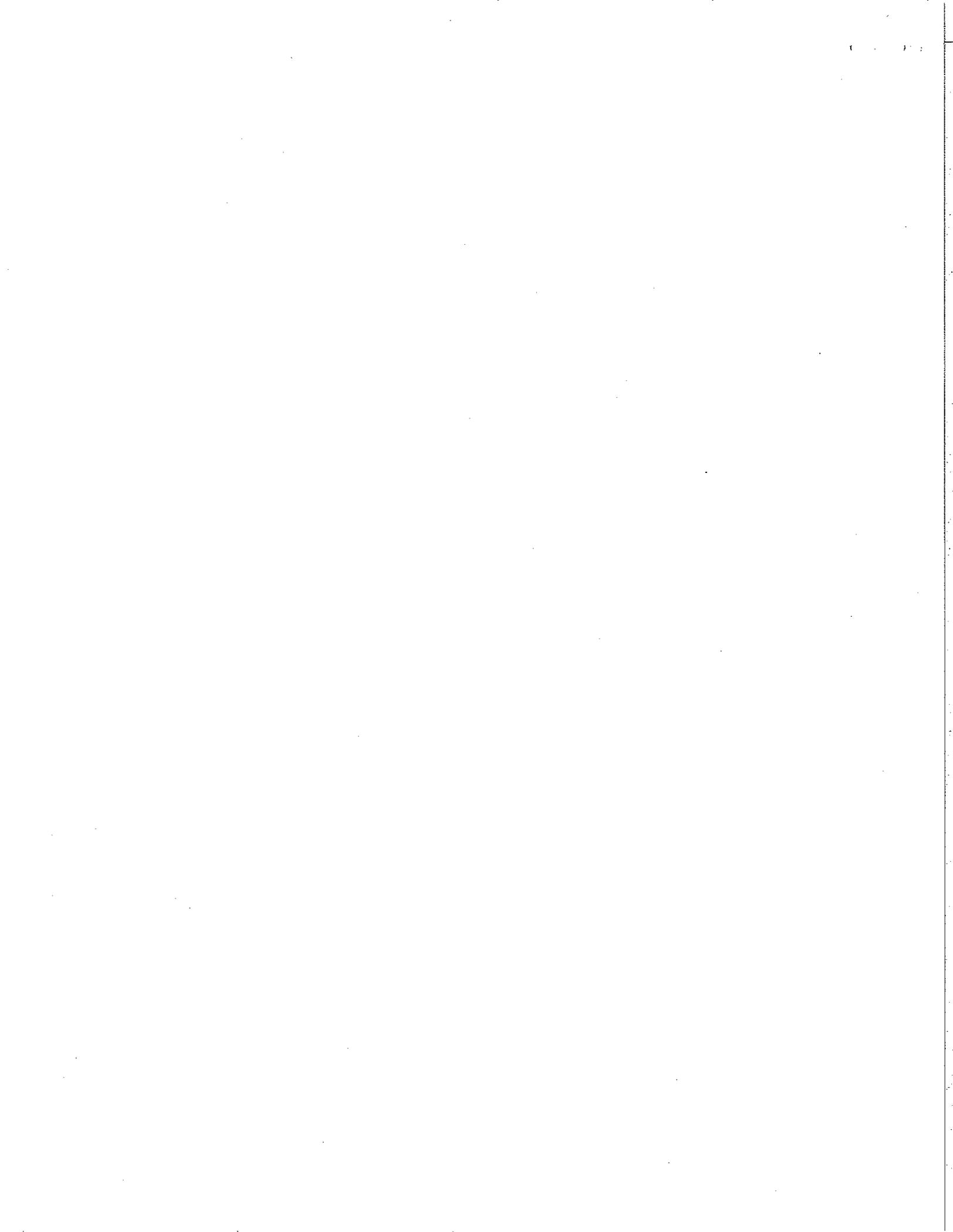


**BASIC REMEDIATION COMPANY
STANDARD OPERATING PROCEDURES
BMI COMMON AREAS
CLARK COUNTY, NEVADA**

SOP-12

**SURFACE SOIL SAMPLING
FOR ASBESTOS**

(Revised October 15, 2009)

