

KOFILE PRESERVATION

November 17, 2015

Honorable Sasha Kelton
Clay County Clerk
214 North Main Street/PO Box 548
Henrietta, TX 76365

Dear Hon. Sasha Kelton,

This proposal addresses the preservation and digitization of 4 volumes of Clay County Clerk's historical and permanent retention records. This quote is presented by Kofile Preservation, Inc. (Kofile). Quoted preservation services include conservation treatments, deacidification, encapsulation, rebinding, and archival image capture, processing, and enhancements. All pricing is good for 90 days from the date of this quote.

PROJECT UNDERSTANDING

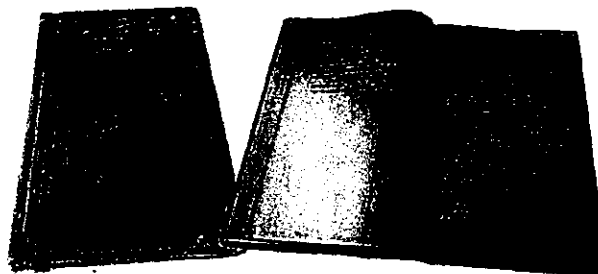
At Kofile, each project is unique and deserves special attention. Our team provides realistic solutions, professional analysis, and innovative archival products to equip records stewards with the information and resources needed to preserve collections.

Preservation minimizes chemical and physical deterioration to prolong the existence and useful life of the original format. Oftentimes, this includes preserving and removing the original from public access, and creating a security copy. Preservation can incorporate conservation, treatment, stabilization, preventative care, or digitization—or any maintenance or repair.

NEEDS ASSESSMENT

Due to the nature of these records, they maintain a PERMANENT retention schedule according to *Local Schedule CC*, Texas State Library & Archives Commission, Aug. 2011. Clay County is commended on its efforts to protect and preserve the original records.

These volumes are in poor condition. Each is bound and has manuscript (handwritten) sheets. Each volume contains sheets that are browning due to use, natural aging, lack of environmental controls, and exposure to UV light.



A historical volume from Titus County, Texas, before and after service.

DOCUMENT PRESERVATION SPECIALISTS
6300 CEDAR SPRINGS ROAD, DALLAS, TEXAS 75235
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Photographic documentation and additional areas of concern are included following.

Mechanical Damage (Use & Abuse)

Everyday use greatly effects collections. Sheets bear signs of grime and the natural oils of hands. Exposed sheets are susceptible to damage and loss. Dirt and other pollutants can serve as ignition sources and weaken exposed paper. Even with careful use, exposed fragments become abused.



Acidic Ink

Acidic inks can "eat" or "burn" through a sheet. Unmonitored temperature and relative humidity (RH) accelerate this process. Inks can also fade with exposure to UV light. Historically, iron gall inks were the standard. These inks contain sulfuric acid—which fades with time. With proper treatments, chemical breakdowns (such as acid hydrolysis) are remedied.

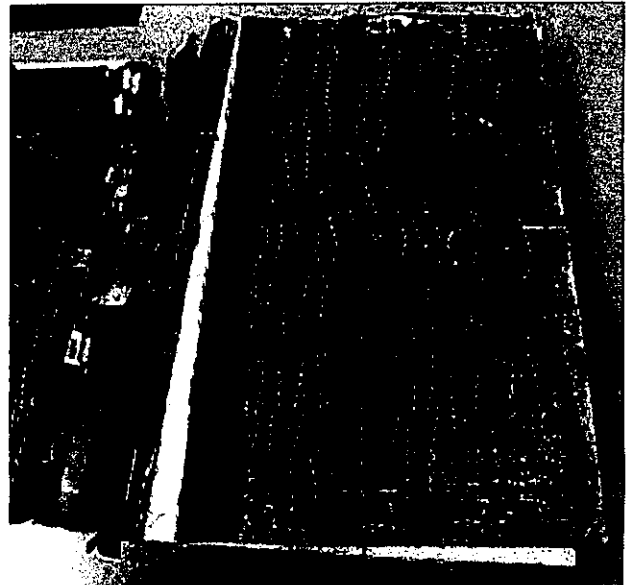


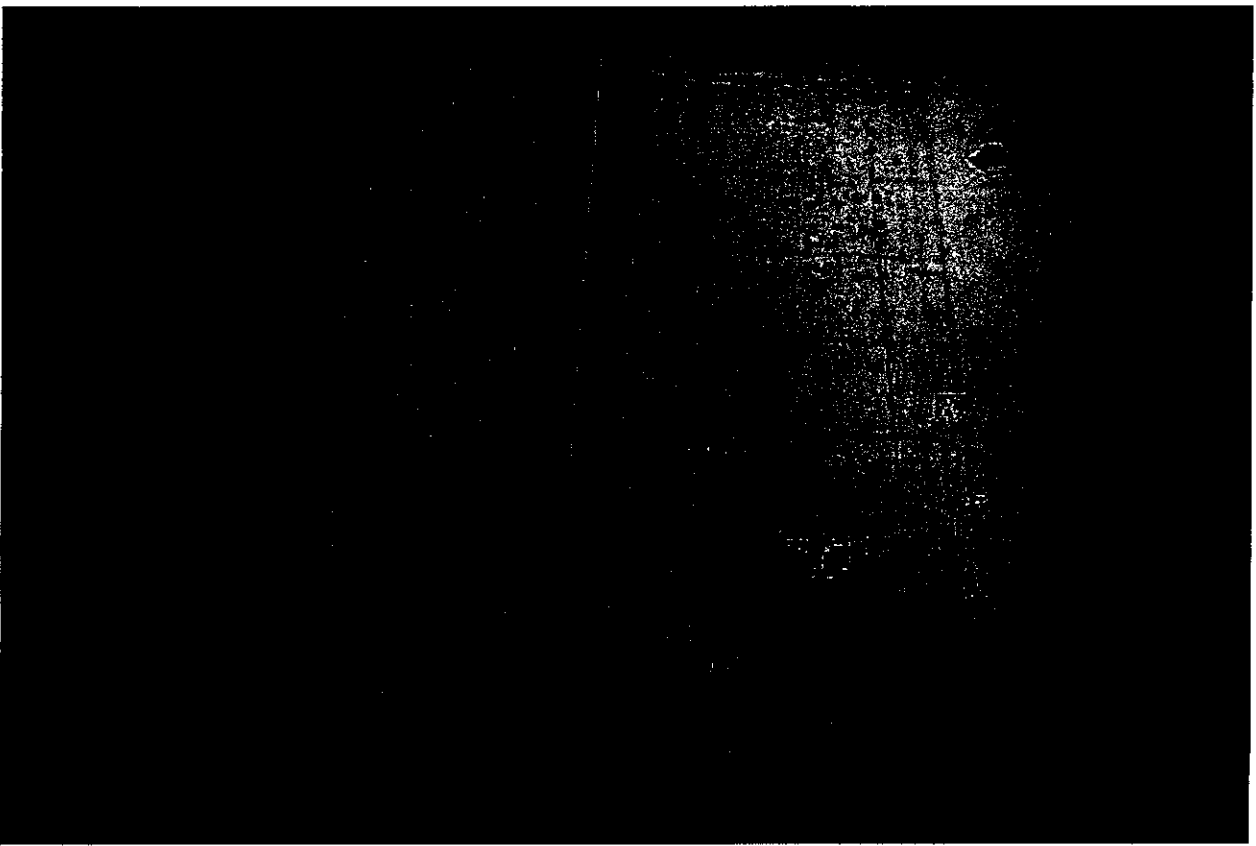
Acidic Paper

Past papermaking utilized bleach to obtain white sheets. As a result, this paper becomes increasingly acidic— as evident by embrittlement and yellowish-brown discoloring. *Paper also brittles when relative humidity drops or fluctuates.*

