PRESERVATION PLAN

PENNSYLVANIA AFRICAN AMERICAN CEMETERY STEWARDSHIP PROGRAM

Lincoln Cemetery
201 South 30th Street and Penbrook Avenue
Harrisburg, Dauphin County, Pennsylvania

PREPARED FOR:

Preservation Pennsylvania
1230 N. 3rd St., Suite 1
Harrisburg, Pennsylvania 17102

February 2024

RICHARD
GRUBB &
ASSOCIATES, INC.

Preservation Plan

Pennsylvania African American Cemetery Stewardship Program

Lincoln Cemetery
201 South 30th Street and Penbrook Avenue
Harrisburg, Dauphin County, Pennsylvania

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In partnership with:

Pennsylvania Hallowed Grounds

The project was financed in part by the African American Cultural Heritage Action Fund through the National Trust for Historic Preservation with support from The JPB Foundation and the 1772 Foundation through grants awarded to Preservation Pennsylvania (Preservation PA) in partnership with Pennsylvania Hallowed Grounds.

February 2024

Table of Contents

List of Figures and Tables

List Appendices

1.0 Project Description and Methodology

Project Description

The Pennsylvania African American Cemetery Stewardship Program (PAACSP) is a program that partners Pennsylvania Hallowed Grounds (PAHG) and Preservation Pennsylvania (Preservation PA) with the goal of assisting ongoing preservation efforts to help cemetery stewards with plans for future preservation efforts and to address immediate cemetery conservation needs. Funding for this program comes from the African American Cultural Heritage Action Fund (AACHAF) through the National Trust for Historic Preservation (NTHP) with support from the JPB Foundation and the 1772 Foundation.

PAHG, in partnership with Preservation PA, was one of 33 organizations to receive a total of $3 million in grant funding to advance ongoing preservation activities for historic places such as sites, museums, and landscapes that represent African American cultural heritage. With more than $80 million in funding, the AACHAF is the largest U.S. resource dedicated to the preservation of African American historic places.

PAHG's mission *is to honor, interpret, and preserve African American cemeteries and the burial sites of Civil War African American sailors and United States Colored Troops in Pennsylvania.* The organization connects and builds the capacity of stewards of these cemeteries and burial sites, and supports conservation, documentation, education, and training. Working collaboratively with other groups and organizations, PAHG provides tangible encounters with memory and enriches the public understanding of history (Pennsylvania Hallowed Grounds 2024).

Preservation PA is the Commonwealth's only private statewide nonprofit organization dedicated to helping people protect and preserve the historic places that matter to them. The organization assists individuals, organizations, corporations, and governmental agencies from across the Commonwealth (and sometimes the nation) in their own preservation-related efforts, through a dynamic scope of activities and services. Whether as a leader, partner, or advisor, Preservation PA works to secure the future of the past through educational outreach workshops and events, legislative advocacy, advisory and technical assistance in the field, and other special initiatives (Preservation Pennsylvania 2024).

Preservation PA, PAHG, and their partners selected 13 cemeteries to participate in the PAASCP; served as advisors to the volunteer projects; promoted this project; and highlighted the work of participating cemeteries. The 13 historic African American cemeteries selected for this program are in the following Heritage Areas: Schuylkill River Greenways, Allegheny Ridge, Susquehanna, Lincoln Highway, Lumber Heritage Region, and Rivers of Steel (Figure 1). These cemeteries have active stewards groups working to care for each cemetery. Four of the PAASCP cemeteries received grants to prepare historic preservation plans. This preservation plan for Lincoln Cemetery is one of the four preservation plans prepared by Richard Grubb & Associates, Inc. (RGA). The scope of work for the plans included the following:

- Development of an actionable, site-specific preservation plan and/or specifications for direct project assistance for each cemetery.
- A visit to each cemetery and meeting with the cemetery's stewards to listen and learn about each site, its operations, features, and preservation needs. Preparation of a written evaluation and a site-specific maintenance and preservation plan for each cemetery that will identify and prioritize the steps required to appropriately maintain and preserve the site. The plan will identify work that volunteers can complete, and work requiring the skills of professionals. The plan will also provide practical steps for helping the cemetery stewards to implement its recommendations.
- Coordination with Preservation PA in partnership with PAHG.

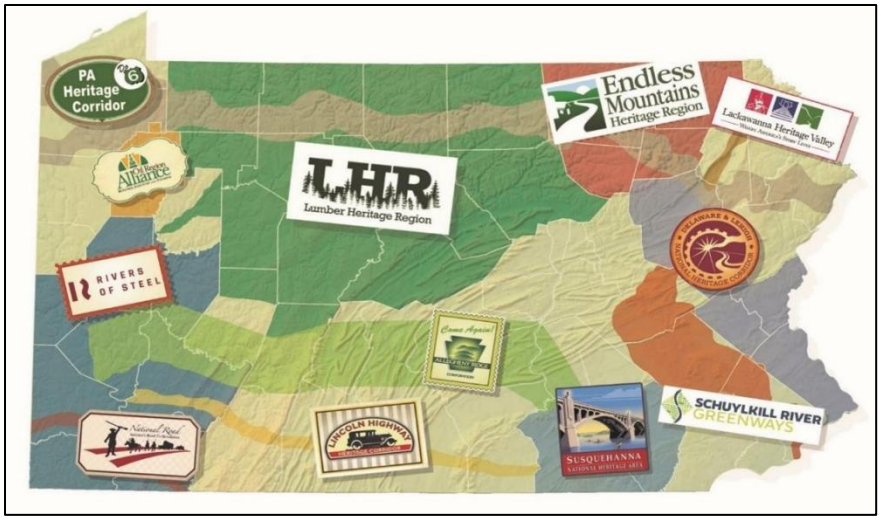

Figure 1: Pennsylvania Heritage Areas(Courtesy of Mindy Crawford, Preservation Pennsylvania).

This report is arranged in six chapters. Chapter 1 contains the project description, background, methods used to complete the study, and details about RGA's fieldwork for the project. Chapter 2 presents a physical description of the Lincoln Cemetery and its gravemarkers and monuments and presents a summary of the cemetery's physical and administrative development, which have brought the cemetery to its current state. Chapter 3 presents a general, big-picture assessment of the cemetery's landscape features, gravemarkers, and overall condition. Chapter 4 outlines a preservation plan with goals, objectives, and basic recommendations for Lincoln Cemetery's stewards, and includes examples of successful projects at other African American cemeteries. Chapter 5 outlines detailed recommendations for Lincoln Cemetery's stewards, and Chapter 6 contains the list of resources cited in the report. Appendix A contains the resumes of the RGA staff. Appendix B contains a cemetery glossary. Appendix C contains the National Park Service inspection brief, which includes instructional materials on cemetery terminology and ways to properly preserve and maintain historic cemeteries. Appendix D contains a Site Inspection Checklist and Appendix E contains the Cemetery Damage and Vandalism Documentation Form.

Ellen Turco, MA, Principal Senior Historian and North Carolina Branch Manager, served as the project manager, and Jason Harpe, MA, Director of Cemetery Conservation, conducted background research and fieldwork and served as an author of this report. Ms. Turco and Mr. Harpe meet the professional qualifications standards of 36 CFR 61 set forth by the National Park Service (NPS) (Appendix A). David Strohmeier produced the report graphics. Catherine Smyrski served as the editor and formatted the report.

Project Background

In March 2023, Preservation PA issued a Request for Qualifications (RFQ) for consultants to prepare cemetery preservation plans for four African American cemeteries as part of the PAACSP. RGA responded to the RFQ and was awarded a contract on June 21, 2023, to develop actionable, site-specific preservation plans for Lincoln Cemetery in Harrisburg (Dauphin County), Mt. Vernon/Lebanon Cemetery in Chambersburg (Franklin County), Zion Union Cemetery in Mercersburg (Franklin County), and Union Cemetery in Bellefonte (Centre County).

The four cemeteries are in the same region of Pennsylvania, which afforded RGA staff the time necessary to meet with the stewards, access the conditions of the cemeteries and gravemarkers, and take photographs within an allotted three-day time frame (Figure 2).

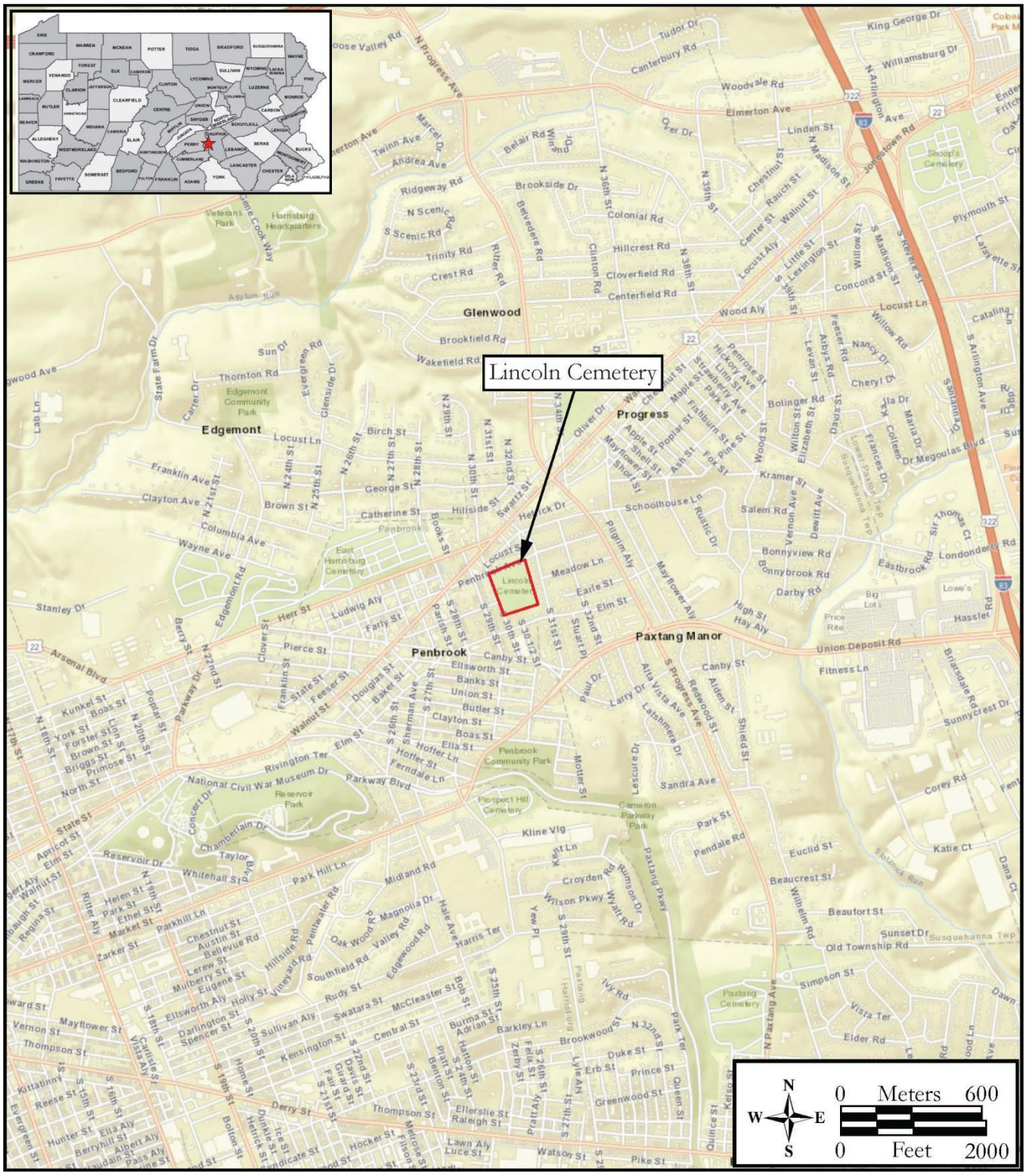

Figure 2: Road map of Lincoln Cemetery(ESRI 2022b).

The RFQ outlined the following project background:

> "Preservation Pennsylvania in partnership with PA Hallowed Grounds is seeking to provide both planning assistance and direct grant support for African American cemeteries in Pennsylvania. This grant program is being funded by the National Trust for Historic Preservation's African American Cultural Heritage Fund and the 1772 Foundation. The consultants for this project will be contracted with Preservation Pennsylvania. This project

will assist selected cemetery stewards to plan for their future preservation and to address immediate cemetery conservation needs."

On Monday, September 4, 2023, RGA hosted a project kick-off meeting with Jason Harpe, RGA's Director of Cemetery Conservation, PAHG board member Barbara Barksdale, and Saving Our Ancestors Legacy (SOAL) board members Rachel Keri Williams and Alex Gurn. The purpose of the meeting was for participants to formally introduce themselves, explain their involvement with the project, discuss potential dates for Mr. Harpe's site visit to Lincoln Cemetery, and learn about the various digital resources that SOAL has on the history and development of Lincoln Cemetery, as well as information on the gravemarkers, decedents, and past maintenance issues at the cemetery.

Lincoln Cemetery, with SOAL being the actual grant recipient, was one of the 13 cemeteries selected by the project partners to participate in this program (Figures 3–5).

Figure 3: Aerial map of Lincoln Cemetery (ESRI 2022a).

Figure 4: 1937 aerial map of Penbrook showing Lincoln Cemetery (Penn Pilot, https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9).

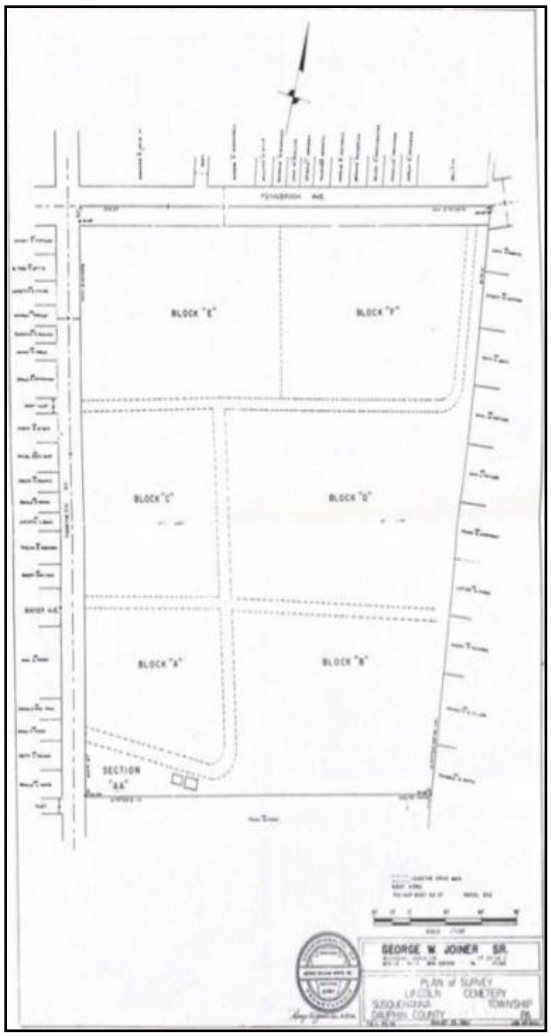

Figure 5: 1982 land survey and plot plan of Lincoln Cemetery by George W. Joiner, Sr.(Jeanne E. Jones, *History of Lincoln Cemetery*. Harrisburg, Pennsylvania, 1993).

SOAL described its recent work at Lincoln Cemetery, provided examples of work undertaken, and stated the following goals in its application for the Pennsylvania African American Cemetery Stewardship Program.

> "The steward of Lincoln Cemetery is Saving Our Ancestors Legacy (SOAL), a Black Female Descendant-Led, Volunteer-Powered 501(c)(3) organization that was founded to restore and preserve Harrisburg's oldest remaining historically Black cemetery as a lasting cultural and environmental legacy for the region. Since the summer of 2021, SOAL has led cemetery cleanup, maintenance, physical restoration, and digital preservation at this historic site. Although Wesley Union A.M.E. Zion Church has been viewed historically as the owner, the legal ownership of the cemetery cannot be determined. An inquiry has been made on behalf of the church. We await the results. In the meantime, SOAL and Wesley Union A.M.E. Zion Church are cooperating to identify needs and resources. See attached letter of support from the Church.
>
> Through monthly volunteer experiences, SOAL's Lincoln Cemetery project aims to recover American history and preserve the cultural heritage of South-Central PA's African American community. SOAL Harrisburg Historic Black Cemetery Restoration weekends take place every third Friday, Saturday & Sunday of the month from March through November, noon until dusk. Orientation sessions for first-time volunteers start at 12pm. Youth and adults of all ages participate in conservation and restoration work onsite, hands-on preservation workshops, and service-learning projects, which develop our volunteers' knowledge and experience in historic building trades, public history research, community-driven archeology, and applied technologies.
>
> SOAL volunteers have participated in a wide range of restoration activities, such as: finding and recovering sunken and submerged headstones and cemetery artifacts, repairing fractured headstones, safely cleaning headstones, resetting leaning and sunken monuments, re-stacking fallen monument with the use of a tripod, and monument foundation work.
>
> As a result of our volunteer cemetery restoration and history & genealogical research, SOAL has documented the stories and lived experiences of Lincoln Cemetery ancestors, their descendants, as well as the diverse community members who are volunteering to preserve and restore the cemetery. Through social media channels (e.g., Facebook, Instagram, TikTok) and our website (www.lincolncemetery.org), SOAL widely shares the stories contained in Lincoln Cemetery. See attached news and social media links. The stories of Civil War Veterans, Underground Railroad Stationmasters and Conductors, formerly enslaved people, abolitionists, artists, writers, newspaper publishers, journalists, politicians, doctors, lawyers, reverends, teachers, policemen, firefighters, civil rights activists, founding members of HBCU's and major Black organizations, and regular folks. SOAL is actively restoring Lincoln Cemetery as a source of unexplored narratives and data about Black Americans' experiences, community networks and social change in the 18th-20th centuries. We believe its preservation has the ability to galvanize people of all backgrounds to a deeper understanding of the important roles that Black people and communities have played in the building of our nation."

Methodology

RGA staff began the project by gathering background and historical information on Lincoln Cemetery by visiting SOAL's website and Facebook page. SOAL's website is the most thorough digital online resource for the history of Lincoln Cemetery, biographical information on decedents buried in the cemetery, past and current conditions at the cemetery, and SOAL's efforts over the past three years to clear overgrown grass, weeds, and underbrush, and survey, document, and conserve gravemarkers in the cemetery. SOAL's board members have exhausted online resources such as Ancestry.com, Newspapers.com, Fold3.com, Familysearch.org, Dauphin County's Register of Deeds, and the digital

archives of the Library of Congress and U.S. National Archives and Records Administration to document the history of Lincoln Cemetery and decedents interred therein. SOAL has published and publicized its research in written articles on its website, on FindAGrave.com, and in videos on Instagram, TikTok, and Facebook.

Dr. Steve Burg, PhD, of Shippensburg University, his students Jonathan Creager, Jeffrey House, Christopher Ott, Dominic Curcio, and Drew Palmer, and SOAL board members Rachel Keri Williams and Alex Gurn have co-authored a Request for National Register Eligibility with Determination of Eligibility (DOE) of Lincoln Cemetery and are currently editing the document before submitting it to the Pennsylvania Historical and Museum Commission (PHMC). The thorough DOE report includes a physical description of the cemetery, statement on its integrity and significance, discussions of its significance and the challenges faced by Lincoln Cemetery and other historic African American cemeteries, and a historic context for historic African American cemeteries in Dauphin County.

In 2018, the Pennsylvania State Historic Preservation Office (PA SHPO), in partnership with PAHG, received funding from the NPS for Shelby Spain's Multiple Property Documentation Form (MPDF) titled *African American Churches and Cemeteries in Pennsylvania, c. 1644–1970*. This context study was written and submitted to the NPS in 2018, and published by NPS in 2021. This context study is a valuable research tool that defines Lincoln Cemetery as an Independent Legacy African American cemetery in the broader context of Pennsylvania's African American churches and cemeteries. Spain defines Independent Legacy cemeteries as "created and used solely by and for the burial of African Americans and exist as evidence of racial segregation and African American agency in Pennsylvania." These cemeteries have graves that are original to the cemetery and not relocated from a different cemetery (Spain 2018:7–8).

In the preparation of this report, RGA staff used preservation planning strategies and instructional material available on the NPS website, as well as creating new strategies that are applicable to Lincoln Cemetery. RGA followed the broad requirements of the Secretary of the Interior's *Standards for Rehabilitation* and NPS's *Preservation Brief 48*: *Preserving Gravemarkers in Historic Cemeteries,* which is considered the industry standard. *Preservation Brief 48* addresses each aspect of cemetery preservation and provides baseline guidance that must always be followed for any project involving cemeteries. Additionally, RGA consulted the Chicora Foundation Inc.'s *Recording Historic Cemeteries: A Guide for Historical Societies and Genealogists* and Lynette Strangstad's *A Graveyard Preservation Primer*.

There are myriad resources on cemetery preservation and planning written by conservators, historic preservationists, landscape architects, and arborists available online. States such as Alabama, Illinois, and Texas, and Prince Georges County, Maryland, have published historic cemetery preservation guides, but the *Historic Cemeteries Preservation Guide of Michigan* is the most thorough and detailed on the conservation of gravestones and monuments. The Massachusetts Department of Conservation and Recreation has a section titled "Guidelines for Preservation Planning" in their publication *Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries*, third edition (2009). The Massachusetts guidelines "offer a compendium of information directly related to the preservation, restoration, rehabilitation, reconstruction, management and care of the Commonwealth's municipally owned historic burial grounds and cemeteries" (Massachusetts Department of Conservation and Recreation 2009:13). RGA consults these and other cemetery preservation and conservation resources regularly.

A section of the PHMC's website is devoted to the preservation of historic burial grounds and cemeteries. This website offers guidance on cemetery issues such as the developmental history of Pennsylvania cemeteries, Pennsylvania cemetery laws, tools for cemetery documentation, funerary symbolism typical of Pennsylvania, guidelines for preservation planning for historic burial grounds and cemeteries, and guidelines for the treatment of cemetery components.

Fieldwork

RGA strategically planned Jason Harpe's meeting with volunteers of SOAL and PAHG and staff of Preservation PA to maximize the limited budget and timeline. Mr. Harpe devoted a full day of meeting time and fieldwork to Lincoln Cemetery because it is one of the largest of the four cemeteries under RGA's task and is experiencing more challenges than the other three cemeteries.

On Sunday, September 17, 2023, Jason Harpe of RGA visited Lincoln Cemetery and met briefly with SOAL's volunteers. The purpose of Mr. Harpe's visit was to introduce himself to SOAL's volunteers in advance of the scheduled meeting planned for the following day, and for Mr. Harpe to acclimate himself to the site's geographic location in Harrisburg. The site visit was cut short due to rain. On Monday, September 18, 2023, Mr. Harpe, Mindy Crawford with Preservation PA, and Barbara Barksdale with PAHG visited Lincoln Cemetery and met with SOAL board members Rachel Keri Williams and Alex Gurn, and other SOAL volunteers. After introductions, Ms. Crawford explained to the cemetery stewards the details of the Pennsylvania African American Cemetery Stewardship Program and Ms. Barksdale outlined PAHG's responsibilities for this grant cycle and their expectations for the cemetery stewards.

The site visit corresponded with one of SOAL's scheduled work weekends. Volunteers had erected two 10×10 pop-up tents under which were tables, tools of various types, and bottled water and food, the latter of which was partially donated by local businesses. Most volunteers cleaned and repaired damaged or displaced gravemarkers while Mr. Harpe toured the cemetery with Ms. Williams, Mr. Gurn, and Ms. Crawford.

After Mr. Harpe, Ms. Crawford, and Ms. Barksdale met with SOAL volunteers, representatives from Messiah University's Center for Public Humanities, Harrisburg University of Science and Technology, and descendants of people buried in the cemetery arrived at the cemetery for a meeting focused on SOAL's board members updating everyone on the organization's progress with research, documentation, and preservation. Professors and students from Messiah University and Harrisburg University have partnered with SOAL to document the cemetery's aboveground and belowground features using multispectral analysis. Ms. Williams told the group about plans to conduct an archaeological excavation in the cemetery where the caretaker's house was located.

Ms. Williams announced to the group that students with Kutztown University of Pennsylvania's Geophysics Society would be conducting ground-penetrating radar (GPR) and magnetometry surveys of a square-shaped area at the cemetery's northeast corner where the cemetery stewards believe there is a mass burial site of formerly enslaved people.

Mr. Harpe, Ms. Crawford, Ms. Williams, and Mr. Gurn spent the second part of the day touring the cemetery. During the tour, Mr. Harpe took photographs of the cemetery's elevations, trees, gravemarkers, and monuments, and made written and mental notes that informed this report.

The Reverend Doctor David T. Miller, pastor of Wesley Union A.M.E. Zion Church attended the meeting at Lincoln Cemetery. Prior to Mr. Harpe's visit to Lincoln Cemetery, he had a phone conversation with Dr. Miller, at which time he learned that Wesley Union A.M.E. Zion Church has a discretionary fund that financially supports the lawn maintenance of Lincoln Cemetery (Figures 6 and 7).

Figure 6: Jason Harpe, RGA's Director of Cemetery Conservation, made a site visit to Lincoln Cemetery to meet with cemetery stewards and evaluate the site. Those in attendance included, from left to right, SOAL board member Rachel Keri Williams, Jason Harpe, Preservation PA executive director Mindy Crawford, and PAHG board president Barbara Barksdale (Courtesy of Alex Gurn).

Figure 7: Jason Harpe, RGA's Director of Cemetery Conservation, with Preservation PA executive director Mindy Crawford, PAHG board president Barbara Barksdal, and SOAL volunteers(Courtesy of Alex Gurn).

2.0 Physical Description and Brief History of Lincoln Cemetery

Physical Description

Lincoln Cemetery (PIN #62-037-202) at 201 South 30th Street and Penbrook Avenue in Harrisburg, Dauphin County, Pennsylvania, is an African American community cemetery that is still accepting interments. Spain's *African American Churches and Cemeteries in Pennsylvania, c. 1644–1970* identified Lincoln Cemetery as possessing characteristics of an Independent Legacy African American cemetery with a high level of integrity, and Dr. Burg and his DOE report co-authors have proposed a period of significance from 1877 (year of dedication) to 1973 (50 years before the submission of the DOE) (Spain 2018). The 6.78-acre cemetery is on a polygon-shaped lot in an area of residential neighborhoods in Harrisburg.

Lincoln Cemetery is enclosed by chain link fencing and is accessible through a set of decorative iron gates and wrought iron archway erected in 1991 across from the intersection of South 30th Street and Booser Avenue on the cemetery's west side and a set of chain link gates off Penbrook Avenue at the cemetery's northeast corner. A single lane drive—historically, dirt but now almost completely grassed—extends east to west from the decorative iron gates and archway to the property's eastern edge, loops north and runs along the property's eastern edge, before looping west and running east to west to the property's western edge. The cemetery is bounded on the north by Penbrook Avenue, on the east by residential buildings, on the south by Elm Street, and on the west by South 30th Street. On-street parking is available in narrow grassed areas between the cemetery property and South 30th Street.

