

Queensland State Archives

Guideline for Best Practice Microfilming of Public Records

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1: Introduction

1.1 Why microfilm?

Due to a variety of factors, paper-based collections will inevitably deteriorate over time. One way to ensure the long-term retention of public records is to copy them to a more durable format. Microfilming has long been accepted by major collecting institutions as an effective, reliable reformatting method. Although recent advances in digitisation have resulted in vast improvements in terms of access and distribution of information, there are still many unanswered questions regarding the longevity of digital records and their associated systems.

In the digital arena, the key preservation concern shifts from the stability of the record itself to issues such as technological obsolescence. Until such challenges can be adequately resolved, good quality preservation microfilming may remain the preferred reformatting method for preservation of public records. If processed and stored correctly, including use of polyester based film and optimum environmental storage conditions, microfilm can be expected to last hundreds of years.

1.2 Authority

The State Archivist has issued this guideline in accordance with s.25 of the *Public Records Act 2002* (the Act). Under s.25 of the Act the State Archivist has the power to make policies, standards and guidelines about the making, keeping, preserving, managing and disposing of public records.

1.3 Scope

This publication is intended as a guide for Queensland public authorities (as defined in schedule 2 of the Act) that currently microfilm or wish to microfilm paper records. It alerts agencies to their obligations under the Act, and seeks to highlight key issues which need to be considered if microfilming projects are to be successful. Specific issues addressed include details of the relevant standards and specifications that need to be met to ensure good quality microfilming and processing. Information on the standards relevant to this guideline and useful links on quality microfilming are included in Appendix A and B respectively.

This guideline includes in its scope traditional black and white microfilming, where the image is taken directly from the paper original onto microfilm, and computer output technology, where the black and white microfilm is generated from a digitised image.

This guideline does not address microfiche or jacketed microforms, or colour microfilm production as both are niche areas within the overall microfilming market. Microfiche and jacketed microform production has fallen principally due to equipment technological obsolescence. Colour microfilm is not included because of its limited use in Australia due to the difficulty of obtaining the raw film stock and the accompanying much higher costs involved. As a consequence, digitisation, along with the archival storage and preservation of

the original items is considered a more viable reformatting option for records where capturing colour is critical. For information on digitisation, see the Queensland State Archives publication, *Guideline for the Digitisation of Paper records* on the QSA website.

Additionally, this guideline does not address issues associated with the destruction of temporary public records after microfilming. For more information on authorisation for the destruction of records after microfilming see Queensland State Archives' *Microfilming Disposal Policy: Policy on the authorisation for the early disposal original paper records after microfilming*. It is important to note, however, that authority to dispose of temporary records after microfilming will only be considered if the filming meets the requirements specified in this guideline.

1.4 Contact information

For further information on issues relating to good quality and preservation microfilming of permanent public records, please contact Queensland State Archives' Preservation Services staff:

Manager, Preservation Services (07) 3131 7777

or via email on.....info@archives.qld.gov.au

<http://www.archives.qld.gov.au/>

2: Microfilming processes

When undertaking a microfilming project, a number of factors need to be decided and specified. These include the type of film to be used, the microfilm format to be produced, the equipment to be used, and specifications and standards to be met as described in the following sections.

2.1 Film type

The film type to be used for good quality, preservation microfilming is silver halide emulsion on a polyester base. If properly processed and stored, silver halide film on a polyester base has a life expectancy of 500⁺ years.

Advantages of silver halide film include:

- It is the most light sensitive of all the films used
- It can record a greater variance of density and contrast present in original material and
- It gives the highest resolution.

Polyester based film is recommended due to its:

- Proven chemical stability
- Tear resistance and
- Durability.

2.2 Formats

The two most commonly produced formats used to microfilm public records are 35mm and 16mm roll microfilm. Each format has advantages for specific applications.

Advantages of 35mm roll microfilm include:

- Most common and widely used preservation microfilm format
- Allows a larger image size and allows a greater variety of reduction ratios (see Section 2.4.1)
- Can be used to film of a wider variety of original records and
- Can be produced from a planetary camera or using computer output technology (see Section 2.3 for more information on cameras).

