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THE FORGOTTEN CELL: DIGITAL PRESERVATION OF THE SURFACE AND ADVOCACY THROUGH TOURISM

by

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SUMMARY AND KEY TERMS

Title of dissertation: The Forgotten Cell: Digital Preservation of the Cell and Advocacy through Tourism.
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The study aims to establish a framework for preserving often 'forgotten' but invaluable heritage sites that are deemed preservation worthy, but cannot be restored through remedial strategies due to their often friable and 'sensitive' deteriorated physical states. The study proposes solutions to these heritage dilemmas by focusing on the heritage graffiti located on the holding cell walls and cell wall features of the ‘Mandela cell’, Palace of Justice, South Africa. The intended aim was digital conservation, through objectives of accurate documentation, condition assessment, technical photography and linking digital conservation with heritage tourism. Also, these methods were proposed to persuade a change in the preservation attitude towards South African history and heritage which at first glance does not appeal to a majority of citizens. The study provided background information of the heritage object/site, the Palace of Justice holding cell. Condition documentation and reports were then produced to determine the level of deterioration and stability of the surface of the walls (heritage graffiti). Then, non-invasive technical photography techniques were applied to examine and capture the heritage graffiti. Once these were completed, the technical photographs were linked to digital tourism expanding on the tourism industry. Of importance was the discussion of safe guarding the digital material, which was relevant to the proposed exhibitions and simulations if the advised closure of the space were to be followed.

Key terms: digital conservation; heritage documentation; condition reports; technical photography; heritage tourism; graffiti; Nelson Mandela cell; Palace of Justice; Preamble of constitution; digital tourism.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Background to the study and the history of the holding cell

Heritage conservation is not merely about the reconstruction and retouching of tangible heritage to ensure the preservation of culturally significant objects. It is about maintaining cultural heritage that represents a people, a collective identity, or an event commemorative of a moment in history. The neglect of the graffiti coated holding cell beneath Courtroom C at the Palace of Justice (POJ) reveals a concerning attitude of South Africans to our collective history (Smith, 2014:[sp]). From the inaugural use of the court rooms, until the early 1990s, various accused were held in the cell (Smith, 2014:[sp]). The most famous of them are Nelson Mandela (18 July 1918-05 December 2013), and his co-accused from the Rivonia Trial. Over a decade ago, lawyer George Bizos, part of Nelson Mandela's defence team during the Rivonia Trial in a newspaper article, asked for the cell to be recognised as a national heritage site (Smith, 2014). His reason was that the defence team consulted with Nelson Mandela (1918 – 2013), Walter Sisulu (1912 – 2003), Govan Mbeki (1910 – 2001) and others in the space. Although the POJ forms an integral part of our history, lawyer Bizos emphasised that the tangible heritage it possesses is somewhat overlooked and neglected (Smith, 2014:[sp]). Conservation of the holding cell has been a topic of interest for more than a decade. However, no evidence of conservation and preservation of the cell has been found at the moment of writing (Smith, 2014:[sp]).

This study contributes to the awareness of the potential efforts by trained professionals in the conservation of objects that carry immense weight or evidence of South Africa's complex history. With that being said, preservation and commemoration go hand-in-hand, and the proposed method to preserve the cell is digital conservation which can be used for heritage tourism through the vehicle of touristic simulations elucidated on in Chapter 4. Adapted from Raymond Lafontaine (in Garber, 2014:[sp]), digital conservation is a technological preservation method employed when physical consolidation and retouching of objects have potential to further ruin or destroy objects, thereby causing their history and experience thereof to be irretrievable. Now, because we do not want the evidence of the holding cell to completely dissipate in its physical form without thorough documentation due to its frail state; digital conservation for heritage objects is gold standard for the holding cell as physical retouching leverages and catalyses peeling of the wall paint. This was observed in one of the tours held by the Court when a few members of the public unintentionally touched, leaned and brushed against the walls during rotational close-up views of the graffiti. This caused the touched areas to peel off further extending the paint cracks to other areas of the walls. Henceforth, the chosen direction is most feasible and preferred as it not only documents the history and an extension of the provenance of the cell, but also provides direct tangible heritage evidence of the walls 'compensation images' which can be transmuted into a heritage experience for members of the public through virtual tours, digital exhibitions

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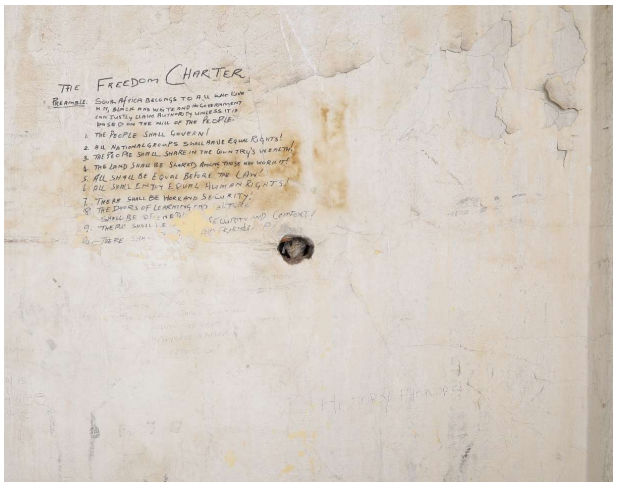

Figure 1: The South African Preamble.
Photograph by author.

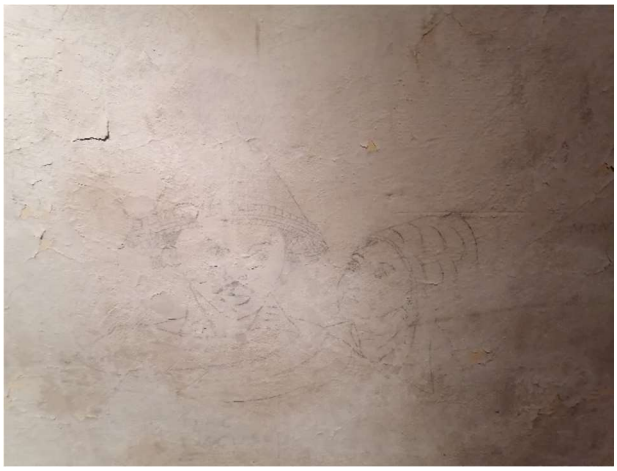

Figure 2: The 'man and woman' portrait.
Photograph by author.

and photographic exhibitions in parallelism to Raymond Lafontaine's projection of the Harvard murals.[1] Having projected from the availability of equipment needed to physically retouch, it is best practice to employ this method due to its affordability and readily available equipment needed to complete the documentation and photography. After conducting thorough research on the availability of conservation experts who deal on the safe preservation of heritage graffiti in South Africa it was found that there are no readily available graffiti specialists to deal on this subject matter.

Although the essence of this study was initiated by the prominence of the Rivonia Trial, it focuses on the cell in its entirety, and thus the graffiti created by all prisoners that were held in the cell during its years of use. The graffiti is mainly political and colloquial in nature. It occurs in the form of slogans, standalone letters, shout-pieces, amateur portraits, and characters that evoke the feelings of the viewers through their emotive, vulgar, and indefinitely racial inclinations. Passionate decrees informing the unshakable determinations of the former trialists and the desperate, deep need of the accused prisoners to immortalise their names and existence are found on all four walls.

Although the cell was digitally conserved for all its different texts and images, the most politically prominent graffiti are the three versions of the Freedom Charter. Next to the freedom charter on the South wall is a list of names of the African National Congress (ANC) members who were heard during the terrorist trial, concurrent with the Rivonia Trial.[2] Several drawings of hangman nooses and an emotive portrait referred to as the 'man and woman' are observed on the walls (Figure 2). Therefore,

[1] Conservators from Harvard in partnership with Canadian conservator, Raymond Lafontaine restored the colours of the Mark Rothko Harvard murals using digital light projection to intensify the original 'rich' colours in a non-invasive way (Kessler, 2015).
[2] Prominent figure names include Tokyo Sexawale, Saths Cooper and Mosiuoa Lekota.

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these are evident of the contributions that the trialists and high-profile prisoners that were held in the cell made to our South African history. These form a continuous support of the pre-empting reasons why the holding cell must be preserved.

1.1.1 The cell

The holding cell is located beneath Courtroom C and the graffiti covers the walls and door. The holding cell and Courtroom C were sites of struggle, where events such as the 'State versus Nelson Mandela' played out (Nelson Mandela Foundation, 2013). The cell has four cold walls, dull cement floors, and a ventilation panel, one dilapidated wooden block firmly fastened to the South wall with nails, a deep-seated window and door with no handle from the inside. These features trigger the imagination and propel one to be tranced into the experiences of the prisoners who occupied the cell. Stepping into the cell, one experiences the confining and restrictive atmosphere which compels the imagination the perceive the claustrophobic existence of the prisoners. Thus, it is possible to imagine how Nelson Mandela was compelled to think of the iconic speech he gave, then mustered to give. A section of those famous words is (Broun, 2012:74):[3]

> [D]uring my lifetime I have dedicated myself to this struggle of the African People. I have fought against white domination, and I have fought against black domination. I have cherished the ideal of a democratic and free society in which all persons live

Figure 3: The holding cell from the East view. Wikimedia commons, 2021.

[3] On 20 April 1964 at the Pretoria Appellate Division of the Supreme Court of South Africa, Nelson Mandela stood at the dock and said this speech during his opening of the defence case in the Rivonia Trial.

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> together in harmony and with equal opportunities. It is an ideal which I hope to live for and see realised. But if needs be, it is an ideal for which I am prepared to die.

1.1.2 The Palace of Justice

The POJ located in Pretoria, is a significant landmark in South Africa, as it serves as the seat of the Gauteng Division of the High Court.[4] It was established during the peak of the colonial era in South Africa with architectural influences from the Cape Dutch and Edwardian style (Picton-Seymour, 1989:147). The POJ is a conglomerate of two architectural designs. First, it is characterised by a neoclassical style.[5] Second, this design draws inspiration from Renaissance and Greek elements (Swart & Proust, 2019:66).[6] Construction of the POJ began in June 1896, when debates about the emancipation of the Zuide-Afrikaansche Republiek (ZAR) from the British were rife (Swart & Proust, 2019:66). The exterior of the building creates an atmosphere of strength and authority through its monumental scale and symmetrical design. Built primarily with light yellow and warm ochre stone, the materials blend affirms the palaces' stately presence. The POJ is also inspired by a style described as "Old Dutch"

Figure 4: The Palace of Justice (POJ) Pretoria, Gauteng. *Palace of Justice,* Ducthfootsteps website, 2014

[4] The Palace of Justice became the Gauteng Division of the High Court of South Africa in 1994.
[5] Neoclassic style is an architectural style inspired by the revival of the Classical architecture during the 18th and early 19th centuries (Britannica, 2023).
[6] Neo-Renaissance style is an architectural style that reflects the rebirth of the Classical culture that originated in Florence during the 15th century period and aims to replace the mediaeval Gothic style (Britannica, 2023).

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(Landman, 2002:32, translated from Dutch by the author).[7] The international influence is also evident the red brick and stone imports from Scotland and Germany.

The POJ is situated in a part of the Pretoria Central Business District (CBD), famously known as Church Square. The building was designed by architect Sytze Wokpes Wierda and built by John Munro (Symons, 1999:8-9). The first sitting after the second Anglo-Boer war (1889-1902) took place on May 9th, 1902 (Landman, 2002:34). The sitting welcomed 170 advocates and initiated the operation of the Transvaal Supreme Court (Landman, 2002:35).[8] Until the 1990s, the court found its occupancy in a new courthouse situated across Vermeulen street. The POJ stood vacant, becoming susceptible to vandals, and vagrants who imposed damage to the building (Landman, 2002:35). The POJ stood vacant, becoming susceptible to vandals, and vagrants who imposed damage to the building. However, in the early 1990s the Department of Public Works and the Holm and Holm company identified the need to initiate restorative conservation of the POJ (Landman, 2022:34). Head of the project, architect Susan Pyke, identified several architectural projects pivotal to the restoration of the POJ (Landman, 2002:35). This restoration focused on the aesthetics of the building.[9]

As you approach the POJ, you are greeted by an impressive flight of steps leading to the main entrance. The entrance itself is adorned with a colonnaded portico supported by tall, Corinthian columns. These columns, with their ornate capitals featuring acanthus leaves create an aura of elegance and sophistication. The façade of the building is punctuated by a series of evenly spaced windows, framed by decorative mouldings. The windows, with their arched tops, add a touch of gracefulness to the overall design. Above the windows, a frieze runs along the entablature, featuring intricate sculptural reliefs that depict scenes from South Africa's legal history (Le Roux, 2003:55). From the front, the POJ impresses the scene with its large dome rising smoothly above the main building. On top of this dome is a lantern that serves as the building's focal point and a metaphor for the value of illumination in justice the POJ offers society. The POJ's interior is home to a large, multi-levelled atrium flooded with natural light. The POJ's interior is filled with a variety of courtrooms and administrative offices connected by galleries and corridors that join at the atrium (Picton-Seymour, 1989:166). The entrance level houses sculptures of prominent historic figures and their contributions to justice. Large windows dress the walls of the POJ, allowing an abundance of natural lighting and the design of the courtroom is highly detailed with coffered ceilings, rich wood panelling and elaborate plasterwork. The courtrooms have high-

[7] Oud Hollandsch
[8] The Transvaal Provincial Division was a court division established in 1910 with the union formation of South Africa (The South Africa Judiciary, 2023).
[9] Since, then heritage conservation has shifted from being on the restoration and protection of tangible heritage to a more comprehensive revision as a way to simultaneously conserve the intangible heritage (Buckley & Lucas, 2001:89-90).

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backed judicial benches with carvings that command attention and heavy dark, wooden docks including public galleries.

1.2 Need for study.

The scope of the 1997 to 2002 renovations of the POJ did not include the holding cell (Nelson Mandela Foundation, 2023). The cell is undergoing a variety of natural age-related deterioration to which no conservation efforts have been applied to protect the history of the space (Nelson Mandela Foundation, 2011). Damage on the surface of the walls consists of flaking, peeling, powdering, cracking, and blistering.[10] Due to the advanced deterioration of the walls and the lack of conservation intervention, it is most feasible to digitally conserve the space and its heritage. Due to the advanced deterioration of the walls, and the lack of conservation intervention, it is a necessity to digitally conserve the tangible and intangible heritage of the space. The tangible and intangible heritage needed to be conserved is graffiti inscriptions and drawings made by the acussed who felt the need to leave their mark.

It is important to highlight that expert ways have not been explored to preserve the graffiti-coated cell (Smith, 2014:[sp]). The digital conservation of the holding cell is beneficial as it will create digital documentation and image formats of the graffiti that can be kept and remain accessible for future conservators, restorers, researchers, and academics. The application of digital conservation is a more achievable method to overcome the lack of material and professional resources currently detrimental to the advancement of conservation in South Africa. As a result, the products from the digital conservation carried out will create a digital link to the events of South Africa's past in the context of the holding cell. At the core of digital conservation is digital stewardship which ensures that the digitally produced materials are both widely and continuously accessible (Gesek, 2019:3-4). Therefore, digital conservation will allow the information that is still perceivable to be recorded and stored in the form of documentation with supporting condition reports. Supporting the overall succession of technical photography in visible, ultraviolet and infrared radiation.

1.3 Brief literature

The study needs to first look at the history of the POJ and the trial that initiated research. In Désirée Picton-Seymour's *Historical buildings in South Africa* (1989), she provides extensive literature on the history of monumental buildings located in the provinces of South Africa. Chapter 7 is valuable for this study as it provides extensive history on the evolution of the POJ and how it was used throughout history (Picton-Seymour, 1989:147-166). Next, Gail Gerhart's *The Rivonia Trial 1963-1964* (2007) accounts for the trial which sparked this dissertation. This source is important for my research as it provides the

[10] Blistering is when a section layer of a wall develops a convex due to excessive exposure to heat. So, the paint coating eventually lifts and creates a bubble-like illusion.

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history about the proceedings of the Rivonia Trial which changed the trajectory of the South African political discourse to the present day (Gerhart, 2007:1-2). In addition, *Saving Mandela: The Rivonia Trial and the fate of South Africa* (2012) by Kenneth Broun and Val Boje's *Reflections in the Rivonia Trial* (2024) newspaper report. This allows me to draw up a possible provenance of the graffiti written by some of the accused of the trial.

After the discussion of the background of the building and the trial that inspired the research, it is necessary to evaluate the digital conservation process, guidelines, benefits, and limitations. Regarding digital conservation, Stewart Beck's *Digital Documentation in the Conservation of Cultural Heritage: Finding the practical in the best practice* (2013) identifies that not only is digital conservation a best practice for photographic documentation and recording of heritage objects, but also as a means to illustrate conservation procedures. This is of high value to this research as the designed guidelines contribute to how the photographs should be used by professionals and non-professionals. Also of significance, the author identifies limitations to digital conservation and best practice. In reviewing Robyn Gesek's article *Digital Conservation in Museums: Cultural Heritage Institutions in Last Place* (2019), it becomes clear that digital conservation is a form of digital curation. The author provides the three principles of digital conservation: digitisation, digital preservation, and digital stewardship. Furthermore, the subject and relevance of digital storage has been extensively explored. The author emphasises a need for heritage institutions to comply with technical diligence in line with increased levels of engagement for research purposes.

In Sinjita Saldabola's *Issues concerning the preservation of graffiti: Developing Conservation practices worldwide* (2022) the author discusses the ethical measures that conservators must apply when documenting and recording artistic work that is not mainstream. Herein, an important deliberation was made that graffiti is a modern approach to art and the idea of irreplaceability must still be applied onto the works despite the ability to easily add or take away from an 'artwork' (Saldabola, 2022:97-97). Furthermore, the author highlights important ethical deliberations which will inform the ethical treatment of the space as the holding cell comprises diverse types of graffiti. The sole resource that could be found on graffiti in a cell is the English Heritage Organisation's *Conservation of the cell block at Richmond Castle* (2022). The website gives an interesting account on the thorough documentation and treatment of graffiti inscriptions in a cell. It is emphasised that to successfully photograph graffiti inscriptions in a cell, the climatic conditions must be taken into consideration as cells have a unique climate of their own (Conservation of the cell block, 2022:[sp]). The source discusses the organisations' process and methods and provides valuable information on controlling the environmental conditions of a cell whilst simultaneously documenting and digitising the space. The authors only provide one imaging technique relevant for the cell, but the AIC guide on digital photography – discussed below – will expand on this gap.

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After looking at how and why to digitally conserve, the next group of sources relate to documentation and condition reporting. An insightful book on how to do thorough documentation, condition assessments and reporting, and what information to include, is the fourth edition of *Basic Condition Reporting*: *A Handbook* (2015), edited by Deborah Rose Van Horn, Heather Culligan and Corrine Midgett. This is substantiated by Rhona MacBeth's 'The Technical Examination and Documentation of Easel Paintings' in *The Conservation of Easel Paintings* (2012). Although the sources discuss visual examination and documentation of easel paintings, it is useful to look at what information they include, and how to further apply it to graffiti on walls. These works are valuable for the success of the documentation of the cell, that is necessary to complete the digital conservation process.

Ian Ross, Peter Bengtsen, John Lennon, Susan Phillips, and Jacqueline Wilson's *'In search of academic legitimacy: The current state of scholarship on graffiti and street art'* (2017) has helped to revise the conceptualisations of the symbolism represented by fragile historical sites such as the holding cell. The challenges outlined by the authors about issues related to fieldwork, data collection and encountering misconceptions from students and or colleagues about the legitimacy of graffiti as a subject of study have been helpful. Furthermore, this seminal work helps conceptualise graffiti as a credible art since the 20th century. This paper is helpful in attaining the definitions of what is acceptable as graffiti and the fluidity awarded these phenomena applied in the concept of the holding cell as 'heritage graffiti' is the fulcrum of this study (Ross et al., 2017:2). Literature on methods that help in strategizing on chipping away at the misconceptions of graffiti in defence thereof have also been applied in this study (Ross et al, 2017:3).

Jeffery Warda, Dr Franziska, Heller, Dan Kushel, Timothy Vitale, and Gawain Weaver in *The AIC guide to Photography and Conservation Documentation* (2011) provide an in-depth explanation and proposed guidelines on how to perform digital imaging of cultural heritage following techniques that ensure ethical compliance to conservation. These include set-up of the working space, workflow, correct camera settings, image processing and storage formats (Warda *et al.*, 2011). This source allowed me to adapt my own workflow and imaging guidelines for the holding cell. This seminal source is substantiated by Franz Mairinger's 'The Ultraviolet and Fluorescence Study of Paintings and Manuscripts' in *Radiation in Art and Archeometry* (2005), edited by Dudley Creagh and David Bradley. The chapter discusses examples and descriptions about imaging techniques on paintings. Although, the chapter is focused on paintings, the techniques were adapted and applied to the heritage graffiti. The Smithsonian's *Infrared and Ultraviolet imaging* [sa] provides information on the use of IR and UV lighting and relevant filters for each camera setting. These are valuable for the success of my study as the works suffice as ethical guidelines on the use of equipment and tools. Austin Tucker's discussion

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on *Infrared Reflectography in Art Conservation & History* [sa], on the IRINFO.org website, provides case study examinations on the application of IR and UV imaging techniques for art analysis.

Federica Maietti (2022) in '*Digital documentation for enhancement and conservation of minor or inaccessible heritage* discusses the importance of non-invasive documentation for 'high risk' heritage objects as a 'powerful tool' in the ongoing conservation and management of heritage sites. This literature was useful for helping adapt the methodologies suggested by the authors in parallelism with the demands of the holding cell. A case study application in the '*Lessons learnt from the village of Fikaradou* by Deepak Chhabra *(2021)* is also used to draw inspiration for the application of digital conservation in the holding cell as a resilient and authentic method of digital preservation for objects in high touristic demand that cannot be maintained through remedial work. These works were important and relevant for the enhancement of heritage as the holding cell is a small historic site and heritage object. In alignment with these methods, Ali Berkay Avci and Gamze Akyol's (2023) article, *The role of digital technologies in enhancing heritage tourism,* was used to elucidate the importance of digital technologies in alignment with cultural tourism to ensure accessibility of an expanded array of different tourists. Monserrat Crespi-Vallbona (2020) in *'Satisfying experiences: guided tours at cultural heritage sites'* provides well-studied literature on the needs of a satisfactory tour. These works have been used to compile a set of virtual simulations so as to diversify the touristic offerings that ensure edutainment and social prescription are covered in large detail.

1.4 Theoretical framework and methodologies

1.4.1 Theoretical framework

Often thought to be a distasteful art, graffiti has been classified as a modern tool of resistant art used to convey a theme, a warning, or face the issues that plague the rungs of society. Graffiti is defined as a painted or inscribed art done outside of permissive rule. Common target surfaces include walls, doors, subways, trains, and other alternative materials and subjects such as clothing or persons and is usually inscribed by an individual or group (Merriam-Webster, 2023). George Keats (2008:63) defines graffiti as art founded on the principles of etching, paintings, writings, or even scratching which often adds character to heritage places such as monuments and other officially recognised heritage sites. For the purposes of this study, graffiti entails words, drawings and markings that are political, especially provocative, racial, rude, and humorous. Graffiti is characterised as high-risk, illegal, disruptive, and carried out with the intent of gaining respect, of commemoration and to tell of events-to-come. It has a dualistic function. First, as a movement panacea for social ills or as a vandalistic media disrupting the appearance and perception of public spaces often accessed by persons in authority. The second as a reflection of a persons' thoughts to entertain, inform or provoke (Keats, 2008:63). At the core of its modus operandi, graffiti embraces the artist's intent to inform, fulfil his or her urge to comment, bring to the awareness of the public and fulfil a personal sense of purpose.

