FEASIBILITY STUDY –

REMEDIATION OF LEAD AND POLYCYCLIC AROMATIC HYDROCARBONS IN SOIL

Lower Main Meadow, Pogonip Open Space
501 Golf Club Drive
Santa Cruz, California

01-POG-002

Prepared For:

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1.0 INTRODUCTION

RMD Environmental Solutions, Inc. (RMD), on behalf of the City of Santa Cruz (the City), has prepared this *Feasibility Study – Remediation of Lead and Polycyclic Aromatic Hydrocarbons in Soil* (FS) for the Lower Main Meadow, Pogonip Open Space, located at 501 Golf Club Drive[1] in Santa Cruz, California (the Site, Figures 1 and 2). Previous investigations to evaluate lead and polycyclic aromatic hydrocarbon (PAH) impacts in soil have occurred at the Site since 2019. This FS was prepared to evaluate potential remedial approaches and strategies for anticipated future land uses at the Site.

This FS is being submitted to: 1) present the Site background and current nature and extent of contamination; 2) present a conceptual site model (CSM) based on available data, including contaminant fate and transport information, to identify the exposure pathways and help ensure that the remedial action objectives (RAOs) and Site cleanup goals are protective of human health; 3) present RAOs for the Site; 4) evaluate potential remedial technologies to address soil impacts at the Site; and 5) select the preferred remedial approach for the Site. The remainder of this document is organized into the following sections:

- Section 2.0: Site Background;
- Section 3.0: Human Health Conceptual Site Model; and
- Section 4.0: Feasibility Evaluation.

Sections 5.0 and 6.0 provide the limitations for this FS and citations to the documents referenced, respectively.

[1] Note, the Site address changed from 333 Golf Club Drive to 501 Golf Club Drive in 2021.

2.0 SITE BACKGROUND

2.1 Site Location and Description

The Site is identified as the Lower Main Meadow of the Pogonip Open Space in Santa Cruz, California (Figure 1). The Site is the southern portion of the larger Santa Cruz County Assessor's Parcel Number [APN] 001-211-01. The Site is currently undeveloped except for a series of dirt roads and hiking trails accessible from Golf Club Drive, which is located along the southern and western Site boundaries (Figure 2). The Site is divided into the east meadow, the west meadow, a ravine between the east and west meadows, the north orchard, and the Emma McCrary Trail Area (Figure 2). A 0.08-acre seasonal wetland has been identified in the northern portion of west meadow. The Site is bordered by additional open space and the Pogonip clubhouse to the northwest, additional open space, and a former horse stable to the southwest, a forested slope to the east with a railroad line, Highway 9, and the San Lorenzo River beyond, and a plant nursery and Santa Cruz METRO office buildings to the south with commercial businesses beyond.

The City has agreed to lease approximately 20 acres in the lower meadow area to the Homeless Garden Project (HGP), a non-profit organization, of which 9.5 acres is proposed to be converted from recreational and natural open space to an agricultural and educational farm. In 2019, the City learned that a portion of the Site had been used as a skeet and trap shooting range between the 1930s and 1950s. Metals, primarily lead and to a lesser extent antimony, arsenic, copper, and zinc, are associated with shot, and PAHs are associated with clay targets. In 2019, a *Phase I Environmental Site Assessment* (Phase I; Weber, Hayes & Associates [WHA], 2019) identified the following two recognized environmental conditions (RECs):

- The historic operation of a skeet shooting range with confirmed elevated lead and PAH concentrations in shallow soil samples; and
- The presence of trash and debris primarily observed within the ravine of the lower meadow where homeless encampments have been established.

Based on the proposed land use by HGP, these RECs were investigated and the results were reported in the *Preliminary Endangerment Assessment Report* (PEA Report; RMD, 2020b). Based on the findings of the PEA Report, PAHs and select metals, primarily lead, were identified in HGP's proposed planting areas of the Site.

Following the PEA Report, an additional soil investigation for delineation of lead and PAHs at the Site was conducted at the request of the County of Santa Cruz Health Services Agency –

Environmental Health (the County). Findings of this investigation were presented in the *Revised Additional Soil Investigation Report and Human Health Screening Evaluation* (Additional Investigation Report) dated February 17, 2022 (RMD, 2022).

The California Department of Toxic Substances Control (DTSC) was the lead oversight agency during the PEA investigation described in the PEA Report. Currently, the County is the lead oversight agency.

A record of environmental conditions at the Site (i.e., regulatory directives and correspondence, Site documents, and analytical data) may be obtained through a review of the case files for DTSC EnviroStor Database Number 60002874 at the following website: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60002874
(Site Code 202272).

2.2 Historical Land Use

The following summarizes the historical land use based on information presented in the Phase I:

- Beginning in approximately 1850, the area surrounding the Site was used for limestone mining and the production of lime;
- From approximately 1912 through 1986, the known Site land uses included:
    - In 1912, the Site and surrounding open space were developed into a golf course and social club. The Pogonip clubhouse is located northeast of the Site;
    - In 1935, the golf course was turned into polo fields with horse stables located immediately off-Site to the west;
    - In 1937, the polo club constructed a skeet shooting range in the west meadow between Golf Club Drive and the ravine;
    - In 1948, a shooting range with a "Remington electrical trap" was added adjacent to the existing skeet shooting range, and the grounds were leveled by grading;
    - A 1956 aerial photograph of the Site shows the shooting range infrastructure removed and the area opened to rangeland;
    - From approximately 1958 to 1967, the Site was used for cattle grazing; and
    - In 1987, the Pogonip clubhouse was posted as unsafe for occupancy.

2.3 Current Land Use

In 1989, the Site was acquired by the City and has since been maintained as recreational open space. A fire break is maintained along the eastern boundary of the Site. During Phase I activities, Site inspection observations included concrete shooting pads and clay target fragments in the west meadow. In addition, the presence of unauthorized camping has been observed largely in the ravine area. City staff perform homeless encampment clean-ups; fire prevention work, such as removing vegetation and clearing dead trees; and trail work along the existing trails.

2.4 Anticipated Land Use

Site use will likely either remain as recreational land use or the Site will be redeveloped for unrestricted land use. A brief summary of each anticipated land use scenario is provided below.

2.4.1 Recreational Land Use

The recreational land use would be similar to the current land use with trails available for hiking only or multi-use (hiking, biking, and horseback riding) as designated through the Site. Overnight camping and off-trail use would continue to be prohibited. Natural resource, fire prevention, and trail management activities would occur under City management.

2.4.2 Unrestricted Land Use

The unrestricted land use would include developing portions of the west meadow, east meadow, and north orchard into active farming land. The HGP's Operation and Maintenance Plan and Development Plans for the Pogonip Farm and Garden propose a building complex, consisting of an administrative building, a pole barn, two greenhouses, and parking in the northeast portion of the west meadow along Golf Club Drive (HGP, 2017). In unfarmed areas, the Site would continue to be used for outdoor recreation (hiking and multi-use trails) with natural resource, fire prevention, and trail management activities conducted under City management.

2.5 Conceptual Shooting Range Contaminant Distribution

The types and distribution of contaminants associated with shooting ranges typically display a systematic pattern (Interstate Technology & Regulatory Council [ITRC], 2005). In general, metals, primarily lead and to a lesser extent antimony, arsenic, copper, and zinc, are associated

with shot, and PAHs are associated with clay targets. These materials are expected to be deposited on the surface or near surface soil.

Trap and skeet shooting ranges feature a fan-shaped clay target and shot fall zone radiating from the shooting pads. Although the distribution may vary, the following general dimensions relative to the shooting pads are hypothetically expected:

- 0 to 100 feet – Spent cartridge cases and wads;
- 200 to 325 feet – Clay target fragments; and
- 200 to 700 feet (skeet)/770 feet (trap) – Shot fall zone, with the greatest anticipated shot density at 400 to 600 feet.

This conceptual distribution of contaminants was generally observed during the PEA investigation conducted in May 2020 (Section 2.6.3).

2.6 Previous Site Investigations

Between November 2018 and December 2021, soil samples were collected during multiple phases of investigation. Consistent with the anticipated land uses and the PEA Report, the following soil screening levels (SLs) were compared with Site investigation results:

- Background Concentrations for Metals – DTSC (2015) recommends that metals detected at background (ambient) levels not be identified as chemicals of potential concern (COPCs) at a site. In accordance with the DTSC-approved *Preliminary Endangerment Assessment Work Plan* (RMD, 2020a), a 2009 Lawrence Berkeley National Laboratory (LBNL, 2009) study was used to identify acceptable background levels for metals except for arsenic, which used the background level for San Francisco Bay Region of 11 milligrams per kilogram (mg/kg, Duvergé, 2011). Table 1 of the PEA Report presents background levels for metals detected in soil.
- Risk-Based SLs – The risk-based soil SLs include U.S. Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs; USEPA, 2022) modified per DTSC Office of Human and Ecological Risk Human Health Risk Assessment (HHRA) Note Number 3 (HHRA Note 3; DTSC, 2022b) in accordance with the PEA Manual (DTSC, 2015). The risk-based soil SLs were available for unrestricted residential and commercial/industrial receptors. Risk-based soil SLs for lead were developed separately, as described in the following bullet.
- Lead SLs – Unlike other COPCs, the soil SL for lead is based on blood-lead (Pb) models. Neither USEPA nor California Environmental Protection Agency (CalEPA) publishes

toxicity values for lead. In the absence of toxicity values, noncarcinogenic effects from exposure to lead are evaluated by predicting blood-Pb concentrations using toxicokinetic modeling. DTSC LeadSpread 9[2] is recommended by DTSC for evaluating lead exposure. This model evaluates three exposure scenarios: 1) child residential scenario, 2) adult residential scenario, and 3) adult commercial worker (occupational) scenario (DTSC, 2022a). This section describes the blood-lead models used to develop lead soil SLs for the hypothetical long-term receptors anticipated at the Site.

- Future On-Site Unrestricted Receptor - This receptor is a long-term receptor that includes unrestricted land use, which may include farming and gardening activities for the purpose of cultivating, consuming and/or selling produce. DTSC LeadSpread 9 is recommended by DTSC for evaluating lead exposure under unrestricted land use. This model is based on child exposures only (most stringent scenario) and an exposure frequency of seven days per week for a 90-day average exposure duration. Based on this model, DTSC's soil SL for lead is 80 mg/kg (DTSC, 2022a). The soil SL of 80 mg/kg represents a reasonably conservative soil SL to protect future on-Site unrestricted receptors (RMD, 2020b).
- Future On-Site Commercial Worker Receptor - This receptor is a long-term adult receptor, a full-time commercial worker (farm and garden) employee that is assumed to spend 250 days per year working at the Site for 25 years. This receptor may spend the workday (8 hours per day) both indoors performing light office duties and outdoors performing moderate soil invasive activities in surface or near surface soil (e.g., maintenance or landscaping). The PEA Report used DTSC's commercial soil SL for lead of 320 mg/kg (RMD, 2020b), which was based on USEPA's adult lead model (ALM; DTSC, 2011)[3]. Based on LeadSpread 9 for the adult commercial worker exposure scenario, DTSC's soil SL for lead is 500 mg/kg (DTSC, 2022a).

[2] LeadSpread 9 is a revision of LeadSpread 8 for evaluating residential and industrial land use scenarios. The DTSC LeadSpread 9 model (DTSC, 2022a) evaluates exposure via the ingestion, inhalation, and dermal exposure pathways by using equations that relate incremental blood lead increase to a soil lead concentration to provide an estimate of median blood lead concentration. Current DTSC screening levels for lead are based on the soil concentration that will result in a 90th percentile estimate of blood lead equal to the target increase in children's blood lead level of concern by 1 microgram per deciliter (µg/dL; CalEPA benchmark incremental change criterion for lead).

[3] The model calculates the concentration in exterior soil and interior dust that will result in a 90th percentile estimate of blood lead among fetuses of adult workers of 1 µg/dL.

- **Current/Future Recreational Trail User Receptor** – This receptor is a long-term receptor that includes receptors using the Site for outdoor recreation (hiking and biking trails). This receptor is anticipated to be primarily an adult receptor; however, a child receptor may occasionally visit the Site during organized field trips or other visits accompanied by an adult. For this reason, the LeadSpread 9 model based on child exposures was used to estimate a soil SL for on-Site recreational trail user receptors. In the LeadSpread 9 model, DTSC indicates that non-residential scenarios may involve fewer than seven days per week for exposure frequency. Based on best professional judgement, to evaluate a recreational trail user scenario, the exposure frequency in the model was reduced from seven days per week to one day per week for a 90-day average exposure duration. The resulting soil SL for lead of 540 mg/kg represents a reasonably conservative soil SL to protect current/future on-Site recreational trail user receptors (RMD, 2020b)[4].

The SLs for soil are shown on Tables 1 and 2. Unless otherwise specified, the results of the previous Site investigation activities are compared with the soil SLs and discussed below.

2.6.1 2018/2019 Soil Investigation

The HGP conducted agricultural soil testing and incorporated evaluation of the potential agricultural impacts of the lead associated with the historic shooting range (HGP, 2019). This evaluation indicated the following:

- Extractable lead concentrations ranging from 0.9 parts per million (ppm) to 89.8 ppm, which exceeded a laboratory-recommended threshold for safe agricultural use of 22 ppm; and
- Total sorbed lead concentrations ranging from 56.08 mg/kg to 145.86 mg/kg, which were below a threshold of 400 mg/kg that would require implementation of modified farming practices (HGP, 2019).

Based on these results, the City decided to conduct additional sampling at the Site.

[4] The soil SL for lead of 540 mg/kg for on-Site recreational trail user receptors was included in the Work Plan (RMD, 2021) and subsequently approved by the County in their approval letter, dated June 2, 2021.

2.6.2 February 2019 Soil Investigation

Soil samples were collected from 52 soil borings, each advanced to approximately 2 feet bgs, in the west meadow at the Site (Environmental Investigation Services, Inc., 2019). Twelve 4-part composite samples (B1 through B12) were collected from 48 borings at depths of approximately 0 to 0.5 foot bgs (surface) and 1.5 to 2 feet bgs (shallow). Additionally, one 4-part composite sample (B13) was collected from approximately 0 to 0.5-foot bgs. The surface composite samples were analyzed for select metals (total lead, arsenic, copper, and zinc), PAHs, and total petroleum hydrocarbons (TPH) as diesel and motor oil (with silica gel cleanup). The 1.5 to 2 feet bgs composite samples were analyzed for metals only. The 4-part composite sample results for surface soil at borings B1 (northwestern portion of the west meadow) and B3 (northern portion of the west meadow) reported lead concentrations exceeding the residential SL of 80 mg/kg. Therefore, the four individual samples for these locations were analyzed for lead and reported lead concentrations exceeding the residential (unrestricted) SL of 80 mg/kg. Samples with PAH concentrations exceeding SLs were limited to surface soil in borings B5 and B7 (eastern portion of the west meadow) and borings B6 and B11 (central portion of the west meadow, near a former shooting pad location). Data summary tables for this investigation are provided as Tables A1 and A2 of Appendix A.

Based on the findings of the 2019 investigation, the following data gaps were identified:

- The magnitude of select metals (lead, antimony, arsenic, copper, zinc) concentrations in unsampled areas within the planned planting footprint in the west meadow;
- The extent and magnitude of select metals (lead, antimony, arsenic, copper, zinc) concentrations within the planned planting footprint in the north orchard and east meadow where higher shot fall density is anticipated;
- The extent and magnitude of PAH concentrations within the planned planting footprint in the western portion of the north orchard and east meadow; and
- The vertical extent of PAH concentrations that exceed SLs in the west meadow and other areas.

2.6.3 May 2020 Soil Investigation

To address the data gaps identified during the 2019 investigation, soil samples were collected from 71 soil borings located across the Site, each advanced to approximately 2 feet bgs (RMD, 2020b). Twenty-six soil borings were located in the west meadow, 12 soil borings were located in the north orchard, and 33 soil borings were located in the east meadow. Soil sample

locations were selected based on the planned farm and garden areas at the Site, findings of the 2019 soil investigation, and hypothetical shot and clay target fragment fall zones. During boring advancement, soil at approximate 6-inch intervals (0-0.5-foot bgs, 0.5-1.0-foot bgs, and 1.0-1.5-foot bgs [collectively referred to as the "surface"], and 1.5-2.0-foot bgs [shallow]) was visually inspected and logged. Soil from each boring location was screened with an X-Ray Fluorescence (XRF) analyzer to evaluate the vertical distribution of lead in the field. Two soil samples were collected from each boring location based on field observations. The selected soil samples were analyzed for select metals (lead, antimony, arsenic, copper, and zinc) and PAHs according to field observations and XRF screening (for lead) as described in the PEA Report. Data summary tables for this investigation are provided as Tables A3 and A4 of Appendix A.

Lead concentrations exceeded the commercial worker soil SL of 320 mg/kg and the recreational trail user soil SL of 540 mg/kg at one location south of the southern shooting range in the west meadow, in the western portion of the north orchard along the trail connecting the west meadow to the east meadow, and in the south and west portions of the east meadow along the ravine.

PAH concentrations exceeded one or more soil SLs at eight boring locations in the west meadow. As mentioned above, the extent of PAHs in soil have been delineated to the extent necessary.

Based on the findings of the 2020 investigation, the following data gaps were identified:

- The extent of lead concentrations near the north orchard along the trail connecting the west meadow to the east meadow;
- The extent of lead concentrations within the sloped ravine area between the west meadow and east meadow; and
- The extent of lead concentrations along the recreational trails located south of the east meadow (Emma McCrary Trail Area).

2.6.4 December 2020 Site Visit

On December 15, 2020, RMD, City, and County personnel conducted a Site visit to review previous sampling locations where lead concentrations exceeded the recreational trail user soil SL, discuss potential delineation sampling locations, and evaluate potential access issues.

The findings of the Site visit included:

- Two arcs of concrete pads, which are interpreted as the shooting pads for the historic trap and skeet ranges, were further observed in the central portion of the west meadow;
- Vegetation covers most of the Site with homeless encampments further observed in several wooded areas including the ravine area; and
- The southern side of the east meadow, the ravine area, and public recreation trails in the southeastern portion of the Site and connecting the west meadow to the east meadow had not been adequately delineated for lead concentrations in shallow soil.

The hypothetical fan-shaped clay target and shot fall distribution associated with the orientation of the shooting pads is depicted on Figure 2.

Based on previous investigations and the Site visit, the County determined that further investigation is needed to fully delineate the lateral and vertical extent of lead concentrations in shallow soil near the southern side of the east meadow, in accessible portions of the ravine, and along select public recreation trails in the southeastern portion of the Site.

2.6.5 March 2021 Soil Investigation

Based on findings of the PEA Report, WHA collected shallow soil samples from 12 soil borings located along the trail connecting the west meadow to the east meadow near the north orchard to delineate the extent of lead concentrations near boring NO-3 and to support the use of this trail (WHA, 2021). At each boring, soil samples were collected at the surface and at approximately 1.5 feet bgs and analyzed for lead. The reported lead concentrations of up to 208 mg/kg were below the commercial soil SL of 320 mg/kg and the recreational trail user soil SL of 540 mg/kg. Based on these results, additional soil investigation is no longer necessary in this portion of the Site. A data summary table for this investigation is provided as Table A5 of Appendix A.

2.6.6 August/December 2021 Soil Investigation

To address the data gaps identified during the PEA Report investigation, soil samples were collected from 32 soil borings located across the Site, each advanced to approximately 2 feet bgs (RMD, 2022). Fourteen soil borings were located in the ravine, two soil borings were located in the north orchard, seven soil borings were located in the east meadow, two soil borings were located in the west meadow, and seven soil borings were located in the Emma McCrary Trail Area. During boring advancement, soil at approximate 6-inch intervals (0-0.5-foot bgs, 0.5-1.0-foot bgs, and 1.0-1.5-foot bgs, and 1.5-2.0-foot bgs) was visually inspected

and logged. Soil from each boring location was screened with a XRF analyzer to evaluate the vertical distribution of lead in the field. Two soil samples were collected from each boring location based on field observations. Select soil samples were analyzed for lead according to field observations and XRF screening as described in the Additional Investigation Report. Lead concentrations exceeded the recreational trail user soil SL of 540 mg/kg at four locations in the east meadow along the border with the ravine and five locations throughout the ravine.

A data summary table for this investigation is provided as Tables A6 of Appendix A.

2.6.7 Summary of COPCs

Based on the sample-by-sample comparison with background levels and risk-based soil SLs for the PEA investigation (RMD, 2020b), the following metals and PAHs were identified as COPCs in each area:

Summary of Chemicals of Potential Concern (COPCs)			
Area	Unrestricted Land Use		Recreational Land Use
West Meadow	• Antimony • Arsenic • Copper • Lead • Zinc	• Benz(a)anthracene • Benzo(a)pyrene • Benzo(b)fluoranthene • Dibenz(a,h)anthracene • Indeno(1,2,3-c,d)pyrene • Naphthalene	• Benzo(a)pyrene • Lead • Benzo(b)fluoranthene • Dibenz(a,h)anthracene
North Orchard	• Lead		• Lead
East Meadow	• Lead		• Lead

Based on the findings of the PEA Report, PAHs and select metals, primarily lead, were identified in proposed planting areas of the Site. The Additional Investigation Report provides an updated evaluation of the nature and extent of COPCs at the Site. Areas with COPC exceedances above the recreational and unrestricted soil SLs are shown on Figures 3 and 4, respectively.

3.0 HUMAN HEALTH CONCEPTUAL SITE MODEL

To develop a conceptual understanding of the Site, information regarding potential chemical source, chemical release, and transport mechanisms; locations of potentially exposed human receptors; and potential exposure routes were assessed. This information was previously presented in the PEA Report. Based upon comments from the County (2021 and 2022), the human health conceptual site model (CSM) was updated to include the hypothetical recreational trail user receptor and the hypothetical unauthorized camper receptor. The updated CSM is outlined schematically on Figure 5 and discussed below.

The CSM associates sources of chemicals with potentially exposed human receptors and associated complete exposure pathways. In this way, the CSM assists in quantifying potential impacts to human health. As defined by USEPA (1989), the following four components are necessary for a chemical exposure pathway to be considered complete and for chemical exposure to occur:

- A chemical source and a mechanism of chemical release to the environment;
- An environmental transport medium (e.g., soil) for the released chemical;
- A point of contact between the contaminated medium and the receptor (i.e., the exposure point); and
- An exposure route (e.g., incidental ingestion of soil) at the exposure point.

As described below, these components provide a basis for the CSM.

3.1 Chemical Source, Release, and Transport

To evaluate the first two components necessary for a complete exposure pathway, chemical properties of the detected chemicals and the physical characteristics of the Site were reviewed to identify factors that might allow the release and transport of chemicals. As discussed in Section 2.0, the potential source of impacts at the Site is related to the deposition of shot and clay target fragments. Based on historic land use as a shooting range and previous Site investigations, the COPCs include metals and PAHs, which tend to adsorb to soil particles and typically do not readily dissolve into water or volatilize into ambient air. Therefore, this CSM focuses on direct contact exposure routes to metals and PAHs in on-Site soil.

3.2 Potential Receptors

The third component necessary for an exposure pathway to be complete is identification of potential receptors at the Site based on anticipated land use.

Based on current and anticipated future land use as a recreational area, the following hypothetical receptors were considered in this CSM:

- Current/Future On-Site Recreational Trail User Receptor.

Based on the anticipated future land use as an agricultural and educational farm with a commercial building complex, the following hypothetical receptors were considered in this CSM:

- Future On-Site Unrestricted Receptor; and
- Future On-Site Commercial Worker Receptor.

As stated in the PEA Report, a future on-Site construction worker receptor will be present during redevelopment of the Site; but this receptor will be a short-term receptor, performing activities subject to applicable administrative controls (e.g., Site Management Plan [SMP], Site Health and Safety Plan [HASP], and best management practices [BMPs]). This receptor is expected to be a short-term outdoor worker (i.e., 2 weeks to 1 year) for a single construction or development project at the Site. The exposures for a construction worker receptor are expected to be limited in comparison to long-term worker receptors.

The hypothetical on-Site receptors included in the CSM are described in more detail below.

3.2.1 Hypothetical On-Site Recreational Trail User Receptor

The recreational trail user receptor is a long-term receptor that may include visitors using the recreational trails at the Site. Based on best professional judgment, this receptor is assumed to visit the Site one day per week (52 days per year) for a 26 year exposure duration (as both a child [6 years] and an adult [20 years] or one day per week for a 90-day average exposure duration for lead [LeadSpread 9 model]). Potential exposures for this receptor are expected to occur from time spent outdoors only (8 hours per day). Typically, a recreational trail user that frequently visits a site would spend up to 4 hours per day on the trails (Gobster, 2005). It is conservative to assume that the recreational trail user that frequently visits the Site for 52 days a year will be using the trails for 8 hours a day at each visit, considering only short segments of

the greater Pogonip Open Space trail system intersect the lead and PAH impacted areas of the Site.

3.2.2 Hypothetical On-Site Unrestricted Receptor

The hypothetical future on-Site unrestricted receptor was included to evaluate an unrestricted land use scenario, which is considered the most protective scenario for potential on-Site receptors including farm and garden workers. This receptor is a long-term receptor (i.e., greater than 7 years [USEPA, 1989]) that spends 350 days per year at the Site for a 26 year exposure duration (as both a child [6 years] and an adult [20 years] or seven days per week for a 90-day average exposure duration for lead [LeadSpread 9 model]). The unrestricted land use may include farming and gardening activities for the purpose of cultivating, consuming and/or selling produce (RMD, 2020b).

3.2.3 Hypothetical On-Site Commercial Worker Receptor

The hypothetical future on-Site commercial worker receptor is a long-term adult receptor. This receptor is a full-time employee that is assumed to spend 250 days per year working at the Site for a 25 year exposure duration or five days per week for a 90-day average exposure duration for lead [LeadSpread 9 model]. This receptor may spend the workday (8 hours per day) both indoors performing light office duties and outdoors performing moderate soil invasive activities in surface or near surface soil (e.g., maintenance or landscaping).

3.3 Complete Exposure Pathways

The fourth and final component, a complete exposure pathway (i.e., route of exposure) is discussed in combination with the third component (i.e., presence of receptors at an exposure point) to define those exposure pathways considered to be complete and significant for the future on-Site receptors. The exposure pathways assumed to be complete and significant for the hypothetical current/future on-Site receptors includes the following:

- Incidental ingestion of soil;
- Dermal contact with soil; and
- Inhalation of fugitive dust.

As a working farm and garden, it is assumed that the future on-Site farm and garden worker receptor will grow fruits and vegetables to consume and/or sell to the public. The produce sourced from the Pogonip Farm and Garden will only account for a portion of a potential

receptors diet; therefore, is not likely a significant exposure pathway. Evaluation of the exposure pathways listed above for an unrestricted land use scenario are considered adequately protective for the proposed future land use at the Site (RMD, 2020b).

4.0 FEASIBILITY EVALUATION

This section describes the Site-specific remedial action objectives (RAOs) and cleanup goals for soil at the Site. The exposure routes and receptors defined in the human health CSM (Section 3.0 and Figure 5) are used to define the media of concern to be evaluated for remedial alternatives and to identify appropriate Site-specific RAOs and cleanup goals, which are used to identify COPCs. The Site-specific RAOs, cleanup goals, and COPCs are then used for the selection of applicable remediation technologies to be screened for remediation of the Site.

4.1 Remedial Action Objectives

Site-specific RAOs were developed to identify specific cleanup goals to mitigate soil impacts at the Site and to protect human health and the environment based on either a recreational trail or unrestricted land use. The PEA Report identified metals, primarily lead, and select PAHs in shallow soil as COPCs for the Site.

The RAOs developed to address soil impacts at the Site include the following:

- Prevent direct contact, ingestion, and inhalation of COPC-impacted soil to allow for recreational trail land use and/or unrestricted land use; and
- Mitigate COPC concentrations in impacted soil at the Site to allow for recreational trail land use and/or unrestricted land use.

The short-term objective is to allow for recreational trail land use in accessible portions of the Site where soil concentrations are below applicable SLs per the request of the County. As funding becomes available, the City plans to conduct additional remedial action to expand the area for recreational trail land use and, ultimately, remediate all accessible portions of the Site to allow for unrestricted land use, including farming and gardening.

4.2 Remedial Action Cleanup Goals

The remedial action cleanup goals were developed using the following:

- Risk-Based Benchmarks (USEPA RSLs [USEPA, 2022];
- DTSC HHRA Note 3 [DTSC, 2022b]; and
- DTSC LeadSpread 9 [DTSC, 2022a]).

The LeadSpread 9 model (DTSC, 2022a,b) recommends that the remedial/mitigation level for unrestricted soil exposure remain at the current residential (unrestricted) default value of 80 mg/kg. Similarly, the recreational lead soil SL is 540 mg/kg using LeadSpread 8 and remains at 540 mg/kg using the updated LeadSpread 9 model.

Based on the Site-specific RAOs and the criteria mentioned above, the proposed remedial action cleanup goals are as follows:

Compound	Proposed Cleanup Goal – Recreational Land Use (mg/kg)	Proposed Cleanup Goal – Unrestricted Land Use (mg/kg)
Lead	540	80
Benzo(a)anthracene	45	1.1
Benzo(a)pyrene	4.5	0.11
Benzo(b)fluoranthene	45	1.1
Dibenz(a,h)anthracene	1.1	0.028
Indeno(1,2,3-CD)pyrene	45	1.1

4.3 Potential Remedial Alternatives

Based on the findings of previous Site investigations, remedial alternatives have been identified and will be evaluated. These potential remedial alternatives include the following or combinations of the following:

- No Action;
- Institutional and Engineering Controls;
- Surface Capping;
- In-Situ Treatment;
- Phytoremediation;
- Soil Flipping; and
- Excavation and Off-Site Disposal.

4.4 Remedial Alternative Screening

Technologies were screened based on their abilities to meet the overall objectives to provide site management and reduce soil concentrations.

No action involves no further activities to treat, contain, or remove any of the COPC-impacted soil present at the Site. This alternative is required for consideration by the National Contingency Plan (NCP) to provide a baseline to compare other remedial alternatives. Therefore, this alternative is retained for further evaluation.

Institutional and Engineering Controls

Institutional controls are non-engineering and/or legal measures that minimize the potential for human exposure to COPCs at a Site without actually reducing their toxicity, mobility, and/or volume. Deed restrictions and site management plans are common institutional controls and are sometimes used in combination with active remedial technologies.

Engineering controls are physical modifications that minimize the potential for human exposure to COPCs at a site without actually reducing their toxicity, mobility, and/or volume. Engineering controls are typically barriers (e.g., fences) that restrict access and direct contact with COPCs at a Site.

Institutional and engineering controls are highly effective in the short-term, easily implementable, and low cost. These methods combined with at least one other alternative would likely receive regulatory and community acceptance. Therefore, this alternative is retained for further evaluation.

Surface Capping

Surface capping involves covering portions of the Site with waterproof material (e.g., asphalt or concrete) where soil concentrations exceed Site-specific SLs to form a stable surface and prevent future direct contact with the impacted soil. Surface capping would provide long-term effectiveness but does not have the ability to reach remedial action cleanup goals and does not reduce toxicity or volume of impacted soil. Surface capping would be difficult to implement in tree covered and sloped areas of the Site and would likely not receive regulatory or community acceptance. Therefore, this alternative is rejected from further evaluation.

In-Situ Treatment

In-Situ treatment can include methods such as soil flushing or chemical immobilization (solidification/stabilization). Soil flushing involves injecting extraction fluid into the soil and

works well in coarse-grained soils with high permeability. Chemical immobilization involves mixing a binding agent such as cement, asphalt, or clay to the impacted soil using augers, or similar, to form a solid block. In-situ treatment technologies can be effective in reducing toxicity, mobility, and volume of impacted soil, but can be difficult to implement and are costly. Also, soil flushing is typically implemented for deeper soil, not the surface and near surface soil impacts observed at the Site. It is unlikely in-situ treatment would receive regulatory and community acceptance. Therefore, this alternative is rejected from further evaluation.

