



Page 1 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

NSW Police Force
EXPERT CERTIFICATE
Section 177, Evidence Act 1995 No. 25

In the matter of:	Homicide of Ernest HEAD
	Forensic Case Numbers 76/4365
Place Statement Made:	Fingerprint Operations, Police Headquarters, Parramatta
Date:	19 September 2023

Name:	Kate Louise REID
Work Address:	Fingerprint Operations – Police Headquarters, Parramatta
Work Telephone:	[REDACTED]
Occupation:	Senior Crime Scene Officer – Fingerprint Expert

STATES:

1. This statement made by me accurately sets out the evidence that I would be prepared, if necessary, to give in court as a witness. The statement is true to the best of my knowledge and belief, and I make it knowing that, if it is tendered in evidence, I will be liable to prosecution if I have willfully stated in it anything that I know to be false or do not believe to be true.
2. I make the following declarations:
 - I have read the Expert Witness Code of Conduct in Schedule 7 of the NSW Uniform Civil Procedure Rules 2005 and I agree to be bound by the Code.
 - I have made all inquiries that I believe desirable and appropriate, and to the best of my knowledge, no matter of significance that I regard as relevant has been withheld from the court.
3. I hereby certify I am a Fingerprint Expert. I have specialised knowledge based on my training, experience and study of fingerprints since 2006. Refer to Annexure 1 for a summary of my qualifications and experience.
4. For a glossary of terms used in this certificate see Annexure 2.
5. On 15 September 2023, I received a written request to the Principal Solicitor of the Crime Disruption and Special Inquiries Law, Office of the General Counsel, NSW Police Force from Enzo CAMPOREALE, Crown

Witness:

[REDACTED]

Ian Rowney
Chief Inspector
19 September 2023

Signature:

[REDACTED]

Kate Louise REID
Senior Crime Scene Officer
19 September 2023



Page 2 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

Solicitor, requesting clarification in relation to the death of Ernest Head, to assist the Special Commission of Inquiry into LGBTIQ hate crimes. This letter was dated 13 September 2023.

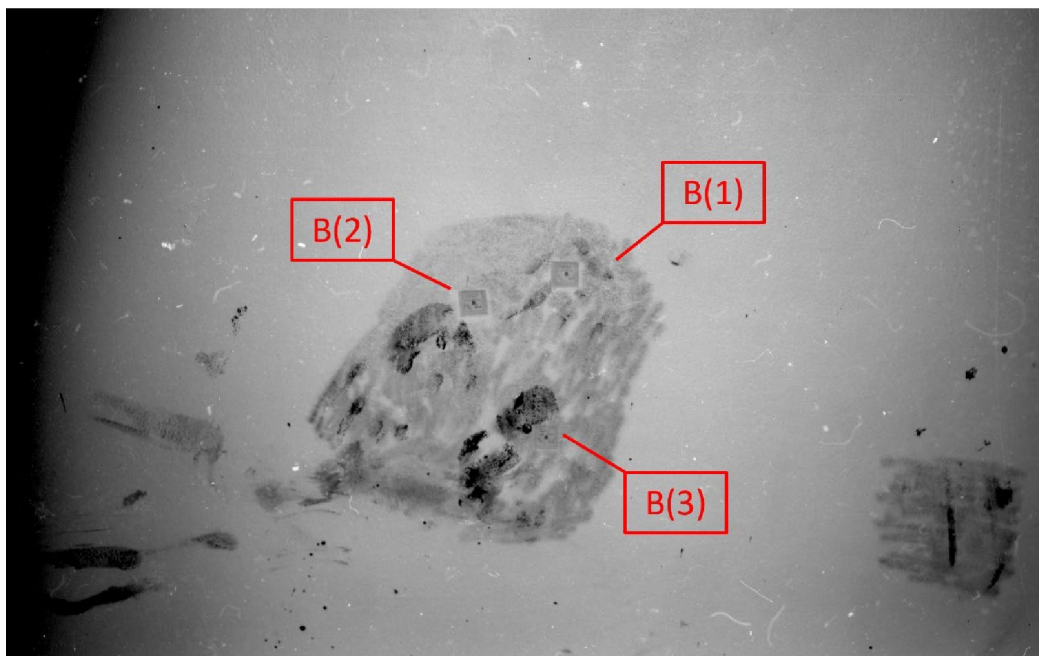
6. On 30 May 2023 and 20 June 2023, I provided an Expert Certificate in relation to a fingerprint review on NSWPF Forensic Case Number 76/4365. This statement is prepared to address requests for additional information in the written request from the Crown Solicitor.

