Adult	BW	kg	80	80	Default Value
Trespasser	BW	kg	NA	NA	Default Value
Commercial Worker	BW	kg	80	80	Default Value
Construction Worker	BW	kg	80	80	Default Value
Exposure Duration:					
Resident Child	ED	year	6	6	Default Value
Resident Adult	ED	year	20	20	Default Value
Mutagenic Mode of Action (Child and Adult)	ED	year	72	72	Default Value
Trespasser	ED	year	NA	NA	Default Value
Commercial Worker	ED	year	25	25	Default Value
Construction Worker	ED	year	1	1	Default Value
Exposure Frequency:					
Resident Child	EF	day/year	350	350	Default Value
Resident Adult	EF	day/year	350	350	Default Value
Trespasser	EF	day/year	NA	NA	Default Value
Commercial Worker	EF	day/year	250*/225**	225	Default Value
Construction Worker	EF	day/year	250	250	Default Value
Soil Ingestion Rate:					
Resident Child	IRS	mg/day	200	200	Default Value
Resident Adult	IRS	mg/day	100	100	Default Value
Trespasser	IRS	mg/day	NA	NA	Default Value
Commercial Worker	IRS	mg/day	50*/100**	100	Default Value
Construction Worker	IRS	mg/day	330	330	Default Value
Water Ingestion Rate:					
Resident Child	IRW	L/day	0.78	0.78	Default Value
Resident Adult	IRW	L/day	2.5	2.5	Default Value
Exposure Time for Indoor Inhalation:					
Resident Child	ET_{in}	hr/day	24	24	Default Value
Resident Adult	ET_{in}	hr/day	24	24	Default Value
Trespasser	ET_{in}	hr/day	NA	NA	Default Value
Commercial Worker	ET_{in}	hr/day	8	8	Default Value
Construction Worker	ET_{in}	hr/day	8	8	Default Value

*: Indoor worker per RSL (USEPA 2017) **: Outdoor worker per RSL (USEPA 2017)

The values in red are calculated.

SITE: 461-097-25009 **EXPOSURE FACTORS**

(Page 2 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Exposure Time for Outdoor Inhalation:					
Resident Child	ET_{out}	hr/day	24	24	Default Value
Resident Adult	ET_{out}	hr/day	24	24	Default Value
Trespasser	ET_{out}	hr/day	NA	NA	Default Value
Commercial Worker	ET_{out}	hr/day	8	8	Default Value
Construction Worker	ET_{out}	hr/day	8	8	Default Value
Soil to Skin Adherence Factor:					
Resident Child	M	mg/cm^2	0.2	0.2	Default Value
Resident Adult	M	mg/cm^2	0.07	0.07	Default Value
Trespasser	M	mg/cm^2	NA	NA	Default Value
Commercial Worker	M	mg/cm^3	0.12	0.1	Default Value
Construction Worker	M	mg/cm^2	0.3	0.3	Default Value
Skin Surface Area for Dermal Contact:					
Resident Child	SA	cm^2/day	2373	2373	Default Value
Resident Adult	SA	cm^2/day	6032	6032	Default Value
Trespasser	SA	cm^2/day	NA	NA	Default Value
Commercial Worker	SA	cm^2/day	3527	3527	Default Value
Construction Worker	SA	cm^2/day	3527	3527	Default Value

The values in red are calculated.

SITE: 461-097-25009 **FATE AND TRANSPORT PARAMETERS**

Parameter	Symbol	Unit	Default Value	Value Used	Comment
SOIL:					
Length of soil source area parallel to wind direction	W_a	cm	**	6362	Site-Specific Value
Depth to subsurface soil sources	L_s	cm	30.48	30.48	Default Value
Lower depth of surficial soil zone	d	cm	30.48	30.48	Default Value
Depth to soil vapor measurement	d_{sv}	cm	30.48	30.48	Default Value
VADOSE ZONE:					
Total soil porosity	θ_T	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{ws}	cm^3/cm^3	0.143	0.143	Default Value
Volumetric air content	θ_{as}	cm^3/cm^3	0.287	0.287	Calculated
Thickness	h_v	cm	200	200	Calculated
Dry soil bulk density	ρ_s	g/cm^3	1.5	1.5	Default Value
Fractional organic carbon content	f_{oc}	g-C/g-soil	0.002	0.002	Default Value
FOUNDATION/WALL CRACKS:					
Total soil porosity	θ_{Tcrack}	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{wcrack}	cm^3/cm^3	0.143	0.143	Default Value
Volumetric air content	θ_{acrack}	cm^3/cm^3	0.287	0.287	Calculated
CAPILLARY FRINGE:					
Total soil porosity	θ_{Tcap}	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{wcap}	cm^3/cm^3	0.387	0.387	Calculated
Volumetric air content	θ_{acap}	cm^3/cm^3	0.043	0.043	Calculated
Thickness	h_{cap}	cm	100	100	Default Value
GROUNDWATER:					
Depth to groundwater	L_{gw}	cm	300	300	Default Value
Width of GW source perpendicular to GW flow direction	Y	cm	**	6362	Site-Specific Value
Length of GW source parallel to GW flow direction	W	cm	**	6362	Site-Specific Value
Total soil porosity in the saturated zone	θ_{TS}	cm^3/cm^3	0.43	0.43	Default Value
Dry soil bulk density in the saturated zone	ρ_{ss}	g/cm^3	1.5	1.5	Default Value
Fractional organic carbon content in the saturated zone	f_{ocs}	g-C/g-soil	0.002	0.002	Default Value
Groundwater mixing zone thickness	δ_{gw}	cm	200	200	Default Value
Hydraulic conductivity in the saturated zone	K	cm/year	***		Site-Specific Value
Hydraulic gradient in the saturated zone	i	cm/cm	***	0.038	Site-Specific Value
Groundwater darcy velocity	U_{gw}	cm/year	157.68	157.68	Default Value
Infiltration rate	I	cm/year	14.46	14.46	Default Value
AMBIENT AIR:					
Breathing zone height	δ_a	cm	200	200	Default Value
Inverse of mean concentration at center of square source	Q/C	$(g/m^2\text{-}s)/(kg/m^3)$	81.05	81.05	Default Value
Fraction of vegetative cover	V	m^2/m^2	0.5	0.5	Default Value
Wind speed within the breathing zone	U_a	m/s	4.69	4.69	Default Value
Equivalent threshold value of windspeed at 7 meters	U_t	m/s	11.32	11.32	Default Value
Windspeed distribution function from Cowherd et. al, 1985	F(x)	unitless	0.194	0.194	Default Value
DOMESTI WATER USE:					
Andelman volatalization factor	K_f	L/m^3	0.5	0.5	Default Value
AVERAGING TIME FOR VAPOR FLUX:					
Resident child	τ	sec	1.89E+08	1.89E+08	Calculated
Resident adult	τ	sec	9.46E+08	6.31E+08	Calculated
Trespasser	τ	sec	NA	NA	Calculated
Commercial worker	τ	sec	7.88E+08	7.88E+08	Calculated
Construction worker	τ	sec	3.15E+07	3.15E+07	Calculated

****:** The source area (assumed to be square) should be classified as either (i) small (270 yd^2) = (1500 cm X 1500 cm), (ii) medium (1/2 acre) = (4,498 cm X 4,498 cm), or (iii) large (1 acre) = (6,362 cm X 6,362 cm).

***: Site-specific value to calculate site-specific groundwater Darcy velocity.

The values in red are calculated.

SITE: 461-097-25009

CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS

Chemicals of Concern	MCL	Unsaturated Zone DAF			Half-Life	Concentration Upstream of the Point of Discharge (C_{su})	Bioconcentration Factor in Fish (BCF)	Concentration Protective of Surface Water (Csw)			
		Default Value	Value Used	Comment				Default Value[1]	User-Specified Value	Value Used	Comment
	[mg/L]	[--]	[--]		[days]	[mg/L]	[L/kg]	[mg/L]	[mg/L]	[mg/L]	
Pentachlorophenol	0.001	1.00E+00	1	Default			11.00	7.07E-04		7.07E-04	Default
PCB - Arochlor 1248	NA	1.00E+00	1	Default			31200.00	4.26E-07		4.26E-07	Default
Arsenic	0.01	1.00E+00	1	Default			44.00	1.40E-04		1.40E-04	Default
Chromium (VI)	NA	1.00E+00	1	Default			NA	6.40E-04		6.40E-04	Default

[1]: The default concentration protective of surface water at the downstream edge of the mixing zone or at point of discharge is calculated based on consumption of water and fish.

NA: Not Available

NTOX: Default value for Csw cannot be calculated since toxicological properties for the COC is not available.

MCL: Maximum Contaminant Levels

When the cumulative risk criteria has to be satisfied clean-up levels are not unique. Several different combinations of clean-up levels can satisfy the cumulative risk criteria. Following are two of the many options available:

- (◉) **Option 1 -** Reduce each of the representative concentrations by the risk reduction factor. Risk reduction factor is the ratio of the calculated site-wide risk to the target cumulative risk.
- (○) **Option 2** - Each of the representative concentration is reduced by a factor such that the risk from each COC and each ROE is identical.

SITE: 461-097-25009 **ABBREVIATIONS**

Parameter	
HI	Hazard Index (sum of hazard quotient)
HQ	Hazard Quotient
IELCR	Individual Excess Lifetime Cancer Risk
M	The concentration is MCL.
N/A	The soil concentration at the source is not applicable since the groundwater concentration has been entered/selected.
NA	Volatilization factor was not calculated due to lack of Henry's law constant
NC	Pathway is not complete.
NCL	The clean-up level is not calculated since the target risk is not exceeded.
NCOC	The risk/clean-up level cannot be calculated since the chemical of concern is not selected/entered.
NCsw	The concentrations cannot be calculated since the conc. protective of surface water (Csw) is not available/entered.
NHL	The DAF/concentration cannot be calculated since the half-life for the COC is not available/entered.
NMZ	No mixing zone
NPCP	The risk/concentration cannot be calculated since the physical and chemical properties for the COC is not available.
NREP	The risk cannot be calculated since the representative concentration is not available/entered.
NTOX	The risk/concentration cannot be calculated since the toxicological properties for the COC is not available.
RM	Risk Management
--	The clean-up level/concentration cannot be calculated for this COC since the input properties is not available/entered.
*	Calculated concentration exceeded saturated soil concentration. Calculated value is shown.
+	Calculated concentration exceeded saturated vapor concentration. Calculated value is shown.
#	Calculated concentration exceeded solubility. Calculated value is shown.
>1E+300	When DAF is greater then >1+300, the concentrations shown is saturated soil concentration for soil and/or solubility for groundwater.

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A RESIDENT

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
	[mg/m^3-air]		[mg/kg]							[mg/m^3]				[mg/L]		
Pentachlorophenol			3.00E-01	3.00E-01	3.00E-01	3.00E-01			3.10E+00				4.10E-04			
PCB - Arochlor 1248			3.10E+00	3.10E+00	3.10E+00	3.10E+00			1.20E+01							
Arsenic			3.00E+00	3.00E+00	3.00E+00	3.00E+00			3.00E+00							
Chromium (VI)			9.00E-01	9.00E-01	9.00E-01	9.00E-01			1.70E+00							

Soil concentrations are presented on a dry weight basis.

NA: Not Available

For exclusive use of Matt Ebbert of PPM Consultants, Decatur, AL

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A COMMERCIAL WORKER

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m^3-air]		[mg/kg]							[mg/m^3]		[mg/L]	
Pentachlorophenol			3.00E-01	3.00E-01	3.00E-01	3.00E-01			3.10E+00				4.10E-04
PCB - Arochlor 1248			3.10E+00	3.10E+00	3.10E+00	3.10E+00			1.20E+01				
Arsenic			3.00E+00	3.00E+00	3.00E+00	3.00E+00			3.00E+00				
Chromium (VI)			9.00E-01	9.00E-01	9.00E-01	9.00E-01			1.70E+00				

Soil concentrations are presented on a dry weight basis.

NA: Not Available

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A CONSTRUCTION WORKER

CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m^3-air]	[mg/kg]					[mg/m^3]	[mg/L]
Pentachlorophenol		3.10E+00	3.10E+00	3.10E+00	3.10E+00			4.10E-04
PCB - Arochlor 1248		3.90E+00	3.90E+00	1.20E+01	3.90E+00			
Arsenic		3.00E+00	3.00E+00	3.00E+00	3.00E+00			
Chromium (VI)		1.70E+00	1.70E+00	1.70E+00	1.70E+00			

Soil concentrations are presented on a dry weight basis.

NA: Not Available

SITE: 461-097-25009

RM-1 CARCINOGENIC CLEAN-UP LEVELS FOR A RESIDENT CHILD

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
	[mg/m^3-air]		[mg/kg]							[mg/m^3-air]		[mg/L]				
Pentachlorophenol	NCAR	NCAR	2.02E-01	2.02E-01	NCAR	2.02E-01	NCAR	NCAR	2.09E+00	NCAR	NCAR	NCAR	2.76E-04	NCAR	NCAR	NCAR
PCB - Arochlor 1248	NCAR	NCAR	2.09E+00	2.09E+00	NCAR	2.09E+00	NCAR	NCAR	8.08E+00	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR
Arsenic	NCAR	NCAR	2.02E+00	2.02E+00	NCAR	2.02E+00	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR
Chromium (VI)	NCAR	NCAR	NCAR	6.06E-01	NCAR	6.06E-01	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR	NCAR

Soil concentrations are presented on a dry weight basis.