Advantages of 16mm roll microfilm include:

- Most commonly used for the filming of uniform sized documents and
- Due to its size, images are usually filmed at higher reduction ratios.
- 16mm roll microfilm can be produced using a planetary camera, a rotary camera or computer output technology (see Section 2.3 for more information on cameras).

2.3 Equipment

Microfilm can be produced using a traditional camera to take a microfilm image of a paper record or the film can be generated using computer output equipment whereby a microfilm image is produced from a digital file.

Traditional Cameras

Traditional microfilm cameras currently used to microfilm public records include the planetary and rotary/flow cameras. QSA only recommends the use of planetary cameras for quality microfilming. This is due to the following advantages and disadvantages of the planetary and rotary/flow camera respectively.

The advantages of the planetary camera include:

- Use of a stationary platen
- Photography of the records from above and
- Production of higher quality images.

Hence planetary cameras are recommended for:

- Archival records
- All bound items
- Large items and
- Items with attachments or damaged edges.

The disadvantages of the rotary/flow camera are that they:

- Operate at high speeds
- Produce lower quality images
- Require documents to be fed into the camera as loose sheets
- Require both the film and the documents in motion during the filming process and hence documents need to be of good quality and uniform size and
- Older rotary/flow cameras are unlikely to produce film that meets the standards identified in ISO 6199:1999; however, they may meet the lesser recommendations specified for non -permanent records included in this document.¹

Newer rotary/flow cameras, however, which can achieve the recommended specifications in this guideline, may be acceptable for microfilming good quality originals of a uniform size.

¹ ISO 6199:1999 *Micrographics - Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm - Operating procedures.*

Computer Output technology (COM technology)

The abbreviation COM is varyingly used to describe computer output microform, computer output to microfiche, and computer output microfilm depending on the context. In this context COM is used to denote computer output microfilm. Examples of computer output equipment commonly available in today's market include the Kodak Archive Writer and the Agfa COM3000.

COM equipment transcribes a digital file 'image' onto a roll of microfilm using laser technology. The digital file may be either from scanned images (captured digital files) or electronically created files (ie born digital records).

In addition, equipment is also available that includes a range of cameras that produce microfilm and digitise simultaneously.

2.4 Technical specifications

At the commencement of a microfilming project, after film type, format and equipment has been specified, and decisions made on the orientation of the image and the need to produce single or double frames has been determined (following consultation of the relevant standard for a particular item type), it is important to nominate the technical specifications to be used in the project.

Reduction Ratios

Reduction ratios used for quality microfilming projects are independent of whether traditional or computer technology is used. They represent the number of times an original document is reduced and hence the amount of magnification required to recreate the document's original size. Generally, the quality of an image will be higher when using a lower reduction ratio and a larger image. When determining reduction ration each page should be filmed to ensure that the page fills the entire frame and that the edges of the paper remain visible.

It is recommended that the reduction ratio:

- Be expressed as either 16x, 24x or 1:16, 1:24 etc
- Not be higher than 24x or lower than 8x
- Not exceed 16x in the case of faded or hard to read records (depending on the size of the original) and
- Not exceed 24x when producing preservation COM microfilm.

Exceptions:

- Filming of large engineering drawings/plans may require higher reduction ratios. This is acceptable providing the resolution readings still comply with the established standards (see Section 2.5.2).

Resolution and Resolving Power

The resolution and resolving power values in a microfilm project express the ability of a photographic system to record fine detail. Standards that relate to resolution and resolving power for traditional photography include ISO 446:2004 and ISO 3334:1989. Standards that relate more specifically to computer output technology include ISO 8514:2000 parts 1 and 2, and ISO 11928:2000 parts 1 and 2.²

In summary, resolution is:

- Determined with the use of a resolution test chart/target, frame and
- The number listed beside the finest pattern of lines, on the relevant test chart/target frame or slide, that can still be clearly distinguished from one another using a microscope.

Recommendations for the minimum number of line pairs that should be able to be resolved for first generation master microfilms of permanent records can be found in ISO6199:1999.

Resolving power, in comparison is:

- Measured in line pairs per millimetre (lmm) and
- Calculated by multiplying the resolution number obtained from the test chart/target frame or slide and the reduction ratio of the film.