NUMBER AND LOCATION OF PALM PRINTS RECORDED AT THE EXAMINATION OF [REDACTED] 49
GROSVENOR CRESCENT, SUMMER HILL (FORENSIC CASE NUMBER 76/4365)

7. Records indicate, a fingerprint examination was conducted at [REDACTED] Grosvenor Crescent, Summer Hill on 23 June 1976 relating to Forensic Case Number 76/4365. Photographs taken from this examination depict three (3) palm prints noted to be *in blood near body on kitchen wall*. These graphs were all recorded as graph "B". I have denoted these graphs as B(1), B(2) and B(3) for ease of reference. There were no further photographs in the fingerprint file that indicated further location details of these prints. The graph identified to Engin SIMSEK as outlined in the statement provided 30 May 2023 is graph B(1).

EXHIBIT: I NOW PRODUCE FOUR (4) PHOTOGRAPHS:

PHOTOGRAPH 1: ANNOTATED PHOTOGRAPH OF PRINTS IN BLOOD NEAR BODY ON KITCHEN WALL



Witness:

[REDACTED]
 Ian Rowney
 Chief Inspector
 19 September 2023

Signature:

[REDACTED]
 Kate Louise REID
 Senior Crime Scene Officer
 19 September 2023

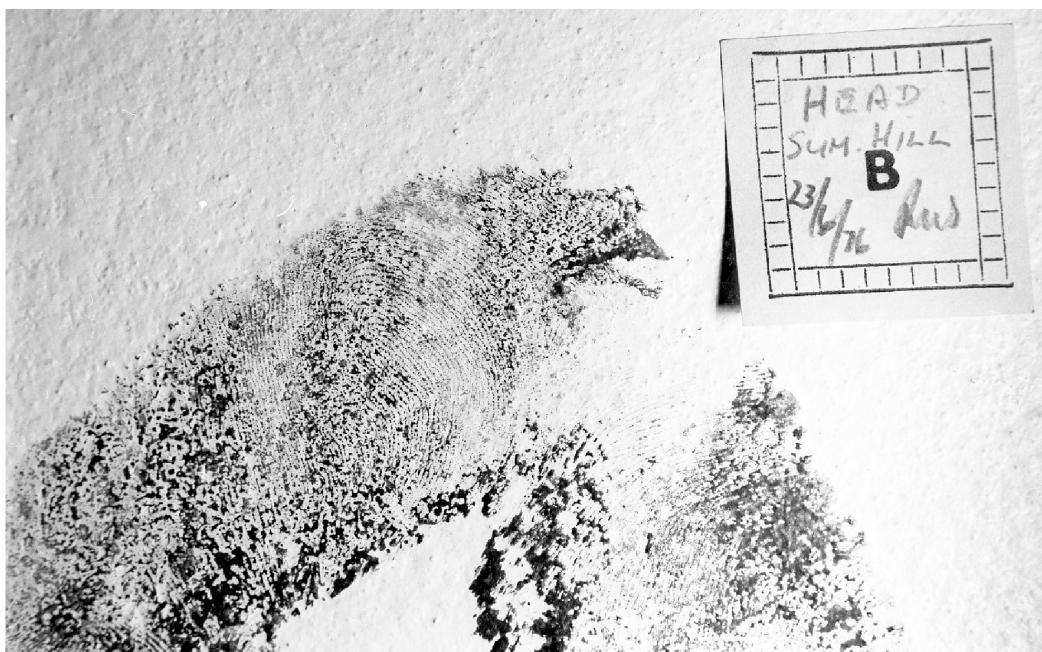


Page 3 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

PHOTOGRAPH 2: ENLARGEMENT OF GRAPH B(1) - PRINT IN BLOOD NEAR BODY ON KITCHEN WALL



PHOTOGRAPH 3: ENLARGEMENT OF GRAPH B(2) - PRINT IN BLOOD NEAR BODY ON KITCHEN WALL



Witness:

[Redacted]

Ian Rowney
Chief Inspector
19 September 2023

Signature:

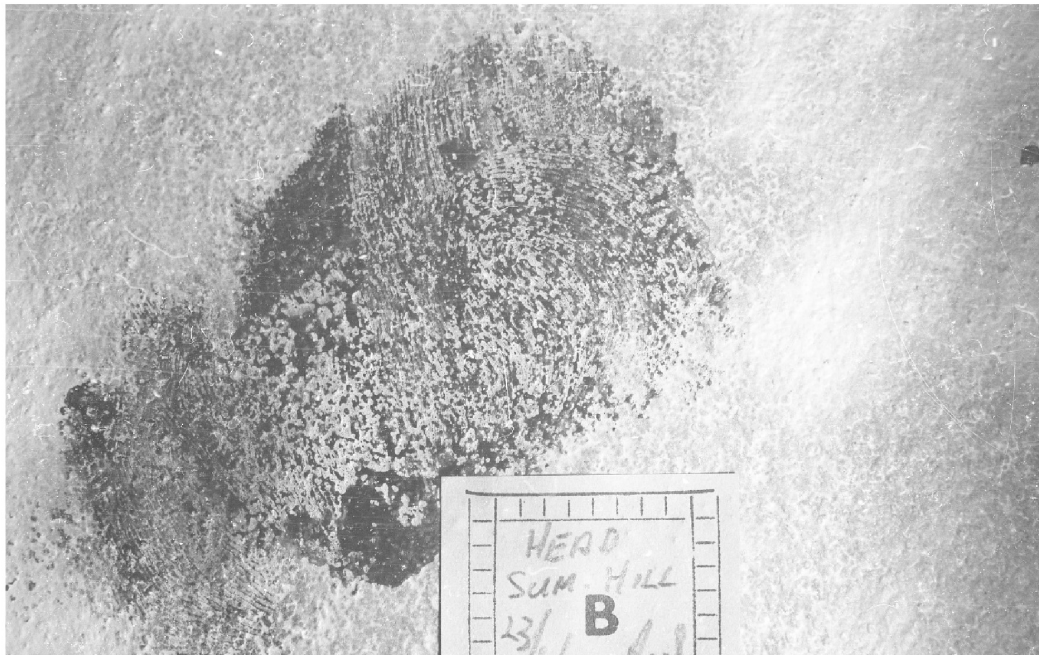
[Redacted]

Kate Louise REID
Senior Crime Scene Officer
19 September 2023



Page 4 of 15
 Statement of Senior Crime Scene Officer Kate REID
 In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

PHOTOGRAPH 4: ENLARGEMENT OF GRAPH B(3) - PRINT IN BLOOD NEAR BODY ON KITCHEN WALL



8. The statement provided by Sergeant Robert STONE from the Central Fingerprint Bureau, C.I.B. Sydney on 16 November 1977 states, *On the kitchen wall, beside the body, were a number of marks in blood which I photographed, two of these were palm prints suitable for identification, but at this stage have not been identified.* This indicates Sergeant STONE determined two of the palm prints photographed on the wall to contain sufficient detail to be suitable for identification. At the time of this determination, the process of fingerprint analysis involved using a magnifying eyeglass to view and compare the photographed fingerprints to hardcopy record prints. The fingerprint graph labelled B(3) as depicted in PHOTOGRAPH 4, contains limited detail. With the digitisation of fingerprint images and the ability to import the image into Forensic Comparison Software, I have greater discriminating power for low quality prints in when compared to the use of a magnifying eyeglass. The Forensic Comparison Software has significant advantages for applying the ACE-V methodology and determining print suitability. I was able to zoom, rotate, change brightness, contrast, and saturation for this image. I determined this fingerprint to be suitable for comparison.
9. The statement provided by Senior Constable Robert MUNDAY from the Scientific Investigation Section, Sydney on 26 September 1976 states, *on the western wall of the kitchen was a palm print in blood, above where the body was laying.* I am unable to deliberate further on the number of palm prints observed by Senior Constable MUNDAY and there were no photographs in his statement related to these observations.

Witness:

[Redacted]

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 Chief Inspector
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 19 September 2023



Page 5 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

AUTOMATIC SEARCHING OF PALM PRINT B(1) ON THE NAFIS DATABASE

10. In the statement provided 20 June 2023, I outlined an upgrade that occurred in 2015 relating to the V11 matcher for the National Automated Fingerprint Identification System (NAFIS). The letter from Crown Solicitor, Enzo CAMPOREALE, requested further explanation in relation to why the latent fingerprints registered on the system were “not able to be automatically re-searched against the database” following the V11 matcher technology update in 2015.