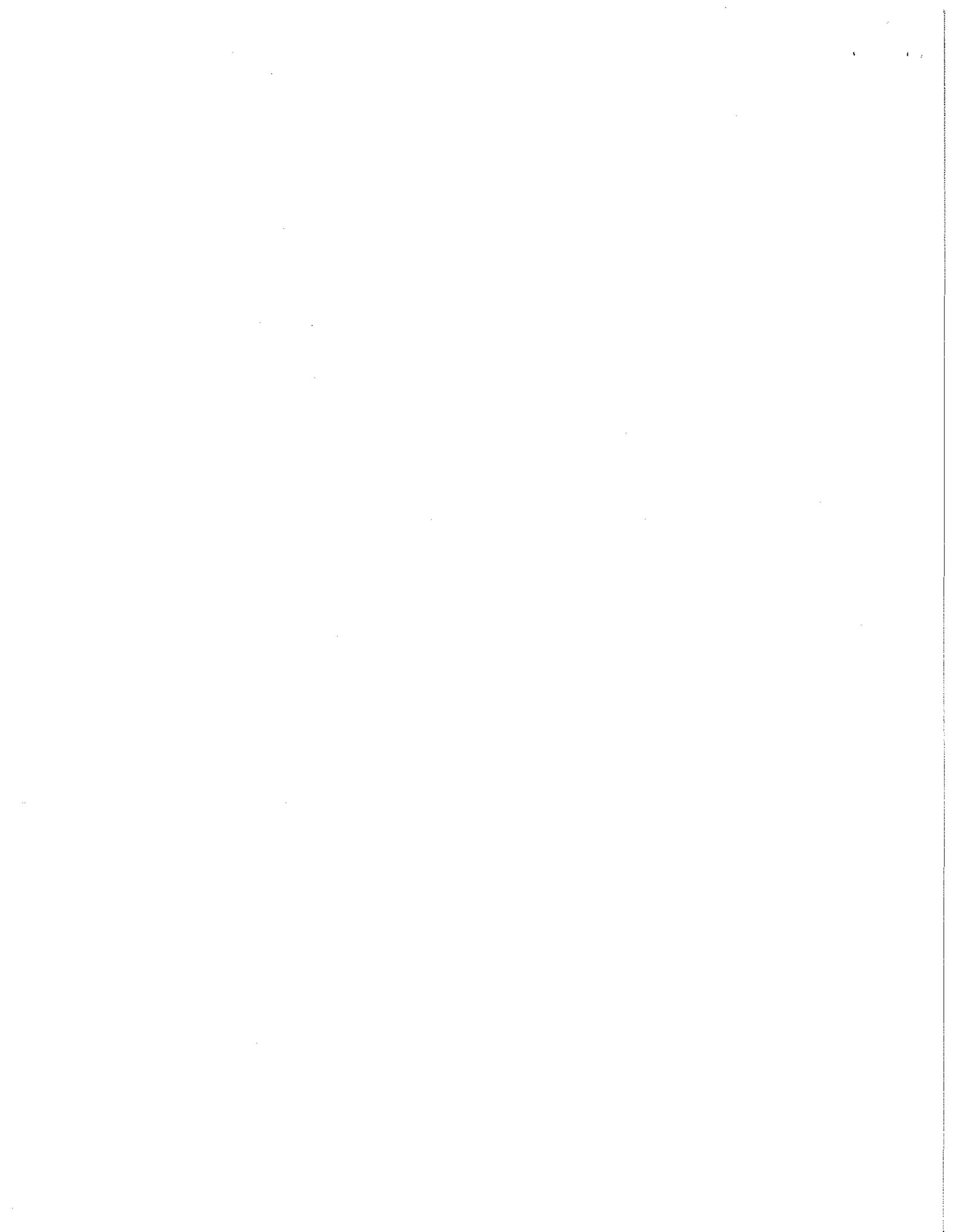


STANDARD OPERATING PROCEDURES

**SOP-12
SURFACE SOIL SAMPLING FOR ASBESTOS**

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1.0 SAMPLE COLLECTION PROCEDURES

Each selected sampling location is to serve as the center of a 50 feet by 50 feet sampling grid, which is to be further divided into four quadrant grid squares that are each 25 feet on a side. Samples to be collected for determination of asbestos, silt, and moisture content are composites constructed from four component samples with each component collected from a pre-selected, random location from within each of the four grid squares (quadrants) of the sampling grid. The manner in which each sample type is to be collected, prepared, labeled, and packaged is described below.

