Scene Detection and Processing

1.0 Principle, Spirit, and Intent

A scene is any environment in which human remains and associated materials may be recovered. The detection, collection and documentation of human remains and associated materials shall follow standard methods to ensure proper handling of evidence and maintenance of the chain of custody. Methods based upon general archaeological principles and paradigms should be used where possible, and method rationale and limitations should be considered and communicated.

2.0 Purpose and Scope

Archaeological techniques provide the basis for interpretation of the context in which remains are found, and permit the association of material evidence and/or remains in a scientifically sound manner. Further, a scene should be managed according to the appropriate forensic principles and procedures to provide for the documentation and security of evidence and maintenance of the chain of custody.

Scenes are highly variable in both type and scale. For example, scenes range from a single body found in a confined space to a mass fatality incident involving many decedents dispersed over a large area. The purpose of this guideline is to present acceptable practices for the detection and processing of a scene. Practitioners should implement these guidelines to the fullest extent as applicable, practical and appropriate. In the absence of specific guidelines or procedures or in the case of conflicting procedures, the principle, spirit and intent should be met.

3.0 General Principles

Forensic anthropologists and archaeologists must be aware of their roles and responsibilities under the authority or jurisdiction where the work takes place. They should have knowledge and training in the appropriate methods used to detect, excavate, collect, preserve and transport human remains and forensic evidence. The methods used are usually associated with outdoor location and recovery involving surface-scattered human remains and evidence, and burial features, but may be applied to indoor, water and fire scenes.

Archaeological principles provide the basis for interpretation of the context in which remains are found, and permit scientifically sound association of the provenience of material evidence and/or remains to an incident. Archaeology is the systematic study of human societies and behavior from the past using surviving physical material culture (artifacts) and biological materials left

behind by human activity. **Forensic archaeology** is the application of archaeological theory and methods to the resolution of medico-legal and humanitarian issues. Traditionally, forensic archaeologists and forensic anthropologist assist scene investigators by performing controlled searches, aiding in location, survey, sampling, recording and interpretation of evidence. They also assist in the recovery and documentation of human remains and associated relevant evidence at forensic scenes, usually where human decomposition or substantial time has passed since the events that created the scene. Archaeologists may also assist in the determination of remains as human or non-human. Forensic archaeologists and forensic anthropologists assist crime scene investigation by documenting evidence and human remains by employing a variety of skills and technology, such as dating evidence; reconstructing events particular to the buried environment and landscape; interpreting taphonomic change over time; developing recovery strategies; undertaking 3-D survey; assessing remote sensing techniques applicability to a scene; advising on evidence conservation from the buried environment and assessing relevance of artifacts and anomalies to investigations.

Further, recovery scenes must be treated as a crime scene and managed according to the appropriate forensic principles and procedures that provide for the documentation and security of evidence and maintenance of the chain of custody.

The process of recovery is unavoidably destructive. During the collection and removal of evidence from scenes, actual spatial relationships and associations between transportable and non-transportable evidence are permanently lost. Context is altered or destroyed during the process of recovery, therefore care must be taken to document and preserve the scene in coordination with the agency in charge.

Accordingly, the goals of any detection and/or recovery operation will be:

- To select a detection or recovery strategy that maximizes data recorded and physical evidence recovered from a scene while minimizing scene and evidence alteration.

- To establish and fully document the context in which all evidence is found. The recording of all spatial and contextual associations should be such that any subsequent identification process will not be hindered or compromised.

- To recover and record all evidence that may be relevant to identifying the remains, determining the cause and manner of death, reconstructing the scene, determining how the remains were deposited, estimating time since deposition, and identifying post depositional taphonomic processes.

- To ensure safe and secure collection, storage and transportation of human remains and associated materials from the point of recovery to accession by the appropriate agency.

- To maintain a chain of custody through documentary and photographic records that links the recovered evidence to the scene.

- To ensure safe and secure transport of evidence to the responsible agency.

4.0 Best Practices

Many variables impact the techniques employed to detect and recover human remains. Below is a list of fundamental principles that should be followed when detecting or recovering human remains.

A health and safety program (such as described in the SWGANTH Laboratory Management and Quality Assurance guidelines) should be utilized on scene.

Assess the scene prior to processing (i.e., perform a site survey or pre-field research), when appropriate.

Maintain communication and cooperation between the practitioner and the agency in charge and with key members of the affected community as appropriate.

Adhere to specific scene protocol (e.g., chain of custody, and scene and personal security) established by the agency in charge.