The V11 matcher upgrade provided more accurate coding of the record prints on the database and a new algorithm that provided greater accuracy and matcher capabilities for future searches only. At the time of this update, NAFIS did not have the capability to automatically re-search latent or record prints already on the database.

11. In the statement provided 20 June 2023, I outlined issues relating to the conversion set of record fingerprints for Mr. SIMSEK. The letter from Crown Solicitor, Enzo CAMPOREALE, requested further explanation in relation to why the conversion set of record fingerprints for Mr. SIMSEK was not subject to the quality assurance process of the current NAFIS system.

The record fingerprints of Mr. SIMSEK were converted from hardcopy to digital format in the conversion process carried out by SAGEM from early 2000 as outlined in paragraph 11 of the statement provided 20 June 2023. This digitisation was subject to both the quality of the technology and the quality assurance of NAFIS at the time. As outlined, it is likely the automatic minutiae extraction process (auto-coding) of the time resulted in spurious minutiae or missing minutiae in the record palm print impressions of Mr. SIMSEK. The minutiae extraction directly impacts NAFIS searching performance. The V11 update is likely to have provided a more accurate coding of the record palm print impressions of Mr. SIMSEK in 2015. A key feature of the algorithm upgrade was the ability to resolve matches with larger numbers of spurious or missing minutiae. Under previous iterations of the matching software, small scale input errors could lead to large scale output errors in terms of potential matching candidates. The reviews conducted in 2002, 2004 and 2005 would have been subjected to the quality of the original minutiae extraction process in 2000 and not the improved coding resulting from the V11 update.

AUTOMATED SEARCHING ON THE NAFIS DATABASE

12. The letter from Crown Solicitor, Enzo CAMPOREALE, requested further explanation in relation to the process of automated searching on the NAFIS database.

Witness:

[Redacted]

Ian Rowney
 Chief Inspector
 19 September 2023

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[Redacted]

Kate Louise REID
 Senior Crime Scene Officer
 19 September 2023



Page 6 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

The process of uploading latent fingerprint records onto the NAFIS database

13. Latent fingerprints are uploaded onto the NAFIS database by a fingerprint examiner. A digital image of the fingerprint is uploaded to the system, the image is calibrated by means of a scale within the image and a box is set around the fingerprint to be captured as a "latent". This latent is then encoded by the minutiae extraction process which can be an automated or manual process (or combination of both). This process identifies features within the fingerprint which a human fingerprint expert would use for identification. The fingerprint examiner nominates a search region of the hand (e.g. individual or combinations of fingers, or segments or combinations of palms) for comparison and a fingerprint pattern type for finger nominations. An effective nomination of the likely finger or palm area reduces the number of candidates searched and leads to improved matching accuracy. A search is then launched for the latent fingerprint against the person record prints on NAFIS the database. The search provides a list of candidates for comparison which is manually processed by a fingerprint examiner. Latent fingerprints that are not identified, are registered on the Unsolved Latent database.

The process of uploading record fingerprints onto the NAFIS database

14. Record fingerprints are captured by Police employees. Record prints can be captured by making impressions of the fingerprints using ink on a hardcopy form or by digital capture using a Livescan machine or Field ID device. Livescan capture of fingerprints has been prevalent since 2000. Hardcopy forms require digitising by means of manual input (requiring digital scanning) by a fingerprint examiner. Digital input of hardcopy forms requires the demographics (personal identification information) on the form to be entered manually, however it is subjected to an automatic encoding process for minutiae extraction of the fingerprints. This process identifies features within the fingerprint which a human fingerprint expert would use for identification. A Livescan machine or Field ID device is an inkless, electronic means of capturing fingerprints and demographics in a digitised format. This information is transmitted to NAFIS and the encoding process is automated. All record fingerprints are subject to a quality assurance process. This may require a manual quality control by a fingerprint examiner. A search is then launched for the unknown record prints against known record prints on the database. Prior to 2012, the search provided a list of candidates for comparison which was processed by a fingerprint examiner. If the record print was not identified to a set already on the database, it was automatically inserted into the NAFIS database. If the record print was identified to a set already on the database, it was automatically merged with the candidate. Since 2012, record prints are searched against the national database via the "Lights Out" process. This process operates with automatic scoring thresholds resulting in a Hit or No-hit outcome. There are some record prints that are not inserted onto the NAFIS database such as record prints taken for application purposes such as visa applicants, adoption applicants, some non-registered employment applicants. These record prints, however, are all subject to searches against the Unsolved Latent database.