Table 1 in this guideline is a modified version of the Minimum Resolution Requirements table that appears in ISO6199:1999. It includes the minimum resolution requirements considered acceptable for a range of nominal reduction ratios for first generation master microfilms of permanent records. It has been expanded to include resolving power values (measured in line pairs per millimetre) that are acceptable to the Queensland State Archives for quality microfilms of records deemed to be of temporary retention value in authorised Retention and Disposal Schedules.

² For details of these and other relevant standards, see Appendix A.

Nominal reduction	Reduction Range		Smallest ISO test chart No. 2 pattern read		Resolving power (Line pairs per mm)	
	From	To less than	P	T	P	T
1:10	1:9	1:11	9.0	8.0	90	80
1:12	1:11	1:14	8.0	7.1	96	85
1:16	1:14	1:17	7.1	6.3	105	101
1:18	1:17	1:20	6.3	5.6	113	101
1:22	1:20	1:23	5.6	5.0	123	110
1:24	1:23	1:28	5.0	4.5	120	108
1:30	1:28	1:33	4.5	4.0	135	120
1:36	1:33	1:38	4.0	3.6	144	129
1:40	1:38	1:44	3.6	3.2	144	128

Table 1: Minimum Resolution Requirements: Permanent (P) & Temporary (T) Records as recommended by QSA (Source ISO6199:1999)

Density

Density is a measure of the level of blackness on the background of the negative image. Background is the non-informational portion of the image. Recommended background density is independent of whether the microform has been produced traditionally or by computer output technology.

The correct background density required in a microfilming project is determined by the quality of the document being filmed and the information it contains. Items containing black well formed print with high contrast can be filmed with a higher background density. Faded inks and pencil items on aged papers, or those containing very fine lines are problematic, especially when combined with high reduction ratios.

Table 2 includes recommendations for background density ranges for a range of document types.

Document Group	Document Description	Background density
1	Dense black well-formed characters and lines of high effective contrast.	1.00 - 1.50 ^a
2	Group 1 documents with fine lines, or documents with lower density print or medium effective contrast, typical of general commercial documents.	0.90 - 1.10
3	Low effective contrast documents.	0.80 - 1.00 ^b
4	Very low effective contrast documents.	0.70 - 0.85 ^b
NOTE: When filming a set of very uniform high quality documents a background density of up to 1.50 is allowable, however a maximum range of 0.20 within a group of images should be maintained		
^a When filming double sided documents with noticeable show-through, densities may be reduced to reduce image show-through. ^b 1:24 reduction or less recommended.		

Table 2: Background Densities. (Source ISO 6200:1999)

When preparing specifications for a microfilming project it is important to remember that getting more contrast between the information written on a page and the background may not necessarily improve legibility. This is because the legibility of the finished microfilm is the result of the interplay between a number of factors including:

- Reduction ratio
- Resolution and
- Type and physical condition of the documents being filmed.

2.5 Microfilm contents

In addition to the images of the records on the microfilm, a microfilm roll is also required to contain a number of other features. These features are necessary to assist in identifying, viewing and checking the quality of the microfilm. These features include:

- Microfilm targets
- Extra length to assist with viewing and loading the film and
- Quality control frames.

Appendix C includes a list of the contents and essential elements such as targets that should be included on microfilm.

Microfilm targets

There are two main types of microfilm targets. They may be:

- Technical and/or
- Identification/informational.

Technical targets

Technical targets including resolution test targets/charts are used for visual image quality testing. Slightly different resolution test chart/targets, frames or slides are required depending on whether they are used with 16mm or 35mm microfilm (refer MP 25:2002 and ISO 3334:1989). Similarly, COM technology microfilms also require different resolution test charts/targets, frames or slides.

Microfilm resolution test chart/targets, frames or slides contain patterns of fine information in various sizes and positions to which values have been allocated. It is the precision of these lines that is extremely important in determining the correct resolution. Recommended resolution values should be in accordance with ISO 8514:2000 – 1&2 and ISO 11928:2000 -1&2.

Original test charts/targets, frames or slides must only be used for good quality microfilming projects. Photocopies of these targets do not accurately reflect the true quality of the documents being filmed.