Broken Book Block

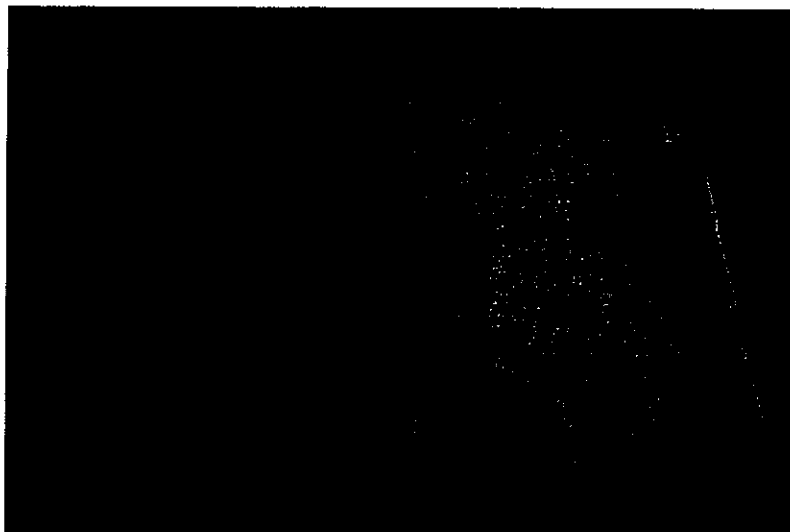
Once a binding fails, damage escalates. Sheets are free to drift from the protection of the book block. With exposure, fragments become abused and susceptible to loss.





Binding Margin

Sometimes a book contains sheets in which the writing continues into the binding margin. To rebind and protect these sheets, encapsulation, not punching, is the only solution. This is also true of books that previous vendors have guillotined.



Failing Index Stacks

Index Books sustain the most use. Thus, they suffer from greater risk of text loss and sheet deterioration. The continuous use compromises paper strength and tabs.



Slumping (or Leaning)

The average weight of a record book is 24 pounds. The pressure of leaning books (standing on end) causes permanent damage to bindings. This is known as slumping. Eventually, a damaged spine results in a broken book block and individual sheets coming loose. Appropriate shelving units are necessary in long-term archival storage.

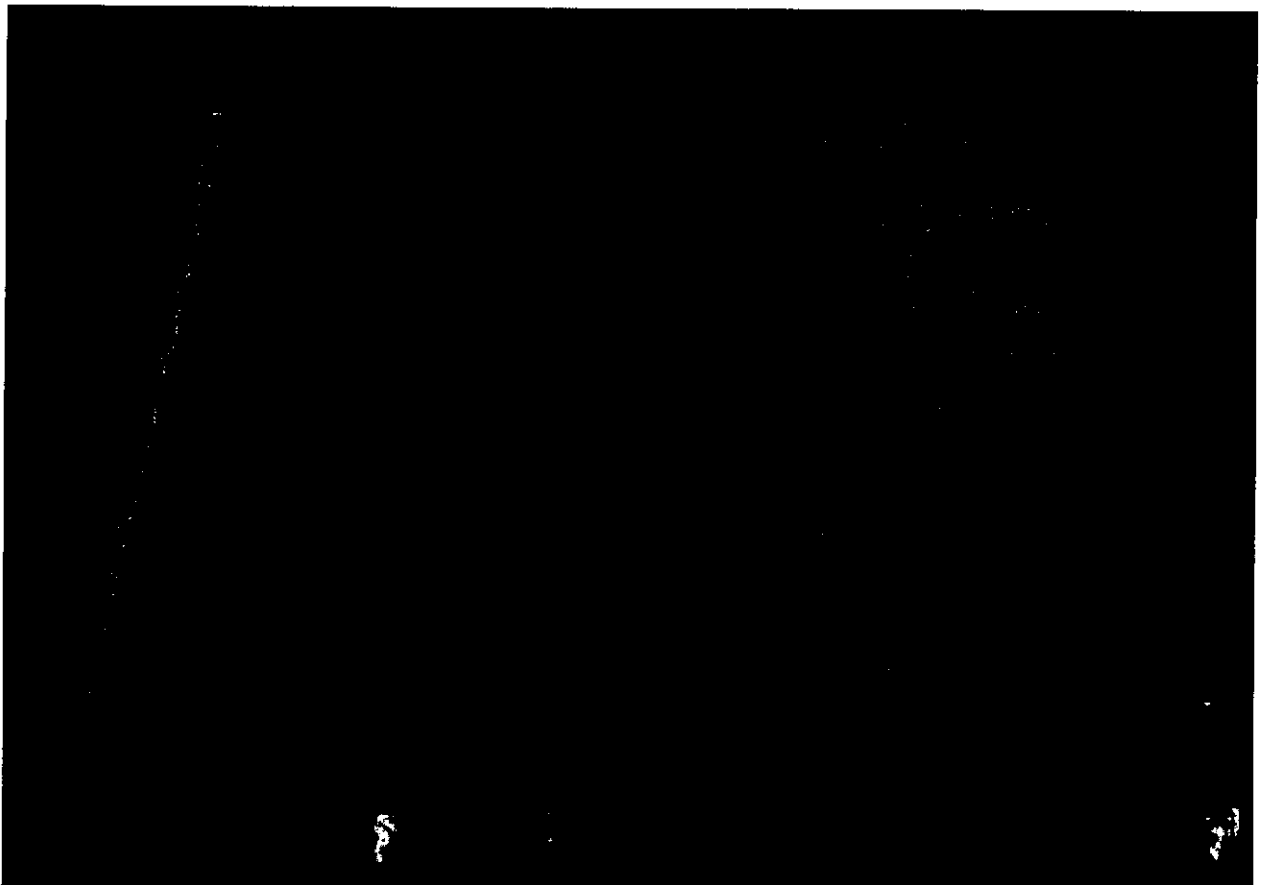
Non-Archival Quality Materials

The off gasses of deteriorating metal or rust contribute to the chemical breakdown of historic volumes and documents. Major culprits include the metal content of book spines, the surrounding physical environment, and non-archival fasteners (such as binder clips, paper clips, and staples). These off gasses eventually completely destroy the fabric of the volume. Another symptom of metal oxidation is foxing, or fox-like reddish and brown color stains or blotches on paper.



