

Memorandum

To: Orange County Health Care Agency
Solid Waste Local Enforcement Agency (LEA)
Environmental Health Division
1241 West Dyer Road, Suite #120,
Santa Ana, CA 92705

Date: April 22, 2024

Attention: Dan Weerasekera
Hazardous Materials Specialist III

Project No. CLA.000IR23328

From: Michael Priestaf, PG (CA 9779)
Robin Ferber, PG (CA 5756)

Subject: **Sampling of Soil Mound M and Soil Mound N
Addendum #2 to Final Revised Environmental Sampling
Workplan For Stockpiled Material Testing
6145 East Santiago Canyon Road
City of Orange, Orange County, California**

Sampling of Soil Mound M and Soil Mound N

As requested by the LEA, Leighton will collect representative samples of the irregularly shaped soil mounds in Area K identified by the LEA in early March 2024. Leighton proposes to name the western, approximately east-west striking soil mound, "Mound M" (Figure 1) and the reverse "L"-shaped soil mound to the southeast, "Mound N" (Figure 2).

Based on Geographic Information Systems (GIS) analysis of topographic surveys conducted by Fuscoe Engineering, Inc. (Fuscoe) in June 2022, Leighton estimates that Mound M is approximately 2,480 cubic yards (CY) in volume, and Mound N is approximately 2,955 CY in volume. Based on the DTSC Import Fill Guidance, dated October 2001, Leighton proposes to collect a total of 7 representative samples from 7 borings advanced in Mound M and 8 representative samples from 8 borings advanced in Mound N. Leighton proposes to collect the samples at randomly determined depths, ranging from approximately 1 foot bgs to 7 feet below soil mound surface (bsms) from borings that are approximately evenly distributed across each mound (Figure 3 and Figure 4). Each boring is named for the specific soil mound followed by a unique numeric boring ID e.g. "SPM01," "SPN03," etc. The proposed sample depths in each boring have been randomly determined as follows:

- 1 foot bsms from borings SPM01 and SPM05
- 2 feet bsms from borings SPM02, SPM04, SPN03, and SPN08
- 3 feet bsms from boring SPM07
- 4 feet bsms from borings SPN01 and SPN06
- 5 feet bsms from borings SPN02, SPN04, and SPN07
- 6 feet bsms from boring SPM03 and SPM06
- 7 feet bsms from boring SPN05

The borings will be advanced with either a hand auger or a limited-access direct push rig. The samples will be collected either in stainless-steel tubes with a slide hammer sampler or in acetate liners obtained from a direct push drilling rig and then capped with Teflon sheeting and plastic end caps. Non-dedicated equipment (e.g., the drilling shoe, hand auger, or slide hammer sample core barrel) will be decontaminated before and after each sample is collected by using a three-stage wash of phosphate-free detergent and water, a rinse with potable water, and a final rinse with distilled water.

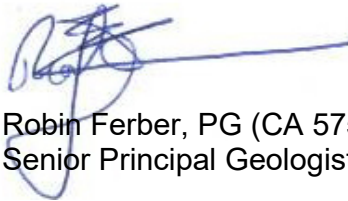
The sample IDs will be determined based on the soil mound of origin, a unique numeric boring ID, and the depth at which the sample was collected e.g., "SPM01-1.0." The samples will be delivered under standard chain-of-custody protocols to the analytical laboratory. Each soil sample will be analyzed within the appropriate holding times by the following analytical methods:

- Total Petroleum Hydrocarbons (TPH) as Diesel (TPH-D) and Motor Oil (TPH-MO) by United States Environmental Protection Agency (USEPA) Method 8015,
- Polycyclic Aromatic Hydrocarbons (PAHs) by USEPA Method 8270C SIM,
- Volatile Organic Compounds (VOCs) and TPH as Gasoline (TPH-G) by USEPA Method 8260 full scan analysis,
- Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270 full scan analysis,
- Title 22 Metals by USEPA Methods 6010B/7471A,
- Organochlorine Pesticides (OCPs) by USEPA Method 8081,
- Organophosphorus Pesticides (OPPs) by USEPA Method 8141,
- Chlorinated Herbicides by USEPA Method 8151A,
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082,
- Asbestos by USEPA Method 600/R93-116,
- pH by USEPA Method 9045.