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 19 September 2023



Page 7 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

Automatic and/or continual re-searching of unidentified latent fingerprint records against the NAFIS database.

15. All record prints that are uploaded to NAFIS are subject to a *Tenprint to Unsolved Latent* (TP/UL) search. This is an automatic search of the newly entered fingerprint data against all unidentified latent fingerprint records previously stored for matching on the Unsolved Latent database. The search provides a list of unidentified latent fingerprints for comparison which is processed by a fingerprint examiner. A TP/UL search is conducted each time a record set of fingerprints is captured or can be manually initiated by an examiner. If an individual has multiple records on the database, a TP/UL search will be initiated each time with the newly fingerprint data.

It is of note, Mr. SIMSEK only has one set of record prints on the NAFIS database. This is a conversion set of prints, as previously outlined. The conversion of hardcopy record prints to digital format was only to create the database for future searching. The TP/UL process was not initiated on record prints until a later date. Consequently, the TP/UL process was never initiated for the single record on the database for Mr. SIMSEK.

16. Latent to person searches on NAFIS must be manually initiated by a fingerprint examiner. There are currently no NAFIS capabilities to flag a latent record for automatic and/or periodic re-search against the person record database.

Notification process for fingerprints identified on the NAFIS database

17. NAFIS searches produce a list of candidates that are manually compared by a fingerprint examiner. If a latent fingerprint is subsequently identified by a fingerprint expert and verified by a verifying expert, a notification of the result is issued on the Exhibits Forensic Information and Miscellaneous Property (EFIMS) system maintained by the NSW Police Force. The results of all NAFIS searches are updated on EFIMS. All notifications are disseminated by an EFIMS specific workflow to the COPS system via the nominated officer in charge and respective crime coordinators. There is currently no direct integration between NAFIS and the NSWPF systems.

Continual re-searching of unidentified latent fingerprint records requested for re-examination by the Inquiry

18. There are currently no capabilities for automatic and/or periodic searching of the unidentified fingerprint records specified for re-examination by the Inquiry, with the exception of TP/UL searches. All unidentified latent prints re-examined at the request of the Inquiry have been registered indefinitely on the Unsolved Latent database using the most globally accurate matching algorithm available. All future record prints captured from any persons will be searched against the Unsolved Latent database. Any identifications that may result from

Witness:

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 19 September 2023

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 19 September 2023



Page 8 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

these searches will be issued on EFIMS as previously outlined with notifications disseminated to the nominated investigating police.

19. The underlying scientific principles, the methodology used to reach the conclusions referred to in this certificate and the various factors to be considered when interpreting fingerprint evidence are outlined in **Annexure 3**.
20. Fingerprint Operations, NSW Police Force is accredited by the National Association of Testing Authorities (NATA) as meeting the requirement specified by the Australian and International Standard (AS ISO/IEC 17025) for the competence of forensic laboratories (NATA Accreditation Number 15184). Accreditation requires adherence to an approved quality assurance system and participation in an external proficiency testing program.
21. I hereby give notice under the Criminal Procedure Act 1986, that the proposed exhibits, which have been indicated in this Certificate, may be inspected at Fingerprint Operations, Forensic Evidence and Technical Services Command, NSW Police Headquarters, Level 4B, 1 Charles Street, Parramatta at a mutually agreeable time.

Witness:

A black rectangular box redacting the name of the witness.

Ian Rowney
Chief Inspector
19 September 2023

Signature:

A black rectangular box redacting the signature of the Senior Crime Scene Officer.

Kate Louise REID
Senior Crime Scene Officer
19 September 2023



Page 9 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

ANNEXURE 1

EXPERT QUALIFICATIONS IN THE SCIENCE OF FINGERPRINTS

Senior Crime Scene Officer Kate Louise REID

I have been attached to New South Wales Police Force Fingerprint Operations, Forensic Services Group since February 2009. Between September 2006 and February 2009, I performed duties as a Scene of Crime Officer at the Blue Mountains Local Area Command. During this time, I have acquired extensive training, knowledge and practical experience in the Science of Fingerprints.