Inserts and Attachments

Some volumes contain irreplaceable inserts and attachments. This information contained on these inserts is at great risk of loss and damage. Acid used in non-archival adhesive will eventually migrate into the paper's fibers, causing stains.



Tape & Non-Archival Adhesives

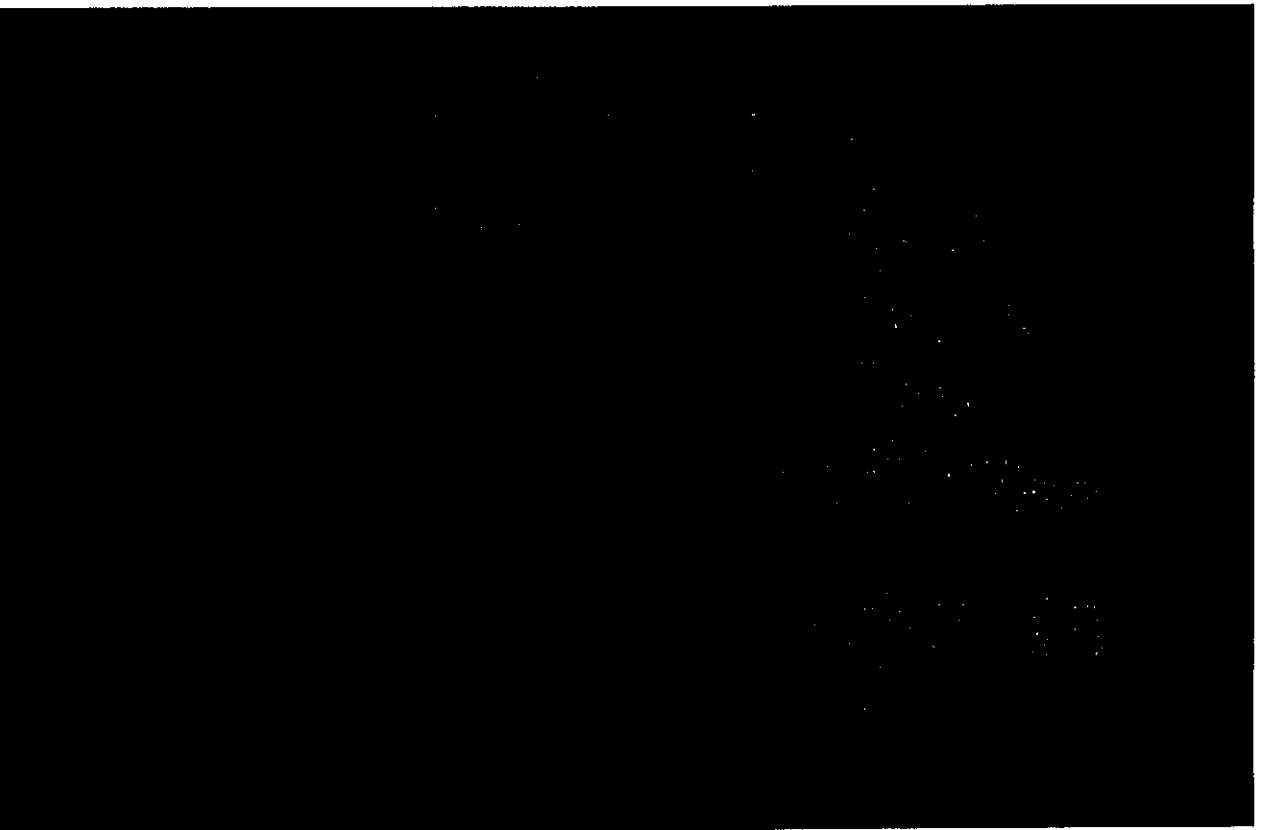
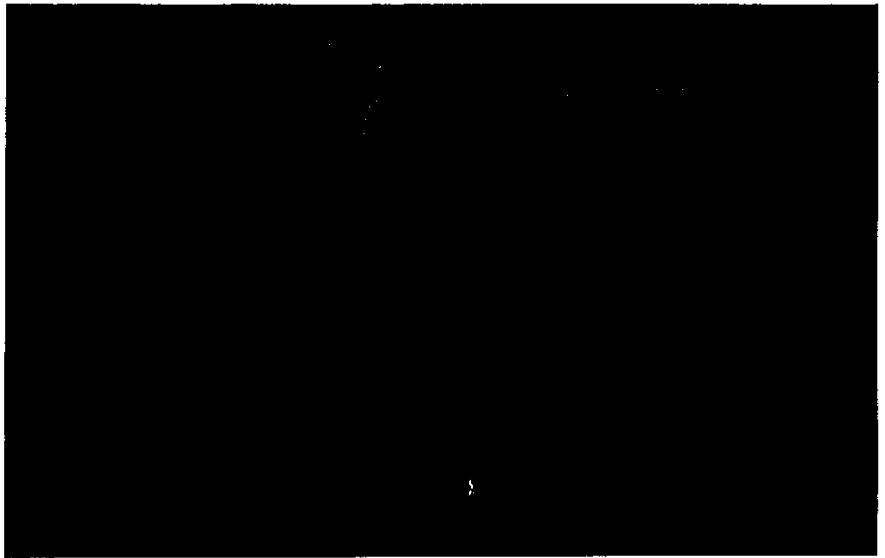
The Library of Congress warns "pressure sensitive tapes, such as scotch, masking, 'invisible,' quick-release, cellophane, and even so-called 'archival' tapes" are all culprits. These tapes are unstable. "All tapes and adhesives of these types will stain the paper and may cause inks and colors to 'bleed.' Many lose their adhesive properties and fall off with age, leaving behind a residue that is unsightly, damaging to the item and difficult to remove."¹

Sheet extenders appear innocent. However, removal is a long and arduous process. The acid used in the non-archival adhesive migrates into the paper's fibers, causing stains. Instead of solving the original binding problem, this chemical breakdown causes the paper's natural fibers to fatigue and ultimately deteriorate.

KOFILE PRESERVATION Adhesive stains lead to issues during imaging. Many officials have approved low-bid imaging and microfilm projects that resulted in illegible images. To enhance image quality, conservation is essential. A conservator can remove water-based, synthetic, and pressure sensitive adhesives. Sound preservation ensures accessibility to these irreplaceable and permanent documents forever.

Page extenders are an inappropriate "quick fix" to a prevailing problem. To save collections, the underlying issues causing the sheets' margins to deteriorate need correcting. The acidity of the sheet extenders only adds to the chemical breakdown of the paper.

¹ The Library of Congress. "Preservation FAQs." <www.loc.gov/preservation/>.



Temperature & Humidity Monitoring

While temperature and limited air circulation are crucial to a document's longevity, humidity and water are the most destructive threats.

Relative Humidity (RH) refers to the amount of water vapor present in the air. Maintaining a set point of 40-45% RH is optimal, but costly. The maximum acceptable total RH variation, or operating range, is 5% on either side of this set point. RH should never exceed 55% or drop below 30%.