RM-1 NON-CARCINOGENIC CLEAN-UP LEVELS FOR A RESIDENT CHILD

AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GR
Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
[mg/m^3-air]		[mg/kg]							[mg/m^3-air]			
NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL
NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL	NCL

SITE: 461-097-25009

RM-1 CLEAN-UP LEVELS FOR A RESIDENT CHILD

CHEMICALS OF CONCERN	GROUNDWATER			AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
	[mg/L]			[mg/m^3-air]		[mg/kg]							[mg/m^3]		[mg/L]				
Pentachlorophenol	NCL	NCL	NCL	--	--	2.02E-01	2.02E-01	--	2.02E-01	--	--	2.09E+00	--	--	--	2.76E-04	--	--	--
PCB - Arochlor 1248	NCL	NCL	NCL	--	--	2.09E+00	2.09E+00	--	2.09E+00	--	--	8.08E+00	--	--	--	--	--	--	--
Arsenic	NCL	NCL	NCL	--	--	2.02E+00	2.02E+00	--	2.02E+00	--	--	--	--	--	--	--	--	--	--
Chromium (VI)	NCL	NCL	NCL	--	--	--	6.06E-01	--	6.06E-01	--	--	--	--	--	--	--	--	--	--

Soil concentrations are presented on a ‹Decatur, AL

SITE: 461-097-25009

RM-1 IELCR FOR A RESIDENT CHILD

CUMULATIVE 1.49E-05 CUMULATIVE HI 1.39E-01 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NREP	NREP	7.80E-08	1.32E-07	NA	1.07E-13	NREP	NREP	1.56E-10	NREP	NREP	NREP	3.96E-15	NREP	NREP	NREP
PCB - Arochlor 1248	NREP	NREP	2.26E-06	6.79E-06	NA	1.24E-10	NREP	NREP	3.00E-07	NREP	NREP	NREP	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	3.51E-07	4.93E-06	NA	9.02E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	3.95E-09	NA	8.31E-09	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009

RM-1 HQ FOR A RESIDENT CHILD

CUMULATIVE 1.49E-05 CUMULATIVE HI 1.39E-01 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NA	NA	4.55E-04	7.67E-04	NA	NC	NREP	NC	NC	NA	NC	NC	NC	NREP	NCOC	NREP
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NC	--	NC	NC	NA	NC	NC	NC	NTOX	NCOC	--
Arsenic	NREP	NREP	9.10E-03	1.28E-01	NA	1.63E-04	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	3.20E-04	NA	2.45E-05	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A RESIDENT CHILD**

CUMULATIVE 1.49E-05 CUMULATIVE HI 1.39E-01 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	2.10E-07	1.22E-03
PCB - Arochlor 1248	9.35E-06	
Arsenic	5.28E-06	1.37E-01
Chromium (VI)	1.23E-08	3.44E-04
CUMULATIVE RISK	1.49E-05	1.39E-01

SITE: 461-097-25009

RM-1 IELCR FOR A RESIDENT ADULT

CUMULATIVE 6.21E-06 CUMULATIVE HI 1.39E-02 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NREP	NREP	4.34E-08	4.11E-08	NA	3.57E-13	NREP	NREP	5.21E-10	NREP	NREP	NREP	1.32E-14	NREP	NREP	NREP
PCB - Arochlor 1248	NREP	NREP	1.26E-06	2.12E-06	NA	4.13E-10	NREP	NREP	1.00E-06	NREP	NREP	NREP	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	1.95E-07	1.54E-06	NA	3.01E-09	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	1.23E-09	NA	8.31E-09	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009

RM-1 HQ FOR A RESIDENT ADULT

CUMULATIVE 6.21E-06 CUMULATIVE HI 1.39E-02 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NA	NA	7.59E-05	7.19E-05	NA	NC	NREP	NC	NC	NA	NC	NC	NC	NREP	NCOC	NREP
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NC	--	NC	NC	NA	NC	NC	NC	NTOX	NCOC	--
Arsenic	NREP	NREP	1.52E-03	1.20E-02	NA	1.63E-04	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	3.00E-05	NA	2.45E-05	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A RESIDENT ADULT**

CUMULATIVE 6.21E-06 CUMULATIVE HI 1.39E-02 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	8.50E-08	1.48E-04
PCB - Arochlor 1248	4.38E-06	
Arsenic	1.74E-06	1.37E-02
Chromium (VI)	9.54E-09	5.45E-05
CUMULATIVE RISK	6.21E-06	1.39E-02

SITE: 461-097-25009

RM-1 IELCR FOR A COMMERCIAL WORKER

CUMULATIVE IELCR: 4.45E-06 CUMULATIVE HI: 8.84E-03 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NREP	NREP	3.49E-08	3.30E-08	NA	9.56E-14	NREP	NREP	1.40E-10	NREP	NREP	NREP	3.53E-15
PCB - Arochlor 1248	NREP	NREP	1.01E-06	1.71E-06	NA	1.11E-10	NREP	NREP	2.68E-07	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	1.57E-07	1.24E-06	NA	8.06E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
Chromium (VI)	NREP	NREP	NTOX	9.91E-10	NA	6.18E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
CUMULATIVE RISK													

SITE: 461-097-25009

RM-1 HQ FOR A COMMERCIAL WORKER

CUMULATIVE IELCR: 4.45E-06 CUMULATIVE HI: 8.84E-03 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NA	NA	4.89E-05	4.62E-05	NA	NA	NREP	NC	NC	NA	NC	NC	NC
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NA	--	NC	NC	NA	NC	NC	NC
Arsenic	NREP	NREP	9.78E-04	7.71E-03	NA	3.50E-05	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
Chromium (VI)	NREP	NREP	NTOX	1.93E-05	NA	5.25E-06	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
CUMULATIVE RISK													

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A COMMERCIAL WORKER**

CUMULATIVE IELCR 4.45E-06 CUMULATIVE HI 8.84E-03 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	6.81E-08	9.52E-05
PCB - Arochlor 1248	2.99E-06	
Arsenic	1.40E-06	8.72E-03
Chromium (VI)	1.61E-09	2.45E-05
CUMULATIVE RISK	4.45E-06	8.84E-03

SITE: 461-097-25009

RM-1 IELCR FOR A CONSTRUCTION WORKER

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NREP	4.01E-08	5.00E-08	NA	4.39E-14	NREP	NREP	1.57E-16
PCB - Arochlor 1248	NREP	1.41E-07	3.15E-07	NA	6.18E-12	NREP	NREP	NREP
Arsenic	NREP	1.75E-08	1.82E-07	NA	3.58E-11	NREP	NPCP	NPCP
Chromium (VI)	NREP	NTOX	2.74E-10	NA	5.19E-11	NREP	NPCP	NPCP
CUMULATIVE RISK								

SITE: 461-097-25009

RM-1 HQ FOR A CONSTRUCTION WORKER

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NA	1.40E-03	1.75E-03	NA	NA	NREP	NC	NC
PCB - Arochlor 1248	NA	NTOX	NTOX	NA	NA	--	NC	NC
Arsenic	NREP	2.72E-03	2.83E-02	NA	3.89E-05	NREP	NPCP	NPCP
Chromium (VI)	NREP	NTOX	1.33E-04	NA	1.10E-05	NREP	NPCP	NPCP
CUMULATIVE RISK								

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A CONSTRUCTION WORKER**

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	9.02E-08	3.16E-03
PCB - Arochlor 1248	4.56E-07	
Arsenic	1.99E-07	3.10E-02
Chromium (VI)	3.26E-10	1.44E-04
CUMULATIVE RISK	7.46E-07	3.43E-02

FUTURE CONDITIONS – RM-1 EVALUATION

ALABAMA RISK-BASED CORRECTIVE ACTION (ARBCA) COMPUTATIONAL SOFTWARE

TITLE | SITE INFORMATION | MAIN MENU

SITE No.	461-097-25009
SITE NAME	The Land: Saraland Sports & Rec. - Baseball/Softball
ADDRESS	7365 Celeste Road
	Saraland, Alabama
CONTACT NAME	Matthew J. Ebbert, P.G.
TELEPHONE NO.	205-836-5650

MAIN MENU

I N P U T — RM-1 (◉) RM-2 (○)

SITE | MUTAGENIC (◉) | NON-MUTAGENIC (○) | ABBREVIATIONS

- 1. USER-SPECIFIED COCs & PROPERTIES (OPTIONAL)
- 2. SELECT COCs
- 3. EXPOSURE MODEL
- 4. TARGET RISK
- 5. PHYSICAL AND CHEMICAL PROPERTIES OF COCs
- 6. TOXICOLOGICAL PROPERTIES OF COCs
- 7. EXPOSURE FACTORS
- 8. FATE AND TRANSPORT PARAMETERS
- 9. BUILDING/ADVECTIVE VAPOR FLUX PARAMETERS
- 10. PROTECTION OF GROUNDWATER USE
- 11. PROTECTION OF SURFACE WATER
- 12. CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS
- 13. SOIL & GW PROTECTIVE OF INDOOR INHALATION
- 14. CLEAN-UP LEVEL CALCULATION

O U T P U T

FORWARD MODE MENU | BACKWARD MODE MENU

EXPOSURE MODEL

SITE: 461-097-25009

Source and Exposure Pathways	Resident *	Commercial Worker	Trespasser	Construction Worker **
Air				
Indoor Air	☑	☑	☑	N/A
Outdoor Air	☑	☑	☑	☑
Surficial Soil (0 to 1 ft.)				
Dermal Contact	☑	☑	☑	☑
Ingestion	☑	☑	☑	☑
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Outdoor Inhalation of Particulates	☑	☑	☑	☑
or				
Combined Pathway: Outdoor Inhalation of vapor emissions and particulates, Ingestion, and Dermal Contact	☑	☑	☑	☑
Subsurface Soil (> 1 ft. to watertable)				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emission	☑	☑	☑	N/A
Soil Vapor				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Groundwater (First Encountered Zone)				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Ingestion	☑	N/A	N/A	N/A
Indoor Inhalation of Vapors from Water Use	☑	N/A	N/A	N/A
Combined Pathway: Ingestion and Inhalation of Vapors from Water Use	☑	N/A	N/A	N/A

Other Exposure Pathways

Protection of Groundwater Use	☑
Protection of Surface Water	☑
Soil & Groundwater Protective of Indoor Inhalation	
Resident	☑
Commercial Worker	☑
Trespasser	☐

* Includes calculations for child, and adult.

** For construction worker, thickness of surficial soil is from ground surface to depth of construction.

N/A Not Applicable

SITE: 461-097-25009 **TARGET RISK**

Parameter	Symbol	Default Value	Value Used	Comment
Potential Carcinogenic Health Effects				
Individual Excessive Lifetime Cancer Risk for all chemicals and all exposure pathways	TR_{cum}	1.00E-05	1.00E-05	Default Value
Potential Non-Carcinogenic Health Effects				
Hazard Index for all chemicals and all exposure pathways	HI	1.0	1.0	Default Value

SITE: 461-097-25009

PHYSICAL AND CHEMICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern	Molecular Weight (MW) [g/mol]	Water Solubility (S) [mg/L]	Henry's Law Constant (H) [L-water/L-air]	Org. Carbon Adsorption Coeff. (K_{oc}) [cm^3/g]	Soil-Water Sorption Coeff. Vadose Zone (K_{sv}) [cm^3-water /g-soil]	Soil-Water Sorption Coeff. Saturated zone (K_{SS}) [cm^3 /g]	Molecular Diffusion Coefficient		Saturated Soil Concentration [mg/kg]
							in air (D^a) [cm^2/s]	in water (D^w) [cm^2/s]	
Pentachlorophenol	2.66E+02	1.40E+01	1.00E-06	5.92E+02	1.18E+00	1.18E+00	2.95E-02	8.01E-06	1.79E+01
PCB - Arochlor 1248	2.92E+02	1.00E-01	1.80E-02	7.65E+04	1.53E+02	1.53E+02	2.41E-02	6.18E-06	1.53E+01
Arsenic	7.49E+01	NA	NA	NA	2.90E+01	2.90E+01	NA	NA	NA
Chromium (VI)	5.20E+01	1.69E+06	NA	NA	1.90E+01	1.90E+01	NA	NA	3.23E+07

NA: Not Available

The values in red are calculated.

SITE: 461-097-25009

TOXICOLOGICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern					Absorption Factor		Is Chemical Mutagen? Yes/No
	Oral (SF_o)	Inh. (IUR)	Oral (RfD_o)	Inh. (RfC)	Oral (RAF_o)	Dermal (RAF_d)	
	[kg-day/mg]	[μ_{g/m^3}]$^{-1}$	[mg/kg-day]	[mg/m^3]	[--]	[--]	
Pentachlorophenol	4.00E-01	5.10E-06	5.00E-03	NA	1	0.25	No
PCB - Arochlor 1248	2.00E+00	5.71E-04	NA	NA	1	0.14	No
Arsenic	1.50E+00	4.30E-03	3.00E-04	1.50E-05	1	0.03	No
Chromium (VI)	1.60E-01	1.10E-02	9.00E-04	3.00E-05	0.025	NA	Yes

NA: Not Available

SITE: 461-097-25009 **EXPOSURE FACTORS**

(Page 1 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Averaging Time for Carcinogen	AT_c	year	70	70	Default Value
Averaging Time for Non-Carcinogen	AT_n	year	=ED	=ED	Default Value
Body Weight:					
Resident Child	BW	kg	15	15	Default Value
Resident Adult	BW	kg	80	80	Default Value
Trespasser	BW	kg	NA	NA	Default Value
Commercial Worker	BW	kg	80	80	Default Value
Construction Worker	BW	kg	80	80	Default Value
Exposure Duration:					
Resident Child	ED	year	6	6	Default Value
Resident Adult	ED	year	20	20	Default Value
Mutagenic Mode of Action (Child and Adult)	ED	year	72	72	Default Value
Trespasser	ED	year	NA	NA	Default Value
Commercial Worker	ED	year	25	25	Default Value
Construction Worker	ED	year	1	1	Default Value
Exposure Frequency:					
Resident Child	EF	day/year	350	350	Default Value
Resident Adult	EF	day/year	350	350	Default Value
Trespasser	EF	day/year	NA	NA	Default Value
Commercial Worker	EF	day/year	250*/225**	225	Default Value
Construction Worker	EF	day/year	250	250	Default Value
Soil Ingestion Rate:					
Resident Child	IRS	mg/day	200	200	Default Value
Resident Adult	IRS	mg/day	100	100	Default Value
Trespasser	IRS	mg/day	NA	NA	Default Value
Commercial Worker	IRS	mg/day	50*/100**	100	Default Value
Construction Worker	IRS	mg/day	330	330	Default Value
Water Ingestion Rate:					
Resident Child	IRW	L/day	0.78	0.78	Default Value
Resident Adult	IRW	L/day	2.5	2.5	Default Value
Exposure Time for Indoor Inhalation:					
Resident Child	ET_{in}	hr/day	24	24	Default Value
Resident Adult	ET_{in}	hr/day	24	24	Default Value
Trespasser	ET_{in}	hr/day	NA	NA	Default Value
Commercial Worker	ET_{in}	hr/day	8	8	Default Value
Construction Worker	ET_{in}	hr/day	8	8	Default Value

*: Indoor worker per RSL (USEPA 2017) **: Outdoor worker per RSL (USEPA 2017)

The values in red are calculated.

SITE: 461-097-25009 **EXPOSURE FACTORS**

(Page 2 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Exposure Time for Outdoor Inhalation:					
Resident Child	ET_{out}	hr/day	24	24	Default Value
Resident Adult	ET_{out}	hr/day	24	24	Default Value
Trespasser	ET_{out}	hr/day	NA	NA	Default Value
Commercial Worker	ET_{out}	hr/day	8	8	Default Value
Construction Worker	ET_{out}	hr/day	8	8	Default Value
Soil to Skin Adherence Factor:					
Resident Child	M	mg/cm^2	0.2	0.2	Default Value
Resident Adult	M	mg/cm^2	0.07	0.07	Default Value
Trespasser	M	mg/cm^2	NA	NA	Default Value
Commercial Worker	M	mg/cm^3	0.12	0.1	Default Value
Construction Worker	M	mg/cm^2	0.3	0.3	Default Value
Skin Surface Area for Dermal Contact:					
Resident Child	SA	cm^2/day	2373	2373	Default Value
Resident Adult	SA	cm^2/day	6032	6032	Default Value
Trespasser	SA	cm^2/day	NA	NA	Default Value
Commercial Worker	SA	cm^2/day	3527	3527	Default Value
Construction Worker	SA	cm^2/day	3527	3527	Default Value

The values in red are calculated.

