

Confidential

Omagh Bombing Inquiry (OBI)

Scientific Report 2a

**The Scientific Investigation of the
Omagh Bombing**

**- both in the immediate aftermath in
1998, and following publication of the
Police Ombudsman's 2001 Report**

May 2026

**& including responses to
CP observations
August 2026**

Contents		Page(s)
Executive Summary		5
1. Introduction		10
2. OBI-Q1 Forensic Science Strategies		14
OBI-Q1a	Summary of the overall forensic science strategy for the Investigation of the Omagh Bombing in the immediate aftermath	15
OBI-Q1b	Summary of the overall forensic science strategy for the investigation of the Omagh Bombing following the December 2001 Report of the Police Ombudsman of Northern Ireland	19
3. OBI-Q2 Forensic Testing		24
4. Explosive Devices & Explosive Substances - Chris Hester and Dr Keith Norman		26
OBI-Q1a	Forensic strategy in relation to Explosive Devices and Explosive Substances in the immediate aftermath of the Omagh Bombing	26
OBI-Q1b	Forensic strategy in relation to Explosive Devices and Explosive Substances following the December 2001 Police Ombudsman's report	31
Explosive Devices & Explosive Substances Brief Summary		35
5. Fingerprints – Kevin Kershaw		36
OBI-Q1a	Forensic strategy in relation to Fingerprints in the immediate aftermath of the Omagh Bombing	36
OBI-Q1b	Forensic strategy in relation to Fingerprints following the December 2001 Police Ombudsman's report	36
OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?	37
OBI-Q2b	What forensic testing was carried out, and with what outcome?	38
OBI-Q2c	Comment on past and current views of the reliability of this testing?	40
OBI-Q3	Please identify which individuals are or may be linked by forensic evidence to the Omagh Bombing itself?	48
Fingerprints Summary		49

Contents		Page(s)
6. DNA – Dr Philip Avenell		51
OBI-Q1a	Forensic strategy in relation to Fingerprints in the immediate aftermath of the Omagh Bombing	51
OBI-Q1b	Forensic strategy in relation to Fingerprints following the December 2001 Police Ombudsman's report	57
OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?	57
OBI-Q2b	What forensic testing was carried out, and with what outcome?	59
OBI-Q2c	Comment on past and current views of the reliability of this testing?	62
OBI-Q3	Please identify which individuals are or may be linked by forensic evidence to the Omagh Bombing itself?	63
DNA Summary		63
7. Textile Fibres – Roger Robson		64
OBI-Q1a	Forensic strategy in relation to Fingerprints in the immediate aftermath of the Omagh Bombing	68
OBI-Q1b	Forensic strategy in relation to Fingerprints following the December 2001 Police Ombudsman's report	68
OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?	68
OBI-Q2b	What forensic testing was carried out, and with what outcome?	69
OBI-Q2c	Comment on past and current views of the reliability of this testing?	74
OBI-Q3	Please identify which individuals are or may be linked by forensic evidence to the Omagh Bombing itself?	74
Textile Fibres Summary		75

Contents		Page(s)
8. Marks and Traces – Dr Sarah Jacob		76
OBI-Q1a	Forensic strategy in relation to Fingerprints in the immediate aftermath of the Omagh Bombing	76
OBI-Q1b	Forensic strategy in relation to Fingerprints following the December 2001 Police Ombudsman's report	77
OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?	78
OBI-Q2b	What forensic testing was carried out, and with what outcome?	80
OBI-Q2c	Comment on past and current views of the reliability of this testing?	85
OBI-Q3	Please identify which individuals are or may be linked by forensic evidence to the Omagh Bombing itself?	87
Marks and Traces Summary		88
9. Questioned Documents – Melanie Pugh.....		90
OBI-Q1a	Forensic strategy in relation to Fingerprints in the immediate aftermath of the Omagh Bombing	90
OBI-Q1b	Forensic strategy in relation to Fingerprints following the December 2001 Police Ombudsman's report	91
OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?	92
OBI-Q2b	What forensic testing was carried out, and with what outcome?	93
OBI-Q2c	Comment on past and current views of the reliability of this testing?	95
OBI-Q3	Please identify which individuals are or may be linked by forensic evidence to the Omagh Bombing itself?	95
Questioned Documents Summary		95
Concluding Summary		96
Statement of Truth		100
Annex INQ025127: Extract from AN OVERVIEW OF SCIENTIFIC EVIDENCE IN RELATION TO THE OMAGH BOMBING AND LINKED OFFENCES – Dr John Davison (FSS) 12 August 2005 (Draft Version 2 – 16/10/05)		101

Executive Summary

The history of the scientific investigation of the Omagh Bombing is extremely complex as might be expected from the nature and severity of the incident, the extent of efforts to identify those responsible and the timescale over which these efforts were made. The bulk of the scientific work, particularly at the outset, was carried out in the Forensic Science Agency Northern Ireland (FSANI) Laboratory which was well known for its explosives expertise. Later on, and in relation specifically to DNA, some work was also conducted in laboratories of the Forensic Science Service (FSS) in England and Wales.

This report focuses on two main periods of activity – firstly in the immediate aftermath of the bombing and then following publication in December 2001 of a report by the Police Ombudsman for Northern Ireland on matters relating to the Omagh Bombing.¹ *The report does not deal with any potentially related incidents except by way of general reference.*

The Immediate Aftermath of the Omagh Bombing

The Omagh Bombing occurred as part of increasing terrorist activity following the breakdown in 1996 of the 1994 Provisional IRA ceasefire. FSANI had scaled back its resources for investigating explosions while the ceasefire was in force, with some staff re-assigned to other parts of the Laboratory. There is nothing to suggest any re-arrangements or increase in staff when terrorist cases began to rise again from 1996 onwards. In fact, there was only one on-call explosives scientist at the Laboratory on the day of the incident and he was away, so other scientists stepped in in his place including, principally, Dennis McAuley. Although working in the Laboratory's fire department at the time, McAuley was an extremely experienced forensic explosives scientist in his own right.

Nothing has been found to suggest that McAuley worked to any formal investigation strategy, or that there was any written guidance available.² Rather, he relied on his training, knowledge and extensive experience to guide him as to what to do and when, when organising crime scene examinations, conducting subsequent laboratory work, and liaising with other scientists involved.³ While this was still a common approach in forensic laboratories at the time (authors' own experience), more formal strategies were beginning to assume greater importance in forensic science to ensure that examinations and testing start and remain properly focused throughout the lifetime of an investigation. This was partly to ensure that all critical matters are addressed, and that questions at a later date about why things were done in the way they were, can be answered. But it was also as part of the drive for continual improvement, and where

¹ INQ000274

² INQ035230, p6

³ INQ035230, p6, p8-10, p14, p15

lessons need to be learnt in how to do things better, and to provide confidence that the laboratory concerned is providing value for money.

Against this background, McAuley undertook a relatively wide range of roles in the scientific investigation of the Omagh Bombing including in broad terms:

- Leading the forensic examination of the scene by police and scientists, and the selection and collection of potential evidence from there
- Acting as the main point for liaison with the police investigation team
- Leading the subsequent laboratory work – involving a team of scientists in several different disciplines, and
- Conducting some of the explosives-related laboratory work himself

In the late 1990s, and with all these responsibilities, it is disappointing but not particularly surprising that there was apparently no formal written strategy and associated paperwork for the early scientific investigation. And McAuley, and the police officers he worked with, made good progress in the first few days, identifying amongst the large amounts of post-blast debris, component parts of the explosive device. This apparently confirmed the likely involvement of dissident republican terrorists who may previously have been linked to the Provisional IRA – a useful piece of the jigsaw the police were putting together.

A large number of items from the crime scene – including the components of the explosive device, parts of the vehicle in which the bomb was conveyed, and handsets etc from telephone boxes from which warning calls were made - at Crossmaglen and Forkhill, and from various suspect-related and other addresses, were submitted to the Laboratory for examination. Here, McAuley liaised with, and co-ordinated a team of other scientists in relation to the types of examinations which should be carried out on them, and the order in which these should be conducted. These scientists comprised forensic biologists – to deal with DNA, hair and textile fibres, fingerprint experts, a questioned document examiner, a marks and traces specialist, and other explosives/microchemistry experts. These scientists, along with McAuley, all attended regular case conferences with the Royal Ulster Constabulary (RUC). Key parts of their findings are summarised in the Concluding Summary at the end of this report.

From descriptions, and the types of paperwork discovered within the OBI documentary record, it seems as though the scientists probably liaised informally together – perhaps with McAuley as a focal point, and periodically reported the results of what they had done and found by way of memoranda, reports and witness statements etc.

Following Publication of the Police Ombudsman for Northern Ireland's Report in 2001

There were clearly some concerns about the police investigation overall to the extent that, in March 2000, the RUC conducted an internal review of their Omagh enquiry. The review team invited a Specialist Advisor from the FSS – John Davison, to conduct a separate review of forensic science aspects of the investigation. In October 2000, Davison produced a report on his review which contained a large number of recommendations – some relating to general aspects of case management, and some to potential further technical work that could be conducted in the case. One of his general recommendations was for “a scientist, having no other specific involvement in the case, be appointed to liaise closely with the investigation team, and to co-ordinate the work of the various specialists throughout the enquiry.”⁴

Davison himself was promptly appointed as Forensic Co-ordinator to the investigation team, with Ruth Griffin – one of the biologists at FSANI and a leading textile fibre expert, as Lead Scientist for the case. There then followed a period of intense activity with a more formal strategy and, as the technical recommendations from Davison's first report were acted upon and developed, documented through more formal progress reports.

In December 2001, Davison and Griffin produced a joint report describing the “exhaustive attempts” made by the scientific team to identify any links with any suspects for the Omagh Bombing, and/or to link the case with any of another three incidents in 1998 prior to Omagh – namely car bombs in Lisburn on 30 April, Newry on 13 July, and Banbridge on 1 August,⁵ and in which the same sort of explosive device had apparently been used *and mobile phone links also established*⁶. *(The authors of this report cannot comment on whether some incidents might be more appropriately linked with the Omagh Bombing than others because, as mentioned earlier, ‘other incidents’ have not formed part of their remit to date)*. They said that the main forensic opportunities now lay with fingerprints, and the new DNA profiling ‘Low Copy Number’ (LCN) technique which had been introduced by the FSS in 1999 for use within their own laboratories and, by the time of this joint report, was becoming more widely available. However, the technique was still only accessible from the FSS, and so the work involved was sent to FSS laboratories for the purpose. A large amount of LCN testing then followed, much of which falls outside the timescale of this report.

One of the issues affecting the suitability of items and samples for LCN DNA testing revolved around the risk of contamination to which they could have been exposed if previously examined in the laboratory before LCN became available. This is because LCN is much more sensitive – ie. requires much less sample to produce a result, than

⁴ INQ026552
⁵ INQ034726, p6-7
⁶ INQ000251, p2, p3

the previous Second Generation Multiplex (SGM) technique (see *Scientific Report 1, April 2026 page 6, paragraph 8.13*) and so anti-contamination measures for its use needed to be far more stringent than hitherto. Unfortunately, but not surprisingly, this only became obvious once LCN had been introduced. The upshot was that some items/samples which had already been examined and tested with SGM but produced no result, could not then secondarily be subjected to LCN.

In any event, this clearly shows that it was the internal review of the police investigation in 2000 that effectively kick-started a new, more energetic and structured approach to the forensic science investigation, and not the publication of the Police Ombudsman's report *at the end of the next year* – albeit this might well have provided added impetus to the effort.

In a later, 2004 report Davison described how he had assessed the extent of quality assurance in place at FSANI and had found, for example, that: "the examinations and tests performed are the most appropriate to serve the needs of justice in this case. As far as is possible, all of the examinations and tests carried out were appropriate and no items that should have been examined have been overlooked", and "all of the work has been carried out to current established best practice, using the necessary reference and control samples"⁷. The general quality of the case notes, and wide range of written quality management procedures reflected in documents on the OBI database, would tend to confirm this, although the authors are happy to accept Davison's judgement from his in-depth review of the original casefiles and discussions with the scientists involved.

And in conclusion....

There are always more scientific examinations and further testing that can be performed in a case. Sometimes they illustrate the law of diminishing returns, but sometimes they can be critical in 'unlocking' evidence contained within it. But the documentary evidence here suggests that:

- The scientific work was of a high standard for the time.
- Despite there being no formal strategy at the outset, the scene examination appears to have been dealt with efficiently and to have uncovered critical evidence - with the explosive device identified at a relatively early stage in what were by any standards very difficult circumstances.
- Team structural issues, and perhaps laboratory staffing levels, may well have meant that some laboratory work was less well co-ordinated and documented than it might otherwise have been. This could conceivably have led to some missed evidential opportunities, although many of these would have been made

⁷ INQ034729, p8, p9

up for by renewed impetus provided by support from the FSS Scientific Advisor, and appointment of the Lead Scientist within FSANI.

- But an area where potentially the most significant missed opportunities lay related to fingerprints. These arose from the limited range of reference samples taken from individual suspects, the apparently narrow scope of fingerprint database interrogation, and the apparent and unusual lack of support from the *New Scotland Yard (NSY)* Fingerprint Bureau who kept most Active Files on terrorist suspects operating in the UK
- The highly sensitive LCN DNA technique had been under development at the FSS but had not been released for casework use at the time of the Omagh incident and, when it was – from 1999 onwards, it was only available as a service through the FSS. It was then that the extreme risks of contamination associated with use of the technique started to become evident and measures began to be put in place to try to avoid them. This was around the time (2001) that use of the technique was suggested for Omagh, when many of the examinations of suitable items had already been carried out. In other words, when it was too late for these risks to have been mitigated in relation to these items.

In 1998, fingerprints and intelligence were the two principal means by which suspects in criminal investigations were initially identified. DNA was useful, but still in relative infancy and unable to play the central role it occupies today in early suspect identification. *At the time of the Omagh bombing, Fingerprint analysis and comparison was conducted by over 40 Fingerprint Bureaux throughout the UK including Northern Ireland and had been supporting UK Policing for approximately 100 years. Fingerprinting provided real time information for investigators, capable of identifying individual people and linking them with crimes or victims of crime. As such, it was the most powerful technical tool that detectives had at their disposal and augmented the 'intelligence' they were able to obtain from witnesses and other sources during their investigations. It was clear from the outset that DNA profiling was going to become a similarly powerful technical tool for investigators, but this did not become a reality until the early 2000s – by which time techniques had improved and databases had reached a sufficient size to start to be really useful. This was all tacitly understood within the police investigation community, including by all the authors of this report.*

Such early identification of suspects is critical for effective forensic science because potentially significant physical marks and traces on, for example, suspects' clothing, in their vehicles and items at addresses associated with them can be lost and/or become changed over time. To this extent, anything which affects initial identifications and the speed with which these can be acted upon, can have a significant impact on the rest of a forensic investigation.

1. Introduction

- 1.1 This report inevitably contains information which may add to the distress of Core Participants, especially bereaved families and other survivors, and it is important to bear this in mind when reviewing it. The authors have tried to ameliorate this as much as possible when addressing the questions posed by the OBI.
- 1.2 The report should be read in conjunction with OBI Scientific Report 1, INQ041368 April 2026 which outlines the sorts of tests and techniques involved. Similarly structured around specific questions from the OBI, this report begins by outlining the forensic science strategy developed by police investigators and their forensic advisors from the FSANI Laboratory in the immediate aftermath of the Omagh Bombing.
- 1.3 The report briefly explores how this strategy changed during the months and first few years that followed up until the period following publication of the Police Ombudsman's report in 2001. This change appears to have started with the general Review of the Omagh Bombing Investigation carried out by the RUC in 2000, and specific forensic science reviews associated with it involving Specialist Advisors from the FSS, and the Head of Physical Evidence from the National Crime Faculty (NCF). Changes in strategy also reflected the emergence of new DNA technology not available at the time of the original investigation.
- 1.4 The main author, Professor Gallop, describes broad changes in forensic science strategy, with more specific detail added later by the OBI individual scientists in their own technical sections. Narratives of some of the scientists go further forward in time than others, depending on events in their own specialist areas.
- 1.5 The report considers items which were recovered from the scene of the Omagh Bombing, or elsewhere in connection with it, and submitted for forensic testing in the following specialist areas - Fingerprints, DNA, Textile Fibres, Marks and Chemical Traces, and Questioned documents – the backgrounds to which were dealt with in OBI Scientific Report 1, April 2026. Explosive devices and Explosive substances are referred to only very briefly and only as they relate to investigation strategy and the background against which this was devised. The detailed findings and conclusions are explored in full in the separate report from the Forensic Explosives Laboratory (FEL).
- 1.6 In each case, the report describes which items were submitted to FSANI, what forensic testing was undertaken on them, and with what results. At the same

time, it considers past and current views of the reliability of this testing, echoing some of the observations contained in OBI Scientific Report 1, April 2026. INQ041368

The technical experts providing this expert commentary are the same as in Report 1, namely:

- Explosive Substances – Dr Keith Norman
- Explosive Devices – Christopher Hester
- Fingerprints – Kevin Kershaw
- DNA – Dr Philip Avenell
- Textile Fibres – Roger Robson
- Marks and Traces – Dr Sarah Jacob
- Questioned Documents – Melanie Pugh

1.7 In the light of all this, the report considers what evidence, if any, was uncovered during the relevant time period, and to what extent this was capable of identifying specific individuals who may be linked by forensic science to the Omagh Bombing.

1.8 Finally, the report draws all the various strands together by way of a Concluding Summary.

1.9 In creating this report, the scientists concerned have relied on the same large collection of (over 2,000) scanned documents (together comprising approximately 28,000 pages of information) as OBI Scientific Report 1, April 2026. Information relevant to the questions considered here is similarly scattered amongst these documents reflecting the long and complex history of the case, the repeated and varied efforts to solve it, and the extent to which records have previously been interrogated and disturbed in connection with this.

1.10 Compounding this difficulty when attempting to answer the OBI's specific questions here – perhaps particularly in relation to DNA, Textile fibres, and Marks and traces are for example:

- Separate exhibit numbering/unique referencing systems used by police, and scientific teams – which sometimes makes it difficult to be sure precisely which item is being referred to
- Involvement of items from different incidents – sometimes with the same exhibit references – for the same reason

- Multiple scientific teams across whom the work has been spread – who each have their own individual way of recording things
- Different systems used for referring to the many sub-samples taken from some of the exhibits – which makes them difficult to track through time and ascribe to them individually the right results
- Multiple methods of recording and reporting results including memoranda, telephone calls, informal hand-written notes on files, review and progress reports, and evidential statements etc.

1.11 In relation specifically to fingerprints, the documents record that the Metropolitan Police *Service (MPS)* offered assistance to the (RUC) in the aftermath of the bombing, and that a team of Met officers were deployed to facilitate the sifting of bomb debris at the Girdwood Army Camp. It is also more than probable that finger-marks recovered in relation to the bombing were sent to the Fingerprint Bureau at New Scotland Yard (NSY) for comparison. However, no documents have been discovered within the OBI document database available to the scientific team that pertain to the Met Police Anti-Terrorist Branch (SO13) or to the Force's Fingerprint Bureau at NSY. *This may be because none were sent or, alternatively, that documents relating to this have been missed owing to the complexities of conducting scientific document searches on the OBI document database.*

Certainly, finger-marks were sent to a number of other fingerprint bureaux - including the Scottish Fingerprint Service, the Garda Siochana Fingerprint Bureau, and the Leicestershire Police Fingerprint Bureau.⁸ Over and above this, from the author's own experience of the Manchester Bombings in 1992 and 1996, NSY Anti-Terrorist Fingerprint Branch (SO13) took over both the incidents and all fingerprint exhibits were transferred to NSY Fingerprint Bureau where the Anti-Terrorist Branch (SO13) was based. Greater Manchester Police (GMP) then provided support in the form of seconded fingerprint experts for the duration of the investigations. It is understood that other mainland UK police forces who experienced terrorist incidents of this nature also had a similar arrangement with NSY Anti-Terrorist Branch (SO13).

The Anti-Terrorist Fingerprint Branch had a highly experienced team of fingerprint experts and crime scene officers with a wealth of experience in this specialist area. They also had extensive Active Files of known terrorist suspects and databases which were constantly being added to as intelligence was received on both active and new suspects from a range of sources. It would therefore be extraordinary - given the severity of the Omagh Bombing

⁸ INQ034013

with considerable loss of life, if this facility had not been utilised by the RUC and Security Services at this time or, at the very least, that recovered fingerprints were not submitted to the Anti-Terrorist Fingerprint Branch at NSY when all searching and comparison work had been completed by the RUC Fingerprint Bureau. This is especially since the MPS already had first-hand knowledge of the incident having provided support at the scene.

It therefore follows that, if the RUC Fingerprint Bureau did not utilise the extensive and highly experienced resources of the Anti-Terrorist Fingerprint Branch (SO13) as part of the initial and ongoing investigations, then an excellent opportunity for support was lost.

- 1.12 Similarly, the SO13 police national Bomb Data Centre (BDC) and the RUC Weapons and Explosives Research Centre (WERC) regularly exchanged information on IRA IED's including about Timer Power Units (TPUs) and their component parts. So far as the author, Chris Hester, is aware, the SO13 BDC and WERC shared information from as early as the mid-1970s and continue to do so today in their current iterations as the UK Police National Bomb Data Centre and the PSNI Centre for Information of Firearm and Explosives (CiFEx). This information sharing occurred on a general week-to-week basis as well as regarding specific incidents. But, *for whatever reason*, there are no documents from WERC or the BDC within the OBI document database in relation to the bombing, nor any records of any communication between the BDC and WERC in relation to the specific TPU (Mk 19) used in the Omagh Bombing.
- 1.13 Against this background, while the authors have made every effort to ensure the contents of this report are complete and accurate, they reserve the right to alter or amend these should further review uncover additional and/or different information. *These concerns have been echoed by several of the original scientists involved in the case in their recent (2026) statements - for the drafting of which they had to rely on the same documentary database.*^{9 10}
- 1.14 For simplicity, the Northern Ireland forensic science laboratory is referred to as FSANI throughout, even though its name was changed in 2000 to Forensic Science Northern Ireland (FSNI).