Temperatures above 75° F and RH higher than 60% encourage mold and other bacteria growth within 48—72 hours.

Even slight changes in temperature can double the natural aging rate of paper. In reality, temperature and RH are not consistent in a local courthouse (especially on weekends).

Red inks smear first, then blue inks, and lastly, black inks.

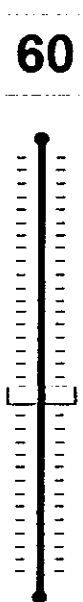
After exposure to water, pages adhere to one another when in a compressed environment. Separation without loss of text and water soluble inks (such as signatures) is vital. These records are extremely fragile.

The mitigation of mold or micro-organics, should only be attempted by a trained professional. Water can also lead to other issues such as binding failure. The necessary treatments are time consuming and require a highly skilled conservator.


Click to Solve for:

Temperature % RH Dew Point


60



40



36



Temperature Scale: °F °C

Preservation Evaluation

Type of Decay	Environment Rating	Preservation Metric	
Natural Aging	GOOD	PI	96
Mechanical Damage	OK	% EMC	7.8
Mold Risk	GOOD	Days to Mold	No Risk
Metal Corrosion	OK	% EMC	7.8

Record and Compare Values

T	RH	DP	PI	Days to Mold	EMC

Visit the Image Permanence Institute (IPI) at www.dpcalc.org to explore the correlation of temperature and RH on natural aging, mechanical damage, mold risk, and metal corrosion (as exemplified above). The image above is property of IPI.

CONSERVATION SPECIFICATIONS

Kofile performs all services in accordance with the Code of Ethics & Guidelines for Practice of the American Institute for Conservation of Historic & Artistic Works (AIC). Kofile is also an Awardee of a Library of Congress FEDLINK Preservation Services for Library & Archival Collections contract. Kofile never utilizes any treatment, repair, or maintenance that is not 100% reversible.

The following is an overview of preservation treatments and services available at the Kofile lab. Services are tailored to the specific page and/or volume and utilized as appropriate.

Dismantle

Volumes for re-binding are carefully dismantled. Original binding threads and adhesive residues are carefully removed by hand. Any trimming is accomplished with handheld or Jacques Board shears. Only one document is cut at a time to ensure no text is lost.

Surface Dry Cleaning

Surface cleaning is a generic term for the removal of material deposits. This includes dust, soot, airborne particulates, sedimentation from water damage, mold/mildew residue, active micro-organic growth, insect detritus, or even biological or mineral contaminants. All have serious consequences during long-term storage. Superficial grime is removed with a soft dusting brush. A microspatula is used to coax insect deposits. Other tools include a latex sponge, powdered vinyl eraser, or soft block eraser.

Removal of Fasteners

Kofile will remove fasteners, page markers, and other metal mechanisms. Fasteners such as binder clips, staples, paper clips, string ties, rubber bands, brads, straight pins, etc. cause damage in short periods. This includes physical damage (decreased paper strength due to punctures or distortion) and chemical damage (rust).

Removal of Old Repairs

Pressure-sensitive tape and adhesive residue are reduced as much as possible without further degrading the original. When possible, tape is removed with mechanical Heat Removal or Peeling. The former is used when adhesive is loose, old, or brittle; the latter, when removal by heat is unnecessary. The next alternative is chemical. Previous repairs that cannot be removed safely will remain. Stains are reduced to the greatest extent possible after careful testing. Tape stains are reduced, but most stains are likely permanent.

Flattening and Humidification

Improperly stored, papers become inflexible and retain a memory of the storage position. Flattening occurs in the Kofile lab with the strictest archival environmental control standards. 'Flattening' is accomplished by tacking irons or Ultrasonic Humidification. Tacking irons have adjustable temperature controls to alleviate damage to the documents. Another method uses moderate pressure



Kofile carefully coaxes adhesives and tape by application of heat and pressure with specialized conservation tools.

drying between acid-free blotters. Careful monitoring eliminates bleeds and mold/fungus.

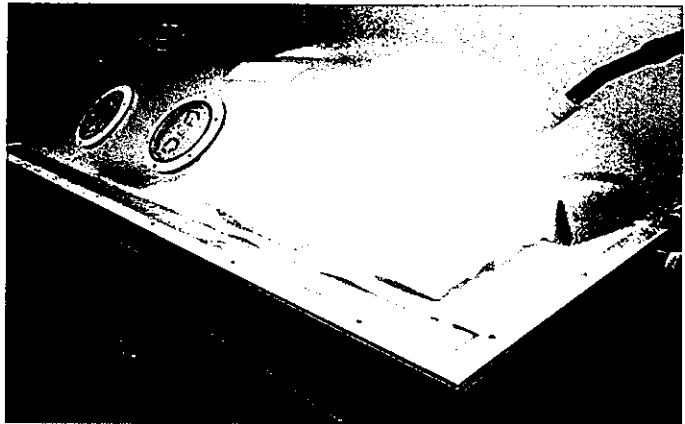
Items are humidified after testing the solubility of the image. The Ultrasonic Humidification Chamber can correct the most fragile document's folds and bends. This machine is enhanced with a cross flow and features a humidity dome and ultrasonic humidifier. Private labs are rarely equipped with this device, and this significant investment represents Kofile's foresight and commitment to offering the best available technology.

Repair and Restore Paper

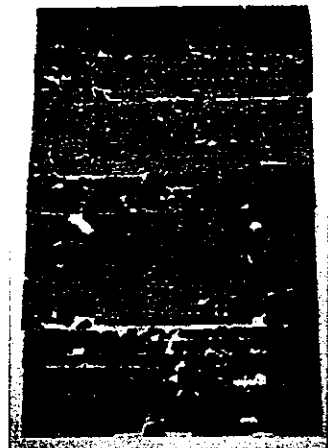
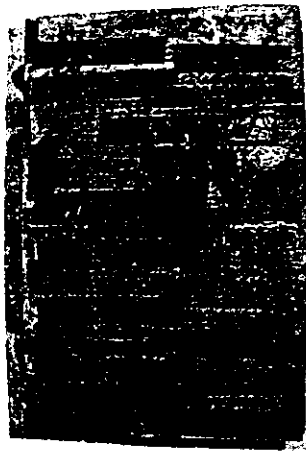
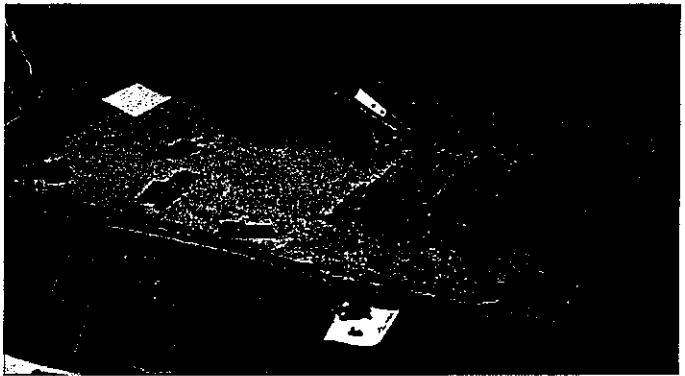
Mending paper is an art form. It is accomplished with a variety of materials depending on the paper's color, tone, condition, and weight. The length of the tear(s) and the degree of embrittlement or fragmentation are also concerns. Kofile generally mends tears $>1/2"$.