Document all data, methods, results, interpretation, and conclusions in such a way that verification through independent review can be completed.

Document spatial data in such a manner that probative information is recorded.

Avoid actions that will negatively impact subsequent investigations.

Recover remains and evidence in a manner that minimize alteration and/or destruction.

Proceed from the least destructive to the more intrusive techniques.

Assume that the scene itself—the micro and macro environment around the remains—contains pertinent evidence.

Consult other qualified practitioners when appropriate.

4.1 Scene Identification

Although there is no universal method for finding and defining the boundaries of a scene, considerations include the completeness of the remains discovered, the area over which they are dispersed, their taphonomic state, as well as potential taphonomic agents impacting dispersal and removal of remains. The following acceptable practices are employed when the location of the scene is unknown.

Pedestrian and/or aerial surveys can be used to facilitate a systematic search of a large area. The location and boundaries of the search area should be documented in such a manner that facilitates returning to the area or expanding the search. Pedestrian and aerial surveys should be designed to insure adequate visualization of the search area.

When the location of a recovery scene is suspected, but not known, all searchable area surrounding the suspect location should be included in the search.

Geotaphonomic features indicative of a burial (e.g., primary and secondary depressions, differences in soil type, soil texture, soil color, invasive vegetation, vegetation altered by human activity) should be considered when searching for buried body features.

Aids such as probes, cadaver dogs, test pits, and geophysical or remote sensing devices may be used to assist in the search for a scene. Scene-specific circumstances and the capabilities and limitations of each aid should be considered.

Once the scene is identified, employing a small-scale approach focusing on the immediate area surrounding the remains is acceptable.

4.2 Scene Processing

Listed below are acceptable practices for the documentation and recovery of human remains.

- Searches should use a small-scale approach once human remains and/or other potential evidence have limited the suspect area.

- Photographic, written documentation and video (when appropriate) should be initiated upon arrival at the scene and continue throughout the search and recovery process.

- Remains and associated materials of probative value should be marked as they are discovered and left *in situ* when possible to preserve the context until documentation is complete.

- A numbering/labeling scheme adequate to provide appropriate detail for the type and scale of the scene should be devised before processing. For example, if the scene involves multiple commingled decedents, a numbering/labeling system should be used as unique identifiers for each element recovered. For additional guidance in a large-scale scene refer to the SWGMDI website.

4.3 Scene Documentation

Documentation typically includes a unique case identifier, date and time of the scene recovery, a description of the scene environment, personnel involved, current weather conditions, and a summary of scene recovery actions and other relevant details.

Photographs should document the scene before, during, and after processing and should be taken at distances far, medium and close to provide better spatial conceptualization of the scene. The process should gradually transition from overall to more detailed documentation of human remains and associated materials. Photographic documentation should minimally include overall photographs of the scene in each of the cardinal directions. Photographs should contain a scale and a north arrow where appropriate.

If documentation is the responsibility of another expert (e.g., police), the forensic anthropologist/archaeologist should communicate all pertinent evidence within their area of expertise.

A scene diagram or map should be created to document the spatial distribution of the human remains and associated materials. The diagram or map may record the spatial information in two or three dimensions as appropriate for the type and scale of the scene. Acceptable types of diagrams and maps range from hand-drawn sketches to an electronically generated map (e.g., total station, geographic information system based laser scan, etc). The type of diagram or map created for the scene should be appropriate for the type and scale of the scene and question being asked by investigative agencies. Any diagram or map should be as accurate as possible and include a north arrow, note indicating "to scale" or "not to scale," author's name, date, scene reference code or name, and a datum or reference to the location of the scene

When appropriate, accurate documentation of datum location should be obtained using an established permanent datum, permanent structural landmarks or a coordinate point where the Universal Transverse Mercator (UTM) or latitude/longitude was established using a Global Positioning System unit. Multiple mapping points may be taken in order to incorporate the scene into Geographic Information System (GIS) maps.

Human remains and associated materials may be referenced in a map or diagram as individual elements or spatially associated groups.

Description of the scene should be documented, e.g. wooded area, burned house, fresh water creek. Any additional information of potential importance to the postmortem interval should be recorded.

The condition of the body should be documented, such as:

- The pattern of thermal or chemical injury
- The decomposition stage
- Presence of debris (e.g., fire debris, leaf scatter, soil) found on or around the human remains.
- Evidence of predation or animal scavenging
- Evidence of dismemberment

4.3.1 Surface Scenes

When processing a surface scatter the following are recommended:

Remains and material evidence, when scattered on the surface, should be mapped and collected as individual elements or spatially associated groups.

