

GSI Job No. 6272

April 9, 2024

Yang Dong
Department of Toxic Substances Control
Cleanup Program – Sacramento Office
8800 Cal Center Drive
Sacramento, CA 95826

Re: Addendum to the Additional Soil Sampling Work Plan
Berkeley Santa Fe Trackbed to Park
Berkeley, California

Dear Ms. Dong:

GSI Environmental Inc. (GSI) has prepared this Addendum to the Additional Soil Sampling Work Plan (Work Plan) on behalf of the City of Berkeley Department of Parks, Recreation, and Waterfront (the City) to describe the scope and methods to conduct additional environmental investigation at the Santa Fe Trackbed to Park Conversion project site (the Site) in Berkeley, California (Figure 1). The Work Plan was submitted to the California Department of Substances Control (DTSC) on December 7, 2023. DTSC approved the Work Plan on December 13, 2023. GSI completed the investigation activities proposed in the Work Plan between January 8 and 13, 2024.

GSI has reviewed the analytical data from the additional investigation completed in January 2024 and determined the vertical extent of arsenic in some areas of the Site is still unknown. The purpose of the work proposed herein is to further characterize the extent of arsenic in soil to support the City's plans to redevelop the Site into a community asset, which will include a community garden, dog park, children's play area, and teaching garden. Figure 1 shows the Site location.

This Addendum to the Work Plan describes the Site background, the proposed scope of work, and methodologies for additional soil investigation. Following the completion of the proposed additional soil investigation, an investigation report will be submitted to DTSC that describes the sampling methodologies and results for both phases of the investigation.

The investigation activities described herein will be conducted in accordance with the DTSC-approved Quality Assurance Protection Plan (QAPP) and Health and Safety Plan (HASP) included in the Work Plan as Appendix A and Appendix B respectively.

BACKGROUND

The Site extends north-to-south between Blake Street and Ward Street and east-to-west between Sacramento Street and Mabel Street and includes four parcels, as shown on Figure 2.

- Parcel 1 – located between Blake and Parker Streets
- Parcel 2 – located between Parker and Carleton Streets
- Parcel 3 – located between Carleton and Derby Streets
- Parcel 4 – located between Derby and Ward Streets

Collectively, the area of these parcels is approximately 1.32 acres. The Site is currently undeveloped land that was historically a railroad right-of-way (ROW).

GSI performed an initial soil investigation in July 2022. Arsenic was detected in samples collected from 1.0 foot and 2.5 feet below ground surface (bgs) at various locations across the site with no discernable source area. Arsenic was also detected in samples collected at 4.0 feet bgs at two locations (P2-1 at Parcel 2 and P3-4 at Parcel 3). Lead, mercury, and PAHs were detected at concentrations exceeding the human health screening criteria in samples collected at 1.0 foot bgs at a limited number of boring locations. Due to an existing neighbor encroachment, no samples were collected on a portion of Parcel 1 during this investigation.

The City has since entered into a voluntary cleanup agreement with the DTSC to oversee environmental characterization and remediation of the Site.

GSI conducted an additional investigation in accordance with the DTSC-approved Work Plan, between January 8 and 11, 2024, to address the DTSC requests for additional delineation and to assess the extent of soil removal that would be required to remediate Parcels 1 through 4. The additional investigation included the collection of soil samples from 71 borings as listed below and shown on Figures 3a through 3d.

- At two locations (P2-1d and P3-4d), soil was observed and sampled at depths of up to 7 feet bgs to vertically delineate arsenic impacts observed during the investigation completed in 2022.
- At two locations (P1-A7 and P1-A8) soil borings were advanced to evaluate if chemicals of potential concern (metals, organochlorine pesticides, petroleum hydrocarbons, and polynuclear aromatic hydrocarbons) are present on an area previously inaccessible to GSI due to a residential neighbor's encroachment. At these borings soil was observed and sampled at depths up to 5.5 feet bgs.
- To pre-characterize the extent of potential remediation required at Parcels 1 through 4, a 30-foot by 30-foot grid was staked on Parcels 1 through Parcel 4. Soil was observed and sampled at depths up to 4 feet below ground surface (bgs) at one boring per grid cell (67 borings total). The grid sampling included the portion of Parcel 1 that was not sampled previously due to an existing neighbor encroachment.