Surface samples shall be collected by:

1. At each defined (random) location within each of the four grid squares, the surface to be sampled (a square area that is approximately 1 foot on a side) is first to be cleared of vegetation, biological debris, stones, and any construction debris that is obviously non-asbestos containing material [ACM]). Gently hand-pick these materials and remove them from the sampling area. If the area to be sampled is heavily vegetated, it may first be cleared using a scythe or other cutting tool;
2. Once cleared, use a 12-inch by 12-inch ridged template frame and a clean trowel in a reproducible manner to scrape material from a one-inch depth centered on the identified sampling location. The volume of soil from each sub-location should be roughly equal and of sufficient volume that the resultant total is adequate to fill two 8-ounce glass jars;
3. Gently pour the material from the trowel into a clean resealable plastic bag. If the presence of a large piece of debris, rock, or other solid object is picked up by the trowel but is too large to reasonably include within the indicated sample volume (*i.e.*, if it comprises more than one half of the volume of the sample), remove the object, characterize it as potential ACM or non-ACM and note the modification to the sample in the field log. Also, continue filling the sample container to replace the volume removed. If the object is not ACM, it may be discarded. If the object is ACM, it should be separately bagged, labeled, and shipped to the laboratory as an object associated with the particular sample;
4. Combine all four component samples of a particular composite into the same sample resealable plastic bag. Once filled, it is important to create an air-tight seal on the sampling container. Thus, be sure to seal the plastic bag completely, test it to be sure that the seal is air tight, then mix the contents of the bag;
5. Place the contents of the plastic bag into two 8-ounce jars and seal tightly. Two containers (A/B split) are collected for analytical purposes, and are not intended for duplicate analysis; and
6. Prepare the sealed containers for shipment.

It is generally unlikely that a minimum of four ounces of soil within the 144 square-inch area (demarcated by the template) cannot be achieved. However, in the rare case that sampling is found to be impossible due to rocks, construction debris, or other material, the sampling location will be moved to the nearest suitable location within the grid and noted in the field log. If there is no such suitable location, then the sample location will be abandoned, and replaced at another suitable location.

2.0 QUALITY CONTROL SAMPLING

Material for QC samples need to be collected in the field, in addition to the project samples already discussed. These are field duplicates.

2.1 Field Duplicates

At all sampling sites from which a field duplicate is to be collected, a second set of four randomly selected sampling locations (one within each of the four grid squares of the sampling grid) needs to be identified. These locations need to be selected in addition to (and in a manner assuring that they are entirely independent of) the locations originally identified at the same sampling site for the project sample. Recovery and analysis of 10 percent or at least one field duplicate sample per day will be performed. This second set of random sampling locations is then to be treated as it is for a unique sampling site.

3.0 OTHER PROCEDURES

Following are procedures to be followed for sample labeling, decontamination, chain-of-custody, and documentation.

3.1 Sample Labeling

Each sample to be shipped for laboratory analysis will be labeled with a unique number that will include the sample site identification number, an indication as to whether the sample is an original sample or a composite duplicate, and the date that the sample is collected. It is suggested that sample numbers be constructed with 10 digits as follows:

QQ-Y-mm-dd-yy

where:

QQ is the two digit code indicating the sampling site from which the sample was collected;

Y is either a 0 or a 1 indicating whether the sample is a project sample or a composite duplicate, respectively; and

The last set of digits represents the date in standard format.

3.2 Decontamination of Field Equipment

Prior to use in the field, all sampling equipment (*e.g.*, trowels and templates) will be decontaminated by washing with biodegradable soap, rinsing with asbestos-free water, and drying either with asbestos-free cloth rag or forced air. If forced air is used, it must be High Efficiency Particulate Air (HEPA) filtered to assure that it remains asbestos-free. Sampling equipment will be similarly decontaminated prior to removing it from the site. Between collections of individual soil samples, sampling equipment may be wiped clean with a clean, asbestos-free cloth rag. Wash and rinse water will be collected and containerized, and handled with the contractor's decontamination unit wastewater. Any disposable materials used for decontamination (*e.g.*, rags) will be disposed with ACM waste.