The cemetery's landscape is mainly level and slopes east towards the property's eastern edge. The cemetery grounds are grassed and well-maintained by maintenance crews employed by Wesley Union A.M.E. Zion Church. Large trees on the property stand near the cemetery's northwest, northeast, and southwest corners. Wesley Union A.M.E. Zion Church and SOAL volunteers allow small patches of wildflowers to grow at the cemetery's west elevation. Groundhogs and other burrowing animals have created holes throughout the cemetery, and in a number of cases, have unearthed human remains (Thompson 2021).

The cemetery's marked graves are arranged in a linear fashion from north to south with burials oriented east to west. Except for the tallest monuments in each section, there is an overall uniformity maintained by gravemarkers of nearly equal height, and an absence of fences around family plots. An area with no extant gravemarkers at the cemetery's northwest corner is believed by cemetery stewards to be the location of a mass burial site of people reinterred from Wesley Union A.M.E. Zion Church's former graveyard during the 1870s (Burg et. al 2023:21).

Lincoln Cemetery, like many African American cemeteries, has topographic (grave) depressions, or sunken areas caused by collapsed burials. Older graves without modern concrete burial vaults sink over time once the grave shaft fill settles and the coffin collapses. Depressions appear in a pattern (mostly in north–south oriented rows) and indicate an unmarked grave when an associated marker is not present. In certain cases, subtle depressions can be observed by a slightly different shade of grass (i.e., from increased moisture retention) or during the early dawn or dusk when the sun appears at an angle (Figures 8–24).

Figure 8: Grass driveway that extends west to east through Lincoln Cemetery; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 9: South 30th Street, entrance gates, chain link fence, and gravemarkers at Lincoln Cemetery's west elevation; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

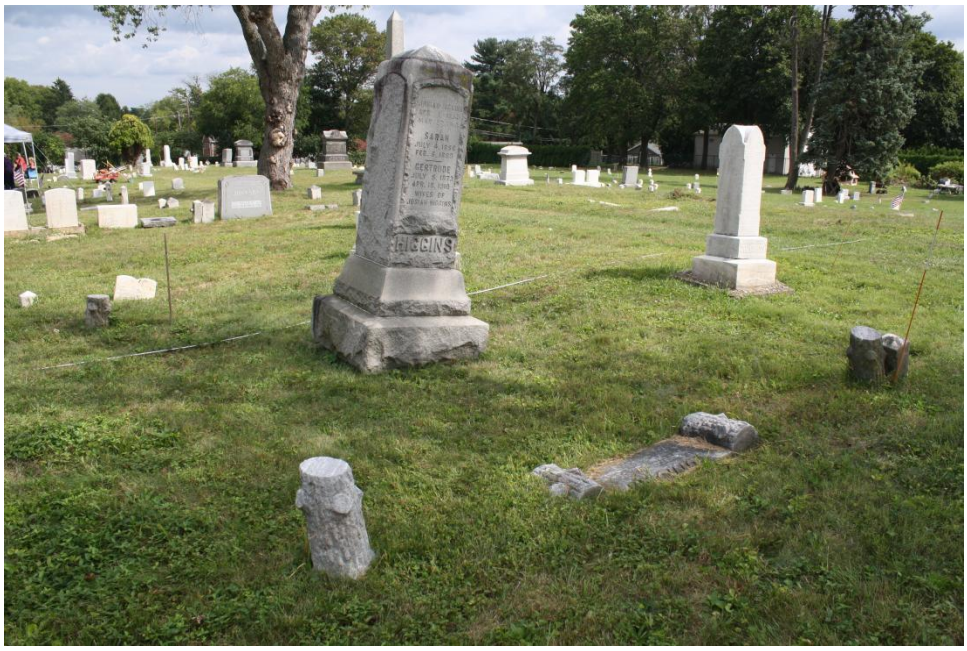

Figure 10: Gravemarkers near the Lincoln Cemetery's entrance gates at the west elevation; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 11: Chain link fence and residential buildings along South 30th Street, west of the cemetery; Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 12: Gravemarkers and patch of wildflowers near Lincoln Cemetery's west elevation; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 13: A large tree at Lincoln Cemetery's north elevation that should be evaluated by an arborist; Photo view: South; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 14: Lincoln Cemetery's northwest corner at the intersection of South 30th Street and Penbrook Avenue; Photo view: Northwest; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 15: Large trees at Lincoln Cemetery's north elevation that should be evaluated by an arborist; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 16: View of Lincoln Cemetery's north elevation and northeast corner; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 17: View of gravemarkers at Lincoln Cemetery's north elevation; Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 18: Granite and bronze commemorative marker for African American military veterans. The bronze plaque was completed in 1994; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 19: Dead tree near historic gravemarkers and the newly installed commemorative marker for Hattie M. Grant, the First Worthy Grand Matron of the Deborah Grand Chapter of the Order of the Eastern Star from 1909-1915; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 20: Granite lawn style gravemarker along the fence line at the cemetery's western edge; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 21: Marble and granite gravemarkers at the cemetery's southeast corner; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 22: Concrete block storage buildings near the cemetery's corner; Photo view: South; Photographer: Jason Harpe; Date: September 18, 2023.

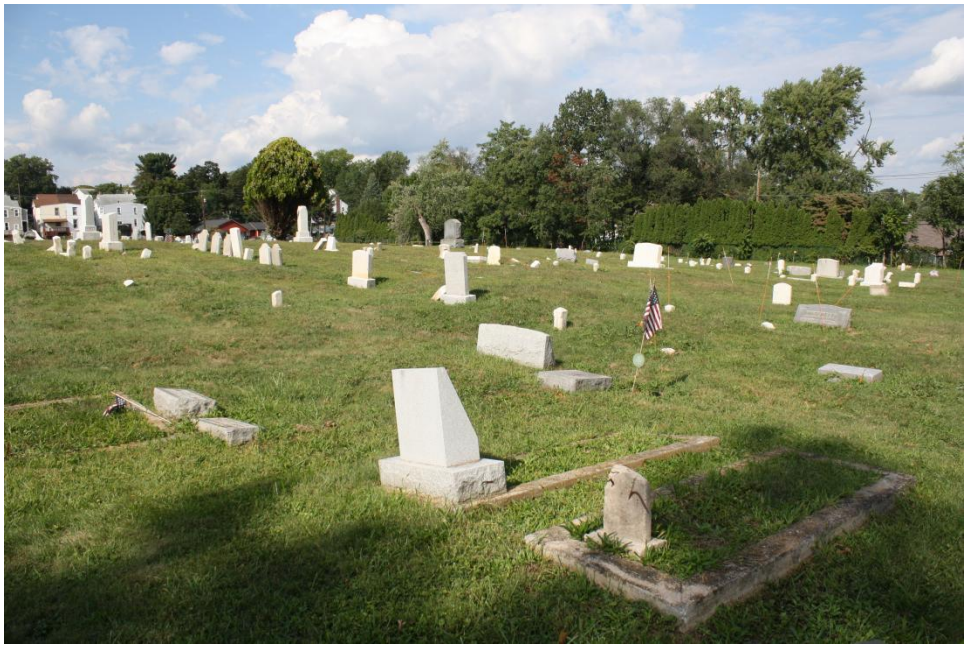

Figure 23: Gravemarkers at the cemetery's south elevation; Photo view: Photographer: Jason Harpe; Date: September 18, 2023.

Figure 24: Concrete section marker at Lincoln Cemetery's west elevation; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Gravemarkers

Gravemarkers in Lincoln Cemetery are reflective of the types found in African American cemeteries including pedestal tombs, pulpit markers, die-on-base, tab-in-socket, military service markers, commercial concrete markers, folk concrete markers, and lawn-style markers. The markers are crafted of marble, concrete, and granite. Some graves are marked subtly with a diminutive stone, and a large number of plots for individuals and families have enclosures demarcated by concrete blocks, cast concrete, brick and granite, with chamfered coping posts with squared, beveled, rounded, and peaked tops. A large number of coping posts demarcate burial plots, but chains or round metal pipes that once connected them are now missing. SOAL's volunteers have excavated numerous marble, granite, and concrete entry steps to family burial plots into which is deeply engraved the respective family's name.

The cemetery's largest gravemarkers and monuments are primarily granite and located near Lincoln Cemetery's west elevation. Among these gravemarkers are obelisks, pedestal tombs, sarcophagi, and die-base-and-cap types. The family burial plot of Josiah Higgins (d. 1914) and his wives, Sarah (d. 1889) and Gertrude (d. 1910) is defined by a large upright headstone on stacked bases with rusticated finishes indicative of the Rustic aesthetic movement in gravemarker and monument design that spanned from 1900 to the 1930s. Other rusticated features of the plot include small marble tree stumps at each corner and a rusticated plot entry step with the family's name carved in relief that is flanked by small tree stumps lying on their sides (see Figure 2.3). The graves of Aaron and Mary Bennett (who died in 1880 and 1869, respectively) are marked by a large granite obelisk, with both polished and unpolished surfaces, set on a tapered plinth and stacked granite bases.

Accompanying the gravemarkers in the cemetery are four commemorative markers. The largest of these monuments is a marble obelisk set on a marble plinth and base and surmounted by an urn commemorating Harrisburg's African American citizens who served the Union war effort during the Civil War. A local benevolent society comprised of Jane Chester, Laura Robinson, Catherine McClintic, Matilda Greenley, Hagar Hooper, Mary Wolfe, Elisha Marshall, Benjamin J. Foote, James Stocks, James Greenley, George E. Douglass, and Joseph B. Popel erected the monument between 1877 and 1884 (Burg et al. 2023:11)

A granite die-on-base memorial marker recognizing the 50-year anniversary of William Howard Day's death was erected and dedicated on May 30, 1950, and the Lincoln Cemetery Committee commissioned a bronze relief portrait in honor of African American veterans in 1992. The bronze relief portrait is mounted to a slab of granite, which stands on a polished granted outline of the African continent. The most recent commemorative monument, erected in 2022, is a polished black granite die-on-base honoring Mattie M. Grant, who served as the First Worthy Grand Matron of the Deborah Grand Chapter, Order of Eastern Star for the Commonwealth of Pennsylvania from 1909–1915 (Figures 25–41).

Figure 25: Gravemarkers at Lincoln Cemetery's west elevation; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 26: Marble and granite ground-supported tablets, pedestal tombs, and slant-front, tab-in-socket, and die-on-base gravemarkers; Photo view: Northeast; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 27: Ground-supported tablets and tab-in-sockets gravemarkers in varying states of disrepair; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 28: Marble and concrete gravemarkers and cast concrete plot enclosures near Lincoln Cemetery's east elevation; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 29: Primarily marble gravemarker and marble corner posts for plot enclosures near Lincoln Cemetery's northwest corner. Visible in the photograph are gravemarkers partially repaired by SOAL's volunteers; Photo view: Northeast; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 30: Marble pedestal tombs, ground-supported tablets, and die-on-base gravemarkers near a patch of wildflowers at Lincoln Cemetery's west elevation; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 31: Marble block engraved, "R.N. WHITING," at the entrance to the family burial plot; Photographer: Jason Harpe; Date: September 18, 2023.

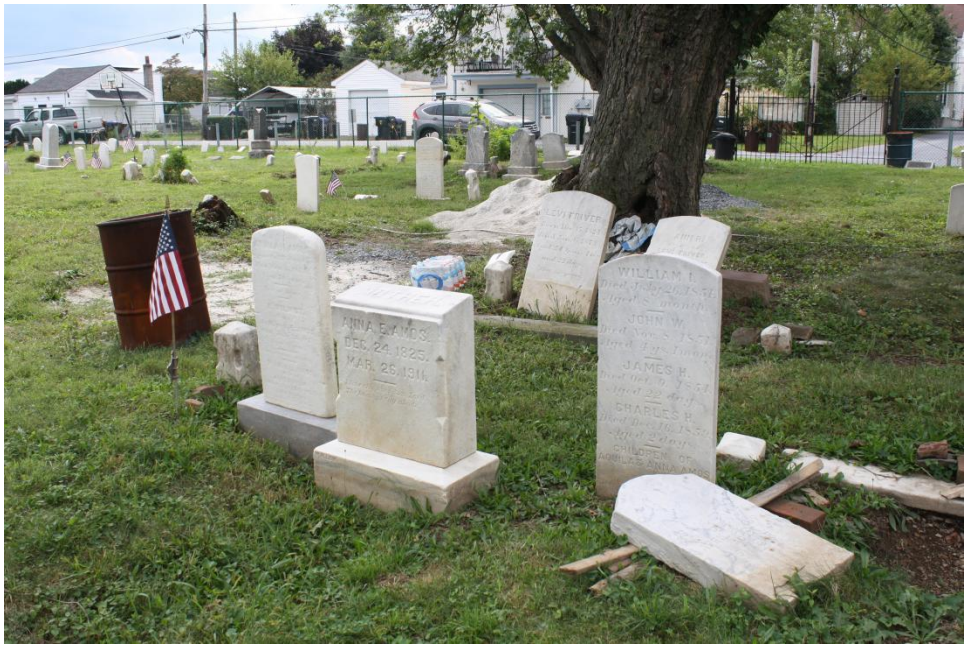

Figure 32: Marble ground-supported tablets and die-on-base gravemarkers. Visible in the photograph are gravemarkers that SOAL's volunteers have cleaned and planning on resetting. Also visible are mounds of sand and crushed stone and SOAL's volunteers use to reset the leaning or displaced gravemarkers; Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 33: Granite gravemarker for John Dupee (d. 1886); Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 34: Marble military marker for John H. Preston (d. 1888); Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 35: Brownstone tablet for Carrie Jordan (d. 1924); Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 36: Marble and concrete bedstead grave marker for Ella Banks (d. 1940); Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 37: Granite lawn style and slant front grave markers near two large trees and small shrubs near Lincoln Cemetery's southwest corner; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 38: Marble and granite gravemarkers near Lincoln Cemetery's entrance gates at the west elevation; Photo view: South; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 39: Granite slant front marker with porcelain memorial photograph of Millicent Hooper (d. 2004); Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 40: Cast concrete gravemarker with metal letters and house numbers for George Gore (d. 1940); Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 41: Marble and granite die-on-base and slant-front markers and marble corner post for plot enclosures. Visible in the photograph are gravemarkers displaced by SOAL's volunteers during excavation; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Brief History of Lincoln Cemetery

The following brief history is abstracted from the Request for National Register Eligibility with DOE attachment on Lincoln Cemetery prepared by Dr. Steve Burg of Shippensburg University, SOAL volunteers Rachel Keri Williams and Alex Gurn, and others. The DOE is currently in draft form and the authors will submit it to the PHMC upon completion of the final draft.

On November 17, 1877, the Trustees of Wesley Union A.M.E. Zion Church (Trustees) purchased a lot in Grantville, an area approximately 2 miles east of Harrisburg in Susquehanna Township and Penbrook Borough, from David and Lydia Mumma for $4,200. To fund the cemetery, the Trustees sold to David Mumma for $5,200 their downtown lot where the old church graveyard at Herr and Boas streets was located. The church was able to sell the graveyard after petitioning the court and receiving a ruling that the graveyard had "become useless as a burial place and has become valuable for building purposes." The court also granted the Trustees permission to remove the decedents and sell the land for private development. The Trustees published an article in city newspapers explaining that friends and relatives of people buried in the church graveyard should indicate the location of their family members and friends and the Trustees would relocate them to the Lincoln Cemetery at no charge once it opened.

On November 18, 1877, Wesley Union A.M.E. Zion Church and its Trustees formally dedicated Lincoln Cemetery. The cemetery's distance from the center of Harrisburg necessitated additional resources to support the cemetery's sextant and to maintain its grounds. The Trustees built a Gothic-style summer house, a barn and stables, and a two-and-a-half-story frame house, none of which are extant. An 1884 article in the *State Journal* described the cemetery grounds and its buildings as a monument to African American men who served the Union during the Civil War; the article went on to say that a "beautiful mound" that measured 6 feet in height by 20 feet in length was erected where the decedents from the Wesley Union graveyard had been reinterred.

The cemetery has been active since its dedication, and the most recent burial was for Donald Eugene Banks, Sr. on April 16, 2018.

Notable men and women interred at Lincoln Cemetery include the following:

- William Howard Day (1825–1900): graduate of Oberlin College (1847); editor of *The Cleveland True Democrat* (1851); founded the *Aliened American*, a publication for African Americans; formed the African Aid Society with colleagues (1859); clerk in the Auditor General's office in Pennsylvania; editor for Zion's Standard and Weekly Review (1866); co-founder of Livingstone College in Salisbury, North Carolina (Historically Black College and University).
- Thomas Morris Chester (1834–1892): matriculated at Akron College in Pittsburgh before moving to Liberia where he taught a school for Africans and African Americans; during the Civil War served as a recruiter for black troops and helped recruit for the 54th and 55th Massachusetts Infantry Regiments; elected by his regiment as their captain, making him, along with Henry Bradley, the first African American militia captains in Pennsylvania history.
- Lester Raymond "Ray" Wilson (1870–1912): played for Harrisburg's Cuban X-Giants Negro League baseball team (1896–1907) and Philadelphia Giants (1907–1910).
- Lewis Elmore Robinson (1889–1940): first African American man to attend an international Boy Scout Jamboree in Budapest, Hungary in 1933.
- Jane Marie Chester (1801–1894): born into enslavement in Baltimore, Maryland, and, with the assistance of her husband, George Chester, freed herself; relocated to Harrisburg in 1826 and with her husband operated the Washington Restaurant on Market Street and was active in the abolitionist movement.
- Anna "Annie" Eliza Williams Amos (1824–1911): along with her husband, Aquila H. Amos, was a dedicated abolitionist, and their home was a stop on the Underground Railroad; a founding member of the Wesley Union A.M.E. Zion Church; taught at a Freedmen's School in Concord, North Carolina during the Civil War; and after returning to Harrisburg following the Civil War founded the Independent Order of the Daughters of Temperance of the State of Pennsylvania.
- Ephraim Slaughter (1846–1943): born in Ahoskie, North Carolina, and escaped to freedom in 1863; took refuge with the Union Army along the North Carolina coast, and subsequently enlisted in the Union Army under the alias, "Ephraim Newsome"; served with the 37th United States Colored Troops (U.S.C.T.); after the war settled in Harrisburg where he worked as a houseman and waiter at several hotels and restaurants before becoming a successful businessman who invested in real estate; attended Franklin Roosevelt's dedication of the Eternal Light Peace Memorial at Gettysburg National Military Park in 1938.
- Noah Pickney (1846–1923): born into enslavement in Maryland before relocating to Harrisburg during the Civil War and enlisting in Company G, 127th U.S.C.T. of the Union Army; returned to Harrisburg after the war and was active in organizations such as the Grand Army of the Republic, where he held the rank of Major.
- Elisha B. Mitchell (1838–1903): born into enslavement in Virginia in 1838, and escaped in 1862; married Harriet McClintock in 1864, and both were conductors on the Underground Railroad; served as a private in Company D, 24th U.S.C.T.; after the war was active in the Wesley Union A.M.E. Zion Church.
- William Dixon (1872–1925): enlisted in Troop B of the 10th United States Cavalry, a segregated Cavalry unit that was part of the original Buffalo Soldier regiments in the post-Civil War Regular Army.

Recent History

Like many African American cemeteries, Lincoln Cemetery has suffered from neglect by its owner and descendants of people buried at the cemetery over the course of many years. This neglect could be the result of its owner's limited financial resources to cover the cost of paying a lawn maintenance company to mow the grass and keep the trees, weeds, and underbrush at bay. It is very easy for the grass and weeds to overtake the cemetery if maintenance schedules are not maintained for one or two seasons.

During the 1990s, a local preservation effort was undertaken to address multiple instances of vandalism and stop local people from using the cemetery as a dirt bike course. Jeanne Jones, Wesley Union A.M.E. Zion Church member and Lincoln Cemetery Committee chairperson, led this preservation effort that resulted in the erection of the gate and archway at Lincoln Cemetery's main entrance on South 30th Street at its intersection with Booser Avenue, and a chain link fence enclosing the entire cemetery property. Her efforts also resulted in a 1993 publication on the history of Lincoln Cemetery.

While these preservationists had good intentions, their actions negatively impacted the integrity of the cemetery and its gravemarkers. Their placement of fencing at the property's east and south elevations resulted in some burials being left outside the fence line, and they undertook conservation work on the gravemarkers without consulting a professional stone conservator. They used inappropriate cleaning agents with harsh chemicals such as bleach and other acidic elements to clean gravemarkers and attached displaced monuments with multiple components and broken tablets with inappropriate adhesives. They also used construction-grade cement to set ground-supported tablets that had been leaning.

In 1994, the PHMC recognized Lincoln Cemetery's significance by awarding it a blue and gold state historical marker that reads:

> "A landmark of central Pennsylvania's African American history. Established in 1827 by Wesley Union A.M.E. Zion Church. Among those buried here are T. Morris Chester, William Howard Day, Catherine McClintock, and at least 20 veterans of the Civil War."[1]

In 2021, Rachel Keri Williams, a descendant of George Henry Williams, visited Lincoln Cemetery to read from her great-great-grandfather's gravestone the date of birth and his wife Betty's maiden name, and found the cemetery in poor condition. This led Williams and other descendants of people buried at Lincoln Cemetery to form the non-profit organization called SOAL. The organization's mission is to revitalize the cemetery, reclaim the rich history represented by the site, and build a stronger connection between the cemetery, descendants of the people laid to rest on its grounds, and the Harrisburg community. Williams describes her organization's work at the cemetery as "Radical History Reclamation" (Burg et al. 2023:34)

[1] The date of Lincoln Cemetery's founding is 1877, and the number of documented Civil War veterans buried in the cemetery is over 130.

3.0 Overall Assessment of Lincoln Cemetery

Ownership, Management, Grounds Maintenance, and Basic Recommendations

Currently, Lincoln Cemetery's ownership is ambiguous. At a yet-undetermined date, Lincoln Cemetery was incorporated separately from Wesley Union AME Church (former cemetery owner, but the corporation's board members were also affiliated with Wesley Union AME Church. Dauphin County's Register of Deeds website does not indicate the cemetery's actual legal owner; rather, it lists the owner as Lincoln Cemetery with the cemetery's physical address. While ownership is unclear, Wesley Union AME Church has a fund that supports maintenance of the cemetery's grounds, and SOAL's members and associated volunteers carry out tasks such as excavating buried gravemarkers and plot enclosures, repairing damaged gravemarkers, researching this history of the decedents buried at the cemetery, and coordinating mapping and geophysical and archaeological projects with colleges and universities in Central Pennsylvania.

Overall, Lincoln Cemetery is in good condition. Years of neglect, vandalism, and infrequent and improper lawn care practices resulted in the cemetery being used as a dirt-track course; the damage and displacement of gravemarkers; the overgrowth of grass and weeds; and bones being exposed by burrowing animals. Ground cover has grown over what could be interpreted as either gravemarkers or small broken sections of concrete, marble, or granite curbing. Gravemarkers with multiple components are damaged and displaced in family burial plots.

Fortunately, SOAL's volunteers have worked tirelessly over the past three years to clear overgrown grass and weeds and uncover sunken gravemarkers. SOAL has been able to accomplish this goal with the help of a small group of core volunteers, and with in-kind donations such as tools, water, and food from a variety of local vendors.

Lincoln Cemetery is identified by a metal archway displaying "LINCOLN CEMETERY 1827" that surmounts a pair of metal gates erected in 1992. The gates and archway stand at Lincoln Cemetery's west elevation near the intersection of South 30th Street and Booser Avenue. The gates and archway are currently in good condition and consistent with the size of the gravemarkers in this cemetery.

A narrow, one-lane, unpaved access drive runs throughout the property. The drive potentially covers some burials, and any future re-grading of this road should be considered very carefully to not disturb any burials beneath it. Displaced gravemarkers flank this road and vehicular traffic in the cemetery could cause further damage. Parking at Lincoln Cemetery is available only in narrow strips of grass between the chain link fence at its western boundary and South 30th Street. RGA recommends that both Wesley Union A.M.E. Zion Church and SOAL maintain relationships with property owners on the west side of South 30th Street to alleviate any complaints or measures to prohibit parking in these limited areas during future preservation efforts or commemorative services.

Lincoln Cemetery's character-defining features include burials in rows and family plots marked by aboveground enclosures or corner posts; circulation provided by a single unpaved loop road; and the presence of both commercially made and folk upright headstones. The loss of any of these character-defining features will erode the overall ambience of the cemetery and alter the visitor's experience. Therefore, maintenance activities and improvements should seek to restore and preserve these character-defining features for visitors and future generations. The cemetery stewards should continue ongoing consultation with landscape architects, arborists, archaeologists, cemetery conservators, and stonemasons.

Over the past three years, Lincoln Cemetery's former landscape issues have been successfully mitigated by SOAL's volunteers and a lawn maintenance company paid for by Wesley Union A.M.E. Zion Church's. These entities keep the grass mowed and weeds under control. SOAL's volunteers or Wesley Union A.M.E. Zion Church should contact Dauphin County's Penn State Extension for

guidance in eradicating burrowing animals in Lincoln Cemetery. RGA recommends that Wesley Union A.M.E. Zion Church and SOAL's volunteers work collaboratively to repair damage to fencing at each of the cemetery's elevations. These repairs will help limit access to animals who will create maintenance issues and damage gravemarkers and monuments (Figure 42).

Figure 42: Damage to the chain link fence at Lincoln Cemetery's east elevation; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Wesley Union A.M.E. Zion Church is doing a good job of mowing and weed whacking and keeping the aggressive weeds at bay at Lincoln Cemetery, but RGA recommends that the church provide SOAL volunteers with the lawn maintenance company's mowing schedule to avoid damage to gravemarkers and monuments that SOAL has excavated and are currently lying unprotected in the grass.

RGA recommends that Wesley Union A.M.E. Zion Church and SOAL volunteers maintain open lines of communication to coordinate future interments and the potential placement of commemorative markers at Lincoln Cemetery. In 2022, Wesley Union A.M.E. Zion Church permitted the erection of a commemorative marker honoring Hattie M. Grant, the First Worthy Grand Matron of the Deborah Grand Chapter of the Order of the Eastern Star from 1909–1915, before determining whether a burial or burials were in the area where the marker was planned to be set. The monument company employed to set the commemorative marker dug a deep hole in a seemingly random location and poured an excessive amount of concrete on which the marker's base would rest near Lincoln Cemetery's east boundary. SOAL's volunteers learned about the monument company's actions and SOAL's volunteers excavated the base and attached concrete form (Figure 43).

Figure 43: Base with poured concrete support excavated by SOAL's volunteers after learning that a monument company had placed it in a seemingly random location; Photo view: South; Photographer: Jason Harpe; Date: September 18, 2023.

Deteriorated Conditions of Gravemarkers

Lincoln Cemetery's gravemarkers and monuments have sustained damage from vandalism, falling trees and limbs, mechanized equipment, and burrowing animals such as groundhogs and foxes. Lincoln Cemetery has also been neglected intermittently over the past 70 to 80 years. The cemetery has been plagued throughout its history with inconsistent maintenance, and a lack of recognition for its cultural significance. Local organizations have spearheaded intermittent cleanup efforts at the cemetery over the past 30 years, but there has not been a pragmatic approach to long-range planning to sustain the cemetery until now.