GSI has reviewed the analytical data from the additional investigation completed in January 2024 and determined the vertical extent of arsenic is not delineated at 4.0 feet bgs in 17 grid cells, which includes grid cells on Parcels 1 through 3. The vertical extent of arsenic on Parcel 4 and the extent of other constituents of potential concern (COPCs) on all four parcels are adequately delineated. The analytical results for samples collected to date are included on Tables 1 through 4.

PROPOSED SCOPE OF WORK

The scope of work included in this Addendum to the Work Plan has two objectives:

- Complete the vertical delineation of arsenic by sampling deeper soil to assess the extent of soil removal that would be required to remediate Parcels 1 through 3, and
- Assess the presence of COPCs in the root zone of a protected tree species on Parcel 3.

Vertical Delineation

To determine the depth of remedial excavation, 17 additional soil borings will be advanced to approximately 10 feet bgs in the following cells:

- Parcel 1: Cells P1-B5 and P1-B6
- Parcel 2: Cells P2-B1, P2-B4, P2-B6, P2-B7, P2-B9, and P2-B10

- Parcel 3: Cells P3-B1 through P3-B9

Figures 3a through 3c show which grid cells require further vertical delineation. Soil samples will be collected from depths of approximately 5.0, 6.0, 7.0, 8.0 and 10.0 feet bgs at each boring. The deeper soil borings will be placed adjacent to the previous boring location within each grid cell. Soil boring identifiers will include a “d” denoting deeper soil samples collected at the previous investigation location. The sampling and analysis plan for the additional soil sampling is included as Table 5. The shallowest soil sample from each boring will be analyzed for arsenic using United States Environmental Protection Act (USEPA) Method 6010B. Deeper samples will be analyzed based on results of the shallow soil sample results.

Field activities will be conducted in accordance with the methodologies presented in the Work Plan, with the following exception:

- Soil borings will be advanced to 10 feet bgs using a direct push drill rig.

Soil Characterization Near a Protected Tree

Along the southwestern fence line of Parcel 3, a Coast Live Oak extends from the neighboring property into grid cells P3-A8 and P3-A9 (Figure 3c). The Coast Live Oak is a protected species in the City of Berkeley. The soil sampling completed in January 2024 confirmed the presence of arsenic in soil at a concentration exceeding the DTSC screening level in cell P3-A9. Arsenic was not detected above the background level of 11 milligrams per kilogram (mg/kg) in sample P3-A8 (soil analytical results for metals are presented in Table 1). Additional characterization is needed in the vicinity of the tree to assess the extent of soil removal that would be required to remediate the soil immediately surrounding the tree.

Excavating soil next to and beneath the tree roots could compromise the long-term health and stability of the tree. In an effort to minimize the volume of soil disturbed near the tree during remediation, GSI will oversee the advancement of four soil borings to a total depth of 2.0 feet bgs. Borings P3-T1 through P3-T4 will be placed below the drip line of the tree within grid squares P3-A8 and P3-A9. The approximate drip line of the tree and proposed boring locations are shown on Figure 3c.

Soil borings will be advanced with a hand auger. In addition, soil will be screened for real-time concentrations of arsenic, lead, and mercury with a hand-held X-Ray Fluorescence (XRF) spectrometer. Field measurements collected with the XRF will be recorded by GSI field staff.

The soil samples collected near the Coast Live Oak will be submitted to Enthalpy Analytical for analysis. The shallowest sample from each boring will be analyzed for Site COPCs, which include:

- Arsenic, lead, and mercury, using USEPA Methods 6010B/7471A, and
- Polycyclic aromatic hydrocarbons (PAHs) using USEPA Method 8270C with selective ion monitoring (SIM).

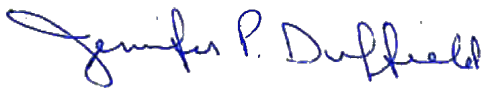
Deeper samples will be analyzed based on results of the shallow soil sample analysis.