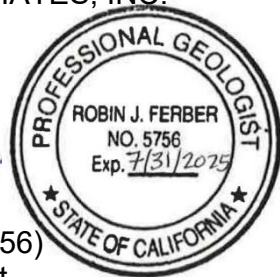
Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

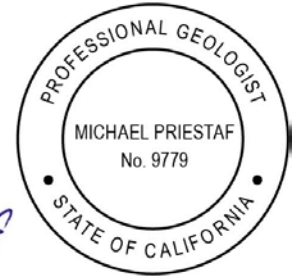
LEIGHTON AND ASSOCIATES, INC.



Robin Ferber, PG (CA 5756)
Senior Principal Geologist



Michael J. Priestaf, MS, PG (CA 9779)
Project Geologist



Attachments: Figure 1 – Soil Mound M Boring Location Map
Figure 2 – Soil Mound N Boring Location Map
Appendix A – DTSC Information Advisory Clean Imported Fill Material

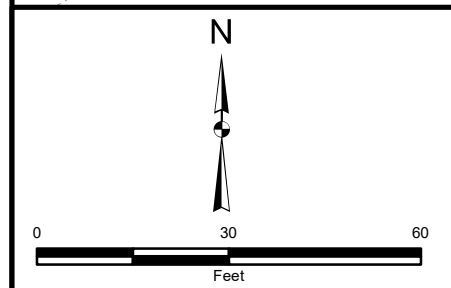
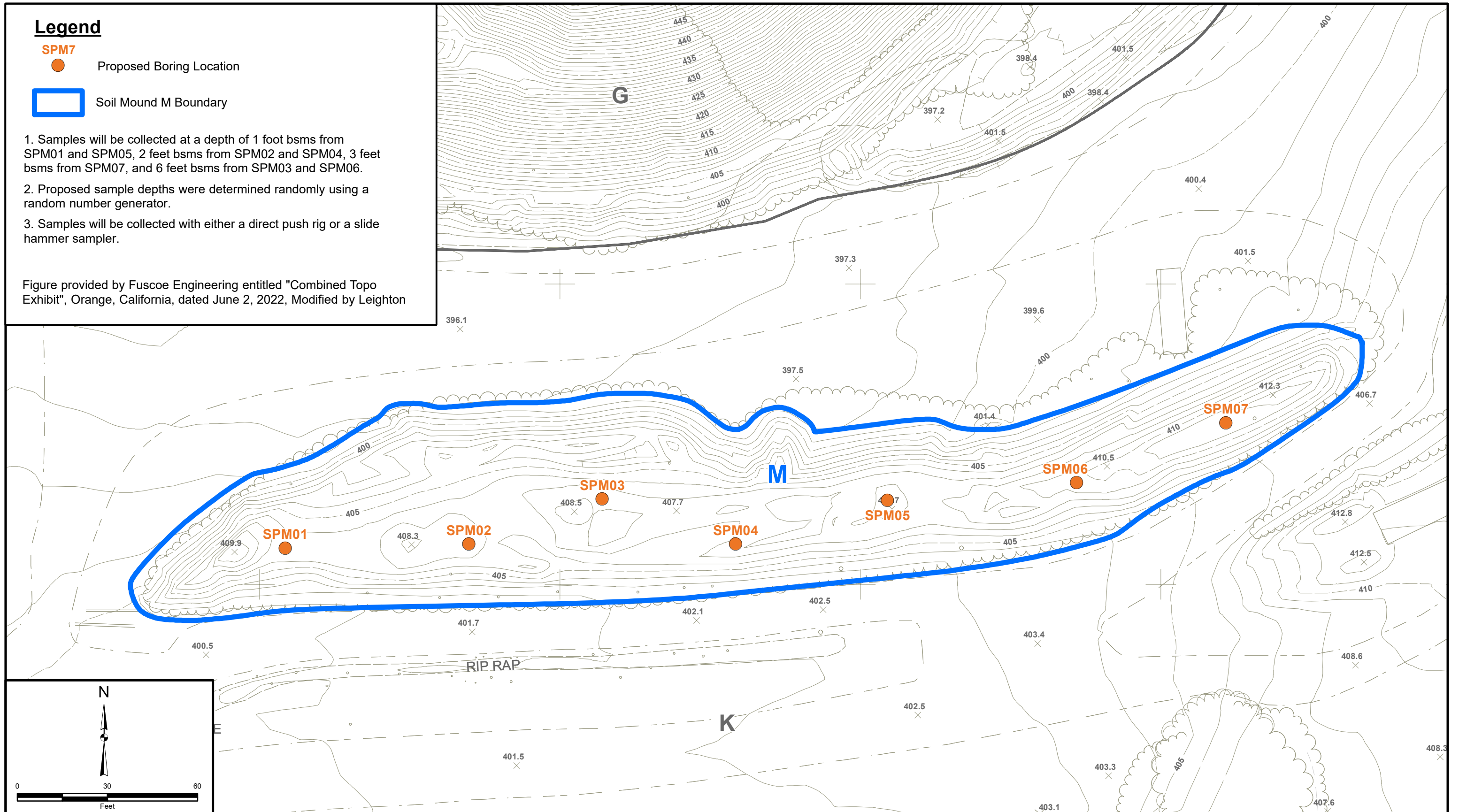
Copies: Chris Nichelson (Milan)
Bret Bernard (Milan)
Diane Scioli (Milan)
Pete Duchesneau, Esq., (Manatt)
David McGrath, Esq. (Manatt)