All of the materials utilized for mending are acid free and reversible. Japanese paper and ethyl cellulose paste or Crompton tissue are used most often. Kozo paper, in natural and white finish, is commonly used because of its strength and transparent nature. While visible to the trained eye, it does not distract from the document.

Mending strips are water cut so the edge of the Japanese paper visually integrates with the Document. Filmoplast® may also be used for reinforcement of damaged sheets. Filmoplast® is a low-temperature, acrylic adhesive that bonds to Japanese Kozo paper. Kofile also constructs our own version of this material with acid-free tissue paper and Rhoplex liquid acrylic adhesive. Fragmented edges, folds, tears, cracks, voids, and losses are all mended in this fashion.



Ultrasonic Humidification Treatment.



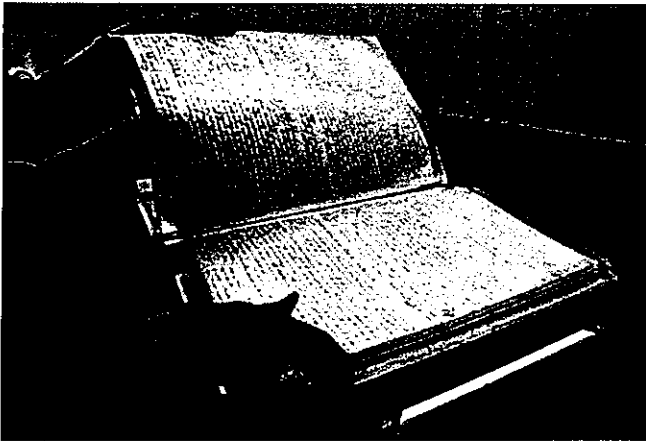
An 1848 Probate Record before and after treatment. A Kofile conservator pieces the document together after the tape was removed. The image to the right shows the page after deacidification, tape removal, and mending with archival Japanese tissue.

Deacidification

Deacidification is performed after careful pH and compatibility testing. Kofile is equipped with multiple custom-built spray exhaust booths. All are routed through an HVAC system. A commercially-prepared buffer solution is applied to both sides of the sheet with compressed air sprayer equipment. The solution is non-flammable and non-toxic. The active ingredient, *magnesium oxide*, neutralizes acid and provides an alkaline reserve. This chemical is inert, safe, and does not degrade the sheet. Random testing ensures a pH of 8 with a deviation of no more than 2-4%.



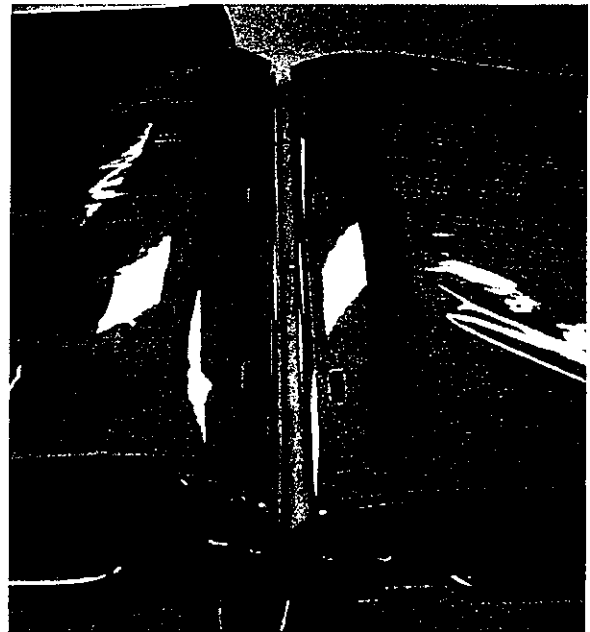
A historical plat is deacidified.



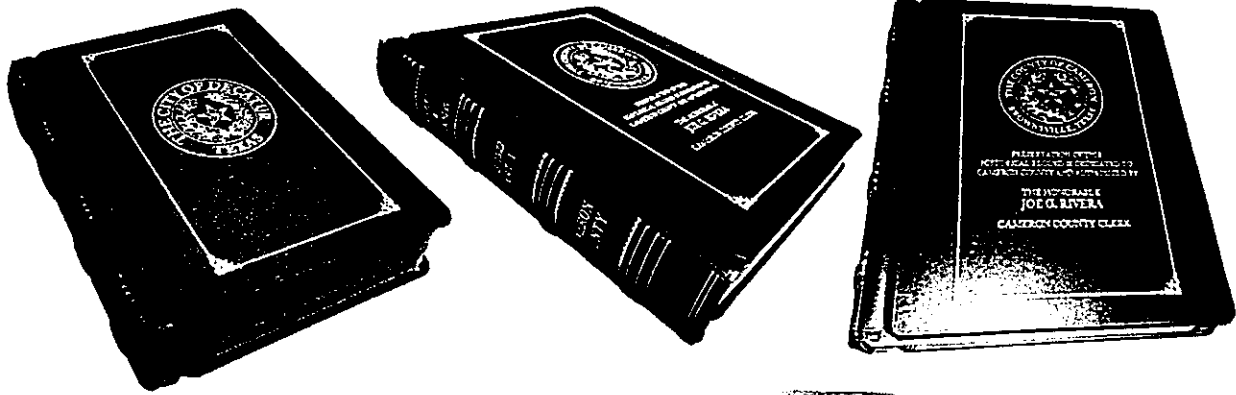
Encapsulation

In archival encapsulation, the document floats freely. It is not adhered or heat set. Each sheet is encapsulated in a *Lay Flat Archival Polyester Pocket™*, US Patent #7,943,220 B1, 5/17/2011.

Reemay® or spunbond polyester in the pocket at the binding edge offsets the document's thickness and seals out atmospheric pollutants. This allows for a flat book block and reinforces the binding edge for added strength and years of service. Also, the Pocket would not need to be cut and replaced to access the page. Pocket dimensions match the 'book block' with a 1½" or 1¼" margin.

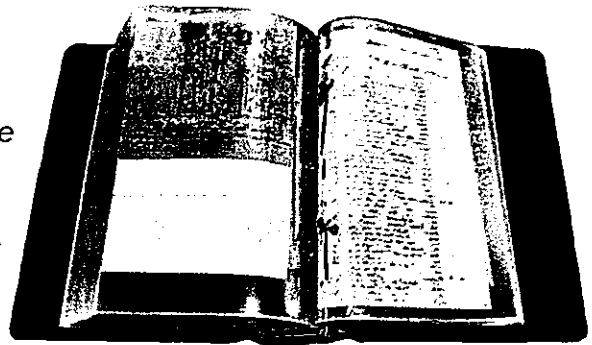


Kofile uses SKC SH725® PET polyester for pocket construction. Pockets are welded on three sides, and binding statically seals the fourth. The inherent static cling of polyester provides physical support and protection from daily public use. Polyester or Polyethylene Terephthalate (PET) is the most inert, rigid, dimensionally stable (*dimstab*), and strongest plastic film. Otherwise known as Mylar® Type D or Melinex® 516, it is crystal clear, smooth, and odorless. It will not distort or melt in case of fire.