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In the context of the holding cell, graffiti is a symbol because it aims to convey historically encoded messages that can be linked to ascertained historical events in South African history. Laima Nomeikaite (2017:43) stresses that graffiti serves as a more than representational approach to a space and is not limited to the bounds of conventionality as a disruptive art. In this case, the graffiti shifts from being a static site or tangible artefact into a more engaging site that allows for a varied human interaction with experience. As a result, the graffiti sets an atmosphere and how it is experienced (Nomeikaite, 2017:44). Paul Wilson and Patrick Healy (1987:3) highlight that graffiti and vandalism share the same motivations classified as tactical, vindictive, playful, malicious, innocuous, and even ideological. The authors clearly indicate previous dispositions of graffiti as a disruptor of cultural significance that alters the place or brand image of a heritage destination. However, in the following juxtapositions it will be observed how graffiti propels 'right action'. Now, in the previous section the holding cell has been observed to be monumental as the graffiti will be conserved as a whole and not in parts. Ideologically, the nature and motivations of the type, form, and location of inscriptions in the cell are recognized to be political and subsets of religious motivations amongst others (subcultural, racial, criminal). Therefore, graffiti inscriptions in the holding cell possess a degree of artistic merit that can be mirrored towards contemporary society through cultural and academic discourse. Therefore, graffiti in the cell can be classified as a heritage product. It can be linked to a moment in time (Merrill, 2011:68). It functions as immovable memorabilia and is classified under the value of commemoration.

Monserrat Crespi-Vallbona (2020) in *'Satisfying experiences: guided tours at cultural heritage sites'* provides well-studied literature concerning the needs of a satisfactory tour. These works have been used to compile a set of virtual simulations to diversify the touristic offerings that ensure edutainment and social prescription are at the core of the newly designed tours. Furthermore, the five determinants of a successful tour have been analysed so as to help tailor tours that meet customer needs to achieve a strong interaction from tourists/visitors who experience the touristic simulations. The inclusion of differently abled persons was addressed in this paper as one of the main aims of the newly designed tours are to diversify the inclusion of persons falling in the neurodivergent spectrum simultaneously catering those identified as neurotypicals as both these categories experience the world in a different way (Jepson *et al.,* 2022:8).[11] Another aim is the application of digital conservation technologies in the form of photographs to produce exhibitable material. This has been succinctly addressed through concepts that ensure digital tours have a leading edge in accessibility, localisation, maintainability, relevance, and interaction (Dumitrescu, *et al.,* 2014:102).

[11] The term neurodivergent is a neologism that refers to people who have neurological development conditions and are climatised to experience the world in a unique way I comparison to neurotypical persons (Jespon *et al.,* 2022:1)

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1.4.2 Methodologies

This is a qualitative study which was carried out using ethical conservation principles. The method of choice was a succinct literature review about the building, and application of digital conservation at the site—holding cell. This includes historical research and thorough background of the POJ as well as the trials that were held in Courtroom C to determine the nature of the individuals who created the graffiti in the holding cell. For this section, I completed archival research to find historic images of the holding cell so I can compare, observe and document how the holding cell has changed overtime in response to age and deterioration. After the background and history of the space has been discussed, it was necessary to schedule site visits with the responsible person at the POJ. The initial visits involve exploring the space to be able to create a sensible workflow and timeline that can be adhered to.

Once an achievable workflow, timeline and dates were established, the next step was to document and do a complete condition assessment of the cell. The documentation records the empirical data of the cell, while the condition assessment and subsequent report looks at the different stages and types of deterioration that have occurred due to ageing and environmental conditions. Once in-depth documentation was completed, the following visits were dedicated to the digital photography of the holding cell. The first group of photographs are taken with visible light. Visible lighting photography was applied to record different characteristics of the surface, from both frontal and raking directions. Close-up photographs were also taken to document specific inscriptions. After visible light photography, infrared lighting photography was applied to enhance faded details of the graffiti. The negative ramifications of infrared illumination were ethically avoided by switching off the light sources routinely between different sections of the wall and walls themselves to negate deterioration.

After documentation, condition assessments and digital photography, the final step was to process the images for analysis that informs their productions to tourism. This step was completed without the need to access the space and was a process that was completed with open-source software and the AIC guide to digital photography. The processing of the photographs included sharpening, converting the colour spaces, determining the file sizes and formats as well as the addition of metadata to the files to avoid dissociation.[12] During this point, appropriate storage of the data was suggested, then proposed in line with the University storage procedures. Additionally, this section discussed how the dissertation and the data (empirical, condition assessments and digital photographs) must be stored, safeguarded, and formatted on the UPSpace.[13] This means that the data will be preserved in soft (digital) copies and hard copies under permissive rule.

[12] Dissociation is an external factor of deterioration that causes an influence in losing ascertained information about an object.
[13] Digital conservation is dependent on a continuous updating of changing formats. UPSpace is ideal as the digital information on the platform is format updated continuously by the University of Pretoria's Department of Library Services.

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1.5 Outline of chapters

The first chapter outlines the concepts, methodologies and aims of the study. Then, previous resources in the area of history and background of the holding cell and POJ were used to locate and introduce the POJ and the holding cell. Chapter Two elucidates the conceptual underpinnings required for visual examination and condition reporting of the cell. At this stage. the physical examination and the historical context of the cell, material analysis of the graffiti and current state of deterioration were observed and documented. Thus, this chapter outlines a recording of observations made with precise and technical terminology and tools of observations that helped describe the graffiti and mediums of ink. The original wall surfaces and issues aligned with the condition of the cell were also taken into consideration. Details regarding the material composition, previous repainting and additions, and physical, bacterial and chemical degradation were studied.

The focus of Chapter Three was technical photography that enabled documentation and thus digital conservation. Techniques, workflow and precautionary demands for photography are discussed as the cell is a micro-environment with little-to-no lighting. Additionally, the chapter looks at post-processing requirements of the acquired images, as well as proposed storage procedures. The storage of objects is just as crucial to the display of objects thereof. The images produced in this section were thoroughly analysed in Chapter Four. It is the documentation of the observable graffiti and inscriptions determined from the different photographs acquired during technical photography. The chapter is divided into tables that correspond to a certain area of the walls, with lists of currently discernible graffiti.

Chapter Five considers the application of digital conservation methods and tourism. Contingency plans in alignment with the ‘who’, ‘how’ and ‘why’ tourist simulations have been designed to fit the technological advancement including who is responsible for conducting these tours in liaison with heritage conservators and curators has been extensively explored. Tentative heritage institutions in the same regional location as that of the holding cell were proposed as collaborative institutions that have the potential to award the tourists/visitors opportunities to experience the tours photographic material captured using technical photography.

Chapter Six is the concluding chapter which poses collaboration to be explored for the fulfilment of solutions so that the conservation efforts were not in vain. A future-based lens was applied to determine the contribution of the study and overall impact for heritage advisories, practising conservators, curators, tour guides, lecturers, and teachers as well as audiences related to specialist careers. The limitations to the study are outlined in company with the final remarks and possible stabilisations of the holding cell. Herein, the active use of digital photography for ‘high-risk’ heritage objects/sites in

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developing countries with little-to-no exposure to advanced assistive technology for non-remedial heritage conservation have been undertaken.

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CHAPTER TWO: DOCUMENTATION AND THE CONDITION REPORT

2.1 Introduction

Documentation is an objective process that is continuous in nature and consists of both written and visual records. Documentation is based on the visual examination of cultural heritage objects. It entails the monitoring, maintenance, and understanding of the requirements for conservation through supply, perception, and interpretation of appropriate and timely information. This means that heritage documentation is a fundamental practice founded on the philosophies of effective acquisition, management, and conservation of cultural heritage (CIPA Heritage Documentation, 2023). Documentation is both a product and an action needed for heritage and conservation management. This written and visual means of documentation, in general, makes available a range of tangible and intangible resources such as metric, narrative, thematic, and historical information about cultural heritage.

This chapter reports on the visual examination and documentation of the holding cell walls and their surfaces at the POJ.[14] Based on these products and actions, this chapter also includes detailed condition reports. The condition reports include documentation of the empirical information and the discernible deterioration and damage of the site.[15] These documents and reports form part of the initial information required for digital conservation.

2.2 Visual examination and documentation of the cell

Due to the size of the cell, and because the cell is seen as a complete heritage object, the visual examination and condition assessments were divided into three separate visits (condition assessments and reports are discussed in section 2.3). It was decided to focus on the walls, door, and window, because they are surfaces with graffiti. The ceiling and floor surface was thus excluded from the documentation and condition reports. It is important to note that during all three visits information was recorded in continuum thereby informing the digital documentation and condition reports.[16]

During this section, it is seen how visual examination was applied to thoroughly document the selected aspects of the holding cell. These include cell wall measurements, features, structure and graffiti. Once these ‘building blocks’ for digital documentations and reports are laid, digital preservation can

[14] The words “site” and “space” are used interchangeably with reference to the holding cell located beneath courtroom C and the Palace of Justice Pretoria.
[15] The condition reports are based on information gathered from active observation during site visits at the holding cell, where each of the four walls were individually observed by taking into account the measurements, classifications of graffiti and main forms of deterioration.
[16] It is during this process that the conditions and extent of deterioration are identified to reach informed decisions about best practice to conserve the heritage object (Demetrious, Van Horn & Culligan, 2015:4-5).

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Tools	Purposes
Flashlight	To provide direct lighting on the graffiti and physical features found on the cell walls.
Opti-visor	For the magnification of the surface and providing closer observation of the characteristics.
White paper and graphite pencil	For quick observations, mental impressions and note-taking.
Visible light soft boxes	To provide illumination in the cell as well as for technical photography.
Measuring tape	Used to measure the cell walls and cell wall feature dimensions.
Laptop, modified digital camera, tripod, tethering cable and technical photography filters.	For tethered recordings that help observations in real-time.
Ladder	For measuring vertically and the ceiling vaults.
Halogen lamps	Used during the capturing of infrared photography to provide effective lighting during the technical photography of the walls.
Extension cables	Used to provide electrical power into the holding cell as the power socket were located outside the holding cell.
Portable table and chairs	Used to establish a workstation in the holding cell for the documentation and photography phases of this works. Used to ease the process of documentation and analysis as my supervisor and I could not stand for extended periods of time during all three phases of documentation.

Table 1: Equipment used during the first phase of visual examination.

commence. Henceforth, this information was recorded digitally in documentation and condition reports. Now, visual examination must be conducted using tools and interim equipment, which in turn helps the deduction of possible causes and effects of damage occurring on the surface (i.e., the paint layer and the graffiti). Wasituynski Thea Jirat, Nancy Ash, Craigen Bowne, Barry Byers, Garry Carribeu, Marjorie Cohn, Janet Cowan, Antoinette Dwan, Theresa Fairbanks, Ron Irvine, Dan Kushel, Anne Maheux, Raymond Lafontaine, Diane can der Reyden, Tim Vitale, Elizabeth Walsh and Greg Young (1986:5) reinforce that visual examination is required to employ a combination of heritage objects. The tools and equipment used for documentation and condition reporting of the selected cell surfaces are presented in Table 1.

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2.2.1 Dimensions of the cell

The dimensions of the holding cell at the POJ were completed in-situ in a digital format by adding notes on a digital photograph. Thereafter, the measurements and dimensions were drawn as elevations using Archicad by Keaghan de la Mer (Arte Architects).[17] Fang Junwei, Zhang Yingying, Guo Hayu and Sun (2022:4) emphasise that computer aided design (CAD) is used more in the post-processing stage of surveying data and as a basis for data integration so as to digitally present information documented on a photographic image or hand drawing of a building. To adhere to conservation standards, a building information modelling and management software, ArchiCAD, inspired by AutoCAD was used to represent the measurements from the onsite photographs' notes into simplified, accurate elevation drawings. This technology is novel in the context of the conservation of the holding cell at the POJ as the demonstrations may help the construction phases of, for example, a reproduction of the space. The holding cell is rectangular with the only access constructed on the East wall and a single fortified window on the North wall. In more detail, the East wall comprises the access door with ornamentations and carvings. A key feature immediately visible on this wall is a bar window constructed on top of the holding cell door with graphite graffiti inscriptions. Also, the layout of the cell is designed using a variety of building materials comprising of fired red brick, concrete and instances of clay. Due to the fact that research focusses on surface documentation, condition assessments and preservation, the assessment of the entire structure of the walls (e.ge, masonry, plaster or mortar) is not included in the digital documentation and condition report.

2.2.2 Graffiti

The measurements of the cell walls serve as heritage recordings that are accurate dimensions.[18] However, these measurements and dimensions are not what makes the cell unique. The uniqueness and cultural significance are also based on the graffiti created with different media. For the ease of documenting the types of media used to create the graffiti, it was necessary to have a systemic approach which was repeated during the technical photography phase (the series of movement is discussed in Chapter 3, section 3.3.2 Workflow). The observed graffiti media is recorded in Table 6, below. Table 6 shows the types of ink media seen on the surface of the walls; it is important to highlight that there is recurring ink media across all four walls. Similarly, the ink media, including graphite and paint (blue, black, red, and green), bleeds into the wall features, therefore 'blending' with the corrosion is a common phenomenon in the cell.[19] This is also seen in the fading ink media with corrosion products on areas with metal features.

[17] Archicad is a complete design suite with 2D and 3D drafting, visualisation and other building information modelling function for architects, designers and planners.
[18] As discussed in Chapter 6, section 6.4, these dimensions are important for reconstructing the space, either digitally or in real-life.
[19] Ink corrosion is the loss of text caused by ink bleeding, fading, or even acid-migration through a strikethrough process.

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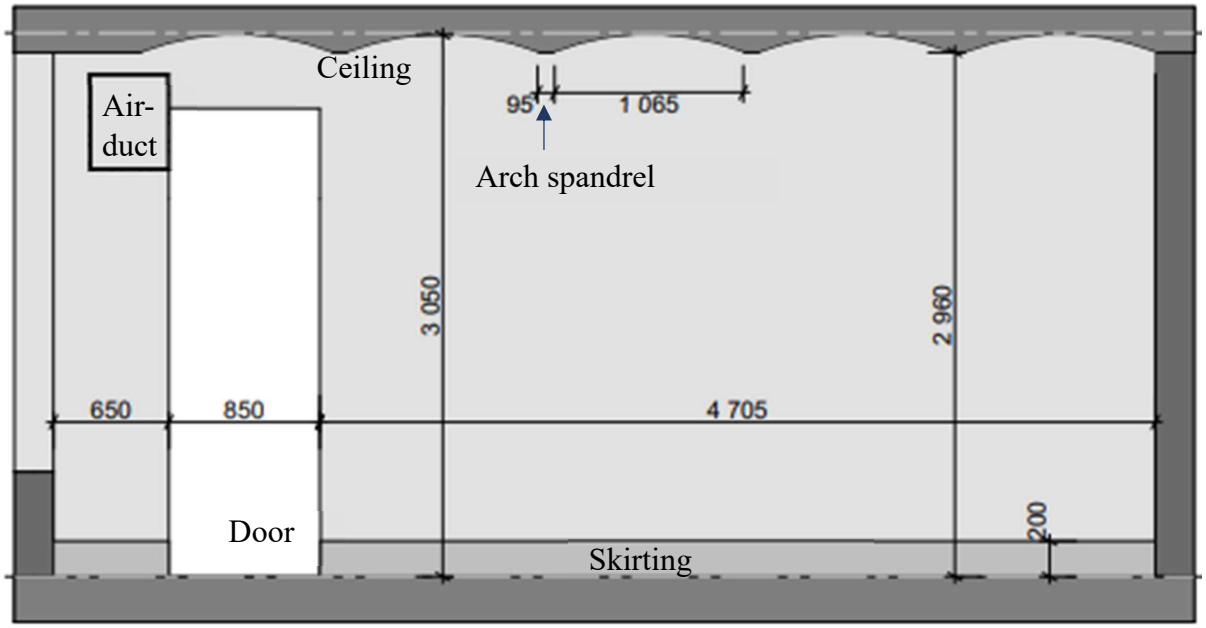

Figure 5: East wall elevation, Archicad. Scale 1:50. Elevation by Keaghan De La Mer.

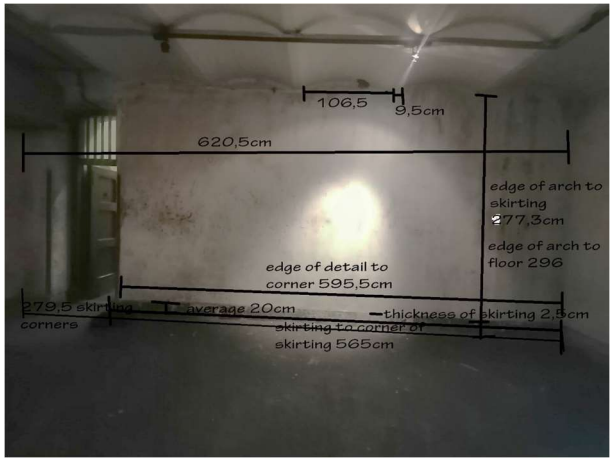

Figure 6: In-situ digital photograph with notes of East wall. Photograph by author.

East Wall		
East Wall Lengths		
1.	Ceiling Arch length	1065 mm
2.	Arch spandrel	95 mm
		6205 mm
3.	Edge of wall-to edge of wall	
4.	Edge of door frame to right corner	4 705 mm
5.	Left wall-to-door frame skirting	650 mm
6.	Door	850 mm
East wall heights		
7.	Edge of skirting to floor	2960 mm
8.	Edge of arch to skirting	3050 mm
9.	Skirting from floor	200 mm
East Wall depths and thicknesses		
10.	Thickness of skirting	25 mm

Table 2: East wall dimensions and measurements

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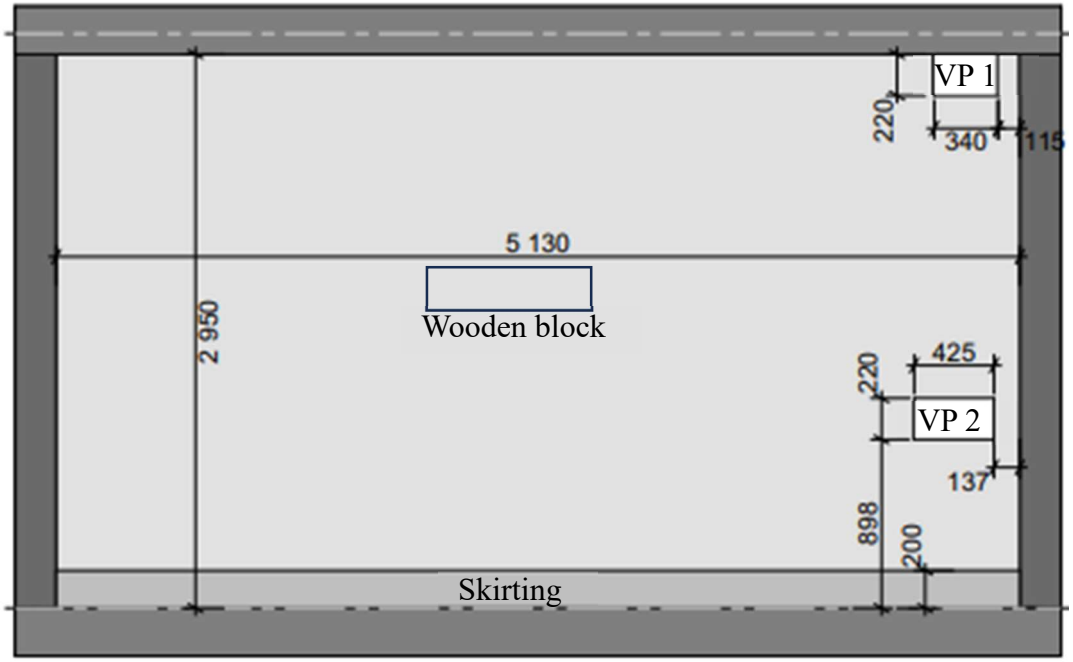

Figure 7: South wall elevation, Archicad. Scale 1:50. Elevation by Keaghan De La Mer.

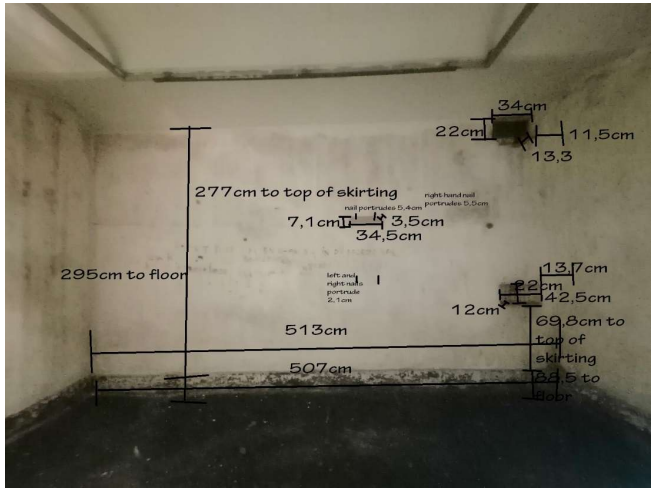

Figure 8: In-situ digital photograph with notes of the South wall measurements. Photograph by author.

South Wall	
South Wall Lengths	
1. Left of wall to the left of wall	6205 mm
2. Left edge of skirting to right edge of skirting	5130 mm
South Wall heights	
3. Ceiling to floor	2950 mm
4. Ceiling to top of skirting	3053 mm
5. Skirting to floor	200 mm
South Wall features	
Ventilation Panel 1 (VP 1)	
6. Length	340 mm
7. Width	220 mm
8. Depth	113 mm
9. Distance from west wall	115 mm
Ventilation Panel (VP2)	
10. Length	425 mm
11. Width	220 mm
12. Depth	120 mm
13. Distance from west wall	137 mm
14. Distance from top of skirting	898 mm
Wooden Block	
15. Length	3450 mm
16. Width	71 mm
17. Depth	35 mm

Table 3: South wall dimensions and measurements

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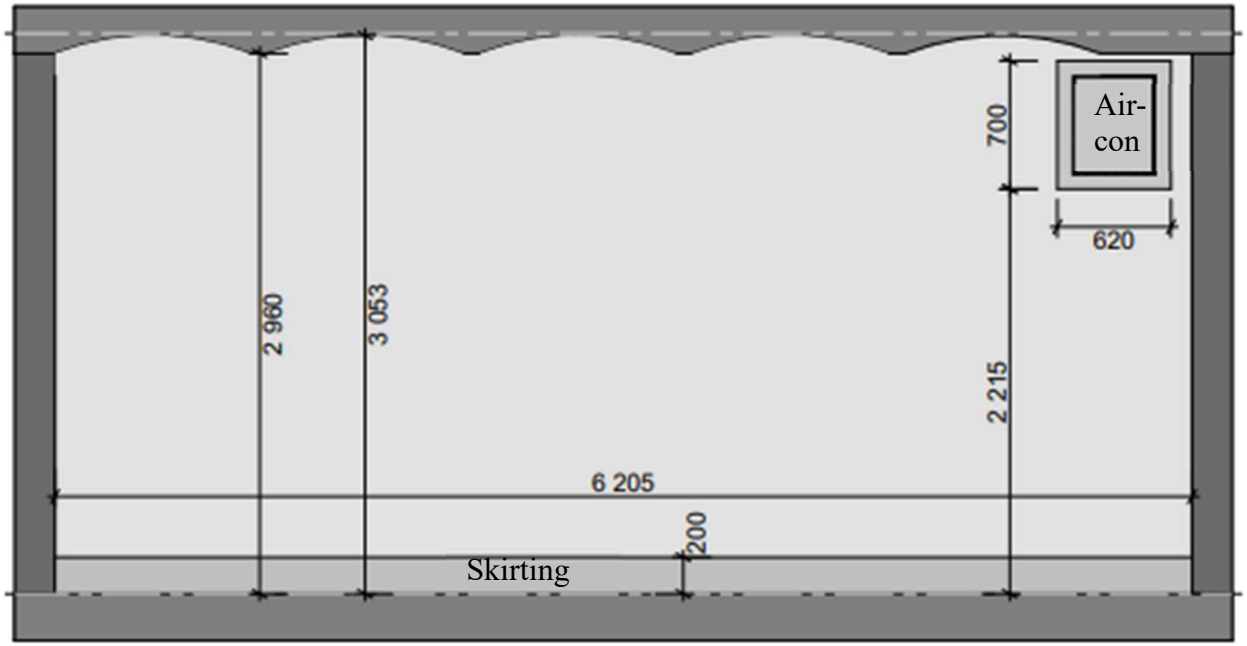

Figure 9: West wall elevation, Archicad. Scale 1:50. Elevation by Keaghan de la Mer.