Commonly, a minimum level of resolution is specified in microfilming projects. For quality microfilming this is often quoted at a level of 120 to 150 line pairs per millimetre in the camera negative. Refer ISO 10550:1994 *Micrographics - Planetary camera systems - Test target for checking performance*.

Placement of the resolution test chart/target also plays a significant role in obtaining accurate resolution readings. When filming single sheets the test chart/target should be placed flat upon the filming table. If filming bound volumes on non-dedicated book/register planetary cameras, it is necessary to produce two resolution test chart images. In the first image the test chart/target should be placed flat upon the filming table. In the second image the test chart/target should be placed on top of the closed volume. These two tests will indicate the resolution fluctuations caused by the varying height of the volume and the camera's depth of field/focus.

Informational/ Identification targets

Information/identification targets are largely independent of whether the film is produced using traditional or COM technology. An exception to this is the conversion to microfilm of scanned/ captured digital files to be reformatted to microfilm, which requires an informational target on the resolution and bit depth used to generate the source images.

Standard informational/identification targets provide general information about the content of the film. They are required in order to ensure that despite the new format, the film can be used:

- Efficiently
- To provide the same information as the original and
- To support its legal admissibility.

Informational/Identification targets are generally required to use a font that is of large enough type that the target on the film will be *eye legible*, meaning that the target can be read without magnification.

This information can be provided on several individual sheets and appear as separate frames at the end and start of the completed microfilm as required.

The amount and type of targets used will vary according to the material being filmed. For more detail on the correct use of targets refer to MP 25:2002, ISO 3334:1989 and ISO 6199:1999. Accurate use of targets is imperative in cases where the original record may be destroyed after microfilming.

Essential informational/identification targets include:

- Bibliographic information
- Procedural data and
- Statutory declaration that attests to the authenticity and process of copying the paper record or digital file to the roll of microfilm. An example of a statutory declaration for reference is included as Appendix D.

Bibliographic information includes the:

- Name of the agency that produced the records
- Descriptive title of records filmed
- Inclusive dates of records filmed
- File or volume numbers filmed
- Documentation of irregularities (missing pages, mutilations, incorrect pagination, etc). These must be documented to avoid confusion to the readers. A separate target may be used solely for this purpose if required and
- Statement regarding blank pages, for example blank pages have/have not been filmed.

QSA also recommends including information on the legibility of the records being microfilmed. Factors that may interfere with the legibility of the record on the microform include:

- Faded ink
- Adhesive tape
- Discoloured paper
- Torn pages
- Repairs.

Procedural information includes:

- Start, end & continued Targets (these allow the user to follow more easily any continuity between rolls)
- Roll number (roll numbers, calendar dates, etc. should all be in numeric form)
- Date of filming
- Camera manufacturer and model type
- Filmed by (bureau name)
- Filmed for (agency name) and
- Reduction ratio (this may be included on the resolution test target).

In the case of producing microfilm from digitised records the information/identification targets should also include details on:

- Resolution bit depth and
- Manufacturer and model type of the equipment used to generate the source image.

Statutory declarations attest to the authenticity and process of copying the paper record or digital file to the microfilm roll. A statutory declaration is essential if there is an intention to destroy the original records after microfilming, as the microfilm may be required to be used as evidence. QSA strongly recommends that a statutory declaration be included on microfilm copies of all public records. An example of a statutory declaration for reference is included as Appendix D.

Film loading features

'Loading' features of a microfilm include:

- Leader requirements
- Trailer requirements and
- Duplicator threading leader.

Leader and trailer requirements are necessary to enable the film to be loaded safely and securely onto the camera and viewer. The recommended camera threading leader is specific to the camera to be used and the camera's instruction manual will include details on the length required.

Duplicator threading leader is also required at each end of the microfilm roll. An additional 500mm length of film is recommended to be provided at each end of the microfilm roll to allow the film to be threaded onto a duplicating machine.

Quality control frames

The principle chemical quality control testing undertaken on microfilm is to determine the level of residual thiosulfate ion remaining in the processed film. Excess residual thiosulfate in the processed film can decrease the longevity of processed film significantly especially if the film is not stored in optimum environmental conditions (see Section 3.2).

