Weiss Associates Environmental Science, Engineering, and Management
2200 Powell Street, Suite 925, Emeryville, CA 94608-1879 Fax: 510-547-5043 Phone: 510-450-6000

WORK PLAN FOR ASSESSING CONCENTRATIONS OF POLYCHLORINATED BIPHENYLS IN THE STORM DRAIN SYSTEM SERVING PORTIONS OF OLD TOWN

at the

Lawrence Berkeley National Laboratory

prepared for

Lawrence Berkeley National Laboratory
One Cyclotron Road
Berkeley, California 94720

Revision 0

May 16, 2015

Weiss Associates Environmental Science, Engineering, and Management
2200 Powell Street, Suite 925, Emeryville, CA 94608-1879 Fax: 510-547-5043 Phone: **510-450-6000**

WORK PLAN FOR ASSESSING CONCENTRATIONS OF POLYCHLORINATED BIPHENYLS IN THE STORM DRAIN SYSTEM SERVING PORTIONS OF OLD TOWN

at the

Lawrence Berkeley National Laboratory

prepared by

Weiss Associates
2200 Powell Street, Suite 925
Emeryville, California 94608

Weiss Project No. 178-2036.04

Weiss Associates' work for the Lawrence Berkley National Laboratory was conducted under my supervision. To the best of my knowledge, the data contained herein are true and accurate and satisfy the scope of work prescribed by the client for this project. The data, findings, recommendations, specifications or professional opinions were prepared solely for the use of the Lawrence Berkley National Laboratory in accordance with generally accepted professional engineering and geologic practice. Weiss makes no other warranty, either expressed or implied, and is not responsible for the interpretation by others of the contents herein.

May 16, 2015

Timothy R. Utterback, PE Date
Project Engineer

CONTENTS

	Page
1. INTRODUCTION	1
1.1 Background	1
1.2 Applicability	2
1.3 Site Description and History	2
1.4 Previous Investigations	2
1.5 Storm Water System	3
1.5.1 Storm Drain Inlets	3
1.5.2 Drainage	3
2. DATA QUALITY OBJECTIVES	9
3. SAMPLE COLLECTION	14
3.1 Sample Locations	14
3.1.1 Rationale for Sample Locations	14
3.1.2 Storm Drain Inlets	14
3.1.3 Creeks	14
3.2 Access and Sample Collection Logistics	14
3.3 Preparatory Activities	15
3.3.1 Equipment	15
3.3.2 Consumables	15
3.4 Sample Collection Methods	15
3.4.1 Methods for Sample Collection at Storm Drain Inlets	16
3.4.2 Methods for Sample Collection in Creeks	16
3.4.3 Sample Location Mapping	17
3.5 Sample Containers, Preservation, and Storage Requirements	17
3.6 Sample Identification, Labeling, and Custody Requirements	17
3.7 Sample Packaging and Transportation to Analytical Laboratory	18
3.8 Investigation-Derived Waste Management	18
3.9 Documentation of Field Activities	18

4. LABORATORY ANALYSIS 22
4.1 Analytical Parameters and Methods 22
4.2 Analytical Data Records 22
5. DATA MANAGEMENT 24
5.1 Assessment and Oversight 24
5.2 Data Validation and Usability 24
5.3 Data Output 24
6. VIDEO INSPECTION 25
6.1 Storm Drain System Segments Selected for Inspection 25
6.2 Video Inspection Procedures 25
7. STORM WATER SYSTEM CLEAN OUT 26
8. QUALITY CONTROL 27
8.1 Field and Analytical Laboratory Quality Control 27
8.1.1 Field Duplicates and Blanks 27
8.1.2 Analytical Method 27
8.1.3 Sample Holding Times 27
8.1.4 Laboratory Quality Control 27
8.2 Video Inspection Quality Control 28
9. HEALTH AND SAFETY 29
9.1 Hazards 29
9.2 Hazard Controls 29
9.2.1 Permits 29
9.2.2 Traffic Control 30
10. REPORTING 31
10.1 Data Analysis 31
10.2 Conclusions, Data Gaps, and Recommendations 31
11. REFERENCES 32

FIGURES

Figure 1-1. Location of Phase 1 Demolition Project in the Old Town Area, Lawrence Berkeley National Laboratory

Figure 1-2. Footprint of Phase 1 Demolition Project, Old Town, Lawrence Berkeley National Laboratory

Figure 1-3. Major Components of the Storm Drain System and Associated Drainage, Lawrence Berkeley

Figure 1-4. PCB Concentrations in Sediment Samples from Storm Drain System, Old Town, Lawrence Berkeley National Laboratory

Figure 1-5. PCB Concentrations in Sediment Samples at Strawberry and Ravine Creeks

Figure 3-1. Sediment Sample Collection Locations, Lawrence Berkeley National Laboratory

TABLES

Table 3-1. Sediment Sample Containers, Volumes, and Holdings Times for PCB Analysis

Table 4-1. Analytical Parameters for in Sediment Samples

APPENDICES

Appendix A Storm Drain Inspection Form

Appendix B Environmental Laboratory Accreditation Program Certification

Appendix C Fall Protection and Confined Space Permits

1. INTRODUCTION

This work plan has been prepared by Weiss Associates to describe an approach to and methods for collection and analysis for polychlorinated biphenyls (PCBs) of sediment from portions of the storm drain system that serve a portion of the Old Town area of the Lawrence Berkeley National Laboratory (LBNL), which is subject to demolition and is referred to as the Phase I demolition area (Figure 1-1). This work plan also describes an approach to sample collection and analysis of sediments in creeks to which the storm drain system serving the Phase I demolition area discharges. The data to be collected per this work plan are required to characterize the extent to which PCBs discovered in storm drain inlets in April 2015 are present in the storm drain system and to determine their source(s).

This work plan contains the following information:

- Site background, including a brief summary of the samples collected in the storm drain system to date;
- Data quality objectives (DQOs);
- Sampling collection procedures and analytical requirements;
- Quality assurance and quality control; and
- Data management and report preparation requirements;

1.1 Background

The LBNL is in the process of demolishing buildings in a section of the site called "Old Town." The buildings in Old Town were constructed in the 1940s and 1950s and were not built to current seismic, fire, and other safety standards. Some of these buildings have already been demolished and those remaining do not provide effective space for LBNL's current research needs.

The demolition project is being conducted in phases, with the first phase consisting of the demolition of Buildings 5, 16, and 16A; removal of the foundation slabs of these three buildings and the foundation slabs at previously demolished Buildings 40, 41, 52, and 52A; soil removal, and grading of the area (Figure 1-2).

PCBs have been identified in building materials, concrete, and soil within the Phase 1 project footprint, and most recently (April 2015) in the storm drain system and creeks serving the Old Town area. The LBNL is working with the United States Environmental Protection Agency (USEPA) Region 9 PCB coordinator to develop a cleanup plan for PCBs in the project footprint per requirements of the Toxic Substances Control Act.

The storm drain system has not been fully characterized and additional sampling and analysis is required to develop a cleanout strategy that is protective of the workers and the environment, while effectively removing PCBs. This work plan describes an approach to sampling and analysis of storm drain sediment for PCBs, which will inform the system cleanout and any additional future action.

1.2 Applicability

The scope of this work plan covers the storm drain system serving the area of Old Town shown on Figure 1-2 associated with Phase 1 of the planned demolition and the receiving water bodies: North Fork of Strawberry Creek, Ravine Creek and Chicken Creek (Figure 1-3).

1.3 Site Description and History

The Old Town area of the LBNL is approximately 15 acres, located at the center of the LBNL on relatively flat terrain created for constructing buildings by cutting and filling of the natural slopes. The footprint of the Phase 1 of the demolition project subject to this work plan is shown on Figure 1-2 and is less than one acre.

Throughout the 1930s, physics research at the LBNL centered around an accelerator—the cyclotron built by Ernest Orlando Lawrence. The laboratory moved to its site on the hill above the campus (now referred to as Old Town) in 1940 as its machines, specifically the 184-inch (4.67 meters) cyclotron became too large for the university grounds (LBNL, 2015a). A cyclotron facility and a cluster of one- and two-story buildings were constructed in the 1940s and 1950s. A synchrotron, the Advance Light Source, replaced the 184-inch cyclotron and continues to operate into the present. Over the years, other the buildings in Old Town were repurposed to support the new scientific research and activities.

1.4 Previous Investigations

As a result of sampling conducted to support the Phase 1 demolition of buildings in Old Town, the LBNL found PCB contamination in the buildings and the subsurface. A preliminary investigation also found PCBs in the storm drain system and in the creeks to which storm water from the Old Town area discharges. In April 2015, the LBNL collected samples from the storm drain system serving the Old Town area and sent the samples to an analytical laboratory for PCB analysis. The results of this investigation showed PCB concentrations in the storm drain system serving the Old Town area ranging from 0.13 to 12.6 milligrams per kilogram (mg/kg). The highest levels were found near Building 16 (Figure 1-4).

In addition, samples were collected at two creeks receiving discharges from the Old Town area and levels of 0.016 and 0.015 mg/kg total PCBs were found in North Fork of Strawberry Creek and Ravine Creek, respectively (Figure 1-5).

Aroclors detected in the storm drain sediment included Aroclor 1248, 1254, 1206, and 1268. Aroclor 1254 was detected at a level of 12.6 mg/kg, the highest concentration of any Aroclor found in the storm drain system. Aroclor 1254 was the only PCB mixture found in the creek sediment.

1.5 Storm Water System

Because of its hillside location and moderate annual rainfall, there is significant surface runoff from the LBNL. A site-wide storm drain system was designed and installed beginning in the 1960s. At the northern and northwestern portions of the LBNL, the system discharges to the North Fork of Strawberry Creek watershed (Blackberry Canyon), comprised of steep canyons and hillsides covered with brush, trees, and grass. Drainage from the North Fork of Strawberry Creek watershed within the LBNL and from upper portions of the watershed above the LBNL discharges to a 60-inch concrete culvert at the head of LeConte Avenue in Berkeley.

Southerly and easterly portions of the LBNL discharge to Chicken Creek, Ten-Inch Creek, Ravine Creek, and Cafeteria Creek, as well as to other small tributaries, and then to the North Fork of Strawberry Creek (LBNL, 2013). Drainage directions are shown on Figure 1-3.

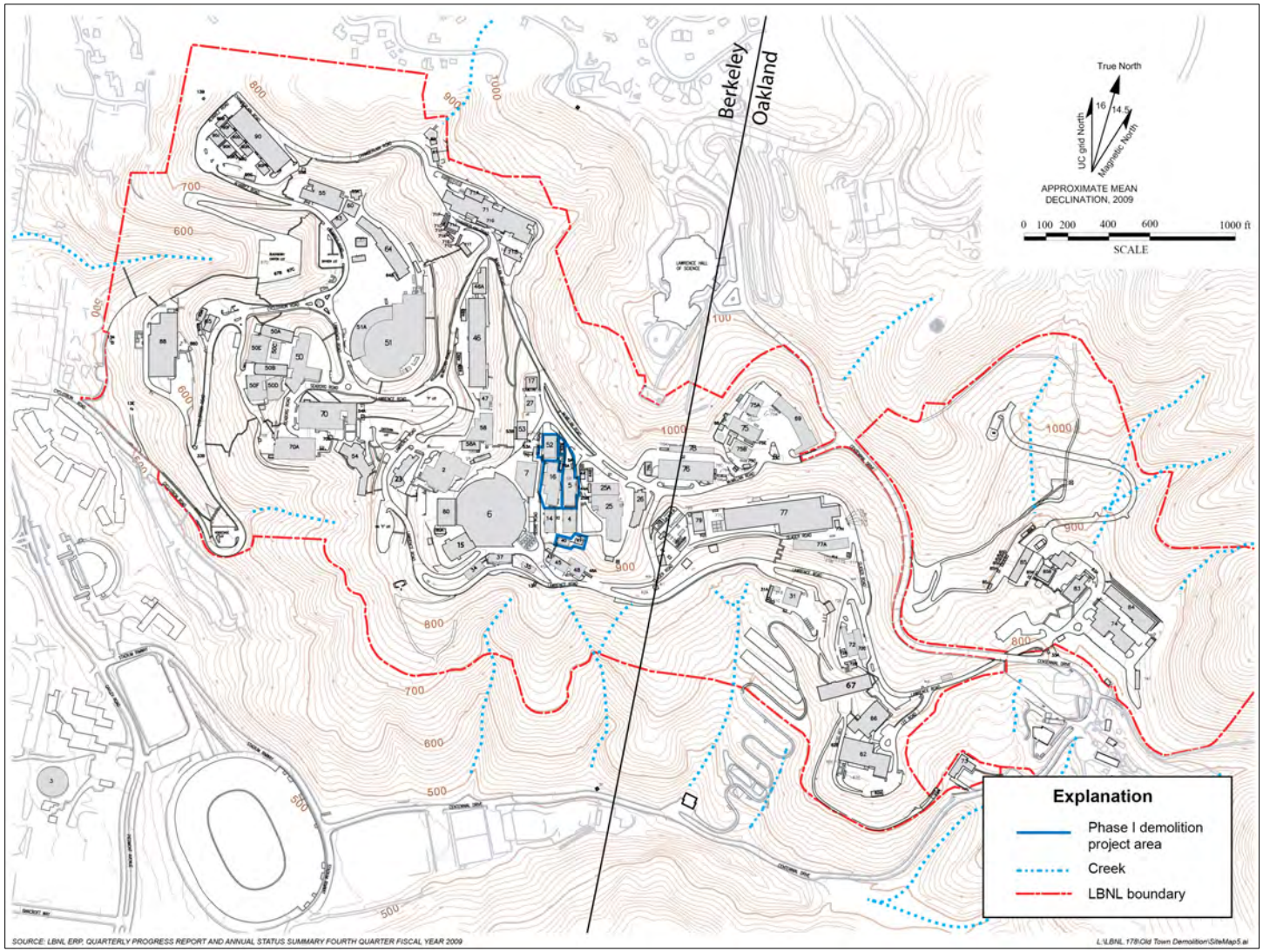
1.5.1 Storm Drain Inlets

The storm drain network serving the entire LBNL site, including the area subject to the Old Town Phase 1 demolition project, is shown on Figure 1-3. Storm drain inlets serving the Phase I demolition project area are shown on Figure 1-4.

1.5.2 Drainage

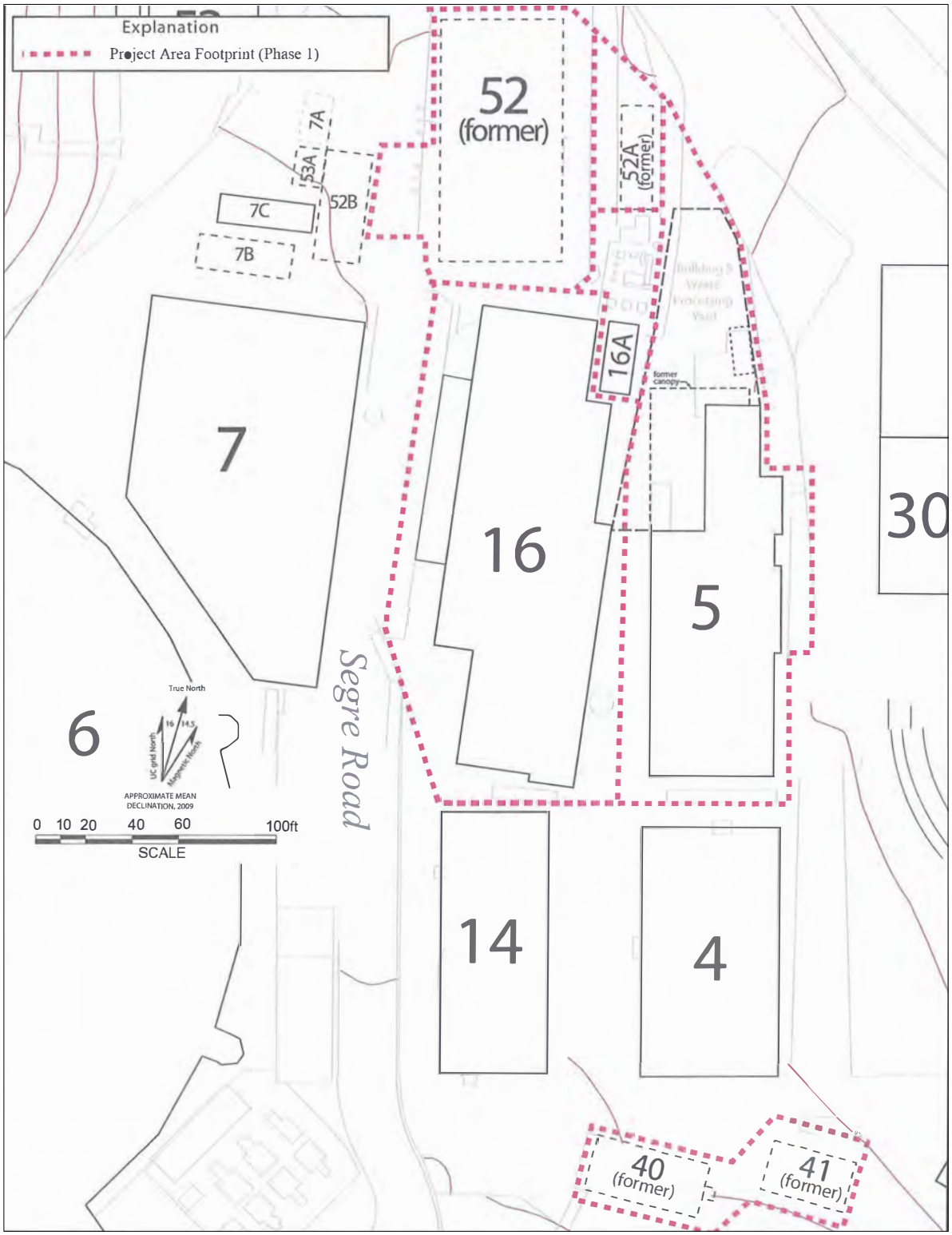
As shown on Figure 1-3, the storm drain system serving the Old Town area drains to Ravine and Chicken creeks in the southern portion of Old Town and to the North Fork of Strawberry Creek at the northwestern side.

Storm water runoff around Buildings 40 and 41 and portions of Buildings 5 and 16 drains to the storm drain system that eventually discharges into either Ravine Creek or Chicken Creek. Storm water runoff near Buildings 52 and 52A and portions of Buildings 5 and 16 flows northwest within the storm drain system and eventually discharges into the North Fork of Strawberry Creek.