Gravemarkers are leaning, displaced, broken, sunken, covered by grass and leaves, missing components, and are deteriorating. Marble gravemarkers are the cemetery's most predominant type and are in the most immediate need of leveling, conservation, and restoration. Granite die-on-base gravemarkers are, when compared to the marble and concrete gravemarkers, sound and stable. Granite became one of the most popular gravemarker stones during the 1880s and remains the preferred stone for gravemarkers and monuments because it is hard, heavy, and durable (Anson-Cartwright 1998:12).

The granite die-on-base and pedestal tomb gravemarkers at Lincoln Cemetery do not display an accelerated level of deterioration, but some show atmospheric staining and biological growth, and many of the dies are not secured to their accompanying bases. Die-on-base gravemarkers tend to tilt if the bases were set directly on the ground without any type of aggregate foundation to provide stability to counteract shifting or the effects of gravity (King 2004:92). Some of the dies are no longer oriented in their original position on the base because water has infiltrated the space between the die and base, causing "walking," or shifting, during freeze-thaw cycles. During the freeze-thaw cycle, water that infiltrates open spaces in the stone can expand in volume by nearly 10 percent and cause a die to rise off the base and settle in a disoriented position when the water thaws.

Broken gravemarkers, particularly those made of marble and concrete, that are displaced and lying on the ground for extended periods of time have sunk and been overtaken by grass. Deterioration of these displaced and broken pieces is accelerated by constant exposure to moisture in the soil, lawn mowers and weed whackers, and herbicides. Marble is very porous and susceptible to "sugar decay,"

a phenomenon "in which acid precipitation attacks along the joints or boundaries between the calcite crystals that comprise marble" and "the grains or crystals are ultimately loosened and can be brushed off like granulated sugar" (Anson-Cartwright 1997:8).

A number of gravemarkers and monuments observed at Lincoln Cemetery have inappropriate previous repairs. The extant materials used to secure stone components of gravemarker types such as ground-supported tablets and tab-in-socket gravemarkers are epoxies and monument-setting compounds. Many historic cemeteries display ingenious but ill-suited repairs that are contrary to conservation standards. The removal of previous inappropriate or damaging repairs should be undertaken cautiously because of the potential of compromising the integrity of the stone during future restorations (King 2004:123).

Some gravemarkers that are currently upright are leaning more than 15 degrees into their respective rows. Leaning stones may lean because they have shifted, have been purposefully dislodged, or simply because of gravity. Ground-supported tablets that are leaning could become warped and, in the worst case, could break due to their own weight (King 2004:92).

SOAL's volunteers have cleaned many gravemarkers throughout Lincoln Cemetery over the past three years, leading to the proper recordation of many decedents whose attributes were previously illegible on their gravemarkers and monuments. SOAL's volunteers used D/2 Biological Solution, an industry-standard product for the cleaning of gravemarkers and monuments, along with potable water and soft bristle brushes. These gravemarkers and monuments now look pristine with an appearance nearly identical to what they displayed when originally placed in the cemetery, but they will eventually re-host atmospheric staining and biological growth.

As part of a cyclic conservation maintenance plan, Wesley Union A.M.E. Zion Church and/or SOAL volunteers should document the removal of lichens and biofilms from stone monuments and markers so that they can track the amount of time between the removal and lichen recolonization. Removing lichens with water and/or biocides such as D/2 Biological Solution is only a temporary remedy. Lichen recolonization has been documented to take as long as 10 years in certain cases, and as few as 3 years in other cases. The rate of recolonization is affected by environmental factors, as well as the type of stone host (Nascimbene, Salvadori, and Nimis 2009:2420–2; Figures 44–56).

Figure 44: Displaced marble die-on-base gravemarker and excavated grave goods (shells); Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 45: Displaced marble die of Ella Dandridge (d. 1892) and piles of brick and stone; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 46: A pile of excavated stone among gravemarkers; Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 47: Marble ground-supported tablets and die-on-base gravemarkers; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 48: Displaced marble gravemarkers along Lincoln Cemetery's west elevation near its northwest corner; Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 49: Excavation units and displaced gravemarkers, bricks, and grave goods; Photo view: South; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 50: Displaced gravemarker base and piles of stone and brick; Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 51: Displaced marble tablets; Photo view: South; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 52: Displaced marble gravemarkers for Annie May (d. 1913) and Luvina May (d. 1912), and marble corner posts; Photo view: North; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 53: Recently cleaned and displaced gravemarkers near Lincoln Cemetery west elevation; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 54: Displaced, ground-supported marble tablets for Mary Simpson (d. 1882) and Charlotte Weaver (d. 1882); Photo view: West; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 55: Marble tablet with poured concrete apron; Photo view: East; Photographer: Jason Harpe; Date: September 18, 2023.

Figure 56: Excavation units and displaced gravemarkers, bricks, and grave goods; Photo view: Northeast; Photographer: Jason Harpe; Date: September 18, 2023.

4.0 Preservation Plan

Determine Ownership of Lincoln Cemetery

Over the past three years, SOAL's volunteers have done a commendable job of clearing the cemetery of overgrown grass, weeds, and underbrush that have for many years covered damaged and displaced gravemarkers. Equally important is the work that SOAL's volunteers have done to clean and repair the leaning, displaced, and damaged gravemarkers in Lincoln Cemetery. Mindful of this, SOAL has been conducting its volunteer efforts at Lincoln Cemetery without permission from the cemetery's actual owner, which is listed in Dauphin County property and tax records as Lincoln Cemetery. RGA recommends that SOAL secure an attorney to assist them in resolving Lincoln Cemetery's ownership issue and pursue managerial control of the cemetery. RGA considers this a top priority.

SOAL's board of directors should also watch Daniel Stern's presentation, "Cemetery Law & Stewardship," delivered during PAHG's Stewards Roundtable Special Session on January 17, 2023. Stern's presentation is available on PAHG's YouTube page: https://www.youtube.com/watch?v=EBCjbNbMocA.

Signage

To deter unauthorized interments, loitering, and vandalism, RGA encourages cemetery stewards to install a sign at Lincoln Cemetery's main entrance on South 30th Street that gives the cemetery's hours (i.e., dawn to dusk), rules (i.e., no gravestone rubbing, clean up after your dog, no loitering, no interments without prior authorization) and contact information (i.e., for more information or to volunteer, report vandalism, or to arrange vehicular access, contact Wesley Union A.M.E. Zion Church and Lincoln Cemetery's stewards). Cemetery stewards should notify local law enforcement of the posted hours and encourage them to deter visitors after hours. The cemetery stewards should check with local officials regarding any requirements or ordinances prior to posting the signs. Local sign companies and online sign providers can make signs quickly and at a low cost (Figures 57, 58, and 59).

Figure 57: Signage with rules and regulations at Hollybrook Cemetery in Lincolnton, North Carolina; Photographer: Jason Harpe.

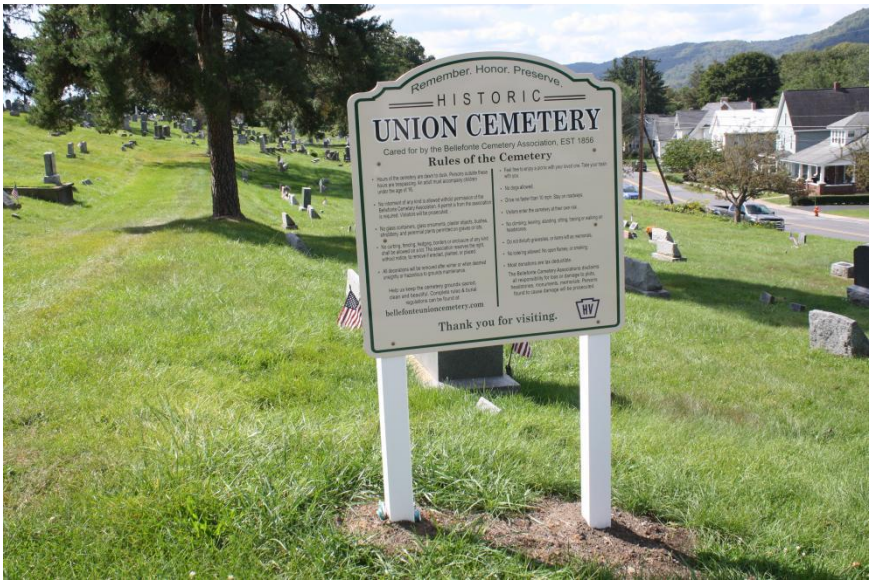

Figure 58: Signage with rules and regulations at Union Cemetery in Bellefonte, Pennsylvania; Photographer: Jason Harpe.

Figure 59: Signage with rules and regulations at St. Luke's Episcopal Church, Lincolnton, North Carolina; Photographer: Jason Harpe.

Lincoln Cemetery stewards should discourage grave rubbing, a process where images of gravestone carvings are captured by placing a sheet of paper over the carvings and rubbing with a pencil, crayon, or other utensil. This process can cause permanent damage when the writing medium extends off the paper and onto the stone itself, and the pressure placed on the marker during the process can cause the gravemarker to topple. Damage to stones, such as delamination or splitting, can also be made worse through the impacts of grave rubbing.

Lincoln Cemetery stewards should report vandalism or observed damage to the local authorities. Documentation serves to keep the cemetery stewards' records complete and may be invaluable in associated criminal or civil proceedings. Criminal and civil cases can take years to make their way

through the legal system; it is in the cemetery stewards' best interest to rely on detailed and complete records made at the time, rather than someone's long-term memory.

Cemetery Mapping and Site Clearing

SOAL's volunteers have been working with Harrisburg University of Science and Technology over the past two years to properly map Lincoln Cemetery's aboveground and belowground features using multispectral analysis. Once Harrisburg University completes this survey, SOAL should publish this data on its website and social media outlets and make it available to Wesley Union A.M.E. Zion Church.

As mentioned earlier in this report, SOAL has done an amazing job of clearing overgrown grass and weeds from Lincoln Cemetery, and Wesley Union A.M.E. Zion Church has maintained the grass and weeds in the cemetery through their contract with a landscape maintenance company. If either SOAL or Wesley Union A.M.E. Zion Church are unable to maintain the cemetery in the future and certain sections or entire cemetery are engulfed by grass and weeds, future stewards should adhere to the following recommendations.

The first impulse for many organizations is to rush into these overgrown areas with a brush hog or large zero-turn mower, or to broadcast a multi-spectrum herbicide. These approaches can cause significant damage and loss of information in a cemetery setting. When clearing a cemetery, it is important to ensure that no gravemarkers or other landscape features, including deliberate funerary plantings, fieldstones, broken stones, and plot markers, are moved prior to documentation. The use of plain, undecorated fieldstones as gravemarkers is a documented practice in African American cemeteries, as well as in other circumstances where the financial resources were not available to purchase a custom headstone (Little 1998:36; Kruger-Kahloula 1989:33). Much of the information that can be gleaned from informal landscape features is based on their physical location within the cemetery; for example, gravemarkers that are moved from their original placement are no longer gravemarkers, since they lose their association with the remains of the deceased. Moving stones also obscures family and other relationships that may be evident from the stone's location relative to those of other individuals. Moving a stone is a decision that must be made carefully. Stones should not be moved to make straight rows, create pathways, or to "correct" the direction that they are facing.

In clearing vegetation, RGA does not recommend the use of herbicides such as Roundup to eradicate grass around gravemarkers or monuments. The routine use of herbicides such as Roundup is strongly discouraged because of the adverse effects it has on stone. Gravemarkers can wick the salts in herbicides and cause conditions such as spalling (the formation of a gypsum crust on marble), as well as other types of deterioration (Striegel, Gale, Church, and Deitrich-Smith 2004:6). Dead grass from mowing the grass too close to the ground and the use of herbicides also opens the ground up to erosion and weeds.

Clearing should be done with hand-held clippers, with care taken not to accidentally nick or damage gravemarkers. Once the bulk of the overgrowth has been removed, string trimmers with light-gauge nylon cord (no heavier than 0.09-inch) can be used in areas where there are no markers or other cemetery features. To prevent damage to burials or other subsurface features, plants should not be pulled out of the ground by their roots. Instead, trim unwanted plants close to the ground and paint the cut stem with an appropriate herbicide. This will limit the amount of herbicide that both individuals and stones are exposed to. In addition, this approach limits the amount of herbicide present in the soils, permitting further plantings (such as ground cover or grass seed) to grow.

Following the above guidelines, site clearing can be done either by a contract landscaper or by supervised volunteers. Regardless of whether paid or volunteer resources are used, it is anticipated

that the clearing project will take place over several seasons. To facilitate mapping and recordation, clearing should begin in areas where visibility, even in winter when plant growth is dormant, is limited. This will enable basic mapping to be completed, so that recordation can move forward.

Goatscaping

One solution to the problem of overgrown grass and weeds at Lincoln Cemetery is grazing goats or "goatscaping." To many stewards, this method may seem unconventional, but owners and stewards of other historic cemeteries have successfully used goats and sheep to clear overgrown understories. In 2021, volunteers at St. Matthew's historic church in Cork County, Ireland, brought in sheep to remove overgrowth around the cemetery's gravemarkers. Audrey Buckley, Cork County Councilor, explained to BBC News that she learned about "goatscaping" while visiting Wales. The goats cleared unwanted vegetation from churchyards and "can remove weeds in a more environmentally friendly way than power trimmers while presenting less danger to fragile tombstones" (Gershon 2021). After the sheep and goats had eaten layers of vines and brush, they ate the grass around the headstones. Because of the animals' work, a committee was able to register more than 400 headstones in the cemetery.

People have used goats to remove invasive plants from cemeteries that range in size from a small family cemetery in Tennessee to large areas in and around the Historic Congressional Cemetery in Washington, D.C. In 2017, Bob Davidson of Murfreesboro, Tennessee, hired a company called The Goat Guys to remove dense vegetation from the Gannaway Cemetery that was located on his property. Around 60 goats cleared invasive plants such as privet, honeysuckle vines, bamboo, and poison ivy from the cemetery (DeGennaro 2017). Administrators of the Historic Congressional Cemetery have used goats at least three times between 2013 and 2015 to clear invasive species of vegetation from large mature trees on property around the cemetery. Paul Williams, president of the Historic Congressional Cemetery said that "this is a unique project that combines natural and cultural resources, providing the perfect solution for us since we are located so close to the Anacostia River edge," and "we don't want to utilize chemicals due to our riverside location and because of our membership only, off-leash dog walking program" (Dawkins 2013).

The stewards of the Historic Jersey City and Harsimus Cemetery in Jersey City, New Jersey have paired goatscaping with an exclusive music festival to raise funds to support preservation efforts at the cemetery. Goatchella is a two-day music festival sponsored by local businesses and features bands from Jersey City and nearby cities like Sussex County, Asbury Park, and Union City. The impetus for the event was a decrease in the number of volunteers to maintain the cemetery's grounds during COVID 19, and the need to raise money to support other aspects of the cemetery's operations.

Stewards of historic cemeteries are not the only people associated with historic sites who have used or have considered using goats to reduce invasive and unwanted vegetation in public spaces. In May 2022, the goats of Pittsburgh-based company Allegheny Goatscape cleared underbrush on a heavily wooded tract of Historic Hanna's Town in Hempfield, Pennsylvania. The Westmoreland Historical Society, which manages the Hempfield historic site, used the goats to clear underbrush for the expansion of walking trails through the site (McMarlin 2022).

In 2018, Dr. Steve Burg's students at Shippensburg University created a brochure based on an undergraduate research project that focused on the use of livestock to maintain historic cemetery grounds. The students' conclusions on the feasibility, cost-effectiveness, and sustainability of using livestock such as sheep and goats included the following:

- 2–3 hair sheep lamb wethers could maintain a historic cemetery.

- Selling the sheep at the end of the season means the practice is low-cost or could generate a profit.
- Less expensive and labor intensive than traditional gas-powered lawn mowing.
- Less pollution/carbon emissions than mowing.
- Sheep could draw potential visitors.
- Can add additional character and interest to site.
- Small lambs are little risk to historic tombstones.
- Goats are better for tight spaces and to eliminate invasive species.

The research project uncovered some potentially negative effects, including:

- Potential problems of flower consumption, sheep rubbing against the gravestones, fecal matter, and selective feeding.
- Danger of goats climbing and standing on headstones.
- Local code issues.
- No prior scholarly or academic research found.
- Anecdotal evidence about use of goats and sheep in cemeteries at NPS sites, at Congressional Cemetery.
- No studies about the impact of livestock on historic cemeteries.
- Goats eventually create paths on the landscape.

Using goats to clear overgrown grass and weeds at Lincoln Cemetery is a viable consideration, but Dr. Burg pointed out to Mr. Harpe in a February 18, 2023, email that "the first and biggest issue is whether people with loved ones in the cemetery would find it offensive or disrespectful," and "animals also present some logistical challenges because Union Cemetery is not fenced."

Lincoln Cemetery's stewards should explore the possibility of using livestock (goats and/or sheep) to clear the overgrown grass and weeds in the cemetery and minimize damage caused by lawnmowers and weedwhackers to the cemetery's gravemarkers and monuments.

Recordation

SOAL's volunteers have done an outstanding job of not only documenting decedents interred at Lincoln Cemetery, but also researching and writing about their life stories. SOAL makes this information available on its website and social media outlets, but a designated repository for this material does not exist. SOAL should work with a local historical society or preservation organization in Harrisburg and/or Dauphin County to retain all printed and digital materials related to SOAL's work at Lincoln Cemetery. There is always the possibility that members experience burn-out, lack of interest, funding limitations, and re-direction of personal or professional responsibilities. SOAL's board members and volunteers would not like to contemplate their organization failing to fulfill their mission.

Community Outreach and Involvement

Community outreach, education, and connections are vital parts of SOAL's preservation efforts. Outreach includes media relations, newsletters, social media, pamphlets, educational materials, programs, and events. In addition to community outreach, these activities also encourage increased involvement with the cemetery stewards by providing vehicles that inform the public of the various needs associated with Lincoln Cemetery and by giving them different means of becoming involved.

Media Coverage

Media coverage is an excellent, low-cost way to educate and inform the public about Lincoln Cemetery, as well as to encourage involvement. Press releases can be an effective way to both promote the cemetery and draw attention to events at the site. Press releases should cover "newsworthy" events and announcements, such as spring clean-up announcements, workshops, donation drives, the launching of a new website, fundraising goals, and progress. If a press release is being sent out for an upcoming event, be sure to send it out far enough in advance (two to four weeks) so that the information can be published, and so the media outlet may arrange to have someone present to cover the event if they so choose. If reporters or photographers attend events, be sure to get their contact information and ask them if direct contact in the future is appropriate regarding upcoming events and announcements.

Volunteers

SOAL has a core group of volunteers that hold "restoration weekends" at Lincoln Cemetery no less than two times each month during the spring, summer, and fall.

One of SOAL's greatest needs is local volunteers. SOAL has done an amazing job over the last four years, but few of the current volunteers are local to Harrisburg. The public living nearby may not be aware of the cemetery and efforts taking place there, so the stewards must spread the word. They can do this through an online and/or printed announcement, through local community or church groups, and in-person at events. It is important to ask people if they are interested in volunteering with the stewards to help preserve the cemetery. The stewards should maintain a list of projects on which volunteers can work such as cemetery clean-ups, site recordation and data entry, and research. Also, they should have an idea of how much volunteer time each project requires. Some people are able and willing to volunteer a large amount of time, while others are interested in a one-time or more occasional commitment. People may wish to volunteer, but do not know that they have skills that may be helpful to the cemetery stewards.

Educational Programs

Educational programs, designed for a variety of audiences, serve to both educate the public about Lincoln Cemetery and instill a sense of ownership and pride about this important site. This serves as the basis of further public involvement in the maintenance and protection of Lincoln Cemetery through financial donations, volunteering, and advocacy. This can also serve to improve security at the site, as more individuals will be aware of the presence of the cemetery and what behaviors are acceptable and which should be reported.

SOAL's volunteers can use many aspects of Lincoln Cemetery's history to address Pennsylvania Department of Education's Academic Standards for History. The four core academic standards for history: Political and Cultural Contributions of Individuals and Groups; Primary Documents, Material Artifacts and Historical Places; How Continuity and Change Has Influenced History; and Conflict and Cooperation Among Social Groups and Organizations. Grade-appropriate educational materials made available to teachers, as well as the opportunity for a field trip to the cemetery, will serve to educate the youngest members of the community on the existence and importance of Lincoln Cemetery and its historical context on a local, regional, and national level.

Educational programs for adults can include cemetery tours, educational workshops on genealogy or cemetery preservation, "edutainment" presentations like that described in the "Tales of the Crypt" referenced below in the "Special Events" section of this plan, and hands-on cemetery cleaning workshops. Cemetery stewards can structure several of these programs directly to adults or they can

be presented in a more "family-friendly" way. In addition to opportunities to educate the public about the existence and history of Lincoln Cemetery, this type of educational programming can also encourage the public to volunteer to help maintain the cemetery, or to otherwise donate their time and money.

SOAL's volunteers should continue posting short and digestible content on social media accounts (i.e., Facebook, Instagram, and TikTok). SOAL should also consider funding to produce two separate well-curated and produced 3-to-5-minute videos: one on the history of Lincoln Cemetery and its decedents and the other on SOAL's preservation efforts over the past four years.

Educational Publications

Basic educational materials, including curriculum materials, information sheets, or workshop notes can be made available online on the steward's website. The stewards may also want to prepare a printed educational pamphlet or booklet about the site to distribute to those without internet access, and at local historic sites, museums, libraries, visitors' bureaus, chambers of commerce, cultural centers, and interested businesses (banks, hotels, etc.). The booklet can be a simple bifold that contains historical information on Lincoln Cemetery and some of the most noted decedents buried at the cemetery. There are very tech-savvy history buffs that still prefer reading historical content from a printed booklet instead of on their mobile devices.

A very time-consuming yet cost effective and high yielding publishing effort is Arcadia Publishing's Images of America series. As part of this series, Arcadia Publishing currently has 140 books on cemeteries throughout the United States available for purchase on its website. These publications range from general histories of cemeteries to those focused ghost stories and pet cemeteries. Based on the amount of content available on SOAL's website (historical material, maps, and photographs), this publishing project should be easy. Arcadia Publishing's application for publication is available on its website: https://www.arcadiapublishing.com/pages/make-me-an-author. Jason Harpe, RGA's Director of Cemetery Conservation, has successfully completed five Images of America titles through Arcadia Publishing, and can provide some basic guidance and tips if SOAL decides to pursue this recommendation.

Royalties received by SOAL from book sales can be used to further advocacy, documentation, educational, and preservation goals and objectives for Lincoln Cemetery.

Merchandise

Producing and selling merchandise connected to a specific cause is a great way to engage with a broad base of supporters and raise money to support a non-profit organization's operational costs and projects. Merchandise fundraising can help keep a community of donors engaged with a non-profit organization for a long time, build partnerships, and diversify contribution options for current and future donors.

SOAL has done a great job of producing branded products such as t-shirts, backpacks, phone cases, bags, fanny packs, hoodies, and stickers and making them available on its website.

RGA staff did not inquire with SOAL's board members about the amount of money they have realized from the sale of these products over the past few years, but RGA staff did notice that nearly all board members, volunteers, and community supporters in attendance during the site visit to the cemetery on September 18, 2023, were donning SOAL-branded t-shirts, hoodies, and bags.

SOAL should continue to sell these products through its website but should also contact small shops in downtown Harrisburg about the possibility of these shops carrying one or more of SOAL's

products. Many times, small downtown businesses will observe Small Business Saturday and Shop Local campaigns to remind people that there are prime shopping opportunities in their communities that support local craftspeople and non-profit organizations.

Engage Local and Distant Descendant Communities

SOAL has hosted a variety of programs at Lincoln Cemetery over the past three years that focused on generating interest and support from local and distant descendant communities whose ancestors are buried at Lincoln Cemetery. SOAL should continue these programs while considering a slate of additional grassroots efforts such as using genealogical information and data on people buried at Lincoln Cemetery to connect with their living descendants longitudinally and diagonally. This process is known as descendancy research and focuses on identifying living relatives of ancestral couples. Descendancy research may be counter-intuitive for most genealogists, but it will likely expand SOAL's research and identification goals by finding descendants of people buried at Lincoln Cemetery who have photographs, artifacts, and oral histories to share with SOAL about their ancestors. SOAL should ask these descendants to spread SOAL's mission, goals, and objectives to their family members, as well as asking these descendants to share contact information of their family members with SOAL.

SOAL does an amazing job of posting content on their social media accounts (Facebook, Instagram, and TikTok) but they should consider focusing some of their attention on targeting an older demographic that receives information from printed sources such as the newspapers, newsletters, flyers, etc., and local news broadcasts. This older demographic may know more about the potential of their ancestors being buried at Lincoln Cemetery than younger generations. RGA recommends that SOAL contact organizations local to Harrisburg whose missions are focused on an older demographic and ask if SOAL can provide a simple flyer on their efforts to identify descendants of people buried at Lincoln Cemetery for the local organizations to include with their bi-monthly, quarterly, or annual mailings.

There are myriad cemetery projects that include engagement with descendant communities as a top priority. SOAL should research these projects, contact project organizers, and emulate the successful aspects of their programs. Included below is a short list of some of these projects.

- Friends of Geer Cemetery: https://friendsofgeercemetery.org/.
- African American Burial Ground, Andrew P. Calhoun Family Plot, and Woodland Cemetery Historic Preservation Project: https://www.clemson.edu/about/history/woodland-cemetery/index.html.
- Highland's Council of Descendant Advisors: https://highland.org/descendant-advisors/.
- Terrance Weik's efforts in South Carolina: https://sc.edu/uofsc/posts/2023/06/terence-weik.php.
- Descendants of Olivewood: Historic Olivewood Cemetery, Houston, Texas: https://www.descendantsofolivewood.org/about-olivewood/.

RGA recommends that SOAL consult with members of PAHG about engaging with descendant communities because many of PAHG's members have been champions of preserving African American cemeteries throughout Pennsylvania for many years and can provide invaluable practical knowledge on the topic.

The Black Cemeteries Network (BCN) is an extremely helpful online resource that provides links to websites and social media accounts of African American cemeteries whose stewards have registered their online sites with BCN, and SOAL should spend some time on BCN's website researching how stewards of these cemeteries have connected with their descendant communities. RGA is aware that

SOAL has registered Lincoln Cemetery with BCN, so they have some experience with the website and BCN's goals and objectives.

SOAL should connect with other descendant communities by attending and participating in events like the Descendant Communities Social Innovation Lab at the National Museum of African American History and Culture (NMAAHC) in March 2023. This program was a partnership between NMAAHC and the National Trust for Historic Preservation (NTHP). SOAL board member Rachel Keri Williams participated in this event and her photograph is included on the NTHP's website (https://savingplaces.org/stories/coming-together-with-the-descendant-communities-social-innovation-lab).

Site Interpretation and Outdoor Signage

Dr. Steve Burg, some of his students, and SOAL board members Rachel Keri Williams and Alex Gurn have written a thorough description, history, and context statement for Lincoln Cemetery. Lincoln Cemetery stewards should consult this document when able to develop interpretive outdoor signage. The signage could be wood, a cast aluminum highway marker like those made by Sewah Studios of Marietta, Ohio, or signs fabricated by a company like Pannier Graphics in Gibsonia, Pennsylvania. Pannier Graphics achieves reliable results with outdoor signage using both fiberglass embedment and gel coat laminate, and the company offers a variety of exhibit bases and frames.