West wall	
West wall lengths	
1. Left wall-to-right wall	6205 mm
West wall heights	
2. Ceiling to top of skirting	2960 mm
3. Ceiling concave-to-top of skirting	3053 mm
West wall features	
Aircon ventilation	
5. Bottom of duct-to top of skirting	2215 mm
6. Frame duct length (edge-to-edge)	700 mm
7. length	620 mm

Table 4: West wall dimensions and measurements

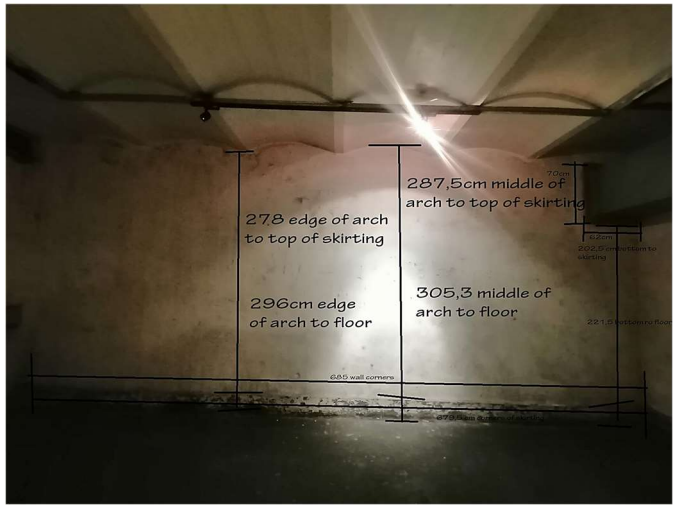

Figure 10: In-situ digital photograph notes of the West wall measurements. Photograph by author.

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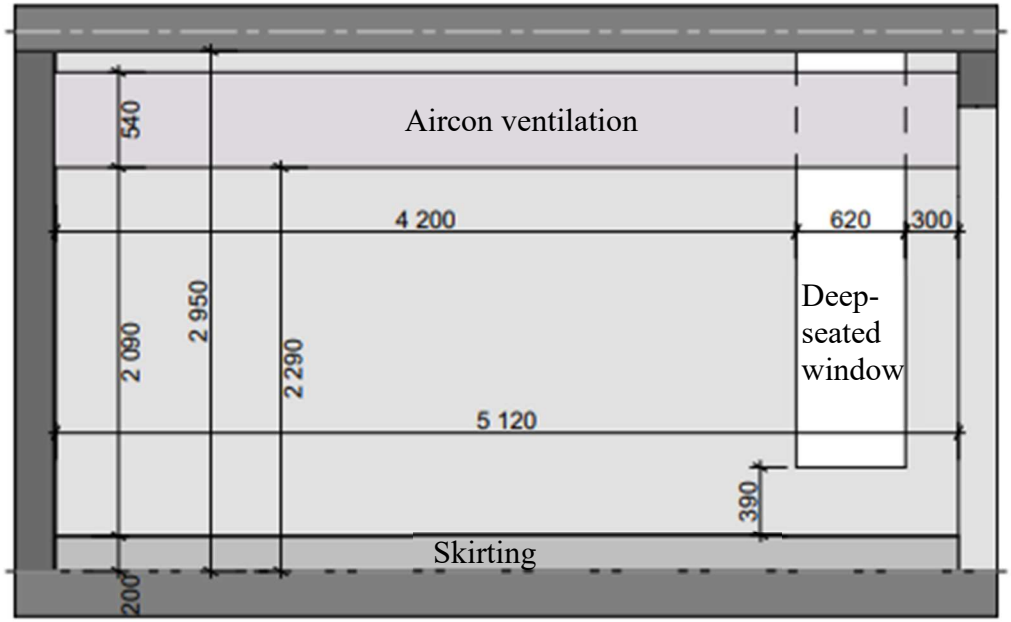

Figure 11: North wall elevation, Archicad. Scale 1:50. Elevation by Keaghan De La Mer.

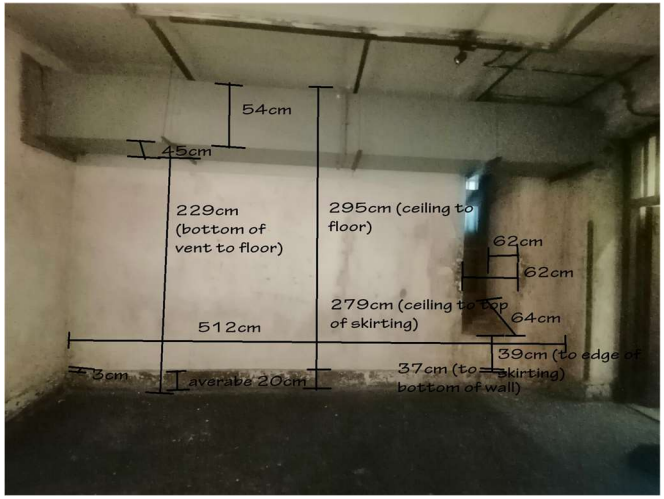

Figure 12: In-situ digital photographs with notes of the North wall measurements. Photograph by author.

North wall		
North wall lengths		
1.	Left edge of wall-to-right edge of wall	5120 mm
North wall heights		
2.	From top-of-skirting to ceiling	2950 mm
3.	From ceiling-to-top of skirting	2790 mm
4.	From bottom of ventilation panel-to-top of skirting	2290 mm
5.	Skirting	200 mm
6.	Depth of skirting	30 mm
North wall features		
Air duct		
7.	Length	6200 mm
8.	Width	540 mm
9.	Depth	540 mm
Deep-seated window		
10.	Width	620 mm
11.	Depth	620 mm
12.	Height from top of skirting	370 mm
13.	Distance from right side of the wall to window	300 mm

Table 5: North wall dimensions and measurements

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On the South wall is the Freedom Charter with black ink. Next to the freedom charter is a list of the names of African National Congress (ANC) members who were held in the cell during the terrorist trial concurrent with the Rivonia Trial. Written in graphite, prominent figure names occurring on this wall include Tokyo Sexwale, Saths Cooper, and Mosiuia Lekota. The condition and quality of the graffiti on the South wall is also influenced by the lacuna (six-holes) apparent on the wall. A wooden block feature with corroded nails is also present on the South wall. The West wall has variations of graphite and black ink graffiti as follows:

Wall	Media present on the wall	Prominent media
East Wall	Charcoal	Graphite
	Black ink	Black ink
	Blue ink	
	green ink	
	Graphite	
South Wall	Black paint	Black paint
	Charcoal	Graphite
	Lead pencil	
	Blue ink	
	Graphite	
West wall	Black paint	Graphite
	Black ink	charcoal
	Blue ink	
	Red ink	
	Charcoal	
	Graphite	
	Impressions and Inscriptions	
North wall	Red ink	Black ink
	Black ink	Graphite
	Charcoal	

Table 6: Ink media used for the graffiti on the walls.

- Two versions of the preamble of the constitution of South Africa.
- A South African Student Organisation (SASO) inscription.
- Religious declarations.
- Portraits of varying size and nature.
- Racially inclined statements reflective of the time.
- Individuals' names, thoughts and charges for which they are appearing in court.
- Notes by individuals to remember they were there.

Key elements visible on the North wall are an arch window with metal barricades and an air duct. A unique type of shoe track impressions is also visible on this wall. Elaborate etchings, varying graphite portraits and black and blue inscriptions are also some classifications of graffiti found on the North wall.

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2.3 Condition Reports

A condition report is an extension of visual examination aimed at gauging the structural integrity of an object so as to materialise a solutionist intervention. Furthermore, condition reports present accurate findings about the deficits of an object's physical state simultaneously detailing the rate of deterioration. Thus, the following condition assessments are employed to carefully analyse the surface structure and features of the holding cell. This objective process is completed to register and understand the objects nature, artistic intent, and asset value with relations to the degree of current damage or damage in continuum to determine the overall deteriorative state of an object (Crosby & Cancino, [sa]:1).

Here, the faded graffiti and surface irregularities are recorded to determine the degrees of deterioration to defer the dissociation of historical information while simultaneously creating historical documentation. Also, the condition assessment of the holding cell aims to tell a story of the cell's functionality at various points of its creation. On the other hand, Deborah Van Horn, Heather Culligan and Corinne Midget (2015:1) emphasise that condition reports are informative accounts for heritage objects wherein conservation requirements embody quality checks for either storage, exhibition, or interventionist treatment. Henceforth the first base of the condition reports is to address the description, location and extent of damage. The condition reports are based on the surface layer of the walls. However, for reference of the layering of the walls, Figure 13, was depicted. The first top layer is characterised by the actual graffiti and appears to have faint yellow-like paint. The secondary white layer is an additional asset layer with imprinted inscriptions. The third layer is a darker shade of beige paint characterised by the graffiti carving depth threshold. The fourth layer is made of concrete with some areas of loss examined to be susceptible to insect attack thereby hosting insect remains. Seen in the fifth layer is the fired red brick.

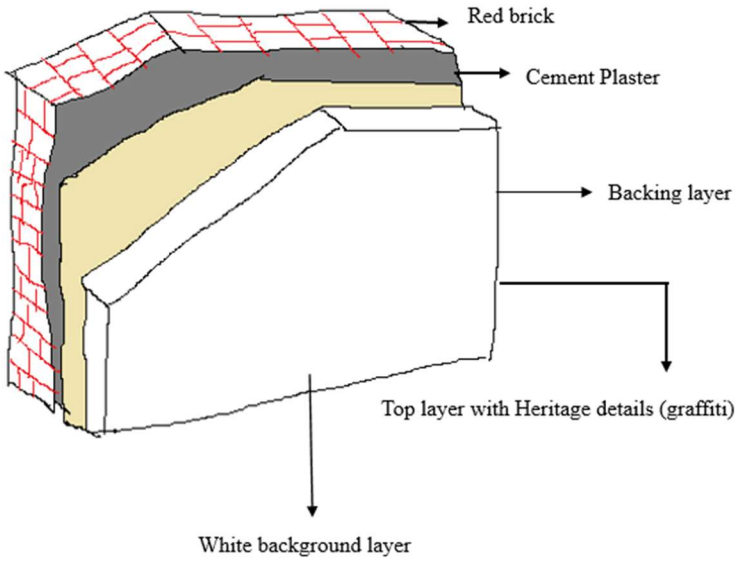

Figure 13: Cell wall layers. 2023. Depiction by the author.

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Table 7 reveals the extent of damage in the space. To get a better understanding of the rates of

Condition rating	Extent of damage	Damage description
Good	Low	✓ Physical
Fair	✓ Medium	✓ Biological
✓ Poor	High	✓ Chemical

Table 7: Rates of deterioration in the holding cell.

deterioration, direct lighting was applied to all walls. Red rot and corrosion products in the form of red stains are dominant on the North and East walls. Other details that came to the fore were the consistent abrasion and deterioration that

contribute largely to the loss of wall layers. Adhesive bonds become weakened thereby resulting in great areas of graffiti loss on the top surface. Table 8 shows the South wall's lacuna location. The colour column is a key for the Figures 14 to 17 following table 8. The last column is the size of each lacuna.

Code	Feature	Placement	Colour	Size (Diameters)
1	Lacuna	Right side of letter S in Is	Orange	39mm x 28mm
2	Lacuna	Under E	Blue	72mm x 50mm
3	Lacuna	Underneath lacuna 3	Purple	31mm x 25mm
4	Wooden block with nails	South wall	White	71mm x 245mm x 25mm
5	Lacuna	Next to the Freedom Charter	Green	83mm x 73mm
6	Lacuna	Over O in 'Room'	Pink	50mm x 48mm

Table 8: Condition codes for features of the South wall.

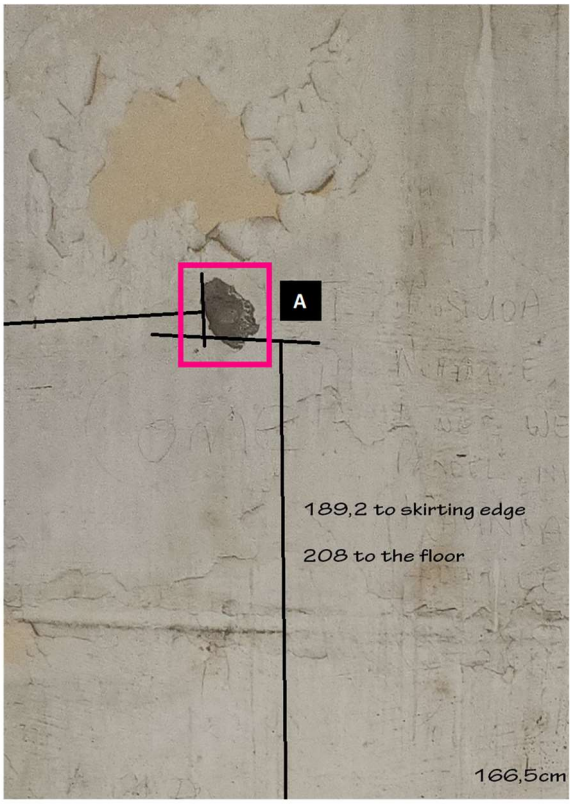

Figure 14: Area of loss, lacuna 1 to 3, South wall. Photograph by author.

Figure 15: Area of loss, lacuna 4, South wall. Photograph by author.

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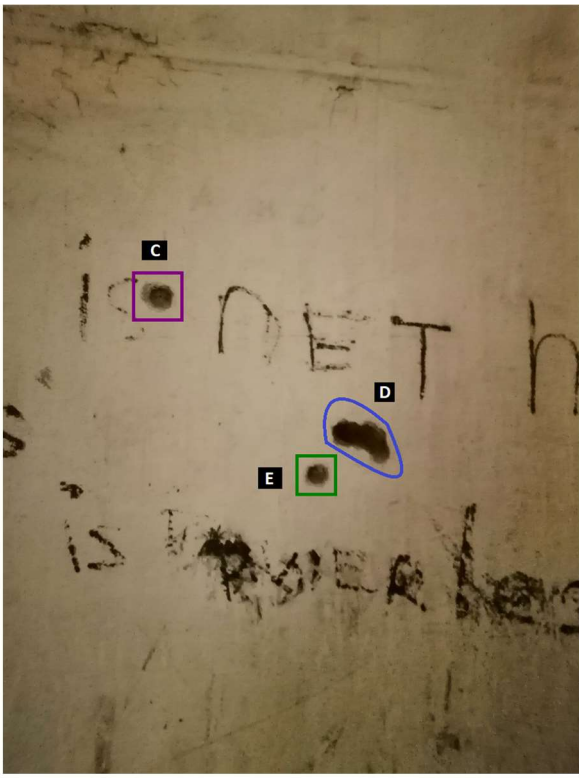

Figure 16: Area of loss, lacuna 5, South wall. Photograph by author.

Figure 17: Area of Loss, lacuna 6. South wall. Photograph by author.

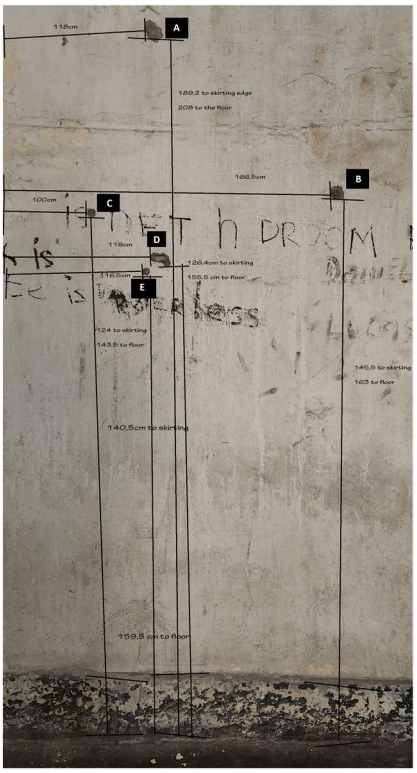

Figure 18: Distance between lacuna on the South wall. 2023. Photograph by the author.

Distance between the Lacuna on the South Wall	
Horizontal Distances	
Edge of the left wall to A	1180 mm
Edge of the left wall to B	1665 mm
Edge of the left wall to C	1000 mm
Edge of the left wall to D	1190 mm
Edge of the left wall to E	115 mm
Vertical Distances	
Edge of Skirting to A	1890 mm
Edge of Floor to A	2080 mm
Edge of skirting to B	1455 mm
Floor to B	1630 mm
Edge of skirting to C	1405 mm
Floor to C	1595 mm
Edge of skirting to D	1264 mm
Floor to D	155 mm
Edge of skirting to E	1240 mm
Floor to E	1435 mm

Table 9: Showing accurate measurements of the distances between Lacuna A to E on the South Wall.

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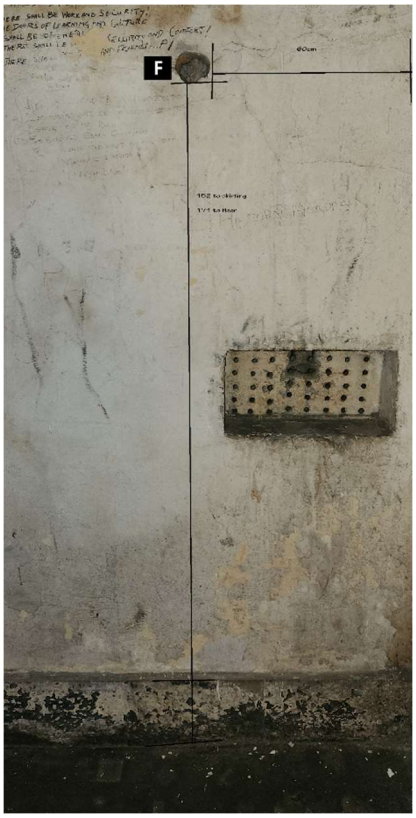

Figure 19: Distance between Lacuna F and West wall. Photograph by author.

Distance between the lacuna on the South wall	
Horizontal Distance	
Edge of right wall to F	600 mm
Vertical Distance	
Edge of skirting to F	1520 mm
Floor to F	1710 mm

Table 10: Showing measurements between Lacuna F and wall.

2.3.1 Types of Deterioration

Above, the general conditions and first impressions are discussed. The first type of deterioration discussed is physical damage, including the major structural damage, minor structural damage and soiling or surface accretions, as seen in Table 11. Then, chemical damage, including minor and major types are tabulated and described. The last type of deterioration is biological damage, which lists the fungal and live infestations observed and inferred. Then, images were selected to show how chemical, physical, and biological damage manifests in the cell. The images have been accompanied by condition key codes and labelled indicators to mark the occurrence of each damage on the surface of the cell walls. Although the selection of the images is arbitrary, it is important to mention that they serve as evidence for the different types of deteriorations found on all walls. In other words, the deteriorations are not only specific to the identified areas as depicted in the photographs. Instead, these markers of deterioration can be observed on several surfaces of the four walls.[20]

- Physical damage

This deterioration type focuses on the more mechanical damages observed in the holding cell; categorised by loss, change in structure and function. Physical damage occurs due to wear and tear, and heedless use of the space. Physical damage can also be observed due to chemical and biological occurrences. For example, on the North wall, structural change is occurring on the window frame and sill due to chemical factors associated with humidity and capillary action of water.[21] Prominent physical

[20] Due to the nature of this paper, a select few images have been used for emphasis of the damages in accordance with the marked purpose of each section. The complete set of images are available at the different storage locations.

[21] Bristow (1998:2) emphasises that the cleaning of gutters and downpipes of historical buildings must be conducted regularly to minimise damage and eliminate all bends in rainwater pipes thereby minimising the chances of blockages to promote the circulation of air.

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damage is shown in Figure 24 on the door in the form of dents, chips, scratches, wear abrasions as well as surface defacing. The following notes on physical damage is summarised in Table 11.

Notes on physical damage as summarised in Table 11:

1. Creasing: Creasing is currently active in all areas of the walls where the lifting of paint has developed but is not yet fully detached off the walls. This is strongly indicative of the paint layer that is delaminating.
2. Cracking: The stratified layers underneath the top layer indicate cracking is caused by a check-like pattern that will develop on the upper most layer.
3. Old repairs: The ceiling has been repainted and paint has dripped onto the walls.
4. Fixtures: New light bulbs were added onto the ceiling rail.
5. Corrosion Products: Rust and exfoliation corrosion are dominant damages common on all metal features in the cell (door, ventilation ducts and nails on the South wall wooden block). Some of these products, such as dust and rust, have stained the walls.
6. Scratches: The damage unclassified as graffiti.
7. Dig: Occurs on skirting as material loss appearing as hole-like voids between the floor and skirtings.

Major Structural damage	**Minor Structural Damage**	**Soiling/Surface Accretions**
✓ Parts broken or detached	✓ Chipping	✓ Dirt and dust
✓ Cracks, holes,	✓ Paint creases	✓ Paint drips
✓ Structural weakness	✓ Loose attachments	✓ Grease
✓ Loss of features	✓ Blisters	✓ Stains
✓ Warping	✓ Chipping	✓ Corrosion products
✓ Desiccation	✓ Checking	✓ Erosion on skirting
✓ Limewash	✓ Delamination	✓ Exfoliation
✓ Flaking		✓ Use wear
✓ Peeling		✓ Scratches
✓ Raptures		✓ Dent
		✓ Dig

Table 11: Summary of notes on physical damage summary.

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Figure 20: Ceiling material on North wall, above window. Photograph by author.

Ventilation Duct Condition Code	
A	Second ventilation duct
B	Plaster bags
C	Aluminium dent
D	Steel layer with rust
E	Bricks
F	Main duct

Figure 21: Condition codes for ceiling material.

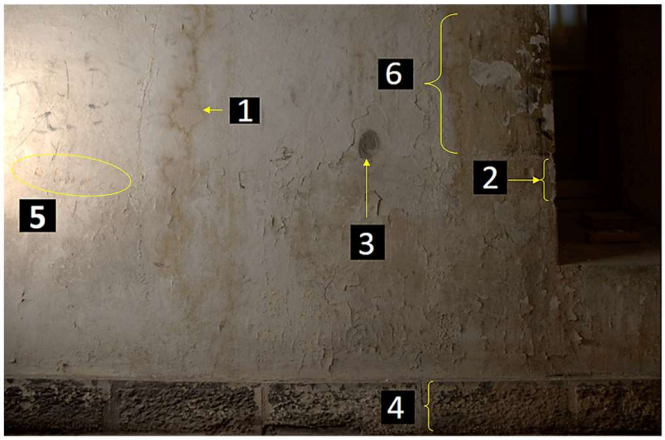

Figure 22: A cluster of deteriorations on the North wall. Photograph by author.

Condition Code Key 1	
1	Penetration damp
2	Chipping wall
3	Developing lacuna
4	Erosion on skirting
5	Fading graffiti
6	Discolouration

Figure 23: Classifications of deterioration

Figure 24: A cluster of deteriorations on the West wall. 2023. Photograph by the author.

Condition Code Key 3	
12	Friable paint layers
13	Starburst blister
14	Paint crease

Figure 25: Deteriorations on the West wall.

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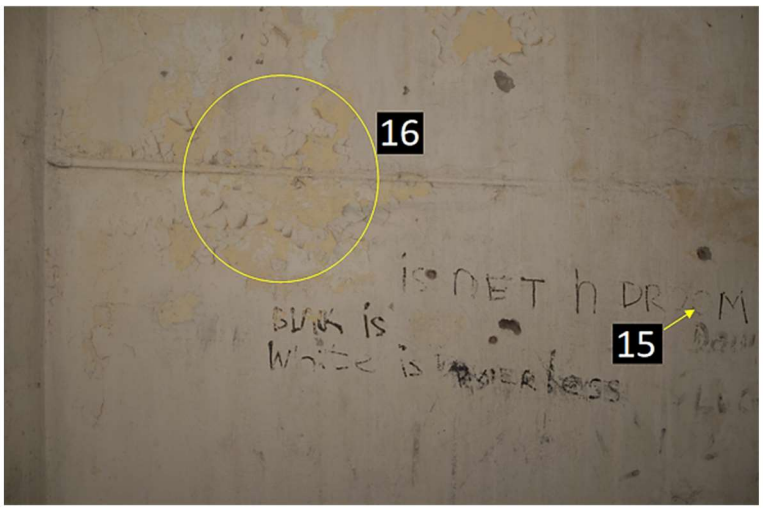

Figure 26: A cluster of deteriorations on the South wall. Photograph by author.