SITE: 461-097-25009 **FATE AND TRANSPORT PARAMETERS**

Parameter	Symbol	Unit	Default Value	Value Used	Comment
SOIL:					
Length of soil source area parallel to wind direction	W_a	cm	**	6362	Site-Specific Value
Depth to subsurface soil sources	L_s	cm	30.48	30.48	Default Value
Lower depth of surficial soil zone	d	cm	30.48	30.48	Default Value
Depth to soil vapor measurement	d_{sv}	cm	30.48	30.48	Default Value
VADOSE ZONE:					
Total soil porosity	θ_T	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{ws}	cm^3/cm^3	0.143	0.143	Default Value
Volumetric air content	θ_{as}	cm^3/cm^3	0.287	0.287	Calculated
Thickness	h_v	cm	200	200	Calculated
Dry soil bulk density	ρ_s	g/cm^3	1.5	1.5	Default Value
Fractional organic carbon content	f_{oc}	g-C/g-soil	0.002	0.002	Default Value
FOUNDATION/WALL CRACKS:					
Total soil porosity	θ_{Tcrack}	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{wcrack}	cm^3/cm^3	0.143	0.143	Default Value
Volumetric air content	θ_{acrack}	cm^3/cm^3	0.287	0.287	Calculated
CAPILLARY FRINGE:					
Total soil porosity	θ_{Tcap}	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{wcap}	cm^3/cm^3	0.387	0.387	Calculated
Volumetric air content	θ_{acap}	cm^3/cm^3	0.043	0.043	Calculated
Thickness	h_{cap}	cm	100	100	Default Value
GROUNDWATER:					
Depth to groundwater	L_{gw}	cm	300	300	Default Value
Width of GW source perpendicular to GW flow direction	Y	cm	**	6362	Site-Specific Value
Length of GW source parallel to GW flow direction	W	cm	**	6362	Site-Specific Value
Total soil porosity in the saturated zone	θ_{TS}	cm^3/cm^3	0.43	0.43	Default Value
Dry soil bulk density in the saturated zone	ρ_{ss}	g/cm^3	1.5	1.5	Default Value
Fractional organic carbon content in the saturated zone	f_{ocs}	g-C/g-soil	0.002	0.002	Default Value
Groundwater mixing zone thickness	δ_{gw}	cm	200	200	Default Value
Hydraulic conductivity in the saturated zone	K	cm/year	***		Site-Specific Value
Hydraulic gradient in the saturated zone	i	cm/cm	***	0.038	Site-Specific Value
Groundwater darcy velocity	U_{gw}	cm/year	157.68	157.68	Default Value
Infiltration rate	I	cm/year	14.46	14.46	Default Value
AMBIENT AIR:					
Breathing zone height	δ_a	cm	200	200	Default Value
Inverse of mean concentration at center of square source	Q/C	$(g/m^2\text{-}s)/(kg/m^3)$	81.05	81.05	Default Value
Fraction of vegetative cover	V	m^2/m^2	0.5	0.5	Default Value
Wind speed within the breathing zone	U_a	m/s	4.69	4.69	Default Value
Equivalent threshold value of windspeed at 7 meters	U_t	m/s	11.32	11.32	Default Value
Windspeed distribution function from Cowherd et. al, 1985	F(x)	unitless	0.194	0.194	Default Value
DOMESTI WATER USE:					
Andelman volatalization factor	K_f	L/m^3	0.5	0.5	Default Value
AVERAGING TIME FOR VAPOR FLUX:					
Resident child	τ	sec	1.89E+08	1.89E+08	Calculated
Resident adult	τ	sec	9.46E+08	6.31E+08	Calculated
Trespasser	τ	sec	NA	NA	Calculated
Commercial worker	τ	sec	7.88E+08	7.88E+08	Calculated
Construction worker	τ	sec	3.15E+07	3.15E+07	Calculated

**: The source area (assumed to be square) should be classified as either (i) small (270 yd^2) = (1500 cm X 1500 cm), (ii) medium (1/2 acre) = (4,498 cm X 4,498 cm), or (iii) large (1 acre) = (6,362 cm X 6,362 cm).

***: Site-specific value to calculate site-specific groundwater Darcy velocity.

The values in red are calculated.

SITE: 461-097-25009

CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS

Chemicals of Concern	MCL	Unsaturated Zone DAF			Half-Life	Concentration Upstream of the Point of Discharge (C_{su})	Bioconcentration Factor in Fish (BCF)	Concentration Protective of Surface Water (Csw)			
		Default Value	Value Used	Comment				Default Value[1]	User-Specified Value	Value Used	Comment
	[mg/L]	[--]	[--]		[days]	[mg/L]	[L/kg]	[mg/L]	[mg/L]	[mg/L]	
Pentachlorophenol	0.001	1.00E+00	1	Default			11.00	7.07E-04		7.07E-04	Default
PCB - Arochlor 1248	NA	1.00E+00	1	Default			31200.00	4.26E-07		4.26E-07	Default
Arsenic	0.01	1.00E+00	1	Default			44.00	1.40E-04		1.40E-04	Default
Chromium (VI)	NA	1.00E+00	1	Default			NA	6.40E-04		6.40E-04	Default

[1]: The default concentration protective of surface water at the downstream edge of the mixing zone or at point of discharge is calculated based on consumption of water and fish.

NA: Not Available

NTOX: Default value for Csw cannot be calculated since toxicological properties for the COC is not available.

MCL: Maximum Contaminant Levels

When the cumulative risk criteria has to be satisfied clean-up levels are not unique. Several different combinations of clean-up levels can satisfy the cumulative risk criteria. Following are two of the many options available:

- (◉) **Option 1 -** Reduce each of the representative concentrations by the risk reduction factor. Risk reduction factor is the ratio of the calculated site-wide risk to the target cumulative risk.
- (○) **Option 2** - Each of the representative concentration is reduced by a factor such that the risk from each COC and each ROE is identical.

SITE: 461-097-25009 **ABBREVIATIONS**

Parameter	
HI	Hazard Index (sum of hazard quotient)
HQ	Hazard Quotient
IELCR	Individual Excess Lifetime Cancer Risk
M	The concentration is MCL.
N/A	The soil concentration at the source is not applicable since the groundwater concentration has been entered/selected.
NA	Volatilization factor was not calculated due to lack of Henry's law constant
NC	Pathway is not complete.
NCL	The clean-up level is not calculated since the target risk is not exceeded.
NCOC	The risk/clean-up level cannot be calculated since the chemical of concern is not selected/entered.
NCsw	The concentrations cannot be calculated since the conc. protective of surface water (Csw) is not available/entered.
NHL	The DAF/concentration cannot be calculated since the half-life for the COC is not available/entered.
NMZ	No mixing zone
NPCP	The risk/concentration cannot be calculated since the physical and chemical properties for the COC is not available.
NREP	The risk cannot be calculated since the representative concentration is not available/entered.
NTOX	The risk/concentration cannot be calculated since the toxicological properties for the COC is not available.
RM	Risk Management
--	The clean-up level/concentration cannot be calculated for this COC since the input properties is not available/entered.
*	Calculated concentration exceeded saturated soil concentration. Calculated value is shown.
+	Calculated concentration exceeded saturated vapor concentration. Calculated value is shown.
#	Calculated concentration exceeded solubility. Calculated value is shown.
>1E+300	When DAF is greater then >1+300, the concentrations shown is saturated soil concentration for soil and/or solubility for groundwater.

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A RESIDENT

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
	[mg/m^3-air]		[mg/kg]							[mg/m^3]			[mg/L]			
Pentachlorophenol									3.10E+00				4.10E-04			
PCB - Arochlor 1248									1.20E+01							
Arsenic									3.00E+00							
Chromium (VI)									1.70E+00							

Soil concentrations are presented on a dry weight basis.

NA: Not Available

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SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A COMMERCIAL WORKER

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m^3-air]		[mg/kg]							[mg/m^3]		[mg/L]	
Pentachlorophenol									3.10E+00				4.10E-04
PCB - Arochlor 1248									1.20E+01				
Arsenic									3.00E+00				
Chromium (VI)									1.70E+00				

Soil concentrations are presented on a dry weight basis.

NA: Not Available

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A CONSTRUCTION WORKER

CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m^3-air]	[mg/kg]					[mg/m^3]	[mg/L]
Pentachlorophenol		3.10E+00	3.10E+00	3.10E+00	3.10E+00			4.10E-04
PCB - Arochlor 1248		3.90E+00	3.90E+00	1.20E+01	3.90E+00			
Arsenic		3.00E+00	3.00E+00	3.00E+00	3.00E+00			
Chromium (VI)		1.70E+00	1.70E+00	1.70E+00	1.70E+00			

Soil concentrations are presented on a dry weight basis.

NA: Not Available

SITE: 461-097-25009

RM-1 IELCR FOR A RESIDENT CHILD

CUMULATIVE 3.00E-07 CUMULATIVE HI CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NREP	NREP	NREP	NREP	NA	NREP	NREP	NREP	1.56E-10	NREP	NREP	NREP	3.96E-15	NREP	NREP	NREP
PCB - Arochlor 1248	NREP	NREP	NREP	NREP	NA	NREP	NREP	NREP	3.00E-07	NREP	NREP	NREP	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	NREP	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009

RM-1 HQ FOR A RESIDENT CHILD

CUMULATIVE 3.00E-07 CUMULATIVE HI CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NA	NA	NREP	NREP	NA	NC	NREP	NC	NC	NA	NC	NC	NC	NREP	NCOC	NREP
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NC	--	NC	NC	NA	NC	NC	NC	NTOX	NCOC	--
Arsenic	NREP	NREP	NREP	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A RESIDENT CHILD**

CUMULATIVE 3.00E-07 CUMULATIVE HI CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	1.56E-10	
PCB - Arochlor 1248	3.00E-07	
Arsenic		
Chromium (VI)		
CUMULATIVE RISK	3.00E-07	

SITE: 461-097-25009

RM-1 IELCR FOR A RESIDENT ADULT

CUMULATIVE 1.00E-06 CUMULATIVE HI CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NREP	NREP	NREP	NREP	NA	NREP	NREP	NREP	5.21E-10	NREP	NREP	NREP	1.32E-14	NREP	NREP	NREP
PCB - Arochlor 1248	NREP	NREP	NREP	NREP	NA	NREP	NREP	NREP	1.00E-06	NREP	NREP	NREP	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	NREP	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-1 HQ FOR A RESIDENT ADULT**

CUMULATIVE 1.00E-06 CUMULATIVE HI CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NA	NA	NREP	NREP	NA	NC	NREP	NC	NC	NA	NC	NC	NC	NREP	NCOC	NREP
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NC	--	NC	NC	NA	NC	NC	NC	NTOX	NCOC	--
Arsenic	NREP	NREP	NREP	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A RESIDENT ADULT**

CUMULATIVE 1.00E-06 CUMULATIVE HI CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	5.21E-10	
PCB - Arochlor 1248	1.00E-06	
Arsenic		
Chromium (VI)		
CUMULATIVE RISK	1.00E-06	

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SITE: 461-097-25009

RM-1 IELCR FOR A COMMERCIAL WORKER

CUMULATIVE IELCR: 2.68E-07 CUMULATIVE HI: CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NREP	NREP	NREP	NREP	NA	NREP	NREP	NREP	1.40E-10	NREP	NREP	NREP	3.53E-15
PCB - Arochlor 1248	NREP	NREP	NREP	NREP	NA	NREP	NREP	NREP	2.68E-07	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	NREP	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
Chromium (VI)	NREP	NREP	NTOX	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
CUMULATIVE RISK													

SITE: 461-097-25009

RM-1 HQ FOR A COMMERCIAL WORKER

CUMULATIVE IELCR: 2.68E-07 CUMULATIVE HI: CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NA	NA	NREP	NREP	NA	NA	NREP	NC	NC	NA	NC	NC	NC
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NA	--	NC	NC	NA	NC	NC	NC
Arsenic	NREP	NREP	NREP	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
Chromium (VI)	NREP	NREP	NTOX	NREP	NA	NREP	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
CUMULATIVE RISK													

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A COMMERCIAL WORKER**

CUMULATIVE IELCR 2.68E-07 CUMULATIVE HI CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	1.40E-10	
PCB - Arochlor 1248	2.68E-07	
Arsenic		
Chromium (VI)		
CUMULATIVE RISK	2.68E-07	

SITE: 461-097-25009

RM-1 IELCR FOR A CONSTRUCTION WORKER

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NREP	4.01E-08	5.00E-08	NA	4.39E-14	NREP	NREP	1.57E-16
PCB - Arochlor 1248	NREP	1.41E-07	3.15E-07	NA	6.18E-12	NREP	NREP	NREP
Arsenic	NREP	1.75E-08	1.82E-07	NA	3.58E-11	NREP	NPCP	NPCP
Chromium (VI)	NREP	NTOX	2.74E-10	NA	5.19E-11	NREP	NPCP	NPCP
CUMULATIVE RISK								

SITE: 461-097-25009

RM-1 HQ FOR A CONSTRUCTION WORKER

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NA	1.40E-03	1.75E-03	NA	NA	NREP	NC	NC
PCB - Arochlor 1248	NA	NTOX	NTOX	NA	NA	--	NC	NC
Arsenic	NREP	2.72E-03	2.83E-02	NA	3.89E-05	NREP	NPCP	NPCP
Chromium (VI)	NREP	NTOX	1.33E-04	NA	1.10E-05	NREP	NPCP	NPCP
CUMULATIVE RISK								

SITE: 461-097-25009 **RM-1 CUMULATIVE RISK FOR A CONSTRUCTION WORKER**

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	9.02E-08	3.16E-03
PCB - Arochlor 1248	4.56E-07	
Arsenic	1.99E-07	3.10E-02
Chromium (VI)	3.26E-10	1.44E-04
CUMULATIVE RISK	7.46E-07	3.43E-02

APPENDIX D – EXPOSURE FACTOR HANDBOOK REFERENCE TABLE

EPA/600/R-090/052F | September 2011 | www.epa.gov

United States
Environmental Protection
Agency

Exposure Factors Handbook: 2011 Edition






Office of Research and Development, Washington, DC 20460
National Center for Environmental Assessment

Table 16-20. Time Spent (minutes/day) in Selected Outdoor Locations, Doers Only (continued)

