Technical Procedure for the Collection and Preservation of Evidence

1.0 Purpose – To examine items of evidence for the presence of trace evidence (e.g., hair, fibers, paint, glass) and to collect and preserve that evidence.

2.0 Scope – This procedure applies to all hair, fiber, paint, and glass cases in the Trace Evidence Section.

3.0 Definitions – N/A

4.0 Equipment, Materials, and Reagents

- Stereomicroscope
- Clear fingerprint tape
- Packaging materials (plastic bags, metal tins, manila envelopes, paper bags, etc.)
- Spatula
- Kraft paper
- Forceps
- Gloves
- Lab coats
- Masks
- Alternate light source
- Illuminated magnifier
- UV light

5.0 Procedure

5.1 Special Considerations

5.1.1 As trace materials can easily transfer from one item to another, evidence should be packaged individually to prevent loss or contamination. If evidence is not individually packaged, the contents shall be treated as one item.

5.2 Analytical Procedure

5.2.1 Precautions to prevent contamination

5.2.1.1 Work area and tools shall be cleaned prior to analysis.

5.2.1.2 The Forensic Scientist shall change the examination paper between items.

5.2.1.3 Only one item shall be opened at a time, unless two separate examination surfaces exist for this purpose. Separate laboratory coats and examination areas (such as search rooms) shall be used to prevent possible cross-transfer contamination.

5.2.1.4 The Forensic Scientist shall change gloves and clean tools between examining the evidence from different subjects, scenes, etc.

5.2.2 Spread a clean piece of paper on the examination surface.

5.2.3 List and generally describe each item of evidence. This can include tag information (on textile materials), damage, etc.

5.2.4 Examine each item of evidence visually or with the aid of an illuminated magnifier, UV light or stereomicroscope. Remove obvious and potentially relevant trace evidence, by picking, that may be adhering to the surface of the item (e.g., hairs, fibers, paint chips and glass particles) and package to prevent loss. Paint smears can be cut out of the item.

5.2.5 For rigid items (e.g., bumpers, doors, etc.), no further processing is required. For textile materials (e.g., clothing, cordage, etc.), the item shall be taped or scraped, based on size and condition of the textile, as determined by the type of examination requested to remove any less apparent trace particles.

5.2.5.1 Scraping is the preferred method for paint and glass collection.

5.2.5.2 Taping is the preferred method for hair and fiber collection.

5.2.6 All items of clothing shall be processed on the inside surface as well as the outside surface (this includes the pocket and cuff areas).

5.2.7 Any examination paper included in the packaging (i.e., paper fold from previous Forensic Biology examination) shall be processed to preserve any debris.

5.2.8 The pickings/scrapings/tapings shall be packaged to prevent loss and contamination. This shall include any debris or trace material remaining on the clean piece of paper on the examination surface.

5.2.9 The debris/tape resulting from the collection and preservation process shall be further examined following the appropriate technical procedure.

5.2.10 Based on the Forensic Scientist's training and experience, known standards (fiber, paint, etc.) may be taken during the collection and preservation process.

5.2.11 The original evidence shall be resealed.

5.3 Methods of Evidence Preservation

5.3.1 Picking

5.3.1.1 A clean pair of tweezers shall be used to collect any trace evidence loosely adhering onto the surface of the item.

5.3.1.2 The collected debris shall be packaged in a manner to avoid sample loss and contamination.

5.3.2 Taping

5.3.2.1 The North Carolina State Crime Laboratory uses clear-backed fingerprint tape for the collection of hair and fibers.

5.3.2.2 The tape shall be patted repeatedly and firmly over the entire surface of the item to cause loosely adhering trace evidence to stick to the tape.

5.3.2.3 Tapings shall be placed into a plastic bag and sealed to prevent contamination.

5.3.3 Scraping

5.3.3.1 A clean spatula shall be used to dislodge trace evidence from an item onto a collection surface such as clean Kraft paper.

5.3.3.2 The collected debris shall be packaged in a manner to avoid sample loss and contamination.

5.4 Result Statements

5.4.1 In most cases, this procedure will be followed by additional analyses, so there will not be the need to issue a report based solely on the above procedures.

5.4.2 If a report is to be issued without further examination, then the wording of the results shall accurately describe the evidence at hand.

5.4.2.1 Example: Item A was taped/scraped to preserve any ___ evidence. No further analysis was conducted at this time. The item may be resubmitted for analysis along with the appropriate ___ standards should a ___ be located.

5.5 Sampling and Sample Selection – N/A

5.6 Standards and Controls – N/A

5.7 Calibrations - N/A

5.8 Maintenance - N/A

5.9 Calculations – N/A

5.10 Uncertainty of Measurement – N/A.

6.0 Limitations – N/A

7.0 Safety - Clothing and other items may have blood or other body fluids present. Use protective equipment when dealing with items that may contain biohazard material.

8.0 References

8.1 North Carolina State Crime Laboratory Evidence Guide.

8.2 ASTM and SWG Guidelines

ASTM Standard E1610, 2002, "Standard Guide for Forensic Paint Analysis and Comparison." ASTM International. West Conshohocken, PA, 2002.

SWGMAT. "Collection, Handling, and Identification of Glass." *Forensic Science Communications* 7.1 (2005).

SWGMAT. "Forensic Human Hair Examination Guidelines." *Forensic Science Communications* 7.2 (2005).

SWGMAT. "Trace Evidence Recovery Guidelines." *Forensic Science Communications* 1.3 (1999).

8.3 Books

DeForest P.R., Gaensslen R.E., Lee H.C. *Forensic Science: An Introduction to Criminalistics.* NewYork: McGraw-Hill, 1983.

Gaudette, B.D. *The Forensic Aspects of Hair Examination*. RCMP, Central Forensic Laboratory: 1988.

Saferstein, R., ed. *Forensic Science Handbook.* Volume I. Englewood Cliffs, NJ: Prentice Hall, 1983.

8.4 Journal Articles

Deedrick, D.W. "Hairs, Fibers, Crime, and Evidence." *Forensic Science Communications* 2.3 (2000).

Deedrick, D.W. and S.L. Koch. "Microscopy of Hair Part I: A Practical Guide and Manual for Human Hairs." *Forensic Science Communications* 6.1 (2004).

9.0 Records – N/A

10.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
06/21/2023	5	• Updated header to Trace Evidence Section, issuing authority to Trace Evidence Section Forensic Scientist Manager. • Updated all references in procedure from Trace Unit to Trace Evidence Section • Clarified 5.1.1 • 5.2.4 – added by picking • Clarified 5.2.5 • 5.2.7 – added pickings • Added 5.3.1 and all sub-items • 5.3.2.1 – Added North Carolina • 5.3.2.2 – Added the entire surface of