Condition Code Key 4	
15	Missing letters
16	Peeled Paint

Figure 27: Deterioration on the South wall.

Figure 28: Damages on the door. Photograph by author.

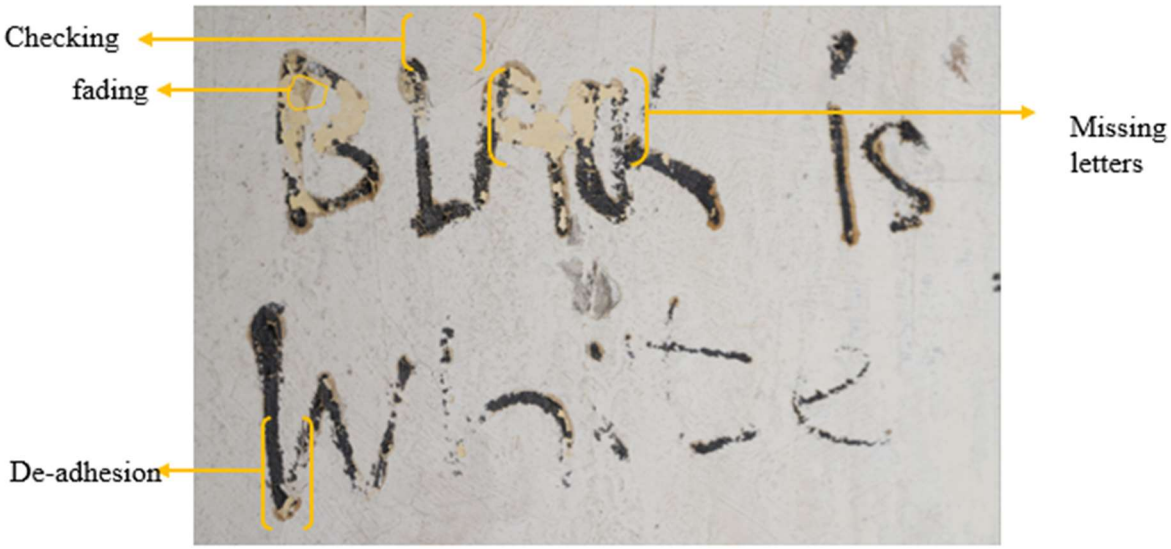

Figure 29: Deterioration on the black ink found on the South wall. Photograph by author.

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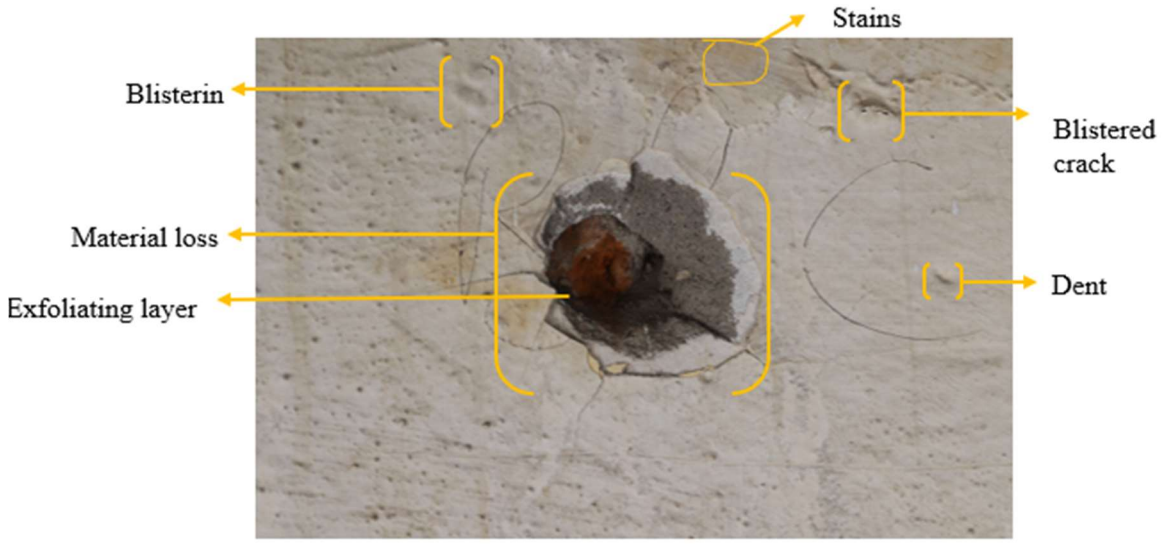

Figure 30: Wall strata on South wall lacuna. Photograph by author.

Figure 31: Fixtures on the North wall deep-seated window wall with iron nails. Photograph by author.

- Chemical damage

Chemical damage observed in the holding cell is caused by harmful chemical reactions in the wall layers and the surface of the walls. The major chemical changes in the holding cell are due to humidity and excess moisture. The power of breath impedes on the conditions in the cell dramatically (English Heritage, 2023). The influence of humidity levels in the cell are also impacted by moist air from professionals and tourists who visit the space from time-to-time. The presence of humidity is also observed in the form of capillary action has produced stains on the wall surfaces. As these moisture

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levels fluctuate in the cell, there is an expansion and contraction that fragments areas of the limewashed walls. In return, powdering and flaking of the surfaces result in great loss of the graffiti. Then, this suggests that the flaking in localised areas where metal features namely the metal detailing on the East door, iron nails on the South wall, the ventilation duct on the North and West wall, and crusts between the metal knobs on the door, window frames and duct wall attachments perpetuate chemical deterioration in the holding cell. Besides moisture, the presence of air pollutants in the atmosphere in the city centre, also has a damaging effect in the cell. Again, the notes on chemical damage are followed by a summary in Table 12.

Notes on chemical damage in Table 12

1. Water damage: Manifests as capillary action stains in the cell.
2. Fading and tonal changes: In some areas of the walls (West and South facing walls) the graffiti ink media changed from black to hues of blue causing the letters to appear lighter 'missing letters' on prominent phrases.
3. Crustations: The powdering of paint layers with ink media, cement amalgamates on the walls and floor.

Major Chemical Damage	**Minor Chemical Damage**
✓ Corrosion	✓ Tonal change
✓ Friable paint layers	✓ Tarnish
✓ Discolouration	✓ Efflorescence
✓ Crustations	✓ Missing letters
✓ Corrosion products	
✓ Erosion on skirting	
✓ Saponification	
✓ Metal Soaps	
✓ Fading graffiti	

Table 12: Summary of notes on chemical change.

Figure 32: The amalgamated corrosion products on the North wall. Photograph by author.

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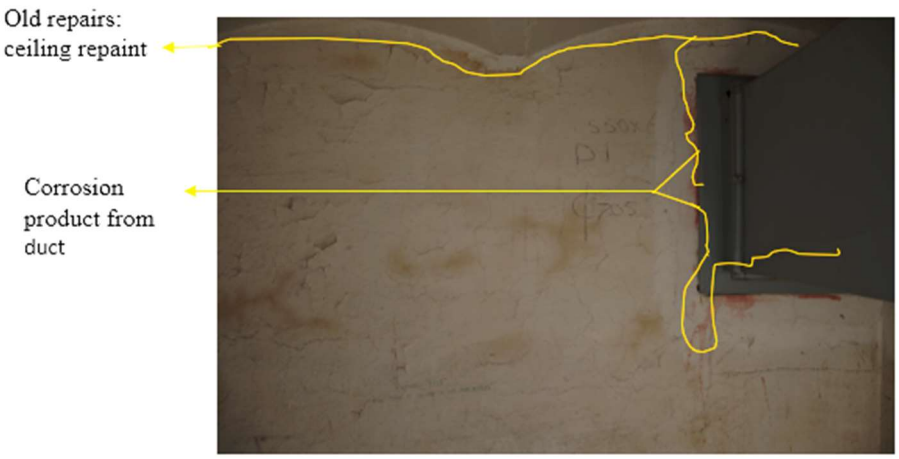

Figure 33: Corrosion products caused by duct and humidity on the West wall. Photograph by author

Figure 34: Fixtures on the North wall deep-seated window wall with iron nails. Photograph by author.

Figure 35: A cluster of deteriorations on the North wall near the deep-seated window. 2023. Photograph by author.

Condition Code Key 2	
7	Corrosion products (Red rot)
8	Stains
9	Checking
10	Delamination
11	Crustations

Figure 36: Deteriorations on the North wall.

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Figure 37: A cluster of deterioration on the perimeter of the deep-seated window architecture on the North wall. Photograph by author.

Condition Code Key 5	
17	Fixtures
18	Dust and biological remnants
19	Exfoliation
20	Red rot
21	Tarnish

Figure 38: Deteriorations on the deep-seated window on the North wall.

- Biological damage

Biological damage is mainly caused by infestations and micro-organisms (Inkpen & May, 2001:223). Micro-organisms such as cockroaches, spider webs, dust mites, wood borers, fungi and bacteria were detected in the cell. The microbial deterioration results in chemical deterioration observed on larger surface areas, namely the skirting, floor, walls, and ceiling corners, characterised by areas of loss. Similarly, microorganisms such as bacteria and fungi interact closely with sandstone material on a microscopic level (Inkpen & May, 2001: 266).

Notes on biological damage as summarised in Table 13

1. Red rot: A reddish-brown decay dominant on the North and West walls.
2. Clouding: Grey-like texture that forms due to humidity.
3. Inactive infestations: Only dead insect material classified under live infestations were found as

Fungal	Live infestations
✓ Mould	✓ Rodent
✓ Mildew	✓ Moth
✓ Microbial residue	✓ Woodworm
✓ Biological staining	✓ Silver fish
✓ Insect infestations	✓ Wood lice
	✓ Spider
	✓ Cockroaches

Table 13: Summary of notes on biological change.

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there are routine fumigations on the basement level. There were no physical rodents at the time of condition assessment evaluation.

Figure 39: Deteriorations on the South wall ventilation panel. Photograph by author.

Condition Code Key 6	
22	Metal tear

Figure 40: Deteriorations on the South wall ventilation panel.

Figure 41: Biological deterioration on the North wall. Photograph by author.

2.4 Conclusion

The documentation of the holding cell and condition assessments were conducted through a combination of physical and digital methods. These variations in methodology ensure that in the long run compromise is averted when exhibiting the photographs or utilising them to inform further research. Despite the guarantee of the graffiti on the holding cell walls to worsen, the thorough evaluation of the deterioration and material conditions are aimed at promoting the interventions of the space. Thus, the digital photographs in the next chapter serve as a record of the holding cell at its current condition. Furthermore, these condition reports render as guidelines for official recommendations to be followed in terms of conduct in the holding cell during tours or routine visits. In turn, a stakeholder-community

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centred approach is adopted to ensure that the traditions and values enveloping the holding cell are respected and maintain a facet of South Africa's brand image through digital conservation.

The damage in the cell is developed, and currently developing, at a concerning rate. Synergy in efforts is demanded to limit or completely halt the extent of deterioration. If a collective effort is not applied timeously, it is most likely the digital photography produced in this mini-dissertation will be the only tangible heritage that 'immortalises' this astounding place of heritage. No physical treatment is recommended yet as retouching outside of industry collaboration will worsen the state of damage in the cell. After conducting thorough research on the availability of conservation experts who deal on the safe preservation of heritage graffiti in South Africa, it was concluded that digital conservation be the starting point before any physical, remedial action should be taken.

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CHAPTER THREE: TECHNICAL PHOTOGRAPHY

3.1 Introduction

This chapter focuses on technical photography of the visible and infrared range in heritage conservation. In general, technical photography is a collection of images acquired with a modified digital camera sensitive to the electromagnetic spectral range of 360-1000 nanometres. The objective is to capture the important, sometimes unseen, details of the walls by applying this non-destructive technique that use multiple wavelengths across the electromagnetic spectrum. These techniques are important processes as they help us focus on both acquisition of the images for documentation and an in-depth analysis of a heritage object. Furthermore, technical photography is an analytical process for documentation and communication to bring to awareness the obscured details of the holding cell to heritage professionals including the general public who visit the space as the more they know, the better they can function or behave in this 'high-risk' sites such as the holding cell (Verri, 2017:14).

This chapter is about the application of technical photography in-situ; for the purposes of recording the current state and potentially obscured details using high quality images for in-depth documentation of the holding cell. Due to a limitation in technique-equipment compatibility, for example, the UV light sources were of an unknown wavelength, the study only focused on using visible light for frontal and raking methods of photography, as well as infrared (IR) photography methods. This way, the current appearance at the time of photography, surface texture deficits and faded or worn-out graffiti could be documented. It will be seen how visible light photographs reveal the distinctions of the ink media used on the walls. Furthermore, visible light clarifies the lettering styles, and it is seen how it helped identify visible areas of deterioration. Then, it is seen how raking light highlights areas of inscription depth and intensities of the peeling and flaking paint, and anomalies such as bulges and starburst cracks are made more obvious.

After the discussion and description of the photographic techniques, a concise risk assessment, workflow for how technical photography was conducted, and proposed storage procedures for the technical photographs are explained. The workflow discusses risks and mitigations during the acquisition of the photographs and the post-processing for permanent storage. The storage considered various locations and redundancy forms and proposed a storage pathway for the acquired documentation and technical photography.

3.2 Technical Photography

Technical photography is widely used in varied fields, for example, the medical, astrophysical sciences and the food industry, (Pronti, *et al.,* 2019:2276). In this section, the technique is discussed based on

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Figure 42: Equipment set-up during visible lighting photography. Photograph by author.

Figure 43: The photography set-up during raking light photography. Photograph by author.

the aspects of camera settings, lighting, composition, and spectral filtering.[22] The modified camera used was a modified Canon D6 Mark II.[23] First, with regards to the necessary camera settings and lighting, camera placement as the first central tenet determines how a conservator positions photography equipment to fulfil the demands of a photography technique. The camera settings (i.e. aperture and zoom) remained the same throughout the different imaging and photographic techniques, but for each image, the shutter speed was differentiated in order to acquire different details.[24]

The use of lighting paired with the relevant method of photography dictates the information revealed on a photograph.[25] Convention as per the AIC guide to digital photography and conservation documentation by Warda *et al.* (2011) stipulates that for technical photography of all variations, the

[22] Post-processing, as part of the photographic methodology, is discussed in section 3.4, because the chapter is discussed in the order of: 1) the techniques; 2) the risk assessment; 3) the workflow; 4) the post-processing and 5) the storage.
[23] A modified Canon D6 Mark II used in this study allows for the realisation of a variety of technical imaging analysis methods: visible photography (Vis), visible transmitted photography (VisT), raking photography (Rak), infrared fluorescence photography (IR), infrared transmitted photography (IRT), infrared false colour photography (IRFC), ultraviolet reflected photography (UVR), and ultraviolet fluorescence photography (UVF) (CHSOS, 2023:[sp]).
[24] To explain, once the camera and lights were adjusted for each section of a wall, four photographs were captured at different shutter speeds, in order to enhance different visual elements. This allowed the manipulation of exposure, contrast, lightness, and sharpness.
[25] Tentatively, an ideal light source is given to be continuous, with a low-output, a day light colour temperature and a smooth and spike-free spectral curve.

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camera needs to be placed on a tripod and tethered to a laptop or desktop.[26] For visible light photography (in the case of the study, front and raking photography), the general practice demands that the camera be placed at a perpendicular angle to the object with the lights at 25-to-30 degrees for frontal photography (Figure 34) and approximately 10 degrees for raking photography (Figure 35). The light sources used for visible light photography techniques and close-up photographs were two full spectrum Godox SL60W. The specific lighting used for the infrared photography technique were the quarts halogen lamps that emit energy in the visible and infrared regions of the electromagnetic spectrum – these have a smooth spectral curve and a high rendering index (CRI). In conjunctive use with a handheld torch these lights provided enough working light to physically zoom into the details of the walls for accurate observation. The Godox SL60W LED video lights were also used during the documentation and visual observation stages as the holding cell was poorly lit.[27]

Figure 44: The camera set-up for raking lighting photography of the corner sections of the walls. photograph by author.

Composition is another central tenet that determines how objects are arranged and placed in the frame. For the imaging of the holding cell, the composition was straightforward, and the only decision was to determine how many images to capture in a row and the number of rows. Table 14, the multivariate approach, illustrates the number of photographs produced for each of the three rows, on each of the four walls (also refer to Figures 5 and 6 for a visual representation). It was required that the images be captured in sequence to ensure that the images overlapped to certain degrees.[28] Starting with the documentation of the bottom sections of the walls the tripod was adjusted to its minimum height so as

Wall	**Sections per wall**	**Bottom series of Movement (bottom row)**		**Middle series of Movement (middle row)**		**Top series of Movement (top row)**	
East	1 to 4	East bottom	1-4	East middle	1-4	East top	1-4
South	1 to 3	South bottom	1-3	South middle	1-3	South top	1-3
West	1 to 4	West bottom	1-4	West middle	1-4	West top	1-4
North	1 to 3	North bottom	1-3	North middle	1-3	North top	1-3

Table 14: A breakdown of the multivariate approach during technical photography.

[26] Close-up photographs were attempted without a tripod for the purpose of having additional informative images. However, due to the lack of a camera stabiliser, shaking resulting in blurred images.
[27] This was especially important as it is seen how the poorly lit cell is catalytic to damage happening in the walls as stakeholders (The public and working staff) move closer to walls for a better view of the graffiti. As a result, they inevitably touch the walls as there is no signposts prohibiting them from engaging with the graffiti in-close proximity that encourages personal contact.
[28] The overlap of the images is important for post-processing to enable the stitching of the images together.

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to stabilise the camera to avoid distortions. The height of the camera and light tripods were subsequently adjusted for each of the rows.

The next aspect of technical photography is the use of spectral filters, because the camera is modified to capture the UV, visible and IR regions. The filters are placed in front of the lens, in order to acquire the specific image types. The filter required when capturing images in the visible region is a X-nite Band Pass Series 1 (BP1) 320 - 670 nm. This filter was used to capture images that reveal the graffiti, inscription depth and surface anomalies. IR filters used were X-Nite 715nm, X-Nite 850nm, and X-Nite 1000nm.[29] These filters aided the revealing of faded drawings as IR radiation is absorbed by the faded drawings and portraits that contain carbon, graphite, black ink and even charcoal. This is because IR radiation examination has a longer wavelength than that of visible radiation making it easier for the rays to penetrate visible and more efficient by small particles (Wasiutynski, 1986:24-25).

After the in-situ acquisition of the technical photographs, the fourth aspect, post-processing, commenced using specialised photograph editing software.[30] The concept of post-processing encompasses the ability to focus attention on the details captured by each technical photography technique. In other words, post-processing is the enhancement of photographs which involves processing the raw images to acquire 'true' representations of the holding cell in efforts to improve clarity and detail that maximizes on information that can be extracted from the images (Warda *et al.,* 2011:169). For example, the East_frontal visible_bottom 1 of 4, aims to replicate the holding cell to appear as it does in real-time under controlled lighting conditions. On the other hand, the post processing of the raking photography technique was made to focus attention on detail of the inscriptions, surface textures, and the presence of other deteriorating factors that influence the appearance of the graffiti and overall stability of the holding cell walls as observed in East_raking visible_bottom 1 of 4.

3.3 Risk Assessment and consequent workflow

3.3.1 Risk Identification and contingency plan

Basil Todd (2022) notes that a baseline risk assessment plan is a non-reactive approach put in place when considering the management of risks so as to produce a structured and well-followed benchmark of avoiding potential hazards onsite. The following key concerns were assessed to ensure efficient task management from the inceptive stages all through the completion with technical photography.

- Who is likely to be at risk during technical photography?
- How is the workflow simplified to improve safety of persons and equipment?
- Is the use of the ladder the main cause of risk?

[29] Any IR wavelength beyond 1000nm cannot be captured with a modified digital camera (Frey *et al.,* 2008:132)
[30] Post-processing is elaborated on in section 3.3.3.

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- What is the possible harm that can be caused due to the use of halogen lamps that emit heat?
- Are there loose materials in proximity that may increase the possibility of an incident, for example power extension cables?
- What do the ramifications of incidents imply for the cell, equipment, and conservators?
- What general conservation related conventions need to be applied when completing the technical photography?
- Would the photographers require any personal protective equipment (PPE)?

Finally, these questions led to Table 15 that shows the identified risks and mitigations during the working process for all four walls. Column one is the distinguishing aspect of who or what is at risk during the working process. Column two is the potential risk of damage, loss or injury. Column three informs us of the risk threshold of the cell, equipment or conservators by determining the potentiality according to a scale of low to high. Column four describes the mitigation actions to avoid and minimise the identified risks of column two.

Who and what is at risk?	**Potential risk induced**	**Risk threshold**	**Mitigation plan**
Wall surfaces	Graffiti loss	Minimum to low	No wall contact
	Halogen lights emit too much heat that may inflict damage onto the walls if left on for many hours at a time	Low	The halogen lights were switched off routinely
Camera, lights and their tripods	Camera, lights and their tripods damage due to toppling over and potentially attaining scratches on the lens or housings of the camera and lights	Minimum to Low	Ensure all clippings are in place and safely secured to avoid blurry photographic outputs and camera lens damage
Camera filters falling off due to mechanical complacency	Unintentional slipping and breaking of filters	Minimum	Tightly secure all filters by fastening them safely to the camera
Acquired photographs	Incorrect distance measurements	Minimum to low	Used a standard measuring tape to maintain consistent distance between all left to right movement and tripod (camera) to wall distances
	Storage	Minimum	An external hard drive was bought to specifically store all images from the acquisition time

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Conservators	Falls from a height when a ladder was used	Moderate to high	The ladder was secured to the flattest surface classified as a low danger zone (the floor surface is irregular and uneven)
			The conservator in training (student) stabilised the ladder using body weight, while the supervisor captured the details on the top section of all four walls
	Health and safety of student and supervisor	Minimum to high	We complied with the Personal Protective Equipment (PPE) uniform
			Did not wear loose clothing, and ensured that all loose laces, belts, jewellery were not in the way
			We ensured there was thorough communication between the qualified supervisor and conservator in training (student)

Table 15: Risk assessment identification and mitigation

3.3.2 Workflow

Max Rahrig and Jose Luis Lerma (2022:496) identify that it is nearly impossible and improbable to image an entire cultural heritage object in a single section without following a multivariate approach. Gleaning from this observation, it was decided to tailor a distinctive method termed 'series of movement' to negate all movement constraints as it has already been established that the walls should not be altered at any point during or after the technical photography stage. This series process was informed by Warda *et al.,* (2011:20) – seen in Figure 4. Then, a comprehensive examination of the holding cell with its possible set-ups were arranged and discussed prior to commencing technical photography. After this, the optimal capture positions were established, and the equipment arranged

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following safe practices. Herein, special emphasis was placed on avoiding touching or scraping against frail wall surfaces, while secondary importance was considered for the equipment and conservators.