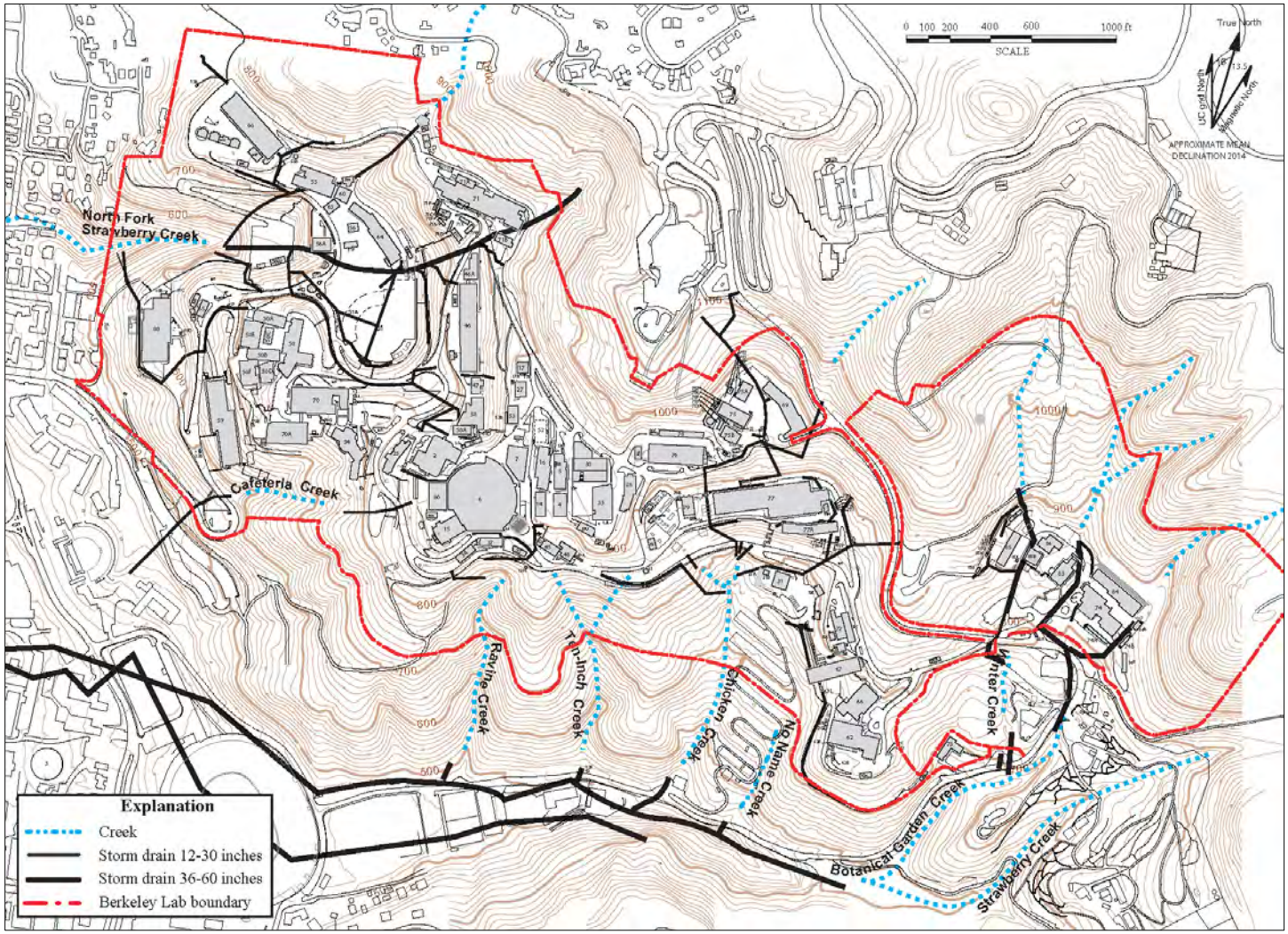
Source: Lawrence Berkeley National Laboratory

Figure 1-1. Location of Phase 1 Demolition Project in the Old Town Area, Lawrence Berkeley National Laboratory



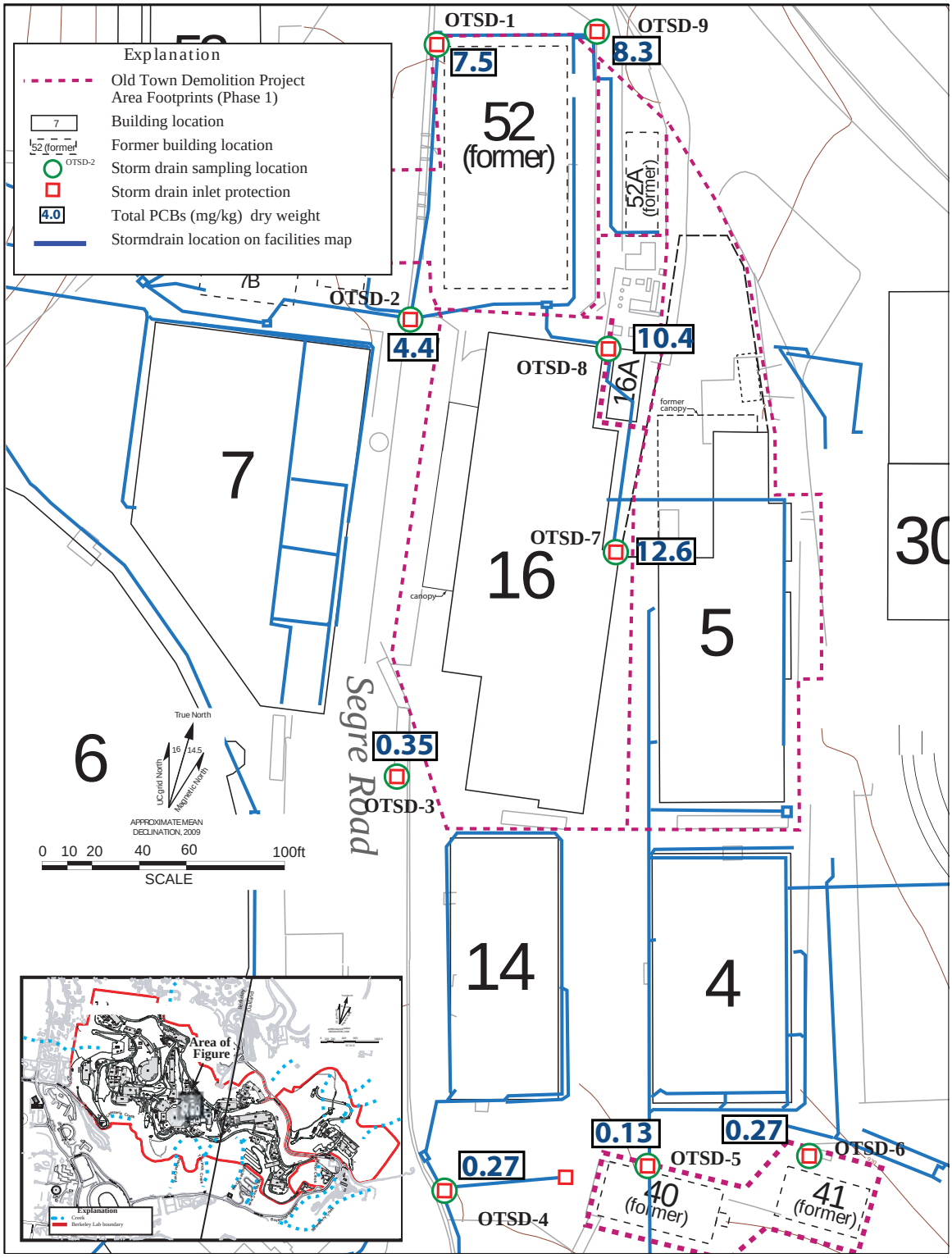
Source: Lawrence Berkeley National Laboratory

Figure 1-2. Footprint of Phase 1 Demolition Project, Old Town, Lawrence Berkeley National Laboratory



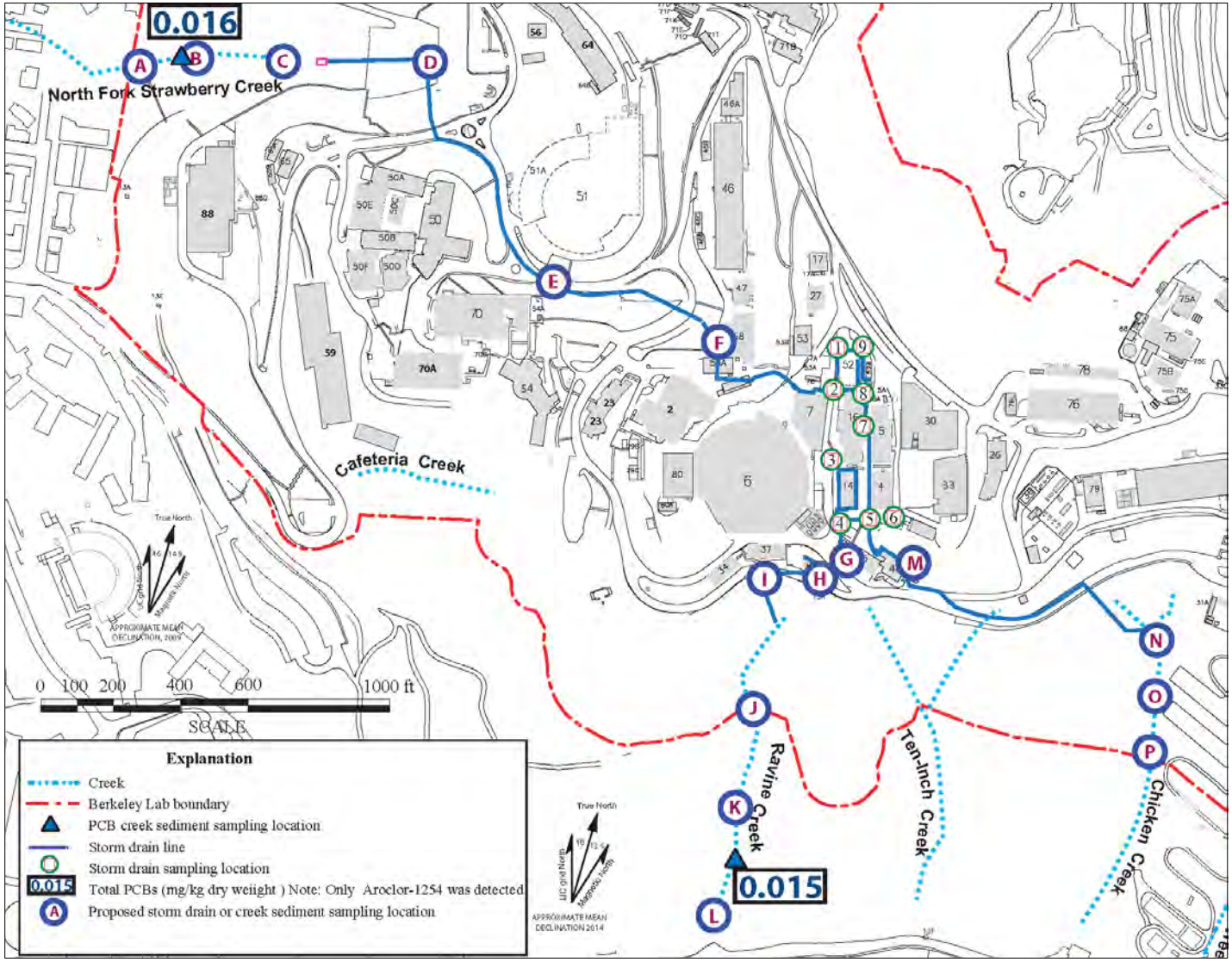
Source: Lawrence Berkeley National Laboratory

Figure 1-3. Major Components of the Storm Drain System and Associated Drainage, Lawrence Berkeley



Source: Lawrence Berkeley National Laboratory

Figure 1-4. PCB Concentrations in Sediment Samples from Storm Drain System, Old Town, Lawrence Berkeley National Laboratory



Source: Lawrence Berkeley National Laboratory

Figure 1-5. PCB Concentrations in Sediment Samples at Strawberry and Ravine Creeks

2. DATA QUALITY OBJECTIVES

Performance and acceptance criteria and DQOs clarify study objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions. Defining data DQOs allows for efficient and effective expenditure of resources; consensus on the type, quality, and quantity of data needed to meet the project goal; and the full documentation of actions taken during the development of the project.

To ensure that data collected per this work plan will support decisions about the management of the storm drain system and the USEPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA, 2006) was followed in developing DQOs.

The DQOs that apply to this project are:

STEP 1. STATE THE PROBLEM. ***Define the problem that necessitates the study; identify the planning team; and examine budget and schedule.***

Problem: The LBNL plans to demolish Buildings 5, 16, and 16A; remove the slabs of these three buildings and the slabs at previously demolished Buildings 40, 41, 52, and 52A; and grade the area (Figure 1-2). PCBs have been found in some building materials and in soils around Buildings 16, 16A, 52, and 52A, as well as in the storm drain system serving these buildings. Samples of sediment collected at storm drain inlets contained PCBs at concentrations ranging from 0.13 to 12.6 mg/kg. Sediment samples collected in the North Fork of Strawberry and Ravine creeks contained 0.015 to 0.016 mg/kg of PCBs on a dry-weight basis.

Presently, the source(s) of the PCBs is not defined, nor is the extent of the PCB contamination in the storm drain system and the water bodies to which the system discharges.

Additional assessment of PCBs in the storm drain system is required to: 1) better understand the potential sources and distribution of PCBs in the storm drain system serving the facilities to be demolished in Phase 1 (Figure 1-4); 2) determine a storm drain system cleanout strategy that is protective of workers, human health, and the environment; and 3) determine future actions required for protection of the quality of the receiving waters.

Planning Team: Planning is conducted by the LBNL, supported by Weiss under subcontract to the LBNL. Ron Pauer leads the LBNL team, and provides overall project oversight and direction. The Weiss team is responsible for preparing this work plan and providing support during the field investigation as needed. Bob Devany, a geologist licensed in good standing by the California Board of Professional Engineers, Land Surveyors and Geologists with experience in environmental

investigations involving PCBs, is the project manager for Weiss. The project team also includes a project chemist, Tim Utterback, a professional engineer licensed in California with experience designing sampling programs, and Agata Sulczynski, a senior project manager with experience managing storm water projects. The LBNL will conduct the sample collection per the work plan and contract for analytical services. Brendan J. Mulholland, PG, QSD, of CE2 Corporation, acting as the storm water program manager under contract to the LBNL, will oversee the sample collection and will be supported in this work by John Jelinski and Neel Singh of the LBNL. The analytical data will be tabulated and reported by Weiss.

Budget and Schedule: Funds are available to fund the characterization, pending finalization of this work plan. The cost of implementing this characterization work plan is expected to be developed iteratively as the work plan is reviewed by the LBNL and finalized.

Work plan approval is scheduled for May 19, 2015. Sampling work is planned to be completed by May 22, 2015. The results of the investigation are expected to be tabulated and graphed by May 26, 2015 and presented to the USEPA at a meeting scheduled for May 29, 2015. A sampling report will be prepared by June 15, 2015.

STEP 2. IDENTIFY THE GOAL OF THE STUDY. ***State how environmental data will be used in meeting objectives and solving the problem; identify study questions; and define alternative outcomes.***

The storm drain system sampling data will build on existing information obtained by the LBNL, and will provide additional information to assist the LBNL in ascertaining whether cleanup of the storm drain system or other areas of the Old Town may be required. Video camera data may be obtained to ascertain the condition of the storm drain system. The data may also be used to develop a storm drain system cleanup strategy.

The data obtained in this characterization will help the LBNL project manager to:

- identify the most effective and efficient storm drain system cleanout approaches;
- develop a work scope and cost estimate for storm drain system cleanout;
- develop appropriate worker health and safety and environmental controls for the storm drain system cleanout; and
- develop plans to identify sources of PCBs.

The data will be used to help answer these primary questions:

1. *Can a pattern of Aroclor concentrations in the storm drain system and at the creeks to which the system discharges be ascertained, allowing inferences about potential sources and allowing for different protective measures during storm drain maintenance?*
2. *Do the Aroclor types detected correspond to those found in buildings in the Old Town area and other structures at or near the points of discharge (storm drain inlets, etc.)?*

3. *Do the concentrations of PCBs in the storm drain system and creeks require action to protect human health and ecological values in the watershed?*
4. *Are portions of the storm drain system damaged and do these damaged areas present a potential conduit for contaminant migration?*

Potentials and alternative outcomes answers of the study questions are as follows:

Potential Outcomes–Question 1

If the outcome is that the concentrations exhibit a pattern, the Aroclors may be related to one or more distinct source areas or may have attenuated with distance from the source(s). Levels of worker protection during maintenance may be tailored based on the concentration and the associated risk.

The alternative outcome is that concentrations do not exhibit a discernible pattern suggesting that PCBs are disseminated throughout the system and/or originate from non-point sources or multiple point sources with low levels of PCBs. Worker protection during maintenance activities would be the same for activities along the system and additional investigation would be required to identify sources.

Potential Outcomes–Question 2

If the outcome is that the Aroclor types correspond to those found in buildings in the Old Town area and other structures at or near the points of discharge, it may be possible to make inferences about source areas.

The alternative outcome is that the Aroclor types do not corresponds to those in the structures at or near the points of discharge, in which case additional sampling would be required to determine potential sources.

Potential Outcomes–Question 3

If the outcome is that concentrations of PCBs exceed screenings thresholds for protection of human health and ecological values in the watershed, additional sampling, risk assessment, and/or actions to protect human health and the environment may be required.

If concentrations of PCBs in the storm drain system and creeks are below screening thresholds, no additional action would be required.

Potential Outcomes–Question 4

If the outcome is that portions of the storm drain system are damaged, creating a potential conduit for contamination, additional investigation of the soil around the damaged portions may be required and these areas will require repair or isolation prior to any cleanout that may mobilize contaminants into the soils.

The alternative outcome is that the storm drain system is intact and no additional action is required prior to system cleanout.

STEP 3. IDENTIFY INFORMATION INPUTS. ***Identify data and information needed to answer study questions.***

Data and information inputs required include:

- Previously collected environmental investigation data about PCBs in the Old Town area ;
- Plans showing the storm drain infrastructure serving the Old Town area;
- Historical information about PCB uses in the Phase I area;
- Concentrations, by Aroclor, in buildings and structures near the storm drain inlets;
- Decision action levels (aquatic toxicity values, human health risk values);
- Analytical results of samples collected;
- Data gathered while in the field (notes, photos, etc.);
- Location data from proposed sampling, such as that obtained from a global positioning service (GPS) or from Google maps;
- Validated laboratory analytical results per methods described in Section 4.1; and
- Video camera footage with correlated location information.

STEP 4. DEFINE THE BOUNDARIES OF THE STUDY. ***Specify the target population and characteristics of interest; define spatial and temporal limits and scale of inference.***

The physical study area is limited to the storm drain system serving the area of the Phase 1 Old Town Demolition Project shown on Figure 1-2 and accessible areas of the North Fork of Strawberry, Ravine and Chicken creeks that are within the area of LBNL impact.

The area of inference is the Phase 1 demolition project area shown on Figure 1-2. It is possible that inferences may be made regarding potential PCB sources beyond this area.

The LBNL intends to present the data obtained from this study to the USEPA at a meeting scheduled for May 29, 2015; therefore, the study must be completed before this time. At this meeting the LBNL intends to discuss actions that may be taken regarding PCBs in the storm drain system.

STEP 5. DEVELOP THE ANALYTIC APPROACH. ***Define the parameter of interest, specify the type of inference, and develop the logic for drawing conclusions from findings.***

One goal of the sampling is to generate a set of data points indicating the type and concentration of Aroclors at various points in the storm drain system and receiving water bodies. Each data point will be used to determine whether the Aroclor types and concentrations can be correlated to the Aroclors detected in buildings and structures in the area, allowing an inference about potential source(s).

The other goal is to determine the level of worker protection required during storm drain system cleanup and maintenance. Aroclor concentrations are the parameters of interest to be compared against worker protection requirements.

Aroclor concentrations are also parameters of interest for taking action or no action to protect human health and ecological values in the watershed. The data from this study will be compared to human health and aquatic toxicity thresholds listed in Table 4-1 to determine whether or not action is required.

Storm drain system damage that presents potential conduit(s) for contamination to soil, groundwater, or surface water is the parameter of interest.

STEP 6. SPECIFY PERFORMANCE OR ACCEPTANCE CRITERIA. ***Develop performance criteria for new data being collected, or acceptance criteria for existing data being considered for use.***

All new data collected for this study shall be collected and analyzed in a manner that allows the data to be supplemented with additional characterization data. All data used for the study shall meet minimum quality requirements stated in section 8. If modifications to the collection or analysis procedures described in this work plan are necessary, these changes will be evaluated for their impact on resulting data usability.

Data adequacy and limitations of the data shall be documented in the sampling and analysis report.

STEP 7. DEVELOP THE PLAN FOR OBTAINING DATA. ***Select the resource-effective sampling and analysis plan that meets the performance criteria.***

The sampling and analysis plan is described in sections 3 and 4 of this work plan.

3. SAMPLE COLLECTION

Sediment samples will be collected at selected storm drain inlets in the storm system that conveys discharges from the Phase 1 demolition area of Old Town and from accessible reaches of the North Fork of Strawberry Creek, Ravine Creek, and Chicken Creek.

3.1 Sample Locations

Sample locations are shown on Figure 3-1. All of the locations have been inspected by the LBNL and are safely accessible. Additional assessment of confined space entry and fall protection requirements will be performed by the appropriate subject-matter experts at the LBNL during the week of May 11, 2015.

3.1.1 Rationale for Sample Locations

Sample locations in the storm drain system were selected to meet these two goals: 1) to obtain additional data about PCB in storm drains on the LBNL site that receive discharges from the Phase 1 demolition area of Old Town, and 2) to identify if there may be PCBs entering the creeks in storm water runoff from the Old Town area. The sample points are at junctions at which runoff from discrete areas outside of the Phase 1 area of Old Town enters the main storm drain lines.

Sample locations in the three creeks were selected as close as feasible to the outfalls and at two locations farther downstream. These sample points were selected to represent the condition of the creek sediment in locations that receive discharges from the storm drain system.

3.1.2 Storm Drain Inlets

Sediment samples will be collected in storm drain inlets at locations shown on Figure 3-1.