Outdoor interpretive signage does not have to exhibit technical graphic design features; rather it can focus specifically on textual elements complemented by historic maps and photographs of decedents buried in the cemetery and more recent photographs spotlighting SOAL's preservation efforts. A good example of outdoor interpretive signage with very few bells and whistles but providing thorough yet succinct texts with supporting images is the panels for Old Friendship Chapel Cemetery in Wake Forest, North Carolina. SOAL should erect the interpretive signage at locations throughout the cemetery such as the former caretaker's house and the site where GPR was conducted (Figures 60–65).

Figure 60: Outdoor interpretative signage at the Madison-Derr Iron Furnace in Lincoln County, North Carolina; Photographer: Jason Harpe.

Figure 61: Outdoor interpretative signage at the Madison-Derr Iron Furnace in Lincoln County, North Carolina; Photographer: Jason Harpe.

Figure 62: Outdoor interpretive signage with benches on the campus of Mars Hill University in Mars Hill, North Carolina; Photographer: Jason Harpe.

Figure 63: Outdoor interpretive signage at Old Friendship Chapel African American Cemetery in Wake Forest, North Carolina; Photographer: Jason Harpe.

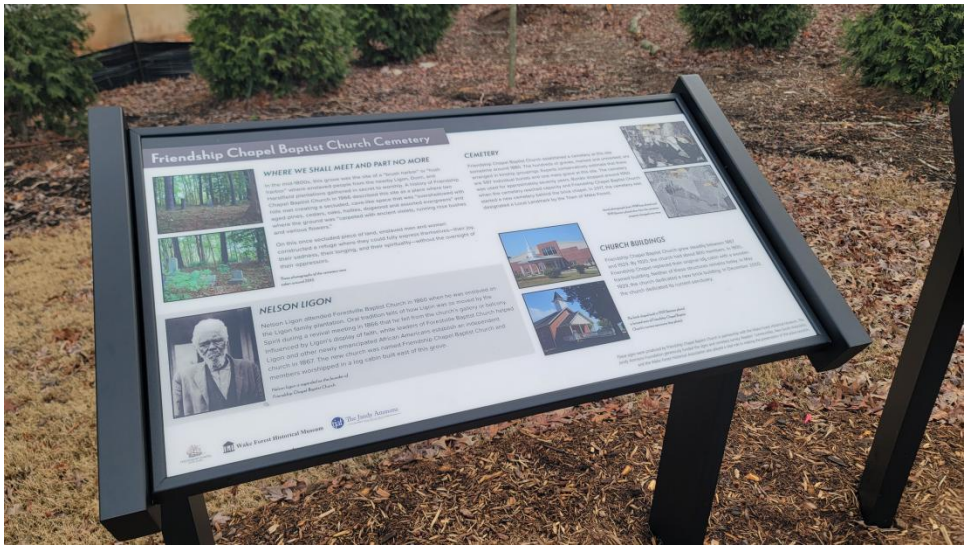

Figure 64: Outdoor interpretive signage at Old Friendship Chapel African American Cemetery in Wake Forest, North Carolina; Photographer: Jason Harpe.

Figure 65: Outdoor interpretive signage at Old Friendship Chapel African American Cemetery in Wake Forest, North Carolina; Photographer: Jason Harpe.

A viable option to help educate the public about both individual and collective histories of decedents buried at Lincoln Cemetery if they tour the cemetery without a guide present is to include Quick Response (QR) codes. The Greenwood Cemetery Association of Jackson, Mississippi uses QR codes to help visitors to Greenwood Cemetery learn about people, and even pets, interred at Jackson's city cemetery. The QR codes are attached to the gravemarkers and monuments, and once captured, lead mobile phone users to the Greenwood Cemetery Association's website.

Greenwood Cemetery is in historic downtown Jackson and was listed on the National Register of Historic Places in 1984. It is the final resting place for Pulitzer Prize winning author Eudora Welty, as well as past mayors of Jackson, past governors of Mississippi, and over 100 military veterans. Designed in the "garden park" style popular during the 1820s, the cemetery has the largest collection of ever-blooming antique and modern shrub roses (over 40 named cultivars) in the United States.

Greenwood Cemetery is also the final resting place for the Mamie Simms (d. 1877) faithful dog. If you capture the QR code on the marble base of the resting dog, you will be directed to the Greenwood Cemetery Association website where you can learn that Simms's dog visited her grave until its death. The canine is buried in the same family plot as Mamie, her mother Annie Tarpley Simmons (d. 1913), and her grandfather, former attorney Collin S. Tarpley (d. 1860) (Figure 66).

Figure 66: The faithful dog at Greenwood Cemetery in Jackson, Mississippi. A QR code attached to the monument's base leads to the Greenwood Cemetery Association's website where people can learn more about the dog and his owners. Photographer: Jason Harpe.

RGA does not recommend attaching the QR codes directly to the gravemarkers or monuments using adhesives; instead RGA encourages Lincoln Cemetery stewards to find a creative way to make QR codes available for everyone buried at Lincoln Cemetery whose gravemarker is extant.

Fundraising

Fundraising and community involvement go together, and although there is information specific to each presented in this preservation plan, both sections should be considered together.

Identifying Donors and Soliciting Donations

The Lincoln Cemetery stewards could find potential donors from descendants of those interred at the site, residents, cemetery buffs, people interested in African American history in Dauphin County, local businesses, churches, and civic groups. In addition to a generic donation request letter, the stewards can write letters targeting these specific groups. They can also place requests for donations on cemetery signage, in emails, on the internet, etc. Donor information (including dates of solicitations, amount given, date given, etc.) should be part of the master contacts database maintained by the stewards. Stewards can use this information to target donation requests to people with whom the stewards already have a relationship, and thank donors in a private letter or newsletter, on the website, as part of a press release for an event, and in person at an event.

People who have ancestors buried in the cemetery and visitors to the cemetery are potential donors that can help support the stewards' preservation efforts.

According to Kim Klein, author of *Fundraising for Social Change*, there are 10 important things everyone must know about fundraising.

1. If you want money, you have to ask for it.
2. Thank before you bank. Once you receive money, you must thank the person who gave it to you.
3. Donors are not Automated Teller Machines. Make them feel like friends and part of your cause instead of contacting them only when you need money.
4. Most money comes from people, and most of those people are not affluent.
5. People have the right to say no.
6. To be good at fundraising, cultivate three traits: 1) a belief in the cause for which you are raising money and the ability to maintain that belief during defeats, tedious tasks, and financial insecurity; 2) the ability to have high hopes and low expectations, allowing you to be often pleased but rarely disappointed; 3) faith in the basic goodness of people.
7. Fundraising should not be confused with fund chasing, fund squeezing, or fund hoarding.
8. Fundraising is an exchange: people pay you to do work they cannot do alone.
9. People's anxieties about fundraising stem from their anxieties about money.
10. There are four steps to fundraising: plan, plan, plan, and work your plan.

In-Kind Donations

Often, individuals or groups are interested in donating items or services instead of cash. These in-kind donations can be extremely valuable, but only if they are items or services that the cemetery stewards can use. The cemetery stewards should make a list of goods and services that they can use such as trash bags, manila folders, trash cans, pens, clipboards, SD cards for their digital camera, and tools to assist with clearing the cemetery's western section. Stewards should be clear about how much of each item they need. Revisit the list on a regular basis, considering items and services received and any additional needs that may arise. This list of needed goods and services can then be circulated to potential donors, in a newsletter, via email, or on the steward's website and Facebook page. Be sure to include contact information so that potential donors can call ahead and plan.

Grants

SOAL volunteers search incessantly for grant opportunities to fund projects at Lincoln Cemetery, and they are aware that numerous grant sources are currently available for the preservation of African American cemeteries. These include government and private foundations.

In 2023, SOAL received a $20,000 grant through the Dauphin County Tourism Grant Program, and, in addition to receiving grant funds from Preservation PA to fund this cemetery preservation plan for Lincoln Cemetery, they recently applied for a $100 to $1,000 mini grant offered by the Pennsylvania State Archives "to help underrepresented communities with archival preservation of their historic materials."

One of the keys to accessing grant money is to apply for funding that is a match for your organization and project. While general operating funds may be hard to access through grants, many granting agencies fund specific projects. The stewards should be prepared to re-evaluate the priorities determined for the cemetery based on available resources, including those available through grants.

There are several resources available for organizations to locate grant sources; these are particularly helpful in identifying private foundations that offer grants. One of the most comprehensive databases is managed by the Foundation Directory, but you must have a subscription to access these resources.

The stewards of Lincoln Cemetery should consider submitting a grant application to the National Trust for Historic Preservation's Louis J. Appell, Jr. Preservation Fund for Central Pennsylvania. The

National Trust accepts applications for grants in the range of $5,000 to $15,000 to fund the following types of projects:

- Restoration, rehabilitation, or preservation of historic buildings, including brick-and-mortar construction and repair, as well as costs associated with retaining the services of professionals in the areas of architecture, engineering, preservation, land-use planning, or natural resource conservation.
- Activities related to the conservation of land that contributes to the historic or cultural heritage of Central Pennsylvania.
- Preservation services that directly contribute to the preservation of a specific historic or cultural site including planning, development of promotional/marketing materials, and interpretive or educational programming.

Stewards should research granting agencies on Grants.gov (a database of grants available through the federal government), HistoricFunding.com (https://historicfunding.com), PreservationDirectory.com (https://www.preservationdirectory.com/) and funding opportunities with the National Trust for Historic Preservation, the PA Humanities, the PHMC, and the We the People program through the National Endowment for the Humanities.

Special Events

Special events at or about Lincoln Cemetery can serve as a source of fundraising and community outreach and education. Events can include cemetery tours for various age groups, lectures about people interred in the cemetery and various genealogical topics, and candlelight tours featuring people dressed in period attire portraying historical figures interred at the cemetery. The tours can focus on various aspects of the cemetery's history such as military veterans buried at the cemetery; decedents with interesting or unique life stories; funerary art; and unique gravemarker forms and types.[2] A small fee may be charged to attend these events; other sources of fundraising at these special events include a donation jar or "passing the hat" and refreshment sales.

SOAL received a tourism grant from the Dauphin County Tourism Grant Program in 2023 and almost exclusively spent the funds on volunteer efforts in the cemetery to excavate, clean, reset, and repair damaged. In the future, SOAL should apply for grants to develop special events and tour programs to bring attention to the cemetery's historic and cultural significance, garner local and regional support for their preservation efforts, and generate financial resources to support current and future endeavors focused on preserving and presenting the stories of the people buried at cemetery, as well as the extant artifactual material (i.e., gravemarkers) that populate the cemetery.

The Arkansas Historic Preservation Program, an agency of the Department of Arkansas Heritage, has produced a publication entitled "Tales of the Crypt: A Living History Project for the Preservation of Arkansas's Historic Cemeteries" to help guide cemetery organizations through the process of producing one of these living history productions. The guide includes information on structure, research, media relations, funding, promotion, and evaluation. This document is available online at https://www.arkansasheritage.com/docs/default-source/ahpp-documents/tales.pdf.

Another useful resource for cemetery programming is Rachel Wolgemuth's book *Cemetery Tours and Programming*. Published by the American Association for State and Local History in 2016, the book spotlights cemetery programs that range from basic dog-walking or traditional historic walking tours to diverse programs viewed through the lenses of recreation, education, and reflection.

[2] Funerary art is any work of art placed, forming part of, or added to decorate a burial site.

Maintenance

Maintenance is an important part of managing a cemetery. The Lincoln Cemetery has several current maintenance issues that need to be addressed, including Wesley Union A.M.E. Zion Church ensuring that the lawn maintenance company they employ mows the cemetery grounds on a regular basis and communicates with SOAL's volunteers about their schedule. SOAL has regularly scheduled restoration workdays during the summer and spring—peak periods of growth for grass and weeds—and should not have to contend with lawnmowers and weed whackers while the volunteers work on gravemarkers throughout the cemetery.

Setting Priorities

During the implementation of the maintenance plan, issues beyond the regular lawn care will arise that the cemetery stewards need to address. The safety of the cemetery and its visitors should receive the highest priority. For example, a dead tree threatens the safety of the cemetery (it could fall on headstones causing damage, and the roots could disturb burials) as well as the safety of its visitors. Aesthetics generally warrant a lower priority than safety; however, if something is very easy to accomplish (high impact and high feasibility), such as removing bags of garbage from the site, it can certainly be done sooner.

Inspections

Cemetery stewards should make regular, systematic inspections of the cemetery at least twice per year; however, seasonal inspections (quarterly) are preferred. These inspections will serve to alert the SOAL volunteers and Wesley Union A.M.E. Church's pastor and board members to any issues that may arise (hopefully before they become emergencies) and enable them to plan future activities based on up-to-date information about the cemetery. Inspections should be done by the cemetery stewards, one of their assignees, or by volunteers who are familiar with the cemetery. If available, an up-to-date map of the cemetery should be used during inspections to accurately identify problem locations. Cemetery stewards should not delay inspections because they have not yet created a site map; instead, they should use sketch maps and make careful notes regarding the locations of issues that need to be addressed. Lists of stones and other landscape features previously identified as requiring attention should also be brought into the field for reference. A sample inspection checklist is provided in Appendix D.

Photographic documentation of general conditions and of specific conditions that require attention (as well as documentation of actions taken) is a vital part of a successful inspection program. Cemetery stewards should take high-resolution photographs and archive them in a database or folder on a computer or external hard drive. They should keep completed inspection checklists and photographs as part of their archive as a record of the cemetery's condition over time.

Groundskeeping

<u>Mowing</u>

Currently, Wesley Union A.M.E. Zion Church employs a commercial landscaping company in the Harrisburg area to maintain the grass throughout Lincoln Cemetery. During the field visit to Lincoln Cemetery, RGA staff observed several examples of lawnmower and trimmer damage to gravemarkers, plot markers, and other cemetery features. Several steps can be taken to minimize and prevent this type of damage, and stewards of Lincoln Cemetery should share the recommendations in this report with Wesley Union A.M.E. Zion Church's board of directors once the report is approved by Preservation PA and PAHG.

The ideal approach is to mow within 12 inches of gravemarkers and other landscape features, and then to finish the work using hand shears; however, this is very time consuming and costly. Some cemeteries opt to remove all the grass from around monuments and other features to eliminate the cost of hand trimming, but this creates a landscape that is both artificial and unattractive. This approach also fosters the temptation to apply potentially damaging weed killers and other herbicides to the cleared area (Chicora Foundation, Inc. 2010; Strangstad 2013).

A more cost-effective and aesthetic solution to minimizing the damage of grounds maintenance includes not using a large mower within 1 foot of cemetery features, with the remaining vegetation to be cleared using string trimmers fitted with light-gauge nylon filament (not heavy plastic or metal cutting blades) no heavier than 0.09-inch. If the cemetery stewards ever hire a lawn maintenance company for mowing the grounds, the contract should indicate that the company providing the mowing service is responsible for all damage to the cemetery features. RGA encourages the stewards to inspect the grounds during and after mowing to ensure that damage has not occurred.

Cemetery stewards should educate and supervise the volunteers or companies providing the mowing services and emphasize that the cemetery requires extra care beyond that normally afforded to residential or commercial properties. Grave and plot markers can be very fragile, and plantings are not generally found in planting beds as they are in residential or commercial contexts.

Walk-behind mowers are preferred and are practical for large areas at Lincoln Cemetery where gravemarkers are widely spaced. Riding mowers may be used with care in areas with sufficient room and without low-lying grave or row markers. Push mowers should be used in areas with tightly spaced markers or where low-lying markers and other landscape features such as curbing, plantings, or row markers are present. All mowers should have bumper guards installed for additional protection. These can be as simple as using cable ties to attach pipe insulation foam or pool noodles to the front, back, sides and corners of mowers.

The Lincoln Cemetery stewards are not currently and may never be at a place where aeration and fertilization of the grounds is a consideration. RGA will provide guidelines for aeration and fertilization if the cemetery stewards ever decide to begin a program.

Weeds

Weed control requires ongoing maintenance to keep the grounds attractive and to minimize the amount of mowing required (weeds tend to grow faster than grass). While a healthy lawn is the best defense against weeds, the establishment of a healthy lawn can take time.

Because of the extent of soil disturbance involved and the potential to damage headstones and other cemetery features, rototilling to remove areas of dense weeds is not recommended. In addition, brush hogging, or similar approaches to clearing dense vegetation are discouraged due to the potential for damage to gravemarkers, plot markers, and other cemetery features such as intentional plantings.

Individual gravemarkers and burial plots should be kept clean of fresh and dead grass clippings out of respect to decedents and to prevent a microclimate between the stone and clippings where biological growth can spread (Trinkley 2010:22). When intentional and unintentional shrubs are ignored, they become both overgrown and weedy specimens that detract from the cemetery landscape, and it can become difficult to determine what is a shrub and what is a weed. These shrubs could be removed very easily with little instruction and supervision and no ground disturbance.

Trees and Shrubs

The maintenance of trees and shrubs is an important part of cemetery upkeep. Unmaintained trees can be a liability to both the cemetery and to visitors. A falling branch can cause a lot of damage to a stone; a falling tree, in addition to the damage caused when it falls on something, also pulls up a lot of soil in its roots and causes a great deal of disturbance. Scrub or "weed" trees, as well as those that are directly impacting stones, should be removed and shrubs should be pruned. Trees and shrubs should be visually inspected at least once a year (late spring/early summer is preferable because you can clearly see if a tree is dead). Dead or dying branches should be trimmed to prevent damage to the cemetery. Dead or scrub trees should also be removed by cutting them as close to the ground as possible, and the stumps left in the ground. Use caution or cut them into small pieces starting at the top of the tree to ensure that the felled tree does not cause any damage to existing cemetery features or individuals. Stump pulling or grinding is not recommended because of the amount of subsurface disturbance involved in these practices.

Lincoln Cemetery's stewards should follow these guidelines when addressing trees in the cemetery.

- Consult with an arborist certified by the International Society of Arboriculture (ISA) to determine if trees can be saved.
- Document the location of trees prior to removal for future replacement.
- It is preferable to use professional tree climbers and hand tools to prune or remove trees. Any necessary vehicles should be of a size to fit narrow paths without damaging grave enclosures.
- Minimize the use of bucket trucks and other heavy machinery, which may damage graves and the roots of healthy trees.
- If work occurs within or adjacent to a burial plot, erect temporary fencing or plywood protective structures over gravemarkers, walls, or plantings that may be vulnerable while tree pruning or removal work is underway. Protect root zones of adjacent trees from vehicles by covering them with rubber mats or plywood and a thick layer of mulch.
- If the arborist determines that a tree cannot be saved, cut the stump flush with the ground, and allow it to deteriorate naturally.
- Do not grind stumps or remove root balls, unless necessary. Uprooted root masses may be placed in root void and allowed to decay. Topsoil can be added to create a level ground surface.
- Do not use chemicals to accelerate the decay of the root system as the effects of these chemicals on porous gravestones is unknown.
- If removal of uprooted root masses is determined to be necessary, an archaeological monitor should be present.
- For trees at risk of toppling, consult with arborist to determine if the tree can be safely uprighted with a reasonable confidence of survival.
- If the tree cannot be uprighted, cut the stump flush with the ground and allow the root ball to settle back into the ground. Add topsoil and seed as needed.

Replanting Trees

- Replanting trees should be considered in the future. Replace dead or damaged trees with in-kind species when possible.
- Identify open areas free of graves or other structures for planting replacement trees.
- New trees may be planted in the same location as removed trees to minimize soil disturbance. After a period, replacement trees can be planted in the voids created by decaying stumps.

Consult an arborist for guidance on "stump planting" and "mound planting" techniques that may be appropriate in a historic cemetery setting.

Cemetery stewards should visit NPS's webpage on landscapes and vegetation to learn more about how to manage the landscape of Lincoln Cemetery (https://www.nps.gov/articles/000/cemetery-preservation-course-landscapes-and-vegetation.htm). Sponsored by the National Center for Historic Preservation Technology and Training, the webpage includes videos on managing cemetery vegetation; removing invasive plants; an overview of herbicides; herbicide application; removing vegetation growing in soil buildup on cemetery hardscapes; removing invasive trees abutting cemetery monuments; and maintaining Japanese lawn grass in cemeteries.

Conserving and Repairing Gravemarkers

SOAL's volunteers have consulted with someone from Pennsylvania who is purportedly a gravestone and monument conservator to address the displaced and damaged gravemarkers in Lincoln Cemetery. RGA is not aware of this person's credentials and recommends the following procedures for the conservation of stone gravemarkers and monuments and the bronze relief portrait.

Techniques for the treatment of stone and bronze are described below. In addition to the processes, each technique makes recommendations for required equipment, materials, and supplies. Treatment techniques for stone are cleaning, leveling, resetting dislodged stones, reattaching broken or separated stones, and the use for mortar and epoxies for achieving repairs.

Conservation work should include cleaning/treating stone objects which display soiling, atmospheric staining, and the growth of biofilms and lichens. The purpose of cleaning is not to make stone look "like new;" in fact, scrubbing surfaces to the point that they appear new may be damaging to the stone, as the outer layer can be removed. Gentle cleaning, however, removes harmful pollutants (like soot and grime) and microorganisms (like lichen, algae, and fungi) that can damage or discolor stones, while also revealing details that may have been obscured. Microorganisms retain moisture, absorb pollutants, and can produce acids that may accelerate surface erosion on acid-sensitive stones. Cleaning will give the stone markers throughout the cemetery a cared-for appearance and promotes conservation.

There are three classifications of damage to stone, identified by King et al. (2004) which can result in the need to thoroughly clean or treat it.

<u>Environmental</u>

- Carbon-based deposits from industrial and vehicle emissions;
- Improper cleaning and/or repair methods; and
- Air pollution/acid rain.

<u>Natural Sources</u>

- Aging and weathering of stone;
- Settling of the stone;
- Organic growth, such as lichens, algae, fungi, and biofilms; and
- Climbing plants and vines.

<u>Human-Inflicted</u>

- Neglect;
- Vandalism; and
- Improper use of maintenance equipment such as lawn mowers, tractors, and weed whackers.

Before cleaning a stone's surface, the stone should be inspected to ensure there is no excessive efflorescence, exfoliation, delamination, or sugaring, which is the surface erosion that creates a grainy feel and appearance. If these conditions are present, cleaning efforts may result in the further deterioration of the stone or excessive removal of surface material. Stone markers with surface instability should not be cleaned, and this condition should be recorded and kept in the cemetery's maintenance records.

Inspection of the stone marker or monument ensures that all components are securely attached to each other before beginning the cleaning process. If the components are not well attached, the treatment steps should follow the necessary process for reattaching stone components to prevent the loose component from falling and breaking or falling and harming staff.

Cleaning with water and a soft-bristled brush is the simplest and gentlest method and one that accomplishes the goal of doing no harm. All cleaning work should work up from the base of the stone marker to prevent streaking. All cleaning should be undertaken with the mildest and least abrasive methods. Mindful of this, there are available commercial products such as Orvus WA Paste and D/2 Biological Solution that conservators have used safely and effectively for years. These two products, as well as others endorsed by NPS conservators and those in private practice, also accomplish the goal of doing no harm.

Orvus WA Paste is a non-ionic detergent and an electrically neutral cleaning agent; it neither contains nor contributes to the formation of soluble salts. Orvus WA Paste provides substantial wetting of the stone surface, facilitates the removal of general soiling, and contains no added chemicals such as perfumes, colorants, or whiteners.

D/2 Biological Solution is non-toxic and biodegradable, is safe for landscape plantings and grass, and removes a broad spectrum of biological deposits. D/2 Biological Solution is also highly effective at removing stains caused by air pollutants. It has been proven to continue removing stains days and weeks after applied.

Once a gentle cleaning agent has been applied, plastic paint scrapers, brushes with Tampico or nylon bristles, and soft toothbrushes can be used to remove staining and biological growth. Wooden craft sticks or wooden skewers can be used to remove atmospheric staining and biological growth in engraved letters, numbers, and iconographic symbols.

Listed here is a full list of equipment needed for cleaning stone markers and monuments:

- Brushes of assorted sizes with bristles of nylon, Tampico, or natural materials. Do not use brushes with dyes in the bristles;
- Rubber gloves;
- Protective eye wear;
- Masks to prevent chemical solutions from contacting your mouth, and to prevent inhalation of chemical solutions;
- Plastic water buckets (avoid dipping or cleaning your brush with the water in these buckets);
- Wooden skewers or craft sticks to carefully scrape debris or growth on the stone;
- Toothbrushes to remove debris or growth from intricate carvings and numbers and letters carved in relief on the stone;
- Shop towels;
- Compressed air (60 psi maximum) to clear off loose debris and dirt;
- Whisk broom;

- Garden and pump sprayers; and
- A reservoir of water, if available.

The cleaning process for stone markers and monuments is as follows:

- Pre-wet the stone with clean water before applying any chemical solution. Pre-wetting the stone assists with softening the soiling material, biofilms, and lichens.
- Wet the stone after applying the chemical solution.
- Clean all surfaces (front, back, and all sides) from bottom to top to avoid stains and streaks.
- Do not clean the stone with a dry brush. Keep the brush moistened throughout the cleaning process to avoid unnecessary friction on the stone.

The time needed to clean stone markers may vary depending on several factors, including the type of material used, the condition of the stone, and the amount of detail on the stone. Each stone marker should be individually evaluated before cleaning to ensure its soundness and stability. Treating a single stone may require two to three hours to complete or, if heavily stained and/or ornate, may require up to several two-to-three-hour treatments over several days to complete the cleaning.

Stone markers should not be cleaned with a brush more than once every three years (Illinois Department of Natural Resources [IDNR] and Illinois Historic Preservation Agency [IHPA] n.d.:10). After the initial cleaning with a biocidal product and brush, D/2 Biological Solution or equivalent biocidal product can be applied and allowed to dwell without rinsing as often as once every year.

Stone markers and monuments located in areas of Lincoln Cemetery that receive constant shade are likely to foster biological growth. Removing this growth from markers and monuments in these areas will only be temporary, as the biological growth will return within a period of one to three years. If SOAL and Wesley Union A.M.E. Zion Church determine that cleaning is a priority, they should be prepared to initiate a cyclical cleaning schedule for stone markers and monuments.

To remove climbing plants such as vines and ivy, follow these recommendations:

- Cut the plant off at the base of the growth using pruning shears or loppers (pruners are one-handed tools, and loppers require two hands).
- If the vine is large, cut it every 6 to 12 inches, leaving any growth that is adhered to the stone marker.
- Peel back the bark 1 to 2 inches on either side of the cuts.
- Apply an herbicide such as Chevron Brush-B-Gon or Roundup, with a small paintbrush to treat the exposed plant layers. Also, apply the herbicide to cut areas on the stump.
- No herbicide should contact the stone marker. Do not allow any herbicide to touch the ground or it may wick up into the stone.
- Allow the chemical to work its way into the plant and kill it. This may take a few days, or repeated applications.
- After the plant is completely dead and brittle, remove the remains. Using a wooden scraper, such as a cedar shim, work the remains of the plant off the monument. Wetting stone will facilitate removal.
- After all surface vegetation has been removed, gently remove any remaining plant matter by scrubbing the area with water and a soft bristle brush.