⁹ INQ042504, p7

¹⁰ INQ042505, p1

2. OBI-Q1 Forensic Science Strategies in General

Preparedness for Terrorist Incident Scientific Investigations

- 2.1 In the wake of the Provisional IRA ceasefire agreement in 1994 and associated drop in terrorist cases, the FSANI Laboratory scaled back staffing levels in its Explosion and Fire sections, transferring staff to other departments within the Laboratory. When the ceasefire failed – in 1996, and perhaps augmented by activity from other dissident groups, the numbers of cases submitted to the Laboratory rose again - from 9 recorded in 1996, to 65 cases in 1997, and 76 cases in 1998.¹¹
- 2.2 Forensic laboratories tended to cope with peaks and troughs in demand by performing only the most essential examinations, prioritising cases and, in exceptional circumstances, drafting in additional help from elsewhere¹². The first of these measures is very unlikely to have been applied to a case of the size, complexity and sensitivity of the Omagh Bombing and, if it had, John Davison would have picked it up and commented on it. As to the second, the case would automatically have been at the top of the Laboratory's priorities. In relation to the third measure, one of the authors of this report recalls that, around 1997/98, a general request was made for any FSS staff who would be willing to be temporarily seconded to FSANI to help with the Laboratory's caseload. No communications between UK forensic laboratory directors have been identified on the OBI documentary database which might have helped to confirm this. *One of the original scientists in the case referred to UK laboratories helping to reduce backlogs in casework by taking agreed numbers of small cases and carrying out the examination and analysis*¹³.
- 2.3 Against this background, in August 1998 there was just one full-time on-call explosives expert in FSANI. When occasion demanded, he could be supported by others including Dennis McAuley - who now worked mainly in the Fire section of the Laboratory, and Walter McCorkell. It was McCorkell who attended the scene of the Omagh Bombing when the call came through, and McAuley who then took over the following day¹⁴. At that time, McAuley had attended and investigated no fewer than 150 terrorist explosion incidents and was therefore a very experienced forensic bomb scene examiner.¹⁵
- 2.4 In addition to explosion and fire expertise, the Laboratory had scientists in a number of other technical disciplines who had experience of working on

¹¹ INQ035230, p2-4

¹² INQ013687, p10

¹³ INQ042141, p5

¹⁴ INQ022142, p7

¹⁵ INQ035230, p7

terrorist cases. These disciplines included, for example, fingerprint enhancement in a Specialist Fingerprint Unit (the SFU) *which worked closely with RUC fingerprint experts*,¹⁶ DNA, hairs and textile fibres (Forensic Biology), tool and other types of marks, and chemical traces (Forensic Chemistry), and questioned documents.¹⁷

OBI-Q1a	Summary of the overall forensic science strategy for the Investigation of the Omagh Bombing in the immediate aftermath
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- 2.5 There appears to have been no formal, written strategy for the scene investigation of the Omagh Bombing, or written guidance that might be followed for such incidents. Rather, Dennis McAuley described working to achieve a series of objectives at the crime scene for which he was responsible, relying on his own and his colleagues' extensive knowledge and experience of investigating bombing incidents.¹⁸ These objectives included: preserving the scene and ensuring safety there; identifying and managing other priorities including identifying necessary resources; and briefing others as necessary in order to record the scene, search it thoroughly for any remains of the device responsible, and record, recover, package, and label all potential evidential traces or sources of such traces - such as vehicle remains, bulk debris, and road sweepings.¹⁹
- 2.6 The lack of a formal strategy in 1998 is not entirely surprising even in such a large and serious case as the Omagh Bombing. Historically, forensic examination strategies had largely mirrored requests by police at crime scenes, discussions at subsequent case conferences and on forms accompanying the submission of items to the laboratory, with adjustments or alternatives suggested by the scientists if and as they considered appropriate. Scientists had tended to conduct much of the laboratory work themselves and have their own 'dedicated' technical assistants to help them, and with whom they developed a close working relationship. In the 1980s as laboratories expanded and techniques became more sophisticated, some switched to operating a 'pool' of assistants from which one or more would be assigned to each specific case and the scientist(s) designated to report it. At the same time, dedicated technical teams were established to operate the increasingly sophisticated scientific instruments – for example for DNA and chemical analysis.
- 2.7 While this ensured more efficient use of assistants and technicians, it diluted the close working relationships with specific reporting scientists that had

¹⁶ INQ042457, p2

¹⁷ INQ035230, p14, 15

¹⁸ INQ035230, p6, p7

¹⁹ INQ035230, p5, p6

developed under the previous system. This meant that reporting scientists had to become more specific with their instructions as to what they required in individual cases and this, in turn, led to an increasing need for written examination and testing strategies to be drafted for the assistants to follow. In the 1990s, additional pressure to demonstrate value for money and improved quality assurance reinforced the need for written strategies. Different forensic laboratories developed in different ways at different speeds depending on their priorities and historic operational arrangements. It is not clear precisely where the FSANI Laboratory stood in all this. *While they were contracted to deliver services to the RUC,*²⁰ because they were centrally funded, the sorts of commercial pressures that were beginning to affect forensic laboratories in England and Wales might not have applied so directly to them.

2.8 In any event, Dennis McAuley attended the Omagh bomb scene from 16 – 20 August 1998, where he worked with RUC SOCOs and search teams, photographers and mappers, stolen car personnel, and MPS debris search teams²¹. The RUC held regular nightly case conferences - including McAuley and other scientists from the Laboratory, in which:

- The SIO/CID were updated with progress made during the day both at the scene and in the laboratory
- The RUC described progress made with their enquiries, and
- Any actions, and plans and resources for the following day were discussed and prioritised. All this was recorded in a log of decisions for the overall scene examination strategy.²²

2.9 McAuley's and police efforts at the scene - including line-abreast searches, and separate searches - particularly at Girdwood Barracks, of the large quantities (several skips full) of debris swept up from the scene, quickly yielded critical parts of the explosive device. These helped to identify it – as a Mark 19 (Mk 19) TPU, which had been used by terrorists in Northern Ireland (primarily PIRA) since 6 January 1998 at Newry Street, Banbridge.^{23 24 25}

2.10 These parts from the scene were sent to the FSANI Laboratory for detailed examination, along with a large number of other items – notably including the remains of the bomb vehicle, items from victims, and items and samples from inside the telephone boxes from which warning calls had been made. The

²⁰ INQ042141, p4

²¹ INQ035230, p11

²² INQ035230, p16

²³ INQ035230, p16-17

²⁴ INQ013687, p13

²⁵ INQ006207, p2-7

laboratory submission process was achieved using a laboratory form to capture key details including the case information and continuity details, the laboratory submission number, the unique item identification mark, and the precise origin and description for each item. In addition, the purpose of the submission was described, and the types of testing proposed. The laboratory would have considered the suitability of the request and there may have been some discussion with the submitting officer and amongst scientists involved about the scientific appropriateness of the specific tests requested, and the order in which these should be conducted. Laboratory submission documents and associated paperwork are scattered through the OBI database mostly depending on the scientific purpose of each of the various submissions.²⁶

- 2.11 In addition to his roles in relation to scene examination and as an expert in explosive devices and substances, McAuley also led the investigative effort within the Laboratory with responsibility for 'directing the types of examinations and analyses required for each item (and in what sequence)'.²⁷ Even at the time, this seems to have been an extraordinarily wide range of activities for any one person to have been responsible for – reflected in later recommendations from FSS Specialist Advisor, John Davison, for these to be shared with at least two or three other specialists.²⁸
- 2.12 It is not clear whether and to what extent this impacted on the progress of the investigation, but each of the scientists leading the effort in their own individual specialist area(s) were properly trained and experienced and, to this extent, will not have needed to be led by the hand. Where it might conceivably have had a bearing is on co-ordination of their efforts, the speed with which some examinations were progressed, and/or recording of discussions and decisions between them. For example, Davison mentions that the outer surfaces of the vehicle registration plate from the bomb car was examined for fingerprints but that later, when it was separated and its inner surfaces also examined for fingerprints, textile fibres and hairs were not considered because the biologist (John Logan) had been unaware.²⁹
- 2.13 So far as speed is concerned, and as regards Marks and Traces, the record of an internal case conference held on 13 June 2001 indicated that the items and debris samples from the bomb scene had now been examined. This suggests a relatively slow start at least in relation to this type of evidence. At this time, most items were unsuitable for scientific examination being rusted, heat or explosion damaged, mouldy, too small or (in the case of vehicle bodywork)

²⁶ INQ024683, p3-4

²⁷ INQ035230, p8, p14, p15

²⁸ INQ026552

²⁹ INQ026552

stripped of their original painted surface.³⁰ However, it is not possible to say whether or not a slow start contributed to any of this.

- 2.14 Of course, laboratory work can be affected by sometimes inevitable delays in identifying suspects. This is because tiny traces of evidence can be lost over time, and the condition of items can change. For instance, it was too late to compare some potential tools from suspects with the striation marks around the edge of the bomb vehicle's number plate because, by the time the tools were seized, their cutting surfaces would have changed through use in the interim.
- 2.15 There is unlikely to have been much, if any, formal supervision of the Lead Scientist's work but, with a case as large and as serious as this one, it would be expected that the Laboratory Director – Richard Adams, would have taken a personal interest in it, to help ensure that the work was conducted in as thorough and as timely a way as possible. The authors have found nothing *specific* in the OBI documentary database to confirm this, but that is not to say that no written note exists, or that this high level of supervision was not carried out on an informal basis. *There is an indication that Adams inspected one item in the case³¹ but not necessarily directly in connection with supervision.*
- 2.16 In any event, with submission of items to the Laboratory, the range of scientific examinations was broadened to include, for example, fingerprints and DNA, hairs and textile fibres, tool and manufacturing marks, and chemical analysis - of explosive and other traces.³² Some of this was in an effort to explore more specific aspects of the scene but increasingly the work began to focus on physical evidence which might ultimately help to identify who might have been responsible. In connection with this, items were clearly also collected and submitted from individual suspects and their home addresses and other locations and items relating to them³³ – see technical sections in this report, and the Annex which includes a useful summary – albeit in draft form, of the scientific contribution to the Omagh Bombing investigation, referring to various suspects' items.³⁴
- 2.17 Working backwards from all this, it seems clear that Dennis McAuley's primary strategic focus in the aftermath of the bombing can be summarised as:
- locating any remains of the bomb which might indicate which organisation was most likely to be responsible for it, and then

³⁰ INQ024699, p207

³¹ INQ000261, p18

³² INQ035230, p14, p15

³³ INQ026552

³⁴ INQ025127, p43-49

- looking in detail for any physical evidence on those remains and associated items - such as the remains of the bomb vehicle, and items from phone boxes used to make warning calls, which might conceivably be capable of linking them directly or indirectly with specific individuals

and, following the identification of the type of explosive device involved:

- investigating potential links with three other recent bombings in Northern Ireland, namely, at Lisburn (30 April 1998), Newry (13 July 1998), and Banbridge (1 August 1998) which had featured the same type of TPU.

The commonality of the Mk19 TPU in previous incidents will have been noted by FSANI, the military and RUC, and links between their design and construction would have been made. However, without researching the forensic work completed by FSANI on those previous incidents, it is impossible to say whether they had or could have drawn any forensic links between them.

As already mentioned, linked incidents fall outside the scope of this report but of general interest here is the fact that the Mk 19 TPU had several variants in terms of components used. For example, one version was constructed using a white translucent 'SAVIL' box, a number of others used an 'Addis-like' blue-lidded lunch box, and a third type had been built using a grey electrical box. Whilst all had the same technical and circuit designs, and were therefore all Mk 19 TPUs, the final devices would have been visually distinguishable owing to the different materials used to construct them.

OBI-Q1b	Summary of the overall forensic science strategy for the investigation of the Omagh Bombing following the December 2001 report of the Police Ombudsman of Northern Ireland
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- 2.18 The Police Ombudsman's report of December 2001³⁵ described how the ACC Crime for the RUC had commissioned an internal but independent review of the original Omagh Bomb enquiry. This was led by DCSupt Brian McVicker and commenced its work in March 2000. In May 2000, Dave Loxley – a Specialist Advisor from the FSS, was invited to provide forensic science support for the RUC Review and in June that year he wrote to DCSupt McVicker outlining a strategy for his forensic review and early thoughts³⁶.

³⁵ INQ000274

³⁶ INQ022142, p1-12

2.19 Shortly afterwards John Davison – another FSS Specialist Advisor, took over Loxley's role. Davison issued his own report in October 2000³⁷. This represented a thorough and detailed review of all aspects of the forensic investigation to date. It is not surprising that his strategy was more structured and comprehensive than McAuley's as this is precisely what the Specialist (or Scientific) Advisor role was established to do – (see OBI Scientific Report 1, April 2026, page 16, paragraph 2.12). In addition, his appointment coincided with the development by the FSS of their new Case Assessment and Interpretation (CAI) Model for assessment and strategy setting at the start of scientific investigations, adding more structure³⁸ and focus to them – (see OBI Scientific Report 1, April 2026 page, 19, paragraph 2.21).

INQ041368

2.20 Adopting a slightly different approach, Davison considered the manner in which the offence had been committed and the forensic opportunities potentially presented by each of the offender's actions in relation to this.³⁹

These actions included:

- Constructing (and storing) the explosive device
- Stealing the vehicle and storing it until required (2 days)
- Making and fitting false number plates
- Loading the device and explosive into the vehicle
- Driving the vehicle to Omagh
- Making warning telephone calls

2.21 This extended the number and range of potential opportunities for forensic testing further, as did the availability of the new, more sensitive LCN DNA profiling capability. It also introduced other potential ideas for consideration such as voice, and CCTV analysis - *neither of which formed part of the OBI science team's remit and/or fell within the range of their expertise*. All these were captured in a series of 25 recommendations for possible further work in the case.⁴⁰

2.22 These recommendations were accompanied by a series of 10 general recommendations⁴¹ for improving the conduct of forensic casework. These included, for example, the appointment of an independent scientific co-ordinator, a crime scene manager and an exhibits officer in future incidents – to reduce the roles and responsibilities of individual scientists at complex

³⁷ INQ024699, p113-141

³⁸ INQ024699, p192, p243-246

³⁹ INQ026552

⁴⁰ INQ026552

⁴¹ INQ026552

crime scenes, consideration of new, strict anti-contamination measures at all scenes from which items and samples are collected on which LCN analysis may subsequently be required, harmonisation of exhibit referencing systems, keeping more extensive written records particularly about strategy and communications, and compilation of specific data collections for assessing the significance of certain sorts of evidence.

- 2.23 At this distance, it is not clear whether any of these measures would have made any material difference to the extent to which forensic opportunities were exploited. Most of them would have made for better co-ordination and management, and this might have helped – see paragraph 2.12 above, and it certainly would have simplified any subsequent review of the forensic investigation process. New, more stringent anti-contamination measures might conceivably have helped in relation to DNA, but it could not have been foreseen at the time of the original investigation that these would be necessary. Contamination was not an issue with fibres, since the likely risks were well understood and measures in place to avoid them, or chemical traces such as glue which was in the form of solid deposits, and not loose flakes capable of easy transfer between one item and another.
- 2.24 Davison's approach illustrates the developing role of the FSS Specialist Advisors at the time. They were very experienced scientists themselves and were called upon to bring a fresh perspective to more complex cases in support of the scientific teams who were investigating them. In these circumstances, the Advisor first had to develop a full understanding about what the investigation had already revealed so they could build their strategy on firm foundations. They then had to ensure that, so far as possible, nothing significant had been overlooked, and that each potentially promising avenue had been properly explored and forensic opportunities exploited – including using new technology.
- 2.25 To this extent, their job was rather different from that of the on-call scientist, and especially one – like Dennis McAuley, of which so much was expected and in so many different directions, and under such pressure of time. Davison commented that he had found "the attitude of all the scientists concerned consistent with their attitude prevailing throughout their work on the case, a determination to do everything possible to ensure a successful and just conclusion to this investigation".⁴² The authors are content to accept Davison's judgement about this since he was in a better position to judge - working with the FSANI scientific team so soon after the incident and with direct access both to the scientists themselves and their original casefiles. *This positive and*

⁴²

INQ026552

energetic attitude was highly commendable in view of the clear pressures the original scientists were under - as recalled in their most recent statements.^{43 44 45}

- 2.26 The final report of the RUC Review of the Omagh Bomb Enquiry was presented in November 2000. In a letter dated 16 January 2001, the SIO of the enquiry – DSupt Brian McArthur said that, during the review period, the investigation had effectively stood still. He invited John Davison to become part of his investigation team as Forensic Co-ordinator until all forensic aspects of the case had been fully explored, with Ruth Griffin – Head of the FSANI textile fibres section, as Lead Scientist within the Laboratory⁴⁶.
- 2.27 Then in March 2001, a conference was held including members of the RUC, FSANI, John Davison, and Dave Barclay – a Scientific Advisor from the NCF.⁴⁷ (The NCF was a specialist unit set up within UK policing to analyse and provide support to investigators of serious crime). It was agreed that Davison would act as co-ordinator and circulate Terms of Reference for the new team, which would have regular, focused meetings with formalised Minutes and Actions⁴⁸. A new strategy would be developed focusing on the Omagh Bombing and three other incidents which had occurred in 1998 – at Lisburn, Newry, and Banbridge, which were believed to have been carried out by the same offenders⁴⁹.
- 2.28 In December 2001, Davison and Griffin issued a joint report⁵⁰ in which they said that the examinations detailed in the report “represent exhaustive attempts” that had by then been made to identify any evidence relating to the role played by individuals in the Omagh Bombing. The fact that there was nothing to link Omagh with any of three previous incidents with similarities to Omagh (in terms of the TPU and apparently non-scientific evidence⁵¹), or any suspects relating to these, reflected the fact that most examinations had been “‘long shots’ and the disappointing outcome might have been predicted”.⁵² In addition, the enquiry was up against the forensic awareness of those responsible, the severe damage caused by the explosion, and the poor condition of items recovered from the large amount of debris retrieved from the bomb scene. Davison and Griffin suggested that the main forensic opportunities now lay with new DNA techniques which were not available at

⁴³ INQ042457, p1

⁴⁴ INQ042141, p5

⁴⁵ INQ042169, p4

⁴⁶ INQ023776

⁴⁷ INQ023657

⁴⁸ INQ024699, p147

⁴⁹ INQ023657, p1-4

⁵⁰ INQ034726, p3

⁵¹ INQ03472, p6

⁵² INQ034726, p3

the time of the original investigation, and fingerprints. The authors agree that this was probably right, and especially at the time. *Experience from increasing amounts of review work has shown that it can be very useful to re-examine items from scratch during re-investigations – partly to ensure use of new technologies and techniques is maximised and partly just in case something was missed first time around. Davison and Griffin, and the scientists working with them, obviously appreciated this at the material time.*

- 2.29 Also in December 2001, Dave Barclay produced a report on a review he had conducted on the fingerprint work in the case, in which he effectively concluded that this had been conscientiously and appropriately performed under difficult resource constraints, and that no significant information or evidence had been obtained, and there was no realistic likelihood of obtaining additional scene marks.⁵³
- 2.30 To this extent, forensic re-investigation was well underway by the time the Police Ombudsman issued her report and does not appear to have resulted directly from it. Having said that, the report might well have added additional impetus to the scientific effort.

⁵³ INQ031270, p17, p18

3. OBI-Q3 Forensic Testing

- 3.1 The scientific testing of items and samples in the Omagh Bombing investigation obviously reflected the forensic strategies that were typically deployed at the time – however formal or informal they might have been. In particular, early testing focused on identifying the **IED** involved from the various component parts yielded by searches of debris at and from the scene. This might help to establish which organization might have been responsible for the bombing, what other incidents it might have been linked to, and any early suspects who could be investigated.
- 3.2 Important also here were specific parts of the car in which the bomb had been transported and then detonated, and the telephone boxes from which warning calls were made. The focus was on personal traces – such as **fingerprints**, **hair** and **DNA** which might conceivably help to identify those responsible; environmental marks and traces – such as **textile fibres**, **tool and manufacturing marks**, and **chemical analysis** eg. of explosive traces, and glues, which might indicate any links with suspects' addresses, the source of critical items, and/or previous incidents of the same kind. Any one of these would have been capable of initiating new investigative leads.
- 3.3 As time went by, with additional items submitted to the laboratory by the police, and particularly with input from the FSS and NCF, more formal and detailed forensic strategies were put in place and the scope of the scientific work was broadened and enriched. Sometimes this simply involved extending testing to 'new' items, sometimes it involved deploying different types of testing – such as **handwriting comparisons and ink analysis** of anonymous letters, and sometimes it was all about exploiting new technology. For instance, a main focus was now directed to use of the **latest DNA profiling technique (LCN)** which opened up the possibility of being able to detect DNA from someone who had merely 'touched' a key item in the case, as opposed to having had to contaminate it with one of their body fluids.
- 3.4 This was complicated because the extreme sensitivity of this new form of testing meant that DNA from background contamination – including in the laboratory, could be picked up and conceivably misinterpreted as evidence. This was especially true where results had been obtained from original items which had first been examined at a time when DNA techniques required much more DNA to produce a result, and therefore contamination issues were not nearly so well recognized, and measures to avoid them were not so rigorous as they later had to become. This has been reflected by the fact that no specific documents relating to DNA anti-contamination measures or even awareness of the need for them in 1998 were identified amongst those available, these

issues not typically being included within DNA laboratory procedures until around 2000.

- 3.5 The detail of all this testing, and outcomes for the case are explored in each of the specialist disciplines in turn in the next sections of this report.

4. Explosive Devices and Explosive Substances – Chris Hester and Dr Keith Norman

OBI-Q1a	Forensic strategy in relation to Explosive Devices and Explosive Substances in the immediate aftermath of the Omagh Bombing
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SIO's Investigative Strategy

- 4.1 There appears to be no single Forensic Strategy document within the Inquiry relating to the Improvised Explosive Devices (IED's). The bundle of excerpts from the RUC/PSNI SIO policy books from the Omagh investigation⁵⁴ dated between 15/08/1998 and 19/12/2005 contains a number of decisions made by the SIO in relation to the investigation, some of which relate to forensic considerations. Decision 12 recorded on the 20 August 1998 is essentially the SIO's investigative strategy, stating

"Priority investigation areas will be as follows:

1. Trace bomb car and its movements
2. Interview of keyholders
3. Interview of injured
4. Current intelligence - including liaison with Garda
5. Identification of deceased
6. Scene investigation

Dedicated enquiry teams will deal with 'Keyholders' and DSuperintendent Middlemiss, Body Recovery Team will deal with identification of deceased."

- 4.2 There is no mention of the explosive device or IED's within these priority investigation areas and no suggestion of any forensic considerations for any device components recovered from the scene.
- 4.3 It may be that separate forensic decisions relating to the device were made, as a number of the decisions within this bundle are missing or not recorded. For example, decisions 20, 21 and 22 presumably made on the 20 August 1998, are absent.

⁵⁴ INQ035088

Informal Forensic Science Strategy

- 4.4 In his witness statement of 30 October 2025, Dennis McAuley states that he was involved with the forensic investigations into the Omagh bombing.⁵⁵ He was engaged in the forensic examination of the bomb scene between 16 and 20 August 1998,^{56 57 58} forensic examinations and assessments of recovered materials at FSANI including the construction and operation of the IED involved⁵⁹, physical comparisons of the IED components and construction characteristics of the Omagh device with other IED's used in Northern Ireland before and after 15^h August 1998,^{60 61 62 63 64} comparisons of the remains of the Omagh IED with materials recovered from finds and house searches^{65 66 67 68 69} and the presentation of forensic evidence in 2006 as an expert witness in criminal proceedings in relation to the Omagh bombing.
- 4.5 McAuley states that in his FSANI role as a casework Reporting Officer (RO – now more usually referred to as 'reporting scientist'), he and other RO's would respond to RUC requests for scientific assistance at scenes of explosions involving fatalities, or of a "serious nature" meaning involving new devices or devices using Radio Control. RO's were not generally called to scenes where IED's had been rendered safe, by Explosive Ordnance Disposal operators, or had failed to function.
- 4.6 The presence of an RO at an explosion scene was to "ensure all possible evidential materials were identified and recovered in order to facilitate a more detailed examination/analysis of the items at the laboratory". They were also responsible for the identification of device components to establish attribution and, whilst processing a bomb scene, their objectives were to "establish the circumstances of the incident, assess the nature of the overall scene, confirm suitable cordon placement, identify hazard/evidence priorities and decide/agree a strategy on how best to proceed with the examination."⁷⁰

⁵⁵ INQ035230⁵⁶ INQ012120⁵⁷ INQ006207⁵⁸ INQ006196⁵⁹ INQ012120⁶⁰ INQ012122⁶¹ INQ011633⁶² INQ024890⁶³ INQ024889⁶⁴ INQ006230⁶⁵ INQ012120⁶⁶ INQ012123⁶⁷ INQ012873⁶⁸ INQ024888⁶⁹ INQ006196⁷⁰ INQ035230, p5

- 4.7 McAuley further states that his training was largely gained “on the job”⁷¹ through attending various terrorist explosion scenes, initially assisting senior scientists who had already spent several years examining such scenes.
- 4.8 At the time of the Omagh bombing, McAuley states there were no written FSANI guidance or policy documents in relation to the assessment of scenes of explosions.⁷²
- 4.9 McAuley says that, in the case of an explosion incident, it was the role of the RO at FSANI to direct the types of examinations and analysis required for each item and in what sequence.⁷³
- 4.10 By example, amongst a number of FSANI laboratory submission forms relating to the Omagh bombing,⁷⁴ submission form 4169/98 received at FSANI on the 27 August 1998 concerns a number of items recovered from the search conducted at the Girdwood Barracks. The purpose of the submission is stated as “Physical examination; identification and fingerprint where suitable” Exhibit PB13 is shown as two Procell batteries recovered within these items.
- 4.11 It is possible that these two batteries may have been part of the power source for the Timer Power Unit (TPU) used in the IED. There appears to be no further record of any discussion or strategy for what forensic testing may have been appropriate for these batteries, however, one document dated 16 October 2000 shows that at some point PB13 had been submitted for finger mark examination.⁷⁵ It may be that PB13 was considered for explosive trace analysis or other forensic examinations after it had been submitted to FSANI, but there are no written records which confirm that.
- 4.12 In McAuley’s statement dated 18 February 1999⁷⁶ in relation to the Omagh Bombing, the result of only one exhibit which was possibly part of the IED appears to have been submitted for any forensic analysis - (318WHI – explosive trace analysis) is recorded. It would appear from this statement that no other exhibit submitted to FSANI which was potentially part of the IED underwent any form of forensic analysis between the 15 August 1998 and the 18 February 1999. But later documents - including one dated 16 October 2000,⁷⁷ suggest that a number of potential IED component exhibits had been subjected to various forensic tests.