My relevant qualifications include:

- *Certificate of Expertise in the Science of Fingerprints* issued and accredited by the Australasian Forensic Field Sciences Accreditation Board (AFFSAB); now known as the Australasian Forensic Science Assessment Body (AFSAB)
- *Bachelor of Science (Forensic Science)*, from the University of Western Sydney
- *Vocational Graduate Certificate of Public Safety (Forensic Investigation)*, from the Canberra Institute of Technology
- *Advanced Diploma of Public Safety (Forensic Investigation)*, from the Canberra Institute of Technology
- *Diploma of Public Safety (Forensic Investigation)*, from the Canberra Institute of Technology
- *Certificate IV in Crime Scene Examination*, from the Canberra Institute of Technology
- *Certificate of Completion, Advanced Chemical Enhancement and Detection Techniques*, New South Wales Forensic Services Group; Training and Development Services.
- *Certificate of Completion, Ridgeology Comparison Techniques Course*, New South Wales Forensic Services Group; Training and Development Services.
- *Certificate of Completion, Palm Print Comparison Techniques Course*, New South Wales Police Forensic Services Group; Training and Development
- *Certificate of Completion, Digital Crime Scene Photography Course*, New South Wales Forensic Services Group, Training and Development
- *Certificate of Completion, Fingerprint Induction Program*, facilitated by the New South Wales Police

Witness:



Ian Rowney
 Chief Inspector
 19 September 2023

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Kate Louise REID
 Senior Crime Scene Officer
 19 September 2023



Page 10 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

I have also gained extensive practical experience in the Science of Fingerprints while performing duties within Fingerprint Operation, where I have:

- Classified, searched, compared and identified latent finger and palm print impressions developed at crime scenes. I have also passed an annual latent print identification proficiency test in accordance with the standards set by the National Association of Testing Authorities of Australia (NATA);
- Classified, searched, compared and identified inked and livescan finger and palm print impressions on fingerprint ten print forms, utilising both computerised and manual classification systems;
- Examined and managed crime scenes, including many of a very serious and complex nature, and have developed numerous finger and palm print impressions that have been identified.
- Examined deceased persons to obtain finger and palm print impressions for the purposes of identification;

I have additional practical experience from performing duties at the Pemulwuy Laboratories (responsible for the specialised laboratory examinations of evidence for fingerprints using special chemical development and enhancement techniques) where I examined items of evidence and developed finger and palm print impressions that have been identified.

At the completion of my training, I successfully completed various written and oral examination set by the Australasian Forensic Field Sciences Accreditation Board (AFFSAB). I was certified by this panel and issued a Certificate of Expertise in the Science of Fingerprints recognising this achievement.

On numerous occasions I have lectured and trained colleagues in various aspects of the science of fingerprints. Furthermore, I have read and studied many books and manuals pertaining to the science of fingerprints, and I maintain an informed knowledge of current issues and new developments within the fingerprint science by reading articles and journals concerned with the field of forensic fingerprint identification.

I have attended NSW Police Force Fingerprint Expert Conferences in 2015 held at HMAS Penguin, in 2017 held at Holsworthy Army Barracks and in 2019 and 2022 held at the Mantra Hotel, Parramatta.

Witness:

Ian Rowney
Chief Inspector
19 September 2023

Signature:

Kate Louise REID
Senior Crime Scene Officer
19 September 2023



Page 11 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

ANNEXURE 2

GLOSSARY OF TERMS

Crime Scene Officer – An examination officer who collects forensic evidence at complex (major) crime scenes and may also be qualified to conduct fingerprint comparisons. The minimum qualification for a Crime Scene Officer is completion of the Forensic Investigator 1 Course (or equivalent) facilitated by NSW Police Force, Forensic Evidence and Technical Services Command.

Fingerprint – The intricate design of the friction ridge skin found on the underside of the fingers, palm, toes or feet. The word fingerprint is also a generic term used to describe all impressions of friction ridge skin.

Graph – A label used for recording purposes to indicate the location of fingerprint evidence developed at crime scenes or on evidence examined in a laboratory. F1 is the first fingerprint developed during the examination; F2 is the second fingerprint developed during the examination, etc.