While completing the risk assessment and finding mitigation solutions, the series of movement was established, as illustrated in Figure 46 and Figure 47. The photography of each wall began at the bottom, moving to the right, then immediately to the middle section. The middle section was completed towards the left, and then the equipment was extended to the top section, which moved towards the right. As stated earlier, it was required that the images be captured in sequence to ensure that the images overlapped. For all the sections and walls, the camera equipment was placed at

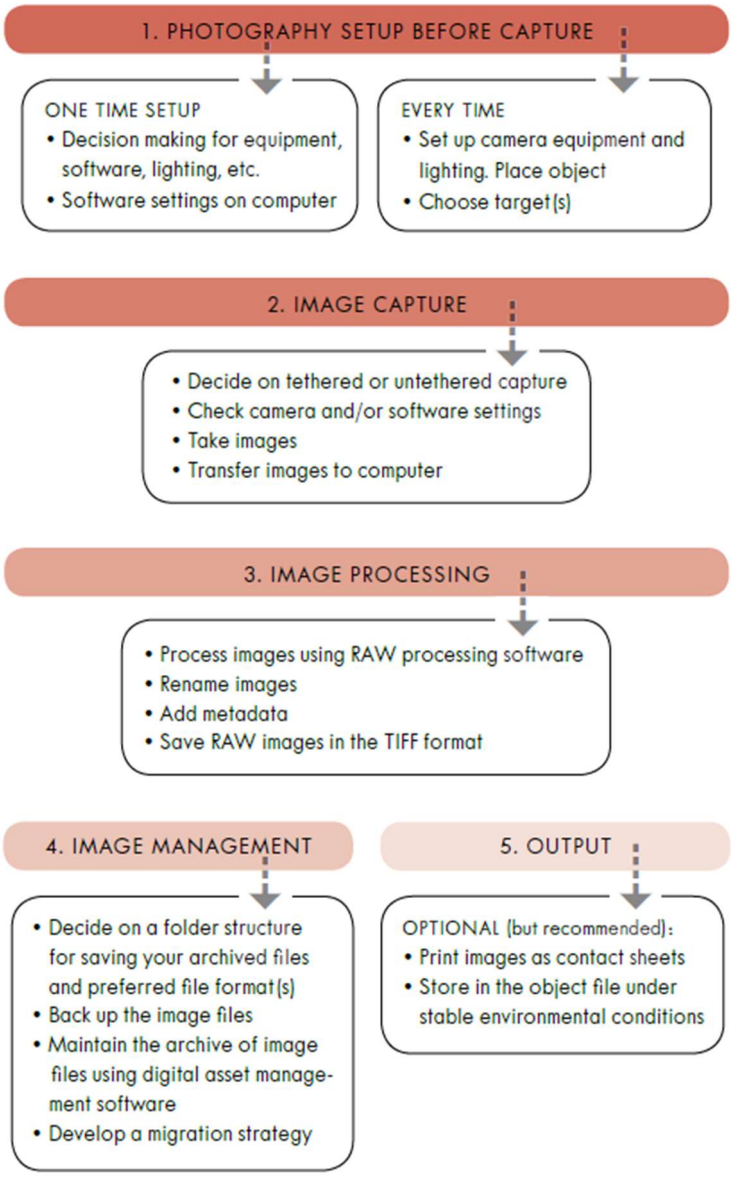

Figure 45: Sample flowchart- Advanced (Warda et al., 2011:20)

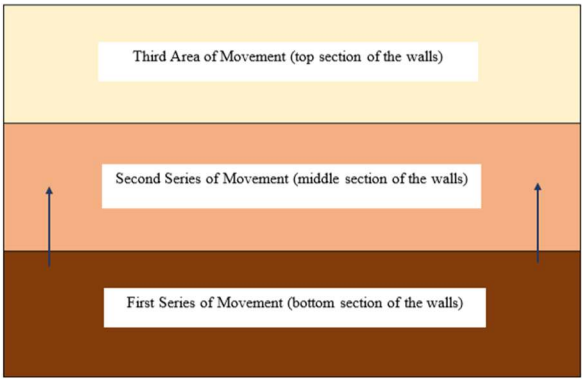

Figure 46: The first decision about the direction of movement in the holding cell during technical photography. Illustration by author.

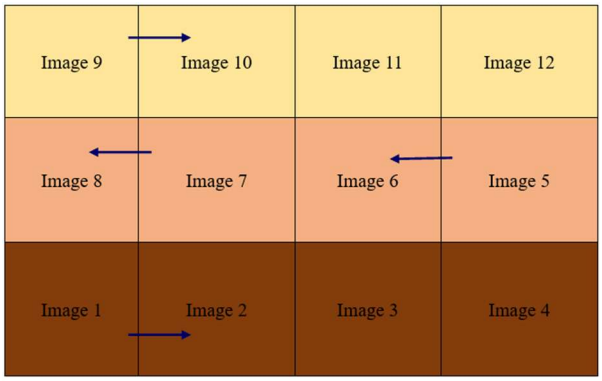

Figure 47: The second decision direction of the series of movement in the holding cell during technical photography. Illustration by author.

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approximately 1000mm from the walls. Starting with the photography of the bottom section of each wall, the tripods were adjusted to their minimum height. For the middle sections, the camera tripod was extended to its maximum height, with the light tripods at their mid-height. For the top sections, the camera tripod was placed on a moveable table, while the light tripods were extended to their maximum height.

3.4 Post-processing

Once all the images were captured in-situ, the post-processing, as introduced in section 3.2, commenced off site. In its entirety, image processing assists the application science for the analysis of artwork and the restoration thereof. The use of RawTherappe made it easier to apply and draw conclusive observations to understand the graffiti and materiality of the walls. RawTherapee for technical photography is free a photo-correcting software used for image processing in heritage conservation. It provides a wide range of tools and features for processing raw image files captured by digital and modified cameras. The core functionality of RawTherapee is its ability to fine-tune and improve raw images with the option to reverse adjustments. This is so that the processed image output matches or rather correlates with the spectral imaging technique of selection (RawTherapee, 2024:[sp]). It is important to highlight that the use of RawTherapee was guided by standards set out in the AIC Guide on technical photography (Warda *et al.,*2011:21-54) to avoid emerging risks such as poor editing and incorrect exposure. RawTherapee does not alter or destroy the raw image file. Instead, RawTherapee creates a new image in the chosen format, for example JPEG or TIFF.[31]

It is requisite to not alter (i.e., edit) the appearance of the visible light photographs to a point where it no longer represents the actual appearance of the cell at the moment of image acquisition. Henceforth, image processing was completed for the visible lighting photographs, by simply applying a visible profile alteration on each image in order to ensure uniformity. This was made easier by conducting batch processing of the visible photographs. The visible light profile was specifically created for the modified camera by Dr Antonino Consentino from Cultural Heritage Science Open Source (Cosentino 2012). Warda *et al.* (2011:93-94*)* highlights that camera profiles are important for maintaining the precision and consistency of any photographic material.

For the editing of the IR images, a black-and-white profile was applied, because Warda *et al.,* (2011:139) state that the grayscale format ensures that the focus remains on the differences in reflectance and absorption of infrared lighting to reveal hidden details. As a result, the variations in material and texture become more apparent as the subtleties of the RGB colours that can disturb the viewing are removed.

[31] JPEG stands for Joint Photographic Experts Group. It is a reduced size file, in order to incorporate images into digital documents. TIFF stands for Tag Image File Format, and is a bigger file than JPEG, but still smaller than the Raw images.

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After converting all the IR photographs to black and white, in order to enhance and make faded graffiti more visible, the following settings in RawTherapee was 'played' with to enhance the readability: exposure, lightness, saturation, contrast, shadows, highlights and sharpening. Thus, the obscured charcoal portraits and graffiti became more apparent, and minute details of undetected or developing cracks became more visible as well.

After the alteration of each photographic method, a JPEG output file of 8-bit was exported for each image – according to every series of movement per wall. Following this stage, the images were exported to a subfolder, named converted, with in their original parent folders. The subfolders were then stored underneath the directory folders. Once this was complete, the folders were then named according to the series of movement as adopted from the multivariate system as seen in Table 21 This decision in file naming follows this sequence to make the arrangement of the overlapping photographs easily accessible and understandable by future users. Henceforth, the naming was influenced by Figures 5 and 6 (direction and series of movement) according to the imaging technique applied and the subject wall (i.e., East, South, West, North). Therefore, the naming of the files follows this order:

- Subject wall,
- Imaging technique,
- Section of wall (movement series)
- then we have the occurrence (number) of image in the row.

Thus, the name of the first file for instance is East_frontal_vis_bottom_1/4.

Now, the recording of metadata is a technical photography element for retaining information, such as the times, dates of creation, locations, camera settings and other substantial details from the capture process.[32] Masenya (2021) highlights that historical and heritage studies address most of world heritage resources. However, storage of data is not globally uniform, because of the technological divide across geographical locations and competencies (Masenya, 2021:55-56). The domino result is that metadata is mismanaged or completely neglected, that leads to irretrievable data and information. Henceforth, metadata has been identified as a mitigation strategy in support of digital conservation of the holding cell. According to the International Council on Archives ICA (2016), there are three types of metadata, namely descriptive, structural, and administrative data. The type of metadata adopted for this study is administrative metadata. Administrative metadata provides information to help manage a resource (now the digital images and documentation) such as when and how it was created.

[32] Metadata is 'data about data' (Masenya, 2021:58).

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3.5 Proposed storage procedures

3.5.1 Risks to be avoided

As with digital materials, there are potential risks related to the storage of the documentation and that of the photographs. Therefore, preservation strategies selected for the backup location (i.e., the external hard drive) involve data management that complies with digital preservation standards. An active-passive redundancy system has been selected as the most efficient storage strategy. Briefly, storage redundancy is known as creating duplicates of the original data in multiple locations to prevent the permanent loss of data (Susnjara & Smalley, 2024:[2024]). The issues prevalent for the active-passive redundancy system of the cell photographs have been identified as dissociation that results in overall dissonance as well as a demand in routine physical maintenance that ensures a flatlined or rather balanced maintenance across the board of collaborators.

Dissociation is previously defined as the loss of information causing sequence disruption (Henderson & Waller, 2023;2). However, Jane Henderson & Robert Waller (2023:2) make a point that dissociation is a term that is not necessarily classified as a distinct-standalone agent of deterioration. Instead, dissociation can be used to amplify the— "loss of items, item-related information, or item-information associations" for the 10-main agents of deterioration. On the other hand, in the context of information systems, dissociation has been coined dissonance that manifests when technology does not meet its expected function (Marikyan *et al.,* 2020:4). So, in the context of the holding cell photographs, dissociation occurs when there is sequence disruption that results in the accessibility of information relating to metadata, lists of the graffiti and overall structural makeup of the holding cell along the listed damages and deteriorations that inform provenance of this heritage object. This may be triggered by disconfirmed expectations that come to the fore when lines of communication between collaborators are not succinct. Dissonance also manifests when systems formats are disrupted and communication between collaborators is not thorough. Therefore, metadata dissonance, collaboration dissonance and migrations dissonance have been realized as agents of digital dissociation. Thus, metadata dissonance is a manifestation of the deteriorations aligned with digital dissociation that occur when data about data encircling the photographs is inaccurate; or when information is spread across the board outside of the parameters of the redundant locations identified causing sequence disruption that hinders the interpretation, retrieval, and long-term preservation of digital materials. Secondly, collaboration dissonance may occur when coordination amongst collaborators is not succinct, alignment in holistic efforts of researchers, the public stakeholders and cross-industrial collaborators is unrhythmic. The third manifestation of dissociation at a high probability of occurring is migrations dissonance. This likely happens when loss of data or degradation of incompatibility with new technologies due to improper migration execution strategies occurs. For instance, the migration of the photographs from an external hard drive to a digital cloud. However, the dissonance is likely to happen when irregularities such as

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data corruption or loss during transference, device incompatibility or systems downtime influences the harmonious data transfer between different storage environments.

Physical maintenance carries yet another significant risk. Maintenance of the information provided by the photographs and the photographs themselves is a necessary step that helps all collaborators understand the context, origin, and usage rights of the holding cell photographs. Therefore, security of storage, metadata storage formats and the regular monitoring of the photographs ensures that external factors of deterioration do not influence the quality nor threaten the loss of the photographic material. Thus, redundancy is selected as a strategy that ensures all errors are eradicated whilst simultaneously strengthening collaboration. The following section highlights the redundant locations alongside a selected storage pathway protected by the institution but made accessible to the public.

3.5.2 Selected storage procedures

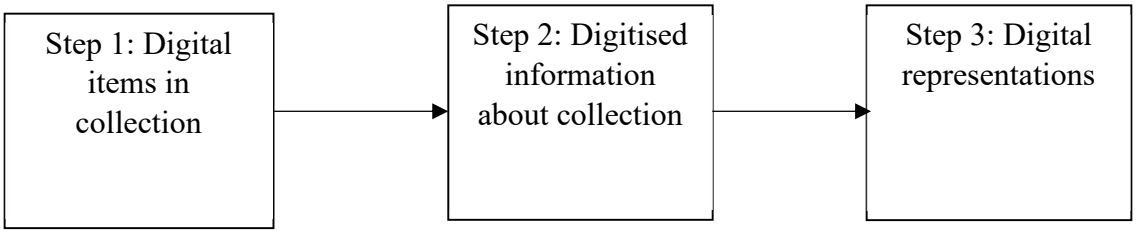

Figure 48: Digital storage pathway for digital heritage. Diagram by author.

The following locations have been selected to meet the duplication needs of the holding cell digital data. The first is Figshare— an international cloud-based Research Data Repository website used by the University of Pretoria for the succinct dissemination of information. The secondary location has been identified as the University of Pretoria heritage conservation campus where an external had drive is stored safely. Lastly, the current working location (my laptop) for the completion of this study is used as the third storage location of the data and information of the photographs. It is important to have redundant locations to negate a potential loss of data. Thus, cross-institutional collaboration, global and future accessibility as well as diversity of storage formats reflecting innovation are a crucial aspect of this digital endeavour. Also, this criterion has been selected as the assessment of digital storage procedures are based on the same principles that underlie traditional storage procedures (Choy *et al.,* 2016:9). As a result, this practice allows for digital items about the collection and digital representations to be available for the future representations of the photographs in the form of 3D replicas or digital representations (displays) of the images following the digital storage pathway for digital heritage (Figure 7) (Choy *et al.,* 2016:7).

This digital storage pathway transcends the boundaries of data lakes and digital cloud storage repositories such as digital preservation systems due to continuous access of the stored photographs that

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allows the format updating to avoid rapid obsolescence in digital formats, storage media, and system procedures (Choy *et al.,* 2016:7).[33] Henceforth, a storage based on the aforementioned categories has been identified as an important directive for the holding cell photographs. This procedure counteracts formal obsolescence, unauthorised use via plagiarism, incomplete documentation for context or unauthorised manipulation.

3.5.3 Five-step storage procedure

The following steps have been adapted from Kasabji (2023:[sp]) as a storage procedure that maps out a simple, efficient, cost-effective strategy for both the primary and the selection of a backup storage location:

1. Conduct a risk assessment with regard to data storage,
2. Select a replication strategy in order to update formats,
3. Select a secondary location, for example, and external hard drive,
4. Implement replication strategy for the secondary location, and
5. Configure a potential failover situation, to ensure accuracy of data.[34]

Possible threats and issues have been negated by complying with the prescriptions defined by the National Archives and Record services South Africa Act 43 of 1996, in line with the Promotion of Access to Information Act of 2000 – stating that the public must exercise their constitutional right to access institutional information or alternative means to exercise this right thereof. However, the party accessing information must abide by the regulations that protect the information or heritage information to be accessed (Promotion of access to information act [No.2 of 2000]). Henceforth, the University of Pretoria Archives have also established a constitution promulgating procedures for the preservation and retrieval of university records (Green, 2023). Given this protection, any unlawful use associated with the integrity of the holding cell photographs in storage has been eliminated, due to the demand for active monitoring to ensure data integrity that protects the photographs from file corruption such as miscellaneous editing, loss or digital viruses (Digital Preservation, 2023).

Previously, the use of storage technology followed the norm – storing digital materials using discrete media, namely individual optical storage media such as CDs and DVDs. Although these practices remain relevant in the present-day, a steady migration into cloud and external hard drive storage systems have been observed. Although the selection of these storage systems is founded upon organization and safeguarding of information, for the mandate of this study (i.e., digital conservation) hybrid storage (the use of a laptop and external hard drive) is a best practice, due to its capacity to accommodate large

[33] Data lakes are more about metadata, for example, an image.
[34] This storage strategy ensures that the potential failover of data from becoming active to passive, remains a passive possibility.

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volumes of digital materials. This selection criterion is also based on the resilience of hybrid storage to supplement internal storage networks with public cloud storage (Susnjara & Smalley, 2024).

When thinking about the redundancy possibilities with regard to the data, active-passive redundancy is the best solution. Active-passive redundancy is a system design used to ensure information of subjects or objects remain readily reliable and available, despite challenging threats emerging from external factors of deterioration (natural or man-made), political or economic crises (Choy *et al.,* 2016:13).[35] It comprises of a set of data that remain active (i.e., the laptop) and the other remains in standby (i.e., the external hard drive), during system failure such as downtime or regulated upgrades ensuring digital originals are backed sufficiently (Choy, *et al.,* 2016:13). Active-Passive redundancy requires modern solutions with a low cost and non-stringent budget. For instance, common storage media devices are employed for the second location. Following this delineation, the procedure in question has been adopted as an efficient strategy that ensured the photographs and metadata of the holding cell remain readily available. My laptop acts as a portable, working location during the time of writing, to which the raw photographs and metadata were safely stored. This method of redundancy avoidance has been established as best-practice for heritage conservation assets.

Although the photographs will be secured in the UP FigShare repository, performing geographical redundancy is an instrumental strategy for disaster management offering open access. This then negates system failure which can affect alternative locations thereby incentivizing a failover mechanism that minimizes disruption domain (Choy *et al.,* 2016:15). Due to the guaranteed security offered by UP repository, and its secure memory bank, active passive redundancy is the storage path most feasible for the nature the heritage products produced in this study. This storage path encompasses the secondary locations required to remain passive and will require activation through access should the UP Repository fail (Pure storage, 2023:[sp]). However, the probability of the repository failing is close to none. Therefore, as a passive redundancy component UP FigShare ensures that less RAM is used and left to idle until it is called or needed in moments of use or emergency.

3.6 Conclusion

This chapter reflects on the minute details explored to fulfil the requirements of technical photography of the holding cell. Herein, it has become indubitable that the conventions of heritage conservation have been tailored for the unique compliance of the digital documentation of the holding cell to ensure rectitude of industry methods and overall safety of the equipment, cultural object and the student and supervisor. This chapter further outlines how only non-invasive photography techniques namely frontal

[35] This storage procedure and strategy are necessary in the South African context, because the country faces a continuous energy crisis. Potential power outages have permanent implications on the access of the photographs' metadata.

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visible lighting, raking lighting and infrared lighting techniques have been applied according to the adapted multivariate system that produces a uniform series of movement for the East, South, West and North walls respectively. One of the most critical goals of the framework in this chapter has been to determine how the storage procedures of the technical photographs ensure that the digital preservations (photographs) are not only accessible; but easily deciphered by professionals and non-professionals in the field for the short and long-term preservatory work of the holding cell.

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CHAPTER 4: IMAGE INTERPRETATION AND ANALYSIS

4.1 Introduction

Generally, an image interpretation and analysis are classified as fundamental processes that help identify components, aspects and characteristics as seen in images. In addition, Vito Cappellini and Allesandro Piva (2006:4) identify that the phrase 'image analysis' is also a broad term that encompasses a variety of purposes that fulfils the following uses in tangible heritage conservation:

- The images function as diagnostics and analysis at a later stage of a conservation process.
- The digital analysis is a catalyst for digital reproductions.
- Are implemented for virtual restorative processes during the display phase.
- Address security issues in artwork fruition through multimedia applications.

It is key to accentuate that the detail in graffiti depicted in the photographs – also accompanied by lists of graffiti are highly racial. This is because the cell was in use during a racially climaxed period in South Africa. Herein, trials from the offence and defence fought for the better treatment of one over the other with the opposing advocating for equal treatment.[36] As a result, the holding cell walls were vacuum for the expression of un-filtered emotions. Thus, the recording and documentation of these racial slogans, tags and shout-pieces has been considered as the holding cell is a heritage object with no isolation of certain aspects lending from bias. This is because "the Rivonia defendants were more than simply symbols of resistance—they continued to be a part of it" (Broun, 2012:152). Henceforth, the symbols intertwined themselves with the building through graffiti to communicate political messages using highly emotive language. Given this notion, the emotions of frustration enveloped in hate, sorrow, regret, pity, anger, strife, long-suffering were immediately realised during real-time documentation (Chapter 2). Ergo, it was important to post-process the photographs so that they appear as they do in real-time.

After completing post-processing of the photographs (discussed in Chapter 3), qualitative information from surface areas (i.e., the walls and door surfaces) are tabled according to each image in the series of movement for each wall. This is achieved through the combination of the frontal, raking and IR images for each image section of each wall, for example the East wall, row one (bottom row), image one (see Figures 49 and 40). In combining the three technical photography images into a group for each section, it is made evident how each technique has aided the identification of graffiti, wall features and surface characteristics on each wall. The incorporation of the techniques will also be beneficial for future uses, such as condition monitoring, preventative conservation, and virtual restorations.

[36] The Rivonia Trial of 1963-1964 contending for equal rights and freedom for all against oppression from the apartheid justice system.

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Note, the images included in this dissertation, are smaller for the purpose of including all images alongside the tables relating to a specific section. Overlapping images have been indicated with an asterisk to avoid redundancy that disturbs the series of movement. For technical compliance, infrared photographs included in this chapter are those shot using the 850nm IR filter due to its clarity and emphasis while the photos in the storage do include the 7150nm filter and 1000 nm filter photographs. As discussed in the proposed storage and digital preservation of the images, all photographs can be accessed at the University of Pretoria. Each identified heritage graffiti under each caption lighting technique is specific to the properties that are discernible under each of these techniques. For example, infrared lighting technique either put emphasis on the already detected details of the heritage graffiti or revealed details that were undetectable by all the other lighting techniques. Now, it is also novel to mention that the 'empty' columns of the graffiti sections under each lighting technique must be interpreted as no information of graffiti from the walls was present to record.

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4.2 East wall

4.2.1 East Bottom section: first series of movement

- East bottom 1

Visible Lighting	Raking lighting	Infrared lighting
 Figure 49: East_front_vis_bottom 1 of 4	 Figure 50: East_rak_vis_bottom 1 of 4	 Figure 51: East_ir_vis_bottom 1 of 4
Scratches on the door	Brushstroke pattern revealed	(815mm)
Prominent chips and splits on the door	Previous restorations	"2-5-2002" in graphite medium
Charcoal markings on the door		"Mandla was here for murder" engraved into the wall
Angel wings in graphite medium		

Table 16: Showing graffiti emphasised by the three photography techniques for the first series of movement on the East wall bottom 1

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- East bottom 2

Visible Lighting	Raking lighting	Infrared lighting
 Figure 52: East_front_vis_bottom 2 of 4	 Figure 53: East_rak_vis_bottom 2 of 4	 Figure 54: East_ir_vis_bottom 2 of 4
Shoe print marks	"21/4/1961 till 11/1961" inscribed using a double tool method	"Ma Johannes pain" in graphite medium
Blurred fingerprint marks in charcoal medium	"Bingo was here" inscribed using a thin tool	prominent graphite print marks in charcoal medium

Table 17: Graffiti emphasised by the three photography techniques for the first series of movement on the East wall bottom 2.

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- East bottom 3

Visible Lighting	Raking lighting	Infrared lighting
 Figure 55: East_front_vis_bottom 3 of 4	 Figure 56: East_rak_vis_bottom 3 of 4	 Figure 57: East_ir_vis_bottom 3 of 4
"Kenya" in graphite medium	"Invisible rich" inscribed using double tool method	Outlined figurines beneath paint- layers
"USA" in graphite medium	"Arnold was here for murder" inscribed in the wall.	Emphasised shoeprint marks
"Windhoek" in graphite medium		"6-81" in charcoal medium
"Germany" in graphite medium		"Nkosaliffe" in graphite medium
"Asia" in graphite medium		Barricade barrier depiction ingraved into the wall.
"Berlin" in graphite medium		"Windhoek, USA, Kenya, Rhodesia" in graphite medium
Flower portrait in graphite medium		

Table 18: Graffiti emphasised by the three photography techniques for the first series of movement on the East wall bottom 3.

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- East bottom 4

Visible Lighting	Raking lighting	Infrared lighting
 Figure 58: East_front_vis_bottom 4 of 4	 Figure 59: East_rak_vis_bottom 4 of 4	 Figure 60: East_ir_vis_bottom 4 of 4
"James 1818 for 29" in graphite medium	Various spots of deep surface layers revealed	"Total 45 years" in graphite medium
"Douglas" in graphite medium		Added paint is prominent
"Petrus" in graphite medium		

Table 19: Graffiti emphasised by the three photography techniques for the first series of movement on the East wall bottom 4.