3.1.3 Creeks

Sediment will be collected from the North Fork of Strawberry Creek, Ravine Creek, and Chicken Creek. All samples, except two at Ravine Creek, will be collected within the boundary of the LBNL. The two samples at Ravine Creek will be collected downstream of the LBNL boundary as shown on Figure 3-1.

3.2 Access and Sample Collection Logistics

On May 6, 2015, the LBNL staff physically inspected sample locations selected by Weiss that met the goals discussed in section 3.1.1 above. A number of these locations were deemed unsafe and a subset contained no sediment; consequently alternative locations were selected. These are the locations shown on Figure 3-1.

Sample collection will be conducted in conformance with the LBNL safety and operational procedures, including safety procedures discussed in Section 9. Access to all but the two at Ravine Creek is from the LBNL property. LBNL has permission to access the reach of Ravine Creek beyond the LBNL boundary.

3.3 Preparatory Activities

The following steps should be completed before sample collection:

- Equipment should be collected and inspected;
- Sampling containers should be obtained from the laboratory; and
- All required forms should be printed and checked.

3.3.1 Equipment

The following equipment should be available for collecting solids samples from catch basins:

- Clean (unused) plastic scoops
- Laboratory supplied eight-ounce glass containers with Teflon caps (17)
- Tape measure
- Cooler
- Blue Ice

3.3.2 Consumables

The following consumables should be available:

- Disposable gloves
- Field data sheets or notebook
- Permanent marking pens
- Sample labels
- Chain-of-custody seals
- Ziploc bags

3.4 Sample Collection Methods

Sampling equipment should be matched with the presence and depth of water, solids water content, and sample depth. Firm solids are most easily collected using simple plastic scoops. When sampling with a scoop, solids may be moist or wet but should retain their form and structure when handled. If the sample has a high water content (i.e., water drips from solids), another sampling method should be considered to minimize the loss of fine particles in liquid drainage.

3.4.1 Methods for Sample Collection at Storm Drain Inlets

Sample collection should incorporate material representative of the total depth and area of the storm drain inlet unless infeasible. Standing water in the inlets is not likely to be encountered, however, if present, may be pumped off to simplify sample collection. If this is conducted, care must be taken to:

- Pump or decant water from the surface only;
- Leave a thin layer of water so that fine materials in the solids are not disturbed;
- Pump water slowly so that fine materials are not disturbed;
- Containerize the pumped water and manage as investigation-derived waste per section 3.7; and
- Document all steps taken, the depth and volume of water removed, the point of water disposal, water remaining before sampling, and other relevant factors

Depth of solids should be measured in the storm drain inlets using a plastic scoop with graduated markings every quarter inch. Initial assessment of storm drain inlets showed depths no greater than two inches deep.

The following procedure defines steps to be taken when sampling dry or moist solids with plastic scoops. If necessary, the scoop may be attached to an extension pole in order to reach the bottom of the inlet, provided a representative sample can be retained in the scoop and recovered intact. The steps are as follows:

1. Use a new clean scoop for each sample location.
2. A representative amount of material from each storm drain inlet will be collected. If possible, collect samples from five locations: each corner (or, if round, each compass point) and the center. Material recovered at each point should be a representative of the total depth of accumulated material, or if impractical due to large accumulation of sediment, to a depth of 1 foot in storm drain inlets where there is not uniform deposition; collect in areas with the greatest sediment deposition.
3. Remove any large debris observed in the sample, including sticks, leaves, beverage containers, miscellaneous pieces of plastic and metal, stones and gravel, etc.; paint chips and small organic matter should be left in the sample.
4. Place the material from the scoop directly in a pre-cleaned 8-ounce glass sample container. Repeat steps 2 and 3 as necessary to obtain the required volume.
5. Request that the samples be homogenized by the laboratory.

3.4.2 Methods for Sample Collection in Creeks

With respect to access and logistics of working at the creeks, refer to the relevant sections of Environmental Services Group (ESG) Procedure 266, *Soil, Sediment and Vegetation Sampling.*

Sample collection at North Fork of Strawberry Creek, Ravine Creek, and Chicken Creek should be performed as follows:

1. Based on the observed pattern of sedimentation, select four representative points at which to collect creek sediment.
2. Use a clean scoop to collect a representative amount of material from the areas of highest sediment deposition at each point selected.
3. Remove any large debris observed in the sample, including sticks, leaves, beverage containers, miscellaneous pieces of plastic and metal, stones and gravel, etc.; paint chips and small organic matter should be left in the sample.
4. Place the material from the scoop directly in a clean 8-ounce glass sample container. Repeat step as necessary to obtain the required volume.
5. Request that the samples be homogenized by the laboratory.

3.4.3 Sample Location Mapping

Locations of samples collected along the creeks will be identified using GPS coordinates recorded during the sample collection or by using Google maps. The GPS unit error will be recorded if this is the method used.

3.5 Sample Containers, Preservation, and Storage Requirements

Each sample will be placed in a bubble wrap sleeve inside a cooler containing Blue Ice. Upon completion of collection, samples will be transported to Building 75-131 for packaging and shipping as described in section 3.7 below.

Sample container specifications and preservation requirements are shown in Table 3-1. Sediment samples require no chemical preservation.

3.6 Sample Identification, Labeling, and Custody Requirements

Samples will be identified in accordance with ESG Procedure 268, *Environmental Sample Tracking and Data Management*.

Sample collection will be a specified as a new non-routine operation with “simple” grab samples. Sample identification codes, sample labels, and sample collection, and chain-of-custody forms will be generated from the LBNL’s database according to section 7 of ESG Procedure 268. Method 8082TSCA with a reporting limit of 0.01 mg/kg and dry-weight basis should be specified on the chain-of-custody form and any other documents, such as task orders, transmitted to the laboratory.

Sample identification codes will be generated for each sample location as specified in section 7.1.4 of ESG Procedure 268.

3.7 Sample Packaging and Transportation to Analytical Laboratory

Sample containers will be placed in sealable storage bags and sealed. Sample containers will be placed in a strong outside shipping container (e.g., cooler) that will then be securely sealed prior to shipment. ESG Procedure 254, *Sample Processing, Packaging and Transport*, will be followed. Additionally, the following steps will be taken:

- Self-sealed ice (e.g., Blue Ice) will be used to maintain the samples at a maximum temperature of four degrees Celsius.
- The bottom of the cooler will be lined with bubble wrap to prevent sample bottle breakage during shipment.
- Screw caps will be checked for tightness.
- The empty space in the cooler will be filled with bubble wrap or other inert packing material to prevent movement and breakage during shipment.
- The appropriate chain-of-custody forms will be affixed to the underside of the cooler lid.

Samples will be transported to the analytical laboratory by LBNL staff.

3.8 Investigation-Derived Waste Management

Potentially contaminated investigation-derived wastes will be generated during the sample collection, including the following:

- Used personal protective equipment; and
- Disposable sampling equipment

Sample results will be reviewed in order to determine how the waste will be managed. If determined to be potentially hazardous, the investigation-derived wastes will be managed in accordance with the requirements of the LBNL's hazardous waste management program.

3.9 Documentation of Field Activities

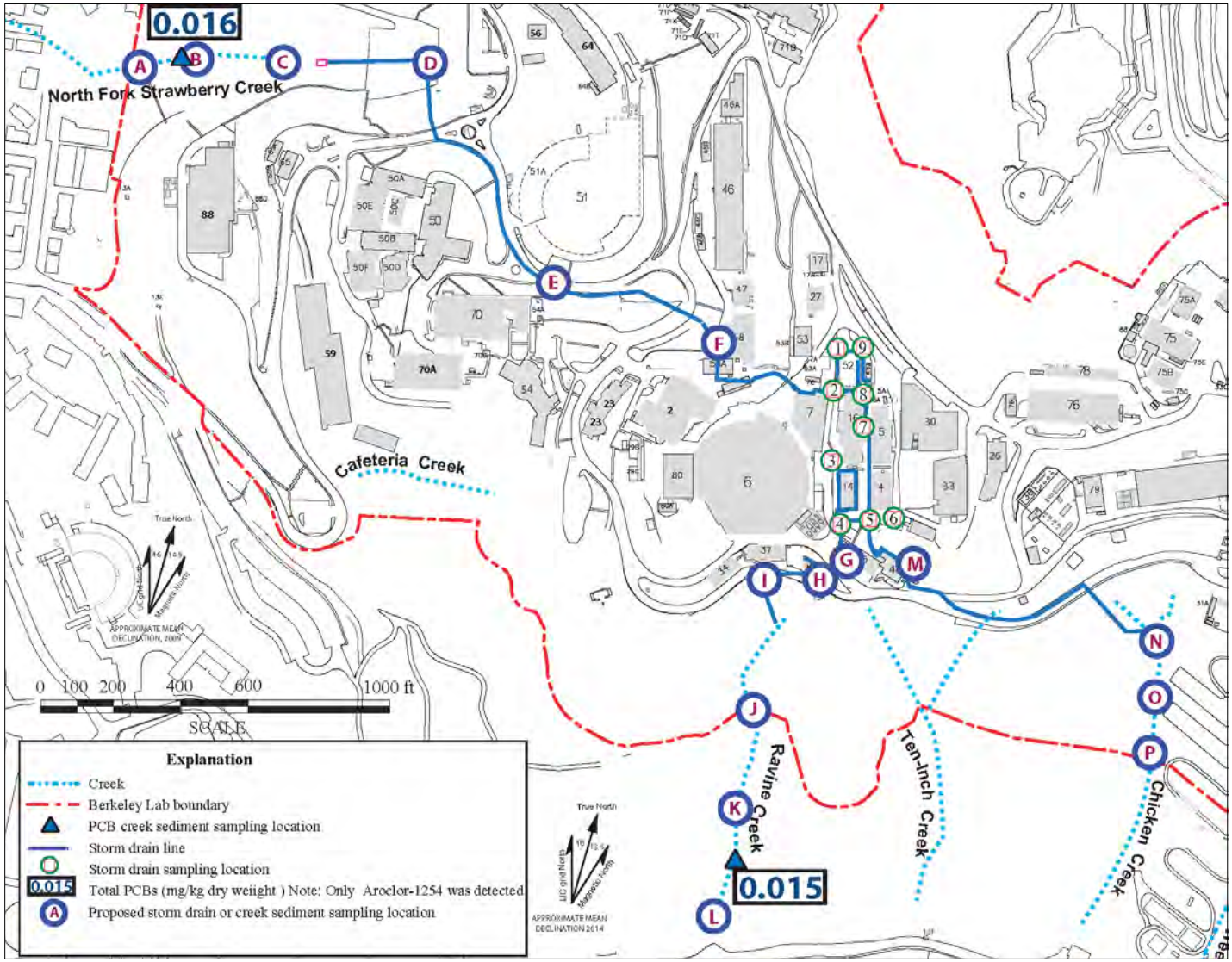
The following information will be documented in field logs:

- Location of the catch basin and the GPS coordinates of the creek sample locations.
- Potential solids or contaminant sources such as construction activities, erosion, equipment storage or use, waste or material storage, vehicles, exhaust vents, onsite processes, etc.
- Site features, distances, flow directions, and gradients noted or sketched on a site map.
- Weather conditions at the time of sampling and last known rainfall event(s).
- Presence of water, visible flows, signs of flooding, clogging, debris in or around the storm drain inlets and outfalls, staining, etc.

- Apparent evidence of contamination in the catch basin, such as odor, sheen, discoloration, etc., of water or solids.
- Any deviations from the specified sampling procedures or any obstacles encountered.

Photographs will be taken at representative sampling locations and at other areas of interest and will serve to verify information entered in the field logbook. When a photograph is taken, the following information will be written in the logbook or will be recorded in a separate field photography log:

- Time, date, location, and, if appropriate, weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.



Source: Lawrence Berkeley National Laboratory

Figure 3-1. Sediment Sample Collection Locations, Lawrence Berkeley National Laboratory

Table 3-1. Sediment Sample Containers, Volumes, and Holdings Times for PCB Analysis

No. of Containers[1]	Container	Volume	Preservation	Holding Time[2]
17	Glass with Teflon-lined cap	(8 ounce)	4° C	1 year

Notes:
1. One container for a field duplicate is included in the container count.
2. Holding time specified refers to time between sample collection and extraction. Time between sample extraction and analysis is 40 days per the Laboratory Quality Assurance Manual, Version 8.5 (Curtis and Tompkins, Ltd., 2014)

4. LABORATORY ANALYSIS

Sediment samples will be analyzed for PCBs by Curtis and Tompkins Ltd. of Berkeley California, a laboratory certified by the American Association for Laboratory Accreditation to perform PCB analysis by USEPA Method 8082A. The certification meets the requirements of the Department of Defense and Department of Energy *Quality Systems Manual* (DOE, 2013). The Certificate Number 2943.01, expiring February 9, 2016, is provided in Appendix B.

4.1 Analytical Parameters and Methods

Sediment samples will be analyzed for PCB mixtures (Aroclors) listed in Table 4-1 according to USEPA Method 8082A with manual Soxhlet extraction by USEPA Method 3540. Moisture content will be measured. The sediment sample concentrations will be reported on a dry sediment weight basis.

The reporting limits specified in Table 4-1 (10 micrograms per kilogram [µg/kg]) are the contracted reporting limits for an analytical method denoted as LBNL analysis request code E8082:DRY in documentation provided by the laboratory to the LBNL. This request code specifies a dry-weight for the analysis.

The reporting limits selected are lower than the regional screening levels for human health published by the USEPA Region 9 and the freshwater sediment screening level for aquatic habitat of 59.8 µg/kg for the sum of PCBs developed by MacDonald et al. (MacDonald et al., 2000), which is the lowest threshold. The reporting limits selected meet the DQOs discussed in section 2.

The samples should be held at the laboratory in case additional analysis for parameters such as metals is desired after review of the Aroclor results.

4.2 Analytical Data Records

The laboratory will provide analytical data records in two forms:

- Level II reports in portable document format or printed copies; and
- Electronic data deliverables.

The electronic data deliverables will conform to the LBNL's specifications for transmitting analytical and quality assurance/quality control data (LBNL, 2012b).

Table 4-1. Analytical Parameters for in Sediment Samples

Constituent	Reporting Limit (µg/kg)	Analytical Method
Aroclor-1016	10	EPA 8082A
Aroclor-1221	10	EPA 8082A
Aroclor-1232	10	EPA 8082A
Aroclor-1242	10	EPA 8082A
Aroclor-1248	10	EPA 8082A
Aroclor-1254	10	EPA 8082A
Aroclor-1260	10	EPA 8082A
Aroclor-1268	10	EPA 8082A
Soxhlet Extraction (manual)	–	EPA 3540
Moisture Content	1%	ASTM D2216/CLP

Note:
All reporting limits listed are below the aquatic habitat screening level of 59.8 µg/kg.
The reporting limit contracted by the LBNL with Curtis and Tompkins, Ltd. of 0.01 milligrams per kilogram (10 µg/kg) should be specified in the request for analysis.

Abbreviations
µg/kg – micrograms per kilogram

5. DATA MANAGEMENT

Data generated from sample collection activities will be managed according to ESG Procedure 268, *Environmental Sample Tracking and Data Management.*

5.1 Assessment and Oversight

Data assessment and oversight tasks will be conducted by the group leader, program leader, quality coordinator, and data manager as specified in section 3 of ESG Procedure 268. The group leader manages the overall direction of the project and reviews and releases the environmental monitoring data. The program leader authenticates the data and resolves issues that affect project DQOs. The quality coordinator performs quality assurance and quality control verifications on sample collection paperwork and tracks all samples collected. The data manager administers the database, verifies the correctness of laboratory deliverables, loads the data in the database, processes data validation, and documents any corrections to the sample data.

5.2 Data Validation and Usability

The data manager will verify data quality and usability according to Sections 8.3 and 8.4 of ESG Procedure 268. Data quality issues reported by the laboratory are reviewed by the data manager and clarifications entered in the database. The laboratory is contacted to resolve any discrepancies between the printed copy report and electronic data deliverable. The laboratory will re-issue any deliverables requiring correction. The data manager validates laboratory results using a validation module in the database software that determines if holding times, blanks, duplicates, matrix spikes, laboratory control samples, surrogates, and detection limits meet ESG DQOs. Data that do not meet DQOs are qualified.

The program leader reviews the quality checks for each data set and assesses DQO achievement. When DQOs are met, the data set is authenticated by the program leader and formally incorporated into the database. If a data set does not achieve a DQO, the program leader attempts to correct the discrepancy and uses professional judgment to determine if the discrepancy significantly and adversely affects data quality. Data are not authenticated for use until discrepancies are resolved and the resolution is documented by the program leader and recorded in the database. Following authentication by program leaders, the group leader reviews authentications and releases the data.

5.3 Data Output

Data will be tabulated by the LBNL and output on figures showing sample locations and results.

6. VIDEO INSPECTION

Depending on the outcomes of the sampling, a video inspection may be performed to gather additional data about the condition of the storm drain system.

6.1 Storm Drain System Segments Selected for Inspection

Segments of the storm drain system that contain PCBs at concentrations greater than the screening criteria will be selected for video inspection if cleanout of these segments is planned. The inspection will be conducted to determine if any damage has occurred in the segment that would be a conduit for contamination during system cleanout.

6.2 Video Inspection Procedures

Storm drains and pipes can be inspected and a video of the inspection recorded.

Two types of video cameras are available for use: (1) a small camera that can be manually pushed on a stiff cable through storm drains to observe the interior of the piping, or (2) a larger remote operated video camera on treads or wheels that can be guided through storm drains to view the interior of the pipe (for larger piping). Typically the operator of the camera has access to a keyboard or audio voice-over to record significant findings on the videotape that is produced for future review and evaluation.

Measurements of the segments inspected will be taken and recorded to determine the location(s) of damaged areas of the system.

7. STORM WATER SYSTEM CLEAN OUT

Depending on the outcome of the sampling and analysis, the LBNL may clean segments of the storm drain system. The system cleanout will be defined in detail following the PCB assessment. The work will be conducted by a qualified subcontractor in accordance with appropriate safety and environmental protection procedures.

Cleaning will involve removing sediment and debris from catch basins and clogged inlets and may involve washing the catch basins and pipe segments. Damaged segments will be isolated or repaired before the cleaning operation

In concept, cleaning would be conducted to remove any standing water and sediment from the catch basins, followed by a high-pressure wash to clean any remaining material out of catch basin and pipe, while capturing the slurry with the vacuum.

Logs of number of catch basins and pipe segments cleaned would be maintained along with the amount of waste collected.

8. QUALITY CONTROL

Project quality control measures will be taken to determine whether the data meet project DQOs and are useable for their intended purpose.

8.1 Field and Analytical Laboratory Quality Control

Quality control samples will be collected in the field and analyzed by the laboratory in addition to quality control samples and measures performed internally by the laboratory.

8.1.1 Field Duplicates and Blanks

Field duplicate sediment samples will be collected at a rate of one per 20 samples collected.

8.1.2 Analytical Method

Curtis and Tompkins Laboratory is accredited to perform analysis of sediments for PCBs by USEPA Method 8082A (Appendix B). The laboratory will implement quality controls per the *Laboratory Quality Assurance Manual* (Curtis and Tompkins, 2014).

8.1.3 Sample Holding Times

Per the requirements of Section 136.3 of Title 40 of the Federal Code of Regulations, samples collected for PCB analysis will be held for no more than the maximum specified time of one year.

8.1.4 Laboratory Quality Control

All analysis will be consistent with the requirements of the “Statement of Work for Analytical Services” (LBNL, 2012a) issued by the LBNL and the Department of Energy's *Consolidated Quality Systems Manual for Environmental Laboratories* (DOE, 2013).

One laboratory control sample will be prepared with each laboratory quality control batch. No laboratory duplicates will be required. One method blank will be prepared by the laboratory with each quality control batch. All field and laboratory quality control samples will be subject to surrogate spike testing.

Sample matrix precision will be determined using matrix spike and matrix spike duplicate results (MS/MSD). Matrix spike and matrix spike duplicate results will be requested on the chain-of-custody form in the "Notes to Lab" column. Matrix spiking will be requested at a rate of one per 20 samples collected. No extra containers are required for the MS/MSD tests; one full 250-milliliter (8-ounce) jar is a sufficient quantity of sample for MS/MSD requests for PCBs analysis.

8.2 Video Inspection Quality Control

Quality control applied to the video inspection will include inspection of the equipment prior to use and implementation of measures to ensure the ability to relate of the video footage to the storm system segment or components being inspected.