3.3 Chain of Custody

The Project Coordinators representative will manage sample handling, transport and storage with appropriate Chain-of-Custody documentation.

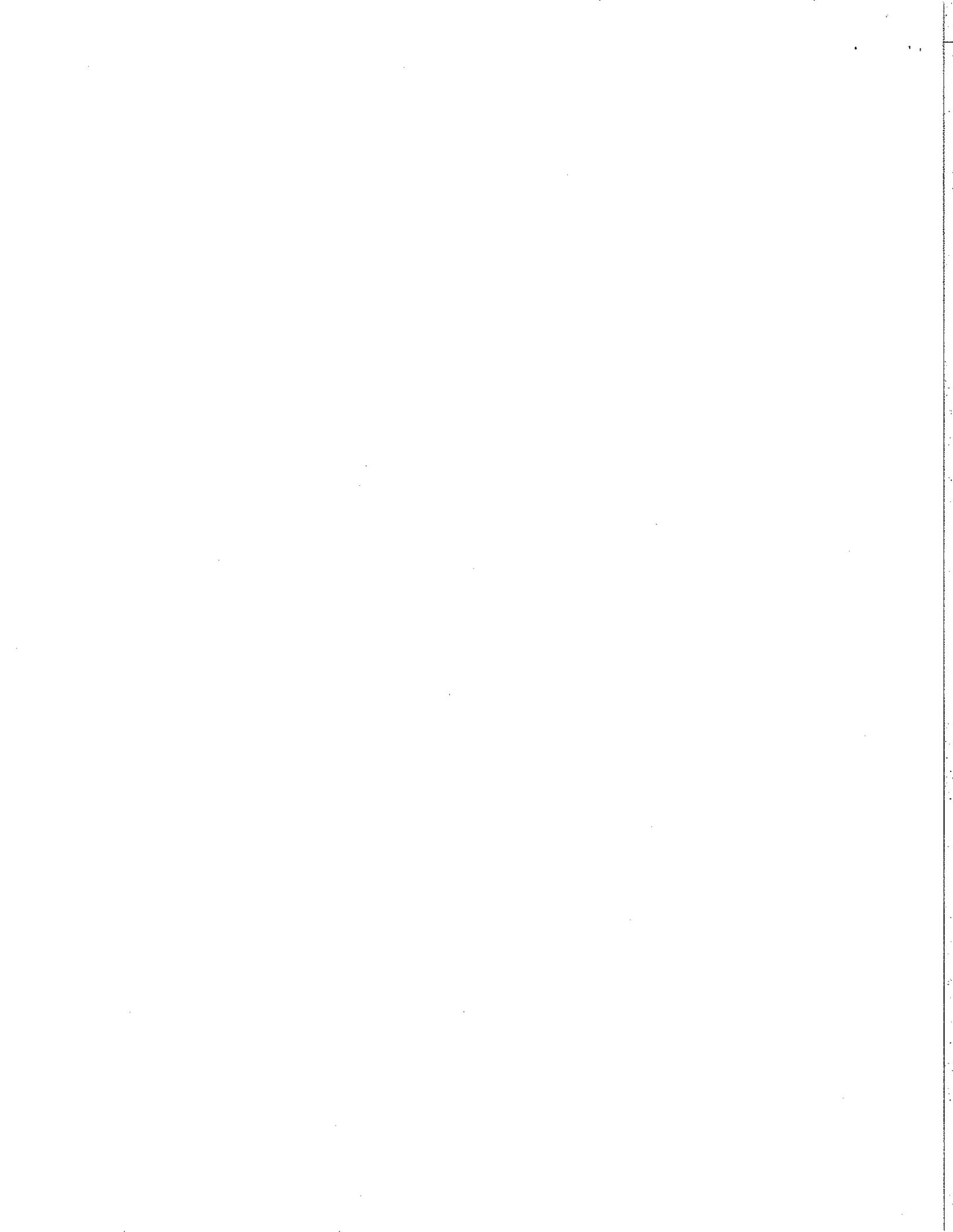
3.4 Documentation

The following information will be recorded in the field log for each soil sample collected during this project:

1. The sample identifier (including the grid square number and the date that the sample was collected);
2. The times that the sample were collected;
3. The Global Positioning System (GPS) location of the center of the grid;
4. Any required modifications to the location initially selected for sample collection along with the reasons (*i.e.*, the nature of any field obstructions) for needing such modification;

5. Any changes or modifications required to the above-indicated procedures for sample collection;
6. Relevant observations concerning the condition (presence of vegetation, color and condition of soil, relative apparent moisture content, etc.) of the location from which the sample is collected (to be supplemented with photographs);
7. Documentation of any ACM (size, nature, color, type, etc.) observed at the sample location; and
8. Any other, potentially relevant information concerning the conditions under which the sample is collected.