Legend

- SPM7**
● Proposed Boring Location
- Soil Mound M Boundary

1. Samples will be collected at a depth of 1 foot bsms from SPM01 and SPM05, 2 feet bsms from SPM02 and SPM04, 3 feet bsms from SPM07, and 6 feet bsms from SPM03 and SPM06.
2. Proposed sample depths were determined randomly using a random number generator.
3. Samples will be collected with either a direct push rig or a slide hammer sampler.

Figure provided by Fuscoe Engineering entitled "Combined Topo Exhibit", Orange, California, dated June 2, 2022, Modified by Leighton



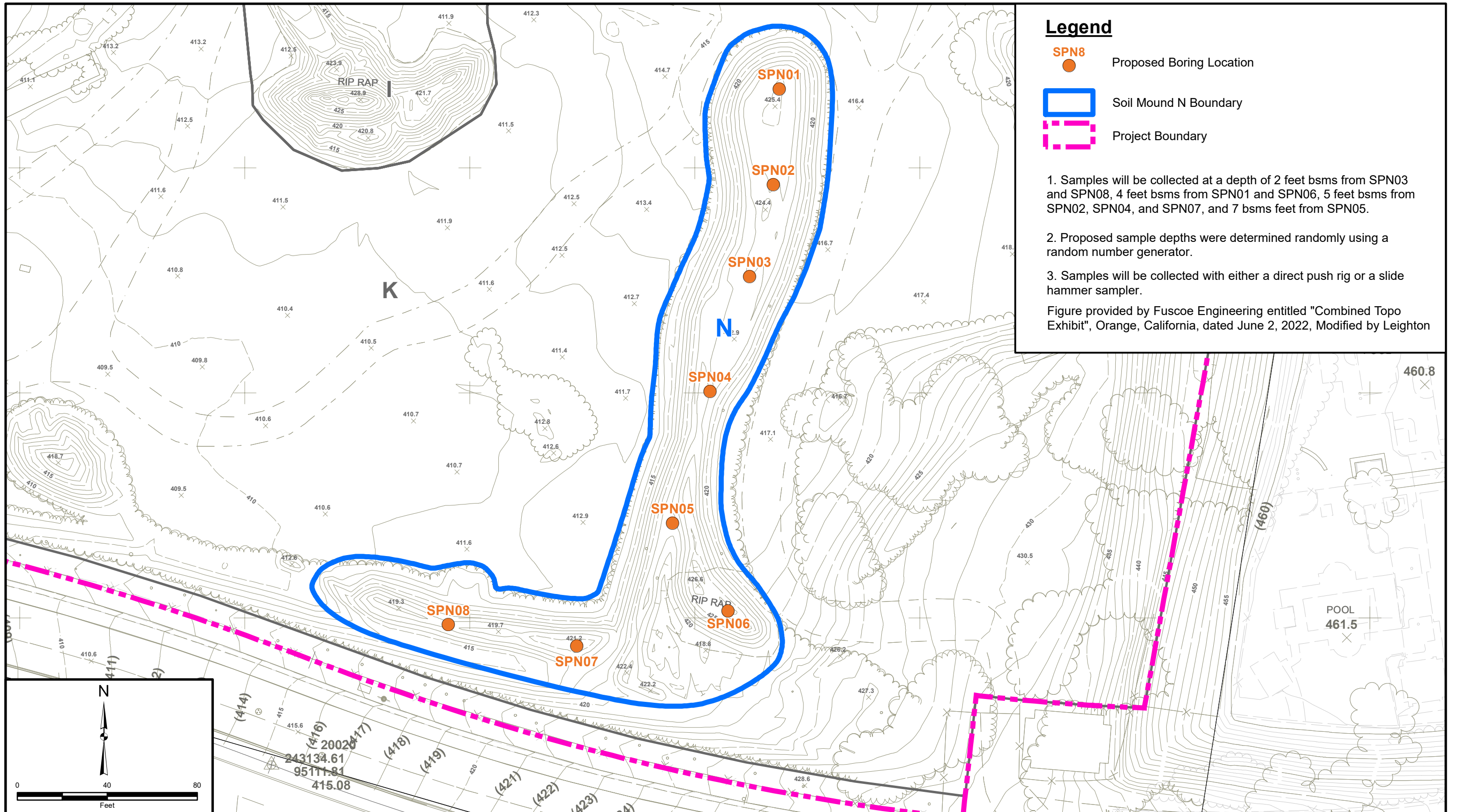
Project: 23328	Eng/Geol: RF/MJP
Scale: 1" = 30'	Date: March 2024
Author: (mmurphy)	

SOIL MOUND M BORING LOCATION MAP

6145 East Santiago Canyon Road
City of Orange, Orange County, California

FIGURE 1





Project: 23328	Eng/Geol: RF/MJP
Scale: 1" = 40'	Date: March 2024
Author: (mmurphy)	

SOIL MOUND N BORING LOCATION MAP

6145 East Santiago Canyon Road
City of Orange, Orange County, California

FIGURE 2



Information Advisory

Clean Imported Fill Material



October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California



California
Environmental
Protection Agency



Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed.

It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.dtsc.ca.gov.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contami-

nation and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:

Target Compounds

Land near to an existing freeway	Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)
Land near a mining area or rock quarry	Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH
Agricultural land	Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)
Residential/acceptable commercial land	VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area

Sampling Requirements

2 acres or less

Minimum of 4 samples

2 to 4 acres

Minimum of 1 sample every 1/2 acre

4 to 10 acres

Minimum of 8 samples

Greater than 10 acres

Minimum of 8 locations with 4 subsamples per location

Volume of Borrow Area Stockpile

Samples per Volume

Up to 1,000 cubic yards

1 sample per 250 cubic yards

1,000 to 5,000 cubic yards

4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards

Greater than 5,000 cubic yards

12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary

to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all com-

pounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.