⁷¹ INQ035230, p6

⁷² INQ035230, p6, para 5c

⁷³ INQ035230, p7, para 6(iii)

⁷⁴ INQ025744

⁷⁵ INQ026552

⁷⁶ INQ012120

⁷⁷ INQ026552

- 4.13 Whilst by today's standards this apparent lack of documentation in relation to items being subjected to forensic analysis could be considered surprising, it is highly probable that each one of these items was triaged on its arrival at the FSANI laboratory for its potential evidential value, and during the early stages of the investigation, items considered to be lower priority were scheduled for forensic analysis behind higher priority ones. There appears to be no master copy of a document that lists all the evidence received in the FSANI laboratory, what forensic testing it was subjected to (or a rationale for no forensic testing) and the result of those tests. However, it should be stressed that the processes in place in 1998 should not be judged by today's standards.
- 4.14 Considering the circumstances at the time, there may well have been handwritten notes and documents created detailing these forensic decisions which are currently unavailable to the Inquiry.
- 4.15 The apparent lack of such documentation is not considered to have impacted on the adequacy of the forensic investigation nor the exploitation of exhibits but highlights the extreme pressures that staff within the FSANI Explosives Section were under at the time - with an increased number of bombing incidents, a reduced staffing capacity, and the gravity of investigating such a high-profile attack.
- 4.16 McAuley states that he attended a case conference at the Omagh RUC station on the evening of the 16 August 1998 and that he briefed on the progress of the examination and his plans and requirements for 17 August 1998.⁷⁸ To date, no written record of that briefing - which may or may not have details of a forensic strategy for the explosive device, has been uncovered.
- 4.17 A review of the scientific contribution to the investigation of the Omagh Bombing dated 16 October 2000 by Dr John Davison⁷⁹ identified that "written records relating to the terms of reference, the decision making and the minutes of the daily conferences are sparse", as are "selection of exhibits for examination, co-ordination of examinations and matters of examination policy". But he also, quite rightly, highlights that this was understandable due to the resources available at the time as well as the huge task involved in investigating the bombing. Davison further states that, in his view, the "scene was too complex for the scientist to assume all these duties". In relation to the overall case coordination and management, he found that meetings had been held periodically to discuss forensic co-ordination with FSANI scientists in relation to the bombing as well as meetings with fingerprint examiners and

⁷⁸ INQ035230, p12

⁷⁹ INQ026552

representatives from the investigation team, however, “no minute of these meetings appears to exist”.

- 4.18 In all probability, there was no overarching forensic strategy in relation to the explosive device involved in the Omagh Bombing in the format or of the standard that we would expect to see written today. This is not surprising and especially remembering that the FSANI Explosives Section resources had been scaled down as a result of the 1994 PIRA ceasefire.⁸⁰ In 1996 there were nine (9) explosive cases submitted to FSANI,⁸¹ however, by 1998 FSANI was dealing with seventy-six (76) explosive cases⁸² with reduced staffing. There are no records available of staff numbers within the FSANI Explosives Section prior to the PIRA 1994 ceasefire, nor how many, or where in the laboratory staff from the Explosives Section were assigned.

Identification of explosive substances

The recent statement from Lead Scientist, Ruth Griffin, confirms that there was a forensic strategy for all cases involving FSANI as part of the SIO's overall Investigation Plan, and that this included input from FSANI - especially in urgent and serious cases. The strategy would be adjusted and updated as appropriate as the investigation progressed.⁸³ Such a dynamic approach to scene investigation should have allowed for maximum efficiency in the collection of evidence from a scene, and ensured the right scientific tests were conducted in the right order considering the idiosyncrasies of the specific event.

- 4.19 Within the documents supplied by the Inquiry dealing with the investigation of the Omagh scene and items recovered from there, there are no details relating to the composition of the explosive substances in the device used. This was inferred as being ‘crushed’ ANS (ammonium nitrate fertiliser/sugar mixture) based on main charges detected at other incidents reportedly from the same series.⁸⁴ The report of the Peer Review Panel⁸⁵ similarly indicated that the main charge was likely to have been prepared from crushed AN fertiliser (OS ammonium nitrate and OS calcium carbonate) mixed with sugar but without citing confirmation of this.
- 4.20 There is minimal information detailing the collection of swabs for the purpose of explosives detection/identification. This may have reflected low expectations

⁸⁰ INQ035230, p2, para 3

⁸¹ INQ035230, p2, para 3

⁸² INQ035230, p3, para 3

⁸³ INQ042141, p11

⁸⁴ INQ024799, p2-3

⁸⁵ INQ013687

that any explosive residues would be detected so it was felt there was no point taking these samples or, alternatively, because of an incomplete forensic protocol being applied to the incident scene. As the main charge used in the device was improvised from separate commercial products prior to use, there is at least a theoretical possibility that some residues could have been located due to incomplete mixing of the bulk charge and thus confirm or otherwise ANS as the main charge and, conceivably, identify any other 'associated compounds' which might be able to add or subtract strength to any suggested associations, *but see also Paragraph 5.35 in Scientific Report 1, April 2026.*

Having said that, in the light of Griffin's remarks above, the fact that the explosion of the VBIED caused a fire which would have been vigorously extinguished by the fire response agency prior to the commencement of forensic examination, and the expectation that the main charge was thought to have been of ammonium nitrate which is water soluble, it seems likely that no extensive swabbing was conducted at the scene because any explosive residues would already have been removed or significantly compromised.

- 4.21 Document⁸⁶ detailed the detection of PETN and RDX on a fragment of black plastic, Item 170 DMcA2, a combination of which had historically been used as a booster charge [REDACTED] OS. The absence of these compounds on the item 318 WH1, identified as a booster tube, is not unexpected as these commercially prepared explosives leave minimal residues following detonation.

OBI-Q1b	Forensic strategy in relation to Explosive Devices and Explosive Substances following the December 2001 Police Ombudsman's report
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Development of more formal forensic strategies

- 4.22 There does not appear to be a specific Forensic Strategy document in relation to Explosive Devices following the release of the December 2001 Police Ombudsman's Report. However, there are a number of documents produced from 2000 onwards as a result of the RUC's self-instigated Omagh Bomb Review which allude to a recognition of the need to restructure the forensic analysis of exhibits from the Omagh Bombing. As part of that restructure, a Forensic Co-ordinator was appointed to the investigation team in February 2001 to lead the implementation of recommendations made in respect of forensic science matters.
- 4.23 A letter dated 7 June 2000 from David Loxley – a Specialist Advisor from the FSS, to DCSupt Brian McVicker (RUC)⁸⁷ includes a document titled 'Terms of

⁸⁶ INQ012120

⁸⁷ INQ022142

Reference' which outlines five points in relation to the forensic science aspects of the Omagh Bombing investigation. These clearly demonstrate a renewed holistic approach to the forensic management of the investigation.

- 4.24 A bundle of documents dated 20 February 2001⁸⁸ includes one titled 'Scientific Co-ordinator: Omagh Bombing Investigation' which includes the Terms of Reference. The thirteen points essentially form what could be considered as an overarching forensic strategy for the investigation.
- 4.25 Also contained within this bundle is a document titled 'The Omagh Bombing Investigation'. This is a report relating to a conference chaired by the SIO on 1 March 2001 with all the relevant forensic science stakeholders. It states that the purpose of the conference was "to assemble a new team to take forward scientific examinations....and to plan possible further examinations."⁸⁹
- 4.26 Further on within this document, it is reported that there were discussions about opportunities for additional forensic examinations. Amongst these opportunities were the submission of parts of the device for toolmarks, as well as fibre work in relation to the TPU. It was also decided that device components would be submitted for Low Copy Number (LCN) DNA examination - something unavailable to the investigation team in 1998, not only from the Omagh device but from unexamined items from three other, linked bombing offences.
- 4.27 The formation of a Forensic Management Team (FMT) was also agreed by the SIO. The FMT was to meet on a monthly basis to review progress and plan further actions. A progress report dated 19 March 2001 contains what is essentially the forensic strategy in relation to the explosive device which is as follows:

"Action plan for further examinations - Bomb parts."

All of the components, including TPU, booster tubes, improvised detonator cords, switches, wiring, tapes and batteries etc will be re-examined, from all four incidents. An assessment will then be made in relation to fibres, DNA, fingerprints, physical fits and tool marks.

The possibilities in relation to tool marks will assess whether there are any marks that may be of use. The end product of any tool marks examination may allow comparisons with any tools seized already or seized at some future date. We need to make a decision as to whether there would be any advantage

⁸⁸ INQ025900 NI Omagh Review Bundle XIII

⁸⁹ INQ025900, p14

in attempting to "firm up" links between the incidents by tool mark comparisons. These could arise from trimming tools on the plastic lids, drill marks on the booster tubes, vice or angle grinder marks on the tubes or cutting tool marks on wiring.

The above comments in relation to tool marks also apply to tapes, which might be compared by physical fits of the tape ends or striations imparted during manufacture.

As above a decision needs to be made as to whether examinations are only relevant in establishing links with suspects or whether there would be any advantage in "firming up" evidence of linkage between the offences.

Following this assessment, a scheme of testing will be produced by discussion between the scientists to maximise the various possible further tests. This needs to take into account testing that has already been carried out, hence the need for information about fingerprinting by the RUC."

Several clarifications have been requested of the OBI scientific team in relation to Coupatan timers and linked incidents. As mentioned earlier, linked incidents lie outside the scope of this report, however, there are general aspects to the questions posed which the author, Chris Hester, has addressed here as follows:

- *The **identification of the common part and batch number on Coupatan timers** would probably have been a shared responsibility between FSANI and the RUC WERC/SO13 BDC and 11 EOD. The part and batch number may have been ascertained by the authorities at different stages at different scenes. A defused or failed device may have resulted in the 11 EOD operator noting the identifiable number if seen at the time, whereas a functioned or disrupted device may result in the FSANI staff discovering the number whilst examining debris in the laboratory. Ultimately, FSANI, WERC, BDC and 11 EOD should all have been aware of what each other was finding and a detailed database/index should have been compiled with that information. A Table and photographs from FSANI (albeit dated 2003) comparing components from seven incidents (but not Omagh) which used a Coupatan timer with product/date code 561222362 99710,⁹⁰ and another Table and photographs (also dated 2003) involving six incidents including Omagh also lists the 561222362 99710 Coupatan timer⁹¹ are amongst documents in the BBI electronic database. These suggest that FSANI at least was keeping a fastidious record of the details of all the components, not just*

⁹⁰ INQ034989

⁹¹ INQ034983

the timers, and the author has absolutely no doubt that this information would have been shared with the police.

- In relation to any **identifying marks or numbers on exhibits**, the author believes that when FSANI discovered any of these, they would have communicated the details to the RUC, however, it would have been for the RUC investigating team and WERC to determine their significance. Whilst the FSANI staff may internally have been aware of emerging links between various devices/components being analysed in the laboratory, they would not have been aware of the 'big picture' of the RUC investigation and as such, would not be in a position to determine an individual item's overall significance to the investigation, only its potential forensic significance.*
- At this stage, the author is not aware of the time frame involved in linking the timers by part and batch number, however, it would be **highly unusual for concurrent activity not to be taking place** on an individual exhibit, or samples from it, before a link was made. To this extent, it would have been surprising if FSANI had refrained from conducting any other forensic analysis until a batch number had been identified indicating a link. Indeed, the author is firmly of the opinion that none of the effort expended by FSANI in attempting to link devices based on fibres, DNA, commonality of construction etc was wasted, and that it was all done in the best interests of achieving the best evidence possible.*

Detection of explosive substances

- 4.28 When considering the forensic strategy post the December 2001 Police Ombudsman's Report and subsequently, there have been a number of studies and incident responses, where the collection and identification of residues from improvised explosive devices have been successfully achieved. Of note would have been the analysis of the 2002 Bali bombing scene where the composition of the main charge - a mixture of potassium chlorate, aluminium and sulphur, was identified following examination of post-blast residues and swabs collected from a range of exhibits and surfaces within the blast radius. This showed that there is potential for detection and identification of improvised explosive mixtures in post-blast debris if an effective and thorough process is developed and followed. But obviously, this could only have been attempted in relation to Omagh if swabs had been taken in the first place.
- 4.29 As to whether it is reasonable to expect FSANI to have attempted such an analysis in 1998, The Forensic Explosives Laboratory (FEL) is best placed to answer, as they, and perhaps only they, will be aware of general practice at the time. Certainly, the bombing at Heron Quay in London and the Arndale Centre

in Manchester in 1996 both used ANS as the main charge, but the extent to which this was confirmed and/or other compounds looked for would require comment from FEL.

Brief Summary

- 4.30 In summary, it would appear that forensic considerations regarding the explosive device employed in the immediate aftermath of the Omagh Bombing were based on unwritten 'Standard Operating Procedures' adopted by FSANI Reporting Officers over many years of attending terrorist explosive incidents and potentially passed on from one scientist to another through the 'on the job' nature of their training for these types of incidents. It appears to have been considered that there would be no explosive residues present from the main charge and, even in the unlikely event that there were, they would not help to identify the source(s). As such, minimal attempts were made to identify this material.
- 4.31 It is apparent that the need for a more formal forensic strategy had been recognised in advance of the Police Ombudsman's Report in December 2001 and was already in place by the time this was published. In particular, it appears that a forensic strategy in relation to the explosive device had been formulated and recorded by 19 March 2001.

5. Fingerprints – Kevin Kershaw

OBI-Q1a	Forensic strategy in relation to Fingerprints in the immediate aftermath of the Omagh Bombing
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- 5.1 First and foremost, it must be acknowledged that this incident would have presented a significant challenge to any police organisation charged with dealing with it.
- 5.2 While there appears to be scarce evidence of any formal forensic strategy in the immediate aftermath of the bombing, this is not particularly surprising for the time – see Section 2 of this report. Instead, the forensic Lead Scientist – Dennis McAuley, relied on his long experience of examining bomb scenes and conducting some of the subsequent laboratory work, and on daily briefings/case conferences with the police investigative team on the one hand, and with forensic scientists, fingerprint experts and advisors on the other to help provide an overall steer for scientific aspects of the investigation. Particularly in relation to fingerprints, advisors included Dave Barclay from the NCF, who conducted a review of fingerprint work in the case – see paragraphs 5.5 to 5.7 below.
- 5.3 Commenting on the co-ordination and management of the forensic investigation in his review of the scientific contribution to the investigation of the Omagh Bombing, FSS Specialist Advisor, John Davison, said “written records relating to the terms of reference, the decision making and the minutes of the daily conferences are sparse” and this was “unfortunate” but that “I find it understandable given current practice, the resourcing available and the huge task involved.”⁹²

OBI-Q1b	Forensic strategy in relation to Fingerprints following the December 2001 Police Ombudsman’s report
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- 5.4 It is clear that, prior to the publication of the Police Ombudsman’s report in December 2001, considerable work had already been completed in terms of reviewing the initial forensic response to the Omagh Bombing and agreeing a strategy aimed at maximising forensic opportunities going forward.
- 5.5 With regard to the fingerprint element of the strategy, a separate review was undertaken by Dave Barclay, the results of which were reported in December 2001.⁹³ In his report, Barclay stressed that the fingerprint work had been

⁹² **INQ026552**

⁹³ *INQ031270*

extensive and conducted with great care and attention. However, improvements could be made to communications between the fingerprint and investigative teams - particularly with regard to shifting priorities - which could reduce unnecessary work, but also in terms of documentation, record keeping and reporting.

- 5.6 Barclay also made reference to suspects lists, and the need to create an up-to-date version that captured the current state of play. In particular, he raised some concern about negative results from completed comparisons with crime scene palmprints when it emerged that records relating to no fewer than 12 such suspects contained no palm prints, and for a further 7 suspects, neither finger nor palm prints were on record. He recommended that measures be put in place to obtain outstanding palm prints from suspects in these circumstances. It is not clear what the current position with respect to these outstanding prints might be.
- 5.7 Barclay noted that with advances in DNA profiling in recent times, consideration should be given to DNA testing in addition to fingerprint examination of any future exhibits from incidents of this nature or directly connected in some way to the Omagh incident, to further maximise forensic potential.

OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?
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- 5.8 In terms of items recovered for fingerprinting, a comprehensive list was provided in the 2001 report by Alan Dinsmore, who was the forensic scientist responsible for reviewing the fingerprint element of the investigation.⁹⁴ These items related directly to the initial scene, including vehicle parts and debris typically collected from such an incident. In the event, none of these items revealed any usable fingerprints.
- 5.9 In addition, two telephone boxes connected with the incident were examined along with coins from their cash boxes. A scanning receiver maxon, an envelope and a card were also examined. In total, 77 finger/palm prints were revealed by fingerprint examination and are referenced in a PSNI report relating to fingerprint analysis work completed between 19 August and 7 December 2001.⁹⁵

⁹⁴ INQ024805

⁹⁵ INQ034998

OBI-Q2b	What forensic testing was carried out, and with what outcome?
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Testing carried out

- 5.10 The 77 recovered finger/palmprints were then evaluated for their suitability for comparison against suspects' fingerprint records and/or searching against records on databases. This process revealed that 22 of the finger/palm marks contained insufficient ridge detail for the purpose and were therefore considered to be of no value.
- 5.11 Depending on the level of ridge detail revealed in the remaining 55 finger and palm prints, searches were then made of the Automatic Fingerprint Recognition (AFR) computer system, and comparisons conducted against suspects' records.
- 5.12 All in all, a considerable amount of suspect checking was undertaken by the RUC Fingerprint Bureau with an initial list (List A) containing 57 suspects – as reported on 19 August 2001 – see para 5.4 above. After further liaison with the investigative team, a definitive list (List B) was agreed by 31 August 2001 containing 31 suspects for comparison; 21 of these had been on the initial List A.⁹⁶
- 5.13 A total therefore of 67 suspects (so-called nominals) were ultimately checked against the 55 finger and palm prints from the incident.
- 5.14 To put the fingerprint effort into some context, it is important to understand that the task of checking reference marks from a suspect or nominal against a crime scene mark can take a considerable length of time. Precisely how long will depend partly on the quality of the suspects' marks, and also and critically on the quality and clarity of the crime scene mark. This is, in effect, a chance mark left on a surface which could be contaminated by dust, grime or other debris, and with varying degrees of pressure which can distort its appearance due to the natural elasticity of skin. The crime scene mark may be fragmentary, only revealing a limited amount of detail, or made by the palm of the hand or tips of the fingers which makes comparison even more challenging.
- 5.15 It therefore follows that just a single comparison of a suspect's marks against just one of the recovered crime scene marks could take many hours to complete. To this extent, the task of comparing 67 nominals against the 55 finger and palm prints from the scene of the incident could have taken many months to complete.

⁹⁶ INQ034998

- 5.16 Altogether, 16 finger/palm marks searches were completed against the AFR database and, of these 16 searches, 11 were retained on the database for future checks against new offenders. (This is accepted practice when a finger or palm mark is of suitable quality.) The AFR system contained approximately 2.7 million fingerprint records from over half (33 of the 44) UK police forces' fingerprint collections at the time.⁹⁷
- 5.17 It should be noted that, at the time, 12 of the suspects checked did not have palm prints on their record so the Fingerprint Bureau was therefore unable to check any crime scene mark containing palm detail in respect of them. A breakdown of these suspects/nominals without palm prints, and 30 others for whom no fingerprint records were available, is included within the Inquiry's document database.⁹⁸
- 5.18 A number of requests were apparently made to other fingerprint bureaux for searches of outstanding fingerprints to be undertaken. In particular, from letters,⁹⁹ these included The Scottish Fingerprint Service, Garda Siochana Fingerprint Bureau and Leicestershire Police Fingerprint Bureau who were all asked to search the outstanding marks against their own local databases. It may be that the same request was made to other forces although no further references have been found to confirm this.

Outcome of the testing

- 5.19 It must be acknowledged that the manual comparison of suspects' fingerprints is a significant undertaking, and ultimately all available suspect checks (67) were completed, in addition to the 16 AFR searches.
- 5.20 None of this work led to a fingerprint identification at the time and so no leads were offered to the overall investigation.
- 5.21 In a statement dated 13 March 2026 from Lesley Lennox – Head of PSNI Identification Bureau, she says that, in November 2006, one of the 'imprints' that had been recovered from one of the telephone boxes relating to Omagh was identified as having been made by Majella McCooey. This was a consequence of the 'imprint' being held on the AFR system and continually checked against new sets of fingerprints as they were inputted onto the system. It is understood that McCooey was not considered a potential suspect.¹⁰⁰

⁹⁷ Hansard 5 April 1995,

INQ042166

⁹⁸ INQ034998

⁹⁹ INQ034013

¹⁰⁰ INQ039405

OBI-Q2c

Comment on past and current views of the reliability of this testing?

5.22 The potential for fingerprint work to be effective in terms of identifying offenders is reliant upon a number of key elements, namely the:

- a) competence of the fingerprint practitioner
- b) quality of the fingerprint submissions received
- c) quality of the suspects put forward and,
- d) quality of the databases the crime scene fingerprints are searched against.

5.23 In addition, consideration must be given to the resources available (both in-house and within external partners) to carry out the necessary activities, especially when an organisation is dealing with an incident of such magnitude.

5.24 Additional information about how PSNI/RUC approached the fingerprint element of the Omagh Bombing, in terms of resourcing, personnel, available databases and techniques, has been provided in an earlier statement by Lesley Lennox dated 11 December 2025¹⁰¹

a) Competence of practitioners

5.25 From Lennox's 11 December 2025 statement, it is understood that all staff within the RUC Fingerprint Bureau at the relevant time had expertise in identification, recovery and comparison of fingerprints and, in total, the human resource was 36. This included management (one Chief Inspector, two Inspectors) and supervisory officers (seven Sergeants).¹⁰²

5.26 Lennox's 13 March 2026 statement provides further information in respect of the competence of fingerprint practitioners within the Bureau and confirms that all fingerprint experts before 1992 were assessed at NSY and after 1992, at the Police Forensic Training College in Durham which was aligned to National requirements at the time.

5.27 At point 20 in this statement Lennox highlights the fact that all comparison decisions were checked by a second expert for quality control purposes. This also provided useful feedback on the performance and competence of fellow practitioners, and represents an example of good practice within the RUC Fingerprint Bureau.

¹⁰¹ INQ038177

¹⁰² INQ039405

b) Quality of fingerprint submissions

- 5.28 The quality of submissions can be considered from two perspectives, namely: that of the fingerprint practitioner - in terms of the actual fingerprint detail revealed within each finger or palm print from the crime scene; and from the perspective of the investigator - in terms of what a fingerprint found on a particular exhibit might contribute to advancing the investigation.
- 5.29 In relation to the practitioner's perspective, without personally examining the recovered crime scene marks, it would appear that there were 11 of the 55 crime scene finger and palm prints that were suitable for retention on the AFR system. This would indicate that they were of a reasonably good standard and suitable for search and comparison purposes. Given that the remaining 44 marks were not retained on the AFR system would suggest that they were of poorer quality but, nonetheless, still capable of being identified.
- 5.30 As to how far these finger and palm marks might advance the investigation in their own right, in his review of fingerprints the Advisor from the NCF, Dave Barclay, suggested that "in Omagh there were no marks which fell into the category of being highly significant of themselves, or which came from items known to have been touched by the offenders."¹⁰³
- 5.31 It could therefore be concluded that the fingerprints recovered in relation to the incident did not have a high level of significance to the investigation when considered in isolation and/or aside from any other evidence.

c) Quality of suspects put forward and intelligence

- 5.32 According to Lesley Lennox's first, December 2025, statement (**Point 14**):
- "The Fingerprint Bureau's work was divided according to the division in which the crime or incident occurred. There was no separation between terrorism work and other forms of work. The officers allocated to each area would do all of the work for that area, whether it was terrorist related or otherwise. This meant that in relation to the Omagh bomb investigation, the work was completed by officers allocated to 'L' Division".*
- 5.33 For an incident of this magnitude to be undertaken on the basis of it having occurred in a particular geographical area rather than it being separated from general case work and dealt with as a terrorist incident, does create concern.