Avoidance Measures When Cleaning Stone

Professional conservation qualifications are not required to clean stone using the techniques described above. An understanding of what not to do while cleaning stone monuments is equally as important as what to do. Avoid using the following products and tools when cleaning stone monuments.

- Sodium hypochlorite bleach (commonly found in Clorox). It contains salts that will damage the stone over the long-term and will lead to corrosion and the stone turning yellow.
- Calcium hypochlorite (commonly found in pool cleaners).
- Algaecides (commonly found in pool cleaners). These are very corrosive and are bad for the environment.
- Avoid using any brushes other than ones with nylon or Tampico bristles.

Stone markers should not be cleaned if freezing temperatures are anticipated within the subsequent 72 hours. Stone markers should not be cleaned if any cracks, scaling, or erosion of granular surfaces are observed.

Cleaning stone markers and monuments in most cases is necessary for aesthetic reasons, but also promotes conservation and is employed as part of a cyclic maintenance plan (Normandin and Slaton 2006:127).

RGA neither encourages nor condones the use of pressure washing to clean stone markers and monuments, but if the cemetery's owner approves this method, the pressure washer should be set to a psi of no higher than 60.[3]

Sandblasting should never be used as a cleaning process on stone markers and monuments.

Leveling/Resetting

Caution should be used during this process so that the shovel or trowel does not scratch, gouge, or fracture the stone. It should not be necessary to remove the stone marker from the hole in which it is set unless it has sunken to a depth that the base is completely underground, and the upper section is partially underground. If stone position markers or stone bases require removal, a simple clamp system of wooden 2×4s secured on each side should be used to safely lift it out of the hole and placed upright on padded 2×4s. If the stone markers are too heavy for this clamp system, a metal tripod, gantry crane, scaffolding, or mechanized equipment with a chain hoist and synthetic slings/straps should be used. The size of the chain hoist and synthetic slings should match the weight of the stone marker.

Listed here is a full list of equipment needed for leveling/resetting stone markers and monuments:

- Shovels;
- 2×4s of different sizes;
- Pry bars with round and flat fulcrums;
- Aluminum tripod;
- Heavy-duty lifting slings/straps with various weight capacities;
- Archaeology pointing trowels;
- Assorted bar clamps;
- Assorted levels;

[3] Home water faucets maintain an average pressure of between 40 and 50 psi.

- Rakes; and
- Dirt tamping tools.

Stone position markers, stone bases, and trench and tablet markers with poured concrete bases can be leveled using the following steps.

- Any adhering concrete from earlier repairs or attempts at stabilization shall be removed to the greatest extent possible without damaging the historic material.
- Remove grass or debris as needed from around the base with a whisk broom, plastic paint scraper, Leonard Cape Cod Weeder, trowel, shovel, or by hand.
- Carefully excavate around the perimeter of the stone or concrete base using a Leonard Cape Cod Weeder, a trowel, or a small shovel.
- Excavate under the stone or concrete base to allow for nylon lifting straps, large wooden shims, or padded 2×4s.
- Lift the marker while supporting the weight evenly and place the marker on a level base of padded 2×4s that support the full length of the marker.
- Hand-dig the original hole that held the marker.
- Backfill the hole with a mixture of marble rock and coarse masonry sand and tamp it down.
- Using nylon straps, a chain hoist, and tripod, gantry crane, or scaffolding, set to vertical the marker on the firmly tamped base of rock and sand.
- Once the markers, bases, or concrete aprons are level and plumb, backfill each side with rock and sand, leaving 5 to 6 inches for topsoil.
- Replace the topsoil around the sides of the markers, bases, or concrete aprons and carefully but firmly tamp down.
- Mound up soil around each side of the markers, bases, or concrete aprons to allow for settling.
- The use of crushed rock and sand for leveling is preferential to concrete because concrete is much harder than the original stone type, and the mixture of crushed rock and sand helps maintain drainage away from the markers, bases, or concrete aprons.
- Leveling and resetting of markers can also be achieved by using the MonuGrid Concrete Replacement system included below.

The equipment and materials used to level small stone bases should cause minimal ground disturbance. If unmarked remains are disturbed or uncovered, volunteers should notify the cemetery's owner immediately.

The recommended above-ground and below-ground procedures included in this plan are considered ground disturbance and a protocol is needed if artifacts, human remains, etc. are found.

Should artifacts or human skeletal remains be encountered during conservation efforts, specifically for resetting leaning stone markers and monuments, work should stop at that location and the coordinates recorded. SOAL volunteers should notify the cemetery's owner and county medical examiner immediately in the case of identified human remains. Staff should maintain a spreadsheet that contains the date of the find, its location in geographical coordinates, and a description of the artifact or bone. Artifacts and skeletal remains should be placed back in the ground at their location of discovery upon completion of conservation work. It is anticipated that artifacts or skeletal material will be returned to the ground on the day of discovery, and no more than 48 hours later.

General Recommendations for Bronze

The commemorative bronze relief portrait mounted to a granite slab and standing near Lincoln Cemetery's northeast corner is the only bronze piece in the cemetery. RGA is providing recommendations for the treatment of bronze for SOAL to follow if volunteers or Wesley Union A.M.E. Zion Church decide to hire a professional conservator to treat the piece. RGA does not recommend SOAL or Wesley Union A.M.E. Zion Church undertaking the treatment themselves.

Hot waxing involves heating the surface of the bronze and applying a wax paste developed for this process. Hot waxing saturates and re-integrates the surface of the bronze and results in an appearance that is close to the original appearance. Cold waxing involves applying two coats of approved waxes and buffing the wax finish to provide a protective barrier against moisture and to retard corrosion.

Before conducting any conservation treatments on bronze plaques, busts, or sculptures ensure that the material is bronze. Green corrosion is a sign that the material is bronze. White or orange corrosion, as well as a magnetic surface, are indicators that the material is not bronze.

Once you are sure you are working with bronze, test different solvents to determine what type of coating is on the bronze. The results of these tests will dictate the type of coating to be applied to the bronze. Microcrystalline hot wax should be applied to bronze that was previously treated with wax, and Incralac should be used if lacquer was used for past treatments.

Clean bronze with non-ionic detergents such as Igepal, non-ionic surfactant, Orvus WA Paste or an approved equal. Remove any coatings, dirt, organic material, and loose corrosion with the most appropriate non-abrasive method which may include hot water, steam, water pressure, and appropriate cleaning solvents such as Igepal or Orvus WA Paste applied with non-abrasive rags or brushes.

Conduct low-pressure blast cleaning, if needed, with crushed walnut shells (60/200 mesh recommended) where necessary to remove damaging corrosion if found. Do not blast bronze with sand or glass beads. Do not use steel wire brushes, steel wool, or other inappropriate abrasive implements to remove corrosion.

Wash bronze with non-ionic detergents again to remove blasting residue and prepare for hot waxing.

Hot Waxing

Scheduling the application of a hot wax to bronze varies considerably based on ambient temperatures and whether the sun has warmed up the bronze. Ideally, the outdoor temperatures should be 80 to 90 degrees Fahrenheit, or even above. If the bronze relief portrait has already been heated by the sun, a little more heat from a torch may be sufficient for the introduction of the wax. The bronze should cool down (cooling overnight is preferable) before buffing the wax.

The full list of supplies for hot waxing from NPS's Conserve O Gram: *Caring for Outdoor Bronze Plaques, Part II: Cleaning and Waxing* and Preservation Tech Notes: *Conserving Outdoor Bronze Sculpture* is included below.

- Drop cloth.
- Buckets.
- Sponges.
- Wax (an approved list is included below).
- Brushes for cleaning (be sure to tape all metal parts of the brushes with duct tape).
    - Scrub brushes (plastic or natural bristles).

    - Toothbrushes.
    - Large round natural-bristle brushes.
    - Large stencil brushes.

- Brushes for waxing (be sure to tape all metal part of the brushes with duct tape and write the word "wax" on the handles).
    - Large round natural-bristle brushes.

- Brushes for buffing (write the word "wax" on the handles).
    - Toothbrushes.
    - Horsehair shoe polishing brush.

- Bamboo skewers.
- Aluminum foil.
- Empty containers for rinsing out wax brushes.
- Paint stirring sticks (write the word "wax" on one end).
- Petroleum solvent (one of the following):
    - VM&P Naphtha;
    - Mineral Spirits; or
    - Stoddard's Solvent.

- Clean cotton rags.
    - Old T-shirts and cotton diapers.
    - When laundering, do not use fabric softener as it reduces the cotton's ability to attract dust and to absorb liquids.

- Paper towels, as highly absorbent as possible.
- Container for storing supplies and durable, heavy-duty zipper-lock bags.
- Solvent-proof gloves (nitrile works well).
- Respirator with fresh organic-vapor cartridges.

Propane torches can be used to heat the bronze and apply the most appropriate microcrystalline hot wax (Kindt-Collins 278E, 978J, 70 percent-30 percent mix) formula evenly over the entire relief portrait to ensure a long-lasting coating. Incralac or any other type of lacquer is not advised, unless, after proper testing with solvents, lacquer is identified as being used for past treatments.

Cold Waxing

Cold waxing is typically undertaken as part of a semi-annual process to protect the bronze and underlying hot wax coatings. Periodic applications of cold wax extend the life of hot wax applications and help retard the rate of corrosion. Cold wax applications should be employed on warm and dry days (hot days with full sun are preferable).

The full list of supplies for cold waxing from NPS's Conserve O Gram: *Caring for Outdoor Bronze Plaques, Part II: Cleaning and Waxing* is included below.

- Drop cloth.
- Buckets.
- Garden pump sprayer.

- Sponges.
- Hair dryer.
- Wax (an approved list is included below).
- Brushes for cleaning (be sure to tape all metal parts of the brushes with duct tape).
    - Scrub brushes (plastic or natural bristles).
    - Toothbrushes.
    - Large round natural-bristle brushes.
    - Large stencil brushes.
- Brushes for waxing (be sure to tape all metal part of the brushes with duct tape and write the word "wax" on the handles).
    - Large round natural-bristle brushes.
- Brushes for buffing (write the word "wax" on the handles).
    - Toothbrushes.
    - Horsehair shoe polishing brush.
- Bamboo skewers.
- Aluminum foil.
- Empty containers for mixing wax and for rinsing out wax brushes.
- Funnel.
- Paint stirring sticks (write the word "wax" on one end.
- Petroleum solvent (one of the following):
    - VM&P Naphtha;
    - Mineral Spirits; or
    - Stoddard's Solvent.
- Clean cotton rags.
    - Old T-shirts and cotton diapers.
    - When laundering, do not use fabric softener; it reduces the cotton's ability to attract dust and to absorb liquids.
- Paper towels, as highly absorbent as possible.
- Container for storing supplies and durable, heavy-duty zipper-lock bags.
- Solvent-proof gloves (nitrile works well).
- Respirator with fresh organic-vapor cartridges.

Sources for these supplies include hardware stores, art supply stores, and these conservation supply stores:

- Museum Services Corporation (https://museumservicescorporation.com/).
- Conservation Resources International (https://www.conservationresources.com/).
- Conservation Support Systems (https://conservationsupportsystems.com/main).
- Talas (https://www.talasonline.com/).
- Atlas Preservation (https://atlaspreservation.com/).

The following waxes, or approved equivalent, are recommended for cold waxing.

- Bareco Victory White (Petrolit Co.).
- Trewax® Past Wax Clear (clear).
- Butcher's® Bowling Alley Wax (clear).
- Johnson's® Paste Wax (clear).

Cold waxing should be carried out according to the following procedure outlined in NPS's Conserve O Gram *Caring for Outdoor Bronze Plaques, Part II: Cleaning and Waxing*:

- Tuck strips of aluminum foil (double thickness works best) in between the plaque and the substrate. Surround the plaque as best as possible, to protect the substrate from wax.
- Using a paint stirring stick, scoop about 1/2 cup of wax out of its container and place in plastic container (with lid). Pour a petroleum solvent (in about the same amount as the wax) through a funnel into the container and mix it thoroughly with the stirring stick to get rid of all the lumps; this will take at least five minutes. The resulting slurry should be the consistency of heavy cream. Label the container "wax" with a permanent marker.
- If the substrate below the plaque has dried, wet it again with clean water and keep it wet for the duration of the waxing process to avoid stains from wax drops.
- When the plaque is completely dry from cleaning, apply the wax slurry with a large round natural-bristle brush. Apply a thin layer to the entire plaque, making sure to get the wax into all interstices and on all edges. Do not apply too much wax, only a small amount is needed. "The less the better" is the general rule.
- Take care not to get wax on surrounding surfaces.
- Wait for the solvent to evaporate. It will have evaporated sufficiently when the plaque appears dry and when the solvent odor has weakened.
- Remove all excess wax with paper towels or a clean rag and spend time removing accumulated wax from interstices; this step is critical since accumulated wax will turn white and take off the surface over time.
- Buff the surface of the plaque with a clean cotton rag and use plenty of pressure. Buffing compresses the wax, making it more durable and providing a soft sheen. Use a toothbrush to buff the interstices of letters and other sculpted areas.
- Apply a second layer of wax and buff, following the same procedure outlined above.
- Carry out a final buffing with a horsehair shoe-polishing brush, making sure to brush over the entire surface.

5.0 Recommendation for Lincoln Cemetery

The Lincoln Cemetery is in Harrisburg, Pennsylvania at South 30th Street and Penbrook Avenue. The cemetery is owned by Wesley Union A.M.E. Zion Church, who maintains the landscaping. SOAL is a non-profit organization with a mission to preserve and promote Lincoln Cemetery. SOAL, established in 2021, faces challenges that are unique to the place and the organization. SOAL has accomplished many projects at the Lincoln Cemetery such as a ground-penetrating radar (GPR) study of unmarked graves, GIS-based mapping, and research projects such as transcribing and digitizing burial records and compiling obituaries. SOAL maintains a robust social media presence, an up-to-date website, and volunteers work regularly in the cemetery to uncover buried gravemarkers. SOAL's small group of active volunteers have performed a commendable job in the areas of research and community engagement. Wesley Union A.M.E. Zion Church maintains the lawn, which frees up SOAL volunteers for other tasks. SOAL's most critical challenges are related to its non-profit organizational structure, its relationship to the Wesley Union A.M.E. Zion Church, the broad geographic distribution of regular volunteers, and the development of a systematic approach to ongoing repair and preservation work in the cemetery.

This list provides the top challenges faced by SOAL and other stewards of the Lincoln Cemetery.

- Legal title to Lincoln Cemetery is ambiguous.
- SOAL does not presently have liability insurance coverage to protect the organization and volunteers while performing preservation activities at Lincoln Cemetery.
- Like many non-profit organizations, financial resources are insufficient and unreliable.
- The shortage of volunteers local to Harrisburg.
- SOAL does not presently have a documented and systematic approach to preserving and conserving the cemetery's grave markers.

In consultation with the cemetery stewards, RGA has identified specific solutions related to the challenges noted above and created prioritized tasks (Task 1 though Task 5) using a method that incorporates the factors of need and feasibility. These prioritized tasks are intended to supplement the preservation plan RGA is currently developing for Lincoln Cemetery. These recommended tasks address the challenges faced by any cemetery stewards, but specifically SOAL, in a manageable manner.

This is not a static document; the stewards should re-evaluate their needs and priorities on a regular basis. An overall summary of prioritized tasks identified follows.

Task 1: Administration, Governance, and Permissions

SOAL should hire legal counsel to conduct a title search to determine who has legal title to Lincoln Cemetery.

- Purchase the necessary insurance coverage to protect the organization, its board members, and volunteers who are actively involved with preservation, conservation, tourism, documentation, recordation, and other activities in the cemetery.
- Secure legal counsel to work with representatives of Wesley Union A.M.E. Zion Church on a legal agreement that outlines in detail the parameters of the church's relationship with SOAL, and the various types of undertakings that SOAL plans to conduct at the cemetery in the future.

- Include in the legal document with Wesley Union A.M.E. Zion Church permission for SOAL to continue their preservation efforts at Lincoln Cemetery while the church from any legal issues associated with SOAL's efforts in the cemetery.
- Include in SOAL's bylaws a leadership structure and succession plan that guarantees the successful operation of the organization in the future.
- Develop a short policy (i.e., rules and regulations) regarding the use of grave decorations such as artificial flowers, plastic trinkets, and live plantings.
- Develop a short policy regarding the procurement and placement of modern commemorative markers or monuments in the cemetery.

Task 2: Grants and Fundraising

- Identify potential donors and begin soliciting donations. Keep an up-to-date contacts database with donor information.
- Identify goods and services that would be appropriate "in-kind" donations (such as tree removal) and make this information available to potential donors.
- Identify sources of grant funds and create a "grant calendar" showing deadlines. Begin a program of applying for grants.
- Contact the managers of the local Wal-Mart and Sam's Club and other large stores to inquire about their annual local cash grants that can range from $250 to $5,000. Apply for those grants.
- Apply for a grant from the National Trust for Historic Preservation's Louis J. Appell, Jr. Preservation Fund for Central Pennsylvania.
- Host a fundraising dinner or luncheon and have Dr. Steve Burg from Shippensburg University present the historical information that he has compiled on the cemetery and the people buried therein.
- Identify burial plots that no longer have descendants tending to them. Develop an adopt-a-plot program for these plots so that others can take over tending tasks.

- Develop fundraising events and programs such as candlelight tours, outdoor films, annual homecoming days, etc.
- Partner with other local organizations on fundraising events so that all organizers can pool their resources.
- Partner with a local science association or science classes at local schools on a stargazing event such as Astronomy Night. (The cemetery is a wide-open space that is unincumbered by unnatural light.)
- Partner with a local yoga instructor and hold yoga classes in and around the cemetery.

Task 3: Potential Sources of Labor

- Contact local youth and scout troops and let them know that Lincoln Cemetery is a suitable candidate for one or more youth-volunteer projects.
- Contact local schools as they may have students in organizations such as the National Honor Society who need to accrue service hours.
- Contact local clubs and fraternities such as the Lions, Chamber of Commerce, Kiwanis, Rotary, Masons, etc., and appeal to them for help.
- Contact local businesses and ask if they would consider Lincoln Cemetery site clearing as a team-building resource.

- Contact local businesses and ask if they would consider assisting with tree removal at the cemetery.
- Contact the Pennsylvania Chapter of the Association for Gravestone Studies and invite them to have a meeting at Lincoln Cemetery. Attend the chapter's next meeting.

Task 4: Gravemarker Care

- Assign each grave marker a conservation ranking of 1, 2, or 3 to plan work. Rank 1 requires cleaning with an industry standard product such as D/2 Biological Solution; Rank 2 requires cleaning included in Rank 1 and resetting; Rank 3 consists of major repairs such as fixing broken tablets, infilling cracks with lime-based mortars or injection grouts, and reattaching large markers or monuments with multiple components. Rank 3 also includes cleaning after major repairs are completed.
- Use the conservation ranking system to work systematically (i.e., by quadrant, section, historic areas, etc.) in a way that focuses the work on small areas and limits the number of displaced and damaged markers and monuments throughout the cemetery.
- To protect fragile grave markers and avoid injuries to volunteers, avoid undertaking any conservation or restoration efforts that are outside of the skill set of the board of directors and volunteers.
- Instruct volunteers to avoid excavating damaged grave markers that are fully or partially underground than they can properly conserve and document within the time limit they have planned for their fieldwork sessions.
- Ask the Pennsylvania State Historic Preservation Office for standard handling protocols for any grave goods (offerings such as shells, bottles, ceramics, trinkets) and/or human remains, bone fragments, or coffin hardware or fragments uncovered during excavations associated with resetting gravemarkers.
- Coordinate SOAL's fieldwork schedule with Wesley Union A.M.E. Zion Church's mowing schedule to avoid the significant damage that can be caused by mowers to grave markers excavated by volunteers.

Task 5: Miscellaneous Recommendations

- Pursue funding to remove dead limbs or trees that pose safety threats to the markers, monuments, and the public.
- Post signs at cemetery entrances on South 30th Street and Penbrook Avenue that detail cemetery hours, contact information, and site rules. Notify the local police that hours have been posted.
- Implement vandalism and damage recordation and reporting procedures (see Appendix E).
- Request a meeting with Wesley Union A.M.E. Zion Church to review best practices for cemetery maintenance with power mowers and weed whackers.
- Apply for a grant to hire a conservator to lead a workshop focused on teaching stewards and volunteers how to properly clean and reset grave markers in the cemetery.
- Watch webinar: https://learn.aaslh.org/products/recorded-session-memorializing-african-american-history-cemeteries-monuments-and-markers.
- Watch webinar: https://learn.aaslh.org/products/recorded-webinar-caring-for-historic-cemeteries.
- Build a digital quarterly and/or annual report like *The State of the Union Cemetery* that the Bellefonte Cemetery Association sends to volunteers and stakeholders to keep their volunteers and stakeholders informed about what all is going at the cemetery.

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Appendix A: Staff Resumes

Years of Experience
With this firm: 2018-Present
With other firms: 23

Education
MA 1995
North Carolina State University
Public History

BA 1992
Eckerd College
Philosophy

Professional Training
Section 106 for Experienced Practitioners

Preparing Section 106 Agreement Documents

Section 106 Review for Planners and CRM professionals

Innovative Approaches to Section 106 Mitigation

Project Budgeting for CRM Professionals

Certified Jahn Mortar Installer
Cathedral Stone Products

Professional Societies
(Former) Director, American Cultural Resources Association

(Former) Chair, Wake Forest Historic Preservation Commission

Voting Member, Capital Area Preservation Anthemion Awards Committee

2018 North Carolina Museum's Council's Award of Excellence

ELLEN TURCO
PRINCIPAL SENIOR HISTORIAN (36 CFR 61)

PROFESSIONAL EXPERIENCE SUMMARY:

Ellen Turco has over 20 years' experience in cultural resources management across multiple industries such as transportation, telecommunications, oil and gas infrastructure, and land development. Her experience includes historical research and writing, architectural surveys and analysis, National Register of Historic Places evaluations for individual resources, districts, and landscapes, both state and federal Historic Preservation Tax Credit applications, and the preparation of both Memorandum of Agreement and Programmatic Agreement documents. She has conducted and directed cultural resources surveys in accordance with Sections 106 and 110 of the National Historic Preservation Act, as amended, NEPA, and other municipal and state cultural resource regulations. Ms. Turco exceeds the qualifications set forth in the Secretary of Interior's Standards for an Historian and Architectural Historian [36 CFR 61].

REPRESENTATIVE PROJECT EXPERIENCE:

Cemetery Relocation, Wendell, NC (Sponsor: Wake Technical Community College) Served as project manager for a multicomponent project to relocate 16 nineteenth-century graves. The burials were on the site of the proposed new Wake Tech campus and were relocated to a perpetual care cemetery in Raleigh. This project required knowledge of, and strict adherence to, state grave removal laws, the preparation of a successful grave removal petition for presentation to the county Board of Commissioners, and coordination with multiple parties including the county health department, the county planning department, a licensed funeral director, and the grave removal contractor.

Friendship Chapel Cemetery, Wake Forest, Wake County, NC (Sponsor: Wake Forest Historical Society) Researched the hidden history of this former slave cemetery through deeds, oral histories, genealogies, and church and personal family records. Developed a context for area folk cemeteries and burial practices. This information, along with collected documentary and current photos, was compiled into a GIS-based interactive Storymap hosted on the website of a local museum. This project won a North Carolina Museum Council's Award of Excellence for 2018.

Local Landmark Designation Report for Seth Jones Cemetery and Walled Cemeteries of Wake County Context, Rolesville, NC (Sponsor: Capital Area Preservation) Served a project manager for a report on the Seth Jones Cemetery that included a context statement on walled cemetery of Wake County, North Carolina.

Improvements to NC 42 Interchange with I-40, Johnston County, NC (Sponsor: NCDOT) Principal Investigator and Historian for a Phase I Historic Architectural Resource Inventory of a formerly rural but now heavily developed 5-mile-long corridor. The Phase I work eliminated 25 resources from intensive study and identified 4 resources that required Phase II National Register evaluations. The phased approach allows project planning and design to proceed in areas without historic sensitivity.

Mount Ararat African American Episcopal Church, Wilmington, New Hanover County, NC (Sponsor: NDOT) Principal Investigator and Historian for this multi-part mitigation of a Reconstruction-era African American church and cemetery. Authored NRHP nomination text for the church, former school site, and adjacent cemetery. Provided background on folk burial practices in the eastern Coastal Plain for the ground-penetrating radar cemetery survey and authored an illustrated public history booklet about the history of the Middle Sound community entitled "Kin, Kindred, Relatives and Friends." Work on this project identified a potentially eligible resource, the Nixon Oyster Plant, which had been omitted in previous planning surveys.

YEARS OF EXPERIENCE
With this firm: 2019-Present
With other firms: 22

EDUCATION
MA 2006
University of North Carolina at Charlotte
Public History

BA 1996
University of North Carolina at Charlotte
History

PROFESSIONAL TRAINING
MAS-08 Historic Preservation Boot Camp
Craftwork Training Center
Limeworks.us, 2022

Campbell Center for Historic Preservation Studies, Preservation of Gravestones and Monuments, Basic and Advanced Techniques, 2013

Edgecombe Community College, Preservation Trades School, 2008

PROFESSIONAL SOCIETIES
Member, American Cultural Resources Association

Professional Associate, American Institute of Conservation

Certified Jahn Mortar Installer, Cathedral Stone Products

Member, Association of Gravestone Studies

Board Member, Preservation North Carolina

JASON HARPE
PUBLIC HISTORIAN/DIRECTOR OF CEMETERY CONSERVATION (36 CFR 61)

PROFESSIONAL EXPERIENCE SUMMARY:

Jason Harpe has over twenty years of experience in the field of historic preservation. His experience includes historical research and writing, architectural surveys and analysis, the preparation of National Register of Historic Places nominations and local landmark reports, and facilitating the acquisition, preservation, restoration, and maintenance of historic structures, buildings, cemeteries, and historic sites. Mr. Harpe has worked on cultural resources surveys in accordance with Section 106 of the National Historic Preservation Act and other municipal and state cultural resource regulations. He is also a certified Gravestone and Monument Conservator, Professional Associate of the American Institute for Conservation (AIC) and has prepared conditions assessments for cemeteries and has worked on numerous projects involving the conservation and restoration of gravestones and monuments. His educational and professional experience meet the qualifications set forth in the Secretary of Interior's Standards for an Architectural Historian and Historian [36 CFR 61].

REPRESENTATIVE PROJECT EXPERIENCE

Mt. Olive Cemetery Conditions Assessment, Jackson, Mississippi (2022) (Sponsor: Jackson State University) Prepared a fully illustrated cemetery and gravemarker conditions assessment for this historic African American cemetery located on the campus of Jackson State University. The assessment included maps and photographs, as well as the appearance and condition of each gravemarker and mausoleum. Presented recommended conservation treatment methods for each gravemarker and mausoleum, provided the electronic data sheets and photographs, and provided our cemetery database and the geospatial data.

Zion Evangelical Lutheran Church Cemetery Conservation, Hickory, North Carolina (2022) (Sponsor: Privately funded) Conserved over 200 gravemarkers dating from the late eighteenth century to the early twentieth century. Conservation services included treating all gravestones with D/2 Biological solution, resetting unlevel gravestones, repairing damaged gravestones, and re-attaching components of monuments that had been displaced.

