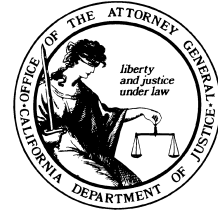




CALIFORNIA DEPARTMENT OF JUSTICE
BUREAU OF FORENSIC SERVICES
PHYSICAL EVIDENCE BULLETIN



COLLECTION OF SOIL SAMPLES

INTRODUCTION:

Naturally occurring soil is a complex and changing mixture of living organisms, decaying organic matter, air, water, and relatively stable rock and mineral fragments such as clay and sand. Although there are many different types of soils in the state of California, specific local areas contain relatively few of these varieties. Each type may exist for a few square yards or for many square miles with the amount of variation in a single soil being quite limited. Hence, it is not feasible to exactly pinpoint the origin of a particular naturally occurring soil sample, but rather to relate it to areas of occurrence.

Soil samples may also contain debris from human habitation or industrial operations. The latter type of debris; e.g., paint droplets, cinders, chemicals or fibers, if sufficiently varied and unique, can be most valuable in individualizing a specimen. Soil samples containing such unusual features can be excellent and unexpected physical evidence. Consequently, all soil samples should be submitted in anticipation that this rare occurrence may actually happen.

Not only do the character and composition of soils vary laterally, but also with depth. Unless a crime is committed which involves the digging of a grave, most samples for soil comparison will be from the top surface. Although the color and texture of soils visually do not appear to vary along the ground, the chemical composition can change sufficiently in a short distance, so that it may be significant in localizing the source of the soil sample. Therefore, sufficient samples should be submitted in order to establish the normal distribution of soil of a particular type in and about a crime scene.

PROCEDURE:

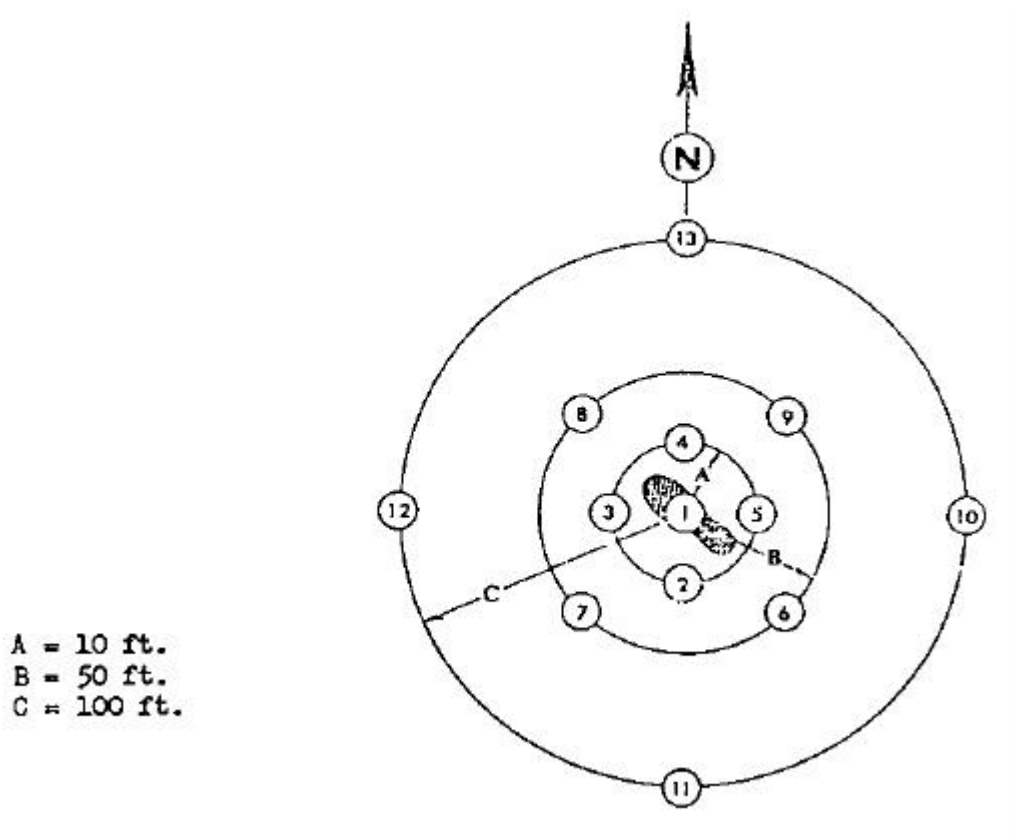
Impressions - Insure that impressions in soil such as footprints or tire tread patterns are photographed with a scale and a plaster cast made before disturbing the footprint in any manner (see PEB 23 Rev. '98). Impression evidence is frequently much more positive than a soil comparison.

Suspect Samples - A tablespoonful is sufficient quantity for a soil comparison. If the soil is firmly attached to some object **do not remove**, but AIR DRY and place the object in a paper bag or other appropriate container, seal and label. Loose soil or sand can be swept onto a clean piece of paper which is then folded to enclose the specimen and, when completely dried, sealed in an appropriate container, and labeled as to source.

Comparison Samples - Obtain samples consisting of at least three (3) tablespoonfuls of soil from each area where the suspect is known, or is believed to have been at the scene, including any "alibi" sites provided. Comparison samples must be representative. If, for example, suspect shoes have been recovered and soil is present on the shoes, recover a soil sample from the area of the footprint that

corresponds to the location of the soil on the shoes. If soil on the shoes appears to be from the surface where the footprints are found, collect surface samples (top quarter inch). If the soil may be from an excavation of some type, collect specimens at many different depths and mark the depth at which each was recovered.

It is also advisable to collect samples from other locations in the vicinity of the crime scene, so that the laboratory can determine how much variation there is in the soil of that area. In, for example, a yard, collect from several areas in the yard and also from adjoining property. In open areas the following systematic method for recovery of soil samples can be used:



Start at point number 1 (footprint, tire impression, area of obvious scuffle, etc.) and obtain soil samples at each point, 1 through 13. Each sample should be numbered to correspond with the number on the diagram. Record a description of the physical location from where the soil sample was collected (e.g., ditch) and note any unusual conditions in the vicinity (e.g., close to petroleum tank).

Always air dry out damp soil samples prior to packaging or mold growth will occur. Seal the dry sample in a pill box or vial and label **completely** as to location recovered, officer collecting, date, time, etc.

Submission - Collect samples as soon after the event as possible, before any changes in the site can occur. Submit samples personally or by mail as soon as possible to your nearest Regional Criminalistics Laboratory.