Outdoors at a Park/Golf Course

								Percentiles							
Category	Population Group	*N*	Mean	SD	SE	Min	Max	5	25	50	75	90	95	98	99
All		506	198.6	190.2	8.5	1	1,065	20	60	135	270	465	590	748	870
Sex	Male	291	205.8	183.1	10.7	1	1,015	25	60	150	285	510	590	730	755
Sex	Female	214	187.7	199.4	13.6	5	1,065	15	55	120	250	435	590	870	930
Sex	Refused	1	420.0	-	-	420	420	420	420	420	420	420	420	420	420
Age (years)	-	10	122.4	60.2	19.0	30	225	30	60	120	160	202	225	225	225
Age (years)	1 to 4	21	149.9	176.3	38.5	21	755	25	50	85	150	360	425	755	755
Age (years)	5 to 11	54	207.6	184.5	25.1	25	665	35	70	125	275	555	635	660	665
Age (years)	12 to 17	52	238.5	242.2	33.6	15	1,065	15	60	148	338	590	840	915	1,065
Age (years)	18 to 64	314	197.8	185.9	10.5	1	1,015	20	60	150	270	440	580	748	870
Age (years)	>64	55	189.0	182.9	24.7	10	735	20	30	120	300	510	570	590	735
Race	White	441	205.3	195.3	9.3	1	1,065	20	60	150	275	480	605	795	915
Race	Black	19	114.5	103.7	23.8	15	425	15	30	90	155	240	425	425	425
Race	Asian	8	185.6	233.4	82.5	30	665	30	33	48	315	665	665	665	665
Race	Some Others	16	171.3	154.2	38.6	30	560	30	58	120	235	405	560	560	560
Race	Hispanic	20	169.5	135.8	30.4	30	555	33	77	145	205	373	495	555	555
Race	Refused	2	75.0	63.6	45.0	30	120	30	30	75	120	120	120	120	120
Hispanic	No	469	202.7	193.6	8.9	1	1,065	20	60	135	270	480	605	755	915
Hispanic	Yes	34	154.8	135.0	23.2	15	555	30	60	138	175	310	555	555	555
Hispanic	DK	1	10.0	-	-	10	10	10	10	10	10	10	10	10	10
Hispanic	Refused	2	75.0	63.6	45.0	30	120	30	30	75	120	120	120	120	120
Employment	-	128	208.2	209.6	18.5	15	1,065	25	60	120	275	555	645	840	915
Employment	Full Time	201	195.8	189.0	13.3	8	1,015	25	60	135	270	450	570	748	930
Employment	Part Time	41	213.5	215.6	33.7	20	870	20	60	132	260	540	660	870	870
Employment	Not Employed	132	190.9	166.0	14.5	1	810	15	60	160	270	420	525	730	735
Employment	Refused	4	130.0	106.8	53.4	30	280	30	60	105	200	280	280	280	280
Education	-	140	202.7	204.7	17.3	15	1,065	21	60	120	270	499	640	840	915
Education	< High School	32	180.8	207.8	36.7	30	995	30	30	110	245	385	570	995	995
Education	High School Graduate	108	219.7	197.2	19.0	10	1,015	20	78	163	281	545	625	730	810
Education	<College	93	191.6	171.2	17.8	1	870	15	60	150	275	440	510	748	870
Education	College Graduate	83	203.5	183.1	20.1	5	930	23	60	145	270	450	590	795	930
Education	Post Graduate	50	157.8	166.6	23.6	10	735	20	45	75	255	338	555	703	735
Census Region	Northeast	106	184.9	177.4	17.2	1	1,065	20	60	124	240	450	574	635	660
Census Region	Midwest	124	194.6	188.7	16.9	10	1,015	30	60	135	255	420	590	735	995
Census Region	South	136	218.8	211.5	18.1	10	930	20	60	150	325	525	720	840	915
Census Region	West	140	192.9	179.4	15.2	5	870	18	58	131	273	430	575	755	810
Day Of Week	Weekday	276	196.0	189.3	11.4	5	1,015	20	60	145	253	510	625	748	840
Day Of Week	Weekend	230	201.7	191.8	12.6	1	1,065	20	60	130	280	455	580	810	915
Season	Winter	83	209.1	195.2	21.4	15	1,065	30	60	165	275	440	660	795	1,065
Season	Spring	163	168.5	159.1	12.5	8	930	20	50	120	235	360	510	570	755
Season	Summer	192	219.6	199.9	14.4	5	1,015	20	65	155	290	535	630	840	915
Season	Fall	68	198.7	217.9	26.4	1	995	20	60	118	280	555	735	810	995
Asthma	No	466	192.1	178.8	8.3	1	1,015	20	60	135	270	450	580	700	755
Asthma	Yes	38	284.5	288.7	46.8	30	1,065	35	90	170	390	870	995	1,065	1,065
Asthma	DK	2	75.0	63.6	45.0	30	120	30	30	75	120	120	120	120	120
Angina	No	494	197.9	189.8	8.5	1	1,065	20	60	135	270	459	590	755	915
Angina	Yes	9	247.8	235.3	78.4	35	730	35	60	120	330	730	730	730	730
Angina	DK	3	170.0	170.6	98.5	30	360	30	30	120	360	360	360	360	360
Bronchitis/Emphysema	No	490	197.0	184.6	8.3	1	1,065	20	60	145	270	455	585	735	840
Bronchitis/Emphysema	Yes	14	273.1	339.1	90.6	20	995	20	75	100	280	930	995	995	995
Bronchitis/Emphysema	DK	2	75.0	63.6	45.0	30	120	30	30	75	120	120	120	120	120

APPENDIX E – RM-2 EVALUATION

CURRENT CONDITIONS – RM-2 EVALUATION

ALABAMA RISK-BASED CORRECTIVE ACTION (ARBCA) COMPUTATIONAL SOFTWARE

TITLE | SITE INFORMATION | MAIN MENU

SITE No.	461-097-25009
SITE NAME	The Land: Saraland Sports & Rec. - Baseball/Softball
ADDRESS	7365 Celeste Road
	Saraland, Alabama
CONTACT NAME	Matthew J. Ebbert, P.G.
TELEPHONE NO.	205-836-5650

MAIN MENU

I N P U T — RM-1 ○ RM-2 ◉

SITE

MUTAGENIC ◉ NON-MUTAGENIC ○

ABBREVIATIONS

1. USER-SPECIFIED COCs & PROPERTIES (OPTIONAL)
2. SELECT COCs
3. EXPOSURE MODEL
4. TARGET RISK
5. PHYSICAL AND CHEMICAL PROPERTIES OF COCs
6. TOXICOLOGICAL PROPERTIES OF COCs
7. EXPOSURE FACTORS
8. FATE AND TRANSPORT PARAMETERS
9. BUILDING/ADVECTIVE VAPOR FLUX PARAMETERS
10. PROTECTION OF GROUNDWATER USE
11. PROTECTION OF SURFACE WATER
12. CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS
13. SOIL & GW PROTECTIVE OF INDOOR INHALATION
14. CLEAN-UP LEVEL CALCULATION

O U T P U T

FORWARD MODE MENU

BACKWARD MODE MENU

EXPOSURE MODEL

SITE: 461-097-25009

Source and Exposure Pathways	Resident *	Commercial Worker	Trespasser	Construction Worker **
Air				
Indoor Air	☑	☑	☑	N/A
Outdoor Air	☑	☑	☑	☑
Surficial Soil (0 to 1 ft.)				
Dermal Contact	☑	☑	☑	☑
Ingestion	☑	☑	☑	☑
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Outdoor Inhalation of Particulates	☑	☑	☑	☑
or				
Combined Pathway: Outdoor Inhalation of vapor emissions and particulates, Ingestion, and Dermal Contact	☑	☑	☑	☑
Subsurface Soil (> 1 ft. to watertable)				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emission	☑	☑	☑	N/A
Soil Vapor				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Groundwater (First Encountered Zone)				
Indoor Inhalation of Vapor Emissions	☑	☑	☑	N/A
Outdoor Inhalation of Vapor Emissions	☑	☑	☑	☑
Ingestion	☑	N/A	N/A	N/A
Indoor Inhalation of Vapors from Water Use	☑	N/A	N/A	N/A
Combined Pathway: Ingestion and Inhalation of Vapors from Water Use	☑	N/A	N/A	N/A

Other Exposure Pathways

Protection of Groundwater Use	☑
Protection of Surface Water	☑
Soil & Groundwater Protective of Indoor Inhalation	
Resident	☑
Commercial Worker	☑
Trespasser	☐

* Includes calculations for child, and adult.

** For construction worker, thickness of surficial soil is from ground surface to depth of construction.

N/A Not Applicable

SITE: 461-097-25009 **TARGET RISK**

Parameter	Symbol	Default Value	Value Used	Comment
Potential Carcinogenic Health Effects				
Individual Excessive Lifetime Cancer Risk for all chemicals and all exposure pathways	TR_{cum}	1.00E-05	1.00E-05	Default Value
Potential Non-Carcinogenic Health Effects				
Hazard Index for all chemicals and all exposure pathways	HI	1.0	1.0	Default Value

SITE: 461-097-25009

PHYSICAL AND CHEMICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern	Molecular Weight (MW) [g/mol]	Water Solubility (S) [mg/L]	Henry's Law Constant (H) [L-water/L-air]	Org. Carbon Adsorption Coeff. (K_{oc}) [cm^3/g]	Soil-Water Sorption Coeff. Vadose Zone (K_{sv}) [cm^3-water /g-soil]	Soil-Water Sorption Coeff. Saturated zone (K_{SS}) [cm^3 /g]	Molecular Diffusion Coefficient		Saturated Soil Concentration [mg/kg]
							in air (D^a) [cm^2/s]	in water (D^w) [cm^2/s]	
Pentachlorophenol	2.66E+02	1.40E+01	1.00E-06	5.92E+02	1.18E+00	1.18E+00	2.95E-02	8.01E-06	1.79E+01
PCB - Arochlor 1248	2.92E+02	1.00E-01	1.80E-02	7.65E+04	1.53E+02	1.53E+02	2.41E-02	6.18E-06	1.53E+01
Arsenic	7.49E+01	NA	NA	NA	2.90E+01	2.90E+01	NA	NA	NA
Chromium (VI)	5.20E+01	1.69E+06	NA	NA	1.90E+01	1.90E+01	NA	NA	3.23E+07

NA: Not Available

The values in red are calculated.

SITE: 461-097-25009

TOXICOLOGICAL PROPERTIES OF CHEMICALS OF CONCERN

Chemicals of Concern					Absorption Factor		Is Chemical Mutagen? Yes/No
	Oral (SF_o)	Inh. (IUR)	Oral (RfD_o)	Inh. (RfC)	Oral (RAF_o)	Dermal (RAF_d)	
	[kg-day/mg]	[$\mu g/m^3$]$^{-1}$	[mg/kg-day]	[mg/m^3]	[--]	[--]	
Pentachlorophenol	4.00E-01	5.10E-06	5.00E-03	NA	1	0.25	No
PCB - Arochlor 1248	2.00E+00	5.71E-04	NA	NA	1	0.14	No
Arsenic	1.50E+00	4.30E-03	3.00E-04	1.50E-05	1	0.03	No
Chromium (VI)	1.60E-01	1.10E-02	9.00E-04	3.00E-05	0.025	NA	Yes

NA: Not Available

SITE: 461-097-25009 **EXPOSURE FACTORS**

(Page 1 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Averaging Time for Carcinogen	AT_c	year	70	70	Default Value
Averaging Time for Non-Carcinogen	AT_n	year	=ED	=ED	Default Value
Body Weight:					
Resident Child	BW	kg	15	15	Default Value
Resident Adult	BW	kg	80	80	Default Value
Trespasser	BW	kg	NA	NA	Default Value
Commercial Worker	BW	kg	80	80	Default Value
Construction Worker	BW	kg	80	80	Default Value
Exposure Duration:					
Resident Child	ED	year	6	6	Default Value
Resident Adult	ED	year	20	20	Default Value
Mutagenic Mode of Action (Child and Adult)	ED	year	72	72	Default Value
Trespasser	ED	year	NA	NA	Default Value
Commercial Worker	ED	year	25	25	Default Value
Construction Worker	ED	year	1	1	Default Value
Exposure Frequency:					
Resident Child	EF	day/year	350	86	Site-Specific Value
Resident Adult	EF	day/year	350	86	Site-Specific Value
Trespasser	EF	day/year	NA	NA	Default Value
Commercial Worker	EF	day/year	250*/225**	225	Default Value
Construction Worker	EF	day/year	250	250	Default Value
Soil Ingestion Rate:					
Resident Child	IRS	mg/day	200	200	Default Value
Resident Adult	IRS	mg/day	100	100	Default Value
Trespasser	IRS	mg/day	NA	NA	Default Value
Commercial Worker	IRS	mg/day	50*/100**	100	Default Value
Construction Worker	IRS	mg/day	330	330	Default Value
Water Ingestion Rate:					
Resident Child	IRW	L/day	0.78	0.78	Default Value
Resident Adult	IRW	L/day	2.5	2.5	Default Value
Exposure Time for Indoor Inhalation:					
Resident Child	ET_{in}	hr/day	24	10	Site-Specific Value
Resident Adult	ET_{in}	hr/day	24	11	Site-Specific Value
Trespasser	ET_{in}	hr/day	NA	NA	Default Value
Commercial Worker	ET_{in}	hr/day	8	8	Default Value
Construction Worker	ET_{in}	hr/day	8	8	Default Value

*: Indoor worker per RSL (USEPA 2017) **: Outdoor worker per RSL (USEPA 2017)

The values in red are calculated.

SITE: 461-097-25009 **EXPOSURE FACTORS**

(Page 2 of 2)

Parameter	Symbol	Unit	Default Value	Value Used	Comment
Exposure Time for Outdoor Inhalation:					
Resident Child	ET_{out}	hr/day	24	24	Default Value
Resident Adult	ET_{out}	hr/day	24	24	Default Value
Trespasser	ET_{out}	hr/day	NA	NA	Default Value
Commercial Worker	ET_{out}	hr/day	8	8	Default Value
Construction Worker	ET_{out}	hr/day	8	8	Default Value
Soil to Skin Adherence Factor:					
Resident Child	M	mg/cm^2	0.2	0.2	Default Value
Resident Adult	M	mg/cm^2	0.07	0.07	Default Value
Trespasser	M	mg/cm^2	NA	NA	Default Value
Commercial Worker	M	mg/cm^3	0.12	0.1	Default Value
Construction Worker	M	mg/cm^2	0.3	0.3	Default Value
Skin Surface Area for Dermal Contact:					
Resident Child	SA	cm^2/day	2373	2373	Default Value
Resident Adult	SA	cm^2/day	6032	6032	Default Value
Trespasser	SA	cm^2/day	NA	NA	Default Value
Commercial Worker	SA	cm^2/day	3527	3527	Default Value
Construction Worker	SA	cm^2/day	3527	3527	Default Value

The values in red are calculated.