¹⁰³ INQ031270, p13

- 5.34 Irrespective of having competent practitioners and good quality submissions of finger and palm prints from the scene, terrorist forensic work can be complex, and dynamic with constant demands and shifting priorities.
- 5.35 In the author's view, it is essential that a hub is created where the constant influx of suspects can be managed to support the overall aims and objectives of an investigation. By dealing with this incident as just one of many other cases occurring within a crime area does not allow for focus to be maintained, and the ability to react quickly to suspect checking requests can become challenging. The ability to link scenes, identify common characteristics such as modus operandi, and to establish and maintain Active Files of known terrorists and their associates is less likely to be achieved.
- 5.36 Greater Manchester Police (GMP) established a dedicated team to manage murders and serious offences including terrorism within their Fingerprint Bureau in the late 1970's, reacting to an increase in incidents of this nature. It provided the fingerprint unit with the ability to react to these dynamic incidents with constantly shifting demands, and avoided the distraction that general volume crime work may have created if all incidents - including serious crime ones, were managed by a single resource. It is understood that a similar approach to this was adopted by other large metropolitan police forces including West Yorkshire and West Midlands Police, and the MPS at NSY.
- 5.37 These serious crime hubs would work independently on their own murders, kidnappings etc. However, if a terrorist incident occurred in their crime area, it would be taken over by the NSY Terrorist Fingerprint Team and members of the Serious Crime Hub would be seconded to NSY for the duration of the investigation to support the fingerprint work. This made good sense as the NSY Hub had access to fingerprint and crime scene specialists with significant experience in terrorist incidents, and they had amassed significant Active Files of known terrorists through their close links with Intelligence Agencies.
- 5.38 By 2007, a national approach was taken to the investigation of terrorist incidents in the UK with eleven hubs being created as part of the UK Counter Terrorist provision. At that time, GMP's fingerprint unit became the North West of England Counter Terrorist Fingerprint provision serving the Greater Manchester, Merseyside, Lancashire, Cheshire and North Wales regions.¹⁰⁴
- 5.39 Barclay's review of the fingerprint element of the investigation does make reference to the sterling work of RUC officer, Julie Mallaghan, who despite "many serious resource pressures caused by external factors" performed the

¹⁰⁴ <https://www.counterterrorism.police.uk/what-we-do/our-network> INQ042167

task of completing suspect checks and searches to a high standard.¹⁰⁵ This may suggest that, if a hub approach had been taken by Mallaghan and her team, or indeed support had been available from specialist teams such as the Anti-Terrorist Fingerprint Team at NSY, then at the very least this could have gone some way to reduce the resourcing pressures experienced.

5.40 At point 19 of her December 2025 statement Lesley Lennox states that:

"In relation to Omagh, the Fingerprint Bureau compared all relevant marks lifted from the crime scenes that were suitable for examination against any suspects for whom we held fingerprints records. The instruction to compare against one or more suspects was given to us by the police investigation teams i.e. police would give us the name of the suspect(s)."

5.41 This work is resource intensive, and it would be unusual for a police force with limited resources not to call upon the terrorist team at NSY (SO13 at the time) to provide additional support and expertise in this specialist area of fingerprint work. In addition, the NSY team had/have access to the most comprehensive lists of suspects/active offenders which were/are being added to as further intelligence becomes available.

The specific agency at that time at NSY was the Terrorist Fingerprint Branch. This was situated within the NSY Fingerprint Bureau (SO13) and probably comprised around twenty staff. Both in 1992 and 1996, Manchester city centre was bombed by the IRA and on both occasions, the NSY Terrorist Fingerprint Branch took over the investigation. It is not clear whether this was as the result of a specific request from GMP or whether a protocol had been agreed in advance. In any event, as part of this arrangement, GMP fingerprint experts were seconded to NSY to support the investigation on a rotational basis. In 1992, the author was one of these GMP experts and the experience provided a good insight into the work of the terrorist Fingerprint Branch; in 1996, he was Head of GMP Fingerprints and liaised closely with NSY in respect of GMP's seconded staff.

Like GMP, NSY took a hub approach to investigating serious incidents, with all incidents of a similar type dealt with by a specialist team of experts who would attend incidents, recover exhibits, and any resulting fingerprints from the incident would be dealt with within that team environment. The NSY Terrorist Fingerprint Branch (SO 13) was an excellent example of this approach.

¹⁰⁵ INQ031270, p16

The Branch held significant Active files of probably many hundreds if not thousands of sets of fingerprints of known terrorist suspects. These Active Files were the main reference point for any fingerprint searches and were utilised probably more than the automated fingerprint systems available at that time.

The Branch had close links with the Security Services and other agencies which generated new suspects on a regular basis. It did not get involved in any other fingerprint work away from terrorism which allowed a very focused approach to delivering their services and the ability to react to the ever-changing priorities of a dynamic investigation.

Being in a position to take on all incidents of this nature throughout Great Britain meant that any common features – modus operandi, method of concealment, type of device, switches and other components etc, between incidents could be quickly identified and, in addition to carrying out suspect fingerprint checks, their ability to link incidents through fingerprints was most effective.

The quality control of fingerprints submitted for comparison was another key element. Traditional sets of fingerprints for general crime probably only capture up to 80% of the detail on someone's hand. But the construction of explosive devices is a delicate operation and terrorists are forensically aware, so the likelihood of their leaving a full fingerprint on a device is negligible. It is therefore important to recover as much fingerprint detail as possible from suspects – for instance including the tips of the fingers and the edges of the hand, which are not covered in traditional custody fingerprints. This led the Branch to develop a special system for capturing this extra detail - known as TACT (Terrorist And Counter Terrorist) prints.

Such was the importance of these TACT fingerprints that fingerprint experts from the Branch would oversee the fingerprinting of terrorist suspects in custody and also provide training to Terrorist Officers and fingerprint experts throughout the UK. It is understood that no TACT fingerprints were taken or used in the comparison of any of the suspects in relation to the Omagh Bombing or other associated incidents.

- 5.42 The ability to link other incidents which may share the same characteristics - such as modus operandi, common suspects, vehicles etc, is lost if prior or subsequent incidents have occurred in another area of the police force. Moreover, given the NSY Terrorist Fingerprint Team acted as the UK Hub for these sorts of incidents, it would seem only sensible for NSY/SO13 to support this and other incidents of this nature in Northern Ireland.

- 5.43 It is understood that support from NSY Anti-Terrorist Branch was forthcoming in respect of the bomb site and recovery and initial screening of bomb debris,¹⁰⁶ however, there appears to have been no further support after this point from NSY – for instance in respect of fingerprints. This seems rather unusual given the seriousness of the incident, the significant loss of life, and that NSY had already intervened with support for the RUC.
- 5.44 The position was further compounded by the fact that the RUC Fingerprint Bureau was relatively small at the time. Lesley Lennox described only 36 staff - including management and supervision, to react to incidents, many of which were of a serious nature.¹⁰⁷ By contrast the author's own force – GMP, employed more than 60 fingerprint personnel at the time – hence their ability to establish a serious crime fingerprint hub. But even then, the Force further benefitted from support from the NSY Anti-Terrorist Fingerprint provision in both 1992 and 1997 (in relation to the Manchester bombings) which provided experienced specialist support, and access to their terrorist suspect fingerprint Active Files for the purposes of investigating these two incidents.
- 5.45 It is not known if this provision was offered to the RUC at the time or after the Omagh Bombing, or indeed if the RUC had made any formal request for such support.
- 5.46 It is, however, understood that a number of requests were made to other fingerprint bureaux for searches of outstanding fingerprints against their own local databases. These included: the Scottish Fingerprint Service, the Garda Siochana Fingerprint Bureau, and the Leicestershire Police Fingerprint Bureau.¹⁰⁸

d) Quality of databases crime scene fingerprints are searched against

- 5.47 Lesley Lennox states at **Point 20** in her December 2025 statement:

*“However, all suitable prints were searched against our electronic database. Therefore, if police already held prints on that database for someone who was not deemed a suspect, there could still be a match which Fingerprint Bureau would report to the investigator”.*¹⁰⁹

- 5.48 It is commendable that all the local electronic databases were utilised in efforts to identify the crime scene fingerprints recovered, however, it must be acknowledged that these electronic databases had limitations. In particular,

¹⁰⁶ INQ005830

¹⁰⁷ INQ038177

¹⁰⁸ INQ034013

¹⁰⁹ INQ038177

they only held the fingerprints of those convicted of criminal offences in their force area and, in the case of AFR, the fingerprints of only the 33 police forces who contributed to the AFR consortium could be checked, not all of the 43 police forces who maintained a fingerprint collection. These police forces included many in England and others in Wales, Northern Ireland and Scotland.

- 5.49 Dave Barclay's review of the fingerprint element of the investigation does refer to this potential gap in the searching of crime scene fingerprints on AFR and states "The comparison work included searching on PSNI's own AFR system which effectively is a local collection....whilst I have no reason to doubt the effectiveness of this process, there is clearly at least a possibility for criminals arrested only in Great Britain, to be missed and thus for their ten prints not to be retained on the PSNI system".¹¹⁰

The AFR system also had other limitations as although contributing police forces could search people arrested against the full database for purposes of confirming the identity of someone in custody, they could only search crime scene fingerprints against their own portion of the database and then only in relation to fingerprints; the ability to search palm impressions became available some time later. This explains why police forces would send crime scene fingerprints to other contributing police forces after searches returned a negative result at local level, but the author is not aware why RUC/PSNI decided to restrict wider searching as it appears to have done.

A truly National Automated Fingerprint System (NAFIS) started to be developed in 1995 and rolled out from 1997 before becoming fully operational by 2001. It is understood from reference to the Head of Fingerprints at PSNI, Lesley Lennox, that all outstanding fingerprints capable of being searched were searched on AFR and later on, using the upgraded version of the NAFIS – Ident 1. No reference was made to NAFIS in her overview of the automated systems utilised by RUC/PSNI.¹¹¹ It may be the case that RUC/PSNI did not have the benefit of a fully national database until the roll out of Ident 1 from 2004 onwards. Lennox also refers to an automated system utilised at the fingerprint bureau called Printrak from 1993 to 2001. I understand that this system was utilised by a few police forces to conduct local searches.

In any event, it is clear that the RUC/PSNI have utilised all available fingerprint technologies available at the time to secure an identification and against (IDENT1) once available. In addition, since that time all these fingerprints have been continually searched and re-searched against IDENT1 ensuring that, as the fingerprints of new offenders are acquired, these are checked against all the outstanding impressions from this incident.

¹¹⁰ INQ031270, p9

¹¹¹ INQ038177

However, it must be noted that no automated fingerprint identification system is 100% accurate and so, if a new suspect comes to light, a manual check of their prints should be undertaken in addition to the automated check via IDENT1. The author understands that such manual checks were made in this case – albeit involving only standard sets of fingerprints and not the much more comprehensive TACT sets usually taken from terrorist suspects

It is understood that RUC/PSNI did not create a specialist Hub for managing the fingerprint element of the Omagh Bombing or indeed for all incidents of this nature. The potential value of a Hub approach has already been articulated earlier in this section (paragraphs 5.34 - 5.38).

5.50 In addition, Lennox's statement does not make reference to any Active Files held on known terrorists (see OBI Scientific Report 1, April 2026, page 57, INQ041368 paragraph 7.2). Active Files are created and then maintained centrally in a fingerprint bureau on information/intelligence submitted by investigators about particular crime types, and they can be broken down into areas of the police force. They are the primary reference point for all major crime investigations (including terrorism offences) and, although paper-based, they are generally more effective than any automated system.

5.51 The Anti-Terrorist Fingerprint Hub at NSY held/holds the most comprehensive Active Files on known terrorists in the UK. NSY has direct links to the Intelligence Services who, in turn, had close links with both the Northern Ireland, and Eire police, and the UK military stationed in Northern Ireland due to the threat posed to the UK. Therefore, any opportunity to include fingerprints of active terrorists operating in Northern Ireland and Great Britain would have been taken to maximise the effectiveness of fingerprint provision – both to identify offenders and also to generate intelligence on active suspects. It would therefore follow that access to these Active Files would potentially have been most useful during the investigation of the Omagh Bombing or, indeed, any incident prior to, or post Omagh. However, it is not known what relationship or liaison NSY had with the RUC at the time and if there was any collaboration other than support from NSY Anti-Terrorist Bomb Team.¹¹²

5.52 In terms of database quality, in her second, March 2026 statement, Lennox confirmed that the RUC had a policy of taking an additional standard set of fingerprints from suspects in respect of terrorist work. The taking of a second standard set of prints as opposed to a TACT (Terrorist And Counter Terrorist) set, can significantly reduce the potential to identify a suspect as TACT prints include a wider area of ridge detail (see OBI Scientific Report 1, April 2026, page 57, paragraph 7.31).

¹¹² INQ034603, p2

- 5.53 A standard set of fingerprints taken in custody generally takes up to five minutes to complete. Prints from fingers and thumbs are captured by rolling each one separately from edge to edge and then taking flat impressions of each full hand and palm area. By contrast, TACT prints take at least an hour to record, with every area of the underside of each finger (not just fingertips) being captured and then every part of the palm including the sides, and joints of each finger.
- 5.54 The importance of recording a terrorist suspect's full fingerprints in as much detail as possible is paramount. Such suspects tend to be particularly forensically aware so the chances of their depositing a fingerprint at a scene or during the course of constructing a bomb or other device, or handling an incriminating object such as a firearm, can be rare, and if they do touch something, they are likely to leave only a partial print. To this extent, it is vital that all terrorist suspects are TACT fingerprinted to maximise the potential of fingerprint opportunities.

OBI-Q3	Which, if any, individuals are or may be linked by forensic evidence to the Omagh Bombing itself?
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- 5.55 It is understood that, to date, no individuals have been linked by fingerprint evidence to the Omagh Bombing.

Commenting on potential further work is not within the scope of this report, but from documentation available, key areas to consider would include the following:

- Determine whether there is any potential with respect to suspects to use the TACT technique to capture their fingerprints as this would potentially offer up 20% more fingerprint detail to compare against outstanding crime scene marks*
- Investigate whether and to what extent any effort has been made to secure palmprints from suspects who have previously been checked and flagged as having no palmprints on file and, depending on the answer, establish whether this might still be possible*
- Explore how often since the incident, outstanding palmprints have been re- launched on IDENT 1, knowing that the system is not 100% accurate*
- Understand any potential for attempting to link any of the fingerprints from the Omagh Bombing or potentially related incidents by manual comparison work if this has not already been completed in all cases.*

Brief Summary

- 5.56 All finger and palm prints recovered in connection with the Omagh bombing incident have been searched, exhaustively compared, and periodically reviewed and re-checked with a number of 'imprints' held on AFR, including any new sets of prints uploaded subsequently.

As mentioned earlier in this report (paragraphs 1.9 - 1.13) a main challenge throughout this review has been in locating specific documents of potential interest amongst the very many held in the OBI document database, and most certainly those relating to Coupatan timers are a good example of this. This author has found evidence of their existence and some detail about their examination and the fact that 20 fingerprints (areas of ridge detail) were recovered from them and forwarded to the PSNI. However, it has not been possible to discern a clear path through the administrative (chain of custody/continuity of evidence), analytical, and comparative processes to which the fingerprints were subjected and all of which is necessary for confidence in any results attributed to them. Even the letter requesting An Garda Síochána to search the fingerprints submitted to them by PSNI does not include a schedule of them, again, presenting an incomplete picture.

Having said that, it has been established, that similar requests were made to the Scottish Fingerprint Service, and Leicestershire Police Fingerprint Bureaux on the same day (20 October 2005) and that on 16 December 2005, the Head of Scottish Fingerprint Service replied that most of the fingerprints submitted to him had been searched against their AFR database with the filter "Female Only" with a negative result. He also noted that two impressions were of the palm and would be searched when their palm searching facility went live, and two other impressions were of too poor quality for AFR search.¹¹³

It could be assumed that these 20 fingerprint impressions were from the exhibits referenced in a witness statement dated 9 March 2005 from Carl Robert Lloyd, a forensic scientist at the FSS Birmingham Laboratory.¹¹⁴ Lloyd describes treating an AIB Bank "Application for foreign transfer" two page form which had revealed 20 areas of ridge detail. These were photographed and then forwarded to the PSNI as relating to the Coupatan timers.

The author has been unable at this point to establish what searches were conducted by An Garda Síochána in this regard. It has however, been established by the report of the current head of PSNI Fingerprint Bureau, Lesley Lennox,¹¹⁵ that all fingerprints from the Omagh bombing or associated

¹¹³ INQ034013, p102

¹¹⁴ INQ034724

¹¹⁵ INQ039405

with this incident, including those recovered in respect of the Coupatan timers have not yielded any positive suspect identifications to date.

- 5.57 Factors affecting the effectiveness of fingerprint examinations in identifying offenders have been considered, and this has highlighted the fact that no TACT prints were routinely taken from suspects in terrorist cases at the relevant time. This means that there was the potential for identifications to be missed.
- 5.58 It is not known if any or all of the outstanding 30 suspects who had not had their fingerprints taken at the time were eventually fingerprinted, and their prints compared to marks recovered in connection with the Omagh incident. If not, then some fingerprint opportunities may theoretically still remain.
- 5.59 Similarly, it is not known if the 12 outstanding palm prints from checked suspects were ever received, and these palmprints compared with the Omagh 'imprints'.
- 5.60 Given the specialist nature and experience of the MPS Anti-Terrorist Fingerprint Team, and the limited resources available to the RUC Fingerprint Bureau at the time, it is not clear why there was apparently no involvement of the MPS Terrorist Fingerprint Hub SO13 which held most Active Files on known terrorists in the UK. This is especially since the MPS Bomb Team provided specialist support at and related to the scene of the incident.

6. DNA – Dr Philip Avenell

OBI-Q1a	Forensic strategy in relation to DNA in the immediate aftermath of the Omagh Bombing
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- 6.1 The overall strategy in relation to scene management and exhibit processing of the investigation has been dealt with in section 2 of this report.
- 6.2 With regards to DNA testing, several key factors would have driven the decisions of the scientists in the aftermath of the Bombing at Omagh, namely:
- DNA testing in 1998 was developing into a powerful tool, not yet established as a primary scientific method but one to be used alongside other more established techniques such as textile fibre examinations, simple body fluid identification of blood, saliva or semen, and blood grouping.
 - Scientists trained primarily in these other techniques were being given additional training in the new DNA profiling ones, and learning how to adjust the focus of their strategies to make the most of DNA.
 - DNA still required significant amounts of material (*see OBI Scientific Report 1, April 2026, p67*) to produce a result so it was only considered in relation to items where there was visible body fluid staining (such as blood), or cigarette ends or telephone mouth pieces (known to have been very close to sources of saliva), or heavily handled items such as clothing to identify who the wearer might have been. In the case of bombing incidents, blood is often not tested as there is a high expectation that victims will have bled at the scene and any blood will be theirs. This, combined with the low expectation that an offender would have bled, presents little opportunity to obtain a DNA profile which may assist the investigation.
 - The concept of 'touch' or 'trace' DNA or speculatively sampling surfaces to identify people who may have handled them, was not considered because techniques at the time were not sufficiently sensitive to detect such low levels of DNA. This started to change in October 1999 with the introduction of Low Copy Number (LCN) DNA testing.
 - During the time of these investigations, and in incidents such as this, it was common to consider DNA profiling on items such as cigarette ends, or drink cans and bottles found at or near to a scene as they may have been discarded by an offender.

- 6.3 Another key consideration was avoiding contamination when handling and/or examining exhibits. This was recognised in relation to textile fibres, for example, but the safeguards in place for fibres were often not sufficiently robust to prevent potential contamination by DNA - either between items or from the forensic examiner to the item. This would have to wait until the early 2000s to be recognised and acted upon.

This is not to say that no anti-contamination measures were in place with regard to DNA. Protocols for avoiding contamination involving fibres referred to the use of bleach for cleaning laboratory benches,¹¹⁶ so this was used very commonly in all biology laboratories in the UK at the time. Bleach effectively denatures DNA so it was also very useful to prevent DNA contamination. Similarly, the protocols for item examination in biology stated that a laboratory coat was usually adequate, although gloves, disposable cuffs and masks could be added either to avoid contamination, or to protect scientists if an item posed a health and safety risk to them.¹¹⁷ Common practice in all UK laboratories, these approaches reflected the understanding and knowledge in the forensic community about DNA contamination at the time and were considered to be sufficient to prevent it.

As DNA technology advanced, so did the forensic community's understanding of the increasing potential for DNA contamination. Reflecting this, around the early 2000s anti-contamination protocols became much more detailed as regards cleaning laboratory equipment, and protective clothing to be worn. Face masks, hair nets and gloves - as well as laboratory coats, now became mandatory for biology examinations, and restricted access to biology examination laboratories was introduced. These were all measures that were not applied or not applied so stringently in 1998.

The risk of applying the LCN DNA technique to samples examined without these new protocols was significant. The possibility of any DNA detected using LCN having come from examination contamination rather than originating from the item itself was high, and so careful consideration of the value of such examination was needed. This often meant that items were rejected as unsuitable for LCN testing.

- 6.4 In this context, and as mentioned previously, the original work in the immediate aftermath of the Omagh bombing was focused on the identification of the explosive substances and detonator device mechanism used. The scene search and recovery strategy, and selection of which items should be submitted to the laboratory were chosen by Dennis McAuley. Some of these items would be destined for biological examination – ie. textile fibres, body fluid

¹¹⁶ INQ014894, p2-4

¹¹⁷ INQ014889, p3,4

examinations and DNA testing, obviously limited by the knowledge and application of these techniques at the time – as outlined in OBI Scientific Report 1, April 2026.

- 6.5 John Logan was the forensic scientist at FSANI initially responsible for biological examinations in the search for physical links between items and with any possible offenders. No documents or notes describing a formal laboratory strategy have been located amongst those available, and Logan was apparently not involved in any initial strategy meetings or selection of items prior to their submission to the laboratory as his name does not appear on the Minutes of these meetings. *Logan comments in his witness statement that 'initial instructions were for DNA analysis of swabs and envelope flaps, and fibre examination of bomb components', and that this work was directed by DC Supt Anderson and DSupt McArthur.*¹¹⁸ It appears, *however*, that he was involved in the triage of items once they had arrived there, selecting those he thought most appropriate for closer inspection, as well as those he had been specifically asked to consider by those submitting them. Logan's initial statement clearly states the purpose of those examinations as, *"to identify any potential connection between the items of the bomb and any clothing submitted, or between similar types of incidents. To identify any DNA on the phone boxes, cigarette butts, or letters"*.¹¹⁹
- 6.6 As mentioned above (in Section 2), in the Summer of 2000 the FSS Specialist Advisor, John Davison, was brought in to advise the independent RUC Investigation Review Team under DC Supt McVicker, and then shortly afterwards, to act as Forensic Co-ordinator for the RUC Investigation under DSupt McArthur with Ruth Griffin as Lead Scientist within FSANI. Any such independent review of a forensic investigation would be expected to consider advances in technology, methodology, and approach, and to generate recommendations for new areas to explore.
- 6.7 In Davison's Report of October 2000¹²⁰, he made 4 general recommendations of particular significance to DNA, namely:

General recommendation 4 stated that: '**consideration be given to new, strict anti-contamination procedures at all scenes where LCN DNA analysis may be subsequently required**'. This would be important to ensure the appropriate handling and examination of both current examinations and future incidents and taking into account the rapidly emerging use of the new LCN DNA analysis which had recently been developed by the FSS.