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4.2.2 East Middle section: second series of movement

- East middle 1

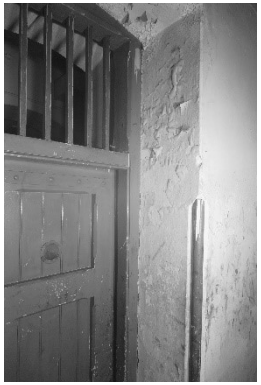
Visible Lighting	Raking lighting	Infrared lighting
 Figure 61: East_front_vis_middle 1 of 4	 Figure 62: East_rak_vis_middle 1 of 4	 Figure 63: East_ir_vis_middle 1 of 4
"Peter Moshuzuke was here for murder" in graphite medium	Stick figuring engraved using a fine tool	"ANC shall govern" in ink medium
"Power to you Muntu Myeza and others" in graphite medium	"John was here for moord 5 years" engraved on wall	"I do not know" in ink medium
Star of David sketch in graphite medium	"Rueben as Riebzar was here for moord" engraved into wall	"Nkosi" engraved in paint layer
"comforter" in graphite medium		

Table 20: Graffiti emphasised by the three photography techniques for the second series of movement on the East wall middle 1.

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- East middle 2

Visible lighting	Raking lighting	Infrared lighting
 Figure 64: East_front_vis_middle 2 of 4	 Figure 65: East_rak_vis_middle 2 of 4	 Figure 66: East_ir_vis_middle 2 of 4
"The AWB shall govern" in black ink medium		“Accused oppose trial on procedure” in graphite medium
*Racial Acronym Defined: "ANC…"in black ink medium		faded inscription more visible “ANC Making…” in graphite medium
"Terror or trial" in blue ink medium		
"Themba Nkosi" in blue ink medium		
"AWB top" in graphite medium		
"James bond was here for murder and robbery in graphite medium		
"Smindlo was here" in graphite medium		
gun sketch in graphite medium		
"ANC" in charcoal medium		

Table 21: Graffiti emphasised by the three photography techniques for the second series of movement on the East wall middle 2.

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- East middle 3

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 67: East_front_vis_middle 3 of 4	Figure 68: East_rak_vis_middle 3 of 4	Figure 69: East_ir_vis_middle 3 of 4
"Jeso" in washed charcoal	Ishamael Leso" faintly inscribed on wall	
"12 Accused oppose trial indictment procedure" in graphite medium	"Kosi" inscribed into wall	
Victory on old injustice proceedings" in graphite medium	barricade sketch inscribed into the wall	

Table 22: Graffiti emphasised by the three photography techniques for the second series of movement on the east wall middle 3.

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- East middle 4

Visible lighting	Raking lighting	Infrared lighting
 Figure 70: East_front_vis_middle 4 of 4	 Figure 71: East_rak_vis_middle 4 of 4	 Figure 72: East_ir_vis_middle 4 of 4
Here in she was built with the blood and sweat of blacks, were brought to trial for nothing other than for the liberation a swear word	Prominent tool marks penetrated onto the wall surface	Roman soldier portrait in graphite medium followed by quote
"Neo Tembisa 12 years" in graphite medium		Abstract shapes in charcoal ink medium
"Nigeria" in graphite medium		"ANC terrorist trial of its accused. State closes its case." in graphite medium
"ANC Terrorist trial" in graphite medium		
"State closes cases" in graphite medium		
"Defence start its case immediately after calls Elvis Masing" in graphite medium		
"Lekker" in graphite medium		
"Russia" in graphite medium		

Table 23: Graffiti emphasised by the three photography techniques for the second of movement on the East wall middle 4.

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4.2.3 East Top section: third series of movement

- East top 1

Visible lighting	Raking lighting	Infrared lighting
 Figure 73: East_front_vis_top 1 of 4	 Figure 74: East_rak_vis_top 1 of 4	 Figure 75: East_ir_vis_top 1 of 4
Previous restorations made prominent	opening in ceiling concave depth prominent	

Table 24: Graffiti emphasised by the three photography techniques for the third series of movement on the East wall top 1.

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- East top 2

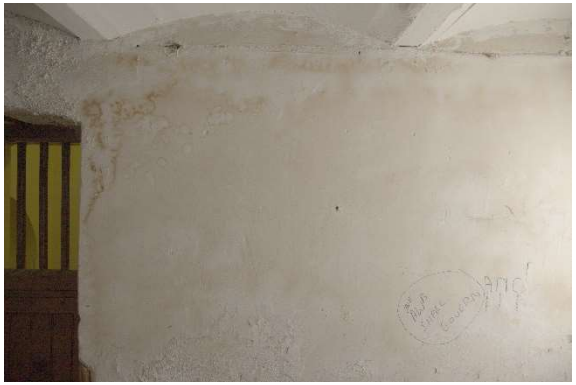
Visible Lighting	Raking lighting	Infrared lighting
 Figure 76: East_front_vis_top 2 of 4	 Figure 77: East_rak_vis_top 2 of 4	 Figure 78: East_ir_vis_top 2 of 4
“Racial Acronym Defined: "ANC…"in black ink medium.	“Ronny" inscribed using a fine tool.	Animal figurines inscibed using fine tools and a rough charcoal ink medium

Table 25: Graffiti emphasised by the three photography techniques for the third series of movement on the East wall top 2.

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- East top 3

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 79: East_front_vis_top 3 of 4	Figure 80: East_rak_vis_top 3 of 4	Figure 81: East_ir_vis_top 3 of 4
Delineated graffiti on the wall surfaces	Prominent tool marks on different layers of the wall	Missing letters more visible on the “ANC shall govern quote” with signature work.

Table 26: Graffiti emphasised by the three photography techniques for the third series of movement on the East wall top 3.

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- East top 4

Visible lighting	Raking lighting	Infrared lighting
		
Figure 82: East_vis_top 4 of 4	Figure 83: East_rak_vis_top 4 of 4	Figure 84: East_ir_vis_top 4 of 4
Crack patterns prominent on the wall layers	Ceiling layer surfaces revealed (bricks)	Previous restorations made visible.
Faint sketch in charcoal medium		

Table 27: Graffiti emphasised by the three photography techniques for the third of movement on the East wall top 4.

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4.3 South Wall

4.3.1 South First series of movement: bottom section

- South bottom 1

Visible Lighting	Raking lighting	Infrared lighting
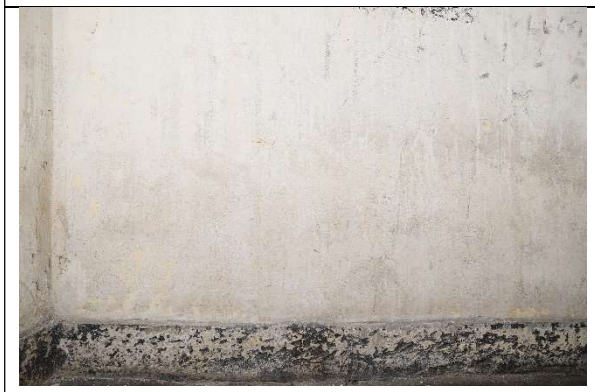		
Figure 85: South_front_bottom 1 of 3	Figure 86: South_rak_vis_bottom 1 of 3	Figure 87: South_ir_vis_bottom 1 of 3
Portrait in graphite medium	Killer" indented using a thin tool *"	"kholekjple venda TAJ 210k 134" inscribed into the wall surface"
By mac Mac" in graphite medium		"White is powerless" in ink media

Table 28: Graffiti emphasised by the three photography techniques for the first series of movement on the South wall bottom 1.

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- South bottom 2

Visible Lighting	Raking lighting	Infrared lighting
 Figure 88: South_front_vis_bottom 2 of 3	 Figure 89: South_rak_vis_bottom 2 of 3	 Figure 90: South_ir_vis_bottom 2 of 3
Blurred handprint marks in a charcoal medium	"Rona" inscribed using a thin tool	"Lucas -madi- 10 years" in charcoal medium
Hand drawing in graphite medium	Prominent cracks developing into paint creases	A surgent like officer portrait in graffiti medium
ANC Treason list[37]	Prominent surface indentations	
"Justine' in graphite medium	Bulges and undulations	
"Agus Miezla" medium	"Rich was…" carved writing impressed into paint	
"Mess" in graphite medium	"Killer" indented using a thin tool*	
"Justine" in graphite medium	Paint brush strokes going in radial	

Table 29: Graffiti emphasised by the three photography techniques for the first series of movement on the South wall bottom 2.

[37] Petrus Masango, Naphtali Mafanya, Moses Moleratso, David Modise, Johannes Modise, Jerry Radebe, Grant

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- South bottom 3

Visible lighting	Raking lighting	Infrared lighting
 Figure 91: South_front_vis_bottom 3 of 3	 Figure 92: South_rak_vis_bottom 3 of 3	 Figure 93: South_ir_vis_bottom 3 of 3
"SASO" acronym in graphite medium	"One we" carved into the wall surface	"The people of SASO" in graphite medium
Blurred print marks in a charcoal medium	"Cape Town" impressed on the paint	"Angus Mirwala" in graphite medium
		"Justin Stephani" in graphite medium

Table 30: Graffiti emphasised by the three photography techniques for the first series of movement on the South wall bottom 3.

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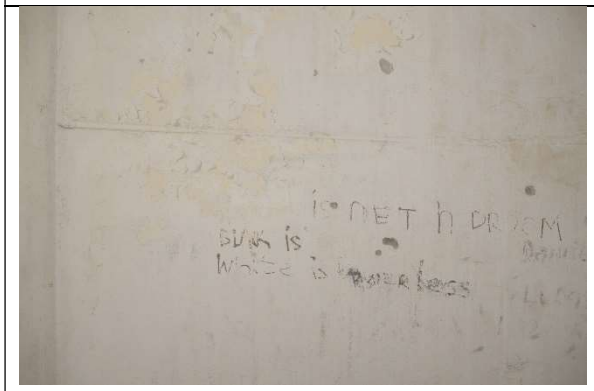
4.3.2. South Middle section: second series of movement

- South middle 1

Table 53: Showing graffiti emphasised by the three photography techniques.

Visible lighting	Raking lighting	Infrared lighting
 Figure 94: South_front_vis_middle 1 of 3	 Figure 95: South_rak_vis_middle 1 of 3	 Figure 96: South_ir_middle 1 of 3
"Is net 'n droom" written in a black ink medium	Prominent delamination of first paint layer	added paint visible
Black is" written in a black ink medium	"Orris Man" carved into the second layer of wall	"man" engraved into the deepest thrid wall layer
"White is powerless' written in a black ink medium	"Invisible" impressed into the paint layers	"black is..." in black ink medium
"Saths Cooper" written in graphite medium	"Oupa as weg vat" carved into the paint layer	
"Muntu Myeza" in graphite medium	Carved dates	
"Mosiua Lekota" in graphite medium		
"…..... Nkomo" in graphite medium		
"Pandelani Nefolohondwe" in graphite medium		

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"Kaunda Sedire' in graphite medium		

Table 31: Graffiti emphasised by the three photography techniques for the second series of movement on the South wall middle 1.

- South middle 2

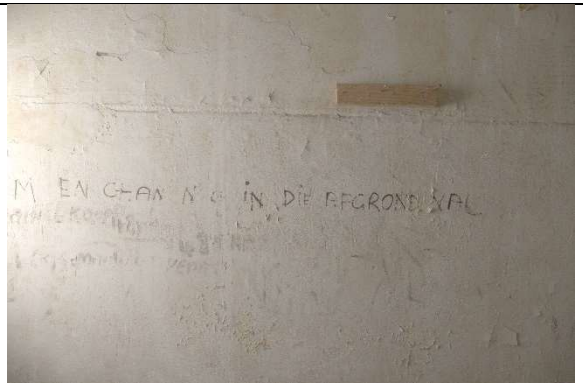
Visible lighting	Raking lighting	Infrared lighting
 Figure 97: South_front_vis_middle 2 of 3	 Figure 98: South_rak_vis_middle 2 of 3	 Figure 99: South_ir_vis_middle 2 of 3
"n droom en gaan nog in die afgrond val" in black in black ink medium	" Dead Line and and Cody Pana were Here for fire arm robbery" carved using tool.	"The people of SASO" in graphite medium
"Daniel Koopa 48 Jaare" in a charcoal medium	"11/10/1960" carved into the wall	"Justin Stephani" in graphite medium
"Freedom must" in black ink medium	“Wayne was here for murder” impressed into the paint layer	
Man in hat portrait sketch		
"ANC with our blood shall set our nation free" in black ink medium		
"Benedict M" in black ink		
"Sexwale" in black ink medium		

Table 32: Graffiti emphasised by the three photography techniques for the second series of movement on the South wall middle 3.

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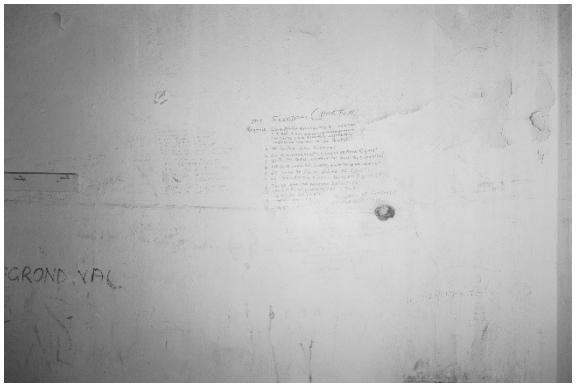
- South middle 3

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 100: South_front_vis_middle 3 of 3	Figure 101: South_rak_vis_middle 3 of 3	Figure 102: South_ir_vis_middle 3 of 3
The preamble: The Freedom Charter in black ink[38]	“Own" impressed onto the dried wall paint	n droom en gaan nog inndie afgrond val" in charcoal medium

[38] South Africa belongs to all who live in it, black and white and government can justly claim authority unless it is based on the will of the people.
1. The people shall govern, 2. All national groups shall have equal rights! 3. The people shall share in the country’s wealth! The land shall be shared among those who work it! 5. All shall be equal before the law! All shall enjoy equal human rights! 6. All shall equal human rights! 7. There shall be house and security! 8. The doors of learning and culture shall be opened! 9. There shall be security and comfort! 9. There shall be freedom and friends!

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ANC Terror Trial in graphite medium[39]	"K" carved onto the wall surface	blurred print marks in charcoal medium
"Justice must triumph over injustice" in graphite medium	Prominent damp spots revealing peeling patterns.	
Detention or no detention. Imprisonment. Death or no death. The struggle shall continue. To revindicate the right of our people. Mayibiuye I Africa. Amandla!!		
"History honors" in graphite		
"Thabiso was here but seven" in graphite medium		
"My dream is to be free" in graphite medium		
"One love" in graphite medium		
"Sir JN" in black ink		
"There comes a time in the life of a nation where only love conquers" in blue ink medium		
Portrait of a man in graphite medium		

Table 33: Graffiti emphasised by the three photography techniques for the second series of movement on the South wall middle 3.

[39] Mosima Sexwale 18 years, Naledi Tsikies 10 years, Lelo Jacobs 12yrs, Samuel Bafana Mohlanetsi 10 yrs, Elias Maphanga discharged, Martha Ramashilo 7yrs, Joe. Qgabe discharged, Petrus Nchelenchy discharged Nelson discharged Michael Ngibency discharged Jace Shohola 12 years, Paulina Mohale discharged.

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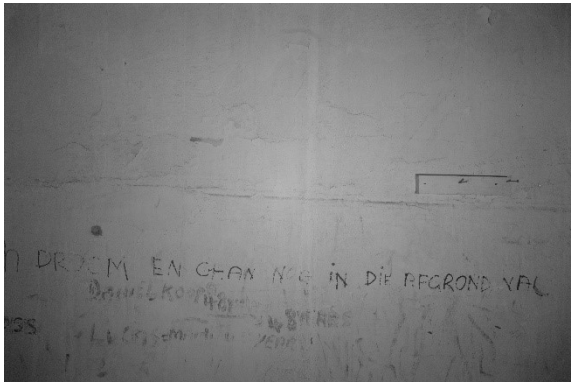
4.3.3 South Top section: third series of movement

- South top 1

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 103: South_front_vis_top 1 of 3	Figure 104: South_rak_vis_top 1 of 3	Figure 105: South_ir_vis_ 1 of 3
"Saths Cooper" in graphite medium	Peeling pattern of the paint layer	"histpory hondras in graphite medium

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"Muntu Myeza" in graphite medium	Shows different paint layers	Declaration clearer.[40]
"Mosiua Lekota" in graphite medium		Corrections made on previous graffiti using graphite medium
"Munwe Nokoape" in graphite medium		"ANC Terror Trial" clearer
"Phindelani Nefolonhodwe" in graphite medium		
"Power for SASO and ANC" in graphite medium		

Table 34 Graffiti emphasised by the three photography techniques for the third series of movement on the South wall top 1.

- South top 2

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 106: South_front_vis_top 2 of 3	Figure 107: South_rak_vis_top 2 of 3	Figure 108: South_ir_vis_ top 2 of 3
"Terrorism charge 1974 see detention	Revealing lacuna depth into the surface of wall	" blurred print marks in charcoal medium
Daniel Koopa" in charcoal medium		Missing letters on preamble readable.

[40] Detention or no detention
Imprisonment or no imprisonment
death or no death
the struggle shall continue
To vindicate the right of our people.
Mayibuye I Afrika
"Amandla"

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"1975-1976 Trial" in graphite medium	Overpainting from ceiling has dipped onto the wall.	
Justice must triumph over injustice" in graphite medium		

Table 35: Graffiti emphasised by the three photography techniques for the third series of movement on the South wall top 2.

- South top 3

Visible Lighting	Raking lighting	Infrared lighting

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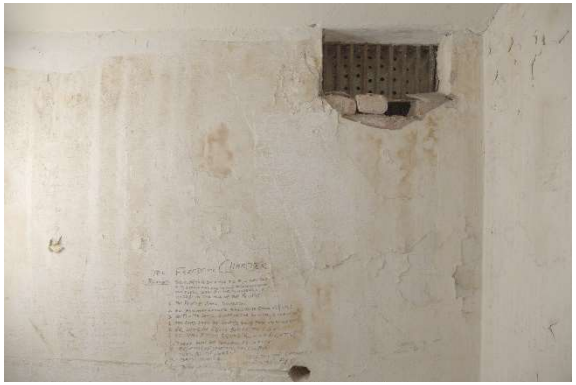
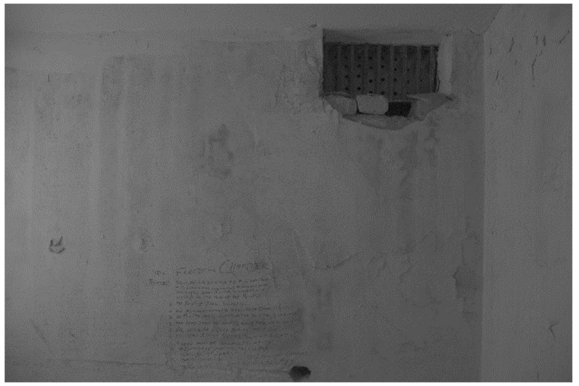
 Figure 109: South_front_vis_top 3 of 3	 Figure 110: South_rak_vis_top 3 of 3	 Figure 111: South_ir_vis_top 3 of 3
The Preamble: The Freedom Charter in graphite medium	Fissure developments surrounding the ventilation duct panel	
The ANC Terror trial list in graphite medium	"ANC Total" carved into the wall surface	
Iphram Khan" in graphite medium	Tool marks across different locations of the wall.	

Table 36: Graffiti emphasised by the three photography techniques for the third series of movement on the South wall top 3.

4.4. West Wall

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4.4.1 West Bottom section: first series of movement

- West bottom 1

Visible Lighting	Raking lighting	Infrared lighting
 Figure 112 West_front_vis_bottom 1 of 4	 Figure 113: West_rak_vis_bottom 1 of 4	 Figure 114: West_ir_vis_bottom 1 of 4
There comes a time in the life of every nation where the remains only two choices. To submit or fight, and we have no choice, but to hit back with all means we have in our freedom, and our future.	Prominent paint brush stroke pattern visible	Emphasis made on body figurines in graphite medium
"Got sentenced" in charcoal medium		"12 Accused ANC Terror Trial" in bkack ink medium
Blurred handprint dragged in charcoal medium		"12 Accused ANC Terror Trial" in bkack ink medium

Table 37: Graffiti emphasised by the three photography techniques for the first series of movement on the West wall bottom1.

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- West bottom 2

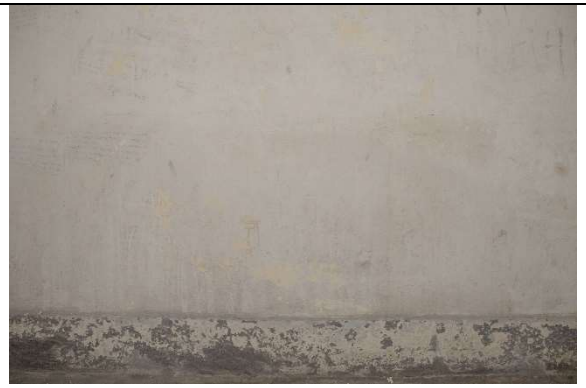
Visible Lighting	Raking lighting	Infrared lighting
 Figure 115: West_front_vis_bottom 2 of 4	 Figure 116: West_rak_vis_bottom 2 of 4	 Figure 117: West_ir_vis_bottom 2 of 4
Preamble of the nation in blue ink[41]		Vanessa got sentenced" in graphite medium
Got sentenced" in charcoal medium		"BPC SASO" inscribed into the wall using a thin tool .
Blurred handprint dragged in charcoal medium		

Table 38: Graffiti emphasised by the three photography techniques for the first series of movement on the West wall bottom 2.

[41]Another version of the preamble: We, the people of SA declare for our country and the world to know that SA belongs to all who live…and that no government can justly claim authority unless it is based on the will of all who people first.

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- West bottom 3

Visible Lighting	Raking lighting	Infrared lighting
 Figure 118: West_front_vis_bottom 3 of 4	 Figure 119: West_front_vis_bottom 3 of 4	 Figure 120: West_ir_vis_bottom 3 of 4
*Mother and child portrait sketch in graphite medium	Prominent graffiti that goes into the second layer of paint	prominent shorprint marks
Shoe print impressed onto the wall surface	Peeling graffiti	mother and child portrait on the wall in graphite medium
"Mandela has no easy walk to freedom" in graphite medium		Prominent charcoal print marks

Table 39: Graffiti emphasised by the three photography techniques for the first series of movement on the West wall bottom 3.

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- West bottom 4

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 121: West_front_vis_bottom 4 of 4	Figure 122: West_rak_vis_bottom 4 of 4	Figure 123: West_ir_vis_bottom 4 of 4
Stock man drawings in graphite medium	"1970" in graphite in graffiti medium	

Table 40: Graffiti emphasised by the three photography techniques for the first series of movement on the West wall bottom 4.

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4.4.2 West Middle section: second series of movement

- West middle 1

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 124: West_front_vis_middle 1 of 4	Figure 125: West_rak_vis_middle 1 of 4	Figure 126: West_ir_vis_middle 1 of 4
"ANC Terrorist Trial" in graphite medium	Carved portrait in in filled with blue ink medium	Emphasis on the 1 of 3 versions of the Freedom charter in graphite medium. [42]
"Daniel Mogasho" in red ink medium	"Shafa was here" inscribed into the first wall layer	"Tideex chommies" in graphite
Yah ouens so gaan dit by by wereld is kak op kak. Ek sal niem moet a sinhle saan ek moet *kafaers* op my kop.	Paint peeling patterns revealed	" Daniel Koopa was here for proof…" in graphite medium
"Education shall be free" in graphite medium	"Preto" carved into the wall surface	"Mofokeng" in graphite medium

[42] Freedom Charter 1:
The country SA (SA Belongs to all).
The people shall govern.
All shall be equal before the law.
The wealth of the country shall be shared all those who belong on it.
Education shall be free.
There shall be freedom of worship.
There shall be universal suffering.