Data Evaluation and Reporting

Following the completion of the proposed additional soil sampling, an investigation report will be submitted to DTSC that presents the results of the January 2024 soil investigation and the work proposed in this addendum. The report will include, but not be limited to, site background, a description of field and analytical methodology, tabulated data, figures showing boring locations, a discussion of sampling and analysis results, QA/QC documentation, conclusions, and recommendations.

GSI will initiate the proposed investigation activities upon receipt of DTSC approval. We look forward to our continued work together on this project.

Sincerely,



Jennifer P. Duffield, PE
Principal Engineer



Tiffany George
Senior Scientist

cc: Ms. Stacey Rutherford
Ms. Evelyn Chan

Attachments

- Table 1 – Metals in Soil
- Table 2 – Polycyclic Aromatic Hydrocarbons in Soil
- Table 3 – Pesticides in Soil
- Table 4 – Total Petroleum Hydrocarbons in Soil
- Table 5 – Additional Soil sampling and Analysis Plan April 2024
- Figure 1 – Site Location Map
- Figure 2 – Site Overview
- Figure 3a – Proposed Soil Sampling Locations – Parcel 1
- Figure 3b – Proposed Soil Sampling Locations – Parcel 2
- Figure 3c – Proposed Soil Sampling Locations – Parcel 3
- Figure 3d – Proposed Soil Sampling Locations – Parcel 4

Addendum to the Additional Soil Sampling Work Plan
Berkeley Santa Fe Trackbed to Park
Berkeley, California

TABLES

Table 1 – Metals in Soil

Table 2 – Polycyclic Aromatic Hydrocarbons in Soil

Table 3 – Pesticides in Soil

Table 4 – Total Petroleum Hydrocarbons in Soil

Table 5 – Additional Soil sampling and Analysis Plan April 2024

TABLE 1: METALS IN SOIL
Berkeley Santa Fe Trackbed to Park
Berkeley, California

Parcel	Boring	Sample Name	Date Collected	Sample Depth feet bgs	Title 22 Metals																	
					Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
					mg/kg																	
4	P4-B8	P4-B8-2.0	1/10/2024	2.0	--	38	--	--	--	--	--	--	12	<0.15	--	--	--	--	--	--	--	
		P4-B8-3.0	1/10/2024	3.0	--	8.7	--	--	--	--	--	--	--	7.3	<0.15	--	--	--	--	--	--	--
	P4-B9	P4-B9-2.0	1/10/2024	2.0	--	16	--	--	--	--	--	--	--	13	<0.16	--	--	--	--	--	--	--
		P4-B9-3.0	1/10/2024	3.0	--	5.4	--	--	--	--	--	--	--	6.4	<0.15	--	--	--	--	--	--	--
	P4-B10	P4-B10-2.0	1/10/2024	2.0	--	21	--	--	--	--	--	--	--	180	4.8	--	--	--	--	--	--	--
		P4-B10-3.0	1/10/2024	3.0	--	6.1	--	--	--	--	--	--	--	7.2	0.41	--	--	--	--	--	--	--
Screening Criteria																						
Residential DTSC-SLs ²					31	11 ³	15000	16	71	None	23	3100	80	1	390	820	390	390	0.78	390	23000	
Commercial/Industrial DTSC-SLs ²					470	11 ³	220000	230	780	None	350	47000	320	4.4	5800	11000	5800	5800	12	5800	350000	
Total Threshold Limit Concentration ⁴					500	500	10000	75	100	2500	8000	2500	1000	20	3500	2000	100	500	700	2400	5000	
10 x Soluble Threshold Leaching Criteria ⁵					150	50	1000	7.5	10	50	800	250	50	2	3500	200	10	50	70	240	2500	
20x Toxicity Criteria ⁶					None	100	2000	None	20	100	None	None	100	4	None	None	20	100	None	None	None	

Notes:

1. Soil samples collected by GSI Environmental Inc. and analyzed by Enthalpy Analytical using United States Environmental Protection Agency (USEPA) Methods 6010B and 7471A (for mercury). Select samples were analyzed by McCampbell Analytical for metals using USEPA Method 6020.
2. Regional screening levels for residential and commercial/industrial soil published by the USEPA (2023) and approved or modified by the California Department of Toxic Substances Control (2022).
3. Analytical results for arsenic in soil are compared to the 99th percentile of background arsenic concentrations as presented by Duvergé (2011).
4. Total Threshold Limit Concentration, as presented in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24.
5. Ten times the Soluble Threshold Limit Concentration, as presented in CCR, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24.
6. Twenty times the Toxicity Criteria, as presented in the Code of Federal Regulations (CFR), Title 40, Part 261, Subpart C, Section 261.24.