Nantucket Cemeteries Conditions Assessment, Nantucket, Massachusetts (2021-2022) (Sponsor: Town of Nantucket) Prepared a fully illustrated conditions assessment report for five cemeteries on the island of Nantucket, with maps and photographs and organized by cemetery. The report described the appearance and condition of each of the damaged gravemarkers and monuments, presented recommended conservation treatment methods for each gravemarker and monument, and provided the electronic data sheets and photographs. We also provided our cemetery database and the geospatial data.

Derr Family Cemetery Study and Conservation, Denver, North Carolina (2021-2022) (Sponsor: Privately funded) Served as lead on this privately funded project that included research on the Derr Family of Lincoln County, North Carolina, and the development of a context statement on walled family cemeteries in the Catawba Valley region of North Carolina. Conserved 11 gravemarkers in the cemetery, six of which were large box tombs.

National Register of Historic Places Nomination, Oakdale Cemetery, Hendersonville, North Carolina (2014) (Sponsor: City of Hendersonville) Researched, wrote, and submitted a successful National Register of Historic Places nomination for Oakdale Cemetery.

National Register of Historic Places Nomination and Gravestone and Monument Conservation, Shiloh Presbyterian Church Cemetery, Town of Grover, Cleveland County, NC, and Town of Blacksburg, Cherokee County, SC (2011) (Sponsor: Privately funded) Lead on a privately funded project that included reports for the Shiloh Presbyterian Church Cemetery to be listed in the National Register of Historic Places and designated as a local historic landmark. Conserved professionally all the gravestones and monuments in the cemetery.

Appendix B: Cemetery Glossary

Cemetery Glossary

The glossary terms has been taken from the National Register bulletin *Guidelines for Evaluating and Registering Cemeteries and Burial Places*; *A Graveyard Preservation Primer*; The Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Historic Landscapes*; *Grave Concerns: A Guide for Conserving Historic Cemeteries*; *Landscapes of Memories: A Guide to Conserving Historic Cemeteries, Repairing Tombstones*; and *Michigan Historic Cemeteries Preservation Guide*.

Altar tomb
a solid, rectangular, raised tomb or grave marker resembling ceremonial altars of classical antiquity and Judeo-Christian ritual.

Artificial stone
a term used to describe various materials also known as art marble, artificial marble, cast stone, and composite stone. Some mixture of stone chips or fragments is generally embedded in a matrix of cement or plaster, and the surface may be ground, polished, molded, or otherwise treated to simulate stone.

Bedding
the manner or direction in which bedding planes (layers, stratification or direction in which a stone is formed) are laid when a stone is in use. Bedding is a condition that is typically seen in sedimentary stones such as sandstone and limestone. Stone monuments have bedding planes that are either horizontal (naturally bedded), vertical and parallel (face bedded), or perpendicular (edgebedded) to the exposed surfaces. Most historic slab grave markers have a bedding that is vertical and parallel to the face; it is easiest to split a stone along the natural bedding planes and turn it upright to create a grave marker.

Bevel marker
a rectangular grave marker, set low to the ground, having straight sides and uppermost, inscribed surface raked at a low angle.

Blistering
Swelling and rupturing of a thin, uniform layer of stone are usually found on sandstone, but also on granite. It is generally caused by salts and/or moisture and can occur either across or parallel to bedding planes.

Block markers
made of granite and the type of marker most used today. Most are made of granite, and age can be determined by the amount of engraving found on the stones. The early twentieth century block markers began with few images, but as time proceeded lasers were used to create individual and elaborate designs of portraits of the deceased and activities that they held dear such as hunting, traveling and other worldly pursuits.

Bluestone
a trade term applied to hard, fine-grained, commonly feldspathic and micaceous sandstone or siltstone of dark greenish to bluish gray color that splits readily alone bedding planes to form thin slabs. Commonly used to pave surfaces for pedestrian traffic, this material may occasionally be seen in gravestones.

Box tomb
a grave monument resembling a box, usually about three feet by six feet and two feet by three feet high, making an individual grave, or occasionally a family or other multiple burial. Such structures may be known locally as crypts; burial, however, is generally below ground with construction taking place following burial.

Brownstone
a trade term applied to ferruginous dark brown and reddish-brown sandstone quarried and extensively used for building in the eastern United States during the middle and late nineteenth century. Most later use has been for renovation, repair, or additions to structures in which the stone was originally used. In gravestones, most commonly used as bases, although common in some areas, such as the Connecticut River Valley, for table stones as well.

Burial cache
a place of concealment for burial remains and objects.

Burial mound
a mass of earth, and sometimes stone or timber, erected to protect burial chambers for the dead.

Burial site
a place for disposal of burial remains, including various forms of encasement and platform burials that are not excavated in the ground or enclosed by mounded earth.

Burial vaults
unseen underground brick boxes the size of the deceased. The top, seen as a hump the length of the body, is sometimes covered by plaster or cement. The ends may encase a marker for the deceased. These are much like the modern-day concrete burial vaults. The barrel vault was generally made for the wealthy. It is believed to be an English contribution.

Calcite
a mineral form of calcium carbonate. It is the principal constituent of most limestone.

Carin
a mound of stones marking a burial place.

Cemetery
an area set aside for burial of the dead; in Latin American culture known as campo santo, or holy field.

Cenotaph
a monument, usually of imposing scale, erected to commemorate one whose burial remains are at the separate location; literally empty tomb.

Character-defining feature
a prominent or distinctive aspect, quality, or characteristic of a cultural landscape that contributes significantly to its physical character. Land use patterns, vegetation, furnishings, decorative details and materials may be such features.

Chest marker
a solid, rectangular, raised grave marker resembling a chest or box-like sarcophagus. (1.)

Cinerary urn
a receptacle for cremation remains, or ashes, in the shape of a vase.

Columbarium
a vault or structure for storage of cinerary urns.

Columns
pedestal monuments, once a sign of victory by the Romans (Column of Trajan), are used in cemeteries as a symbol of mortality. Columns were seen as more versatile than an urn or an individual likeness. The base could be used to house the body of the deceased. Most columns found in American cemeteries were erected between 1870 and 1900.

Component landscape
a discrete portion of the landscape, which can be further, subdivided into individual features. The landscape unit may contribute to the significance of a National Register property, such as a farmstead in a rural historic district. In some cases, the landscape unit may be individually eligible for the National Register of Historic Places, such as a rose garden in a large urban park.

Cracks
Narrow fissures or fractures in the stone. Each occurrence should be identified and documented.

Crematorium
a furnace for incineration of the dead; also crematory.

Crumbing
the effects of weather or trapped moisture in a stone. Can appear to be grains of sand eroding from the stone.

Crypt
an enclosure for a casket in a mausoleum or underground chamber, as beneath a church.

Cultural landscape
a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Delamination
condition that occurs when a stone breaks or separates along bedding planes usually resulting in breakage of those areas. This is most prevalent on slate and sandstone.

Displaced
original placement is important if the cemetery chooses to seek listing in the National Register of Historic Places. If the stones have been moved, it is no longer a marker. The displaced stone becomes a memorial since it no longer serves the original purpose. There are different reasons that stones may be rearranged. If the row alignment seems a bit too perfect or if the stones are arranged in an odd pattern, such as a circle, most likely all of the stones in a site have been moved.

Dolomite rock
consisting mainly of magnesium carbonate and calcium carbonate; limestone or marble with much magnesium carbonate in it.

Dolomite limestone
limestone that contains more than ten percent but less than eighty percent of the mineral dolomite.

Efflorescence
Deposits of white salts on the surface of stone. It is an encrustation of soluble salts that could be caused by the use of fertilizers and weed-killers, air or water pollution, use of gray Portland cement in concrete and mortars, and some cleaning compounds. These salt deposits are called "efflorescence" when they occur on

the surface of the stone and "subflorescence" when beneath the surface. Efflorescence is a critical sign that the stone is endangered. Often caused by free alkalis leached from mortar or adjacent concrete.

Epitaph
an inscription on a grave marker identifying and/or commemorating the dead.

Erosion/sugar decay
a fine white, gritty substance that is produced on marble markers. Gradual wearing away of the surface, resulting in rounded, blurred edges, and damage to carved details. Erosion is caused by the natural abrasion of wind and wind-blown particles, and also by dissolution of the surface by acidic rainfall.

Exedra
a permanent open air masonry bench with a high back, usually semicircular in plan, patterned after the porches or alcoves of classical antiquity where philosophical discussions were held; in cemeteries, used as an element of landscape design and at a type of tomb monument.

Exfoliation
the peeling or scaling of stone surfaces caused by chemical or physical weathering.

Face
the visible surface of stone masonry after setting. In gravestones, commonly the carved surface of table stones and slabs.

Fallen
Stones that have fallen are susceptible to accelerated damage and deterioration and should be righted.

Family cemetery
a small private burial place for members of the immediate or extended family; typically found in rural areas, and often, but not always, near a residence; different from a family plot, which is an area reserved for family members within a larger cemetery.

Feature
the smallest element(s) of a landscape that contributes to the significance and that can be the subject of a treatment intervention. Examples include a woodlot, hedge, lawn, specimen plant, alee, house, meadow or open field, fence, wall, earthwork, pond or pool, bollard, orchard, or agricultural terrace.

Fillett
a concave filling-in (e.g., with mortar) of a reentrant angle where two surfaces meet.

Flaking
a term commonly used regarding gravestones to indicate minor delamination of surfaces or otherwise unsound stone, which easily peels off in small sheets or layers.

Flat markers
often made of metal and placed flush with or embedded in the ground. This style of marker is generally found in twentieth century cemeteries. This style became popular with perpetual care sites, for they allow mowing with ease.

Flush marker
a flat, rectangular grave marker set flush with the lawn or surface of the ground.

Footstone
a marker used in the seventeenth and eighteenth century when both a stone at the head and a stone at the foot marked the grave. Footstones are smaller and more simply inscribed than their headstones. If they bear any carving, it is usually only the name or initials of the deceased, perhaps the death date, and sometimes a simple decorative design.

Fragments
Small pieces of broken stone.

French Drain
a trench filled with gravel and topped with sand used for eliminating excess water from low points and other areas with water-saturated soil.

Gneiss
coarse-grained metamorphic rock with discontinuous foliation. When used for building stone, generally classed as trade granite. Most gneiss is dark and composed mainly of quartz, feldspar, mica, and ferromagnesian minerals (iron-magnesium silicates).

Granite
defined geologically as igneous rock with crystals or grains of visible size and consisting mainly of quartz and the sodium or potassium feldspars. In building stone and gravestones, crystalline silicate rock with visible grains. The commercial term includes gneiss and igneous rocks that are not granite in the strictest sense.

Grave
a place or receptacle for burial.

Gravemarker
a sign or marker of a burial place, variously inscribed and decorated in commemoration of the dead.

Grave shelter
a rectangular, roofed structure usually of wood, covering a gravesite, enclosed by boards or slats or supported by poles; in tribal custom used to contain burial offerings and shelter the spirit of the dead; also grave house.

Graveyard
an area set aside for burial of the dead; a common burying ground of a church or community.

Gypsum Crust
Common to marble and limestone. Decay caused by the acidic gases in the air. It is a black crust that, when removed, exposes the softer stone underlayment.

Headstone
an upright stone marker placed at the head of the deceased; usually inscribed with demographic information, epitaphs, or both; sometimes decorated with a carved motif.

Igneous
rocks those formed by change of the molten material called magma to the solid state. The igneous rocks are one of three generic classes of rocks (igneous, sedimentary, and metamorphic). Various igneous rocks, generally termed granite if coarse grained, are used for building stone and gravestones.

Incised carving
engraving that is ornamentation made by cutting into the stone.

In place (in situ)
the original location of a gravestone.

Integrity
the authenticity of a property's historic identity, evinced by the survival of physical characteristics that existed during the property's historic or prehistoric period. The seven qualities of integrity as defined by the National Register Program are location, setting, feeling, association, design, workmanship, and materials.

Interment
a burial; the act of committing the dead to a grave.

Laminated stone
stone consisting of thin sheets; stone built up in layers, such as slate.

Ledger
a large rectangular grave marker usually of stone, set parallel with the ground to cover the grave opening or grave surface.

Limestone
rock of sedimentary origin composed principally of calcite or dolomite or both. Limestone varies greatly in texture and porosity. It is usually white, gray or buff in color. Under normal conditions it weathers to a light silver gray or white depending on the stone variety but is usually darker in color than the bright white of marble. It is commonly used in gravestones and tomb structures.

Lych gate
traditionally, a roofed gateway to a church graveyard under which a funeral casket was placed before burial; also lich gate; commonly, an ornamental cemetery gateway.

Macadam
named after John L. Macadam (1756-1836), Scottish engineer who invented the process of using broken stones for roads.

Marble
geologically a metamorphic rock made up largely of calcite or dolomite. It is formed as a result of the recrystallization of limestone under the intense pressure of geologic processes. As used commercially, the term includes many dense limestones, and some rock dolomites. Numerous minerals may be present in minor to significant amounts in marble, and their presence and distribution account for much of the distinctive appearance that many marbles possess. The color of marble ranges from the brilliant white of calcite to black, blue-gray, red, yellow, and green, depending on the mineral composition. It is the predominant stone for gravestones in the nineteenth century.

Mausoleum
a monumental building or structure for burial of the dead above ground; a "community" mausoleum is one that accommodates a great number of burials.

Memorial
an object whose purpose it is to commemorate a person or an event.

Metal corrosion
deterioration of a metal through a chemical or electrochemical reaction between the metal and oxygen (oxidation) or other substances (acids, salts, water, different metals in contact, and so on). Corrosion is

indicated by formation of the corrosion products (such as, rust on ferrous metals) or by loss of metal (pitting and so on).

Metamorphic rock
rock altered in appearance, density, and crystalline structure, and in some cases mineral composition, by high temperature or high pressure or both. Slate is derived from shale, quartzite from quartz, sandstone and true marble from limestone.

Mica
a group of silicate minerals characterized by nearly perfect basal cleavage (cleavage is the quality of a crystallized substance or rock of splitting along definite planes) causing them to split readily into extremely thin plates. They reflect light, causing a shiny or sparkly appearance. The micas are prominent constituents of metamorphic and igneous rocks. In gravestones, they are often apparent in brownstones.

Military cemetery
a burial ground established for war casualties, veterans, and eligible dependents. Those established by the federal government include national cemeteries, post cemeteries, soldiers' lots, Confederate and Union plots, and American cemeteries in foreign countries. Many states also have established cemeteries for them.

Monolith
a large, vertical stone grave marker having no base or cap.

Monument
a structure or substantial gravemarker erected as a memorial at a place of burial.

Mortuary
a place for preparation of the dead prior to burial or cremation.

Mower Scars
Abrasions caused by grass cutting equipment, usually near the bottom of the stone.

National cemetery
one of 130 burial grounds established by the Congress of the United States since 1862 for interment of armed forces servicemen and women whose last service ended honorably. Presently, the Department of Veterans Affairs maintains 114, the National Park Service (Department of the Interior) administers 14, and the Department of the Army has responsibility for two.

Obelisk
a four-sided, tapering shaft having a pyramidal point; a grave marker type popularized by romantic taste for classical imagery in the nineteenth century.

Peristyle
a colonnade surrounding the exterior of a building, such as a mausoleum, or a range of columns supporting an entablature (a beam) that stands free to define an outdoor alcove or open space.

Potter's field
a place for the burial of indigent or anonymous persons. The term comes from a Biblical reference: Matthew 27:7.

Receiving tomb
a vault where the dead may be held until a final burial place is prepared; also receiving vault.

Relief carving
ornamentation projecting forward from a surface usually shallow or, occasionally in gravestones, deep carving.

Rising damp
moisture carried upward through porous stone by capillary action. Soluble salts in the ground beneath a gravestone may be introduced into a stone through this process. If the salts crystallize within the pores of the stone, the action may cause the surface to break off, known as spalling; if the salts are carried to the surface of the stone and then crystallize on it, efflorescence is formed.

Rostrum
a permanent open-air masonry stage used for memorial services in cemeteries of the modern period, patterned after the platform for public orators used in ancient Rome.

"Rural cemetery"
a burial place characterized by spacious landscaped grounds and romantic commemorative monuments established in a gardenlike setting in the first half of the nineteenth century. Mount Auburn Cemetery (1831) near Boston was the first cemetery developed in this tradition.

Sandstone
sedimentary rock composed of sand-sized grains naturally cemented by mineral material. In most sandstone used for building and gravestones, quartz grains predominate. Sandstone is typically buff, gray, brown, red, purple or pink in color; the latter four colors are commonly called brownstone. Some sources of sandstone in the Midwest and Canada were: Medina varieties in southern Ontario (red-brown, gray or mottled); Ohio sandstone from the Berea beds south of Cleveland (light gray or buff); Ohio Briar Hill sandstone (variegated rusty color); and Michigan Lake Superior sandstone (red).

Sarcophagus
a stone coffin or monumental chamber for a casket.

Scaling
advanced loss of stone, which may vary in depth.

Schist
a metamorphic rock with continuous foliation. It splits along foliation and is occasionally used for gravestones.

Screen memorial
a vertically set gravemarker consisting of a tablet with wing elements resting on a continuous base.

Sedimentary
rock formed from materials deposited as sediments, in the sea, in fresh water, or on the land. The materials are transported to their site of deposition by such forces as running water, wind, or moving ice. They may deposit as fragments or by precipitation from solution. Limestone and sandstone are the sedimentary rocks most used for building and gravestones.

Sepulcher
a burial vault or crypt.

Shale
rock of clay origin, easily split into layers. It is occasionally used for gravestones.

Shelter house
a pavilion or roofed structure, frequently open at the sides, containing seats or benches for the convenience of those seeking a place to rest; erected in rustic and classical styles to beautify a cemetery landscape.

Slant marker
a rectangular grave marker having straight sides and inscribed surface raked at an acute angle.

Slate
a hard, brittle metamorphic rock consisting of clay minerals and characterized by good cleavage (cleavage is the quality of a crystallized substance or rock of splitting along definite planes) that is unrelated to the bedding in the earlier shale or clay from which it formed. It was a popular gravestone material of the eighteenth century, particularly in coastal areas. Many of the bestpreserved examples of gravestone art are found in slate, an extremely stable stone.

Soapstone
massive soft rock that contains a high proportion of talc. It is occasionally used in gravestones.

Soiled/stained/discolored
Discoloration of the stone caused by vegetation, fungus, pollution or chemical reaction should be noted and any indication of the cause of staining should be noted. Different stains require different approaches to cleaning.

Soundness
the quality of a stone exhibits no sign of damage.

Spall
occurs when part of the stone flakes or splits away through frost action or pressure. As a noun, a chip or flake of stone.

Stele
an upright stone or commemorative slab commonly inscribed or embellished on one of the broader vertical surfaces; a grave marker type revived from classical antiquity.

Sugaring
granular, sometimes powdery, condition that is characteristic of some stone, particularly fine-grained marbles and limestone. Sugaring indicates gradual surface disintegration.

Surface crusts
hard crusts that develop through movement of moisture towards the surface and outer edges of stone and deposition of dissolved material in those areas. Dark- colored crusts on sandstone result from a chemical reaction of the stone to airborne pollutants and often indicates disintegration of the stone behind the crust.

Table marker or stone
a rectangular grave covering consisting of a horizontal stone slab raised on legs, which sometimes are highly elaborate; also "table stone."

Tablet stone
a stone grave marker consisting of a single piece of stone usually not more than three inches thick and set vertically in the ground; to be distinguished from a table stone or vault.

Tilted/sunken
extent to which a stone is sunken or tilted will determine the priority it will be given for resetting.

Tomb
a burial place for the dead.

Tomb recess
a niche or hollow in a wall that shelters a tomb.

Tympanum
a semicircular (or occasionally triangular) decorated face at the top of a tablet stone.

Vault
a burial chamber, commonly underground.

Appendix C: National Park Service Preservation Brief 48: Preservation Gravemarkers in Historic Cemeteries

48 PRESERVATION BRIEFS

Preserving Grave Markers in Historic Cemeteries

Mary F. Striegel, Frances Gale, Jason Church, &
Debbie Dietrich-Smith

National Park Service
U.S. Department of the Interior

Technical Preservation Services

Cemeteries found across the country are not only places of burial, but they also provide a vivid record of community history. Whether large or small, well maintained or neglected, historic cemeteries are an important part of our cultural landscape. The vast richness of expression through form, decoration and materials informs our understanding of the individuals buried in historic cemeteries and their cultural significance.

While cemeteries are often considered to be perpetual, their most prominent feature—the grave markers—are not. They weather, naturally decay, often are poorly maintained and repaired and, on occasion, are vandalized (Fig. 1). Grave markers are usually noteworthy not only for their inscriptions but also for their craftsmanship. Exceptional markers are considered works of art.

This Preservation Brief focuses on a single aspect of historic cemetery preservation—providing guidance for owners, property managers, administrators, in-house maintenance staff, volunteers, and others who are responsible for or are interested in preserving and protecting grave markers. Besides describing grave marker materials and the risk factors that contribute to their decay, the Brief provides guidance for assessing their conditions and discusses maintenance programs and various preservation treatments.

Figure 1. Sandstone and slate grave markers in the Ancient Burying Ground in New London, CT, display a variety of weathering conditions. Markers in the cemetery date from the mid-17th to the early 19th centuries. Photo: Jason Church.

Also identified are a number of excellent references that address materials used in all grave markers, including several other Preservation Briefs (listed in Additional Reading). This Brief highlights particular issues that should be considered with historic grave markers.

Types of Traditional Grave Markers

The great variety in the types of grave markers is a fascinating aspect of the study and appreciation of historic cemeteries. Three broad categories can be used to describe grave markers—(1) single-element, (2) multiple-element, and (3) structures. Single-element grave markers are stone, cast iron, or wood elements that are set in a vertical position or placed as a horizontal slab on the ground (Fig. 2). Early examples of this simplest type of grave markers are field stone and basic wooden or wrought iron crosses, with the name of the deceased person scratched into or engraved on the marker. Often, these rudimentary grave markers are overlooked, significantly deteriorated, or lost. Vertical stone slabs and large stone ledgers laid horizontally over the gravesite are more sophisticated examples of this type.

Multiple-element grave markers are found in a number of different forms (Fig. 3). In the most typical form, a grave marker would consist of two stones—an upper headstone placed on top of a base stone. The upper headstone may be secured in a number of different ways to the base. In the simplest of forms, the upper stone was placed on the base, set in a bed of mortar on top of the base, or joined with pins and mortar. With a "tab-and-

Figure 2. These mid-19th century, single-element stone grave markers in the Grove Cemetery in Bath, NY, are set in a vertical position. Photo: Jason Church.

slot" grave marker, the tabbed upper stone was set in a slotted base. More common today, the upper headstone is secured with a technique that uses small spacers set on the base and a setting compound. This technique or one that uses an epoxy adhesive may be found on older markers where the stones have been reset.

Figure 3. A multi-element grave marker from the early 19th century in the St. Michael's Cemetery, Pensacola, FL, consists of a vertical element with tabs (left image) into a slotted base (right image). Photo: Fran Gale.

Stacked-base grave markers use multiple bases to increase the height of the monument and provide a stable foundation for upper elements. Tall, four-sided tapered monuments, known as obelisks, are typically placed on stacked bases. Columns or upright pillars have three main parts – a base, shaft, and capital. Multiple-element grave markers may also include figurative or sculptural components. Traditionally, stacked base grave markers were set on lead shims with mortar joints or with lead ribbon along the outer edges.

Grave markers can also be engineered structures. Examples of grave marker structures include masonry arches, box tombs, table tombs, grave shelters, and mausoleums (Fig. 4). The box tomb is a rectangular structure built over the gravesite. The human remains are not located in the box itself as some believe, but rather in the ground beneath the box structure. The table tomb is constructed of a horizontal stone tablet

Figure 4. This sandstone table tomb, located in Cedar Grove Cemetery, New London, CT, is an engineered grave marker structure consisting of a horizontal stone tablet supported by four vertical table "legs" with and a central column,. Photo: Jason Church.

supported by small corner supports or columns. Grave shelters, also called grave houses, can be simple or elaborate wooden structures built over the gravesite. Mausoleums are above-ground buildings with compartments for multiple burials. Engineered structures also include hillside and underground tombs.

Guidelines for Evaluating and Registering Cemeteries and Burial Places, National Register Bulletin 41, provides a concise review of grave marker types.

Materials

Stone, brick, concrete, metal, and wood are the most common materials used for grave markers and for fences and gravesite enclosures in historic cemeteries. This section briefly describes the composition and properties of these diverse materials

Masonry materials

There is a wide variety of masonry materials used in historic cemeteries; some are naturally occurring and others man-made. Although there are notable exceptions, most masonry materials are durable, have high compressive strength, and are resistant to weathering. As grave markers, they typically represent the work of masons and stone carvers.

Stone is a naturally occurring material with a wide range of properties and is available in a variety of colors (Fig. 5). Geologists classify stone according to the way in which it was formed with the three categories being igneous, sedimentary and metamorphic rock. Stone found in cemeteries is predominantly quarried, though the use of field stones is not uncommon. The mineralogy and chemical composition of stones vary. Some are composed primarily of silicate minerals; granites, sandstones, slate, and schist are examples. Other stones contain calcium carbonate with marble and limestone in this group. Mineralogy, chemical composition, and physical structure of the stone influence weathering and

Figure 5. A variety of colors of natural stone are found in historic cemeteries, such as this pink granite marker in the Cedar Grove Cemetery, New London, CT. Photo: Jason Church.

the selection of materials and procedures for its cleaning and protection.

Man-made masonry materials are manufactured from naturally occurring raw materials. For example, the raw materials used to make brick include clay, sand, and shale. During firing, clay minerals and sand melt and come together forming silicates, aluminates, and metallic oxides. The resulting brick material has a hard-fired outer surface with a softer interior.

Concrete is a man-made material composed of cement, sand, gravel, and water. Most concrete produced after 1870 contains Portland cement, another manufactured product. In its plastic or wet state, concrete can be cast or poured. It hardens by hydration, a chemical-curing process. The resulting product has excellent compressive strength, but much lower tensile strength. Reinforcing concrete with steel helps compensate for this limitation.

All masonry materials are porous with an interior network of pores. The porosity of sedimentary rocks such as limestone and sandstone can be as high as 20 percent while the pore volume of granite is very low. Because moisture is a key factor in many deterioration processes, porous masonry materials are more vulnerable to weathering.

Metals

Metals are solid materials that are typically hard, malleable, fusible, ductile, and often shiny when new (Fig. 6). A metal alloy is a mixture or solid solution of two or more metals. Metals are easily worked and can be melted or fused, hammered into thin sheets, or drawn into wires. Different metals have varying physical

Figure 6. Decorative cast-iron grave markers like this late-19th century one in Oakland Cemetery in Shreveport, LA, are produced by heating the iron alloy and casting the liquid metal into a mold. Photo: Jason Church.

and mechanical properties, aesthetics, and weathering characteristics.