It is recommended that a length of at least 140mm of clear (minimum density) film be available for this testing.

Residual thiosulfate ion testing is done by carrying out a methylene blue test and referring to the specified levels in ISO 18901:2002 and ISO 18917:1999.

3: Film processing and quality control

Irrespective of whether the microfilm is exposed using traditional or computer output technology or whether it is to be processed in-house or sent to an external agency, the microfilm must be processed in accordance with MP 25:2002. Furthermore, to maintain the integrity of master microfilm the film must not be spliced.

3.1 Quality control

To maintain quality control, the processing agency is required to:

- Ensure that processing removes residual chemicals in quantities greater than those set by ISO18917:1999 and
- Monitor the density and resolution of the film as set in ISO18901:2002 (See Section 2.4.2 and 2.4.3).

Testing that may be undertaken to ensure that processing removes residual chemicals to that specified in the Standard includes the:

- Residual thiosulfate ion testing using the methylene blue test.

This test measures the archival quality of the film and determines the amount of residual chemicals left on the film after processing. The tests should be carried out in accordance with ISO 18917:1999. A sample of the quality control form for master microfilm used by the Queensland State Archives is included as Appendix E.

3.2 Splicing

Whilst splicing may be acceptable for film in day to day use, splicing of master microfilm should be avoided as it reduces the evidentiary value of the microfilm. This is especially relevant if the agency may seek authorisation to destroy the original (see Queensland State Archives' *Microfilming Disposal Policy*). If retakes are unavoidable they should be done on a separate roll and only spliced into the duplicate copies. This leaves the master roll intact.

If splicing is undertaken:

- An ultrasonic splicer should be used
- **Adhesive tapes and tape splices are not acceptable** as they may contribute to the deterioration of the film. This is especially important with preservation microfilm
- Splices should never be placed between the resolution test chart and the text documents of the film and
- ISO6199:2005 recommends that if any splices are required that no more than five splices may be considered acceptable.

4: Master microfilm storage

It is important to remember that a microfilm project is not complete when the microfilm is produced, even if it meets the necessary quality controls. It must also be safely and appropriately stored to ensure its continued preservation. Steps to be considered in storing microfilm in a microfilming project include:

- Physical storage of the microfilm roll and
- Environmental storage conditions.

4.1 Physical storage

Two essential components to be considered when storing the processed microfilm are:

- The spool the film is to be rolled on, and
- The box/container to house the rolled film.

Microfilm Spools

The convention for master microfilm is to:

- Use a plain black plastic spool
- The spool is to be free of poly vinyl chloride (PVC) and peroxide
- The spool is to have no film stopper lugs and
- The film must be wound on with the emulsion side facing outwards.

The film must not be secured around the spool with rubber bands, string, tape, paper, sticky tape or any other material. These may impact on the stability of the film.

Film Containers

The microfilm can then be placed in specialised polypropylene microfilm boxes. Cardboard, paper, and metal microfilm boxes are unacceptable for preservation reasons.

The microfilm boxes are then to be marked with a permanent white marking pen (such as *Artline™ 440 XF Paint Marker* white pen or the equivalent) with the details of the contents. Paper labels, stickers or adhesive tape of any kind are not recommended as these are liable to fall off in cold storage conditions.

All microfilm boxes must have the agency's name and the microfilm number marked clearly on them. QSA recommends labelling in a similar manner to that shown in Figure 1 below.