SITE: 461-097-25009 **FATE AND TRANSPORT PARAMETERS**

Parameter	Symbol	Unit	Default Value	Value Used	Comment
SOIL:					
Length of soil source area parallel to wind direction	W_a	cm	**	6362	Site-Specific Value
Depth to subsurface soil sources	L_s	cm	30.48	30.48	Default Value
Lower depth of surficial soil zone	d	cm	30.48	30.48	Default Value
Depth to soil vapor measurement	d_{sv}	cm	30.48	30.48	Default Value
VADOSE ZONE:					
Total soil porosity	θ_T	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{ws}	cm^3/cm^3	0.143	0.143	Default Value
Volumetric air content	θ_{as}	cm^3/cm^3	0.287	0.287	Calculated
Thickness	h_v	cm	200	200	Calculated
Dry soil bulk density	ρ_s	g/cm^3	1.5	1.5	Default Value
Fractional organic carbon content	f_{oc}	g-C/g-soil	0.002	0.002	Default Value
FOUNDATION/WALL CRACKS:					
Total soil porosity	θ_{Tcrack}	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{wcrack}	cm^3/cm^3	0.143	0.143	Default Value
Volumetric air content	θ_{acrack}	cm^3/cm^3	0.287	0.287	Calculated
CAPILLARY FRINGE:					
Total soil porosity	θ_{Tcap}	cm^3/cm^3-soil	0.43	0.43	Default Value
Volumetric water content	θ_{wcap}	cm^3/cm^3	0.387	0.387	Calculated
Volumetric air content	θ_{acap}	cm^3/cm^3	0.043	0.043	Calculated
Thickness	h_{cap}	cm	100	100	Default Value
GROUNDWATER:					
Depth to groundwater	L_{gw}	cm	300	300	Default Value
Width of GW source perpendicular to GW flow direction	Y	cm	**	6362	Site-Specific Value
Length of GW source parallel to GW flow direction	W	cm	**	6362	Site-Specific Value
Total soil porosity in the saturated zone	θ_{TS}	cm^3/cm^3	0.43	0.43	Default Value
Dry soil bulk density in the saturated zone	ρ_{ss}	g/cm^3	1.5	1.5	Default Value
Fractional organic carbon content in the saturated zone	f_{ocs}	g-C/g-soil	0.002	0.002	Default Value
Groundwater mixing zone thickness	δ_{gw}	cm	200	200	Default Value
Hydraulic conductivity in the saturated zone	K	cm/year	***		Site-Specific Value
Hydraulic gradient in the saturated zone	i	cm/cm	***	0.038	Site-Specific Value
Groundwater darcy velocity	U_{gw}	cm/year	157.68	157.68	Default Value
Infiltration rate	I	cm/year	14.46	14.46	Default Value
AMBIENT AIR:					
Breathing zone height	δ_a	cm	200	200	Default Value
Inverse of mean concentration at center of square source	Q/C	$(g/m^2\text{-}s)/(kg/m^3)$	81.05	81.05	Default Value
Fraction of vegetative cover	V	m^2/m^2	0.5	0.5	Default Value
Wind speed within the breathing zone	U_a	m/s	4.69	4.69	Default Value
Equivalent threshold value of windspeed at 7 meters	U_t	m/s	11.32	11.32	Default Value
Windspeed distribution function from Cowherd et. al, 1985	F(x)	unitless	0.194	0.194	Default Value
DOMESTI WATER USE:					
Andelman volatalization factor	K_f	L/m^3	0.5	0.5	Default Value
AVERAGING TIME FOR VAPOR FLUX:					
Resident child	τ	sec	1.89E+08	1.89E+08	Calculated
Resident adult	τ	sec	9.46E+08	6.31E+08	Calculated
Trespasser	τ	sec	NA	NA	Calculated
Commercial worker	τ	sec	7.88E+08	7.88E+08	Calculated
Construction worker	τ	sec	3.15E+07	3.15E+07	Calculated

****:** The source area (assumed to be square) should be classified as either (i) small (270 yd^2) = (1500 cm X 1500 cm), (ii) medium (1/2 acre) = (4,498 cm X 4,498 cm), or (iii) large (1 acre) = (6,362 cm X 6,362 cm).

***: Site-specific value to calculate site-specific groundwater Darcy velocity.

The values in red are calculated.

SITE: 461-097-25009

CHEMICAL-SPECIFIC INPUTS FOR OTHER EXPOSURE PATHWAYS

Chemicals of Concern	MCL	Unsaturated Zone DAF			Half-Life	Concentration Upstream of the Point of Discharge (C_{su})	Bioconcentration Factor in Fish (BCF)	Concentration Protective of Surface Water (Csw)			
		Default Value	Value Used	Comment				Default Value[1]	User-Specified Value	Value Used	Comment
	[mg/L]	[--]	[--]		[days]	[mg/L]	[L/kg]	[mg/L]	[mg/L]	[mg/L]	
Pentachlorophenol	0.001	1.00E+00	1	Default			11.00	7.07E-04		7.07E-04	Default
PCB - Arochlor 1248	NA	1.00E+00	1	Default			31200.00	4.26E-07		4.26E-07	Default
Arsenic	0.01	1.00E+00	1	Default			44.00	1.40E-04		1.40E-04	Default
Chromium (VI)	NA	1.00E+00	1	Default			NA	6.40E-04		6.40E-04	Default

[1]: The default concentration protective of surface water at the downstream edge of the mixing zone or at point of discharge is calculated based on consumption of water and fish.

NA: Not Available

NTOX: Default value for Csw cannot be calculated since toxicological properties for the COC is not available.

MCL: Maximum Contaminant Levels

When the cumulative risk criteria has to be satisfied clean-up levels are not unique. Several different combinations of clean-up levels can satisfy the cumulative risk criteria. Following are two of the many options available:

- ◉ **Option 1 -** Reduce each of the representative concentrations by the risk reduction factor. Risk reduction factor is the ratio of the calculated site-wide risk to the target cumulative risk.
- ○ **Option 2** - Each of the representative concentration is reduced by a factor such that the risk from each COC and each ROE is identical.

SITE: 461-097-25009 **ABBREVIATIONS**

Parameter	
HI	Hazard Index (sum of hazard quotient)
HQ	Hazard Quotient
IELCR	Individual Excess Lifetime Cancer Risk
M	The concentration is MCL.
N/A	The soil concentration at the source is not applicable since the groundwater concentration has been entered/selected.
NA	Volatilization factor was not calculated due to lack of Henry's law constant
NC	Pathway is not complete.
NCL	The clean-up level is not calculated since the target risk is not exceeded.
NCOC	The risk/clean-up level cannot be calculated since the chemical of concern is not selected/entered.
NCsw	The concentrations cannot be calculated since the conc. protective of surface water (Csw) is not available/entered.
NHL	The DAF/concentration cannot be calculated since the half-life for the COC is not available/entered.
NMZ	No mixing zone
NPCP	The risk/concentration cannot be calculated since the physical and chemical properties for the COC is not available.
NREP	The risk cannot be calculated since the representative concentration is not available/entered.
NTOX	The risk/concentration cannot be calculated since the toxicological properties for the COC is not available.
RM	Risk Management
--	The clean-up level/concentration cannot be calculated for this COC since the input properties is not available/entered.
*	Calculated concentration exceeded saturated soil concentration. Calculated value is shown.
+	Calculated concentration exceeded saturated vapor concentration. Calculated value is shown.
#	Calculated concentration exceeded solubility. Calculated value is shown.
>1E+300	When DAF is greater then >1+300, the concentrations shown is saturated soil concentration for soil and/or solubility for groundwater.

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A RESIDENT

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
	[mg/m^3-air]		[mg/kg]							[mg/m^3]				[mg/L]		
Pentachlorophenol			3.00E-01	3.00E-01	3.00E-01	3.00E-01			3.10E+00				4.10E-04			
PCB - Arochlor 1248			3.10E+00	3.10E+00	3.10E+00	3.10E+00			1.20E+01							
Arsenic			3.00E+00	3.00E+00	3.00E+00	3.00E+00			3.00E+00							
Chromium (VI)			9.00E-01	9.00E-01	9.00E-01	9.00E-01			1.70E+00							

Soil concentrations are presented on a dry weight basis.

NA: Not Available

For exclusive use of Matt Ebbert of PPM Consultants, Decatur, AL

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A COMMERCIAL WORKER

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m^3-air]		[mg/kg]							[mg/m^3]		[mg/L]	
Pentachlorophenol			3.00E-01	3.00E-01	3.00E-01	3.00E-01			3.10E+00				4.10E-04
PCB - Arochlor 1248			3.10E+00	3.10E+00	3.10E+00	3.10E+00			1.20E+01				
Arsenic			3.00E+00	3.00E+00	3.00E+00	3.00E+00			3.00E+00				
Chromium (VI)			9.00E-01	9.00E-01	9.00E-01	9.00E-01			1.70E+00				

Soil concentrations are presented on a dry weight basis.

NA: Not Available

SITE: 461-097-25009

REPRESENTATIVE CONCENTRATION FOR A CONSTRUCTION WORKER

CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
	[mg/m^3-air]	[mg/kg]					[mg/m^3]	[mg/L]
Pentachlorophenol		3.10E+00	3.10E+00	3.10E+00	3.10E+00			4.10E-04
PCB - Arochlor 1248		3.90E+00	3.90E+00	1.20E+01	3.90E+00			
Arsenic		3.00E+00	3.00E+00	3.00E+00	3.00E+00			
Chromium (VI)		1.70E+00	1.70E+00	1.70E+00	1.70E+00			

Soil concentrations are presented on a dry weight basis.

NA: Not Available

SITE: 461-097-25009

RM-2 IELCR FOR A RESIDENT CHILD

CUMULATIVE 3.65E-06 CUMULATIVE HI 3.41E-02 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NREP	NREP	1.92E-08	3.23E-08	NA	2.63E-14	NREP	NREP	3.84E-11	NREP	NREP	NREP	9.73E-16	NREP	NREP	NREP
PCB - Arochlor 1248	NREP	NREP	5.55E-07	1.67E-06	NA	3.04E-11	NREP	NREP	7.38E-08	NREP	NREP	NREP	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	8.63E-08	1.21E-06	NA	2.22E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	9.69E-10	NA	2.04E-09	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009

RM-2 HQ FOR A RESIDENT CHILD

CUMULATIVE 3.65E-06 CUMULATIVE HI 3.41E-02 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NA	NA	1.12E-04	1.88E-04	NA	NC	NREP	NC	NC	NA	NC	NC	NC	NREP	NCOC	NREP
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NC	--	NC	NC	NA	NC	NC	NC	NTOX	NCOC	--
Arsenic	NREP	NREP	2.24E-03	3.14E-02	NA	4.01E-05	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	7.85E-05	NA	6.02E-06	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-2 CUMULATIVE RISK FOR A RESIDENT CHILD**

CUMULATIVE 3.65E-06 CUMULATIVE HI 3.41E-02 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	5.15E-08	3.00E-04
PCB - Arochlor 1248	2.30E-06	
Arsenic	1.30E-06	3.37E-02
Chromium (VI)	3.01E-09	8.46E-05
CUMULATIVE RISK	3.65E-06	3.41E-02

SITE: 461-097-25009

RM-2 IELCR FOR A RESIDENT ADULT

CUMULATIVE 1.53E-06 CUMULATIVE HI 3.41E-03 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NREP	NREP	1.07E-08	1.01E-08	NA	8.77E-14	NREP	NREP	1.28E-10	NREP	NREP	NREP	3.24E-15	NREP	NREP	NREP
PCB - Arochlor 1248	NREP	NREP	3.08E-07	5.22E-07	NA	1.01E-10	NREP	NREP	2.46E-07	NREP	NREP	NREP	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	4.80E-08	3.79E-07	NA	7.39E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	3.03E-10	NA	2.04E-09	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009

RM-2 HQ FOR A RESIDENT ADULT

CUMULATIVE 1.53E-06 CUMULATIVE HI 3.41E-03 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER				
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Ingestion	Indoor Inhalation of Vapors from Water Use	Ingestion and Inhalation from Water Use
Pentachlorophenol	NA	NA	1.87E-05	1.77E-05	NA	NC	NREP	NC	NC	NA	NC	NC	NC	NREP	NCOC	NREP
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NC	--	NC	NC	NA	NC	NC	NC	NTOX	NCOC	--
Arsenic	NREP	NREP	3.73E-04	2.95E-03	NA	4.01E-05	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
Chromium (VI)	NREP	NREP	NTOX	7.36E-06	NA	6.02E-06	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP	NREP	NREP	NREP
CUMULATIVE RISK																

SITE: 461-097-25009 **RM-2 CUMULATIVE RISK FOR A RESIDENT ADULT**

CUMULATIVE 1.53E-06 CUMULATIVE HI 3.41E-03 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	2.09E-08	3.63E-05
PCB - Arochlor 1248	1.08E-06	
Arsenic	4.27E-07	3.36E-03
Chromium (VI)	2.35E-09	1.34E-05
CUMULATIVE RISK	1.53E-06	3.41E-03

SITE: 461-097-25009

RM-2 IELCR FOR A COMMERCIAL WORKER

CUMULATIVE IELCR	4.45E-06
CUMULATIVE HI	8.84E-03

CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NREP	NREP	3.49E-08	3.30E-08	NA	9.56E-14	NREP	NREP	1.40E-10	NREP	NREP	NREP	3.53E-15
PCB - Arochlor 1248	NREP	NREP	1.01E-06	1.71E-06	NA	1.11E-10	NREP	NREP	2.68E-07	NREP	NREP	NREP	NREP
Arsenic	NREP	NREP	1.57E-07	1.24E-06	NA	8.06E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
Chromium (VI)	NREP	NREP	NTOX	9.91E-10	NA	6.18E-10	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
CUMULATIVE RISK													

SITE: 461-097-25009

RM-2 HQ FOR A COMMERCIAL WORKER

CUMULATIVE IELCR: 4.45E-06 CUMULATIVE HI: 8.84E-03 CHEMICALS OF CONCERN	AIR		SURFICIAL SOIL					SUBSURFACE SOIL		SOIL VAPOR		GROUNDWATER	
	Indoor	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions	Indoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NA	NA	4.89E-05	4.62E-05	NA	NA	NREP	NC	NC	NA	NC	NC	NC
PCB - Arochlor 1248	NA	NA	NTOX	NTOX	NA	NA	--	NC	NC	NA	NC	NC	NC
Arsenic	NREP	NREP	9.78E-04	7.71E-03	NA	3.50E-05	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
Chromium (VI)	NREP	NREP	NTOX	1.93E-05	NA	5.25E-06	NREP	NPCP	NPCP	NPCP	NPCP	NPCP	NPCP
CUMULATIVE RISK													

SITE: 461-097-25009 **RM-2 CUMULATIVE RISK FOR A COMMERCIAL WORKER**

CUMULATIVE IELCR 4.45E-06 CUMULATIVE HI 8.84E-03 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	6.81E-08	9.52E-05
PCB - Arochlor 1248	2.99E-06	
Arsenic	1.40E-06	8.72E-03
Chromium (VI)	1.61E-09	2.45E-05
CUMULATIVE RISK	4.45E-06	8.84E-03