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"There shall be freedom" in graphite medium	"Tanzania" carved into the first layer of paint	
"There shall be universal suffering" in graphite medium		
"Power" in graphite medium		
"SASO, TECON & [ET& SRC (TURFLOOP) TRIAL in graphite medium		
"The last political trial before liberation…" in graphite medium		
"Power and solidarity" in graphite medium		
“We do not want what belongs to others, though others have deprived us of what belongs to us” in graphite medium		

Table 41: Graffiti emphasised by the three photography techniques for the second series of movement on the West wall middle 1.

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- West middle 2

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 127: West_front_vis_middle 2 of 4	Figure 128: West_rak_vis_middle 2 of 4	Figure 129: West_ir_vis_middle 2 of 4
Hangman noose drawing in graphite medium	Mazibuko David was here" carved into the wall.	Hangman noose drawing with ANC detail on it in graphite medium
“Your comrade in the struggle, Masile Saul” in graphite medium	"SASO Boys list"carved into the wall.	Emphasised "I'm in LOI" declaration in graphite medium. [43]
"Charged for terrorism" in graphite medium	"Victory is certain" carved into the wall.	" N 63" in graphite medium
"By the power of God through ancestors' in graphite medium	"ANC" Carved and infilled with graphite medium	
"You blacks are the children of Noah's son" in blue ink medium	"No easy walk to freedom" carved into the wall.	
	"There is no easy road to freedom" carved into the wall.	

Table 42: Graffiti emphasised by the three photography techniques for the second series of movement on the West wall middle 2.

[43] Gentlemen of the underworld, PAC, and ANC becareful of the this maile
for he is a walking snake. Because when he is in an organisation he always plays an FBI amongst the comrades. Please watch out that he must hide himself behind him. Because if you are careful of him, he will get of you within your rich. But i think he is digging his own grave as you his.... and his grave below. He will stand and die in our own hands because this only the way to save the African people from him sincerely Mr no name,

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- West middle 3

Visible Lighting	Raking lighting	Infrared lighting
 Figure 130: West_front_vis_middle 3 of 4	 Figure 131: West_rak_vis_middle 3 of 4	 Figure 132: West_ir_vis_middle 3 of 4
*Mother and child portrait in graphite medium.	SASO 13 Terror" carved in the wall.	"Amandla" inscribed into the wall
"Hail" in blurred charcoal medium		A fainted version of the preamble made visible.[44]
What's state about me, I'm also witnessing that there are people who are flying with experience like kites 26 yamtshami defined by experience		

Table 43: Showing graffiti emphasised by the three photography techniques for the third series of movement on the West wall middle 3.

[44] he country SA (SA Belongs to all)
The people shall govern
All shall be equal before the law
The wealth of the country shall be shared all thpse who belong on it
Education shall be free
There shall be freedom of worship
There shall be universal suffering

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- West middle 4

Visible Lighting	Raking lighting	Infrared lighting
 Figure 133: West_front_vis_middle 4 of 4	 Figure 134: West_rak_vis_middle 4 of 4	 Figure 135: West_ir_vis_middle 4 of 4
"Luhtuli says, the road to freedom is via the cross" in green ink medium	"Power to you all" carved into the wall.	
"Psalm 91" in graphite medium	"He fought against racism, evil and oppression" carved	
Shall the throne of iniquity have fellowship with thee, which frameth mischief by a law? Psalm 94:20	[1]"Is conditioning this year 1975 is not exception" carved	
"30 brothers are of me" in graphite medium		

Table 44: Graffiti emphasised by the three photography techniques for the third series of movement on the West wall middle 4.

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4.4.3 West Top section: third series of movement

- West top 1

Visible Lighting	Raking lighting	Infrared lighting
 Figure 136: West_front_vis_top 1 of 4	 Figure 137: West_rak_vis_top 1 of 4	 Figure 138: West_ir_vis_top 1 of 4
The Freedom Charter" in graphite	Prominent surface texture and peeling patterns	

Table 45: Graffiti emphasised by the three photography techniques for the third series of movement on the West wall top 1.

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- West top 2

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 139: West_front_vis_top 2 of 4	Figure 140: West_rak_vis_top 2 of 4	Figure 141: West_ir_vis_top 2 of 4
Hangman noose in continuous detail	Ceiling concave depth revealed	Prominent hangman noose
	Previous paint restorations revealed	

Table 46: Graffiti emphasised by the three photography techniques for the third series of movement on the West wall top 2.

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- West top 3

Visible Lighting	Raking lighting	Infrared lighting
 Figure 142: West_front_vis_top 3 of 4	 Figure 143: West_rak_vis_top 3 of 4	 Figure 144: West_ir_vis_top 3 of 4
"16/3/84 8 Jaar in blue ink medium	Prominent Capillary action	hidden signatures
"Edries Leyds, Johannes Januarie" in blue ink medium		Gentlemen of the underworld, PAC, amd ANC be careful of the this maile in graphite medium
"Isaac Liberty, George Thome" in blue ink medium		
Hangman noose sketch in graphite		

Table 47: Graffiti emphasised by the three photography techniques for the third series of movement on the West wall top 3.

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- West top 4

Visible Lighting	Raking lighting	Infrared lighting
 Figure 145: West_front_vis_top 4 of 4	 Figure 146: West_rak_vis_top 4 of 4	 Figure 147: West_ir_vis_top 4 of 4
"550 DI, C 705" in graphite medium	Revealed prominent delamination spots	

Table 48: Graffiti emphasised by the three photography techniques for the third series of movement on the West wall top 4.

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4.5 North Wall

4.5.1 North bottom section: first series of movement

- North bottom 1

Visible Lighting	Raking lighting	Infrared lighting
 Figure 148: North_front_vis_bottom 1 of 3	 Figure 149: North_rak_vis_bottom 1 of 3	 Figure 150: North_ir_vis_bottom 1 of 3
Blurred fingerprint marks in charcoal medium	"Kwamu was here for murder" engraved into the wall	prominent shoeprint marks
	"Return unto thy rest" infilled with graphite medium	“Let them arise, let them be" inscribed and infilled with graphite medium

Table 49: Graffiti emphasised by the three photography techniques for the first series of movement on the North wall bottom1.

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- North bottom 2

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 151: North_front_vis_bottom 2 of 3	Figure 152: North_rak_vis_bottom 2 of 3	Figure 153: North_ir_vis_bottom 2 of 3
“You must, for kiets” in graphite medium	"TVBP10 BOACCI" engraved into the second paint layer	harp portrait in graphite medium
	shoeprint mark impressed onto the wall.	"10-12-61" in charcoal medium

Table 50: Graffiti emphasised by the three photography techniques for the first series of movement on the North wall bottom 2.

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- North bottom 3

Visible Lighting	Raking lighting	Infrared lighting
 Figure 154: North_front_vis_bottom 3 of 3	 Figure 155: North_rak_vis_bottom 3 of 3	 Figure 156: North_ir_bottom 3 of 3
Corrosion products covering graffiti	Structural peeling patterns made prominent	tree and plant portrait on wall
	Peeling charcoal marks on the wall	"Del ray" in graphite medium
	Prominent corrosion product on wall.	Signature scribbles in graphite medium

Table 51: Graffiti emphasised by the three photography techniques for the first series of movement on the North wall bottom 3.

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4.5.2. North Middle section: second series of movement

- North middle 1

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 157: North_front_vis_middle 1 of 3	Figure 158: North_rak_vis_middle 1 of 3	Figure 159: North_ir_middle 1 of 3
"Mabeko Benedict was here on the 12-6-1967 till 12-6-72" in graphite medium	"Joseph" carved into the wall surface	added paint with paint drips
"Sentence 7 years for murder of Mr Mphumba & Mrs Mphumba" in graphite medium	"Kwatli was here for murder" carved into the wall surface.	"10-12-1966" in graphite medium
"Sunnyboy was here for murder and robbery on the 16/3/70" in graphite medium.	Prominent markings on wall revealed	
"12-12-1966" in graphite medium		
"Pitso" in charcoal medium		
A staff portrait with geographical jurisdictions in graphite medium[45]		
Stick figure in graphite medium		
"Gibi High Court" in graphite medium		
"16 Years" in graphite medium		

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"Thomy 12 years" in graphite medium		
“Tshimane" in blue ink medium		

Table 52: Graffiti emphasised by the three photography techniques for the second series of movement on the North wall middle 1.

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- North middle 2

Visible Lighting	Raking lighting	Infrared lighting
		
Figure 160: North_front_vis_middle 2 of 3	Figure 161: North_rak_vis_middle 2 of 3	Figure 162: North_ir_vis_middle 2 of 3
"Daniel Masango" in graphite medium	"Vegas" inscribed into the wall surface	Prominent fingerprint marks in charcoal detected.
"Gun man" in graphite medium	"Davy & Jan" inscribed into the wall	
Woman figurine in graphite medium		

Table 53: Graffiti emphasised by the three photography techniques for the second series of movement on the North wall middle 2.

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- North middle 3

Visible Lighting	Raking lighting	Infrared lighting
 Figure 163: North_front_vis_middle 3 of 3	 Figure 164: North_rak_vis_middle 3 of 3	 Figure 165: North_ir_vis_middle 3 of 3
"Faded quote" in red ink	Ventilation duct previous restorations visible	Added paint with drips
	Ventilation joint discernible	“49160 Zandiswa” in graphite medium
	Apparent paint finish and previous restorations visible	“I” in graphite medium

Table 54: Graffiti emphasised by the three photography techniques for the second series of movement on the North wall middle 3.

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4.6 Conclusion

The recording of the graffiti on each wall followed the series of movement. This process has not been applied to the space in the past. Also, it is important to highlight that although each photography technique made the graffiti more visible, some of the graffiti remained undetectable due to the condition damages as a result of physical, chemical or biological deteriorations. Henceforth, some of the graffiti recordings appear incomplete and indicated by ellipses. All discernible graffiti was recorded, despite their racial or political inclinations. Finally, this is indeed indicative of the timeline the holding cell has expanded on over the years. As noted, museums and or heritage institutions are mirrors of power, henceforth some of the routine maintenance done in the holding cell were telling of the political regime in charge.

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CHAPTER FIVE: DIGITAL CONSERVATION AND TOURISM

5.1 Introduction

This chapter describes how the digital products (photographs and the documentation) of the holding cell can be applied to encourage responsible tourism by prioritising edutainment, social prescription, and wellness as forms of tourism and scientific research.[46] Social prescription is an extension of health and wellness tourism whose participation is simply motivated by the gain of physical, mental and spiritual health through medical and wellness-based activities. These are linked to heritage institutions, such as museums, to increase the ability of individuals to meet their own needs and function better in their social and work lives (Mota *et al.,* 2023:2). In line with the holding cell, social prescription is applied through immersive and virtual experiences by touristic simulations as a way to enhance wellbeing among the public and professional stakeholders.[47] These precepts have been focused on the fulfilment of the sustainable goals (SDGs) number 3) good health and wellbeing, 4) quality education, and 12) responsible consumption and production in the South African context (United Nations, 2024:[sp]).[48]

Furthermore, this chapter suggests ways in which tourism can be conducted for high-risk and significant heritage places/objects (that are deteriorating at fast rates). Thus, a high demand to prohibit visitor access into the holding cell is the most conservative solution for holistic retention of the space. It has been realised that public and professional stakeholders such as school groups via the POJ professional members still have access to the holding cell thereby posing an extended threat to the stability of the heritage space.[49] Now, it has already been established that the periodic access into the cell is especially catalytic to the damage of the holding cell graffiti as outlined in the Condition Assessment and Condition Reports of in Chapter Two. Therefore, this chapter addresses the gap between meeting the demand for touristic endeavours of heritage objects that cannot be physically visited or experienced in real time whilst simultaneously caring for the heritage object due to its possession of an abundance of value.

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[46] Social prescription is a recommendation that links medical patients in primary care with sources of support in collaboration with the tourism community (Bickerdike, 2016:2). This is conducted with the aim to improve recovery from mental and physical ills that help shift the mindset into an improved physical state for their health and well-being (Mota et al., 2023:20).

[47] Social prescription provides countless benefits namely, improving better commitment and increased social interaction, improved mental wellness, helps tourists feel less limited, more functional activities and overall increased social interaction (Costa, 2020:51).

[48] SDG 3 Good health and well-being: Ensure healthy lives and promote wellbeing for all ages.
SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
SDG 12 Responsible consumption and production: Ensure sustainable consumption and production.

[49] The space is not managed by museum professionals that are aware of the importance of preventative conservation and the factors that damage and cause deterioration of cultural heritage.

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This strategy has been informed by the digital projection of the Mark Rothko Harvard murals collection. This strategy employs a camera-projector technological system that includes custom-made software that restores the appearance of the Harvard murals into their original appearance prior to their fading (Special Exhibitions Gallery, Harvard Art Museums, 2015:[sp]). The reason behind the selection of this inspiration is because the Harvard murals represent an extent of parallelism to the 'Mandela Cell' of the POJ. Both objects are highly unstable, but culturally significant. George Bezos (cited from Smith (2014:[sp]) called for "the cell to be recognised as a national heritage site, adding: 'This is where we had consultations with Nelson Mandela, Walter Sisulu, Govan Mbeki and others. There should be respect to protect these things. I hope people who have control take notice of it'". Now the higher the cultural significance, the higher the demand by the public to experience these works for either personal or professional purposes. Thus, the goal of conservation is to not only maintain the values possessed by these physical objects. But the touristic demand is also met by showcasing the holding cell photographs to the public who are consumers of heritage via tourism (Avrami *et al.,* 2000:8). Also, the touristic demand is proposed to be met through simulation tours namely virtual tours, virtual exhibitions and temporary exhibitions in heritage institutions which all fulfil the need for social prescription and edutainment.

5.2 Linking digital conservation and tourism for the POJ holding cell

The holding cell has been classified as a 'high-risk' heritage site due to its physical, biological, and chemical state and damage. Previously, the preservation and promotion of cultural heritage has long been confronted by challenges that demand the integration of digital technologies as feasible methods of preservation. Similarly, "the limitations of recording intricate heritage artifacts, and the complexities of preserving and accessing these heritage objects" require digital technology and equipment (Avci & Akyol, 2023:103). Thus, this chapter focuses on the merging of digital conservation aligned with tourism. Herein, the concept for conducting tourism for 'high-risk' heritage sites as tourism plays a role in what is being conserved and how it is being conserved, highlighting the mutual benefit and reliance of the two on each other (Orbasli &Woodward, 2009:324).

Now, the non-invasive nature of the digital method applied in the holding cell was best suited to help the transition to virtual access to the holding cell. This non-invasive documentation was applied for the holding cell as it is a powerful tool in ongoing conservation and management (Maetti, 2022:139). Herein, the principle of tourism is evident: nurturing cultural understanding from a historical perspective that arouses curiosity thereby linking different generations to their past for a transformative future (Avci & Akyol, 2023:103). As a result, the role of digital technologies helps enhance the touristic experience by simulating a visit to the site in 'real time' or virtually through a screen. This then draws traction towards the preservation efforts done in damaged objects and highlights the importance of these conservation efforts that have been applied to the holding cell. As a result, conservation efforts are

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succinctly linked with the tour simulations about the techniques and processes involved in preserving heritage and the ongoing need of heightened technologies needed for in-depth digital conservation work.

5.2.1 The concepts of virtual simulations

Ali Berkay Avci and Gamze Akyol (2023:103) express that digital technologies aligned with tourism offers attractive features that are transformative for the cutting-edge potential in overcoming the longstanding challenges experienced in the preservation and presentation of cultural heritage.[50] This shift proposes that heritage tours nurture a cultural understanding through the digital accessibility of objects. Montserrat Crespi-Vallbona (2020:3) describes that this strategy can only be achieved when a tour meets the expectations and needs of tourists or visitors. Therefore, the proposed tourist simulations drawing inspiration from Avci and Akyol's (2023) interactive multimedia exhibits. These simulations are crucial for visitors to construct meaningful connections with cultural heritage. As a result, the ability to construct meaning suffices that the five determinants of a good touristic experience are met as tourists or visitors can deduce meaning, increase engagement with the media, infer knowledge from the tours, experience hedonism and consequently advocate for local culture (Crespi-Vallbona, 2020:4-6). Similarly, a good tour is gauged by its ability to align the five determinants of a good tour with the common goal in ability to evoke visitor participation through touch and actively interacting with the heritage medium. However, this cannot take place as the photographic material from the holding cell will be projected using light and displayed through framed two-dimensional photographs on walls of a set venue.

Another challenge with a tour that gauges the five determinants is the exclusion and the othering of differently abled visitors or tourists. However, the 'othered' or differently abled tourists have been considered as the proposed touristic simulations have been designed to diversify the touristic experience for PWDs (People with disabilities). Therefore, the objective of the holding cell simulation tours is to counteract this challenge by employing multi-intelligences such as bodily-kinaesthetic for blind tourists and autistic persons, visually linguistic for mute or deaf individuals, visually spatial for wheelchair-bound, crippled, or deformed and musical intelligence for persons with ADHD (attention deficit/hyperactivity disorder). These multi-intelligences will be expressed through literacy elements such as listening, technology, viewing, reading, gestural, and talking aligned with the 'tourist gaze'. These are inherently applied to help the types of tourists fully comprehend by formulating meaning based on a combination of personal views as well as information by professional guides in each session

[50] Digital technologies such as photogrammetry and 3D scanning by the conservators is applied so that the audience can experience virtual reality (VR), interactive multimedia exhibits, digital accessibility initiatives, augmented reality (AR) to advance heritage tourism for 'high risk' heritage sites and objects (Avco & Akyol, 2023:103).

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(Wetsby, 2010:66). Thus, the tourist gaze becomes a visual activity framed by the visitor/tourist's ability to experience through the multi-intelligences, completely dismissing touch in context of the digital display of the digital photographs.

It is especially important to express these multiple elements to ensure that diversity is a core tenet that redefines what has been classified as a 'normal' tourist and the 'othered' tourist (Ozcan *et al.,* 2021: 64). This relies on the notion that the photographs will be exhibited using multimodalities that express the elements of literacy applicable for all types of tourists. These are expressed by imitating the emotions felt when accessing the space in person. These emotions are based on the political tug of war represented by the holding cell: excitement, curiosity, familiarity, pride, and interconnectedness – including a distinguished ability to attach meaning to the cell in its entirety. The blend of conventional displays in heritage sites with digital technologies "connects present generations with their past" (Avci & Akyol, 2023:104). This is edutainment in action. As a result, social prescription is applied through immersive experiences and virtually by the touristic simulations as a strategy that enhances well-being, mental health, and active learning among the public and professional stakeholders. Montserrat Crespi-Vallbona (2020:3) highlights that cognitive pleasure results from information sharing, learning, and collecting tourist products (i.e. souvenirs), which is directly proportional with high visitor interaction. Then maintenance of the cognitive satisfaction, as opposed to a physical tour, in the 'Mandela cell' meets the tourists' or visitors' expectations, which awards the virtual simulations with a memorable and authentic edge. Also, these touristic simulations carry edutainment at their core as the cognitive acts are incentivised by technological engagement with the photographs, which in turn guarantees high interaction with the images of the holding cell.

The use of digital technologies aims to encapsulate storytelling that empowers visitors to engage with the history endued by heritage objects. Given this principle, the holding cell tour narratives will not only empower the visitors/tourists. Instead, the narratives will advocate for skilled professionals to compile narratives, then lead the tours so that the narratives during tours are easily decoded with no influence of noise.[51] It is especially important that skilled professionals lead the narratives for the simulation projects, because tourism narratives and provenance about the life of the holding cell is constantly updated overtime as the simulation exhibits are inspired by educational and social prescriptive motivations. Like memory, heritage institutions like museums and art galleries serve as mediators of the past, present, and future wherein the curated narratives have become institutionalised as public memory (Davidson, 1998:146).

[51] Noise is defined as a barrier to communication that hinders the verbal, gestural, written means of receiving and understanding information between individuals or in a group setting (Rani, 2016:74).

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Since museums take a pedagogical stance, they must confront the burden of their own history in reshaping a new future. This amplifies that the application of digital technologies to project and display the holding cell photographs as a heritage object will actively encourage South Africans to redress the past and address the present and future. This is especially important as qualified and trained professionals such as curators cannot control tourism but ensure that the narratives uphold museums as places of education and mirrors of power (Davidson, 1998:150). The curatorial, leisure (social prescription) and educational functions are advantageous for the following relevant simulations that will be an extension of the physical holding cell. Henceforth, Table 99 below summarises the components of each simulation type that are further discussed in each touristic simulation.

Simulation components				
Tour Simulation	**Platform**	**Narrator**	**Recorded or in real-time?**	**Collaborative?**
Virtual tour	Google Meets Microsoft Teams Zoom Blackboard Collaborate	Tour guide	Real Time Recorded: Directional audio technology	Yes
Digital exhibition	Heritage institutions	Tour guide	Directional audio technology	Yes
Photographic exhibitions	Heritage institutions	Tour guide	Recorded Directional Audio	Yes

Table 55: Summary of the simulation components.

5.3 Applied simulation tours

5.3.1 Virtual, online exhibitions

A virtual tour is a simulation of an existing location using sequential videos, still images, and panoramic views with the employment of other multimodalities such as music accompanied by sound effects, floor plans, and written text, on an online platform (Siu, 2022:[sp]). Given this preface, virtual, online exhibitions of the holding cell draw inspiration from multi-media platforms such as Google Arts and Culture for the layout format of the information. The distinctive difference is that virtual, online exhibitions propose to design tour packages with both neurotypical and neurodivergent visitors/tourists in mind (Jepson *et al.,* 2023:15). Also, the online display mimicking a 'real-time' tour suffices that unlike Google Arts and Culture, online tourists do not have agency to experience the tours through the virtues of unconstraint and exploration by means of hovering over different subsets on a website page. Now, this is not disadvantageous, as a human-facet is integrated in virtual, online exhibitions to encourage significant participation. Amongst the identified tourists who experience the world in different ways, it can be guaranteed that all the other four determinants of a good tour will be met as tour packages are tailored according to the needs of clientele. Thus, virtual, online exhibitions are hybridised tours with a real human-feel and can be accessed through a link provided following booking arrangements (Kuriniasari, *et al.,* 2022:37). This means that curators in collaboration with tour guides will be responsible for ensuring that historical information by the receivers (online tourists) is decoded

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efficiently in a way that is beneficial for them. On the other leading edge of this benefit is the ability of online, virtual exhibitions to make holidaymaking 'edutaining' (Jepson *et al.,* 2023:12). Although the simulative exhibitions are conducted in a different geographical disposition from that of its original setting, the experience in 'real-time' is proposed to be linked to the same claustrophobic experiences linked with the power of the graffiti. Although, this aspect is to an extent lost, it solidifies the method of the simulations as a 'gold standard' due to its emphasis in safeguarding what is left in historical evidence by eliminating visitor access temporarily. Then, stabilisation of the holding cell is guaranteed to ensure tourist consumption long term as the proposed simulation exhibitions have been measured against the five determinants that guarantee an enjoyable touristic experience. Herein, a short compromise is guaranteed to yield long-term results. As this influences visitor satisfaction, proactive methods will be employed to measure the viability of these simulations during their 'pilot' developmental stages.

'Visitor' satisfaction will be determined using the dissemination and distribution feedback channels such as share feedback algorithms on varied social media platforms, comments on social media platforms and the overall stream of comments attached on these virtual platforms to assess tourist/visitor satisfaction during and after virtual, online exhibitions. This feedback attributes social media as a viable tool that results in positive word-of-mouth, increased purchase interaction, and repeated visits to a site (Chen *et al.,* 2022:2). Gabriela Dumitrescu, Cornel Lepadatu and Cristian Ciurea (2014:2) emphasise that virtual exhibitions are authentic since they are alternatives to physical exhibitions and have the capacity to engage multiple media that ensures the five determinants are maintained. Segments include two-point strategies wherein visitors can engage with the digital material on one end of a screen whilst having a narrating person on the other end of the experience. As a result, the tour appeals to the pathos, ethos, and logos of its audience.[52]Although the heritage is removed from its original context and cannot be ignored, collaboration is emphasised as a central tenet key to the success of heritage conservation even as a part of curatorial exhibitions. Therefore, different ideologies supported by research and political correctness are proposed to be key to these digital simulations as the holding cell cannot be presented from one perspective.