Phytoremediation

Phytoremediation includes growing plants or trees throughout the Site to remove heavy metals and PAHs from soil through natural processes. Phytoremediation would require large volumes of water over the lifetime of the project and would require routine soil sampling to monitor COPC concentrations over time. Phytoremediation relatively low-cost and generally improves the physical, chemical, and biological quality of the soil reducing toxicity, mobility, and volume of contaminants. Therefore, this alternative is retained for further evaluation.

Soil Flipping

Soil flipping involves excavating and temporarily stockpiling the impacted soil, excavating and stockpiling several feet of the clean soil from beneath where the impacted soil was located, then backfilling the impacted soil beneath the clean soil to create a surface cap as a means to prevent direct contact with the impacted soil.

Soil flipping minimizes the potential for human exposure to COPCs without actually reducing their toxicity, mobility, or volume, but may not be a feasible option for a future unrestricted land use that involves farming since the root structure of the plants may extend down into the impacted soil beneath the top layer of clean soil. However, soil flipping may be feasible in areas of the Site where future farming is not likely to occur. Soil flipping can be implemented for long-term effectiveness at a moderate cost, however regulatory and community acceptance are uncertain. Therefore, this alternative is rejected from further evaluation.

Excavation and Off-Site Disposal

Excavation and off-Site disposal involves removing the impacted soil and hauling it off-Site for disposal at a landfill. Excavation and off-Site disposal would reach the remedial action cleanup goals by reducing the toxicity, mobility, and volume of impacted soil and is a proven, long-term solution. Implementing excavation and off-Site disposal would be difficult in the tree covered and sloped portions of the Site but would be relatively easy in the open areas. Excavation and off-Site disposal is a high cost alternative but would likely receive regulatory and community acceptance. Therefore, this alternative is retained for further evaluation.

4.5 Detailed Analysis of Retained Remedial Alternatives

A detailed analysis of remedial alternatives retained for further evaluation was conducted using the following nine decision-making criteria:

- Overall Protection of Human Health and the Environment;
- Ability to Reach Remedial Action Cleanup Goals;
- Long-Term Effectiveness and Performance;
- Reduction of Toxicity, Mobility, and Volume through Treatment;
- Short-Term Effectiveness;
- Implementability;
- Cost;
- Regulatory Acceptance; and
- Community Acceptance.

Based on the remedial alternative screening evaluation presented above, RMD conducted a detailed analysis of the following remedial approaches for the Site:

- Alternative 1 – No Action (for comparison; as required by the NCP);
- Alternative 2 – Institutional and Engineering Controls;
- Alternative 3 – Phytoremediation; and
- Alternative 4 – Excavation and Off-Site Disposal.

Table 3 provides the ranking results and RMD's evaluation of each alternative to meet the nine decision-making criteria. Results are briefly summarized below.

4.5.1 Alternative 1 – No Action

No action involves no further activities to treat, contain, or remove any of the COPC impacted soil present at the Site. This alternative is considered to provide a baseline to compare to other remedial alternatives. The "no action" alternative does not provide adequate protection to human health or the environment and will not be discussed further in the criteria analysis. Alternative 1 received a low-ranking score of 10 in the detailed analysis presented in Table 3.

4.5.2 Alternative 2 – Institutional and Engineering Controls

Institutional controls would include a deed restriction on the Site, preparation of a site management plan, and posting of notification signs to warn Site visitors of the known COPC impacts to soil. For the recreational land use scenario, engineering controls would include the installation of livestock fencing, or similar, around the ravine and accessible areas of the Site where COPC concentrations exceed the recreational SLs. For the unrestricted land use scenario, engineering controls would include the installation of fencing around the ravine area where COPC concentrations exceed the unrestricted SLs.

This alternative is protective of human health in the recreational land use scenario but would not be appropriate for the unrestricted land use scenario involving active farming and gardening for human consumption. Institutional and engineering controls do not allow for any treatment to reduce toxicity, mobility, or volume and would not reach remedial cleanup goals. This alternative would provide short-term effectiveness for the recreational land use scenario but would require long-term maintenance and repairs of the fencing. The proposed institutional and engineering controls would be easily implemented at a low cost and would likely receive regulatory and community acceptance.

Alternative 2 received a moderate ranking score of 26 in the detailed analysis presented in Table 3.

4.5.3 Alternative 3 – Phytoremediation

Phytoremediation includes growing plants or trees throughout the Site to remove heavy metals and PAHs from soil through natural processes and would be a potential alternative for the recreational land use scenario. Covering large portions of the Site in plants and trees for phytoremediation would limit the available area for active farming and gardening in the unrestricted land use scenario. This alternative would remove COPCs from impacted soil but might not reach remedial action cleanup goals. Phytoremediation is implementable, low-cost,

and generally improves the physical, chemical, biological quality of the soil reducing toxicity, mobility, and volume of contaminants. However, phytoremediation requires large volumes of water and is not a short-term solution. This alternative would require ongoing maintenance and routine soil sampling to monitor remedial progress.

Alternative 3 received a low-ranking score of 19 in the detailed analysis presented in Table 3.

4.5.4 Alternative 4 – Excavation and Off-Site Disposal

Excavation and off-Site disposal includes removing the impacted soil and hauling it off-Site for disposal at a landfill. This alternative is a proven solution to reach the remedial action cleanup goals in the short-term by reducing the toxicity, mobility, and volume of impacted soil and would be highly effective in the long-term since the source of the COPCs in soil has already been removed. Implementing excavation and off-Site disposal would be difficult in the tree covered and sloped portions of the Site but would be relatively easy in the open areas once a temporary access road is constructed and the Site is prepared for heavy equipment operation. The existing access road between the western and eastern portions of the Site crosses a seasonal wetland/drainage area, and any impacts or temporary development within the area would be heavily regulated. It is uncertain if soil removal in the ravine would be permitted, due to the steepness of the terrain and density of large trees within a riparian area. Excavation and off-Site disposal is the highest cost alternative but would likely receive regulatory and community acceptance.

Alternative 4 received the highest-ranking score of 31 in the detailed analysis presented in Table 3.

4.6 Remedial Alternative Comparison

A comparison of Alternatives 2 through 4 in relation to the nine decision-making criteria is detailed on Table 3 and summarized below.

1. **Overall Protection of Human Health and the Environment:** Each of the three alternatives would provide some level of protection to human health and the environment, but excavation and off-Site disposal is the most effective method. Considering the Site topography and features, a combination of institutional and engineering controls with excavation and off-Site disposal would likely be the most feasible approach.
2. **Ability to Reach Remedial Action Cleanup Goals:** Institutional and engineering controls would not have the ability to reach remedial action cleanup goals. Phytoremediation

has the potential to achieve remedial action cleanup goals, but it is not guaranteed and could take a long time. Excavation and off-Site disposal is a proven method to adequately reach remedial action cleanup goals.

3. Long-Term Effectiveness and Performance: Institutional controls can be implemented in perpetuity but will likely need to be implemented in combination with a second remedial alternative to reach Site closure. Engineering controls can be highly effective in the long-term with proper maintenance and repairs. If phytoremediation was able to adequately reduce COPC concentrations, it would be an effective long-term solution. Excavation and off-Site disposal is the most guaranteed alternative for long-term effectiveness.
4. Reduction of Toxicity, Mobility, or Volume Through Treatment: As mentioned above, institutional and engineering controls do nothing to reduce toxicity, mobility, or volume through treatment. Phytoremediation can reduce toxicity, mobility, and volume but the long-term effectiveness is uncertain. Excavation and off-Site disposal would result in the highest reduction of toxicity, mobility, and volume of COPCs in soil.
5. Short-Term Effectiveness: Institutional and engineering controls can be highly effective in the short-term at preventing exposure to COPCs in soil. Phytoremediation is a medium to long-term alternative that would not be effective in the short-term. Excavation and off-Site disposal would be highly effective in the short-term once adequate funding is secured and excavation permits are issued.
6. Implementability: Institutional and engineering controls would be the easiest alternative to implement. Phytoremediation is can be easy to implement but would require ongoing maintenance in the form of planting, watering, and routine soil sampling to monitor remedial progress. Excavation and off-Site disposal is easy to implement once a temporary access road is constructed and the Site is prepared for heavy equipment operation. Site access for soil removal is limited due to sensitive natural resources such as wetlands or riparian areas. Sourcing clean, organic, nutrient-rich backfill material for the unrestricted land use scenario would be challenging and add additional cost.
7. Cost: Estimates of present value costs for implementing the remedial approaches for a recreational or unrestricted land use scenario using Alternatives 2 and/or 4 are:
    - Recreational Land Use: Alternative 2 – $200-300K; 1-2 years.
    - Unrestricted Land Use: Alternatives 2 and 4 – $5-6 million; 2-4 years.

8. **Regulatory Acceptance:** It is likely institutional and engineering controls in combination with excavation and off-Site disposal would be approved. Phytoremediation is a less common alternative and does not have adequate short-term effectiveness.
9. **Community Acceptance:** In addition to this FS, a brief presentation of the project overview and feasibility evaluation will be included as an agenda item during an upcoming Santa Cruz City Council meeting.

4.7 Preferred Remedial Alternative Selection

Based on the above evaluation, the following alternatives are recommended based on anticipated land use:

- Recreational Land Use: Alternative 2 (Institutional and Engineering Controls).
- Unrestricted Land Use: Alternative 2 (Institutional and Engineering Controls) in combination with Alternative 4 (Excavation and Off-Site Disposal).

A summary of the proposed remedial actions for the recreational and unrestricted land uses are described in the following sections and presented on Figures 6 and 7, respectively. A Remedial Action Plan (RAP) will be prepared and submitted to the County for the selected land use scenario prior to implementation.

4.7.1 Recreational Land Use (Alternative 2)

For the hypothetical recreational land use scenario, an example of the proposed remedial actions are as follows:

- Install fencing around the tree covered ravine area and where known soil concentrations are above the Site-specific recreational soil SLs;
- Reroute recreational trails around fenced areas, where necessary;
- Prepare and implement a Soil Management Plan (SMP) to provide guidance for working and handling potentially impacted soil encountered during routine Site maintenance activities conducted by City staff; and
- Restrict land use with a Land Use Covenant (LUC), or similar.

4.7.2 Unrestricted Land Use (Alternatives 2 and 4)

For the hypothetical unrestricted land use scenario, an example of the proposed remedial actions are as follows:

- Construct a temporary access road and prepare the Site areas that will be used for heavy equipment staging and soil loading;
- Remove impacted soil with known concentrations above the Site-specific unrestricted soil SLs in accessible portions of the east meadow, west meadow, and north orchard areas;
- Collect confirmation soil samples to make sure the impacted soil has been removed to the extent necessary;
- Load and transport impacted soil to an off-Site disposal facility;
- Replace the impacted soil with clean imported soil that meets the yet to be determined project specifications;
- Install fencing around the tree covered ravine area and where known soil concentrations are above the Site-specific unrestricted soil SLs;
- Repair the Site topography to pre-remediation conditions, or similar, based on project specifications;
- Prepare and implement a Soil Management Plan (SMP) to provide guidance for working and handling potentially impacted soil encountered during routine Site maintenance and farming activities conducted by City and farm staff; and
- Restrict land use with a Land Use Covenant (LUC), or similar.

The estimated remedial cost included in Section 4.6 does not include the following:

- Preparation of an erosion control and stormwater pollution prevention plan;
- Construction of a temporary access road for soil removal activities;
- Installation of utility lines (e.g., water and electrical) to the east meadow; and
- Installation of perimeter fencing around the hypothetical farm and garden.

5.0 LIMITATIONS

This document was prepared for the exclusive use of the City for the express purpose of complying with a client directive for environmental investigation or restoration. RMD has used professional judgment to present the findings and opinions of a scientific and technical nature. The opinions expressed are based on the conditions of the Site existing at the time of the field investigation, current regulatory requirements, and any specified assumptions. The presented findings and recommendations in this report are intended to be taken in their entirety to assist City personnel in applying their own professional judgment in making decisions related to the property. No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and recommendations.

6.0 REFERENCES

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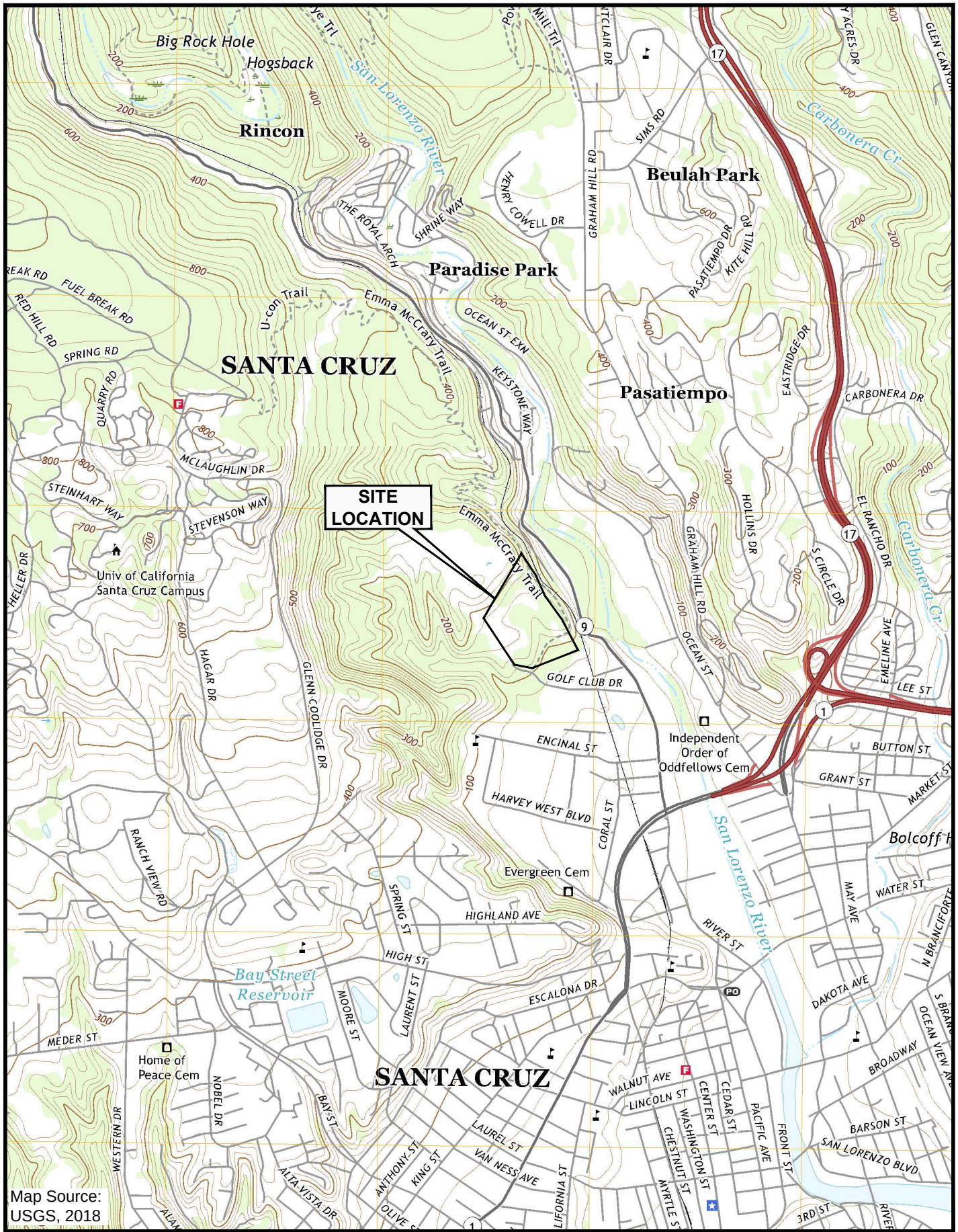
FIGURES



RMD ENVIRONMENTAL SOLUTIONS

LOWER MAIN MEADOW,
POGONIP OPEN SPACE
501 GOLF CLUB DRIVE
SANTA CRUZ, CALIFORNIA

SITE LOCATION MAP

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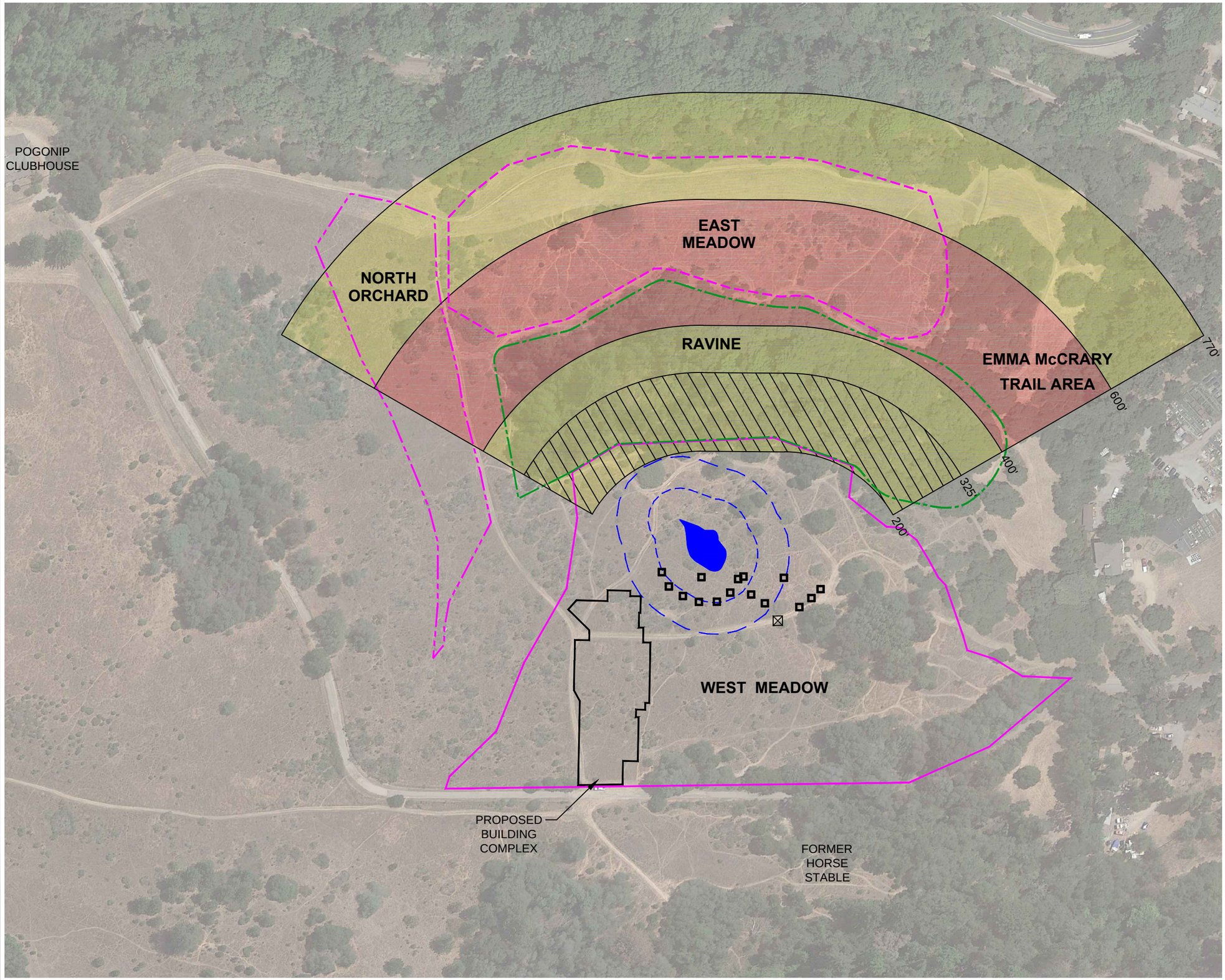
PROJECT NO.	DATE	DR.BY:	APP. BY:
01-POG-001	10/2021	EC	DW

0 2000 4000
SCALE: 1" = 2000'

FIGURE 1



LEGEND

- PROPOSED EAST MEADOW BOUNDARY
- PROPOSED WEST MEADOW BOUNDARY
- PROPOSED NORTH ORCHARD BOUNDARY
- APPROXIMATE RAVINE AREA
- 50' WETLAND BUFFER (NO PLANTING)
- 100' WETLAND BUFFER (NATIVE PLANTS)
- APPROXIMATE LOCATION OF SEASONAL WETLAND
- HYPOTHETICAL RANGE OF LEAD SHOT (~200'-770')
- HYPOTHETICAL RANGE OF HIGHEST LEAD SHOT CONCENTRATION (~400'-600')
- HYPOTHETICAL RANGE OF CLAY TARGETS (~200'-325')
- SHOOTING PAD LOCATION
- UNKNOWN CONCRETE PAD

Notes:
1) Hypothetical Ranges of Lead Shot and Clay Pigeons Are Based On Standard Skeet Shooting Range Shot Fall Zones. (ITRC, 2015)
2) Proposed Garden Boundaries and Building Complex Based on GPS Coordinate Plan (Fall Creek Engineering, Inc, 2018) and Map of Pogonip Farm & Garden (Homeless Garden Project O&M Plan, 2017)

SITE PLAN

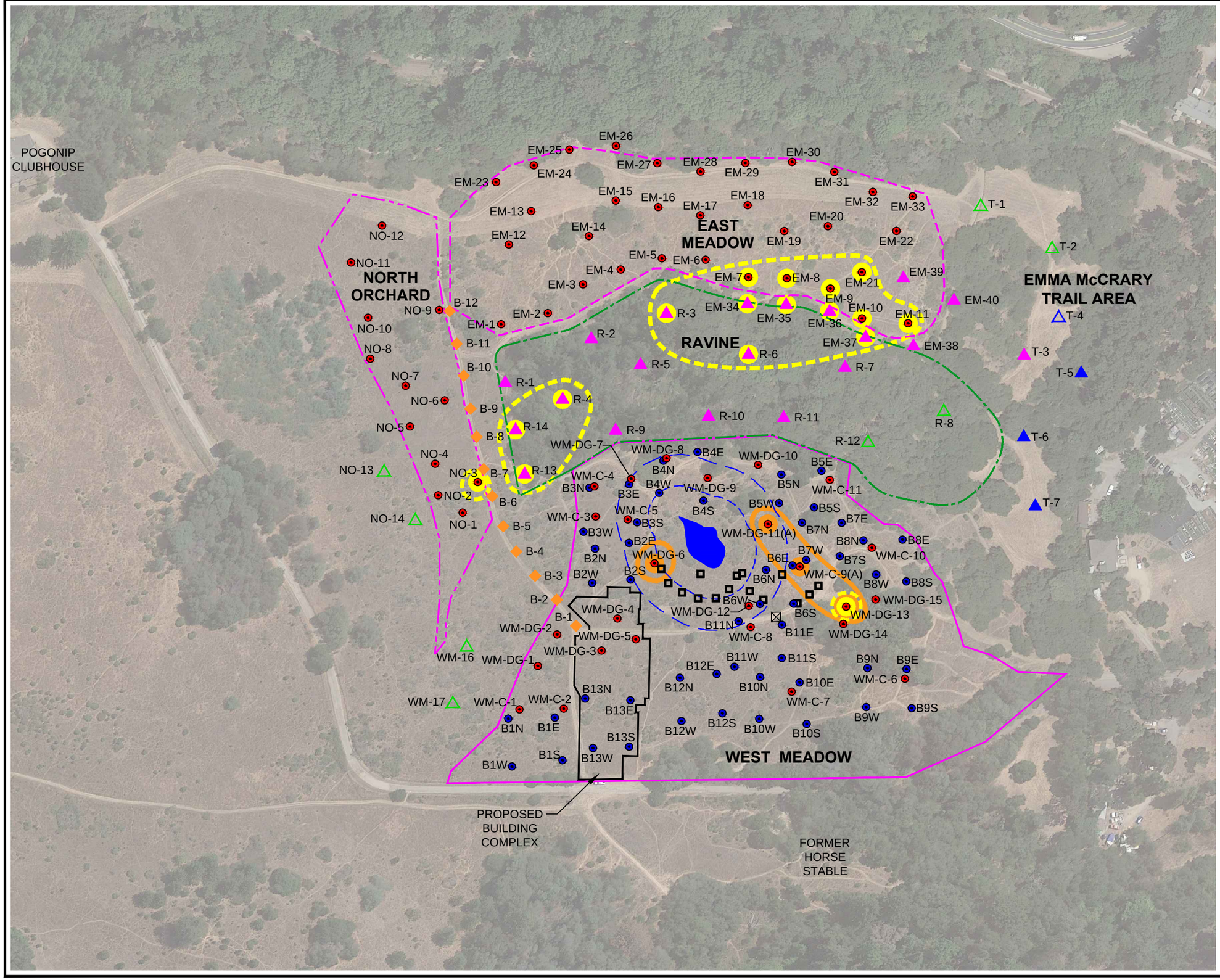
LOWER MAIN MEADOW, POGONIP OPEN SPACE
501 GOLF CLUB DRIVE
SANTA CRUZ, CA

PROJECT NO.	DATE	DRAWN BY:	APP. BY:
01-POG-001	10/2021	EC	DW

0 150 300
SCALE: 1" = 150'

RMD ENVIRONMENTAL SOLUTIONS

FIGURE 2



LEGEND

- PROPOSED EAST MEADOW BOUNDARY
- PROPOSED WEST MEADOW BOUNDARY
- PROPOSED NORTH ORCHARD BOUNDARY
- APPROXIMATE RAVINE AREA
- 50' WETLAND BUFFER (NO PLANTING)
- 100' WETLAND BUFFER (NATIVE PLANTS)
- APPROXIMATE LOCATION OF SEASONAL WETLAND
- SHOOTING PAD LOCATION
- UNKNOWN CONCRETE PAD
- SOIL SAMPLE LOCATION (EIS, 2019)
- SOIL SAMPLE LOCATION (RMD, 2020)
- SOIL SAMPLE LOCATION (WHA, 2021)
- SOIL SAMPLE LOCATION (RMD, 2021)
- XRF SCREENING LOCATION (RMD, 2021)
- XRF SCREENING LOCATION (RMD, 2022)
- SOIL SAMPLE LOCATION (RMD,2022)
- XRF — X-RAY FLUORESCENCE
- APPROXIMATE AREA EXCEEDING LEAD SCREENING LEVEL FOR RECREATIONAL TRAIL USE
- APPROXIMATE AREA EXCEEDING POLYCYCLIC AROMATIC HYDROCARBON SCREENING LEVELS FOR RECREATIONAL TRAIL USE

Notes:

1) Hypothetical Ranges of Lead Shot and Clay Pigeons Are Based On Standard Skeet Shooting Range Shot Fall Zones (ITRC, 2015).
2) Proposed Garden Boundaries and Building Complex Based on GPS Coordinate Plan (Fall Creek Engineering, Inc, 2018) and Map of Pogonip Farm & Garden (Homeless Garden Project O&M Plan, 2017).

AREAS EXCEEDING SCREENING LEVELS FOR RECREATIONAL TRAIL USE

LOWER MAIN MEADOW, POGONIP OPEN SPACE
501 GOLF CLUB DRIVE
SANTA CRUZ, CA

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01-POG-001	01/2022	EC	DW

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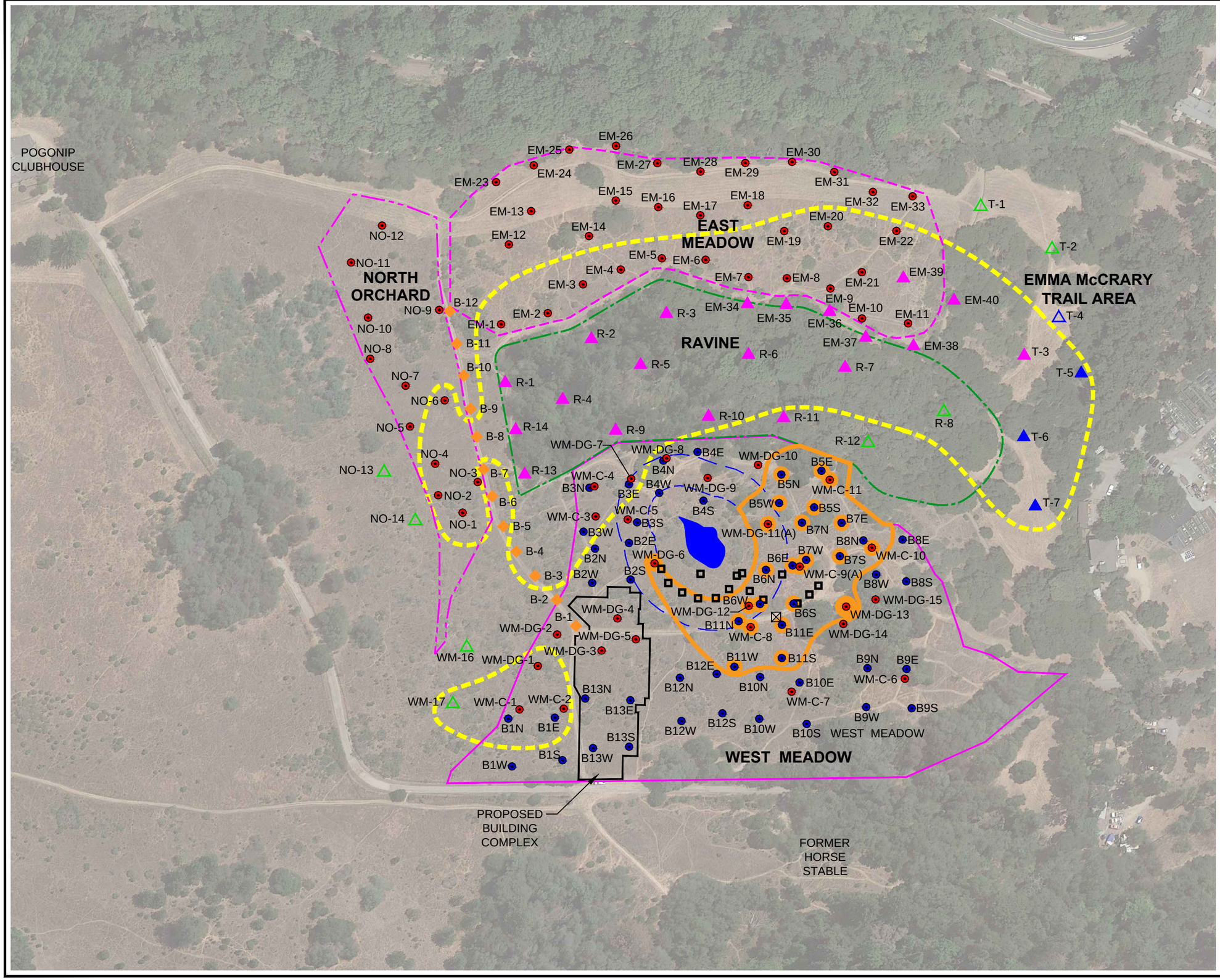
SCALE: 1" = 150'

RMD ENVIRONMENTAL SOLUTIONS

FIGURE 3



LEGEND

- PROPOSED EAST MEADOW BOUNDARY
- PROPOSED WEST MEADOW BOUNDARY
- PROPOSED NORTH ORCHARD BOUNDARY
- APPROXIMATE RAVINE AREA
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- 100' WETLAND BUFFER (NATIVE PLANTS)
- APPROXIMATE LOCATION OF SEASONAL WETLAND
- SHOOTING PAD LOCATION
- UNKNOWN CONCRETE PAD
- SOIL SAMPLE LOCATION (EIS, 2019)
- SOIL SAMPLE LOCATION (RMD, 2020)
- SOIL SAMPLE LOCATION (WHA, 2021)
- SOIL SAMPLE LOCATION (RMD, 2021)
- XRF SCREENING LOCATION (RMD, 2021)
- XRF SCREENING LOCATION (RMD, 2022)
- SOIL SAMPLE LOCATION (RMD,2022)
- XRF — X-RAY FLUORESCENCE
- APPROXIMATE AREA EXCEEDING LEAD SCREENING LEVEL FOR UNRESTRICTED LAND USE
- APPROXIMATE AREA EXCEEDING POLYCYCLIC AROMATIC HYDROCARBON SCREENING LEVELS FOR UNRESTRICTED LAND USE

Notes:
1) Yellow highlighted sample locations exceed the lead screening level for unrestricted land use.
2) Orange highlighted sample locations exceed the polycyclic aromatic hydrocarbon screening levels for unrestricted land use.
3) Sample location WM-DG-13 also reports antimony, arsenic, copper, and zinc exceeding screening levels for unrestricted land use.
4) Shot fragments observed at locations WM-DG-11(A) and WM-DG-13.
5) Clay target fragments observed at locations WM-C-9(A), WM-DG-11(A), WM-DG-13, and EM-10.
6) Proposed Garden Boundaries and Building Complex Based on GPS Coordinate Plan (Fall Creek Engineering, Inc, 2018) and Map of Pogonip Farm & Garden (Homeless Garden Project O&M Plan, 2017).