¹¹⁸ INQ042504, p8

¹¹⁹ INQ034603

¹²⁰ INQ024699, p113-141

General recommendations 5 and 6 stated that: ‘the FSANI laboratory reconsiders its policy of giving sequential exhibit numbers different from the Holmes [police] numbers’ and that ‘consideration be given to including more specific details relating to exhibits in Holmes lists’ retrospectively. As mentioned in section 2, these recommendations were intended to avoid the confusion which could be caused when dealing with large, multi-incident investigations where numerous exhibits may have both similar descriptions and the same ‘unique’ exhibit reference assigned. This presented a serious challenge to the OBI scientific team in carrying out their review for this report.

General recommendation 7 states that: ‘the laboratory ensure that written records in relation to decisions, examination strategies, case conferences and all communications, internal or with the investigating officers are maintained on file’. This recommendation may well have arisen as a result of Davison himself being unable to find such clarifying information within the original casefiles, again, highlighting issues also faced by this team.

- 6.8 Following this initial review, subsequent reports were produced providing updates on results to date, current techniques available and what future work could be attempted. In December 2001, the first of these progress reports emerged as a joint report from Davison and Griffin.¹²¹ This suggested that the main opportunity for evidence was now considered to rest with a new ultra-sensitive DNA technology in the form of LCN and that had not been available at the time of the original examinations in 1998 and 1999. It was not known whether the examinations would necessarily have been more productive had it been available then.¹²²
- 6.9 Considering the examinations conducted to date, and the advent of LCN, this report outlined a new defined strategy with 3 key purposes. These were to carry out examinations which might generate evidence to:
- directly connect any individual with the Omagh offence
 - establish conclusively that the same persons were directly involved in the three linked offences and Omagh.
 - directly connect any individual with the three linked offences.
- 6.10 It is clear from this strategy that Omagh (FSANI ref 4169/98) and three linked offences (3679/98 – Newry Court House; 2229/98 – Market St, Lisburn; and

¹²¹ INQ034726, p3

¹²² INQ034726

3933/98 – Banbridge), were now being investigated effectively as one case to see if links could be established between them and thus identify any individuals who may have been involved¹²³. This may explain the way in which the results of these investigations were reported by the FSS – with all of them brigaded under the same case reference number (4169/98), instead of relating each result/exhibit to its specific incident reference number. This approach to reporting created significant difficulties in identifying the origins of the items to which the results relate for the purposes of this report.

Whilst the approach to both the original labelling of exhibits with sequential numbers, and subsequent reporting of cases under the same reference by the FSS, will have made the initial review of this case very difficult, it is unlikely to have caused errors in exhibit selection and result processing, and no evidence of such an error was identified during this review. Rather, the significance of the approach was more evident in the extra time that would have been required for reviewing the cases and development of any new strategies. This lay behind the recommendation made by Davison to simplify exhibit references whilst adding a general description. Those working on the cases at the time would have been familiar with all the events as they happened and therefore less likely to be confused by the constant re-appearance of similar or identical references.

- 6.11 In the immediate aftermath of the Bombing, the remains of the bomb vehicle had been assessed for their suitability for fingerprints, fibres, explosive residues and device construction evidence, based on the most likely areas to yield evidence, and work conducted as appropriate. All items were re-assessed taking into account the results of these previous examinations and items identified subsequently. The assessment also took into account the use of LCN for sampling now that the technique was becoming available – having been launched for operational use within the FSS in October 1999. On 10th January 2002 Ruth Griffin wrote to D Supt McArthur summarising her assessment of the forensic potential of all identified fragments from the bomb vehicle, and device it had contained.¹²⁴
- 6.12 Of note, the report commented on the fact that since the car bomb incident in Londonderry in April 2001, where new protocols were followed which minimised the handling and examination of items prior to sampling for LCN testing, it was now possible to get DNA profiles from various component parts of the devices used. Avoiding contamination was an important factor when considering other incidents which post-dated Omagh, but it also had serious ramifications for the Omagh investigation itself.

¹²³ INQ023657, p1-4

¹²⁴ INQ025900, p254-256

- 6.13 In relation to component parts of devices from Omagh and linked offences, they were 'almost all in an unsuitable condition to attempt LCN analysis owing to dirt, loss of the original surfaces that might have been handled by offenders, use of fingerprint enhancement chemicals, or degradation'.¹²⁵
- 6.14 A full review of **all** available exhibits and material recovered from the scene was then undertaken, with each item being catalogued and assessed for examination/re-examination potential.¹²⁶ But, as above, most were judged to be in an unsuitable condition, falling into one of four defined categories, namely:
- contaminated with dirt and debris
 - contaminated with biological material - in the form of blood from victims
 - explosion or fire damaged, and,
 - having suffered weathering effects - compounded by the water used to extinguish fire in the aftermath of the explosion.
- 6.15 Following this review, which was completed between 2002 and 2003, Griffin produced a detailed search strategy which now demonstrated clear direction and examination approaches for the Omagh investigation and related incidents.¹²⁷ The strategy was broken down into generic parts dealing with suspects, and each relevant evidence type, with details to be applied to each exhibit category.
- 6.16 In relation to DNA, and mirroring the general guidance now being applied by all forensic laboratories in the UK following the introduction of ultra-sensitive LCN, specific advice was put in place. This detailed the necessity to wear gloves at all times and regularly change them, consider LCN and appropriate extra precautions and recover small items to either FSNi or the FSS for examination.¹²⁸
- 6.17 The examination strategies remained generic – not focusing on specific items as these were still being identified, but instead categories of items and how they should be dealt with.

¹²⁵ [INQ034726, p25-26](#)

¹²⁶ [INQ024753, p34-62](#)

¹²⁷ [INQ025906, p9-12](#)

¹²⁸ [INQ025906, p9](#)

OBI-Q1b	Forensic strategy in relation to DNA following the December 2001 Police Ombudsman's report
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- 6.18 As can be seen from the above, the forensic investigation in relation to DNA was driven by the evolving technology and forensic techniques available at the time. As more advanced DNA technology became available (LCN from October 1999), so too an independent scientific advisor – John Davison from the FSS, had been appointed to oversee and guide the forensic investigations. Davison was already in position prior to the publication of the Ombudsman's report, and he had produced his initial report and the new investigation established ahead of the beginning of the Ombudsman's review.
- 6.19 Reflecting all of this, the report produced by the Police Ombudsman of Northern Ireland and published in December 2001 was not referenced or referred to in any of the documents reviewed during the production of this part of this report into the DNA aspects of the investigation.

OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?
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- 6.20 In this case a large number of submissions were made to the laboratory.^{129 130} Within these were approximately 33 items on which DNA examination had been requested* - either on its own or as part of a bundle of other forensic tests. Once submitted to the laboratory and reviewed by the forensic expert, a decision would have been made as to the suitability of each item for DNA testing. Not all of these items might actually have been sampled for DNA testing, whereas other items not originally destined for DNA, might have been. In any event, the following list of items is based on statements and reports where it can be identified that DNA testing was actually carried out and, where possible, the complete results of that testing can be identified.

** These files contain a large number of hand-written submission forms for items which were sent to the laboratory for examination. The forms list the items submitted and a generic 'What is the purpose of this submission?' box relating to all items in that submission. This box typically contains broad-ranging instructions not specific to particular items or examination types. The estimate of '33' items provides an indication of the number of items within the 299 pages of submission paperwork where DNA Examination was clearly requested. This does not indicate the number of items suitable for DNA testing at the relevant time, just those thought to be relevant by the submitting officer. Once received*

¹²⁹ INQ024681, p1-102

¹³⁰ INQ024683, p1-197

at the laboratory, each of these submissions appears to have been reviewed by a scientist for the appropriateness of DNA testing.

- 6.21 As previously mentioned, the original DNA selection and testing was organised by John Logan at FSANI. Initial submissions immediately following the incident involved the following samples:

Table 1: Initial DNA Submissions

Item Ref.	Exhibit Ref.	Description
19	IMcN1	3 x cigarette butts
168	SAC1	Swab taken from mouthpiece and earpiece of handset, telephone
254	SAC1	Swab from handset of telephone (item 24)
276	MEH2	Envelope containing letter
277	MEH3	Envelope addressed to T&F Hospital – Omagh
353	O91	Anonymous letter and envelope

- 6.22 Logan examined each of these items, describing them as “being examined for DNA”. No DNA was detected on any of them.¹³¹ Whilst the exact technique used was not outlined in his statement, it seems likely that this was the SGM DNA technique which was commonly in use in the laboratory at that time (see OBI Scientific Report 1, April 2026 page 67, paragraph 8.13). **INQ041368**
- 6.23 Again, as mentioned, Ruth Griffin became responsible for the laboratory examinations at FSANI from early 2001 onwards. In December 2001 she produced a comprehensive Table with detailed description and comments about the examination and results obtained for all items which had been examined within FSANI for the Omagh investigation.¹³² In December 2005, this Table was reviewed and updated¹³³ and provides a comprehensive list of all items examined, including those that were sampled and submitted for testing at the FSS using LCN. Those items were detailed as follows:

Table 2: Subsequent DNA Submissions

Item Ref.	Exhibit Ref.	Description
19	IMcN1	3 x cigarette butts
21	IMcN3	Phone box
22	IMcN4	Phone handset
26	DWVK3	No plate MDZ 5211

¹³¹ **INQ034603, p2**

¹³² INQ025900, p222-250

¹³³ INQ026287, p1-39

..Table 2: continued

Item Ref.	Exhibit Ref.	Description
168	SAC1	Swab from mouthpiece item 22 IMcN4
169	DMcA1	Toggle switch
185	DMcA19	Lunch box lid
254	SAC1	Swab of item 24 handset
255	DMcA88	Remains of plastic lunchbox, timer, toggle switches
389	AD11	Handset from 22 IMcN4
390	AD12	Handset from 24 NJC2
482	NP89	Cigarette lighter
551	RMEG3	Swabs from handpiece BT phone Newry, RW1
562	BBT26	Gear knob from FSNI 532 NEP1
567	BBT31	Bonnet locking and release mechanism (from 443 NP2)
571	BBT32	Swabs from bonnet catch
568	ALK2	4 x DNA swabs from item 255 DMcA88
569	ALK3	6 x DNA swabs from number plate item 26 DWGK3

- 6.24 Of note, items MEH2, MEH3 and [09]1 – all described as letters and envelopes in the previous Table, were categorised in Griffin's Tables as 'no further action' and therefore do not appear to have been included in subsequent examinations. This may have been for a variety of reasons including, for example, that all appropriate material on them for DNA testing had already been sampled or that, for investigative reasons, they were no longer considered of potential significance.

OBI-Q2b	What forensic testing was carried out, and with what outcome?
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Testing carried out

- 6.25 Each of the items included in the Table developed by Ruth Griffin (and listed in Table 2 above) appears to have been considered suitable for trace DNA and therefore for LCN testing, and were submitted to the FSS.
- 6.26 This list of samples has been reviewed, and the documents provided searched in an attempt to establish the results of the testing carried out. This has revealed the following:

Item 19 IMcN1 which comprised **3 cigarette butts** were tested numerous times using LCN DNA testing. Many of these tests failed to provide a DNA result, however two samples from two different cigarette ends gave a partial male DNA result and an almost complete female DNA profile respectively.¹³⁴ The male DNA result comprised 7 out of a possible 20 components (occurring

¹³⁴ [INQ034726, p30-31]

in approximately 1 in 44,000 individuals),¹³⁵ and the female DNA result, 19 out of a possible 20 components (occurring in approximately 1 in 22 million individuals).¹³⁶ Both of these profiles remain unidentified and do not match the profiles identified from the telephone handsets.¹³⁷

Items 22 IMcN4 and 168 SAC1 appear to relate to the same telephone as item 389 AD11 – **phone handset**. These were tested using LCN DNA testing and no DNA was detected.

Item 254 SAC1 appears to relate to item 390 AD12 – **phone handset**, and was a swab taken from it. It was tested using LCN DNA testing and no DNA was detected.

Both Items AD11 and AD12 – two telephone handsets, were reported in the witness statement of Jonathan Whitaker, dated 16 February 2001.¹³⁸ Of note, he said that samples were tested from the mouthpiece and phone lead of item AD11, and from the phone handle, phone lead, mouthpiece and earpiece of item AD12. It appears therefore that when these items were examined at the FSS, different areas of them were sampled and LCN tested. It has not been possible to identify the specific case notes detailing this but, irrespective of this, two different DNA profiles were obtained, one from AD11 and one from AD12.

The result from AD11 was a partial male DNA result (occurring in approximately 1 in 4.7 million individuals).¹³⁹ Initially this result produced a partial match against a reference sample held on the UK National DNA Database (*see OBI Scientific Report 1, April 2026 page 69, paragraph 8.26*). However, further investigation and analysis into this potential match both identified that the individual in question was only 14 years of age at the time of the Omagh incident and, following further analysis, could be eliminated as a potential source of the DNA. No other individuals were identified.¹⁴⁰

The remaining DNA profile was investigated and it was determined that it could have originated from a member of laboratory staff who had been involved with the handling and/or examination of the items and was therefore not relevant for further investigation.¹⁴¹

¹³⁵ INQ011671, p37-38

¹³⁶ INQ011671, p37-38

¹³⁷ INQ011671, p37-38

¹³⁸ INQ025347, p1-8

¹³⁹ INQ011671, p37-38

¹⁴⁰ INQ011671, p16

¹⁴¹ INQ011671, p16

Items 26 DWGK3 and 569 ALK3, and Items 255 DMcA88 and 568 ALK2 each appear to relate the same items respectively – ie. the **number plate** and **remains of the plastic lunch box, timer, and toggle switches**, with each being tested using LCN DNA testing. All of these samples produced complex DNA results which were not suitable for meaningful comparison to identify from whom the DNA could have originated.

Items 169 DMcA1, 482 NP89, 562 BBT26, and 567 BBT31 (and 571 BBT32 which relates to the same item) each failed to produce a DNA result.

Item 21 IMcN3 was described as a **phone box**. It was not listed as received at the FSS, or possible to locate the results of DNA testing on this specific item nor any examination notes or details relating to its origins. However, item **NJC2** (also in the Table produced by Ruth Griffin) relates to a phone box and both had previously been analysed by SFU. Equally, item **NJC2** related to **swabs AD12** which had been DNA tested and therefore it is believed this item IMcN3 may also be part of the sample AD12. A copy of the examination notes for this item could not be found within the material provided and may include details of the origin of these samples which may help to resolve this issue.

6.27 It was not possible to locate any LCN DNA results relating to Item 551 RMEG3. However, this item was also not listed as having been received by the FSS and therefore may not have been submitted for testing despite appearing in the Table from Griffin. Additionally, Item 185, DMcA19 was listed by the FSS and examined but 'no further work was carried out' - presumably relating to any completed sampling or DNA testing, and which might explain why no DNA results could be found.

6.28 The previous section details the results as far as it has been possible to identify the work which has been carried out based on the information provided. It must be emphasized, however, that there is still some uncertainty as to the exact testing conducted as detailed above. From the documentation available the following DNA profiling results were obtained which might have been useful in identifying individuals.

Outcome of the Testing

6.29 DNA profiles which could be used to assist in identifying individuals were only obtained from Items 19 IMcN1, 389 AD11 and 390 AD12 – all as described in detail above.

6.30 In the case of Item 19 IMcN1 there were **3 cigarette butts**. One cigarette butt yielded an almost complete female DNA profile which was searched against the NDNAD but did not produce a match and therefore no individual was identified from whom the DNA could have originated. A second cigarette butt

in this item yielded a partial male DNA result but this could not be searched against the NDNAD. This was because this result contained too little information for a meaningful search to be carried out – ie. any such search would inevitably yield multiple potential matches with samples on the NDNAD purely because of the limited information it contained,¹⁴² to the extent that it could not be linked to any one specific individual from whom it could have originated.

- 6.31 In the case of **Item 389 AD11** this produced a DNA result which was searched against the NDNAD. As described, this DNA profile matched the DNA of an individual who was later eliminated from the enquiry as it was shown - through further investigations, that the match had been adventitious and that the individuals could not have been involved in the Omagh incident.
- 6.32 In the case of **Item 390 AD12** the DNA profile identified was shown to match a member of laboratory staff and therefore unrelated to the incident but rather introduced through contamination of the item at the laboratory.
- 6.33 Results of all other tests either failed to detect DNA - most likely because there was insufficient DNA present, or revealed small amounts of DNA which were either too weak or too complex to be suitable for identifying any individuals who may have been involved in the Omagh Bombing.

OBI-Q2c	Comment on past and current views of the reliability of this testing?
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- 6.34 As detailed in OBI Scientific Report 1, April 2026, the LCN DNA profiling technique, first introduced into UK casework in October 1999, was considered a reliable technique. It had undergone development and validation within the FSS and was being used in casework in England and Wales prior to being deployed in the Omagh and linked offence investigations.
- 6.35 Again, as described in Report 1, the technique, whilst successfully challenged in the trial of Sean Hoey, was subsequently demonstrated to be reliable and continued to be used in forensic casework throughout the UK and subsequently worldwide.
- 6.36 Whilst the technique itself is considered reliable it must still be remembered that contamination is a significant factor when using the LCN DNA testing method. This issue was recognised during the investigation, and appropriate protocols and strategies adopted in subsequent examinations as realisation of the potential impact of contamination developed. But these could not assist with items which had already been *recovered and examined prior to the*

¹⁴² INQ011671, p16

introduction of LCN and where less stringent anti-contamination techniques and protocols had already been deployed.

OBI-Q3	Which, if any, individuals are or may be linked by forensic evidence to the Omagh Bombing itself?
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- 6.37 Whilst some DNA profiles were identified from items in the investigation into the Omagh bombing, these proved subsequently to be linked either to unknown sources, or staff contamination events or, potentially, contamination from elsewhere.
- 6.38 As a result, no DNA was identified on any of the items examined in relation to the Omagh Bombing itself and therefore no relevant individuals were identified or linked to the incident through DNA.

Brief Summary

- 6.39 The DNA strategies, *examination protocols* and testing adopted throughout the Omagh investigation were appropriate and suitable bearing in mind the state of knowledge and technology available at the time. In 1998 DNA testing was not as sensitive as it became in the early 2000s, and the DNA databases were not as well developed or used as routinely as they were towards the mid and late 2000's.
- 6.40 As the investigation progressed, the use of emerging new techniques was considered, and recommendations made for their application in this case as would have been deemed appropriate at the time. This review has not identified any technology that would have been available at the relevant time but was not either used or considered for use. In short, the techniques that were applied at the relevant times are considered appropriate given the expert knowledge that was then available.
- 6.41 So, despite the extensive reviews and work carried out into the Omagh Bombing, DNA testing was unable to assist in the police investigation and help in identifying those individuals who carried out the attack.
- 6.42 It was unfortunate that DNA testing had not advanced to a stage in 1998 where it was sensitive enough to obtain touch DNA results similar to those we might expect from the technique using today's methods. Similarly, our knowledge of DNA contamination, procedures and exhibit handling was not sufficiently robust to prevent contamination even if the techniques had been suitable. As a result, no sustainable evidence emerged using the techniques available at the time.

7. Textile Fibres – Roger Robson

OBI-Q1a	Forensic strategy in relation to Textile Fibres in the immediate aftermath of the Omagh Bombing
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7.1 Textile fibres were already being considered in November 1999 when NCF Specialist Advisor, Dave Barclay, suggested further avenues that might be explored, including in relation to fibres.¹⁴³ This pre-dates any formal written strategy for fibres.

7.2 The first witness statement on fibres of particular note is one from the FSANI forensic biologist, John Logan, dated 20 April 2000¹⁴⁴. *Logan had been designated Senior Biology Reporting Officer for the Omagh Bomb investigation - which included textile fibres, hairs and body fluids.*¹⁴⁵ There was nothing especially unusual about the gap between work commencing and when the results were reported, bearing in mind the enormity of the task required to recover potential microscopic fibres evidence from so many exhibits.

7.3 The first reference to a formal written forensic strategy including fibres was made in the report of a review of forensic aspects of the case dated 16 October 2000 by FSS Specialist Advisor, John Davison¹⁴⁶. Amongst other things, he said:

"I find it understandable given current practice, the resourcing available and huge task involved, but nevertheless unfortunate, that written records relating to the terms of reference, the decision making and the minutes of the daily conferences are sparse".

7.4 A number of progress reports and reviews followed but none of these are numbered and so it is not possible to confirm how many were produced within relevant timescales. Specifically related to fibres associated with the device used in the Omagh Bombing, Davison's Review¹⁴⁷ comments are cited within the Peer Review Panel Report, dated 11 December 2004:

"Only fibres embedded within the thermoplastic glue were considered' as it 'follows that these fibres were in contact with the TPU whilst it was being assembled rather than resulting from contacts after assembly".

¹⁴³ INQ034729, p12

¹⁴⁴ INQ024679, p9-13; and replicated at INQ034603

¹⁴⁵ INQ042464, p1

¹⁴⁶ INQ026552 and replicated at INQ024699, p128 & INQ026552

¹⁴⁷ INQ013686, p20; INQ013687, p20

- 7.5 This approach seems eminently sensible, and it appears that it was already well underway, as evidenced by the detail contained in Logan's statement referred to above. *The TPU was clearly central to the investigation. It was handmade and therefore would have been in direct contact with its maker(s). Unless it had been put together in a laboratory 'clean' environment, then it is inevitable that fibres and other microscopic particles from its maker would inadvertently have been transferred to its component parts. As some components were glued together, loose textile fibres in particular - from clothing worn in the vicinity, may well have become stuck in the glue while this was wet. Other fibres might also have been transferred pre and post construction. While all transferred fibres – both stuck and loose, could potentially be considered of value, only those caught in the glue as it was setting can be directly associated with the time the TPU was constructed and to the individuals involved in the construction, as opposed to some other time and from some other source.*
- 7.6 Throughout his initial report referred to in paragraph 7.3 above, Davison makes 35 recommendations. Specifically for fibres; he suggests searching fibre databases to assist with tracing the source of some blue/green acrylic fibres found embedded in glue on the Omagh TPU. This could have been useful – both in determining the source of the fibres and establishing how commonly occurring they might have been in the textile fibre population at large. From the information provided, it is not clear whether or not Davison's recommendation was carried through. Interrogation of the database was not obligatory in the FSS and used at the discretion of the RO. An industrial enquiry – of the type routinely provided by the FSS at the time, might also have helped here. The FSS had two scientists who specialised in this kind of work at the time although some scientists preferred to undertake the task themselves. Such enquiries were not common, being reserved for when the fibre evidence had been assembled and was considered to be a key part of the prosecution's case. They were often not successful, particularly where garments had been produced in the Far East. Again, nothing has been found in the documentary record to suggest that any such enquiries took place in this case.
- 7.7 Davison also recommended that FSANI design an MSP spectral database from constituent fibres from known sources (see OBI Scientific Report 1, April 2026, page 81, paragraph 9.23). The FSS had been building similar local MSP spectral databases since the mid 1990's¹⁴⁸. They had emerged with the introduction of the new style MSP instrument around that time and so they were a relatively new tool at the time of the Omagh Bombing. In the FSS, their use was not obligatory. The author found nothing to suggest that consulting such a database was considered – either before or after Davison recommended this, but that is not to say that FSANI did not have such a database of their own.