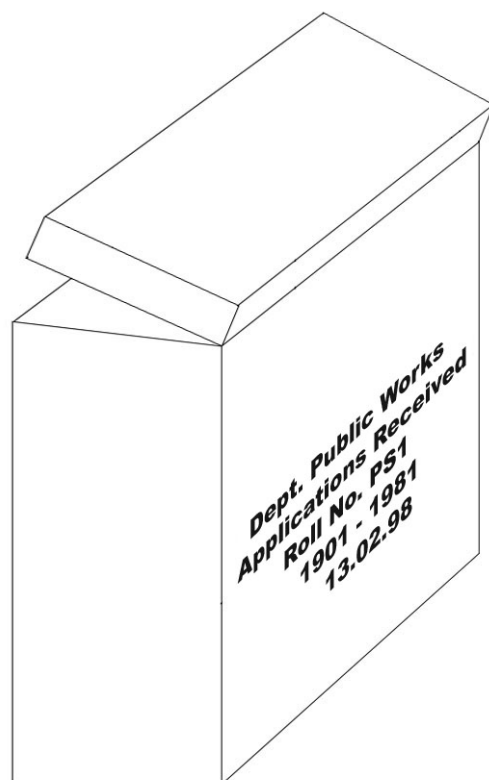


Figure 1: Correct labelling of microfilm boxes

4.2 Environmental conditions

In addition to having a duplicate copy of master microfilm made for access and choosing a storage location for microfilm that is secure and preferably off-site for disaster preparedness and business continuity reasons, it is recommended that the film be stored in optimum environmental conditions.

The environmental conditions recommended for master microfilm storage include:

- Temperatures within the range 8° to 12°C, 24 hours a day
- Relative humidity within the range 30% to 40%
- An alarm system to advise if conditions deviate from the designated set points and
- At least one conditioning room to allow for the gradual acclimatisation of film coming into or leaving the above conditions.

4.3 QSA master microfilm storage requirements

Vault storage at QSA for master microfilm of permanent public records produced to these guidelines is free, although a fee is charged for withdrawals. However, transfer is not automatic and a transfer proposal form and list must be completed by those agencies wishing to store master rolls in QSA' storage vault.

Master microfilm of public records intended for deposit in the storage vault will undergo quality inspection checks by QSA staff prior to transfer into the vault.

In addition to these checks, the microfilm processing agency/laboratory is required to carry out:

- Regular density checking
- Routine resolution checking and
- Submission of results of *Methylene Blue Testing* undertaken in accordance with ISO 18917:1999 within two weeks of processing the microfilm.

If the transfer of microfilm from the agency is to occur on a regular basis, QSA will ask for the methylene blue testing to be done on a quarterly basis with the results forwarded as the tests are carried out. This may not necessarily be at the time of the transfer. This will allow QSA to monitor the quality of the processing as it occurs and to detect any potential flaws in processing in a timely manner. Please note, it is imperative that the actual roll of microform tested, and the signature of the person carrying out the tests, be included with the results.

If any irregularities are detected by QSA in the test results, QSA may request that test results be sent more frequently such as monthly or fortnightly, until satisfied that the problem has been rectified. Film that does not comply with the standards mentioned above will be returned to the agency for refilming.

QSA also requires that a duplicate copy of all permanent microfilm be transferred to QSA at the time a permanent transfer is made. This duplicate copy is an access copy but is still required to be produced using a silver halide on polyester film base.

Appendix A: Microfilming Standards

Information on microfilming standards is available from:

- International Standards Organisation www.iso.org
- Standards Australia www.standards.com.au
- Standards New Zealand www.standards.co.nz

MP 25:2002 *Basic guide to microfilming* (available through Standards Australia)

ISO 446:2004 *Micrographics - ISO character and ISO test chart No. 1 - Description and use*

ISO 1116:1999 *Micrographics - 16 mm and 35 mm microfilm spools and reels - Specifications*

ISO 3334:1989 *Micrographics- ISO resolution test chart No. 2- Description and use*

AS/NZS 4589:1999 *Micrographics - Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm - Operating procedures*

ISO 6199:1999 *Micrographics - Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm - Operating procedures*

ISO 6200:1999 *Micrographics - First generation silver-gelatin microforms of source documents - Density specifications and method of measurement*

ISO 8514-1:2000 *Micrographics - Alphanumeric computer output microforms - Quality control - Part 1: Characteristics of the test slide and test data*

ISO 8514-2:2000 *Micrographics - Alphanumeric computer output microforms - Quality control - Part 2: Method*

ISO/TR 10200:1990/Amd 1:1997 *Legal admissibility of microforms; Amendment 1*

ISO 10550:1994 *Micrographics- Planetary camera systems- Test target for checking performance*

ISO 11928-1:2000 *Micrographics- Quality control of graphic COM recorders - Part 1: Characteristics of the test frames*