Abbreviations:

- < = analyte not detected above the reporting limit shown
- = not analyzed
- bold** = analyte detected above the reporting limit
- Shaded concentrations exceed residential screening criteria
- bgs = below ground surface
- DUP = duplicate sample
- mg/kg = milligrams per kilogram
- UJ = The non-detected data is estimated because the Matrix Spike (MS)/Matrix Spike Duplicate (MSD) results are outside specifications
- R = The data are rejected because the MS/MSD results are outside specifications or the holding time was exceeded

References:

- DTSC, 2022, Human and Ecological Risk (HERO), HHRA Note Number 3, May.
- Duverge, Dylan Jacques, 2011, Establishing background Arsenic in soil for the Urbanized San Francisco Bay Region, December.
- USEPA, 2023, Regional Screening Levels, November.

TABLE 2: POLYCYCLIC AROMATIC HYDROCARBONS IN SOIL
Berkeley Santa Fe Trackbed to Park
Berkeley, California

Parcel	Boring	Sample Name	Date Collected	Sample Depth feet bgs	Polycyclic Aromatic Hydrocarbons																		
					Acenaph- thene	Acenaph- thylene	Anthracen e	Benzo(a) anthracen e	Benzo(a) pyrene	Benzo(b) fluoranth ene	Benzo(g,h ,i) perylene	Benzo(k) fluoranth ene	Chrysene	Dibenz(a, h) anthracen e	Fluoranth ene	Fluorene	Indeno (1,2,3-cd) pyrene	1- Methylnap hthalene	2- Methylnap hthalene	Naphthale ne	Phenanth rene	Pyrene	BaPe ²
Screening Criteria²					mg/kg																		
Residential Risk-Based Screening Levels ³					3300	None	17000	1.1	0.11	1.1	None	11	110	0.028	2400	2300	1.1	9.9	None	2	None	1800	0.9 ⁴
Commercial/Industrial Risk-Based Screening Levels ³					23000	None	130000	12	1.3	13	None	130	1300	0.31	18000	17000	13	30	None	6.5	None	13000	0.9 ⁴
Total Threshold Limit Concentration ⁵					None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
10x Soluble Threshold Limit Concentration ⁶					None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
20x Toxicity Criteria ⁷					None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None

Notes:

- Soil samples collected by GSI Environmental Inc. and analyzed by Enthalpy Analytical for polycyclic aromatic hydrocarbons (PAHs) using United States Environmental Protection Agency (USEPA) Method 8270C with selective ion monitoring (SIM).
- BaPe is calculated using potency equivalency factors for seven PAHs considered carcinogenic by the State of California. These PAHs, with their corresponding equivalency factors, are: benzo(a)anthracene (0.1), benzo(a)pyrene (1), benzo(b)fluoranthene (0.1), benzo(k)fluoranthene (0.1), chrysene (0.01), dibenzo(a,h)anthracene (0.34), and indeno(1,2,3-cd)pyrene (0.1). Note that while naphthalene is the eighth carcinogenic PAH, it is not included in the BaPe because this PAH is evaluated separately from the other PAHs.
- Regional screening levels for residential and commercial/industrial soil published by the USEPA (2023) and approved or modified by the California Department of Toxic Substances Control (2022).
- BaPe are compared to the regional ambient level of 0.9 mg/kg established by DTSC (2009).
- Total Threshold Limit Concentration, as presented in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24.
- Ten times the Soluble Threshold Limit Concentration, as presented in CCR, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24.
- Twenty times the Toxicity Criteria, as presented in the Code of Federal Regulations (CFR), Title 40, Part 261, Subpart C, Section 261.24.