Latent fingerprint – The impression left on a surface when contact is made with a fingerprint. Latent fingerprints are normally invisible and are mainly comprised of the residue on the skin, which may include natural perspiration and/or contaminants from other sources (e.g. moisturiser or food residue). Various development techniques are then applied (e.g. fingerprint powder or chemicals) to the fingerprint in order to make it visible.

NAFIS – The National Automated Fingerprint Identification System. This is a computerised database of fingerprint records that is used to search and store both record and latent fingerprints. Although NAFIS is a useful tool in searching latent fingerprints, it does not establish a fingerprint identification – this function is performed by a fingerprint expert.

NATA – National Association of Testing Authorities (NATA) is recognised by the Commonwealth government as the sole national accreditation body for establishing and maintaining competent laboratory practice

Record Fingerprint – A set of fingerprint impressions collected directly from a person for the purpose of identification. In most circumstances this is comprised of an impression from each of the ten fingers and an impression of each palm. These impressions are most commonly recorded on a 'Livescan' electronic fingerprint device, however, can also be recorded using ink and paper.

Scene of Crime Officer – An examination officer who collects forensic evidence at non-complex (volume) crime scenes. The minimum qualification for a Scene of Crime Scene Officer is completion of the Forensic Investigator 1 Course (or equivalent) facilitated by NSW Police Force, Forensic Evidence and Technical Services Command.

Witness:

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 19 September 2023



Page 12 of 15
Statement of Senior Crime Scene Officer Kate REID
In the matter of the homicide of Ernest HEAD - Forensic Case Number 76/4365

ANNEXURE 3

SCIENTIFIC PRINCIPLES

FUNDAMENTAL PRINCIPLES OF FINGERPRINT IDENTIFICATION

Fingerprint identification involves the assessment of impressions made by friction ridge skin on the underside of the fingers, palms and feet. All findings are premised on three fundamental principles that are supported by extensive bodies of research and empirical testing¹:

- Friction ridge skin is so highly variable that it is not duplicated in another person or another region of the same person (uniqueness).
- Friction ridge skin is permanent and remains unchanged for the life of a person (permanence).
- Fingerprint pattern types vary within limits to allow for systematic classification.

FINGERPRINT IDENTIFICATION METHODOLOGY: ACE-V

Fingerprint examiners employ the *Analysis, Comparison, Evaluation and Verification (ACE-V)* methodology² when analysing fingerprint impressions. The phases of the ACE-V methodology are as follows.

Analysis is the assessment of a friction ridge impression to determine suitability for comparison. This incorporates the interpretation of pattern type, friction ridge path and friction ridge detail. Other factors considered include clarity, surface type, development method and distortion.

Comparison is the process of observing friction ridge detail in two impressions to determine whether or not there is agreement. This systematic, side-by side comparison process is based upon the appearance, sequence and spatial relationship of the friction ridge detail.

Evaluation is the process of reaching a conclusion based on the quality and quantity of information observed in the analysis and comparison phases. There are several possible conclusions that can be drawn:

- **Identified:** The two fingerprint impressions were made by the same person.

¹ For studies supporting uniqueness and permanency of friction ridge skin, see: Organisation of Scientific Area Committees (OSAC) - Friction Ridge Subcommittee 2017, *Guideline for the Articulation of the Decision-Making Process for the Individualization in Friction Ridge Examination (Latent/Tenprint)*. Available from: <https://www.nist.gov/topics/forensic-science/friction-ridge-subcommittee>.

² Ashbaugh, DR 1999, *Quantitative-Qualitative Friction Ridge Analysis: An Introduction to Basic and Advanced Ridgeology*, CRC Press, New York Boca Raton, pp. 87-148.

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 19 September 2023



Page 13 of 15
Statement of Senior Crime Scene Officer Kate REID
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- **Not Identified:** This conclusion can take one of two forms:
 - Exclusion: The two fingerprint impressions were not made by the same person.
 - Insufficient: There is insufficient clear friction ridge detail in the impression/s to conduct a comparison.
- **Inconclusive:** Following the comparison, there is insufficient friction ridge information in the latent fingerprint and/or the record fingerprint to identify or exclude the person as being the source of the latent fingerprint.