SITE: 461-097-25009

RM-2 IELCR FOR A CONSTRUCTION WORKER

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NREP	4.01E-08	5.00E-08	NA	4.39E-14	NREP	NREP	1.57E-16
PCB - Arochlor 1248	NREP	1.41E-07	3.15E-07	NA	6.18E-12	NREP	NREP	NREP
Arsenic	NREP	1.75E-08	1.82E-07	NA	3.58E-11	NREP	NPCP	NPCP
Chromium (VI)	NREP	NTOX	2.74E-10	NA	5.19E-11	NREP	NPCP	NPCP
CUMULATIVE RISK								

SITE: 461-097-25009

RM-2 HQ FOR A CONSTRUCTION WORKER

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	AIR	SOIL UPTO DEPTH OF CONSTRUCTION					SOIL VAPOR	GROUNDWATER
	Outdoor	Dermal Contact	Ingestion	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Particulates	Combined Pathway	Outdoor Inhalation of Vapor Emissions	Outdoor Inhalation of Vapor Emissions
Pentachlorophenol	NA	1.40E-03	1.75E-03	NA	NA	NREP	NC	NC
PCB - Arochlor 1248	NA	NTOX	NTOX	NA	NA	--	NC	NC
Arsenic	NREP	2.72E-03	2.83E-02	NA	3.89E-05	NREP	NPCP	NPCP
Chromium (VI)	NREP	NTOX	1.33E-04	NA	1.10E-05	NREP	NPCP	NPCP
CUMULATIVE RISK								

SITE: 461-097-25009 **RM-2 CUMULATIVE RISK FOR A CONSTRUCTION WORKER**

CUMULATIVE 7.46E-07 CUMULATIVE HI 3.43E-02 CHEMICALS OF CONCERN	SUM OF IELCR	SUM OF HQ (HI)
Pentachlorophenol	9.02E-08	3.16E-03
PCB - Arochlor 1248	4.56E-07	
Arsenic	1.99E-07	3.10E-02
Chromium (VI)	3.26E-10	1.44E-04
CUMULATIVE RISK	7.46E-07	3.43E-02

APPENDIX C – DRAFT DEED RESTRICTIONS

ENVIRONMENTAL COVENANT

The City of Saraland, Alabama (hereinafter "Grantor") grants an Environmental Covenant (hereinafter "Covenant") this ___ day of June, 2025, to the following entities pursuant to The Alabama Uniform Environmental Covenants Act, Ala. Code §§ 35-19-1 to 35-19-14, as amended, (the Act) and the regulations promulgated thereunder:

1. the Alabama Department of Environmental Management and

WHEREAS, the Grantor was the owner of certain real property located in the City of Saraland, Alabama, identified as the former The Land: Saraland Sports & Recreation Complex situated at 7365 Celeste Road, in Mobile County, Alabama, (hereinafter "the Property"). The Property consists of three separate parcels, the legal descriptions of which are contained below and enumerated as parcels A through C. Parcel A was conveyed to the Grantor by deed dated March 7, 2007, and recorded in the Office of the Judge of Probate for Mobile County, Alabama, in Deed Book 6143, at Page 1942. Parcel B was conveyed to the Grantor by deed dated June 9, 2023, and recorded in the Office of the Judge of Probate for Mobile County, Alabama, in Deed Book _____, at Page _____. Parcel C was conveyed to the Grantor by deed dated March 28, 2022, and recorded in the Office of the Judge of Probate for Mobile County, Alabama, in Deed Book _____, at Page ___. Parcel D was conveyed to the Grantor by deed dated _____, and recorded in the Office of the Judge of Probate for Mobile County, Alabama, in Deed Book _____, at Page _____; They will collectively be referred to in this document as "the Property";

WHEREAS, the Property is more particularly described as the following:

Parcel A – The south half of the southeast quarter of the southeast quarter of Section 24, Township 2 South, Range 2 West, Mobile County, Alabama and more particularly described as follows: Beginning at the Southeast corner of Section 24, Township 2 South, Range 2 West, Mobile County, Alabama; thence south 89 degrees 54 minutes 13 seconds west along the south line of said Section 24 a distance of 1,318.99 feet to a point; thence north 00 degrees 08 minutes, 29 seconds west a distance of 661.61 feet to a point; thence north 89 degrees 53 minutes 18 seconds east a distance of 1,320.01 feet to a point on the east line of said Section 24; thence south 00 degree 03 minutes 12 seconds east along said east line a distance of 661.96 feet to the Point of Beginning

And also,

Parcel B – Beginning at the northwest corner of Section 30, Township 2 South, Range 1 West, Mobile County, Alabama; thence east 516.54 feet to the west right of way of Celeste Road (80' R/W); thence south 07 degrees 52 minutes 27 seconds east 1,234.17 feet along said west right of way to a point; thence north 85 degrees 05 minutes 05 seconds west 974.72 feet to a point; thence north 78 degrees 26 minutes 40 seconds west 580.93 feet to the centerline of a 125-foot Alabama Power Company right

of way; thence south 41 degrees 36 minutes 54 seconds west 1,502 feet, more or less, to centerline of Bayou Sara Creek; thence north westerly along said centerline of Bayou Sara Creek to a point of the intersection of the north line of Section 25, Township 2 South, Range 2 West; thence east 2,640 feet, more or less, to the northeast corner of Section 25, Township 2 South, Range 2 West, to the Point of Beginning.

And also,

Parcel C – The south half of the southeast quarter of the southeast quarter of Section 24, Township 2 South, Range 4 West, Mobile County, Alabama and more particularly described as follows: Beginning at the Southeast corner of said Section 24; thence South 88 degrees 54 minutes 49 seconds West a distance of 1,318.53 feet to a point; thence North 00 degrees 53 minutes 52 seconds West a distance of 661.72 feet to a point; thence North 88 degrees 48 minutes 06 seconds East a distance of 1,319.40 feet to a point; thence South 00 degrees 49 minutes 27 seconds East a distance of 664.30 feet to a point of beginning, containing 20.0752 acres more or less.

WHEREAS, this instrument is an Environmental Covenant developed and executed pursuant to the Act and the regulations promulgated thereunder;

WHEREAS, a release/disposal of hazardous substances, including, but not limited to, polychlorinated biphenyls (PCB), pentachlorophenol, arsenic, and hexavalent chromium in soil and groundwater, occurred on the Property;

WHEREAS, the Baseball/Softball Fields Area (**Exhibit A**) has been used for PCB remediation waste disposal and the PCB concentrations left at the Property are above 1 milligram per kilogram (mg/kg);

WHEREAS, the selected "remedial action" for the Property, which has now been implemented, providing in part, for the following actions:

Placement of a restriction on the entire Property to prevent the installation of a water production well;

Placement of a restriction on a portion of the Property, as defined in **Exhibit A**, identified as the "Baseball/Softball Fields Area" to prohibit construction of a building without an engineered sub-slab ventilation system or vapor barrier

Covering of soil containing PCBs, pentachlorophenol, arsenic, and hexavalent chromium at concentrations greater than the EPA Regional Screening Levels (May 2025) within the Baseball/Softball Fields Area (**Exhibit A**) with a minimum of 2 feet of cover

WHEREAS, pursuant to the Voluntary Cleanup Plan – Baseball/Softball Fields Area approved by ADEMs Redevelopment Section, on DATE (the Remedial Action Plan

was approved), the Grantor and assignees agreed to perform operation and maintenance activities at the Property to address the effects of the release/disposal, which includes controlling exposure to the hazardous wastes, hazardous constituents, hazardous substances, pollutants, or contaminants;

WHEREAS, the Voluntary Cleanup Plan – Baseball/Softball Fields Area requires institutional controls to be implemented to address the effects of the release/disposal and to protect the remedy so that exposure to the hazardous waste, hazardous constituents, hazardous substances, pollutants, or contaminants is controlled by restricting the use of the Property and the activities on the Property;

WHEREAS, hazardous wastes, hazardous constituents, hazardous substances, pollutants, or other contaminants remain on the Property, specifically contamination has occurred in soil and groundwater and the following contaminant(s) remain at the site: PCBs, pentachlorophenol, arsenic, and hexavalent chromium;

WHEREAS, the purpose of this Covenant is to ensure protection of human health and the environment by placing restrictions on the Property to reduce the risk to human health to below the target risk levels for those hazardous wastes, hazardous constituents, hazardous substances, pollutants, or contaminants that remain on the Property;

WHEREAS, further information concerning the release/disposal and the activities to correct the effects of the release/disposal may be obtained by contacting Chief, Land Division, Alabama Department of Environmental Management (”ADEM”), or his or her designated representative, at 1400 Coliseum Boulevard, Montgomery, Alabama, 36110; and

WHEREAS, the Administrative Record concerning the Property is located at:

Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, Alabama 36110

NOW, THEREFORE, Grantor hereby grants this Environmental Covenant to ADEM and the identified Holders, and declares that the Property shall hereinafter be bound by, held, sold, used, improved, occupied, leased, hypothecated, encumbered, and/or conveyed subject to the following requirements set forth in paragraphs 1 through 3 below:

1. **DEFINITIONS**

Owner. “Owner” means the GRANTOR, its successors and assigns in interest.

2. **USE RESTRICTIONS**

Any deviation from the following use restrictions requires prior written approval from ADEM through modification of this covenant:

- The use of groundwater for potable or irrigation purposes is prohibited.
- The construction of any building without a sub-slab ventilation system or vapor barrier is prohibited within the Baseball/Softball Fields Area (**Exhibit A**).
- Prior to conducting any soil disturbance activities extending below a depth of two feet within the Baseball/Softball Fields Area (as shown in **Exhibit A**), the Grantor shall ensure that all personnel involved in excavation are provided with a copy of the approved Soil Management Plan. This requirement does not apply to routine maintenance or surface-level activities involving soils less than two feet deep.

3. **GENERAL PROVISIONS**

A. **Restrictions to Run with the Land.** This Environmental Covenant runs with the land pursuant to Ala. Code § 35-19-5, as amended; is perpetual, unless modified or terminated pursuant to the terms of this Covenant pursuant to Ala. Code § 35-19-9, as amended; is imposed upon the entire Property unless expressly stated as applicable only to a specific portion thereof; inures to the benefit of and passes with each and every portion of the Property; and binds the Owner, the Holders, all persons using the land, all persons, their heirs, successors and assigns having any right, title or interest in the Property, or any part thereof who have subordinated those interests to this Environmental Covenant, and all persons, their heirs, successors and assigns who obtain any right, title or interest in the Property, or any part thereof after the recordation of this Environmental Covenant.

B. **Notices Required.** In accordance with Ala. Code § 35-19-4(b), as amended, the Owner shall send written notification, pursuant to Section J, below, following transfer of a specified interest in, or concerning proposed changes in use of, applications for building permits for, or proposals for any site work affecting the contamination on, the Property. Said notification shall be sent within fifteen (15) days of each event listed in this Section.

C. **Registry/Recordation of Environmental Covenant; Amendment; or Termination.** Pursuant to Ala. Code §3 5-19-12(b), as amended, this Environmental Covenant and any amendment or termination thereof, shall be contained in ADEM's registry for environmental covenants. After an environmental covenant, amendment, or termination is filed in the registry, a notice of the covenant, amendment, or termination may be recorded in the land records in lieu of recording the entire covenant in compliance with § 35-

19-12(b), as amended. Grantor shall be responsible for filing the Environmental Covenant within thirty (30) days of the final required signature upon this Environmental Covenant.

D. **Compliance Certification.** In accordance with Ala. Code §35-19-4(b), as amended, the Owner shall submit an annual report to the Chief of the ADEM Land Division, on the anniversary of the date this Covenant was signed by the Grantor. Said report shall detail the Owner's compliance, and any lack of compliance with the terms of the Covenant.

E. **Right of Access.** The Owner hereby grants ADEM; ADEM's agents, contractors and employees; the Owner's agents, contractors and employees; and any Holders the right of access to the Property for implementation or enforcement of this Environmental Covenant.

F. **ADEM Reservations.** Notwithstanding any other provision of this Environmental Covenant, ADEM retains all of its access authorities and rights, as well as all of its rights to require additional land/water use restrictions, including enforcement authorities related thereto.

G. **Representations and Warranties.** Grantor hereby represents and warrants to the other signatories hereto:

i) That the Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;

ii) That the Grantor is the sole owner of the Property and holds fee simple title which is free, clear and unencumbered;

iii) That the Grantor has identified no other parties that hold any interest in the Property;

iv) That this Environmental Covenant will not materially violate, contravene, or constitute a material default under, any other agreement, document, or instrument to which Grantor is a party, by which Grantor may be bound or affected;

v) That this Environmental Covenant will not materially violate or contravene any zoning law or other law regulating use of the Property;

vi) That this Environmental Covenant does not authorize a use of the Property which is otherwise prohibited by a recorded instrument that has priority over the Environmental Covenant.

H. **Compliance Enforcement.** In accordance with Ala. Code § 35-19-11(b), as amended, the terms of the Environmental Covenant may be enforced by the parties to this Environmental Covenant; any person to whom this Covenant expressly grants power to enforce; any person whose interest in the real property or whose collateral or liability may be affected by the alleged violation of the Covenant; or a municipality or other unit of local government in which the real property subject to the Covenant is located, in accordance with applicable law. The parties hereto expressly agree that ADEM has the power to enforce this Environmental Covenant. Failure to timely enforce compliance with this Environmental Covenant or the use or activity limitations contained herein by any person shall not bar subsequent enforcement by such person and shall not be deemed a waiver of the person's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict ADEM, or the Grantor, from exercising any authority under applicable law.

I. **Modifications/Termination.** Any modifications or terminations to this Environmental Covenant must be made in accordance with Ala. Code §§ 35-19-9 and 35-19-10, as amended.

J. **Notices.** Any document or communication required to be sent pursuant to the terms of this Environmental Covenant shall be sent to the following persons:

ADEM

Chief, Land Division
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110

Grantor

Mayor's Office
City of Saraland, Alabama
943 Saraland Boulevard South
Saraland, Alabama 36571

K. **No Property Interest Created in ADEM.** This Environmental Covenant does not in any way create any interest by ADEM in the Property that is subject to the Environmental Covenant. Furthermore, the act of approving this Environmental Covenant does not in any way create any interest by ADEM in the Property in accordance with Ala. Code § 35-19-3(b), as amended.

L. **Severability.** If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

M. **Governing Law.** This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Alabama.

N. **Recordation.** In accordance with Ala. Code § 35-19-8(a), as amended, Grantor shall record this Environmental Covenant and any amendment or termination of the Environmental Covenant in every county in which any portion of the real property subject to this Environmental Covenant is located. Grantor agrees to record this Environmental Covenant within fifteen (15) days after the date of the final required signature upon this Environmental Covenant.

O. **Effective Date.** The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded, in accordance with Ala. Code § 35-19-8(a), as amended.