Abbreviations:

bold = analyte detected above the reporting limit	DUP = duplicate sample
< = analyte not detected above the reporting limit shown	J = The detected result is estimated because the holding time was exceeded.
Shaded concentrations exceed residential screening criteria	mg/kg = milligrams per kilogram
BaPe = benzo(a)pyrene equivalent value	NA = not applicable; PAHs were not detected; therefore, a BaPe was not calculated
bgs = below ground surface	R = The non-detected result is rejected because the holding time was exceeded.

References:

California Department of Toxic Substances Control (DTSC), 2009, Use of the Northern and Southern California Polynuclear Aromatic Hydrocarbon (PAH) Studies in the Manufactured Gas Plant Site Cleanup Process, July 1.
DTSC, 2015, Preliminary Endangerment Assessment Guidance Manual, October.
DTSC, 2022, Human and Ecological Risk (HERO), HHRA Note Number 3, May.
United States Environmental Protection Agency, 2020, Regional Screening Levels, November.

TABLE 4: TOTAL PETROLEUM HYDROCARBONS IN SOIL
Berkeley Santa Fe Trackbed to Park
Berkeley, California

Parcel	Boring	Sample Name	Date Collected	Sample Depth	Total Petroleum Hydrocarbons	
					TPH-d	TPH-mo
Parcel				feet bgs	mg/kg	
1	<i>Historical</i>					
	P1-1	P1-1-1.0	7/13/2022	1.0	<10	<20
		P1-1-2.5	7/13/2022	2.5	<10	<20
		P1-1-4.0	7/13/2022	4.0	<10	<20
	P1-2	P1-2-2.5	7/13/2022	2.5	<10	<20
		P1-3	P1-3-1.0	7/13/2022	1.0	14
	<i>Current</i>					
	P1-A7	P1-A7-1.0	1/11/2024	1.0	<10	<20
		P1-A7-2.5	1/11/2024	2.5	<10	<20
	P1-A8	P1-A8-1.0	1/11/2024	1.0	<10	<20
		P1-A8-1.0(DUP)	1/11/2024	1.0	11	<20
P1-A8-2.5		1/11/2024	2.5	<9.9	<20	
2	<i>Historical</i>					
	P2-1	P2-1-2.5	7/13/2022	2.5	<10	<20
	P2-2	P2-2-1.0	7/13/2022	1.0	20	51
		P2-3	P2-3-1.0	7/13/2022	1.0	25
	P2-3	P2-3-2.5	7/13/2022	2.5	<10	<20
		P2-4	P2-4-1.0	7/13/2022	1.0	47
3	<i>Historical</i>					
	P3-1	P3-1-2.5	7/13/2022	2.5	<10	<20
		P3-2	P3-2-1.0	7/13/2022	1.0	<50
	P3-2	P3-2-2.5	7/13/2022	2.5	<10	<20
		P3-3	P3-3-1.0	7/13/2022	1.0	120
	P3-3-2.5		7/13/2022	2.5	160	490
P3-4	P3-4-1.0	7/13/2022	1.0	65	210	
4	<i>Historical</i>					
	P4-1	P4-1-1.0	7/13/2022	1.0	<50	<100
		P4-1-2.5	7/13/2022	2.5	<10	<20
	P4-2	P4-2-1.0	7/13/2022	1.0	<10	<20
		P4-2-2.5	7/13/2022	2.5	<10	<20
	P4-3	P4-3-2.5	7/13/2022	2.5	<10	<20
		P4-4	P4-4-1.0	7/13/2022	1.0	45
	Screening Criteria					
Residential Risk-Based Screening Levels ²					260	12,000
Commercial/Industrial Risk-Based Screening Levels ²					1,200	180,000
Total Threshold Limit Concentration ³					None	None
10x Soluble Threshold Limit Concentration ⁴					None	None
20x Toxicity Criteria ⁵					None	None

Notes:

1. Soil samples collected by GSI Environmental Inc. and analyzed by Enthalpy Analytical for TPH using United States Environmental Protection Agency (USEPA) Method 8015M.
2. Direct exposure environmental screening levels for human health published by the San Francisco Bay Regional Water Quality Control Board (Water Board, 2019).
3. Total Threshold Limit Concentration, as presented in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24.
4. Ten times the Soluble Threshold Limit Concentration, as presented in CCR, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24.
5. Twenty times the Toxicity Criteria, as presented in the Code of Federal Regulations (CFR), Title 40, Part 261, Subpart C, Section 261.24.