~~REDLINE/STRIKEOUT TEXT~~

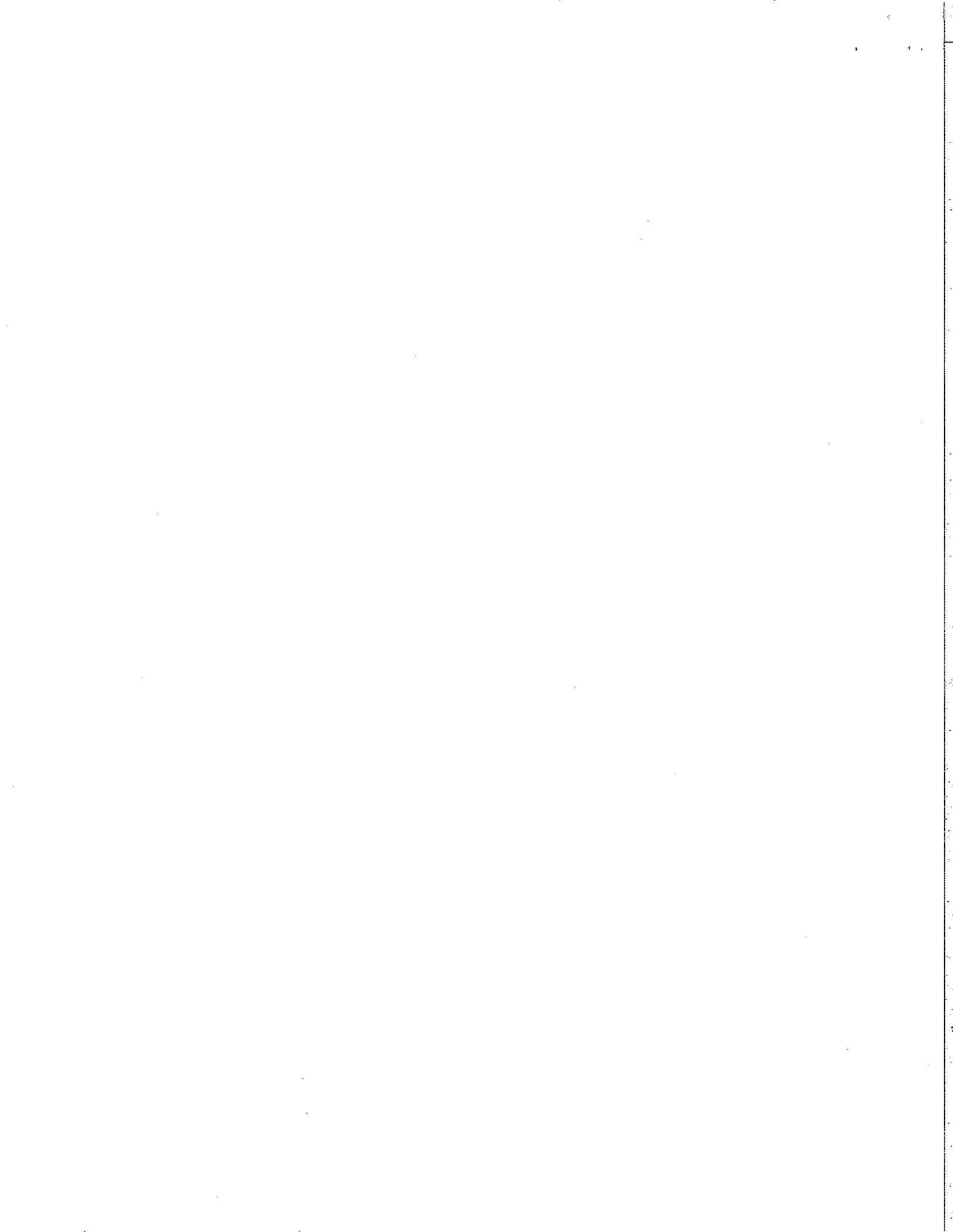


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DISCLAIMER

THE FOLLOWING STANDARD OPERATING PROCEDURE PROVIDES GENERAL GUIDANCE FOR BRC CONTRACTORS FOR TECHNICAL ISSUES ADDRESSED DURING ENVIRONMENTAL SITE INVESTIGATION AND REMEDIATION ACTIVITIES. IT IS NOTED, HOWEVER, THAT EACH SITE IS UNIQUE AND THESE GUIDELINES ARE NOT A SUBSTITUTE FOR COMMON SENSE AND GOOD MANAGEMENT PRACTICES BASED ON PROFESSIONAL TRAINING AND EXPERIENCE. IN ADDITION, INDIVIDUAL CONTRACT TERMS MAY AFFECT THE IMPLEMENTATION OF THIS STANDARD OPERATING PROCEDURE. BRC CONTRACTORS RESERVE THE UNRESTRICTED RIGHT TO CHANGE, MODIFY OR NOT APPLY THESE GUIDELINES IN THEIR SOLE, COMPLETE, AND UNRESTRICTED DISCRETION TO MEET CERTAIN CIRCUMSTANCES, CONTRACTUAL REQUIREMENTS, SITE CONDITIONS, OR JOB REQUIREMENTS.

1.0 SAMPLE COLLECTION PROCEDURES

Each selected sampling location is to serve as the center of a 50 feet by 50 feet sampling grid, which is to be further divided into four quadrant grid squares that are each 25 feet on a side. Samples to be collected for determination of asbestos, silt, and moisture content are to be composites constructed from four component samples with ~~each~~ each component collected from a pre-selected, random location from within each of the four grid squares (quadrants) of the sampling grid. The manner in which each sample type is to be collected, prepared, labeled, and packaged is described below.

Surface samples shall be collected by:

1. At each defined (random) location within each of the four grid squares, the surface to be sampled (a square area that is approximately 1 foot on a side) is first to be cleared of vegetation, biological debris, stones, and any construction debris that is obviously non-asbestos containing material [ACM]). Gently hand-pick these materials and remove them from the sampling area. If the area to be sampled is heavily vegetated, it may first be cleared using a scythe or other cutting tool;