AREAS EXCEEDING SCREENING LEVELS FOR UNRESTRICTED LAND USE

LOWER MAIN MEADOW, POGONIP OPEN SPACE
501 GOLF CLUB DRIVE
SANTA CRUZ, CA

PROJECT NO.	DATE	DRAWN BY:	APP. BY:
01-POG-001	01/2022	EC	DW

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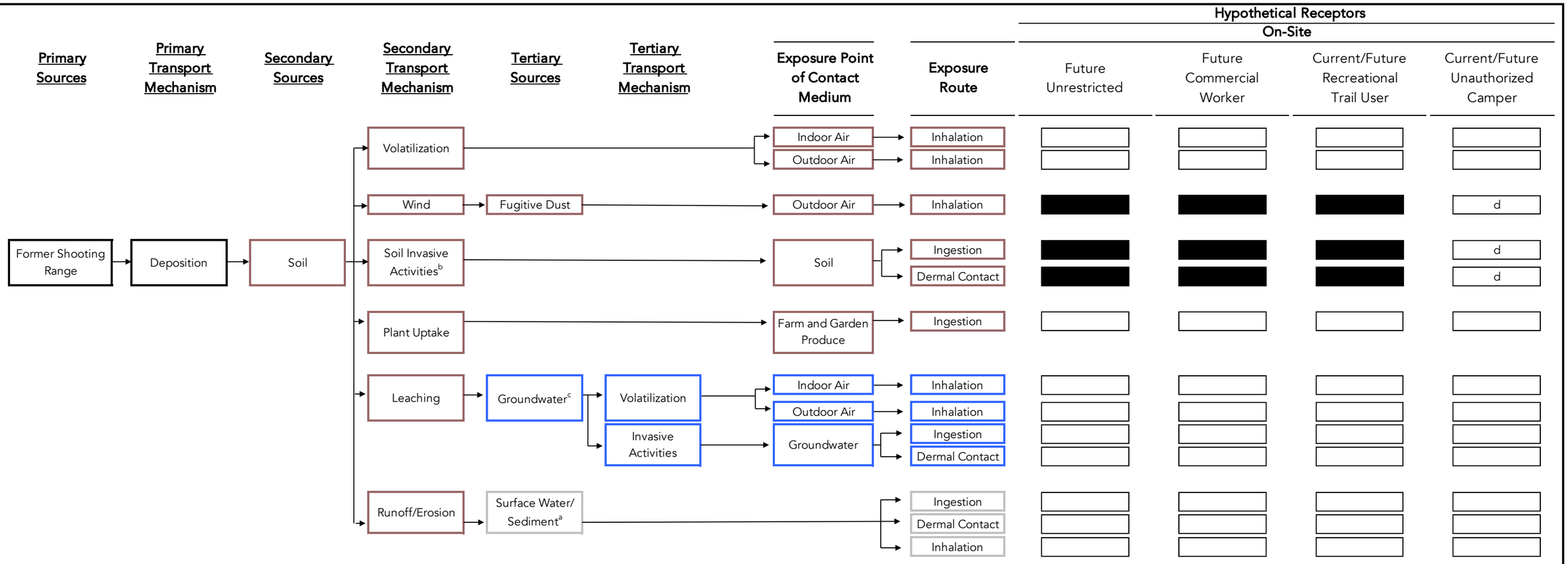
SCALE: 1" = 150'

RMD ENVIRONMENTAL SOLUTIONS

FIGURE 4

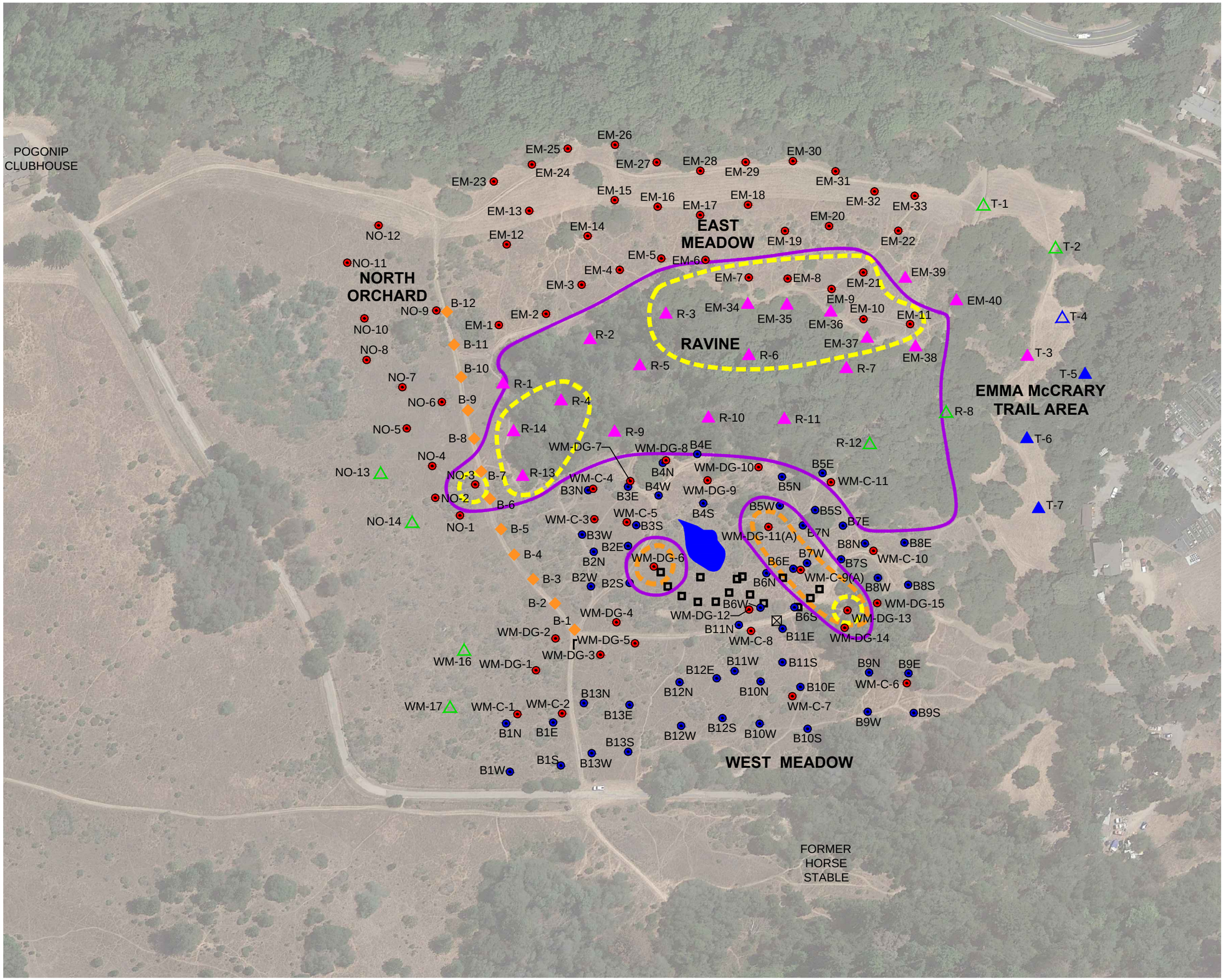


CSM components related to soil.
CSM components related to groundwater.
CSM components related to surface water.

Receptor likely to be exposed via this route, so pathway is considered potentially complete.
Receptor may be exposed via this route, so pathway is considered potentially complete; however, pathway is considered minor.
Pathway is incomplete, no further evaluation required.

[a] With the exception of the seasonal wetland, there are no identified surface water bodies within a one-half mile radius of the site.
[b] Surface invasive activities are not expected to extend beyond 2 feet bgs.
[c] Perched shallow groundwater supports seasonal wetlands and seeps. A 345 foot deep water supply well near the Pogonip clubhouse reported a depth to water of 128 feet below ground surface (bgs) in 1993. Due to depth to groundwater, it is not a media of concern at the site.
[d] Camping is prohibited at the Site and the exposure pathways for this receptor are incomplete due to the implementation of engineering controls to mitigate unauthorized camping at the Site.

POGONIP FARM AND GARDEN SANTA CRUZ, CALIFORNIA				HUMAN HEALTH CONCEPTUAL SITE MODEL
PROJECT NO.	DATE	DRAWN BY	APP. BY	RMD ENVIRONMENTAL SOLUTIONS
01-POG-001	02/02/22	II	DW	FIGURE 5



LEGEND

- APPROXIMATE LOCATION OF SEASONAL WETLAND
- SHOOTING PAD LOCATION
- UNKNOWN CONCRETE PAD
- SOIL SAMPLE LOCATION (EIS, 2019)
- SOIL SAMPLE LOCATION (RMD, 2020)
- SOIL SAMPLE LOCATION (WHA, 2021)
- SOIL SAMPLE LOCATION (RMD, 2021)
- XRF SCREENING LOCATION (RMD, 2021)
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- APPROXIMATE AREA EXCEEDING POLYCYCLIC AROMATIC HYDROCARBON SCREENING LEVELS FOR RECREATIONAL TRAIL USE
- PROPOSED ENGINEERING CONTROLS (FENCING)

RECREATIONAL LAND USE - PROPOSED ENGINEERING CONTROLS

LOWER MAIN MEADOW, POGONIP OPEN SPACE
501 GOLF CLUB DRIVE
SANTA CRUZ, CA

PROJECT NO.	DATE	DRAWN BY:	APP. BY:
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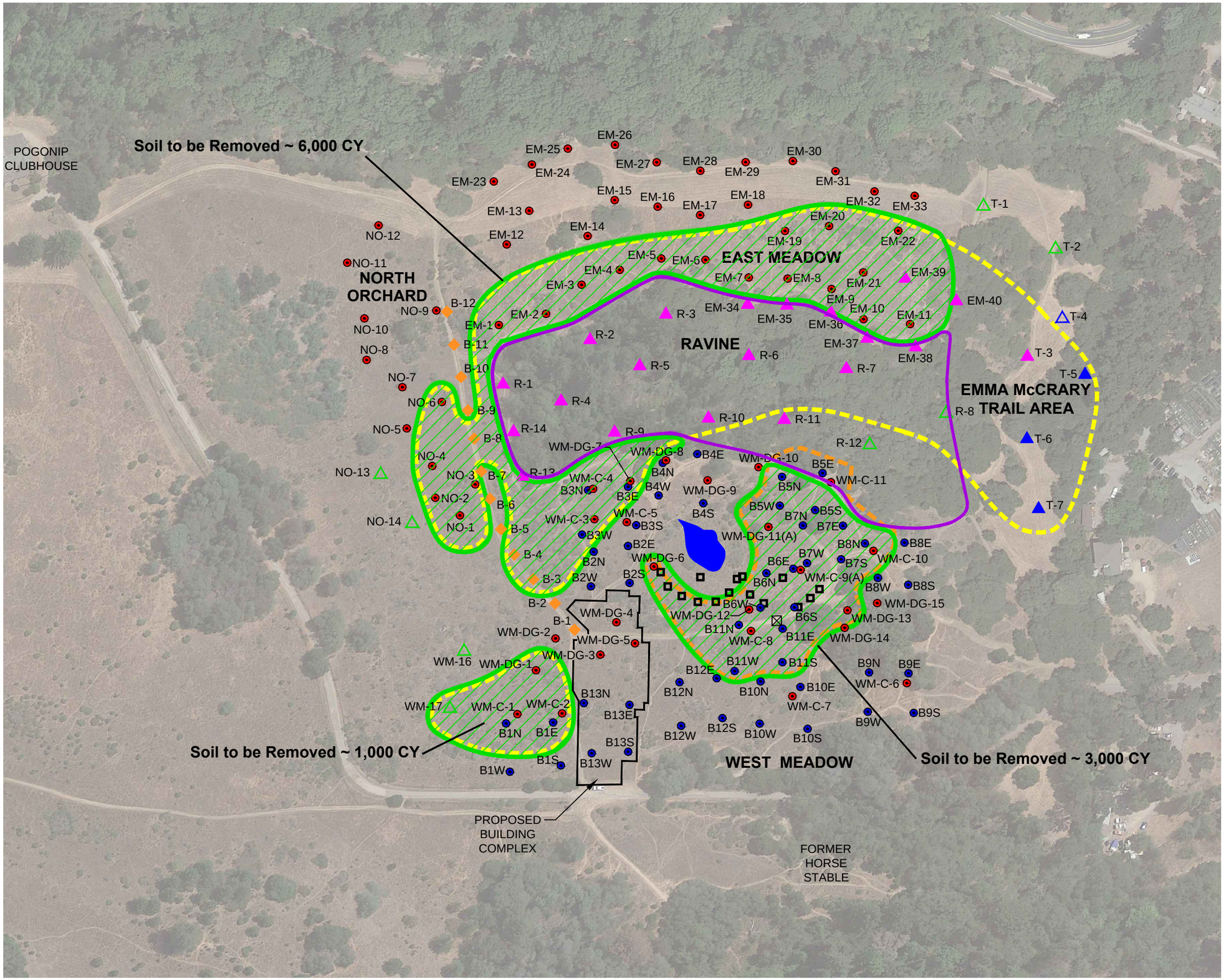
SCALE: 1" = 150'

RMD ENVIRONMENTAL SOLUTIONS

FIGURE 6



LEGEND

- APPROXIMATE LOCATION OF SEASONAL WETLAND
- SHOOTING PAD LOCATION
- UNKNOWN CONCRETE PAD
- SOIL SAMPLE LOCATION (EIS, 2019)
- SOIL SAMPLE LOCATION (RMD, 2020)
- SOIL SAMPLE LOCATION (WHA, 2021)
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- XRF SCREENING LOCATION (RMD, 2021)
- XRF SCREENING LOCATION (RMD, 2022)
- SOIL SAMPLE LOCATION (RMD,2022)
- XRF — X-RAY FLUORESCENCE
- APPROXIMATE AREA EXCEEDING LEAD SCREENING LEVEL FOR UNRESTRICTED LAND USE
- APPROXIMATE AREA EXCEEDING POLYCYCLIC AROMATIC HYDROCARBON SCREENING LEVELS FOR UNRESTRICTED LAND USE
- PROPOSED SOIL REMOVAL AREAS
- PROPOSED ENGINEERING CONTROLS (FENCING)

Notes:
1) Sample location WM-DG-13 also reports antimony, arsenic, copper, and zinc exceeding screening levels for unrestricted land use.
2) Shot fragments observed at locations WM-DG-11(A) and WM-DG-13.
3) Clay target fragments observed at locations WM-C-9(A), WM-DG-11(A), WM-DG-13, and EM-10.
4) Proposed Building Complex Based on GPS Coordinate Plan (Fall Creek Engineering, Inc, 2018) and Map of Pogonip Farm & Garden (Homeless Garden Project O&M Plan, 2017).

UNRESTRICTED LAND USE - PROPOSED SOIL REMOVAL AND ENGINEERING CONTROLS

LOWER MAIN MEADOW, POGONIP OPEN SPACE
501 GOLF CLUB DRIVE
SANTA CRUZ, CA

PROJECT NO.	DATE	DRAWN BY:	APP. BY:
01-POG-002	05/2022	EC	DW

0 150 300
SCALE: 1" = 150'

RMD ENVIRONMENTAL SOLUTIONS

FIGURE 7

TABLES

Table 1
Metals Concentrations in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Shot Observed	XRF Reading	Notes	Antimony		Arsenic		Copper		Lead		Zinc	
		(feet bgs)	*(feet bgs)*	*(ppm)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
Background Level[1]						6		11		63		43		140	
Unrestricted (Residential) Screening Level[2]						31		0.11		3,100		80		23,000	
Commercial Screening Level[2]						470		0.36		47,000		500		350,000	
Recreational Trail User Screening Level[3]						--		--		--		540		--	
Screening Level Source						USEPA RSLs		HHRA Note 3		USEPA RSLs		HHRA Note 3		USEPA RSLs	
West Meadow															
B1	2/28/2019	0.0-0.5		-	Composite	--		2.1		3.9		**120**		17	
B1N-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**150**		--	
B1S-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**58**		--	
B1E-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**110**		--	
B1W-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**64**		--	
B1	2/28/2019	1.5-2.0		-	Composite	--		2.9		4.6		**6.2**		18	
B1N-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**4.5**		--	
B1S-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**9.5**		--	
B1E-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**8.0**		--	
B1W-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**6.4**		--	
B2	2/28/2019	0.0-0.5		-	Composite	--		2.0		3.2		**60**		60	
B2	2/28/2019	1.5-2.0		-	Composite	--		1.6		3.3		**5.8**		98	
B3	2/28/2019	0.0-0.5		-	Composite	--		2.8		3.1		**84**		20	
B3N-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**190**		--	
B3S-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**48**		--	
B3E-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**47**		--	
B3W-0.5	2/28/2019	0.0-0.5		-	Discrete	--		--		--		**89**		--	
B3	2/28/2019	1.5-2.0		-	Composite	--		2.5		3.9		**5.6**		22	
B3N-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**5.7**		--	
B3S-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**11**		--	
B3E-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**20**		--	
B3W-2.0	2/28/2019	1.5-2.0		-	Discrete	--		--		--		**5.8**		--	
B4	2/28/2019	0.0-0.5		-	Composite	--		1.8		3.6		**24**		19	
B4	2/28/2019	1.5-2.0		-	Composite	--		1.8		3.8		**6.6**		19	
B5	2/28/2019	0.0-0.5		-	Composite	--		9.6		4.2		**25**		26	
B5	2/28/2019	1.5-2.0		-	Composite	--		7.3		3.7		**4.6**		20	
B6	2/28/2019	0.0-0.5		-	Composite	--		1.6		4.0		**60**		23	
B6	2/28/2019	1.5-2.0		-	Composite	--		2.1		3.5		**6.4**		22	
B7	2/28/2019	0.0-0.5		-	Composite	--		3.2		50		**38**		160	
B7	2/28/2019	1.5-2.0		-	Composite	--		2.9		7.1		**8.6**		47	
B8	2/28/2019	0.0-0.5		-	Composite	--		3.7		4.8		**19**		22	
B8	2/28/2019	1.5-2.0		-	Composite	--		4.4		4.1		**5.8**		19	
B9	2/28/2019	0.0-0.5		-	Composite	--		1.8		3.8		**8.9**		19	
B9	2/28/2019	1.5-2.0		-	Composite	--		3.0		4.3		**12**		20	
B10	2/28/2019	0.0-0.5		-	Composite	--		0.98		3.2		**6.1**		19	
B10	2/28/2019	1.5-2.0		-	Composite	--		1.2		3.4		**4.4**		17	
B11	2/28/2019	0.0-0.5		-	Composite	--		2.2		4		**11**		20	
B11	2/28/2019	1.5-2.0		-	Composite	--		1.9		3.5		**5.1**		19	
B12	2/28/2019	0.0-0.5		-	Composite	--		1.2		2.9		**10**		15	
B12	2/28/2019	1.5-2.0		-	Composite	--		2.2		3.3		**6.9**		24	
B13	2/28/2019	0.0-0.5		-	Composite			1.4		2.8		**70**		17	
WM-C-1-0.5'	5/13/2020	0 - 0.5		222		**1.31**	J	**2.63**		**12.3**		**181**		**23.9**	
WM-C-1-2'	5/13/2020	1.5 - 2		54		--		--		--		**36.9**		--	
WM-C-2-0.5'	5/13/2020	0 - 0.5		202		**0.989**	J	**2.13**	J	**6.91**		**182**		**15.3**	
WM-C-2-0.5' DUP	5/13/2020	0 - 0.5		202	Duplicate	**1.57**	J	**2.45**		**7.54**		**156**		**13.6**	
WM-C-2-2'	5/13/2020	1.5 - 2		26		--		--		--		**11.1**		--	
WM-C-3-0.5'	5/13/2020	0 - 0.5		244		**1.23**	J	**2.14**	J	**8.38**		**161**		**53.6**	
WM-C-3-2'	5/13/2020	1.5 - 2		13		--		--		--		**23.5**		--	
WM-C-4-0.5'	5/13/2020	0 - 0.5		368		**0.683**	J	**1.92**	J	**6.96**		**141**		**15**	
WM-C-4-2'	5/13/2020	1.5 - 2		27		--		--		--		**12.6**		--	
WM-C-5-0.5'	5/13/2020	0 - 0.5		95		**0.568**	J	**1.58**	J	**77.7**	O1	**76.9**	O1	**78.5**	O1
WM-C-6-0.5'	5/14/2020	0 - 0.5		30		**0.897**	J,J6	**2.16**		**4.92**		**10.6**		**19.7**	
WM-C-7-0.5'	5/14/2020	0 - 0.5		13		**0.785**	J	<2.51		**47.3**		**8.57**		**59.1**	
WM-C-8-0.5'	5/14/2020	0 - 0.5		31		**0.879**	J	<2.40		**18.1**		**15.0**		**31.0**	
WM-C-9A-1'	5/15/2020	0.5 - 1		105		**0.727**	J	**1.55**	J	**5.61**		**71.2**		**18.6**	
WM-C-10-0.5'	5/14/2020	0 - 0.5		-		**1.65**	J	**3.81**		**9.09**		**27.0**		**26.6**	
WM-C-11-0.5'	5/13/2020	0 - 0.5		45		**1.47**	J	**10.7**		**7.86**		**29.3**		**24.3**	
WM-DG-1-0.5'	5/13/2020	0 - 0.5		241		**1.41**	J	**2.69**		**8.57**		**188**		**16.4**	
WM-DG-1-2'	5/13/2020	1.5 - 2		9		--		--		--		**15.9**		--	
WM-DG-2-0.5'	5/13/2020	0 - 0.5		168		<2.42		**2.74**		**10.3**		**6.16**		**12.9**	
WM-DG-3-0.5'	5/13/2020	0 - 0.5		90		**0.833**	J	**1.28**	J	**5.66**		**51.1**		**23.0**	
WM-DG-4-0.5'	5/13/2020	0 - 0.5		30		<2.42		**1.76**	J	**16.2**		**19.8**		**28.3**	
WM-DG-5-0.5'	5/13/2020	0 - 0.5		19		<2.44		**1.53**	J	**13.9**		**38.1**		**23.1**	
WM-DG-6-0.5'	5/13/2020	0 - 0.5		311		<2.22		**2.25**		**11.0**		**27.0**		**18.5**	
WM-DG-7-0.5'	5/13/2020	0 - 0.5		120		**0.721**	J	**1.77**	J	**7.01**		**116**		**17.0**	
WM-DG-7-2'	5/13/2020	1.5 - 2		29		--		--		--		**12.1**		--	
WM-DG-8-0.5'	5/13/2020	0 - 0.5		59		**0.637**	J	**1.43**	J	**9.12**		**55.7**		**21.0**	

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Background Level[1]						6		11		63		43		140	
Unrestricted (Residential) Screening Level[2]						31		0.11		3,100		80		23,000	
Commercial Screening Level[2]						470		0.36		47,000		500		350,000	
Recreational Trail User Screening Level[3]						--		--		--		540		--	
Screening Level Source						USEPA RSLs		HHRA Note 3		USEPA RSLs		HHRA Note 3		USEPA RSLs	
WM-DG-9-0.5'	5/13/2020	0 - 0.5		28		<2.31		1.52	J	299		17.5		91.1	
WM-DG-10-0.5'	5/13/2020	0 - 0.5		46		0.640	J	2.78		10.9		28.7		25.0	
WM-DG-11-0.5'	5/14/2020	0 - 0.5		59		2.01	J	2.72	B	263		76.0		689	
WM-DG-11-0.5'-DUP	5/14/2020	0 - 0.5	0.5-2	59	Duplicate	1.55	J	2.13	B,J	14.9		40.9		75.8	
WM-DG-11A-1'	5/15/2020	0.5 - 1		16		<2.20		1.77	J	9.01		11.5		15.6	
WM-DG-12-0.5'	5/14/2020	0 - 0.5		64		1.58	J	1.65	B,J	10.8		39.1		51.6	
WM-DG-13-1.5'	5/14/2020	1 - 1.5	1-2	1,095		41.7	J	15.9	B,J	6,320		1,230		28,500	
WM-DG-13-2'	5/14/2020	1.5 - 2		33		3.33		3.61	B	214		49.0		2,770	
WM-DG-14-0.5'	5/14/2020	0 - 0.5		19		0.817	J	2.82	B	8.28		13.8		40.8	
WM-DG-15-0.5'	5/14/2020	0 - 0.5		23		1.80	J	2.17	B,J	76.9		23.8		303	
WM-16-0.5'	8/5/2021	0 - 0.5		18		--		--		--		--		--	
WM-16-2'	8/5/2021	1.5 - 2		3		--		--		--		--		--	
WM-17-0.5'	8/5/2021	0 - 0.5		133		--		--		--		--		--	
WM-17-2'	8/5/2021	1.5 - 2		5		--		--		--		--		--	
North Orchard															
NO-1-0.5'	5/14/2020	0 - 0.5		225		3.54		3.05	B	6.32		265		24.0	
NO-1-2'	5/14/2020	1.5 - 2		25		--		--		--		6.55		--	
NO-2-0.5'	5/14/2020	0 - 0.5		119		1.65	J	1.94	B,J	8.14		107		17.6	
NO-2-2'	5/14/2020	1.5 - 2		28		--		--		--		5.58		--	
NO-3-0.5'	5/14/2020	0 - 0.5		863		6.94		4.77	B	11.3		690		21.5	
NO-3-2'	5/14/2020	1.5 - 2		35		--		--		--		45.3		--	
NO-4-0.5'	5/14/2020	0 - 0.5		211		2.03	J	1.60	B,J	8.16		180		15.7	
NO-4-2'	5/14/2020	1.5 - 2		16		--		--		--		3.97		--	
NO-5-0.5'	5/14/2020	0 - 0.5		10		1.08	J	1.57	B,J	50.8		40.0		44.2	
NO-6-0.5'	5/14/2020	0 - 0.5		118		1.97	J	2.32	B,J	23.2		144		41.8	
NO-6-2'	5/14/2020	1.5 - 2		14		--		--		--		13.9		--	
NO-7-0.5'	5/14/2020	0 - 0.5		43		0.926	J	1.91	B,J	8.08		29.8		24.8	
NO-8-0.5'	5/15/2020	0 - 0.5		31		0.928	J	<2.46		18.9		18.5		23.1	
NO-9-0.5'	5/14/2020	0 - 0.5		39		1.51	J	1.70	B,J	14.4		20.0		26.7	
NO-10-0.5'	5/15/2020	0 - 0.5		17		<2.33		<2.33		18.0		14.0		27.5	
NO-11-0.5'	5/15/2020	0 - 0.5		18		1.04	J	0.655	J	15.0		14.5		26.8	
NO-12-0.5'	5/15/2020	0 - 0.5		21		0.718	J	<2.42		17.1		10.5		49.8	
NO-13-0.5'	8/5/2021	0 - 0.5		14		--		--		--		--		--	
NO-13-2'	8/5/2021	1.5 - 2		3		--		--		--		--		--	
NO-14-0.5'	8/5/2021	0 - 0.5		56		--		--		--		--		--	
NO-14-2'	8/5/2021	1.5 - 2		4		--		--		--		--		--	
East Meadow															
EM-1-0.5'	5/12/2020	0 - 0.5		119		2.34		2.42		63.1		138		69.6	
EM-1-2'	5/12/2020	1.5 - 2		39		--		--		--		22.1		--	
EM-2-0.5'	5/12/2020	0 - 0.5		153		1.93	J	2.42		24.6		182		31.0	
EM-2-2'	5/12/2020	1.5 - 2		15		--		--		--		13.4		--	
EM-3-0.5'	5/12/2020	0 - 0.5		219		2.87		3.23		16.6		203		20.4	
EM-3-2'	5/12/2020	1.5 - 2		24		--		--		--		51.3		--	
EM-4-1.5'	5/12/2020	1 - 1.5		166		5.15		4.58		15.8		164		25.3	
EM-4-2'	5/12/2020	1.5 - 2		47		--		--		--		61.3		--	
EM-5-0.5'	5/12/2020	0 - 0.5		139		2.51		3.21		19.1		115		26.4	
EM-5-2'	5/12/2020	1.5 - 2		95		--		--		--		53.6		--	
EM-6-0.5'	5/12/2020	0 - 0.5		372		3.46		3.91		19.9		264		28.8	
EM-6-2'	5/12/2020	1.5 - 2		83		--		--		--		17.9		--	
EM-7-0.5'	5/12/2020	0 - 0.5		758		17.0		9.58		21.1		752		30.7	
EM-7-2'	5/12/2020	1.5 - 2		46		--		--		--		117		--	
EM-8-1'	5/12/2020	0.5 - 1		549		11.8		8.69		14.7		717		31.1	
EM-8-2'	5/12/2020	1.5 - 2		94		--		--		--		140		--	
EM-9-0.5'	5/12/2020	0 - 0.5		1,227		5.46		6.71		10.7		1,140		22.1	
EM-9-2'	5/12/2020	1.5 - 2		168		--		--		--		81.9		--	
EM-10-0.5'	5/12/2020	0 - 0.5		2,973		6.07		8.44		12.6		1,670		29.0	
EM-10-2'	5/12/2020	1.5 - 2		15		--		--		--		34.1		--	
EM-11-0.5'	5/12/2020	0 - 0.5		569		3.78		7.16		24.4		856		36.2	
EM-11-2'	5/12/2020	1.5 - 2		94		--		--		--		140		--	
EM-12-0.5'	5/14/2020	0 - 0.5		31		<2.44		3.04	B	38.6		9.15		98.3	
EM-13-0.5'	5/15/2020	0 - 0.5		24		0.815	J	0.554	J	9.98		11.2		25.4	
EM-14-0.5'	5/14/2020	0 - 0.5		38		1.58	J	2.92	B	12.5		33.0		44.5	
EM-14-0.5'-DUP	5/14/2020	0 - 0.5		38	Duplicate	2.14	J	2.80	B	14.0		32.5		55.3	
EM-15-0.5'	5/15/2020	0 - 0.5		26		1.12	J	1.72	J	13.0		16.1		33.0	
EM-16-0.5'	5/15/2020	0 - 0.5		42		1.00	J	1.33	J	14.0		24.6		37.3	
EM-17-0.5'	5/15/2020	0 - 0.5		47		1.50	J	1.13	J	13.8		40.3		35.0	
EM-18-0.5'	5/15/2020	0 - 0.5		39		3.29		2.35		11.2		44.5		30.5	
EM-19-0.5'	5/14/2020	0 - 0.5		167		3.13		3.57	B	12.7		116		46.0	
EM-19-2'	5/14/2020	1.5 - 2		64		--		--		--		38.4		--	
EM-20-0.5'	5/15/2020	0 - 0.5		58		<2.53		2.07	J	20.5		95.2		33.4	
EM-20-2'	5/15/2020	1.5 - 2		10		--		--		--		9.26		--	