Re-binding

New binders stabilize documents and impede deterioration. This will save Clay County valuable storage space and will require little or no maintenance for decades. Kofile does not recommend the use of polystyrene (PS) binders. In the presence of heat, they are highly flammable and emit toxic Hydrochloric acid fumes. PS binders also have poor chemical resistance, especially to organics, and are photodegradable (susceptible to UV degradation).



Kofile proposes that the Clay County's records are bound in *Heritage Recorder* binders. The *Heritage Recorder* Binder is a post binder, but the binding can also be sewn. This binder is available in various colors in genuine or imitation leather, or canvas. Cover printing is foil on the leathers and hot stamp printing on the canvas.

Kofile manufactures binders solely utilizing lab-tested archival materials. Components are manufactured on a per-book basis, sized to 1/4" incremental capacities. Kofile can match existing books by manufacturing custom sizes, shapes, spines, colors, and lettering. All materials, including cover boards and adhesives, are acid-free.

Title stamping is approved in advance. It will follow the same format/style of the originals. Tooling is performed with 23-karat gold foil. If errors are noted, the County is notified to determine appropriate correction. Any changes are approved by Clay County.

DIGITIZATION

Imaging a document creates an electronic representation of the original. This process is not meant to replace the archival record, but to aid in its preservation. The image serves as a reference tool and is a back-up if the original is damaged or destroyed.

Kofile does not subscribe to the "scan it and forget it" philosophy. Our services differ because materials are addressed according to their condition and fold endurance without blind, automatic scanner feeds.

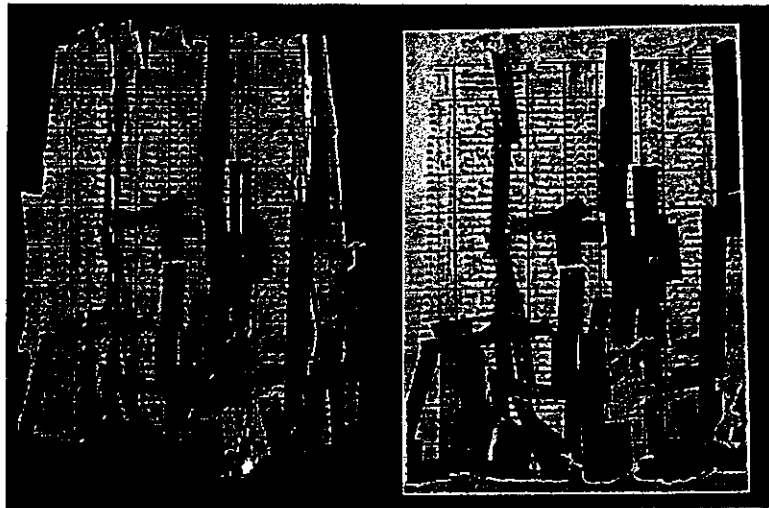
Technicians are trained to handle fragile and historical documents. Kofile invests in the best hardware and software. Many of our projects involve re-imaging what low-bid vendors have already imaged. With Kofile, images are the highest quality and are free of distortion and loss of information.

Our experience with the data conversion of archival documents is inferior to none. We can address any concerns regarding the conservation treatment and handling of fragile items, superior image capture and microfilming, and quality of work— *all at one facility.*

Imaging Overview

Images are captured at a minimum of 200 dpi at 256 bi-tonal or gray levels. This ensures the highest image quality for documents with poor contrast and difficult-to-read information. Images accumulate as Group IV bi-tonal images in a standard PDF or TIFF format. Images are optimized and scaled for system output.

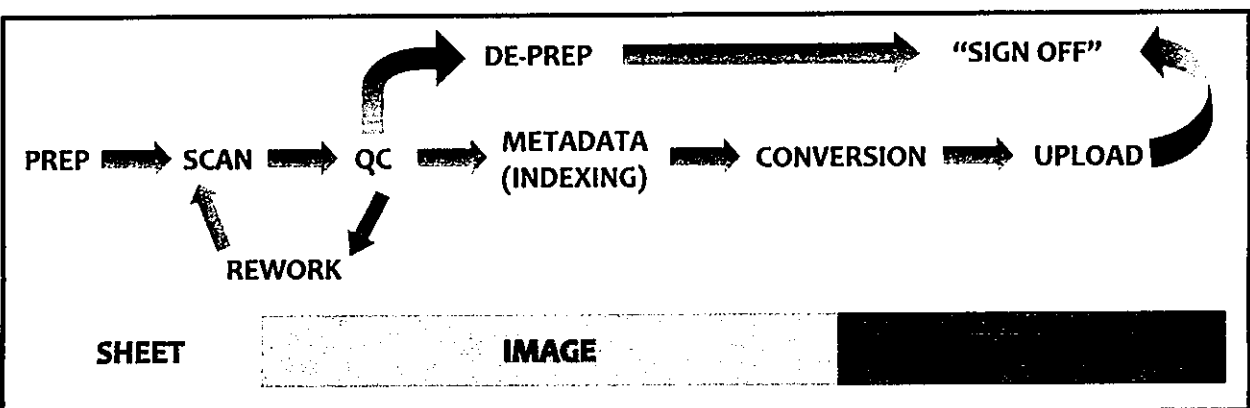
Kofile makes use of gray-scale scanning techniques for documents to ensure the optimum resolution of each page. We verify effectiveness and minimum legibility of the scanning process through rigorous and systematic quality control. Kofile always defaults to U.S. National Archives and Records Administration (NARA) technical guidelines for digitization.



What would this image look like if imaged "AS IS?"

The tape compromises image legibility.

KOFILE PRESERVATION



A sample project phase delineation.

KOFILE



The article implies that partial document destruction is normal. This is unacceptable and contrary to any preservation standard. Kofile has the experience and expertise to handle fragile documents and address the physical preservation of the source document.

Source: Higgins, Jessie. "Recorder's Office Preserving Oldest County Records by Digitizing Them: Some Century-Old Pages Crumble When Touched." Courier Press, August 21, 2013 <www.courierpress.com/news/local-news/digitizing-historical-records> and <www.courierpress.com/news/local-news/county-digitizes-century-old-records>.

Upon request, Kofile stores an electronic security back up of all images in case of loss, damage, or destruction by fire or natural disaster.

Image Capture

Domain specific knowledge is a necessity for this project. A vendor that does not understand permanent asset collections may address the Clay County files as disposable documents.