Identifiers that are unique should be assigned to each element, spatially associated group, or piece/unit of evidence and each should be marked with that identifier.

Each element, spatially associated group, or piece/unit of evidence should be placed in appropriate packaging to preserve the element and identifier.

Elements, spatially associated groups, or pieces/units of evidence should be documented by the identifying number and the location of collection (horizontal and vertical coordinates) on maps and field drawings.

Soil samples should be collected when appropriate. Soil (or other surface debris) surrounding the elements should be screened for potential evidence not revealed by simple survey where necessary and as appropriate.

4.3.2 Burial Scenes

When processing a burial scene the following are recommended:

Grave outline or features and structure, once discovered, should be delineated (as opposed to excavating without regard to the walls of the grave). Careful excavation should include close attention to natural or cultural stratification, size, depth, orientation to the cardinal directions, body position in the feature or grave, tool marks at pit edges and walls, and evidence of disturbance beyond primary deposition.

Excavation should proceed according to natural or cultural strata. Where no identifiable strata exist, arbitrary levels should be excavated by uniform increments.

Grave fill section (profile) drawings are recommended as they can help identify original depth, shape, and even formation processes of the burial feature.

Strata should be excavated and screened separately to record provenience and associations of all evidence found. The size of the screen used varies according to the situation, though 1/4-inch mesh is generally recommended. Wet sieving may be appropriate. Soil samples, pollen samples, and other samples should be recorded, mapped and collected when appropriate.

Human remains should be left *in situ* until the area around them is excavated to allow documentation within context. Premature removal of remains or related evidence can eliminate

the opportunity to observe and document associations that are essential for interpreting the event under investigation.

Excavation of the grave should extend to the point where incident-sterile soil is reached. After documentation, excavation may be extended into the grave floor to ensure that there are no additional associations (e.g., bullets, etc.). Metal detecting equipment may also be used.

4.3.3 Fire Scenes

When processing a fire scene, the following are recommended:

Remove all debris from above and immediately surrounding the body.

Document the type of debris if identifiable and potentially informative.

Collect small fragments of bone when discovered if they are likely to be lost during additional recovery. Place the small fragments of bone in paper bag(s) labeled with a reference to the remains, for example "fragments found near right foot".

Note the position of the body within the structure, for example kitchen or driver's seat. If the body is believed to have been moved by first responders, forces associated with the incident or destruction of the structure, note this information in the scene documentation.

Photographs should be taken of any friable bone that may be altered during transportation. Preserve friable areas of the body or collect fragments that are expected to be disrupted during transport. For example, placing paper bags over the hands or head may help collect small fragments of bone that become dislodged during transportation. Document the placement of stabilizing materials.

4.4 Sampling

Samples of materials (e.g., soil, vegetation, entomological evidence) should be collected when appropriate and/or feasible. A specialist (e.g., botanist, entomologist, soil chemist) should be consulted for analysis of the samples. Any sampling strategy should be communicated with the laboratory that will receive and analyze the sample.

5.0 Additional Considerations

Forensic archaeologists assist law enforcement investigators in the identification, documentation, and collection of evidence of illegal looting of prehistoric and historic sites under the Archaeological Resources Protection Act in the United States. They conduct damage assessments of looted sites for federal agencies, and assist state and local law enforcement in dealing with illegal looting where such state or local statutes apply. Archaeologists conducting such work should meet or exceed the requirements of the entity for which they are conducting the investigation or assessment.

6.0 Unacceptable Practices

The following practices are considered unacceptable and should be avoided in the detection and recovery of remains:

- Assuming that scene recovery efforts should focus only on human remains, or that human remains represent the only evidence at the scene.
- Moving or altering potential evidence prior to thoroughly and adequately documenting it.
- Grouping or separating articles of evidence and human remains, unless necessary and thoroughly documented.
- Employing unnecessarily destructive or time-consuming search and recovery techniques when less destructive and time-conserving techniques are just as effective.
- Acting without consulting the agency in charge of an investigation (e.g., speaking to the media).
- Undertaking acts of detection, recovery or interpretation of human remains and associated evidence beyond one's expertise.
- Speculating about identifying characteristics of the remains, the cause and manner of death, or the scene reconstruction in such a way that it influences the investigation, before the full examination is conducted.
- Generating case numbers without regard to case numbers generated by other agencies.
- Using a coding system that could potentially bias analysis, such as the use of the designators B (body) and BP (body part).