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Screening Level Source						USEPA RSLs		HHRA Note 3		USEPA RSLs		HHRA Note 3		USEPA RSLs	
EM-21-0.5'	5/14/2020	0 - 0.5		776		**10.0**		**6.12**		**7.16**		**768**		**28.7**	
EM-21-0.5'-DUP	5/14/2020	0 - 0.5		776	Duplicate	**6.85**		**5.65**	B	**7.33**		**769**		**30.6**	
EM-21-2'	5/14/2020	1.5 - 2		17		--		--		--		**9.52**		--	
EM-22-0.5'	5/15/2020	0 - 0.5		100		<2.28		**2.39**		**12.3**		**92.6**		**22.8**	
EM-22-2'	5/15/2020	1.5 - 2		17		--		--		--		**25.9**		--	
EM-23-0.5'	5/15/2020	0 - 0.5		29		**0.932**	J	**1.24**	J	**12.8**		**10.7**		**26.0**	
EM-24-0.5'	5/15/2020	0 - 0.5		33		**0.886**	J	**0.686**	J	**9.50**		**9.18**		**26.8**	
EM-25-0.5'	5/15/2020	0 - 0.5		30		**0.786**	J	**0.810**	J	**12.2**		**10.3**		**28.7**	
EM-26-0.5'	5/15/2020	0 - 0.5		19		**0.656**	J	**1.02**	J	**11.7**		**10.8**		**25.1**	
EM-27-0.5'	5/15/2020	0 - 0.5		34		**1.02**	J	**0.823**	J	**13.6**		**6.12**		**26.4**	
EM-28-0.5'	5/15/2020	0 - 0.5		29		**0.813**	J	**0.865**	J	**14.4**		**14.3**		**31.9**	
EM-29-0.5'	5/15/2020	0 - 0.5		31		**0.720**	J	**1.02**	J	**10.8**		**17.8**		**36.8**	
EM-30-0.5'	5/15/2020	0 - 0.5		31		<2.25		**2.52**		**21.9**		**18.0**		**24.1**	
EM-31-0.5'	5/15/2020	0 - 0.5		33		<2.30		**2.07**	J	**9.94**		**15.4**		**19.1**	
EM-32-0.5'	5/15/2020	0 - 0.5		18		<2.34		**2.01**	J	**13.8**		**37.4**		**23.0**	
EM-33-0.5'	5/15/2020	0 - 0.5		17		<2.25		**2.23**	J	**8.74**		**12.3**		**19.0**	
EM-34-1'	8/3/2021	0.5 - 1		784		--		--		--		**637**		--	
EM-34-2'	8/3/2021	1.5 - 2		56		--		--		--		**37.9**		--	
EM-35-0.5'	8/3/2021	0 - 0.5		1,822		--		--		--		**1,800**		--	
EM-35-2'	8/3/2021[4]	1.5 - 2		147		--		--		--		**198**		--	
EM-36-0.5'	8/3/2021	0 - 0.5		1,579		--		--		--		**2,090**		--	
EM-36-2'	8/3/2021	1.5 - 2		64		--		--		--		**28.6**		--	
EM-37-0.5'	8/3/2021	0 - 0.5		955		--		--		--		**571**		--	
EM-37-2'	8/3/2021	1.5 - 2		13		--		--		--		**14.7**		--	
EM-38-0.5'	8/3/2021	0 - 0.5		499		--		--		--		**490**		--	
EM-38-2'	8/3/2021	1.5 - 2		48		--		--		--		**41.3**		--	
EM-39-0.5'	8/3/2021	0 - 0.5		519		--		--		--		**504**		--	
EM-39-2'	8/3/2021	1.5 - 2		285		--		--		--		**220**		--	
EM-40-0.5	8/3/2021	0 - 0.5		245		--		--		--		**323**	O1	--	
EM-40-2'	8/3/2021	1.5 - 2		16		--		--		--		**18.6**		--	
Ravine															
R-1-0.5'	8/4/2021	0 - 0.5		226		--		--		--		**400**		--	
R-1-2'	8/4/2021	1.5 - 2		131		--		--		--		**61.5**		--	
R-2-0.5'	8/4/2021	0 - 0.5		28		--		--		--		**215**		--	
R-2-2'	8/4/2021	1.5 - 2		4		--		--		--		**8.80**	O1	--	
R-3-0.5'	8/3/2021	0 - 0.5		810		--		--		--		**1,530**		--	
R-3-2'	8/3/2021	1.5 - 2		12		--		--		--		**31.4**		--	
R-4-0.5'	8/4/2021	0 - 0.5		1,302		--		--		--		**1,600**		--	
R-4-2'	8/4/2021	1.5 - 2		16		--		--		--		**23.7**		--	
R-5-0.5'	8/4/2021	0 - 0.5		234		--		--		--		**9.86**		--	
R-5-2'	8/4/2021	1.5 - 2		18		--		--		--		**17.9**		--	
R-6-0.5'	8/3/2021	0 - 0.5		628		--		--		--		**573**		--	
R-6-2'	8/3/2021	1.5 - 2		290		--		--		--		**341**		--	
R-7-0.5'	8/4/2021	0 - 0.5		454		--		--		--		**456**		--	
R-7-2'	8/4/2021	1.5 - 2		33		--		--		--		**66.0**		--	
R-8-1.5'	8/4/2021	1 - 1.5		98		--		--		--		--		--	
R-8-2'	8/4/2021	1.5 - 2		93		--		--		--		--		--	
R-9-0.5'	8/4/2021	0 - 0.5		182		--		--		--		**256**		--	
R-9-2'	8/4/2021	1.5 - 2		11		--		--		--		**6.59**		--	
R-10-0.5'	8/4/2021	0 - 0.5		86		--		--		--		**94.0**		--	
R-10-2'	8/4/2021	1.5 - 2		3		--		--		--		**12.5**		--	
R-11-0.5'	8/4/2021	0 - 0.5		93		--		--		--		**75.7**		--	
R-11-2'	8/4/2021	1.5 - 2		20		--		--		--		**23.3**		--	
R-12-0.5'	8/4/2021	0 - 0.5		61		--		--		--		--		--	
R-12-2'	8/4/2021	1.5 - 2		28		--		--		--		--		--	
R-13-0.5'	8/5/2021	0 - 0.5		741		--		--		--		**686**		--	
R-13-2'	8/5/2021	1.5 - 2		17		--		--		--		**31.9**		--	
R-14-0.5'	8/5/2021	0 - 0.5		1,075		--		--		--		**1,220**		--	
R-14-2'	8/5/2021	1.5 - 2		6		--		--		--		**10.9**		--	
East-West Connector Trail[5]															
B-1	3/11/2021	Surface		-		--		--		--		**13.9**		--	
	3/11/2021	1.5		-		--		--		--		**5.68**		--	
B-2	3/11/2021	Surface		-		--		--		--		**42.5**		--	
	3/11/2021	1.5		-		--		--		--		**7.61**		--	
B-3	3/11/2021	Surface		-		--		--		--		**183**		--	
	3/11/2021	1.5		-		--		--		--		**6.54**		--	
B-4	3/11/2021	Surface		-		--		--		--		**208**		--	
	3/11/2021	1.5		-		--		--		--		**10.6**		--	
B-5	3/11/2021	Surface		-		--		--		--		**8.20**		--	
	3/11/2021	1.5		-		--		--		--		**5.74**		--	
B-6	3/11/2021	Surface		-		--		--		--		**37.5**		--	
	3/11/2021	1.5		-		--		--		--		**9.61**		--	
B-7	3/11/2021	Surface		-		--		--		--		**19.0**		--	
	3/11/2021	1.5		-		--		--		--		**15.2**		--	

Table 1
Metals Concentrations in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Shot Observed	XRF Reading	Notes	Antimony	Arsenic	Copper	Lead	Zinc
		(feet bgs)	*(feet bgs)*	*(ppm)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
Background Level[1]						6	11	63	43	140
Unrestricted (Residential) Screening Level[2]						31	0.11	3,100	80	23,000
Commercial Screening Level[2]						470	0.36	47,000	500	350,000
Recreational Trail User Screening Level[3]						--	--	--	540	--
Screening Level Source						USEPA RSLs	HHRA Note 3	USEPA RSLs	HHRA Note 3	USEPA RSLs
B-8	3/11/2021	Surface		-		--	--	--	**158**	--
	3/11/2021	1.5		-		--	--	--	**5.25**	--
B-9	3/11/2021	Surface		-		--	--	--	**78.0**	--
	3/11/2021	1.5		-		--	--	--	**7.16**	--
B-10	3/11/2021	Surface		-		--	--	--	**51.6**	--
	3/11/2021	1.5		-		--	--	--	**7.32**	--
B-11	3/11/2021	Surface		-		--	--	--	**33.3**	--
	3/11/2021	1.5		-		--	--	--	**5.06**	--
B-12	3/11/2021	Surface		-		--	--	--	**14.9**	--
	3/11/2021	1.5		-		--	--	--	**7.00**	--
Emma McCrary Trail Area										
T-1-0.5'	8/3/2021	0 - 0.5		19		--	--	--	--	--
T-1-2'	8/3/2021	1.5 - 2		14		--	--	--	--	--
T-2-0.5'	8/4/2021	0 - 0.5		23		--	--	--	--	--
T-2-2'	8/4/2021	1.5 - 2		6		--	--	--	--	--
T-3-0.5'	8/4/2021	0 - 0.5		384		--	--	--	**474**	--
T-3-2'	8/4/2021	1.5 - 2		8		--	--	--	**8.15**	--
T-4-0.5'	1/11/2022	0 - 0.5		48		--	--	--	--	--
T-4-2'	1/11/2022	1.5 - 2		15		--	--	--	--	--
T-5-0.5'	1/11/2022	0 - 0.5		99		--	--	--	**159**	--
T-5-2'	1/11/2022	1.5 - 2		13		--	--	--	**7.07**	--
T-6-0.5'	1/11/2022	0 - 0.5		244		--	--	--	**187**	--
T-6-2'	1/11/2022	1.5 - 2		12		--	--	--	**9.42**	--
T-7-0.5'	1/11/2022	0 - 0.5		94.5		--	--	--	**153**	--
T-7-2'	1/11/2022	1.5 - 2		33		--	--	--	**8.92**	--

Notes:
Soil samples sieved using No. 10 sieve and metals analyzed using USEPA Method 6010B.
Analytes detected above laboratory reporting limit are **emboldened**.
Analytes detected above background level and Unrestricted (Residential) Screening Level are highlighted yellow.
Analytes detected above the Recreational Trail Use Screening Level are highlighted blue.
bgs = Below ground surface.
mg/kg = Milligrams per kilogram.
-- = Not analyzed.
B = The same analyte is found in the associated blank.
J = The identification of the analyte is acceptable; the reported value is an estimate.
J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1 = The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
[1] Lawrence Berkeley National Laboratory (LBNL, 2009), was used to establish acceptable upper estimate background concentrations for metals with the exception of arsenic.
For arsenic, the background level represents the established background level for San Francisco Bay Region of 11 mg/kg (Duvergé, 2011).
[2] In order of priority, the screening level represents the Department of Toxic Substances Control (DTSC)-modified screening level (DTSC, 2022)
followed by U.S. Environmental Protection Agency (USEPA) Regional Screening Level (RSL; USEPA, 2022).
[3] The Recreational Trail Use Screening Level was determined based on an evaluation of soil data collected from 2019-2020
and was described in the Preliminary Endangerment Assessment Report (RMD, 2020).
[4] Sample EM-35-2' initially reported a lead concentration of 5,810 mg/kg and was reanalyzed to confirm the result. The
reanalyzed sample reported a lead concentration of 198 mg/kg.
[5] Soil sampling along the East-West Connector Trail was conducted by Weber, Hayes & Associates (WHA, 2021))

References:

DTSC, 2022. Human Health Risk Assessment (HHRA) Note Number 3. May.
Duvergé, 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region. December.
LBNL, 2009. Analysis of Background Distributions of Metals in Soil at Lawrence Berkeley National Laboratory. Revised April.
RMD, 2020. Preliminary Endangerment Assessment Report. Pogonip Farm and Garden, 333 Golf Club Drive, Santa Cruz, California. August 10.
USEPA, 2022. Regional Screening Level (RSL) Summary Table (TR=1E-6, HQ=1). May.
WHA, 2021. Shallow Soil Sampling for Total Lead. Lower Meadows Access Road, Pogonip, 333 Golf Club Drive, Santa Cruz. December 29.

Table 2
Polycyclic Aromatic Hydrocarbon Concentrations in Soil
Lower Main Meadow, Pogonip Open Space
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Clay Target Fragments Observed	Notes	ANTHRACENE	ACENAPHTHENE	BENZO(A) ANTHRACENE	BENZO(A) PYRENE	BENZO(B) FLUORANTHENE	BENZO(G,H,I) PERYLENE	BENZO(K) FLUORANTHENE	CHRYSENE	DIBENZ(A,H) ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD) PYRENE	PHENANTHRENE	PYRENE	NAPHTHALENE	1-METHYL NAPHTHALENE	2-METHYL NAPHTHALENE
		(feet bgs)	*(feet bgs)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
Unrestricted (Residential) Screening Level[1]					17,000	3,300	1.1	0.11	1.1	NE	11	110	0.028	2,400	2,300	1.1	NE	1,800	2.0	9.9	190
Commercial Screening Level[1]					130,000	23,000	12	1.3	13	NE	130	1,300	0.31	18,000	17,000	13	NE	13,000	6.5	30	1,300
Recreational Trail Use Screening Level[2]					120,000	23,000	45	4.5	45	NE	450	4,500	1.1	NE	16,000	45	NE	12,000	38	160	1,600
West Meadow																					
B1	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	<0.0011	0.0020 J	<0.00095	<0.0011	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015	-	-	-
B2	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	0.0012 J	0.0031	0.0028 J	<0.0011	<0.0011	0.0011 J	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015	-	-	-
B3	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	0.0016 J	0.0034	0.0034	<0.0011	<0.0011	0.0016 J	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015	-	-	-
B4	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	<0.0011	0.0024 J	0.0019 J	<0.0011	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015	-	-	-
B5	2/28/2019	0.0-0.5		Composite	0.13 A01	0.026	0.55 A01	**0.44 A01**	**0.49 A01**	0.17 A01	0.20 A01	0.59 A01	**0.063**	0.78 A01	0.013	0.18 A01	0.48 A01	0.85 A01	-	-	-
B6	2/28/2019	0.0-0.5		Composite	0.014	0.006	0.22 A01	**0.32 A01**	0.33 A01	0.23 A01	0.10 A01	0.25 A01	**0.066 A01**	0.19 A01	0.0012 J	0.20 A01	0.042	0.24 A01	-	-	-
B7	2/28/2019	0.0-0.5		Composite	0.024	0.0063	0.42 A01	**0.64 A01**	**0.66 A01**	0.50 A01	0.26 A01	0.49 A01	**0.17 A01**	0.31 A01	0.0019 J	0.45 A01	0.075 A01	0.39 A01	-	-	-
B8	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	0.0095	0.014	0.19	0.0097	0.0054	0.011	0.0016 J	0.0092	<0.0011	0.0078	0.0025 J	0.012	-	-	-
B9	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	0.0021 J	0.0043 J	<0.00095	0.0019 J	<0.0011	0.0023 J	<0.00099	0.0019 J	<0.0011	0.0015 J	<0.0012	0.0022 J	-	-	-
B10	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	<0.0011	0.0019 J	<0.00095	<0.0011	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015	-	-	-
B11	2/28/2019	0.0-0.5		Composite	0.0098	0.0050	0.17 A01	**0.19 A01**	0.21 A01	0.091 A01	0.064	0.20 A01	**0.031**	0.17 A01	<0.0011	0.089 A01	0.028	0.20 A01	-	-	-
B12	2/28/2019	0.0-0.5		Composite	<0.0012	<0.0012	<0.0011	<0.00095	<0.00095	<0.0011	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015	-	-	-
WM-C-5-0.5'	05/13/2020	0 - 0.5			<0.00645	<0.00645	**0.00425** J	**0.00642** J	**0.00668**	**0.00606** J	**0.00326** J	**0.00552** J	<0.00645	**0.00445** J	<0.00645	**0.00467** J	<0.00645	**0.00486** J	<0.0215	<0.0215	<0.0215
WM-C-6-0.5'	05/14/2020	0 - 0.5			<0.00644	<0.00644	<0.00644	<0.00644	**0.00244** J	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.0215	<0.0215	<0.0215
WM-C-7-0.5'	05/14/2020	0 - 0.5			<0.00752	<0.00752	**0.00232** J	**0.00283** J	**0.00352** J	**0.00295** J	<0.00752	<0.00752	<0.00752	<0.00752	<0.00752	<0.00752	<0.00752	**0.00292** J	<0.0251	<0.0251	<0.0251
WM-C-8-0.5'	05/14/2020	0 - 0.5			**0.0273**	**0.0102**	**0.216**	**0.267**	**0.323**	**0.176**	**0.081**	**0.261**	**0.0532**	**0.340**	**0.00293** J	**0.155**	**0.102**	**0.309**	<0.0240	<0.0240	<0.0240
WM-C-8-2'	05/14/2020	1.5 - 2			<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.0247	<0.0247	<0.0247
WM-C-9A-1'	05/15/2020	0.5 - 1	0.5-1.5		**0.231**	**0.0866**	**5.64**	**10.4**	**11.5**	**4.88**	**2.79**	**6.44**	**1.85**	**4.22**	**0.0319** J	**4.99**	<0.215	**0.828**	**4.68**	<0.215	<0.215
WM-C-9-2'	05/14/2020	1.5 - 2			<0.00717	<0.00717	**0.0332**	**0.0608**	**0.0593**	**0.0545**	**0.0232**	**0.0412**	**0.0145**	**0.0272**	<0.00717	**0.0446**	**0.00582** J	**0.0319**	<0.0239	<0.0239	<0.0239
WM-C-10-0.5'	05/14/2020	0 - 0.5			**0.0115**	**0.00499** J	**0.121**	**0.185**	**0.192**	**0.131**	**0.0803**	**0.172**	**0.0395**	**0.162**	<0.00706	**0.112**	**0.0508**	**0.155**	<0.0235	<0.0235	<0.0235
WM-C-10-2'	05/14/2020	1.5 - 2			**0.0258**	**0.00645** J	**0.175**	**0.243**	**0.298**	**0.179**	**0.0819**	**0.217**	**0.0506**	**0.268**	**0.00249** J	**0.153**	**0.0736**	**0.229**	<0.0217	<0.0217	<0.0217
WM-C-11-0.5'	05/13/2020	0 - 0.5			<0.00640	<0.00640	**0.00257** J	**0.00383** J	**0.00553** J	**0.00419** J	<0.00640	**0.00307** J	<0.00640	**0.00273** J	<0.00640	**0.00306** J	<0.00640	**0.0028** J	<0.0213	<0.0213	<0.0213
WM-C-11-2'	05/13/2020	1.5 - 2			**0.56**	**0.23**	**2.68**	**2.56**	**2.88**	**1.42**	**0.772**	**3.02**	**0.468**	**3.81**	**0.123**	**1.25**	**2.43**	**4.18**	**0.0112** J	**0.0106** J	**0.0215** J
WM-DG-1-0.5'	05/13/2020	0 - 0.5			<0.00687	<0.00687	<0.00687	<0.00687	0.00247 J	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.0229	<0.0229	<0.0229
WM-DG-2-0.5'	05/13/2020	0 - 0.5			<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.0242	<0.0242	<0.0242
WM-DG-3-0.5'	05/13/2020	0 - 0.5			<0.00676	<0.00676	<0.00676	<0.00676	0.00267 J	**0.00215** J	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.0225	<0.0225	<0.0225
WM-DG-4-0.5'	05/13/2020	0 - 0.5			<0.00726	<0.00726	<0.00726	**0.0027** J	**0.00347** J	**0.00283** J	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.0242	<0.0242	<0.0242
WM-DG-5-0.5'	05/13/2020	0 - 0.5			<0.00733	<0.00733	<0.00733	**0.00239** J	**0.00287** J	**0.00256** J	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.0244	<0.0244	<0.0244
WM-DG-6-0.5'	05/13/2020	0 - 0.5			**0.131**	**0.0763**	**2.85**	**3.61**	**3.88**	**2.27**	**1.31**	**3.61**	**0.836**	**3.07**	**0.0173**	**2.03**	**0.633**	**3.23**	**0.00974** J	**0.0111** J	**0.0133** J
WM-DG-6-2'	05/13/2020	1.5 - 2			**0.185**	**0.114**	**5.43**	**7.56**	**7.92**	**4.06**	**1.85**	**7.05**	**0.238**	**5.06**	**0.0248**	**3.58**	**0.942**	**6.73**	**0.0141** J	**0.0162** J	**0.0194** J
WM-DG-7-0.5'	05/13/2020	0 - 0.5			<0.00639	<0.00639	**0.00345** J	**0.00558** J	**0.00635** J	**0.00506** J	<0.00639	**0.00452** J	<0.00639	**0.00399** J	<0.00639	**0.00419** J	<0.00639	**0.00411** J	<0.0213	<0.0213	<0.0213
WM-DG-8-0.5'	05/13/2020	0 - 0.5			<0.00730	<0.00730	**0.0529**	**0.107**	**0.113**	**0.0893**	**0.0331**	**0.0669**	**0.0252**	**0.0409**	<0.00730	**0.0754**	**0.00898**	**0.0444**	<0.0243	<0.0243	<0.0243
WM-DG-9-0.5'	05/13/2020	0 - 0.5			<0.00694	<0.00694	<0.00694	**0.00271** J	**0.0034** J	**0.00272** J	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	**0.00213** J	<0.00694	<0.00694	<0.0231	<0.0231	<0.0231
WM-DG-10-0.5'	05/13/2020	0 - 0.5			<0.00690	<0.00690	**0.00254** J	**0.00254** J	**0.00298** J	<0.00690	<0.00690	**0.00297** J	<0.00690	**0.00366** J	<0.00690	<0.00690	<0.00690	**0.00373** J	<0.0230	<0.0230	<0.0230
WM-DG-11-0.5'	05/14/2020	0 - 0.5			<0.0242	<0.0242	**0.041**	**0.0608**	**0.0665**	**0.0445**	0.0224 J	**0.0535**	**0.0115** J	**0.0469**	<0.0242	**0.0371**	**0.0158** J	**0.0477**	<0.0804	<0.0804	<0.0804
WM-DG-11-0.5'-DUP	05/14/2020	0 - 0.5	0.5-1	Duplicate	**0.986**	**0.651**	**8.45**	**10.5**	**12.2**	**3.35**	**4.00**	**9.86**	**2.38**	**11.1**	**0.260**	**3.61**	**4.14**	**11.8**	**0.321**	**0.0762**	**0.11**
WM-DG-11A-1'	05/15/2020	0.5 - 1			**0.00491** J	<0.00659	**0.0544** J3	**0.0886** J3,J6	**0.0813** J3,J6	**0.0751** J3	**0.0336** J3	**0.0709** J3	**0.0196**	**0.0595**	<0.00659	**0.0637** J3	<0.0220	**0.0152**	**0.061**	<0.0220	<0.0220
WM-DG-11-2'	05/14/2020	1.5 - 2			<0.00716	<0.00716	**0.00212** J	**0.00258** J	**0.00271** J	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	**0.00716** J	<0.0239	<0.0239
WM-DG-12-0.5'	05/14/2020	0 - 0.5			**0.0278**	**0.0132**	**0.304**	**0.354**	**0.415**	**0.243**	**0.12**	**0.365**	**0.0661**	**0.347**	**0.00273** J	**0.203**	**0.13**	**0.498**	<0.0222	<0.0222	<0.0222
WM-DG-12-2'	05/14/2020	1.5 - 2			<0.00675	<0.00675	**0.0100**	**0.00997**	**0.0102**	**0.00534** J	**0.00445** J	**0.0126**	<0.00675	**0.014**	<0.00675	**0.00474** J	**0.00682**	**0.0159**	<0.0225	<0.0225	<0.0225
WM-DG-13-1.5'	05/14/2020	1 - 1.5	0.5-2		**0.252**	**0.113**	**6.42**	**11.7**	**14.8**	**7.52**	**4.02**	**8.75**	**4.45**	**5.74**	**0.0241**	**6.25**	**0.901**	**5.68**	**0.0462**	**0.0166** J	**0.0201** J
WM-DG-13-2'	05/14/2020	1.5 - 2			**0.00609** J	<0.00670	**0.19**	**0.358**	**0.393**	**0.365**	**0.123**	**0.257**	**0.105**	**0.123**	<0.00670	**0.292**	**0.0186**	**0.158**	**0.00491** J	<0.0223	<0.0223
WM-DG-14-0.5'	05/14/2020	0 - 0.5			<0.00659	<0.00659	**0.00997**	**0.0149**	**0.0169**	**0.0138**	**0.00589** J	**0.0122**	**0.00377** J	**0.0108**	<0.00659	**0.0107**	**0.00295** J	**0.0124**	<0.0220	<0.0220	<0.0220
WM-DG-15-0.5'	05/14/2020	0 - 0.5			<0.00686	<0.00686	**0.00482** J	**0.00658** J	**0.00832**	**0.00645** J	**0.00264** J	**0.00575** J	<0.00686	**0.00552** J	<0.00686	**0.00486** J	<0.00686	**0.0065** J	<0.0229	<0.0229	<0.0229
North Orchard																					
NO-3-0.5'	05/14/2020	0 - 0.5			<0.00726	<0.00726	<0.00726	<0.00726	0.00191 J	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.0242	<0.0242	<0.0242
NO-4-0.5'	05/14/2020	0 - 0.5			<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.0233	<0.0233	<0.0233
NO-6-0.5'	05/14/2020	0 - 0.5			<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.0262	<0.0262	<0.0262

Table 2
Polycyclic Aromatic Hydrocarbon Concentrations in Soil
Lower Main Meadow, Pogonip Open Space
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Clay Target Fragments Observed	Notes	ANTHRACENE		ACENAPHTHENE		BENZO(A) ANTHRACENE		BENZO(A) PYRENE		BENZO(B) FLUORANTHENE		BENZO(G,H,I) PERYLENE		BENZO(K) FLUORANTHENE		CHRYSENE		DIBENZ(A,H) ANTHRACENE		FLUORANTHENE		FLUORENE		INDENO(1,2,3-CD) PYRENE		PHENANTHRENE		PYRENE		NAPHTHALENE		1-METHYL NAPHTHALENE		2-METHYL NAPHTHALENE	
		(feet bgs)	*(feet bgs)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
Unrestricted (Residential) Screening Level[1]					17,000		3,300		1.1		0.11		1.1		NE		11		110		0.028		2,400		2,300		1.1		NE		1,800		2.0		9.9		190	
Commercial Screening Level[1]					130,000		23,000		12		1.3		13		NE		130		1,300		0.31		18,000		17,000		13		NE		13,000		6.5		30		1,300	
Recreational Trail Use Screening Level[2]					120,000		23,000		45		4.5		45		NE		450		4,500		1.1		NE		16,000		45		NE		12,000		38		160		1,600	
East Meadow																																						
EM-1-0.5'	05/12/2020	0 - 0.5			<0.00688		<0.00688	J3	<0.00688		<0.00688		**0.00228**	J	<0.00688		<0.00688	J3	<0.00688		<0.00688		<0.00688		<0.00688		<0.00688		<0.00688		<0.00688		<0.0229	J3	<0.0229	J3	<0.0229	J3
EM-2-0.5'	05/12/2020	0 - 0.5			<0.00693		<0.00693		**0.00233**	J	**0.00267**	J	**0.00508**	J	**0.00326**	J	<0.00693		**0.0028**	J	<0.00693		**0.00337**	J	<0.00693		**0.00232**	J	<0.00693		**0.00292**	J	<0.0231		<0.0231		<0.0231	
EM-3-0.5'	05/12/2020	0 - 0.5			<0.00690		<0.00690		<0.00690		<0.00690		**0.00324**	J	**0.00258**	J	<0.00690		<0.00690		<0.00690		<0.00690		<0.00690		<0.00690		<0.00690		<0.00690		<0.0230		<0.0230		<0.0230	
EM-4-1.5'	05/12/2020	1 - 1.5			<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.00656		<0.0219		<0.0219		<0.0219	
EM-5-0.5'	05/12/2020	0 - 0.5			<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.00647		<0.0216		<0.0216		<0.0216	
EM-6-0.5'	05/12/2020	0 - 0.5			<0.00671		<0.00671		<0.00671		<0.00671		**0.00332**	J	**0.00223**	J	<0.00671		<0.00671		<0.00671		<0.00671		<0.00671		<0.00671		<0.00671		<0.00671		<0.0224		<0.0224		<0.0224	
EM-7-0.5'	05/12/2020	0 - 0.5			<0.00663		<0.00663		<0.00663		<0.00663		**0.00224**	J	<0.00663		<0.00663		<0.00663		<0.00663		<0.00663		<0.00663		<0.00663		<0.00663		<0.00663		<0.0221		<0.0221		<0.0221	
EM-8-1'	05/12/2020	0.5 - 1			<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.00652		<0.0217		<0.0217		<0.0217	
EM-9-0.5'	05/12/2020	0 - 0.5			<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.00641		<0.0214		<0.0214		<0.0214	
EM-10-0.5'	05/12/2020	0 - 0.5	0-1.5		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.00633		<0.0211		<0.0211		<0.0211	
EM-11-0.5'	05/12/2020	0 - 0.5			<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		<0.00708		**0.0114**	J	<0.0236		**0.0102**	J
EM-21-0.5'	05/14/2020	0 - 0.5			<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.00646		<0.0215		<0.0215		<0.0215	
EM-21-0.5'-DUP	05/14/2020	0 - 0.5		Duplicate	<0.00650		<0.00650		<0.00650		<0.00650		**0.00183**	J	<0.00650		<0.00650		<0.00650		<0.00650		<0.00650		<0.00650		<0.00650		<0.00650		<0.00650		<0.0217		<0.0217		<0.0217	

Notes:
PAHs analyzed using USEPA Method 8270C-SIM.
Analytes detected above laboratory reporting limit are **emboldened**.
Analytes detected above Unrestricted (Residential) Screening Level are highlighted yellow.
Analytes detected above Recreational Trail Use Screening Level are highlighted blue.
Analytes detected above Commercial Screening Level are underlined.
bgs = Below ground surface.
mg/kg = Milligrams per kilogram.
NE = Not Established.
PAHs = Polycyclic Aromatic Hydrocarbons.
SIM = Selective Ion Mode.
A01 = Detection and quantation limits were raised due to sample dilution.
J = The identification of the analyte is acceptable; the reported value is an estimate.
J3 = The associated batch QC was outside the established quality control range for precision.
J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.
[1] The screening level represents the Department of Toxic Substances Control (DTSC)-modified screening level (DTSC, 2022).
[2] The Recreational Trail Use Screening Level was determined based on an evaluation of soil data collected from 2019-2020.

References:
DTSC, 2022. Human Health Risk Assessment (HHRA) Note Number 3. May.