Operators observe each page during capture. For faint or illegible pages, the operator marks the page, readjusts the scanner, and employs contrast tools. If unsuccessful, the operator indicates and inserts a review form for the quality assurance team to assess. The page is treated with a "Best Possible Image Indicator" or further enhancements.

Image Processing & Enhancement

IMAGE PERFECT is Kofile's proprietary software. It ensures the optimum image quality. When documents vary in size and



density, this custom programming ensures image uniformity. It provides proprietary algorithms to achieve high image quality. The utilization of algorithms is critical for capturing different densities and quality levels in a collection.

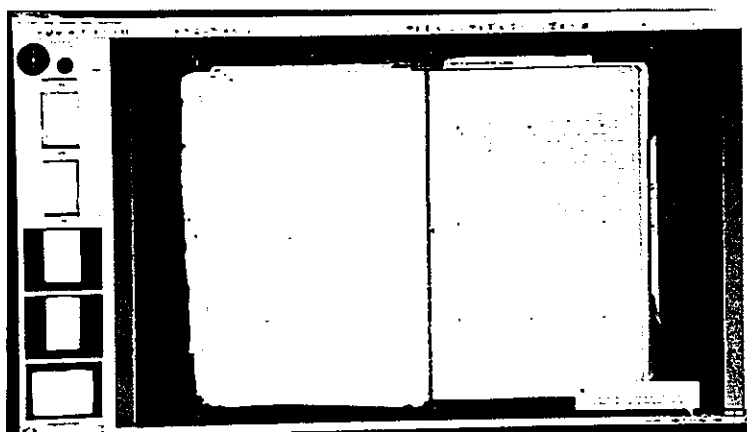
This proprietary software is a digital SLR-based system. Kofile utilizes the Microsoft SQL database as the underpinning for the production systems. The software also allows operators to build and edit image processing scripts interactively. The image processing scripts can be saved for batch processing. It also has progress tracking capabilities and can identify exceptions. Supervisors correct problems in a quick and efficient manner.

This software automatically detects and compensates for a scanner's variances or for variances from multiple scanners or those of different types. The Assured Image delivers consistent, high-quality output.

IMAGE PERFECT uses custom image clean up and enhancements such as deskew, despeckle, character repair, and zonal processing. Kofile maintains 100% document integrity and image control with exclusive Image Locking capabilities. The processing procedures will not allow for information from rescanned pages to cut and paste accidentally into the incorrect page.

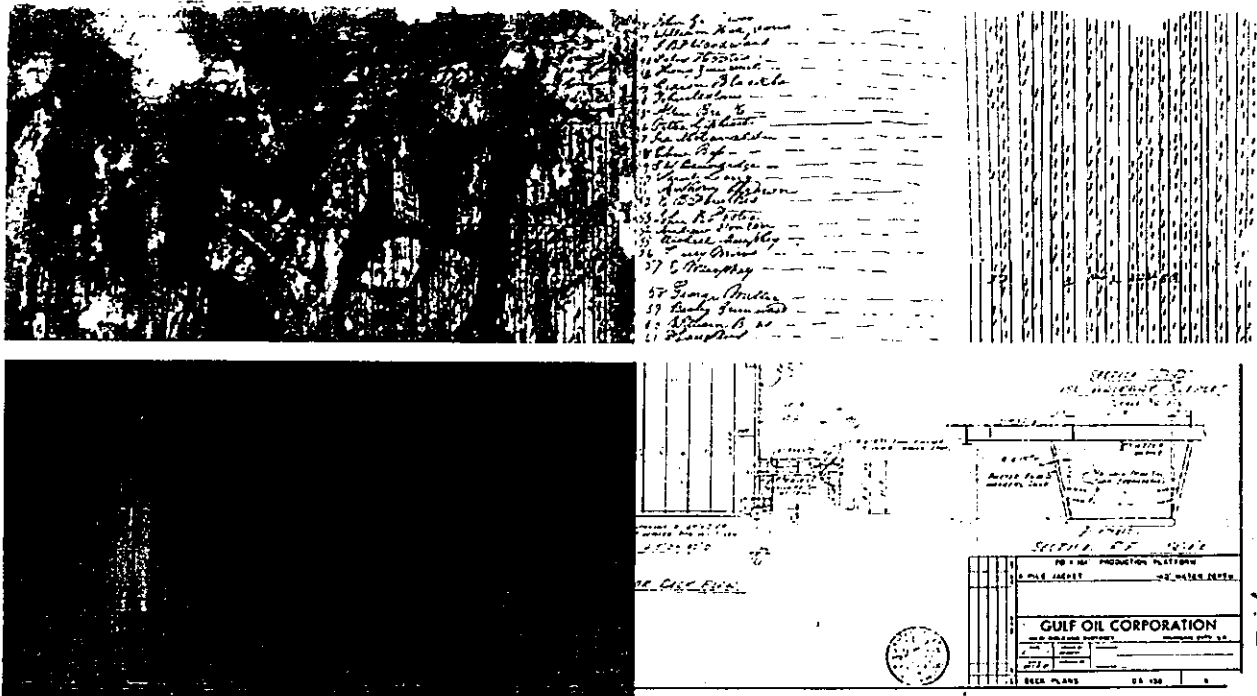
During the image repair process, *IMAGE PERFECT* allows repair of the currently displayed image without rescanning. This eliminates the need to rescan additional images that could compromise image integrity. Images are zonal enhanced to improve readability.

Quality Targets (see pictured) establish the baseline digital capture quality of the scanner during scanning. Therefore, Kofile can measure the digitization physics at the time of capture. The *Quality Target* serves as the foundation for our quality assurance analysis. *IMAGE PERFECT* measures each image at a minimum for the following attributes:



- Target dpi
- Target Tone scale and correction
- Color Management
- Brightness/Contrast Correction
- Gamma Adjustment
- White Balancing
- Page Orientation
- Exposure uniformity
- Color reproduction data

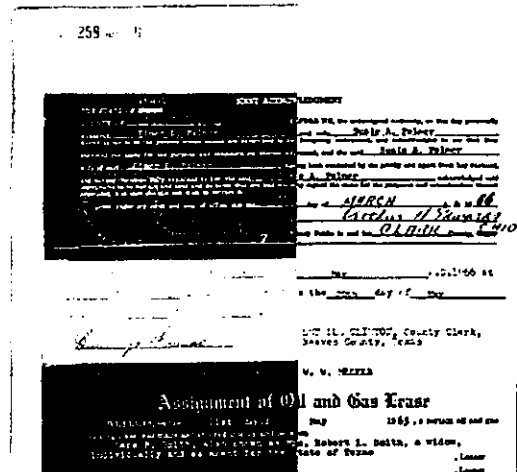
Quality Targets permit operators to view image quality at the time of the scan. Images, even with scanning on different devices, are "normalized" as if they were from the same scanner. Rather than using ad-hoc algorithms and tricks, this software measures image quality and propagates this data through the imaging chain. The Quality Targets establish the baseline digital capture quality of the scanner at the time of scanning.