ISO 11928-2:2000 *Micrographics - Quality control of graphic COM recorders - Part 2: Quality criteria and control*

ISO 12653-1:2000 *Electronic imaging - Test target for the black-and-white scanning of office documents - Part 1: Characteristics*

ISO 12653-2:2000/Cor 1:2002 *Electronic imaging - Test target for the black-and-white scanning of office documents - Part 2: Method of use; TECHNICAL CORRIGENDUM 1*

ISO 18901:2002 *Imaging materials - Processed silver-gelatin type black-and-white films - Specifications for stability*

ISO 18911:2000 *Imaging materials - Processed safety photographic films - Storage practices*

ISO 18917:1999 *Photography - Determination of residual thiosulfate and other related chemicals in processed photographic materials - Methods using iodine-amylose, methylene blue and silver sulfide*

Appendix B: Microfilming – Useful links

Brown, Heather (2003), *Preservation Microfilming Learning Guide* National Library of Australia. <http://www.nla.gov.au/preserve/micro/screen/learningsc.pdf>

Conservation OnLine, *Reprographics/microforms*
<http://palimpsest.stanford.edu/bytopic/repro/#microforms>

National Archives of Australia, *Archives Advice 8: Protecting and handling archival microforms* <http://www.naa.gov.au/recordkeeping/rkpubs/advice8.html>

National Library of Australia, *Training in Preservation Microfilming*
<http://www.nla.gov.au/preserve/trainmat.html>

National Library of Australia, *Policy on Preservation Copying of Collection Materials*
<http://www.nla.gov.au/policy/micro.html>

National Library of Australia, *Guidelines for Preservation Microfilming in Australia and New Zealand* <http://www.nla.gov.au/olshopdisplay/nla.int-ls10691-bk>

North East Document Conservation Centre, *Preservation Microfilming*
<http://www.nedcc.org/welcome/micro.htm>

Reference Libraries Group, *Preservation Microfilming Projects & Practice*
http://www.rlg.org/en/page.php?Page_ID=571

Reference Libraries Group, *Guidelines for microfilming to support digitisation*,
<http://www.rlg.org/en/pdfs/microsuppl.pdf>

Appendix C: Checklist - Recommended contents of microfilm

MICROFILM of paper records and digital files (scanned/captured files and born digital files) to include:	INCLUDED	
	YES	NO
Roll number (roll numbers, calendar dates, etc. in numeric form).		
Date of filming		
Filmed by (bureau name)		
Filmed for (agency name)		
Camera manufacturer and model type		
Reduction ratio (may be included on the resolution test target)		
Resolution test target		
Start, end & continued Targets (allowing continuity between rolls to be followed by the user)		
Statutory Declaration		
Copyright information ^a		
Bibliographic target		
Legibility information		
Quality control test area		
Leader requirement		
Trailer requirement		
Duplicator threading leader		
MICROFILM of scanned/captured files digital require additional information:		
resolution bit depth		
manufacturer and model type of the equipment used to generate the source image		

^aNote: while Copyright Statements are not normally required for for microfilm projects of public records, they may be relevant to projects that involve microfilming of records outside the public records domain.

Appendix D: Example of a statutory declaration

(Name Of Public Authority) – (using camera make and model)

Queensland to Wit

I _____ of _____
in the state of Queensland, do solemnly and sincerely declare as follows:

1. I am employed by _____ for the purpose of photographing on behalf of [name of public authority] the contents of completed files with a microfilm camera.
2. The documents referred to below will be photographed in original order as supplied by the _____. All documents will be microfilmed.
3. On the day of (month) (year) I commenced photographing files _____ (*include description of the records including dates covered*) onto film No. _____.
The documents photographed on this film are at the time of microfilming in the condition in which they appear in this film.
4. All documents are in the custody or control of [name of public authority] in the course of whose business they were photographed.
5. The machine used to photograph these documents will be/ was a (*include camera make and model*)
6. The microfilm camera and the film used are in good working order and condition and the photographing will be carried out in the ordinary course of business and according to the operating instructions for the apparatus.
7. The work of reducing the contents of completed files onto microfilm will be undertaken and all the documents will be photographed by me in good faith. AND I MAKE this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of "The Oaths Acts", 1867 to 1960.