Table 3
Detailed Analysis of Remedial Alternatives
Lower Main Meadow, Pogonip Open Space
Santa Cruz, California

Criteria	Alternative 1: No Action		Alternative 2: Institutional and Engineering Controls		Alternative 3: Phytoremediation		Alternative 4: Excavation and Off-Site Disposal	
	Comment	Score	Comment	Score	Comment	Score	Comment	Score
Overall Protection of Human Health and the Environment	Concentrations naturally attenuate over time. Current conditions do not appear to be protective of human health and the environment.	0	Institutional and engineering controls can protect humans from direct contact with impacted soil but do not protect the environment.	3	Removal of COPCs from impacted soil slowly over long-term.	2	Highly protective of human health and the environment by removing the risk of exposure.	5
Ability to Reach Remedial Action Cleanup Goals	Natural attenuation rates do not appear to be adequately protective of human health and the environment.	0	Do not reduce concentrations of impacted soil.	0	Removal of COPCs from impacted soil slowly, but might not reach concentrations below the remedial action cleanup goals.	2	Proven method to reach remedial action cleanup goals, especially with the source already removed.	5
Long-Term Effectiveness and Performance	Natural attenuation rates do not appear to be adequately protective of human health and the environment.	0	Institutional controls can be highly effective in the long-term. Engineering controls require ongoing maintenance and repairs	3	Removal of COPCs from impacted soil over long-term, but might not reach level of effectiveness necessary to meet remedial actional cleanup goals.	3	Highly effective long-term solution, especially with the source already removed.	5
Reduction of Toxicity, Mobility or Volume through Treatment	Natural attenuation reduces toxicity, mobility, and volume through dispersion, sorption, and dilution. Attenuation rates do not appear to be protective of human health and the environment.	0	Do not reduce toxicity, mobility, or volume of impacted soil.	0	Removal of COPCs will reduce toxicity, mobility, and volume but requires ongoing sampling to monitor progress.	3	Reduces toxicity, mobility, and volume by removing the impacted soil.	5
Short-Term Effectiveness	Does not adequately protect human health and the environment.	0	Highly effective short-term solution.	5	Not effective in the short-term.	0	Highly effective short-term solution, once funding is secured and excavation permits are issued.	3
Implementability	Easily implementable. No action required.	5	Easily implemented.	5	Planting new plants and trees is feasible, but requires a significant volume of water and routine soil sampling to monitor remedial progress.	3	Easy to implement once temporary access road is constructed and Site is prepared for heavy equipment operation.	3
Cost	No cost.	5	Low capitol and O&M costs.	5	Low capitol cost for planting; moderate O&M costs for watering and conducting routine soil sampling to monitor remedial progress.	3	Moderate cost for excavating soil; extremely high cost for off-Site disposal.	0
Regulatory Acceptance	Not likely to be approved. Provided as baseline for comparison of remedial alternatives.	0	Likely to be approved in combination with a secondary remedial alternative.	5	Likely to be approved, but it is a less common remedial alternative and does not have adequate short-term effectiveness.	3	Likely to be approved.	5
Community Acceptance	Community has not been solicited.	--	Community has not been solicited.	--	Community has not been solicited.	--	Community has not been solicited.	--
Overall Ranking	**10**		**26**		**19**		**31**	

Notes:
Scoring system is as follows:
0 = Ineffective / Not easily implementable / High cost
3 = Moderately effective / Implementable / Moderate cost
5 = Highly effective / Easily implementable / Low cost

APPENDIX A

EXCERPTS FROM PREVIOUS REPORTS

Report: Soil Lead Levels in the Lower Main Meadow of Pogonip

*This is report updated **January 18, 2019**.*
By the Homeless Garden Project

On November 18, 2018, following a meeting with Parks and Recreation staff, HGP received a formal letter alerting us to the presence of historic skeet shooting in the Lower Main Meadow, and the possibility of higher lead levels resulting from this use.

At the time agricultural soil testing was underway. The initial soil test results were received on December 7, 2018 and are shown in Table 1. Soil samples were taken using the best practices methodology outlined by the Soil and Plant Nutrient Testing Laboratory at the University of Massachusetts Amherst, for agriculture soil testing. Lead levels tested in this initial phase report plant available (extractible) lead levels, NOT total lead levels. (In addition to reporting plant available lead, 10 other agriculturally significant tests were reported including pH.)

Table 1 (below) shows the results of round 1 testing. Sample locations are shown with green pins on the map.

Table 1.

Location	Extractable Lead ppm	pH
Orchard	76.6	5.3
Field 1	1.4	5.3
Acacia	1.2	4.6
Field 2	4.9	5.5

One sample, from the area planned as the future orchard, showed lead levels that fell above the optimum range of 22 ppm recommended by the lab.

Further samples were collected from the lower meadow to explore what area of the Lower Meadow showed elevated lead levels. Three samples (numbers 2,3,6) showed elevated lead levels. These samples correspond to the 100 foot wetlands buffer zone. Table 2 shows the results of round 2 testing Samples locations are shown with red “pins” on the map.

Table 2 shows the results of round 2 testing showing extractable Lead. Sample locations are shown on the map by red pins.

Location		Extractable Lead ppm	pH
1		8.1	5.4
2		89.8	5.3
3		50.2	5.4
4		11.2	5.2
5		16.5	5.5
6		69.4	5.3

January 2019 update

The lab at the University of Massachusetts recommends that soils with elevated levels of extractable lead (>22 ppm) be tested for Total Sorbed Lead. They recommend that samples be analyzed by the Agricultural Analytical Services Laboratory at the Pennsylvania State University Analytical Services Lab. Additional samples for both extractable and total Sorbed Lead were taken on December 19, 2018 and shipped to the lab on December 27, 2018. Table 3 and 4 show the results of this third round of soil testing. Locations of these samples are indicated on the map with light blue pins.

Table 3. Round 3 testing for extractable lead (same tests as shown in Table 1 and 2) Locations of these samples are indicated on the map with light blue pins. Plum Creek is indicated with a white pin.

Location		Extractable Lead ppm	pH
Plum Creek		0.9	6.2
Sample 7 (1 +2+3 from Table 2)		3.4	5.3
Sample 8 (4 +5 +6 from Table 2)		9.6	5.5

Table 4 shows total Sorbed Lead as measured by the Pennsylvania State University Analytical Services Lab. We are pleased to report that this testing indicates that while the area shows somewhat elevated lead levels, the results are below the EPA standards of 400 to 1200 ppm that would require modified farming practices.

Table 4. Shows total Sorbed Lead as measured by the Pennsylvania State University Analytical Services Lab. Note mg/kg = ppm. Light blue pins (Sorb 1 is near the road and Sorb two is further to the east)

Location		Pb (Lead) mg/kg	Cd (Cadmium) mg/kg	Cu (Copper) mg/kg	Cr (Chromium) mg/kg	Ni (Nickel) mg/kg	Zn (Zink) mg/kg
Sorb1 (1+2+3 from Table 2)		145.86	0.25	3.85	11.06	4.68	17.82
Sorb2 (4+5+6 from Table 2)		56.08	0.25	3.36	11.24	4.76	18.62

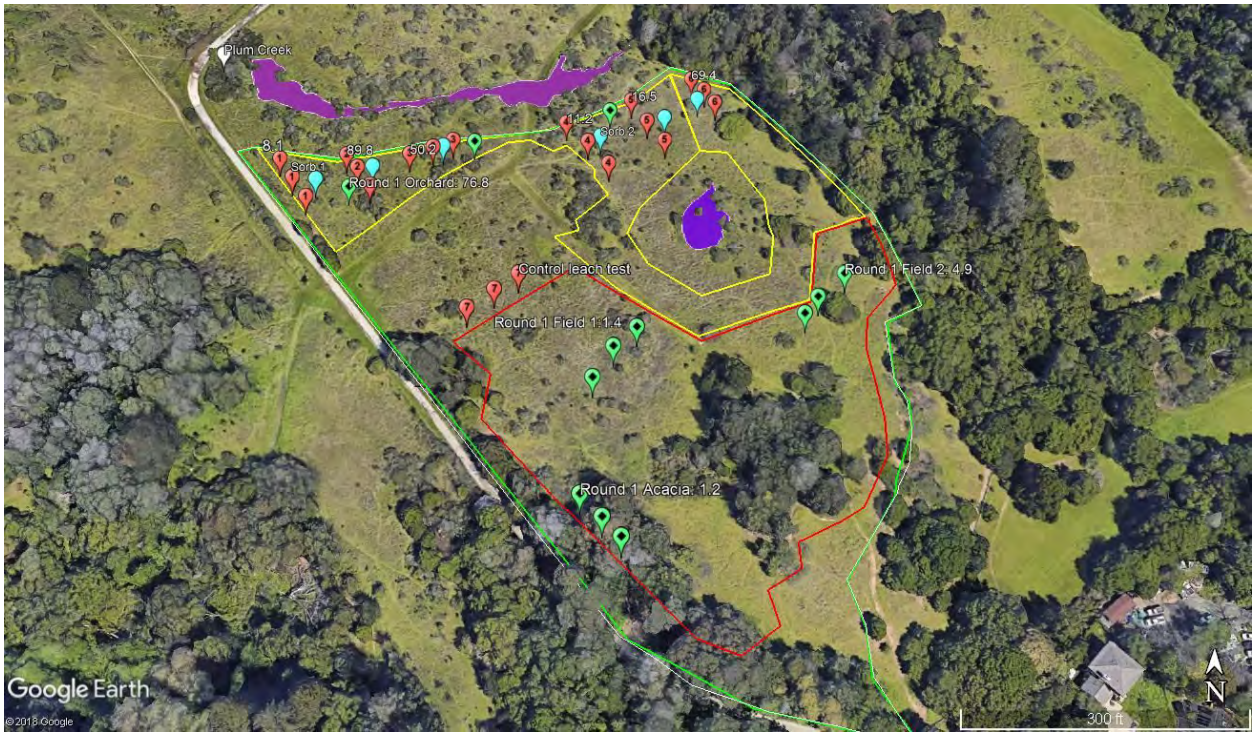
NOTE: 400 to 1200 ppm lead are set by the EPA and would require modified farming practices

Additional information:

According to Pennsylvania State College of Agriculture Science Lead Fact Sheet and other sources, the plant available Lead depends on its solubility and solubility is strongly impacted by soil pH. At low pH (pH 5 or less), lead is more soluble. At neutral (or more basic) pHs lead is held tightly in soil and its solubility is low.

Both the University of Massachusetts and Oregon State University publish guidelines for cultivation in areas impacted by higher lead levels. These recommendations are identical and allow for cultivations at lead levels up to 1200 ppm TOTAL LEAD. These recommendations follow the guidelines issued by the EPA.

Map showing sample locations:



References (shown in the order they appear linked in the text):

1) https://ag.umass.edu/soil-plant-nutrient-testing-laboratory/fact-sheets/sampling-instructions-for-routine-soil-analysis
2) https://ag.umass.edu/soil-plant-nutrient-testing-laboratory/fact-sheets/soil-lead-testing-interpretation-recommendations
3) https://ag.umass.edu/soil-plant-nutrient-testing-laboratory/fact-sheets/soil-lead-testing-interpretation-recommendations
4) https://ag.umass.edu/soil-plant-nutrient-testing-laboratory/fact-sheets/soil-lead-testing-interpretation-recommendations
5) Lead in Residential Soils: Sources, Testing, and Reducing Exposure. Pennsylvania State College of Agricultural Sciences. Copyright 1999
6) http://smallfarms.oregonstate.edu/sfn/su10toxicmetals
7) https://www.atsdr.cdc.gov/csem/csem.asp?csem=34&po=8

Table A1
Summary of Soil Analytical Results
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Sample Date	Sample Depth	Sample Type	Metals				TPH	
				Arsenic	Copper	Lead	Zinc	Diesel	Motor Oil
RWQCB Residential ESLs				0.26	3,100	80	23,000	260	12,000
RWQCB Commercial/Industrial ESLs				0.31	47,000	320	350,000	1,200	180,000
RWQCB Construction Worker ESLs				0.98	14,000	160	110,000	1,100	54,000
B1	2/28/2019	0.0-0.5	Composite	**2.1**	3.9	**120**	17	<0.24	<1.3
B1N-0.5	2/28/2019	0.0-0.5	Discrete	---	---	**150**	---	---	---
B1S-0.5	2/28/2019	0.0-0.5	Discrete	---	---	58	---	---	---
B1E-0.5	2/28/2019	0.0-0.5	Discrete	---	---	**110**	---	---	---
B1W-0.5	2/28/2019	0.0-0.5	Discrete	---	---	64	---	---	---
B1	2/28/2019	1.5-2.0	Composite	**2.9**	4.6	6.2	18	---	---
B1N-2.0	2/28/2019	1.5-2.0	Discrete	---	---	4.5	---	---	---
B1S-2.0	2/28/2019	1.5-2.0	Discrete	---	---	9.5	---	---	---
B1E-2.0	2/28/2019	1.5-2.0	Discrete	---	---	8.0	---	---	---
B1W-2.0	2/28/2019	1.5-2.0	Discrete	---	---	6.4	---	---	---
B2	2/28/2019	0.0-0.5	Composite	**2.0**	3.2	60	60	<0.24	<1.3
B2	2/28/2019	1.5-2.0	Composite	**1.6**	3.3	5.8	98	---	---
B3	2/28/2019	0.0-0.5	Composite	**2.8**	3.1	**84**	20	<0.24	<1.3
B3N-0.5	2/28/2019	0.0-0.5	Discrete	---	---	**190**	---	---	---
B3S-0.5	2/28/2019	0.0-0.5	Discrete	---	---	48	---	---	---
B3E-0.5	2/28/2019	0.0-0.5	Discrete	---	---	47	---	---	---
B3W-0.5	2/28/2019	0.0-0.5	Discrete	---	---	**89**	---	---	---
B3	2/28/2019	1.5-2.0	Composite	**2.5**	3.9	5.6	22	---	---
B3N-2.0	2/28/2019	1.5-2.0	Discrete	---	---	5.7	---	---	---
B3S-2.0	2/28/2019	1.5-2.0	Discrete	---	---	11	---	---	---
B3E-2.0	2/28/2019	1.5-2.0	Discrete	---	---	20	---	---	---
B3W-2.0	2/28/2019	1.5-2.0	Discrete	---	---	5.8	---	---	---
B4	2/28/2019	0.0-0.5	Composite	**1.8**	3.6	24	19	<0.24	<1.3
B4	2/28/2019	1.5-2.0	Composite	**1.8**	3.8	6.6	19	---	---
B5	2/28/2019	0.0-0.5	Composite	**9.6**	4.2	25	26	<0.24	<1.3
B5	2/28/2019	1.5-2.0	Composite	**7.3**	3.7	4.6	20	---	---
B6	2/28/2019	0.0-0.5	Composite	**1.6**	4.0	60	23	8.4 A01, A52	85 A01, A57
B6	2/28/2019	1.5-2.0	Composite	**2.1**	3.5	6.4	22	---	---
B7	2/28/2019	0.0-0.5	Composite	**3.2**	50	38	160	<0.24	<1.3
B7	2/28/2019	1.5-2.0	Composite	**2.9**	7.1	8.6	47	---	---
B8	2/28/2019	0.0-0.5	Composite	**3.7**	4.8	19	22	1.3 J, A52	2.1 J, A57
B8	2/28/2019	1.5-2.0	Composite	**4.4**	4.1	5.8	19	---	---
B9	2/28/2019	0.0-0.5	Composite	**1.8**	3.8	8.9	19	1.3 J, A52	3.4 J, A57

Table A1
Summary of Soil Analytical Results
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Sample Date	Sample Depth	Sample Type	Metals				TPH	
				Arsenic	Copper	Lead	Zinc	Diesel	Motor Oil
RWQCB Residential ESLs				0.26	3,100	80	23,000	260	12,000
RWQCB Commercial/Industrial ESLs				0.31	47,000	320	350,000	1,200	180,000
RWQCB Construction Worker ESLs				0.98	14,000	160	110,000	1,100	54,000
B9	2/28/2019	1.5-2.0	Composite	**3.0**	4.3	12	20	---	---
B10	2/28/2019	0.0-0.5	Composite	**0.98**	3.2	6.1	19	1.3 J, A52	1.7 J, A57
B10	2/28/2019	1.5-2.0	Composite	**1.2**	3.4	4.4	17	---	---
B11	2/28/2019	0.0-0.5	Composite	**2.2**	4	11	20	<0.24	<1.3
B11	2/28/2019	1.5-2.0	Composite	**1.9**	3.5	5.1	19	---	---
B12	2/28/2019	0.0-0.5	Composite	**1.2**	2.9	10	15	<0.24	<1.3
B12	2/28/2019	1.5-2.0	Composite	**2.2**	3.3	6.9	24	NA	NA
B13	2/28/2019	0.0-0.5	Composite	**1.4**	2.8	70	17	NA	NA
Notes:				9.6	50.0	190.0	160.0		

Sample results reported in milligrams per kilogram (mg/kg).
Metals analyzed by USEPA Method 6010B.
TPH analyzed by USEPA Method 8015B.
TPH = total petroleum hydrocarbons.
Bolded value = exceedence of Residential ESL.
<0.24 = not detected above analytical laboratory Method Detection Limit (MDL).
--- = not analyzed or not established.
J = Estimated Value.
A01 = Detection and quantation limits were raised due to sample dilution.
A52 = Chromatogram not typical of diesel.
A57 = Chromatogram not typical of motor oil.
RWQCB ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev 1).

Table A2
Summary of Soil Analytical Results - PAHs
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Sample Date	Sample Depth (feet)	PAHs													
			Acenaphthene	Anthracene	Benzo[a]anthracene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Benzo[a]pyrene	Benzo[g,h,i]perlyene	Chrysene	Dibenzo[a,h]anthracene	Fluoroanthene	Fluorene	Indeno[1,2,3-cd]pyrene	Phenanthrene	Pyrene
RWQCB Residential ESLs			3,600	18,000	1.1	1.1	11	0.11	NE	110	0.11	2,400	2,400	1.1	NE	1,800
RWQCB Commercial/Industrial ESLs			45,000	230,000	20	21	210	2.1	NE	2,100	2.1	30,000	30,000	21	NE	23,000
RWQCB Construction Worker ESLs			10,000	50,000	110	110	910	10	NE	9,100	11	6,700	6,700	110	NE	5,000
B1	2/28/2019	0.0-0.5	<0.0012	<0.0012	<0.0011	<0.00095	<0.0011	0.0020 J	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015
B2	2/28/2019	0.0-0.5	<0.0012	<0.0012	0.0012 J	0.0028 J	<0.0011	0.0031	<0.0011	0.0011 J	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015
B3	2/28/2019	0.0-0.5	<0.0012	<0.0012	0.0016 J	0.0034	<0.0011	0.0034	<0.0011	0.0016 J	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015
B4	2/28/2019	0.0-0.5	<0.0012	<0.0012	<0.0011	0.0019 J	<0.0011	0.0024 J	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015
B5	2/28/2019	0.0-0.5	0.026	0.13 A01	0.55 A01	0.49 A01	0.20 A01	**0.44 A01**	0.17 A01	0.59 A01	0.063	0.78 A01	0.013	0.18 A01	0.48 A01	0.85 A01
B6	2/28/2019	0.0-0.5	0.006	0.014	0.22 A01	0.33 A01	0.10 A01	**0.32 A01**	0.23 A01	0.25 A01	0.066 A01	0.19 A01	0.0012 J	0.20 A01	0.042	0.24 A01
B7	2/28/2019	0.0-0.5	0.0063	0.024	0.42 A01	0.66 A01	0.26 A01	**0.64 A01**	0.50 A01	0.49 A01	**0.17 A01**	0.31 A01	0.0019 J	0.45 A01	0.075 A01	0.39 A01
B8	2/28/2019	0.0-0.5	<0.0012	<0.0012	0.0095	0.19	0.0054	0.014	0.0097	0.011	0.0016 J	0.0092	<0.0011	0.0078	0.0025 J	0.012
B9	2/28/2019	0.0-0.5	<0.0012	<0.0012	0.0021 J	<0.00095	<0.0011	0.0043 J	0.0019 J	0.0023 J	<0.00099	0.0019 J	<0.0011	0.0015 J	<0.0012	0.0022 J
B10	2/28/2019	0.0-0.5	<0.0012	<0.0012	<0.0011	<0.00095	<0.0011	0.0019 J	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015
B11	2/28/2019	0.0-0.5	0.0050	0.0098	0.17 A01	0.21 A01	0.064	**0.19 A01**	0.091 A01	0.20 A01	0.031	0.17 A01	<0.0011	0.089 A01	0.028	0.20 A01
B12	2/28/2019	0.0-0.5	<0.0012	<0.0012	<0.0011	<0.00095	<0.0011	<0.00095	<0.0011	<0.00097	<0.00099	<0.0014	<0.0011	<0.00092	<0.0012	<0.0015

Notes:
Sample results reported in milligrams per kilogram (mg/kg).
PAHs analyzed by USEPA Method 8270C.
Bolded value = exceedence of Residential ESL.
<0.0012 = not detected above analytical laboratory Method Detection Limit (MDL).
PAHs = Polycyclic Aromatic Hydrocarbons.
NA = not analyzed.
J = Estimated Value.
NE = ESL not established.
A01 = Detection and quantation limits were raised due to sample dilution.
RWQCB ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev 1).

Table A3
Metals in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Shot Observed	XRF Reading	Notes	Antimony		Arsenic		Copper		Lead		Zinc	
		(feet bgs)	*(feet bgs)*	*(ppm)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
Residential Screening Level						31		11		3,100		80		23,000	
Screening Level Source						USEPA RSLs		Background		USEPA RSLs		HHRA Note 3		USEPA RSLs	
West Meadow															
WM-C-1-0.5'	5/13/2020	0 - 0.5		222		**1.31**	J	**2.63**		**12.3**		**181**		**23.9**	
WM-C-1-2'	5/13/2020	1.5 - 2		54		-		-		-		**36.9**		-	
WM-C-2-0.5'	5/13/2020	0 - 0.5		202		**0.989**	J	**2.13**	J	**6.91**		**182**		**15.3**	
WM-C-2-0.5' DUP	5/13/2020	0 - 0.5		202	Duplicate	**1.57**	J	**2.45**		**7.54**		**156**		**13.6**	
WM-C-2-2'	5/13/2020	1.5 - 2		26		-		-		-		**11.1**		-	
WM-C-3-0.5'	5/13/2020	0 - 0.5		244		**1.23**	J	**2.14**	J	**8.38**		**161**		**53.6**	
WM-C-3-2'	5/13/2020	1.5 - 2		13		-		-		-		**23.5**		-	
WM-C-4-0.5'	5/13/2020	0 - 0.5		368		**0.683**	J	**1.92**	J	**6.96**		**141**		**15**	
WM-C-4-2'	5/13/2020	1.5 - 2		27		-		-		-		**12.6**		-	
WM-C-5-0.5'	5/13/2020	0 - 0.5		95		**0.568**	J	**1.58**	J	**77.7**	O1	**76.9**	O1	**78.5**	O1
WM-C-6-0.5'	5/14/2020	0 - 0.5		30		**0.897**	J,J6	**2.16**		**4.92**		**10.6**		**19.7**	
WM-C-7-0.5'	5/14/2020	0 - 0.5		13		**0.785**	J	<2.51		**47.3**		**8.57**		**59.1**	
WM-C-8-0.5'	5/14/2020	0 - 0.5		31		**0.879**	J	<2.40		**18.1**		**15.0**		**31.0**	
WM-C-9A-1'	5/15/2020	0.5 - 1		105		**0.727**	J	**1.55**	J	**5.61**		**71.2**		**18.6**	
WM-C-10-0.5'	5/14/2020	0 - 0.5		-		**1.65**	J	**3.81**		**9.09**		**27.0**		**26.6**	
WM-C-11-0.5'	5/13/2020	0 - 0.5		45		**1.47**	J	**10.7**		**7.86**		**29.3**		**24.3**	
WM-DG-1-0.5'	5/13/2020	0 - 0.5		241		**1.41**	J	**2.69**		**8.57**		**188**		**16.4**	
WM-DG-1-2'	5/13/2020	1.5 - 2		9		-		-		-		**15.9**		-	
WM-DG-2-0.5'	5/13/2020	0 - 0.5		168		<2.42		**2.74**		**10.3**		**6.16**		**12.9**	
WM-DG-3-0.5'	5/13/2020	0 - 0.5		90		**0.833**	J	**1.28**	J	**5.66**		**51.1**		**23.0**	
WM-DG-4-0.5'	5/13/2020	0 - 0.5		30		<2.42		**1.76**	J	**16.2**		**19.8**		**28.3**	
WM-DG-5-0.5'	5/13/2020	0 - 0.5		19		<2.44		**1.53**	J	**13.9**		**38.1**		**23.1**	
WM-DG-6-0.5'	5/13/2020	0 - 0.5		311		<2.22		**2.25**		**11.0**		**27.0**		**18.5**	
WM-DG-7-0.5'	5/13/2020	0 - 0.5		120		**0.721**	J	**1.77**	J	**7.01**		**116**		**17.0**	
WM-DG-7-2'	5/13/2020	1.5 - 2		29		-		-		-		**12.1**		-	
WM-DG-8-0.5'	5/13/2020	0 - 0.5		59		**0.637**	J	**1.43**	J	**9.12**		**55.7**		**21.0**	
WM-DG-9-0.5'	5/13/2020	0 - 0.5		28		<2.31		**1.52**	J	**299**		**17.5**		**91.1**	
WM-DG-10-0.5'	5/13/2020	0 - 0.5		46		**0.640**	J	**2.78**		**10.9**		**28.7**		**25.0**	
WM-DG-11-0.5'	5/14/2020	0 - 0.5	0.5-2	59		**2.01**	J	**2.72**	B	**263**		**76.0**		**689**	
WM-DG-11-0.5'-DUP	5/14/2020	0 - 0.5		59	Duplicate	**1.55**	J	**2.13**	B,J	**14.9**		**40.9**		**75.8**	
WM-DG-11A-1'	5/15/2020	0.5 - 1		16		<2.20		**1.77**	J	**9.01**		**11.5**		**15.6**	
WM-DG-12-0.5'	5/14/2020	0 - 0.5		64		**1.58**	J	**1.65**	B,J	**10.8**		**39.1**		**51.6**	
WM-DG-13-1.5'	5/14/2020	0 - 0.5	1-2	1,095		**41.7**	J	**15.9**	B,J	**6,320**		**1,230**		**28,500**	
WM-DG-13-2'	5/14/2020	1.5 - 2		33		**3.33**		**3.61**	B	**214**		**49.0**		**2,770**	
WM-DG-14-0.5'	5/14/2020	0 - 0.5		19		**0.817**	J	**2.82**	B	**8.28**		**13.8**		**40.8**	
WM-DG-15-0.5'	5/14/2020	0 - 0.5		23		**1.80**	J	**2.17**	B,J	**76.9**		**23.8**		**303**	
North Orchard															
NO-1-0.5'	5/14/2020	0 - 0.5		225		**3.54**		**3.05**	B	**6.32**		**265**		**24.0**	
NO-1-2'	5/14/2020	1.5 - 2		25		-		-		-		**6.55**		-	
NO-2-0.5'	5/14/2020	0 - 0.5		119		**1.65**	J	**1.94**	B,J	**8.14**		**107**		**17.6**	
NO-2-2'	5/14/2020	1.5 - 2		28		-		-		-		**5.58**		-	
NO-3-0.5'	5/14/2020	0 - 0.5		863		**6.94**		**4.77**	B	**11.3**		**690**		**21.5**	
NO-3-2'	5/14/2020	1.5 - 2		35		-		-		-		**45.3**		-	
NO-4-0.5'	5/14/2020	0 - 0.5		211		**2.03**	J	**1.60**	B,J	**8.16**		**180**		**15.7**	
NO-4-2'	5/14/2020	1.5 - 2		16		-		-		-		**3.97**		-	
NO-5-0.5'	5/14/2020	0 - 0.5		10		**1.08**	J	**1.57**	B,J	**50.8**		**40.0**		**44.2**	
NO-6-0.5'	5/14/2020	0 - 0.5		118		**1.97**	J	**2.32**	B,J	**23.2**		**144**		**41.8**	
NO-6-2'	5/14/2020	1.5 - 2		14		-		-		-		**13.9**		-	
NO-7-0.5'	5/14/2020	0 - 0.5		43		**0.926**	J	**1.91**	B,J	**8.08**		**29.8**		**24.8**	
NO-8-0.5'	5/15/2020	0 - 0.5		31		**0.928**	J	<2.46		**18.9**		**18.5**		**23.1**	
NO-9-0.5'	5/14/2020	0 - 0.5		39		**1.51**	J	**1.70**	B,J	**14.4**		**20.0**		**26.7**	
NO-10-0.5'	5/15/2020	0 - 0.5		17		<2.33		<2.33		**18.0**		**14.0**		**27.5**	
NO-11-0.5'	5/15/2020	0 - 0.5		18		**1.04**	J	**0.655**	J	**15.0**		**14.5**		**26.8**	
NO-12-0.5'	5/15/2020	0 - 0.5		21		**0.718**	J	<2.42		**17.1**		**10.5**		**49.8**	
East Meadow															
EM-1-0.5'	5/12/2020	0 - 0.5		119		**2.34**		**2.42**		**63.1**		**138**		**69.6**	
EM-1-2'	5/12/2020	1.5 - 2		39		-		-		-		**22.1**		-	
EM-2-0.5'	5/12/2020	0 - 0.5		153		**1.93**	J	**2.42**		**24.6**		**182**		**31.0**	
EM-2-2'	5/12/2020	1.5 - 2		15		-		-		-		**13.4**		-	
EM-3-0.5'	5/12/2020	0 - 0.5		219		**2.87**		**3.23**		**16.6**		**203**		**20.4**	
EM-3-2'	5/12/2020	1.5 - 2		24		-		-		-		**51.3**		-	
EM-4-1.5'	5/12/2020	1 - 1.5		166		**5.15**		**4.58**		**15.8**		**164**		**25.3**	
EM-4-2'	5/12/2020	1.5 - 2		47		-		-		-		**61.3**		-	
EM-5-0.5'	5/12/2020	0 - 0.5		139		**2.51**		**3.21**		**19.1**		**115**		**26.4**	
EM-5-2'	5/12/2020	1.5 - 2		95		-		-		-		**53.6**		-	
EM-6-0.5'	5/12/2020	0 - 0.5		372		**3.46**		**3.91**		**19.9**		**264**		**28.8**	
EM-6-2'	5/12/2020	1.5 - 2		83		-		-		-		**17.9**		-	
EM-7-0.5'	5/12/2020	0 - 0.5		758		**17.0**		**9.58**		**21.1**		**752**		**30.7**	
EM-7-2'	5/12/2020	1.5 - 2		46		-		-		-		**117**		-	
EM-8-1'	5/12/2020	0.5 - 1		549		**11.8**		**8.69**		**14.7**		**717**		**31.1**	
EM-8-2'	5/12/2020	1.5 - 2		94		-		-		-		**140**		-	
EM-9-0.5'	5/12/2020	0 - 0.5		1,227		**5.46**		**6.71**		**10.7**		**1,140**		**22.1**	
EM-9-2'	5/12/2020	1.5 - 2		168		-		-		-		**81.9**		-	