Examples of imaging before (L) and after (R) image cleanup and enhancements.

Annotations are supported to allow the electronic addition of Name, Book Type, Volume, and Page on the image. Image quality metadata is captured as part of the image header along with a secured digital signature that certifies the fidelity and integrity of every image scanned.

Kofile performs negative Photostat polarity reversal (so that all characters are black on a positive background). The document certification strip (file strip) is inverted to match the polarity of the final image (see exemplar to the right).



Quality Control (QC)

Our Quality Control (QC) process ensures that all images are certified. Each and every image is sight checked during QC. Each page is checked to ensure there are no missing pages, double feeds, and or "A" pages, which may have been added to the original book. Every image is inspected before delivery to the customer. The County Clerk can receive an image log noting the steps employed.

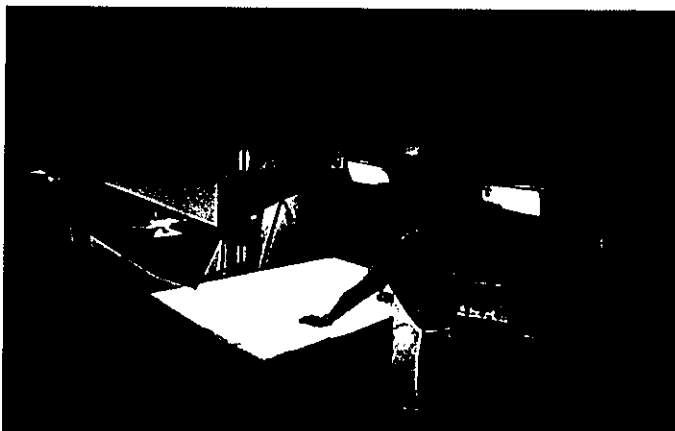
Kofile's quality assurance processes involve three major thresholds for 100% review inspection: during preparation, during scanning, and during a post-scanning review. Then, work undergoes a statistical, random, batch-based review of 8% of the inventory before delivery. The three checkpoints for 100% review and the batch-based 8% review establish the control levels for inspection of the finished product.

ARCHIVAL MICROFILM

In March 2011, our parent company acquired the Micrographics Division of Eastman KODAK (now Eastman Park Micrographics or EPM). With Kofile, Clay County has access to the world's foremost microfilm experts, leaders, technology, and machines.

All microfilming procedures are archival quality and produced according to ANSI Standards. Books (typescript, manuscript, and Photostat) are captured on 16 mm microfilm. Plats are captured on either 16 mm or 35 mm microfilm, depending on plat size.

Kofile operates numerous high production/quality microform roll scanners: Wicks and Wilson aperture card, nextScan Eclipse™ and nextScan FlexScan™. All software is up to date, and the machines are regularly maintained. The systems use image density compensation to adjust quality settings for contrast, document sizes and varying densities. The scanners scan any size microform (film or fiche) image.



Quality Control

Configuration files are created during the initial pilot sampling. All scanners are set up and tested for the ongoing project. Technicians determine the proper scanner settings, focus, and print and inspect images. The quality control team approves the images before scanning continues. Images are scanned with correct compression and proper scaling and without proprietary headers. Kofile verifies that the frames are properly detected and examines image quality, image resolution, proper compression, aspect ratio, and focus.

Applying Retakes to Proper Image Location

Operators inventory microfilm prior to the scanning. Rolls with retakes are identified and flagged for an additional retake process flow. In the retake process flow, the images associated with the retakes are placed into a designated retake folder.

Kofile operators use proprietary software to tag the images by classification, book, volume, page, and quality level. Next, tagged images are visually compared to the corresponding page from the original roll. Parameters and rules created through extensive experience in imaging and agreed upon with the County will dictate the decision process concerning the replacement of the original image in the image set. Images that do not fall with the agreed upon rules are documented and discussed with the County prior to integration into the image set. Images that fall within the established rule set are replaced and the original image destroyed or disposed of in the agreed upon manner.

SCOPE OF WORK

(PRV) Preserve—Conservation Treatments, Deacidification, Encapsulation, & Rebinding

- Surface clean sheets to remove deposits—dust, soot, airborne particulate, sedimentation, insect detritus, or biological/mineral contaminants.
- Remove non-archival repairs (residual glues) and fasteners. Reduce adhesives to the furthest extent possible without causing damage to paper and inks.
- Mend tears with Japanese tissue. All materials are acid free and reversible.
- Deacidify sheets—magnesium oxide deacidifies (or neutralizes) by providing an alkaline reserve. Testing ensures an 8.5 pH with a deviation of no more than ± .5.
- Encapsulate each sheet in a *Lay Flat Archival Polyester Pocket™*.
- Rebind in burgundy leather *Heritage Recorder Binders*. A volume may return as two volumes. Any index tabs are repaired or replaced, as necessary.

(IM) Image—Archival Image Capture, Image Processing, Clean Up, and Enhancements

- Capture images at a minimum of 200 dpi at 256 gray levels, thus ensuring the highest quality and optimum resolution for poor contrast and illegibility.
- Images accumulate as Group IV bi-tonal images in a standard PDF or TIFF format.
- Kofile's *IMAGE PERFECT* application software uses custom image clean up and enhancements such as deskew, despeckle, character repair, and zonal processing.
- Annotations are electronically added on the image to assist in record keeping.
- All images are certified. Each is checked during Quality Control.
- Clay County receives one MASTER COPY (DVD or CD) and a COPY.
- Kofile can hold a security copy at our facilities for safe keeping. We do not re-sell, distribute, or grant unauthorized access to County records/documents.

(MM) Microfilm—Archival Microfilm Creation

- Create 16 mm archival-quality microfilm from newly captured images.

PROJECT OVERVIEW

Prices are good for 90 days from the date of this quote.

CLAY COUNTY CLERK PRESERVATION OF HISTORICAL VOLUMES							
RECORD SERIES TITLE	VOL LUME	DATE	PAGE COUNT	SHEET SIZE	NOTES	DESCRIPTION OF SERVICE	TOTAL PRICE
Marks & Brands	1	1874-1877	632	15¾ x 10½	Blank pages	PRV/IM/MM	\$3,254.80
Marks & Brands	2	1877	833	15¾ x 10½	A-Z & 1-9 Indexes/Blank pages	PRV/IM/MM	\$4,289.95
Commissioner's Court Minutes	1	1873-1881	492	17 x 11	Tape strips & repairs	PRV/IM/MM	\$3,533.80
Commissioner's Court Minutes	2	1877-1886	571	17 x 11	A-Z Index	PRV/IM/MM	\$2,940.65
PROJECT TOTAL							\$14,019.20

KOFILE PRESERVATION

COUNTY ACCEPTANCE

BY: _____
(Signature of Authorized Official/Title)

DATE: _____

Please let me know if you have any questions. We look forward to serving Clay County, and working together for the preservation of its public and historical assets.

Sincerely,

Bob Summers

Bob Summers
Account Manager
bob.summers@kofile.us

cec