9. HEALTH AND SAFETY

Sample collection, video inspection, and cleaning of the storm drain system will be conducted in conformance to safety procedures described in the LBNL *Requirements and Polices Manual* (LBNL, 2015b) and the Environment/ Health/Safety Division's *Integrated Safety Management Plan*.

Hazard analysis for the video inspection and cleanout of the storm drain system will be conducted once the scope of these activities is clearly defined. The hazards and hazard controls for the collection of samples is discussed herein.

9.1 Hazards

The following hazards may be associated with the collection of sediment samples in the storm drain system and creeks:

- Confined space;
- Biological and chemical exposure;
- Trips, slips and falls;
- Falls from elevated locations at storm drain inlets;
- Injury due to vehicular or bicycle traffic around storm drain inlets;
- Injury with hand tools ;
- Heat and cold stress; and
- Ergonomic stress.

9.2 Hazard Controls

The hierarchy of controls requires control of hazards in this order: hazard elimination or reduction; engineered controls; administrative controls, including training; and personal protective equipment.

9.2.1 Permits

The work will be subject to the requirements of the fall protection and confined space permits included in Appendix C.

9.2.2 Traffic Control

Sample collection at storm drain inlets will be conducted on a Saturday, when traffic in the Old Town area is minimal. Traffic controls will be implemented and will include signs, warning devices, and flaggers.

10. REPORTING

10.1 Data Analysis

The analytical data will be compared to the ecological benchmark—the threshold effects concentration (TEC)—of 59.8 parts per billion for the sum of PCBs on a dry weight basis. The TEC is a "consensus-based value," arrived at by averaging other benchmarks, such as severe effect level at which pronounced disturbance of the sediment-dwelling community can be expected.

Locations at which the concentrations of PCBs are detected above the benchmark will be evaluated by reviewing available PCB data related to buildings and structures, as well as current and historical uses of PCBs in an effort to identify potential source areas.

To the extent possible, the data will be used to develop a conceptual site model for PCB releases and dispersion.

Additional analysis for metals may be requested if it is determined that it may useful for determining whether PBCs are transported in paint or other building materials that may also contain lead. The lead concentrations would provide another data point that may be used to identify sources of PCBs.

10.2 Conclusions, Data Gaps, and Recommendations

The data and the analysis will be presented in a report documenting the sample collection, analysis, deviations from this work plan, and the quality control process. Remaining data gaps will be described in the report and recommendations for additional sample collection and analysis and for actions for storm drain system maintenance will be presented.

11. REFERENCES

Curtis and Tompkins, Ltd., 2014. *Laboratory Quality Assurance Manual*, Version 8.5, Effective: August 22, 2014.

Department of Defense, Department of Energy (DOE). 2013. *Consolidated Quality Systems Manual for Environmental Laboratories*, Based on ISO/IEC 17025:2005(E) and the NELAC Institute Standards, Volume 1, September 2009. DoD Quality Systems Manual Version 5.0. DOE Quality Systems for Analytical Services Version 3.0 July 2013

Environmental Protection Agency (EPA). 2001. *Methods for Collection, Storage, and Manipulation of Sediment for Chemical and Toxicological Analyses: Technical Manua*l. U.S. Environmental Protection Agency, Office of Water (EPA-823-B-01-002). Washington, D.C. October 2001.

EPA, 2006. *Guidance on Systematic Planning Using the Data Quality Objectives Process*.

Lawrence Berkeley National Laboratory (LBNL). 2012a. *Statement of Work for Analytical Services.* February 18, 2012.

LBNL. 2012b. *Specifications for Transmitting Analytical and QA/QC Data from a Subcontract Analytical Laboratory to Environment, Health and Safety Division, Lawrence Berkeley National Laboratory*, April 26.

LBNL. 2013. *Stormwater Pollution Prevention Plan.*

LBNL. 2015a. Lawrence and His Laboratory: Chapter 1: A New Lab for a New Science," http://www2.lbl.gov/Science-Articles/Research-Review/ Magazine/1981/81fchp1.html. Accessed May 4, 2015.

LBNL. 2015b. *Requirements and Polices Manual*, Environment, Safety, and Health Section, LBNL/PUB-201.

MacDonald, D. D., C. G. Ingersoll, T. A. Berge. 2000. “Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems.” Arch. Environ. Contam. Toxicol. 39, 20-31 (2000)

Lawrence Berkeley National Laboratory, Environmental Services Group Procedures:

Procedure 254. Sample Processing, Packaging and Transport. ESG April 15, 2014

Procedure 263. Surface Water Monitoring. December 15, 2014

Procedure 268. Environmental Sample Tracking and Data Management. May 01, 2014.

APPENDIX A

STORM DRAIN INLET INSPECTION FORM

Storm Drain Inspection Form

Location Information

Date: **Inspector:**

Time:

Inlet/Catch Basin ID:

Receiving Waterbody:

If flow present, source of flow: Groundwater Irrigation Condensate Residual storm water Unknown

Weather: **Approximate Temp:** **Wind Present:** Yes No

Precipitation in the past 3 days: Yes No

Flow: None Trickle Steady High

Color (if flow is present):

Inspection Information *Circle all that are applicable*

Obvious Debris/Pollution:

None

Brownish Foam

Floating Green Scum

Oil / Film/ Sheen

Organic Material (plant debris, dead animals)

Trash and Debris

White Foam

Sewage Material

Odor:

None/Natural

Musty

Sewage/septic

Water Clarity:

Clear

Cloudy

Opaque

Sediment in structure/channel: Open 1/4 Full 1/2 Full 3/4 Full Plugged

Sediment around grate: Yes Source: No

Sediment:

Color

Texture, estimates of particle size fractions (as soil classification):

Amount and type of debris:

Structure Condition: Excellent Good Fair Poor

Trash/litter present in area: Yes No

Erosion, slides, rilling on adjacent hillsides, ditch or channel sides: Yes No

Nearby activities that could impact storm water quality or creek : Yes No (If yes – describe)

General Comments:

NOTES

Location: _____ Date: _____

APPENDIX B

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM CERTIFICATION

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

CURTIS & TOMPKINS, LLC[1]
2323 5th Street
Berkeley, CA, 94710
Teresa Morrison Phone: (510) 204 2237
teresa.morrison@ctberk.com

ENVIRONMENTAL

Valid To: February 29, 2016 Certificate Number: 2943.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005, the 2003 NELAC Chapter 5 Standard, and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 4.2 of the DoD Quality Systems Manual for Environmental Laboratories) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Atomic Absorption/ICP-AES Spectrometry, ICP/MS, Gas Chromatography, Gas Chromatography/Mass Spectrometry, Gravimetry, High Performance Liquid Chromatography, Ion Chromatography, Misc.- Electronic Probes (pH, O_2), Oxygen Demand, Hazardous Waste Characteristics Tests, Spectrophotometry (Visible), Spectrophotometry (Automated), IR Spectrometry, Titrimetry, Total Organic Carbon

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
Metals						
Aluminum	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Antimony	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Arsenic	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Barium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020/ 6020A	EPA 3050B
Beryllium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
Cadmium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Calcium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Chromium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Cobalt	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Copper	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Iron	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Lead	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Magnesium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Manganese	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Mercury	- - - - -	- - - - -	EPA 7470A	EPA 7470A	EPA 7471A / 7471B	EPA 7471A / 7471B
Molybdenum	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 6020A	EPA 3050B
Nickel	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Potassium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Selenium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Silver	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Sodium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
Thallium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Vanadium	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Zinc	- - - - -	- - - - -	EPA 6010B / 6010C / 6020 / 6020A	EPA 200.8 / 3010A	EPA 6010B / 6010C / 6020 / 6020A	EPA 3050B
Nutrients						
Ammonia (as N)	- - - - -	- - - - -	SM 4500NH3-D	SM 4500NH3-D	SM 4500NH3-D	SM 4500NH3-D
Kjeldahl Nitrogen	- - - - -	- - - - -	SM 4500NH3-C	SM 4500NH3-C	SM 4500NH3-C	SM 4500NH3-C
Nitrate (as N)	- - - - -	- - - - -	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056
Nitrite (as N)	- - - - -	- - - - -	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056
Perchlorate	- - - - -	- - - - -	EPA 314.0	EPA 314.0	- - - - -	- - - - -
Total Phosphorus	- - - - -	- - - - -	SM 4500P-E	SM 4500P-E	- - - - -	- - - - -
Demands						
Biochemical Oxygen Demand	- - - - -	- - - - -	SM 5210B	SM 5210B	- - - - -	- - - - -
Chemical Oxygen Demand	- - - - -	- - - - -	SM 5220D	SM 5220D	- - - - -	- - - - -
Total Organic Carbon	- - - - -	- - - - -	SM 5310C	SM 5310C	- - - - -	- - - - -
Wet Chemistry						
Alkalinity	- - - - -	- - - - -	SM 2320B	SM 2320B	- - - - -	- - - - -
Bromide	- - - - -	- - - - -	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056
Chloride	- - - - -	- - - - -	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056
Cyanide	- - - - -	- - - - -	SM 4500 CN-E / EPA 9010B / 9014	SM 4500 CN-E / EPA 9010B / 9014	SM 4500 CN-E EPA 9010B / 9014	SM 4500CN-E EPA 9010B / 9014
Amenable Cyanide	- - - - -	- - - - -	SM 4500 CN-E / EPA 9010B / 9014	SM 4500 CN-E / EPA 9010B / 9014	EPA 9010B / 9014	EPA 9010B / 9014
Ferrous Iron	- - - - -	- - - - -	SM 3500Fe-B	SM 3500Fe-B	- - - - -	- - - - -
Flash Point	- - - - -	- - - - -	EPA 1010 / ASTM D93	EPA 1010 / ASTM D93	- - - - -	- - - - -
Fluoride	- - - - -	- - - - -	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
Hexavalent Chromium	- - - - -	- - - - -	EPA 7196A / 7199	EPA 7196A / 7199 /	EPA 3060 / 7196A	EPA 3060 / 7196A
pH	- - - - -	- - - - -	EPA 9040B / SM 4500-H^+ B	EPA 9040B / SM 4500-H^+ B	EPA 9045C	EPA 9045C
Specific Conductance	- - - - -	- - - - -	SM 2510 B	SM 2510 B	- - - - -	- - - - -
Sulfate	- - - - -	- - - - -	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056	EPA 300.0 / 9056
Sulfide	- - - - -	- - - - -	SM 4500S2-D	SM 4500S2-D	SM 9034	SM 9030B
Total Dissolved Solids (TSS)	- - - - -	- - - - -	SM 2540C	SM 2540C	- - - - -	- - - - -
Total Suspended Solids (TSD)	- - - - -	- - - - -	SM 2540D	SM 2540D	- - - - -	- - - - -
Purgeable Organics (volatiles)						
Gas Range Organics (GRO)	- - - - -	- - - - -	EPA 8015B / 8015D	EPA 5030B / 5030C	EPA 8015B / 8015D	EPA 5030B / 5030C / 5035 / 5035A
Acetone	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Benzene	- - - - -	- - - - -	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C / 5035 / 5035A
Bromobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Bromochloromethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Bromodichloromethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Bromoform	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Bromomethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
2-Butanone	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Tert-Butyl Alcohol (TBA)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
n-Butylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
sec-Butylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
tert-Butylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Carbon Disulfide	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Carbon Tetrachloride	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Chlorobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Chloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Chloroform	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Chloromethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
2-Chlorotoluene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
4-Chlorotoluene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Dibromochloromethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2-Dibromo-3-chloropropane (DBCP)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Dibromomethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2 Dibromomethane (EDB)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2-Dichlorobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,3-Dichlorobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
1,4-Dichlorobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Dichlorodifluoro-methane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1-Dichloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2-Dichloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1-Dichloroethene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
cis-1,2-Dichloroethene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
trans-1,2-Dichloroethene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2-Dichloropropane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,3-Dichloropropane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
2,2-Dichloropropane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1-Dichloropropene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
cis-1,3-Dichloropropene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
trans-1,3-Dichloropropene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Ethyl Benzene	- - - - -	- - - - -	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C / 5035 / 5035A
Ethyl tert-Butyl Ether (ETBE)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
2-Hexanone	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Hexachlorobutadiene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Isopropylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Isopropyl Ether (DIPE)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Para-Isopropyltoluene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Methylene Chloride	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
4-Methyl-2-pentanone	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Methyl tert-amyl Ether (TAME)	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Methyl tert-butyl ether (MTBE)	- - - - -	- - - - -	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C / 5035 / 5035A
Naphthalene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
n-Propylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Styrene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1,1,2-Tetrachloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1,2,2-Tetrachloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Tetrachloroethene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Toluene	- - - - -	- - - - -	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C / 5035 / 5035A

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
1,2,3-Trichlorobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2,4-Trichlorobenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1,1-Trichloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,1,2-Trichloroethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Trichloroethene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Trichlorofluoromethane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2,3-Trichloropropane	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,2,4-Trimethylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
1,3,5-Trimethylbenzene	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Vinyl Acetate	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
Vinyl Chloride	- - - - -	- - - - -	EPA 8260B / 8260C	EPA 5030B / 5030C	EPA 8260B / 8260C	EPA 5030B / 5030C / 5035 / 5035A
m,p-Xylene	- - - - -	- - - - -	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C / 5035 / 5035A
o-Xylene	- - - - -	- - - - -	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C	EPA 8260B / 8260C / 8021B	EPA 5030B / 5030C / 5035 / 5035A
Extractable Organics (semivolatiles)						
DRO	- - - - -	- - - - -	EPA 8015B / 8015D	EPA 3520C	EPA 8015B / 8015D/	EPA 3550B / 3550C
Acenaphthene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
Acenaphthylene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Anthracene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Benzoic Acid	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270 C 8270D	EPA 3550B / 3550C
Benzo (a) Anthracene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Benzo (b) Fluoranthene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Benzo (k) Fluoranthene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Benzo (ghi) Fluoranthene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Benzo (a) Pyrene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270 C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Benzyl Alcohol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Bis (2-chloroethoxy) Methane	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Bis (2-chloroethyl) Ether	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Bis (2-chloroisopropyl) Ether	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Bis (2-ethylhexyl) Phthalate	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Bromophenyl-Phenylether	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Butyl Benzyl Phthalate	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Chloroaniline	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Chloro-3-methylphenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
2-Chloronaphthalene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2-Chlorophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Chlorophenyl Phenyl Ether	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Chrysene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Dibenzo (a,h) Anthracene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Dibenzofuran	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
1,2-Dichlorobenzene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
1,3-Dichlorobenzene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
1,4-Dichlorobenzene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
3,3'-Dichlorobenzidine	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,4-Dichlorophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Diethyl Phthalate	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,4-Dimethylphenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Dimethyl Phthalate	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Di-n-butyl Phthalate	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Di-n-octyl Phthalate	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4,6-Dinitro-2-methylphenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,4-Dinitrophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,4-Dinitrotoluene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,6-Dinitrotoluene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
1,4 - Dioxane			EPA 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
1,2-Diphenylhydrazine reported as Azobenzene due to breakdown	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA8270C / 8270D	EPA 3550B / 3550C
Fluoroanthene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Fluorene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Hexachlorobenzene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Hexachlorobutadiene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Hexachloro-cyclopentadiene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Hexachloroethane	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Indeno (1,2,3-cd) pyrene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Isophorone	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
1-Methylnaphthalene	- - - - -	- - - - -	EPA 8270C-SIM / 8270D-DIM	EPA 3520C	EPA 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
2-Methylnaphthalene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
2-Methylphenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Methylphenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Naphthalene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
2-Nitroaniline	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
3-Nitroaniline	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Nitroaniline	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Nitrobenzene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
2-Nitrophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
4-Nitrophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
N-Nitrosodi-n-propylamine	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
N-Nitrosodimethylamine	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
N-Nitrosodiphenylamine	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Pentachlorophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Phenanthrene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
Phenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Pyrene	- - - - -	- - - - -	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3520C	EPA 8270C / 8270D / 8270C-SIM / 8270D-SIM	EPA 3550B / 3550C
1,2,4-Trichlorobenzene	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,4,5-Trichlorophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
2,4,6-Trichlorophenol	- - - - -	- - - - -	EPA 8270C / 8270D	EPA 3520C	EPA 8270C / 8270D	EPA 3550B / 3550C
Pesticides/PCBs						
Aldrin	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
alpha-BHC	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
beta-BHC	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
delta-BHC	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
gamma-BHC	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Chlordane (technical)	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
alpha-Chlordane	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
gamma-Chlordane	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
4,4'-DDD	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
4,4'-DDE	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
4,4',-DDT	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Dieldrin	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Endosulfan I	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Endosulfan II	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Endosulfan Sulfate	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Endrin	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Endrin Aldehyde	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Endrin Ketone	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Heptachlor	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Heptachlor Epoxide	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Methoxychlor	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
PCB-1016 (Arochlor)	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
PCB-1221	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
PCB-1232	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
PCB-1242	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
PCB-1248	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
PCB-1254	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
PCB-1260	- - - - -	- - - - -	EPA 8082 / 8082A	EPA 3520C	EPA 8082 / 8082A	EPA 3550B / 3550C
Toxaphene	- - - - -	- - - - -	EPA 8081A / 8081B	EPA 3520C	EPA 8081A / 8081B	EPA 3550B / 3550C
Nitroaromatics & Nitramines						
2-Amino-4,6-dinitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
4-Amino-2,6-dinitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
3,5-Dinitroaniline	- - - - -	- - - - -	- - - - - - - - - - - -	- - - - - - - - - - - -	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
1,3-Dinitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
2,4-Dinitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
2,6-Dinitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
HMX	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
Nitroglycerine	- - - - -	- - - - -	- - - - - - - - - - - -	- - - - - - - - - - - -	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
Nitrobenzene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
2-Nitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
3-Nitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
4-Nitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
Pentaerythritol (PETN)	- - - - -	- - - - -	- - - - - - - - - - - -	- - - - - - - - - - - -	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A

Parameter/Analyte	Potable Water	Potable Water Prep Methods	Nonpotable Water	Nonpotable Water Prep Methods	Solid Hazardous Waste	Solid Hazardous Waste Prep Methods
RDX	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
Tetryl	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
1,3,5-Trinitrobenzene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
2,4,6-Trinitrotoluene	- - - - -	- - - - -	EPA 8330 / 8330A	EPA 3535	EPA 8330 / 8330A / 8330A Modified / 8330B Modified	EPA 8330 / 8330A
Hazardous Waste Characteristics						
Synthetic Precipitation Leaching Procedure (SPLP)	- - - - -	- - - - -	- - - - -	- - - - -	EPA 1312	EPA1312
Toxicity Characteristic Leaching Procedure (TCLP)	- - - - -	- - - - -	- - - - -	- - - - -	EPA 1311	EPA 1311
Air						
Ethane	- - - - -	- - - - -	RSK-175	RSK-175	- - - - -	- - - - -
Ethene	- - - - -	- - - - -	RSK-175	RSK-175	- - - - -	- - - - -
Methane	- - - - -	- - - - -	RSK-175	RSK-175	- - - - -	- - - - -
Acetylene	- - - - -	- - - - -	RSK-175	RSK-175	- - - - -	- - - - -

Parameter/Analyte	Air Analysis
1,1,1-Trichloroethane	TO-15
1,1,2,2-Tetrachloroethane	TO-15
1,1,2-Trichloroethane	TO-15
1,1-Dichloroethane	TO-15
1,1-Dichloroethene	TO-15
1,2,4-Trichlorobenzene	TO-15
1,2,4-Trimethylbenzene	TO-15
1,2-Dibromoethane	TO-15
1,2-Dichlorobenzene	TO-15
1,2-Dichloroethane	TO-15
1,2-Dichloropropane	TO-15
1,3,5-Trimethylbenzene	TO-15
1,3-Butadiene	TO-15

Parameter/Analyte	Air Analysis
1,3-Dichlorobenzene	TO-15
1,4-Dichlorobenzene	TO-15
2-Butanone	TO-15
2-Hexanone	TO-15
4-Ethyltoluene	TO-15
4-Methyl-2-pentanone	TO-15
Acetone	TO-15
Acrolein	TO-15
Benzene	TO-15
Benzyl chloride	TO-15
Bromodichloromethane	TO-15
Bromoform	TO-15
Bromomethane	TO-15
Carbon Disulfide	TO-15
Carbon Tetrachloride	TO-15
Chlorobenzene	TO-15
Chloroethane	TO-15
Chloroform	TO-15
Chloromethane	TO-15
Cyclohexane	TO-15
Dibromochloromethane	TO-15
Ethyl Acetate	TO-15
Ethylbenzene	TO-15
Freon 113	TO-15
Freon 114	TO-15
Freon 12	TO-15
Hexachlorobutadiene	TO-15
MTBE	TO-15
Methylene Chloride	TO-15
Napthalene	TO-15
Propylene	TO-15
Styrene	TO-15
Tetrachloroethene	TO-15
Tetrahydrofuran	TO-15
Toluene	TO-15
Trichloroethene	TO-15
Trichlorofluoromethane	TO-15
Vinyl Acetate	TO-15
Vinyl Chloride	TO-15
cis-1,2-dichloroethene	TO-15
cis-1,3-dichloropropene	TO-15
m,p-Xylenes	TO-15
n-Heptane	TO-15
n-Hexane	TO-15
o-Xylene	TO-15
trans-1,2-dichloroethene	TO-15
trans-1,3-dichloropropene	TO-15

Parameter/Analyte	Air Analysis
Carbon Dioxide	ASTM D1946
Carbon Monoxide	ASTM D1946
Helium	ASTM D1946
Hydrogen	ASTM D1946
Methane	ASTM D1946
Nitrogen	ASTM D1946
Oxygen	ASTM D1946

Parameter/Analyte	
Gamma Spectroscopy	Solid Hazardous Waste
Actinium – 228	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Americium – 241	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Bismuth – 212	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Bismuth – 214	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Cesium – 137	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Cobalt – 60	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Europium – 152	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Europium – 154	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Lead – 210	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Lead – 212	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Lead – 214	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Protactinium – 234M	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Radium – 226	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Thallium - 208	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Thorium – 232	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Uranium - 235	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01

1. **This accreditation covers testing performed at the main laboratory listed above and the following satellite laboratory listed below for the following tests:**

201A & 201B Fischer Ave
Hunters Point Naval Ship Yard
San Francisco, CA 94124

Parameter/Analyte	
Gamma Spectroscopy	Solid/Wipe Analysis
Actinium – 228	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Americium – 241	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Bismuth – 212	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Bismuth – 214	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Cesium – 137	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Cobalt – 60	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Europium – 152	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Europium – 154	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Lead – 210	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Lead – 212	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01

Parameter/Analyte	
Gamma Spectroscopy	Solid/Wipe Analysis
Lead – 214	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Potassium – 40	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Protactinium – 234M	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Radium – 226	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Thallium - 208	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Thorium – 232	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Thorium – 234	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Uranium - 235	Modified EPAMethod 901.1 / DoE HASL 300 Ga-01
Gross Alpha Beta Spectroscopy Gas Proportional Counter	
Alpha & Beta Radiation	Modified EPA Method 9310

American Association for Laboratory Accreditation

Accredited DoD ELAP Laboratory

A2LA has accredited

CURTIS & TOMPKINS, LLC

Berkeley, CA

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2003 NELAC Chapter 5 Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 4.2 of the DoD Quality System Manual for Environmental Laboratories (QSM); accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 5th day of March 2014.