Verification is the independent analysis, comparison and evaluation of the friction ridge detail carried out by another qualified fingerprint examiner. In the NSW Police Force - Forensic Evidence and Technical Services Command, the verification step is undertaken by a designated Verification Expert, who is a senior, practicing fingerprint expert appointed to that role based on their skills, knowledge, training and experience in fingerprint analysis. Where the conclusions of the two experts are in agreement, the NSW Police Force – Forensic Evidence and Technical Services Command will report the unanimous decision.

In the majority of cases, the ACE-V process produces a unanimous conclusion between the two fingerprint experts. In rare cases where there are differing opinions between two experts, the case is referred to a senior fingerprint expert for a final determination. Following this assessment, the NSW Police Force – Forensic Evidence and Technical Services Command will report the consensus decision.

The ACE-V methodology, as applied by qualified, practising fingerprint experts, has been the subject of method validation studies and has been shown to be accurate, repeatable and reproducible.³

STATEMENT OF LIMITATIONS OF RESULTS

The conclusions expressed in this report are subject to certain inherent limitations of fingerprint evidence and the ACE-V methodology.

Potential for Error

Qualified, practicing fingerprint examiners have demonstrable and specialised abilities to accurately detect discriminating features in friction ridge skin impressions. The accuracy of qualified, practicing fingerprint experts in comparing and identifying friction ridge skin impressions has been demonstrated to significantly

³Langenburg, G 2012, *A Critical Analysis and Study of the ACE-V Process*. Ph.D. Thesis, University of Lausanne, Switzerland; Pacheco, I et al, 2014, 'Influence of the ACE-V Process: Accuracy & Precision in Latent Fingerprint Examinations', *National Institute of Standards and Technology*, B et al, 2011, 'Accuracy and Reliability of Forensic Latent Print Decisions', *Proceedings of the International Association of Forensic Identifiers*, no. 19, pp. 7733-7738.

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Page 14 of 15
Statement of Senior Crime Scene Officer Kate REID
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exceed that of people who are untrained (i.e. novices).⁴ However, the comparison of fingerprint impressions is a task conducted by humans, and subsequently there exists a potential of error.

To mitigate risk of error, NSW Police Force - Forensic Evidence and Technical Services Command incorporates strict peer review practices requiring independent verification of all fingerprint identifications by a minimum of one appointed Verification Expert. My conclusion(s) is not a statement of fact, but one of expert opinion.

Absence of Fingerprints

It is not always possible to detect fingerprints which are suitable for analysis, even if a person has handled an object or touched a surface. Some explanations for this include:

- Insufficient perspiration or residue on the hands to leave a detectable or identifiable latent fingerprint.
- The poor condition of the receiving surface (e.g. rough, dirty or otherwise unsuitable surface).
- Handling an object in a manner that smears or obliterates any fingerprint on that object.
- Various environmental factors affecting the fingerprint after it has been placed on the surface (e.g. heat, moisture, sunlight, etc.).
- Measures were taken to prevent fingerprints being left on an object (e.g. the person wore gloves).

Age of Fingerprints

There is presently no scientific means of determining the age of a latent fingerprint. In some circumstances, a latent fingerprint may remain detectable and/or identifiable for a considerable length of time, whilst in others it will degrade relatively quickly. Factors which influence this variability include:

- The composition of the latent fingerprint. If it has a high content of fats or oils, it will last a longer period of time.
- A latent impression which is comprised of a large amount of fingerprint residue will more likely survive for a longer period of time than one with a smaller amount of residue.

⁴Tangen, J, Thompson, M & McCarthy, D, 2011, 'Identifying Fingerprint Expertise', *Psychological Science*, vol. 22, no. 8, pp. 995-997; Thompson, M, Tangen, J & McCarthy, D, 2014, 'Human Matching Performance of Genuine Crime Scene Latent Fingerprints', *Law and Human Behaviour*, vol. 38, no. 1, pp. 84-93.

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Page 15 of 15
Statement of Senior Crime Scene Officer Kate REID
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- The type and condition of the receiving surface may affect the detectable life of a latent impression (e.g. porosity, cleanliness and chemical composition).
- If a fingerprint is positioned on a surface which is handled regularly it will more likely be damaged and may only last a limited period of time.
- Fingerprints which are exposed to sun, wind or rain will generally last a shorter period of time than those protected from the elements.
- The shorter the period of time between the deposit of a latent fingerprint and the examination of the surface on which it is deposited, the greater the chance of detection.

Witness:



Ian Rowney
Chief Inspector
19 September 2023

Signature:



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