Abbreviations:

- < = analyte not detected above the reporting limit shown
- bold** = analyte detected above the reporting limit
- bgs = below ground surface
- DUP = duplicate sample
- mg/kg = milligrams per kilogram
- TPH = total petroleum hydrocarbons
- TPHd = TPH quantified as diesel (diesel range organics [DRO] C10-C28)
- TPHmo = TPH quantified as motor oil (oil range organics [ORO] C28-C44)

References:

San Francisco Bay Regional Water Quality Control Board (Water Board), 2019, Environmental Screening Levels, Summary Tables, January (Rev. 2).

**TABLE 5: ADDITIONAL SOIL SAMPLING AND ANALYSIS PLAN
APRIL 2024**

Berkeley Santa Fe Trackbed to Park

Berkeley, California

Parcel	Sample ID	Description	Sample Depth (feet bgs)	Arsenic	Lead	Mercury	PAHs
				EPA 6010B	EPA 6010B	EPA 7471A	EPA 8270C SIM
1	P1-B5d	Vertical Delineation (deeper sample depth at P1-B5)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
1	P1-B6d	Vertical Delineation (deeper sample depth at P1-B6)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
2	P2-B1d	Vertical Delineation (deeper sample depth at P2-B1)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
2	P2-B4d	Vertical Delineation (deeper sample depth at P2-B4)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
2	P2-B6d	Vertical Delineation (deeper sample depth at P2-B6)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--

**TABLE 5: ADDITIONAL SOIL SAMPLING AND ANALYSIS PLAN
APRIL 2024**

Berkeley Santa Fe Trackbed to Park

Berkeley, California

Parcel	Sample ID	Description	Sample Depth (feet bgs)	Arsenic	Lead	Mercury	PAHs
				EPA 6010B	EPA 6010B	EPA 7471A	EPA 8270C SIM
				--	--	--	--
2	P2-B7d	Vertical Delineation (deeper sample depth at P2-B7)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
2	P2-B9d	Vertical Delineation (deeper sample depth at P2-B9)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
2	P2-B10d	Vertical Delineation (deeper sample depth at P2-B10)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B1d	Vertical Delineation (deeper sample depth at P3-B1)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B2d	Vertical Delineation (deeper sample depth at P3-B2)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--

**TABLE 5: ADDITIONAL SOIL SAMPLING AND ANALYSIS PLAN
APRIL 2024**

Berkeley Santa Fe Trackbed to Park

Berkeley, California

Parcel	Sample ID	Description	Sample Depth (feet bgs)	Arsenic	Lead	Mercury	PAHs
				EPA 6010B	EPA 6010B	EPA 7471A	EPA 8270C SIM
3	P3-B3d	Vertical Delineation (deeper sample depth at P3-B3)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B4d	Vertical Delineation (deeper sample depth at P3-B4)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B5d	Vertical Delineation (deeper sample depth at P3-B5)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B6d	Vertical Delineation (deeper sample depth at P3-B6)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B7d	Vertical Delineation (deeper sample depth at P3-B7)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-B8d	Vertical Delineation (deeper sample depth at P3-B8)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--