President & CEO
For the Accreditation Council
Certificate Number 2943.01
Valid to February 29, 2016

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

APPENDIX C

FALL PROTECTION AND CONFINED SPACE PERMITS

LBNL FALL PROTECTION PERMIT

CHECK OR MARK APPROPRIATE BOXES WITH PFAS DETAILS

Co : LBNL ESG

Sub:

WO#

Adapted for LBNL 10-5-06

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
☐ **Open Sides:** ☐ Floors or Platforms ☐ Stairs ☐ Catwalks ☐ Scaffolds ☐ Unguarded Machinery & Cranes															
☐ **Wall Openings:**															
☐ **Floor Openings** ☐ Hatchway ☐ Manhole ☐ Pit ☐ Tank ☐ Shaft ☐ Skylight ☐ Attic															
☐ **Leaving the Guarded Floor Surface:** of a ☐ Manlift (Any Type) ☐ Scaffold ☐ Catwalk ☐ Platform															
☐ **Working from inside a Properly Guarded Man-lift:** (Scissor, Boom, Bucket, Articulating)															
☐ **Working from a Suspended Platform:** ☐ Swing Stage ☐ Manbasket ☐ Boatswain's Chair ☐ Descent Harness															
☐ **Fixed Ladder:** ☐ Working with Both hands															
☐ **Portable Ladder:** ☐ Working with Both hands															
☐ **Working on Steeply Sloping Roofs or Surfaces** (> 4:12 pitch)															
☐ **Working on Flat or Low Slope Roofs or Surfaces:** ☐ Active PFAS **or** Passive SYS.☐ Non-Conforming Guardrails ☐ Warning Lines															
☐ **Structural Climbing:** (Bridge, Roof Truss, Towers, Drilling Rig, Pile Driver)															
☒ **Hillsides with slopes > 1.5 to 1 slope (53 Degrees) , or sloping into on coming traffic or machinery**				3											
☐ **Other, Describe:**															

Step I: Assess the Fall Hazard

☒ ≥ 4ft. Gen.Industry or 6ft. Construction
☐ Landing Hazard: (Machinery, Liquids, Debris, Chemicals)

Height >6 ft.

STEP 1: CHECK HAZARD STEP 2: NUMBER CONTROL STEP 3: RECORD DETAILS OF HAZARD CONTROLS STEP 4: CHECK INSPECTIONS, TRAINING, AND APPROVALS STEP 5: ENTER WORK DATE(S), WORK TASK DESCRIPTION, AND SIGNATURES OF AUTHORIZED-PERSONS

- This permit provides general guidance only. It must only be used by trained and competent persons who have knowledge of the precise requirements of the applicable legislation. This form guides planning of fall protection ONLY - protective equipment and procedures for other types of hazards must also be in place.
- TO USE: Proceed clockwise - record all required details.

NOTE RED DOTS REPRESENT REGULATORY REQUIREMENTS

Step IV: Qualifications/Inspections/Approvals

STEP V: Enter dates (s), work description, and

Worksite Location: NFS CREEK

Work Dates: 5/6/15-6/6/15

1day ☐ 1 week ☐ 2 weeks ☐ 1month ☒ add_____

Work Task(s): Sediment sampling

Sign and Print Names of Employees Protected by this Plan and Authorized to Execute the Work Task

Neil Singh

Supervisor:

Work Lead: John Jelinski

Superintendent:

Signature of Competent Person Preparing Plan

Matt Rice

Signature of Qualified Person/Pro. Engineer
Approving System or Anchors

Step III: Select/Confirm/Record Details of the fall hazard controls

Step II: Select a fall hazard control (s)

Inspect all Equipment and Systems Prior to Each Use	All Persons Have Been Properly Trained and Briefed	Approved or Installed By a Qualified or Competent Person	Designed or Approved by a Professional Engineer		Eliminate the Hazard or the Reason for Being There ☐	Traditional Fall Protection: ☐ (Guardrails/Ladder Cages/Slide Guard	Floor/Hole/Hatch Cover: ☐ (Secured in Place, Marked)	Fall Restraint System: ☒ (Harness/Belt, Lanyard/Lifeline & Anchr	Fall Arrest System: ☐ Direct Coupled to Anchor (Lanyard)	☐ Ladder Climbing System	☐ SRL System	☐ Vertical Lifeline System	☐ Horizontal Rigid Rail System	☐ Permanent Horizontal Lifeline Syster	☐ Temporary Horizontal Lifeline System	☐ Lead Climbing Techniques (2 Person)	Waning Line systems: ≥ 6ft. ☐ ≥ 15ft. ☐	Control Zone: ☐ NCG ☐ CAZ ☐ Safety Monitor Requi	Fall Protection Plan: ☐ Infeasibility Plan ☐ Roofer Exemption/1926.501(b)
☒	☒	☒	☐																
●	●	●	●	**Guardrails:** 42 inches (1.1m) plus or minus 3 inches (8cm) above the walking working level. Mid-rail at midway of top edge and suface.		①													
●	●	●	●	**Ladder Cages:** (Landings every 30 ft. in General Industry, 50 ft. in Construction)		②													
●	●	●	●	**Floor/Hole Hatch covers:** (2 x Heaviest Worker, Vehicle or other Load, Minimum 200 lbs.)			●												
●	●	●	●	**Slide Guards** (Minimum 4" at roof eave)		①													
●	●	●	●	**Select Anchorage:** ☐ > 5000 lbs. Describe: With beam-strap around base of				①	①	①	①	①							
●	●	●	●	☐ Strength Factor of Safety >2 Describe: trees w/RGS system.				②	②	②	②	②	●	●	●	●			
●	●	●	●	☒ 4 x intended load, minimum 800 lbs. Describe:				③											
●	●	●	●	**Body Support:** ☒ Full Body Harness, Dorsal Attachment to the Fall Arrest System				ⓐ	●	●	●	●	●	●	●	●			
●	●	●	●	☐ Waist Belt *("Used Only"! As part of a positioning device system)*				ⓑ											
	●	●	●	**Estimate Required Clearance:** (N/A ft. Free Fall) + (ft. Lockoff & Deceleration) + 3 ft (Stretch + Buffer) = ft.					●	●	●	●	●	●	●	●			
	●	●	●	**Measure Available Clearance:** (N/A ft.) ☐ Exceeds Estimated Clearance Requirement (Safe)					ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ			
	●	●	●	**Negative Fall Calculation:** (N/A ft.) ☐ Less Than Estimated Clearance Requirement (Caution)					ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ			
	●	●	●	**Fall Protection Plan:** ☐ Written Work Procedures Posted (Available at the Worksite)														●	●
	●	●	●	☐ Controlled Access Zone Defined by: ☐ Warning Line System ☐ Other:													●	②	②
	●	●	●	☐ Safety Monitor Name or Other Designation:													●	①	①
●	●	●	●	**Rescue & Emergency Provisions:** ☒ Phone Number: 510-486-7911 ☒ Emergency Radio: Matt Rice				●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	**Emergency Egress System or Plan:** Details: Fire Pull #N/A ☒ Radio check every 30 minutes				●	●	●	●	●	●	●	●	●	●	●	●

INSTRUCTIONS HERE!

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Location Name			Safety Requirements & Permits			Proposed Sampling logistics			Description
Map ID			Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
C	NF Strawberry Creek-Outfall	N	harness/rope	NO	NO	6	8-16oz cut HDPE	8oz (250ml)	NFS Creek @ Outfall below Blackberry Parking Lot
D	SDI-Blackberry Parking Lot	N	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
F	SDI-B58	N	guardrail	NO	cones/flagger	15	8oz cut HDPE	≥ 4oz	Storm drain Inlet in front of B58
G	SDI-Segre Rd @ B45	N	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37
M	SDI-B48 (NE)	N	guardrail	NO	NO	16	8-16oz cut HDPE	8oz (250ml)	Storm drain Inlet behind B48 (north east corner)
N	Chicken Creek-Tributary Outfall	N	harness/rope	NO	NO	7	8-16oz cut HDPE	8oz (250ml)	Location below T outfall to tribuatary of Chicken Creek

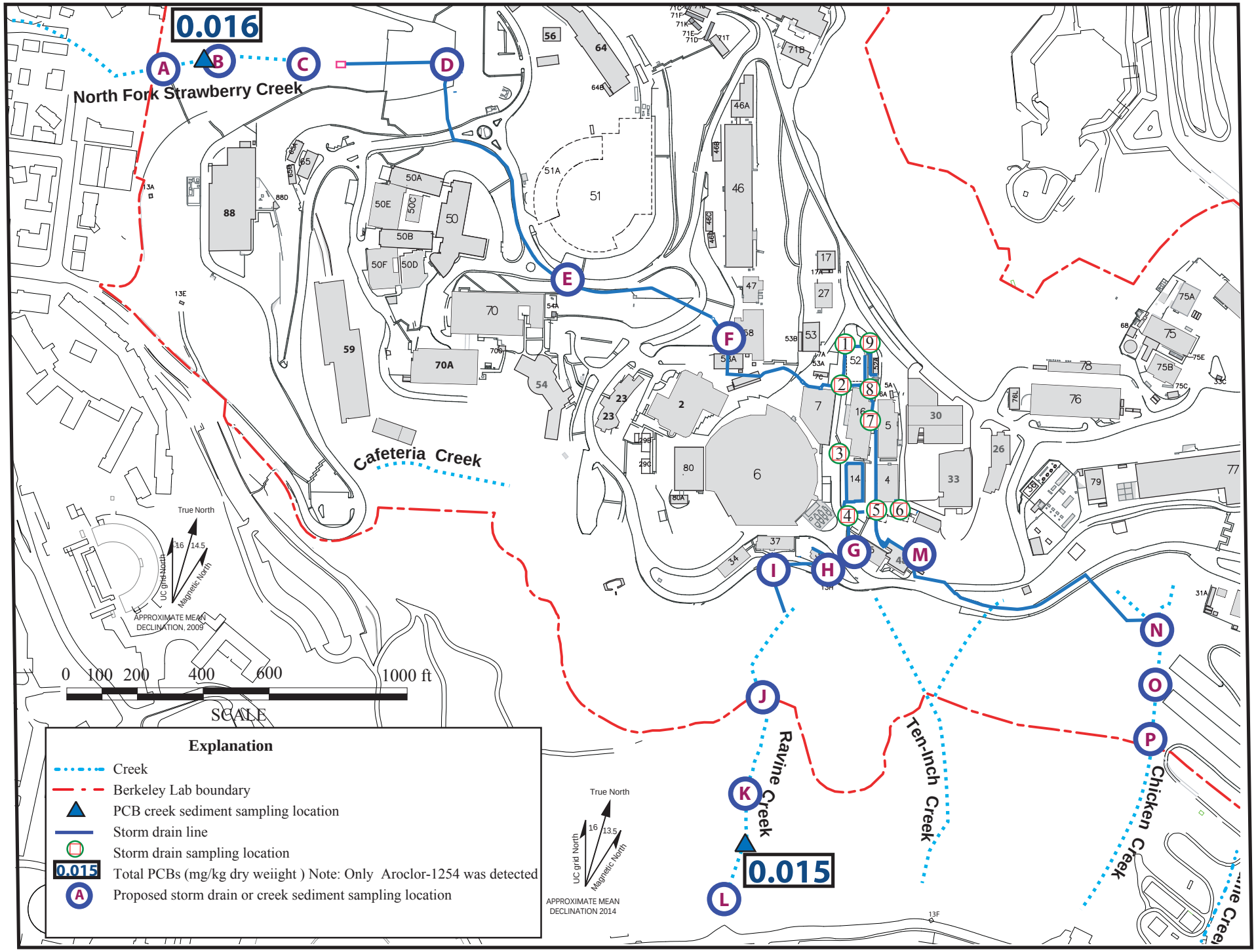
A-P = Map location N = New sample location to be added to database

Notes:

Fall Protection Permit with active restraint (harness/rope system) required for access to Chicken Creek-Trib & N. Fork Strawberry-Outfall (C & N)
** John Jelinski & Neel Singh with be decending hillside & collecting samples. Brendan Mulholland will be on watch at top of hill
** Communication includes 1) active voice, 2) cell phone, & 3) walkie talkies (John Jelinski & Brendan Mulholland)

Fall Protection Permit with active restraint (harness/tripod system with guardrails) required for access to storm drain inlets @ locations D, E, G, H, I
** Neel Singh with be decending into storm drain inlet & collecting samples. John Jelinski will be spotter. Brendan Mulholland will be on traffic control watch
** Communication includes 1) active voice & 2) cell phone. Distance between sampler & spotter is less than 6 feet.
** Full guardrail will be set up around SDI with tripod over center.

Fall Protection Permit with passive restraint (guardrails) required for access to storm drain inlets @ locations SDI-58 & SDI-B48 (F & M)
** John Jelinski & Neel Singh with be collecting samples. WE will not be entering SDI to collect samples. Brendan Mulholland will be on watch.
** Communication includes 1) active voice & 2) cell phone.



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

LBNL FALL PROTECTION PERMIT

CHECK OR MARK APPROPRIATE BOXES WITH PFAS DETAILS

Co : LBNL ESG

Sub:

WO#

Adapted for LBNL 10-5-06

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
☐ **Open Sides:** ☐ Floors or Platforms ☐ Stairs ☐ Catwalks ☐ Scaffolds ☐ Unguarded Machinery & Cranes															
☐ **Wall Openings:**															
☒ **Floor Openings** ☐ Hatchway ☒ Manhole ☐ Pit ☐ Tank ☐ Shaft ☐ Skylight ☐ Attic		1					6								
☐ **Leaving the Guarded Floor Surface:** of a ☐ Manlift (Any Type) ☐ Scaffold ☐ Catwalk ☐ Platform															
☐ **Working from inside a Properly Guarded Man-lift:** (Scissor, Boom, Bucket, Articulating)															
☐ **Working from a Suspended Platform:** ☐ Swing Stage ☐ Manbasket ☐ Boatswain's Chair ☐ Descent Harness															
☐ **Fixed Ladder:** ☐ Working with Both hands															
☐ **Portable Ladder:** ☐ Working with Both hands															
☐ **Working on Steeply Sloping Roofs or Surfaces** (> 4:12 pitch)															
☐ **Working on Flat or Low Slope Roofs or Surfaces:** ☐ Active PFAS **or** Passive SYS.☐ Non-Conforming Guardrails ☐ Warning Lines															
☐ **Structural Climbing:** (Bridge, Roof Truss, Towers, Drilling Rig, Pile Driver)															
☐ **Hillsides with slopes > 1.5 to 1 slope (53 Degrees) , or sloping into on coming traffic or machinery**															
☐ **Other, Describe:**															

Step I: Assess the Fall Hazard

☒ ≥ 4ft. Gen.Industry or 6ft. Construction
☐ Landing Hazard: (Machinery, Liquids, Debris, Chemicals)

Height >13 ft.

STEP V: Enter dates (s), work description, and

Worksite Location: Site-wide Storm Drains

Work Task(s): Storm Drain Sampling

Work Dates: 5/13/15-5/27/15

1day ☐ 1 week ☐ 2 weeks ☒ 1month ☐ add_____

Sign and Print Names of Employees Protected by this Plan and Authorized to Execute the Work Task

Neel Singh

Supervisor: Ron Pauer

Work Lead: John Jelinski

Superintendent:

Signature of Competent Person Preparing Plan

Matt Rice

Signature of Qualified Person/Pro. Engineer
Approving System or Anchors

STEP 1: CHECK HAZARD STEP 2: NUMBER CONTROL STEP 3: RECORD DETAILS OF HAZARD CONTROLS STEP 4: CHECK INSPECTIONS, TRAINING, AND APPROVALS STEP 5: ENTER WORK DATE(S), WORK TASK DESCRIPTION, AND SIGNATURES OF AUTHORIZED-PERSONS

- This permit provides general guidance only. It must only be used by trained and competent persons who have knowledge of the precise requirements of the applicable legislation. This form guides planning of fall protection ONLY - protective equipment and procedures for other types of hazards must also be in place.
- TO USE: Proceed clockwise - record all required details.