2. Once cleared, use a 12-inch by 12-inch ridged template frame and a clean trowel in a reproducible manner to scrape material from a one-inch depth centered on the identified sampling location. The volume of soil from each sub-location should be roughly equal and of sufficient volume that the resultant total, until the trowel is adequately sufficiently full to fill two 8-ounce glass jars; satisfy Step 3;
3. Gently pour the material from the trowel into a clean resealable plasticZiploc bag. If the presence of a large piece of debris, rock, or other solid object is picked up by the trowel but is too large to reasonably include within the indicated sample volume (*i.e.*, if it comprises more than one half of the volume of the sample), remove the object, characterize it as potential ACM or non-ACM and note the modification to the sample in the field log. Also, continue filling the sample container to replace the volume removed. If the object is not ACM, it may be discarded. If the object is ACM, it should be separately bagged, labeled, and shipped to the laboratory as an object associated with the particular sample;
4. Combine all four component samples of a particular composite into the same sample resealable plasticZiploc bag. Once filled, it is important to create an air-tight seal on the sampling container. Thus, be sure to seal the plasticZiploc bag completely, ~~and to test it to be sure that the seal is air tight,~~ then mix the contents of the bag;
5. Place the contents of the plasticZiploc bag into two 8-ounce jars and seal tightly. Two containers (A/B split) are collected for analytical quality control (QC) purposes, and are not intended for duplicate analysis; and