Table A3
Metals in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Shot Observed	XRF Reading	Notes	Antimony		Arsenic		Copper		Lead		Zinc	
		(feet bgs)	*(feet bgs)*	*(ppm)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
Residential Screening Level						31		11		3,100		80		23,000	
EM-10-0.5'	5/12/2020	0 - 0.5		2,973		**6.07**		**8.44**		**12.6**		**1,670**		**29.0**	
EM-10-2'	5/12/2020	1.5 - 2		15		-		-		-		**34.1**		-	
EM-11-0.5'	5/12/2020	0 - 0.5		569		**3.78**		**7.16**		**24.4**		**856**		**36.2**	
EM-11-2'	5/12/2020	1.5 - 2		94		-		-		-		**140**		-	
EM-12-0.5'	5/14/2020	0 - 0.5		31		<2.44		**3.04**	B	**38.6**		**9.15**		**98.3**	
EM-13-0.5'	5/15/2020	0 - 0.5		24		**0.815**	J	**0.554**	J	**9.98**		**11.2**		**25.4**	
EM-14-0.5'	5/14/2020	0 - 0.5		38		**1.58**	J	**2.92**	B	**12.5**		**33.0**		**44.5**	
EM-14-0.5'-DUP	5/14/2020	0 - 0.5		38	Duplicate	**2.14**	J	**2.80**	B	**14.0**		**32.5**		**55.3**	
EM-15-0.5'	5/15/2020	0 - 0.5		26		**1.12**	J	**1.72**	J	**13.0**		**16.1**		**33.0**	
EM-16-0.5'	5/15/2020	0 - 0.5		42		**1.00**	J	**1.33**	J	**14.0**		**24.6**		**37.3**	
EM-17-0.5'	5/15/2020	0 - 0.5		47		**1.50**	J	**1.13**	J	**13.8**		**40.3**		**35.0**	
EM-18-0.5'	5/15/2020	0 - 0.5		39		**3.29**		**2.35**		**11.2**		**44.5**		**30.5**	
EM-19-0.5'	5/14/2020	0 - 0.5		167		**3.13**		**3.57**	B	**12.7**		**116**		**46.0**	
EM-19-2'	5/14/2020	1.5 - 2		64		-		-		-		**38.4**		-	
EM-20-0.5'	5/15/2020	0 - 0.5		58		<2.53		**2.07**	J	**20.5**		**95.2**		**33.4**	
EM-20-2'	5/15/2020	1.5 - 2		10		-		-		-		**9.26**		-	
EM-21-0.5'	5/14/2020	0 - 0.5		776		**10.0**		**6.12**		**7.16**		**768**		**28.7**	
EM-21-0.5'-DUP	5/14/2020	0 - 0.5		776	Duplicate	**6.85**		**5.65**	B	**7.33**		**769**		**30.6**	
EM-21-2'	5/14/2020	1.5 - 2		17		-		-		-		**9.52**		-	
EM-22-0.5'	5/15/2020	0 - 0.5		100		<2.28		**2.39**		**12.3**		**92.6**		**22.8**	
EM-22-2'	5/15/2020	1.5 - 2		17		-		-		-		**25.9**		-	
EM-23-0.5'	5/15/2020	0 - 0.5		29		**0.932**	J	**1.24**	J	**12.8**		**10.7**		**26.0**	
EM-24-0.5'	5/15/2020	0 - 0.5		33		**0.886**	J	**0.686**	J	**9.50**		**9.18**		**26.8**	
EM-25-0.5'	5/15/2020	0 - 0.5		30		**0.786**	J	**0.810**	J	**12.2**		**10.3**		**28.7**	
EM-26-0.5'	5/15/2020	0 - 0.5		19		**0.656**	J	**1.02**	J	**11.7**		**10.8**		**25.1**	
EM-27-0.5'	5/15/2020	0 - 0.5		34		**1.02**	J	**0.823**	J	**13.6**		**6.12**		**26.4**	
EM-28-0.5'	5/15/2020	0 - 0.5		29		**0.813**	J	**0.865**	J	**14.4**		**14.3**		**31.9**	
EM-29-0.5'	5/15/2020	0 - 0.5		31		**0.720**	J	**1.02**	J	**10.8**		**17.8**		**36.8**	
EM-30-0.5'	5/15/2020	0 - 0.5		31		<2.25		**2.52**		**21.9**		**18.0**		**24.1**	
EM-31-0.5'	5/15/2020	0 - 0.5		33		<2.30		**2.07**	J	**9.94**		**15.4**		**19.1**	
EM-32-0.5'	5/15/2020	0 - 0.5		18		<2.34		**2.01**	J	**13.8**		**37.4**		**23.0**	
EM-33-0.5'	5/15/2020	0 - 0.5		17		<2.25		**2.23**	J	**8.74**		**12.3**		**19.0**	

Notes:
Metals analyzed using USEPA Method 6010B.
Analytes detected above laboratory reporting limit are **emboldened**.
Analytes detected above Residential Screening Level are highlighted.
Background = Duverge, 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region. December.
HHRA Note 3 = DTSC, 2019. Human Health Risk Assessment (HHRA) Note Number 3. April.
USEPA RSLs = USEPA, 2020. Regional Screening Level (RSL) Summary Table (TR=1E-6, HQ=1). May.
DTSC = California Environmental Protection Agency, Department of Toxic Substances Control.
USEPA = United States Environmental Protection Agency.
bgs = Below ground surface.
mg/kg = Milligrams per kilogram.
- = Not analyzed.
B = The same analyte is found in the associated blank.
J = The identification of the analyte is acceptable; the reported value is an estimate.
J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1 = The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table A4
Polycyclic Aromatic Hydrocarbons in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Clay Target Fragments Observed	Notes	ANTHRACENE	ACENAPHTHENE	BENZO(A) ANTHRACENE	BENZO(A) PYRENE	BENZO(B) FLUORANTHENE	BENZO(G,H,I) PERYLENE	BENZO(K) FLUORANTHENE	CHRYSENE	DIBENZ(A,H) ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD) PYRENE	PHENANTHRENE	PYRENE	NAPHTHALENE	1-METHYL NAPHTHALENE	2-METHYL NAPHTHALENE
		(feet bgs)	*(feet bgs)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
Residential Screening Level					17,000	3,300	1.1	0.11	1.1	NE	11	110	0.028	2,400	2,300	1.1	NE	1,800	2.0	9.9	190
West Meadow																					
WM-C-5-0.5'	05/13/2020	0 - 0.5			<0.00645	<0.00645	**0.00425** J	**0.00642** J	**0.00668**	**0.00606** J	**0.00326** J	**0.00552** J	<0.00645	**0.00445** J	<0.00645	**0.00467** J	<0.00645	**0.00486** J	<0.0215	<0.0215	<0.0215
WM-C-6-0.5'	05/14/2020	0 - 0.5			<0.00644	<0.00644	<0.00644	<0.00644	**0.00244** J	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.00644	<0.0215	<0.0215	<0.0215
WM-C-7-0.5'	05/14/2020	0 - 0.5			<0.00752	<0.00752	**0.00232** J	**0.00283** J	**0.00352** J	**0.00295** J	<0.00752	<0.00752	<0.00752	<0.00752	<0.00752	<0.00752	<0.00752	**0.00292** J	<0.0251	<0.0251	<0.0251
WM-C-8-0.5'	05/14/2020	0 - 0.5			**0.0273**	**0.0102**	**0.216**	**0.267**	**0.323**	**0.176**	**0.081**	**0.261**	**0.0532**	**0.340**	**0.00293** J	**0.155**	**0.102**	**0.309**	<0.0240	<0.0240	<0.0240
WM-C-8-2'	05/14/2020	1.5 - 2			<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.00741	<0.0247	<0.0247	<0.0247
WM-C-9A-1'	05/15/2020	0.5 - 1	0.5-1.5		**0.231**	**0.0866**	**5.64**	**10.4**	**11.5**	**4.88**	**2.79**	**6.44**	**1.85**	**4.22**	**0.0319** J	**4.99**	<0.215	**0.828**	**4.68**	<0.215	<0.215
WM-C-9-2'	05/14/2020	1.5 - 2			<0.00717	<0.00717	**0.0332**	**0.0608**	**0.0593**	**0.0545**	**0.0232**	**0.0412**	**0.0145**	**0.0272**	<0.00717	**0.0446**	**0.00582** J	**0.0319**	<0.0239	<0.0239	<0.0239
WM-C-10-0.5'	05/14/2020	0 - 0.5			**0.0115**	**0.00499** J	**0.121**	**0.185**	**0.192**	**0.131**	**0.0803**	**0.172**	**0.0395**	**0.162**	<0.00706	**0.112**	**0.0508**	**0.155**	<0.0235	<0.0235	<0.0235
WM-C-10-2'	05/14/2020	1.5 - 2			**0.0258**	**0.00645** J	**0.175**	**0.243**	**0.298**	**0.179**	**0.0819**	**0.217**	**0.0506**	**0.268**	**0.00249** J	**0.153**	**0.0736**	**0.229**	<0.0217	<0.0217	<0.0217
WM-C-11-0.5'	05/13/2020	0 - 0.5			<0.00640	<0.00640	**0.00257** J	**0.00383** J	**0.00553** J	**0.00419** J	<0.00640	**0.00307** J	<0.00640	**0.00273** J	<0.00640	**0.00306** J	<0.00640	**0.0028** J	<0.0213	<0.0213	<0.0213
WM-C-11-2'	05/13/2020	1.5 - 2			**0.56**	**0.23**	**2.68**	**2.56**	**2.88**	**1.42**	**0.772**	**3.02**	**0.468**	**3.81**	**0.123**	**1.25**	**2.43**	**4.18**	**0.0112** J	**0.0106** J	**0.0215** J
WM-DG-1-0.5'	05/13/2020	0 - 0.5			<0.00687	<0.00687	<0.00687	<0.00687	0.00247 J	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.00687	<0.0229	<0.0229	<0.0229
WM-DG-2-0.5'	05/13/2020	0 - 0.5			<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.00725	<0.0242	<0.0242	<0.0242
WM-DG-3-0.5'	05/13/2020	0 - 0.5			<0.00676	<0.00676	<0.00676	<0.00676	0.00267 J	**0.00215** J	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.00676	<0.0225	<0.0225	<0.0225
WM-DG-4-0.5'	05/13/2020	0 - 0.5			<0.00726	<0.00726	<0.00726	**0.0027** J	**0.00347** J	**0.00283** J	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.0242	<0.0242	<0.0242
WM-DG-5-0.5'	05/13/2020	0 - 0.5			<0.00733	<0.00733	<0.00733	**0.00239** J	**0.00287** J	**0.00256** J	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.00733	<0.0244	<0.0244	<0.0244
WM-DG-6-0.5'	05/13/2020	0 - 0.5			**0.131**	**0.0763**	**2.85**	**3.61**	**3.88**	**2.27**	**1.31**	**3.61**	**0.836**	**3.07**	**0.0173**	**2.03**	**0.633**	**3.23**	**0.00974** J	**0.0111** J	**0.0133** J
WM-DG-6-2'	05/13/2020	1.5 - 2			**0.185**	**0.114**	**5.43**	**7.56**	**7.92**	**4.06**	**1.85**	**7.05**	**0.238**	**5.06**	**0.0248**	**3.58**	**0.942**	**6.73**	**0.0141** J	**0.0162** J	**0.0194** J
WM-DG-7-0.5'	05/13/2020	0 - 0.5			<0.00639	<0.00639	**0.00345** J	**0.00558** J	**0.00635** J	**0.00506** J	<0.00639	**0.00452** J	<0.00639	**0.00399** J	<0.00639	**0.00419** J	<0.00639	**0.00411** J	<0.0213	<0.0213	<0.0213
WM-DG-8-0.5'	05/13/2020	0 - 0.5			<0.00730	<0.00730	**0.0529**	**0.107**	**0.113**	**0.0893**	**0.0331**	**0.0669**	**0.0252**	**0.0409**	<0.00730	**0.0754**	**0.00898**	**0.0444**	<0.0243	<0.0243	<0.0243
WM-DG-9-0.5'	05/13/2020	0 - 0.5			<0.00694	<0.00694	<0.00694	**0.00271** J	**0.0034** J	**0.00272** J	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	**0.00213** J	<0.00694	<0.00694	<0.0231	<0.0231	<0.0231
WM-DG-10-0.5'	05/13/2020	0 - 0.5			<0.00690	<0.00690	**0.00254** J	**0.00254** J	**0.00298** J	<0.00690	<0.00690	**0.00297** J	<0.00690	**0.00366** J	<0.00690	<0.00690	<0.00690	**0.00373** J	<0.0230	<0.0230	<0.0230
WM-DG-11-0.5'	05/14/2020	0 - 0.5	0.5-1		<0.0242	<0.0242	**0.041**	**0.0608**	**0.0665**	**0.0445**	0.0224 J	**0.0535**	**0.0115** J	**0.0469**	<0.0242	**0.0371**	**0.0158** J	**0.0477**	<0.0804	<0.0804	<0.0804
WM-DG-11-0.5'-DUP	05/14/2020	0 - 0.5		Duplicate	**0.986**	**0.651**	**8.45**	**10.5**	**12.2**	**3.35**	**4.00**	**9.86**	**2.38**	**11.1**	**0.260**	**3.61**	**4.14**	**11.8**	**0.321**	**0.0762**	**0.11**
WM-DG-11A-1'	05/15/2020	0.5 - 1			**0.00491** J	<0.00659	**0.0544** J3	**0.0886** J3,J6	**0.0813** J3,J6	**0.0751** J3	**0.0336** J3	**0.0709** J3	**0.0196**	**0.0595**	<0.00659	**0.0637** J3	<0.0220	**0.0152**	**0.061**	<0.0220	<0.0220
WM-DG-11-2'	05/14/2020	1.5 - 2			<0.00716	<0.00716	**0.00212** J	**0.00258** J	**0.00271** J	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	**0.00716** J	<0.0239	<0.0239
WM-DG-12-0.5'	05/14/2020	0 - 0.5			**0.0278**	**0.0132**	**0.304**	**0.354**	**0.415**	**0.243**	**0.12**	**0.365**	**0.0661**	**0.347**	**0.00273** J	**0.203**	**0.13**	**0.498**	<0.0222	<0.0222	<0.0222
WM-DG-12-2'	05/14/2020	1.5 - 2			<0.00675	<0.00675	**0.0100**	**0.00997**	**0.0102**	**0.00534** J	**0.00445** J	**0.0126**	<0.00675	**0.014**	<0.00675	**0.00474** J	**0.00682**	**0.0159**	<0.0225	<0.0225	<0.0225
WM-DG-13-1.5'	05/14/2020	1 - 1.5	0.5-2		**0.252**	**0.113**	**6.42**	**11.7**	**14.8**	**7.52**	**4.02**	**8.75**	**4.45**	**5.74**	**0.0241**	**6.25**	**0.901**	**5.68**	**0.0462**	**0.0166** J	**0.0201** J
WM-DG-13-2'	05/14/2020	1.5 - 2			**0.00609** J	<0.00670	**0.19**	**0.358**	**0.393**	**0.365**	**0.123**	**0.257**	**0.105**	**0.123**	<0.00670	**0.292**	**0.0186**	**0.158**	**0.00491** J	<0.0223	<0.0223
WM-DG-14-0.5'	05/14/2020	0 - 0.5			<0.00659	<0.00659	**0.00997**	**0.0149**	**0.0169**	**0.0138**	**0.00589** J	**0.0122**	**0.00377** J	**0.0108**	<0.00659	**0.0107**	**0.00295** J	**0.0124**	<0.0220	<0.0220	<0.0220
WM-DG-15-0.5'	05/14/2020	0 - 0.5			<0.00686	<0.00686	**0.00482** J	**0.00658** J	**0.00832**	**0.00645** J	**0.00264** J	**0.00575** J	<0.00686	**0.00552** J	<0.00686	**0.00486** J	<0.00686	**0.0065** J	<0.0229	<0.0229	<0.0229
North Orchard																					
NO-3-0.5'	05/14/2020	0 - 0.5			<0.00726	<0.00726	<0.00726	<0.00726	0.00191 J	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.00726	<0.0242	<0.0242	<0.0242
NO-4-0.5'	05/14/2020	0 - 0.5			<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.00700	<0.0233	<0.0233	<0.0233
NO-6-0.5'	05/14/2020	0 - 0.5			<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.00786	<0.0262	<0.0262	<0.0262
East Meadow																					
EM-1-0.5'	05/12/2020	0 - 0.5			<0.00688	<0.00688 J3	<0.00688	<0.00688	**0.00228** J	<0.00688	<0.00688 J3	<0.00688	<0.00688	<0.00688	<0.00688	<0.00688	<0.00688	<0.00688	<0.0229 J3	<0.0229 J3	<0.0229 J3
EM-2-0.5'	05/12/2020	0 - 0.5			<0.00693	<0.00693	**0.00233** J	**0.00267** J	**0.00508** J	**0.00326** J	<0.00693	**0.0028** J	<0.00693	**0.00337** J	<0.00693	**0.00232** J	<0.00693	**0.00292** J	<0.0231	<0.0231	<0.0231
EM-3-0.5'	05/12/2020	0 - 0.5			<0.00690	<0.00690	<0.00690	<0.00690	**0.00324** J	**0.00258** J	<0.00690	<0.00690	<0.00690	<0.00690	<0.00690	<0.00690	<0.00690	<0.00690	<0.0230	<0.0230	<0.0230
EM-4-1.5'	05/12/2020	1 - 1.5			<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.00656	<0.0219	<0.0219	<0.0219
EM-5-0.5'	05/12/2020	0 - 0.5			<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.00647	<0.0216	<0.0216	<0.0216
EM-6-0.5'	05/12/2020	0 - 0.5			<0.00671	<0.00671	<0.00671	<0.00671	**0.00332** J	**0.00223** J	<0.00671	<0.00671	<0.00671	<0.00671	<0.00671	<0.00671	<0.00671	<0.00671	<0.0224	<0.0224	<0.0224
EM-7-0.5'	05/12/2020	0 - 0.5			<0.00663	<0.00663	<0.00663	<0.00663	**0.00224** J	<0.00663	<0.00663	<0.00663	<0.00663	<0.00663	<0.00663	<0.00663	<0.00663	<0.00663	<0.0221	<0.0221	<0.0221
EM-8-1'	05/12/2020	0.5 - 1			<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.00652	<0.0217	<0.0217	<0.0217
EM-9-0.5'	05/12/2020	0 - 0.5			<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.00641	<0.0214	<0.0214	<0.0214
EM-10-0.5'	05/12/2020	0 - 0.5	0-1.5		<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.00633	<0.0211	<0.0211	<0.0211
EM-11-0.5'	05/12/2020	0 - 0.5			<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	<0.00708	**0.0114** J	<0.0236	**0.0102** J

Table A4
Polycyclic Aromatic Hydrocarbons in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Clay Target Fragments Observed	Notes	ANTHRACENE	ACENAPHTHENE	BENZO(A) ANTHRACENE	BENZO(A) PYRENE	BENZO(B) FLUORANTHENE	BENZO(G,H,I) PERYLENE	BENZO(K) FLUORANTHENE	CHRYSENE	DIBENZ(A,H) ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD) PYRENE	PHENANTHRENE	PYRENE	NAPHTHALENE	1-METHYL NAPHTHALENE	2-METHYL NAPHTHALENE
		(feet bgs)	*(feet bgs)*		*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
Residential Screening Level					17,000	3,300	1.1	0.11	1.1	NE	11	110	0.028	2,400	2,300	1.1	NE	1,800	2.0	9.9	190
EM-21-0.5'	05/14/2020	0 - 0.5			<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.00646	<0.0215	<0.0215	<0.0215
EM-21-0.5'-DUP	05/14/2020	0 - 0.5		Duplicate	<0.00650	<0.00650	<0.00650	<0.00650	**0.00183** J	<0.00650	<0.00650	<0.00650	<0.00650	<0.00650	<0.00650	<0.00650	<0.00650	<0.00650	<0.0217	<0.0217	<0.0217

Notes:
PAHs analyzed using USEPA Method 8270C-SIM.
Analytes detected above laboratory reporting limit are **emboldened**.
Analytes detected above Residential Screening Level are highlighted.
Residential Screening Levels are based on HHRA Note 3 values.
bgs = Below ground surface.
mg/kg = Milligrams per kilogram.
NE = Not Established.
PAHs = Polycyclic Aromatic Hydrocarbons.
SIM = Selective Ion Mode.
HHRA Note 3 = DTSC, 2019. Human Health Risk Assessment (HHRA) Note Number 3. April.
DTSC = California Environmental Protection Agency, Department of Toxic Substances Control.
J = The identification of the analyte is acceptable; the reported value is an estimate.
J3 = The associated batch QC was outside the established quality control range for precision.
J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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December 29, 2021

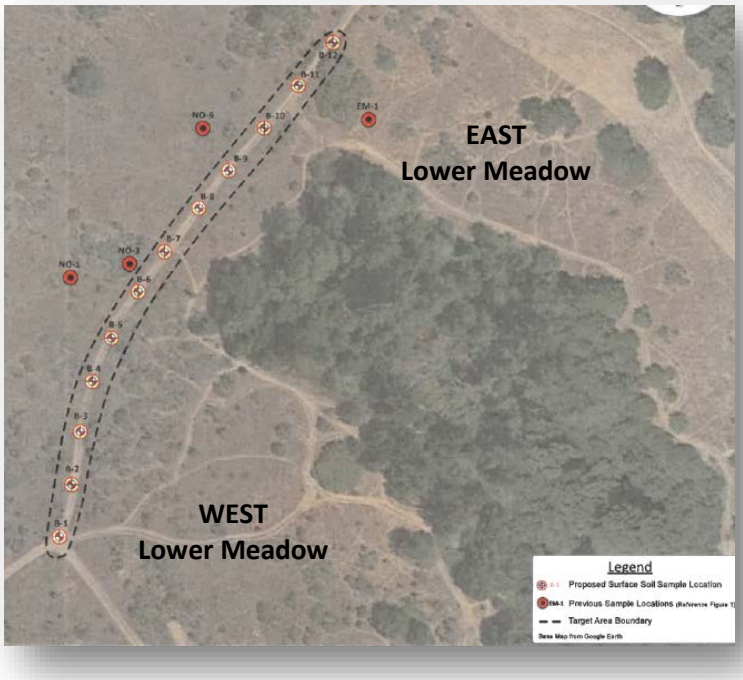
County of Santa Cruz Health Services Agency
Environmental Health Division
To the attention of: Heather Hanna, P.G.
701 Ocean Street, Suite 312
Santa Cruz, California 95060

Heather.Hanna@santacruzcounty.us
(831) 454- 4813

Subject: **Shallow Soil Sampling for Total Lead**

Location: **Lower Meadows Access Road, Pogonip, 333 Golf Club Drive, Santa Cruz**

This *Letter Report* describes completed field sampling and laboratory testing tasks designed to document Total Lead concentrations along an untested access road that is located in the vicinity of a historic skeet shooting range. The shallow soil sampling was completed to supplement the results of previous shallow sampling and testing conducted by RMD Environmental Solutions in August 2020 (see Attachment C).



These tasks were completed to evaluate *potential* environmental risks associated with using this dirt connector path as a walking/ vehicle road for possible future land uses. This report is being submitted in accordance with an approved *Workplan*[1], and includes the following attachments:

Figure 1: Topographic Location Map
Figure 2: Aerial Vicinity Map
Figure 3: Soil Sample Location Map (including Lead Results
Table 1: Summary of Soil Sample Analytical Results
Attachment A: Field Documentation and Photos
Attachment B: State-Certified Laboratory Report
Attachment C: Reference: Previous Testing Results in the Vicinity (RMD, August 2020)

[1] Weber Hayes and Associates (WHA) report: Workplan: Shallow Soil Sampling for Total Lead, March 2021.

Field Sample Collection: On March 11, 2021, twelve (12) soil borings were hand-augured at sampling sites *B-1* through *B-12* to an approximate depth of 2-ft below ground surface (bgs). See Figure 3 for locations. The soil samples were obtained using a stainless-steel hand-auger used to remove soils to the target depth and logged noting the lithology of the soils, moisture content, and any unusual odor or discoloration. There was no evidence of chemical impacts observed in any of the soil borings.

Two (2) samples per location were selected for laboratory analysis: one sample was obtained from ground surface to 6-inches, and the second, deeper sample was collected from 18-to 24-inches below ground surface (bgs). Relatively undisturbed soil samples were obtained using a specialty-machined slide hammer. Borings were initially augured to a target depth whereupon the slide hammer was used to drive clean stainless-steel liners into native soils. The slide hammer was then gently back-tapped out of the boring to retrieve a relatively undisturbed soil sample. The stainless steel auger and sampling hammer was decontaminated between each boring location using non-phosphate detergent and distilled water.

The sample containers were labeled, placed in sealed, plastic bags, and stored in a chilled cooler for transportation under standard chain-of-custody procedures to Pace Analytical, a California-certified laboratory. Field notes and photo documentation of the field sampling is included in Appendix A.

Laboratory Analysis: The twenty-four (24) discrete soil samples were analyzed for Total Lead concentrations. The dry weight results are tabulated along with agency screening thresholds on Table 1 and clip of the results is presented to the right. Certified laboratory report is attached (Attachment B)

Sample Information			Lab Results
Sample Date	Sample ID	Depth (inches below ground surface)	Total Lead Concentrations (mg/kg)
March 11, 2021	B-1	surface	13.9
		18"	5.68
	B-2	surface	42.5
		18"	7.61
	B-3	surface	183
		18"	6.54
	B-4	surface	208
		18"	10.6
	B-5	surface	8.2
		18"	5.74
	B-6	surface	37.5
		18"	9.61
	B-7	surface	19
		18"	15.2
	B-8	surface	158
		18"	5.25
	B-9	surface	78
		18"	7.16
	B-10	surface	51.6
		18"	7.32
	B-11	surface	33.3
		18"	5.06
	B-12	surface	14.9
		18"	7
Environmental Screening Levels (ESLs) Residential / Commercial Land Uses (Construction Worker)			80 / 320 (160)

Data Summary: The majority of samples have Total Lead concentrations below risk-based, *Environmental Screening Levels (ESL)* for different land uses (i.e., commercial, construction worker, and unrestricted/ residential land uses. Three (3) of the twelve (12) *surface* samples have detectable concentrations of Total Lead that exceed the *residential/ unrestricted* land use ESL of 80 mg/kg, but do not exceed the commercial/construction worker threshold of 320 and 160 respectively (see Table 1 for details).

Note: This additional sampling and testing was originally completed to provide supporting data for an agricultural project (i.e., safe use as an access road for the possible location of Homeless Garden Project,

HGP). Currently, HGP plans for farming on this portion of Pogonip have been postponed indefinitely.

Limitations: Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic principles and practices. This warranty is in lieu of all others, either expressed or implied. The analysis and conclusions in this report are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modifications of the options expressed herein.

If you have any questions or comments regarding this report, please contact us our office (722-3580).

Sincerely,

WEBER, HAYES AND ASSOCIATES

By _____
Pat Hoban, PG
Principal Geologist

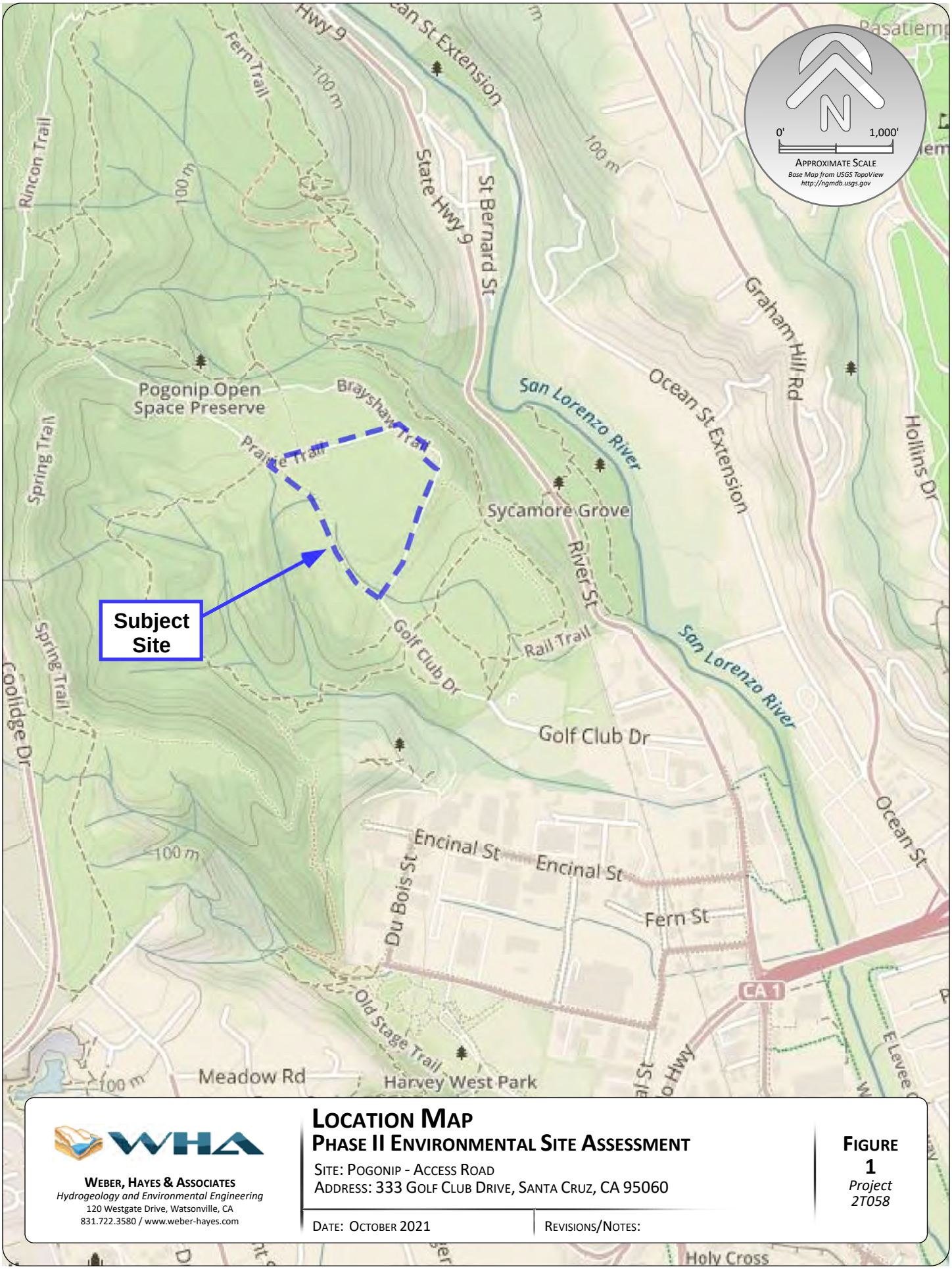
ATTACHMENTS:

Figure 1: Location
Figure 2: Vicinity Map
Figure 3: Soil Sample Locations and Lead Results

Table 1: Summary of Soil Sample Analytical Results

Attachment A: Field Documentation
Attachment B: Laboratory Report
Attachment C: Reference: Previous Testing Results in the Vicinity - RMD, August 2020

FIGURES



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Location Map
Phase II Environmental Site Assessment

Site: Pogonip - Access Road
Address: 333 Golf Club Drive, Santa Cruz, CA 95060

Date: October 2021

Revisions/Notes:

Figure 1
Project 2T058

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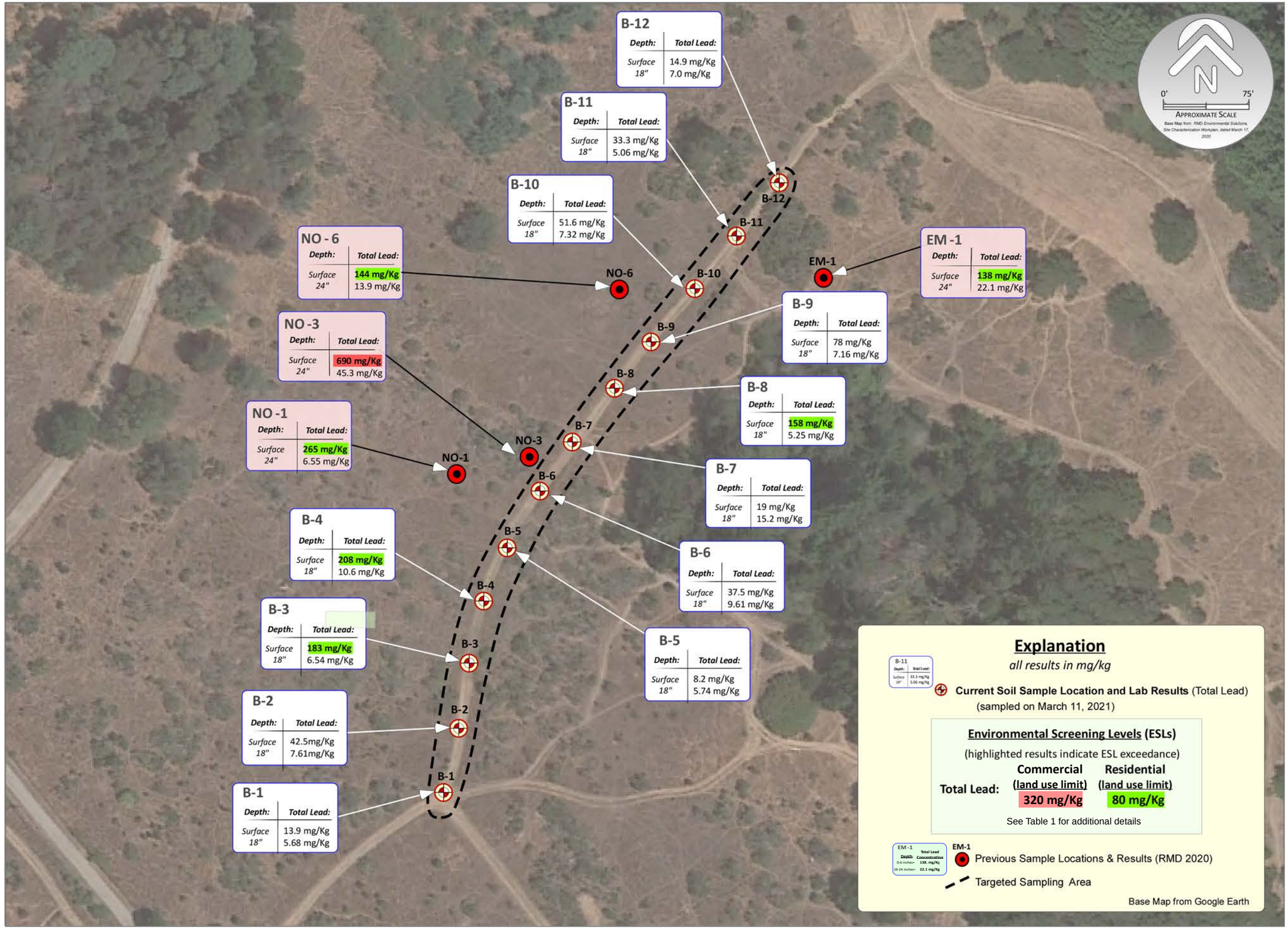
Vicinity Map
Phase II Environmental Site Assessment

Site: Pogonip - Access Road
Address: 333 Golf Club Drive, Santa Cruz, CA 95060

Date: June 2021

Revisions/Notes:

Figure 2
Project 2T058



Soil Sample Locations And Lead Results

Site: Pogonip Access Trail Evaluation
Address: 333 Golf Club Drive, Santa Cruz

Date: March 2021

Figure 3
Project 2T058

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TABLES

Table 1: Summary of Soil Analytical Results

Table 1

Summary of Soil Analytical Results

Pogonip Access Trail Evaluation

333 Golf Club Dr. Santa Cruz

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information			Lab Results
Sample Date	**Sample ID**	**Depth** (inches below ground surface)	**Total Lead Concentrations** (mg/kg)
March 11, 2021	B-1	surface	**13.9**
		18"	**5.68**
	B-2	surface	**42.5**
		18"	**7.61**
	B-3	surface	**183**
		18"	**6.54**
	B-4	surface	**208**
		18"	**10.6**
	B-5	surface	**8.2**
		18"	**5.74**
	B-6	surface	**37.5**
		18"	**9.61**
	B-7	surface	**19**
		18"	**15.2**
	B-8	surface	**158**
		18"	**5.25**
	B-9	surface	**78**
		18"	**7.16**
	B-10	surface	**51.6**
		18"	**7.32**
	B-11	surface	**33.3**
		18"	**5.06**
	B-12	surface	**14.9**
		18"	**7**
Environmental Screening Levels (ESLs) **Residential / Commercial Land Uses (Construction Worker)**			**80 / 320 (160)**

Notes:

Environmental Screening Levels (ESLs): Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2019). The ESLs are intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted <**https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/ESL/new/ESL_Summary_Tables_24Jan19_Rev1.pdf** >

158	= **green-shaded cell** indicates detected concentration exceeds the ESL threshold limit for a residential land use
320	= **red-shaded cell** indicates detected concentration exceeds the ESL threshold limit for a residential land use

Weber,Hayes and Assoicates

ATTACHMENT A

Field Documentation

Field Notes and Photo Sheets

Field Methodology for Shallow Soil Sampling

This following provides detailed descriptions of methods used during shallow soil sampling investigations. Included are specifications for shallow soil sampling with a slide hammer, and decontamination procedures.