NOTE RED DOTS REPRESENT REGULATORY REQUIREMENTS

Step IV: Qualifications/Inspections/Approvals

Step II: Select a fall hazard control (s)

Step III: Select/Confirm/Record Details of the fall hazard controls

Inspect all Equipment and Systems Prior to Each Use	All Persons Have Been Properly Trained and Briefed	Approved or Installed By a Qualified or Competent Person	Designed or Approved by a Professional Engineer	Step III: Select/Confirm/Record Details of the fall hazard controls	Eliminate the Hazard or the Reason for Being There ☐	Traditional Fall Protection: ☒ (Guardrails/Ladder Cages/Slide Guard	Floor/Hole/Hatch Cover: ☐ (Secured in Place, Marked)	Fall Restraint System: ☐ (Harness/Belt, Lanyard/Lifeline & Anchc	Fall Arrest System: ☐ Direct Coupled to Anchor (Lanyard)	☐ Ladder Climbing System	☒ SRL System	☐ Vertical Lifeline System	☐ Horizontal Rigid Rail System	☐ Permanent Horizontal Lifeline Syster	☐ Temporary Horizontal Lifeline System	☐ Lead Climbing Techniques (2 Person)	Waning Line systems: ≥ 6ft. ☐ ≥ 15ft. ☐	Control Zone: ☐ NCG ☐ CAZ ☐ Safety Monitor Requi	Fall Protection Plan: ☐ Infeasibility Plan ☐ Roofer Exemption/1926.501(b)
☒	☒	☒	☐															
●	●	●	●	**Guardrails:** 42 inches (1.1m) plus or minus 3 inches (8cm) above the walking working level. Mid-rail at midway of top edge and suface.		①												
●	●	●	●	**Ladder Cages:** (Landings every 30 ft. in General Industry, 50 ft. in Construction)		②												
●	●	●	●	**Floor/Hole Hatch covers:** (2 x Heaviest Worker, Vehicle or other Load, Minimum 200 lbs.)			●											
●	●	●	●	**Slide Guards** (Minimum 4" at roof eave)		①												
●	●	●	●	**Select Anchorage:** ☐ > 5000 lbs. Describe: (1)Portable guardrail system.				①	①	①	①	①						
●	●	●	●	☐ Strength Factor of Safety >2 Describe: (6)At 9ft. Tri-pod w/SRL system.				②	②	②	②	②	●	●	●	●		
●	●	●	●	☒ 4 x intended load, minimum 800 lbs. Describe:				③										
●	●	●	●	**Body Support:** ☒ Full Body Harness, Dorsal Attachment to the Fall Arrest System				ⓐ	●	●	●	●	●	●	●	●		
●	●	●	●	☐ Waist Belt *("Used Only"! As part of a positioning device system)*				ⓑ										
	●	●	●	**Estimate Required Clearance:** (N/A ft. Free Fall) + (ft. Lockoff & Deceleration) + 3 ft (Stretch + Buffer) = ft.					●	●	●	●	●	●	●	●		
	●	●	●	**Measure Available Clearance:** N/A ft.) ☐ Exceeds Estimated Clearance Requirement (Safe)					ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ		
	●	●	●	**Negative Fall Calculation:** (N/A ft.) ☐ Less Than Estimated Clearance Requirement (Caution)					ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ		
	●	●	●	**Fall Protection Plan:** ☐ Written Work Procedures Posted (Available at the Worksite)														●
	●	●	●	☐ Controlled Access Zone Defined by: ☐ Warning Line System ☐ Other:												●	②	②
	●	●	●	☐ Safety Monitor Name or Other Designation:												●	①	①
●	●	●	●	**Rescue & Emergency Provisions:** ☒ Phone Number: 510-486-7911 ☒ Emergency Radio: Brendan Mulholland				●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	**Emergency Egress System or Plan:** Details: Fire Pull # N/A ☒ Radio check every 30 minutes CAM-9,J.Jelinski				●	●	●	●	●	●	●	●	●	●	●

INSTRUCTIONS HERE!

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Location Name			Safety Requirements & Permits			Proposed Sampling logistics			Description
Map ID			Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
C	NF Strawberry Creek-Outfall	N	harness/rope	NO	NO	6	8-16oz cut HDPE	8oz (250ml)	NFS Creek @ Outfall below Blackberry Parking Lot
D	SDI-Blackberry Parking Lot	N	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
F	SDI-B58	N	guardrail	NO	cones/flagger	15	8oz cut HDPE	≥ 4oz	Storm drain Inlet in front of B58
G	SDI-Segre Rd @ B45	N	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37
M	SDI-B48 (NE)	N	guardrail	NO	NO	16	8-16oz cut HDPE	8oz (250ml)	Storm drain Inlet behind B48 (north east corner)
N	Chicken Creek-Tributary Outfall	N	harness/rope	NO	NO	7	8-16oz cut HDPE	8oz (250ml)	Location below T outfall to tribuatary of Chicken Creek

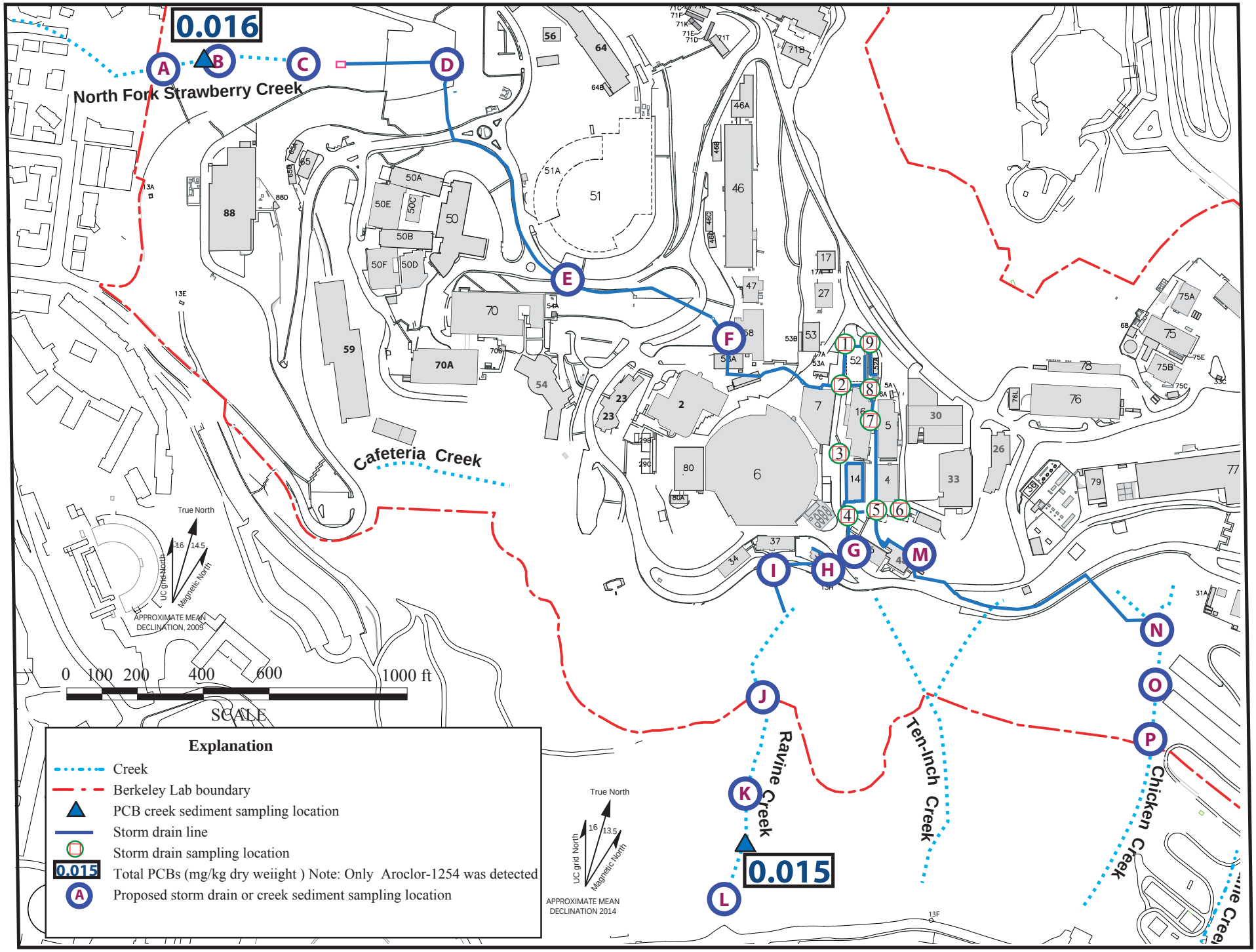
A-P = Map location N = New sample location to be added to database

Notes:

Fall Protection Permit with active restraint (harness/rope system) required for access to Chicken Creek-Trib & N. Fork Strawberry-Outfall (C & N)
** John Jelinski & Neel Singh with be decending hillside & collecting samples. Brendan Mulholland will be on watch at top of hill
** Communication includes 1) active voice, 2) cell phone, & 3) walkie talkies (John Jelinski & Brendan Mulholland)

Fall Protection Permit with active restraint (harness/tripod system with guardrails) required for access to storm drain inlets @ locations D, E, G, H, I
** Neel Singh with be decending into storm drain inlet & collecting samples. John Jelinski will be spotter. Brendan Mulholland will be on traffic control watch
** Communication includes 1) active voice & 2) cell phone. Distance between sampler & spotter is less than 6 feet.
** Full guardrail will be set up around SDI with tripod over center.

Fall Protection Permit with passive restraint (guardrails) required for access to storm drain inlets @ locations SDI-58 & SDI-B48 (F & M)
** John Jelinski & Neel Singh with be collecting samples. WE will not be entering SDI to collect samples. Brendan Mulholland will be on watch.
** Communication includes 1) active voice & 2) cell phone.



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

Chapter 34, Appendix C

PRCS Reclassification Certification

Location: SDI Blackbery Parking lot

Purpose of Entry: Collect Sediment Sample

LBNL CS Inventory ID: + See Attached map

LBNL Activity Lead: Ron Pauer / John Jelinski

Hazards	Evaluation and Elimination/Control of Hazards
Atmospheric internal *O2 deficiency Combustibles CO H2S Other*	***Four Gas Meter Info and Results***

☐ ~~RKI GX-2003~~ Meter Serial #		
☑ Other meter Mfg/Model Serial #	QRAE II	
Calibration Date		
Daily Function Test Pass		(Initial)
1 Oxygen 19.5% - 23.5%		%
2 Methane <10% LEL		%
3 CO <25ppm		ppm
4 H2S <10ppm		ppm
Other Contaminant		
Signature		
Date/Time of readings		

Top

Mid

bottom

[Record monitoring results in space above.]

If all hazards inherent to the space can be eliminated, this entry may be conducted as a Reclassification to Non-permit Confined Space. Verify elimination or control of other hazards below. **Authorize entry by signing below.** If initial monitoring and evaluation indicates that there is an actual or potential atmospheric hazard, but the hazard can be controlled through continuous ventilation and it is the only hazard, then the space may be entered under Alternate Entry Procedures (Appendix D).

If the atmospheric hazard cannot be eliminated or controlled then this space must be entered under Confined Space Entry Permit by an approved subcontractor.

☐ No actual or potential atmospheric hazard in space.

☐ *Atmosphere not tested (ambient air only)*

or

☐ *Initial monitoring results are in range.*

☐ Atmosphere in space will remain stable.

☐ Work in space will not degrade air quality.

☐ ***Acceptable Atmospheric Quality***

☐ ***Acceptable Entry Conditions***

Other internal *e.g., Electrical, mechanical, radiation, engulfment*	*Describe hazards and controls: e.g., LOTO, communications, signs, ladders, lighting and other requirements.* Fall Protection Permit - active restraint (harness & tripod) No Internal Hazards Expected ☐ ***Acceptable Entry Conditions***
Introduced by the Work *e.g., Chemicals, hot work, erg, materials*	*Describe hazards and controls: e.g., Safe Work Procedures, specific engineering or administrative controls, PPE, extraction devices and other required permits.* Level D PPE w/ disposable gloves, hard hat, boot cover No Introduced hazards Expected ☐ ***Acceptable Entry Conditions***
External *e.g., Vehicle/foot traffic, drift, spill, combustion engines*	*Describe hazards and controls: e.g., traffic control, coordination of work and remote air monitoring.* Traffic Control - signs, cones, flagger ☐ ***Acceptable Entry Conditions***

Reclassification: ***Per worksheet above, the authorizing signature below certifies that the space poses no actual or potential atmospheric hazards, all other hazards have been eliminated, no uncontrolled hazards will be introduced, and continuous forced air ventilation is NOT required to maintain the space safe for entry. This PRCS is Reclassified to a "Non-permit Confined Space" per 29 CFR 1910.146(c)(7) for the duration of this Certification. Signature below authorizes entry.*** **List entrants on reverse side (page 2).**

John Jelinski		(510) 517 5378	5/16/15
Entry Supervisor Printed Name	*Signature*	*Cell Phone*	*Date*

This Certification expires: 5/17/15 ***or when conditions change. If conditions change, exit the space, and call the Entry Supervisor. In case of emergency, call 911 (x7911 from a desk phone).***

BERKELEY LAB

Environment / Health / Safety DIVISION
Environmental Services

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Map ID	Location Name		LBNL ID	Safety Requirements & Permits			Proposed Sampling logistics			Description
				Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
D	SDI-Blackberry Parking Lot	N	SDCBN1170,E1680	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	SDCBN006,3E1910	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
G	SDI-Segre Rd @ B45	N	SDCBS0206,E2799	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	SDCBS0248,E2753 (7756)	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	SDCBS0246,E2564	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37

A-P = Map location

N = New sample location to be added to database

Notes:

Confined Space Training Completed for May 13, 2015.

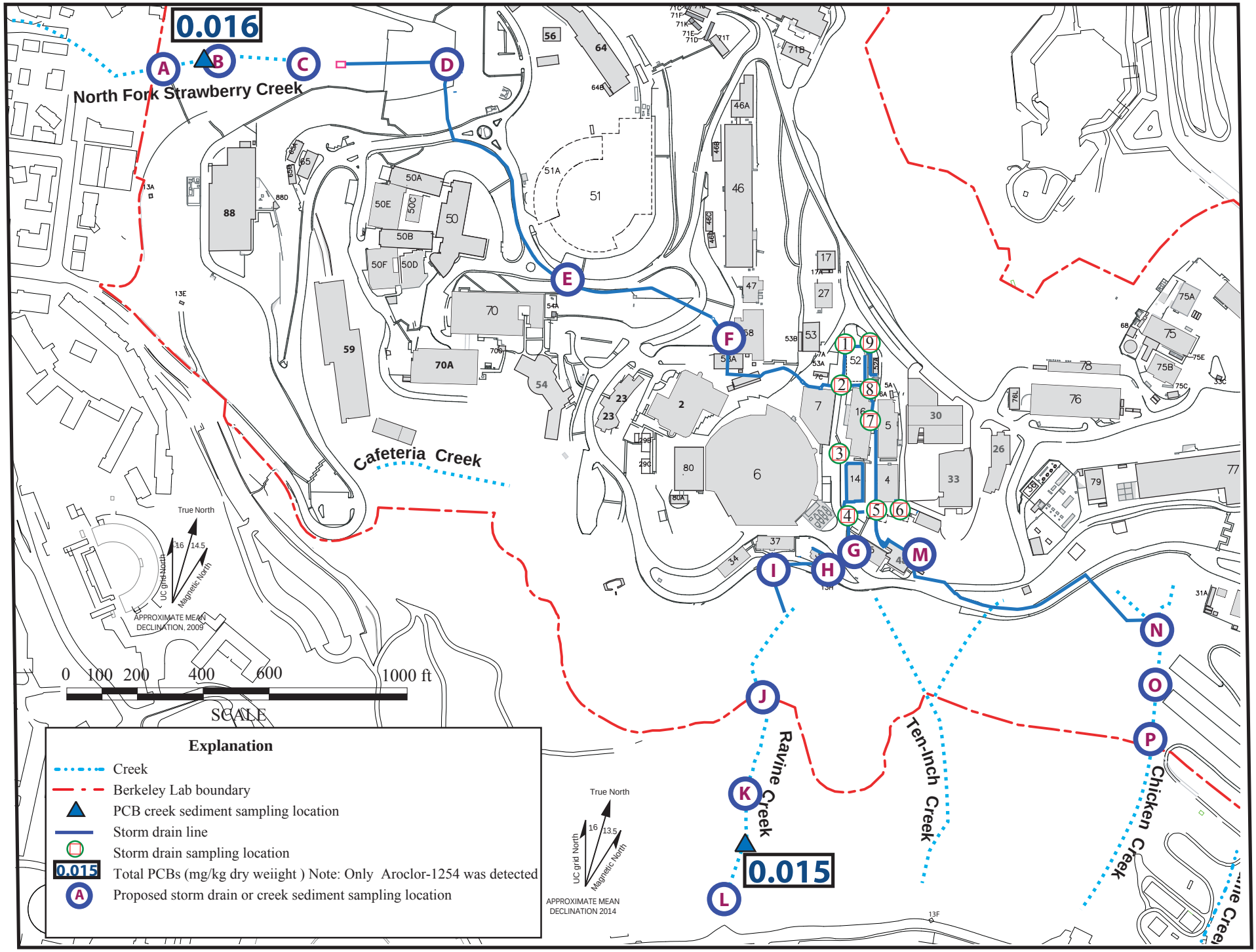
Confined Space Permit Required for access to storm drain inlet locations D, E, G, H, I

Activity Lead is Ron Pauer/John jelinski

Entry Supervisor is John Jelinski

Attendant is John Jelinski

Entrant is Neel Singh



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

Chapter 34, Appendix C
PRCS Reclassification Certification

SDI Lawrence Rd @ B35

Location: _____ **Purpose of Entry:** Collect Sediment Sample

LBNL CS Inventory ID: 7756 **LBNL Activity Lead:** Ron Pauer / John Jelinski

+ see attached map

Hazards	Evaluation and Elimination/Control of Hazards
Atmospheric internal *O2 deficiency, Combustibles, CO, H2S, Other*	***Four Gas Meter Info and Results***

☐ RKI GX-2003 Meter Serial #		
☒ Other meter Mfg/Model Serial #		QRAE II
Calibration Date		—
Daily Function Test Pass		Bump (Initial)
Top: 1 Oxygen	19.5% - 23.5%	%
Mid: 2 Methane	<10% LEL	%
3 CO	<25ppm	ppm
bottom: 4 H2S	<10ppm	ppm
Other Contaminant		
Signature		
Date/Time of readings		

[Record monitoring results in space above.]

If all hazards inherent to the space can be eliminated, this entry may be conducted as a Reclassification to Non-permit Confined Space. Verify elimination or control of other hazards below. **Authorize entry by signing below.** If initial monitoring and evaluation indicates that there is an actual or potential atmospheric hazard, but the hazard can be controlled through continuous ventilation and it is the only hazard, then the space may be entered under Alternate Entry Procedures (Appendix D).

If the atmospheric hazard cannot be eliminated or controlled then this space must be entered under Confined Space Entry Permit by an approved subcontractor.

☐ No actual or potential atmospheric hazard in space.

☐ *Atmosphere not tested (ambient air only)*

or

☐ *Initial monitoring results are in range.*

☐ Atmosphere in space will remain stable.

☐ Work in space will not degrade air quality.

☐ ***Acceptable Atmospheric Quality***

☐ ***Acceptable Entry Conditions***

Other internal *e.g., Electrical, mechanical, radiation, engulfment*	*Describe hazards and controls: e.g., LOTO, communications, signs, ladders, lighting and other requirements.* Fall Protection Permit w/ active restraint (harness & tripod) No Internal Hazards Expected
Introduced by the Work *e.g., chemicals, hot work, erg, materials*	*Describe hazards and controls: e.g., Safe Work Procedures, specific engineering or administrative controls, PPE, extraction devices and other required permits.* Level D PPE w/ disposable gloves, hard hat, shoe boots No Introduced hazards expected ☐ ***Acceptable Entry Conditions***
External *e.g., Vehicle/foot traffic, drift, spill, combustion engines*	*Describe hazards and controls: e.g., traffic control, coordination of work and remote air monitoring.* Traffic Control w/ signs, cones flagger ☐ ***Acceptable Entry Conditions***

Reclassification: ***Per worksheet above, the authorizing signature below certifies that the space poses no actual or potential atmospheric hazards, all other hazards have been eliminated, no uncontrolled hazards will be introduced, and continuous forced air ventilation is NOT required to maintain the space safe for entry. This PRCS is Reclassified to a "Non-permit Confined Space" per 29 CFR 1910.146(c)(7) for the duration of this Certification. Signature below authorizes entry.*** **List entrants on reverse side (page 2).**

John Jelinski	[signature]	(510) 517-5378	5/16/15
Entry Supervisor Printed Name	*Signature*	*Cell Phone*	*Date*

This Certification expires: 5/17/15 ***or when conditions change. If conditions change, exit the space, and call the Entry Supervisor. In case of emergency, call 911 (x7911 from a desk phone).***

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Map ID	Location Name		LBNL ID	Safety Requirements & Permits			Proposed Sampling logistics			Description
				Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
D	SDI-Blackberry Parking Lot	N	SDCBN1170,E1680	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	SDCBN006,3E1910	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
G	SDI-Segre Rd @ B45	N	SDCBS0206,E2799	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	SDCBS0248,E2753 (7756)	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	SDCBS0246,E2564	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37

A-P = Map location N = New sample location to be added to database

Notes:

Confined Space Training Completed for May 13, 2015.