P. **Distribution of Environmental Covenant.** Within fifteen (15) days of filing this Environmental Covenant, the Grantor shall distribute a recorded and date stamped copy of the recorded Environmental Covenant in accordance with Ala. Code § 35-19-7(a), as amended. However, the validity of this Environmental Covenant will not be affected by the failure to provide a copy of the Covenant as provided herein.

Q. **ADEM References.** All references to ADEM shall include successor agencies, departments, divisions, or other successor entities.

R. **Grantor References.** All references to the Grantor shall include successor agencies, departments, divisions, or other successor entities.

S. **Other Applicable Party(ies).** All references to Other Applicable Party(ies) shall include successor agencies, departments, divisions, or other successor entities.

Property owner has caused this Environmental Covenant to be executed pursuant to The Alabama Uniform Environmental Covenants Act, on this ___ day of _____, 2025.

IN TESTIMONY WHEREOF, the parties have hereunto set their hands this the day and year first above written.

This Environmental Covenant is hereby approved by the City of Saraland, Alabama this ___ day of _____, 2025.

By: Howard Rubenstein, Mayor
Name & Title

Grantor

STATE OF ALABAMA)
)
COUNTY OF MOBILE)

I, _____, a Notary Public in and for said County in said State or Commonwealth, hereby certify that Howard Rubenstein, whose name as Mayor of the City of Saraland, Alabama is signed to the foregoing conveyance and who is known to me, acknowledged before me on this day that, being informed of the contents of the conveyance, (s)he, as such officer and with full authority executed the same voluntarily for and as the act of said municipal corporation.

Given under my hand this the ____ day of _____, 2025

Notary Public: _____

My Commission Expires: _____

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

This Environmental Covenant is hereby approved by the State of Alabama this ___ day of _____, 2025.

By: _____

Stephen A. Cobb
Chief, Land Division
Alabama Department of Environmental Management

State of Alabama}

Montgomery, County}

I, the undersigned Notary Public in and for said County and State, hereby certify that Stephen A. Cobb, whose name as Chief, Land Division, Alabama Department of Environmental Management is signed to the foregoing conveyance, and who is known to me, acknowledged before me on this day that, being informed of the contents of the conveyance, he approved the same voluntarily on the day the same bears date and with full authority to do so.

Given under my hand and official seal this ____ day of _____, 2025.

_____
Notary Public

My Commission Expires: _____

STATE OF ALABAMA

COUNTY OF MOBILE

I, _____, Clerk of the Probate Court, Mobile County, Alabama, do certify that the foregoing Environmental Covenant *[and, if applicable, attached Subordination Agreement]* was lodged in my office for record, and that I have recorded it, this ____ day of _____, 2025 in the Deed Recordation Book ### on Page ###.

_____

County Clerk

This instrument prepared by:

Andrew J. Rutens, Esq.
Galloway, Wettermark, & Rutens LLP
3263 Cottage Hill Road
Mobile, Alabama 36609

N

0 150 300

SCALE: 1"=300'
(Approximate)

SOURCE: DRONE IMAGERY TAKEN BY PPM CONSULTANTS, INC. (NOVEMBER 2024)

PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 05/28/25
PROJECT NUMBER: 20203301	PHASE: VCP

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

EXHIBIT A - BASEBALL / SOFTBALL FIELDS AREA

FIGURE NUMBER
A

APPENDIX D – SOIL MANAGEMENT PLAN – BASEBALL/SOFTBALL FIELDS AREA

SOIL MANAGEMENT PLAN – BASEBALL/SOFTBALL FIELDS (REVISED)

THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, MOBILE COUNTY, ALABAMA

PPM PROJECT NO. 20203301-SA

JUNE 18, 2025

PPM CONSULTANTS

SOIL MANAGEMENT PLAN –
BASEBALL/SOFTBALL FIELDS (REVISED)

FOR

THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, MOBILE COUNTY, ALABAMA

PREPARED FOR:

CITY OF SARALAND
943 SARALAND BOULEVARD SOUTH
MOBILE, ALABAMA 36571

PPM PROJECT NO. 20203301-SA

JUNE 18, 2025

PREPARED BY:

MATTHEW J. EBBERT, P.G.
SENIOR GEOLOGIST

REVIEWED BY:

MICHAEL D. MCCOWN, P.G.
PRINCIPAL/
SENIOR GEOLOGIST

PPM CONSULTANTS, INC.
30704 SGT. E.I. BOOTS THOMAS DRIVE
SPANISH FORT, ALABAMA 36527
(251) 990-9000

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FIGURES

1.0 INTRODUCTION

This Soil Management Plan (Plan) has been prepared by PPM Consultants, Inc. (PPM) on behalf of the City of Saraland, Alabama (the City) to provide specific site management practices that are designed to limit the risk of exposure to contaminants of concern (COCs) present at the Baseball/Softball Fields of The Land: Saraland Sports and Recreation Complex (Facility). The Facility is located at 7365 Celeste Road in Saraland, Mobile County, Alabama. The site location is depicted on **Figure 1, Facility Location Map, Figures**. This plan is intended to address field nos. 2, 3, and 4 and the area around these fields, referred hereunto as the Baseball/Softball Field area, as depicted on **Figure 2, Site Map – Baseball/Softball Fields Area**.

The Facility is being developed for use as a multi-use sports complex. When completed, the Facility will have eight baseball/softball fields, batting cages, six tennis courts, four basketball courts, three pickleball courts, parking lots and roads, a maintenance building, restroom facilities, concession stands, and green space. Five multi-use fields for soccer, lacrosse, and football were planned for the northern portion of the Facility; however, based on the presence of a significant volume of Foreign Material in that location associated with past disposal activities, construction of these fields has not begun and it is not known at this time if these fields will be completed. A power line transects the Facility from the northeast corner, southwest across the property. According to a survey map for the Facility, a pipeline transects northeast to southwest, along the southeastern property boundary. A fire station is present on the very northeast portion of the property. Access to the Facility from Celeste Road is present along the eastern property line.

Should the construction, demolition, and maintenance work associated with the development of the Facility involve any such proposed soil removal in the Baseball/Softball Field Area, this Plan should be followed, so to not pose a danger to public health, safety, or the environment. Therefore, this Plan is designed to address those activities at the site which are intrusive to the ground surface and have the potential to encounter or disturb the subsurface impacted soil at the site. The City, as the present property owner, is responsible for ensuring that the Plan is properly implemented.

2.0 PROPERTY DESCRIPTION

The Facility is currently being developed into a multi-use sports complex located at 7365 Celeste Road, on the west side of Celeste Road, in Saraland, Mobile County, Alabama.

The Facility is comprised of four contiguous parcels of land that total approximately 117 acres. The City also owns three contiguous parcels, that includes a closed landfill, to the north that are not part of the Facility. The proposed Facility layout is depicted on **Figure 3, Facility Map**.

The Facility is currently being developed into a multi-use sports complex facility. Pre-construction topography of the Facility consisted of mounds and valleys with moderate to steep grades. The overall general topography slopes from the northwest corner of the property where the elevation at the fire station is approximately 212 feet above mean sea level (AMSL) to the southwest corner where the elevation is approximately 65 feet AMSL. Full construction of the Facility is currently underway, with more than 100 construction personnel on site attempting to complete the Facility to accommodate sports events scheduled for the Spring of 2025. A drone survey was performed of the Facility in November 2024 and a composite aerial photograph of the northern portion of the Facility is presented as **Figure 4, Facility Aerial Photograph (November 2024)**.

3.0 CONTAMINANTS OF CONCERN

During construction of the Facility, a light-gray to dark-gray silty material was discovered that is light in density and has an organic odor. This is referred to as “Foreign Material” and based on historical documents, is primarily alum mud waste generated by the former American Cyanamid Company. Based on the discovery of this material, the City retained PPM to collect representative samples of the Foreign Material to evaluate if regulated constituents of interest were contained within. Based on this evaluation, it was found that the Foreign Material contains polychlorinated biphenyl (PCB) Aroclor 1248, pentachlorophenol (PCP), arsenic, and hexavalent chromium (chromium VI) at concentrations greater than the Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for residential use (November 2024). An Assessment Report was submitted to both the EPA and the Alabama Department of Environmental Management (ADEM) on December 20, 2024, that details scope of work and the findings of those assessment activities.

Some of the Foreign Material from the main pile in the Source Area (not part of this plan) was used as fill material under field nos. 2, 3, and 4, before the material was characterized by laboratory testing. During assessment with soil borings and test pits the Foreign Material in the Baseball/Softball Area was found in distinct layers beneath each of the three fields at depths ranging from 2 feet below ground surface (BGS) to over 10 feet BGS.

This supports the information provided by the general contractor at the Facility that some of the Foreign Material was brought used as fill material in the Baseball/Softball Area. The layers ranged in thickness from approximately 2 feet to over 5 feet and were overlain by fill material not containing Foreign Material. For the majority of the locations with Foreign Material, distinct contact zones are present with the underlying soil and if present, with the overlying soil. However, Foreign Material is comingled with some surficial soil due to "tracking" of the material with heavy equipment.

Analytical data from the Foreign Material has four primary constituents (PCB-1248, PCP, arsenic, and chromium VI) that exceed RSLs for residential or industrial soil. For the most part, if Foreign Material is present in an area, one or more of these constituents are present. However, minimal vertical migration of the constituents has been found and the underlying soil defines the vertical limits of concentrations that exceed an RSL. The horizontal limits of Foreign Material and soil containing concentrations above a residential RSL in the Baseball/Softball Area have been defined.

The majority of the area containing Foreign Material in the Baseball/Softball Area either currently contains or will contain several feet of clean fill material over the Foreign Material once construction of the Facility is completed. For the isolated areas where Foreign Material and/or COC-impact is present and will not be covered during construction, the City will remove the upper 2 feet of soil and replace it with new fill material and topsoil during implementation of the Risk-Based Cleanup Work Plan (EPA) and Voluntary Cleanup Plan (ADEM).

4.0 FUTURE SITE MANAGEMENT PRACTICES

Based on the analytical data collected at the Baseball/Softball Fields area, construction plans for the Facility, the Risk-Based Cleanup Work Plan, and the Voluntary Cleanup Plan, Foreign Material and COC impacted soil will be at least 2 feet below grade, with the majority greater than 5 feet. The majority of the surface will be completed with artificial turf or asphalt/concrete and the remaining areas will be vegetated with grass.

However, if future construction or maintenance is performed that advances more than 2 feet BGS, Foreign Material and/or impacted soils could be encountered. Based on the COCs for the area, a route of migration to potential human receptors could be present if the Foreign Material or impacted soils are in contact with skin, ingested, or inhaled. As long as the soil remains under asphalt, concrete, building slab, artificial turf, or protective soil

cover that would prevent direct exposure to potential receptors, the COCs should not pose an unacceptable risk to human health on the subject property once the development is completed. Likewise, during the development, if effective management practices are implemented to prevent exposure to the potential COCs within the soil, they should not pose an unacceptable risk to human health.

Therefore, in accordance with the Plan, the City will implement the following soil management practices during development of the Facility:

4.1 CONSTRUCTION ACTIVITIES

1. Site workers who are reasonably expected to be exposed to graded or removed soil during construction activities will be alerted to the potential COCs associated with the impacted soil at the site. These workers will be informed of the risk associated with direct contact, ingestion, or inhalation of the particles and will be instructed to limit physical contact with the disturbed soil. Therefore, a task-specific safety plan will be prepared by the City or its representatives to provide additional information on associated risks, personal protective equipment, and decontamination practices.
2. Site workers who are reasonably expected to be exposed to impacted soil will be familiar with these site management practices prior to implementing the work. Therefore, the City or its representatives will hold a pre-construction meeting with the construction contractor to review the procedures outlined in the safety plan.
3. Proper sediment and erosion controls must be established prior to construction activities to prevent the unintended offsite transport of impacted soil from the area of the Facility. These controls must be periodically inspected and adequately maintained throughout the duration of the construction activities to prevent the offsite transport of impacted soil from the area of the Facility. Only after the site is adequately stabilized, can the sediment and erosion controls be removed.
4. Sufficient dust control practices will be implemented to prevent the air-borne mobilization of impacted soil from the area of the Facility. This will generally consist of keeping exposed impacted soil damp.
5. An environmental professional will be present during construction activities that include potential exposure or excavation of Foreign Material or impacted soils. The environmental professional will oversee and direct segregation of materials and relocation of the material.
6. Impacted soil in the Baseball/Softball Field Area may be relocated to a designated portion of the Source Area, in the northern portion of the Facility, during

construction only; however, impacted soil that leaves the Facility must be disposed as solid waste at a permitted landfill. A waste profile must be obtained from ADEM prior to the offsite disposal of any impacted soil from the Baseball/Softball Field Area.

7. Soil removed during the construction activities will likely be stockpiled in a designated portion of the Source Area and properly covered with either polyethylene sheeting or clean soil, daily.
8. To prevent the unintended dispersal of soil from the Baseball/Softball Field Area, all equipment that comes into contact with Foreign Material or impacted soil during the construction process will be subject to dry decontamination methods. Visible soil or material will be physically removed from excavation and grading equipment with a shovel, heavy-duty brush, or similar tools before leaving the work area. Visible material potentially containing soil will be similarly removed from the sidewalls, tires, and gates of all dump trucks before leaving the site. Any affected material removed from the equipment should be contained and placed on temporary stockpiles with similar material (see item 8 above).
9. Final site conditions must provide a minimum 2-foot layer of soil or a sufficient impervious layer [asphalt, concrete, pavement, artificial turf (including subbase) or a building foundation or slab] over areas where impacted soil is present. The permanent soil cover must be stabilized within 15 days of being placed.

4.2 SOIL MANAGEMENT FOR CONSTRUCTION FOLLOWING DEVELOPMENT

Following completion of construction activities, if the City plans to perform excavations greater than 2 feet deep in the Baseball/Softball Area, the City will inform their workers or contractors of the presence of the Foreign Material and/or impacted soil. The City will provide a copy of this plan to the contractor prior to work activities. The following are requirements of anyone disturbing the protective cover:

1. Site workers who are reasonably expected to be exposed to graded or removed soil during construction or maintenance activities will be alerted to the potential COCs associated with the impacted soil at the site. These workers will be informed of the risk associated with direct contact, ingestion, or inhalation of the particles and will be instructed to limit physical contact with the disturbed soil. Therefore, a task-specific safety plan will be prepared by the City or its representatives to provide

additional information on associated risks, personal protective equipment, and decontamination practices.