Shallow Soil Sampling Procedures: A backhoe, two-person power auger, or a hand auger will be used to get to a point immediately above the sampling depth. Once at the desired sampling depth, a slide hammer will be used to drive a clean stainless-steel liner encased in the slide hammer sampling shoe to obtain a relatively undisturbed sample. The slide hammer consists of a metal rod with one end containing a sampling shoe and cutting head with which a sample liner can be installed. At the other end of the metal rod there is a handle that is constrained on the rod, but slides up and down the rod allowing force to be applied to the sampling shoe. Manual operation is used to slide the handle down the rod to force the sampling shoe equipped with the liner into native soils.

Materials retrieved from the sampler will be logged on an as-needed basis by the experienced field geologist using the Unified Soil Classification System (USCS), noting in particular, the lithology of the soils, moisture content, and any unusual odor or discoloration. The liner and relatively undisturbed soils will then be removed from the sampling shoe. The liner is then protected at both ends with Teflon tape, sealed with non-reactive caps, taped, and immediately stored in an insulated container cooled with blue ice at a temperature of 4 degree Celsius or less. Soil samples selected for Volatile Organic Compound (VOC) analysis may follow field preservation protocols according to EPA Method 5035, as described in DTSC's *Guidance Document for the Implementation of United States Environmental Protection Agency Method 5035: Methodologies for Collection, Preservation, Storage, and Preparation of Soils to be Analyzed for Volatile Organic Compounds*, dated November 2004. Selected samples will be transported under appropriate chain-of-custody documentation to a State certified laboratory performing the targeted analysis.

Upon completion of sampling at the designated location, the location will be backfilled and compacted with the materials that were removed prior to sampling, supplemented by clean imported fill as necessary.

Equipment Decontamination and Containerization Procedures: All sampling equipment will be cleaned prior to arriving on site to prevent possible transfer of contamination from another site. Additionally, sampling equipment will be thoroughly cleaned between each sampling run with a Liqui-Nox ® or Alconox ® solution followed by a double rinsing with distilled water to prevent the vertical transfer of contamination, and/or contamination from location to location onsite. Accordingly, all sampling equipment will be cleaned following sampling operations to prevent the possible transfer of contamination to another site.

All cleaning rinsate, and wash water produced during the shallow soil sampling and decontamination process will be containerized on site in D.O.T. approved 55-gallon drums for subsequent profiling and disposal at an approved facility.

Pogonip - Access Road Sampling
333 Golf Club Drive, Santa Cruz, California
2021-3-11

Hand Auger used to collect samples

Example of Borehole showing shallow groundwater

Pogonip - Access Road Sampling
333 Golf Club Drive, Santa Cruz, California
2021-3-11

Hand Auger being decontaminated between samples

Collecting Soil from Hand Auger

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering

Project / Client: Pogonip Homeless Garden Lead Soil Sampling	Project #: 21058
Site Location: 333 Golf Club Drive, Santa Cruz	Date: 3-11-21
Field tasks: Shallow Soil Sampling (Hand Auger)	Weather: cloudy morning
Personnel / Company On-Site: RN and OA (WHA)	
Attachments: Site Map____ Data Sheets____ Geologic Logs____ Photos____ COC____ Chargeable Materials____	

Time:	Notes:
0630	-Arrived onsite. Gate code 1321. Setting up samples and decon station on truck a B-1 location.
0700	- Finished sampling from B-1. Soil is a dark yellowish brown (10YR4/4) silt from 0-1.0' bgs and a brown (10YR 5/3) clayey silt with some orange mottling from 1-2' bgs. GPS Coordinate recorded from Google Maps dropped pin and written on soil logging Field Data Sheet.
0730	- Oliver onsite and Heather Hanna onsite as well.
0800	- Finished B-3. Saturated (standing water at 2') from 1.0 to 2.0' bgs.
0815	- Finished B-4. Standing water at 0.5' bgs.
0835	- Finished - B-5. Standing water at 1.5' bgs.
0845	- Finished B-6
0900	- Finished B-7 Clay mostly (loose to medium dense)
0910	- Finished B-8 Silt mostly (loose).
0925	- Finished B-9 Silt to 1.5' bgs. Clayey Silt from 1.5-2.0
0938	- Finished B-10
0945	- Finished B-11
1000	- Finished B-12. Mostly silt.
1030	- Samples are packed up.
1045	- Equipment is decon/cleaned. Decon water is containerized and taken back to the office to be used as planter water.
1100	-Demobilizing

RN

Signature of Field Personnel & Date

WEBER, HAYES & ASSOCIATES
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Soil Logging Field Data Sheet

Project Name / Number: Pogonip Lead Soil Sampling / 21058 Recorded by: Ryan Wyberg / Oliver Abbott

Date: 3-11-2021

Boring/Pothole I.D./ GPS Coordinate	Sample Depths (change in lithology)	Soil Type & % (Gravel, Sand, Silt, Clay)	Color (Brown, Black Grey, etc)	Density (loose, med-dense, dense, v.dense)	Moisture (Dry, damp, moist, wet)	Odors/ Discoloration?	Additional Comments time of sample
B-1 (36.9921757, -122.0583443)	(0-0.5) (1.5-2.0)	0-1: Silt 1-2: Clayey SILT	dark yellowish brown light brown w/ orange mottling	loose loose	damp-wet damp-moist	None	0700
B-2 (36.9923964, -122.0382860)	(illegible) "	0-1.5: Silt 1.5-2: Clay	dark yellowish brown light brown w/ mottling	loose loose	"	None	0730
B-3 (36.9925624, -122.0382454)		0-1: Silt 1-2: Clayey Silt	dark yellowish brown	loose	damp-wet Saturated	None	0750
B-4 (36.9926847, -122.0381974)		0-0.5: Silt 0.5-2: Silt	dark yellowish brown	loose	saturated from a 5-2.0	None	0810
B-5 (36.9927929, -122.0381233)		0-1.5: Silt 1.5-2: Clayey Silt	dark yellowish brown light brown	loose	saturated from 1.5-2.0	None	0825
B-6 (36.9928754, -122.0380503)		0.-1.5: Silt 1.5-2.0: Clayey silt	dark yellowish brown light brown	loose	damp-wet damp-wet	None	0840
B-7 (36.9929619, -122.0379614)		0-1.5: Clayey Silt 1.5-2: CLAY	dark yellowish brown light brown	loose to medium dense	damp to moist	None	0855
B-8 (36.9931065, -122.0378421)		0-1.5: Clayey Silt 1.5-2.0: Clayey Silt	dark yellowish brown light brown	loose	damp to moist saturated from 1.5-2.0	None	0910
B-9 (36.9932206, -122.0377093)		0-1.5: Silt 1.5-2: clay-silt	dark yellow brown light brown	loose	damp to moist ↓	none	0917
B-10 (36.9933007, -122.0376204)		0.0-1.5: Silt 1.5-2: clay-silt	dark yellowish brown light brown	loose	damp to moist	None	0930
B-11 (36.9934155, -122.0375125)		0.0-1.5: Silt 1.5-2: clayey silt	dark yellowish brown	loose	damp to moist	None	0940
B-12 (36.9935802, -122.0373690)	↓	0-2.0: Silt	dark yellowish brown	loose	damp to moist	None	0955

Consistencey (clays): Very soft, Soft, Firm, Stiff or Very Stiff.
Density (sands/silts): Very loose, loose, med-dense, dense, v.dens

ATTACHMENT B

State-Certified Analytical Laboratory Results

Soil - Pace Analytical L1326377

ANALYTICAL REPORT

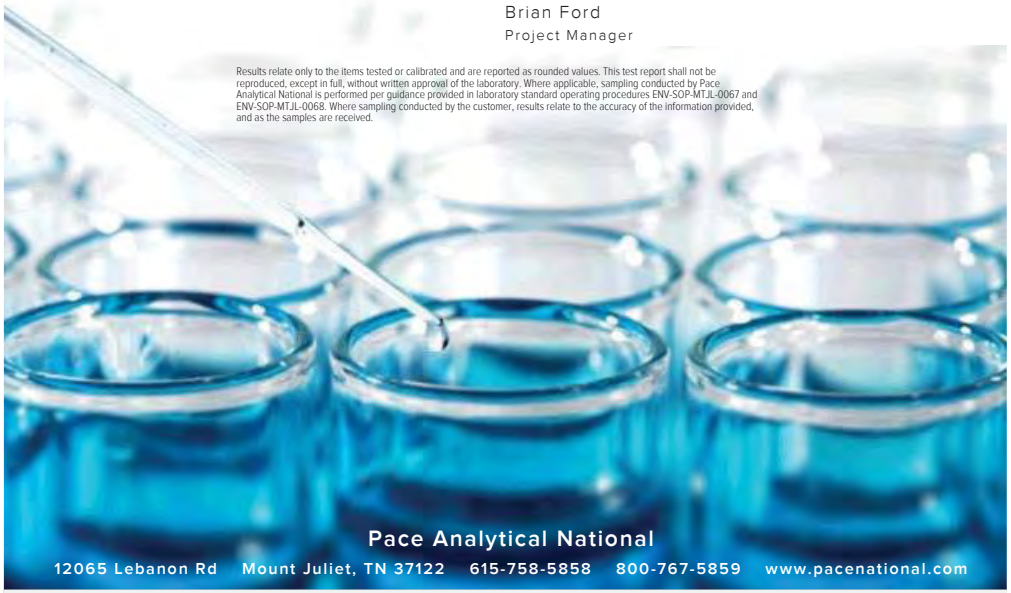
March 18, 2021

Weber, Hayes & Associates - CA

Sample Delivery Group:	L1326377
Samples Received:	03/12/2021
Project Number:	2t058
Description:	
Site:	333 GOLF CLUB DR SANTA CRUZ
Report To:	Ryan Nyberg 120 Westgate Drive Watsonville, CA 95076

Entire Report Reviewed By:

Brian Ford
Project Manager



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1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

B-1-D0 L1326377-01 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634799	1	03/16/21 08:52	03/16/21 09:00	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 00:31	TM	Mt. Juliet, TN

B-1-D1.5 L1326377-02 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634799	1	03/16/21 08:52	03/16/21 09:00	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 00:47	TM	Mt. Juliet, TN

B-2-D0 L1326377-03 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634799	1	03/16/21 08:52	03/16/21 09:00	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 00:51	TM	Mt. Juliet, TN

B-2-D1.5 L1326377-04 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:06	TM	Mt. Juliet, TN

B-3-D0 L1326377-05 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:09	TM	Mt. Juliet, TN

B-3-D1.5 L1326377-06 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:13	TM	Mt. Juliet, TN

B-4-D0 L1326377-07 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:16	TM	Mt. Juliet, TN

B-4-D1.5 L1326377-08 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:20	TM	Mt. Juliet, TN

B-5-D0 L1326377-09 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:23	TM	Mt. Juliet, TN

B-5-D1.5 L1326377-10 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:27	TM	Mt. Juliet, TN

B-6-D0 L1326377-11 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:30	TM	Mt. Juliet, TN

B-6-D1.5 L1326377-12 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:37	TM	Mt. Juliet, TN

B-7-D0 L1326377-13 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634800	1	03/16/21 12:47	03/16/21 12:56	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:54	TM	Mt. Juliet, TN

B-7-D1.5 L1326377-14 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 01:58	TM	Mt. Juliet, TN

B-8-D0 L1326377-15 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 02:01	TM	Mt. Juliet, TN

B-8-D1.5 L1326377-16 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 02:05	TM	Mt. Juliet, TN

B-9-D0 L1326377-17 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 02:09	TM	Mt. Juliet, TN

B-9-D1.5 L1326377-18 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 02:12	TM	Mt. Juliet, TN

B-10-D0 L1326377-19 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634311	5	03/15/21 08:56	03/16/21 02:16	TM	Mt. Juliet, TN

B-10-D1.5 L1326377-20 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634316	5	03/15/21 14:09	03/16/21 10:46	TM	Mt. Juliet, TN

B-11-D0 L1326377-21 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634316	5	03/15/21 14:09	03/16/21 10:50	TM	Mt. Juliet, TN

B-11-D1.5 L1326377-22 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634316	5	03/15/21 14:09	03/16/21 10:53	TM	Mt. Juliet, TN

B-12-D0 L1326377-23 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634840	1	03/16/21 12:37	03/16/21 12:45	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634316	5	03/15/21 14:09	03/16/21 10:57	TM	Mt. Juliet, TN

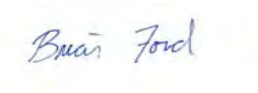
B-12-D1.5 L1326377-24 Solid

Collected by: Ryan Nyberg | Collected date/time: 03/11/21 00:00 | Received date/time: 03/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1634841	1	03/16/21 11:23	03/16/21 11:32	KDW	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1634316	5	03/15/21 14:09	03/16/21 11:00	TM	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

B-1-D0

Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 01

L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.5		1	03/16/2021 09:00	WG1634799

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	13.9		0.113	2.29	5	03/16/2021 00:31	WG1634311

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

B-1-D1.5
Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 02
L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.2		1	03/16/2021 09:00	WG1634799

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	5.68		0.116	2.35	5	03/16/2021 00:47	WG1634311

B-2-D0
Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 03
L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.1		1	03/16/2021 09:00	WG1634799

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	42.5		0.116	2.35	5	03/16/2021 00:51	WG1634311

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

B-2-D1.5

Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 04

L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.6		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	7.61		0.124	2.51	5	03/16/2021 01:06	WG1634311

B-3-D0

Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 05

L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.4		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	183		0.117	2.37	5	03/16/2021 01:09	WG1634311

B-3-D1.5
Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 06
L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.7		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	6.54		0.123	2.48	5	03/16/2021 01:13	WG1634311

B-4-D0
Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 07
L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.9		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	208		0.127	2.57	5	03/16/2021 01:16	WG1634311

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

B-4-D1.5
Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 08
L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.5		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	10.6		0.128	2.58	5	03/16/2021 01:20	WG1634311

B-5-D0
Collected date/time: 03/11/21 00:00

SAMPLE RESULTS - 09
L1326377

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.1		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	8.20		0.119	2.41	5	03/16/2021 01:23	WG1634311

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.7		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	5.74		0.114	2.31	5	03/16/2021 01:27	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.8		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	37.5		0.118	2.39	5	03/16/2021 01:30	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.3		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	9.61		0.127	2.56	5	03/16/2021 01:37	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.2		1	03/16/2021 12:56	WG1634800

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	19.0		0.118	2.37	5	03/16/2021 01:54	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.8		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	15.2		0.121	2.44	5	03/16/2021 01:58	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.9		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	158		0.117	2.36	5	03/16/2021 02:01	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.1		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	5.25		0.121	2.44	5	03/16/2021 02:05	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.0		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	78.0		0.118	2.38	5	03/16/2021 02:09	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.8		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	7.16		0.123	2.47	5	03/16/2021 02:12	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.7		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	51.6		0.120	2.42	5	03/16/2021 02:16	WG1634311

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.2		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	7.32		0.118	2.38	5	03/16/2021 10:46	WG1634316

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	33.3		0.115	2.33	5	03/16/2021 10:50	WG1634316

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.7		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	5.06		0.116	2.33	5	03/16/2021 10:53	WG1634316

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.3		1	03/16/2021 12:45	WG1634840

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	14.9		0.117	2.37	5	03/16/2021 10:57	WG1634316

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.9		1	03/16/2021 11:32	WG1634841

Metals (ICPMS) by Method 6020

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Lead	7.00		0.117	2.35	5	03/16/2021 11:00	WG1634316

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3631692-1 03/16/21 09:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.000			

L1326366-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1326366-01 03/16/21 09:00 • (DUP) R3631692-3 03/16/21 09:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	62.7	59.2	1	5.88		10

Laboratory Control Sample (LCS)

(LCS) R3631692-2 03/16/21 09:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

WG1634800

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

L1326377-04,05,06,07,08,09,10,11,12,13

Method Blank (MB)

(MB) R3631725-1 03/16/21 12:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

L1326377-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1326377-05 03/16/21 12:56 • (DUP) R3631725-3 03/16/21 12:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	84.4	84.5	1	0.118		10

Laboratory Control Sample (LCS)

(LCS) R3631725-2 03/16/21 12:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

WG1634840

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

L1326377-14,15,16,17,18,19,20,21,22,23

Method Blank (MB)

(MB) R3631724-1 03/16/21 12:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00300			

L1326377-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1326377-16 03/16/21 12:45 • (DUP) R3631724-3 03/16/21 12:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	82.1	82.7	1	0.719		10

Laboratory Control Sample (LCS)

(LCS) R3631724-2 03/16/21 12:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	99.9	85.0-115	

WG1634841

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

L1326377-24

Method Blank (MB)

(MB) R3631722-1 03/16/21 11:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.000			

L1326381-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1326381-02 03/16/21 11:32 • (DUP) R3631722-3 03/16/21 11:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	89.0	87.1	1	2.22		10

Laboratory Control Sample (LCS)

(LCS) R3631722-2 03/16/21 11:32

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

WG1634311

Metals (ICPMS) by Method 6020

QUALITY CONTROL SUMMARY

L1326377-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19

Method Blank (MB)

(MB) R3631049-1 03/16/21 00:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Lead	U		0.0990	2.00

Laboratory Control Sample (LCS)

(LCS) R3631049-2 03/16/21 00:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Lead	100	96.1	96.1	80.0-120	

L1326377-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1326377-01 03/16/21 00:31 • (MS) R3631049-5 03/16/21 00:41 • (MSD) R3631049-6 03/16/21 00:44

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Lead	22.9	13.9	116	128	89.5	100	5	75.0-125			9.94	20

WG1634316

Metals (ICPMS) by Method 6020

QUALITY CONTROL SUMMARY

L1326377-20,21,22,23,24

Method Blank (MB)

(MB) R3631186-1 03/16/21 09:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Lead	U		0.0990	2.00

Laboratory Control Sample (LCS)

(LCS) R3631186-2 03/16/21 09:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	100	90.5	90.5	80.0-120	

L1326390-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1326390-02 03/16/21 09:57 • (MS) R3631186-5 03/16/21 10:07 • (MSD) R3631186-6 03/16/21 10:11

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	20.0	13.9	105	101	90.7	87.2	5	75.0-125			3.42	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

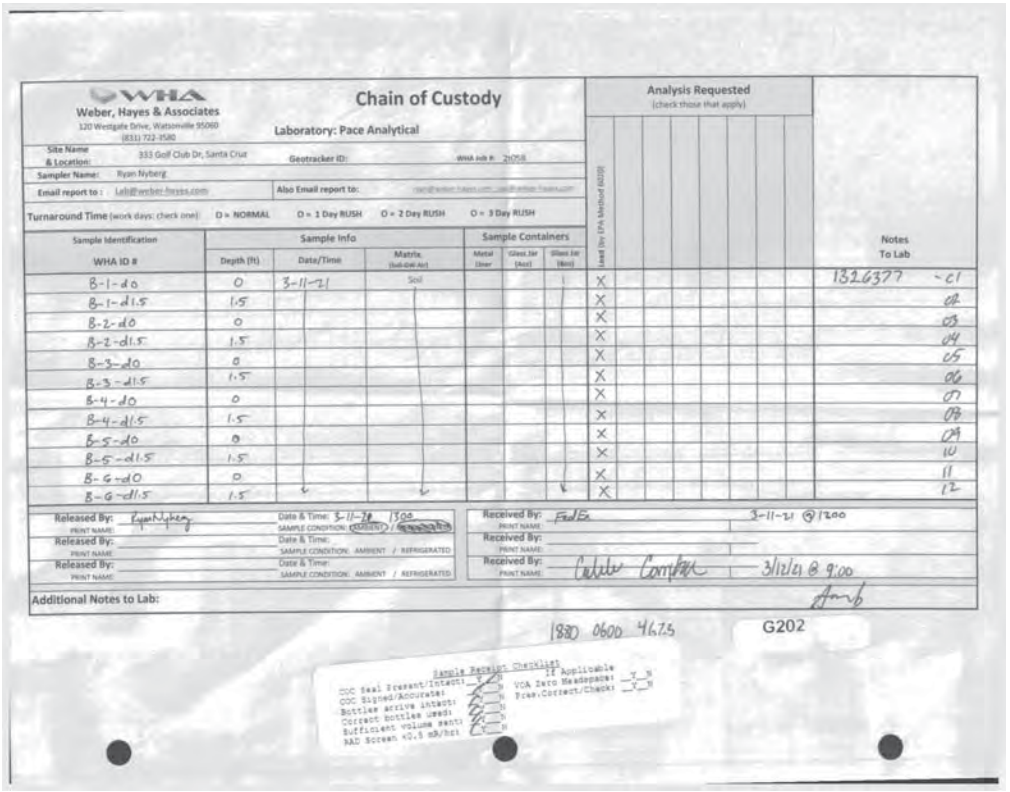
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



WHA
Weber, Hayes & Associates
120 Westgate Drive, Watsonville 95060
(831) 722-1580

Chain of Custody

Laboratory: Pace Analytical

Site Name & Location: 333 Golf Club Dr, Santa Cruz
Geotracker ID:
WHA Job #: 2t058
Sampler Name: Ryan Nyberg
Email report to: Lab@weber-hayes.com
Also Email report to:
Turnaround Time (work days: check one): O = NORMAL O = 1 Day RUSH O = 2 Day RUSH O = 3 Day RUSH

Analysis Requested (check those that apply)
Lead (by EPA Method 6020)

Sample Identification WHA ID #	Sample Info: Depth (ft)	Sample Info: Date/Time	Sample Info: Matrix (Soil/Air/Air)	Sample Containers: Metal (Liner)	Sample Containers: Glass Jar (4oz)	Sample Containers: Glass Jar (8oz)	Lead (by EPA Method 6020)	Notes To Lab
B-1-d0	0	3-11-21	Soil			L	X	1326377 -01
B-1-d1.5	1.5						X	02
B-2-d0	0						X	03
B-2-d1.5	1.5						X	04
B-3-d0	0						X	05
B-3-d1.5	1.5						X	06
B-4-d0	0						X	07
B-4-d1.5	1.5						X	08
B-5-d0	0						X	09
B-5-d1.5	1.5						X	10
B-6-d0	0						X	11
B-6-d1.5	1.5	↓	↓			↓	X	12

Released By: Ryan Nyberg Date & Time: 3-11-21 1300 SAMPLE CONDITION: (AMBIENT) / REFRIGERATED
Released By: Date & Time: SAMPLE CONDITION: AMBIENT / REFRIGERATED
Released By: Date & Time: SAMPLE CONDITION: AMBIENT / REFRIGERATED

Received By: FedEx 3-11-21 @1200
Received By:
Received By: Cristina Campos 3/12/21 @ 9:00

Additional Notes to Lab:

1880 0600 4673

G202

Sample Receipt Checklist

		If Applicable	
COC Seal Present/Intact?	Y N	VOA Zero Headspace:	Y N
COC Signed/Accurate:	Y N	Pres.Correct/Check:	Y N
Bottles arrive intact:	Y N		
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

WHA

Weber, Hayes & Associates
120 Westgate Drive, Watsonville 95060
(831) 722-3580

Chain of Custody

Laboratory: Pace Analytical

Site Name & Location:	333 Golf Club Dr, Santa Cruz	**Geotracker ID:**	**WHA Job #:** 21058
Sampler Name:	Ryan Nyberg		
Email report to :	Lab@weber-hayes.com	**Also Email report to:**	

Turnaround Time (work days: check one): O = NORMAL O = 1 Day RUSH O = 2 Day RUSH O = 3 Day RUSH

Analysis Requested (check those that apply)

Sample Identification WHA ID #	Sample Info: Depth (ft)	Sample Info: Date/Time	Sample Info: Matrix (Soil-GW-Air)	Sample Containers: Metal (Liter)	Sample Containers: Glass Jar (4oz)	Sample Containers: Glass Jar (8oz)	Lead (by EPA Method 6020)							Notes To Lab
B-7-d0	0	3-11-21	Soil				X							13 26577 13
B-7-d1.5	1.5						X							14
B-8-d0	0						X							15
B-8-d1.5	1.5						X							16
B-9-d0	0						X							17
B-9-d1.5	1.5						X							18
B-10-d0	0						X							19
B-10-d1.5	1.5						X							20
B-11-d0	0						X							21
B-11-d1.5	1.5						X							22
B-12-d0	0						X							23
B-12-d1.5	1.5						X							24

Released By: PRINT NAME: Ryan Nyberg	Date & Time: 3-11-21 @ 1300	**Received By:** PRINT NAME: FedEx	3-11-21 @ 1300
Released By: PRINT NAME:	Date & Time: SAMPLE CONDITION: AMBIENT / REFRIGERATED	**Received By:** PRINT NAME:	
Released By: PRINT NAME:	Date & Time: SAMPLE CONDITION: AMBIENT / REFRIGERATED	**Received By:** PRINT NAME: Caleb Compton	3/12/21 @ 9:20

Additional Notes to Lab:

Amb

1880 0600 4623

Sample Receipt Checklist

COC Seal Present/Intact: Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
RAD Screen <0.5 mR/hr: Y N

If Applicable
VOA Zero Headspace: Y N
Pres.Correct/Check: Y N

ATTACHMENT C

Previous Testing Results in the Vicinity - RMD, August 2020

PRELIMINARY ENDANGERMENT ASSESSMENT REPORT

Pogonip Farm and Garden
333 Golf Club Drive
Santa Cruz, California

01-DTSC-002

Prepared For:
California Environmental Protection Agency
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710

Contract No. 19-T4727

Prepared By:

RMD ENVIRONMENTAL SOLUTIONS

1371 Oakland Boulevard, Suite 200
Walnut Creek, California 94596

August 10, 2020

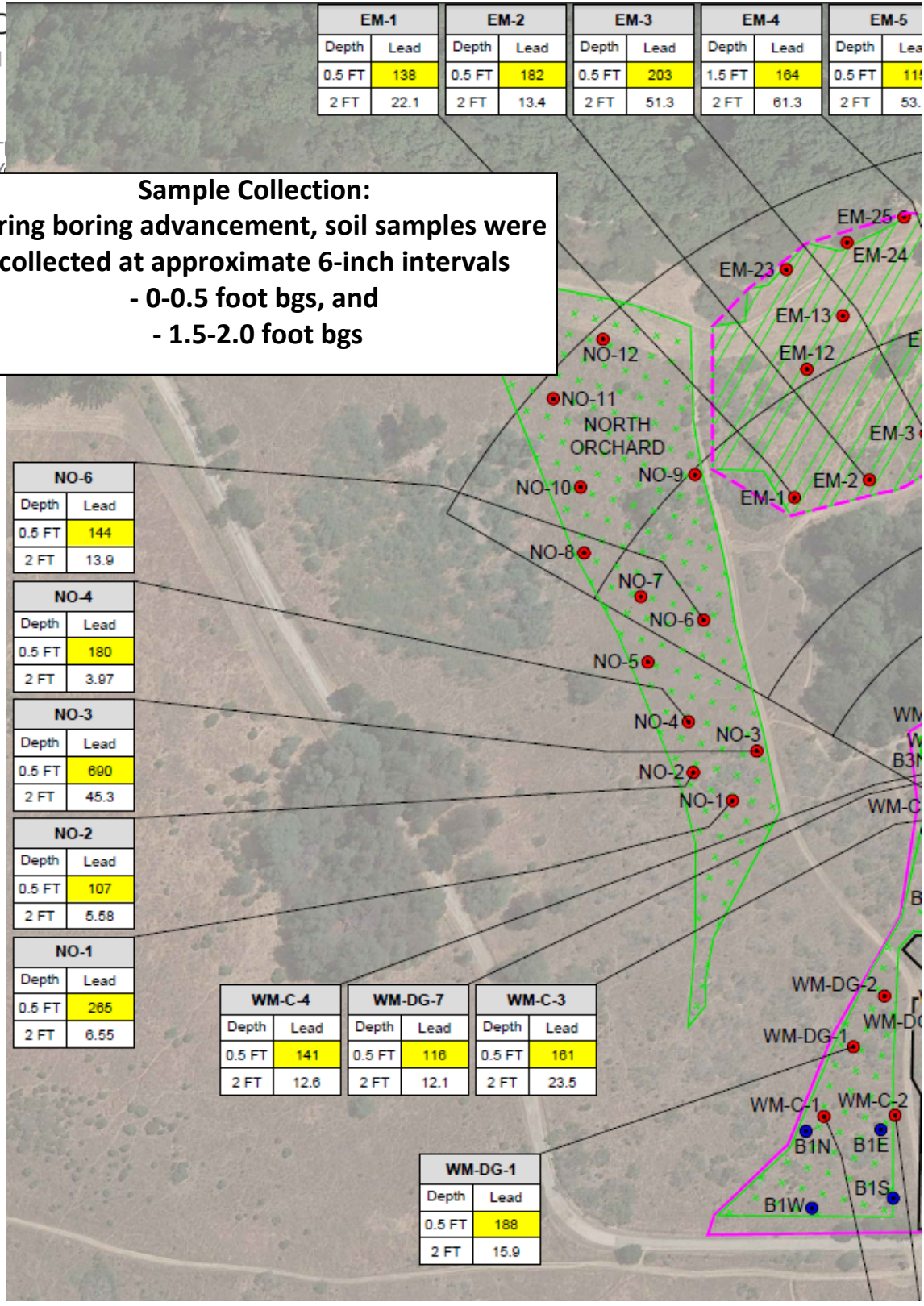
Douglas Whichard
Project Scientist

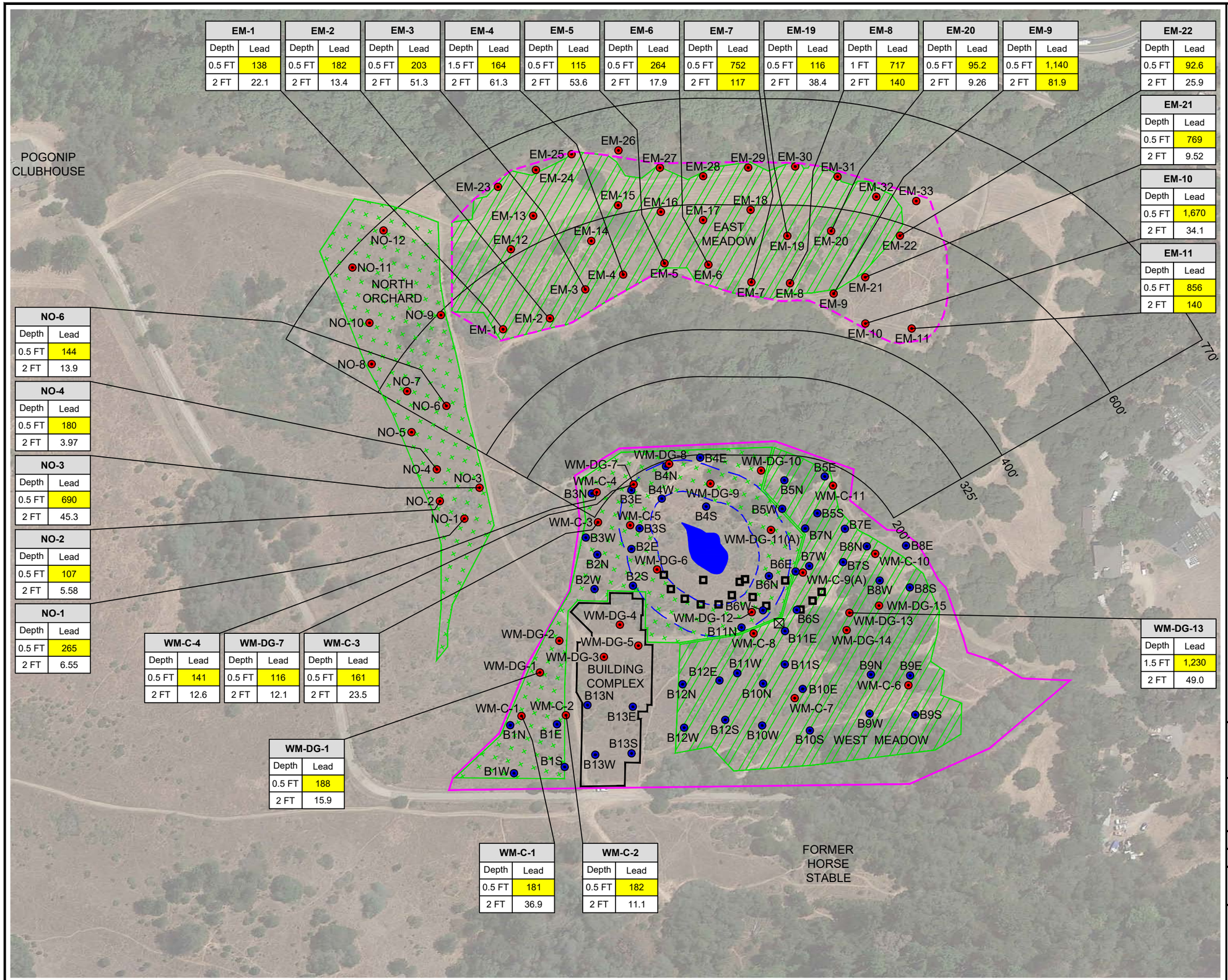
Ivy Inouye
Principal Toxicologist

Khaled Rahman, P.G., C.HG.
Principal Hydrogeologist

PROFESSIONAL GEOLOGIST
Khaled B. Rahman
No. 0261
CERTIFIED HYDROGEOLOGIST
Exp. 7/31/21
STATE OF CALIFORNIA

Sample Collection:
During boring advancement, soil samples were collected at approximate 6-inch intervals
- 0-0.5 foot bgs, and
- 1.5-2.0 foot bgs





EM-1	
Depth	Lead
0.5 FT	138
2 FT	22.1

EM-2	
Depth	Lead
0.5 FT	182
2 FT	13.4

EM-3	
Depth	Lead
0.5 FT	203
2 FT	51.3

EM-4	
Depth	Lead
1.5 FT	164
2 FT	61.3

EM-5	
Depth	Lead
0.5 FT	115
2 FT	53.6

EM-6	
Depth	Lead
0.5 FT	264
2 FT	17.9

EM-7	
Depth	Lead
0.5 FT	752
2 FT	117

EM-19	
Depth	Lead
0.5 FT	116
2 FT	38.4

EM-8	
Depth	Lead
1 FT	717
2 FT	140

EM-20	
Depth	Lead
0.5 FT	95.2
2 FT	9.26

EM-9	
Depth	Lead
0.5 FT	1,140
2 FT	81.9

EM-22	
Depth	Lead
0.5 FT	92.6
2 FT	25.9

EM-21	
Depth	Lead
0.5 FT	769
2 FT	9.52

EM-10	
Depth	Lead
0.5 FT	1,670
2 FT	34.1

EM-11	
Depth	Lead
0.5 FT	856
2 FT	140

NO-6	
Depth	Lead
0.5 FT	144
2 FT	13.9

NO-4	
Depth	Lead
0.5 FT	180
2 FT	3.97

NO-3	
Depth	Lead
0.5 FT	690
2 FT	45.3

NO-2	
Depth	Lead
0.5 FT	107
2 FT	5.58

NO-1	
Depth	Lead
0.5 FT	265
2 FT	6.55

WM-C-4	
Depth	Lead
0.5 FT	141
2 FT	12.6

WM-DG-7	
Depth	Lead
0.5 FT	116
2 FT	12.1

WM-C-3	
Depth	Lead
0.5 FT	161
2 FT	23.5

WM-DG-1	
Depth	Lead
0.5 FT	188
2 FT	15.9

WM-C-1	
Depth	Lead
0.5 FT	181
2 FT	36.9

WM-C-2	
Depth	Lead
0.5 FT	182
2 FT	11.1

WM-DG-13	
Depth	Lead
1.5 FT	1,230
2 FT	49.0

LEGEND

- PROPOSED EAST GARDEN BOUNDARY
- PROPOSED WEST GARDEN BOUNDARY
- 50' WETLAND BUFFER (NO PLANTING)
- 100' WETLAND BUFFER (NATIVE PLANTS)
- APPROXIMATE LOCATION OF SEASONAL WETLAND
- PROPOSED PERENNIAL/ORCHARD LAND
- PROPOSED ROW CROP ANNUAL PRODUCTION
- SHOOTING PAD LOCATION
- UNKNOWN CONCRETE PAD
- SOIL SAMPLE LOCATION (EIS, 2019)
- SOIL SAMPLE LOCATION (RMD, 2020)
- 0.5 FT — DEPTH IN FEET BELOW GROUND SURFACE
- 22.1 — ANALYTICAL RESULT IN MILLIGRAMS PER KILOGRAM (mg/kg)

Notes:
1) Yellow highlighted values exceed the screening level for unrestricted land use.
2) Data shown only for locations with lead concentration exceeding the unrestricted screening level.
3) Hypothetical Ranges of Lead Shot and Clay Pigeons Are Based On Standard Skeet Shooting Range Shot Fall Zones (ITRC, 2015).
4) Proposed Garden Boundaries and Building Complex Based on GPS Coordinate Plan (Fall Creek Engineering, Inc, 2018) and Map of Pogonip Farm & Garden (Homeless Garden Project O&M Plan, 2017).

LEAD CONCENTRATIONS IN SOIL

333 GOLF CLUB DRIVE
SANTA CRUZ, CA

PROJECT NO.	DATE	DRAWN BY:	APP. BY:
01-DTSC-002	08/05/20	DCB	KR

0 150 300
SCALE: 1" = 150'

RMD ENVIRONMENTAL SOLUTIONS

FIGURE 3

Table 1
Metals in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Shot Observed	XRF Reading	Notes	Antimony		Arsenic		Copper		Lead		Zinc	
		(feet bgs)	*(feet bgs)*	*(ppm)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
Background Level[1]						6		11		63		43		140	
Unrestricted (Residential) Screening Level[2]						31		0.11		3,100		80		23,000	
Commercial Screening Level[2]						470		0.36		47,000		320		350,000	
West Meadow															
WM-C-1-0.5'	5/13/2020	0 - 0.5		222		**1.31**	J	**2.63**		**12.3**		**181**		**23.9**	
WM-C-1-2'	5/13/2020	1.5 - 2		54		-		-		-		**36.9**		-	
WM-C-2-0.5'	5/13/2020	0 - 0.5		202		**0.989**	J	**2.13**	J	**6.91**		**182**		**15.3**	
WM-C-2-0.5' DUP	5/13/2020	0 - 0.5		202	Duplicate	**1.57**	J	**2.45**		**7.54**		**156**		**13.6**	
WM-C-2-2'	5/13/2020	1.5 - 2		26		-		-		-		**11.1**		-	
WM-C-3-0.5'	5/13/2020	0 - 0.5		244		**1.23**	J	**2.14**	J	**8.38**		**161**		**53.6**	
WM-C-3-2'	5/13/2020	1.5 - 2		13		-		-		-		**23.5**		-	
WM-C-4-0.5'	5/13/2020	0 - 0.5		368		**0.683**	J	**1.92**	J	**6.96**		**141**		**15**	
WM-C-4-2'	5/13/2020	1.5 - 2		27		-		-		-		**12.6**		-	
WM-C-5-0.5'	5/13/2020	0 - 0.5		95		**0.568**	J	**1.58**	J	**77.7**	O1	**76.9**	O1	**78.5**	O1
WM-C-6-0.5'	5/14/2020	0 - 0.5		30		**0.897**	J,J6	**2.16**		**4.92**		**10.6**		**19.7**	
WM-C-7-0.5'	5/14/2020	0 - 0.5		13		**0.785**	J	<2.51		**47.3**		**8.57**		**59.1**	
WM-C-8-0.5'	5/14/2020	0 - 0.5		31		**0.879**	J	<2.40		**18.1**		**15.0**		**31.0**	
WM-C-9A-1'	5/15/2020	0.5 - 1		105		**0.727**	J	**1.55**	J	**5.61**		**71.2**		**18.6**	
WM-C-10-0.5'	5/14/2020	0 - 0.5		-		**1.65**	J	**3.81**		**9.09**		**27.0**		**26.6**	
WM-C-11-0.5'	5/13/2020	0 - 0.5		45		**1.47**	J	**10.7**		**7.86**		**29.3**		**24.3**	
WM-DG-1-0.5'	5/13/2020	0 - 0.5		241		**1.41**	J	**2.69**		**8.57**		**188**		**16.4**	
WM-DG-1-2'	5/13/2020	1.5 - 2		9		-		-		-		**15.9**		-	
WM-DG-2-0.5'	5/13/2020	0 - 0.5		168		<2.42		**2.74**		**10.3**		**6.16**		**12.9**	
WM-DG-3-0.5'	5/13/2020	0 - 0.5		90		**0.833**	J	**1.28**	J	**5.66**		**51.1**		**23.0**	
WM-DG-4-0.5'	5/13/2020	0 - 0.5		30		<2.42		**1.76**	J	**16.2**		**19.8**		**28.3**	
WM-DG-5-0.5'	5/13/2020	0 - 0.5		19		<2.44		**1.53**	J	**13.9**		**38.1**		**23.1**	
WM-DG-6-0.5'	5/13/2020	0 - 0.5		311		<2.22		**2.25**		**11.0**		**27.0**		**18.5**	
WM-DG-7-0.5'	5/13/2020	0 - 0.5		120		**0.721**	J	**1.77**	J	**7.01**		**116**		**17.0**	
WM-DG-7-2'	5/13/2020	1.5 - 2		29		-		-		-		**12.1**		-	
WM-DG-8-0.5'	5/13/2020	0 - 0.5		59		**0.637**	J	**1.43**	J	**9.12**		**55.7**		**21.0**	
WM-DG-9-0.5'	5/13/2020	0 - 0.5		28		<2.31		**1.52**	J	**299**		**17.5**		**91.1**	
WM-DG-10-0.5'	5/13/2020	0 - 0.5		46		**0.640**	J	**2.78**		**10.9**		**28.7**		**25.0**	
WM-DG-11-0.5'	5/14/2020	0 - 0.5		59		**2.01**	J	**2.72**	B	**263**		**76.0**		**689**	
WM-DG-11-0.5'-DUP	5/14/2020	0 - 0.5	0.5-2	59	Duplicate	**1.55**	J	**2.13**	B,J	**14.9**		**40.9**		**75.8**	
WM-DG-11A-1'	5/15/2020	0.5 - 1		16		<2.20		**1.77**	J	**9.01**		**11.5**		**15.6**	
WM-DG-12-0.5'	5/14/2020	0 - 0.5		64		**1.58**	J	**1.65**	B,J	**10.8**		**39.1**		**51.6**	
WM-DG-13-1.5'	5/14/2020	1 - 1.5	1-2	1,095		**41.7**	J	**15.9**	B,J	**6,320**		**1,230**		**28,500**	
WM-DG-13-2'	5/14/2020	1.5 - 2		33		**3.33**		**3.61**	B	**214**		**49.0**		**2,770**	
WM-DG-14-0.5'	5/14/2020	0 - 0.5		19		**0.817**	J	**2.82**	B	**8.28**		**13.8**		**40.8**	
WM-DG-15-0.5'	5/14/2020	0 - 0.5		23		**1.80**	J	**2.17**	B,J	**76.9**		**23.8**		**303**	
North Orchard															
NO-1-0.5'	5/14/2020	0 - 0.5		225		**3.54**		**3.05**	B	**6.32**		**265**		**24.0**	
NO-1-2'	5/14/2020	1.5 - 2		25		-		-		-		**6.55**		-	
NO-2-0.5'	5/14/2020	0 - 0.5		119		**1.65**	J	**1.94**	B,J	**8.14**		**107**		**17.6**	
NO-2-2'	5/14/2020	1.5 - 2		28		-		-		-		**5.58**		-	
NO-3-0.5'	5/14/2020	0 - 0.5		863		**6.94**		**4.77**	B	**11.3**		**690**		**21.5**	
NO-3-2'	5/14/2020	1.5 - 2		35		-		-		-		**45.3**		-	
NO-4-0.5'	5/14/2020	0 - 0.5		211		**2.03**	J	**1.60**	B,J	**8.16**		**180**		**15.7**	
NO-4-2'	5/14/2020	1.5 - 2		16		-		-		-		**3.97**		-	
NO-5-0.5'	5/14/2020	0 - 0.5		10		**1.08**	J	**1.57**	B,J	**50.8**		**40.0**		**44.2**	
NO-6-0.5'	5/14/2020	0 - 0.5		118		**1.97**	J	**2.32**	B,J	**23.2**		**144**		**41.8**	
NO-6-2'	5/14/2020	1.5 - 2		14		-		-		-		**13.9**		-	
NO-7-0.5'	5/14/2020	0 - 0.5		43		**0.926**	J	**1.91**	B,J	**8.08**		**29.8**		**24.8**	
NO-8-0.5'	5/15/2020	0 - 0.5		31		**0.928**	J	<2.46		**18.9**		**18.5**		**23.1**	
NO-9-0.5'	5/14/2020	0 - 0.5		39		**1.51**	J	**1.70**	B,J	**14.4**		**20.0**		**26.7**	
NO-10-0.5'	5/15/2020	0 - 0.5		17		<2.33		<2.33		**18.0**		**14.0**		**27.5**	
NO-11-0.5'	5/15/2020	0 - 0.5		18		**1.04**	J	**0.655**	J	**15.0**		**14.5**		**26.8**	
NO-12-0.5'	5/15/2020	0 - 0.5		21		**0.718**	J	<2.42		**17.1**		**10.5**		**49.8**	
East Meadow															
EM-1-0.5'	5/12/2020	0 - 0.5		119		**2.34**		**2.42**		**63.1**		**138**		**69.6**	
EM-1-2'	5/12/2020	1.5 - 2		39		-		-		-		**22.1**		-	
EM-2-0.5'	5/12/2020	0 - 0.5		153		**1.93**	J	**2.42**		**24.6**		**182**		**31.0**	
EM-2-2'	5/12/2020	1.5 - 2		15		-		-		-		**13.4**		-	
EM-3-0.5'	5/12/2020	0 - 0.5		219		**2.87**		**3.23**		**16.6**		**203**		**20.4**	
EM-3-2'	5/12/2020	1.5 - 2		24		-		-		-		**51.3**		-	
EM-4-1.5'	5/12/2020	1 - 1.5		166		**5.15**		**4.58**		**15.8**		**164**		**25.3**	
EM-4-2'	5/12/2020	1.5 - 2		47		-		-		-		**61.3**		-	
EM-5-0.5'	5/12/2020	0 - 0.5		139		**2.51**		**3.21**		**19.1**		**115**		**26.4**	
EM-5-2'	5/12/2020	1.5 - 2		95		-		-		-		**53.6**		-	
EM-6-0.5'	5/12/2020	0 - 0.5		372		**3.46**		**3.91**		**19.9**		**264**		**28.8**	
EM-6-2'	5/12/2020	1.5 - 2		83		-		-		-		**17.9**		-	
EM-7-0.5'	5/12/2020	0 - 0.5		758		**17.0**		**9.58**		**21.1**		**752**		**30.7**	
EM-7-2'	5/12/2020	1.5 - 2		46		-		-		-		**117**		-	
EM-8-1'	5/12/2020	0.5 - 1		549		**11.8**		**8.69**		**14.7**		**717**		**31.1**	
EM-8-2'	5/12/2020	1.5 - 2		94		-		-		-		**140**		-	

Table 1
Metals in Soil
Pogonip Farm and Garden
Santa Cruz, California

Sample ID	Date	Sample Depth	Depth Shot Observed	XRF Reading	Notes	Antimony		Arsenic		Copper		Lead		Zinc	
		(feet bgs)	*(feet bgs)*	*(ppm)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
Background Level[1]						6		11		63		43		140	
Unrestricted (Residential) Screening Level[2]						31		0.11		3,100		80		23,000	
Commercial Screening Level[2]						470		0.36		47,000		320		350,000	
EM-9-0.5'	5/12/2020	0 - 0.5		1,227		**5.46**		**6.71**		**10.7**		**1.140**		**22.1**	
EM-9-2'	5/12/2020	1.5 - 2		168		-		-		-		**81.9**		-	
EM-10-0.5'	5/12/2020	0 - 0.5		2,973		**6.07**		**8.44**		**12.6**		**1.670**		**29.0**	
EM-10-2'	5/12/2020	1.5 - 2		15		-		-		-		**34.1**		-	
EM-11-0.5'	5/12/2020	0 - 0.5		569		**3.78**		**7.16**		**24.4**		**856**		**36.2**	
EM-11-2'	5/12/2020	1.5 - 2		94		-		-		-		**140**		-	
EM-12-0.5'	5/14/2020	0 - 0.5		31		<2.44		**3.04**	B	**38.6**		**9.15**		**98.3**	
EM-13-0.5'	5/15/2020	0 - 0.5		24		**0.815**	J	**0.554**	J	**9.98**		**11.2**		**25.4**	
EM-14-0.5'	5/14/2020	0 - 0.5		38		**1.58**	J	**2.92**	B	**12.5**		**33.0**		**44.5**	
EM-14-0.5'-DUP	5/14/2020	0 - 0.5		38	Duplicate	**2.14**	J	**2.80**	B	**14.0**		**32.5**		**55.3**	
EM-15-0.5'	5/15/2020	0 - 0.5		26		**1.12**	J	**1.72**	J	**13.0**		**16.1**		**33.0**	
EM-16-0.5'	5/15/2020	0 - 0.5		42		**1.00**	J	**1.33**	J	**14.0**		**24.6**		**37.3**	
EM-17-0.5'	5/15/2020	0 - 0.5		47		**1.50**	J	**1.13**	J	**13.8**		**40.3**		**35.0**	
EM-18-0.5'	5/15/2020	0 - 0.5		39		**3.29**		**2.35**		**11.2**		**44.5**		**30.5**	
EM-19-0.5'	5/14/2020	0 - 0.5		167		**3.13**		**3.57**	B	**12.7**		**116**		**46.0**	
EM-19-2'	5/14/2020	1.5 - 2		64		-		-		-		**38.4**		-	
EM-20-0.5'	5/15/2020	0 - 0.5		58		<2.53		**2.07**	J	**20.5**		**95.2**		**33.4**	
EM-20-2'	5/15/2020	1.5 - 2		10		-		-		-		**9.26**		-	
EM-21-0.5'	5/14/2020	0 - 0.5		776		**10.0**		**6.12**		**7.16**		**768**		**28.7**	
EM-21-0.5'-DUP	5/14/2020	0 - 0.5		776	Duplicate	**6.85**		**5.65**	B	**7.33**		**769**		**30.6**	
EM-21-2'	5/14/2020	1.5 - 2		17		-		-		-		**9.52**		-	
EM-22-0.5'	5/15/2020	0 - 0.5		100		<2.28		**2.39**		**12.3**		**92.6**		**22.8**	
EM-22-2'	5/15/2020	1.5 - 2		17		-		-		-		**25.9**		-	
EM-23-0.5'	5/15/2020	0 - 0.5		29		**0.932**	J	**1.24**	J	**12.8**		**10.7**		**26.0**	
EM-24-0.5'	5/15/2020	0 - 0.5		33		**0.886**	J	**0.686**	J	**9.50**		**9.18**		**26.8**	
EM-25-0.5'	5/15/2020	0 - 0.5		30		**0.786**	J	**0.810**	J	**12.2**		**10.3**		**28.7**	
EM-26-0.5'	5/15/2020	0 - 0.5		19		**0.656**	J	**1.02**	J	**11.7**		**10.8**		**25.1**	
EM-27-0.5'	5/15/2020	0 - 0.5		34		**1.02**	J	**0.823**	J	**13.6**		**6.12**		**26.4**	
EM-28-0.5'	5/15/2020	0 - 0.5		29		**0.813**	J	**0.865**	J	**14.4**		**14.3**		**31.9**	
EM-29-0.5'	5/15/2020	0 - 0.5		31		**0.720**	J	**1.02**	J	**10.8**		**17.8**		**36.8**	
EM-30-0.5'	5/15/2020	0 - 0.5		31		<2.25		**2.52**		**21.9**		**18.0**		**24.1**	
EM-31-0.5'	5/15/2020	0 - 0.5		33		<2.30		**2.07**	J	**9.94**		**15.4**		**19.1**	
EM-32-0.5'	5/15/2020	0 - 0.5		18		<2.34		**2.01**	J	**13.8**		**37.4**		**23.0**	
EM-33-0.5'	5/15/2020	0 - 0.5		17		<2.25		**2.23**	J	**8.74**		**12.3**		**19.0**	

Notes:
Soil samples sieved using No. 10 sieve and metals analyzed using USEPA Method 6010B.
Analytes detected above laboratory reporting limit are **emboldened**.
Analytes detected above background level and Unrestricted (Residential) Screening Level are highlighted.
Analytes detected above background level and Commercial Screening Level are underlined.
bgs = Below ground surface.
mg/kg = Milligrams per kilogram.
- = Not analyzed.
B = The same analyte is found in the associated blank.
J = The identification of the analyte is acceptable; the reported value is an estimate.
J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1 = The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
[1] Lawrence Berkeley National Laboratory (LBNL, 2009), was used to establish acceptable upper estimate background concentrations for metals with the exception of arsenic. For arsenic, the background level represents the established background level for San Francisco Bay Region of 11 mg/kg (Duvergé, 2011).
[2] In order of priority, the screening level represents the Department of Toxic Substances Control (DTSC)-modified screening level (DTSC, 2020) followed by U.S. Environmental Protection Agency (USEPA) Regional Screening Level (RSL; USEPA, 2020).

References:
DTSC, 2020. Human Health Risk Assessment (HHRA) Note Number 3. June.
Duvergé, 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region. December.
LBNL, 2009. Analysis of Background Distributions of Metals in Soil at Lawrence Berkeley National Laboratory. Revised April.
USEPA, 2020. Regional Screening Level (RSL) Summary Table (TR=1E-6, HQ=1). May.

Table 1
Lead Concentrations in Soil
Lower Main Meadow, Pogonip Open Space
Santa Cruz, California

Sample ID	Date	Sample Depth (feet bgs)	Lead Shot Observed (Yes / No)	XRF Reading (ppm)	Lead (mg/kg)	
				Background Level[1]	43	
				Unrestricted (Residential) Screening Level[2]	80	
				Commercial Screening Level[2]	320	
				Recreational Trail Use Screening Level[3]	540	
East Meadow						
EM-34-1'	8/3/2021	1	No	784	**637**	
EM-34-2'	8/3/2021	2	No	56	**37.9**	
EM-35-0.5'	8/3/2021	0.5	No	1,822	**1,800**	
EM-35-2'	8/3/2021[4]	2	No	147	**198**	
EM-36-0.5'	8/3/2021	0.5	No	1,579	**2,090**	
EM-36-2'	8/3/2021	2	No	64	**28.6**	
EM-37-0.5'	8/3/2021	0.5	No	955	**571**	
EM-37-2'	8/3/2021	2	No	13	**14.7**	
EM-38-0.5'	8/3/2021	0.5	No	499	**490**	
EM-38-2'	8/3/2021	2	No	48	**41.3**	
EM-39-0.5'	8/3/2021	0.5	No	519	**504**	
EM-39-2'	8/3/2021	2	No	285	**220**	
EM-40-0.5	8/3/2021	0.5	No	245	**323**	O1
EM-40-2'	8/3/2021	2	No	16	**18.6**	
Ravine						
R-1-0.5'	8/4/2021	0.5	No	226	**400**	
R-1-2'	8/4/2021	2	No	131	**61.5**	
R-2-0.5'	8/4/2021	0.5	No	28	**215**	
R-2-2'	8/4/2021	2	No	4	**8.80**	O1
R-3-0.5'	8/3/2021	0.5	No	810	**1,530**	
R-3-2'	8/3/2021	2	No	12	**31.4**	
R-4-0.5'	8/4/2021	0.5	No	1,302	**1,600**	
R-4-2'	8/4/2021	2	No	16	**23.7**	
R-5-0.5'	8/4/2021	0.5	No	234	**9.86**	
R-5-2'	8/4/2021	2	No	18	**17.9**	
R-6-0.5'	8/3/2021	0.5	No	628	**573**	
R-6-2'	8/3/2021	2	No	290	**341**	
R-7-0.5'	8/4/2021	0.5	No	454	**456**	
R-7-2'	8/4/2021	2	No	33	**66.0**	
R-8-1.5'	8/4/2021	1.5	No	98	--	
R-8-2'	8/4/2021	2	No	93	--	
R-9-0.5'	8/4/2021	0.5	No	182	**256**	
R-9-2'	8/4/2021	2	No	11	**6.59**	
R-10-0.5'	8/4/2021	0.5	No	86	**94.0**	
R-10-2'	8/4/2021	2	No	3	**12.5**	
R-11-0.5'	8/4/2021	0.5	No	93	**75.7**	
R-11-2'	8/4/2021	2	No	20	**23.3**	
R-12-0.5'	8/4/2021	0.5	No	61	--	
R-12-2'	8/4/2021	2	No	28	--	
R-13-0.5'	8/5/2021	0.5	No	741	**686**	
R-13-2'	8/5/2021	2	No	17	**31.9**	
R-14-0.5'	8/5/2021	0.5	No	1,075	**1,220**	
R-14-2'	8/5/2021	2	No	6	**10.9**	

Table 1
Lead Concentrations in Soil
Lower Main Meadow, Pogonip Open Space
Santa Cruz, California

Sample ID	Date	Sample Depth (feet bgs)	Lead Shot Observed (Yes / No)	XRF Reading (ppm)	Lead (mg/kg)	
				Background Level[1]	43	
				Unrestricted (Residential) Screening Level[2]	80	
				Commercial Screening Level[2]	320	
				Recreational Trail Use Screening Level[3]	540	
Emma McCrary Trail Area						
T-1-0.5'	8/3/2021	0.5	No	19	--	
T-1-2'	8/3/2021	2	No	14	--	
T-2-0.5'	8/4/2021	0.5	No	23	--	
T-2-2'	8/4/2021	2	No	6	--	
T-3-0.5'	8/4/2021	0.5	No	384	**474**	
T-3-2'	8/4/2021	2	No	8	**8.15**	
T-4-0.5'	1/11/2022	0.5	No	48	--	
T-4-2'	1/11/2022	2	No	15	--	
T-5-0.5'	1/11/2022	0.5	No	99	**159**	
T-5-2'	1/11/2022	2	No	13	**7.07**	
T-6-0.5'	1/11/2022	0.5	No	152 / 489 / 91	**187**	
T-6-2'	1/11/2022	2	No	12	**9.42**	
T-7-0.5'	1/11/2022	0.5	No	107 / 82	**153**	
T-7-2'	1/11/2022	2	No	33	**8.92**	
North Orchard						
NO-13-0.5'	8/5/2021	0.5	No	14	--	
NO-13-2'	8/5/2021	2	No	3	--	
NO-14-0.5'	8/5/2021	0.5	No	56	--	
NO-14-2'	8/5/2021	2	No	4	--	
West Meadow						
WM-16-0.5'	8/5/2021	0.5	No	18	--	
WM-16-2'	8/5/2021	2	No	3	--	
WM-17-0.5'	8/5/2021	0.5	No	133	--	
WM-17-2'	8/5/2021	2	No	5	--	

Notes:
Soil samples sieved using No. 10 sieve and metals analyzed using USEPA Method 6020.
Analytes detected above laboratory reporting limit are **emboldened**.
Analytes detected above background level and Recreational Trail User Screening Level are highlighted.
XRF = X-Ray Fluorescence.
bgs = below ground surface.
ppm = parts per million.
mg/kg = milligrams per kilogram.
-- = Not analyzed.
O1 = The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

[1] Lawrence Berkeley National Laboratory (LBNL, 2009), was used to establish an acceptable upper estimate background concentration for

[2] In order of priority, the screening level represents the Department of Toxic Substances Control (DTSC)-modified screening level (DTSC, 2020) followed by U.S. Environmental Protection Agency (USEPA) Regional Screening Level (RSL; USEPA, 2020).

[3] The Recreational Trail Use Screening Level was determined based on an evaluation of soil data collected from 2019-2020 and was described in the Preliminary Endangerment Assessment Report (RMD, 2020).

[4] Sample EM-35-2' initially reported a lead concentration of 5,810 mg/kg and was reanalyzed to confirm the result. The reanalyzed sample reported a lead concentration of 198 mg/kg.

References:
LBNL, 2009. Analysis of Background Distributions of Metals in Soil at Lawrence Berkeley National Laboratory. Revised April.
RMD, 2020. Preliminary Endangerment Assessment Report, Pogonip Farm and Garden, 333 Golf Club Drive, Santa Cruz, California. August