Ferrous metals and alloys, including cast iron, wrought iron, and steel, all contain iron. Cast iron also contains carbon and silicon and has a relatively low melting point. When heated to a liquid state, it can be molded into a variety of shapes. Wrought iron is an alloy with low carbon content. Its fibrous inclusions (called slag) are sometimes visible to the naked eye. Unlike cast iron, wrought iron is heated to the point where it becomes soft and then is hammered or "worked" into desired shapes. Most of the wrought and cast iron in historic cemeteries is ornamental rather than structural. While cast iron, steel, and wrought iron all contain iron, steel and wrought iron are more resistant to corrosion. Paint was often applied to ferrous metals to help protect them from corrosion and for decorative purposes. Metal elements were painted in a variety of colors including black, white, and green, among others.

Nonferrous metals and alloys, such as bronze, zinc, and lead, do not contain iron. Bronze contains about 85% copper, 10-15% tin, and sometimes lead. Historic bronze cemetery markers were created by casting processes that involves pouring liquid bronze into a mold. The completed casting is hollow. Bronze work may comprise a single molded component, such as a plaque, or multiple molded components welded or fitted together as with large statuary. Chemical patinas were applied to enhance color, and clear coatings for protection. Cast zinc monuments were popular from 1870 through the early 20th century. Most cast zinc is bluish-gray in color. Although cast zinc is resistant to corrosion, it is a brittle material with a tendency to "creep" or deform, especially when exposed to high outdoor temperatures.

Wood

Wood is a porous organic material composed of tubular cells in a parallel arrangement. The structure and characteristics of these cells determine the wood's

Figure 7. As shown by this 1877 marker in Silver Terrace Cemetery, Virginia City, NV, exposure to sunlight can damage wood grave markers, making the wood more susceptible to water damage and cracking. Photo: Jason Church.

appearance and influence wood properties. Wood-cell walls and cavities contain moisture. Oven drying reduces the moisture content of wood. After the drying process, the wood continues to expand and contract with changes in moisture content. The loss of water from cell walls causes wood to shrink, sometimes distorting its original shape (Fig. 7).

Hardwoods come from deciduous trees such as oak, maple, and walnut; softwoods from conifers such as pine, cedar, and fir. In general, hardwoods have higher density than softwoods, which makes them more durable materials, and are darker in color. Wood cut at different orientations affects its strength and weathering. As an organic material, wood is also particularly vulnerable to termites, carpenter ants, and other wood-destroying insects and fungi. Paints, coatings, and fungicides such as borates are used to help protect wood from various insect damage and fungal rot.

Other materials

Old cemeteries often include a wide variety of other materials not normally associated with contemporary grave markers, such as ceramics, stained glass, shells, and plastics (Fig. 8). As with masonry, metals, and wood, each has its own chemical and physical properties which affect durability and weathering. These materials

Figure 8. A fired ceramic, this cameo is set in a marble grave marker, located in Elmwood Cemetery, Memphis, TN. Different materials may require different conservation approaches. Photo: Mary Striegel.

present unique challenges and their properties must be understood before establishing appropriate maintenance and repair. Documentation of unusual materials is critical when repair is not possible.

Weathering

All grave marker materials deteriorate when they are exposed to weathering such as sunlight, wind, rain, high and low temperatures, and atmospheric pollutants (Fig. 9). If a marker is composed of several materials, each may have a different weathering rate. Some weathering processes occur very quickly, and others gradually affect the condition of materials. Weathering results in deterioration in a variety of ways. For example, when exposed to rainwater some stones lose surface material while others form harder outer crusts that may detach from the surface.

Figure 9. The limestone and sandstone grave markers in this historic cemetery have different weathering processes. On the left, the limestone shows surface loss in areas exposed to rainwater and gypsum crust formation below. The sandstone marker on the right displays uniform soiling, but surface hardening may be occurring. Photo: Fran Gale.

Granite is a durable grave marker material considered resistant to weathering. It is a compact, hard rock with low porosity, and granite deterioration can be imperceptible for many years. Slate also has low porosity, but its layered structure can result in delamination. Some stones used to make grave markers, like sandstone, limestone and marble, are softer than granite and more porous. These materials are more vulnerable to weathering with deterioration noticeable during the initial years of exposure. With slate and other stones with layered structures, weathering sometimes results in delamination, defined as the separation of layers along bedding planes. Different rates of weathering are related to the chemical composition and physical structure of the material.

Deterioration affects other grave marker materials in different ways. With brick, durability is related to its firing temperature, which influences the brick's compressive strength and absorption. Brick fired at high temperatures has a protective fire skin. The weathering of concrete also is variable, and largely depends on the materials used in its manufacture. For example, Portland cement concrete is generally more resistant to weathering than lime concrete. With wood, grave markers fashioned from heartwood (the dead inner wood) are more durable than those of sapwood (the living exterior wood), and some wood species such as cedar, Osage orange and black locust contain extractives that provide decay resistance.

The term "inherent vice" is used to describe a material with a naturally occurring problem that leads to premature deterioration (Fig. 10). An example of this problem is marble that has cracked due to natural locked-in stresses. Inherent vice also describes grave markers that are composed of incompatible materials, where decay is accelerated in one or both materials because of chemical interactions caused by their close proximity. An example is the galvanic corrosion that occurs when dissimilar metals, such as copper and iron, are in contact and exposed to moisture.

Risk Factors

There are two major categories of risk factors that can impact historic grave markers. The first comprises naturally-occurring deterioration phenomena known as the forces of nature, including weathering. The list of natural risk factors includes climate, biological issues, and natural hazards such as fire and floods. The other category includes the many degradation phenomena that are related to human activities. The results of humans and their actions include pollution, lack of maintenance, inappropriate repairs, arson, and vandalism. While some of the factors related to human activities, such as improper repair, may not be intentional, the results can be just as damaging to grave markers.

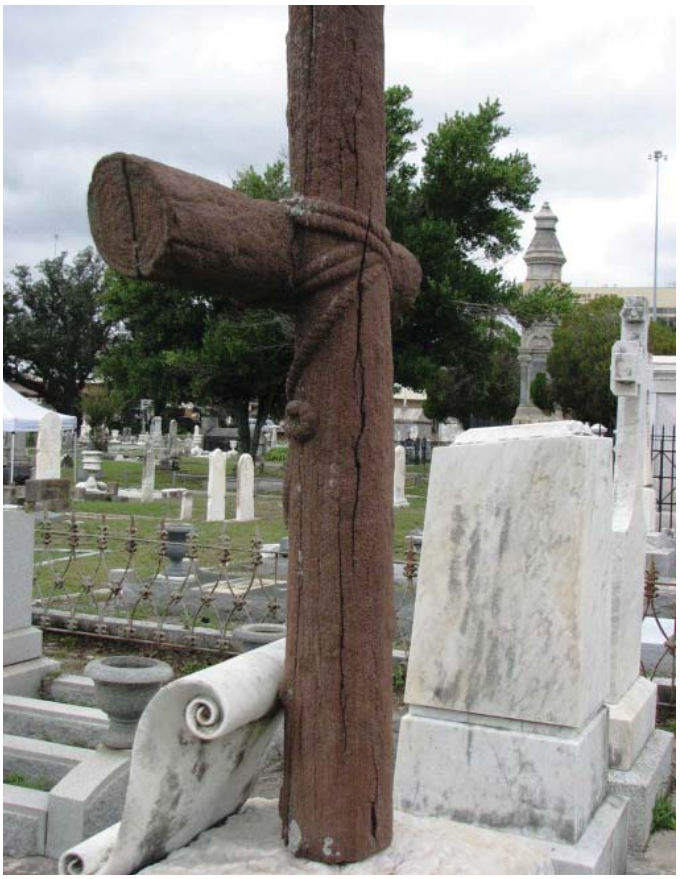

Figure 10. The sandstone cross (carved to look like wood) in this grave marker in St. Michael's Cemetery in Pensacola, FL, provides an example of inherent vice – the severe delamination affecting the sandstone has occurred along its natural bedding planes. Photo: Fran Gale.

Often, it is not possible to separate natural risk factors from those related to human activities. For example, pollution is deposited on grave markers by rain and other forms of precipitation, resulting in discoloration and often material degradation. Whether due to natural risk factors, human activities or both, "synergism" occurs when the result of two or more risk factors is greater than the sum of the individual effects. An example is the damage that occurs to salt-laden masonry materials during freeze/thaw cycles. The combined effect of these two deterioration factors is severe.

Natural Risk Factors

Climate plays an important role in weathering processes. Depending upon the climate, cemetery grave markers are exposed to rain, snow, sleet, ultraviolet (UV) light, humidity, high and low temperatures, and wind. All of these forces can damage masonry, metals, and wood. For example, with wood, the UV rays present in sunlight accelerate the weathering process.

Exposure to repeated changes in temperature can have an adverse effect on materials such as stone and other porous masonry. High temperatures deteriorate and weaken many materials while low temperatures cause materials to become brittle. In some climates there are rapid changes during spring and fall that

Figure A. Cemeteries are cultural landscapes made up of a variety of features. Grave markers are but one component of cemeteries that also include walkways, drives, fences, coping, trees, shrubs, and other vegetation. Each component adds to the understanding of the cemetery landscape. Photo: Debbie Dietrich Smith.

Vegetation Management

Carefully monitoring and managing of trees and other vegetation is an integral part of a cemetery preventive conservation program. Mature trees and ornamental shrubs can add character, shade, and seasonal color to historic cemeteries (Fig. A). However, if not properly maintained, they can damage grave markers, fencing, and other historic features. Mature trees may fall during storms and drop large limbs that topple grave markers and mangle fencing. Overgrown vegetation creates wet, shaded areas and fosters biological growth than can accelerate deterioration of stone, iron, and wood objects.

A treatment plan for cemetery vegetation should address trees, shrubs, vines, and "volunteer" growth. For the assessment and treatment of trees that pose hazards, consult an International Society of Arboriculture (ISA) certified arborist. Prune trees and shrubs adjacent to grave markers to allow air circulation and light penetration. Certified arborists and master gardeners should carry out this work or direct others in pruning trees and shrubs, as many may be historic features integral to the cultural landscape and worthy of preservation.

Regarding lawn care, historic cemeteries were not designed for today's large riding lawnmowers, yet this is the mower of choice for many cemeteries, as mowing is one of the most time-consuming and costly maintenance tasks generally undertaken. Mowing between tight spots with a large riding mower deck is destined to cause damage. Best practices include using a smaller, push mower between particularly sensitive features, and outfitting riding mower decks with protective bumpers. Low-cost options include using fire hose padding or a foam swimming 'noodle' (Fig. B). Additional damage is caused by riding over low stones or coping, especially when the blade height is set low. If rolling over these features is unavoidable, many riding mowers have a hand-control adjustment to temporarily raise and lower the blade height.

Improper use of a string-trimmer is also potentially destructive, especially when it comes into contact with soft materials such as marble, limestone, and wood. Using the lightest trim line and angling the trimmer head towards the ground will help reduce damage if the trimmer hits unintended targets. Consider hand trimming around the most significant, fragile features.

As a time-saving measure, herbicides are sometimes used around the base of features to remove unwanted grass and weeds. In most cases, use of herbicides for this purpose is not recommended, as salts within the herbicide can wick into the stone (especially soft stones) and cause spalling and deterioration. The removal of vegetation also exposes soil around the base of the grave marker, which, in a heavy rain, can cause soil splashing that may result in staining.

If fertilizer is applied, choose a natural organic fertilizer to minimize salt content for the reasons stated above. For any chemical application, be sure to rinse away residue from grave markers, etc., with water using a low pressure hose or spray bottle, to minimize continued contact.

Ongoing maintenance of cemetery vegetation is essential to conserve grave markers and fencing. Periodic inspections may warrant removing trees; trimming tree limbs, shrubs, and vines; and removing volunteer vegetation. All trees should be inspected at least every five years. Annual inspections are necessary to assess the condition of shrubs and vines, and to identify volunteer growth for removal. Mowing and trimming around the hundreds of stone, brick, iron, and wood features found in many cemeteries is a weekly or bi-weekly chore. Lawn care is the most time-consuming, and, if not done carefully, potentially destructive maintenance activity in historic cemeteries.

Figure B. A pool 'noodle' can be fitted to the deck of a lawnmower to prevent damage to grave markers. Photo: Debbie Dietrich Smith.

cause damaging cycles of expansion and contraction. Adjacent dissimilar materials may respond differently to temperature changes, resulting in distortion. High winds can carry water and abrasive particles causing abrasion and erosion, especially to soft materials. Wind may also drive rain water into masonry joints and permeable elements and materials.

Water, in liquid, solid or vapor form, plays a critical role in the deterioration process. Most grave marker materials are porous, and moisture from precipitation, ground water, or frequent landscape watering can enter the pore system. If temperatures drop below the freezing point, water in interior pores, joints and cracks freezes, and its increased volume often applies internal pressure, resulting in damage to the grave marker such as cracks or spalling.

Ferrous metals are particularly vulnerable to water-related deterioration. Iron increases in size when it corrodes, sometimes as much as 20 percent. As the corrosion process proceeds, the ferrous metal eventually weakens. When embedded within concrete or masonry materials, the corroding iron often causes cracks and spalls in the masonry.

Woody vegetation can damage grave markers in a variety of ways (Fig. 11). Trees, bushes, and vines can shade grave markers, extending the time that the markers are exposed to moisture. Tendrils and roots may burrow into mortar joints and openings, causing mechanical damage and large plants may lift up or shift markers. Even leaves and twigs, when allowed to collect on the ground near grave markers, can affect water drainage and evaporation (Fig. 12).

Microorganisms such as algae, fungi, and lichens may affect grave markers. Microorganisms hold in moisture and some produce acids. With acid-sensitive materials such as limestone and marble, the result is surface erosion. Sometimes the organisms use the material as a food source, dissolving minerals in the stone and attacking the cellular structure of wood. Wood is especially vulnerable to fungi, algae, and other microorganisms when its moisture content is above 25%.

Infestation by termites, carpenter bees and ants, and other insects can affect the appearance and structural integrity of wood. Unsightly bird droppings can also affect paint and other surface finishes.

Human Activities

Aside from vandalism and purposeful neglect, most risk factors attributable to human activity are unintentional. Sometimes damage to grave markers is the result of cleaning or repair done with the best of intentions. These unfortunate mistakes can be the result of insufficient training and funding, misuse of tools and equipment, and poor planning. With proper training and supervision, human risk factors can be lessened.

Figure 11. Woody vegetation can damage grave markers and pose a risk to visitors unless well managed and maintained. Photo: Jason Church.

Deferred maintenance usually accelerates the deterioration of grave markers and can be a safety hazard. All materials have a service life with mortar, paints, and other coatings requiring periodic upkeep to be effective. For example, unless ferrous metal has a sound protective coating, exposure to weathering can result in corrosion. Loose, misaligned or detached grave markers may lead to further damage or deterioration if not corrected in a timely manner. When nearby trees and shrubs are overgrown and invasive vegetation is present, needless risks to historic grave markers may also occur.

Inappropriate maintenance activities can be devastating. One of the most common threats stems from improper lawn care, particularly the misuse of mowing equipment and string trimmers (weed whackers). The use of large mowers or mishandling them can lead to displacement of markers. Scrapes, gouges and even breakage also can occur. Improper use of string trimmers in areas immediately adjacent to grave markers can result in

Figure 12. A cemetery professional undertakes a tree inventory in American Cemetery, Natchitoches, LA, to determine the health of trees in the cemetery. Management decisions for trimming or removal are based on the inventory. Photo: Debbie Dietrich Smith.

Avoiding 10 Common Maintenance Mistakes

1. Maintain records on conditions and treatments of historic markers.

2. Seek advice from persons experienced with preserving historic markers when initiating a major maintenance or repair program.

3. Discourage visitor use of chalk, shaving cream, and other materials to highlight carvings and lettering.

4. Train grounds crews in methods to avoid damage to historic markers, including flat grave markers which can be easily damaged by machinery, fertilizers and weed killers.

5. Remove graffiti as quickly as possible, using appropriate methods, so as not to encourage further marker disfiguration and vandalism.

6. Maintain ground cover around cemetery markers to avoid surrounding dirt from splashing back and staining grave markers.

7. Never use rotary grinders to resurface or "clean" historic markers.

8. Avoid the use of coatings on masonry without proper investigation.

9. Avoid high pressure water washing to clean historic markers.

10. Repair rather than replace damaged and deteriorated grave markers. For markers encased in cement, leave any repair work to trained conservators.

scratching and even cutting into softer stone and wood. Generally, the use of chemical weed killers at the base of grave markers should be avoided, especially if there is a risk that the marker would absorb the chemicals.

Repointing masonry grave markers using Portland cement mortars that are harder than historic mortars often results in accelerated deterioration of the masonry material. Mortar should be softer than the adjacent masonry, enabling trapped moisture to migrate out, and serve as the sacrificial material when cracking occurs to relieve excessive stress. Problems also result when using impervious "protective" coatings that can trap moisture within the masonry, resulting in damage during wet/dry and freeze/thaw cycles (Fig. 13).

Figure 13. The impervious coating used to "protect" this sandstone grave marker trapped moisture within the stone, eventually resulting in deterioration and surface loss. Photo: Fran Gale.

Figure 14. High-pressure water washing can damage grave markers. The photograph shows "wand marks" on the headstones produced by inappropriate pressure washing. Photo: Jason Church.

Harsh cleaning products and techniques can have a detrimental effect on grave markers. Acidic cleaners such as muriatic acid can dissolve minerals in many masonry materials and can attack metals. Alkaline cleaners, such as bleach, are notorious for leaving residual salts that are deposited on the surface (a process called efflorescence). Both acidic and alkaline cleaning can result in staining, especially if rinsing is inadequate. Using high-pressure water, above 500 to 1,000 psi, can needlessly damage materials as well, increasing their vulnerability to weathering (Fig. 14). If the marker is fragile, even low pressure water can be damaging. Techniques to avoid include aggregate blasting with sand or other harsh media and the use of power tools with abrasive wire or NyloxTM brushes.

Pollution

Grave markers can be both visually and materially affected by pollution. Most readily apparent is the discoloration that takes place when airborne pollutants are deposited on markers. Depending on the exposure, how water is shed, and the marker material and intricacies, discoloration on markers will usually appear uneven and in streaks.

While the visual effect of pollution is often discoloration, less apparent is the potential damage caused by pollution to the grave marker materials themselves. Most rain is slightly acidic, and its pH (a measurement of acidity) becomes more acidic when pollutant gases, such as sulfur dioxide and nitrous oxides, are present. Acid rain damages materials containing calcium carbonate, such as limestone and marble, resulting in surface loss or erosion. When erosion is severe, the grave marker inscription, carvings and sculptural elements may become discernable. Recarving the inscription is not recommended. Instead, a small stand-alone interpretative sign could be placed nearby.

Acid rain also damages bronze grave markers. Pollutant gases alter the composition of exposed bronze, often producing water-soluble minerals. These minerals are washed away during subsequent rains, resulting in surface erosion. If the bronze element is positioned on a masonry pedestal or plinth, the minerals are deposited on the masonry below. These effects of acid rain are disfiguring to the bronze element and associated masonry.

Condition Assessments

Condition assessments help identify potential safety hazards, required preservation work, and any additional conservation that is needed for stabilization and protection of grave markers. Assessments also provide important baseline information about deterioration affecting grave markers. The collected information is helpful in determining and prioritizing maintenance tasks, identifying unstable conditions that pose an immediate threat, and for developing a plan for any needed repair or conservation work. Assessments should be recurring, preferably every spring. Condition assessments also help determine the extent and severity of damage following a disaster.

Depending upon the size of the cemetery and funding available, the initial assessment may be carried out by a team consisting of cemetery staff, a materials conservator, and, where necessary, an architect or structural engineer for cases involving large monuments and mausoleums (Figs. 15a and 15b). For smaller cemeteries without large monuments and mausoleums, and where funding is problematic, volunteers can be trained to prepare a condition assessment under the guidance of an experienced individual.

The first step in any condition assessment is to gather background information, including cemetery records and documents, historical photographs, records of previous repair and maintenance work, and current practices. The next step is to conduct an on-site survey. Following the survey, recommended maintenance procedures should be provided. If the team or individual conducting the survey is experienced in repairing historic grave markers, their assessment should include information about appropriate materials and techniques for restoration and stabilization.

Survey forms facilitate both recording of field conditions and needed maintenance or repair work. Most forms include sections for marker type (headstone, obelisk, etc.), construction materials, orientation, dimensions, soil type, and grave marker deterioration. There are a number of excellent examples of survey forms available for download, including the National Park Service Condition Survey Form at www.ncptt.nps.gov However, because each cemetery is unique, it may be necessary to modify an existing form.

A tool kit for the condition assessment may include binoculars, digital camera, magnifying glass, measuring tape, clipboard, carpenter's rule, level, magnet, and flashlight. For large monuments, a ladder or aerial lift may be required. Photographs of each marker, including overall shots and close-up details, are an essential part of the documentation process. Photo logs are helpful for

Figure 15a. Condition surveys are undertaken to document current conditions, determine safety issues, and plan both emergency stabilization and future treatment plans. There are a variety of survey forms available that can be tailored to the specific cemetery. Photo: Mary Striegel.

Figure 15b. Photographs are used to document the condition of the grave marker as part of a condition assessment. Photo: Fran Gale.

recording the date, direction, and photographer. Digital photographs should be captured in a standardized size and format (.tif, .jpg, .raw).

Defining conditions can be challenging, especially for cemetery staff and volunteers who are new to the process. There are a number of illustrated glossaries that can assist with determining accurate terminology for describing conditions. The ICOMOS Illustrated Glossary on Stone Deterioration Patterns http://www.international.icomos.org/ and the NACE International Resource Center Corrosion 101 http://nace.org/ are excellent resources.

Where deterioration is apparent, the assessment should address questions such as:

- What are the physical characteristics of the defects? Has deterioration obscured ornamental work or made the inscription difficult to read?
- What is the extent of the affected area? Are all areas of the marker affected by deterioration or is there a pattern?
- Do the conditions appear to be stable or getting worse.
- Are the defects affecting other materials or impacting the safety of visitors?
- Is deterioration contributing to loss or theft?
- Is further investigation required?

Maintenance

The old axiom that an ounce of prevention is worth a pound of cure certainly applies to the preservation of historic cemeteries. Maintenance is essential to the long-term preservation of historic grave markers. The principal components of a maintenance program include regular inspections, cyclical and prioritized maintenance work, and annual reports and budgeting. An important first step is the development of a support team, including staff, conservators, engineers, skilled masons, and other professionals. In most cases, the cemetery manager should initiate this process.

The cemetery manager can use the information from the condition assessment report to develop a maintenance plan with a list of cyclical maintenance work. Many tasks can be carried out by in-house staff. For example, maintenance cleaning of metal and stonework can often be accomplished by rinsing with a garden hose. Applications of wax coatings can be used to protect bronze elements. Trained staff can undertake these tasks. Teaching graffiti removal techniques to cemetery staff may also be necessary if vandalism is an on-going problem. Staff should have access to written procedures

Figure 16. A professional mason works to insert a new piece of stone. Often referred to as a "dutchman", this repair technique requires replacing the deteriorated stone section with a new finished piece of the same size and material. Photo: Jason Church.

that include lists of appropriate materials and forms for recording the work completed.

Some work is best done by specialists (Fig. 16). For example, unless there is a trained mason on staff, replacing deteriorated or missing mortar will require a skilled masonry contractor. Services of a conservator or trained cemetery specialist should be used for removing severe soiling and staining from grave markers and for carrying out adhesive repair work such as selectively replacing a piece of stone when a marker is damaged by mechanical equipment. Care should be taken to clearly define the scope of work when hiring a contractor. It is useful to reference guidelines and preservation standards, such as those provided by the Secretary of the Interior or the American Institute for Conservation, whenever possible.

Treatments

In historic cemeteries, preservation treatments are used to preserve grave markers and protect them from future deterioration. Tasks such as cleaning, where appropriate, painting, or lime washing may be undertaken both as an initial treatment and on a cyclical basis as part of the maintenance program for the site. Other treatments, including repointing, patching and filling, and resetting, should be undertaken on an as-needed basis.

It is important to note that the Secretary of the Interior's Standards for Treatment of Historic Properties provide concepts and guidelines for maintaining, repairing, and replacing historic materials. The Standards promote best practices that will help to protect grave markers in historic cemeteries and other irreplaceable cultural resources. If replacement is required, the new material should match the old in composition, design, color, and texture. With chemical and physical treatments, the Standards recommend using the gentlest means possible.

Cleaning

Cleaning is carried out to remove soiling, staining, and contamination from grave markers (Fig. 17). Cleaning improves the visual appearance of the marker and sometimes reveals existing problems such as erosion and cracks. For various protective treatments, cleaning may be a necessary step in surface preparation. Although cleaning often is desirable and beneficial, the use of improper materials and techniques can cause great damage; when cleaning historic grave markers is undertaken, one should keep in mind the principle, "first do no harm."

To avoid a heavy build-up of soiling that might require aggressive cleaning procedures, regularly scheduled cleaning should be carried out by cemetery staff. The frequency of cleaning depends on a number of factors, including climate, location and vegetation. Before cleaning, an on-site inspection should be conducted to identify monument materials, including those not designated for cleaning since they may inadvertently come in contact with cleaning products and could be harmed. Temporary protective measure may be needed to safeguard nearby grave markers. Identifying the types of soiling present, including pollutants and contaminants, is important in deciding what cleaning procedures to use.

For some monuments, existing conditions may preclude cleaning. Even gentle cleaning may not be recommended for conditions such as severe erosion, advanced deterioration, or fragile areas. Additionally, open joints, unstable repairs, and large cracks may require alternate cleaning procedures.

General maintenance may involve low-pressure water washing. In most cases, surface soiling can be removed with a garden hose using municipal water or domestic water supply from a well. To avoid risks due to freezing, air temperature above 40° F is recommended for the time of treatment and subsequent 24 hours. To help remove stubborn soiling and dirt, soft, natural bristle scrub brushes are best. Avoid metal bristle brushes or firm nylon brushes and wrap metal elements with masking tape to avoid scratching grave markers.

Figure 17. Volunteers can undertake cleaning of grave markers once they have received initial training. Cleaning methods may include wetting the stone, using a mild chemical cleaner, gently agitating the surface with a soft bristle brush, and thoroughly rinsing the marker with clean water. Photo: Jason Church.

Selecting A Conservator or Preservation Professional

A conservator or preservation professional can provide valuable assistance in preserving historic cemeteries by documenting and surveying cemetery conditions, assisting with work plans and prioritizing work, and recommending specific maintenance and repair procedures. More commonly, they recommend more specialized preservation treatments for historic markers and carry out the actual work.

Specialized skills are required for undertaking certain treatments on historic grave markers or where markers are highly significant or are in more advanced states of disrepair. When contracting for grave marker conservation, it is important to interview conservators who have worked in cemeteries. They should be experienced with the historic materials and nature of the conditions where the work is to be undertaken. Prior to selecting a conservator, details about their previous work and training should be obtained and confirmed. Most conservators will provide sample reports and photographs of previous work.

The American Institute for Conservation of Historic and Artistic Works (AIC) offers information about selecting a conservator and what to expect once you have contracted with a conservator. Searching the "Find a Conservator" database provides a list of local and regional AIC members who have attained Professional Associate or Fellow status in the organization. More information can be found on the AIC website at http://www.conservation-us.org/

A conservator will inspect grave markers before designing appropriate treatments and submit a written plan for their proposed conservation work that includes materials to be used, a cost estimate, and a schedule for the project. As part of the contract, the conservator should be required to submit a written completion report that clearly describes their treatment of the marker/s and includes maintenance and care recommendations.