5.3.2 Digital, immersive exhibitions

A digital exhibition is an immersive presentation of an idea or object using appropriate software (Siu, 2023:[sp]). The concept, as inspired by the Harvard murals mentioned earlier, is to project the digital images, in life-size format, unto blank walls, such as a white cube in a gallery, to enable the immersion

[52] Pathos is an appeal to the emotions of the audience (visitors/online tourists). Ethos is the ability to convince an audience through credibility of a reliable speaker (such as a registered and accredited tour-guide). And logos appeals to logic and reason (the historical information and provenance detail about the condition of the cell, the history of the cell, background information of the POJ and evidence allowing engagement with the heritage object and technical photographs) (Higgins, & Walker, 2012:195).

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of the tourist into a physical space which has been enhanced with sound, lighting, and an atmosphere similar to the actual holding cell. To present a collection or set of collections in a unique way, digital exhibitions bring, connect, then distribute digital multimedia to enable a high degree of user interaction (Fernandez & Lopez, 2012:232). The motivating factors behind the choice in simulation is its advantageous edge in prioritising accessibility, maintainability, interaction, localisation, relevance, and interaction (Dumitrescu *et al.,* 2014:2).[53] Henceforth, directional audio technology can be employed as a 'tourist guide' as it will engage visitors. This concept encompasses narratives recorded by a professional or a tour guide that only activates through sensory load when a visitor is standing in front a specific display (Akoustic arts, 2024:[sp]).[54] Now, digital exhibitions also include the simulation of the experience and emotions felt with cultural heritage. Therefore, the environment on this proposed immersion is recreated to simulate the authentic environment of the holding cell at the POJ. The following heritage institutions has been identified to meet the needs and conventions of the proposed digital exhibition:

- Javett-UP Art Centre located at the University of Pretoria
- A vacant room at the Place of Justice
- The Constitutional Court of South Africa

5.3.3. Photographic exhibitions

A photographic exhibition is an exhibition set up in a heritage institution, such as an art gallery (Jaffe, 1963:31). The purpose of a photographic exhibition is to exhibit photographic material to be enjoyed by visitors and/or tourists (Setyawan *et al.,* 2023:49). The success of this exhibition is reliant on the following factors of display:

- catalogue,
- wall space partitioning,
- lighting,
- circulation or rotation of visitors,
- assembly of the exhibition,
- and, tour guides and talks (Jaffe, 1963:35).

[53] Accessibility is defined as the ability to reach audiences both local and international that a physical exhibition could never (Dumitrescu *et al.,* 2014:103). Maintainability refers to the possibility of the tour narratives update due to new information (Dumitrescu, *et al.,*2014:102). This refers to the condition of the holding cell walls and graffiti. Localisation means familiarising the visitors with the context and cultural elements of the holding cell (Dumitrescu *et al.,* 2014:102). Relevance supposes that the national brand identity possessed by the holding cell attracts many visitors to these digital tours (Dumitrescu *et al.,* 2014:102). Interaction contends that the platform used for the virtual exhibitions has a feature that gives users and opportunity to interact with the application – for example, zooming in and out on the photographs (Dumitrescu *et al.,* 2014:102).

[54] Directional audio technology occurs in the form of a brief description of information not captured in the description of an artwork, is spoken word, ambient music or an audio enhancement that heightens the interactive component in a museum (Akoustic Arts, 2024).

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The factors demand that tangible material of the digital photographs be printed for exhibition. In order to apprehend this output, the AIC guide for printing post-processed images for display is proposed to be followed as convention. This is because Warda *et al.* (2011:91) highlight that to ensure the physical photographs simulate the digital photographs, printer profiles must be applied bearing the details of brightness, contrast, and accurate colour saturation in mind for best quality. Henceforth, the digital stewards of these photographs are advised that the images be printed with applications that manage colour automatically. For example, RawTherapee or Adobe Acrobat are two distinctive software advised to manage colour automatically during the print process due to its built-in metadata interpretation of the raw images for accurate quality. As a result, the tangible images will be guaranteed to be accurate presentations of the holding cell. Congruent with this convention for printing, archival paper is best practice for printed material. Other supportive material enabling the manifestation of the tangible copies include proper framing and acid-free storage boxes that are capacitated to house the dimensions of the photographs.[55]

5.4. Conclusion

These simulations promise to fulfil the sustainable development goals as each component requires different professionals. It is indubitable that the successes of these touristic simulations lend from the disciplines of psychology, anthropology, politics, and history to express the five determinants (deduce meaning, increase engagement, infer knowledge, experience hedonism and advocate for culture) that ensure a tour is highly engaging resulting in improved participation from the visitors. Now, the execution of these simulations relies on the digitisation of tourism that has manifested through smart tourism which involves innovative forms of collaboration and value creation based on the treatment of data from all the individuals involved (Rodrigues *et al.,* 2022:14). As a result, the urgent call to prohibit physical access into the holding cell, simultaneously prioritising heritage values, is circumvented by allowing access via the proposed exhibitions. Thus, awareness about the core reasons for prohibited access into the holding cell extends the lifespan of the graffiti remaining attached to the walls by limiting the effects of external factors of deterioration in the space. Lastly, tourism influences what is being conserved. However, what is conserved determines the longevity of the product to be enjoyed in a touristic experience. Therefore, tourism and conservation go hand-in-hand – hence this demand must be met by considering both concepts on a balanced scale for the POJ holding cell.

[55] Safe enclosure material must be used for display to protect the photographs from air-borne pollutants, poor handling and rapid changes in environmental conditions will also be applied.

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CHAPTER SIX: CONCLUSION

6.1 Summary of Chapters

This dissertation addresses two concerns. First, how to conserve 'high risk' sites without remedial action. Secondly, how to apply digital conservation of the surface as best practice to authorise heritage tourism for these sites. This is done by identifying a gap in attention given to 'forgotten' spaces with rich history and heritage in synergy with a willingness, curiosity, and relentlessness in attitude and action to conserve these spaces. Chapter One set the foundation for the study by considering the background of the holding cell and the POJ. The chapter then describes the urgent need for the study, and which literature, theory and methodologies are most appropriate to achieve the aim and objectives of the research. It was necessary to establish the graffiti as a heritage 'object' in itself, and highlight the importance of preserving the space.

In Chapter Two documentation and condition reporting used visual examination to assess the overall condition of the holding cell. The documentation was an in-depth examination of the surface followed by thorough digital documentation (including dimensions, cell features and types of media) as expanded on in the condition reports. The reports classified deterioration as physical, biological and chemical damage, to further decode all surface and structural anomalies. Then the chapter goes on to demonstrate with photographs and condition key reports the type of damage appearing on each wall. Chapter Three focuses on applying technical photography using three photography (visible light, raking light and infrared light photography) techniques to capture details on and beyond the visible surfaces. This chapter discusses the difficulties of conducting the photography, and how these informed the workflow. The concept of the multivariate approach informs the workflow after a subsequent risk assessment was thoroughly discussed. A photography movement formula expressed as the series of movement was then produced. Then, post-processing in alignment with proposed storage procedures for the photographs is discussed. Importantly, the post-processing section describes the naming of the photographs to serve as quick, detailed information that informs about the details of lighting technique, series of movement, and a number of images according to the parallel lengths of the walls to each other. A five-step storage procedure was then discussed to avoid the identified factors of deteriorations that have a direct impact on the storage of data including the overall loss of information. Chapter Four deals with image interpretation and analysis. Considerations of alternative 'aka' redundant locations were also calculated with a plan of contingency as resolutions to emergency events surrounding the discourse of data loss.

Chapter Four deals with image interpretation and analysis. This chapter interpreted and analysed the discernible information (i.e., the graffiti and inscriptions) on the photographs. Each wall's noticeable graffiti and inscriptions are tabulated following the series of movement as seen in Figure 39 and 40, starting at the bottom, then the middle and lastly the top sections. Each image in the series of movements

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from each photographic technique are used to record in individual tables the observable graffiti and inscriptions at the time of writing. Chapter Five deals with the application of digital conservation of the cell to the field of tourism. This application was conceptualised in parallelism to the digital projections of Mark Rothko's Harvard murals. Further delineations were proposed on how visitors/tourists can be suited to experience the holding cell through a variety of virtual and in-person exhibitions. Furthermore, the chapter describes how these virtual simulations diversify the touristic experience for PWDs and non-PWDs. These concepts have been proposed as digital simulations namely virtual, online exhibitions, digital, immersive exhibitions, and photographic exhibitions. Hence, this chapter serves as an effective instrument for efficacy in persuasion of the POJ court managers and heritage professionals to welcome these strategies for the visibility, and retention of the heritage graffiti.

6.2 Contribution of the study

The significance of this study is manifold. The study sets out to promote, advocate for and apply digital conservation methods from the global North to the South African context. Despite the deterioration in the space being continuous, this study is beneficial as the images captured through technical photography have preserved the visible heritage in the space at this specific time in history. The study also contributes with the condition reports at the time of writing, as a fundamental part of any conservation processes and protocols. The captured data meets the existing demand in tourism to witness the history and heritage housed in the holding cell. The study has permissioned this through open access of the photographs by liaison with the University of Pretoria's SoArts. Furthermore, digital simulations are proposed due to the high-risk deterioration status of the cell as best-practice strategies that meet the tourist/visitor demand of the holding cell. At the core of these strategies is collaboration between heritage institutions and cross-field industries to holistically meet the tourism demand thereby increasing the awareness for the need of heritage conservation by heritage conservation professionals. This speaks to the last contribution of this study which is to advocate for a change in attitude of the preservation of the South African tangible and intangible heritage. Henceforth, this study advocates for the right emphasis and ideas to be implored when conserving heritage.

6.3 Limitations of the study

Several limitations influenced the overall timeline of this study. The first one was accessibility to site (the holding cell) located beneath Courtroom C. This heritage object was only accessible during times when seatings in Courtroom C were not in session. Also, access to the holding cell was dictated by available dates and times to which altered the timeline of the study. Solutions applied to counteract these obstacles were dividing the visits into three themes. The first was observation and documentation to familiarise with the heritage object. The second phase was shorter visits for active condition reporting. The third phase was technical photography – which was also separated into three subphases for accuracy. Each subphase was dedicated to one of the types of technical photography.

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Another limitation in procession was the control of exposure on the holding cell to different environmental conditions because the cell walls had not been exposed to sunlight due to its location (basement). Therefore, a big flux in temperature and infrared radiation from external light sources had to be closely managed so as to not catalyse or cause further damage to the cell walls. Nonetheless, due diligence in alignment with caution, and ethical practice to significantly reduce the impact of temperature, humidity and radiation from the light sources was followed.

6.4 Suggestions for further research

Suggestions for further research entail the use of advanced technologies to digitally retouch the fading and digitally restoring the faded graffiti that may change due to continuous deterioration. This research serves as a potential introduction to the use of indoor mapping using photogrammetry for the production of 3D recreations of the space. The already recorded dimensions and fixture placement information using ArchiCAD commence this process. Thus, photogrammetry applications can heighten the virtual, online exhibitions experience. Three-dimensional replicas, whether physical or digital, are used for education, research, conservation, entertainment, walkthroughs, or tourism spaces (Remondino, 2011:1105). This focus area is in alignment with the core principles of the holding cell. Further work is also necessary on the application of the effect of new technologies to form 3D recreations and physical replicas on the tourism area lifecycle and recognition as a heritage site.[56]

The stability of the heritage graffiti on the surface is expected to exponentially deteriorate overtime. This suffices that the surface of the graffiti is unstable. Henceforth, future research is necessary on this subject as it is evident that valued graffiti is disappearing either through fading letters or missing letters via the peeling of the surface paint. This can be observed on the side-by-side comparison of the current condition versus the condition of the Freedom Charter 13 years ago in the Figures 166 and 167 below. Future research and intervention are paramount in the form of preventative conservation, and perhaps future remedial restoration, to deter further deterioration of the space. Additionally, as researchers who had a hands-on experience with the space, the cell is a difficult space to work on as it is a highly politically charged space. Therefore, the exhibitions will be prefaced with a clear warning for visitors about the emotionally and politically loaded graffiti in the space. For example, these simulative exhibitions aim to draw inspiration from the Khmer Rouge exhibition, which had a large visitor turnout of approximately 1.2 million (Sreng, 2017). These immensely charged political exhibitions appeal to

[56] Since another key focus of this research was the integration of the photographs in the sphere of tourism. The tourism area lifecycle is a model by Butler (2006) that comprises of 6 phases used to observe the impact of a heritage interest or site on its ability to attract visitors at a constant rate.

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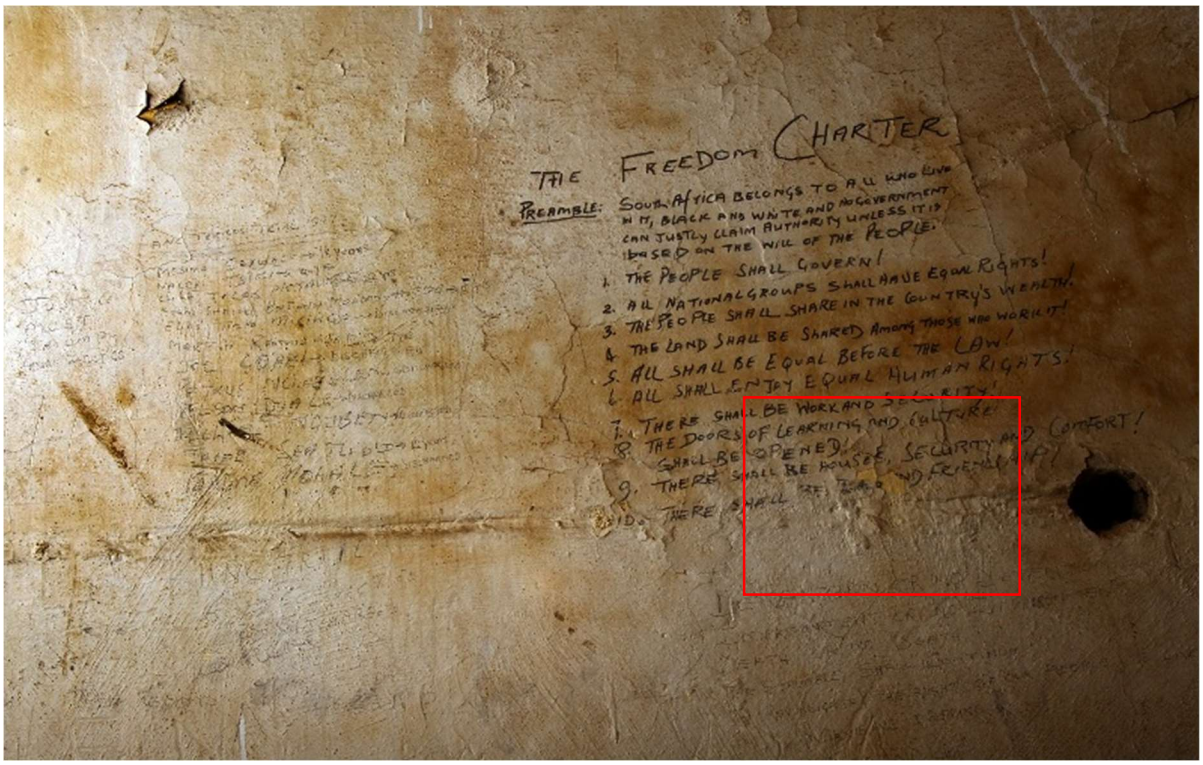

Figure 166: The condition of the Freedom Charter at the POJ in 2011, Nelson Mandela Foundation website, 2024.

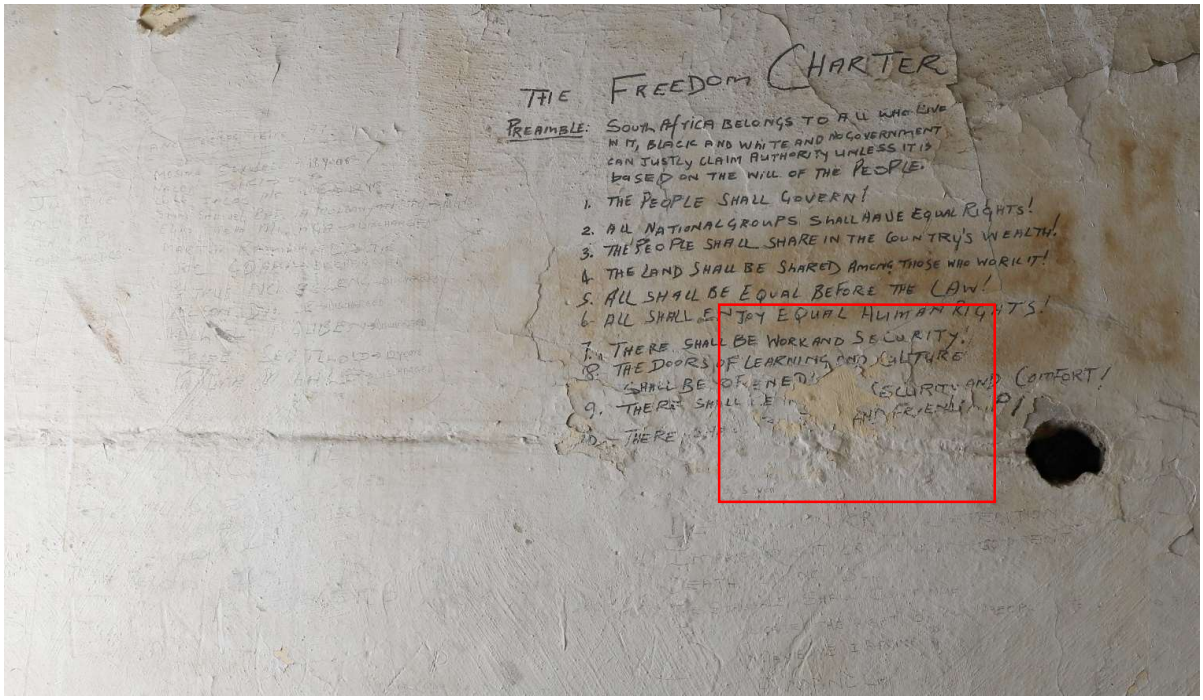

Figure 167: The condition of the Freedom Charter at the POJ in 2024. Photograph by author.

people's emotions thereby arousing a powerful state of awareness, and education through knowledge.[57] Therefore, further suggestions for research would deal on a multidisciplinary approach that draws a fine line between exhibiting heritage products that are emotionally charged outside of their contextual setting whilst educating, but not perpetuating the historical ideologies from the past. Due to the limited access

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in state-of the art facilities and equipment, applying photogrammetry was near impossible as per timeline of the study. It is highly advisable to consider the application of photogrammetry that entail virtual reality, augmented reality for 'high risk' heritage sites and objects such as the holding cell. Also, the measurements and dimensions taken using ArchiCAD system are best practice in catalysing the process of photogrammetry to simulate an approximate virtual replica of the holding cell due to the high accuracy. This will answer the dilemma in determining who the authors of the graffiti were despite the availability of records. However, it is foreseeable that the method of acquiring the names of the convicted who were responsible for engraving the graffiti is non-compliant with the POPI act due to sensitivities by family members and close friends of the prisoners on the crime spectrum. Therefore, determining and exhibiting the names is not nearly impossible, but unethical, but can all potentially be traces for presentation of existing society and robust academic dialogue.

6.5 Final remarks and possible stabilisation of the space

The sustainability of the tourist simulations was considered in line with the growth or decline of the holding cell as a new touristic endeavour.[58] This can be useful in recognising how the different phases of the tourism area lifecycle overlap into each other once the site has been established as a tourist site. This will help in identifying and addressing potential challenges to the advocacy of heritage conservation in the Southern African context. The employment of Richard Butler's tourism area life cycle model (TALC) certifies that heritage professionals are responsible for the long-term survival of the holding cell and POJ as a 'potential' destination or touristic heritage sites (Butler, 2006:32). If heritage professionals are in charge of the holding cell during its status as a tourist destination, they will guarantee the integrity and ethical use and maintenance of the space and apply the same delicacy in comparison to other politically charged spaces.

This study cautions against using traditional methods of corrective methods in heritage conservation to reclaim such fragile and often unnoticed sites of historical symbolism. The advocacy for the cell to be conserved cannot occur in isolation, because it is inherently part of the entire POJ. The POJ is not a recognised heritage site, according to the legal heritage system, in terms of the National Heritage Resources Act 25 of 1999, section 27.[59] The POJ will need to be registered as a Grade II site under the provincial heritage resources authority of Gauteng (PHRAG) (National Heritage Resources Act, 1999:18).[60] Henceforth, collaboration is a key tenet as the PHRAG is responsible for managing heritage resources categorised as Grade II in the province of Gauteng (PHRAG, 2024:[sp]). Now, to ensure

[58] The TALC model is helpful in measuring the impact of the images as a growth and attraction factor to the holding cell as the material during and post the material exhibitions.
[59] The POJ is not enlisted under the South African Heritage Resources Information System (SAHRIS) (SAHRIS, 2024: [SP]).
[60] A Grade II heritage site is a site is a potential heritage site that serves as a regional or national signifier (National Heritage Resource Act, 1999:18).

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further stabilisation of the holding cell, the POJ must be a protected site that offers direct protection to the cell, so as to maintain conservation efforts. Thus, greater importance and awareness need to be instilled regarding collaboration between conservation, tourism and management professionals who have a stake in the protection of both the holding cell, and the larger building.

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APPENDICES

Appendix A: Letter of permission from S. Malatji

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

School of the Arts
Tangible Heritage Conservation

17 February 2023

Letter requesting research access and permission

Dear Sir/Madam

You are herewith invited to participate in a Masters mini-dissertation by Kitso Matabologe for the requirements of the M(Soc)Sci Tangible Heritage Conservation at the University of Pretoria. The study is provisionally titled *The Forgotten Cell: Preservation and Advocacy Through Digital Conservation.*

The research aims to digitally conserve the Holding Cell beneath Courtroom C at the Palace of Justice. Digital conservation involves in-depth documentation and condition reporting, as well as taking images with different wavelength light sources to reveal hidden or faded information. The information and photographs will be made available for conservation professionals to carry out physical retouching in future, or as a source of historical record. To fulfil this objective, I must visit the cell for thorough documentation and condition assessments which will help me determine the types of materials used for the graffiti and surface of the wall. This will also help me produce accurate information about the space and its history. I will also be able to provide a proposed treatment for the space once the image analysis has been carried out.

No sampling is required, which means that the documentation and condition assessments will be on-site. Visual examination and digital photography using normal light, ultraviolet light and infrared lighting will also be conducted on-site. These are non-invasive, non-destructive techniques. All ethical conservation guidelines will be followed when completing the research.

Any questions you may have about this study can be directed to Kitso Matabologe at 073 355 0219 or u18250671@tuks.co.za or the dissertation supervisor Salome le Roux at 072 213 8238 or salome@arte.co.za

Regards
KM
Kitso Matabologe

Salomé le Roux

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Research Consent Form

Statement of voluntary consent:

When signing this form, I, as representative of the Palace of Justice, am agreeing to voluntarily participate in the research entitle *The Forgotten Cell: Preservation and Advocacy through Conservation*. I have had a chance to read this consent form, and it was explained to me in a language which I understand. I have had the opportunity to ask questions and have received satisfactory answers. I understand that participation is voluntary, unremunerated and that I can choose to opt out, or withdraw at a later stage even if I initially opted in. By signing this form, I also agree that data generated during the research process will be kept at the School of the Arts, at the University of Pretoria for 15 years and can be accessed by requesting permission from the researcher or the dissertation supervisor.

Opting in (Circle which is appropriate): YES/~~NO~~
Signature of participant:.....
Print name: Smalati.....
Capacity: Court Manager.....
Date: 24/02/2023.....
Place: Pretoria High Court.....

By signing below, I indicate that the participant has read and, to the best of my knowledge, understands the details contained in this document and has been given a copy.

Signature of researcher:.....KM.....
Print name: .....Kitso Matabologe.....
Date:.....17 February 2023.....
Place:.....Hatfield Pretoria, South Africa.....

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