¹⁴⁸ Robson R. *Spectral Variation within Red Cotton Dyes, Proceedings of 5th ENFSI Meeting Berlin 1997*

INQ041367

- 7.8 The next reference to progress is documented in a memo¹⁴⁹ from a conference dated 1 March 2001 (*See section 2 of this report*) when Davison was confirmed as Forensic Co-Ordinator of a new team to support the investigation, with Griffin as Lead Scientist within FSANI. *In her recent witness statement dated 28 May 2026,¹⁵⁰ Griffin refers to this next phase as a 'Review'; elsewhere it is referred to as Phase 3.* There is evidence within the initial statements of Denis McAuley¹⁵¹ who clearly led the Omagh Bomb scene examinations, that he had been in charge of forensic strategy including within the laboratory up until this point.
- 7.9 The strategy discussed at this conference is summarised in a progress report produced by Davison on 19 March 2001.¹⁵² Rather than specifically relating only to Omagh, this report describes a re-examination of TPU components from four separate incidents including Omagh and specifically various items of debris relating to the car and phone box from there. Whilst this report does not explain why the team decided to re-examine exhibits; it was clear that they considered the Omagh incident may be linked to similar events, and that formed the backbone of all the forensic examinations.
- 7.10 In terms of suspects, the report stated that very little clothing had been submitted; and that most of what had, had been previously examined and therefore compromised any further examination for explosive traces. Davison did not make clear which items of clothing remained unexamined (and therefore uncompromised), and to what extent they had also been compromised for, say, DNA and fibres in addition to explosive traces. A change in strategy suggested, however, that examination should be undertaken for any remaining suspects' clothing which had not been previously examined, and so any remaining items went through the full examination for fibres as outlined by Griffin.
- 7.11 In terms of resources, this report refers to three experienced, multi-skilled assistants who would be undertaking the re-examination of these items for DNA, fingerprints and fibres. On the face of it, this seems unlikely to have been adequate – double the number would have been more appropriate in terms of pairs of hands, areas and level of expertise, bearing in mind the quantity of exhibits to be examined and the range of examinations required. However, given the general circumstances in which the Laboratory was operating – as highlighted first by Davison¹⁵³, then in a recent statement from McAuley¹⁵⁴, *and*

¹⁴⁹ INQ025900, p15 of 307

¹⁵⁰ INQ042141, p1

¹⁵¹ INQ012120

¹⁵² INQ026573, p2, p4, p5

¹⁵³ INQ026522

¹⁵⁴ INQ035230

one from Griffin¹⁵⁵ in which she alludes to the pressures she was under, this was understandable.

7.12 A follow-up progress report¹⁵⁶ was issued on 20 August 2001. In it, Davison discussed a two-phased approach:

- a) **Phase 1** involved the location and assessment of all exhibits from all four incidents for further examinations, and the drawing up of a plan indicating the sequence in which examinations involving various specialists should be conducted.
- b) **Phase 2** referred to the actual testing identified in Phase 1. In terms of fibres, reference was made to various fibre populations – both specific to Omagh, and others specific to the potentially related incidents.

7.13 As a result of these re-examinations, a comprehensive joint report authored by Davison and Griffin¹⁵⁷ was released on 18 December 2001. This report explained that difficulties in obtaining useful results from initial examinations in 1998-1999 was primarily due to the non-availability of LCN DNA at that time.

7.14 Next there is reference to a “report” from Griffin¹⁵⁸, in the form of a four-page letter dated 1 July 2002 to the Omagh SIO, D.Supt. McArthur. This provided an extensive and very clear strategy for the examination of all evidence types.

The letter states:

“With respect to fabrics and fibres, the strategy in respect of the home/work environments of potential suspects includes:

- *taking tapelifts - explained (see OBI Scientific Report 1, April 2026, page 78, paragraph 9.10) from workshops and all surfaces, including seats;*
- *taking constituent samples of fabrics, furnishings including carpets;*
- *seizing (or taking constituent samples) from boiler suits/overalls, masks and clothing;*
- *seizing gloves (plastic/rubber/fabric);*
- *seizing footwear and old packaging or sacks”.*

¹⁵⁵ INQ042141 p5.10

¹⁵⁶ INQ023697

¹⁵⁷ INQ034726

¹⁵⁸ INQ024730

This was a very ambitious strategy for fibre examinations, and the approach surrounding other evidence types appeared to be just as extensive. As such, and dependent on the number of key suspects at the time, one would envisage this strategy would be likely to generate a substantial quantity of exhibits and examinations.

- 7.15 This prompts the question as to whether the examination of many exhibits was purposefully delayed until the introduction of LCN – bearing in mind that that was anticipated fairly imminently? The sheer extent of exhibits generated by such an atrocity and requiring detailed examination is very likely to have put the Laboratory under severe strain in terms of logistics, safe storage, resources and management.
- 7.16 In summary, much of the detail provided above does not address the forensic strategy, and how formal or otherwise this might have been, during the “immediate aftermath” of the Omagh Bombing owing to the inadequacy of the records available. There is a clearer structured and recorded approach once Davison and Griffin *had been included* - from March 2001.

OBI-Q1b	Forensic strategy in relation to Textile Fibres following the December 2001 Police Ombudsman’s report
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- 7.17 The Report of Nuala O’Loan, the Police Ombudsman of Northern Ireland, was published on 12 December 2001.¹⁵⁹ By then, the forensic direction she envisaged was already well underway – as described in Davison’s October 2000 report and his joint one with Griffin released on 18 December 2001. To this extent, there is nothing to suggest that, of itself, the Ombudsman’s report inspired a new forensic strategy although it may well have placed greater focus on the scientific work and requirement for more timely results.

OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?
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- 7.18 Examinations had taken place for textile fibres regarding the car and devices in the Omagh Bomb. Again, only fibres trapped within items – for example, adhering to adhesive tape or embedded in glue, were recovered. Loose or extraneous fibres on surfaces were not considered.
- 7.19 On 18 December 2001, FSANI’s Lead Scientist in the case, and a fibres expert herself, produced a spreadsheet¹⁶⁰ detailing progress from an initial 596

¹⁵⁹ INQ000274

¹⁶⁰ INQ024753, p34-71

exhibits. Fibre examinations appear to have been extensively considered on very many items, including the phone box, car bomb debris, the TPU including adhesive tapes, glue and other internal components; together with clothing seized from suspects.

OBI-Q2b	What forensic testing was carried out, and with what outcome?
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Testing carried out

- 7.20 From the information available, it is not clear precisely what tests were carried out on which items. This is partly because of the sheer quantity of material available and the fact that this is not in any logical order, and partly because of a lack of detail within handwritten case notes, many of which were illegible, unsigned and undated. To this extent, it has not been possible confidently to deduce to which exhibits specific results relate, and even which ones relate specifically to Omagh exhibits.
- 7.21 Some detail can, however, be confirmed regarding the types of tests applied¹⁶¹
¹⁶² and this does provide confidence that the analytical instruments referred to in OBI Scientific Report 1 were being used.
- 7.22 Thus, whilst the reports from Griffin do not go into the scientific detail of the tests, the presence of the data referred to in the paragraph above confirms that the appropriate tests had been applied and in a logical manner.
- 7.23 The clearest indication of the outcome of the tests related to the fibres on all the items in the Omagh incident can be found in an overview report produced by Davison¹⁶³ dated 1st April 2004.
- 7.24 The fibres-related content can be summarised as follows:
- a) **Phase 1** Initial Response & Examinations: September 1998 – October 1999. John Logan verbally indicated a number of recovered fibres from the Omagh TPU which could relate to an offender.
 - b) **Phase 2** Review: November 1999 - November 2000 Logan releases his statement regarding Phase 1 results on 20 April 2000.¹⁶⁴

¹⁶¹ INQ025871

¹⁶² INQ025876

¹⁶³ INQ011671

¹⁶⁴ INQ024679, p9-13; and replicated at INQ034603

- c) **Phase 3** Scientific Investigation relaunched. February 2001 – October 2002. This is when Davison and Griffin produced a range of mostly joint progress reports addressing the re-examinations of exhibits referred to above.
- d) **Phases 4,5, and 6** are not covered here as they address questions relating to other incidents and which will be covered in a separate Report.)

Outcome of the Testing

- 7.25 In a part drafted, undated report, (most likely by Griffin), approximately 400 fibres were recorded as having been recovered from items related to the Omagh Bombing.¹⁶⁵
- 7.26 Page 140 of this report includes a Table of the main fibre populations which include; blue/green synthetic fibres, brown synthetic fibres, green synthetic, and grey synthetic fibres. The relevance of these fibres will be discussed in detail in relation to other potentially related incidents in a separate report.
- 7.27 Of particular interest were 5 blue/green round cross-section acrylic fibres. These were recovered from the glue of the Omagh TPU. These fibres had been compared to blue/green constituent fibres that originated from a jumper (PC3), seized from an address associated to two suspects: Shane and Michael BRODERICK.
- 7.28 Early indications suggested that these 5 blue/green acrylics (later to be referred to as Fibre Type A) matched those of this jumper. This finding is reported within Davison's 16 October 2000 review,¹⁶⁶ in which he stated:
- "the fibres are indistinguishable from fibres comprising a jumper PC3 recovered from the home address of suspects (address provided). The precise significance of this match is not yet established and is being addressed by John Logan and Ann Priston as part of her review".*
- 7.29 Dr Ann Priston was a leading textile fibre expert working at the FSS Lambeth Laboratory at the relevant time. She had substantial experience of conducting fibre examinations in bombings and other terrorist offences and led on the fibre work surrounding the London Bombings of 1995-96. Davison refers to a review

¹⁶⁵ INQ025900

¹⁶⁶ INQ026552

she was undertaking on the Omagh Bombing within his initial report.¹⁶⁷ There is also a separate statement from her regarding the finding of purple dyed rabbit hairs potentially linking some of the London-based explosions.¹⁶⁸

7.30 Returning to Davison's report, he goes on to recommend that:

"Databases and laboratory collections were searched for similar fibres. Any such identified should be compared in the detail of the dye constituents etc. for any which may be indistinguishable. If any such are found to be indistinguishable it may reduce the evidential significance of the finding in relation to PC3, but may assist in provision of intelligence by identifying the source of such fibres, ie. balaclava, gloves, jumpers etc."

7.31 Within Davison's report of March 2005¹⁶⁹ he states that the more commonly occurring the fibre, the weaker the link it was capable of providing between two items. Whilst this was a common assumption in the late 1990s, by 2005 published research¹⁷⁰ suggested that the strength of any such link also depended on the numbers of fibres recovered, the extent to which they had been tested, and any potential contextual influences. As matters stand, therefore, the author is unable to concur with Davison's assumption here.

7.32 It is worth noting here the content of the original statement of John Logan.¹⁷¹ This included detail surrounding the examination of items that had been seized from the home addresses of potential suspects and targeted as the potential source of the blue/green acrylic fibres.

7.33 In particular, items PC3, a black acrylic jumper and PC2, a purple acrylic and wool jumper were seized amongst others from an address associated with Shane and Michael BRODERICK. Other blue/black jumpers were recovered from other provided addresses (without a related suspect name), including one from HOEY, to which no forename or address were provided.

John Logan concluded:

"Though the blue/green fibres match the constituent fibres of the black jumper PC3, these fibres are fairly popular and the finding gives weak support to the proposition that the fibres on the timer device originated from that jumper. Fibres of this type [sic] have

¹⁶⁷ INQ026522

¹⁶⁸ INQ009263

¹⁶⁹ INQ025102

¹⁷⁰ Ref 83: Brushweiler & Grieve 1997 on page 87 of OBI Scientific Report 1 April 2026 INQ041368

¹⁷¹ INQ024679 p9-13; and replicated at INQ034603

been encountered on a number of occasions in the Laboratory, generally originating from knitted garments such as gloves and masks”.

- 7.34 The jumpers PC2 and PC3 were seized between 23 September and 13 October 1998. In the 1990s, it was relatively common for manufacturers to include many types of natural “woolly-type” fibres when constructing cheaper acrylic/wool mix jumpers, gloves and scarves. So the inclusion of dyed rabbit hair which was mixed with the sheep wool was not unusual. As PC2 is described as a purple acrylic and wool jumper, it is currently assumed that this jumper has been eliminated as a potential source of the purple dyed rabbit hairs referred to in Dr Priston’s report – although no confirmation has been found to categorically substantiate this.
- 7.35 The match of the blue/green acrylic fibres to constituents of the jumper PC3 appears to have been diluted over time; although it has not been possible to identify exactly when this started.
- 7.36 On page 15 of Davison’s report dated 1st April 2004¹⁷² he referred to Griffin’s 5th January 2004 conclusion that:

“Nothing recovered in relation to Sean Hoey, any other suspect, or items from addresses relating to them, has yet been found to be conclusively linked with the bomb at Omagh....no source for the dark acrylic fibres has been found on any suspect item.”

- 7.37 The ‘dark acrylic fibres’ referred to here are likely to be the blue/green ones mentioned above. To the naked eye, something made of such fibres will usually appear to be blue/black as, indeed, John Logan describes in relation to the jumper in his initial statement (*see paragraph 7.32 above*).
- 7.38 The author has inspected MSP and FTIR spectra, and TLC results (*see OBI Scientific Report 1, April 2026*) relating to the comparison of the jumper (PC3) and comparisons with the fibres recovered from the TPU (DMcA88), but has been unable to track down the precise point when the decision was made to exclude the jumper as a potential source. *In her recent witness statement,¹⁷³ Griffin refers to the elimination of ‘a jumper’ on the grounds that ‘it displayed a different range of colour’. The author is currently proposing that this is the same jumper – PC3.*

¹⁷² INQ011671

¹⁷³ INQ042141, p20

- 7.39 Perhaps the fibres team considered this type of fibre to be so prevalent locally as to reduce the evidential value of any association specifically with the jumper PC3? Or, perhaps a decision was made to exclude the jumper as a potential source because the TLC results appeared to show an extra band in the jumper fibres as against the ones from the TPU?¹⁷⁴
- 7.40 At the time there were examples of fibre match exclusions in UK laboratories owing to fibre sampling methods not keeping pace with the sensitivity of the newly implemented MSP. To this extent, it is not possible to confirm the proper exclusion of the fibres in this case without more detailed information about FSANI's reasons for exclusion, and how FSANI had taken samples of the relevant fibres for MSP and TLC analysis.
- 7.41 It is also worthy of note that, in 1996, interest began to be shown in the use of First Derivative analysis. This analyses MSP absorbance spectra in more detail and thereby is able to provide an extra level of discrimination for comparisons of similar fibres from different sources. In this way, it can give added confidence to the expert when assessing the range of colour within populations of linking fibres. It was already being used by spectroscopists in fields other than forensic science. The technique was tested more thoroughly between 2000 to 2002, when the work was presented to ENFSI¹⁷⁵ and followed up by a published paper from experts within the FSS in 2007.¹⁷⁶
- 7.42 In addition, by 2000, the FSS had acquired two UV Vis MSP instruments which included the UV (ultraviolet) wavelength range as well as visible (Vis) white light. This refinement was already available in the German State laboratories but was relatively new to the UK. Now it is pretty much routine.
- 7.43 From the data examined, there is nothing to suggest that FSANI applied the First Derivative technique, or reached out to the FSS via Davison, to get "problematic" fibres – such as the blue/green acrylic ones, subjected to MSP with UV to provide that extra level of inclusion or exclusion.
- 7.44 At the time of writing, no other references have been found to fibres that may specifically be considered evidentially significant to the Omagh Bombing.

¹⁷⁴ INQ025871, p294

¹⁷⁵ Coyle T., *The use of the first derivative data as an aid to spectral comparison 2002. Proceedings of the 10th ENFSI EFG Meeting Paris p93-97* INQ042171

¹⁷⁶ Wiggins et al. 2007. *An investigation into the use of calculating the first derivative of absorbance spectra as a tool for forensic fibre analysis. Science & Justice 47 (1) p9-18.* INQ042172

OBI-Q2c	Comment on past and current views of the reliability of this testing?
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- 7.45 None of the fibre tests were considered unreliable at the time or subsequently. The analytical comparison data and images collated in 2003¹⁷⁷ ¹⁷⁸ provide confidence that the correct analysis for the time was applied. In particular, there are examples of MSP Vis. analysis, FTIR analysis, TLC analysis and some imagery using the Comparison Microscope.

It should still be possible to re-analyse the original fibres of interest using UV Vis MSP including First Derivative. The results may or may not help to clarify the potential relevance of the fibres to the case. Furthermore, if the jumper PC3 is still in existence, it should also be possible to review the surface fibres on it – ie. those most likely to be transferred to other items, and to repeat the TLC analysis. Undertaking an industrial enquiry or searching current databases, however, are less likely to be of value as these will reflect frequency of occurrence of today's mix of fibres in clothing and not those that were around in 1998.

As to being able, more confidently, to link specific results with specific exhibits, the feasibility of this would require detailed scrutiny of the original scientific casefiles.

OBI-Q3	Which, if any, individuals are or may be linked by forensic evidence to the Omagh Bombing itself?
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- 7.46 There was early detection of relevant populations of textile fibres from the Omagh Bomb TPU. In particular, 5 blue/green acrylic fibres were recovered from the molten plastic of the TPU (DMcA88), which were originally purported to match a black jumper (PC3) which came from an address associated with Shane and Michael BRODERICK. The fibres subsequently became relevant to other, potentially linked incidents – which will be the subject of a separate report, in that they appeared to match other populations of blue/green acrylic fibres from TPUs involved in these incidents.
- 7.47 Whilst *the author* (Roger Robson) considers the tests to have been reliable, he has been unable to agree with the opinions expressed by Davison and Griffin in respect of the potential evidential value of some of these early fibre results simply related to the 'popularity' or commonness of the blue/green acrylic fibres in the fibre population at large.

¹⁷⁷ INQ025871

¹⁷⁸ INQ025876

Brief Summary

- 7.48 A substantial number of exhibits (over 800) were generated from the scene of the Omagh Bombing. Initial examinations of these items for fibres (referred to as Phase 1 of Davison's schedule (*see paragraph 7.12*) appeared to have been proceeding prior to a formal strategy being set (referred to as Phase 3).
- 7.49 Some blue/green acrylic fibres were identified in Phases 1 and 2 which provided a potential link between the TPU used at Omagh and a jumper found at an address of two suspects. But this finding assumed diminishing importance as time went by for reasons that are not entirely understood.
- 7.50 Both these and other fibres became of interest in relation to other potentially related incidents and will be dealt with in a separate report.
- 7.51 A new scientific Team emerged for Phase 3 in March 2001 which included an external FSS advisor, John Davison, and the involvement from FSANI of Ruth Griffin, an experienced forensic chemist who specialised in textile fibres. This heralded a period of intense activity and much more structured recording of strategy and developments in this.

8. Marks & Traces – Dr Sarah Jacob

OBI-Q1a	Forensic strategy in relation to Marks & Traces in the immediate aftermath of the Omagh Bombing
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- 8.1 No documents have been found amongst those available which relate to the forensic strategy for the examination of items with regard to either marks or traces evidence in the immediate aftermath of the Omagh Bombing. Indeed, the report of FSS Scientific Advisor, John Davison dated 16th October 2000, indicates that no marks or traces evidence examinations had been carried out as part of the forensic examination of items immediately following the incident.¹⁷⁹.
- 8.2 Work that Davison suggested in his report began to get underway in 2001 - as outlined in the response to **OBI Q2** below. This included some tool mark examinations, and consideration of adhesive tape comparisons.

The additional statements recently provided by forensic scientists who worked on the investigation of the Omagh Bombing, and particularly those from Ruth Griffin, Dennis McAuley and William Armstrong who previously provided statements in respect of marks and traces evidence, suggest there is nothing in relation to the overall technical execution of the examinations which alters any of the information previously provided in this section of this Report. However, the delay in commencement of work should be considered in light of this additional information.

All three individuals note that there would have been forensic strategies in place for the examination of items in terrorist cases including the Omagh bombing. These would have been set in collaboration with the RUC and other scientists working on the case^{180 181 182}. Griffin says in her statement that complex, serious cases, such as bombings, were prioritised and that there was prioritisation within these cases to ensure that items that would provide best evidence were examined as quickly as possible.¹⁸³ Griffin also details pressures of caseloads in her statement and describes the laboratory at FSNi being at times overloaded in terms of workload – major incidents generally requiring priority examinations and there being multiple serious incidents occurring per week also requiring priority.¹⁸⁴

¹⁷⁹ INQ024699, p113-141

¹⁸⁰ INQ042141, p3-4, p10-11, p16

¹⁸¹ INQ035230, p14-15, p17-18

¹⁸² INQ042458, p2

¹⁸³ INQ042141, p9

¹⁸⁴ INQ042141, p4-5

Regarding the Omagh bombing specifically, Griffin cites in relation to the debris from the bomb car and explosive device that this was in very poor condition having been subjected to the corrosive chemicals in the explosion, and the subsequent fire and water used to extinguish the fire.¹⁸⁵ Griffin also reports in her statement that the construction of the device could have occurred weeks or months prior to the Omagh incident and the device stored for later use.¹⁸⁶ She further says that if there is delay in the arrest of suspects, due in part to the fact that they come and go across the border with the Republic of Ireland, any items of interest seized in relation to these suspects may have potentially changed or been destroyed over the intervening period between the incident in question and recovery of items.¹⁸⁷

The generation of forensic strategies would have taken all these factors into consideration. As such, the poor condition of the debris relating to the bomb car, device and scene, would likely have meant that the examination of these items was considered more of a 'long shot' and was not carried out initially due to the prioritisation of potentially more fruitful lines of examination given the finite resources available. This may have included the identification and potential examination of striation marks around the edge of the number plate item 26 DWGK3. It is regrettable that an earlier examination of other surfaces of the number plate by George Johnston in 1999 during his comparison of this item with a number plate roller item 362 O165 did not identify the presence of these marks. At this time, it may have been possible to seize a relevant tool or potentially been easier to seize a number plate made by the same tool at around the same time. Similarly, the examination of tape ends, where rolls of tape may have been seized some time after the fabrication of the explosive device, with the possibility that further pieces of tape had been removed from the rolls in the interim period even if they were the same rolls from which the tape on the Omagh device originated, may have been considered a 'long shot' in light of the resources available.

OBI-Q1b	Forensic strategy in relation to Marks & Traces following the December 2001 Police Ombudsman's report
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- 8.3 The publication of the Ombudsman's Report in December 2001 coincided with a second report from John Davison dated 18 December 2001 – this time jointly with Ruth Griffin who had been appointed Lead Scientist for the case within the FSANI Laboratory¹⁸⁸. In addition to summarising work which had by now been carried out, the report of Davison and Griffin set out a strategy for further work, particularly in relation to the extension of work to consider potentially

¹⁸⁵ INQ042141, p12

¹⁸⁶ INQ042141, p23

¹⁸⁷ INQ042141, p13

¹⁸⁸ INQ034726

linked terrorist cases. To this extent, no marks or traces work appears to have been directly inspired by the Ombudsman's report, although this may well have provided added momentum for what was already planned and/or underway.

- 8.4 There was nothing by way of strategy relating to any further marks examinations specifically in connection with the Omagh Bombing incident. With regard to tape examinations, Davison and Griffin said in their report that it may theoretically be possible to carry out comparison of manufacturing detail on the tape samples, specifically striations produced during the manufacturing process. This may be a means of linking tape samples which were not linked in terms of a physical fit but may have originated from the same roll of tape. However, they go on to say that such a comparison would be time-consuming and unlikely to yield meaningful results. In addition, the report says that the tape recovered from the scene of the Omagh incident was badly damaged in the explosion and such an examination may not be viable.¹⁸⁹
- 8.5 Similarly, there was nothing by way of strategy in this Davison/Griffin report as regards any type of trace evidence.¹⁹⁰ A subsequent report by Davison dated 6 January 2003 considered scope for further work in relation to trace evidence with the widening of the investigation to include further bomb incidents. Specifically, he commented on the possibility of a comparison of thermoplastic glues between devices and recovered samples from suspects and recommended a small project to assess the value of comparison of thermoplastic glues.¹⁹¹
- 8.6 Davison's report dated April 2004 raises the possibility of a comparison of solder composition. This could include solder found on the Omagh device. However, he goes on to note that there is limited variation in the basic composition of solders. Greater discrimination between solders of the same basic composition has been shown using more specialised techniques. However, the solders under consideration in this investigation are likely to be unsuitable for such analysis due to the likely contamination of solders on recovered devices which would include the Omagh device.¹⁹²

OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere associated with it?
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Marks evidence

- 8.7 John Davison's 16 October 2000 report says that manufacturing mark

¹⁸⁹ INQ034726, p11-15

¹⁹⁰ INQ034726

¹⁹¹ INQ024760, p49, p53

¹⁹² INQ011671, p26

comparisons involving the detailed comparison of components making up the number plate (item DWGK3), relating to the Omagh bomb car, had not been carried out.¹⁹³ Such comparisons could have compared the individual manufactured components of the number plate, be that the plate itself or letters or numbers on the plate, against reference materials i.e. an item of machinery or other plates believed to be manufactured using the same machinery. In essence, all stages that involve the printing, stamping or machine cutting of components i.e. the plates or numbers or letters placed onto the plates, could result in manufacturing imperfections being transferred from the machinery to the item in question.