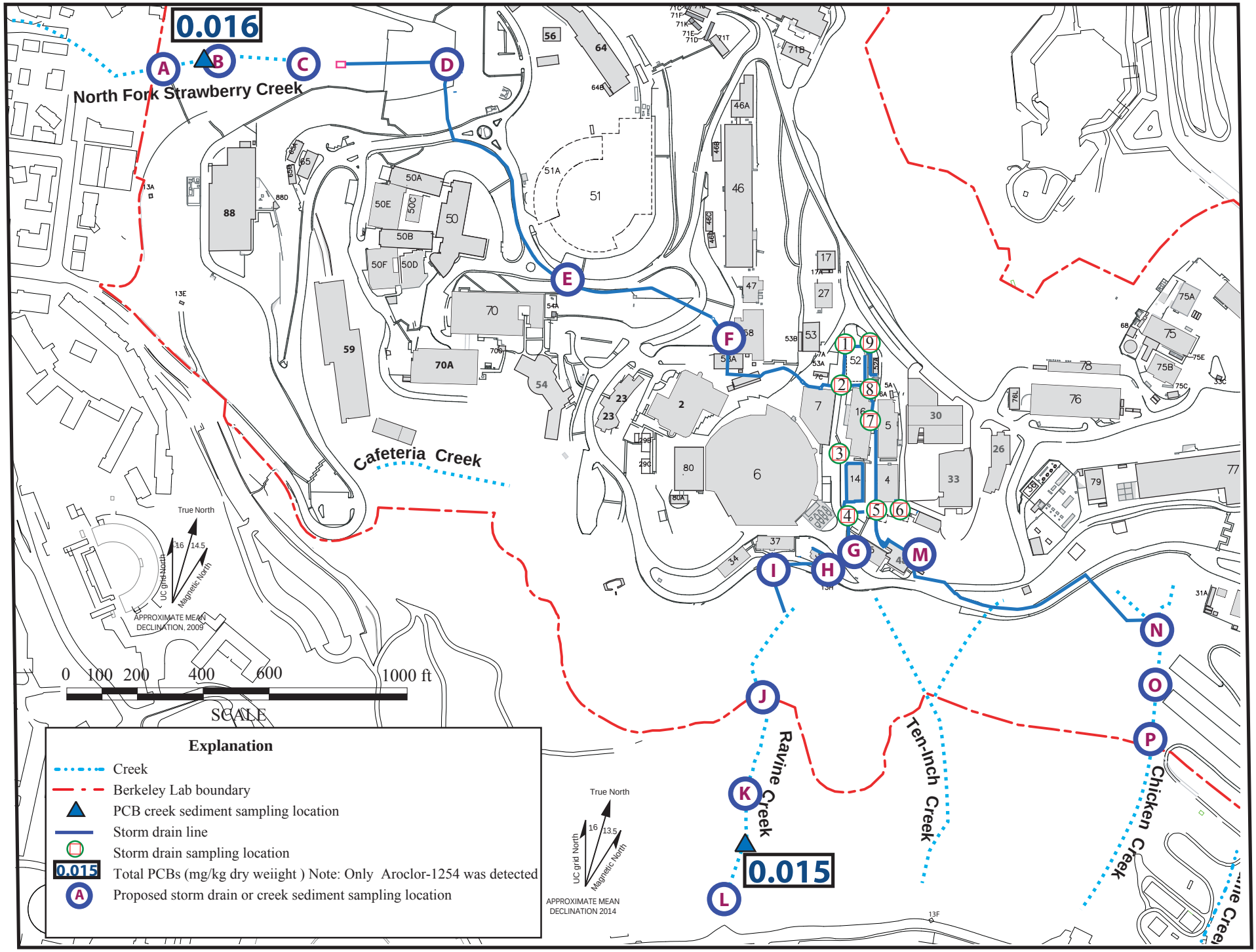
Confined Space Permit Required for access to storm drain inlet locations D, E, G, H, I

Activity Lead is Ron Pauer/John jelinski

Entry Supervisor is John Jelinski

Attendant is John Jelinski

Entrant is Neel Singh



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

Chapter 34, Appendix C
PRCS Reclassification Certification

Location: SDI Lawrence Rd @ B37 **Purpose of Entry:** Collect Sediment Sample

LBNL CS Inventory ID: _____ **LBNL Activity Lead:** Ron Pauer / John Jelinski

* See attached map

Hazards	Evaluation and Elimination/Control of Hazards
Atmospheric internal *O2 deficiency, Combustibles, CO, H2S, Other*	***Four Gas Meter Info and Results***

☐ RKI GX-2003 Meter Serial #		
☒ Other meter Mfg/Model Serial #		QRAE II
Calibration Date		
Daily Function Test Pass		(Initial) BMP
1 Oxygen	19.5% - 23.5%	%
2 Methane	<10% LEL	%
3 CO	<25ppm	ppm
4 H2S	<10ppm	ppm
Other Contaminant		
Signature		
Date/Time of readings		

Top

Mid

bottom

[Record monitoring results in space above.]

If all hazards inherent to the space can be eliminated, this entry may be conducted as a Reclassification to Non-permit Confined Space. Verify elimination or control of other hazards below. Authorize entry by signing below. If initial monitoring and evaluation indicates that there is an actual or potential atmospheric hazard, but the hazard can be controlled through continuous ventilation and it is the only hazard, then the space may be entered under Alternate Entry Procedures (Appendix D).

If the atmospheric hazard cannot be eliminated or controlled then this space must be entered under Confined Space Entry Permit by an approved subcontractor.

☐ No actual or potential atmospheric hazard in space.

☐ *Atmosphere not tested (ambient air only)*

or

☐ *Initial monitoring results are in range.*

☐ Atmosphere in space will remain stable.

☐ Work in space will not degrade air quality.

☐ *Acceptable Atmospheric Quality*

☐ *Acceptable Entry Conditions*

Other internal *e.g., Electrical, mechanical, radiation, engulfment*	*Describe hazards and controls: e.g., LOTO, communications, signs, ladders, lighting and other requirements.* Fall Protection Permit - active restraint (harness & tripod) No Internal Hazards Expected ☐ *Acceptable Entry Conditions*
Introduced by the Work *e.g., Chemicals, hot work, erg, materials*	*Describe hazards and controls: e.g., Safe Work Procedures, specific engineering or administrative controls, PPE, extraction devices and other required permits.* Level D PPE w/ disposable gloves, hard hat, boot cover No ~~Internal~~ Introduced Hazards Expected ☐ *Acceptable Entry Conditions*
External *e.g., Vehicle/foot traffic, drift, spill, combustion engines*	*Describe hazards and controls: e.g., traffic control, coordination of work and remote air monitoring.* Traffic control w/ Flagger, cones, signs ☐ *Acceptable Entry Conditions*

Reclassification: ***Per worksheet above, the authorizing signature below certifies that the space poses no actual or potential atmospheric hazards, all other hazards have been eliminated, no uncontrolled hazards will be introduced, and continuous forced air ventilation is NOT required to maintain the space safe for entry. This PRCS is Reclassified to a "Non-permit Confined Space" per 29 CFR 1910.146(c)(7) for the duration of this Certification. Signature below authorizes entry.*** **List entrants on reverse side (page 2).**

John Jelinski / [signature] / (610) 517-5378 / 5/16/15

Entry Supervisor Printed Name *Signature* *Cell Phone* *Date*

This Certification expires: 5/17/15 ***or when conditions change. If conditions change, exit the space, and call the Entry Supervisor. In case of emergency, call 911 (x7911 from a desk phone).***

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Map ID	Location Name		LBNL ID	Safety Requirements & Permits			Proposed Sampling logistics			Description
				Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
D	SDI-Blackberry Parking Lot	N	SDCBN1170,E1680	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	SDCBN006,3E1910	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
G	SDI-Segre Rd @ B45	N	SDCBS0206,E2799	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	SDCBS0248,E2753 (7756)	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	SDCBS0246,E2564	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37

A-P = Map location

N = New sample location to be added to database

Notes:

Confined Space Training Completed for May 13, 2015.

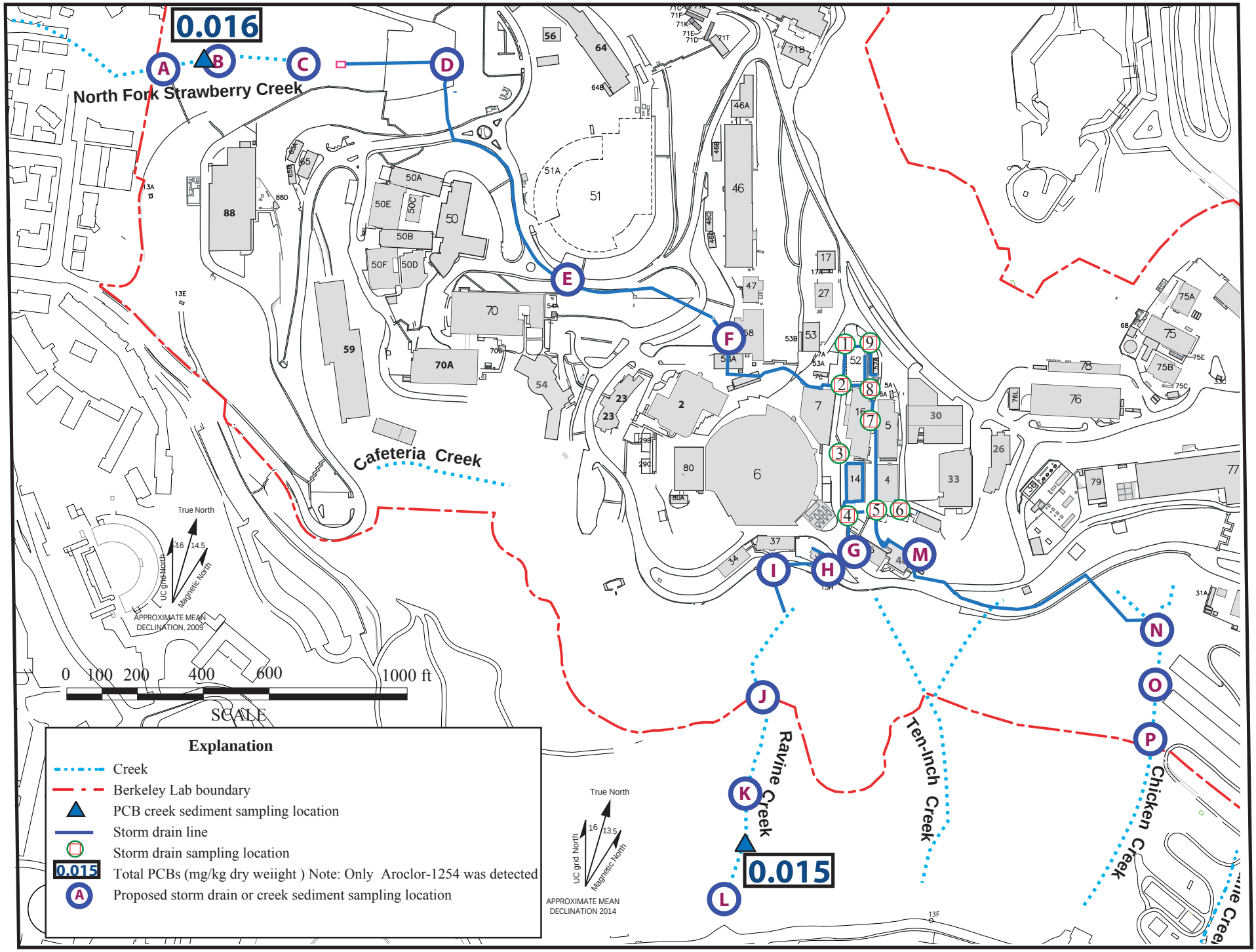
Confined Space Permit Required for access to storm drain inlet locations D, E, G, H, I

Activity Lead is Ron Pauer/John jelinski

Entry Supervisor is John Jelinski

Attendant is John Jelinski

Entrant is Neel Singh



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

Chapter 34, Appendix C
PRCS Reclassification Certification

Location: SDI-Segre Rd w/ B45 Purpose of Entry: Collect Sediment Sample

LBNL CS Inventory ID: _____ LBNL Activity Lead: Ron Paver / John Jelinski

* See attached map

Hazards	Evaluation and Elimination/Control of Hazards
Atmospheric internal *O2 deficiency, Combustibles, CO, H2S, Other*	***Four Gas Meter Info and Results***

☐ ~~RKI GX-2003 Meter Serial #~~		
☒ Other meter Mfg/Model Serial #		QRAE II
Calibration Date		
Daily Function Test Pass		(Initial)
Top	1 Oxygen 19.5% - 23.5%	%
	2 Methane <10% LEL	%
Mid	3 CO <25ppm	ppm
	4 H2S <10ppm	ppm
bottom	Other Contaminant	
	Signature	
	Date/Time of readings	

[Record monitoring results in space above.]

If all hazards inherent to the space can be eliminated, this entry may be conducted as a Reclassification to Non-permit Confined Space. Verify elimination or control of other hazards below. **Authorize entry by signing below.** If initial monitoring and evaluation indicates that there is an actual or potential atmospheric hazard, but the hazard can be controlled through continuous ventilation and it is the only hazard, then the space may be entered under Alternate Entry Procedures (Appendix D).

If the atmospheric hazard cannot be eliminated or controlled then this space must be entered under Confined Space Entry Permit by an approved subcontractor.

☐ No actual or potential atmospheric hazard in space.

☐ *Atmosphere not tested (ambient air only)*

or

☐ *Initial monitoring results are in range.*

☐ Atmosphere in space will remain stable.

☐ Work in space will not degrade air quality.

☐ ***Acceptable Atmospheric Quality***

Other internal *e.g., Electrical, mechanical, radiation, engulfment*	*Describe hazards and controls: e.g., LOTO, communications, signs, ladders, lighting and other requirements.* Fall Protection Permit w/ active restraint (harness & tripod) No Internal Hazards Expected	☐ ***Acceptable Entry Conditions***
Introduced by the Work *e.g., Chemicals, hot work, erg, materials*	*Describe hazards and controls: e.g., Safe Work Procedures, specific engineering or administrative controls, PPE, extraction devices and other required permits.* Level D PPE w/ disposable gloves, hard hat, shoe boot No Introduced Hazards Expected	☐ ***Acceptable Entry Conditions***
External *e.g., Vehicle/foot traffic, drift, spill, combustion engines*	*Describe hazards and controls: e.g., traffic control, coordination of work and remote air monitoring.* Traffic Control w/ signs, cones, flagger	☐ ***Acceptable Entry Conditions***

Reclassification: ***Per worksheet above, the authorizing signature below certifies that the space poses no actual or potential atmospheric hazards, all other hazards have been eliminated, no uncontrolled hazards will be introduced, and continuous forced air ventilation is NOT required to maintain the space safe for entry. This PRCS is Reclassified to a "Non-permit Confined Space" per 29 CFR 1910.146(c)(7) for the duration of this Certification. Signature below authorizes entry.*** **List entrants on reverse side (page 2).**

John Jelinski	[signature]	(510) 517 5378	5/16/15
Entry Supervisor Printed Name	*Signature*	*Cell Phone*	*Date*

This Certification expires: 5/17/15 ***or when conditions change. If conditions change, exit the space, and call the Entry Supervisor. In case of emergency, call 911 (x7911 from a desk phone).***

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Map ID	Location Name		LBNL ID	Safety Requirements & Permits			Proposed Sampling logistics			Description
				Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
D	SDI-Blackberry Parking Lot	N	SDCBN1170,E1680	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	SDCBN006,3E1910	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
G	SDI-Segre Rd @ B45	N	SDCBS0206,E2799	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	SDCBS0248,E2753 (7756)	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	SDCBS0246,E2564	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37

A-P = Map location N = New sample location to be added to database

Notes:

Confined Space Training Completed for May 13, 2015.

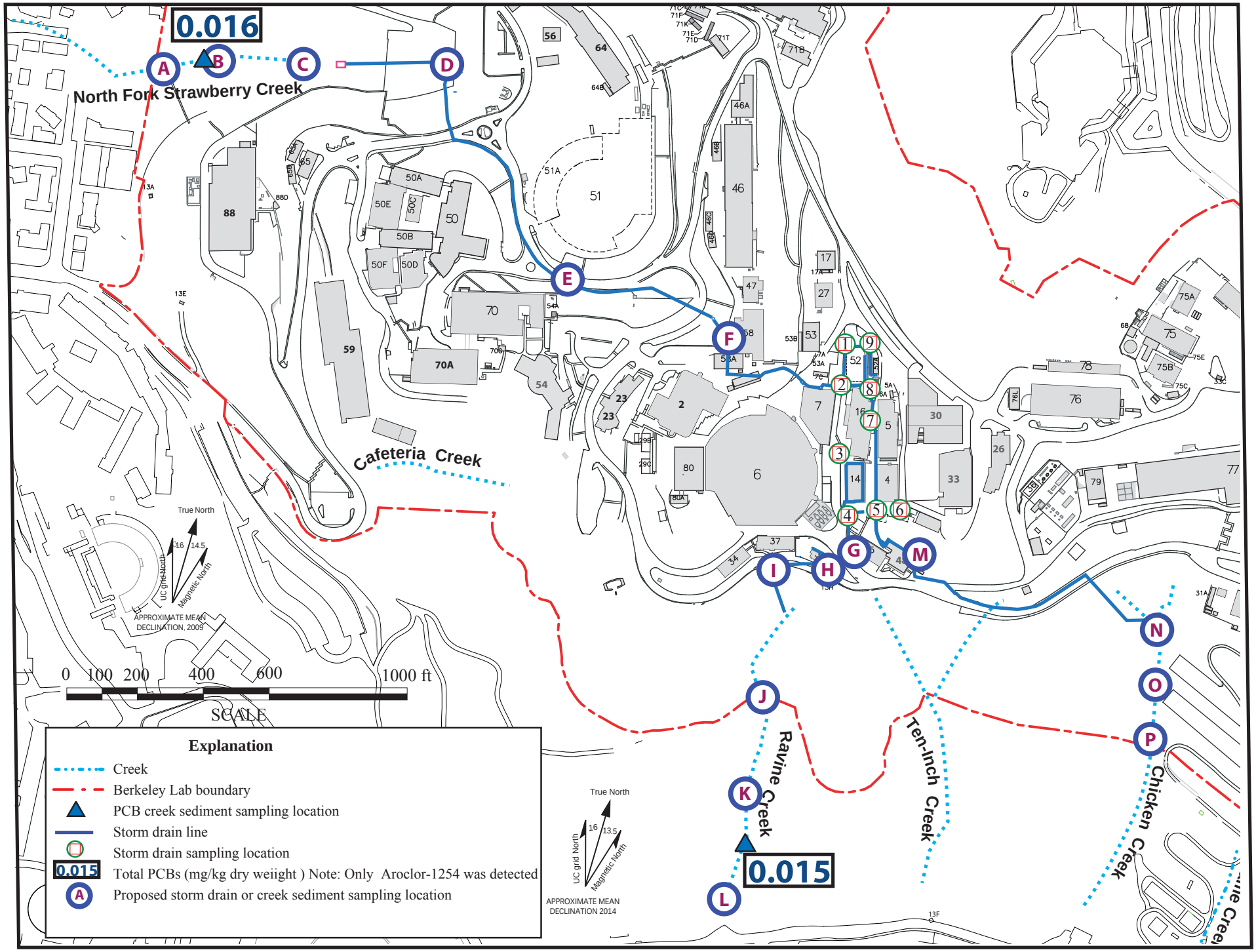
Confined Space Permit Required for access to storm drain inlet locations D, E, G, H, I

Activity Lead is Ron Pauer/John jelinski

Entry Supervisor is John Jelinski

Attendant is John Jelinski

Entrant is Neel Singh



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

Chapter 34, Appendix C
PRCS Reclassification Certification

Storm drain inlet

Location: Smoot Rd @ B70 **Purpose of Entry:** Collect Sediment Sample

LBNL CS Inventory ID: _____ **LBNL Activity Lead:** Ron Pauer / John Jelinski

* See Attached map

Hazards	Evaluation and Elimination/Control of Hazards
Atmospheric internal *O2 deficiency, Combustibles, CO, H2S, Other*	***Four Gas Meter Info and Results***

☐ ~~RKI GX-2003 Meter Serial #~~		
☒ Other meter Mfg/Model Serial #		QRAE II
Calibration Date		
Daily Function Test Pass		(Initial)
Top	1 Oxygen 19.5% - 23.5%	%
	2 Methane <10% LEL	%
Mid	3 CO <25ppm	ppm
	4 H2S <10ppm	ppm
bottom	Other Contaminant	
	Signature	
	Date/Time of readings	

[Record monitoring results in space above.]

If all hazards inherent to the space can be eliminated, this entry may be conducted as a Reclassification to Non-permit Confined Space. Verify elimination or control of other hazards below. Authorize entry by signing below. If initial monitoring and evaluation indicates that there is an actual or potential atmospheric hazard, but the hazard can be controlled through continuous ventilation and it is the only hazard, then the space may be entered under Alternate Entry Procedures (Appendix D).