**TABLE 5: ADDITIONAL SOIL SAMPLING AND ANALYSIS PLAN
APRIL 2024**

Berkeley Santa Fe Trackbed to Park

Berkeley, California

Parcel	Sample ID	Description	Sample Depth (feet bgs)	Arsenic	Lead	Mercury	PAHs
				EPA 6010B	EPA 6010B	EPA 7471A	EPA 8270C SIM
				--	--	--	--
3	P3-B9d	Vertical Delineation (deeper sample depth at P3-B9)	4.5-5.0	X	--	--	--
			5.5-6.0	Hold	--	--	--
			6.5-7.0	Hold	--	--	--
			7.5-8.0	Hold	--	--	--
			9.5-10.0	Hold	--	--	--
3	P3-T1	Characterization Near Protected Tree	0.5-1.0	X	X	X	X
			1.0-1.5	Hold	Hold	Hold	Hold
			1.5-2.0	Hold	Hold	Hold	Hold
3	P3-T2	Characterization Near Protected Tree	0.5-1.0	X	X	X	X
			1.0-1.5	Hold	Hold	Hold	Hold
			1.5-2.0	Hold	Hold	Hold	Hold
3	P3-T3	Characterization Near Protected Tree	0.5-1.0	X	X	X	X
			1.0-1.5	Hold	Hold	Hold	Hold
			1.5-2.0	Hold	Hold	Hold	Hold
3	P3-T4	Characterization Near Protected Tree	0.5-1.0	X	X	X	X
			1.0-1.5	Hold	Hold	Hold	Hold
			1.5-2.0	Hold	Hold	Hold	Hold

Abbreviations:

bgs = below ground surface

Hold = sample will be placed on hold pending the results of initial analyses

PAHs = polynuclear aromatic hydrocarbons

SIM = selective ion monitoring

Addendum to the Additional Soil Sampling Work Plan
Berkeley Santa Fe Trackbed to Park
Berkeley, California

FIGURES

Figure 1 – Site Location Map

Figure 2 – Site Overview

Figure 3a – Proposed Soil Sampling Locations – Parcel 1

Figure 3b – Proposed Soil Sampling Locations – Parcel 2

Figure 3c – Proposed Soil Sampling Locations – Parcel 3

Figure 3d – Proposed Soil Sampling Locations – Parcel 4



Imagery provided by Microsoft Bing Maps, 2022.



GSI job No.	6272	Drawn By:	AV
Issued:	5-Oct-2023	Chk'd By:	TRK
		App'v'd By:	JPD
Map ID:	SFROW_SiteLocMap	FIGURE 1	

SITE LOCATION MAP

Santa Fe Tracked to Park
Berkeley, California



Imagery provided by Microsoft Bing Maps, 2022.



GSI job No.	6272	Drawn By:	AV
Issued:	5-Oct-2023	Chk'd By:	TRK
		App'v'd By:	JPD
Map ID:	SFROW_SiteOverview	FIGURE 2	

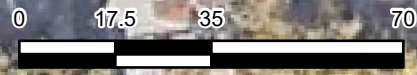
SITE OVERVIEW

Santa Fe Trackbed to Park
Berkeley, California



Legend

- Approximate Parcel Boundary
- Sample Grid Cell
- Not delineated at 4 ft bgs, additional sampling proposed
- Previous Investigation Sample (2022)



Imagery provided by Google Earth Pro, August 2020.

Note:
ft bgs = feet below ground surface

	GSI job No. 6272	Drawn By: AJC	<p>PARCEL 1</p> <p>Santa Fe Trackbed to Park Berkeley, California</p>
	Issued: 9-Apr-2024	Chk'd By: TRG	
	Map ID: SFROW_Parcel1-add	App'd By: JPD	
	FIGURE 3A		



Legend

- Approximate Parcel Boundary
- Sample Grid Cell
- Not delineated at 4 ft bgs, additional sampling proposed
- Previous Investigation Sample (2022)