Soaking and/or spraying water in a fine mist are effective methods to remove natural growth. Water also has a "swelling action" for some soiling, making it easier to remove with gentle scrubbing. With cyclic spraying, a fine mist of water is directed at the targeted area for a short time (e.g., 20 minutes or less), followed by a short "off" period. This on/off process is repeated several times. Because high-pressure water can abrade the surface, this treatment is not recommended for masonry monuments.

For stains that are not water soluble or where organic solvents are ineffective, it is sometimes necessary to use chemical cleaning. Chemical cleaners include acids, alkalis, detergents and organic solvents. Each has advantages and disadvantages. Acids dissolve the interface between the stain and substrate while alkalis allow for longer dwell periods but must be neutralized. Some detergents are near-neutral in pH (neither acidic nor alkaline) and easier to rinse.

Before selecting or using a chemical cleaning agent, the manufacturer's Safety Data Sheet (SDS), available with the product and online, should be reviewed. The SDS provides information about the product's composition, including identified hazards, proper handling and storage, disposal, and required personal protective equipment. Once a chemical cleaning product has been selected, the manufacturer's instructions should be followed. Before undertaking large-scale cleaning, it is always advisable to undertake small-scale tests (approximately 6" x 6"areas in discrete locations), and then waiting several days before assessing the results.

Chemical cleaning is used to remove metallic stains and other contaminants such as old coatings and graffiti. For severe staining, poultice cleaning is useful as it extends contact time with the cleaner. A poultice is a mixture of clay or other inert material, such as paper pulp, and a cleaning agent. The mixture is applied to the surface and allowed an extended dwell period. The chemical cleaner dissolves the stain and the clay draws the stain out to the surface. When using a poultice, it should be applied just beyond the stained area and covered with polyethylene. The best practice is to leave the treatment on the surface for 24 hours and then remove the polyethylene cover and allow the poultice to continue drying. Once the poultice is dry, the mixture is then collected and the surface is thoroughly rinsed. For some stubborn stains, the application may need to be repeated.

Chemical cleaning also may be required if biological growth (algae, fungi and lichen) is severe. A study conducted by the National Park Service provides guidelines for cleaning government-issued marble headstones and recommends biocidal cleaners that contain quaternary ammonium compounds. Like all cleaning methods, chemical cleaning can accelerate deterioration. Adverse effects include efflorescence, stains, and etching.

Graffiti Removal

Markers with graffiti tend to be targets for further vandalism (Fig. 18). Timely removal helps deter future vandalism and improves the marker's appearance.

If the graffiti is water soluble, it can be removed using water and a soft cloth or towel. Rinsing the cloth frequently helps to avoid smearing graffiti on unaffected areas. If the graffiti is not water soluble, organic solvents or commercial graffiti removal products suitable for the grave marker material are recommended. Products should be tested prior to use. General cleaning of the entire marker is a good follow-up for a more even appearance. For deep-seated graffiti, poultice cleaning (previously described) may be required to extract staining materials.

Figure 18. Graffiti is carefully removed using a low-pressure dry-ice misting instrument. Photo: Jason Church.

Repointing

Missing and deteriorated mortar in old cemetery grave markers is a common condition, and the mortar should be replaced to prevent water intrusion and potential damage (Fig. 19). Several questions should be considered when selecting materials for repointing.

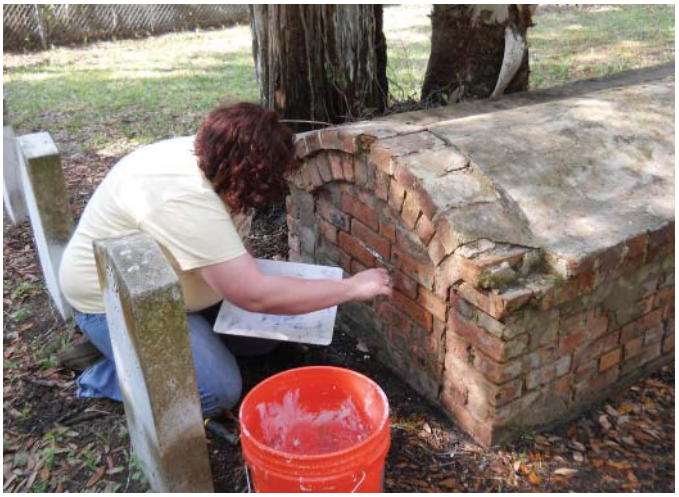

Figure 19. Masonry markers like this box tomb may require the repointing of mortar joints. It is important to use a mortar that is softer than the historic brick. In this case a conservator uses a lime putty-based mortar to repoint. Photo: Jason Church.

Most importantly, what is the masonry substrate that requires repointing? What mortar mix is suitable for the historic masonry? How quickly will mortar need to cure? Soft mortars contain traditional lime putty or modern hydrated lime. Harder mortars contain natural or Portland cement. If necessary, mortars can be tinted with alkali-stable pigments to match historic mortar colors. The selection of the mortar to be used is critically important to the success of the project. An inappropriate mortar can result in unattractive work and accelerate the deterioration of the historic grave marker. Always avoid the use of bathtub caulk and silicone sealants for repointing mortar joints.

Prior to repointing, any loose and deteriorated mortar needs to be removed from the joint, preferably using hand tools. Following joint preparation, the mortar materials (lime, cement, and sand) are mixed, and then water added to form a stiff paste. The repointing mortar is applied using a tuck pointing trowel, typically with a narrow 1/8"- 1/2" flat blade. Mortar is compacted into the joint, and then excess mortar is removed and the original joint profile replicated. Good repointing requires skill. Generally, a mason or person with masonry training should repoint mortar joints.

Resetting

Resetting is recommended for grave markers when their foundations are unstable or out of plumb (Figs. 20a through 20c). This often complex activity involves lifting the grave marker, leveling its foundation, and returning the marker to its original upright position. Workers can be injured and the grave marker damaged if resetting is not carried out properly and safely.

Inexperienced staff or volunteers should not attempt resetting without training from a conservator, engineer, or other preservation professional. When dealing with fragile or significant grave markers, or those with large

Figure 20a. This slate grave marker in the Ancient Burying Ground in Hartford, CT, is a ground-support stone. Resetting requires digging a hole that will hold the base of the stone and then compacting the soil at the bottom of the hole by hand. Photo: Fran Gale.

Figure 20b. To facilitate drainage, crushed stone, gravel, and sharp sand line the hole and are hand-tamped around the stone after placement. Photo: Fran Gale.

Figure 20c. The reset ground-supported grave marker should be level and plumb. Photo: Fran Gale.

Safety

Encouraging the public to visit and explore public burial grounds and cemeteries increases awareness of the value of these sacred sites. If visitation is promoted, owners and property managers must be responsible for ensuring that their sites are safe for staff and visitors. This responsibility includes monitoring the condition of grave markers.

Historic cemeteries can be hazardous workplaces for staff members, consultants, contractors, and volunteers. Awareness of potential hazards in a historic cemetery and careful planning are essential to avoiding injury. Maintain an appropriate first aid kit on site for minor injuries and have an emergency plan in place that includes contact information for medical assistance.

Creating a safe work environment in historic cemeteries requires appropriate planning for each project, starting with personal protective equipment. Suitable clothing and personal protective equipment should be fundamental safety requirements. Supportive shoes such as steel toe work boots or sturdy lace-up shoes help protect ankles and feet from injury, just as good work gloves help protect hands from cuts, scrapes, and splinters. Whether using a chipper, drill and other power tools or equipment, safety glasses or goggles are essential. A back brace often is recommended for heavier lifting tasks. Do not work alone or, if you must, tell someone where you are and when you expect to return.

During hot weather, heat stress is a present risk. Besides knowing the signs of heat stress, preventive measures should be taken by each worker:

- Wear light, loose-fitting, breathable clothing and a broad-brimmed hat.
- Use sunscreen, reapplying as needed.
- Take frequent breaks in the shade.
- Make sure fresh water is available and drink to stay hydrated.
- Eat small meals before and during work.
- Avoid caffeine, alcohol, and large amounts of sugar.

Trip and falling hazards include uneven ground, holes, open graves, toppled grave markers, fallen tree limbs, and other debris (Fig. C). Sitting, climbing, or standing on a grave marker should be avoided since the additional weight may cause

Figure C. Gophers and other burrowing animals produce uneven ground and holes that are trip and falling hazards to visitors and staff of historic cemeteries. Photo: Jason Church.

deteriorated and structurally unstable monuments to break or collapse with serious injury potentially occurring to the worker and damage to the marker. To help prevent injuries that can result from unstable grave markers, it is important to routinely identify and flag severely damaged and unstable grave markers for corrective work and to rope off any marker considered to be in immediate danger of collapse. Prior to beginning work, the immediate area around the job site should be rechecked for safety hazards.

Snakes, wasps, and burrowing animals inhabit historic cemeteries (Fig. D). Snakes sun on warm stones and hide in holes and ledges, so it is important to be able to identify local venomous snakes. An appropriate venomous snake management plan should be in place, and

Figure D. Yellow jackets that are nesting below the projecting molding of this grave marker pose a hazard to visitors and staff because, if disturbed, they will vigorously defend their nest. Yellow jacket, paper wasp and hornet nests should be removed from grave markers by trained staff or specialists. Photo: Jason Church.

all workers should be familiar with it. Workers and volunteers should be instructed as to safety measures to be taken in regards to snakes, including proper clothing where there is an identified risk.

The imported red fire ant is an invasive pest, prevalent in the southern United States. They attack en masse, resulting in painful bites that can be potentially life threatening to people with allergic reactions. It is important to be able to identify the presence of red imported fire ants; be informed as to safety measures to take when working in areas known to be infested with them; and take steps to control them as necessary. A rescue medicine is available for those with serious allergic reactions.

Paper wasps, yellow jackets, and hornets are another concern, building nests around and on ledges and lips of box tombs, mausoleums, and other grave markers. They are very territorial around their nests and will vigorously defend them. There are non-toxic sprays that can be used in and around the work area. Nests should be safely removed.

Burrowing animals like armadillos, groundhogs, gophers, and moles disrupt the ground with their digging and tunnels and can create tripping hazards or undermine grave markers. Prairie dogs have been known to dig up bones and destroy gravesites. Sinkholes created by these animals can also be perfect places for other creatures like snakes to inhabit.

Proper work practices and lifting techniques need to be used whenever lifting or resetting grave markers. Many markers are surprisingly heavy. For example, a common upright marble headstone measuring 42" long, 13" wide, and 4" deep weighs over 200 pounds. Volunteers and workers should work in pairs, be able bodied, and have training in safe lifting techniques. Lift equipment and ergonomically correct tools should be routinely used to lift heavy markers (for most people this includes markers that weight more than 50 pounds). For smaller grave markers, a simple wooden clamp system can be constructed for a two-person lift (Figs. E1 and E2).

Figure E1. The simple wooden clamp system allows two people to safety lift a marble grave marker. Photo: Sarah Jackson.

Figure E2. The clamp system is constructed from off-the-shelf wooden boards. Photo: Sarah Jackson.

stacked bases, a specialist should be contracted for resetting.

It is important to check state and local regulations to make sure that digging around the grave marker is authorized before starting any resetting effort. Also, grave markers should be documented and cleaned before resetting. It is also a good time to measure and record the overall size of the marker and note any stone carver's marks or inscription of the company that made the marker. The company name is often found on buried portions of the base and revealed during the resetting process.

Typical materials required for resetting include a hoist, shovels, plumb lines, levels, tamping devices, wooden stakes, and boards. To improve drainage, sand and small gravel or small stones are commonly used when resetting.

Prior to resetting, it is important to establish the type of base. Most grave markers have one of three main base types: (1) ground supported, (2) slotted base, or (3) stacked base. Similar tasks are undertaken for each base type.

Ground-supported stones are a common type of historic grave marker. This type includes the traditional New England slate and brownstone markers and government-issued marble headstones. The primary goal with any ground-supported marker is to have it level and plumb. To reset the marker, a few inches or more of soil is

first removed from around the stone. This is usually sufficient to enable a stone marker to be straightened. The enlarged hole is then filled and compacted around the marker.

If a grave marker has fallen over and has been covered with soil or turf, it must first be inspected for attached concrete or other anchoring system. If this system is still attached, the grave marker may break during lifting. After removing the stone, it can be cleaned and then temporarily set on wood supports.

The hole left from removal of the marker will need to be enlarged to hold the base of the stone. Soil at the bottom of the hole should be compacted by hand, not with a power tamper. In most cemeteries, crushed stone or sharp pea-size gravel mixed with angular sand can be used to line the hole and then hand-tamped around the stone after it is placed in the hole. The gravel helps facilitate drainage and keeps the stone from settling. A bubble level can be used to ensure that the stone is plumb. Markers should not be set in concrete.

The second type of monument base is the slotted base where the upright element is secured to the base using mortise-and-tenon style construction. The upright element in the slotted base may be leaning or loose. In any case, the upright element should be removed from the base, the base leveled, then the element returned to the base. It is important to keep in mind the depth that the base was intended to be set into the ground. This may be indicated by the style of the base or the observed soil- line staining. Many bases were intended to sit flush on grade while some were set a few inches below ground.

Prior to resetting, the upright element should be disengaged from the base and carefully set aside. In most cases, the base will need to be removed to properly prepare the hole before resetting the grave marker. After doing so, four to six inches of soil should be removed from the hole and the soil then tamped by hand to make a proper bed or foundation. The foundation area can be filled with crushed stone or sharp pea-sized gravel and sand, checking to make sure that the base is plumb and level as resetting proceeds. Clean the headstone prior to resetting. Old mortar, concrete or epoxy should be removed from the slot and the bottom of the upright element using a hammer and small chisel. Once the stone elements are cleaned and the base is level and plumb, the next step is placing the upright element into the slot. A lime mortar can be used to fill any gaps in the slot. This prevents water intrusion that may cause marker movement related to freeze-thaw cycles.

A third common base type is the stacked base. This style includes at least one element placed on a base or a series of bases of varying sizes. Resetting a stacked-base grave marker usually requires special skills and lifting equipment. Depending upon the complexity of the marker, a conservator, experienced masonry contractor, or preservation professional with engineering skills is usually needed.

The sections of a stacked-base grave marker often are pinned together for support. If deteriorated, the pins should be replaced. Using a hammer and chisel, a conservator or person experienced in working with historic grave markers should remove any corroded iron, copper, or bronze pins, as well as the old mortar or adhesive adhered to each section. Replacement pins should be stainless steel all-thread, and sized slightly shorter and smaller than the existing hole. The replacement pins then can be set with epoxy, lime mortar, or packed in lead. Once the pins are in place, the sections of the stacked base can be individually reset using traditional or contemporary materials. These include lead, shims, mortars, and setting compounds. Finally, each gap or seam between sections should be pointed with a setting compound or appropriate mortar to prevent water intrusion.

Filling and Patching

Hairline masonry cracks may be the result of natural weathering and require no immediate treatment except to be photographed and recorded. However, larger cracks often merit further attention. Repairing masonry cracks involves several steps and typically a skilled hand (Fig. 21). The repair begins with the removal of loose material and cleaning. Materials that are used for crack repair include grouts for small cracks and epoxy for large cracks affecting the structural integrity of the monument. Gravity or pressure injection is used to apply grout or epoxy. Crack repair can be messy, so careful planning and experience are helpful. If the crack is active, a change in size of the crack will be noted over time. Active cracks require further investigation to ascertain the cause of the changes, such as differential settlement, and to correct, if possible, the cause prior to repairing the crack.

Figure 21. Cracks in a stone marker should be filled to keep water and debris out and prevent the crack from becoming larger. A patching mortar is designed to be used, in this case, with historic marble. Photo: Mary Striegel.

Repairing masonry markers with severely damaged or missing pieces requires a skilled mason or conservator. The materials used for patching are similar to those used for repointing mortar joints. With patching, it is critical that the physical and mechanical properties of the patching material be appropriate for the masonry material. Work includes designing a durable patch compatible with the substrate. Proper curing is especially critical for large patches and often involves procedures to protect the patch from premature drying. Repairs to stucco-covered surface should be carried out by a skilled plasterer using a stucco mix that is compatible with the original material.

Repairing delaminated slate and brownstone grave markers also requires a skilled mason or conservator. With this condition, there are openings along bedding planes which expose the stone grave marker to moisture intrusion. Treatments are design to eliminate or reduce moisture intrusion that would accelerate deterioration. The selection of appropriate repair materials and procedures depends on the severity of the condition. Traditionally, delaminated slate or brownstone grave markers were "capped" with a strip of lead or other metal. Today, this repair technique is seldom used, in part because the drilling procedure used to attach the cap can be damaging, if the stone is brittle. Also, there are toxicity issues associated with the use of lead. An alternative approach is to fill the openings exposed by delamination with grout or patching material that is compatible with the stone. Adhesion of the repair material to the delaminated surfaces is particularly important.

The decision whether to use patching material or undertake a dutchman repair with matching materialdepends on the grave marker material, location of the damaged area, size, and other factors. A successfully executed dutchman usually results in a repair that has long durability and maintains a similar weathering pattern to the adjacent historic material. When working with stone grave markers, repairs using dutchman techniques are best done by a skilled stone craftsman.

Detached fragments should be collected, documented and stored in a suitable facility. Reattachment of these fragments should be undertaken by a conservator or mason. This work often requires pins to reinforce the joints and patching to compensate for losses.

Protective treatments

Protective treatments for metal, stone, and wood grave markers stabilize corrosion and protect the monument from rainwater, pollutants, and other contaminants. Treatments may vary not only due to material differences, but also to specific site conditions.

Wax coatings are often used for bronze markers (Fig. 22). Wax provides a protective barrier against moisture, soiling, and graffiti. There are several steps in the wax application process. Where there is little corrosion, gentle cleaning of the marker is undertaken prior to applying the wax coating. Apply a thin layer of wax to the marker using a stencil brush or chip brush. Mineral spirits can be added to the wax to facilitate

Figure 22. A protective coating must be maintained on metal elements. Wax or lacquer coatings help preserve the bronze patina and slow corrosion. Conservators apply a microcrystalline wax to this bust at St. Mark's Church in-the-Bowery, New York, NY. Photo: John Scott.

brush application. A soft, clean cloth is used to remove excess wax and buff the surface. A second coat of wax is sometimes needed.

In most climates, iron objects require coatings to protect them from corrosion. Clear coatings are sometimes used to protect wrought iron objects. A corrosion inhibitive primer and topcoat are used for cast iron and steel objects. Direct-to-Metal (DTM) coatings combine the two. Because of their durability, acrylic enamels, urethane, and fluoropolymer coatings are preferred. Proper surface preparation is important, including the removal of surface soiling, flaking paint, and loose rust. This can be accomplished with compressed air, wire brushing, solvent rinsing, or other cleaning method. Next the surface is cleaned with a damp cloth, repeatedly rinsing the cloth as needed. While the surface needs to be thoroughly dried before painting, it is important to repaint as soon as possible since even overnight condensation deposits are not desirable.

Another approach for iron objects is using a rust converter to stabilize corrosion that involves less surface preparation. Commercially available rust converters contain tannin or phosphoric acid and react with rust to form more stable iron compounds. The surface must be painted following surface preparation with the rust converter.

Limewash is a traditional coating that brightens stucco-covered grave markers (Fig. 23). Like paint coatings, it needs to be periodically applied. Limewash is prepared with lime putty or hydrated lime and water. Curing begins following application. The lime putty or hydrated lime reacts with carbon dioxide in the air in a process called carbonation. This reaction eventually forms calcium carbonate, a stable hard coating. Limewash is a "green" coating with no volatile organic compound content and is "breathable," i.e., it allows for water vapor transmission. Although commonly white, limewash can be colored or tinted with alkali-stable pigments such as iron oxide.

Figure 23. Limewash is a breathable coating sometimes used to protect the surface of the grave marker and provide a decorative finish. Limewash is applied by brush in five to eight thin coats (with each coat about the consistency of skim milk). The surface is allowed to slowly dry between coats. Sometimes the surface is covered by damp burlap to slow the drying process. Photo: Sarah Jackson.

Before applying the limewash, the masonry surfaces should be inspected for coating residues that need to be removed and any required repair work undertaken. Stucco-covered surfaces should be repaired and allowed to fully cure before applying limewash. If the original color has been determined, the renewal coating can be formulated to match. In preparing the wash, enough water is added to lime putty or hydrated lime to produce slurry with the consistency of skim milk. A mixture of four parts water and one part lime usually works well. A Zahn or Ford cup can be found at a hardware store and used to measure the thickness of the limewash and ensure consistency with each batch. Although many traditional recipes include additives, a simple mixture of lime and water performs best. Using a power drill with a paddle attachment to stir the limewash will help ensure that the lime particles are fully suspended in the mixture. Any pigment for coloration is added during the final mixing.

The surface must be cleaned of old coating residues, soiling, and other contaminants. After dampening the surface, the limewash is applied in 5-8 thin coats, allowing each coat to dry between applications. Limewash is translucent immediately after application and then becomes opaque when dry.

Proper curing of limewash is critical to its durability. To prevent premature drying, the treated surface may need to be covered with damp burlap. Limewash must not be applied when frost or freeze conditions are predicted or in temperatures above 90° F. Ideally, limewash should be applied during spring or fall when temperatures are around 70° F, avoiding direct sunlight where possible.

Clear water repellents and consolidation treatments are sometimes considered for severely deteriorated grave markers, including unpainted wood markers and masonry. For wood markers, epoxy consolidants are used to patch and repair. For masonry materials, it is important to remember that they are porous, and water vapor and liquid water can travel through their internal network. Protective treatments must allow for water vapor transmission to prevent trapping moisture inside the marker. Although a wide variety of water repellents have been employed on masonry (wax, acrylic, epoxy resins, etc.), silane and siloxane treatments have been the most successful. These organosilicon compounds are "breathable," penetrate below the surface, and form chemical bonds with silicate minerals.

When erosion is severe, consolidation treatments (e.g., ethyl silicate) have been used to replace mineral binders lost to weathering (Fig. 24). Because these treatments are not reversible, laboratory and on-site testing are essential. Application by a conservator or other experienced preservation professional is advised.

Figure 24. A severely deteriorating monument or grave marker can be treated with a stone consolidant. The treatment is usually applied using a spray system. The consolidant soaks into the stone and replaces mineral binders that hold the stone together. On-site and laboratory testing and evaluation are performed prior to using this non-reversible type of treatment. Photo: Lucas Flickinger.

Conclusion

Maintenance is the key to extending the life of historic cemetery grave markers. From ensuring that markers are not damaged by mowing equipment and excessive lawn watering, to proper cleaning and resetting, good cemetery maintenance is the key to extending the life of grave markers. Whether rescuing a long-neglected small cemetery using volunteers or operating a large active cemetery with paid staff, the cemetery's documentation, maintenance and treatment plans should include periodic inspections. Only appropriate repair materials and techniques that do not damage historic markers should be used and records should be kept on specific repair materials used on individual grave markers. A well-maintained cemetery provides an attractive setting that can be appreciated by visitors, serves as a deterrent to vandalism, and provides a respectful place for the dead. A community history recorded in stone, wood and metal markers, cemeteries are an important part of our heritage, and are deserving of preservation efforts (Fig. 25).

Figure 25. Involving the community in activities helps to develop an appreciation for the cemetery and serves to deter vandalism. Events may include children through school or scouting organizations and can help teach across the curriculum. Photo: Debbie Dietrich Smith.

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Whether large or small, well maintained or neglected, historic cemeteries are an important part of our cultural landscape. This historic cemetery at Cape Lookout National Seashore, NC, provides a record of the families who lived in Portsmouth Village during the 19th and early 20th centuries. Photo: Fran Gale.

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September 2016

Appendix D: Cemetery Site Inspection Checklist

SITE INSPECTION CHECKLIST
OVERVIEW

Lincoln Cemetery

Date:
Time of Arrival: **Time of Departure:**
Name(s) of Inspector(s):

Current Weather Conditions:

1. Overall Impression:

2. Evidence of new burials? Y / N *****
Details:

3. Lawn:
Property trimmed? Y / N **Bare patches?** Y / N
Details:

4. Stones (compare current observations with notes from previous inspections; detail observations on Damage Report Forms):
Any new stones present? Y / N *
Any newly toppled, tipped, or sunken stones? Y / N
Any stones with recent damage? Y / N
Any stones requiring cleaning? Y / N
Damage Report Form(s) completed? Y / N / NA
Additional Notes:

5. Plot Boundary Markers:
Any new boundary features present? Y / N *
Any newly toppled, tipped, or sunken? Y / N
Any moved out of place? Y / N
Any new damage (include rusting of metal features)? Y / N
Any requiring cleaning? Y / N
Damage Report Form completed? Y / N / NA
Details:

6. Trees/Shrubs:

Any recently planted trees or shrubs? Y / N *
Dead or Diseased Trees/Shrubs? Y / N
Trees/Shrubs Requiring Pruning? Y / N
Overall condition:

7. Other Plantings:

Invasive plants requiring attention (weeds; poison ivy; etc.) Y / N
New intentional plantings? Y / N *
Overall health of intentional plantings?
Details:

8. Roadways/Pathways:

Any damage? Y / N
Work Required? Y / N **
Details:

9. Signs:

Overall Condition (include lettering, fastening):
Work Required? Y / N **
Details:

10. Vandalism:

Vandalism Present? Y / N
Damage Report Form completed: Y / N
Details (include location, type of vandalism):

11. Litter:

Litter Present? Y / N
Level of Clean-Up Required (i.e., removed during inspection, small group with trash bags, or large group and dumpster necessary):

16. Other Observations:

NOTES:
* All new, intentional landscape features need to be mapped and inventoried.
** If work is required, please indicate if it is urgently required (for example, damage or conditions that are immediate safety concerns for the cemetery property and/or visitors).

Appendix E: Cemetery Damage Vandalism Form

Cemetery Damage/Vandalism Report Form

Lincoln Cemetery

1. Human Remains Involved: Y / N

2. Number of Stones/Objects Involved:

3. Location (give Section information and gravemarkers number (s) if available, and a written description of the location, including names on nearby stones and a sketch map):

4. Date/Time Damage First Reported:

5. Name and Contact Information of Individual(s) reporting the damage:

6. When was the area last observed/inspected when no damage was present?

7. Potential witnesses to the event(s) causing the damage (include contact information):

8. Description of the damage (attach photographs or printouts of digital photos):

9. Police Report

Date reported to police: **Investigating Officer (Name/Badge No.):**
Police Incident Number (attach a copy of the police report):
Follow-Up with Police (dates, notes):

10. Damage estimate (attach justification, conservation treatment proposals and estimates, re-interment costs, if necessary, etc.): $

11. Repairs conducted (attach conservation treatment reports and photo documentation; indicate if repairs done by the Cemetery Association or the owners of the monuments):

12. If repairs done by the cemetery stewards, complete this part:

Cost of Repairs: $ **Eligible for Insurance Reimbursement?** Y / N
Date Claim Submitted: **Date Claim Paid:**
Amount of Claim Payment: $ (Attach insurance documentation)

13. Comments:

14. Form completed by: **Date(s):**

Modified from a similar form by the Chicora Foundation, Columbia, SC.