If the atmospheric hazard cannot be eliminated or controlled then this space must be entered under Confined Space Entry Permit by an approved subcontractor.

☐ No actual or potential atmospheric hazard in space.

☐ *Atmosphere not tested (ambient air only)*

or

☐ *Initial monitoring results are in range.*

☐ Atmosphere in space will remain stable.

☐ Work in space will not degrade air quality.

☐ ***Acceptable Atmospheric Quality***

Other internal *e.g., Electrical, mechanical, radiation, engulfment*	*Describe hazards and controls: e.g., LOTO, communications, signs, ladders, lighting and other requirements.* Work will be done under a fall Protection Permit w/ Active Restraint (harness/tripod) No Internal Hazards Expected ☐ ***Acceptable Entry Conditions***
Introduced by the Work *e.g., Chemicals, hot work, erg, materials*	*Describe hazards and controls: e.g., Safe Work Procedures, specific engineering or administrative controls, PPE, extraction devices and other required permits.* Level D PPE w/ disposable gloves hard hat, shoe booties. No Introduced Hazards Expected ☐ ***Acceptable Entry Conditions***
External *e.g., Vehicle/foot traffic, drift, spill, combustion engines*	*Describe hazards and controls: e.g., traffic control, coordination of work and remote air monitoring.* Traffic Control signs, cones, flagger will be used. ☐ ***Acceptable Entry Conditions***

Reclassification: ***Per worksheet above, the authorizing signature below certifies that the space poses no actual or potential atmospheric hazards, all other hazards have been eliminated, no uncontrolled hazards will be introduced, and continuous forced air ventilation is NOT required to maintain the space safe for entry. This PRCS is Reclassified to a "Non-permit Confined Space" per 29 CFR 1910.146(c)(7) for the duration of this Certification. Signature below authorizes entry.*** **List entrants on reverse side (page 2).**

John Jelinski	[signature]	510 517-5378	5/16/15
Entry Supervisor Printed Name	*Signature*	*Cell Phone*	*Date*

This Certification expires: 5/17/15 ***or when conditions change. If conditions change, exit the space, and call the Entry Supervisor. In case of emergency, call 911 (x7911 from a desk phone).***

BERKELEY LAB

Environment / Health / Safety DIVISION
Environmental Services

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Map ID	Location Name		LBNL ID	Safety Requirements & Permits			Proposed Sampling logistics			Description
				Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
D	SDI-Blackberry Parking Lot	N	SDCBN1170,E1680	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	SDCBN006,3E1910	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
G	SDI-Segre Rd @ B45	N	SDCBS0206,E2799	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	SDCBS0248,E2753 (7756)	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	SDCBS0246,E2564	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37

A-P = Map location

N = New sample location to be added to database

Notes:

Confined Space Training Completed for May 13, 2015.

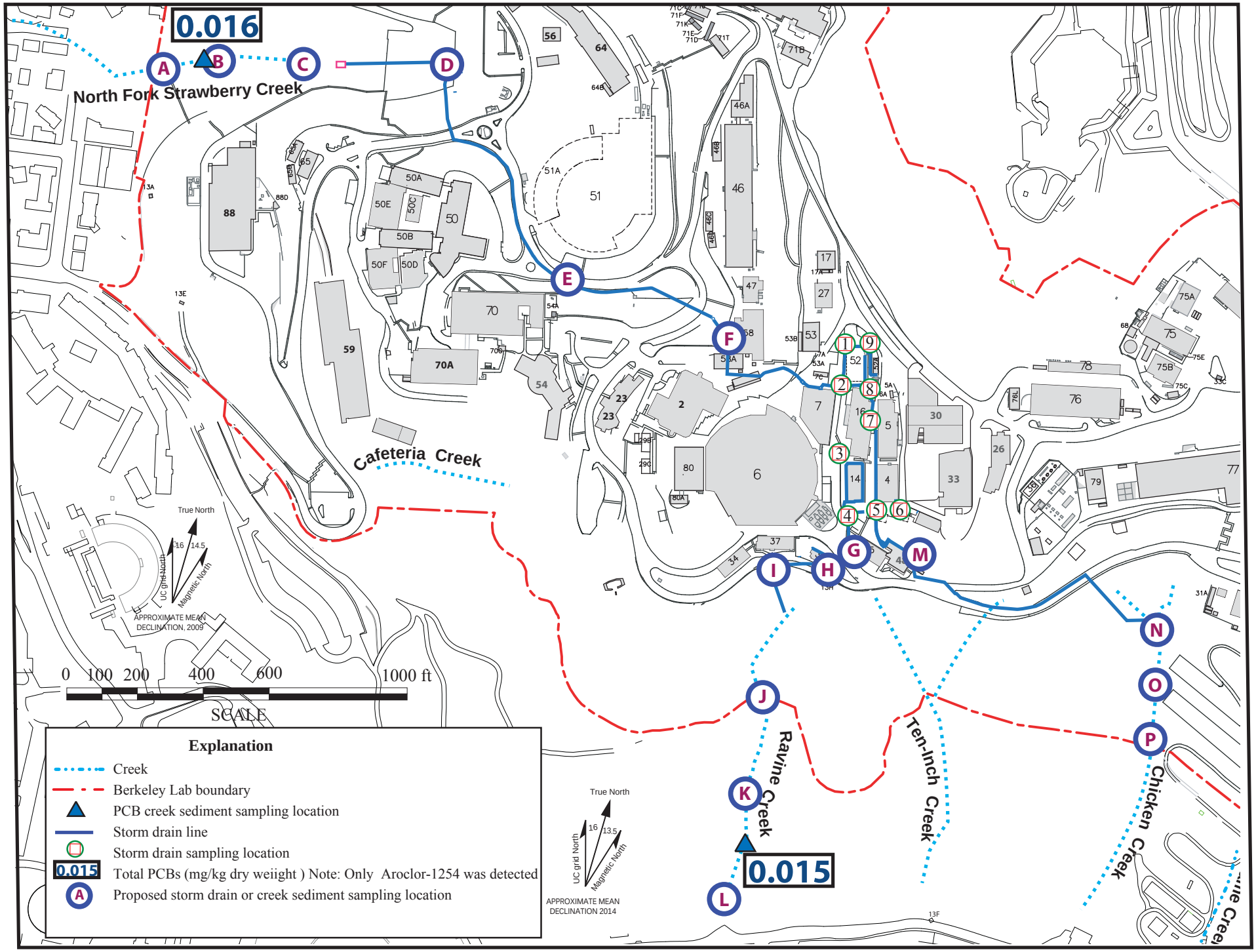
Confined Space Permit Required for access to storm drain inlet locations D, E, G, H, I

Activity Lead is Ron Pauer/John jelinski

Entry Supervisor is John Jelinski

Attendant is John Jelinski

Entrant is Neel Singh



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.

LBNL FALL PROTECTION PERMIT

CHECK OR MARK APPROPRIATE BOXES WITH PFAS DETAILS

Co : LBNL ESG

Sub:

WO#

Adapted for LBNL 10-5-06

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
☐ **Open Sides:** ☐ Floors or Platforms ☐ Stairs ☐ Catwalks ☐ Scaffolds ☐ Unguarded Machinery & Cranes															
☐ **Wall Openings:**															
☐ **Floor Openings** ☐ Hatchway ☐ Manhole ☐ Pit ☐ Tank ☐ Shaft ☐ Skylight ☐ Attic															
☐ **Leaving the Guarded Floor Surface:** of a ☐ Manlift (Any Type) ☐ Scaffold ☐ Catwalk ☐ Platform															
☐ **Working from inside a Properly Guarded Man-lift:** (Scissor, Boom, Bucket, Articulating)															
☐ **Working from a Suspended Platform:** ☐ Swing Stage ☐ Manbasket ☐ Boatswain's Chair ☐ Descent Harness															
☐ **Fixed Ladder:** ☐ Working with Both hands															
☐ **Portable Ladder:** ☐ Working with Both hands															
☐ **Working on Steeply Sloping Roofs or Surfaces** (> 4:12 pitch)															
☐ **Working on Flat or Low Slope Roofs or Surfaces:** ☐ Active PFAS **or** Passive SYS.☐ Non-Conforming Guardrails ☐ Warning Lines															
☐ **Structural Climbing:** (Bridge, Roof Truss, Towers, Drilling Rig, Pile Driver)															
☒ **Hillsides with slopes > 1.5 to 1 slope (53 Degrees) , or sloping into on coming traffic or machinery**				3											
☐ **Other, Describe:**															

Step I: Assess the Fall Hazard

☒ ≥ 4ft. Gen.Industry or 6ft. Construction
☐ Landing Hazard: (Machinery, Liquids, Debris, Chemicals)

Height >6 ft.

STEP V: Enter dates (s), work description, and

Worksite Location: Chicken creek

Work Dates: 5/13/15-5/27/15

1day ☐ 1 week ☐ 2 weeks ☒ 1month ☐ add_____

Work Task(s): Sampling Creek Bed

Sign and Print Names of Employees Protected by this Plan and Authorized to Execute the Work Task

Neel Singh

Supervisor:

Work Lead: John Jelinski

Superintendent:

Signature of Competent Person Preparing Plan

Matt Rice

Signature of Qualified Person/Pro. Engineer
Approving System or Anchors

Step II: Select a fall hazard control (s)

Step III: Select/Confirm/Record Details of the fall hazard controls

Step IV: Qualifications/Inspections/Approvals

STEP 1: CHECK HAZARD CONTROLS STEP 2: NUMBER CONTROL INSPECTIONS, TRAINING, AND APPROVALS

STEP 3: RECORD DETAILS OF HAZARD CONTROLS STEP 4: CHECK TASK DESCRIPTION, AND SIGNATURES OF AUTHORIZED-PERSONS

STEP 5: ENTER WORK DATE(S), WORK TASK DESCRIPTION

- This permit provides general guidance only. It must only be used by trained and competent persons who have knowledge of the precise requirements of the applicable legislation. This form guides planning of fall protection ONLY - protective equipment and procedures for other types of hazards must also be in place.
- TO USE: Proceed clockwise - record all required details.

NOTE RED DOTS REPRESENT REGULATORY REQUIREMENTS

Inspect all Equipment and Systems Prior to Each Use	All Persons Have Been Properly Trained and Briefed	Approved or Installed By a Qualified or Competent Person	Designed or Approved by a Professional Engineer		Eliminate the Hazard or the Reason for Being There ☐	Traditional Fall Protection: ☐ (Guardrails/Ladder Cages/Slide Guard	Floor/Hole/Hatch Cover: ☐ (Secured in Place, Marked)	Fall Restraint System: ☐ (Harness/Belt, Lanyard/Lifeline & Anchr	Fall Arrest System: ☐ Direct Coupled to Anchor (Lanyard)	☐ Ladder Climbing System	☐ SRL System	☐ Vertical Lifeline System	☐ Horizontal Rigid Rail System	☐ Permanent Horizontal Lifeline Syster	☐ Temporary Horizontal Lifeline System	☐ Lead Climbing Techniques (2 Person)	Waning Line systems: ≥ 6ft. ☐ ≥ 15ft. ☐	Control Zone: ☐ NCG ☐ CAZ ☐ Safety Monitor Requi	Fall Protection Plan: ☐ Infeasibility Plan ☐ Roofer Exemption/1926.501(b)
☒	☒	☒	☐																
●	●	●	●	**Guardrails:** 42 inches (1.1m) plus or minus 3 inches (8cm) above the walking working level. Mid-rail at midway of top edge and suface.		①													
●	●	●	●	**Ladder Cages:** (Landings every 30 ft. in General Industry, 50 ft. in Construction)		②													
●	●	●	●	**Floor/Hole Hatch covers:** (2 x Heaviest Worker, Vehicle or other Load, Minimum 200 lbs.)			●												
●	●	●	●	**Slide Guards** (Minimum 4" at roof eave)		①													
●	●	●	●	**Select Anchorage:** ☐ > 5000 lbs. Describe: At base of tree or fence post				①	①	①	①	①							
●	●	●	●	☐ Strength Factor of Safety >2 Describe: w/beam-strap and RGS system.				②	②	②	②	②	●	●	●	●			
●	●	●	●	☒ 4 x intended load, minimum 800 lbs. Describe:				③											
●	●	●	●	**Body Support:** ☒ Full Body Harness, Dorsal Attachment to the Fall Arrest System				ⓐ	●	●	●	●	●	●	●	●			
●	●	●	●	☐ Waist Belt *("Used Only"! As part of a positioning device system)*				ⓑ											
	●	●	●	**Estimate Required Clearance:** (N/A ft. Free Fall) + (ft. Lockoff & Deceleration) + 3 ft (Stretch + Buffer) = ft.					●	●	●	●	●	●	●	●			
	●	●	●	**Measure Available Clearance:** N/A ft.) ☐ Exceeds Estimated Clearance Requirement (Safe)					ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ	ⓐ			
	●	●	●	**Negative Fall Calculation:** (N/A ft.) ☐ Less Than Estimated Clearance Requirement (Caution)					ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ	ⓑ			
	●	●	●	**Fall Protection Plan:** ☐ Written Work Procedures Posted (Available at the Worksite)														●	●
	●	●	●	☐ Controlled Access Zone Defined by: ☐ Warning Line System ☐ Other:													●	②	②
	●	●	●	☐ Safety Monitor Name or Other Designation:													●	①	①
●	●	●	●	**Rescue & Emergency Provisions:** ☒ Phone Number: 510-486-7911 ☒ Emergency Radio: Brendan Mulholland				●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	**Emergency Egress System or Plan:** Details: Fire Pull # N/A ☒ Radio check every 30 minutes				●	●	●	●	●	●	●	●	●	●	●	●

INSTRUCTIONS HERE!

Old Town Demolition Project Sample Plan

Program	Waste Soil Disposal
Operation	Old Town Demolition Project, 5/16/2015
Project ID	101218-045

Location Name			Safety Requirements & Permits			Proposed Sampling logistics			Description
Map ID			Fall Protection	Confined Space	Traffic Control	Order	Sampling Equipment	Volume	
C	NF Strawberry Creek-Outfall	N	harness/rope	NO	NO	6	8-16oz cut HDPE	8oz (250ml)	NFS Creek @ Outfall below Blackberry Parking Lot
D	SDI-Blackberry Parking Lot	N	harness/tripod/guardrail	YES	NO	5	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet, Blackberry parking lot, east side
E	SDI-Smoot Rd @ B70	N	harness/tripod/guardrail	YES	cones/flagger	4	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Smoot Rd @ Seaborg Rd
F	SDI-B58	N	guardrail	NO	cones/flagger	15	8oz cut HDPE	≥ 4oz	Storm drain Inlet in front of B58
G	SDI-Segre Rd @ B45	N	harness/tripod/guardrail	YES	cones/flagger	1	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet in front of B45
H	SDI-Lawrence Rd @ B35	N	harness/tripod/guardrail	YES	cones/flagger	2	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B35
I	SDI-Lawrence Rd @ B37	N	harness/tripod/guardrail	YES	cones/flagger	3	dipper/cut HDPE/Scoop	≥ 4oz	Storm drain Inlet on Lawrence Rd in front of B37
M	SDI-B48 (NE)	N	guardrail	NO	NO	16	8-16oz cut HDPE	8oz (250ml)	Storm drain Inlet behind B48 (north east corner)
N	Chicken Creek-Tributary Outfall	N	harness/rope	NO	NO	7	8-16oz cut HDPE	8oz (250ml)	Location below T outfall to tribuatary of Chicken Creek

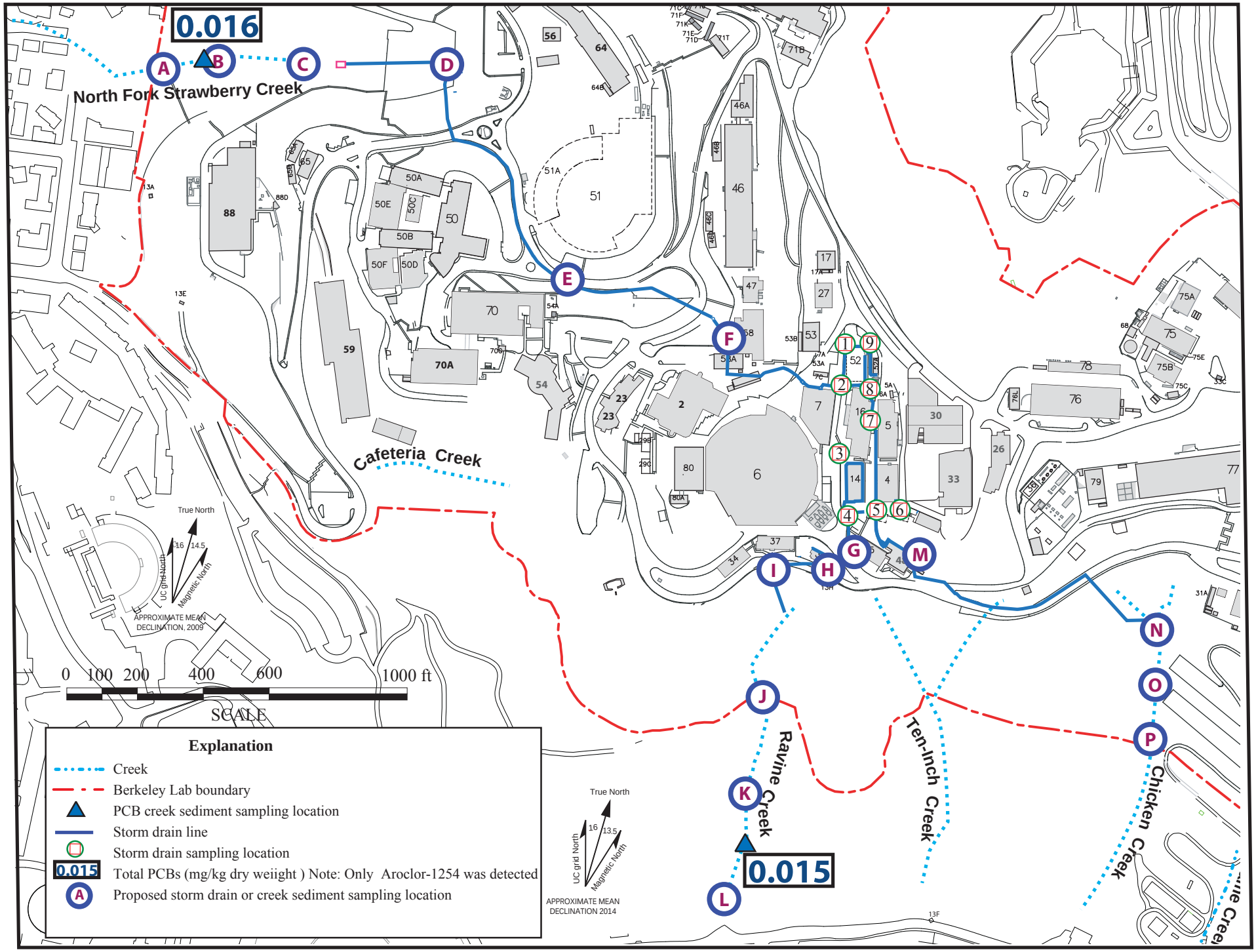
A-P = Map location N = New sample location to be added to database

Notes:

Fall Protection Permit with active restraint (harness/rope system) required for access to Chicken Creek-Trib & N. Fork Strawberry-Outfall (C & N)
** John Jelinski & Neel Singh with be decending hillside & collecting samples. Brendan Mulholland will be on watch at top of hill
** Communication includes 1) active voice, 2) cell phone, & 3) walkie talkies (John Jelinski & Brendan Mulholland)

Fall Protection Permit with active restraint (harness/tripod system with guardrails) required for access to storm drain inlets @ locations D, E, G, H, I
** Neel Singh with be decending into storm drain inlet & collecting samples. John Jelinski will be spotter. Brendan Mulholland will be on traffic control watch
** Communication includes 1) active voice & 2) cell phone. Distance between sampler & spotter is less than 6 feet.
** Full guardrail will be set up around SDI with tripod over center.

Fall Protection Permit with passive restraint (guardrails) required for access to storm drain inlets @ locations SDI-58 & SDI-B48 (F & M)
** John Jelinski & Neel Singh with be collecting samples. WE will not be entering SDI to collect samples. Brendan Mulholland will be on watch.
** Communication includes 1) active voice & 2) cell phone.



Proposed Sediment Sampling Locations for PCBs, Lawrence Berkeley National Laboratory.