- 8.8 However, the author notes that a statement provided by George Johnston dated 18 June 1999 detailed a laboratory comparison of the number plate (item 26 DWGK3) against a number plate roller (item 362 O165) seized from a workshop at Autoplates and Spares, 111 Concession Road, Cullaville¹⁹⁴ This work is described in paragraph 8.17 under OBI-Q2b below.
- 8.9 Davison's report also states that tools, including drill bits and wire cutters, were seized from suspects. None of these have been compared with any drill holes or cut ends on the recovered parts of the Omagh device.¹⁹⁵
- 8.10 Similarly, tapes and wires were also recorded as having been seized from suspects. Again, none of them has been compared with any fragments of such materials retained on the recovered parts of the Omagh device in terms of tool marks, physical fits and striation marks (manufacturing marks arising from detail on the machinery used to make the item being transferred to the item in question).¹⁹⁶

Traces evidence

- 8.11 With regards to trace evidence, Davison's 16 October 2000 report states that none of the tapes and wires that have been seized from suspects, have been compared in terms of chemical composition with any fragments of such materials retained on the recovered parts of the Omagh device.¹⁹⁷
- 8.12 Similarly, it also states that no comparisons of chemical composition between glue samples seized from suspects and the device have been carried out.¹⁹⁸

¹⁹³ INQ024699, p133

¹⁹⁴ INQ026613, p3-4

¹⁹⁵ INQ024699, p134

¹⁹⁶ INQ024699, p134

¹⁹⁷ INQ024699, p134

¹⁹⁸ INQ024699, p135

OBI-Q2b	What forensic testing was carried out, and with what outcome?
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Testing/examinations in relation to Marks

Physical fit comparison of tape ends

- 8.13 Subsequent to Davison's report of October 2000,¹⁹⁹ and with the widening of the scope of the investigation to include three potentially linked incidents, a physical fit comparison of tape ends was carried out by Dennis McAuley.²⁰⁰ The following comparisons related specifically to the Omagh bomb and were prior to the publication of the Ombudsman's Report.
- 8.14 Items 572 DMcA89 and 570 PB38 were tape ends taken from samples of tape recovered in house searches. Item 573 DMcA90 comprised tape ends taken from samples of tape recovered from the scene of the Omagh bombing. A physical fit comparison of the tape ends in the items relating to the house searches was carried out against the tape ends in the item relating to the scene.²⁰¹ To facilitate the comparison, the tape ends were placed on sheets of acetate and then compared systematically against one another until all items had been compared with each other.
- 8.15 Of note, McAuley says in his report that the tape in item 252 DMcA86 from the Omagh bomb scene and in item 513 KL1 relating to house searches were not found. From the comment 'were not found', it could be surmised that these items had been lost. No further information has been uncovered as to whether this was indeed the case, and/or whether this could have occurred during storage or examination at the laboratory or elsewhere. In any event, it was therefore not possible to carry out physical fit examinations of these items against others. *Specifically in relation to marks and traces evidence, there were no other obvious exhibits which were surmised to have been lost during the investigation following the Omagh Bombing.*

Tool mark examinations

- 8.16 Prior to the publication of Davison's report of 16th October 2000, a manufacturing mark comparison had been carried out by George Johnston and reported in his statement dated 18th June 1999. The statement describes a laboratory comparison of the number plate (item 26 DWGK3) relating to the Omagh bomb car against a number plate roller (item 362 O165) seized from a workshop at Autoplates and Spares, 111 Concession Road, Cullaville.²⁰²

¹⁹⁹ INQ024699, p113-141

²⁰⁰ INQ024786, p1-5

²⁰¹ INQ024786, p1-5

²⁰² INQ026613, p3-4

- 8.17 Johnston reports that the roller-press was made up of two parallel rubber rollers separated by a narrow gap. The lower roller showed some damage to the surface; there were deposits adhering to the surface of the upper roller. Manufacture of a number plate involved the placement of adhesive letters and numbers on a transparent plastic plate. A reflective adhesive layer was then applied to the back of the plate. This 'sandwich' construction is then passed through a roller press to ensure complete and even bonding of the component parts. If there were defects on the surfaces of the rollers, these could produce manufacturing marks on the surfaces of the number plate as it passed through the roller press and came into contact with the areas of damage or deposited material. Mr Johnston reports that, in this instance, the surfaces of the number plate item 26 DWGK3 were too severely scuffed for meaningful comparison with the roller press.²⁰³
- 8.18 Subsequent to Davison's report of 16th October 2000, an examination of all the recovered debris relating to the Omagh bomb car and explosive device for the presence of tool marks was carried out by William Armstrong. This was in progress during 2001²⁰⁴ and was written up in statement format in 2002^{205 206}.
- 8.19 The statement of Armstrong dated 17th July 2002²⁰⁷ reports that the recovered debris relating to the bomb car and explosive device was examined for:
- tool marks to determine how the vehicle had been stolen (eg doors forced)
 - whether it had been modified to accommodate the device
 - the value of any tool marks which may be present if the vehicle had been forced or modified
 - any fragments of the device for suitable tool marks.²⁰⁸

Similarly, debris recovered from around the site of the explosion was examined to determine origin, relevance and suitability for further tool mark examination of any components present.²⁰⁹

- 8.20 Armstrong reports that there were no tool marks to indicate how the vehicle might have been stolen or adapted to contain the explosive device. He also

²⁰³ INQ026613, p3-4

²⁰⁴ INQ024699, p202

²⁰⁵ INQ024818

²⁰⁶ INQ021458

²⁰⁷ INQ024818

²⁰⁸ INQ024818, p3

²⁰⁹ INQ024818, p3

reports that there were no tool marks on the recovered remains of the device which could be used for comparison with any tool seized in relation to suspects.²¹⁰ Armstrong states that his examination included an assessment of the sheathes on wires for useful striation marks and possible drill holes for suitability for comparison against drill bits.

- 8.21 Armstrong then goes on to report that he examined item 26 DWGK3 which was a damaged front-fitted number plate bearing the registration number MDZ 5211. The plate had been split to allow for DNA, fibre, fingerprint and tool mark examinations. Tool mark examination showed that there was no striated or impressed detail on either the inside or outside faces of the plate that could be used for comparison with any tool.
- 8.22 However, all four edges of the plate bore noticeable striated detail. This indicated that the plate had been cut and then shaped by a router. Armstrong goes on to say that, in his view, it is unlikely that the blade used to shape the plate would still be in operation at the time of this examination (over three years later). If it was still in use, Armstrong says that he would expect its cutting characteristics to be different from what they were three years before. He further says that it may be possible to link plates manufactured by the same machinery at approximately the same time through a comparison of striated detail. In order to link the plate to a particular garage that manufactured it through a comparison of striated detail, sample/control plates would need to be obtained in relation to that garage. One way of doing this would be to obtain plates which had been prepared by the garage at around the same time.²¹¹
- 8.23 A toolbox was also examined by Armstrong as part of his tool mark examination and numerous tools were exhibited for future reference. The toolbox was also found to contain fragments of wire, plastic conduit, nails, screws and other items.²¹²
- 8.24 A second statement by William Armstrong also dated 17th July 2002 reports that, during further examination of the number plate item 26 DWGK3, an impacted 25mm wide striated mark made by a single-bladed implement such as a chisel was found on the bottom edge of the plate. The detail in the mark was good and suitable for comparison. The mark was compared with a wood chisel in item 559 BBT23 which contained tools sub-exhibited from the toolbox item 371. The wood chisel was different in dimensions from the mark and therefore the mark could not have been made by this tool. The mark could also not have been made by any of the other tools in items 559 BBT23 or 371.²¹³

²¹⁰ INQ024818, p11

²¹¹ INQ024818, p5

²¹² INQ024818, p6

²¹³ INQ021458

Testing/examinations carried out in relation to Traces

- 8.25 Analysis of glue samples taken from devices and items relating to multiple scenes was undertaken alongside analysis of reference samples of glue widely available in the marketplace. Techniques for comparison were FTIR Spectroscopy, Pyr-GC-MS and examination of physical appearance.²¹⁴
- 8.26 Samples relating to the Omagh bombing incident specifically were as follows: glue sample from the toggle switch (item 169 DMcA1) and glue sample from the remains of the timer and power unit (item 255 DMcA88) both relating to the Omagh device.
- 8.27 Further samples relating to the Omagh bombing were samples of glue recovered from item 354 PMcC6 (soldering iron, wires, plastic wire-connector block and tubes of glue) and item 371 AMcC16 (toolbox and contents). Item 371 AMcC16 related to Mr FEE.²¹⁵ All four of these samples were exhibited together as item 603 PAB1.²¹⁶
- 8.28 Two samples examined in relation to the Omagh bombing were taken from items from an address ([REDACTED] Molly Road) relating to Sean HOEY. These were glue sample 687 ALK8 taken from item 660 KG11 and glue sample 684 ALK5 from item 637 JW2.
- 8.29 Item 766 WR6 examined in relation to the Omagh bombing was an open packet of Bostik glue sticks taken from the vehicle of Sean HOEY. A further glue sample analysed in relation to the Omagh bombing was glue sample 685 ALK6 taken from item 675 AJM4 from [REDACTED] Cloghinny Road.²¹⁷

Outcomes**Physical fit comparison of tape ends**

- 8.30 None of the tape ends recovered from the scene were found to physically fit with any of the samples of tape recovered from the house searches. The findings as to whether the samples of tape recovered from the scene originated from the samples of tape recovered from the house searches should be regarded as inconclusive. This is because further pieces of tape may have been removed from the samples from the house searches even if the samples were the source of the tape recovered from the scene. In addition, it should be

²¹⁴ INQ008955, p29

²¹⁵ INQ008955, p29-30

²¹⁶ [REDACTED] INQ024714, p7-8

²¹⁷ INQ008955, p23-25, p30

borne in mind that two of the items containing tape ends were not found and comparison of these was therefore not possible.

Tool mark comparisons

- 8.31 Striation marks were found around the edges of the number plate in item 26 DWGK3 relating to the Omagh bomb car. However, tool mark comparison of the striation marks around the edges of the number plate was not possible due to the time delay of over three years between the Omagh bombing having occurred and the finding of the marks, during which time the cutting surface of the tool used to cut the plate is likely to have changed - assuming it was still in use.
- 8.32 An impacted single-bladed mark was found on the bottom of this number plate. This showed different dimensions when compared with a wood chisel in item 559 BBT23 which contained tools sub-exhibited from the toolbox item 371. The mark could therefore not have been made by this tool. The mark could also not have been made by any of the other tools in items 559 BBT23 or 371.
- 8.33 There were no further useful tool marks which were suitable for comparison found on any of the other examined debris from the Omagh bomb car, from the device or from around the bomb site.

Glue comparisons

- 8.34 The statement of Ruth Griffin dated 27th October 2004 details the findings of the glue comparison. All of these recovered glue samples were examined save for the sample from item 354 PMcC6.
- 8.35 The two samples taken from the Omagh bomb device were found to be indistinguishable from one another.
- 8.36 All the remaining examined samples were found to be distinguishable from the two samples taken from the device and from each other. This is with the exception of a piece of loose glue taken from the toolbox item 371 AMcC16. This corresponded to the two samples from the device in terms of the results of FTIR Spectroscopy but was too small for any further analysis. However, the results of FTIR Spectroscopy only indicated that the samples were of the same general type which is itself common and therefore this result is of very limited evidential significance.²¹⁸

²¹⁸ INQ008955, p28-31, p33-43, p48-58

- 8.37 The draft report of Davison dated 16th October 2005 makes comment on the examination of samples from all the potentially linked scenes and reference samples as a whole. He says that on the basis of available knowledge it was not possible to confirm whether differences observed were as a result of the glues having originated from different batches or whether they were due to artefacts due to the treatments they have received since assembly and prior to chemical examination – including explosion and fingerprint treatments.
- 8.38 In addition, Davison comments that a single device could have been fabricated using several glue sticks which may have originated from different batches which could affect results obtained. The glue comparison results should therefore be regarded as inconclusive.²¹⁹

OBI-Q2c	Please comment on past and current views of the reliability of this testing?
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In relation to Marks

- 8.39 None of the marks examinations detailed above were believed unreliable at the time but have since been proved reliable or *vice versa*.
- 8.40 There is no appreciable difference in the way tool mark and physical fit examinations are carried out today versus how they were carried out in the late 1990s. As regards tool mark examinations, there is more widespread use of better quality casting media today compared with some of those in use in the 1990s. This could give rise to an increase in the visibility of fine detail present in casts of tool marks, thereby potentially increasing the strength of evidence that can be obtained from such comparisons.
- 8.41 However, the tool mark examinations described above consisted of a search for tool marks on items from the Omagh bomb car and explosive device and from around the bomb site. No tool marks suitable for comparison were found except for striation marks around the edges of a number plate associated with the Omagh bomb vehicle and a single-bladed impacted mark on the bottom of the number plate. Comparison of the striation marks around the number plate with a tool was not possible due to the time delay of over three years between the incident having occurred and the finding of the marks. The cutting tool is unlikely to have been in use after this time and even if it had been, the cutting characteristics of the tool are likely to have changed during this time. The impacted single-bladed mark showed different dimensions to a wood chisel in item 559 BBT23 which contained tools sub-exhibited from the toolbox item 371 and the mark could therefore not have been made by this tool. The mark could also not have been made by any of the other tools in items 559 BBT23 or 371.

²¹⁹ INQ025127, p26-27

- 8.42 The meeting notes relating to a Forensic Management Team meeting held on 10 April 2001 stated that "Enquiries are continuing to trace a set of plates made by Cullaville Autos at the time in question".²²⁰ An email sent by Ruth Griffin on 11 April 2001 said that "The documents relating to the number plates have been returned to the owner therefore the RUC are not sure they can get a set of plates made around the same time".²²¹ The meeting notes from another Forensic Management Team meeting on 24 May 2001 recorded that enquiries relating to the sourcing of reference number plates made by Cullaville Autos at the relevant time were complete, and there were no possibilities for obtaining any such plates.²²²
- 8.43 It therefore appears that efforts were made to source reference number plates made around the same time as the number plate relating to the Omagh bomb car and from the records the author has seen, it appears these were unsuccessful. However, she cannot comment on how exhaustive those efforts were.
- 8.44 In summary, the comparison of the marks on the edges of the plate with a tool was not possible and the single-bladed mark was shown not to have been made by the recovered tools on the basis of overall appearance and/or dimensions. With this in mind, the making of casts would not have been necessary and an improvement in the casting materials would have had no bearing on any results obtained in the work described above.

In relation to Traces

- 8.45 The techniques used for the examination of glue samples were deemed reliable at the time and are still considered reliable and used routinely in forensic examinations. Any advances in these techniques will not have affected the examination of the glue samples which has been undertaken. This is because the examination of glue samples is not a standard trace evidence examination and the limiting factor for this examination has been the lack of background knowledge for the interpretation of results.
- 8.46 As regards the potential examination of solder, again this is a non-standard forensic examination. The limiting factors will be the lack of background knowledge coupled with a possible requirement for more specialised analytical techniques which would require considerable research and validation.

²²⁰ INQ024699, p195

²²¹ INQ024699, p198

²²² INQ024699, p217

- 8.47 These are general observations – information concerning the commonality of background populations of materials, together with an availability of appropriate analytical methods are important considerations when carrying out examinations relating to all trace evidence materials. As such, these factors would very much have related to glue and solder samples in the Omagh Bombing investigations. The lack of background information relating to glue samples has been commented on by John Davison.^{223 224 225} The analysis of solder was considered by the Peer Review Panel which said that a novel technique could potentially be used to analyse solder samples but that this technique would require validation prior to implementation and such an undertaking would be beyond the scope of the Omagh Bombing investigation.²²⁶
- 8.48 In the author's opinion, there were no obvious further tests or techniques relating to marks and trace evidence which were available at the time of the Omagh bomb investigation which could reasonably have been applied to the examination of items.

OBI-Q3	Which if any, individuals may be linked by forensic evidence to the Omagh Bombing?
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- 8.49 No evidence was found to link marks relating to the bomb scene with adhesive tapes and tools from suspects' addresses. With regard to trace evidence, a comparison of glue samples from the Omagh bomb scene and relating to suspects was carried out but the results were overall deemed inconclusive. There is therefore no physical evidence of these kinds to implicate any specific individuals in the bombing.

CPs	What opportunities are considered to have been missed, and when? and Which work is considered to have taken longer than it might have done?
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Specifically in relation to marks and trace evidence, the opportunities (including in respect of timescales) which could be considered to have been missed if one were considering a 'belt and braces job' have been highlighted in the body of the Report, and are detailed again below:

- As regards the physical comparison of tape ends carried out by Dennis McAuley, it is regrettable that two of the items were not found and it was therefore not possible to carry out a complete examination of all the tape samples recovered from the scene against all those recovered during house searches. It should also be noted that there was some delay*

²²³ INQ024760, p49

²²⁴ INQ025127, p26-27

²²⁵ INQ024699, p135

²²⁶ INQ013687, p21

to the start of this work; it did not commence until after the publication of John Davison's report on 16th October 2000.

- In relation to the examination of recovered debris relating to the bomb car and explosive device and also from around the site of the explosion - there was some delay to the start of this work and it did not commence until after the publication of John Davison's report on 16th October 2000. This work was in progress during 2001 and was written up in statement format in 2002.*
- Regarding the number plate (item 26 DWGK3) relating to the Omagh bomb car - William Armstrong reports the presence of striation marks around the edges of the plate following his examination of this item in 2000/2001. These marks arose during fabrication of this item, specifically the finishing of the edges using a router. As previously detailed in the body of the Report, comparison of these marks against a tool suspected of making the marks or against another item known to have been made using the same tool around the same time would theoretically have been possible. However, by the time these marks had been identified, any cutting surface would likely have changed over time with use even if it were still present on the tool. The author is unable to comment on how exhaustive attempts may have been to trace another number plate known to have been made by the same blade at around the same time (or whether this would have even been possible) given the resources available at the time. It is regrettable that an earlier examination of other surfaces of the number plate by George Johnston in 1999 during his comparison of this item with a number plate roller item 362 [O16]5²²⁷ did not identify the presence of these marks.*

The author refers readers back to the comments in Paragraph 8.2 to put the comments above into the context of the wider forensic investigation.

Brief Summary

- 8.50 Physical fit comparisons of tape ends recovered from house searches and the Omagh bomb scene did not show any links between the items. This is, in essence, an inconclusive result as to whether the tape from the scene originated from the samples of tape recovered during the house searches. This is because pieces of tape may have been removed from the tape samples recovered in the house searches in the intervening period between the Omagh bombing incident having occurred and the samples of tape being seized. Of

²²⁷ INQ026613 p3-4

note, it was not possible to carry out a complete physical fit comparison of the tape ends as several of the items were not found.

- 8.51 Tool mark examinations showed striation marks to be present around the edges of the number plate in item 26 DWGK3. There was also an impacted single-bladed tool mark on the bottom of this item. Comparison of the striation marks around the edges of the number plate was not possible due to the time delay of over three years between the Omagh bombing having occurred and the finding of the marks, during which time the cutting surface of the tool used to manufacture the plate is likely to have changed even if it is still in use. Tool mark comparison of the single-bladed impacted mark on the number plate showed that the mark could not have been made by any of the tools recovered from the examined toolbox.
- 8.52 There were no further useful tool marks which were suitable for comparison found on any of the other examined items from the Omagh bomb car, from the device or from around the bomb site.
- 8.53 No trace evidence examinations were carried out in the immediate aftermath of the Omagh Bombing, but glue comparisons were conducted later on when the testing strategy broadened.

9. Questioned Documents – Melanie Pugh

OBI-Q1a	Forensic strategy in relation to Questioned Documents in the immediate aftermath of the Omagh Bombing
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- 9.1 Dennis McAuley, the FSANI scientist who led the Omagh Bomb scene examination, stated in his witness statement of 18 February 1999 that 87 items were submitted to the Laboratory between 18-24 August 1998,²²⁸ but none of these appear to have been destined for questioned document (QD) examination. This is not considered surprising because material recovered and prioritised in the immediate aftermath of bombing incidents almost invariably comprises items associated with the scene, explosives, and victim identification. These are not typically within the remit of a QD laboratory, accordingly, they would not be expected to be submitted for QD examination at this stage.
- 9.2 Similarly, and perhaps for the same reason, there is limited evidence of co-ordinated multidisciplinary examination involving QD in the earlier stages of the investigation,²²⁹ although this may have been achieved through informal liaison between scientists within the laboratory and within investigative discussions.²³⁰ Indeed, Dennis McAuley refers to this sort of approach in his statement dated 30 October 2025 where he explains how, in addition to his duties in relation to the scene and explosives, he also “liaised with the ROs responsible for the case in other sections” of the Laboratory including QD²³¹.
- 9.3 Rather, QD submissions arrived later – between 1998 and 2001 as listed in the Table of exhibits.²³² The majority of the documents received at this time were anonymous letters and envelopes and included for example:

Exhibit No	FSANI No	Description	Dates
MEH3	277	Envelope containing letter sent to the Finance Unit T&F Hospital, Omagh re: the Omagh Bomb	MEH1-3 (FSANI Ref 275-277) are not dated. ^{233 234}
MEH2	276	Envelope containing letter sent to the Finance Unit T&F Hospital, Omagh re: the Omagh Bomb	There is a post mark over the stamp on MEH3 which could possibly be enhanced and a postal date recovered from it.
MEH1	275	Letter sent to the Finance Unit T&F Hospital, Omagh re: the Omagh Bomb	

²²⁸ INQ012120

²²⁹ INQ000274 - Statement by the Police Ombudsman for Northern Ireland on her investigation of matters relating to the Omagh Bombing on August 15 1998, dated 12/12/2001

²³⁰ INQ035088 - Bundle of excerpts from the RUC/PSNI SIO policy books from the Omagh investigation, dated between 15/08/1998 and 19/12/2005

²³¹ INQ035230, p11, 14-15

²³² INQ025918

²³³ INQ021534

²³⁴ INQ025559

Exhibit No	FSANI No	Description	Dates
091	353	Anonymous letter	The envelope within 091 (FSANI Ref 353) is not dated ²³⁵ But the post mark on the envelope is 9 September 1998. ²³⁶ The item was received by FSANI on 13 October 1998

- 9.4 The documents Exhibits MEH1-3 (FSANI Ref 275-277) listed above were recovered and submitted within the same month as the incident. Exhibit 091 was submitted at a slightly later stage of the investigation, and most QD related items were submitted largely from 2001 onwards. This reflects a shift in investigative focus following the development of intelligence and lines of enquiry, rather than evidence available at the scene in August 1998. As the investigation progressed, greater emphasis was placed on associative evidence, including documentary material that might link individuals, locations, or communications. The later recovery of such items is therefore consistent with an evolving, intelligence-led investigative strategy rather than an omission at the initial stage.

OBI-Q1b	Forensic strategy in relation to Questioned Documents following the December 2001 Police Ombudsman's Report
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- 9.5 During 2001, the QD activity became more structured. Categories such as office equipment, documents, notepads, diaries, Post-it notes, and writing instruments were identified to support intelligence-led examination, including recovery of indented writing, handwriting comparison, and linkage analysis. These categories were intended to support associative and elimination enquiries rather than direct attribution to a specific individual. Examples illustrating the nature and range of material that was subsequently considered for QD examination include:

- **Bundle of excerpts from the RUC/PSNI SIO policy books from the Omagh investigation**, dated between 15/08/1998 and 19/12/2005 - INQ035088.
- **Statement by the Police Ombudsman for Northern Ireland on her investigation of matters relating to the Omagh Bombing on August 15 1998**, dated 12/12/2001 - INQ000274.