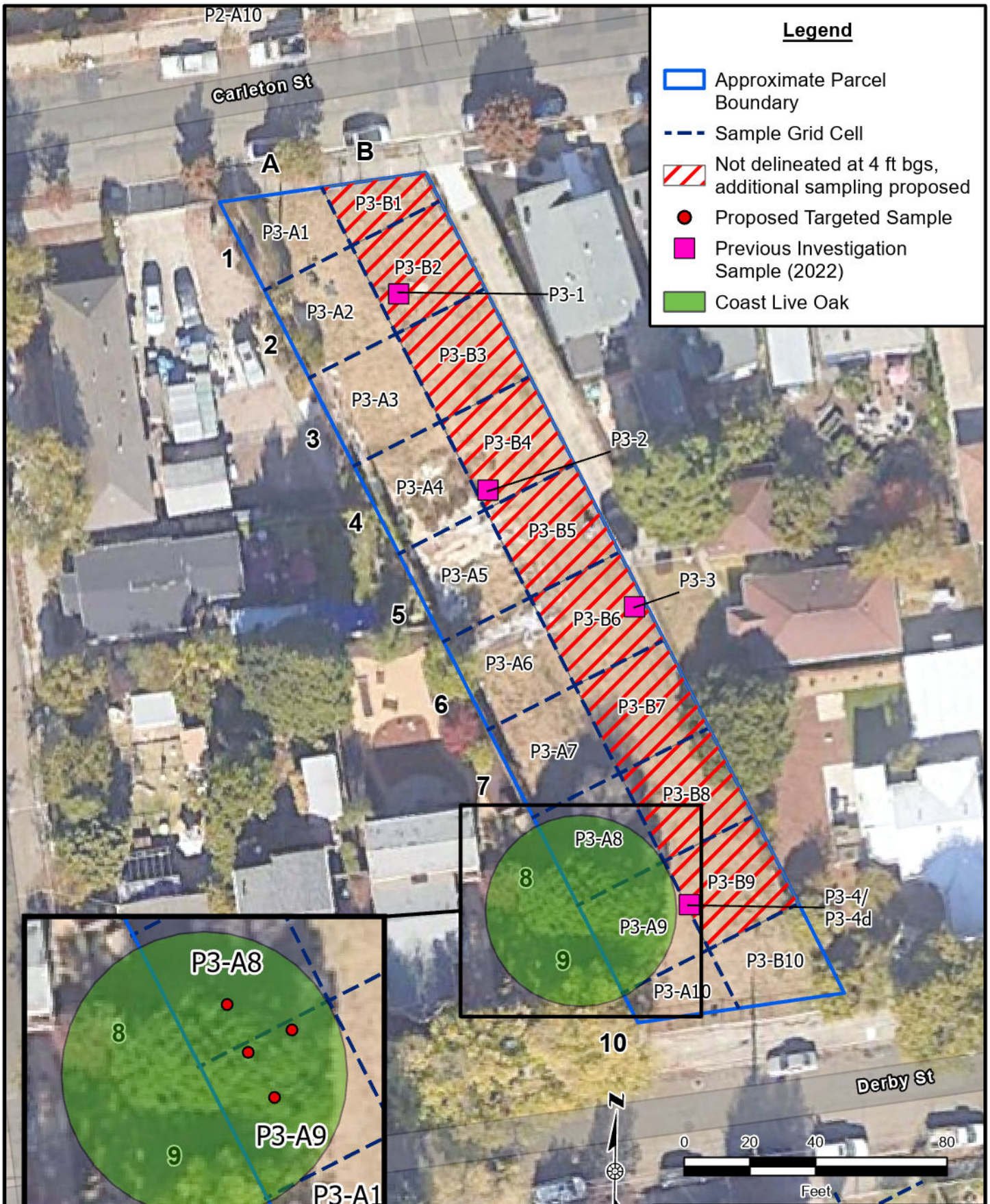
Note:
ft bgs = feet below ground surface



GSI job No.	6272	Drawn By:	AJC
Issued:	5-Apr-2024	Chk'd By:	TRG
		App'v'd By:	JPD
Map ID:	SFROW_Parcel2-add	FIGURE 3B	

PARCEL 2

Santa Fe Trackbed to Park
Berkeley, California



Imagery provided by Google Earth Pro, August 2020.



GSI job No.	6272	Drawn By:	AJC
Issued:	8-Apr-2024	Chk'd By:	TRG
		App'v'd By:	JPD
Map ID:	SFROW_Parcel3-add	FIGURE 3C	

PARCEL 3

Santa Fe Tracked to Park
Berkeley, California



Note:
ft bgs = feet below ground surface



GSI job No.	6272	Drawn By:	AJC
Issued:	5-Apr-2024	Chk'd By:	TRG
		App'd By:	JPD
Map ID:	SFROW_Parcel4-add	FIGURE 3D	

PARCEL 4

Santa Fe Tracked to Park
Berkeley, California