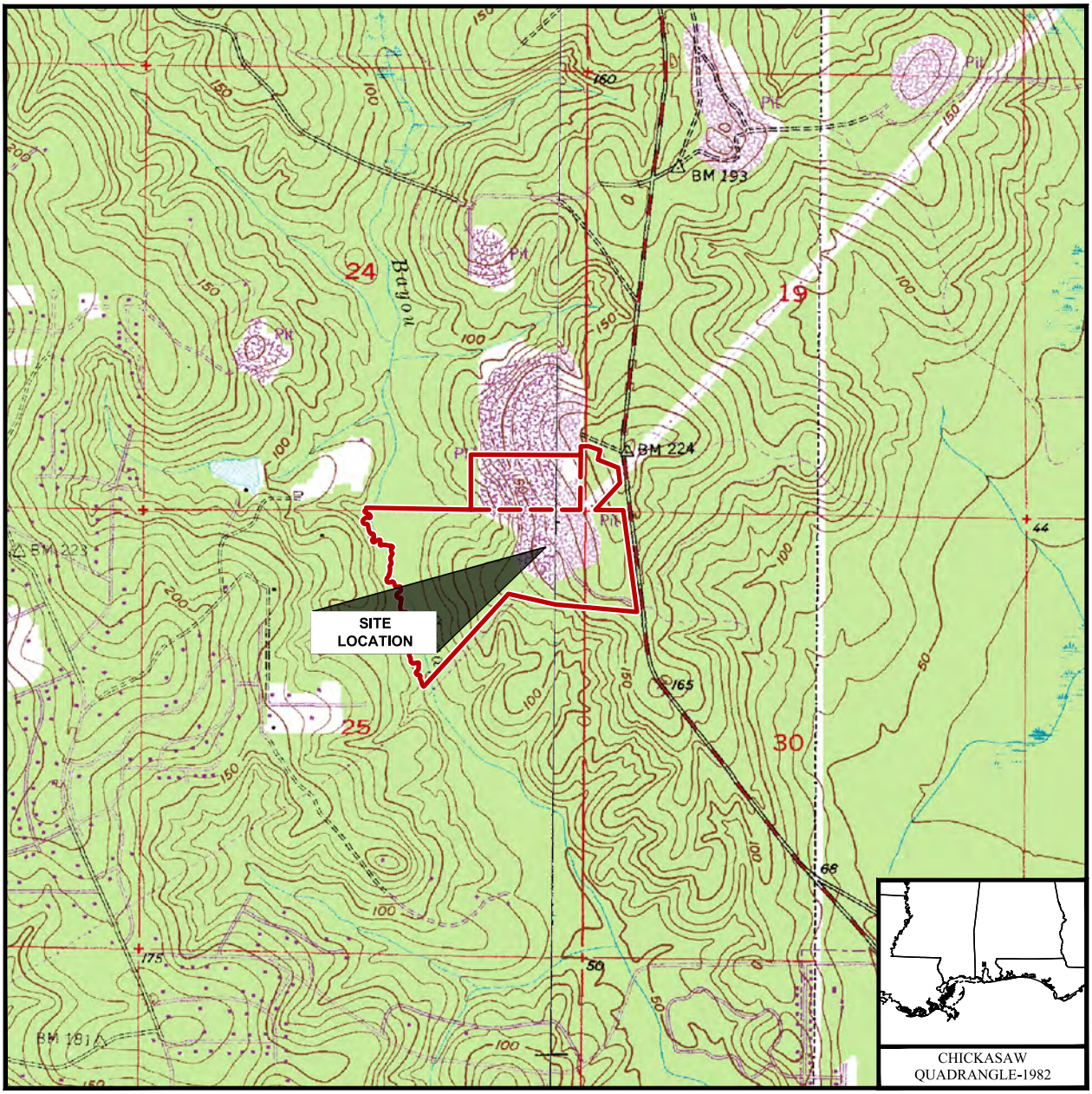
2. Site workers who are reasonably expected to be exposed to impacted soil will be familiar with these site management practices prior to implementing the work. Therefore, the City or its representatives will hold a pre-work meeting with the contractor to review the procedures outlined in the safety plan.
3. Proper sediment and erosion controls must be established prior to disturbance of the protective cover material to prevent the unintended offsite transport of impacted soil from the Baseball/Softball Fields Area of the Facility. These controls must be periodically inspected and adequately maintained throughout the duration of the activities to prevent the offsite transport of impacted soil from the area. Only after the area is adequately stabilized, can the sediment and erosion controls be removed.
4. Sufficient dust control practices will be implemented to prevent the air-borne mobilization of impacted soil from the area of the Facility. This will generally consist of keeping exposed impacted soil damp.
5. Impacted soil that is excavated following must be disposed as solid waste at a permitted landfill. A waste profile must be obtained from ADEM prior to the offsite disposal of any impacted soil from the Baseball/Softball Field Area.
6. To prevent the unintended dispersal of soil from the Baseball/Softball Field Area, all equipment that comes into contact with Foreign Material or impacted soil during work activities will be subject to dry decontamination methods. Visible soil or material will be physically removed from excavation and grading equipment with a shovel, heavy-duty brush, or similar tools before leaving the work area. Visible material potentially containing soil will be similarly removed from the sidewalls, tires, and gates of all dump trucks before leaving the site. Any affected material removed from the equipment should be contained and disposed at a permitted landfill, following receipt of an ADEM waste profile.
7. Construction activities cannot lower the final grade of any portion of the Baseball/Softball Field Area, without approval of a registered Professional Engineer or Professional Geologist, that is knowledgeable of the site conditions.

4.3 PROTECTIVE COVER MAINTENANCE

Following completion of construction activities, the City will be required to maintain the protective cover over the Foreign Material and impacted soils. The protective cover includes artificial turf, concrete, asphalt, building slabs, soil, and vegetation. The City shall

perform yearly inspections of the protective cover over the Baseball/Softball Fields Area. The inspection shall note areas of erosion channels greater than 0.5 feet deep, areas where vegetative cover has exposed soil greater than 25 square feet, areas where the protective cover has been disturbed, or any obvious signs of damage to the protective the protective cover. If these are noted during the inspection or during daily operation of the Facility, the City shall repair the issues as soon as possible.

FIGURES



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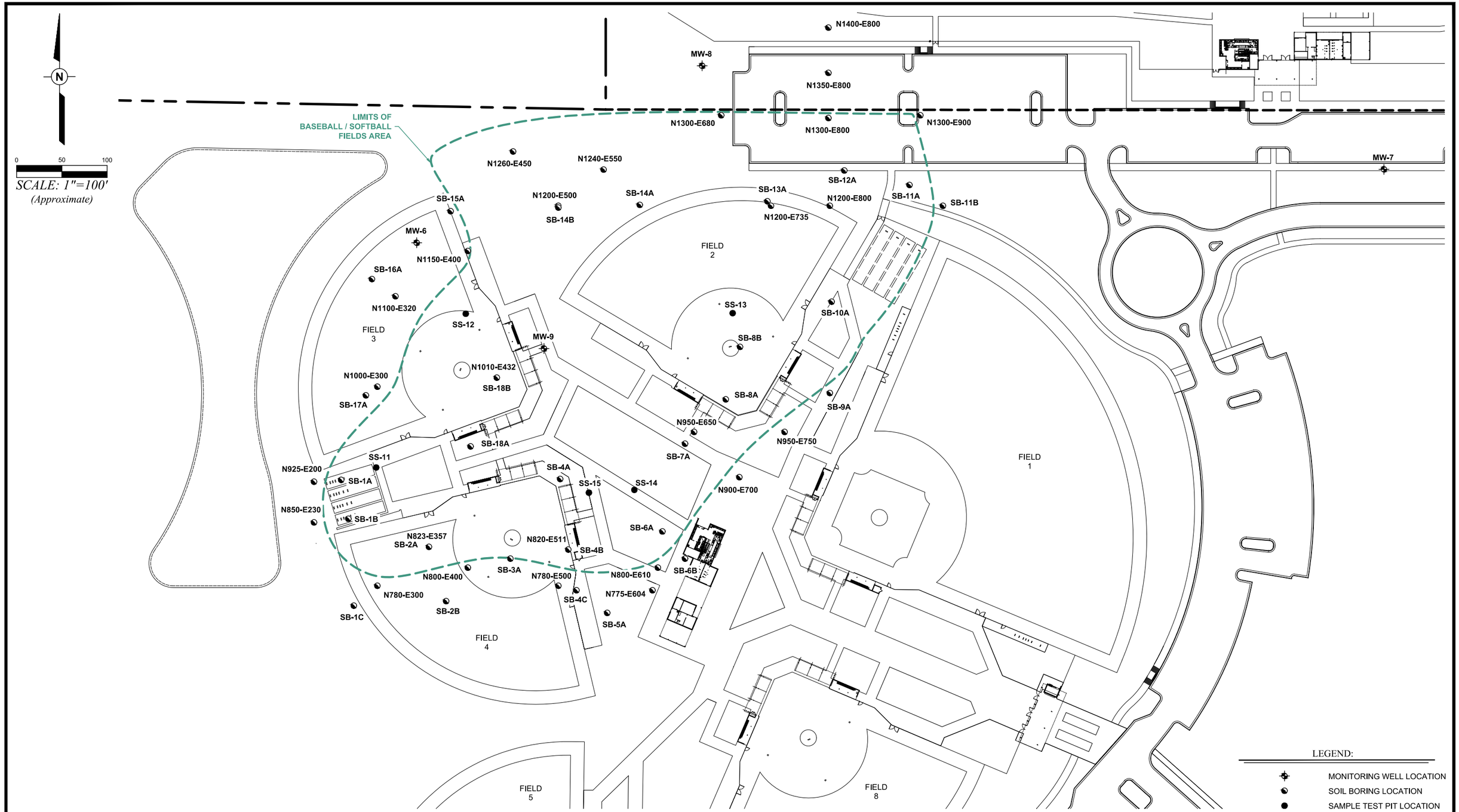
PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	FACILITY LOCATION MAP	FIGURE NUMBER 1
DRAWN BY: BWH	DRAWN DATE: 02/25/25			
PROJECT NUMBER: 20203301	PHASE: WP			



PPM CONSULTANTS, INC.
www.ppmco.com

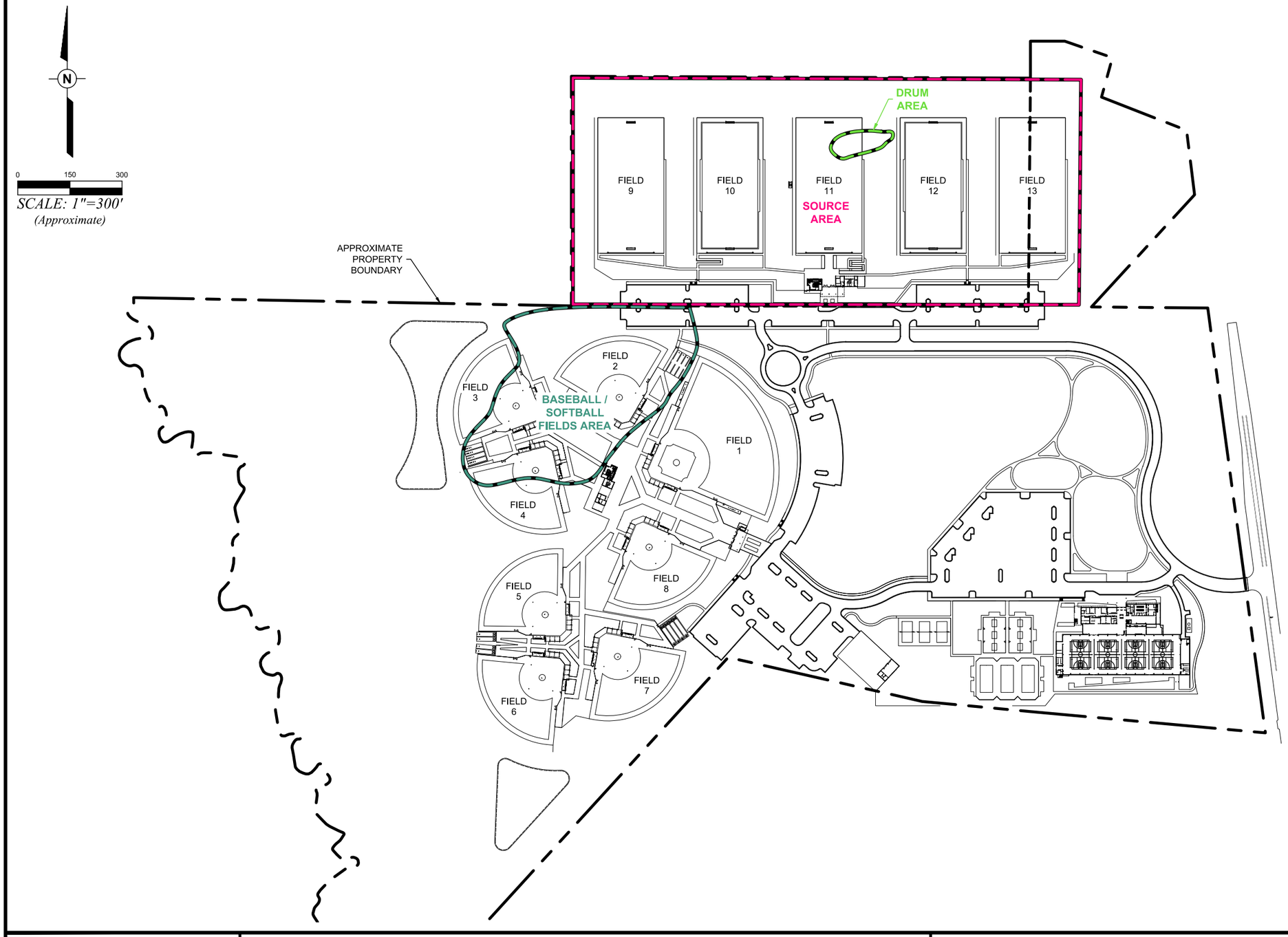
DRAWN BY:	DRAWN DATE:
BWH	02/25/25
PROJECT NUMBER:	PHASE:
20203301	WP

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

SITE MAP - BASEBALL / SOFTBALL FIELDS AREA

FIGURE NUMBER
2

NOTE:
PROPOSED CONSTRUCTION / FACILITY LAYOUT
PRIOR TO DISCOVERY OF FOREIGN MATERIAL.



PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 02/25/25
PROJECT NUMBER: 20203301	PHASE: WP

CITY OF SARALAND
THE LAND: SARALAND SPORTS & RECREATION COMPLEX
7365 CELESTE ROAD
SARALAND, ALABAMA

FACILITY MAP

FIGURE NUMBER
3

SOURCE: DRONE IMAGERY TAKEN BY PPM CONSULTANTS, INC. (NOVEMBER 2024)

PPM CONSULTANTS, INC. www.ppmco.com		CITY OF SARALAND **THE LAND: SARALAND SPORTS & RECREATION COMPLEX** 7365 CELESTE ROAD SARALAND, ALABAMA	FACILITY AERIAL PHOTOGRAPH (NOVEMBER 2024)
DRAWN BY: BWH	DRAWN DATE: 02/25/25		FIGURE NUMBER 4
PROJECT NUMBER: 20203301	PHASE: WP		