6. Prepare the sealed containers for shipment.

~~It~~Importantly, it is generally unlikely that ~~a minimum~~~~se-much~~ of four ounces of soil within the a 144 square-inch area (demarcated by the template) ~~cannot~~~~around a selected sampling location~~ would be achieved. However, in the rare case that sampling is found to be impossible due to ~~comprised of rocks, construction debris, or other materials that make collection of a sample~~ impossible. However, in the rare case the sampling is found to be impossible, the sampling location will~~is~~ to be moved to the nearest suitable location within the grid~~12 inches to the due~~ south and the fact that the sampling location had to be moved is to be noted in the field log. If ~~there is no such suitable location, then the sample location will be abandoned, and replaced at~~ another suitable location~~In the remote possibility that sampling at this first alternate location is~~ also impossible, the sample location may be moved an additional 12 inches due south, as long as this second change is also noted in the field log. Such modifications may be repeated up to four times, if absolutely necessary, until a suitable location for sampling is encountered. However, any such modification of location must only be because more than half of the template area of a previous location is impossible to sample.

2.0 QUALITY CONTROL SAMPLING

Material for QC samples need to be collected in the field, in addition to the project samples already discussed. These are field duplicates.

2.1 Field Duplicates

At all sampling sites from which a field duplicate is to be collected, a second set of four randomly selected sampling locations (one within each of the four grid squares of the sampling grid) needs to be identified. These locations need to be selected in addition to (and in a manner assuring that they are entirely independent of) the locations originally identified at the same sampling site for the project sample. Recovery and analysis of 10 percent or at least one field duplicate sample per day will be performed. This second set of random sampling locations is then to be treated as it is for a unique sampling site. ~~Thus, both a set of surface and sub-surface composite samples for the determination of asbestos need to be constructed from samples collected at these locations (for packaging, labeling, and shipment to the laboratory) and a set of~~

~~surface and sub-surface composite samples for the determination of ACM content need to be collected and processed in the field.~~

3.0 OTHER PROCEDURES

Following are procedures to be followed for sample labeling, ~~documentation, decontamination, and chain-of-custody, and documentation.~~

3.1 Sample Labeling

Each sample to be shipped for laboratory analysis will be labeled with a unique number that will include the sample site identification number, an indication as to whether the sample is a ~~surface or sub-surface sample, an indication as to whether the sample is an original sample or a composite duplicate, an indication of whether the sample is intended for silt/moisture content analysis or asbestos analysis,~~ and the date that the sample is collected. It is thus suggested that sample numbers be constructed with ~~1011~~ digits as follows:

QQ-YZ-mm-dd-yy

where:

QQ is the two digit code indicating the sampling site from which the sample was collected;

Y is either a 0 or a 1 indicating whether the sample is a project sample or a composite duplicate, respectively; and

~~The~~Z is either an A or an M indicating whether the sample is intended for asbestos or moisture/silt analysis, respectively; and

~~the~~ last set of digits represents the date in standard format.

3.2 Decontamination of Field Equipment

Prior to use in the field, all sampling equipment (e.g., trowels and templates) will be decontaminated by washing with biodegradable soap, rinsing with asbestos-free water, and drying either with asbestos-free cloth rag or forced air. If forced air is used, it must be High

Efficiency Particulate Air (HEPA) filtered to assure that it remains asbestos-free. Sampling equipment will be similarly decontaminated prior to removing it from the site. Between collections of individual soil samples, sampling equipment may be wiped clean with a clean, asbestos-free cloth rag. Wash and rinse water will be collected and containerized, and handled with the contractor's decontamination unit wastewater. Any disposable materials used for decontamination (e.g., rags) will be disposed with ACM waste.

3.3 Chain of Custody

The Project Coordinators representative will manage sample handling, transport and storage with appropriate Chain-of-Custody documentation.

3.4 Documentation

The following information will be recorded in the field log for each soil sample collected during this project:

1. The sample identifier (including the grid square number and the date that the sample was collected);
2. The times that the sample were collected;
3. The Global Positioning System (GPS) location of the center of the grid sample;
4. Any required modifications to the location initially selected for sample collection along with the reasons (*i.e.*, the nature of any field obstructions) for needing such modification;
5. Any changes or modifications required to the above-indicated procedures for sample collection;
6. ~~Relevant~~ observations concerning the condition (presence of vegetation, color and condition of soil, relative apparent moisture content, etc.) of the location from which the sample is collected (to be supplemented with photographs);
7. Documentation of any ACM (size, nature, color, type, etc.) observed at the sample location; and
8. Any other, potentially relevant information concerning the conditions under which the sample is collected (~~e.g. any required weights or similar information~~).