²³⁵ INQ021535

²³⁶ INQ025556

- **Minutes of the Omagh bombing forensic management meeting attended by PSNI, FSNI and FSS personnel** dated 10/04/2001 - INQ025322.

These underscore the shift from an absence of QD submissions in the immediate aftermath of the bombing to a more developed evidential base, including anonymous correspondence and documents associated with identified individuals. These materials formed the basis of the QD examinations described in this Section of the report.

While QD activity became more structured from 2001 onwards, there is insufficient material available to determine whether such structuring should have occurred earlier. There is evidence that QD was referenced in investigative discussions prior to that time, however, there is limited documentation of examinations actually undertaken. In the absence of records identifying relevant document material available for examination in the early stages, it is not possible to conclude that opportunities were missed.

OBI-Q2a	What forensic evidence was uncovered from the scene of the Omagh Bombing or elsewhere in relation to this?
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- 9.6 In relation to items submitted specifically for QD examination, these appear to have comprised the following information which has been elicited from statements and reports of QD staff at FSANI.

Items submitted for QD Examination

Exhibit No	FSANI No	Description	Information contained in FSANI documents
MEH 1–3	Items 275–277	Two envelopes and letter sent to Tyrone & Fermanagh Hospital, Omagh	Letter dated 1 Sep 1998 ²³⁷ and casenotes ²³⁸
353[09]1		Anonymous greeting card and envelope	Letter dated 1 Dec 1998 ²³⁹ and casenotes ²⁴⁰
(BWM11–BWM17):	Items 542–548	Document sets relating to named individuals	Memo dated 4 Oct 2001 ²⁴¹ Letter dated 12 Oct 2001 ²⁴²
	Item 371	Receipt and paper from toolbox (unsuitable for ESDA)	Witness statement dated 27 May 2002 ²⁴³
BWM19	Item 597	Anonymous letter and envelopes to M V Baker	Examination notes dated 29 Apr 2002 ²⁴⁴ , Letter dated 27 May 2002 ²⁴⁵ and further letter dated 30 Jul 2002 ²⁴⁶
BWM41	Item 598	Anonymous letter and envelope to Omagh Police	Examination notes ²⁴⁷ Letter dated 12 Nov 2002 ²⁴⁸
WTW1	Item 601	Anonymous letter, envelope and newspaper cutting	Letter dated 7 Jan 2003 ²⁴⁹
Linked cases: Lunch box lid inscriptions from cases 2229/98, 2246/98, 3679/98, and 3735/98			

NB. This list may not represent the definitive scope of material examined by the QD discipline owing to difficulties in tracking specific aspects of the scientific work amongst all the many documents provided – as outlined earlier in this report

OBI-Q2b	What forensic testing was carried out, and with what outcome?
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Testing carried out

- 9.7 Each of the above items was examined using standard QD techniques available at the time - primarily ESDA for indented impressions, handwriting comparison, and ink analysis where appropriate – all as introduced in OBI Scientific Report 1.

²³⁷ INQ021534

²³⁸ INQ025559

²³⁹ INQ0215345

²⁴⁰ INQ025556

²⁴¹ INQ024808

²⁴² INQ024809

²⁴³ INQ025585 duplicated at INQ012919

²⁴⁴ INQ025585

²⁴⁵ INQ025583

²⁴⁶ INQ025580

²⁴⁷ INQ025579

²⁴⁸ INQ025577

²⁴⁹ INQ021540

Outcome of the testing

Document Description	Item Number	Examination & Outcome
Hospital correspondence	MEH 1–3	ESDA undertaken; no findings of evidential value ²⁵⁰
Greeting card and envelope	353/09/1	ESDA undertaken; no significant findings ²⁵¹
Documents linked to named individuals	BWM11–17	ESDA revealed indented impressions; limited investigative value (see below) ²⁵²
Receipt and paper from toolbox	Item 371	Unsuitable for ESDA ²⁵³
Anonymous letter to Mr V Baker	Item 597 (BWM19)	ESDA revealed indented impressions; partial telephone number recovered ²⁵⁴
Anonymous letter to Omagh Police	Item 598 (BWM41)	Handwriting comparison identified common authorship with Item 597; no ESDA findings ²⁵⁵

With regards to items 542/BWM 11 to 548/BWM17 inclusive which were submitted for ESDA testing to recover indented writing. Some impressions included partial telephone numbers and addresses, which were found to assist in the investigation. See below from INQ024808.

The impressions set out below may be significant. In the transcriptions, dots represent impressions that are discernible but not decipherable and entries in square brackets are not entirely clear.

Item 543, BWM12 (page #3 of AMcC12)

... MAR[MION]
086[PD]8813

Item 543, BWM12 (page #23 in AMcC12)

[MR JOE FEE]
[BLACKSTAFF]
[INISKEEN]
[MOBILE TEL] 087[PD]1...

Item 543, BWM12 (page #19 of notebook in AMcC3)

JOE FEE
087[PD]2150
NEWRY [PD]290
087
[PD]2150

Item 543, BWM12 (pages #23 and #24 of notebook in AMcC6)

00353 87[PD]2150

Item 543, BWM12 (photocopied sheet GAA PLAYER INJURY SCHEME [PD]2)

85/5/84

Item 543, BWM12 (page #12 of gold notebook in AMcC2)

[PD]6805

Item 546, BWM15 (pages # 113, 114 and 115 in GD3)

CALL JOHN
07[PD]15040
[PD]0680
[PD]130
[PD]7266
096[PD]2 880

I have not yet examined the ESDA transparencies produced from the various documents to determine if any impressions of the significant mobile and telephone numbers are present.

²⁵⁰ INQ021534

²⁵¹ INQ021535

²⁵² INQ024808, INQ025586, INQ025585

²⁵³ INQ024808, INQ025586, INQ025585

²⁵⁴ INQ 025583, INQ025580

²⁵⁵ INQ 025577

OBI-Q2c	Please comment on past and current views of the reliability of this testing?
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- 9.8 The tests carried out by FSANI were fit for purpose and in alignment with QD examinations at the time across the UK. Examination notes appear well constructed with evidence of peer review and quality checks. As such, there would not appear to be any obvious issues in relation to reliability of the testing.

OBI-Q3	Which if any, individuals are or may be linked by forensic evidence to the Omagh Bombing itself?
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- 9.9 In the witness statement dated 27 May 2002,²⁵⁶ indented impressions were found relating to someone named FEE. The significance, if any, of these findings is not evident.

Brief Summary

- 9.10 There are no records to show what the questioned documents strategy was immediately after the August 1998 Omagh Bombing, with no QD items identified among early submissions. This is not especially surprising as the initial investigative focus then would have been on items associated with the scene, explosives and victim identification.
- 9.11 There is limited evidence of co-ordinated multidisciplinary examination involving QD in the earlier stages of the investigation, although it seems that this may have been achieved through informal liaison between scientists within the laboratory and within investigative discussions.
- 9.12 Around the time that the Police Ombudsman's report was published - in 2001, but probably not directly related to it, a more structured QD search strategy was implemented. This almost certainly reflected similar developments in other aspects of the scientific effort as a result of the addition of the FSS Specialist Advisor to the enquiry team. Indeed, this would have been the purpose of involving a Specialist Advisor.
- 9.13 In the event, standard, reliable techniques, including ESDA and handwriting examination, identified links between anonymous documents but did not establish a direct forensic link between any individual and the Omagh Bombing.

²⁵⁶ INQ025585

Concluding Summary

This report focuses on two particular time periods – the first, in the immediate aftermath of the Omagh Bombing, and the second, following the publication in December 2021 of the report by the Police Ombudsman for Northern Ireland into matters relating to the Omagh Bombing. The end of the second time period is rather more open-ended, but it has been taken to mean when the then current scientific investigations had concluded with the exception of DNA profiling, and particularly the use of a new technique – LCN. This had become available for operational use in 1999/2000 and, along with fingerprints, came to be regarded in the Omagh Bombing investigation, as the main hope for being able to establish links between the bombing and any police suspect who might have been responsible for it.

The report begins by considering **scientific investigation strategies**, why they are important, and why the first Lead Scientist in the Omagh Bombing case, Dennis McAuley, might not have produced a formal, written strategy, relying instead on his expertise and long years of experience of investigating bomb scenes. From his description²⁵⁷, his strategy, as it related to his own broad ranging role and those of his fellow scientists, appears to have been to:

- Manage police and scientists as they conducted a thorough examination of the bomb scene, and the search of the large amounts of debris from it for any components of the explosive device that had been used
- Manage the collection, packaging, and labelling of items potentially of evidential value
- Conduct a detailed laboratory examination of any such device components and explosive traces found for any indication as to which organisation might have assembled, planted and detonated the bomb – to give early investigative leads to the police
- Lead the work of other scientists in the laboratory across a number of different scientific disciplines in the detailed examination of device components and other items from the crime scene – including parts of the bomb car, and items/samples from two phone boxes used to make warning calls, for any evidence which might provide links with specific individuals, and similarly
- Ensure and co-ordinate the examination and analysis of items collected from potential suspects, and suspect-related and other addresses for any personal or environmental traces such as fingerprints and DNA, and marks and traces such

²⁵⁷ INQ035230

as textile fibres, tool, manufacturing and physical fit marks etc which might link them with items related to the crime scene.

- Liaise with and support the police enquiry team throughout

Later on, in 2000/2001, and largely as the result of the inclusion of an FSS Specialist Advisor, John Davison, as Forensic Co-ordinator within the police enquiry team, and the appointment of Ruth Griffin as Lead Scientist within FSANI, written strategies and regular progress reports began to appear, and momentum in the investigation seemed to begin to build.

The main focus of the work amongst the various scientists remained the same but with additional opportunities being identified and explored, or some exploited for the first time. These included, for example, analysis and comparison of glue, a broader range of fibre reference samples taken in relation to suspects, and submission of questioned documents. In addition, more emphasis was placed on:

- DNA, where many more samples were analysed and compared both with each other – for patterns, and also with reference samples from individuals potentially of interest

and,

- potential links with previous bombing incidents were explored. In particular, McAuley's work had identified three cases earlier in 1998 where the same type of explosive device had been used, (and mobile telephone links also established) namely: at Lisburn (30 April 1998), at Newry (13 July 1998) and at Banbridge (1 August 1998), and so most emphasis was placed on these.

Although all this activity was going on around the time that the Police Ombudsman's report was released, it had started well beforehand. To this extent, it seems clear that the changes were not directly inspired by this report, although it may well have added to the momentum of the scientific investigation.

In terms of the **scientific findings** in each of the main specialist areas involved, the separate report from FEL deals with **explosive devices and associated explosive substances**. With regard to **fingerprints**, no fingerprints were revealed on items from the initial scene - including parts of the bomb vehicle and other debris, but a total of 55 useable finger or palmprints were revealed mainly from two telephone boxes from which warning calls had been made. These 55 prints were compared with reference prints from 67 suspects, but none were found to match any of these. Of the 67 suspects, 12 had only had their finger, not their palm prints taken. A further 30 suspects had had no reference prints taken at all from them so no comparisons could be made at the time; it is not known if this position was subsequently rectified? Eleven of the 55

potential crime prints were retained on the AFR database for automatic matching as new reference samples were loaded to it.

What is not clear from the documents accessed on the OBI document database is why:

- there were either no prints, or no palm prints from so many suspects, and no comprehensive sets of prints – TACT prints, from any of them?
- so few AFR databases were interrogated in connection with the Bombing? This was restricted to the RUC, Garda Siochana, and Scottish Fingerprint Service databases, and the one belonging to Leicestershire Police
- there was *apparently* no involvement of the NSY SO13 Terrorist Fingerprint Hub – who kept most Active Files on terrorists in the UK, and especially when support had been available from NSY in connection with the recovery and searching of the bomb debris?

In light of this, it seems unlikely that the full potential of fingerprint examination had been unlocked.

In terms of **DNA**, the strategies and testing adopted throughout the scientific investigation were appropriate bearing in mind the state of knowledge and technical capability at the time, and no technique has been identified that was suitable and available but was not used. Despite all the work carried out during the course of the enquiry, DNA testing was unable to help identify those individuals who were responsible for the attack. It was unfortunate that the newer and more sensitive LCN technique - capable of detecting DNA traces left by touch alone, was not in operational use at the time, and that it was not able to be used, at least on some items, even after it had become available owing to concerns about unwitting contamination.

A substantial number of items were generated from the scene of the Omagh Bombing and examined for potential evidence of the transfer of **textile fibres**. Amongst these, some blue/green acrylic fibres were identified which provided a potential link between the TPU used at Omagh and a jumper found at an address associated with two police suspects. In the FSANI scientist's eyes, this finding assumed diminishing importance for reasons that are not entirely understood and, to this extent, remains an unsatisfactory 'loose end'.

In relation to **marks and chemical traces**, physical fit comparisons were conducted between the ends of adhesive tapes from suspect house searches and those from the Omagh bomb scene, but the results were inconclusive. In addition, recovered parts of the explosive device, and debris from the bomb car were examined for tool marks. None were found on the device, and of two found on the car's number plate, one was unsuitable for comparison and the other did not match marks made by any of the tools

with which it was compared. Comparisons of some glue deposits from the device with glue recovered from suspect-related addresses were inconclusive.

No **questioned documents** items were identified among early submissions to the Laboratory but, after the extension of scientific activity following the intervention of the FSS Specialist Advisor, John Davison, some work was carried out. This identified links between anonymous letters but did not establish a direct link with any specific individual and the Omagh Bombing.

All in all, and despite what would appear to have been a significant **and sometimes clearly very stressful** lack of resource, a large amount of scientific work had been conducted to a good standard during the approximate time periods being considered. The initial Lead Scientist - the explosives expert, Dennis McAuley, appears to have managed the scene examination very well, identifying the precise nature of the explosive device at an early stage and when he was able to confirm this to the police to help with their enquiries. This was despite the lack of a formal strategy or any written guidance - which was not unusual at the time.

Laboratory work in several other scientific disciplines got underway. There are signs that this could have been rather better co-ordinated and more fully documented but this is not surprising in the circumstances. While some opportunities may have been missed, and the work taken longer than it might otherwise have done, these in themselves may not have affected the outcome. Certainly, when the scientific investigation was energised and extended following the addition of FSS Specialist Advisor, John Davison, to the police enquiry team, and appointment of Ruth Griffin as Lead Scientist within FSANI, it was no particular surprise that their 'long shot' efforts failed to result in the emergence of any robust scientific evidence.

It was unfortunate that the latest DNA technology – LCN, had not been available from the outset, and that the extent of its use was adversely affected by risks of contamination from earlier work conducted before it became available. It is also unfortunate, but maybe unavoidable, that items from suspects – such as rolls of sticky tape and tools, were seized and submitted for laboratory examination so long after the incident and by which time any physical fit/tool mark comparisons are likely to have been meaningless. Similarly, it was unfortunate that no reference number plates could be found to help identify, through striation marks, the source of the number plate on the bomb vehicle. It is unclear why evidence of a potential link - involving blue/green acrylic fibres, between the TPU and a jumper found at an address relating to two suspects assumed diminishing importance over time.

But perhaps most significantly, despite the good work of the RUC fingerprint expert, Julie Mallaghan, gaps in the provision of comprehensive sets of reference prints through the TACT process, limited scope of database interrogation, and apparent and unusual lack of involvement of NSY, means that the full potential of fingerprint evidence is unlikely to have been realised.

Statement of Truth

Each contributing scientific group member confirms that he or she understands his or her duty to provide independent evidence and has complied with that duty. All contributing group members confirm that in respect of those parts of the report to which they have contributed: (i) They have made clear which facts and matters referred to in this report are within their knowledge. (ii) Those that are within their knowledge they confirm to be true. (iii) The opinions they have expressed represent their true professional opinions on the matters to which they refer

Signature	Signature
Professor Angela Gallop	Dr Keith Norman
Date: 14 May 2026	Date: 14 May 2026

Signature	Signature
Chris Hester	Kevin Kershaw
Date: 14 May 2026	Date: 14 May 2026

Signature	Signature
Dr Philip Avenell	Roger Robson
Date: 14 May 2026	Date: 14 May 2026

Signature	Signature
Dr Sarah Jacob	Melanie Pugh
Date: 14 May 2026	Date: 14 May 2026

ANNEX

**INQ025127: Extract from AN OVERVIEW OF SCIENTIFIC EVIDENCE IN
RELATION TO THE OMAGH BOMBING AND LINKED OFFENCES
– Dr John Davison (FSS) 12 August 2005 (Draft Version 2 – 16/10/05)**

DRAFT Version 2 16/10/05

Appendix 1. A summary of the scientific contribution to the Omagh bombing investigation

Phase 1 Initial response and examinations

- Attendance by FSNI staff, principally D McAuley, at the scene of the explosion. Examinations continued at the scene and in parallel in the FSNI laboratory at Carrickfergus from 15th to 21st of Aug.
- Sep 1998. A number of persons, including Sean Hoey (arrested on 21/9/98) were arrested and released without charge. Items were submitted to the laboratory but verbal reports indicated nothing to connect them with the bombing.
- Aug 1998 – Feb 1999. Investigations were carried out within the laboratory over a number of months and were essentially completed by Feb 1999 when Mr McAuley produced his report.
- The bomb had been identified as an improvised "fertiliser" bomb loaded into a vehicle. The construction of the bomb and in particular the TPU indicated it to be the work of dissident republicans.
- J Logan had indicated verbally the recovery of a very small number of fibres, which could relate to an offender, from part of the TPU.

DRAFT Version 2 16/10/05

- April 1999. Mr McAuley produced a short report suggesting possible connections with a series of other incidents that had occurred in NI during 1998.
- June 1999. The fingerprint report of Mr A Dinsmore indicated no significant marks had been recovered from any item connected with the scene of the explosion.
- Marks recovered from phone boxes used to make the warning calls were being processed, by the PSNI bureau, under the direction of J Mallaghan, but nothing of investigative or evidential value has been found to date.
- June 1999. Investigations into the manufacture of the false number plate from the bomb car suggested possible origins but the report of G Johnston indicated that there were no scientific findings to assist *see enclosure*.
- June 20th 1999. Suspects *see origin* (including Sean Hoey) were arrested but released without charge. Further items were submitted to the laboratory.
- Aug and Sep 1999. Further submissions in relation to the suspects arrested as above were made to the laboratory. Nothing of apparent significance was found and reports of D McAuley and I Fulton were issued to that effect.

The scientific examinations were essentially completed

Phase 2 Review *reviewed etc*

- Nov 1999. A meeting of the SIO with senior FSNI scientists and D Barclay of the NCF suggested possible further avenues for scientific examination. These included scientific examination of items from possible linked incidents, including a comparison of fibres from the TPU, and the use of the newly emerging LCN DNA technique.

44

INQ025127

DRAFT Version 2 16/10/05

- Jan 2000. Items were submitted to the FSS laboratory in Birmingham for LCN DNA analysis. These included samples from the scene at Omagh and parts of a disrupted device from Lisburn in April 1998.
- April 2000. J Logan issued a report. This included possible fibre links between TPU from a number of different incidents.
- Sep 2000. The Coroners inquest was held and evidence was given by D McAuley.
- Oct 2000. A review was held on behalf of HMIC and a report, including a scientific contribution by myself, was produced.

Phase 3 Relaunch scientific investigation

- Feb 2001. I was appointed as scientific co-ordinator. Dr R Griffin was appointed as lead scientist at FSNI, and a team was assembled to take forward additional scientific work as identified in the review.
- The scientific examination was widened to include items relating to three other car bombs, in Lisburn in April 1998, at Newry Court House in July 1998 and Banbridge in Aug 1998.
- Feb 2001. First LCN DNA results from Birmingham indicated the recovery of DNA profiles from items relating to the incident at Lisburn. Profiles were also obtained from the telephone hand sets and cigarette ends in phone boxes used to make the Omagh warning calls. The profile from one of the handsets was later eliminated as from a member of the FSNI staff.
- Between March and Dec 2000, exhaustive re-examination was carried out of the remains of the bomb car, debris from the scene and all other submitted items. Many samples were identified and sub-exhibited but

DRAFT Version 2 16/10/05

were deemed unsuitable for further scientific examination. A large number of examinations were instigated in relation to documents, inks, fingerprints, toolmarks, fibres, DNA, explosives and comparison of tape ends.

- April 2001. Items relating to the Newry and Banbridge incidents and further items relating to Omagh were submitted for LCN DNA.
- Aug 2001. A further LCN DNA profile was obtained in relation to material from the scene at Banbridge. A DNA profile obtained from items relating to the incident in Newry was eliminated as from a member of the PSNI fingerprint bureau.
- October 2001. The trial of Colm Murphy for offences related to the Omagh bombing was held in the Republic of Eire. D Mc Auley and G McMillen attended and gave evidence. Items recovered in FSNI in relation to the Omagh bombing were used in evidence. Murphy was found guilty.
- Dec 2001. A detailed report on the scientific examinations was produced by myself and Dr R Griffin. The extensive examinations had produced no **conclusive** scientific evidence of the involvement of the same individual in any two of the incidents. The unidentified DNA profiles were the only findings that could identify an offender.
- Dec 2001. The Ombudsman for NI published a report concerning the Omagh bombing investigation. Scientists from FSNI were involved in preparing information in response and also attended a final formal meeting with the "families group" in Jan 2002.
- Feb 2002. A "match" was obtained between DNA obtained from the Lisburn incident as above and DNA obtained from a mortar device recovered from the Altnore Forest in April 2001.

DRAFT Version 2 16/10/05

- March 2002. ~~From here on~~ ^{Mr. Van der Vliet} the scientific activities were mainly centred around the existing DNA profiles and to production of a search strategy and briefing document in relation to anticipated suspect arrests.

- July 2002. Individual statements were produced by scientists in relation to the above examinations.

Once again the scientific examinations were largely completed

Phase 4 Widening scope of examinations

- Nov 2002 I was commissioned by the Detective Chief Superintendent Baxter to carry out a further review. This was in relation to the four incidents examined as above but also three new ones, the mortar device recovered in Altmore Forest in 2001, a mortar attack in Newry in July 1998 and a car bomb in Portadown in Jan 1998.

- An important investigative policy decision had now determined that evidence relating to "linked incidents" could be used in respect of the Omagh bombing if scientific evidence was available to **support** linkage.

- Jan 2003. The new review report identified further scientific examinations. A conclusion of that review was that the most likely explanation for the DNA findings in relation to Lisburn and Altmore was that both of these devices were constructed by the same person whose DNA was left on them.

- Feb 2003. The FSNi team was re-tasked with carrying out the above examinations in two stages. The first stage, focusing on the TPU manufacture, prioritised examinations for the full range of evidence types as previously but also involved production of a comparative schedule relating to components and construction. The second lower priority examinations, related to other aspects of the offences such as mortar construction.

DRAFT Version 2 16/10/05

- April 2003. The TPU comparison had identified the same part number and date code on all the timers. The Coupatan enquiries by DS **Officer 7** resulted in tracing of a batch from the manufacturer to dissident republicans. A comparative schedule for TPU construction was produced by D McAuley. Altmore was clearly a different type of device. Scientific examinations in relation to Portadown and Banbridge had been discontinued on the direction of the SIO. D McAuley suggested that Mark 19 TPU from the remaining four incidents could have been constructed by the same person or a very small group sharing knowledge and components.

Phase 5 Further extension of the series

- June 2003. The linked series was expanded to include a further eight incidents all featuring the Mark 19 TPU. The examination in relation to these "new" incidents was initially restricted to the construction and components of the TPU, and to fibres, but was later extended to the full range of evidence types with the exception of DNA.
- July 2003 D McAuley extended his comparative studies to include Mark 19 TPU seized in London and in the Eire Republic. At the end of this he concluded that his findings tended to support the proposition that the Mark 19 TPU that he had examined from the NI incidents were all made by the same person.

48

INQ025127