SIGNED AND DECLARED by the above-named Declarant at Brisbane in the State of Queensland

This _____ day of _____ (*month*) _____ (*year*).

Declarant

Justice of the Peace / Commissioner
for Declarations

Appendix E: Sample master microfilm quality report form



Transfer ID: TR /	Consignment: /	Dept. Roll Numbers: to	P (Permanent)
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Quality Report Form: Master Microfilm	Prepared by: Date:
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A. Client Details

Creating Agency Name:
Contact Person: Telephone:

B. Visual Inspection

	Yes	No
• All boxes were correctly identified and free of adhesive labels.....	<input type="checkbox"/>	<input type="checkbox"/>
• Filmed by / for identified.....	<input type="checkbox"/>	<input type="checkbox"/>
• General filming format is of a good standard.....	<input type="checkbox"/>	<input type="checkbox"/>
• Contents of film identified.....	<input type="checkbox"/>	<input type="checkbox"/>
• Start and end of roll identified.....	<input type="checkbox"/>	<input type="checkbox"/>
• Resolution targets of tested film fulfil the following minimum acceptable readings required for 16mm and 35mm planetary camera first generation permanent / long term temporary microfilm.....	<input type="checkbox"/>	<input type="checkbox"/>

C. Minimum Resolution Requirements

Nominal reduction	Reduction Range		Smallest ISO test chart No. 2 pattern read	Resolving power (Line pairs per mm)
	From	To less than		
1:10	1:9	1:11	9.0 <input type="checkbox"/>	90 <input type="checkbox"/>
1:12	1:11	1:14	8.0 <input type="checkbox"/>	96 <input type="checkbox"/>
1:16	1:14	1:17	7.1 <input type="checkbox"/>	105 <input type="checkbox"/>
1:18	1:17	1:20	6.3 <input type="checkbox"/>	113 <input type="checkbox"/>
1:22	1:20	1:23	5.6 <input type="checkbox"/>	123 <input type="checkbox"/>
1:24	1:23	1:28	5.0 <input type="checkbox"/>	120 <input type="checkbox"/>
1:30	1:28	1:33	4.5 <input type="checkbox"/>	135 <input type="checkbox"/>
1:36	1:33	1:38	4.0 <input type="checkbox"/>	144 <input type="checkbox"/>
1:40	1:38	1:44	3.6 <input type="checkbox"/>	144 <input type="checkbox"/>

The above information for **P = Permanent** status microfilm has been obtained from ISO 6199: 1999 Yes No

D. Density Levels (Tested film should meet the requirements as classified in the following).

Classification	Description Of Documents	Background Density
Group 1	High quality, high contrast printed books, periodicals, and black typing	1.30 - 1.50 <input type="checkbox"/>
Group 2	Fine-line originals, black opaque pencil writing, and documents with small high contrast printing	1.15 - 1.40 <input type="checkbox"/>
Group 3	Pencil and ink drawings, faded printing and very small printing, such as foot-notes at the bottom of printed pages	1.00 - 1.20 <input type="checkbox"/>
Group 4	Low contrast manuscripts and drawings, graph paper with pale fine coloured lines, letters typed with worn ribbon, and poorly printed, faint documents	0.80 - 1.00 <input type="checkbox"/>
Group 5	Some poor contrast documents	0.70 - 0.85 <input type="checkbox"/>

Yes No

Appendix E (cont'd)

E. Residual Chemical

Residual chemical levels of tested film are within the acceptable density difference limit of: = or < 0.03 Yes No

F. Splices NO YES NUMBER TYPE

G. Comments

Comment:
.....
.....
.....

H. Inspection Result

Microfilm has passed required quality inspection:
Manager, Preservation Services..... Date:

I. Recommendation

It is recommended that approval to destroy be granted / not granted as per disposal authority
Originals to be destroyed:
Originals to be retained:
Manager, Technical Services: Date:

J. Original Records not to be Destroyed

Approval is **not granted** to destroy the relevant original as per the disposal authority:
State Archivist: Date:

K. Approval to Destroy

Approval is **granted** to destroy the relevant original as per the disposal authority:
State Archivist: Date: